Phase II Environmental Site Assessment Report
625 Wall Street
Winnipeg, Manitoba
June 1, 2021
Version 1.0

625 Wall Street
Winnipeg, Manitoba

Phase II Environmental Site Assessment

Provided To:
G.J.W. Furnishings Ltd.
DBA Faveri's Wood Furniture
625 Wall Street
Winnipeg, MB R3G 2T5

Prepared By:
HLC Consulting Ltd.
5 – 55 Henlow Bay
Winnipeg, MB R3Y 1G4
Contact: Bethany Wiebe
Project #: 20210238

VERSION CONTROL

VERSION	DATE	AUTHOR	RATIONALE
1.0	June 1, 2021	Carolyn Baldwin	Report issued to Client.

EXECUTIVE SUMMARY

HLC Consulting Ltd. (HLC) was retained on April 1, 2021 by G.J.W. Furnishings Ltd. ("Client") to conduct a Phase II Environmental Site Assessment (ESA) of the property located at 625 Wall Street located in Winnipeg, Manitoba (the "Site").

The purpose of this Phase II ESA is to address the following areas of potential environmental concern (APECs), as identified in a Phase I ESA conducted at the Site by Pinchin Ltd. (Pinchin) in December 2016:

- A historical underground storage tank (UST) located at 645 Wall Street, approximately 25 metres (m) north of the Site; and
- Hazardous chemicals stored adjacent to the northern boundary of the Site associated with Ken's Kustom Auto located at 637 Wall Street, an automotive repair/servicing facility that has been operating since the 1990s.

Based on the findings from the Phase I ESA noted above, Pinchin recommended completion of this Phase II ESA to address the possible presence of subsurface contaminants.

HLC concurs with Pinchin's above assessment and recommended a Phase II ESA to confirm the presence or absence of contamination on-site, related to the above listed APECs. We further understand that the Client has requested this Phase II ESA to assess potential issues of environmental concern, for due diligence purposes.

This Phase II ESA included the advancement of two boreholes, which were developed into monitoring wells; and the laboratory analysis of soil collected from the Site.

Soil Analytical Results

The soil results were compared to the values outlined in the most recent Canadian Council of the Ministers of the Environment (CCME) and the Ontario Ministry of the Environment Conservation and Parks (MOECP) publications for commercial land use on fine-grained subsoils in a non-potable groundwater condition.

Select soil samples submitted to the laboratory were analyzed for benzene, toluene, ethylbenzene, xylenes (collectively referred to as BTEX); petroleum hydrocarbon fractions F1 to F4 (PHC F1 to F4); volatile organic compounds (VOCs), polycyclic aromatic hydrocarbons (PAHs) and metals. All soil samples submitted from these boreholes had concentrations that either satisfied their respective guidelines or were non-detectable; with the exception of:

- MW01-SS07 (4.57 to 5.33 mbgs) had exceedances of boron measured at 19.2 mg/kg vs. the guideline of 7.9 mg/kg.
- MW02-SS03 (1.52 to 2.29 mbgs) had exceedances of boron measured at 20.0 mg/kg vs. the guideline of the guideline of 7.9 mg/kg.
- DUP01 from MW02-SS03) (1.52 to 2.29 mbgs) had exceedances of boron measured at 19.8 mg/kg vs. the guideline of 7.9 mg/kg.

It is important to note that the limits used by MOECP may not accurately reflect the natural concentration of metals found in Manitoba soils. The concentrations of boron measured in this Phase II ESA are similar to concentrations of boron found on other properties that HLC has investigated in the Winnipeg area. Given that the concentration of boron detected in all three samples were relatively similar to each other and other properties in the Winnipeg area, it is suggestive that these levels are likely naturally occurring. Therefore, it is the opinion of HLC that soil laboratory analytical results are not indicative of environmental concerns on-site.

Groundwater Analytical Results

No groundwater was available for analytical sampling from MW01 and MW02. Therefore, laboratory analysis of groundwater samples from the monitoring wells did not occur.

NCSCS Evaluation Results

The Site received a National Classification System for Contaminated Sites (NCSCS) scoring of 8.5. Based on the assigned weightings, the Site is classified as Class N: Not a Priority for Action.

Recommendations

Based on the results of this Phase II ESA, HLC recommends the following:

- That no further investigative, monitoring and/or remedial action is required at this time.
- That the monitoring wells be decommissioned and removed; in order to minimize the risk of contamination to the soil and groundwater from surface runoff.

As per *The Contaminated Sites Remediation Act*, these findings shall be reported to the Contaminated/Impacted Site Program of MCC.

TABLE OF CONTENTS

APPENDICES

1 INTRODUCTION

1.1 PROJECT BACKGROUND

HLC Consulting Ltd. (HLC) was retained on April 1, 2021 by G.J.W. Furnishings Ltd. ("Client") to conduct a Phase II Environmental Site Assessment (ESA) of the property located at 625 Wall Street located in Winnipeg, Manitoba (the "Site"). See Figure 1 in Appendix I for a depiction of the Site's location.

The Site consists of a single-storey (with partial mezzanine), commercial building (the "Building"). The remainder of the Site is complete with asphalt surfaced parking and driving areas located on the north side of the Building. At the time of this Phase II ESA, the Building was occupied by Faveri's Wood Furniture.

The purpose of this Phase II ESA is to address the following areas of potential environmental concern (APECs), as identified in a Phase I ESA conducted at the Site by Pinchin Ltd. (Pinchin) in December 2016:

- A historical underground storage tank (UST) located at 645 Wall Street, approximately 25 metres (m) north of the Site; and
- Hazardous chemicals stored adjacent to the northern boundary of the Site associated with Ken's Kustom Auto located at 637 Wall Street, an automotive repair/servicing facility that has been operating since the 1990s.

The locations of these APECs are depicted on Figure 2 located in Appendix I.

Based on the findings from the Phase I ESA noted above, Pinchin recommended completion of this Phase II ESA to address the possible presence of subsurface contaminants.

HLC concurs with Pinchin's above assessment and recommended a Phase II ESA to confirm the presence or absence of contamination on-site, related to the above listed APECs. We further understand that the Client has requested this Phase II ESA to assess potential issues of environmental concern, for due diligence purposes.

1.2 SCOPE OF WORK

The scope of work for the Phase II ESA was completed using guidelines and criteria outlined in publications from the American Society of Testing and Materials (ASTM), the Canadian Council of Ministers of the Environment (CCME), Canadian Standard Association (CSA Z769-00) document entitled "*Phase II Environmental Site Assessment, CSA Standard Z769-00*" dated 2000 and

reaffirmed in 2013 and Manitoba Conservation and Climate (MCC). The original scope of work for the project included the following:

- Borehole drilling (up to 2 boreholes) to 6.00 metres below ground surface (mbgs), refusal with a solid-stem auger, or groundwater.
- Soil sampling program for benzene, toluene, ethylbenzene, xylenes (collectively referred to as BTEX); petroleum hydrocarbon fractions F1 to F4 (PHC F1 to F4); volatile organic compounds (VOCs); polycyclic aromatic hydrocarbons (PAHs); and metals.
- Field testing of the soil samples for volatile vapours and the collection of duplicate soil samples for laboratory testing, as required.
- Laboratory soil analysis for parameters described above.
- Installation of groundwater monitoring wells (up to 2 wells) to allow collection of groundwater samples.
- Laboratory water testing for BTEX, PHC F1 to F4, VOCs, PAHs, and dissolved metals.
- Collection of duplicate water samples and trip blanks for laboratory testing, as required.
- An evaluation of the analytical results by comparison to the applicable regulatory criteria.
- A report outlining the work conducted, findings and recommendations.

The scope of work did not include the following:

- Disposal of any excess soil removed from the boreholes.
- Disposal of groundwater removed from the monitoring wells.
- Decommissioning of monitoring wells.

1.2.1 Deviations from Scope of Work

The following deviations from the original scope of work occurred over the course of the Phase II ESA:

- No groundwater was available for sampling from MW01 and MW02. Therefore, laboratory analysis of groundwater samples from the monitoring wells did not occur.

2 SITE DESCRIPTION

As indicated on Figure 1 in Appendix I, the Site is located at 625 Wall Street, 155 m north of the intersection between Portage Avenue and Wall Street, in Winnipeg, Manitoba. The Site is situated in an urban area that is predominantly developed with commercial, industrial, and residential land uses.

2.1 TOPOGRAPHIC, GEOLOGIC AND HYDROGEOLOGICAL SETTING

Topic	Findings
Topography of Site and Surrounding Area	The topography of the Site is generally flat and similar to that of the surrounding area.
Site Grade Relative to the Adjoining Properties	Adjacent buildings and roadways are at similar grade to the Site.
Subsurface Soils	Based on the 2021 Phase II ESA conducted by HLC, the general soil stratigraphy at the Site consists of a layer sandy gravel fill from approximately 0.09 to 0.31 mbgs, underlain by silty clay to approximately 1.37 mbgs, underlain by clay to approximately 6.10 mbgs. Detailed soil stratigraphy may be found in the borehole logs (Appendix II).
Fill Materials	A layer of sandy gravel fill from approximately 0.09 to 0.31 mbgs, was noted in the northern parking area at the Site.
Bedrock Type	Palaeozoic formations consisting of dolomite and dolomitic limestone.
Inferred Bedrock Depth	Approximately 15 to 25 mbgs.
Groundwater Depth	Based on the 2021 Phase II ESA conducted by HLC, groundwater was not encountered in MW01 or MW02. A groundwater elevation survey was not performed as part of this investigation.
Nearest Open Water Body	Assiniboine River to the south of the Site (approx. 600 m).
Inferred Groundwater Flow Direction	Groundwater flow would likely be to the east, towards the Red River, as per potentiometric maps of the upper carbonate aquifer in Winnipeg.

3 METHODOLOGY

3.1 BOREHOLE DRILLING

On May 6, 2021, HLC supervised the drilling of a total of two boreholes at the Site, following the clearance of underground services in the vicinity of the work area by public utility locators and a private utility locator retained by HLC. Figure 3 in Appendix I depicts borehole (monitoring well) locations. Effort was made to place the boreholes (monitoring wells) to address the APECs identified in Pinchin's Phase I ESA report (December 2016). In accordance with the findings provided in Pinchin's Phase I ESA Report (December 2016) and HLC's historical review of a 1952 Fire Insurance Plan (FIP) from Manitoba Archives, MW01 was placed on the northwest side of the Site to address the potential for impacts from the historical UST APEC located at 645 Wall Street approximately 25 m northwest of the Site. MW02 was placed on the northeast side of the Property to address the potential for impacts from the APEC of the hazardous chemical storage located at 637 Wall Street, along the fence of the northeastern adjacent property. The boreholes were drilled to a depth of 6.10 mbgs, using a truck-mounted drill rig (ACKER MP8) equipped with a 152-mm diameter solid stem continuous flight auger, owned and operated by Paddock Drilling Ltd.

HLC logged subsurface soil conditions at the time of drilling (Appendix II). Soil samples were examined for olfactory and visual evidence of impacts.

3.2 SOIL SAMPLING PROGRAM

Soil samples were collected from the boreholes at 0.76 m regular depths intervals and at stratigraphic changes. Soil samples were visually classified using the United Soil Classification System (USCS). All the soil samples collected were subjected to field screening (an Ambient Temperature Headspace (ATH) vapour test) using a RAE Systems MiniRAE 3000 photoionization detector (PID) calibrated to isobutylene (Appendix II). The procedures used for ATH vapour testing were as follows:

- Collect a soil sample from the auger flights and remove perimeter edges. Cut the samples into small pieces and place them into a plastic sealable bag.
- Induce air into the bag such that the bag is taught and seal the bag.
- Allow the vapours emanating from the soil to accumulate in the headspace of the bag at an ambient temperature for approximately 15 minutes.
- Measure the vapour concentration in the headspace of the bag by placing the PID probe into the bag.

Soil samples from selected sampling intervals (mostly intervals with high ATH values from the fielding screening result) were submitted for laboratory analysis of BTEX, PHC F1 to F4, VOCs, PAHs and metals.

The soil samples for the laboratory analysis of VOCs, BTEX and PHC F1 were collected based on the Terra Core® Soil Sampling Instructions, recommended by the Environmental Protection Agency (EPA) method 5035A for the collection of soil and sediment samples requiring analysis for VOCs. This method utilizes pre-weighted, pre-preserved 40 mL vials. The analytical method requires a 2:1 methanol: soil extraction ratio. Sample collection was as follows:

- With the plunger of the Terra Core® seated in the handle, the Terra Core® plunger was pushed into the representative soil sample. The Terra Core® is designed to deliver approximately 5 g of soil.
- The plunger was rotated 90 degrees and was placed at the mouth of the sampler into the 40 mL glass vial. The plunger was pushed down to release the soil plug and remove the sample. This process was repeated with a second vial for the same sampling set.

Soil samples for PHC F2 to F4, PAHs, and metals were collected by placing selected soil samples into clean laboratory supplied glass jars immediately after vapour screening was complete. Jars were packed to the top with soil, leaving zero headspace. A new dedicated pair of nitrile gloves was worn for every sample. The samples were then stored in a cooler chest with ice packs until delivered to

the laboratory. Upon completion of the field work, the soil samples were transported to ALS Laboratory Group (ALS) in Winnipeg, Manitoba for analytical testing. The laboratory certificates of analysis are included as Appendix IV.

3.3 Monitoring Well Installation

Figure 3 in Appendix I depicts monitoring well locations. Monitoring wells were installed in the two boreholes to allow collection and laboratory analysis of groundwater samples. Monitoring wells were constructed of 5.1 cm diameter Schedule 40 polyvinyl chloride (PVC) risers, followed by a length of 5.1 cm diameter No. 10 slot PVC well screen that was installed in order to intersect the suspected static groundwater level.

Each monitoring well was sealed at the top and bottom, using threaded PVC caps. Silica sand was installed around and above the well screen in order to act as a filter pack. Bentonite was installed from above the silica sand layer to the ground surface. Monitoring wells were protected with metal flush-mount covers installed at ground surface and sealed in place with cold patch asphalt.

3.4 Groundwater Monitoring And Sampling Program

On May 10, 2021, HLC returned to the Site to measure the well headspace concentrations using a PID calibrated to isobutylene, to measure the depth to groundwater and to collect water samples for laboratory analysis from the two monitoring wells. An assessment for the presence/absence of non-aqueous phase liquids (NAPLs) was also performed using an interface probe.

3.5 Analytical Laboratory

Soil sampled as part of this Phase II ESA was delivered to ALS in Winnipeg, Manitoba. ALS is accredited by the Canadian Association for Laboratory Accreditation (CALA). Chain of custody records were completed for all sample submissions.

3.6 QA/QC Protocols

The following quality assurance/quality control (QA/QC) protocols were followed to ensure that representative samples were submitted for analysis and representative data is reported in this Phase II ESA:

- Soil samples that were in direct contact with either the drilling equipment or the edge of the borehole were omitted from sample submission;
- All samples were submitted in laboratory-supplied containers;
- The monitoring wells were developed by purging any stagnant water prior to sample collection; ensuring representative samples were obtained;

- The monitoring wells could not be developed by purging as both MW01 and MW02 did not contain groundwater. Therefore, groundwater sample collection from these monitoring wells did not occur.

- All samples were placed in a cooler with ice packs immediately upon collection. Appropriate temperatures were maintained for all samples prior to sample submission;
- Nitrile gloves were used during sample handling. Nitrile gloves were changed between the handling of samples to minimize cross-contamination;
- Equipment used for sampling was cleaned prior to the initial sampling event and between every subsequent event to minimize cross-contamination; and,
- Blind field duplicate samples were submitted for laboratory analysis in order to calculate relative percent difference (RPD), an indicator of variation within samples obtained from the same sampling location.

3.7 Applicable Regulatory Criteria

MCC has adopted the guidelines published by CCME for assessment of sites in Manitoba. For the assessment of potable water quality, MCC requires the use of guidelines published by Health Canada. When the aforementioned guidelines do not provide adequate information or guidance for assessment, MCC allows for the use of the published guidance documents from other jurisdictions; specifically, the provinces of Ontario and Alberta.

The following regulatory guidelines were utilized to assess soil quality at the Site:

- Canadian Council of Ministers of the Environment (CCME). *Canadian Environmental Quality Guidelines.* Accessed online May 2021.
  - Soil Quality Guidelines for the Protection of Human Health. Commercial Land Use, 10^{-5} Incremental Risk, Fine grained subsoil (> 1.5m), Inhalation of indoor air check (Slab on-grade).
  - Soil Quality Guidelines for the Protection of Human Health. Commercial Land Use, Fine grained subsoil (> 1.5m), Inhalation of indoor air check (Slab on-grade).
  - Soil Quality Guidelines for the Protection of Human Health. Commercial Land Use. Fine grained soil. Inhalation of indoor air check (Slab on-grade).
  - Soil Quality Guidelines for the Protection of Environment and Human Health. Commercial Land Use.
  - Soil Quality Guidelines for the Protection of Environmental Health. Inorganic Arsenic. Commercial Land Use. Interim Soil Guidelines (1991).
  - Soil Quality Guidelines for the Protection of Environmental Health. Polycyclic Aromatic Hydrocarbons. Industrial Land Use. Provisional Soil Quality Guideline (1997).
  - Soil Quality Guidelines for the Protection of Environmental Health. Polycyclic Aromatic Hydrocarbons. Industrial Land Use. Interim Soil Quality Criteria (1991).

    - Soil Quality Guidelines for the Protection of Human Health. Polycyclic Aromatic Hydrocarbons. Industrial Land Use, Calculated 10^{-5} Incremental Risk.
- Canadian Council of Ministers of the Environment (CCME), 2008. *Canada-Wide Standards for Petroleum Hydrocarbons (PHC) in Soil - Technical Supplement.* Accessed online May 2021.
    - Tier 1 Levels (Table 4). Commercial Land Use, Fine grained subsoils, Management Limit.
- Ontario Ministry of Environment Conservation and Parks (MOECP), 2011. *Soil, Ground Water and Sediment Standards for use under Part XV.1 of the Environmental Protection Act.* Accessed online May 2021.
    - Table 5: Stratified Site Condition Standards in a Non-Potable Ground Water Condition. Fine Textured Subsurface Soil. Commercial Land Use.

Site specific details utilized in the evaluation of applicable exposure pathways are noted below:

- The Site is considered commercial in nature. Properties directly adjacent are considered predominantly commercial, industrial and residential in nature. Commercial land use guidelines are applicable to the Site;
- The Site is underlain by prominently fine-grained (clay and silt) native soils. Therefore, fine-grained guidelines are applicable to the Site;
- Potable water for the Site and surrounding area is sourced from Shoal Lake with service provided by the City of Winnipeg. The groundwater in the subject area is considered non-potable;
- Groundwater in the subject area is not used to water livestock. Therefore, the livestock water exposure pathway is not applicable to the Site;
- The nearest surface water body is located approximately 600 m from the Site. Therefore, the freshwater aquatic life exposure pathway is not applicable to the Site;
- The boreholes were located within the building footprint. Therefore, the human health vapour inhalation exposure pathway is applicable to the Site;
- The boreholes were located in an area where access to the soil is unlikely, due to asphalt paving of various areas of the Site. However, the entire Site was not concrete/asphalt paved. Therefore, the environmental health soil contact and human health dermal contact exposure pathways are applicable to the Site; and
- The off-site migration check, management limit, and nutrient and energy cycling check are also applicable to the Site.
- Where no exposure pathways were considered complete and provisional or interim guidelines existed, HLC defaulted to the latter.

3.8 NCSCS Evaluation

The CCME National Classification System for Contaminated Sites (NCSCS) is a method for evaluating contaminated sites according to their 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 contaminates sites across Canada, and important management tool for prioritizing the investigation and remediation of contaminated sites since 1992. The NSCSCS classification groupings are as follows:

- Class 1: High Priority for Action (Score greater than 70)
  The available information indicates that action (e.g., further site characterization, risk management, remediation, etc.) is required to address existing concerns. Typically, Class 1 sites show a propensity to high concern for several factors, and measured or observed impacts have been documented.
- Class 2: Medium Priority for Action (Score between 50 and 69.9)
  The available information indicates that there is high potential for adverse impacts, although the threat to human health and the environment is generally not imminent. Typically, for Class 2 there is no direct indication of off-site contamination; however, the potential for off-site migration tends to be rated high and therefore some action is likely required.
- Class 3: Low Priority for Action (Score between 37 and 49.9)
  The available information indicates that the Site is currently not a high concern. However, additional investigation may be carried out to confirm the site classification.
- Class N: Not a Priority for Action (Score less than 37)
  The available information indicates there is likely no significant environmental impact or human health threats. There is likely no need for action unless new information becomes available indicating greater concerns, in which case, the Site should be re-examined.
- Class INS: Insufficient Information (> 15% of responses are “Do Not Know”)
  Although a minimum of a Phase I Environmental Site Assessment has been conducted for the site, there appears to be insufficient information to classify the Site. In this event, additional information is required to address data gaps.

A copy of the completed NCSCS Worksheet can be found in Appendix V.

4 RESULTS

4.1 Soil Stratigraphy

All boreholes were logged in detail (Appendix II). No odours were noted during the drilling program. No staining was noted during the drilling program. The general stratigraphy of each borehole is noted below:

- MW01 consisted of a 0.89 m thick layer of ASPHALT, underlain by SANDY GRAVEL FILL (to 0.31 mbgs), underlain by SILTY CLAY (to 1.37 mbgs), underlain by CLAY (to 6.10 mbgs).
- MW02 consisted of a 0.89 m thick layer of ASPHALT, underlain by SANDY GRAVEL FILL (to 0.31 mbgs), underlain by SILTY CLAY (to 1.52 mbgs), underlain by CLAY (to 6.10 mbgs).

4.2 ATH Vapours

The ATH vapour readings are shown on the borehole logs (Appendix II). The soil sample ATH vapour values on-site ranged from 0.90 to 1.20 parts per million (ppm), with maximum readings shown below.

	MW01	MW02
Maximum ATH reading (ppm)	0.90	1.20
Depth maximum noted (mbgs)	4.57 to 5.33	1.52 to 2.29

4.3 Monitoring Well Measurements

On May 10, 2021, HLC returned to the Site to measure the well headspace concentrations using a PID calibrated to isobutylene, to measure the depth to groundwater and to collect water samples for laboratory analysis from the two monitoring wells. An assessment for the presence/absence of NAPLs was also performed using an interface probe.

Neither water nor NAPLs were found to be present in MW01 and MW02. Field monitoring well measurements are noted below.

	MW01	MW02
Well Headspace (ppm)	6.9	12.0
Groundwater Recovery Level (mbgs)	Dry	Dry
NAPLs Present	No	No

4.4 Analytical Soil Results

Analytical results received from ALS were tabulated and compared to their respective applicable regulatory guidelines. The tables referenced below are found in Appendix III. Laboratory Certificates of Analysis are found in Appendix IV.

4.4.1 BTEX & PHC Fractions F1 to F4

As indicated in Tables 1, soil samples collected from MW01 and MW02 were submitted and analyzed for BTEX and PHC F1 to F4.

All soil samples submitted from these boreholes had concentrations of BTEX and PHC F1 to F4 that either satisfied their respective guidelines or were non-detectable.

RPD was not able to be calculated for BTEX and PHC F1 to F4 as results were not greater than the lower detection limit.

4.4.2 VOCs

As indicated in Table 2, soil samples collected from MW01 and MW02 were submitted and analyzed for VOCs.

All soil samples submitted from these boreholes had concentrations of VOCs that were non-detectable.

RPD was not able to be calculated for VOCs as results were not greater than the lower detection limit.

4.4.3 PAHs

As indicated in Table 3, soil samples collected from MW01, and MW02 were submitted and analyzed for PAHs.

All soil samples submitted from these boreholes had concentrations of PAHs that that either satisfied their respective guidelines or were non-detectable.

RPD was not calculated for PAHs as results were not greater than the lower detection limit.

4.4.4 Metals

As indicated in Table 4, soil samples collected from MW01, and MW02 were submitted and analyzed for metals.

All soil samples submitted from these boreholes had concentrations of metals that either satisfied their respective guidelines or were non-detectable; with the exception of:

- MW01-SS07 (4.57 to 5.33 mbgs) had exceedances of boron measured at 19.2 mg/kg vs. the guideline of 7.9 mg/kg.
- MW02-SS03 (1.52 to 2.29 mbgs) had exceedances of boron measured at 20.0 mg/kg vs. the guideline of 7.9 mg/kg.
- DUP01 from (MW02-SS03) (1.52 to 2.29 mbgs) had exceedances of boron measured at 19.8 mg/kg vs. the guideline of 7.9 mg/kg.

Figure 4 in Appendix I depicts the exceedances observed in MW01 and MW02.

It is important to note that the limits used by MOECP may not accurately reflect the natural concentration of metals found in Manitoba soils. The concentrations of boron measured in this Phase II ESA are similar to concentrations of boron found on other properties that HLC has investigated in the Winnipeg area. Given that the concentration of boron detected in all three samples were relatively similar to each other and other properties in the Winnipeg area, it is suggestive that these levels are likely naturally occurring. Therefore, it is the opinion of HLC that soil laboratory analytical results are not indicative of environmental concerns on-site.

RPD for most metals was calculated between 0.28 and 25.23%, within the CCME RPD acceptance limits (30%). RPD for manganese was calculated outside of the CCME RPD acceptance limit (30%). Therefore, it is HLC's opinion that the sample and duplicate obtained from MW02 meet the quality objectives of this investigation.

4.5 Analytical Groundwater Results

No groundwater was available for analytical sampling from MW01 and MW02. Therefore, laboratory analysis of groundwater samples from the monitoring wells did not occur.

4.6 NCSCS Classification

As detailed in Appendix V, the Site received a NCSCS scoring of 8.5. Based on the assigned weightings, the Site is classified as Class N: Not a Priority for Action.

5 CONCLUSIONS AND RECOMMENDATIONS

The following APECs were assessed in this Phase II ESA:

- A historical UST located approximately 25 m north of the Site; and
- Hazardous chemicals stored adjacent to the northern boundary of the Site associated with Ken's Kustom Auto, an automotive repair/servicing facility that has been operating since the 1990s.

This Phase II ESA included the advancement of two boreholes, which were developed into monitoring wells; and the laboratory analysis of soil collected from the Site.

Soil samples submitted to the laboratory were analyzed for BTEX, PHC F1 to F4, VOCs, PAHs and metals. Soil laboratory analytical results are not indicative of environmental concerns on-site.

No groundwater was available for analytical sampling from MW01 and MW02. Therefore, laboratory analysis of groundwater samples from the monitoring wells did not occur.

The Site received a NCSCS scoring of 8.5. Based on the assigned weightings, the Site is classified as Class N: Not a Priority for Action.

Based on the results of this Phase II ESA, HLC recommends the following:

- That no further investigative, monitoring and/or remedial action be completed at this time.
- That the monitoring wells be decommissioned and removed; in order to minimize the risk of contamination to the soil and groundwater from surface runoff.

As per *The Contaminated Sites Remediation Act*, these findings shall be reported to the Contaminated/Impacted Site Program of MCC.

6 STANDARD LIMITATIONS

This Phase II ESA was performed in order to identify environmental concerns associated with the Site located at 625 Wall Street, Winnipeg, Manitoba as identified in a December 2016 Phase I ESA report prepared by Pinchin.

This Phase II ESA was completed in general compliance with currently acceptable practices for environmental site investigations, and specific Client requests, as applicable to this Site. This report was prepared for the exclusive use of the Client, subject to the conditions and limitations contained within the duly authorized work plan. Any use which a third party makes of this report, or any reliance on or decisions to be made based on it, are the responsibility of the third parties. If additional parties require reliance on this report, written authorization from HLC will be required. Such reliance will only be provided by HLC following written authorization from the Client. HLC disclaims responsibility of consequential financial effects on transactions or property values, or requirements for follow-up actions and costs. No other warranties are implied or expressed.

The report and any reliance or transmittal letters provided in relation to this report are subject to the following limitations:

- The Client has been contacted and has expressly consented to the release of the Report to the Recipient(s).
- The conclusions made in the Report are not a certification of the Property's condition.
- No warranty, expressed or implied, of any kind is made.
- The Report may be relied upon by the Recipient(s) only to the extent that the original Client was entitled to rely on the Report.
- Notwithstanding anything to the contrary that may be contained in this Report, it is expressly agreed that the total amount of any and all claims the Recipient(s) may have against HLC under any reliance or transmittal letter or arising out of the Reports under any theory of law, including but not limited to claims for negligence and/or negligent misrepresentation, shall be strictly limited to $2,000,000 in the aggregate. The Recipient(s) further agree to indemnify, defend and hold harmless HLC from and against any and all third-party claims arising from any transmittal or reliance letter or any use of or reliance on the Report by the Recipient(s).
- To the fullest extent permitted by law, it is agreed that HLC shall bear no liability whatsoever for any incidental, indirect or consequential damages arising out of the Report or associated reliance/transmittal letters, including but not limited to, loss of use, loss of profit, loss of business, loss of income, loss of opportunity or any other consequential damages, howsoever caused. HLC will only be held liable to damages resulting from negligence of HLC. HLC will not be liable for any losses or damage if the Client has failed, within a period of two (2) years following the date upon which the claim is discovered within the meaning of the Manitoba Limitation of Actions Act RSM 1987, to commerce legal proceedings against HLC to recover such losses or damage.
- The information contained in the Report is based on the conditions at the Property on the date of our site assessment/testing. Subsequent intervening activities at the Property may have altered the Property's condition. HLC has made no attempt to update the opinions in the Report and HLC offers no opinion and assumes no responsibility whatsoever for the condition of the Property subsequent to the time of HLC's site assessment.
- It is agreed that any claim brought against HLC by the Recipient(s) must be brought no later than the expiration of the applicable statutory limitation period.
- The Report may not be relied upon by any other party for any reason and the Recipient(s) will not offer to extend any reliance to any other party.
- The Report relates solely to the specific project for which HLC was retained and the stated purpose for which the Report was prepared and shall not be used or relied upon by the Recipient(s) for any variation or extension of this project, any other project or any other purpose. Any unauthorized use or reliance shall be at the Recipient's own risk and the Recipient(s) expressly agrees to indemnify and hold HLC harmless from any claim, liability or cost, including legal fees and defense costs, arising or allegedly arising out of any unauthorized use of or reliance on the Reports by the Recipient(s) or any person that obtains the Report from or through the Recipient(s).

- The report is based on data and information collected during the Phase II ESA and is based solely upon analysis of available documents, records and drawings, personal interviews, and on the conditions of the Site observed at the time of the site inspection/testing. In evaluating the Site, HLC has relied in good faith on information provided by other individuals noted in this report. HLC has assumed that the information provided is factual and accurate. In addition, the findings in this report are based, to a large degree, upon information provided by the current owner/occupant. HLC accepts no responsibility for any deficiency, misstatement or inaccuracy contained in this report as a result of omissions, misinterpretations or fraudulent acts or persons interviewed or contacted, or contained in reports that were reviewed.
- The scope of work for this Phase II ESA did not include an intrusive investigation for designated substances (i.e. asbestos, mould, lead, etc.) and, therefore, these materials may be present in concealed areas. No other soil, water, liquid, gas or other chemical sampling and analytical testing, other than that described herein at or in the vicinity of the Site was performed as part of this Phase II ESA.
- HLC makes no other representations whatsoever, including those concerning the legal significance of its findings, or as to other legal matters touched on in this report, including, but not limited to, ownership of any property, or the application of any law to the facts set forth herein. With respect to regulatory compliance issues, regulatory statutes are subject to interpretation. These interpretations may change over time with appropriate legal counsel.
- The observations observed at the Site do not apply to areas which could not be observed/accessed. In addition, other materials or compounds not investigated or addressed or beyond the scope of work could be present at the Site. If this occurs, HLC must be notified to determine whether modification to any part of this report should be conducted. HLC accepts no responsibility for any deficiency, misstatement or inaccuracy contained in this report as a result of omissions, misinterpretations or fraudulent acts or persons interviewed or contacted, or contained in reports that were reviewed.

7 CLOSURE

The conclusions and recommendations represent the best judgement of the assessor based on the scope of work outlined for the purpose of the investigation and were prepared in accordance with accepted professional engineering/geo-science principles and practices. However, as with any environmental site assessment, the intent is to identify and address, not eliminate potential environmental concerns.

We trust that the information presented in this report meets your current requirements. Please do not hesitate to contact the undersigned if you have any questions or concerns.

Regards,

HLC Consulting Ltd.

Written by:

Bethany Wiebe, B.Env.St.
Environmental Technologist
Ph: (204) 479-9771
Email: bwiebe@hlcconsultingltd.ca

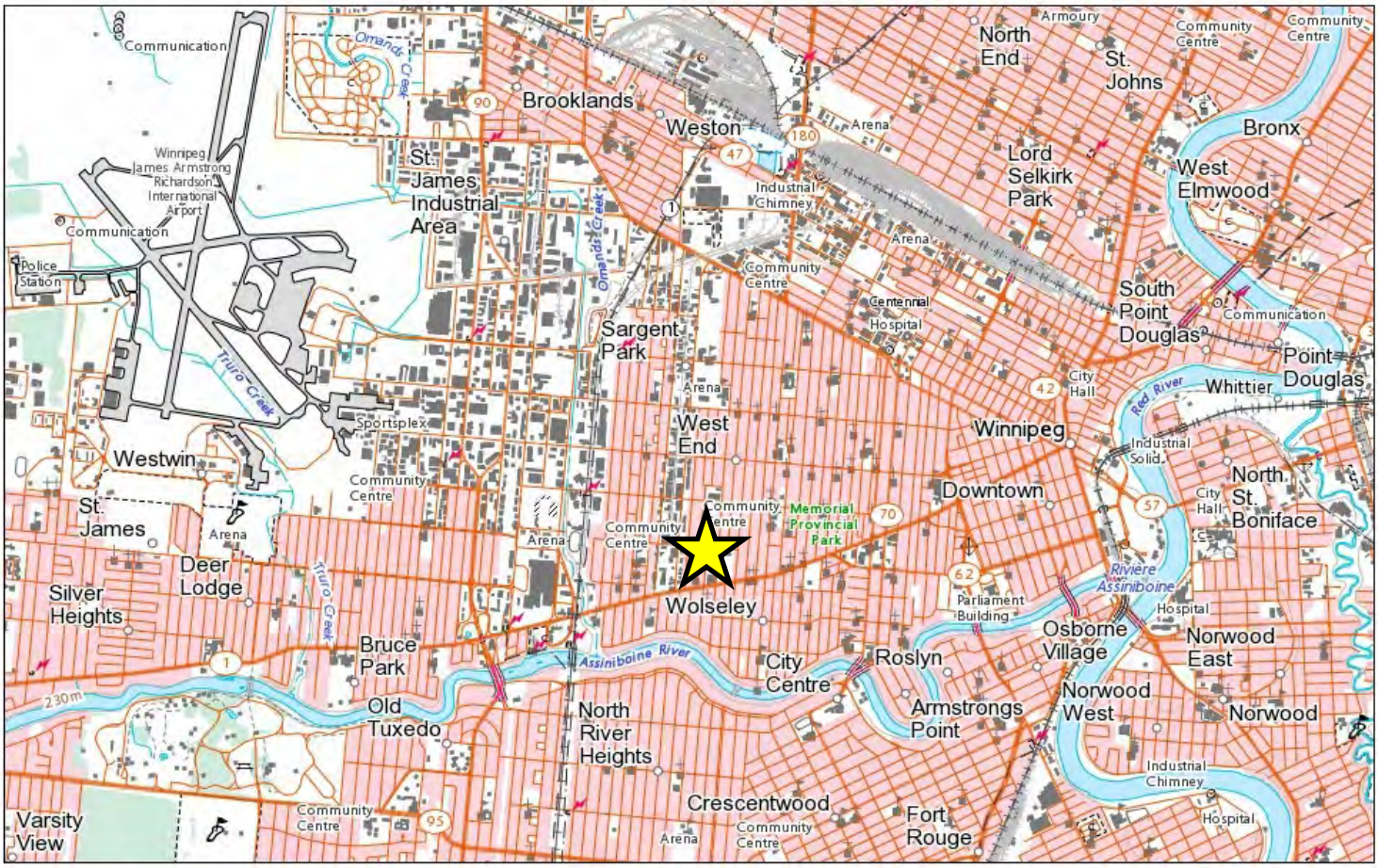
Reviewed by:

Carolyn Baldwin, B.Env.Sc., EP
Environmental Services Manager
Ph: (204) 296-5368
Email: cbaldwin@hlcconsultingltd.ca

APPENDIX I

SITE FIGURES

FIGURE 1: Site Location



PROJECT NAME:	Phase II Environmental Site Assessment
CLIENT NAME:	G.J.W. Furnishing Ltd.
SITE LOCATION:	625 Wall Street, Winnipeg, Manitoba
PROJECT NO.:	20210238
DATE:	June 2021

HLC CONSULTING LTD.

Reference:

Natural Resources Canada. The Atlas of Canada—Toporama.

FIGURE 2: Areas of Potential Environmental Concern

PROJECT NAME:	Phase II Environmental Site Assessment
CLIENT NAME:	G.J.W. Furnishing Ltd.
SITE LOCATION:	625 Wall Street, Winnipeg, Manitoba
PROJECT NO.:	20210238
DATE:	June 2021

HLC CONSULTING LTD.

Reference:

Google. Google Earth Imagery.

FIGURE 3: Location of Investigation

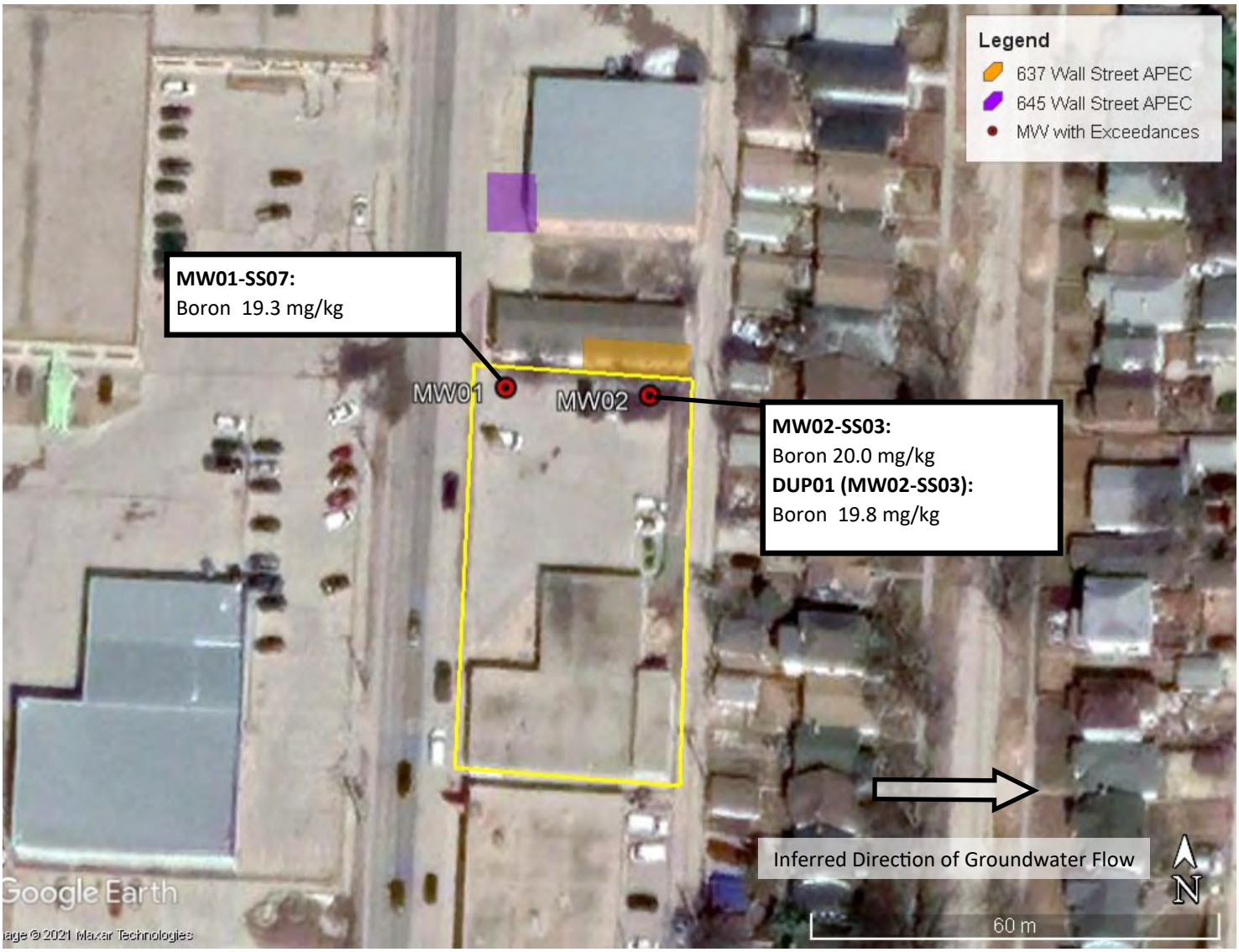
PROJECT NAME:	Phase II Environmental Site Assessment
CLIENT NAME:	G.J.W. Furnishing Ltd.
SITE LOCATION:	625 Wall Street, Winnipeg, Manitoba
PROJECT NO.:	20210238
DATE:	June 2021

HLC CONSULTING LTD.

Reference:

Google. Google Earth Imagery.

FIGURE 4: Soil Exceedances



PROJECT NAME:	Phase II Environmental Site Assessment
CLIENT NAME:	G.J.W. Furnishing Ltd.
SITE LOCATION:	625 Wall Street, Winnipeg, Manitoba
PROJECT NO.:	20210238
DATE:	June 2021

HLC CONSULTING LTD.

Reference:

Google. Google Earth Imagery.

APPENDIX II

STRATIGRAPHIC BOREHOLE LOGS

HLC CONSULTING LTD.

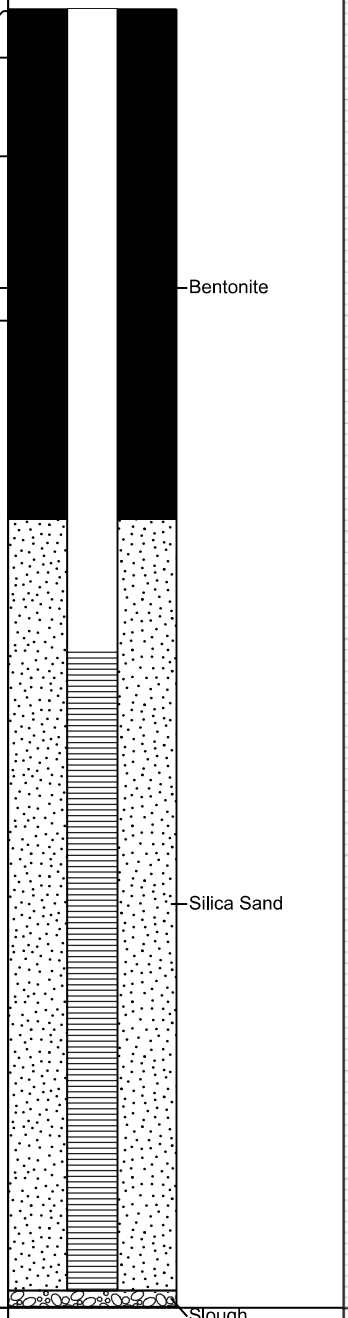
MONITORING WELL LOG MW01

PROJECT NUMBER 20210238	**DRILLING DATE** May 7, 2021	**ID** MW01
PROJECT NAME Phase II ESA	**TOTAL DEPTH** 6.10 mbgs	**COORDINATES** 49.885833, -97.182778
CLIENT G.J.W. Furnishings Ltd.	**DIAMETER** 152 mm	**COMPLETION** May 7, 2021
ADDRESS 625 Wall Street, Winnipeg, MB	**CASING** 5.08 cm PVC	**SURFACE ELEVATION** Not determined
DRILLER Paddock Drilling	**SCREEN** 5.08 cm No. 10 slot PVC	**WELL TOC** 0.08 mbgs

COMMENTS Well was checked for water on May 10, 2021, MW was dry.

LOGGED BY Bethany Wiebe
CHECKED BY Carolyn Baldwin

PID (ppm)	Sample ID	Analyzed	Depth (mbgs)	Material Description
	Unrecovered		0	ASPHALT
0.3	SS01		0.5	FILL, sandy gravel, light brown, dry, no odour
				SILTY CLAY, trace fine gravel and red brick debris, black, moist, no odour
0.1	SS02		1	SILTY CLAY, light brown, moist, no odour
			1.5	CLAY, light grey, moist, no odour
0.8	SS03			CLAY, dark grey, moist, no odour, mottling present
	SS04		2	
0.5			2.5	
	SS05		3	
0.6			3.5	
	SS06		4	
0.8			4.5	
0.9	SS-07	SS07: BTEX, PHC F1-F4, PAH, Metals	5	
	SS08		5.5	
0.2			6	
				END OF BOREHOLE



HLC CONSULTING LTD.

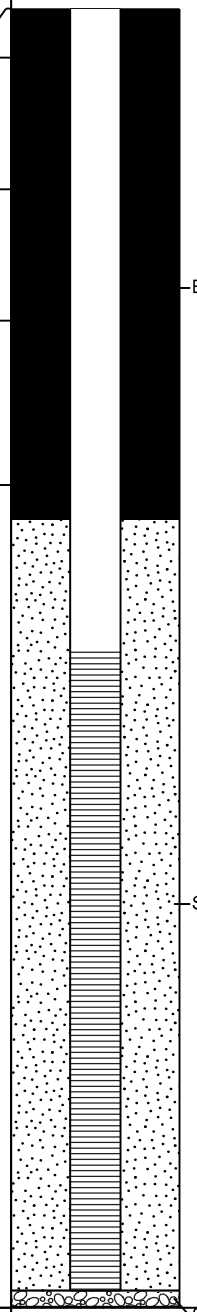
MONITORING WELL LOG MW02

PROJECT NUMBER 20210238	**DRILLING DATE** May 7, 2021	**ID** MW02
PROJECT NAME Phase II ESA	**TOTAL DEPTH** 6.10 mbgs	**COORDINATES** 49.885833, -97.182222
CLIENT G.J.W. Furnishings Ltd.	**DIAMETER** 152 mm	**COMPLETION** May 7, 2021
ADDRESS 625 Wall Street, Winnipeg, MB	**CASING** 5.08 cm PVC	**SURFACE ELEVATION** Not determined
DRILLER Paddock Drilling	**SCREEN** 5.08 cm No. 10 slot PVC	**WELL TOC** 0.08 mbgs

COMMENTS Well was checked for water on May 10, 2021, MW was dry.

LOGGED BY Bethany Wiebe
CHECKED BY Carolyn Baldwin

PID (ppm)	Sample ID	Analyzed	Depth (mbgs)	Material Description
	Unrecovered		0	ASPHALT
0.7	SS01		0.5	FILL, sandy gravel, light brown, dry, no odour
				SILTY CLAY, trace fine gravel and red brick debris, black, moist, no odour
1.1	SS02		1	SILTY CLAY, light brown, moist, no odour
		SS03: BTEX, PHC F1-F4, PAH, Metals & DUP01: BTEX, PHC F1-F4, PAH, Metals	1.5	
1.2	SS03		2	CLAY, light grey, moist, no odour
1.0	SS04		2.5	CLAY, dark grey, moist, no odour, mottling present
1.1	SS05		3	
0.9	SS06		3.5	
0.4	SS-07		4	
0.7	SS08		4.5	
			5	
			5.5	
			6	END OF BOREHOLE



APPENDIX III

ANALYTICAL TEST RESULTS

Table 1: Soil Petroleum Hydrocarbon Parameters

						CCME Guidelines	
Sample ID	**MW01-SS07**	**MW02-SS03**	**MW02-SS03 DUP01**	**Lower Detection Limit**	**Units**	**Commercial Area Surface Soil**	**Commercial Area Subsoil**
Sampling Date	**06-May-21**	**06-May-21**	**06-May-21**		**dd-mmm-yy**		
Sample Depth (m)	**4.57 to 5.33**	**1.52 to 2.29**	**1.52 to 2.29**		**m**		
Volatile Petroleum Hydrocarbons							
Benzene	<0.0050	<0.0050	<0.0050	0.0050	mg/kg	2.8 [a]	2.9 [b]
Toluene	<0.050	<0.050	<0.050	0.050	mg/kg	13000 [c]	13000 [d]
Ethylbenzene	<0.015	<0.015	<0.015	0.015	mg/kg	6500 [c]	6700 [d]
Xylenes (Total)	<0.071	<0.071	<0.071	0.071	mg/kg	1600 [c]	1600 [d]
F1 (C6-C10)	<10	<10	<10	10	mg/kg	320 [e]	800 [f]
Extractable Petroleum Hydrocarbons							
F2 (C10-C16)	<25	<25	<25	25	mg/kg	260 [e]	1000 [f]
F3 (C16-C34)	57	<50	<50	50	mg/kg	2500 [e]	5000 [f]
F4 (C34-C50)	<50	<50	<50	50	mg/kg	6600 [e]	10000 [f]
Chrom. to baseline at nC50	YES	YES	YES	n/a	-	NG	NG
Physical Properties							
Moisture	36	31.2	30.5	0.10	%	NG	NG

Guideline Notes:

Canadian Council of Ministers of the Environment (CCME). Canadian Environmental Quality Guidelines. Accessed online May 2021.

[a] Soil Quality Guidelines for the Protection of Human Health. Commercial Land Use, 10^{-5} Incremental Risk, Fine grained surface soil (< 1.5m), Inhalation of indoor air check (Slab on-grade).

[b] Soil Quality Guidelines for the Protection of Human Health. Commercial Land Use, 10^{-5} Incremental Risk, Fine grained subsoil (> 1.5m), Inhalation of indoor air check (Slab on-grade).

[c] Soil Quality Guidelines for the Protection of Human Health. Commercial Land Use, Fine grained surface soil (< 1.5m), Inhalation of indoor air check (slab-on grade).

[d] Soil Quality Guidelines for the Protection of Human Health. Commercial Land Use, Fine grained subsoil (> 1.5m), Inhalation of indoor air check (Slab on-grade).

Canadian Council of Ministers of the Environment (CCME), 2008. Canada-Wide Standards for Petroleum Hydrocarbons (PHC) in Soil - Technical Supplement. Accessed online May 2021.

[e] Tier 1 Levels (Table 2). Commercial Land Use, Fine grained surface soils, Eco Soil Contact.

[f] Tier 1 Levels (Table 4). Commercial Land Use, Fine grained subsoils, Management Limit.

NG - No Guideline

Exceedance Notes:

Concentration exceeds applicable guideline

Table 2: Soil Volatile Organic Compound Parameters

				Guidelines			
Sample ID	**MW01-SS07**	**MW02-SS03**	**MW02-SS03 DUP01**	**Lower Detection Limit**	**Units**	**Commercial Area Surface Soil**	**Commercial Area Subsoil**
Sampling Date	**06-May-21**	**06-May-21**	**06-May-21**		**dd-mmm-yy**		
Sample Depth (m)	**4.57 to 5.33**	**1.52 to 2.29**	**1.52 to 2.29**		**m**		
Acetone	<0.50	<0.50	<0.50	0.50	mg/kg	28 [c]	28 [d]
Bromobenzene	<0.10	<0.10	<0.10	0.10	mg/kg	NG	NG
Bromochloromethane	<0.10	<0.10	<0.10	0.10	mg/kg	NG	NG
Bromodichloromethane	<0.050	<0.050	<0.050	0.050	mg/kg	18 [c]	63 [d]
Bromoform	<0.050	<0.050	<0.050	0.050	mg/kg	1.7 [c]	2.7 [d]
Bromomethane	<0.050	<0.050	<0.050	0.050	mg/kg	0.05 [c]	0.05 [d]
n-Butylbenzene	<0.050	<0.050	<0.050	0.050	mg/kg	NG	NG
sec-Butylbenzene	<0.050	<0.050	<0.050	0.050	mg/kg	NG	NG
tert-Butylbenzene	<0.050	<0.050	<0.050	0.050	mg/kg	NG	NG
Carbon disulfide	<0.25	<0.25	<0.25	0.025	mg/kg	NG	NG
Carbon Tetrachloride	<0.050	<0.050	<0.050	0.050	mg/kg	50 [a]	50 [a]
Chlorobenzene	<0.050	<0.050	<0.050	0.050	mg/kg	2.7 [c]	2.7 [d]
Dibromochloromethane	<0.050	<0.050	<0.050	0.050	mg/kg	13 [c]	61 [d]
Chloroethane	<0.050	<0.050	<0.050	0.050	mg/kg	NG	NG
Chloroform	<0.050	<0.050	<0.050	0.050	mg/kg	50 [a]	50 [a]
Chloromethane	<0.050	<0.050	<0.050	0.050	mg/kg	NG	NG
2-Chlorotoluene	<0.10	<0.10	<0.10	0.10	mg/kg	NG	NG
4-Chlorotoluene	<0.10	<0.10	<0.10	0.10	mg/kg	NG	NG
1,2-Dibromo-3-chloropropane	<0.050	<0.050	<0.050	0.050	mg/kg	NG	NG
1,2-Dibromoethane	<0.050	<0.050	<0.050	0.050	mg/kg	NG	NG
Dibromomethane	<0.050	<0.050	<0.050	0.050	mg/kg	NG	NG
1,2-Dichlorobenzene	<0.050	<0.050	<0.050	0.050	mg/kg	10 [a]	10 [a]
1,3-Dichlorobenzene	<0.050	<0.050	<0.050	0.050	mg/kg	10 [a]	10 [a]
1,4-Dichlorobenzene	<0.050	<0.050	<0.050	0.050	mg/kg	10 [a]	10 [a]
Dichlorodifluoromethane	<0.050	<0.050	<0.050	0.050	mg/kg	25 [c]	25 [d]
1,1-dichloroethane	<0.050	<0.050	<0.050	0.050	mg/kg	50 [a]	50 [a]
1,2-Dichloroethane	<0.050	<0.050	<0.050	0.050	mg/kg	50 [a]	50 [a]
1,1-dichloroethene	<0.050	<0.050	<0.050	0.050	mg/kg	50 [a]	50 [a]
cis-1,2-Dichloroethene	<0.050	<0.050	<0.050	0.050	mg/kg	37 [c]	37 [d]
trans-1,2-Dichloroethene	<0.050	<0.050	<0.050	0.050	mg/kg	9.3 [c]	9.3 [d]
Dichloromethane	<0.10	<0.10	<0.10	0.10	mg/kg	50 [a]	50 [a]
1,2-Dichloropropane	<0.050	<0.050	<0.050	0.050	mg/kg	50 [a]	50 [a]
1,3-Dichloropropane	<0.050	<0.050	<0.050	0.050	mg/kg	NG	NG
2,2-Dichloropropane	<0.10	<0.10	<0.10	0.10	mg/kg	NG	NG
1,1-Dichloropropene	<0.050	<0.050	<0.050	0.050	mg/kg	NG	NG
cis-1,3-Dichloropropene	<0.050	<0.050	<0.050	0.050	mg/kg	NG	NG
trans-1,3-Dichloropropene	<0.050	<0.050	<0.050	0.020	mg/kg	NG	NG
Hexachlorobutadiene	<0.050	<0.050	<0.050	0.050	mg/kg	0.095 [c]	0.11 [d]
Hexane	<0.050	<0.050	<0.050	0.050	mg/kg	41 [b]	41 [b]
2-Hexanone (Methyl butyl ketone)	<0.50	<0.50	<0.50	0.50	mg/kg	NG	NG
Isopropylbenzene	<0.10	<0.10	<0.10	0.10	mg/kg	NG	NG
4-Isopropyltoluene	<0.10	<0.10	<0.10	0.10	mg/kg	NG	NG
MEK	<0.50	<0.50	<0.50	0.50	mg/kg	88 [c]	380 [d]
MIBK	<0.50	<0.50	<0.50	0.50	mg/kg	210 [c]	210 [d]
MTBE	<0.20	<0.20	<0.20	0.20	mg/kg	3.2 [c]	3.4 [d]
Styrene	<0.050	<0.050	<0.050	0.050	mg/kg	50 [a]	50 [a]
1,1,1,2-Tetrachloroethane	<0.050	<0.050	<0.050	0.050	mg/kg	0.11 [c]	0.14 [d]
1,1,2,2-Tetrachloroethane	<0.050	<0.050	<0.050	0.050	mg/kg	0.094 [c]	0.11 [d]
Tetrachloroethene	<0.050	<0.050	<0.050	0.050	mg/kg	0.5 [b]	0.5 [b]
1,2,3-Trichlorobenzene	<0.050	<0.050	<0.050	0.050	mg/kg	10 [a]	10 [a]
1,2,4-Trichlorobenzene	<0.050	<0.050	<0.050	0.050	mg/kg	10 [a]	10 [a]
1,1,1-Trichloroethane	<0.050	<0.050	<0.050	0.050	mg/kg	50 [a]	50 [a]
1,1,2-Trichloroethane	<0.050	<0.050	<0.050	0.050	mg/kg	50 [a]	50 [a]
Trichloroethene	<0.010	<0.010	<0.010	0.010	mg/kg	0.92 [b]	0.92 [b]
Trichlorofluoromethane	<0.050	<0.050	<0.050	0.050	mg/kg	5.8 [c]	5.8 [d]
1,2,3-Trichloropropane	<0.050	<0.050	<0.050	0.050	mg/kg	NG	NG
1,2,4-Trimethylbenzene	<0.050	<0.050	<0.050	0.050	mg/kg	NG	NG
1,3,5-Trimethylbenzene	<0.050	<0.050	<0.050	0.050	mg/kg	NG	NG
Vinyl Chloride	<0.050	<0.050	<0.050	0.050	mg/kg	0.25 [c]	0.28 [d]

Guideline Notes:

Canadian Council of Ministers of the Environment (CCME). Canadian Environmental Quality Guidelines. Accessed online May 2021.

[a] Soil Quality Guidelines for the Protection of Environment and Human Health. Commercial Land Use.

[b] Soil Quality Guidelines for the Protection of Human Health. Commercial Land Use. Fine grained soil. Inhalation of indoor air check (Slab on-grade).

Ontario Ministry of Environment Conservation and Parks (MOECP). Soil, Ground Water and Sediment Standards for use under Part XV.1 of the Environmental Protection Act. Accessed online May 2021.

[c] Table 5: Stratified Site Condition Standards in a Non-Potable Ground Water Condition. Fine Textured Surface Soil. Commercial Land Use.

[d] Table 5: Stratified Site Condition Standards in a Non-Potable Ground Water Condition. Fine Textured Subsurface Soil. Commercial Land Use.

NG - No Guideline

Exceedance Notes:

Concentration exceeds applicable guideline

Table 3: Soil Polycyclic Aromatic Hydrocarbon Parameters

Sample ID	MW01-SS07	MW02-SS03	MW02-SS03 DUP01	Lower Detection Limit	Units	Guidelines: Commercial Area Surface Soil or Full Depth	Guidelines: Commercial Area Subsoil
Sampling Date	**06-May-21**	**06-May-21**	**06-May-21**		**dd-mmm-yy**		
Sample Depth (m)	**4.57 to 5.33**	**1.52 to 2.29**	**1.52 to 2.29**		**m**		
Acenaphthene	<0.0050	<0.0050	<0.0050	0.0050	mg/kg	0.096 [e]	0.62 [f]
Acenaphthylene	<0.0050	<0.0050	<0.0050	0.0050	mg/kg	0.00017 [e]	0.00017 [f]
Acridine	<0.010	<0.010	<0.010	0.010	mg/kg	NG	NG
Anthracene	<0.0040	<0.0040	<0.0040	0.0040	mg/kg	32 [a]	NG
Fluoranthene	0.0062	<0.0050	<0.0050	0.0050	mg/kg	180 [a]	NG
Fluorene	<0.0050	<0.0050	<0.0050	0.0050	mg/kg	0.069 [e]	0.069 [f]
1-Methyl Naphthalene	<0.0050	<0.0050	<0.0050	0.0050	mg/kg	0.085 [e]	0.085 [f]
2-Methyl Naphthalene	<0.0050	<0.0050	<0.0050	0.0050	mg/kg	0.085 [e]	0.085 [f]
Naphthalene	<0.0050	<0.0050	<0.0050	0.0050	mg/kg	22 [b]	22 [b]
Phenanthrene	<0.0050	<0.0050	<0.0050	0.0050	mg/kg	50 [c]	50 [c]
Pyrene	0.0056	<0.0050	<0.0050	0.0050	mg/kg	100 [c]	100 [c]
Quinoline	<0.0050	<0.0050	<0.0050	0.0050	mg/kg	NG	NG
Carcinogenic PAHs							
Benzo(a)anthracene	<0.010	<0.010	<0.010	0.010	mg/kg	10 [c]	10 [c]
Benzo(a)pyrene	<0.0050	<0.0050	<0.0050	0.0050	mg/kg	72 [a]	NG
Benzo(b)fluoranthene	0.013	<0.010	<0.010	0.010	mg/kg	10 [c]	10 [c]
Benzo(g,h,i)perylene	0.011	<0.010	<0.010	0.010	mg/kg	0.0096 [e]	0.36 [f]
Benzo(k)fluoranthene	<0.010	<0.010	<0.010	0.010	mg/kg	10 [c]	10 [c]
Chrysene	<0.010	<0.010	<0.010	0.010	mg/kg	0.0096 [e]	0.36 [f]
Dibenzo(a,h)anthracene	<0.0050	<0.0050	<0.0050	0.0050	mg/kg	10 [c]	10 [c]
Indeno(1,2,3-cd)pyrene	<0.010	<0.010	<0.010	0.010	mg/kg	10 [c]	10 [c]
B(a)P Total Potency Equivalent	<0.020	<0.020	<0.020	0.020	mg/kg	5.3 [d]	5.3 [d]
IACR (CCME)	0.15	<0.15	<0.15	0.15	mg/kg	NG	NG

Guideline Notes:

Canadian Council of Ministers of the Environment (CCME), 2010. Canadian Environmental Quality Guidelines. Accessed online May 2021.

[a] Soil Quality Guidelines for the Protection of Environmental Health. Polycyclic Aromatic Hydrocarbons. Commercial Land Use. Soil contact guideline.

[b] Soil Quality Guidelines for the Protection of Environmental Health. Polycyclic Aromatic Hydrocarbons. Commercial Land Use. Provisional Soil Quality Guideline (1997).

[c] Soil Quality Guidelines for the Protection of Environmental Health. Polycyclic Aromatic Hydrocarbons. Commercial Land Use. Interim Soil Quality Criteria (1991).

[d] Soil Quality Guidelines for the Protection of Human Health. Polycyclic Aromatic Hydrocarbons. Commercial Land Use, Calculated 10^{-5} Incremental Lifetime Cancer Risk.

Ontario Ministry of Environment Conservation and Parks (MOECP). Soil, Ground Water and Sediment Standards for use under Part XV.1 of the Environmental Protection Act. Accessed online May 2021.

[e] Table 5: Stratified Site Condition Standards in a Non-Potable Ground Water Condition. Fine Textured Surface Soil. Commercial Land Use.

[f] Table 5: Stratified Site Condition Standards in a Non-Potable Ground Water Condition. Fine Textured Subsurface Soil. Commercial Use.

NG - No Guideline

Exceedance Notes:

Concentration exceeds applicable guideline

Table 4: Soil Metals Parameters

				Guidelines			
Sample ID	**MW01-SS07**	**MW02-SS03**	**MW02-SS03 DUP01**	**Lower Detection Limit**	**Units**	**Commercial Area Surface Soil**	**Commercial Area Subsurface Soil**
Sampling Date	**06-May-21**	**06-May-21**	**06-May-21**		**dd-mmm-yy**		
Sample Depth (m)	**4.57 to 5.33**	**1.52 to 2.29**	**1.52 to 2.29**		**m**		
Aluminum (Al)	25400	28600	28100	50	mg/kg	NG	NG
Antimony (Sb)	0.47	0.54	0.5	0.10	mg/kg	40[a]	40[a]
Arsenic (As)	9.97	13	11.9	0.10	mg/kg	50[b]	50[b]
Barium (Ba)	201	389	313	0.50	mg/kg	2000[a]	2000[a]
Beryllium (Be)	1.31	1.45	1.41	0.10	mg/kg	8[a]	8[a]
Bismuth (Bi)	0.33	0.4	0.37	0.20	mg/kg	NG	NG
Boron (B)	**19.3**	**20**	**19.8**	5.0	mg/kg	0.12[c]	7.9[e]
Cadmium (Cd)	0.354	0.264	0.269	0.020	mg/kg	22[a]	22[a]
Calcium (Ca)	34200	16800	19000	50	mg/kg	NG	NG
Chromium (Cr)	45.6	53.9	55.8	0.50	mg/kg	87[a]	87[a]
Cobalt (Co)	15.7	18.3	16.3	0.10	mg/kg	300[a]	300[a]
Copper (Cu)	36.8	42.8	40.9	0.50	mg/kg	91[a]	91[a]
Iron (Fe)	34300	38200	37800	50	mg/kg	NG	NG
Lead (Pb)	15.1	16.8	16.4	0.50	mg/kg	600[a]	600[a]
Lithium (Li)	30.6	36.9	36.5	2.0	mg/kg	NG	NG
Magnesium (Mg)	16400	15100	15700	20	mg/kg	NG	NG
Manganese (Mn)	518	719	513	1.0	mg/kg	NG	NG
Molybdenum (Mo)	1.25	2.41	1.87	0.10	mg/kg	40[a]	40[a]
Nickel (Ni)	45.3	59.9	51.1	0.50	mg/kg	89[a]	89[a]
Phosphorus (P)	610	547	638	50	mg/kg	NG	NG
Potassium (K)	4500	5080	5120	100	mg/kg	NG	NG
Selenium (Se)	0.77	0.2	<0.20	0.20	mg/kg	0.0055[d]	1.2[e]
Silver (Ag)	0.15	0.13	0.12	0.10	mg/kg	40[a]	40[a]
Sodium (Na)	692	778	810	50	mg/kg	NG	NG
Strontium (Sr)	88.6	83.9	85.7	0.50	mg/kg	NG	NG
Sulfur (S)	<1000	<1000	<1000	1000	mg/kg	NG	NG
Thallium (Tl)	0.297	0.352	0.353	0.050	mg/kg	1[a]	1[a]
Tin (Sn)	<2.0	<2.0	<2.0	2.0	mg/kg	300[a]	300[a]
Titanium (Ti)	139	129	141	1.0	mg/kg	NG	NG
Tungsten (W)	<0.50	<0.50	<0.50	0.50	mg/kg	NG	NG
Uranium (U)	2.18	1.53	1.59	0.050	mg/kg	300[a]	300[a]
Vanadium (V)	76.5	89.6	92.3	0.20	mg/kg	130[a]	130[a]
Zinc (Zn)	98	99.5	100	2.0	mg/kg	410[a]	410[a]
Zirconium (Zr)	14.6	11.8	12.3	1.0	mg/kg	NG	NG

Guideline Notes:

Canadian Council of Ministers of the Environment (CCME), 1991. Canadian Environmental Quality Guidelines. Accessed online May 2021.

[a] Soil Quality Guidelines for the Protection of Environment and Human Health. Commercial Land Use.

[b] Soil Quality Guidelines for the Protection of Environmental Health. Inorganic Arsenic. Commercial Land Use. Interim Soil Guidelines (1991).

Ontario Ministry of Environment Conservation and Parks (MOECP). Soil, Ground Water and Sediment Standards for use under Part XV.1 of the Environmental Protection Act. Accessed online May 2021.

[c] Table 3: Full Depth Generic Site Condition Standards in a Non-Potable Ground Water Condition. Commercial Land Use.

[d] Table 5: Stratified Site Condition Standards in a Non-Potable Ground Water Condition. Fine Textured Surface Soil. Commercial Land Use.

[e] Table 5: Stratified Site Condition Standards in a Non-Potable Ground Water Condition. Fine Textured Subsurface Soil. Commercial Land Use.

NG - No Guideline

Exceedance Notes:

Concentration exceeds applicable guideline

APPENDIX IV

LABORATORY CERTIFICATES OF ANALYSIS

HLC Consulting Ltd
ATTN: BETHANY WIEBE
Unit 5 - 55 Henlow Bay
Winnipeg MB R3Y 1G4

Date Received: 06-MAY-21
Report Date: 20-MAY-21 12:07 (MT)
Version: FINAL

Client Phone: 204-479-9771

Certificate of Analysis

Lab Work Order #: L2584561

Project P.O. #: NOT SUBMITTED
Job Reference: 20210238
C of C Numbers:
Legal Site Desc:

Hua Wo
Chemistry Laboratory Manager

ALS ENVIRONMENTAL ANALYTICAL REPORT

Sample Details/Parameters	Result	Qualifier*	D.L.	Units	Extracted	Analyzed	Batch
L2584561-1 MW01-SS07							
Sampled By: Bethany Wiebe on 06-MAY-21							
Matrix: SOIL							
Miscellaneous Parameters							
Moisture	36.0		0.10	%		11-MAY-21	R5456118
Metals in Soil by CRC ICPMS							
Aluminum (Al)	25400		50	ug/g	17-MAY-21	18-MAY-21	R5459676
Antimony (Sb)	0.47		0.10	ug/g	17-MAY-21	18-MAY-21	R5459676
Arsenic (As)	9.97		0.10	ug/g	17-MAY-21	18-MAY-21	R5459676
Barium (Ba)	201		0.50	ug/g	17-MAY-21	18-MAY-21	R5459676
Beryllium (Be)	1.31		0.10	ug/g	17-MAY-21	18-MAY-21	R5459676
Bismuth (Bi)	0.33		0.20	ug/g	17-MAY-21	18-MAY-21	R5459676
Boron (B)	19.3		5.0	ug/g	17-MAY-21	18-MAY-21	R5459676
Cadmium (Cd)	0.354		0.020	ug/g	17-MAY-21	18-MAY-21	R5459676
Calcium (Ca)	34200		50	ug/g	17-MAY-21	18-MAY-21	R5459676
Chromium (Cr)	45.6		0.50	ug/g	17-MAY-21	18-MAY-21	R5459676
Cobalt (Co)	15.7		0.10	ug/g	17-MAY-21	18-MAY-21	R5459676
Copper (Cu)	36.8		0.50	ug/g	17-MAY-21	18-MAY-21	R5459676
Iron (Fe)	34300		50	ug/g	17-MAY-21	18-MAY-21	R5459676
Lead (Pb)	15.1		0.50	ug/g	17-MAY-21	18-MAY-21	R5459676
Lithium (Li)	30.6		2.0	ug/g	17-MAY-21	18-MAY-21	R5459676
Magnesium (Mg)	16400		20	ug/g	17-MAY-21	18-MAY-21	R5459676
Manganese (Mn)	518		1.0	ug/g	17-MAY-21	18-MAY-21	R5459676
Molybdenum (Mo)	1.25		0.10	ug/g	17-MAY-21	18-MAY-21	R5459676
Nickel (Ni)	45.3		0.50	ug/g	17-MAY-21	18-MAY-21	R5459676
Phosphorus (P)	610		50	ug/g	17-MAY-21	18-MAY-21	R5459676
Potassium (K)	4500		100	ug/g	17-MAY-21	18-MAY-21	R5459676
Selenium (Se)	0.77		0.20	ug/g	17-MAY-21	18-MAY-21	R5459676
Silver (Ag)	0.15		0.10	ug/g	17-MAY-21	18-MAY-21	R5459676
Sodium (Na)	692		50	ug/g	17-MAY-21	18-MAY-21	R5459676
Strontium (Sr)	88.6		0.50	ug/g	17-MAY-21	18-MAY-21	R5459676
Sulfur (S)	<1000		1000	ug/g	17-MAY-21	18-MAY-21	R5459676
Thallium (Tl)	0.297		0.050	ug/g	17-MAY-21	18-MAY-21	R5459676
Tin (Sn)	<2.0		2.0	ug/g	17-MAY-21	18-MAY-21	R5459676
Titanium (Ti)	139		1.0	ug/g	17-MAY-21	18-MAY-21	R5459676
Tungsten (W)	<0.50		0.50	ug/g	17-MAY-21	18-MAY-21	R5459676
Uranium (U)	2.18		0.050	ug/g	17-MAY-21	18-MAY-21	R5459676
Vanadium (V)	76.5		0.20	ug/g	17-MAY-21	18-MAY-21	R5459676
Zinc (Zn)	98.0		2.0	ug/g	17-MAY-21	18-MAY-21	R5459676
Zirconium (Zr)	14.6		1.0	ug/g	17-MAY-21	18-MAY-21	R5459676
PAHs in Sediment							
1-Methylnaphthalene	<0.0050		0.0050	ug/g	16-MAY-21	18-MAY-21	R5458986
2-Methylnaphthalene	<0.0050		0.0050	ug/g	16-MAY-21	18-MAY-21	R5458986
Acenaphthene	<0.0050		0.0050	ug/g	16-MAY-21	18-MAY-21	R5458986
Acenaphthylene	<0.0050		0.0050	ug/g	16-MAY-21	18-MAY-21	R5458986
Acridine	<0.010		0.010	ug/g	16-MAY-21	18-MAY-21	R5458986
Anthracene	<0.0040		0.0040	ug/g	16-MAY-21	18-MAY-21	R5458986
Benzo(a)anthracene	<0.010		0.010	ug/g	16-MAY-21	18-MAY-21	R5458986
Benzo(a)pyrene	<0.0050		0.0050	ug/g	16-MAY-21	18-MAY-21	R5458986
Benzo(b&j)fluoranthene	0.013		0.010	ug/g	16-MAY-21	18-MAY-21	R5458986
Benzo(g,h,i)perylene	0.011		0.010	ug/g	16-MAY-21	18-MAY-21	R5458986
Benzo(k)fluoranthene	<0.010		0.010	ug/g	16-MAY-21	18-MAY-21	R5458986
Chrysene	<0.010		0.010	ug/g	16-MAY-21	18-MAY-21	R5458986
Dibenz(a,h)anthracene	<0.0050		0.0050	ug/g	16-MAY-21	18-MAY-21	R5458986
Fluoroanthene	0.0062		0.0050	ug/g	16-MAY-21	18-MAY-21	R5458986

* 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
L2584561-1 MW01-SS07							
Sampled By: Bethany Wiebe on 06-MAY-21							
Matrix: SOIL							
PAHs in Sediment							
Fluorene	<0.0050		0.0050	ug/g	16-MAY-21	18-MAY-21	R5458986
Indeno(1,2,3-cd)pyrene	<0.010		0.010	ug/g	16-MAY-21	18-MAY-21	R5458986
Naphthalene	<0.0050		0.0050	ug/g	16-MAY-21	18-MAY-21	R5458986
Phenanthrene	<0.0050		0.0050	ug/g	16-MAY-21	18-MAY-21	R5458986
Pyrene	0.0056		0.0050	ug/g	16-MAY-21	18-MAY-21	R5458986
Quinoline	<0.0050		0.0050	ug/g	16-MAY-21	18-MAY-21	R5458986
B(a)P Total Potency Equivalent	<0.020		0.020	ug/g	16-MAY-21	18-MAY-21	R5458986
IACR (CCME)	0.15		0.15		16-MAY-21	18-MAY-21	R5458986
Surrogate: 2-Fluorobiphenyl	93.8		60-140	%	16-MAY-21	18-MAY-21	R5458986
Surrogate: d14-Terphenyl	96.3		60-140	%	16-MAY-21	18-MAY-21	R5458986
VOC plus F1-F4 by Tumbler							
CCME Total Extractable Hydrocarbons							
F2 (C10-C16)	<25		25	mg/kg	08-MAY-21	08-MAY-21	R5455531
F3 (C16-C34)	57		50	mg/kg	08-MAY-21	08-MAY-21	R5455531
F4 (C34-C50)	<50		50	mg/kg	08-MAY-21	08-MAY-21	R5455531
Surrogate: 2-Bromobenzotrifluoride	81.7		60-140	%	08-MAY-21	08-MAY-21	R5455531
Chrom. to baseline at nC50	YES				08-MAY-21	08-MAY-21	R5455531
CCME Total Hydrocarbons							
F1-BTEX	<10		10	mg/kg		18-MAY-21	
F2-Naphth	<25		25	mg/kg		18-MAY-21	
F3-PAH	57		50	mg/kg		18-MAY-21	
Total Hydrocarbons (C6-C50)	<76		76	mg/kg		18-MAY-21	
Sum of Xylene Isomer Concentrations							
Xylenes (Total)	<0.071		0.071	mg/kg		17-MAY-21	
VOC plus F1 by GCMS							
Acetone	<0.50		0.50	mg/kg	06-MAY-21	15-MAY-21	R5458449
Benzene	<0.0050		0.0050	mg/kg	06-MAY-21	15-MAY-21	R5458449
Bromobenzene	<0.10		0.10	mg/kg	06-MAY-21	15-MAY-21	R5458449
Bromochloromethane	<0.10		0.10	mg/kg	06-MAY-21	15-MAY-21	R5458449
Bromodichloromethane	<0.050		0.050	mg/kg	06-MAY-21	15-MAY-21	R5458449
Bromoform	<0.050		0.050	mg/kg	06-MAY-21	15-MAY-21	R5458449
Bromomethane	<0.050		0.050	mg/kg	06-MAY-21	15-MAY-21	R5458449
n-Butylbenzene	<0.050		0.050	mg/kg	06-MAY-21	15-MAY-21	R5458449
sec-Butylbenzene	<0.050		0.050	mg/kg	06-MAY-21	15-MAY-21	R5458449
tert-Butylbenzene	<0.050		0.050	mg/kg	06-MAY-21	15-MAY-21	R5458449
Carbon disulfide	<0.25		0.25	mg/kg	06-MAY-21	15-MAY-21	R5458449
Carbon Tetrachloride	<0.050		0.050	mg/kg	06-MAY-21	15-MAY-21	R5458449
Chlorobenzene	<0.050		0.050	mg/kg	06-MAY-21	15-MAY-21	R5458449
Chloroethane	<0.050		0.050	mg/kg	06-MAY-21	15-MAY-21	R5458449
Chloroform	<0.050		0.050	mg/kg	06-MAY-21	15-MAY-21	R5458449
Chloromethane	<0.050		0.050	mg/kg	06-MAY-21	15-MAY-21	R5458449
2-Chlorotoluene	<0.10		0.10	mg/kg	06-MAY-21	15-MAY-21	R5458449
4-Chlorotoluene	<0.10		0.10	mg/kg	06-MAY-21	15-MAY-21	R5458449
Dibromochloromethane	<0.050		0.050	mg/kg	06-MAY-21	15-MAY-21	R5458449
1,2-Dibromo-3-chloropropane	<0.050		0.050	mg/kg	06-MAY-21	15-MAY-21	R5458449
1,2-Dibromoethane	<0.050		0.050	mg/kg	06-MAY-21	15-MAY-21	R5458449
Dibromomethane	<0.050		0.050	mg/kg	06-MAY-21	15-MAY-21	R5458449
1,2-Dichlorobenzene	<0.050		0.050	mg/kg	06-MAY-21	15-MAY-21	R5458449
1,3-Dichlorobenzene	<0.050		0.050	mg/kg	06-MAY-21	15-MAY-21	R5458449
1,4-Dichlorobenzene	<0.050		0.050	mg/kg	06-MAY-21	15-MAY-21	R5458449
Dichlorodifluoromethane	<0.050		0.050	mg/kg	06-MAY-21	15-MAY-21	R5458449
1,1-dichloroethane	<0.050		0.050	mg/kg	06-MAY-21	15-MAY-21	R5458449

* 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
L2584561-1 MW01-SS07							
Sampled By: Bethany Wiebe on 06-MAY-21							
Matrix: SOIL							
VOC plus F1 by GCMS							
1,2-Dichloroethane	<0.050		0.050	mg/kg	06-MAY-21	15-MAY-21	R5458449
1,1-dichloroethene	<0.050		0.050	mg/kg	06-MAY-21	15-MAY-21	R5458449
cis-1,2-Dichloroethene	<0.050		0.050	mg/kg	06-MAY-21	15-MAY-21	R5458449
trans-1,2-Dichloroethene	<0.050		0.050	mg/kg	06-MAY-21	15-MAY-21	R5458449
Dichloromethane	<0.10		0.10	mg/kg	06-MAY-21	15-MAY-21	R5458449
1,2-Dichloropropane	<0.050		0.050	mg/kg	06-MAY-21	15-MAY-21	R5458449
1,3-Dichloropropane	<0.050		0.050	mg/kg	06-MAY-21	15-MAY-21	R5458449
2,2-Dichloropropane	<0.10		0.10	mg/kg	06-MAY-21	15-MAY-21	R5458449
1,1-Dichloropropene	<0.050		0.050	mg/kg	06-MAY-21	15-MAY-21	R5458449
cis-1,3-Dichloropropene	<0.050		0.050	mg/kg	06-MAY-21	15-MAY-21	R5458449
trans-1,3-Dichloropropene	<0.050		0.050	mg/kg	06-MAY-21	15-MAY-21	R5458449
Ethylbenzene	<0.015		0.015	mg/kg	06-MAY-21	15-MAY-21	R5458449
F1	<10		10	mg/kg	06-MAY-21	15-MAY-21	R5458449
Hexachlorobutadiene	<0.050		0.050	mg/kg	06-MAY-21	15-MAY-21	R5458449
Hexane	<0.050		0.050	mg/kg	06-MAY-21	15-MAY-21	R5458449
2-Hexanone (Methyl butyl ketone)	<0.50		0.50	mg/kg	06-MAY-21	15-MAY-21	R5458449
Isopropylbenzene	<0.10		0.10	mg/kg	06-MAY-21	15-MAY-21	R5458449
4-Isopropyltoluene	<0.10		0.10	mg/kg	06-MAY-21	15-MAY-21	R5458449
MEK	<0.50		0.50	mg/kg	06-MAY-21	15-MAY-21	R5458449
MIBK	<0.50		0.50	mg/kg	06-MAY-21	15-MAY-21	R5458449
MTBE	<0.20		0.20	mg/kg	06-MAY-21	15-MAY-21	R5458449
Styrene	<0.050		0.050	mg/kg	06-MAY-21	15-MAY-21	R5458449
1,1,1,2-Tetrachloroethane	<0.050		0.050	mg/kg	06-MAY-21	15-MAY-21	R5458449
1,1,2,2-Tetrachloroethane	<0.050		0.050	mg/kg	06-MAY-21	15-MAY-21	R5458449
Tetrachloroethene	<0.050		0.050	mg/kg	06-MAY-21	15-MAY-21	R5458449
Toluene	<0.050		0.050	mg/kg	06-MAY-21	15-MAY-21	R5458449
1,2,3-Trichlorobenzene	<0.050		0.050	mg/kg	06-MAY-21	15-MAY-21	R5458449
1,2,4-Trichlorobenzene	<0.050		0.050	mg/kg	06-MAY-21	15-MAY-21	R5458449
1,1,1-Trichloroethane	<0.050		0.050	mg/kg	06-MAY-21	15-MAY-21	R5458449
1,1,2-Trichloroethane	<0.050		0.050	mg/kg	06-MAY-21	15-MAY-21	R5458449
Trichloroethene	<0.010		0.010	mg/kg	06-MAY-21	15-MAY-21	R5458449
Trichlorofluoromethane	<0.050		0.050	mg/kg	06-MAY-21	15-MAY-21	R5458449
1,2,3-Trichloropropane	<0.050		0.050	mg/kg	06-MAY-21	15-MAY-21	R5458449
1,2,4-Trimethylbenzene	<0.050		0.050	mg/kg	06-MAY-21	15-MAY-21	R5458449
1,3,5-Trimethylbenzene	<0.050		0.050	mg/kg	06-MAY-21	15-MAY-21	R5458449
Vinyl Chloride	<0.050		0.050	mg/kg	06-MAY-21	15-MAY-21	R5458449
M+P-Xylenes	<0.050		0.050	mg/kg	06-MAY-21	15-MAY-21	R5458449
o-Xylene	<0.050		0.050	mg/kg	06-MAY-21	15-MAY-21	R5458449
Surrogate: 1,4-Difluorobenzene (SS)	107.3		70-130	%	06-MAY-21	15-MAY-21	R5458449
Surrogate: 3,4-Dichlorotoluene (SS)	81.1		70-130	%	06-MAY-21	15-MAY-21	R5458449
Surrogate: 4-Bromofluorobenzene (SS)	88.7		70-130	%	06-MAY-21	15-MAY-21	R5458449
L2584561-2 MW02-SS03							
Sampled By: Bethany Wiebe on 06-MAY-21							
Matrix: SOIL							
Miscellaneous Parameters							
Moisture	31.2		0.10	%		11-MAY-21	R5456118
Metals in Soil by CRC ICPMS							
Aluminum (Al)	28600		50	ug/g	17-MAY-21	18-MAY-21	R5459676
Antimony (Sb)	0.54		0.10	ug/g	17-MAY-21	18-MAY-21	R5459676
Arsenic (As)	13.0		0.10	ug/g	17-MAY-21	18-MAY-21	R5459676
Barium (Ba)	389		0.50	ug/g	17-MAY-21	18-MAY-21	R5459676

* 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
L2584561-2 MW02-SS03							
Sampled By: Bethany Wiebe on 06-MAY-21							
Matrix: SOIL							
Metals in Soil by CRC ICPMS							
Beryllium (Be)	1.45		0.10	ug/g	17-MAY-21	18-MAY-21	R5459676
Bismuth (Bi)	0.40		0.20	ug/g	17-MAY-21	18-MAY-21	R5459676
Boron (B)	20.0		5.0	ug/g	17-MAY-21	18-MAY-21	R5459676
Cadmium (Cd)	0.264		0.020	ug/g	17-MAY-21	18-MAY-21	R5459676
Calcium (Ca)	16800		50	ug/g	17-MAY-21	18-MAY-21	R5459676
Chromium (Cr)	53.9		0.50	ug/g	17-MAY-21	18-MAY-21	R5459676
Cobalt (Co)	18.3		0.10	ug/g	17-MAY-21	18-MAY-21	R5459676
Copper (Cu)	42.8		0.50	ug/g	17-MAY-21	18-MAY-21	R5459676
Iron (Fe)	38200		50	ug/g	17-MAY-21	18-MAY-21	R5459676
Lead (Pb)	16.8		0.50	ug/g	17-MAY-21	18-MAY-21	R5459676
Lithium (Li)	36.9		2.0	ug/g	17-MAY-21	18-MAY-21	R5459676
Magnesium (Mg)	15100		20	ug/g	17-MAY-21	18-MAY-21	R5459676
Manganese (Mn)	719		1.0	ug/g	17-MAY-21	18-MAY-21	R5459676
Molybdenum (Mo)	2.41		0.10	ug/g	17-MAY-21	18-MAY-21	R5459676
Nickel (Ni)	59.9		0.50	ug/g	17-MAY-21	18-MAY-21	R5459676
Phosphorus (P)	547		50	ug/g	17-MAY-21	18-MAY-21	R5459676
Potassium (K)	5080		100	ug/g	17-MAY-21	18-MAY-21	R5459676
Selenium (Se)	0.20		0.20	ug/g	17-MAY-21	18-MAY-21	R5459676
Silver (Ag)	0.13		0.10	ug/g	17-MAY-21	18-MAY-21	R5459676
Sodium (Na)	778		50	ug/g	17-MAY-21	18-MAY-21	R5459676
Strontium (Sr)	83.9		0.50	ug/g	17-MAY-21	18-MAY-21	R5459676
Sulfur (S)	<1000		1000	ug/g	17-MAY-21	18-MAY-21	R5459676
Thallium (Tl)	0.352		0.050	ug/g	17-MAY-21	18-MAY-21	R5459676
Tin (Sn)	<2.0		2.0	ug/g	17-MAY-21	18-MAY-21	R5459676
Titanium (Ti)	129		1.0	ug/g	17-MAY-21	18-MAY-21	R5459676
Tungsten (W)	<0.50		0.50	ug/g	17-MAY-21	18-MAY-21	R5459676
Uranium (U)	1.53		0.050	ug/g	17-MAY-21	18-MAY-21	R5459676
Vanadium (V)	89.6		0.20	ug/g	17-MAY-21	18-MAY-21	R5459676
Zinc (Zn)	99.5		2.0	ug/g	17-MAY-21	18-MAY-21	R5459676
Zirconium (Zr)	11.8		1.0	ug/g	17-MAY-21	18-MAY-21	R5459676
PAHs in Sediment							
1-Methylnaphthalene	<0.0050		0.0050	ug/g	19-MAY-21	20-MAY-21	R5460567
2-Methylnaphthalene	<0.0050		0.0050	ug/g	19-MAY-21	20-MAY-21	R5460567
Acenaphthene	<0.0050		0.0050	ug/g	19-MAY-21	20-MAY-21	R5460567
Acenaphthylene	<0.0050		0.0050	ug/g	19-MAY-21	20-MAY-21	R5460567
Acridine	<0.010		0.010	ug/g	19-MAY-21	20-MAY-21	R5460567
Anthracene	<0.0040		0.0040	ug/g	19-MAY-21	20-MAY-21	R5460567
Benzo(a)anthracene	<0.010		0.010	ug/g	19-MAY-21	20-MAY-21	R5460567
Benzo(a)pyrene	<0.0050		0.0050	ug/g	19-MAY-21	20-MAY-21	R5460567
Benzo(b&j)fluoranthene	<0.010		0.010	ug/g	19-MAY-21	20-MAY-21	R5460567
Benzo(g,h,i)perylene	<0.010		0.010	ug/g	19-MAY-21	20-MAY-21	R5460567
Benzo(k)fluoranthene	<0.010		0.010	ug/g	19-MAY-21	20-MAY-21	R5460567
Chrysene	<0.010		0.010	ug/g	19-MAY-21	20-MAY-21	R5460567
Dibenz(a,h)anthracene	<0.0050		0.0050	ug/g	19-MAY-21	20-MAY-21	R5460567
Fluoroanthene	<0.0050		0.0050	ug/g	19-MAY-21	20-MAY-21	R5460567
Fluorene	<0.0050		0.0050	ug/g	19-MAY-21	20-MAY-21	R5460567
Indeno(1,2,3-cd)pyrene	<0.010		0.010	ug/g	19-MAY-21	20-MAY-21	R5460567
Naphthalene	<0.0050		0.0050	ug/g	19-MAY-21	20-MAY-21	R5460567
Phenanthrene	<0.0050		0.0050	ug/g	19-MAY-21	20-MAY-21	R5460567
Pyrene	<0.0050		0.0050	ug/g	19-MAY-21	20-MAY-21	R5460567
Quinoline	<0.0050		0.0050	ug/g	19-MAY-21	20-MAY-21	R5460567

* 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
L2584561-2 MW02-SS03							
Sampled By: Bethany Wiebe on 06-MAY-21							
Matrix: SOIL							
PAHs in Sediment							
B(a)P Total Potency Equivalent	<0.020		0.020	ug/g	19-MAY-21	20-MAY-21	R5460567
IACR (CCME)	<0.15		0.15		19-MAY-21	20-MAY-21	R5460567
Surrogate: 2-Fluorobiphenyl	82.1		60-140	%	19-MAY-21	20-MAY-21	R5460567
Surrogate: d14-Terphenyl	81.8		60-140	%	19-MAY-21	20-MAY-21	R5460567
VOC plus F1-F4 by Tumbler							
CCME Total Extractable Hydrocarbons							
F2 (C10-C16)	<25		25	mg/kg	08-MAY-21	08-MAY-21	R5455531
F3 (C16-C34)	<50		50	mg/kg	08-MAY-21	08-MAY-21	R5455531
F4 (C34-C50)	<50		50	mg/kg	08-MAY-21	08-MAY-21	R5455531
Surrogate: 2-Bromobenzotrifluoride	83.1		60-140	%	08-MAY-21	08-MAY-21	R5455531
Chrom. to baseline at nC50	YES				08-MAY-21	08-MAY-21	R5455531
CCME Total Hydrocarbons							
F1-BTEX	<10		10	mg/kg		20-MAY-21	
F2-Naphth	<25		25	mg/kg		20-MAY-21	
F3-PAH	<50		50	mg/kg		20-MAY-21	
Total Hydrocarbons (C6-C50)	<76		76	mg/kg		20-MAY-21	
Sum of Xylene Isomer Concentrations							
Xylenes (Total)	<0.071		0.071	mg/kg		17-MAY-21	
VOC plus F1 by GCMS							
Acetone	<0.50		0.50	mg/kg	06-MAY-21	15-MAY-21	R5458449
Benzene	<0.0050		0.0050	mg/kg	06-MAY-21	15-MAY-21	R5458449
Bromobenzene	<0.10		0.10	mg/kg	06-MAY-21	15-MAY-21	R5458449
Bromochloromethane	<0.10		0.10	mg/kg	06-MAY-21	15-MAY-21	R5458449
Bromodichloromethane	<0.050		0.050	mg/kg	06-MAY-21	15-MAY-21	R5458449
Bromoform	<0.050		0.050	mg/kg	06-MAY-21	15-MAY-21	R5458449
Bromomethane	<0.050		0.050	mg/kg	06-MAY-21	15-MAY-21	R5458449
n-Butylbenzene	<0.050		0.050	mg/kg	06-MAY-21	15-MAY-21	R5458449
sec-Butylbenzene	<0.050		0.050	mg/kg	06-MAY-21	15-MAY-21	R5458449
tert-Butylbenzene	<0.050		0.050	mg/kg	06-MAY-21	15-MAY-21	R5458449
Carbon disulfide	<0.25		0.25	mg/kg	06-MAY-21	15-MAY-21	R5458449
Carbon Tetrachloride	<0.050		0.050	mg/kg	06-MAY-21	15-MAY-21	R5458449
Chlorobenzene	<0.050		0.050	mg/kg	06-MAY-21	15-MAY-21	R5458449
Chloroethane	<0.050		0.050	mg/kg	06-MAY-21	15-MAY-21	R5458449
Chloroform	<0.050		0.050	mg/kg	06-MAY-21	15-MAY-21	R5458449
Chloromethane	<0.050		0.050	mg/kg	06-MAY-21	15-MAY-21	R5458449
2-Chlorotoluene	<0.10		0.10	mg/kg	06-MAY-21	15-MAY-21	R5458449
4-Chlorotoluene	<0.10		0.10	mg/kg	06-MAY-21	15-MAY-21	R5458449
Dibromochloromethane	<0.050		0.050	mg/kg	06-MAY-21	15-MAY-21	R5458449
1,2-Dibromo-3-chloropropane	<0.050		0.050	mg/kg	06-MAY-21	15-MAY-21	R5458449
1,2-Dibromoethane	<0.050		0.050	mg/kg	06-MAY-21	15-MAY-21	R5458449
Dibromomethane	<0.050		0.050	mg/kg	06-MAY-21	15-MAY-21	R5458449
1,2-Dichlorobenzene	<0.050		0.050	mg/kg	06-MAY-21	15-MAY-21	R5458449
1,3-Dichlorobenzene	<0.050		0.050	mg/kg	06-MAY-21	15-MAY-21	R5458449
1,4-Dichlorobenzene	<0.050		0.050	mg/kg	06-MAY-21	15-MAY-21	R5458449
Dichlorodifluoromethane	<0.050		0.050	mg/kg	06-MAY-21	15-MAY-21	R5458449
1,1-dichloroethane	<0.050		0.050	mg/kg	06-MAY-21	15-MAY-21	R5458449
1,2-Dichloroethane	<0.050		0.050	mg/kg	06-MAY-21	15-MAY-21	R5458449
1,1-dichloroethene	<0.050		0.050	mg/kg	06-MAY-21	15-MAY-21	R5458449
cis-1,2-Dichloroethene	<0.050		0.050	mg/kg	06-MAY-21	15-MAY-21	R5458449
trans-1,2-Dichloroethene	<0.050		0.050	mg/kg	06-MAY-21	15-MAY-21	R5458449
Dichloromethane	<0.10		0.10	mg/kg	06-MAY-21	15-MAY-21	R5458449
1,2-Dichloropropane	<0.050		0.050	mg/kg	06-MAY-21	15-MAY-21	R5458449

* 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
L2584561-2 MW02-SS03							
Sampled By: Bethany Wiebe on 06-MAY-21							
Matrix: SOIL							
VOC plus F1 by GCMS							
1,3-Dichloropropane	<0.050		0.050	mg/kg	06-MAY-21	15-MAY-21	R5458449
2,2-Dichloropropane	<0.10		0.10	mg/kg	06-MAY-21	15-MAY-21	R5458449
1,1-Dichloropropene	<0.050		0.050	mg/kg	06-MAY-21	15-MAY-21	R5458449
cis-1,3-Dichloropropene	<0.050		0.050	mg/kg	06-MAY-21	15-MAY-21	R5458449
trans-1,3-Dichloropropene	<0.050		0.050	mg/kg	06-MAY-21	15-MAY-21	R5458449
Ethylbenzene	<0.015		0.015	mg/kg	06-MAY-21	15-MAY-21	R5458449
F1	<10		10	mg/kg	06-MAY-21	15-MAY-21	R5458449
Hexachlorobutadiene	<0.050		0.050	mg/kg	06-MAY-21	15-MAY-21	R5458449
Hexane	<0.050		0.050	mg/kg	06-MAY-21	15-MAY-21	R5458449
2-Hexanone (Methyl butyl ketone)	<0.50		0.50	mg/kg	06-MAY-21	15-MAY-21	R5458449
Isopropylbenzene	<0.10		0.10	mg/kg	06-MAY-21	15-MAY-21	R5458449
4-Isopropyltoluene	<0.10		0.10	mg/kg	06-MAY-21	15-MAY-21	R5458449
MEK	<0.50		0.50	mg/kg	06-MAY-21	15-MAY-21	R5458449
MIBK	<0.50		0.50	mg/kg	06-MAY-21	15-MAY-21	R5458449
MTBE	<0.20		0.20	mg/kg	06-MAY-21	15-MAY-21	R5458449
Styrene	<0.050		0.050	mg/kg	06-MAY-21	15-MAY-21	R5458449
1,1,1,2-Tetrachloroethane	<0.050		0.050	mg/kg	06-MAY-21	15-MAY-21	R5458449
1,1,2,2-Tetrachloroethane	<0.050		0.050	mg/kg	06-MAY-21	15-MAY-21	R5458449
Tetrachloroethene	<0.050		0.050	mg/kg	06-MAY-21	15-MAY-21	R5458449
Toluene	<0.050		0.050	mg/kg	06-MAY-21	15-MAY-21	R5458449
1,2,3-Trichlorobenzene	<0.050		0.050	mg/kg	06-MAY-21	15-MAY-21	R5458449
1,2,4-Trichlorobenzene	<0.050		0.050	mg/kg	06-MAY-21	15-MAY-21	R5458449
1,1,1-Trichloroethane	<0.050		0.050	mg/kg	06-MAY-21	15-MAY-21	R5458449
1,1,2-Trichloroethane	<0.050		0.050	mg/kg	06-MAY-21	15-MAY-21	R5458449
Trichloroethene	<0.010		0.010	mg/kg	06-MAY-21	15-MAY-21	R5458449
Trichlorofluoromethane	<0.050		0.050	mg/kg	06-MAY-21	15-MAY-21	R5458449
1,2,3-Trichloropropane	<0.050		0.050	mg/kg	06-MAY-21	15-MAY-21	R5458449
1,2,4-Trimethylbenzene	<0.050		0.050	mg/kg	06-MAY-21	15-MAY-21	R5458449
1,3,5-Trimethylbenzene	<0.050		0.050	mg/kg	06-MAY-21	15-MAY-21	R5458449
Vinyl Chloride	<0.050		0.050	mg/kg	06-MAY-21	15-MAY-21	R5458449
M+P-Xylenes	<0.050		0.050	mg/kg	06-MAY-21	15-MAY-21	R5458449
o-Xylene	<0.050		0.050	mg/kg	06-MAY-21	15-MAY-21	R5458449
Surrogate: 1,4-Difluorobenzene (SS)	101.5		70-130	%	06-MAY-21	15-MAY-21	R5458449
Surrogate: 3,4-Dichlorotoluene (SS)	77.9		70-130	%	06-MAY-21	15-MAY-21	R5458449
Surrogate: 4-Bromofluorobenzene (SS)	88.6		70-130	%	06-MAY-21	15-MAY-21	R5458449
L2584561-3 DUP01							
Sampled By: Bethany Wiebe on 06-MAY-21							
Matrix: SOIL							
Miscellaneous Parameters							
Moisture	30.5		0.10	%		11-MAY-21	R5456118
Metals in Soil by CRC ICPMS							
Aluminum (Al)	28100		50	ug/g	17-MAY-21	18-MAY-21	R5459676
Antimony (Sb)	0.50		0.10	ug/g	17-MAY-21	18-MAY-21	R5459676
Arsenic (As)	11.9		0.10	ug/g	17-MAY-21	18-MAY-21	R5459676
Barium (Ba)	313		0.50	ug/g	17-MAY-21	18-MAY-21	R5459676
Beryllium (Be)	1.41		0.10	ug/g	17-MAY-21	18-MAY-21	R5459676
Bismuth (Bi)	0.37		0.20	ug/g	17-MAY-21	18-MAY-21	R5459676
Boron (B)	19.8		5.0	ug/g	17-MAY-21	18-MAY-21	R5459676
Cadmium (Cd)	0.269		0.020	ug/g	17-MAY-21	18-MAY-21	R5459676
Calcium (Ca)	19000		50	ug/g	17-MAY-21	18-MAY-21	R5459676
Chromium (Cr)	55.8		0.50	ug/g	17-MAY-21	18-MAY-21	R5459676

* 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
L2584561-3 DUP01							
Sampled By: Bethany Wiebe on 06-MAY-21							
Matrix: SOIL							
Metals in Soil by CRC ICPMS							
Cobalt (Co)	16.3		0.10	ug/g	17-MAY-21	18-MAY-21	R5459676
Copper (Cu)	40.9		0.50	ug/g	17-MAY-21	18-MAY-21	R5459676
Iron (Fe)	37800		50	ug/g	17-MAY-21	18-MAY-21	R5459676
Lead (Pb)	16.4		0.50	ug/g	17-MAY-21	18-MAY-21	R5459676
Lithium (Li)	36.5		2.0	ug/g	17-MAY-21	18-MAY-21	R5459676
Magnesium (Mg)	15700		20	ug/g	17-MAY-21	18-MAY-21	R5459676
Manganese (Mn)	513		1.0	ug/g	17-MAY-21	18-MAY-21	R5459676
Molybdenum (Mo)	1.87		0.10	ug/g	17-MAY-21	18-MAY-21	R5459676
Nickel (Ni)	51.1		0.50	ug/g	17-MAY-21	18-MAY-21	R5459676
Phosphorus (P)	638		50	ug/g	17-MAY-21	18-MAY-21	R5459676
Potassium (K)	5120		100	ug/g	17-MAY-21	18-MAY-21	R5459676
Selenium (Se)	<0.20		0.20	ug/g	17-MAY-21	18-MAY-21	R5459676
Silver (Ag)	0.12		0.10	ug/g	17-MAY-21	18-MAY-21	R5459676
Sodium (Na)	810		50	ug/g	17-MAY-21	18-MAY-21	R5459676
Strontium (Sr)	85.7		0.50	ug/g	17-MAY-21	18-MAY-21	R5459676
Sulfur (S)	<1000		1000	ug/g	17-MAY-21	18-MAY-21	R5459676
Thallium (Tl)	0.353		0.050	ug/g	17-MAY-21	18-MAY-21	R5459676
Tin (Sn)	<2.0		2.0	ug/g	17-MAY-21	18-MAY-21	R5459676
Titanium (Ti)	141		1.0	ug/g	17-MAY-21	18-MAY-21	R5459676
Tungsten (W)	<0.50		0.50	ug/g	17-MAY-21	18-MAY-21	R5459676
Uranium (U)	1.59		0.050	ug/g	17-MAY-21	18-MAY-21	R5459676
Vanadium (V)	92.3		0.20	ug/g	17-MAY-21	18-MAY-21	R5459676
Zinc (Zn)	100		2.0	ug/g	17-MAY-21	18-MAY-21	R5459676
Zirconium (Zr)	12.3		1.0	ug/g	17-MAY-21	18-MAY-21	R5459676
PAHs in Sediment							
1-Methylnaphthalene	<0.0050		0.0050	ug/g	16-MAY-21	18-MAY-21	R5458986
2-Methylnaphthalene	<0.0050		0.0050	ug/g	16-MAY-21	18-MAY-21	R5458986
Acenaphthene	<0.0050		0.0050	ug/g	16-MAY-21	18-MAY-21	R5458986
Acenaphthylene	<0.0050		0.0050	ug/g	16-MAY-21	18-MAY-21	R5458986
Acridine	<0.010		0.010	ug/g	16-MAY-21	18-MAY-21	R5458986
Anthracene	<0.0040		0.0040	ug/g	16-MAY-21	18-MAY-21	R5458986
Benzo(a)anthracene	<0.010		0.010	ug/g	16-MAY-21	18-MAY-21	R5458986
Benzo(a)pyrene	<0.0050		0.0050	ug/g	16-MAY-21	18-MAY-21	R5458986
Benzo(b&j)fluoranthene	<0.010		0.010	ug/g	16-MAY-21	18-MAY-21	R5458986
Benzo(g,h,i)perylene	<0.010		0.010	ug/g	16-MAY-21	18-MAY-21	R5458986
Benzo(k)fluoranthene	<0.010		0.010	ug/g	16-MAY-21	18-MAY-21	R5458986
Chrysene	<0.010		0.010	ug/g	16-MAY-21	18-MAY-21	R5458986
Dibenz(a,h)anthracene	<0.0050		0.0050	ug/g	16-MAY-21	18-MAY-21	R5458986
Fluoroanthene	<0.0050		0.0050	ug/g	16-MAY-21	18-MAY-21	R5458986
Fluorene	<0.0050		0.0050	ug/g	16-MAY-21	18-MAY-21	R5458986
Indeno(1,2,3-cd)pyrene	<0.010		0.010	ug/g	16-MAY-21	18-MAY-21	R5458986
Naphthalene	<0.0050		0.0050	ug/g	16-MAY-21	18-MAY-21	R5458986
Phenanthrene	<0.0050		0.0050	ug/g	16-MAY-21	18-MAY-21	R5458986
Pyrene	<0.0050		0.0050	ug/g	16-MAY-21	18-MAY-21	R5458986
Quinoline	<0.0050		0.0050	ug/g	16-MAY-21	18-MAY-21	R5458986
B(a)P Total Potency Equivalent	<0.020		0.020	ug/g	16-MAY-21	18-MAY-21	R5458986
IACR (CCME)	<0.15		0.15		16-MAY-21	18-MAY-21	R5458986
Surrogate: 2-Fluorobiphenyl	68.6		60-140	%	16-MAY-21	18-MAY-21	R5458986
Surrogate: d14-Terphenyl	66.5		60-140	%	16-MAY-21	18-MAY-21	R5458986
VOC plus F1-F4 by Tumbler							
CCME Total Extractable Hydrocarbons							

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

ALS ENVIRONMENTAL ANALYTICAL REPORT

Sample Details/Parameters	Result	Qualifier*	D.L.	Units	Extracted	Analyzed	Batch
L2584561-3 DUP01							
Sampled By: Bethany Wiebe on 06-MAY-21							
Matrix: SOIL							
CCME Total Extractable Hydrocarbons							
F2 (C10-C16)	<25		25	mg/kg	08-MAY-21	08-MAY-21	R5455531
F3 (C16-C34)	<50		50	mg/kg	08-MAY-21	08-MAY-21	R5455531
F4 (C34-C50)	<50		50	mg/kg	08-MAY-21	08-MAY-21	R5455531
Surrogate: 2-Bromobenzotrifluoride	81.2		60-140	%	08-MAY-21	08-MAY-21	R5455531
Chrom. to baseline at nC50	YES				08-MAY-21	08-MAY-21	R5455531
CCME Total Hydrocarbons							
F1-BTEX	<10		10	mg/kg		18-MAY-21	
F2-Naphth	<25		25	mg/kg		18-MAY-21	
F3-PAH	<50		50	mg/kg		18-MAY-21	
Total Hydrocarbons (C6-C50)	<76		76	mg/kg		18-MAY-21	
Sum of Xylene Isomer Concentrations							
Xylenes (Total)	<0.071		0.071	mg/kg		17-MAY-21	
VOC plus F1 by GCMS							
Acetone	<0.50		0.50	mg/kg	06-MAY-21	15-MAY-21	R5458449
Benzene	<0.0050		0.0050	mg/kg	06-MAY-21	15-MAY-21	R5458449
Bromobenzene	<0.10		0.10	mg/kg	06-MAY-21	15-MAY-21	R5458449
Bromochloromethane	<0.10		0.10	mg/kg	06-MAY-21	15-MAY-21	R5458449
Bromodichloromethane	<0.050		0.050	mg/kg	06-MAY-21	15-MAY-21	R5458449
Bromoform	<0.050		0.050	mg/kg	06-MAY-21	15-MAY-21	R5458449
Bromomethane	<0.050		0.050	mg/kg	06-MAY-21	15-MAY-21	R5458449
n-Butylbenzene	<0.050		0.050	mg/kg	06-MAY-21	15-MAY-21	R5458449
sec-Butylbenzene	<0.050		0.050	mg/kg	06-MAY-21	15-MAY-21	R5458449
tert-Butylbenzene	<0.050		0.050	mg/kg	06-MAY-21	15-MAY-21	R5458449
Carbon disulfide	<0.25		0.25	mg/kg	06-MAY-21	15-MAY-21	R5458449
Carbon Tetrachloride	<0.050		0.050	mg/kg	06-MAY-21	15-MAY-21	R5458449
Chlorobenzene	<0.050		0.050	mg/kg	06-MAY-21	15-MAY-21	R5458449
Chloroethane	<0.050		0.050	mg/kg	06-MAY-21	15-MAY-21	R5458449
Chloroform	<0.050		0.050	mg/kg	06-MAY-21	15-MAY-21	R5458449
Chloromethane	<0.050		0.050	mg/kg	06-MAY-21	15-MAY-21	R5458449
2-Chlorotoluene	<0.10		0.10	mg/kg	06-MAY-21	15-MAY-21	R5458449
4-Chlorotoluene	<0.10		0.10	mg/kg	06-MAY-21	15-MAY-21	R5458449
Dibromochloromethane	<0.050		0.050	mg/kg	06-MAY-21	15-MAY-21	R5458449
1,2-Dibromo-3-chloropropane	<0.050		0.050	mg/kg	06-MAY-21	15-MAY-21	R5458449
1,2-Dibromoethane	<0.050		0.050	mg/kg	06-MAY-21	15-MAY-21	R5458449
Dibromomethane	<0.050		0.050	mg/kg	06-MAY-21	15-MAY-21	R5458449
1,2-Dichlorobenzene	<0.050		0.050	mg/kg	06-MAY-21	15-MAY-21	R5458449
1,3-Dichlorobenzene	<0.050		0.050	mg/kg	06-MAY-21	15-MAY-21	R5458449
1,4-Dichlorobenzene	<0.050		0.050	mg/kg	06-MAY-21	15-MAY-21	R5458449
Dichlorodifluoromethane	<0.050		0.050	mg/kg	06-MAY-21	15-MAY-21	R5458449
1,1-dichloroethane	<0.050		0.050	mg/kg	06-MAY-21	15-MAY-21	R5458449
1,2-Dichloroethane	<0.050		0.050	mg/kg	06-MAY-21	15-MAY-21	R5458449
1,1-dichloroethene	<0.050		0.050	mg/kg	06-MAY-21	15-MAY-21	R5458449
cis-1,2-Dichloroethene	<0.050		0.050	mg/kg	06-MAY-21	15-MAY-21	R5458449
trans-1,2-Dichloroethene	<0.050		0.050	mg/kg	06-MAY-21	15-MAY-21	R5458449
Dichloromethane	<0.10		0.10	mg/kg	06-MAY-21	15-MAY-21	R5458449
1,2-Dichloropropane	<0.050		0.050	mg/kg	06-MAY-21	15-MAY-21	R5458449
1,3-Dichloropropane	<0.050		0.050	mg/kg	06-MAY-21	15-MAY-21	R5458449
2,2-Dichloropropane	<0.10		0.10	mg/kg	06-MAY-21	15-MAY-21	R5458449
1,1-Dichloropropene	<0.050		0.050	mg/kg	06-MAY-21	15-MAY-21	R5458449
cis-1,3-Dichloropropene	<0.050		0.050	mg/kg	06-MAY-21	15-MAY-21	R5458449
trans-1,3-Dichloropropene	<0.050		0.050	mg/kg	06-MAY-21	15-MAY-21	R5458449
Ethylbenzene	<0.015		0.015	mg/kg	06-MAY-21	15-MAY-21	R5458449

* 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
L2584561-3 DUP01							
Sampled By: Bethany Wiebe on 06-MAY-21							
Matrix: SOIL							
VOC plus F1 by GCMS							
F1	<10		10	mg/kg	06-MAY-21	15-MAY-21	R5458449
Hexachlorobutadiene	<0.050		0.050	mg/kg	06-MAY-21	15-MAY-21	R5458449
Hexane	<0.050		0.050	mg/kg	06-MAY-21	15-MAY-21	R5458449
2-Hexanone (Methyl butyl ketone)	<0.50		0.50	mg/kg	06-MAY-21	15-MAY-21	R5458449
Isopropylbenzene	<0.10		0.10	mg/kg	06-MAY-21	15-MAY-21	R5458449
4-Isopropyltoluene	<0.10		0.10	mg/kg	06-MAY-21	15-MAY-21	R5458449
MEK	<0.50		0.50	mg/kg	06-MAY-21	15-MAY-21	R5458449
MIBK	<0.50		0.50	mg/kg	06-MAY-21	15-MAY-21	R5458449
MTBE	<0.20		0.20	mg/kg	06-MAY-21	15-MAY-21	R5458449
Styrene	<0.050		0.050	mg/kg	06-MAY-21	15-MAY-21	R5458449
1,1,1,2-Tetrachloroethane	<0.050		0.050	mg/kg	06-MAY-21	15-MAY-21	R5458449
1,1,2,2-Tetrachloroethane	<0.050		0.050	mg/kg	06-MAY-21	15-MAY-21	R5458449
Tetrachloroethene	<0.050		0.050	mg/kg	06-MAY-21	15-MAY-21	R5458449
Toluene	<0.050		0.050	mg/kg	06-MAY-21	15-MAY-21	R5458449
1,2,3-Trichlorobenzene	<0.050		0.050	mg/kg	06-MAY-21	15-MAY-21	R5458449
1,2,4-Trichlorobenzene	<0.050		0.050	mg/kg	06-MAY-21	15-MAY-21	R5458449
1,1,1-Trichloroethane	<0.050		0.050	mg/kg	06-MAY-21	15-MAY-21	R5458449
1,1,2-Trichloroethane	<0.050		0.050	mg/kg	06-MAY-21	15-MAY-21	R5458449
Trichloroethene	<0.010		0.010	mg/kg	06-MAY-21	15-MAY-21	R5458449
Trichlorofluoromethane	<0.050		0.050	mg/kg	06-MAY-21	15-MAY-21	R5458449
1,2,3-Trichloropropane	<0.050		0.050	mg/kg	06-MAY-21	15-MAY-21	R5458449
1,2,4-Trimethylbenzene	<0.050		0.050	mg/kg	06-MAY-21	15-MAY-21	R5458449
1,3,5-Trimethylbenzene	<0.050		0.050	mg/kg	06-MAY-21	15-MAY-21	R5458449
Vinyl Chloride	<0.050		0.050	mg/kg	06-MAY-21	15-MAY-21	R5458449
M+P-Xylenes	<0.050		0.050	mg/kg	06-MAY-21	15-MAY-21	R5458449
o-Xylene	<0.050		0.050	mg/kg	06-MAY-21	15-MAY-21	R5458449
Surrogate: 1,4-Difluorobenzene (SS)	109.8		70-130	%	06-MAY-21	15-MAY-21	R5458449
Surrogate: 3,4-Dichlorotoluene (SS)	81.1		70-130	%	06-MAY-21	15-MAY-21	R5458449
Surrogate: 4-Bromofluorobenzene (SS)	93.0		70-130	%	06-MAY-21	15-MAY-21	R5458449

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

Reference Information

Sample Parameter Qualifier Key:

Qualifier	Description
LCS-L	Lab Control Sample recovery was below ALS DQO. Reference Material and/or Matrix Spike results were acceptable. Non-detected sample results are considered reliable. Other results, if reported, have been qualified.

Test Method References:

ALS Test Code	Matrix	Test Description	Method Reference**
F1-F4-CALC-WP	Soil	CCME Total Hydrocarbons	CCME CWS-PHC, Pub #1310, Dec 2001-S

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

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

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

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

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

F2-F4-TMB-FID-WP	Soil	CCME Total Extractable Hydrocarbons	CCME CWS-PHC, Pub #1310, Dec 2001

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

MET-200.2-CCMS-WT	Soil	Metals in Soil by CRC ICPMS	EPA 200.2/6020B (mod)

Soil/sediment is dried, disaggregated, and sieved (2 mm). For tests intended to support Ontario regulations, the <2mm fraction is ground to pass through a 0.355 mm sieve. Strong Acid Leachable Metals in the <2mm fraction are solubilized by heated digestion with nitric and hydrochloric acids. Instrumental analysis is by Collision / Reaction Cell ICPMS.

Limitations: This method is intended to liberate environmentally available metals. Silicate minerals are not solubilized. Some metals may be only partially recovered (matrix dependent), including Al, Ba, Be, Cr, S, Sr, Ti, Tl, V, W, and Zr. Elemental Sulfur may be poorly recovered by this method. Volatile forms of sulfur (e.g. sulfide, H2S) may be excluded if lost during sampling, storage, or digestion.

Analysis conducted in accordance with the Protocol for Analytical Methods Used in the Assessment of Properties under Part XV.1 of the Environmental Protection Act (July 1, 2011), unless a subset of the Analytical Test Group (ATG) has been requested (the Protocol states that all analytes in an ATG must be reported).

MOISTURE-WP	Soil	% Moisture	CCME PHC in Soil - Tier 1 (mod)

Moisture content in solid matrices is determined gravimetrically after drying to constant weight at 105°C.

PAH-CCME-SQGL-WT	Soil	PAHs in Sediment	SW846 8270

The procedure uses a mechanical shaking technique to extract a representative sub-sample with a mixture of methanol and toluene. The extract is analyzed by GC/MSD. Depending on the analytical GC/MS column used benzo(j)fluoranthene may chromatographically co-elute with benzo(b)fluoranthene or benzo(k)fluoranthene.

VOC+F1-HSMS-WP	Soil	VOC plus F1 by GCMS	EPA 8260C

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

XYLENES-SUM-CALC-WP	Soil	Sum of Xylene Isomer Concentrations	CALCULATED RESULT

Total xylenes represents the sum of o-xylene and m&p-xylene.

** 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:

Reference Information

Test Method References:

ALS Test Code	Matrix	Test Description	Method Reference**

Laboratory Definition Code	Laboratory Location
WT	ALS ENVIRONMENTAL - WATERLOO, ONTARIO, CANADA
WP	ALS ENVIRONMENTAL - WINNIPEG, MANITOBA, CANADA

Chain of Custody Numbers:

GLOSSARY OF REPORT TERMS

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

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

Quality Control Report

Workorder: L2584561 Report Date: 20-MAY-21

Client: HLC Consulting Ltd
Unit 5 - 55 Henlow Bay
Winnipeg MB R3Y 1G4
Contact: BETHANY WIEBE

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
F2-F4-TMB-FID-WP	**Soil**							
Batch R5455531								
WG3531349-3 IRM		**ALS PHC RM3**						
F2 (C10-C16)			115.1		%		70-130	08-MAY-21
F3 (C16-C34)			104.3		%		70-130	08-MAY-21
F4 (C34-C50)			101.3		%		70-130	08-MAY-21
WG3531349-2 LCS								
F2 (C10-C16)			113.1		%		70-130	08-MAY-21
F3 (C16-C34)			107.7		%		70-130	08-MAY-21
F4 (C34-C50)			118.1		%		70-130	08-MAY-21
WG3531349-1 MB								
F2 (C10-C16)			<25		mg/kg		25	08-MAY-21
F3 (C16-C34)			<50		mg/kg		50	08-MAY-21
F4 (C34-C50)			<50		mg/kg		50	08-MAY-21
Surrogate: 2-Bromobenzotrifluoride			83.1		%		60-140	08-MAY-21
MET-200.2-CCMS-WT	**Soil**							
Batch R5459676								
WG3536090-2 CRM		**WT-SS-2**						
Aluminum (Al)			108.4		%		70-130	18-MAY-21
Antimony (Sb)			107.3		%		70-130	18-MAY-21
Arsenic (As)			111.4		%		70-130	18-MAY-21
Barium (Ba)			111.8		%		70-130	18-MAY-21
Beryllium (Be)			112.1		%		70-130	18-MAY-21
Bismuth (Bi)			0.16		mg/kg		0-0.34	18-MAY-21
Boron (B)			9.2		mg/kg		3.5-13.5	18-MAY-21
Cadmium (Cd)			106.9		%		70-130	18-MAY-21
Calcium (Ca)			107.7		%		70-130	18-MAY-21
Chromium (Cr)			106.4		%		70-130	18-MAY-21
Cobalt (Co)			109.9		%		70-130	18-MAY-21
Copper (Cu)			112.0		%		70-130	18-MAY-21
Iron (Fe)			112.1		%		70-130	18-MAY-21
Lead (Pb)			109.9		%		70-130	18-MAY-21
Lithium (Li)			106.9		%		70-130	18-MAY-21
Magnesium (Mg)			113.8		%		70-130	18-MAY-21
Manganese (Mn)			109.1		%		70-130	18-MAY-21
Molybdenum (Mo)			109.0		%		70-130	18-MAY-21
Nickel (Ni)			111.2		%		70-130	18-MAY-21
Phosphorus (P)			105.1		%		70-130	18-MAY-21

Quality Control Report

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
MET-200.2-CCMS-WT	**Soil**							
Batch R5459676								
WG3536090-2 CRM		**WT-SS-2**						
Potassium (K)			105.8		%		70-130	18-MAY-21
Selenium (Se)			0.13		mg/kg		0-0.34	18-MAY-21
Silver (Ag)			97.3		%		70-130	18-MAY-21
Sodium (Na)			105.2		%		70-130	18-MAY-21
Strontium (Sr)			109.0		%		70-130	18-MAY-21
Thallium (Tl)			0.073		mg/kg		0.029-0.129	18-MAY-21
Tin (Sn)			109.4		%		70-130	18-MAY-21
Titanium (Ti)			103.6		%		70-130	18-MAY-21
Uranium (U)			108.1		%		70-130	18-MAY-21
Vanadium (V)			109.6		%		70-130	18-MAY-21
Zinc (Zn)			108.8		%		70-130	18-MAY-21
Zirconium (Zr)			107.4		%		70-130	18-MAY-21
WG3536090-3 LCS		**1+2**						
Aluminum (Al)			112.2		%		80-120	18-MAY-21
Antimony (Sb)			112.2		%		80-120	18-MAY-21
Arsenic (As)			108.7		%		80-120	18-MAY-21
Barium (Ba)			108.5		%		80-120	18-MAY-21
Beryllium (Be)			109.4		%		80-120	18-MAY-21
Bismuth (Bi)			113.6		%		80-120	18-MAY-21
Boron (B)			107.0		%		80-120	18-MAY-21
Cadmium (Cd)			108.0		%		80-120	18-MAY-21
Calcium (Ca)			111.4		%		80-120	18-MAY-21
Chromium (Cr)			108.7		%		80-120	18-MAY-21
Cobalt (Co)			106.8		%		80-120	18-MAY-21
Copper (Cu)			106.6		%		80-120	18-MAY-21
Iron (Fe)			107.3		%		80-120	18-MAY-21
Lead (Pb)			113.1		%		80-120	18-MAY-21
Lithium (Li)			106.0		%		80-120	18-MAY-21
Magnesium (Mg)			111.6		%		80-120	18-MAY-21
Manganese (Mn)			109.4		%		80-120	18-MAY-21
Molybdenum (Mo)			108.9		%		80-120	18-MAY-21
Nickel (Ni)			107.3		%		80-120	18-MAY-21
Phosphorus (P)			118.7		%		80-120	18-MAY-21
Potassium (K)			116.9		%		80-120	18-MAY-21

Quality Control Report

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
MET-200.2-CCMS-WT	**Soil**							
Batch R5459676								
WG3536090-3 LCS		**1+2**						
Selenium (Se)			114.1		%		80-120	18-MAY-21
Silver (Ag)			109.8		%		80-120	18-MAY-21
Sodium (Na)			108.4		%		80-120	18-MAY-21
Strontium (Sr)			117.0		%		80-120	18-MAY-21
Sulfur (S)			112.6		%		80-120	18-MAY-21
Thallium (Tl)			117.1		%		80-120	18-MAY-21
Tin (Sn)			107.7		%		80-120	18-MAY-21
Titanium (Ti)			105.9		%		80-120	18-MAY-21
Tungsten (W)			111.5		%		80-120	18-MAY-21
Uranium (U)			111.8		%		80-120	18-MAY-21
Vanadium (V)			111.3		%		80-120	18-MAY-21
Zinc (Zn)			106.9		%		80-120	18-MAY-21
Zirconium (Zr)			110.5		%		80-120	18-MAY-21
WG3536090-1 MB								
Aluminum (Al)			<50		mg/kg		50	18-MAY-21
Antimony (Sb)			<0.10		mg/kg		0.1	18-MAY-21
Arsenic (As)			<0.10		mg/kg		0.1	18-MAY-21
Barium (Ba)			<0.50		mg/kg		0.5	18-MAY-21
Beryllium (Be)			<0.10		mg/kg		0.1	18-MAY-21
Bismuth (Bi)			<0.20		mg/kg		0.2	18-MAY-21
Boron (B)			<5.0		mg/kg		5	18-MAY-21
Cadmium (Cd)			<0.020		mg/kg		0.02	18-MAY-21
Calcium (Ca)			<50		mg/kg		50	18-MAY-21
Chromium (Cr)			<0.50		mg/kg		0.5	18-MAY-21
Cobalt (Co)			<0.10		mg/kg		0.1	18-MAY-21
Copper (Cu)			<0.50		mg/kg		0.5	18-MAY-21
Iron (Fe)			<50		mg/kg		50	18-MAY-21
Lead (Pb)			<0.50		mg/kg		0.5	18-MAY-21
Lithium (Li)			<2.0		mg/kg		2	18-MAY-21
Magnesium (Mg)			<20		mg/kg		20	18-MAY-21
Manganese (Mn)			<1.0		mg/kg		1	18-MAY-21
Molybdenum (Mo)			<0.10		mg/kg		0.1	18-MAY-21
Nickel (Ni)			<0.50		mg/kg		0.5	18-MAY-21
Phosphorus (P)			<50		mg/kg		50	18-MAY-21

Quality Control Report

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
MET-200.2-CCMS-WT	**Soil**							
Batch R5459676								
WG3536090-1 MB								
Potassium (K)			<100		mg/kg		100	18-MAY-21
Selenium (Se)			<0.20		mg/kg		0.2	18-MAY-21
Silver (Ag)			<0.10		mg/kg		0.1	18-MAY-21
Sodium (Na)			<50		mg/kg		50	18-MAY-21
Strontium (Sr)			<0.50		mg/kg		0.5	18-MAY-21
Sulfur (S)			<1000		mg/kg		1000	18-MAY-21
Thallium (Tl)			<0.050		mg/kg		0.05	18-MAY-21
Tin (Sn)			<2.0		mg/kg		2	18-MAY-21
Titanium (Ti)			<1.0		mg/kg		1	18-MAY-21
Tungsten (W)			<0.50		mg/kg		0.5	18-MAY-21
Uranium (U)			<0.050		mg/kg		0.05	18-MAY-21
Vanadium (V)			<0.20		mg/kg		0.2	18-MAY-21
Zinc (Zn)			<2.0		mg/kg		2	18-MAY-21
Zirconium (Zr)			<1.0		mg/kg		1	18-MAY-21
MOISTURE-WP	**Soil**							
Batch R5456118								
WG3532478-2 LCS								
Moisture			100.6		%		90-110	11-MAY-21
WG3532478-1 MB								
Moisture			<0.10		%		0.1	11-MAY-21
PAH-CCME-SQGL-WT	**Soil**							
Batch R5458986								
WG3535731-2 LCS								
1-Methylnaphthalene			98.1		%		50-140	18-MAY-21
2-Methylnaphthalene			95.6		%		50-140	18-MAY-21
Acenaphthene			96.1		%		50-140	18-MAY-21
Acenaphthylene			93.2		%		50-140	18-MAY-21
Acridine			84.5		%		50-140	18-MAY-21
Anthracene			81.9		%		50-140	18-MAY-21
Benzo(a)anthracene			95.5		%		50-140	18-MAY-21
Benzo(a)pyrene			83.4		%		50-140	18-MAY-21
Benzo(b&j)fluoranthene			85.7		%		50-150	18-MAY-21
Benzo(g,h,i)perylene			82.4		%		50-140	18-MAY-21
Benzo(k)fluoranthene			96.9		%		50-140	18-MAY-21
Chrysene			92.1		%		50-140	18-MAY-21

Quality Control Report

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
PAH-CCME-SQGL-WT	**Soil**							
Batch R5458986								
WG3535731-2 LCS								
Dibenz(a,h)anthracene			86.9		%		50-140	18-MAY-21
Fluoroanthene			93.4		%		50-140	18-MAY-21
Fluorene			94.2		%		50-140	18-MAY-21
Indeno(1,2,3-cd)pyrene			89.9		%		50-140	18-MAY-21
Naphthalene			91.1		%		50-140	18-MAY-21
Phenanthrene			93.6		%		50-140	18-MAY-21
Pyrene			92.8		%		50-140	18-MAY-21
Quinoline			78.9		%		50-140	18-MAY-21
WG3535731-1 MB								
1-Methylnaphthalene			<0.0050		ug/g		0.005	18-MAY-21
2-Methylnaphthalene			<0.0050		ug/g		0.005	18-MAY-21
Acenaphthene			<0.0050		ug/g		0.005	18-MAY-21
Acenaphthylene			<0.0050		ug/g		0.005	18-MAY-21
Acridine			<0.010		ug/g		0.01	18-MAY-21
Anthracene			<0.0040		ug/g		0.004	18-MAY-21
Benzo(a)anthracene			<0.010		ug/g		0.01	18-MAY-21
Benzo(a)pyrene			<0.0050		ug/g		0.005	18-MAY-21
Benzo(b&j)fluoranthene			<0.010		ug/g		0.01	18-MAY-21
Benzo(g,h,i)perylene			<0.010		ug/g		0.01	18-MAY-21
Benzo(k)fluoranthene			<0.010		ug/g		0.01	18-MAY-21
Chrysene			<0.010		ug/g		0.01	18-MAY-21
Dibenz(a,h)anthracene			<0.0050		ug/g		0.005	18-MAY-21
Fluoroanthene			<0.0050		ug/g		0.005	18-MAY-21
Fluorene			<0.0050		ug/g		0.005	18-MAY-21
Indeno(1,2,3-cd)pyrene			<0.010		ug/g		0.01	18-MAY-21
Naphthalene			<0.0050		ug/g		0.005	18-MAY-21
Phenanthrene			<0.0050		ug/g		0.005	18-MAY-21
Pyrene			<0.0050		ug/g		0.005	18-MAY-21
Quinoline			<0.0050		ug/g		0.005	18-MAY-21
Surrogate: 2-Fluorobiphenyl			98.0		%		60-140	18-MAY-21
Surrogate: d14-Terphenyl			100.0		%		60-140	18-MAY-21
Batch R5460567								
WG3537431-3 DUP		**L2584561-2**						
1-Methylnaphthalene		<0.0050	<0.0050	RPD-NA	ug/g	N/A	50	20-MAY-21
2-Methylnaphthalene		<0.0050	<0.0050	RPD-NA	ug/g	N/A	50	20-MAY-21

Quality Control Report

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
PAH-CCME-SQGL-WT	**Soil**							
Batch R5460567								
WG3537431-3 DUP		**L2584561-2**						
Acenaphthene		<0.0050	<0.0050	RPD-NA	ug/g	N/A	50	20-MAY-21
Acenaphthylene		<0.0050	<0.0050	RPD-NA	ug/g	N/A	50	20-MAY-21
Acridine		<0.010	<0.010	RPD-NA	ug/g	N/A	50	20-MAY-21
Anthracene		<0.0040	<0.0040	RPD-NA	ug/g	N/A	50	20-MAY-21
Benzo(a)anthracene		<0.010	<0.010	RPD-NA	ug/g	N/A	50	20-MAY-21
Benzo(a)pyrene		<0.0050	<0.0050	RPD-NA	ug/g	N/A	50	20-MAY-21
Benzo(b&j)fluoranthene		<0.010	<0.010	RPD-NA	ug/g	N/A	50	20-MAY-21
Benzo(g,h,i)perylene		<0.010	<0.010	RPD-NA	ug/g	N/A	50	20-MAY-21
Benzo(k)fluoranthene		<0.010	<0.010	RPD-NA	ug/g	N/A	50	20-MAY-21
Chrysene		<0.010	<0.010	RPD-NA	ug/g	N/A	50	20-MAY-21
Dibenz(a,h)anthracene		<0.0050	<0.0050	RPD-NA	ug/g	N/A	50	20-MAY-21
Fluoroanthene		<0.0050	<0.0050	RPD-NA	ug/g	N/A	50	20-MAY-21
Fluorene		<0.0050	<0.0050	RPD-NA	ug/g	N/A	50	20-MAY-21
Indeno(1,2,3-cd)pyrene		<0.010	<0.010	RPD-NA	ug/g	N/A	50	20-MAY-21
Naphthalene		<0.0050	<0.0050	RPD-NA	ug/g	N/A	50	20-MAY-21
Phenanthrene		<0.0050	<0.0050	RPD-NA	ug/g	N/A	50	20-MAY-21
Pyrene		<0.0050	<0.0050	RPD-NA	ug/g	N/A	50	20-MAY-21
Quinoline		<0.0050	<0.0050	RPD-NA	ug/g	N/A	50	20-MAY-21
WG3537431-2 LCS								
1-Methylnaphthalene			103.2		%		50-140	20-MAY-21
2-Methylnaphthalene			100.1		%		50-140	20-MAY-21
Acenaphthene			98.9		%		50-140	20-MAY-21
Acenaphthylene			95.1		%		50-140	20-MAY-21
Acridine			87.5		%		50-140	20-MAY-21
Anthracene			89.9		%		50-140	20-MAY-21
Benzo(a)anthracene			105.0		%		50-140	20-MAY-21
Benzo(a)pyrene			89.0		%		50-140	20-MAY-21
Benzo(b&j)fluoranthene			92.8		%		50-150	20-MAY-21
Benzo(g,h,i)perylene			88.9		%		50-140	20-MAY-21
Benzo(k)fluoranthene			107.1		%		50-140	20-MAY-21
Chrysene			102.7		%		50-140	20-MAY-21
Dibenz(a,h)anthracene			86.8		%		50-140	20-MAY-21
Fluoroanthene			99.9		%		50-140	20-MAY-21
Fluorene			97.6		%		50-140	20-MAY-21

Quality Control Report

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
PAH-CCME-SQGL-WT	**Soil**							
Batch R5460567								
WG3537431-2 LCS								
Indeno(1,2,3-cd)pyrene			99.6		%		50-140	20-MAY-21
Naphthalene			97.6		%		50-140	20-MAY-21
Phenanthrene			102.5		%		50-140	20-MAY-21
Pyrene			98.0		%		50-140	20-MAY-21
Quinoline			84.5		%		50-140	20-MAY-21
WG3537431-1 MB								
1-Methylnaphthalene			<0.0050		ug/g		0.005	20-MAY-21
2-Methylnaphthalene			<0.0050		ug/g		0.005	20-MAY-21
Acenaphthene			<0.0050		ug/g		0.005	20-MAY-21
Acenaphthylene			<0.0050		ug/g		0.005	20-MAY-21
Acridine			<0.010		ug/g		0.01	20-MAY-21
Anthracene			<0.0040		ug/g		0.004	20-MAY-21
Benzo(a)anthracene			<0.010		ug/g		0.01	20-MAY-21
Benzo(a)pyrene			<0.0050		ug/g		0.005	20-MAY-21
Benzo(b&j)fluoranthene			<0.010		ug/g		0.01	20-MAY-21
Benzo(g,h,i)perylene			<0.010		ug/g		0.01	20-MAY-21
Benzo(k)fluoranthene			<0.010		ug/g		0.01	20-MAY-21
Chrysene			<0.010		ug/g		0.01	20-MAY-21
Dibenz(a,h)anthracene			<0.0050		ug/g		0.005	20-MAY-21
Fluoroanthene			<0.0050		ug/g		0.005	20-MAY-21
Fluorene			<0.0050		ug/g		0.005	20-MAY-21
Indeno(1,2,3-cd)pyrene			<0.010		ug/g		0.01	20-MAY-21
Naphthalene			<0.0050		ug/g		0.005	20-MAY-21
Phenanthrene			<0.0050		ug/g		0.005	20-MAY-21
Pyrene			<0.0050		ug/g		0.005	20-MAY-21
Quinoline			<0.0050		ug/g		0.005	20-MAY-21
Surrogate: 2-Fluorobiphenyl			96.9		%		60-140	20-MAY-21
Surrogate: d14-Terphenyl			98.6		%		60-140	20-MAY-21
WG3537431-4 MS		**L2584561-2**						
1-Methylnaphthalene			89.1		%		50-150	20-MAY-21
2-Methylnaphthalene			86.8		%		50-150	20-MAY-21
Acenaphthene			85.5		%		50-150	20-MAY-21
Acenaphthylene			81.3		%		50-150	20-MAY-21
Acridine			85.7		%		50-150	20-MAY-21
Anthracene			77.3		%		50-150	20-MAY-21

Quality Control Report

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
PAH-CCME-SQGL-WT	**Soil**							
Batch R5460567								
WG3537431-4 MS		**L2584561-2**						
Benzo(a)anthracene			90.6		%		50-150	20-MAY-21
Benzo(a)pyrene			75.4		%		50-150	20-MAY-21
Benzo(b&j)fluoranthene			85.7		%		50-150	20-MAY-21
Benzo(g,h,i)perylene			74.9		%		50-150	20-MAY-21
Benzo(k)fluoranthene			85.2		%		50-150	20-MAY-21
Chrysene			86.9		%		50-150	20-MAY-21
Dibenz(a,h)anthracene			74.1		%		50-150	20-MAY-21
Fluoroanthene			86.3		%		50-150	20-MAY-21
Fluorene			83.9		%		50-150	20-MAY-21
Indeno(1,2,3-cd)pyrene			81.9		%		50-150	20-MAY-21
Naphthalene			84.0		%		50-150	20-MAY-21
Phenanthrene			88.0		%		50-150	20-MAY-21
Pyrene			84.6		%		50-150	20-MAY-21
Quinoline			72.4		%		50-150	20-MAY-21
VOC+F1-HSMS-WP	**Soil**							
Batch R5458449								
WG3531683-8 DUP		**L2584561-1**						
Acetone		<0.50	<0.50	RPD-NA	mg/kg	N/A	50	15-MAY-21
Benzene		<0.0050	<0.0050	RPD-NA	mg/kg	N/A	50	15-MAY-21
Bromobenzene		<0.10	<0.10	RPD-NA	mg/kg	N/A	50	15-MAY-21
Bromochloromethane		<0.10	<0.10	RPD-NA	mg/kg	N/A	50	15-MAY-21
Bromodichloromethane		<0.050	<0.050	RPD-NA	mg/kg	N/A	50	15-MAY-21
Bromoform		<0.050	<0.050	RPD-NA	mg/kg	N/A	50	15-MAY-21
Bromomethane		<0.050	<0.050	RPD-NA	mg/kg	N/A	50	15-MAY-21
n-Butylbenzene		<0.050	<0.050	RPD-NA	mg/kg	N/A	50	15-MAY-21
sec-Butylbenzene		<0.050	<0.050	RPD-NA	mg/kg	N/A	50	15-MAY-21
tert-Butylbenzene		<0.050	<0.050	RPD-NA	mg/kg	N/A	50	15-MAY-21
Carbon disulfide		<0.25	<0.25	RPD-NA	mg/kg	N/A	50	15-MAY-21
Carbon Tetrachloride		<0.050	<0.050	RPD-NA	mg/kg	N/A	50	15-MAY-21
Chlorobenzene		<0.050	<0.050	RPD-NA	mg/kg	N/A	50	15-MAY-21
Chloroethane		<0.050	<0.050	RPD-NA	mg/kg	N/A	50	15-MAY-21
Chloroform		<0.050	<0.050	RPD-NA	mg/kg	N/A	50	15-MAY-21
Chloromethane		<0.050	<0.050	RPD-NA	mg/kg	N/A	50	15-MAY-21
2-Chlorotoluene		<0.10	<0.10	RPD-NA	mg/kg	N/A	50	15-MAY-21

Quality Control Report

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
VOC+F1-HSMS-WP	**Soil**							
Batch R5458449								
WG3531683-8 DUP		**L2584561-1**						
4-Chlorotoluene		<0.10	<0.10	RPD-NA	mg/kg	N/A	50	15-MAY-21
Dibromochloromethane		<0.050	<0.050	RPD-NA	mg/kg	N/A	50	15-MAY-21
1,2-Dibromo-3-chloropropane		<0.050	<0.050	RPD-NA	mg/kg	N/A	50	15-MAY-21
1,2-Dibromoethane		<0.050	<0.050	RPD-NA	mg/kg	N/A	50	15-MAY-21
Dibromomethane		<0.050	<0.050	RPD-NA	mg/kg	N/A	50	15-MAY-21
1,2-Dichlorobenzene		<0.050	<0.050	RPD-NA	mg/kg	N/A	50	15-MAY-21
1,3-Dichlorobenzene		<0.050	<0.050	RPD-NA	mg/kg	N/A	50	15-MAY-21
1,4-Dichlorobenzene		<0.050	<0.050	RPD-NA	mg/kg	N/A	50	15-MAY-21
Dichlorodifluoromethane		<0.050	<0.050	RPD-NA	mg/kg	N/A	50	15-MAY-21
1,1-dichloroethane		<0.050	<0.050	RPD-NA	mg/kg	N/A	50	15-MAY-21
1,2-Dichloroethane		<0.050	<0.050	RPD-NA	mg/kg	N/A	50	15-MAY-21
1,1-dichloroethene		<0.050	<0.050	RPD-NA	mg/kg	N/A	50	15-MAY-21
cis-1,2-Dichloroethene		<0.050	<0.050	RPD-NA	mg/kg	N/A	50	15-MAY-21
trans-1,2-Dichloroethene		<0.050	<0.050	RPD-NA	mg/kg	N/A	50	15-MAY-21
Dichloromethane		<0.10	<0.10	RPD-NA	mg/kg	N/A	50	15-MAY-21
1,2-Dichloropropane		<0.050	<0.050	RPD-NA	mg/kg	N/A	50	15-MAY-21
1,3-Dichloropropane		<0.050	<0.050	RPD-NA	mg/kg	N/A	50	15-MAY-21
2,2-Dichloropropane		<0.10	<0.10	RPD-NA	mg/kg	N/A	50	15-MAY-21
1,1-Dichloropropene		<0.050	<0.050	RPD-NA	mg/kg	N/A	50	15-MAY-21
cis-1,3-Dichloropropene		<0.050	<0.050	RPD-NA	mg/kg	N/A	50	15-MAY-21
trans-1,3-Dichloropropene		<0.050	<0.050	RPD-NA	mg/kg	N/A	50	15-MAY-21
Ethylbenzene		<0.015	<0.015	RPD-NA	mg/kg	N/A	50	15-MAY-21
F1		<10	<10	RPD-NA	mg/kg	N/A	50	15-MAY-21
Hexachlorobutadiene		<0.050	<0.050	RPD-NA	mg/kg	N/A	50	15-MAY-21
Hexane		<0.050	<0.050	RPD-NA	mg/kg	N/A	50	15-MAY-21
2-Hexanone (Methyl butyl ketone)		<0.50	<0.50	RPD-NA	mg/kg	N/A	50	15-MAY-21
Isopropylbenzene		<0.10	<0.10	RPD-NA	mg/kg	N/A	50	15-MAY-21
4-Isopropyltoluene		<0.10	<0.10	RPD-NA	mg/kg	N/A	50	15-MAY-21
MEK		<0.50	<0.50	RPD-NA	mg/kg	N/A	50	15-MAY-21
MIBK		<0.50	<0.50	RPD-NA	mg/kg	N/A	50	15-MAY-21
MTBE		<0.20	<0.20	RPD-NA	mg/kg	N/A	50	15-MAY-21
Styrene		<0.050	<0.050	RPD-NA	mg/kg	N/A	50	15-MAY-21
1,1,1,2-Tetrachloroethane		<0.050	<0.050	RPD-NA	mg/kg	N/A	50	15-MAY-21
1,1,2,2-Tetrachloroethane		<0.050	<0.050	RPD-NA	mg/kg	N/A	50	15-MAY-21

Quality Control Report

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
VOC+F1-HSMS-WP	**Soil**							
Batch R5458449								
WG3531683-8 DUP		**L2584561-1**						
Tetrachloroethene		<0.050	<0.050	RPD-NA	mg/kg	N/A	50	15-MAY-21
Toluene		<0.050	<0.050	RPD-NA	mg/kg	N/A	50	15-MAY-21
1,2,3-Trichlorobenzene		<0.050	<0.050	RPD-NA	mg/kg	N/A	50	15-MAY-21
1,2,4-Trichlorobenzene		<0.050	<0.050	RPD-NA	mg/kg	N/A	50	15-MAY-21
1,1,1-Trichloroethane		<0.050	<0.050	RPD-NA	mg/kg	N/A	50	15-MAY-21
1,1,2-Trichloroethane		<0.050	<0.050	RPD-NA	mg/kg	N/A	50	15-MAY-21
Trichloroethene		<0.010	<0.010	RPD-NA	mg/kg	N/A	50	15-MAY-21
Trichlorofluoromethane		<0.050	<0.050	RPD-NA	mg/kg	N/A	50	15-MAY-21
1,2,3-Trichloropropane		<0.050	<0.050	RPD-NA	mg/kg	N/A	50	15-MAY-21
1,2,4-Trimethylbenzene		<0.050	<0.050	RPD-NA	mg/kg	N/A	50	15-MAY-21
1,3,5-Trimethylbenzene		<0.050	<0.050	RPD-NA	mg/kg	N/A	50	15-MAY-21
Vinyl Chloride		<0.050	<0.050	RPD-NA	mg/kg	N/A	50	15-MAY-21
M+P-Xylenes		<0.050	<0.050	RPD-NA	mg/kg	N/A	50	15-MAY-21
o-Xylene		<0.050	<0.050	RPD-NA	mg/kg	N/A	50	15-MAY-21
WG3531683-6 LCS								
Acetone			107.8		%		70-130	12-MAY-21
Benzene			92.2		%		70-130	12-MAY-21
Bromobenzene			110.3		%		70-130	12-MAY-21
Bromochloromethane			105.8		%		70-130	12-MAY-21
Bromodichloromethane			99.9		%		70-130	12-MAY-21
Bromoform			121.0		%		70-130	12-MAY-21
Bromomethane			80.4		%		60-140	12-MAY-21
n-Butylbenzene			96.9		%		70-130	12-MAY-21
sec-Butylbenzene			114.3		%		70-130	12-MAY-21
tert-Butylbenzene			107.5		%		70-130	12-MAY-21
Carbon disulfide			63.7	LCS-L	%		70-130	12-MAY-21
Carbon Tetrachloride			87.1		%		70-130	12-MAY-21
Chlorobenzene			96.1		%		70-130	12-MAY-21
Chloroethane			80.3		%		60-140	12-MAY-21
Chloroform			90.9		%		70-130	12-MAY-21
Chloromethane			78.4		%		60-140	12-MAY-21
2-Chlorotoluene			103.3		%		70-130	12-MAY-21
4-Chlorotoluene			107.5		%		70-130	12-MAY-21
Dibromochloromethane			103.9		%		70-130	12-MAY-21

Quality Control Report

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
VOC+F1-HSMS-WP	**Soil**							
Batch R5458449								
WG3531683-6 LCS								
1,2-Dibromo-3-chloropropane			100.2		%		70-130	12-MAY-21
1,2-Dibromoethane			104.0		%		70-130	12-MAY-21
Dibromomethane			116.9		%		70-130	12-MAY-21
1,2-Dichlorobenzene			102.1		%		70-130	12-MAY-21
1,3-Dichlorobenzene			97.3		%		70-130	12-MAY-21
1,4-Dichlorobenzene			99.7		%		70-130	12-MAY-21
Dichlorodifluoromethane			64.9		%		60-140	12-MAY-21
1,1-dichloroethane			79.5		%		70-130	12-MAY-21
1,2-Dichloroethane			92.3		%		70-130	12-MAY-21
1,1-dichloroethene			72.2		%		70-130	12-MAY-21
cis-1,2-Dichloroethene			97.5		%		70-130	12-MAY-21
trans-1,2-Dichloroethene			77.6		%		70-130	12-MAY-21
Dichloromethane			90.3		%		60-140	12-MAY-21
1,2-Dichloropropane			91.3		%		70-130	12-MAY-21
1,3-Dichloropropane			87.2		%		70-130	12-MAY-21
2,2-Dichloropropane			78.9		%		70-130	12-MAY-21
1,1-Dichloropropene			89.9		%		70-130	12-MAY-21
cis-1,3-Dichloropropene			96.0		%		70-130	12-MAY-21
trans-1,3-Dichloropropene			79.3		%		70-130	12-MAY-21
Ethylbenzene			103.6		%		70-130	12-MAY-21
Hexachlorobutadiene			93.5		%		70-130	12-MAY-21
Hexane			70.9		%		70-130	12-MAY-21
2-Hexanone (Methyl butyl ketone)			93.8		%		70-130	12-MAY-21
Isopropylbenzene			107.1		%		70-130	12-MAY-21
4-Isopropyltoluene			103.8		%		70-130	12-MAY-21
MEK			115.8		%		70-130	12-MAY-21
MIBK			127.7		%		70-130	12-MAY-21
MTBE			91.2		%		70-130	12-MAY-21
Styrene			108.6		%		70-130	12-MAY-21
1,1,1,2-Tetrachloroethane			100.2		%		70-130	12-MAY-21
1,1,2,2-Tetrachloroethane			100.1		%		70-130	12-MAY-21
Tetrachloroethene			84.3		%		70-130	12-MAY-21
Toluene			93.5		%		70-130	12-MAY-21
1,2,3-Trichlorobenzene			102.1		%		70-130	12-MAY-21

Quality Control Report

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
VOC+F1-HSMS-WP	**Soil**							
Batch R5458449								
WG3531683-6 LCS								
1,2,4-Trichlorobenzene			96.0		%		70-130	12-MAY-21
1,1,1-Trichloroethane			83.5		%		70-130	12-MAY-21
1,1,2-Trichloroethane			101.6		%		70-130	12-MAY-21
Trichloroethene			98.3		%		70-130	12-MAY-21
Trichlorofluoromethane			74.4		%		60-140	12-MAY-21
1,2,3-Trichloropropane			102.1		%		70-130	12-MAY-21
1,2,4-Trimethylbenzene			108.6		%		70-130	12-MAY-21
1,3,5-Trimethylbenzene			107.5		%		70-130	12-MAY-21
Vinyl Chloride			72.8		%		60-140	12-MAY-21
M+P-Xylenes			94.9		%		70-130	12-MAY-21
o-Xylene			107.4		%		70-130	12-MAY-21
WG3531683-7 LCS								
F1			74.7		%		70-130	13-MAY-21
WG3531683-5 MB								
Acetone			<0.50		mg/kg		0.5	11-MAY-21
Benzene			<0.0050		mg/kg		0.005	11-MAY-21
Bromobenzene			<0.10		mg/kg		0.1	11-MAY-21
Bromochloromethane			<0.10		mg/kg		0.1	11-MAY-21
Bromodichloromethane			<0.050		mg/kg		0.05	11-MAY-21
Bromoform			<0.050		mg/kg		0.05	11-MAY-21
Bromomethane			<0.050		mg/kg		0.05	11-MAY-21
n-Butylbenzene			<0.050		mg/kg		0.05	11-MAY-21
sec-Butylbenzene			<0.050		mg/kg		0.05	11-MAY-21
tert-Butylbenzene			<0.050		mg/kg		0.05	11-MAY-21
Carbon disulfide			<0.25		mg/kg		0.25	11-MAY-21
Carbon Tetrachloride			<0.050		mg/kg		0.05	11-MAY-21
Chlorobenzene			<0.050		mg/kg		0.05	11-MAY-21
Chloroethane			<0.050		mg/kg		0.05	11-MAY-21
Chloroform			<0.050		mg/kg		0.05	11-MAY-21
Chloromethane			<0.050		mg/kg		0.05	11-MAY-21
2-Chlorotoluene			<0.10		mg/kg		0.1	11-MAY-21
4-Chlorotoluene			<0.10		mg/kg		0.1	11-MAY-21
Dibromochloromethane			<0.050		mg/kg		0.05	11-MAY-21
1,2-Dibromo-3-chloropropane			<0.050		mg/kg		0.05	11-MAY-21
1,2-Dibromoethane			<0.050		mg/kg		0.05	11-MAY-21

Quality Control Report

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
VOC+F1-HSMS-WP	**Soil**							
Batch R5458449								
WG3531683-5 MB								
Dibromomethane			<0.050		mg/kg		0.05	11-MAY-21
1,2-Dichlorobenzene			<0.050		mg/kg		0.05	11-MAY-21
1,3-Dichlorobenzene			<0.050		mg/kg		0.05	11-MAY-21
1,4-Dichlorobenzene			<0.050		mg/kg		0.05	11-MAY-21
Dichlorodifluoromethane			<0.050		mg/kg		0.05	11-MAY-21
1,1-dichloroethane			<0.050		mg/kg		0.05	11-MAY-21
1,2-Dichloroethane			<0.050		mg/kg		0.05	11-MAY-21
1,1-dichloroethene			<0.050		mg/kg		0.05	11-MAY-21
cis-1,2-Dichloroethene			<0.050		mg/kg		0.05	11-MAY-21
trans-1,2-Dichloroethene			<0.050		mg/kg		0.05	11-MAY-21
Dichloromethane			<0.10		mg/kg		0.1	11-MAY-21
1,2-Dichloropropane			<0.050		mg/kg		0.05	11-MAY-21
1,3-Dichloropropane			<0.050		mg/kg		0.05	11-MAY-21
2,2-Dichloropropane			<0.10		mg/kg		0.1	11-MAY-21
1,1-Dichloropropene			<0.050		mg/kg		0.05	11-MAY-21
cis-1,3-Dichloropropene			<0.050		mg/kg		0.05	11-MAY-21
trans-1,3-Dichloropropene			<0.050		mg/kg		0.05	11-MAY-21
Ethylbenzene			<0.015		mg/kg		0.015	11-MAY-21
F1			<10		mg/kg		10	11-MAY-21
Hexachlorobutadiene			<0.050		mg/kg		0.05	11-MAY-21
Hexane			<0.050		mg/kg		0.05	11-MAY-21
2-Hexanone (Methyl butyl ketone)			<0.50		mg/kg		0.5	11-MAY-21
Isopropylbenzene			<0.10		mg/kg		0.1	11-MAY-21
4-Isopropyltoluene			<0.10		mg/kg		0.1	11-MAY-21
MEK			<0.50		mg/kg		0.5	11-MAY-21
MIBK			<0.50		mg/kg		0.5	11-MAY-21
MTBE			<0.20		mg/kg		0.2	11-MAY-21
Styrene			<0.050		mg/kg		0.05	11-MAY-21
1,1,1,2-Tetrachloroethane			<0.050		mg/kg		0.05	11-MAY-21
1,1,2,2-Tetrachloroethane			<0.050		mg/kg		0.05	11-MAY-21
Tetrachloroethene			<0.050		mg/kg		0.05	11-MAY-21
Toluene			<0.050		mg/kg		0.05	11-MAY-21
1,2,3-Trichlorobenzene			<0.050		mg/kg		0.05	11-MAY-21
1,2,4-Trichlorobenzene			<0.050		mg/kg		0.05	11-MAY-21

Quality Control Report

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
VOC+F1-HSMS-WP	**Soil**							
Batch R5458449								
WG3531683-5 MB								
1,1,1-Trichloroethane			<0.050		mg/kg		0.05	11-MAY-21
1,1,2-Trichloroethane			<0.050		mg/kg		0.05	11-MAY-21
Trichloroethene			<0.010		mg/kg		0.01	11-MAY-21
Trichlorofluoromethane			<0.050		mg/kg		0.05	11-MAY-21
1,2,3-Trichloropropane			<0.050		mg/kg		0.05	11-MAY-21
1,2,4-Trimethylbenzene			<0.050		mg/kg		0.05	11-MAY-21
1,3,5-Trimethylbenzene			<0.050		mg/kg		0.05	11-MAY-21
Vinyl Chloride			<0.050		mg/kg		0.05	11-MAY-21
M+P-Xylenes			<0.050		mg/kg		0.05	11-MAY-21
o-Xylene			<0.050		mg/kg		0.05	11-MAY-21
Surrogate: 1,4-Difluorobenzene (SS)			129.6		%		70-130	11-MAY-21
Surrogate: 3,4-Dichlorotoluene (SS)			70.7		%		70-130	11-MAY-21
Surrogate: 4-Bromofluorobenzene (SS)			105.9		%		70-130	11-MAY-21

Legend:

Limit	ALS Control Limit (Data Quality Objectives)
DUP	Duplicate
RPD	Relative Percent Difference
N/A	Not Available
LCS	Laboratory Control Sample
SRM	Standard Reference Material
MS	Matrix Spike
MSD	Matrix Spike Duplicate
ADE	Average Desorption Efficiency
MB	Method Blank
IRM	Internal Reference Material
CRM	Certified Reference Material
CCV	Continuing Calibration Verification
CVS	Calibration Verification Standard
LCSD	Laboratory Control Sample Duplicate

Sample Parameter Qualifier Definitions:

Qualifier	Description
LCS-L	Lab Control Sample recovery was below ALS DQO. Reference Material and/or Matrix Spike results were acceptable. Non-detected sample results are considered reliable. Other results, if reported, have been qualified.
RPD-NA	Relative Percent Difference Not Available due to result(s) being less than detection limit.

Hold Time Exceedances:

All test results reported with this submission were conducted within ALS recommended hold times.

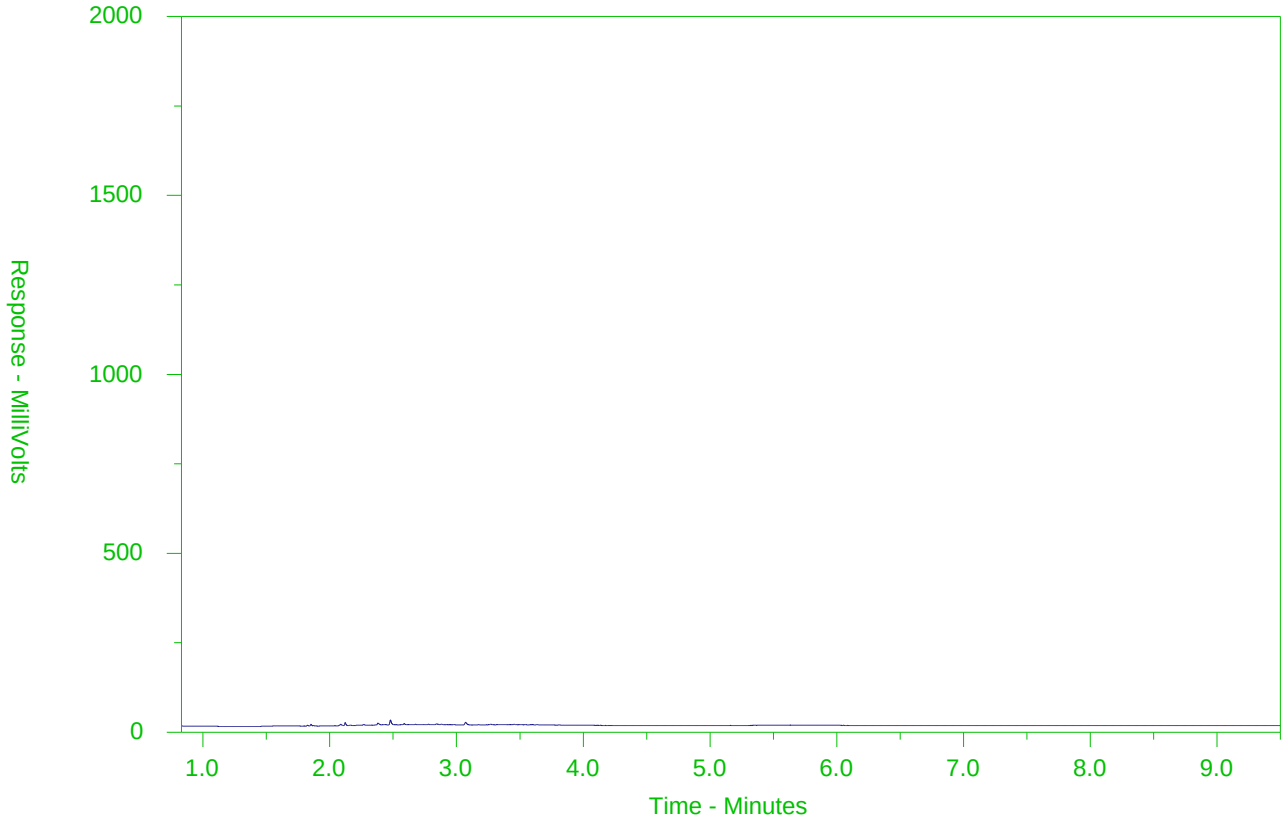
ALS recommended hold times may vary by province. They are assigned to meet known provincial and/or federal government requirements. In the absence of regulatory hold times, ALS establishes recommendations based on guidelines published by the US EPA, APHA Standard Methods, or Environment Canada (where available). For more information, please contact ALS.

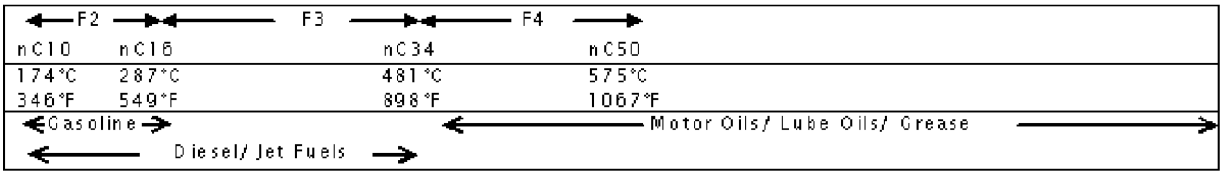
The ALS Quality Control Report is provided to ALS clients upon request. ALS includes comprehensive QC checks with every analysis to ensure our high standards of quality are met. Each QC result has a known or expected target value, which is compared against pre-determined data quality objectives to provide confidence in the accuracy of associated test results.

Please note that this report may contain QC results from anonymous Sample Duplicates and Matrix Spikes that do not originate from this Work Order.

CCME F2-F4 HYDROCARBON DISTRIBUTION REPORT

ALS Sample ID: L2584561-1
Client Sample ID: MW01-SS07





The CCME F2-F4 Hydrocarbon Distribution Report (HDR) is intended to assist you in characterizing hydrocarbon products that may be present in your sample.

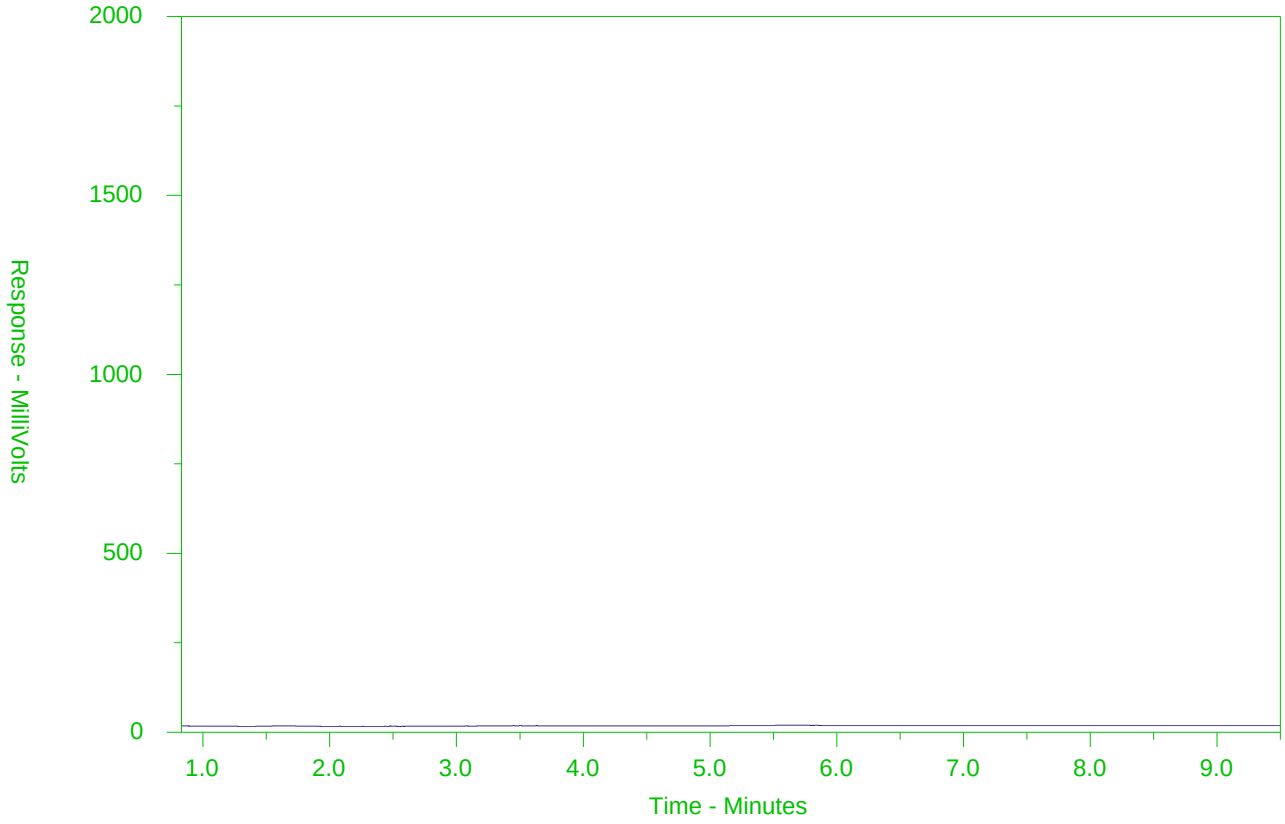
The scale at the bottom of the chromatogram indicates the approximate retention times of common petroleum products and four n-alkane hydrocarbon marker compounds. Retention times may vary between samples, but general patterns and distributions will remain similar.

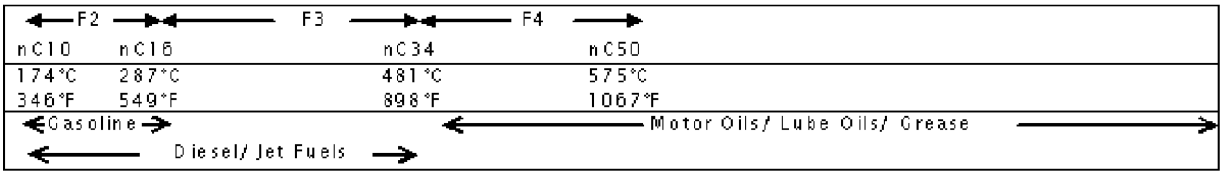
Peak heights in this report are a function of the sample concentration, the sample amount extracted, the sample dilution factor, and the scale at left.

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: L2584561-2
Client Sample ID: MW02-SS03





The CCME F2-F4 Hydrocarbon Distribution Report (HDR) is intended to assist you in characterizing hydrocarbon products that may be present in your sample.

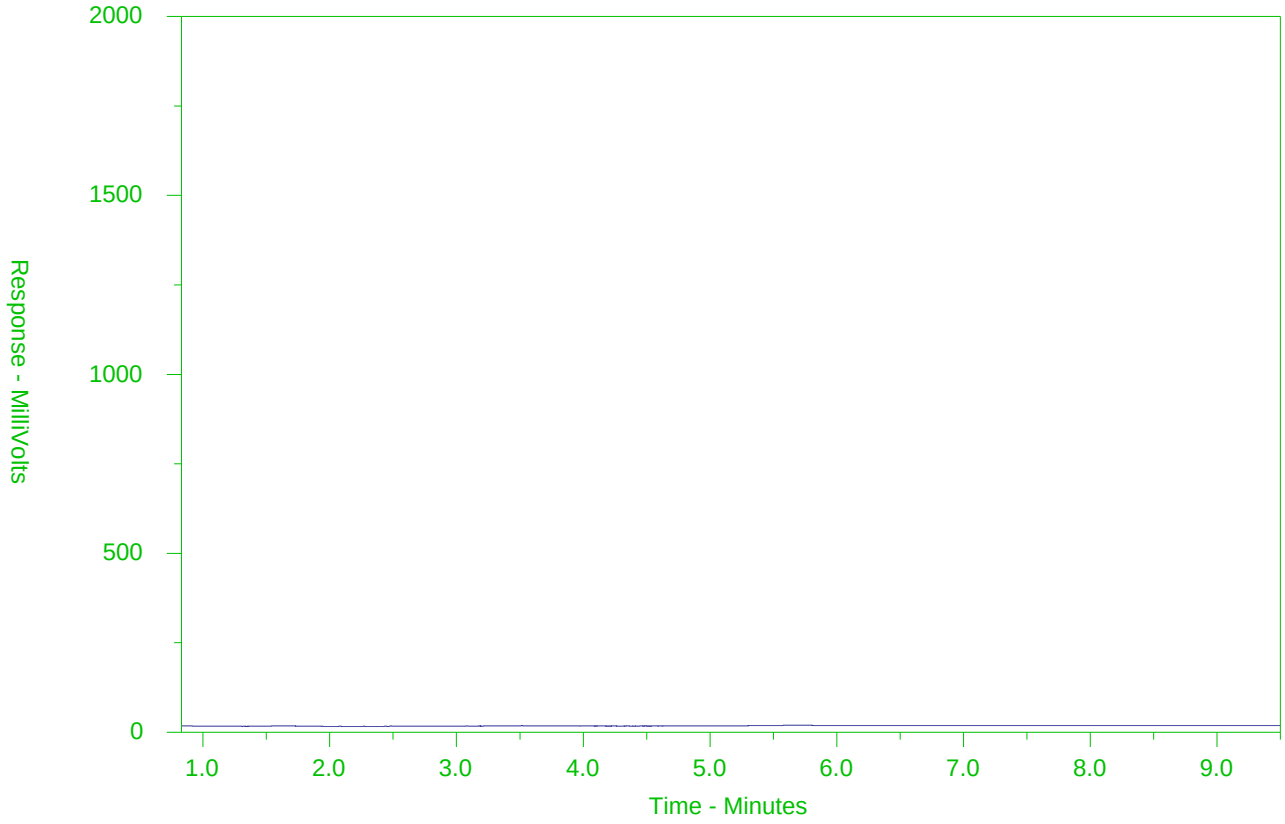
The scale at the bottom of the chromatogram indicates the approximate retention times of common petroleum products and four n-alkane hydrocarbon marker compounds. Retention times may vary between samples, but general patterns and distributions will remain similar.

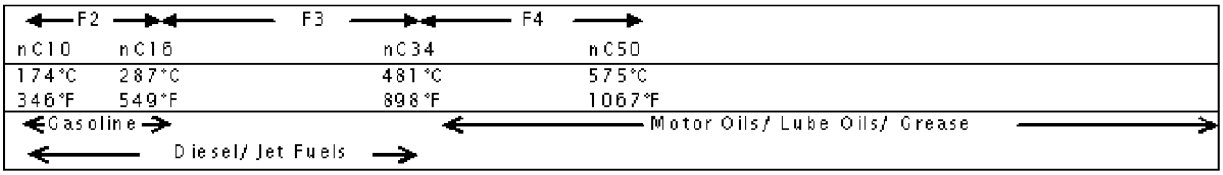
Peak heights in this report are a function of the sample concentration, the sample amount extracted, the sample dilution factor, and the scale at left.

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: L2584561-3
Client Sample ID: DUP01





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.

ALS Environmental

www.alsglobal.com

Chain of Custody (COC) / Analytical Request Form

Canada Toll Free: 1 800 668 9878

L2584561-COFC

Number: 17 - 876457

Page 1 of 2

Report To	Contact and company name below will appear on the final report	Report Format / Distribution	Select Service Level Below - Contact your AM to confirm all E&P TATs (surcharges may apply)
Company:	HLC Consulting Ltd	Select Report Format: [X] PDF [X] EXCEL [ ] EDD (DIGITAL)	Regular [R] [X] Standard TAT if received by 3 pm - business days - no surcharges apply
Contact:	Bethany Wiebe	Quality Control (QC) Report with Report [ ] YES [ ] NO	PRIORITY (Business Days): 4 day [P4-20%] [ ]; 3 day [P3-25%] [ ]; 2 day [P2-50%] [ ]
Phone:	204 479 9771	[ ] Compare Results to Criteria on Report - provide details below if box checked	EMERGENCY: 1 Business day [E - 100%] [ ]; Same Day, Weekend or Statutory holiday [E2 -200% (Laboratory opening fees may apply)] [ ]
	Company address below will appear on the final report	Select Distribution: [X] EMAIL [ ] MAIL [ ] FAX	Date and Time Required for all E&P TATs: dd-mmm-yy hh:mm
Street:	5-55 Hewlow Bay	Email 1 or Fax bwiebe@hlcconsultingltd.ca	For tests that can not be performed according to the service level selected, you will be contacted.
City/Province:	Winnipeg MB	Email 2 cbaldwin@hlcconsultingltd.ca	
Postal Code:	R3Y 1G4	Email 3	
Invoice To	Same as Report To [X] YES [ ] NO	**Invoice Distribution**	**Analysis Request**
	Copy of Invoice with Report [X] YES [ ] NO	Select Invoice Distribution: [X] EMAIL [ ] MAIL [ ] FAX	
Company:	HLC Consulting Ltd	Email 1 or Fax	
Contact:	Carolyn Baldwin	Email 2	

Project Information		Oil and Gas Required Fields (client use)	
ALS Account # / Quote #:	Q75942	AFE/Cost Center:	PO#
Job #:	20210238	Major/Minor Code:	Routing Code:
PO / AFE:		Requisitioner:	
LSD:		Location:	
ALS Lab Work Order # (lab use only):		ALS Contact: C. Riddell	Sampler: B. Wiebe

ALS Sample # (lab use only)	Sample Identification and/or Coordinates (This description will appear on the report)	Date (dd-mmm-yy)	Time (hh:mm)	Sample Type	NUMBER OF CONTAINERS	VOC Fl	PHC F2-F4	PAH	Metals	SAMPLES ON HOLD	SUSPECTED HAZARD (see Special Instructions)
	MW01	06-05-21	2m	Soil	6	x	x	x	x		
	MW02	06-05-21	2m	Soil	6	x	x	x	x		
	DUP01	06-05-21	2m	Soil	6	x	x	x	x		

Drinking Water (DW) Samples[1] (client use)	Special Instructions / Specify Criteria to add on report by clicking on the drop-down list below (electronic COC only)
Are samples taken from a Regulated DW System? [ ] YES [ ] NO	
Are samples for human consumption/ use? [ ] YES [ ] NO	

SAMPLE CONDITION AS RECEIVED (lab use only)

Frozen	[ ]	SIF Observations	Yes [ ]	No	[ ]
Ice Packs [ ] Ice Cubes [ ]		Custody seal intact	Yes [ ]	No	[ ]
Cooling Initiated	[ ]				

INITIAL COOLER TEMPERATURES °C				FINAL COOLER TEMPERATURES °C			
							11.6-0

SHIPMENT RELEASE (client use)			INITIAL SHIPMENT RECEPTION (lab use only)			FINAL SHIPMENT RECEPTION (lab use only)		
Released by:	Date:	Time:	Received by:	Date:	Time:	Received by:	Date:	Time:
Bethany Wiebe	May 6/2021	11:50		MAY 06 2020			MAY 06 2020	12:31

REFER TO BACK PAGE FOR ALS LOCATIONS AND SAMPLING INFORMATION

WHITE - LABORATORY COPY YELLOW - CLIENT COPY

JUNE 2018 FRONT

1. If any water samples are taken from a Regulated Drinking Water (DW) System, please submit using an Authorized DW COC form.

APPENDIX V

NCSCS EVALUATION

CCME National Classification System for Contaminated Sites (2008) version 1.3
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; or 4) background concentration.	No	If yes (*i.e.* , there are no exceedances), do not proceed through the NCSCS.
3. Have **partial/incompleted or no environmental site investigations** been conducted for the Site?	No	If yes, do not proceed through the NCSCS.
4. Is there direct and 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.
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	To answer “yes”, two scenarios should be satisfied; (1) there has to be a high probability that receptors will be exposed to the contaminant source in the near future, and (2) the predicted impacts to ecological receptors after exposure must be significant (see question 5). A low probability of exposure resulting in significant impacts, or a high probability of exposure but with only low to moderate effects expected should not result in a Class 1 designation, neither would a low probability of exposure resulting in low-to-moderate effects. 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.
7. Do measured concentrations of volatiles or unexploded ordnances represent an **explosion hazard**?	No	If yes, do not proceed through the NCSCS. Do not continue until the safety risks have been addressed. Consult your jurisdiction's occupational health and safety guidance or legislation on exposive hazards and measurement of lower explosive limits.

CCME National Classification System for Contaminated Sites (2008) version 1.3
Pre-Screening Checklist

Rationale for not proceeding with NCSCS **(document any assumptions, reports, or site-specific information to support selection of "Yes" in Pre-Screening checklist)**

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

CCME National Classification System for Contaminated Sites (2008) version 1.3
Summary of Site Conditions

Site:	Site will be identified by:	Civic Address
Civic Address: *(or other description of location)*	625 Wall Street, Winnipeg Manitoba	
Site Common Name: *(if applicable)*	625 Wall Street, Winnipeg Manitoba	
Code identifier: *(e.g., FCSI 8-digit identifier)*		
Site Owner or Custodian: *(Organization and Contact Person)*	Faveri's Wood Furniture, Robert Kreis	
Legal description *or* metes and bounds:	Roll: 13011676100	
Approximate Site area:	0.45 acres	
Parcel Identifier(s) [PID]: *(or Parcel Identification Numbers [PIN] if untitled Crown land)*	Roll: 13011676100	
Centre of site: *(provide latitude/longitude or UTM coordinates)*	Latitude:_____ degrees _____ min _____ secs; Longitude:_____ degrees _____ min _____ secs	
	UTM Coordinate: 14 Northing 5527463 Easting 630563	
Site Land Use:	Current:	Commercial - Faveri's Wood Furniture Store
	Proposed:	Commercial - Faveri's Wood Furniture Store
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 located at 625 Wall Street, approximately 155 metres (m) north of Portage Avenue, in Winnipeg, Manitoba. The Site consists of a single-storey (with partial mezzanine), commercial building (the "Building"). The remainder of the Site is complete with asphalt surfaced parking and driving areas located on the north side of the Building. At the time of this Phase II ESA, the Building was occupied by Faveri's Wood Furniture.	

CCME National Classification System for Contaminated Sites (2008) version 1.3
Summary of Site Conditions

Affected media and Contaminants of Potential Concern (COPC):	Soil - BTEX, PHC F1- F4, VOCs, PAHs and metals. Water - BTEX, PHC F1-F4, VOCs, PAHs and dissolved metals. (Both monitoring wells were dry and water samples were therefore not analyzed during the limited Phase II ESA.

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

Site Letter Grade **D**

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

Scoring Completed By:	Bethany Wiebe
Date Scoring Completed:	28-May-21

CCME National Classification System (2008) version 1.3

(I) Contaminant Characteristics

Site: 625 Wall Street, Winnipeg Manitoba

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		A Phase II ESA completed by HLC Consulting Ltd. performed soil sampling at the Site on May 6, 2021; ALS lab results indicated MW01 and MW02 had guideline exceedances of boron. •MW01-SS07 (4.57 to 5.33 mbgs) had exceedances of boron measured at 19.2 mg/kg vs the guideline of 7.9 mg/kg. •MW02-SS03 (1.52 to 2.29 mbgs) had exceedances of boron measured at 20.0 mg/kg vs the guideline of the guideline of 7.9 mg/kg. •DUP01 from MW02-SS03) (1.52 to 2.29 mbgs) had exceedances of boron measured at 19.8 mg/kg vs. the guideline of 7.9 mg/kg. •Ontario Ministry of Environment Conservation and Parks (MOECP), 2011. Soil, Ground Water and Sediment Standards for use under Part XV.1 of the Environmental Protection Act. Accessed online May 2021. -Table 5: Stratified Site Condition Standards in a Non-Potable Ground Water Condition. Fine Textured Subsurface Soil. Commercial Land Use. It is important to note that the limits used by MOECP may not accurately reflect the natural concentration of metals found in Manitoba soils. Given the concentration of boron detected in all three samples were relatively similar, it is suggestive that these levels are likely naturally occurring. Therefore, it is the opinion of HLC that soil laboratory analytical results are not indicative of environmental concerns on-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://st-ts.ccme.ca/ 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://hc-sc.gc.ca/ewh-semt/water-eau/drink-potab/guide/index-eng.php	An increasing number of residency media containing chemical exceedances often equates to a greater potential risk due to an increase in the number of potential exposure pathways.
A. Soil	Yes			
Yes No Do Not Know				
B. Groundwater	No			
Yes No Do Not Know				
C. Surface water	No			
Yes No Do Not Know				
D. Sediment	No			
Yes No Do Not Know				
"Known" -score	2			
"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)?	Low	Boron is considered "Low" in the Contaminant Hazard Rankings defined by the Federal Contaminated Sites Action Plan (FCSAP).	The relative degree of chemical hazard should be selected based on the most hazardous contaminant known or suspected to be present at the site. The degree of hazard has been defined by the Federal Contaminated Sites Action Plan (FCSAP) and a list of substances with their associated hazard (Low, Medium and High) has been provided as a separate sheet in this file. *See Attached Reference Material for Contaminant Hazard Rankings.*	Hazard as defined in the revised NCSCS 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	2			
"Potential" - score	---			

CCME National Classification System (2008) version 1.3

(I) Contaminant Characteristics

Site: 625 Wall Street, Winnipeg Manitoba

Definition	Score	Rationale for Score (document any assumptions, reports, or site-specific information; provide references)	Method of Evaluation	Notes
3. Contaminant Exceedance Factor				
What is the ratio between the measured contaminant concentration and the applicable CCME guidelines (or other "standards")? NAPL (mobile or immobile) High (>100x) Medium (10x to 100x) Low (1x to 10x) Do Not Know	Low (1x to 10x)	Boron (MW02-SS03 (1.52 to 2.29 mbgs)) : 20/7.9 = 2.53; therefore, ranking of contaminated hazard is "Low" (1 - 10 X appropriate guidelines)	Ranking of contaminant "exceedance" is determined by comparing contaminant concentrations with the *most conservative media-specific and land-use appropriate CCME* environmental quality guidelines. **Ranking should be based on contaminant with greatest exceedance of CCME guidelines.** Ranking of contaminant hazard as high, medium and low is as follows: High = One or more measured contaminant concentration is greater than 100 X appropriate CCME guidelines Medium = One or more measured contaminant concentration is 10 - 99.99 X appropriate CCME guidelines Low = One or more measured contaminant concentration is 1 - 9.99 X appropriate CCME guidelines NAPL (LNAPL or DNAPL) = 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. Any amount of NAPL should be scored, *i.e* . small amounts and sheens cannot be ignored. The presence of a NAPL (mobile or immoblie or regardless of amount) may be considered unnaceptable by some jurisidcations. If NAPL is present, consult jurisdiction on how to proceed with NCSCS. 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.
"Known" -score	2			
"Potential" - score	---			
4. Contaminant Quantity (known or strongly suspected)				
What is the known or strongly suspected quantity of all contaminants? >10 hectare (ha) or 5000 m^3 2 to 10 ha or 1000 to 5000 m^3 <2 ha or 1000 m^3 Do Not Know	<2 ha or 1000 m3	Soil volume of material removed during the drilling of each monitoring well (MW01 & MW02) was estimated to be less than 1000 m3. Delineation was not within the Scope of Work.	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	---			

CCME National Classification System (2008) version 1.3
(I) Contaminant Characteristics

Site: 625 Wall Street, Winnipeg Manitoba

Definition	Score	Rationale for Score (document any assumptions, reports, or site-specific information; provide references)	Method of Evaluation	Notes
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	Boron is not classified as a peristent chemical according to Canadian Environmental Protection Act (CEPA).	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. Elements do not degrade, therefore treat any metal, metalloid, or halogen COPC as persistent.	*Examples of Persistent Substances are provided in attached Reference Materials*
Are there contaminants present that could cause damage to utilities and infrastructure, either now or in the future, given their location? Yes No Do Not Know	No	No underground infrastructure is located in the area of MW01 and MW02, as reported by public and private utility locators obtained by HLC Consulting Ltd., prior to drilling activities. .	If answered Yes, in Rationale for Score column document the location and extent of the infrastructure that is/may be damaged, verify the mode of contact between contaminants of potential concern (COPCs) and infrastructure, list the specific COPCs that could cause damage, and note the expected effect on specific infrastructure.	Some contaminants may react or absorb into underground utilities and infrastructure. For example, organic solvents may degrade some plastics, and salts could cause corrosion of metal.
How many different contaminant classes have representative CCME guideline exceedances? one two to four five or more Do Not Know	one	Boron (inorganic substance - metal) is the only chemical contaminant class with a guidelines exceedance.	For the purposes of the revised NCSCS, the following chemicals represent distinct chemical "classes": inorganic substances (including metals), volatile petroleum hydrocarbons, light extractable petroleum hydrocarbons, heavy extractable petroleum hydrocarbons, PAHs, phenolic substances, chlorinated hydrocarbons, halogenated methanes, phthalate esters, pesticides.	*Refer to the Reference Material sheet for a list of example substances that fall under the various chemical classes.*
"Known" - Score	0			
"Potential" - Score	---			

Contaminant Characteristic Total

Raw Total Score- "Known"	8	
Raw Total Score- "Potential"	---	
Raw Combined Total Score (Known + Potential)	8	
Adjusted Total Score (Raw Combined / 40 * 33)	**6.6**	maximum 33

CCME National Classification System (2008) version 1.3

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

Site: 625 Wall Street, Winnipeg Manitoba

Definition	Score	Rationale for Score (document any assumptions, reports, or site-specific information; provide references)	Method Of Evaluation	Notes
1. Groundwater Movement				
A. Known COPC exceedances and an operable groundwater pathway within and/or beyond the property boundary.				
i) For **potable groundwater environments**, 1) groundwater concentrations exceed background concentrations and 1X the Guideline for Canadian Drinking Water Quality (GCDWQ) or 2) there is known contact of contaminants with groundwater, based on physical evidence of groundwater contamination. For **non-potable environments** (typically urban environments with municipal services), 1) groundwater concentrations exceed 1X the applicable non potable guidelines or modified generic guidelines (which exclude ingestion of drinking water pathway) or 2) there is known contact of contaminants with groundwater, based on physical evidence of groundwater impacts.	12	No operable groundwater pathway, as both MW01 and MW02 were dry.	Review chemical data and evaluate groundwater quality. The evaluation method concentrates on 1) a potable or non-potable groundwater environment; 2) the groundwater flow system and its potential to be an exposure pathway to known or potential receptors An aquifer is defined as a geologic unit that yields groundwater in usable quantities and drinking water quality. The aquifer can currently be used as a potable water supply or could have the potential for use in the future. Non-potable groundwater environments are defined as areas that are serviced with a reliable alternative water supply (most commonly provided in urban areas). The evaluation of a non-potable environment will be based on a site specific basis. Physical evidence includes significant sheens, liquid phase contamination, or contaminant saturated soils. Seeps and springs are considered part of the groundwater pathway. In Arctic environments, the potability and evaluation of the seasonal active layer (above the permafrost) as a groundwater exposure pathway will be considered on a site-specific basis.	The 1992 NCS rationale evaluated the off-site migration as a regulatory issue. The exposure assessment and classification of hazards should be evaluated regardless of the property boundaries. Someone experienced must provide a thorough description of the sources researched to determine the presence/absence of a groundwater supply source in the vicinity of the contaminated site. This information must be documented in the NCS Site Classification Worksheet including contact names, phone numbers, e-mail correspondence and/or reference maps/reports and other resources such as internet links. Note that for potable groundwater that also daylights into a nearby surface water body, the more stringent guidelines for both drinking water and protection of aquatic life should be considered. **Selected References** Potable Environments Guidelines for Canadian Drinking Water Quality: http://hc-sc.gc.ca/ewh-semt/water-eau/drink-potab/guide/index-eng.php Non-Potable Environments CCME. 1999. Canadian Water Quality Guidelines for Protection of Aquatic Life. http://ceqg-rcqe.ccme.ca/ Compilation and Review of Canadian Remediation Guidelines, Standards and Regulations. Science Applications International Corporation (SAIC Canada), report to Environment Canada, January 4, 2002.
ii) Same as (i) except the information is not known but strongly suspected based on indirect observations.	9			
iii) Meets GCDWQ for potable environments; meets non-potable criteria or modified generic criteria (excludes ingestion of drinking water pathway) for non-potable environments or Absence of groundwater exposure pathway (*i.e.,* there is no aquifer (see definition at right) at the site or there is an adequate isolating layer between the aquifer and the contamination, and within 5 km of the site there are no aquatic receiving environments and the groundwater does not daylight).	0			
	0			
Score	0			
NOTE: If a score is assigned here for Known COPC Exceedances, then you should skip Part B (Potential for groundwater pathway) and go to Section 2 (Surface Water Pathway)				
B. Potential for groundwater pathway.				
a. Relative mobility of contaminant High Moderate Low Insignificant Do Not Know		Boron (inorganic substance - metal) is ubiquitious with soil. Boron is not listed in the US EPA Soil Screening Guidance (Part 5 - Table 39). Partitioning and soil solution of boron were not calculated as part of this limited Phase II ESA. Https://open.alberta.ca/dataset/d82ddd03-5063-43cb-87fe-849e389f2b1c/resource/ef723e60-e447-4b07-ab9a-b4c99b5e0e9f/download/soilremediationguidelinesboron-2016.pdf	Organics Koc (L/kg) — Metals with higher mobility at acidic conditions — Metals with higher mobility at alkaline conditions Koc < 500 (*i.e.,* log Koc < 2.7) — pH < 5 — pH > 8.5 Koc = 500 to 5000 (*i.e.,* log Koc = 2.7 to 3.7) — pH = 5 to 6 — pH = 7.5 to 8.5 Koc = 5,000 to 100,000 (*i.e.,* log Koc = 3.7 to 5) — pH > 6 — pH < 7.5 Koc > 100,000 (*i.e.,* log Koc > 5) For PHC fractions; score F1 as Moderate, F2 as Low, and F3 and F4 as Insignificant.	Reference: US EPA Soil Screening Guidance (Part 5 - Table 39) If a score of zero is assigned for relative mobility, it is still recommended that the following sections on potential for groundwater pathway be evaluated and scored. Although the Koc of an individual contaminant may suggest that it will be relatively immobile, it is possible that, with complex mixtures, there could be enhanced mobility due to co-solvent effects. Therefore, the Koc cannot be relied on solely as a measure of mobility. An evaluation of other factors such as containment, thickness of confining layer, hydraulic conductivities and precipitation infiltration rate are still useful in predicting potential for groundwater migration, even if a contaminant is expected to have insignificant mobility based on its chemistry alone.
	Insignificant			
Score	0			
b. Presence of engineered sub-surface containment? No containment Partial containment Full containment Do Not Know		No presence of engineered sub-surface containment noted at Site. https://semspub.epa.gov/work/06/668746.pdf	Review the existing engineered systems or natural attenuation processes for the site and determine if full or partial containment is achieved. Full containment is defined as an engineered system or natural attenuation processes, monitored as being effective, which provide for full capture and/or treatment of contaminants. All chemicals of concern must be contained for "Full Containment" scoring. Natural attenuation must have sufficient data, and reports cited with monitoring data to support steady state conditions and the attenuation processes. If there is no containment or insufficient natural attenuation process, this category is evaluated as high. If there is less than full containment or if uncertain, then evaluate as medium. In Arctic environments, permafrost will be evaluated, as appropriate, based on detailed evaluations, effectiveness and reliability to contain/control contaminant migration.	Someone experienced must provide a thorough description of the sources researched to determine the containment of the source at the contaminated site. This information must be documented in the NCS Site Classification Worksheet including contact names, phone numbers, e-mail correspondence and/or reference maps, geotechnical reports or natural attenuation studies and other resources such as internet links. **Selected Resources:** United States Environmental Protection Agency (USEPA) 1998. Technical Protocol for Evaluating Natural Attenuation of Chlorinated Solvents in Groundwater. EPA/600/R-98/128.
	No containment			
Score	3			
c. Thickness of confining layer over aquifer of concern or groundwater exposure pathway 3 m or less including no confining layer or discontinuous confining layer 3 to 10 m > 10 m Do Not Know		Inferred bedrock depth is approximately 15 to 25 mbgs. https://en-ca.topographic-map.com/maps/pql9/Manitoba/ Bedrock Topography and Geology of Southern Manitoba, 1970. Manitoba Department of Mines and Natural Resources.	The term "confining layer" refers to geologic material with little or no permeability or hydraulic conductivity (such as unfractured clay); water does not pass through this layer or the rate of movement is extremely slow. Measure the thickness and extent of materials that will impede the migration of contaminants to the groundwater exposure pathway. The evaluation of this category is based on: 1) The presence and thickness of saturated subsurface materials that impede the vertical migration of contaminants to lower aquifer units which can or are used as drinking water sources or 2) The presence and thickness of unsaturated subsurface materials that impede the vertical migration of contaminants from the source location to the saturated zone (*e.g.,* water table aquifer, first hydrostratigraphic unit or other groundwater pathway).	
	> 10 m			
Score	0			

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

Site: 625 Wall Street, Winnipeg Manitoba

Definition	Score	Rationale for Score (document any assumptions, reports, or site-specific information; provide references)	Method Of Evaluation	Notes
d. Hydraulic conductivity of confining layer $>10^{-4}$ cm/s or no confining layer 10^{-4} to 10^{-6} cm/s $<10^{-6}$ cm/s Do Not Know	<10-6 cm/s	<10-6 cm/s for unweathered/unfractured clays.	Determine the nature of geologic materials and estimate hydraulic conductivity from published material (or use "Range of Values of Hydraulic Conductivity and Permeability" figure in the Reference Material sheet). Unfractured clays should be scored low. Silts should be scored medium. Sand, gravel should be scored high. The evaluation of this category is based on: 1) The presence and hydraulic conductivity ("K") 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			
B. Potential for groundwater pathway.				
e. Precipitation infiltration rate (Annual precipitation factor x surface soil relative permeability factor) High (infiltration score > 0.6) Moderate (0.4 < infiltration score ≤ 0.6) Low (0.2 < infiltration score ≤ 0.4) Very Low (0 < infiltration score ≤ 0.2) None (infiltration score = 0) Do Not Know	None	Precipitation: Canadian Climate Normals 1981-2010 Station Data : WINNIPEG RICHARDSON INTERNATIONAL AIRPORT Annual precipitation : 521.1 mm 521.1/1000 = 0.5 score https://climate.weather.gc.ca/climate_normals/results_1981_2010_e.html?searchType=stnProv&lstProvince=MB&txtCentralLatMin=0&txtCentralLatSec=0&txtCentralLongMin=0&txtCentralLongSec=0&stnID=3698&dispBack=0 Permeability: Precipitation factor of 0.5 from above x 0 (pavement or clay) = 0 or "None"	Precipitation Refer to Environment Canada precipitation records for relevant areas (30 year average preferred). Divide annual precipitation (rainfall + snowfall) 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 (*e.g.,* precipitation factor of 0.7 from above x 0.6 (sand) = 0.42 or "Moderate").	Selected Sources: Environment Canada web page link: http://climate.weather.gc.ca/climate_normals/index_e.html Snow to rainfall conversion apply ratio of 10(snow):1(water) https://www.ec.gc.ca/meteo-weather/default.asp?lang=En&n=108C6C74-1
Score	0			
f. Hydraulic conductivity of aquifer $>10^{-2}$ cm/s 10^{-2} to 10^{-4} cm/s $<10^{-4}$ cm/s Do Not Know	<10-4 cm/s	Limestone and dolimite, therefore <10 -4 cm/s.	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	0			
Potential groundwater pathway total	3			
Allowed Potential score	---	Note: If a "known" score is provided, the "potential" score is disallowed.		
Groundwater pathway total	**0**			
2. Surface Water Movement				
A. Demonstrated migration of COPC in surface water above background conditions				
Known concentrations of surface water: i) Concentrations exceed background concentrations and exceed CCME CWQG for protection of aquatic life, irrigation, livestock water, and/or recreation (whichever uses are applicable at the site) by >1 X; or There is known contact of contaminants with surface water based on site observations. or In the absence of CWQG, chemicals have been proven to be toxic based on site specific testing (*e.g.,* toxicity testing; or other indicator testing of exposure).	12	COPC in surface water not investigated or sampled at Site.	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 http://ceqg-rcqe.ccme.ca/ CCME. 1999. Canadian Water Quality Guidelines for the Protection of Agricultural Water Uses (Irrigation and Livestock Water) http://ceqg-rcqe.ccme.ca/ Health and Welfare Canada. 1992. Guidelines for Canadian Recreational Water Quality. http://www.hc-sc.gc.ca/ewh-semt/water-eau/recreat/index-eng.php
ii) Same as (i) except the information is not known but strongly suspected based on indirect observations.	8		Examples of indirect evidence may include observed staining of sediment and/or river banks, but surface water has not been tested.	
iii) Meets CWQG or absence of surface water exposure pathway (*e.g.,* Distance to nearest surface water is > 5 km.)	0			
Score	Go to Potential	---		
NOTE: If a score is assigned here for Demonstrated Migration in Surface Water, then you should 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	Full containment	Presence of full containment noted at Site. Levels of boron exceeding guidelines were reported under subsurface levels of at least 1.50 mbgs. The entire northern portion of the Site consists of asphalt-paved parking and driving areas. Assiniboine River is located approximately 600 metres (m) south of the Site.	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	0.5			

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

Site: 625 Wall Street, Winnipeg Manitoba

Definition	Score	Rationale for Score (document any assumptions, reports, or site-specific information; provide references)	Method Of Evaluation	Notes
b. Distance to Surface Water 0 to <100 m 100 - 300 m >300 m Do Not Know	>300 m	Assiniboine River is located approximately 600 m south of the Site.	Review available mapping and survey data to determine distance to nearest surface water bodies.	
Score	0.5			
c. Topography Contaminants above ground level and slope is steep Contaminants at or below ground level and slope is steep Contaminants above ground level and slope is intermediate Contaminants at or below ground level and slope is Contaminants above ground level and slope is flat Contaminants at or below ground level and slope is flat Do Not Know	At/below and flat	The topography of the Site is generally flat and similar to that of the surrounding area.	Review engineering documents on the topography of the site and the slope of surrounding terrain. Steep slope = >50% Intermediate slope = between 5 and 50% Flat slope = < 5% Note: Type of fill placement (*e.g.,* trench, above ground, etc.).	
Score	0			
d. Run-off potential High (run-off score > 0.6) Moderate (0.4 < run-off score ≤ 0.6) Low (0.2 < run-off score ≤ 0.4) Very Low (0 < run-off score ≤ 0.2) None (run-off score = 0) Do Not Know	Moderate	Precipitation: Canadian Climate Normals 1981-2010 Station Data : WINNIPEG RICHARDSON INTERNATIONAL AIRPORT Annual precipitation : 521.1 mm 521.1/1000 = 0.5 score https://climate.weather.gc.ca/climate_normals/results_1981_2010_e.html?searchType=stnProv&lstProvince=MB&txtCentralLatMin=0&txtCentralLatSec=0&txtCentralLongMin=0&txtCentralLongSec=0&stnID=3698&dispBack=0 Permeability: Precipitation factor of 0.5 from above x 1 (pavement or clay) = 0.5 or "Moderate"	<u>Precipitation</u> Refer to Environment Canada precipitation records for relevant areas (30 year average preferred). Divide precipitation (rainfall + snowfall) by 1000 and round to nearest tenth (*e.g.* , 667 mm = 0.7 score). <u>Permeability</u> For infiltration assume: gravel (0), sand (0.3), loam (0.6) and pavement or clay (1). Multiply the permeability (infiltration) factor with precipitation factor to obtain Run-off potential score (*e.g.* , precipitation factor of 0.7 from above x 0.6 (loam) = 0.42 or "Moderate").	Selected Sources: Environment Canada web page link: http://climate.weather.gc.ca/climate_normals/index_e.html Snow to rainfall conversion apply ratio of 10(snow):1(water) https://www.ec.gc.ca/meteo-weather/default.asp?lang=En&n=108C6C74-1
Score	0.6			
e. Flood potential 1 in 2 years 1 in 10 years 1 in 50 years not in floodplain Do Not Know	not in floodplain	Assiniboine River is located approximately 600 m south of the Site.The property is not located in a floodplain and the Site is not located along a riverbank. Manitoba Infrastructure Water Information and Flood Conditions was reviewed. https://www.gov.mb.ca/mit/floodinfo/	Review published data such as flood plain mapping or flood potential (*e.g.,* spring or mountain run-off) and Conservation Authority records to evaluate flood potential of nearby water courses both up and down gradient. Rate zero if site not in flood plain.	
Score	0			
Potential surface water pathway total	1.6			
Allowed Potential score	1.6	Note: If a "known" score is provided, the "potential" score is disallowed.		
Surface water pathway total	**1.6**			
3. Surface Soils (potential for dust, dermal and ingestion exposure)				
A. Demonstrated concentrations of COPC in surface soils (top 1.5 m)				
COPCs measured in surface soils exceed the CCME soil quality guideline.	12	MW01 and MW02 did not have surface soil exceedances of the parameters tested, based on initial in-field testing with a PID, the samples with the highest PID readings were submitted for lab analysis and came from subsurface soil levels (>1.50 mbgs).	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). Examples of strongly suspected exceedences of soil guidelines may include evidence of staining, odours, or significant debris infill materials.	Selected References: CCME. 1999. Canadian Soil Quality Guidelines for the Protection of Environmental and Human Health. http://ceqg-rcqe.ccme.ca/
Strongly suspected that soils exceed guidelines.	9			
COPCs in surface soils does not exceed the CCME soil quality guideline or is not present (i.e., bedrock).	0			
	0			
Score	0			
NOTE: If a score is assigned here for Demonstrated Concentrations in Surface Soils, then you should skip Part B (Potential for a surface soils migration pathway) and go to Section 4 (Vapour)				
B. Potential for a surface soils (top 1.5 m) migration pathway				
a. Are the soils in question covered? Exposed Vegetated Landscaped Paved Do Not Know	Paved	No potential for surface soil migration as surface soil surrounding MW01 and MW02 are asphalt paved.	Consult engineering or risk assessment reports for the site. Alternatively, review photographs or perform a site visit. Landscaped surface soils must include a minimum of 0.5 m of topsoil.	The possibility of contaminants in blowing snow have not been included in the revised NCSCS as it is difficult to assess what constitutes an unacceptable concentration and secondly, spills to snow or ice are most efficiently mitigated while freezing conditions remain.
Score	0			
b. For what proportion of the year does the site remain covered by snow? 0 to 10% of the year 10 to 30% of the year More than 30% of the year Do Not Know	>30% of year	The Site remains covered by snow more than 30% of the year. https://climate.weather.gc.ca/climate_normals/results_1981_2010_e.html?searchType=stnProv&lstProvince=MB&txtCentralLatMin=0&txtCentralLatSec=0&txtCentralLongMin=0&txtCentralLongSec=0&stnID=3698&dispBack=0 No potential for surface soil migration as surface soil surrounding MW01 and MW02 are asphalt paved.	Consult climatic information for the site. The increments represent the full span from soils which are always wet or covered with snow (and therefore less likely to generate dust) to those soils which are predominantly dry and not covered by snow (and therefore are more likely to generate dust).	
Score	0			
Potential surface soil pathway total	0			
Allowed Potential score	---	Note: If a "known" score is provided, the "potential" score is disallowed.		
Soil pathway total	**0**			

CCME National Classification System (2008) version 1.3

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

Site: 625 Wall Street, Winnipeg Manitoba

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	Volatile hydrocarbons have not been found in Site soils. Soil sampled: May 6, 2021; ALS lab results were not indicative of exceedances of volatile hydrocarbons.	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 (i.e. not detected) and volatile hydrocarbons have not been found in site soils or groundwater, or vapour has been measured (indoor or outdoor) in concentrations not exceeding risk based concentrations.	0		Due to the potential for significant spatial and temporal variation in soil vapour concentrations, limited vapour monitoring studies (*e.g.,* single point in time "snap-shot") that do not detect vapour at sites where volatiles are suspected, does not necessarily mean that vapours are not an issue at the site. In this case, section B " Potential for COPCs in vapour" should be completed.	
	0			
Score	0			
NOTE: If a score is assigned here for Demonstrated COPCs in Vapour, then you should skip Part B (Potential for COPCs in vapour) and go to Section 5 (Sediment)				
B. Potential for COPCs in vapour				
a. Relative Volatility based on Henry's Law Constant, H' (dimensionless) High (H' > 1.0E-1) Moderate (H' = 1.0E-1 to 1.0E-3) Low (H' < 1.0E-3) Not Volatile Do Not Know		Boron (inorganic substance - metal) is not volatile.	Reference: US EPA Soil Screening Guidance (Part 5 - Table 36) *Provided in Attached Reference Materials* For PHC fractions; score F1 as High, F2 as Moderate, and F3 and F4 as Not Volatile. Substance is considered Not Volatile (*i.e.* , pathway not a concern) if the product of the water solubility and unitless Henry's law constant does not exceed published or derived tolerable concentration or risk-specific concentration. If NAPL is present, see Appendix D of the CCME soil vapour quality guideline protocol (CCME 2014) for further guidance.	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. Selected References: CCME. 2014. A Protocol for the Derivation of Soil Vapour Quality Guidelines for Protection of Human Exposures via Inhalation of Vapours. Winnipeg, Manitoba. http://ceqg-rcqe.ccme.ca
	Not Volatile			
Score	0			
b. What is the soil grain size? Fine Coarse Do Not Know		The Site is underlain by prominently fine-grained (clay and silt) native soils. Therefore, fine-grained guidelines are applicable to the Site;	Review soil permeability data in engineering reports. The greater the permeability of soils, the greater the possible movement of vapours. Fine-grained soils are defined as those which contain greater than 50% by mass particles less than 75 µm mean diameter (D50 < 75 µm). Coarse-grained soils are defined as those which contain greater than 50% by mass particles greater than 75 µm mean diameter (D50 > 75 µm).	
	Fine			
Score	0			
c. Is the depth to the source less than 10m? Yes No Do Not Know		Max depth sampled from was MW01 at 4.57 to 5.33 mbgs. Total depth of both MW01 and MW02 was 6.10 mbgs.	Review groundwater depths below grade for the site.	
	Yes			
Score	0			
d. Are there any preferential pathways? Yes No Do Not Know		Vapour migration: no underground conduits such as sewer and utility lines were identified within the vicinity of MW01 and MW02 and locations were cleared by both public and private utilities locators.	Visit the site during dry summer conditions and/or review available photographs. Where bedrock is present, fractures would likely act as preferential pathyways.	Preferential pathways refer to areas where vapour migration is more likely to occur because there is lower resistance to flow than in the surrounding materials. For example, underground conduits such as sewer and utility lines, drains, or septic systems may serve as preferential pathways. Features of the building itself that may also be preferential pathways include earthen floors, expansion joints, wall cracks, or foundation perforations for subsurface features such as utility pipes, sumps, and drains.
	No			
Score	0			
Potential vapour pathway total	0			
Allowed Potential score	---	Note: If a "known" score is provided, the "potential" score is disallowed.		
Vapour pathway total	**0**			
5. Sediment Movement				
A. Demonstrated migration of sediments containing COPCs				
There is evidence to suggest that sediments originally deposited to the site (exceeding the CCME sediment quality guidelines) have migrated.	12	Sediment sampling/assessment not completed at Site.	Review sediment assessment reports. Evidence of migration of contaminants in sediments must be reported by someone experienced in this area.	Usually not considered a significant concern in lakes/marine environments, but could be very important in rivers where transport downstream could be significant.
Strongly suspected (based on observations and/or modelling)	9			
Sediments have been contained and there is no indication that sediments will migrate in future. or Sediment meets CCME sediment quality guidelines 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			
	Go to Potential			
Score	---			
NOTE: If a score is assigned here for Demonstrated Migration of Sediments, then you should skip Part B (Potential for Sediment Migration) and go to Section 6 (Modifying Factors)				

CCME National Classification System (2008) version 1.3

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

Site: 625 Wall Street, Winnipeg Manitoba

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	Sediment sampling/assessment not completed at Site.	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	No 0		Review existing sediment assessments. If the sediments present at the site are in a river, select "no" for this question.	
c. For rivers, are the contaminated sediments in an area prone to sediment scouring? Yes No Do Not Know	No 0		Review existing sediment assessments. It is important that the assessment is made under worst case flows (high yearly flows). Under high yearly flows, areas which are commonly depositional may become scoured. If the sediments present at the site are in a lake or marine habitat, select "no" for this question.	
Potential sediment pathway total	2			
Allowed Potential score	2	Note: If a "known" score is provided, the "potential" score is disallowed.		
Sediment pathway total	**2**			
6. Modifying Factors				
Are there subsurface utility conduits in the area affected by contamination? Yes No Do Not Know	 No 	No public or privaty utility conduits were identified during the utilities locates performed at the Site prior to drilling activities.	Consult existing engineering reports. Subsurface utilities can act as conduits for contaminant migration.	
Known	0			
Potential	---			

Migration Potential Total

Raw Total Score- "Known"	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.
Raw Total Score- "Potential"	3.6	
Raw Combined Total Score (Known + Potential)	3.6	
Adjusted Total Score (Raw Combined / 64 * 33)	**1.9**	maximum 33

CCME National Classification System (2008) version 1.3

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

Site: 625 Wall Street, Winnipeg Manitoba

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	No quantified or suspected exposure/impacts to humans, from the subsurface (>1.5 mbgs) boron guideline exceedances reported. The Site is commercial in nature and there is no known adverse impact to domestic and traditional food sources, as the boron guideline exceedances are beyond 1.50 mbgs. Federal Contaminate Site Risk Assessment scoring not completed, federal online guidances inaccessible.	*Where adverse effects on humans are documented, the site should be automatically designated as a Class 1 site (*i.e.,* action required). Known impacts could include blood test results (*e.g.,* blood lead > 10 µg/dL) or results of other health based studies and tests. There is no need to proceed through the NCSCS in this case. However, a scoring guideline (22) is provided in case a numerical score for the site is still desired. A score of 22 can also be assigned when Hazard Quotients (or Hazard Index) >> 1.0 or incremental lifetime cancer risks considerably exceed acceptable levels defined by the jurisdiction for carcinogenic chemicals. The category, "Strongly suspected", can be based on the outcomes of risk assessments and applies to studies which have reported Hazard Quotients (or Hazard Index) > 0.2 (excluding the Estimated Daily Intake) or > 1.0 with Estimated Daily Intake and/or incremental lifetime cancer risks that exceed acceptable levels defined by the jurisdiction for carcinogenic chemicals (for most jurisdictions this is typically either $>10^{-5}$ or $>10^{-6}$). The category, no exposure/impacts, can be based on the outcomes of risk assessments and applies to studies which have reported Hazard Quotients (or Hazard Index) of ≤ 0.2 (excluding the Estimated Daily Intake) or ≤ 1.0 with Estimated Daily Intake 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})	Known adverse impact includes domestic and traditional food sources. Adverse effects based on food chain transfer to humans and/or animals can be scored in this category. However, the weight of evidence must show a direct link of a contaminated food source/supply and subsequent ingestion/transfer to humans. Any associated adverse effects to the environment are scored separately later in this worksheet. Someone experienced must provide a thorough description of the sources researched to evaluate and determine the quantified exposure/impact (adverse effect) in the vicinity of the contaminated site. **Selected References:** Health Canada – Federal Contaminated Site Risk Assessment in Canada Parts 1 and 2 Guidance on Human Heath Screening Level Risk Assessments, available at http://www.hc-sc.gc.ca/ewh-semt/pubs/contamsite/index-eng.php United States Environmental Protection Agency, Integrated Risk Information System (IRIS), available at http://toxnet.nlm.nih.gov
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 should 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) Agricultural Residential / Parkland Commercial Industrial Do Not Know	Commercial	The Site is considered commercial in nature. Properties directly adjacent are considered predominantly commercial, industrial and residential in nature. Commercial land use guidelines are applicable to the Site.	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). Parkland includes campgrounds, but excludes wildlands such as national or provincial parks. Commercial/Industrial land uses are defined as land on which the activities are related to the buying, selling, or trading of merchandise or services (commercial), as well as land uses which are related to the production, manufacture, or storage of materials (industrial).	This is the main "receptor" factor used in site scoring. A higher score implies a greater exposure and/or exposure of more sensitive human receptors (*e.g.,* children).
Score	1			
b) Indicate the level of accessibility to the contaminated portion of the site (*e.g.,* the potential for coming in contact with contamination) 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	Controlled or remote	The potential of coming in contact with soil containing boron guideline exceedances is highly unlikley. The boron guideline exceedances noted in soil sampled from MW01 and MW02 were located at depths beyond 1.50 mbgs.	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.	
Score	0			
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). i) direct contact Is dermal contact with contaminated surface water, groundwater, sediments or soils anticipated? Yes No Do Not Know	No	Direct/dermal contact with boron in soil is not likely as the guideline exceedances of boron were beyond 1.50 mbgs.	If soils or potable groundwater are present exceeding their respective CCME guidelines, dermal contact is assumed. Exposure to surface water, non-potable groundwater or sediments exceeding their respective CCME guidelines will depend on the site. Select "Yes" if dermal exposure to surface water, non-potable groundwater or sediments is expected. For instance, dermal contact with sediments would not be expected in an active port. Only soils in the top 1.5 m are defined by CCME (2003) as surface soils. If contaminated soils are only located deeper than 1.5 m, direct contact with soils is not anticipated to be an operable contaminant exposure pathway.	Exposure via the skin is generally believed to be a minor exposure route. However for some organic contaminants, skin exposure can play a very important component of overall exposure. Dermal exposure can occur while swimming in contaminated waters, bathing with contaminated surface water/groundwater and digging in contaminated dirt, etc.
Score	0			
ii) inhalation (*i.e.,* inhalation of dust, vapour) Vapour - Are there inhabitable buildings on the site within 30 m of soils or groundwater with volatile contamination as determined in Worksheet II (Migration Potential)? Yes No Do Not Know	No	A inhabitable building is located within 30 m of both MW01 and MW01 but volatile contaminants were non-detectable in soils.	If inhabitable buildings are on the site within 30 m of soils or groundwater exceeding their respective guidelines for volatile chemicals, there is a potential of risk to human health (Health Canada, 2004). Review site investigations for location of soil samples (having exceedances of volatile substances) relative to buildings. Refer to (II) Migration Potential worksheet, 4B.a), *Potential for COPCs in Vapour* for a definition of volatility.	Exposure via the lungs (inhalation) can be a very important exposure pathway. Inhalation can be via both particulates (dust) and gas (vapours). Vapours can be a problem where buildings have been built on former industrial sites or where volatile contaminants have migrated below buildings resulting in the potential for vapour intrusion. Assesses the potential for humans to be exposed to vapours originating from site soils. The closer the receptor is to a source of volatile chemicals in soil, the greater the potential of exposure. Also, coarser-grained soil will convey vapour much more efficiently in the soil than finer grained material such as clays and silts. General Notes; Someone experienced must provide a thorough description of the sources researched to determine the presence/absence of a vapour migration and/or dust generation in the vicinity of the contaminated site. This information must be documented in the NCS Site Classification Worksheet including contact names, phone numbers, e-mail correspondence and/or reference maps/reports and other resource such as internet links. Selected References; Canadian Council of Ministers of the Environment (CCME). 2006. Protocol for the Derivation of Environmental and Human Health Soil Quality Guidelines. PN 1332. http://ceqg-rcqe.ccme.ca/ Golder, 2004. Soil Vapour Intrusion Guidance for Health Canada Screening Level Risk Assessment (SLRA) Submitted to Health Canada, Burnaby, BC
Score	0			
Dust - If there is contaminated surface soil (*e.g.,* top 1.5 m) , indicate whether the soil is fine or coarse textured. If it is known that surface soil is not contaminated, enter a score of zero. Fine Coarse Surface soil is not contaminated or absent (bedrock) Do Not Know Texture	Not contaminated	No contaminated surface soil reported in lab results.	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.	
Score	0			
inhalation total	0			

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

Site: 625 Wall Street, Winnipeg Manitoba

Definition	Score	Rationale for Score (document any assumptions, reports, or site-specific information; provide references)	Method Of Evaluation	Notes
B. Potential for human exposure				
iii) Ingestion (*i.e.,* ingestion of food items, water and soils [for children]), including traditional foods.		The ingestion of groundwater in the subject area is not an applicable exposure pathway. Potable water for the Site and surrounding area is sourced from Shoal Lake with service provided by the City of Winnipeg. The groundwater in the subject area is considered non-potable.	Review available site data to determine if drinking water (groundwater, surface water, private, commercial or municipal supply) is known or suspected to be contaminated above Guidelines for Canadian Drinking Water Quality. If drinking water supply is known to be contaminated, some immediate action (*e.g.,* provision of alternate drinking water supply) should be initiated to reduce or eliminate exposure. The evaluation of significant potential for exceedances of the water supply in the future may be based on the capture zones of the drinking water wells; contaminant travel times; computer modelling of flow and contaminant transport. For aquifers, examples of "No drinking water present" includes municipal bylaws prohibiting water wells for potable water use and naturally non-potable (*e.g.,* saline) shallow groundwater. Groundwater used for drinking water may not be at risk from contamination due to a lack of hydrological connection between contaminated soil or groundwater, or the drinking water is sufficiently up-gradient of the contamination source. Selection of "No potential for aquifer contamination" must be supported with sufficient documentation, *e.g.,* lithological and contaminant properties, well capture zones (map drawn to scale), and capture zone delineation methodology	**Selected References:** Guidelines for Canadian Drinking Water Quality: http://hc-sc.gc.ca/ewh-semt/water-eau/drink-potab/guide/index-eng.php Drinking water can be an extremely important exposure pathway to humans. If site groundwater or surface water is not used for drinking, then this pathway is considered to be inoperable. Consider both wild foods such as salmon, venison, caribou, as well as agricultural sources of food items if the contaminated site is on or adjacent to agricultural land uses.
Drinking Water: Choose a score based on the proximity to a drinking water supply, to indicate the potential for contamination (present or future).				
0 to 100 m				
100 to 300 m				
300 m to 1 km				
1 to 5 km				
No drinking water present				
No potential for aquifer contamination				
Do Not Know				
	No drinking water present			
Score	0			
Is an alternative water supply readily available?		The ingestion of groundwater in the subject area is not an applicable exposure pathway. Potable water for the Site and surrounding area is sourced from Shoal Lake with service provided by the City of Winnipeg. The groundwater in the subject area is considered non-potable.	Answer Not Applicable if "No drinking water present" or "No potential for aquifer contamination" was selected in previous question.	
Yes				
No				
Not Applicable				
Do Not Know	Yes			
Score	0			
Is human ingestion of contaminated soils possible?		No possibility of human ingestion of soils likely as sampled material was from beyond 1.50 mbgs and capped by asphalt paving.	If contaminated soils are located within the top 1.5 m, it is assumed that ingestion of soils is an operable exposure pathway. Exposure to soils deeper than 1.5 m is possible, but less likely, and the duration is shorter. Refer to human health risk assessment reports for the site in question.	
Yes				
No				
Do Not Know	No			
Score	0			
Are food items consumed by people, such as plants, domestic animals or wildlife harvested from the contaminated land and its surroundings?		No possibility of human ingestion of soils likely as sampled material was from beyond 1.50 mbgs and capped by asphalt paving. The Site is considered commerical in nature.	Use human health risk assessment reports (or others) to determine if there is significant reliance on traditional food sources associated with the site. Is the food item in question going to spend a large proportion of its time at the site (*e.g.,* large mammals may spend a very small amount of time at a small contaminated site)? Human health risk assessment reports for the site in question will also provide information on potential bioaccumulation of the COPC in question.	
Yes				
No				
Do Not Know	No			
Score	0			
Ingestion total	0			
Human Health Total "Potential" Score	1	Note if a "Known" Human Health score is provided, the "Potential" score is disallowed.		
Allowed "Potential" Score	---			
2. Human Exposure Modifying Factors				
a) Strong reliance of local people on natural resources for survival (*i.e.,* food, water, shelter, etc.) in contaminated area.	No	No strong reliance of local people on natural resources for survival located at the Commercial Site.		
Yes				
No				
Do Not Know				
Human Exposure Modifying Factors - "Known"	0			
Human Exposure Modifying Factors - "Potential"	---			
Raw Human "Known" total	0			
Raw Human "Potential" total	---			
Raw Combined Total Human Score	0			
Adjusted Total Human Score (max 22)	**0**			

CCME National Classification System (2008) version 1.3

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

Site: 625 Wall Street, Winnipeg Manitoba

Definition	Score	Rationale for Score (document any assumptions, reports, or site-specific information; provide references)	Method Of Evaluation	Notes
3. Ecological				
A. Known exposure				
Documented adverse impact or high quantified exposure which has or will result in an adverse effect, injury or harm or impairment of the safety to terrestrial or aquatic organisms as a result of the contaminated site.	18	No quantified or suspected exposure/impacts to humans in terrestrial organisms, as the eco soil contact guidelines is not applicable. Boron guideline exceedances are located in subsurface soil, beyond 1.50 mbgs.	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.	CCME, 1999: Canadian Water Quality Guidelines for the Protection of Aquatic Life. CCME, 1999: Canadian Water Quality Guidelines for the Protection of Agricultural Water Uses. http://cegg-rcge.ccme.ca/ Sensitive receptors- review: Canadian Council on Ecological Areas; www.ccea.org Ecological effects should be evaluated at a population or community level, as opposed to at the level of individuals. For example, population-level effects could include reduced reproduction, growth or survival in a species. Community-level effects could include reduced species diversity or relative abundances. Further discussion of ecological assessment endpoints is provided in *A Framework for Ecological Risk Assessment: General Guidance* (CCME 1996). Notes: Someone experienced must provide a thorough description of the sources researched to classify the environmental receptors in the vicinity of the contaminated site. This information must be documented in the NCS Site Classification Worksheet including contact names, phone numbers, e-mail correspondence and/or reference maps/reports and other resource such as internet links.
Same as above, but "Strongly Suspected" based on observations or indirect evidence.	12		This category can be based on the outcomes of risk assessments and applies to studies which have reported Hazard Quotients >1. Alternatively, known impacts can also be evaluated based on a weight of evidence assessment involving a combination of site observations, tissue testing, toxicity testing and quantitative community assessments. Scoring of adverse effects on individual rare or endangered species will be completed on a case-by-case basis with full scientific justification.	
No quantified or suspected exposures/impacts in terrestrial or aquatic organisms	0		This category can be based on the outcomes of risk assessments and applies to studies which have reported Hazard Quotients of less than 1 and no other observable or measurable sign of impacts. Alternatively, it can be based on a combination of other lines of evidence showing no adverse effects, such as site observations, tissue testing, toxicity testing and quantitative community assessments.	
	0			
Score	0			
NOTE: If a score is assigned here for Known Exposure, then you should skip Part B (Potential for Ecological Exposure) and go to Section 4 (Ecological Exposure Modifying Factors)				
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	Commercial	The Site is considered commercial in nature. Properties directly adjacent are considered predominantly commercial, industrial and residential in nature. Commercial land use guidelines are applicable to the Site.	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).	
Score	1			
ii) Uptake potential Direct Contact - Are plants and/or soil invertebrates likely exposed to contaminated soils at the site? Yes No Do Not Know	No	Boron guideline exceedances are not located within the top 1.50 m and direct contact of soils with plants and soil invertebrates is not an operable exposure pathway/less likely.	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.	
Score	0			
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	No	It is very unlikely that ingestion of soil with boron guideline exceedances will occur, as it is located beyond 1.50 mbgs, and capped with paved asphalt.	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.	
Score	0			
Are terrestrial animals likely to be ingesting contaminated soils at the site? Yes No Do Not Know	No	It is very unlikely that ingestion of materials with boron guideline exceedanecs will occur, as it is located beyond 1.50 mbgs.	Refer to an Ecological Risk Assessment report. Most animals will co-ingest some soil while eating plant matter or soil invertebrates.	
Score	0			
Can the contamination identified bioaccumulate? Yes No Do Not Know	No	There is no data on the biomagnification of boron in the food chain, but it is not likely likely that bioaccumulation is a major environmental concern. https://www.atsdr.cdc.gov/toxprofiles/tp26-c6.pdf	Substances can be considered bioaccumulative if; • There is a Tissue Residue Guideline (TRG) or Soil Quality Guideline for Soil and Food Ingestion for the protection of secondary (SQG_{2C}) and/or tertiary consumers (SQG_{3C}). • Bioaccumulation factor (BAF) or bioconcentration factor (BCF) greater than 5000. • If BAF or BCF is not available, or reliable, the log Kow is equal to or greater than 5. If a literature review indicates that a substance biomagnifies, it should be treated as biomagnifying regardless of whether or not it meets the criteria above. It should also be noted that some substances with a log Kow greater than 5 do not biomagnify. If studies on a substance with a high Kow demonstrate a lack of biomagnification in upper trophic levels, then the substance can be considered not bioaccumulative. Petroleum hydrocarbons F1 to F4 are not considered bioaccumulative.	*See attached Reference Material including log(Kow)* Consult *CEPA (1999) Persistence and Bioaccumulation Regulations* for additional guidance; http://laws-lois.justice.gc.ca/eng/regulations/SOR-2000-107/page-1.html
Score	0			
Distance to sensitive terrestrial ecological area 0 to 300 m 300 m to 1 km 1 to 5 km > 5 km Do Not Know	300 m to 1 km	Assiniboine River is located approximately 600 m south of the Site. The inferred direction of groundwater flow is therefore towards the south. The Site is located within the Prairies ecozone. https://ccea-ccae.org/	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.
Score	2			
Raw Terrestrial "Potential" total	3	Note if a "Known" Ecological Effects score is provided, the "Potential" score is disallowed		

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

Site: 625 Wall Street, Winnipeg Manitoba

Definition	Score	Rationale for Score (document any assumptions, reports, or site-specific information; provide references)	Method Of Evaluation	Notes
Allowed Terrestrial "Potential" total	---	disallowed.		

CCME National Classification System (2008) version 1.3

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

Site: 625 Wall Street, Winnipeg Manitoba

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)				
b) Aquatic		No sensitive aquatic environments located or directly adjacent to the Site. Assiniboine River is located approximately 600 m south of the Site..	"Sensitive aquatic environments" include those in or adjacent to shellfish or fish harvesting areas, marine parks, ecological reserves and fish migration paths. Also includes those areas deemed to have ecological significance such as for fish food resources, spawning areas or having rare or endangered species. "Typical aquatic environments" include those in areas other than those listed above.	
i) Classification of aquatic environment Sensitive Typical Not Applicable (no aquatic environment Do Not Know	Not Applicable			
Score	0			
ii) Uptake potential		MW01 and MW02 were dry to depths of 6.10 mbgs during the limited Phase II ESA.	Groundwater concentrations of contaminants at the point of contact with an aquatic receiving environment can be estimated in three ways: 1) by comparing collected nearshore groundwater concentrations to the CCME water quality guidelines (this will be a conservative comparison, as contaminant concentrations in groundwater often decrease between nearshore wells and the point of discharge). 2) by conducting groundwater modeling to estimate the concentration of groundwater immediately before discharge. 3) by installing water samplers, "peepers", in the sediments in the area of daylighting groundwater.	
Does groundwater daylighting to an aquatic environment exceed the CCME water quality guidelines for the protection of aquatic life at the point of contact? Yes No (or Not Applicable) Do Not Know	No			
Score	0			
Distance from the contaminated site to an important surface water resource 0 to 300 m 300 m to 1 km 1 to 5 km > 5 km Do Not Know	300 m to 1 km	Assiniboine River is located approximately 600 m south of the Site.	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
Score	2			
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? Yes No Do Not Know	No	There is no data on the biomagnification of boron in the food chain, but it is not likely likely that bioaccumulation is a major environmental concern. https://www.atsdr.cdc.gov/toxprofiles/tp26-c6.pdf	Substances can be considered bioaccumulative if; • There is a Tissue Residue Guideline (TRG) • Bioaccumulation factor (BAF) or bioconcentration factor (BCF) greater than 5000. • If BAF or BCF is not available, or reliable, the log Kow is equal to or greater than 5. If a literature review indicates that a substance biomagnifies, it should be treated as biomagnifying regardless of whether or not it meets the criteria above. It should also be noted that some substances with a log Kow greater than 5 do not biomagnify. If studies on a substance with a high Kow demonstrate a lack of biomagnification in upper trophic levels, then the substance can be considered not bioaccumulative.	*See attached Reference Material including log(Kow)* Consult *CEPA (1999) Persistence and Bioaccumulation Regulations* for additional guidance; http://laws-lois.justice.gc.ca/eng/regulations/SOR-2000-107/page-1.html
Score	0			
Raw Aquatic "Potential" total	2	Note if a "Known" Ecological Effects score is provided, the "Potential" score is disallowed.		
Allowed Aquatic "Potential" total	---			
4. Ecological Exposure Modifying Factors				
a) Known, or potential, occurrence of a species at risk.		No known or potential species at risk are likely exposed to the impacted material located beyond 1.50 mbgs and capped with paved asphalt.	Consult any ecological risk assessment reports. If information is not present, utilize on-line databases such as NatureServe Explorer (http://explorer.natureserve.org/). Regional, Provincial (Environment Ministries), or Federal staff (Fisheries and Oceans or Environment Canada) should be able to provide some guidance.	Species at risk include those that are extirpated, endangered, threatened, or of special concern. For a list of species at risk, consult Schedule 1 of the federal Species at Risk Act, available at: http://www.sararegistry.gc.ca/species/schedules_e.cfm?id=1
Is there a potential for a species at risk to be present at the site, or a known presence? Yes No Do Not Know	No 0 ---		To assess the potential for a species at risk to be present, the site (or surroundings) should be located within range of a species at risk (using on-line resources and consultation with knowledgeable government departments or biologists, see above), and there should be an assessment of habitat suitability for any identified potential species at risk.	Many provincial governments may also provide regionally applicable lists of species at risk. For example, in British Columbia, consult: BCMWLAP. 2005. Endangered Species and Ecosystems in British Columbia. Provincial red and blue lists. Ministry of Sustainable Resource Management and Water, Land and Air Protection. http://www2.gov.bc.ca/gov/content/environment/plants-animals-ecosystems/species-ecosystems-at-risk
b) Potential impact of aesthetics (*e.g.,* enrichment of a lake or tainting of food flavour).		No evidence that boron would migrate 600 m to the nearest open water body.		
Is there evidence of aesthetic impact to receiving water bodies? Yes No Do Not Know	No 0 ---		Documentation may consist of environmental investigation reports, press articles, petitions or other records.	This Item will require some level of documentation by user, including contact names, addresses, phone numbers, e-mail addresses. Evidence of changes must be documented, please attach copy of report containing relevant information.
Is there evidence of olfactory impact (*i.e.,* unpleasant smell)? Yes No Do Not Know	No 0 ---	No evidence that boron guideline exceedances at 1.50 mbgs would have an olfactory impact.	Examples of olfactory change can include the smell of a COPC or an increase in the rate of decay in an aquatic habitat.	
Is there evidence of increase in plant growth in the lake or water body? Yes No Do Not Know	No 0 ---	No evidence that boron would migrate 600 m to the nearest open water body.	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.	
Is there evidence that fish or meat taken from or adjacent to the site smells or tastes different? Yes No Do Not Know	No 0 ---	No evidence that boron would migrate 600 m to the nearest open water body.	Some contaminants can result in a distinctive change in the way food gathered from the site tastes or smells.	
Ecological Modifying Factors Total - Known	0			
Ecological Modifying Factors Total - Potential	---			
Raw Ecological "Known" total	0			
Raw Ecological "Potential" total	---			
Raw Combined Total Ecological Score	0			
Adjusted Total Ecological Score (Max 18)	**0**			

CCME National Classification System (2008) version 1.3

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

Site: 625 Wall Street, Winnipeg Manitoba

Definition	Score	Rationale for Score (document any assumptions, reports, or site-specific information; provide references)	Method Of Evaluation	Notes
5. Other Potential Contaminant Receptors				
a) Exposure of permafrost (leading to erosion and structural concerns)		Not applicable to the Site. Permafrost does not occur at the Site, located in southern Manitoba (approximately 49 degrees N.)		Plants and lichens provide a natural insulating layer which will help prevent thawing of the permafrost during the summer. Plants and lichens may also absorb less solar radiation. Solar radiation is turned into heat which can also cause underlying permafrost to melt.
Are there improvements (roads, buildings) at the site dependant upon the permafrost for structural integrity?	No		Consult engineering reports, site plans or air photos of the site. When permafrost melts, the stability of the soil decreases, leading to erosion. Human structures, such as roads and/or buildings are often dependent on the stability that the permafrost provides.	
Yes	0			
No				
Do Not Know	---			
		Not applicable to the Site. Permafrost does not occur at the Site, located in southern Manitoba (approximately 49 degrees N.)		
Is there a physical pathway which can transport soils released by damaged permafrost to a nearby aquatic environment?	No		Melting permafrost leads to a decreased stability of underlying soils. Wind or surface run-off erosion can carry soils into nearby aquatic habitats. The increased soil loadings into a river can cause an increase in total dissolved solids and a resulting decrease in aquatic habitat quality. In addition, the erosion can bring contaminants from soils to aquatic environments.	
Yes	0			
No				
Do Not Know	---			
Other Potential Receptors Total - Known	0			
Other Potential Receptors Total - Potential	---			

Exposure Total		
Raw Human Health + Ecological Total + Other Receptors - "Known"	0	
Raw Human Health + Ecological Total + Other Receptors - "Potential"	---	Only includes "Allowed potential" - if a "Known" score was supplied under a given category then the "Potential" score was not included.
Raw Total Exposure Score (not adjusted)	0	HH or Eco Total score has not yet been capped at 22 and 18, respectively.
Adjusted Total Score (Adjusted Total Exposure / 46 * 34)	**0.0**	maximum 34

CCME National Classification System (2008) version 1.3
Score Summary

Site: 625 Wall Street, Winnipeg Manitoba

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

I. Contaminant Characteristics	Known	Potential
1. Residency Media	2	---
2. Chemical Hazard	2	---
3. Contaminant Exceedance Factor	2	---
4. Contaminant Quantity	2	---
5. Modifying Factors	0	---
Raw Total Score	8	---
Raw Combined Total Score (Known + Potential)	8	
Adjusted Total Score (Raw Combined Total/40*33)	**6.6**	(max 33)

II. Migration Potential	Known	Potential
1. Groundwater Movement	0	---
2. Surface Water Movement	---	1.6
3. Soil	0	---
4. Vapour	0	---
5. Sediment Movement	---	2
6. Modifying Factors	0	---
Raw Total Score	0	3.6
Raw Combined Total Score (Known + Potential)	3.6	
Adjusted Total Score (Raw Combined Total/64*33)	**1.9**	(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	---
Raw Combined Total Human Score (Known + Potential)	0	
Adjusted Total Human Score	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	---
Raw Combined Total Ecological Score (Known + Potential)	0	
Adjusted Total Ecological Score	0	(maximum 18)
5. Other Receptors	0	---
Total Other Receptors Score (Known + Potential)	0	
Total Exposure Score (Human + Ecological + Other)	0	
Adjusted Total Score (Total Exposure/46*34)	**0.0**	(maximum 34)

Site Score

Site Letter Grade	**D**
Certainty Percentage	**88%**
% Responses that are "Do Not Know"	**2%**
Total NCSCS Score for site	**8.5**
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", or a site letter grade of F has been assigned)

* 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.

APPENDIX VI

PERSONNEL RESUMES

HLC CONSULTING LTD.

Bethany Wiebe, B.Env.St.

Environmental Technologist

Bethany Wiebe is an Environmental Technologist with HLC Consulting Ltd. Bethany has 10 years of experience in various roles within the heavy civil construction and development sector, including hydroelectric, mining, emergency flood measures and water and sewer. She has experience in land remediation, environmental construction compliance monitoring, surface water monitoring and management, erosion and sediment control, hazardous waste management, project management and report writing. She has completed work on projects in British Columbia, Alberta, Manitoba and Northwestern Ontario.

Bethany graduated with a degree in Environmental Studies with Distinction from the University of Manitoba, focusing on Natural Resource Management and Environmental Assessment.

Environmental Site Monitoring, Spill Investigation and Remediation

*(2020) Site C Clean Energy Project, British Columbia Hydro**
One of Canada's largest infrastructure projects, the Site C Clean Energy dam is located in northern British Columbia. Bethany performed daily environmental monitoring of the project, including daily field inspections to ensure compliance with the various regulatory requirements of the project, land remediation and the collection of field-based samples. Bethany performed various levels of investigation of environmental incidents and spill reporting and remediation of both aquatic and terrestrial environments.

*(2016-2019) New Gold Rainy River Project, New Gold Inc.**
Completion of daily environmental monitoring of water management and mine tailing effluent during mine construction phase, along with management of dewatering teams to ensure compliance with permits related to dewatering activities. Bethany coordinated and managed various environmental requirements of large-scale construction activities, including wildlife surveys, field sampling and remediation of spills to ground and water.

*(2012- 2019) Keeyask Generating Station and Keewatinohk Converter Station, Manitoba Hydro**
In accordance with best practice sampling methods Bethany performed daily water sampling and water quality analysis, daily environmental field inspections, hazardous and non-hazardous waste management and spill investigation and land remediation. Her experience in land remediation at these projects included large scale diesel spill remediation and reclamation of post-construction landscapes through site contouring and native grass seeding.

* Denotes work was completed at a different firm

Water Quality Monitoring and Management

*(2020) Site C Clean Energy Project, British Columbia Hydro**
In accordance with regulatory compliance and permitting requirements of large hydroelectric development and river diversion, Bethany performed in-river and care-of-water monitoring, fish stranding, fish salvage and investigation and remediation of in-river hydrocarbon spills. During the in-river construction phase of the cofferdams, she was responsible for managing earthworks construction teams, to mitigate and prevent project contact water from entering the Peace River System, specifically in preparation for spring freshet run-off of low pH, project contact water.

*(2019) Wetland and Naturalized Stormwater Management Systems, Ducks Unlimited**
Performance of daily inspections of constructed wetlands, naturalized stormwater management systems and upland reclamation projects. Bethany monitored various degrees of sediment and erosion control measures, vegetation monitoring and assessments of native and invasive plants related to the success of wetland systems.

*(2019) Keeyask Generating Station, Manitoba Hydro**
In accordance with the site-specific sediment and erosion management plan, Bethany managed and investigated sediment and erosion measures and their potential impacts during the in-river construction phases.

*(2012, 2014) North & South Access Road, Manitoba Hydro**
Completion of in-stream monitoring and sediment and erosion controls during construction phase of north and south access roads, as part of the initial pre-construction of the Keeyask Generating Station.

Education

Bachelor of Environmental Studies with Distinction, University of Manitoba, 2020

* Denotes work was completed at a different firm

HLC CONSULTING LTD.

Carolyn Baldwin, B.Env.Sc., EP

Environmental Services Manager

Carolyn Baldwin is the Environmental Services Manager at HLC Consulting Ltd. Carolyn is a certified Environmental Professional (EP). She has over 5 years of consulting experience that includes phase I, phase II, and phase III environmental assessments, ground and surface water monitoring, environmental construction site monitoring, landfill monitoring, designated substances surveys, hazardous materials assessments, and electromagnetic surveys. She has completed work in Manitoba, Saskatchewan and Alberta.

Environmental Site Assessment Project Experience

(2014, 2013) *Manitoba Infrastructure and Transportation (MIT)**

- Multiple Phase I ESAs were required on residential properties in the East St. Paul area to support construction of a high profile interchange construction project.
- Phase II ESA completed on a former gas and service station in the Headingley area to support planning and construction of a future roadway project.
- Phase I ESAs and Electromagnetic surveys completed on 13 maintenance and storage yards located throughout Manitoba. Results were used by the province to aid in environmental liability accounting.

*(2014, 2013) Regional Municipality of Wood Buffalo**

Multiple Phase I and II ESAs were required on municipal properties utilized for the storage of excess snow from removal operations, road maintenance vehicles and road salt. Results were used by the municipality to aid in environmental liability accounting.

*(2014) Anthem Riverfront Holdings Ltd.**

Phase II ESA completed on a downtown Calgary surface parking lot intended for future high-rise development.

*(2014) Allard Developments**

Phase I ESA completed on a downtown Edmonton commercial property.

*(2014) Rohit Land Development**

Phase I ESA completed on a newly renovated apartment block and parking garage in Winnipeg.

*(2014) Timbercreek Asset Management**

Phase I ESA completed on a multi-stage residential development in Drayton Valley, Alberta.

* Denotes work was completed at a different firm

*(2014, 2013) CEDA International**
Multiple Phase I ESAs completed on industrial properties located development in Saskatchewan and Alberta.

*(2014) Qualico**
Multiple Phase I ESAs completed within the Qualico residential developments of Tamarack and Cy Becker in Edmonton, Alberta.

Environmental Site Monitoring

*(2014) CEDA International**
Groundwater monitoring campaign on an industrial property in Edmonton. Monitoring report and record of site condition provided in order for the Client to meet the requirements of their approval under the *Environmental Protection and Enhancement Act*.

(2014, 2013) *Manitoba Infrastructure and Transportation (MIT)**
Environmental site inspections were provided during the construction and post-construction phases of the CentrePort Canada Way expressway project.

Hazardous Materials Assessment

Asbestos Buildings Survey and Asbestos Management Plan – (2015) *St. Charles Catholic School**
Completion of an asbestos survey and asbestos management plan for a school/childcare facility located in Winnipeg.

Designated Substances and Asbestos Survey – (2013) *CEDA International**
Examination of an industrial shop and suite of offices in Edmonton to identify designated substances and sample materials suspected to contain asbestos.

Education

Bachelor of Environmental Science (Major), University of Manitoba, 2012

Associations

Environmental Professional (EP) with the Canadian Environmental Certification Approvals Board

* Denotes work was completed at a different firm