



McElhanney



**Phase II Environmental
Site Assessment –
Highway Four-Laning from
Ford Road to Tappen
Valley Road (White Post
Auto Museum)**

December 2019 | Final

Submitted to The Ministry of Transportation & Infrastructure
Prepared by McElhanney

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**Your Challenge.
Our Passion.**

Executive Summary

McElhanney Ltd. (McElhanney) completed a Phase II Environmental Site Assessment (Phase II ESA) of the White Post Auto Museum in December 2018. The Phased Assessment was completed for the portion of the 4439A Trans Canada Highway, Tappen, BC property that is anticipated to be purchased as part the proposed highway twinning project from Ford Road to Tappen Valley Road. The Phase II ESA was completed for the Ministry of Transportation and Infrastructure (herein referred to as “MOTI” or “the Client”) as part of the design phase of this project.

The Phase II ESA targeted Areas of Potential Environmental Concern (APEC) identified by the Site specific Phase I ESA originally submitted in draft to the MOTI in February 2019, with a final draft dated December 2019. The following APECs and their associated Potential Contaminants of concern (PCOCs) were identified by the Phase I ESA:

Key	APEC	Description	PCOCs
A	Collector Vehicle Salvage and Storage Yard	Salvaged vehicles had been stored in the graveled area since the early 1990s (based on interpretations of the available aerial photographs).	Metals, LEPH / HEPH, PAH, BETX, VPH, MTBE and Glycol
B	Canadian Hot Rods Inc	Several automotive shops including Canadian Hot Rods Inc. operate to the east (up-gradient) of the Site. Additional salvaged vehicles and miscellaneous debris (including a discarded AST) associated with these businesses were also observed.	Metals, LEPH / HEPH, PAH, BETX, VPH, MTBE, VOC and Glycol
C	Custom Paint Booth	Vance’s Custom Airbrushing & Pinstriping operates in the south wing of the structure. Soil discoloration was observed adjacent to the ventilation and outdoor concrete pad adjacent to the shop	Metals, LEPH / HEPH, PAH, BETX, VPH, MTBE, VOC and Glycol

LEPH – Light Extractable Petroleum Hydrocarbons
 PAH – Polycyclic Aromatic Hydrocarbons
 VPH – Volatile Petroleum Hydrocarbons
 VOC – Volatile Organic Compounds

HEPH – Heavy Extractable Petroleum Hydrocarbons
 BTEX – Benzene, Toluene, Ethylbenzene, and Xylene
 MTBE – Methyl Tert Butyl Ether

The McElhanney work included a drilling investigation which assessed both soil and soil vapour at the Site. The regional groundwater was not encountered during this investigation and therefore no groundwater sampling was completed.

Based on the findings of the Phased II ESA McElhanney provides the following conclusions:

- The Site’s geology mainly consists of a shallow layer of fill material underlain by interbedded SILTS and SAND units. Minor Clay horizons were noted at some locations of the Site.
- The regional groundwater table was not encountered to a maximum drill depth of 27.4 m at the site. Minor intermittent perched groundwater was noted at the Site; however, the slow recharge and yield were insufficient to collect adequate groundwater samples.
- Concentrations of PCOCs measured in soil were below the BC Contaminated Sites Regulation (CSR) industrial land use (IL) standards (applicable to a highway right of way).
- One shallow surficial soil sample (SS18-A1-01) contained concentrations of lead exceeding the BC CSR commercial land use (CL) and residential land use (RL) standards and lead, tin and zinc

exceeding the BC CSR agricultural (AL) Standards. Additionally, one soil sample (MW18-A1-01C) contained iron in excess of the BC CSR AL and RL standards.

- Concentrations of PCOCs measured in the Site's soil vapour were below the BC CSR AL, RL, CL and IL standards at the Site.

Based on the investigation findings, McElhanney makes the following recommendations:

- McElhanney anticipates that the shallow metals contamination in soil is a result of the various collector cars stored in the salvage yard area (flaking paint and deteriorating metal). These shallow soils meet the IL standards and could be used within the highway Right of Way. Should they need to be relocated from the Site, appropriate disposal/relocation options will need to be determined.
- McElhanney was unable to investigate the groundwater at the Site for potential PCOCs. Given the depth of the groundwater, the soil types observed, the soil and soil vapour chemistry results and the Site's BC aquifer characterization as "low vulnerability", McElhanney considers the likelihood that activities on or adjacent to the property are impacting the Sites groundwater to be low. Should the Client wish to analyze the groundwater at the Site or require a legal instrument (i.e. Certificate of Compliance) from BC ENV, McElhanney recommends completing additional drilling with a sonic or ODEX drill rig in order to achieve the required depths to install a well and sample the regional groundwater at the Site.
- McElhanney recommends monitoring those groundwater wells installed at the Site in late spring during freshet to assess for seasonal variations in the perched groundwater at the Site.
- An Environmental Management Plan (EMP) should be developed for the construction phase of the project and should include requirements related to contaminated soil management for the Site in addition to the related worker health and safety concerns.
- The results of any future investigations completed at the Site should be reviewed in consultation with this document. Any resultant discoveries may impact the findings, recommendations and conclusions documented herein.
- If soil relocation off-site is required, soils must meet the applicable BC CSR land use standards for that receiving facility/property such that a Contaminated Soil Relocation Agreement is not required. If soils are disposed of at a provincially permitted facility, the soil quality must only meet the permit requirements of that facility, and a Contaminated Soil Relocation Agreement is not required.

The Executive Summary forms part of this document and should be read in conjunction with the remainder of the report.



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1. Introduction

McElhanney Ltd. (McElhanney) was retained by the Ministry of Transportation and Infrastructure (herein referred to as “MOTI” or “the Client”) to conduct a Phase II Environmental Site Assessment (ESA) of the White Post Auto Museum and Antiques Mall, located at 4439A Trans Canada Highway, Tappen, BC. The phased assessment was completed in response to an Overview Phase I ESA prepared by McElhanney for the entire highway corridor from Ford Road to Kault Hill (draft submitted June 2015) and a more detailed Phase I ESA completed for the subject Site (draft submitted February 2019; final dated December 2019). This environmental work was undertaken as part of the Trans Canada Highway Four Laning project from Ford Road south to Tappen Valley Road (see *Figure 1*). McElhanney’s investigation was limited to the portion of the 4439A Trans Canada Highway property that is anticipated to be procured by the project, this area is shown with a red boundary in *Figure 2* and is herein referred to as “the Site”.

Figure 1: Section of highway proposed for four laning upgrades (highlighted in red).



Figure 2: Site boundaries for 4439A Trans Canada Highway shown in red.



2. Background

An Overview Phase I ESA completed by McElhanney (submitted in draft June 17th, 2015) identified seven properties along the portion of the Trans Canada Highway proposed for twinning from Ford Road to Tappen Valley road that were considered Areas of Potential Environmental Concern (APECs). The White Post Auto Museum and Antiques Mall was one of these APECs. McElhanney followed up with a more detailed Phase I ESA of the Site, focusing specifically on the property at 4439A in February 2019 and identified two (2) on-site APECs and one off-site APEC. Table 1 summarizes the APECs identified at the Site and their associated Potential Contaminants of Concern (PCOCs).

Table 1: Summary of APECs

Key	APEC	Description	PCOCs
A	Collector Vehicle Salvage and Storage Yard	Salvaged vehicles had been stored in the graveled area since the early 1990s (based on interpretations of the available aerial photographs).	Metals, LEPH/HEPH, PAH, BETX, VPH, MTBE and Glycol



Key	APEC	Description	PCOCs
B	Canadian Hot Rods Inc	Several automotive shops including Canadian Hot Rods Inc. operate to the east (up-gradient) of the Site. Additional salvaged vehicles and miscellaneous debris (including a discarded AST) associated with these businesses were also observed.	Metals, LEPH/HEPH, PAH, BETX, VPH, MTBE, VOC and Glycol
C	Custom Paint Shop	Vance's Custom Airbrushing & Pinstriping operates in the south wing of the structure. Soil discoloration was observed adjacent to the ventilation and outdoor concrete pad adjacent to the shop.	Metals, LEPH/HEPH, PAH, BETX, VPH, MTBE, VOC and Glycol

LEPH – Light Extractable Petroleum Hydrocarbons
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 BTEX – Benzene, Toluene, Ethylbenzene, and Xylene
 MTBE – Methyl Tert Butyl Ether

3. Project Objectives

The objective of the work was to investigate the Site’s media (soil, groundwater and soil vapour) for the presence of Potential Contaminants of Concern (PCOCs). The investigations were designed to confirm or refute the presence of contaminants arising from either on-site activities (APEC A and C) or from off-site migration from the inferred up gradient hot rod automotive shops, located east of the Site (APEC B).

3.1. PHASE II ESA SCOPE OF WORK

The following tasks were completed for the Phase II ESA:





- Project management and coordination of subcontractors, site access and supplies to complete the work.
- Completion of a BC One Call and subsurface utility locates (Locates Unlimited Services) at all drilling locations (MW18-A1-01 to MW18-A1-04) preceding any ground disturbance work.
- Advancement of four (4) boreholes (MW18-A1-01 to MW18-A1-04) at the Site targeting all three identified APECs (APEC A, APEC B and APEC C). Three (3) of the boreholes (MW18-A1-01/VP18-A1-01, MW18-A1-02/VP18-A1-02 and MW18-A1-03A&B/VP18-A1-03) were completed as nested groundwater and soil vapour monitoring wells, location MW18-A1-03A&B/VP18-A1-03 was installed with two groundwater monitoring wells, screened at different intervals. One of the boreholes (MW18-A1-04A&B) was completed as a nested groundwater monitoring well only (two groundwater monitoring wells screened at different intervals). The locations for these monitoring wells are shown on *Figure 3*.
- Logging of soils during drilling to observe soil type, composition, consistency/density, structure, color and moisture content.
- Collection of representative grab soil samples from each drilling location for visual, field measurements (head space) and laboratory analysis.
- Collection of four (4) surface soil samples from the Automobile Salvage Yard (APEC A).
- Installation of the four (4) well locations (MW18-A1-01, MW18-A1-02, MW18-A1-03A&B and MW18-A1-04A&B) in December 2018 and monitoring in both December 2018 and January 2019, for groundwater presence and depth.
- Leak testing and sampling of two soil vapour monitoring wells (VP18-A1-01 and VP18-A1-03). Each soil vapour well was leak tested using inert helium gas to confirm that proper installation was achieved, and no atmospheric air was entrained in the system.

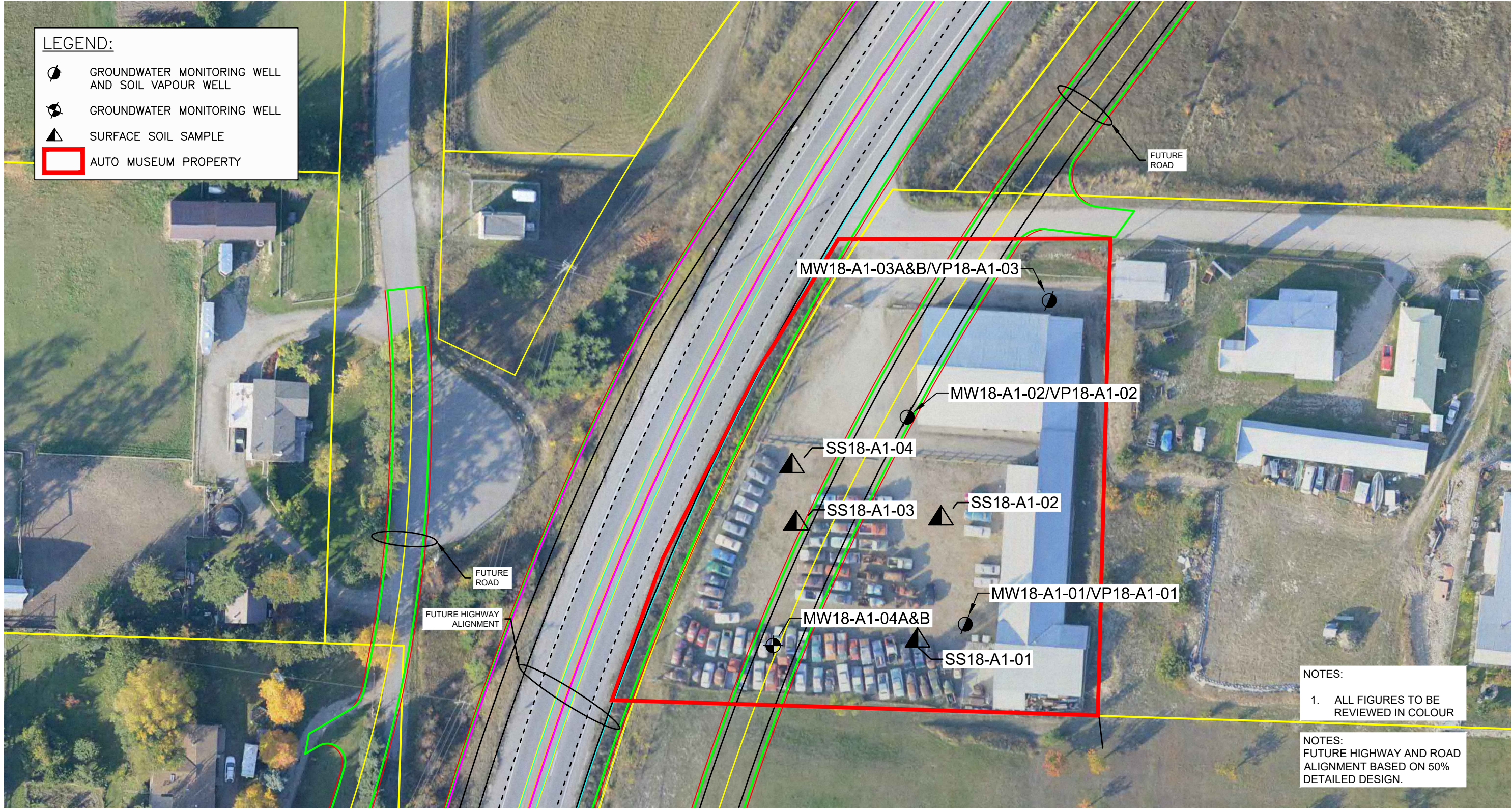


- Submission of fourteen (14) representative soil and two (2) soil vapour samples to an accredited laboratory (CARO Analytical Services) under Chain of Custody to be analyzed for selected PCOCs.
- Assessment and evaluation of the laboratory results.
- Preparation and delivery of a Phase II ESA Report.



LEGEND:

-  GROUNDWATER MONITORING WELL AND SOIL VAPOUR WELL
-  GROUNDWATER MONITORING WELL
-  SURFACE SOIL SAMPLE
-  AUTO MUSEUM PROPERTY



NOTES:
 1. ALL FIGURES TO BE REVIEWED IN COLOUR

NOTES:
 FUTURE HIGHWAY AND ROAD ALIGNMENT BASED ON 50% DETAILED DESIGN.

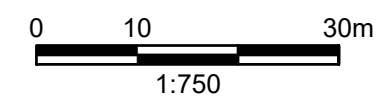


FIGURE 3
PHASE II ENVIRONMENTAL SITE ASSESSMENT AUTO MUSEUM
SITE PLAN AND MONITORING WELL LOCATIONS

Date: 2019/11/26
 Job No.: 2121-00113-00
 TASK 2016

PRINTED: November 27, 2019 - 8:34 AM
 CAD FILE: D:\p\2121-00113-00\MoTI - Hwy 1 Ford Road to Kaut Hill\10.0\DRAWINGS\10.4_Environmental\10.4.2_Sketches\00113-C01-AUTO MUSEUM.dwg (LAST SAVED: JRODGERS)

4. Regulatory Framework

The Trans Canada Highway stretching from Ford Road to Tappen Valley Road lies within the Province of British Columbia and, therefore, the Phased Assessments have been completed in accordance with the requirements identified in BC Environmental Management Act (EMA) and its supporting regulations; the BC Contaminated Sites Regulation (BC CSR) and the Hazardous Waste Regulation (HWR), and associated protocols and guidance documents.

The framework for developing the applicable soil, groundwater and soil vapour standards are provided below.

4.1. APPLICABLE SOIL STANDARDS

Soil results were compared to the BC CSR standards, including updates to January 24, 2019. The applicable soil standards are included in Schedule 3.1, and consist of the following three parts:

- Part 1 – Matrix numerical soil standards
- Part 2 – Generic numerical soil standards to protect human health; and
- Part 3 – Generic numerical soil standards to protect environmental health.

The BC CSR defines highways and roadways as industrial land use. As the current preliminary design includes a portion of the highway occupying the Site, Industrial Land Use (IL) standards were applied to assess soil and soil vapour quality. In addition, the BC CSR Agricultural (AL), Residential Low Density (RLLD) and Commercial (CL) land uses were considered for soil relocation and future planning purposes.

For Part 1, the matrix standards, the following Site-specific factors were considered to apply:

- Intake of contaminated soil (mandatory);
- Toxicity to soil invertebrates and plants (mandatory);
- Groundwater used for drinking water (mandatory, until proven otherwise); and
- Groundwater flow to surface water used by freshwater aquatic life (applied due to the presence of a freshwater surface water body within 500 m of the Site).

Regional background soil quality estimates for Region 8 –Okanagan, as outlined in BC CSR Protocol 4 – Establishing Background Concentrations in Soil, were also applied.

McElhanney understands that soil on the Site may require off-site disposal due to construction activities. It should be noted that the former BC CSR Schedule 7 soil standards for soil relocation to non-agricultural land (Column II) no longer exist under the current amendments to the BC CSR. A new soil relocation regime is still under review with the BC Ministry of Environment and Climate Change Strategy (ENV), however new soil relocation requirements express that acceptable soil relocation is dependent on the most stringent BC CSR standards that apply at the receiving facility/property as per Part 8 of the CSR.

If soil is disposed of at a provincially permitted facility, it must only meet the permit requirements of that facility, and a Contaminated Soil Relocation Agreement is not required as per Part 8 of the CSR.

4.2. APPLICABLE GROUNDWATER STANDARDS AND GUIDELINES

Under the current BC CSR, groundwater standards are grouped under four main water uses: aquatic life, drinking water, irrigation water and livestock watering. BC CSR Protocol 21 – Water Use Determinations provides details on determining when these four water uses apply to a given site. The following rationale is provided for the applicable groundwater standards:



- Due to the proximity (<500m) of White Creek to the Site, the freshwater aquatic life (AWf) standards have been applied.
- According to the BC Water Resource Atlas, multiple water wells are located within a 500 m radius of the Site, and therefore, drinking water (DW) standards were applied.
- The Site is located within the BC Agricultural Land Reserve (ALR) and surrounded by agricultural properties, therefore, groundwater used for irrigation (IW) and livestock watering (LW) standards were considered applicable.
- Stage 8 Amendments for the exclusion of iron and manganese standards were considered applicable to the Site as listed Schedule 2 activities in the Stage 8 amendment currently or historically have not taken place on or near the Site.

The applicable groundwater standards are included in Schedule 3.2.

Regional background water quality estimates were applied where standards exist and are applicable. The provincial background concentrations are described in the BC CSR Technical Bulletin 3 – Regional Background Concentrations for Select Inorganic Substances in Groundwater. Background concentrations for Arsenic (13 ug/L), lithium (96 ug/L), uranium (value of 84ug/L), selenium (value of 107ug/L), cobalt (value of 20ug/L), and vanadium (value of 30ug/L) generally apply for the Thompson-Okanagan region, including the Site area.

4.3. APPLICABLE SOIL VAPOUR STANDARDS

The BC CSR provides soil vapour concentration standards in Schedule 3.3. BC CSR standards pertaining to industrial use (IL) were applied as McElhanney understands that this is the current and future use for the Site following the expansion of the Trans Canada Highway. Similarly, to soils, agricultural use (AL), residential use (RL) and commercial use (CL) standards were applied to soil vapour results for comparison and discussion purposes.

ENV Protocol 22 (P22) permits the application of attenuation factors to assess reported soil vapour concentrations based on site-specific conditions. P22 lists two conditions that must be satisfied to permit the use of soil vapour attenuation factors: (i) groundwater must not contact the building foundation slab at any time of the year or there is active pumping or drawdown of groundwater at the Site, with the exception of parkades built to the BC 2012 Building code or better and (ii) Subsurface or sub-slab vapour is not under pressure (eg., as in at a landfill).

Each condition in Protocol 22 was assessed and was determined to be satisfied for the Site. Specific subsurface soil vapour attenuation factors as specified in Protocol 22 were considered when determining the attenuation factors applicable to the Site.

5. Field Methodology

The Phase II ESA field program was completed from December 13 to the 21, 2018. A summary of each component of the field program is discussed in subsequent sections.

A selection of photographs taken during the Phase II ESA (*Photographs 1 to 8*) have been included in *Appendix A* for reference.



5.1. UTILITY LOCATING

Utility locates of all four (4) proposed drilling locations was completed by Locates Unlimited Ltd from Kamloops, BC.

Prior to arriving on Site, Locates Unlimited Ltd. submitted a BC One Call for the Site and reviewed the results. McElhanney met the utility locator on Site on December 13, 2018 to supervise the ground disturbance area clearances. Site clearances were completed using Electromagnetic (EM) methods to scan the drilling locations. If during the scans, utilities or anomalous underground objects were noted in the subsurface, the drilling locations were moved and offset by at least one metre and rescanning occurred as necessary until safe areas were identified. An area extending approximately 5m x 5m was scanned surrounding each drilling location (*Photograph 1*). Any utilities identified in the subsurface were clearly marked on the ground surface using marking paint (*Photograph 2*).

5.2. DRILLING INVESTIGATION

Drilling for the Phase II ESA was completed from December 18 to 20 2018. On-Track Drilling Inc was retained as a sub-contractor to complete the work. Each borehole location was drilled using a tracked drill rig with auger capabilities.

The drilling investigation involved the advancement of a total of four (4) boreholes in targeted areas across the Site (*Photographs 3 and 4*). *Table 2* summarizes the four (4) boreholes that were advanced at the Site and provides a rationale for their chosen locations. *Figure 3* shows their locations on Site.

Table 2: Summary of Boreholes

Monitoring Well ID	Location on Site	Completion Type	Total Drill Depth (mbgs)	Rationale
MW18-A1-01/ VP18-A1-01	Southeast portion of the Site, adjacent to the paint shop	Nested groundwater monitoring and soil vapour well	27.4m	Targeting APECs B and C - well is located adjacent to and downgradient of the paint shop and downgradient of the off-site Auto shops
MW18-A1-02/ VP18-A1-02	Northwest portion of the Site, adjacent to the Auto Museum	Nested groundwater monitoring and soil vapour well	15.2 m	Targeting APEC A and B - well is located downgradient of the Auto shops and adjacent to the Auto Museum and salvage yard.
MW18-A1-03/ VP18-A1-03	Northeast portion of the Site	Nested groundwater monitoring wells and soil vapour well	15.2 m	Targeting APEC B - well is located down gradient of the various off-site Automobile shops
MW18-A1-04	Automobile Salvage Yard	Nested groundwater monitoring wells	12.2 m	Targeting APEC A - well is located in the Automobile Salvage Yard

All boreholes were advanced using solid stem augers (*Photograph 5*); soil conditions allowed boreholes to remain open for the monitoring well installation.

The subsurface materials encountered during the drilling program were logged for soil type, composition, colour, consistency / density, moisture content, structure, staining, odour and other relevant observations generally based on the Unified Soil Classification System.

All drill cuttings from each borehole were placed in labelled sealed drums and stored at the Site until analytical results could be reviewed to determine their quality and disposal options (*Photograph 6*).



Soil sampling frequency depended on the field observations and headspace screening (measuring for potential hydrocarbon vapours coming from the soil) using a photoionization detector (PID).

Groundwater monitoring wells were completed using either 25 mm or 50 mm diameter Schedule 40 PVC well casing and 0.25 mm slotted screens of lengths ranging from 1.52 to 3.05 m. Silica filter sand and bentonite chips were used to backfill around the monitoring wells. The silica sand was used to provide a filter media and protect the screen of the well and bentonite was used to create a seal above the screened interval to prevent cross communication between potentially separate groundwater zones. Each monitoring well was completed by inserting a removable J-plug into the top of the well casing to act as a sealed lid. A protective steel road box was installed and fixed in place with concrete. All soil vapour wells were completed using a 152mm long stainless-steel screen with 6mm diameter Teflon tubing to surface. The use of silica sand, bentonite, and road boxes were also applied to the construction of the soil vapour wells.

Groundwater monitoring well depths ranged from a minimum depth of 2.4mbgs for MW18-A1-04A to a maximum depth of 19.2mbgs for MW18-A1-03B. Soil vapour monitoring well depths ranged from a minimum of 1.5mbgs (VP18-A1-03) to a maximum of 3.1mbgs (VP18-A1-01).

Complete details on well construction, PID readings, sample locations and lithological descriptions can be viewed on the borehole logs in [Appendix B](#).

5.3. SOIL SAMPLING METHODOLOGY

Soil samples were collected at regular intervals based on field observations and geological variations in the subsurface. Each soil sample collected for laboratory analysis was divided where approximately half of the sample was placed in laboratory supplied 125ml glass jars and 40ml methanol preserved vials and the remaining half was used for in-field soil vapour headspace screening. Each sample collected for soil headspace analysis was placed into Ziploc Bags (approximately 20% full), sealed and set aside for approximately 7 to 10 minutes to allow semi-volatile and volatile petroleum hydrocarbons, to partition to the vapour phase within the airspace contained in the bag. The headspace concentration was then measured using a PID in units of parts per million (ppm).

Soil volatile organic compound (VOC) sampling was conducted in accordance with soil VOC-sampling requirements issued by the BC ENV effective November 1, 2014. The soil samples collected for VOC analysis were collected using dedicated terra core samplers and field preserved with methanol.

McElhanney collected four surficial soil samples from the collector car salvage yard as flaked paint and metal were observed at ground surface at APEC A ([Photograph 7](#)). Surficial soil samples were collected from the upper 0.1 m of soil, the locations are identified on [Figure 3](#) as SS18-A1-01 to SS18-A1-04 ([Photograph 8](#)).

A total of nine (9) soil samples and one BFD, collected during the drilling program and four (4) shallow surface soils samples were submitted for analysis of PCOC's during the Phase II ESA.

Samples selected for laboratory analysis were submitted to CARO Analytical Services in Kelowna, BC and analyzed in their Richmond, BC, laboratory.

5.4. GROUNDWATER MONITORING METHODOLOGY

Following installation, each monitoring well was checked for presence and depth of groundwater. Within 48 hours of their installation McElhanney measured no water in any of the monitoring wells. McElhanney returned to the Site on January 10, 2019 (21 days following installation) to monitor groundwater levels in



all of the installed wells. Groundwater was measured in MW18-A1-04A at 2.0 m below ground surface (mbgs), and at MW18-A1-03B at approximately 19mbgs, all other wells were dry; only 0.28m of groundwater was measured in MW18-A1-04A and < 0.05 m in MW18-A1-03B. The monitoring wells could not be sufficiently developed due to insufficient water and very slow recharge.

The groundwater monitoring results and field observations suggest that the groundwater observed during the Phase II ESA consists of perched aquifers of limited extent and were not representative of the regional groundwater aquifer. No groundwater samples were collected during this investigation.

5.5. SOIL VAPOUR SAMPLING METHODOLOGY

Soil vapour monitoring wells were leak-tested using a helium tracer prior to sampling by placing a plastic shroud over the exposed flush-mount, allowing the Teflon tubing to pass through and be connected to the sampling pump. The pump was then run at a rate of approximately 100mL/minute while helium was continuously applied within the shroud. The vapour well tubing was also connected to a digital manometer to monitor the vacuum in the system. The sampling pump continued to run for a sufficient time to remove at least three well volumes of air from the soil vapour well and a helium detector was used to monitor helium levels in the vapour well itself. If helium was not detected in the sampling stream, the soil vapour well was considered to be leak-free and deemed suitable to sample.

Sampling of soil vapour was achieved using flow rates of approximately 100mL/min over a 30-minute interval. In-situ flow rates were monitored with a Bios Defender 510 flow meter and average flow rates calculated over the length of the test were provided to the analytical laboratory. Thermal desorption tubes were placed ahead of the flow meter, effectively receiving soil vapour from the vapour well without interference.

Duplicate sampling was achieved by splitting the soil vapour stream and performing the sample collection in tandem. In this case, two flow meters and a pump at 200mL/minute were utilized to provide equal sampling effort.

Thermal desorption tubes were immediately removed from the sampling apparatus upon sampling completion and secured in a lab-supplied sheath. Analysis of thermal desorption tubes included the CARO Analytical Services volatile organic compounds (VOC) suite of parameters.

5.6. SURVEY

Following the completion of the drilling program a McElhanney survey technician completed a final survey of the finished monitoring and vapour well locations. UTM coordinates for all locations including elevations of both the ground surface and top of monitoring and soil vapour wells were measured.

6. Quality Assurance / Quality Control

Several Quality Assurance/Quality Control (QA / QC) measures were employed during program sampling. Specifically, the following items identify both in-house and external QA / QC protocols applied:

- Duplicate soil samples (approximately 1 in 10) were collected and analyzed to verify laboratory accuracy.
- The field photoionization detector (PID) was calibrated with a calibration gas standard of known concentration and zero-calibrated with fresh air prior to field use.



- CARO Analytical Services is certified with the Canadian Association for Laboratory Accreditation (CALA) and performs its analytical services under auditable QA / QC standards.
- All activities were conducted by qualified and trained staff.
- The project was managed in accordance with McElhanney's certified ISO 9001 program.
- Soil and soil vapour samples were collected in accordance to the BC Field Sampling Manual.
- Nitrile gloves were worn during sampling and replaced for each subsequent sample to minimize the potential for cross contamination between samples:
 - Dedicated disposable terra-cores were used to sample soils for VOC analysis.
 - Dedicated tubing was used in each monitoring well for well development.
 - Sampling apparatus were decontaminated at each sampling location prior to reuse to avoid cross-contamination.
 - All soil samples were collected in laboratory-supplied sterile sampling jars and vials.
 - Soil vapour samples were collected in laboratory prepared, sterilized thermal desorption tubes (TD), provided in individual sealed containers.
- To preserve sample integrity, samples were hand delivered to the Caro Analytical Services' Kelowna Laboratory in coolers containing ice packs under chain of custody (COC).
- Samples were analyzed for PCOCs within their respective holding times.

6.1. RELATIVE PERCENT DIFFERENCE

For laboratory QA / QC, blind field duplicate (BFD) samples were collected to assess laboratory precision. One duplicate soil sample was collected (MW18-A1-01C/DUP-A) and submitted for subsequent analysis.

Relative Percent Difference Calculations were conducted on the sample sets where duplicate samples were collected. Relative percent difference was calculated using laboratory result values of a select sample, its duplicate result, and the equation $\% \text{ Difference} = \frac{|E_1 - E_2|}{\frac{1}{2}(E_1 + E_2)} \cdot 100$.

Descriptive statistics were applied to each duplicate sample.

RPD calculations could not be calculated (as they would be considered less precise) for all of the duplicate parameters as the results were less than the analytical Reported Detection Limit (RDL).

The project laboratory, CARO Analytical Services, also implements internal QA / QC procedures and conducts QA / QC checks through the use of certified reference materials, duplicates, method blanks and method spikes. McElhanney reviewed those QA / QC results provided in the certificate of analysis (COA) by the laboratory, one RPD exceedance was noted for tin in soils (MW18-A1-01C) and one for 1,3 butadiene in vapour. However, as tin and 1,3 butadiene were not measured in any samples at elevated levels at the Site, they are not considered contaminants of concern (COC) and the result is likely from natural heterogeneity in the matrix. Based on the internal and laboratory QA / QC information, the results appear to be accurate and can be relied on for the purposes of this investigation.

7. Results

7.1. GEOLOGY

The drilling investigation identified generally consistent subsurface conditions across the Site. Minor fill material was noted across the Site and based on the general layout and grading of the property this



material is likely from re-worked native soils or imported from the nearby aggregate pit to the east. Generally, the thickness of the fill material ranged from 0.5m to 1.4m, with the thickest fill noted in close proximity to the Site's buildings. Native sands and silts were primarily noted below the fill material, some minor CLAY units were also observed.

- **Fill:** This material was variable in composition and appeared to be either re-worked soils from the Site, imported surfacing aggregates or a combination of the two. The fill contained some rounded gravels and varying sand, silt and clay content.
- **Native Soils:** Alternating sand and silt were the primary soil types observed at the Site, reaching to 27.4mbgs in some locations. Clay was observed in MW18-A1-03 at a depth of 24mbgs and 2mbgs at MW18-A1-04. The material contained variable amounts of silt and sand and was observed to display some plasticity.

7.2. HYDROGEOLOGY

McElhanney did not observe the regional groundwater table during the investigation to the maximum depth drilled at the Site (27.4m). Small zones of perched groundwater (saturated soils) were noted during drilling ranging in thickness from 0.46m to 1.7m. The perched groundwater is expected to be limited in extent, as it was not continuous in the subsurface with limited to no recharge observed in the groundwater wells. The minor areas of perched groundwater appeared to coincide with silt or clay layers observed in the soils. Groundwater flow directions could not be determined during the Phase II ESA; however, based on the regional surface water bodies (White Creek and Shuswap Lake) and the topography of the Site and its surroundings, McElhanney anticipates that it is to the west, southwest.

The regional aquifer at the Site as described on the BC Water Resources Atlas is confined by clay, sandy clay with silty layers and diamicton (clay and gravel). The average depth to groundwater is 44m below ground surface. The regional aquifer is described as having a low vulnerability as a result of the confining unit of which its extent and thickness limits the potential for hydraulic connection between the aquifer and infiltrating surface waters.

7.3. SOIL RESULTS

A total of thirteen (13) soil samples and one blind field duplicate (BFD) were selected to be submitted to CARO Laboratories for analysis of Potential Contaminants of Concern (PCOCs) based on the field observations. *Table 3* summarizes the parameters analyzed and the results of the investigation.

Table 3: Summary of Phase II ESA Soil Results

Sample Location	Sample ID	Analyses Selected (PCOCs)	Sample Results
MW18-A1-01/VP18-A1-01	MW18-A1-01A	BETX, VPH, LEPH, HEPH, PAH, VOC, Glycols	All Parameters < BC CSR IL, CL, RL, AL
	MW18-A1-01C and BFD (DUP-A)	Metals, BETX, VPH, LEPH, HEPH, PAH, Glycols	Iron > BC CSR AL & RL All Parameters < BC CSR CL and IL
	MW18-A1-01D	BETX, VPH, LEPH, HEPH, PAH, VOC	All Parameters < BC CSR IL, CL, RL, AL
MW18-A1-02/VP18-A1-02	MW18-A1-02A	Metals, BETX, VPH, LEPH, HEPH, PAH	All Parameters < BC CSR IL, CL, RL, AL
	MW18-A1-02C	BETX, VPH, LEPH, HEPH, PAH, VOC	All Parameters < BC CSR IL, CL, RL, AL



Sample Location	Sample ID	Analyses Selected (PCOCs)	Sample Results
MW18-A1-03A&B/ VP18-A1-03	MW18-A1-03B	Metals, BETX, VPH, LEPH, HEPH, PAH, VOC, Glycols	All Parameters < BC CSR IL, CL, RL, AL
	MW18-A1-03D	BETX, VPH, LEPH, HEPH, PAH, VOC	All Parameters < BC CSR IL, CL, RL, AL
MW18-A1-04A&B	MW18-A1-04A	Metals, BETX, VPH, LEPH, HEPH, PAH	All Parameters < BC CSR IL, CL, RL, AL
	MW18-A1-04D	BETX, VPH, LEPH, HEPH, PAH, Glycols	All Parameters < BC CSR IL, CL, RL, AL
SS18-A1-01	SS18-A1-01	Metals and Glycols	Lead, Tin and Zinc > BC CSR AL Lead > BC CSR RL and CL All Parameters < BC CSR IL
SS18-A1-02	SS18-A1-02	Metals	All Parameters < BC CSR IL, CL, RL, AL
SS18-A1-03	SS18-A1-03	Metals	All Parameters < BC CSR IL, CL, RL, AL
SS18-A1-04	SS18-A1-04	Metals	All Parameters < BC CSR IL, CL, RL, AL

BTEX – Benzene, Toluene, Ethylbenzene, and Xylenes
PAH – Polycyclic Aromatic Hydrocarbons
VPH – Volatile Petroleum Hydrocarbons
CL – Commercial Land Use

LEPH/HEPH – Light/Heavy Extractable Petroleum Hydrocarbons
VOC – Volatile Organic Compounds
IL – Industrial Land Use
RL – Residential Land Use

Figures 4 to 8 summarize the soil results for the Site. The soil chemistry results in comparison to IL standards are included in Tables A to E, compared to CL standards in Tables F to J, compared to RL standards in Tables K to O and compared to AL standards in Tables P to T in Appendix C. Laboratory Certificates of Analysis (COA) have been included in Appendix D.

7.4. SOIL VAPOUR RESULTS

Two soil vapour samples were collected from the installed wells (VP18-A1-01 and VP18-A1-03). Samples were submitted to CARO Laboratories for analysis of their in-house VOC suite, which included those PCOCs identified at the Site. Table 4 summarizes the parameters analyzed and the soil vapour results.

Table 4: Summary of Phase II ESA Soil Vapour Results







Soil Vapour Well ID	Analyses Selected	Attenuated Sample Results Estimating Breathing Zone Concentrations (Outdoor Air)
VP18-A1-01	CARO Full VOC parameter suite	Attenuated concentrations for all parameters < BC CSR Schedule 3.3 Vapour Standards for AL,RL, CL and IL land Use.
VP15-A2-02	CARO Full VOC parameter suite	Attenuated concentrations for all parameters < BC CSR Schedule 3.3 Vapour Standards for AL,RL, CL and IL land Use

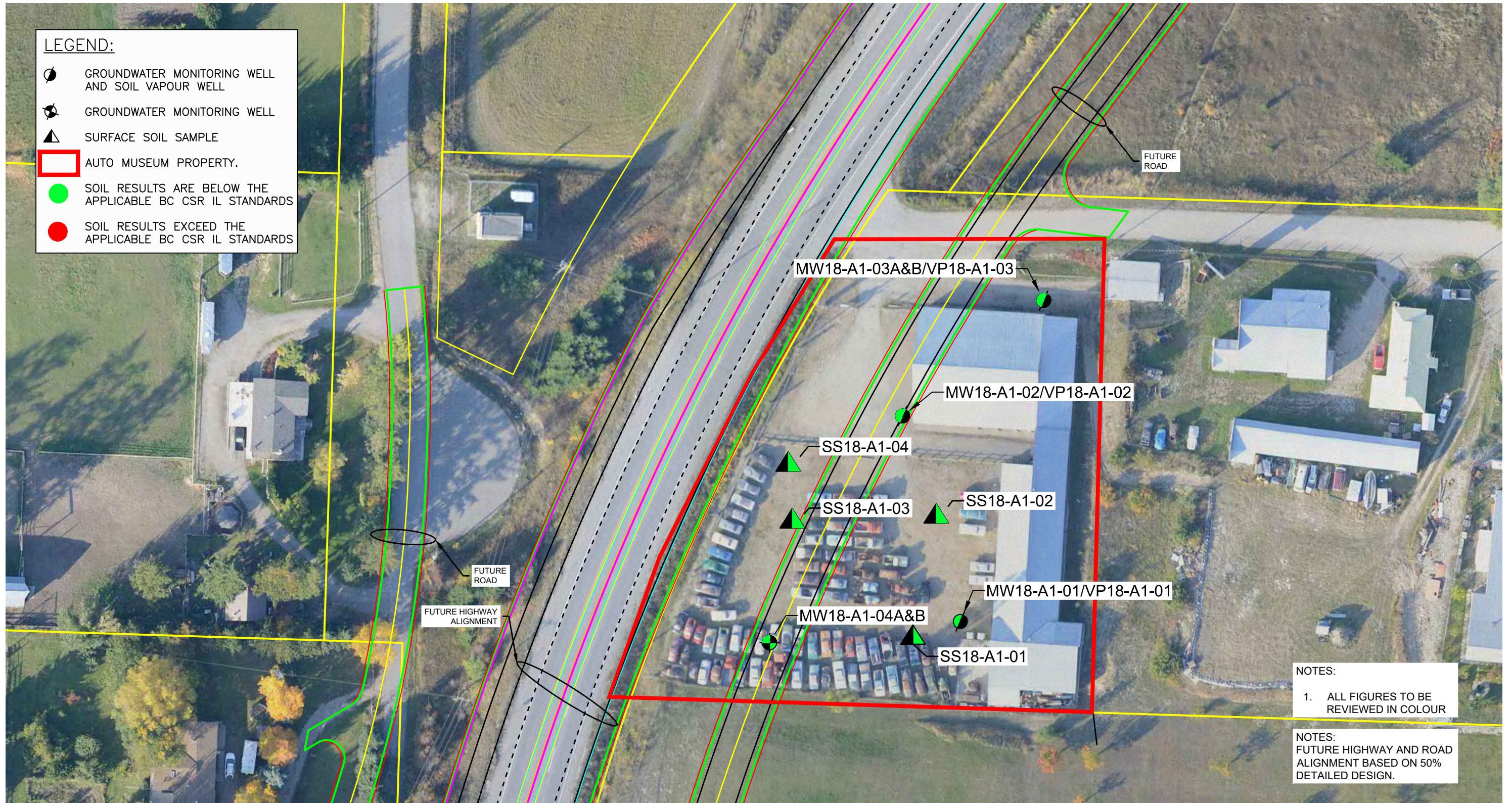
All measured parameter concentrations in soil vapour prior to the application of the Protocol 22 attenuation factors were less than AL, RL, CL and IL with the exception of benzene. The unattenuated concentration of benzene was however less than the applicable IL standard. Indoor air exposure scenarios were not assessed for the Site, as the future planned use of the property is for highway ROW.

Figure 9 summarizes the soil vapour results for the Site. The soil vapour chemistry results are included in Table U in Appendix C and Laboratory COA in Appendix D.



LEGEND:

-  GROUNDWATER MONITORING WELL AND SOIL VAPOUR WELL
-  GROUNDWATER MONITORING WELL
-  SURFACE SOIL SAMPLE
-  AUTO MUSEUM PROPERTY.
-  SOIL RESULTS ARE BELOW THE APPLICABLE BC CSR IL STANDARDS
-  SOIL RESULTS EXCEED THE APPLICABLE BC CSR IL STANDARDS



NOTES:
 1. ALL FIGURES TO BE REVIEWED IN COLOUR

NOTES:
 FUTURE HIGHWAY AND ROAD ALIGNMENT BASED ON 50% DETAILED DESIGN.

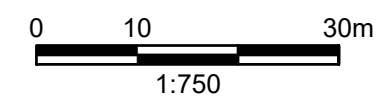








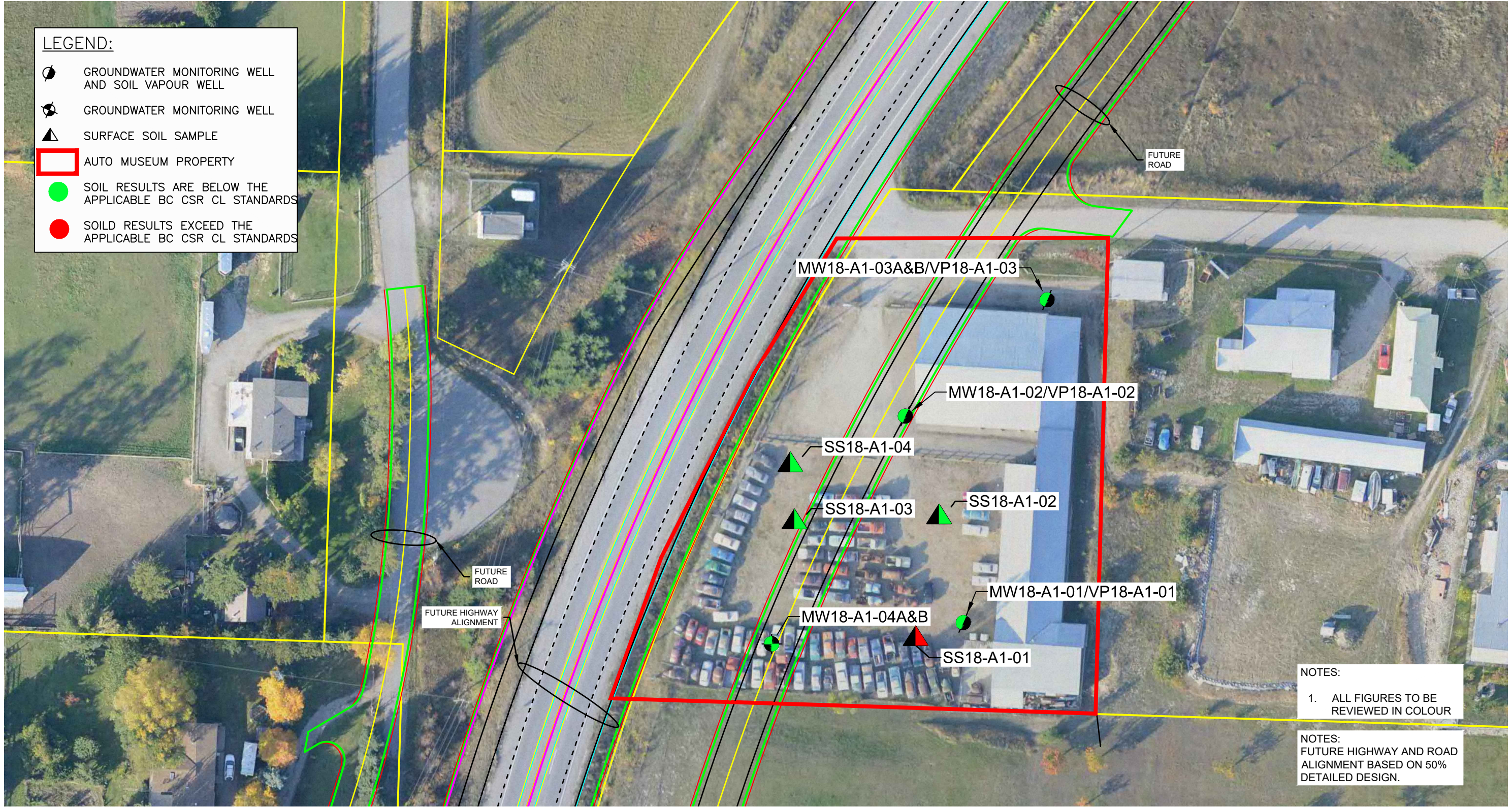
FIGURE 4
PHASE II ENVIRONMENTAL SITE ASSESSMENT AUTO MUSEUM
SUMMARY OF SOIL RESULTS (METALS)
INDUSTRIAL STANDARDS

Date: 2019/11/26
 Job No.: 2121-00113-00
 TASK 2016

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 CAD FILE: D:\p\2121-00113-00\MoTI - Hwy 1 Ford Road to Kaut H110.DRAWINGS\10.4_Environmental\10.4.2_Sketches\0113-C01-AUTO MUSEUM.dwg (LAST SAVED: JRODGERS)

LEGEND:

-  GROUNDWATER MONITORING WELL AND SOIL VAPOUR WELL
-  GROUNDWATER MONITORING WELL
-  SURFACE SOIL SAMPLE
-  AUTO MUSEUM PROPERTY
-  SOIL RESULTS ARE BELOW THE APPLICABLE BC CSR CL STANDARDS
-  SOIL RESULTS EXCEED THE APPLICABLE BC CSR CL STANDARDS



NOTES:
 1. ALL FIGURES TO BE REVIEWED IN COLOUR

NOTES:
 FUTURE HIGHWAY AND ROAD ALIGNMENT BASED ON 50% DETAILED DESIGN.

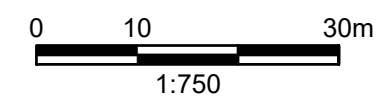






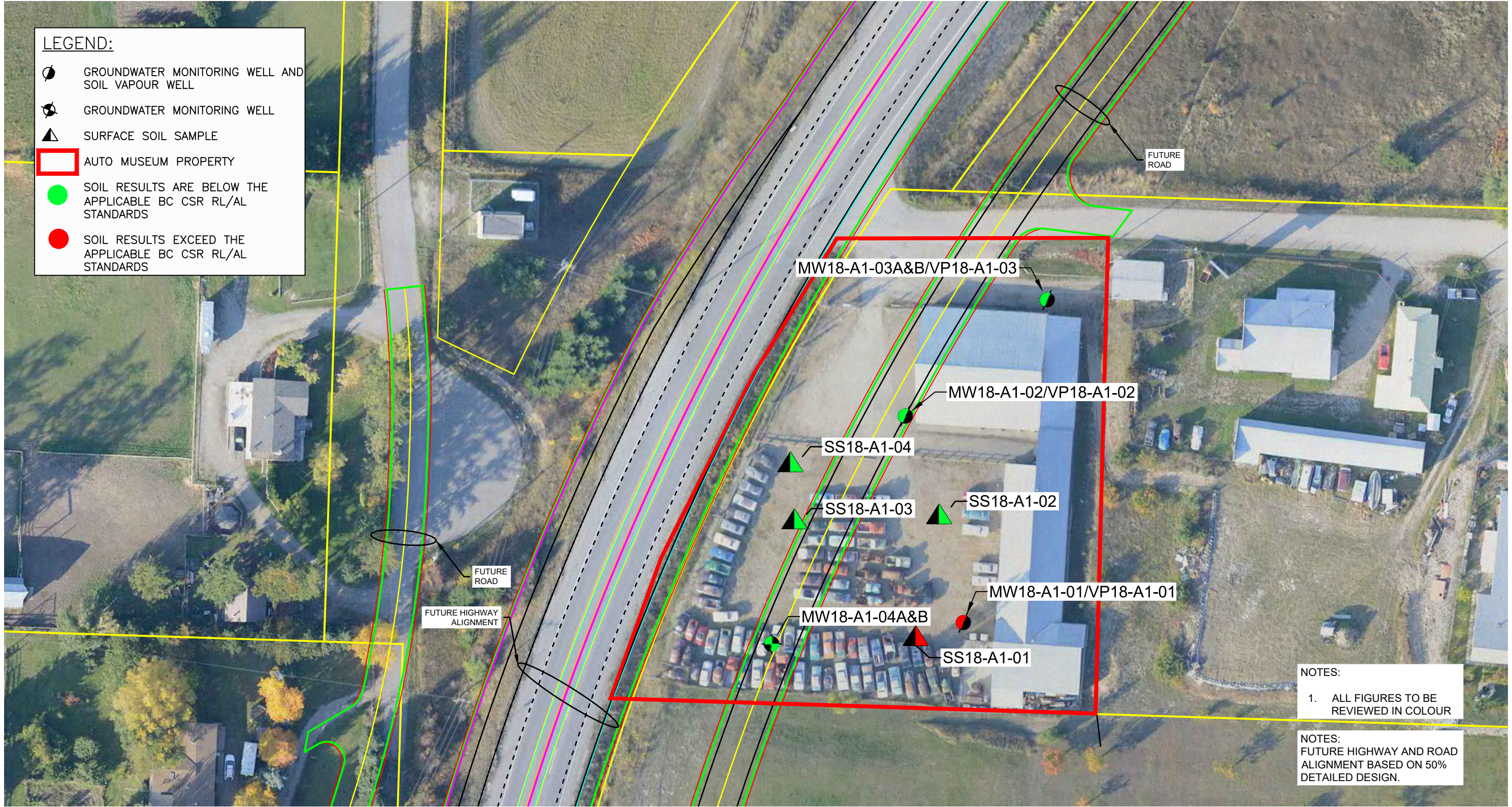


FIGURE 5
PHASE II ENVIRONMENTAL SITE ASSESSMENT AUTO MUSEUM
SUMMARY OF SOIL RESULTS (METALS)
COMMERCIAL STANDARDS

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LEGEND:

-  GROUNDWATER MONITORING WELL AND SOIL VAPOUR WELL
-  GROUNDWATER MONITORING WELL
-  SURFACE SOIL SAMPLE
-  AUTO MUSEUM PROPERTY
-  SOIL RESULTS ARE BELOW THE APPLICABLE BC CSR RL/AL STANDARDS
-  SOIL RESULTS EXCEED THE APPLICABLE BC CSR RL/AL STANDARDS



NOTES:
 1. ALL FIGURES TO BE REVIEWED IN COLOUR

NOTES:
 FUTURE HIGHWAY AND ROAD ALIGNMENT BASED ON 50% DETAILED DESIGN.

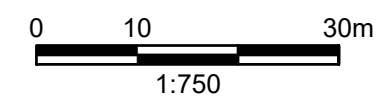








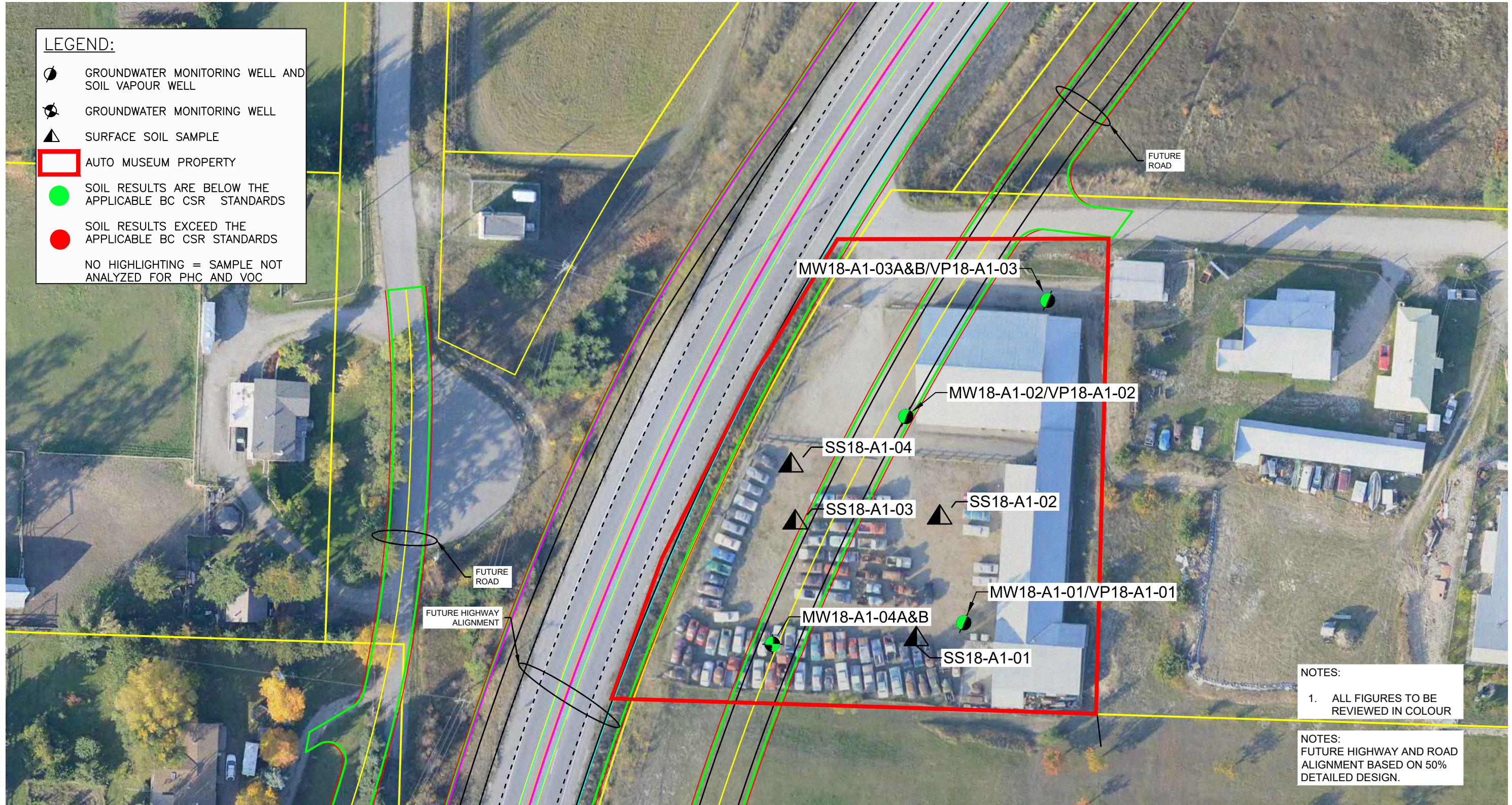
FIGURE 6
PHASE II ENVIRONMENTAL SITE ASSESSMENT AUTO MUSEUM
SUMMARY OF SOIL RESULTS (METALS)
RESIDENTIAL & AGRICULTURAL STANDARDS

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 Job No.: 2121-00113-00
 TASK 2016

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LEGEND:

-  GROUNDWATER MONITORING WELL AND SOIL VAPOUR WELL
-  GROUNDWATER MONITORING WELL
-  SURFACE SOIL SAMPLE
-  AUTO MUSEUM PROPERTY
-  SOIL RESULTS ARE BELOW THE APPLICABLE BC CSR STANDARDS
-  SOIL RESULTS EXCEED THE APPLICABLE BC CSR STANDARDS
- NO HIGHLIGHTING = SAMPLE NOT ANALYZED FOR PHC AND VOC

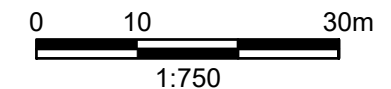


NOTES:
 1. ALL FIGURES TO BE REVIEWED IN COLOUR

NOTES:
 FUTURE HIGHWAY AND ROAD ALIGNMENT BASED ON 50% DETAILED DESIGN.

FIGURE 7

**PHASE II ENVIRONMENTAL SITE ASSESSMENT AUTO MUSEUM
 SUMMARY OF SOIL RESULTS (PETROLEUM HYDROCARBONS AND VOC)
 INDUSTRIAL/COMMERCIAL/RESIDENTIAL/AGRICULTURAL STANDARDS**









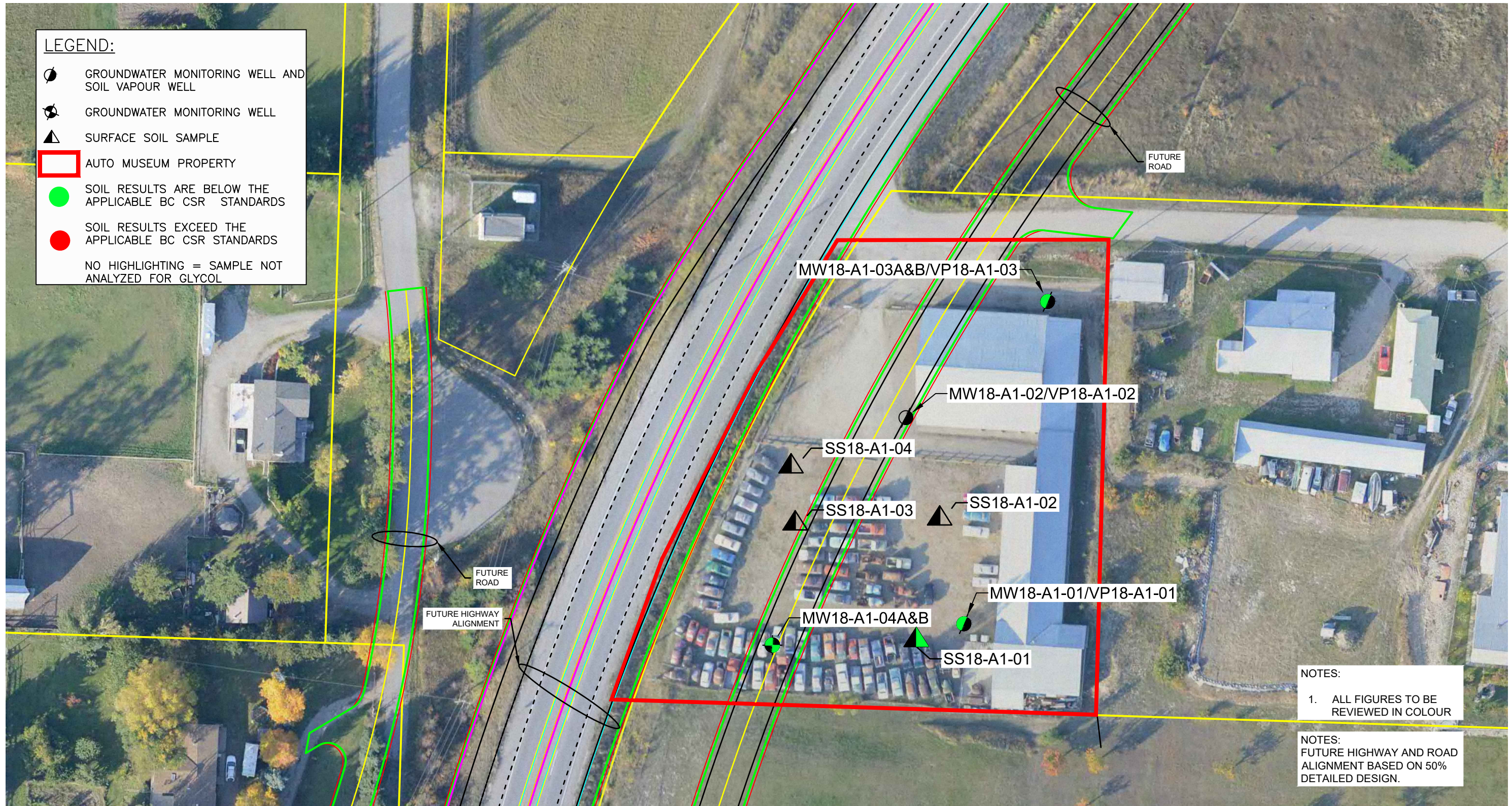
Date: 2019/11/26
 Job No.: 2121-00113-00
 TASK 2016



200-858 BEATTY STREET
 VANCOUVER, B.C.
 V6B 1C1

LEGEND:

-  GROUNDWATER MONITORING WELL AND SOIL VAPOUR WELL
-  GROUNDWATER MONITORING WELL
-  SURFACE SOIL SAMPLE
-  AUTO MUSEUM PROPERTY
-  SOIL RESULTS ARE BELOW THE APPLICABLE BC CSR STANDARDS
-  SOIL RESULTS EXCEED THE APPLICABLE BC CSR STANDARDS
- NO HIGHLIGHTING = SAMPLE NOT ANALYZED FOR GLYCOL



NOTES:
1. ALL FIGURES TO BE REVIEWED IN COLOUR

NOTES:
FUTURE HIGHWAY AND ROAD ALIGNMENT BASED ON 50% DETAILED DESIGN.

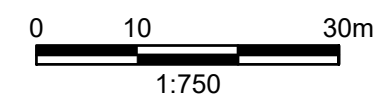







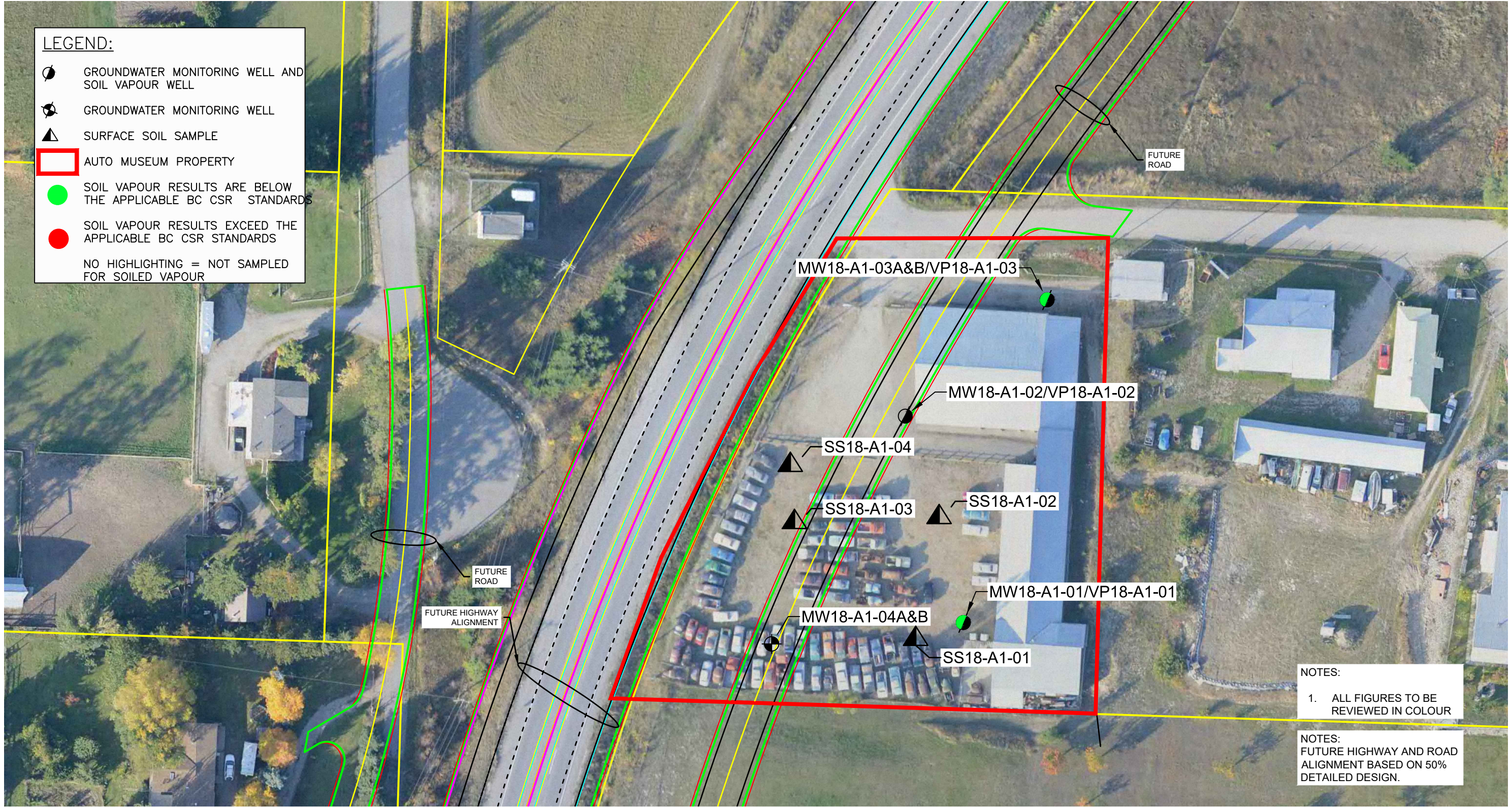


FIGURE 8
PHASE II ENVIRONMENTAL SITE ASSESSMENT AUTO MUSEUM
SUMMARY OF SOIL RESULTS (GLYCOL)
INDUSTRIAL/COMMERCIAL/RESIDENTIAL/AGRICULTURAL STANDARDS

LEGEND:

-  GROUNDWATER MONITORING WELL AND SOIL VAPOUR WELL
-  GROUNDWATER MONITORING WELL
-  SURFACE SOIL SAMPLE
-  AUTO MUSEUM PROPERTY
-  SOIL VAPOUR RESULTS ARE BELOW THE APPLICABLE BC CSR STANDARDS
-  SOIL VAPOUR RESULTS EXCEED THE APPLICABLE BC CSR STANDARDS
-  NO HIGHLIGHTING = NOT SAMPLED FOR SOILED VAPOUR



NOTES:
 1. ALL FIGURES TO BE REVIEWED IN COLOUR

NOTES:
 FUTURE HIGHWAY AND ROAD ALIGNMENT BASED ON 50% DETAILED DESIGN.

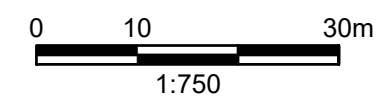


FIGURE 9
PHASE II ENVIRONMENTAL SITE ASSESSMENT AUTO MUSEUM
SUMMARY OF SOIL VAPOUR RESULTS
INDUSTRIAL/COMMERCIAL/RESIDENTIAL/AGRICULTURAL STANDARDS

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8. Conclusions and Recommendations

Based on the findings of the Phase II ESA, McElhanney provides the following conclusions:

- The Site's geology mainly consists of a shallow layer of fill material underlain by interbedded silts and sand units. Minor clay horizons were noted at some locations of the Site.
- The regional groundwater table was not encountered to a maximum drill depth of 27.4m at the site. Minor intermittent perched groundwater was noted at the Site however, the recharge and yield were insufficient to develop or sample the groundwater monitoring wells installed across these horizons;
- Measured concentrations of PCOCs in soil were below the BC CSR IL standards (applicable to a highway ROW).
- One shallow surficial soil sample (SS18-A1-01) contained concentrations of lead exceeding the BC CSR CL and RL Standards and lead, tin and zinc exceeding the BC CSR AL Standards. Additionally, one soil sample (MW18-A1-01C) contained iron in excess of the BC CSR AL and RL standards.
- Concentrations of PCOCs in soil vapour are below the BC CSR AL, RL, CL and IL standards for outdoor air exposure scenarios at the Site.

Based on the investigation findings, McElhanney makes the following recommendations:

- McElhanney anticipates that the shallow metals contamination in soil is a result of the various collector cars stored in the salvage yard area (flaking paint and deteriorating metal). These shallow soils meet the IL standards and could be used within the highway Right of Way. Should they need to be relocated from the Site, appropriate disposal / relocation options will need to be determined based on the quality of the soils.
- McElhanney was unable to investigate the groundwater at the Site for potential PCOCs. Given the depth of the groundwater, the soil types observed, the soil and soil vapour chemistry results and the Site's BC aquifer characterization as "low vulnerability", McElhanney considers the likelihood that activities on or adjacent to the property are impacting the Sites groundwater to be low. Should the Client wish to analyze the groundwater at the Site or require a legal instrument (i.e. Certificate of Compliance) from BC ENV, McElhanney recommends completing additional drilling with a sonic or ODEX drill rig in order to achieve the required depths to install a well and sample the regional groundwater at the Site.
- McElhanney recommends monitoring those groundwater wells installed at the Site in late spring during freshet to assess for seasonal variations in the perched groundwater at the Site.
- An Environmental Management Plan (EMP) should be developed for the construction phase of the project and should include requirements related to contaminated soil management for the Site in addition to the related worker health and safety concerns.
- The results of any future investigations completed at the Site should be reviewed in consultation with this document. Any resultant discoveries may impact the findings, recommendations and conclusions documented herein.
- If soil relocation off-site is required, soils must meet the applicable BC CSR land use standards for that receiving facility/property such that a Contaminated Soil Relocation Agreement is not required. If soils are disposed of at a provincially permitted facility, the soil quality must only meet the permit requirements of that facility, and a Contaminated Soil Relocation Agreement is not required.



9. Professional Statement

In conformance with applicable regulations we confirm that:

- This Report has been prepared in accordance with the applicable standards; and
- The undersigned have demonstrable experience in investigation of the type of contamination at the site for which this statement applies and are familiar with the investigation carried out at the Site.

Should there be any questions regarding the information within, please do not hesitate to contact the undersigned.

Yours truly,

McELHANNEY LTD.

Prepared by



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Reviewed by

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10. Limitations of Report

This report was prepared by McElhanney Ltd. ("McElhanney ") for the exclusive use of The Ministry of Transportation and Infrastructure (MOTI) and may not be reproduced in whole or in part without the prior written consent of McElhanney or used or relied upon in whole or in part by a party other than mentioned in the Limitations. Any unauthorized use of this report, or any part hereof, by a third party, or any reliance on or decisions to be made based on it, are at the sole risk of such third parties. McElhanney accepts no responsibility for damages, if any, suffered by any third party as a result of decisions made or actions based on this report, in whole or in part.

Standard of Care and Disclaimer of Warranties. This study and report have been prepared in accordance with generally accepted engineering and scientific judgments, principles and practices. McElhanney expressly disclaims any and all warranties in connection with this report including, without limitation, any warranty that this report and the associated site investigation work has uncovered all potential environmental liabilities associated with the subject property.

Investigation and Subsurface Risks. The environmental characterization data was collected in general accordance with the standards and methods identified in the document by experienced professionals. Subsurface conditions between boreholes, monitoring wells, and sampling locations have been based, by necessity, on assumptions of what exists between the actual locations sampled or investigated and may vary significantly from actual site conditions. Interpretations of groundwater levels and flow direction are based on water level measurements at selected monitoring well locations and are expected to fluctuate. Borehole and monitoring well observations indicate the approximate subsurface conditions at those locations only. Even a comprehensive sampling and testing program, implemented in accordance with appropriate equipment by experienced personnel, may fail to detect certain conditions. Actual conditions



may vary significantly between the points investigated and all persons making use of this report should be aware of, and accept, this risk. Subsurface sampling may result in unavoidable contamination of certain subsurface areas not known to be previously contaminated such as, but not limited to, a geologic formation, the groundwater or other hydrous body. McElhanney is not responsible for such contamination.

Information from Client and Third Parties. McElhanney has relied in good faith on information provided by the MOTI and third parties noted in this report and has assumed such information to be accurate, complete, reliable, non-fringing, and fit for the intended purpose without independent verification. McElhanney accepts no responsibility for any deficiency, misstatements or inaccuracy contained in this report as a result of omissions or errors in information provided by third parties or for omissions, misstatements or fraudulent acts of persons interviewed.

Independent Judgments. McElhanney will not be responsible for the independent conclusions, interpretations, interpolations and/or decisions of the MOTI, or others, who may come into possession of this report, or any part thereof. This restriction of liability includes decisions made to purchase, finance or sell land.

Effect of Changes. All evaluations and conclusions stated in this report are based on facts, observations, site specific details, legislation and regulations as they existed at the time of the investigation. Some conditions are subject to change over time and the MOTI recognizes that the passage of time, natural occurrences, and direct or indirect human intervention at or near the site may substantially alter such evaluations and conclusions. Regulatory statutes are also subject to change and interpretation, which may change over time. McElhanney should be requested to re-evaluate the conclusions of this report and to provide amendments as required prior to any reliance upon the information presented herein upon any of the following events: a) any changes (or possible changes) as to the site or regulatory requirements upon which this report was based, or b) new information is discovered in the future during site excavations, building demolition or other activities, or c) additional subsurface investigations or testing conducted by others.



APPENDIX A – SITE PHOTOGRAPHS



Photograph 1 – Typical 5 x 5 m utility clearance area at selected drilling locations (orange paint denotes the limits). MW18-A1-01 location, looking southeast.



Photograph 2 – Identified underground utilities were marked on the ground using marking paint. MW18-A1-03 location, looking east.



Photograph 3 –Drilling MW18-A1-02 using the track mounted auger rig. Looking north.



Photograph 4 –Drilling MW18-A1-03 north of the White Post Auto Museum Building, looking west.



Photograph 5 –Solid stem auger sample showing typical silty SAND encountered on Site. MW18-A1-03.



Photograph 6 – Drill cuttings were placed in sealed labelled drums on Site for future disposal. Looking south.



Photograph 7 – Shallow soils were observed to contain various paint flakes and small metals debris throughout the salvage yard.



Photograph 8 – Shallow Surface samples were collected in the salvage yard area. SS18-A1-03.

APPENDIX B – BOREHOLE LOGS



CLIENT Ministry of Transportation and Infrastructure
 PROJECT NUMBER 2121-00113-00
 DATE STARTED 12/18/18 COMPLETED 12/18/18
 DRILLING CONTRACTOR On-Track Drilling
 DRILLING METHOD Solid Stem Auger
 LOGGED BY MB CHECKED BY MB
 NOTES Location: Adjacent to Paint Shop

PROJECT NAME Ford Road to Bolton Road Highway Expansion
 PROJECT LOCATION White Post Auto Museum
 GROUND ELEVATION 410.43 m HOLE SIZE 0.15
 GROUND WATER LEVELS:
 AT TIME OF DRILLING ---
 AT END OF DRILLING ---
 AFTER DRILLING ---

GENERAL BH / TP / WELL 2121-00113-00 FORD TO KAULT.GPJ GINT STD CANADA LAB.GDT 1/14/19

DEPTH (m)	SAMPLE TYPE NUMBER	GRAPHIC LOG	MATERIAL DESCRIPTION	ENVIRONMENTAL DATA	WELL DIAGRAM
			FILL: SILT, sandy, trace gravel (rounded), firm, brown, moist		Flush mount road box
	GB A	1.20		409.23 PID = 0	
	GB	1.70	CLAY, trace silt, trace sand, stiff, grey, moist	408.73 PID = 0	Hydrated Bentonite
2			SAND (fine grained), silty, loose, brown, dry	PID = 0	
	GB B				Stainless steel mesh screen
		3.40		407.03	
4	GB	3.80	SILT, sandy, trace clay, grey, moist	406.63 PID = 0	Solid 2" PVC riser
					Bentonite
		5.60		404.83	
6	GB C		SILT, sandy, soft, brown, moist to wet	PID = 0	Filter sand
	GB			PID = 0	
					0.010" slotted PVC screen
8	GB			PID = 0	
	GB D	8.40	SILT, some sand, soft, light grey-brown, wet	402.03 PID = 0	
		9.10		401.33	Threaded end-cap
10	GB		SILT, sandy, firm, light brown, moist	PID = 0	
12	GB			PID = 0	
14					



CLIENT Ministry of Transportation and Infrastructure

PROJECT NAME Ford Road to Bolton Road Highway Expansion

PROJECT NUMBER 2121-00113-00

PROJECT LOCATION White Post Auto Museum

DEPTH (m)	SAMPLE TYPE NUMBER	GRAPHIC LOG	MATERIAL DESCRIPTION	ENVIRONMENTAL DATA	WELL DIAGRAM
16			SILT, sandy, firm, light brown, moist (continued)		<p>← Bentonite</p>
18	GB			PID = 0	
20			SAND (medium grained), dense, brown, moist		
22	GB			PID = 0	
24					
26	GB			PID = 0	
27.40					

January 10, 2019 groundwater monitoring event:
 - Monitoring well MW18-A1-01 is dry
 Bottom of borehole at 27.40 meters.

GENERAL BH / TP / WELL 2121-00113-00 FORD TO KAULT.GPJ GINT STD CANADA LAB.GDT 1/14/19



CLIENT Ministry of Transportation and Infrastructure
 PROJECT NUMBER 2121-00113-00
 DATE STARTED 12/19/18 COMPLETED 12/19/18
 DRILLING CONTRACTOR On-Track Drilling
 DRILLING METHOD Solid Stem Auger
 LOGGED BY MB CHECKED BY MB
 NOTES Location: West of Red Barn

PROJECT NAME Ford Road to Bolton Road Highway Expansion
 PROJECT LOCATION White Post Auto Museum
 GROUND ELEVATION 410.24 m HOLE SIZE 0.15
 GROUND WATER LEVELS:
 AT TIME OF DRILLING ---
 AT END OF DRILLING ---
 AFTER DRILLING ---

DEPTH (m)	SAMPLE TYPE NUMBER	GRAPHIC LOG	MATERIAL DESCRIPTION	ENVIRONMENTAL DATA	WELL DIAGRAM
			FILL: SILT, gravelly, trace sand, trace clay, angular, grey, moist		Flush mount road box
	GB A	1.37		PID = 0	Hydrated Bentonite
2		2.03	SAND, silty, loose, light brown, moist	PID = 0	Stainless steel mesh screen
			SILT, sandy, some gravel, trace clay, firm, grey, moist	PID = 0	Bentonite
			- no gravel from 3.05 m to 4.57 m	PID = 0	Solid 2" PVC Riser
4	GB B				Filter sand
			- soil wet at 4.57 m	PID = 2	0.010" slotted PVC screen
	GB C	5.18			Threaded end-cap
6			SAND (fine grained), some silt, light brown, dry		
			- trace silt from 7.01 m to 13.41 m	PID = 0	
8					
10					
12					
			- soil is moist with some silt from 13.41 m to 14.32 m	PID = 1	Bentonite
14			- soil is dry from 14.32 m to 15.24 m		
	GB D	15.24		PID = 0	

GENERAL BH / TP / WELL 2121-00113-00 FORD TO KAULT.GPJ GINT STD CANADA LAB.GDT 1/14/19

January 10, 2019 groundwater monitoring event:
 - Monitoring well MW18-A1-02 is dry

Bottom of borehole at 15.24 meters.



CLIENT Ministry of Transportation and Infrastructure
 PROJECT NUMBER 2121-00113-00
 DATE STARTED 12/19/18 COMPLETED 12/19/18
 DRILLING CONTRACTOR On-Track Drilling
 DRILLING METHOD Solid Stem Auger
 LOGGED BY MB/KD CHECKED BY MB
 NOTES Location: Northeast location near house

PROJECT NAME Ford Road to Bolton Road Highway Expansion
 PROJECT LOCATION White Post Auto Museum
 GROUND ELEVATION 410.58 m HOLE SIZE 0.15
 GROUND WATER LEVELS:
 AT TIME OF DRILLING ---
 AT END OF DRILLING ---
 AFTER DRILLING ---

DEPTH (m)	SAMPLE TYPE NUMBER	GRAPHIC LOG	MATERIAL DESCRIPTION	ENVIRONMENTAL DATA	WELL DIAGRAM
0.46			FILL: SILT, gravelly, rounded, brown, moist		
			410.12		
2	GB A		SAND, silty, dense, brown, moist - 0.15 m clay seam at 1.07 m	PID = 0	
			- soil is wet from 2.08 m to 3.78m	PID = 1	
4	GB		- soil is moist from 3.78 m to 4.57 m - increasing moisture and silt at 4.57 m	PID = 0	
6	GB			PID = 0	
8					
8.38			402.20		
8.84	GB C		SILT, some sand, brown, wet	PID = 1	
			401.74		
10			SAND, silty, dense, brown, moist		
				PID = 0	
12	GB		- sand is wet at from 11.28 m to 12.19 m - soil is moist from 12.19 m to 18.29 m		
14	GB			PID = 0	

GENERAL BH / TP / WELL 2121-00113-00 FORD TO KAULT.GPJ GINT STD CANADA LAB.GDT 1/14/19



CLIENT Ministry of Transportation and Infrastructure

PROJECT NAME Ford Road to Bolton Road Highway Expansion

PROJECT NUMBER 2121-00113-00

PROJECT LOCATION White Post Auto Museum

DEPTH (m)	SAMPLE TYPE NUMBER	GRAPHIC LOG	MATERIAL DESCRIPTION	ENVIRONMENTAL DATA	WELL DIAGRAM
16			SAND, silty, dense, brown, moist (continued)		<p>← Solid 1" PVC riser</p> <p>← Bentonite</p> <p>← Filter sand</p> <p>← 0.010" slotted PVC screen</p> <p>← Threaded end-cap</p>
18			- some clay, light brown, wet from 18.29 m to 19.05 m	PID = 0	
19.05	GB D		SAND, dense, brown, moist	PID = 0	
20	GB				
22	GB			PID = 0	
24			- soil is grey-brown from 22.86 m to 24.35 m		
24.35	GB E		CLAY, firm, medium plasticity, grey, moist	PID = 0	
26	GB			PID = 0	
27.43				383.15	← Bentonite

January 10, 2019 groundwater monitoring event:
 - Monitoring well MW18-A1-03 is dry
 Bottom of borehole at 27.40 meters.

GENERAL BH / TP / WELL 2121-00113-00 FORD TO KAULT.GPJ GINT STD CANADA LAB.GDT 1/14/19



CLIENT Ministry of Transportation and Infrastructure
 PROJECT NUMBER 2121-00113-00
 DATE STARTED 12/20/18 COMPLETED 12/20/18
 DRILLING CONTRACTOR On-Track Drilling
 DRILLING METHOD Solid Stem Auger
 LOGGED BY MB CHECKED BY MB
 NOTES Location: Southwest location in car yard

PROJECT NAME Ford Road to Bolton Road Highway Expansion
 PROJECT LOCATION White Post Auto Museum
 GROUND ELEVATION 409.63 m HOLE SIZE 0.15
 GROUND WATER LEVELS:
 AT TIME OF DRILLING ---
 AT END OF DRILLING ---
 504hrs AFTER DRILLING 1.98 m / Elev 407.65 m

DEPTH (m)	SAMPLE TYPE NUMBER	GRAPHIC LOG	MATERIAL DESCRIPTION	ENVIRONMENTAL DATA	WELL DIAGRAM
1.04	GB A	[Cross-hatched pattern]	FILL: SAND and GRAVEL, some silt, trace clay, brown, moist	PID = 0	Flush mount road box
1.93		[Dotted pattern]	CLAY, gravelly, some sand, trace silt, firm, brown, moist		Solid 2" PVC riser
1.93		[Dotted pattern]	CLAY, trace sand, stiff, brown, moist		Filter sand
2.00		[Dotted pattern]			0.010" slotted PVC screen
2.00		[Dotted pattern]			Threaded end-cap
3.05		[Dotted pattern]	- soil is very stiff with pockets of silty sand and clay from 3.05 m to 4.57 m	PID = 0	
4.57	GB	[Dotted pattern]			Solid 2" PVC riser
4.57	GB	[Dotted pattern]	- some sand and gravel from 4.57 m to 5.18 m	PID = 0	
5.18		[Dotted pattern]			Bentonite
5.18	GB C	[Dotted pattern]	CLAY, silty, some sand, soft, brown, moist	PID = 0	
6.4	GB B	[Dotted pattern]	- increasing moisture from 6.4 m to 7.77 m	PID = 0	
7.77		[Dotted pattern]			
7.77	GB	[Dotted pattern]	SAND (fine grained), medium dense, light brown, dry	PID = 0	Filter sand
9.45		[Dotted pattern]			0.010" slotted PVC screen
9.45	GB D	[Dotted pattern]	SAND, silty, soft, brown, wet	PID = 0	Threaded end-cap
10.06		[Dotted pattern]			Bentonite
10.06		[Dotted pattern]	SAND (fine grained), light brown, dry		
12.19		[Dotted pattern]			Slough

January 10, 2019 groundwater monitoring event:
 - Monitoring well MW18-A1-04-A (shallow) depth to water is 1.98 m below top of riser
 - Monitoring well MW18-A1-04-B (deep) is dry
 Bottom of borehole at 12.20 meters.

GENERAL BH / TP / WELL 2121-00113-00 FORD TO KAULT.GPJ GINT STD CANADA LAB.GDT 1/14/19

APPENDIX C – CHEMISTRY TABLES

Laboratory: ALS	Sample Collection Date	Lab Work Order	Sample Depth (mbgs)	Units	DL	BC CSR Schedule 3.1 Parts 1, 2 and 3 Industrial Land Use (IL) ¹				MW18-A1-01C	MW18-A1-02A	MW18-A1-03B	MW18-A1-04A	SS18-A1-01	SS18-A1-02	SS18-A1-03	SS18-A1-04			
						Intake of Contaminated Soil ²	Drinking Water ³	Toxicity to soil invertebrates and plants ⁴	GW Flow to SW Freshwater Aquatic Life ⁵	Human Health Soil ⁶	Ecological Health Soil ⁷	18-Dec-18	19-Dec-18	19-Dec-18	20-Dec-18	20-Dec-18	20-Dec-18	20-Dec-18	20-Dec-18	20-Dec-18
												8121868_8121868-03	8121868_8121868-06	8121868_8121868-11	8121868_8121868-15	8121868_8121868-20	8121868_8121868-21	8121868_8121868-22	8121868_8121868-23	
												5.6 - 6.0 m	0.6 - 1.2 m	2.1 - 2.4 m	0.0 - 1.0 m	0.0 - 0.1 m	0.0 - 0.1 m	0.0 - 0.1 m	0.0 - 0.1 m	
Moisture	%	0.25	-	-	-	-	-	-	23.6	21.4	29.8	8.9	10.3	-	-	-				
pH	pH	0.1	-	-	-	-	-	-	7.88	7.74	8.07	7.89	7.8	7.93	8	8.26				
Metals:																				
Aluminum	ug/g	40	-	-	-	-	250,000	-	17,800	20,700	10,400	16,100	9,020	8,250	9,330	7,530				
Antimony	ug/g	0.1	-	-	-	-	40,000	40	0.38	0.12	0.37	0.12	3.88	0.47	0.11	<0.1				
Arsenic	ug/g	0.3	400	10	40	10	-	-	6.65	3.11	7.02	2.82	5.2	2.35	1.76	1.95				
Barium	ug/g	1	>1,000,000	350	1,500	3,500	-	-	169	185	103	140	123	80.3	72	61.4				
Beryllium	ug/g	0.1	15,000	1 ^a	350	1 ^a	-	-	0.5	0.61	0.29	0.48	0.24	0.28	0.3	0.26				
Boron	ug/g	2	-	-	-	-	>1,000,000	-	<2	<2	<2	<2	4.2	<2	<2	<2				
Cadmium	ug/g	0.04	3,500	1 pH < 7 4.5 pH 7 ≤ 7.5 30 pH 7.5 ≤ 8 70 pH ≥ 8	75	1 pH < 7 3 pH 7 ≤ 7.5 20 pH 7.5 ≤ 8 50 pH ≥ 8	-	-	0.249	0.107	0.239	0.109	2.86	1.24	0.138	0.094				
Chromium (hexavalent)	ug/g	0.4	-	60	-	60	-	-	<0.4	-	-	<0.4	-	-	-	-				
Chromium (Total)	ug/g	1	20,000	60 ^b , >1000mg/g ^c	250	60 ^b 300,000 ^c	-	-	63.9	53.1	43.6	41.7	34.2	24.9	25.4	19.4				
Chromium (Trivalent)	ug/g	1	-	>1,000,000	-	300,000	-	-	-	-	-	41.7	-	-	-	-				
Cobalt	ug/g	0.1	2,000	25	200	25	-	-	18.7	16.7	12.7	13.2	9.83	8.78	9.29	8.3				
Copper	ug/g	0.4	700,000	250 ^a	300	75 ^a	-	-	45.2	39.7	36.5	34.7	45.9	31.7	26.1	25.7				
Iron	ug/g	20	-	-	-	-	150,000	-	36,700	34,200	26,000	28,800	29,800	20,100	21,600	18,000				
Lead	ug/g	0.2	4,000	120 pH < 5.5 150 pH 5.5 ≤ 6.0 800 pH 6.0 ≤ 6.5 3500 pH 6.5 ≤ 7.0 7500 pH 7.0 ≤ 7.5 8500 pH ≥ 7.5	1,000	200 ^a	-	-	12.2	12.5	7.86	11.2	159	40.9	14.2	116				
Lithium	ug/g	0.1	-	-	-	-	450	-	16.3	19.1	8.01	14.5	7.73	7.93	9.25	8.32				
Manganese	ug/g	0.4	>1,000,000	2,000	2,000	-	-	-	684	549	506	552	438	375	346	357				
Mercury	ug/g	0.04	2,000	-	75	-	-	-	<0.04	<0.04	<0.04	<0.04	0.064	<0.04	<0.04	<0.04				
Molybdenum	ug/g	0.1	35,000	15	150	650	-	-	0.98	0.8	0.81	0.93	2.08	1.35	0.88	1.08				
Nickel	ug/g	0.6	80,000	70 ^a	250	90 ^a	-	-	51.5	39.1	34.4	31.4	25.1	20.8	20.6	17.8				
Selenium	ug/g	0.2	35,000	1	2	1	-	-	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2				
Silver	ug/g	0.1	-	-	-	-	35,000	40	<0.1	<0.1	<0.1	<0.1	0.55	<0.1	<0.1	0.99				
Strontium	ug/g	0.2	-	-	-	-	150,000	-	108	153	93.4	134	258	204	246	238				
Thallium	ug/g	0.1	-	-	-	-	-	25	0.21	0.3	0.11	0.23	0.12	0.13	0.16	0.12				
Tin	ug/g	0.2	-	-	-	-	>1000000	300	0.71	0.98	0.43	0.86	11.5	1.04	0.44	0.38				
Tungsten	ug/g	0.2	-	-	-	-	200	-	<0.2	<0.2	<0.2	<0.2	0.27	0.21	<0.2	<0.2				
Uranium	ug/g	0.05	20,000	30	2,000	150	-	-	1.67	0.853	0.873	0.725	0.609	0.639	0.554	0.537				
Vanadium	ug/g	1	35,000	100	300	-	-	-	76.9	59.6	57.2	49.8	31.2	29	33	27.4				
Zinc	ug/g	2	>1,000,000	200 pH < 5.0 250 pH 5.0 ≤ 5.5 300 pH 5.5 ≤ 6.0 450 pH 6.0 ≤ 6.5 600 pH 6.5 ≤ 7.0 1000 pH 7.0 < 7.5 3000 pH 7.5 < 8.0 5500 pH ≥ 8.0	450	150 pH < 6.0 250 pH 6.0 ≤ 6.5 350 pH 6.5 ≤ 7.0 600 pH 7.0 ≤ 7.5 1500 pH 7.5 ≤ 8.0 3000 pH ≥ 8.0	-	-	87.5	75.8	60.5	68.3	227	134	54.3	48.8				

Colour Key:

Exceeds Standard

Notes:

- 1 - BC CSR B.C Reg 13/2019, including amendments to January 24, 2019, Schedule 3.1 Parts 1, 2 and 3 for Industrial Land Use
 - 2 - Schedule 3.1 Part 1 - Human health protection, intake of contaminated soil
 - 3 - Schedule 3.1 Part 1 - Human health protection, groundwater used for drinking water
 - 4 - Schedule 3.1 Part 1 - Environmental protection, toxicity to soil invertebrates and plants
 - 5 - Schedule 3.1 Part 1 - Environmental protection, groundwater flow to surface water, used by aquatic life (freshwater)
 - 6 - Schedule 3.1 Part 2 - Generic numerical soil standards to protect human health
 - 7 - Schedule 3.1 Part 3 - Generic numerical soil standards to protect ecological health
 - a - Standard is pH dependent, and only the most stringent standard is shown
 - b - Standard is for chromium, hexavalent. Hexavalent standard has been applied as a conservative measure. Speciation analysis is required to determine true standard.
 - c - Standard is for chromium, trivalent
 - d - Concentration exceeds applicable standards, but is less than BC CSR Protocol 4: Establishing Background Concentrations in Soil for Region 3/8 - Thompson/Nicola/Oakanagan (4 ug/g for selenium). Protocol 4 values only apply if soil is to stay in this region.
- BFD - blind field duplicate
 "-" not analyzed or no standards apply
 "<" less than the laboratory reportable detection limit (DL) indicated.
 DL - Laboratory detection limit

Laboratory: ALS	Units	DL	BC CSR Schedule 3.1 Parts 1, 2 and 3 Industrial Land Use (IL) ¹							MW18-A1-01A	MW18-A1-01C	DUP-A (BFD of MW18-A1-01C)	MW18-A1-01D	MW18-A1-02A	MW18-A1-02C	MW18-A1-03B	MW18-A1-03D	MW18-A1-04A	MW18-A1-04D
			Intake of Contaminated Soil ²	Drinking Water ³	Toxicity to soil invertebrates and plants ⁴	GW Flow to SW Freshwater Aquatic Life ⁵	Human Health Soil ⁶	Ecological Health Soil ⁷	18-Dec-18	18-Dec-18	18-Dec-18	18-Dec-18	19-Dec-18	19-Dec-18	19-Dec-18	19-Dec-18	20-Dec-18	20-Dec-18	
Sample Collection Date	Lab Work Order	Sample Depth (mbgs)																	
Moisture	%	0.25	-	-	-	-	-	-	15.4	24.4	23.6	30.4	21.4	27	29.8	25.9	8.9	25.8	
pH	pH	0.1	-	-	-	-	-	-	-	-	7.88	-	7.74	-	8.07	-	7.89	-	-
Petroleum Hydrocarbons:																			
EPHC10-19	ug/g	50	-	-	-	-	-	-	<50	<50	<50	<50	<50	<50	<50	<50	<50	<50	<50
EPHC19-32	ug/g	50	-	-	-	-	-	-	<50	<50	<50	<50	<50	<50	<50	<50	<50	<50	<50
LEPH	ug/g	50	-	-	-	-	2,000	2,000	<50	<50	<50	<50	<50	<50	<50	<50	<50	<50	<50
HEPH	ug/g	50	-	-	-	-	5,000	5,000	<50	<50	<50	<50	<50	<50	<50	<50	<50	<50	<50
VPH	ug/g	20	-	-	-	-	200	200	<20	<20	<23	<20	<20	<20	<21	<20	<20	<20	<20
Volatile Hydrocarbons (VH6-10)	ug/g	20	-	-	-	-	-	-	<20	<20	<23	<20	<20	<20	<21	<20	<20	<20	<20
Volatile Organic Compounds:																			
Benzene	ug/g	0.02	6,500	0.035	250	2.5	-	-	<0.02	<0.03	<0.03	<0.02	<0.03	<0.02	<0.02	<0.02	<0.02	<0.03	<0.03
Ethylbenzene	ug/g	0.05	700,000	15	650	200	-	-	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
MTBE	ug/g	0.04	-	-	-	-	20,000	-	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04
Styrene	ug/g	0.05	-	-	-	-	>1,000 mg/g	50	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Toluene	ug/g	0.2	550,000	6	450	0.5	-	-	<0.2	<0.2	<0.2	<0.2	<0.2	0.419	<0.2	<0.2	<0.2	<0.2	<0.2
Xylenes	ug/g	0.1	>1,000 mg/g	6.5	600	20	-	-	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1

Colour Key: Exceeds Standard

Notes:
 1 - BC CSR B.C Reg 13/2019, including amendments to January 24, 2019, Schedule 3.1 Parts 1, 2 and 3 for Industrial Land Use

- 2 - Schedule 3.1 Part 1 - Human health protection, intake of contaminated soil
- 3 - Schedule 3.1 Part 1 - Human health protection, groundwater used for drinking water
- 4 - Schedule 3.1 Part 1 - Environmental protection, toxicity to soil invertebrates and plants
- 5 - Schedule 3.1 Part 1 - Environmental protection, groundwater flow to surface water, used by aquatic life (freshwater)
- 6 - Schedule 3.1 Part 2 - Generic numerical soil standards to protect human health
- 7 - Schedule 3.1 Part 3 - Generic numerical soil standards to protect ecological health

BFD - blind field duplicate
 "-" not analyzed or no standards apply
 "<" less than the laboratory reportable detection limit (DL) indicated.
 DL - Laboratory detection limit

Laboratory: ALS	Sample Collection Date	Lab Work Order	Sample Depth (mbgs)	Units	DL	BC CSR Schedule 3.1 Parts 1, 2 and 3 Industrial Land Use (IL) ¹				MW18-A1-01A	MW18-A1-01C	DUP-A (BFD of MW18-A1-01C)	MW18-A1-01D	MW18-A1-02A	MW18-A1-02C	MW18-A1-03B	MW18-A1-03D	MW18-A1-04A	MW18-A1-04D			
						Intake of Contaminated Soil ²	Drinking Water ³	Toxicity to soil invertebrates and plants ⁴	GW Flow to SW Freshwater Aquatic Life ⁵	Human Health Soil ⁶	Ecological Health Soil ⁷	18-Dec-18	18-Dec-18	18-Dec-18	18-Dec-18	19-Dec-18	19-Dec-18	19-Dec-18	19-Dec-18	19-Dec-18	20-Dec-18	20-Dec-18
												8121868_8121868-01	8121868_8121868-04	8121868_8121868-03	8121868_8121868-05	8121868_8121868-06	8121868_8121868-08	8121868_8121868-11	8121868_8121868-13	8121868_8121868-15	8121868_8121868-18	
												0.8 - 1.2 m	5.6 - 6.0 m	5.6 - 6.0 m	8.4 - 8.7 m	0.6 - 1.2 m	4.6 - 5.2 m	2.1 - 2.4 m	18.3 - 19.1 m	0.0 - 1.0 m	9.4 - 10.1 m	
Moisture	%	0.25	-	-	-	-	-	-	15.4	24.4	23.6	30.4	21.4	27	29.8	25.9	8.9	25.8				
pH	pH	0.1	-	-	-	-	-	-	-	-	7.88	-	7.74	-	8.07	-	7.89	-				
Polycyclic Aromatic Hydrocarbons:																						
Acenaphthene	ug/g	0.05	-	-	-	-	15,000	-	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05			
Acenaphthylene	ug/g	0.05	-	-	-	-	-	-	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05			
Anthracene	ug/g	0.05	> 1,000 mg/g	-	30	-	-	-	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05			
Benz(a)anthracene	ug/g	0.05	-	-	-	-	500	10	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05			
Benzo(a) pyrene	ug/g	0.05	50	-	70	-	-	-	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05			
Benzo(b+j)fluoranthene	ug/g	0.05	-	-	-	-	-	-	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05			
Benzo(g,h,i)perylene	ug/g	0.05	-	-	-	-	-	-	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05			
2-chloronaphthalene		0.05	-	-	-	-	20,000	-	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05			
Benzo(k)fluoranthene	ug/g	0.05	-	-	-	-	500	10	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05			
Chrysene	ug/g	0.05	-	-	-	-	4,500	-	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05			
Dibenz(a,h)anthracene	ug/g	0.05	-	-	-	-	50	10	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05			
Fluoranthene	ug/g	0.05	300,000	-	200	-	-	-	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05			
Fluorene	ug/g	0.05	-	-	-	-	9,500	-	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05			
1-Methylnaphthalene		0.05	-	-	-	-	1,000	-	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05			
Indeno(1,2,3-c,d)pyrene	ug/g	0.05	-	-	-	-	500	10	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05			
2-Methylnaphthalene	ug/g	0.05	-	-	-	-	950	-	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05			
Naphthalene	ug/g	0.05	150,000	100	20	75	-	-	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05			
Phenanthrene	ug/g	0.05	-	-	-	-	300,000	50	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05			
Pyrene	ug/g	0.05	-	-	-	-	200,000	100	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05			

Colour Key: Exceeds Standard

- Notes:
- 1 - BC CSR B.C Reg 13/2019, including amendments to January 24, 2019, Schedule 3.1 Parts 1, 2 and 3 for Industrial Land Use
 - 2 - Schedule 3.1 Part 1 - Human health protection, intake of contaminated soil
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Laboratory: ALS	Units	DL	BC CSR Schedule 3.1 Parts 1, 2 and 3 Industrial Land Use (IL) ¹						MW18-A1-01A	MW18-A1-01D	MW18-A1-02C	MW18-A1-03B	MW18-A1-03D
			Intake of Contaminated Soil ²	Drinking Water ³	Toxicity to soil invertebrates and plants ⁴	GW Flow to SW Freshwater Aquatic Life ⁵	Human Health Soil ⁶	Ecological Health Soil ⁷	18-Dec-18	18-Dec-18	19-Dec-18	19-Dec-18	19-Dec-18
									8121868_8121868-01	8121868_8121868-05	8121868_8121868-08	8121868_8121868-11	8121868_8121868-13
									0.8 - 1.2 m	8.4 - 8.7 m	4.6 - 5.2 m	2.1 - 2.4 m	18.3 - 19.1 m
Sample Collection Date	Lab Work Order	Sample Depth (mbgs)											
Moisture	%	0.25	-	-	-	-	-	15.4	30.4	27	29.8	25.9	
pH	pH	0.1	-	-	-	-	-	-	-	-	8.07	-	
Volatile Organic Compounds (VOC)													
Bromodichloromethane	ug/g	0.1	-	-	-	-	550	<0.1	<0.1	<0.1	<0.1	<0.1	
Bromoform	ug/g	0.1	-	-	-	-	4000	<0.1	<0.1	<0.1	<0.1	<0.1	
Carbon tetrachloride	ug/g	0.05	-	-	-	-	5000	<0.05	<0.05	<0.05	<0.05	<0.05	
Chlorobenzene	ug/g	0.05	-	-	-	-	150000	<0.05	<0.05	<0.05	<0.05	<0.05	
Chlorodibromomethane	ug/g	0.1	-	-	-	-	400	<0.1	<0.1	<0.1	<0.1	<0.1	
Chloroform	ug/g	0.05	-	-	-	-	70000	<0.05	<0.05	<0.05	<0.05	<0.05	
1,2-dibromoethane	ug/g	0.1	-	-	-	-	15	<0.1	<0.1	<0.1	<0.1	<0.1	
1,2-dichlorobenzene	ug/g	0.05	-	-	-	-	650000	<0.05	<0.05	<0.05	<0.05	<0.05	
1,3-dichlorobenzene	ug/g	0.05	-	-	-	-	200000	<0.05	<0.05	<0.05	<0.05	<0.05	
1,4-dichlorobenzene	ug/g	0.05	-	-	-	-	800000	<0.05	<0.05	<0.05	<0.05	<0.05	
1,2-dichloroethane	ug/g	0.05	-	-	-	-	350	<0.05	<0.05	<0.05	<0.05	<0.05	
1,1-dichloroethane	ug/g	0.05	-	-	-	-	>1000000	<0.05	<0.05	<0.05	<0.05	<0.05	
1,1-dichloroethene	ug/g	0.05	-	-	-	-	350000	<0.05	<0.05	<0.05	<0.05	<0.05	
cis-1,2-dichloroethene	ug/g	0.05	-	-	-	-	15000	<0.05	<0.05	<0.05	<0.05	<0.05	
trans-1,2-dichloroethene	ug/g	0.05	-	-	-	-	150000	<0.05	<0.05	<0.05	<0.05	<0.05	
Dichloromethane	ug/g	0.1	-	-	-	-	40000	<0.1	<0.1	<0.1	<0.1	<0.1	
1,2-dichloropropane	ug/g	0.05	-	-	-	-	10000	<0.05	<0.05	<0.05	<0.05	<0.05	
1,1,1,2-tetrachloroethane	ug/g	0.05	-	-	-	-	150	<0.05	<0.05	<0.05	<0.05	<0.05	
Tetrachloroethene	ug/g	0.05	40,000	-	30	2.5		<0.05	<0.05	<0.05	<0.05	<0.05	
1,1,1-trichloroethane	ug/g	0.05	-	-	-	-	>1000000	<0.05	<0.05	<0.05	<0.05	<0.05	
1,1,2-trichloroethane	ug/g	0.05	-	-	-	-	30000	<0.05	<0.05	<0.05	<0.05	<0.05	
Trichloroethene	ug/g	0.04	3500	-	25	0.3		<0.04	<0.04	<0.04	<0.04	<0.04	
Trichlorofluoromethane	ug/g	0.1	-	-	-	-	70000	<0.1	<0.1	<0.1	<0.1	<0.1	
Vinyl chloride	ug/g	0.1	-	-	-	-	45	<0.1	<0.1	<0.1	<0.1	<0.1	
Trihalomethanes	ug/g		-	-	-	-		<0.35	<0.35	<0.35	<0.35	<0.35	
1,3-Dichloropropene	ug/g	0.05	-	-	-	-	200000	<0.05	<0.05	<0.05	<0.05	<0.05	
Dibromomethane	ug/g	0.1	-	-	-	-		<0.1	<0.1	<0.1	<0.1	<0.1	

Colour Key:

Exceeds Standard

Notes:

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 - 2 - Schedule 3.1 Part 1 - Human health protection, intake of contaminated soil
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Laboratory: ALS	Units	DL	BC CSR Schedule 3.1 Parts 1, 2 and 3 Industrial Land Use (IL) ¹							MW18-A1-01A	MW18-A1-01C	MW18-A1-03B	MW18-A1-04D	SS18-A1-01
Sample Collection Date			Intake of Contaminated Soil ²	Drinking Water ³	Toxicity to soil invertebrates and plants ⁴	GW Flow to SW Freshwater Aquatic Life ⁵	Human Health Soil ⁶	Ecological Health Soil ⁷	18-Dec-18	18-Dec-18	19-Dec-18	20-Dec-18	20-Dec-18	
Lab Work Order									8121868_8121868-01	8121868_8121868-04	8121868_8121868-11	8121868_8121868-18	8121868_8121868-20	
Sample Depth (mbgs)									0.8 - 1.2 m	5.6 - 6.0 m	2.1 - 2.4 m	9.4 - 10.1 m	0.0 - 1.0 m	
Moisture	%	0.25	-	-	-	-	-	15.4	24.4	29.8	25.8	25.8		
pH	pH	0.1	-	-	-	-	-	-	-	8.07	-	-		
Glycols														
Ethylene glycol	ug/g	10	> 1,000 mg/g	10	6000	700	-	<10	<10	<10	<10	<10		
Diethylene glycol	ug/g	10	-	-	-	-	-	<10	<10	<10	<10	<10		
Propylene glycol	ug/g	10	-	-	-	-	-	<10	<10	<10	<10	<10		
Triethylene Glycol	ug/g	10	-	-	-	-	450,000	<10	<10	<10	<10	<10		

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Laboratory: ALS	Sample Collection Date	Lab Work Order	Sample Depth (mbgs)	Units	DL	BC CSR Schedule 3.1 Parts 1, 2 and 3 Commercial Land Use (CL) ¹				MW18-A1-01C	MW18-A1-02A	MW18-A1-03B	MW18-A1-04A	SS18-A1-01	SS18-A1-02	SS18-A1-03	SS18-A1-04			
						Intake of Contaminated Soil ²	Drinking Water ³	Toxicity to soil invertebrates and plants ⁴	GW Flow to SW Freshwater Aquatic Life ⁵	Human Health Soil ⁶	Ecological Health Soil ⁷	18-Dec-18	19-Dec-18	19-Dec-18	20-Dec-18	20-Dec-18	20-Dec-18	20-Dec-18	20-Dec-18	20-Dec-18
												8121868_8121868-03	8121868_8121868-06	8121868_8121868-11	8121868_8121868-15	8121868_8121868-20	8121868_8121868-21	8121868_8121868-22	8121868_8121868-23	
												5.6 - 6.0 m	0.6 - 1.2 m	2.1 - 2.4 m	0.0 - 1.0 m	0.0 - 0.1 m	0.0 - 0.1 m	0.0 - 0.1 m	0.0 - 0.1 m	
Moisture	%	0.25	-	-	-	-	-	-	23.6	21.4	29.8	8.9	10.3	-	-	-				
pH	pH	0.1	-	-	-	-	-	-	7.88	7.74	8.07	7.89	7.8	7.93	8	8.26				
Metals:																				
Aluminum	ug/g	40	-	-	-	-	250,000	-	17,800	20,700	10,400	16,100	9,020	8,250	9,330	7,530				
Antimony	ug/g	0.1	-	-	-	-	1,500	40	0.38	0.12	0.37	0.12	3.88	0.47	0.11	<0.1				
Arsenic	ug/g	0.3	150	10	40	10	-	-	6.65	3.11	7.02	2.82	5.2	2.35	1.76	1.95				
Barium	ug/g	1	50,000	350	1,500	3,500	-	-	169	185	103	140	123	80.3	72	61.4				
Beryllium	ug/g	0.1	500	1 ^a	350	1 ^a	-	-	0.5	0.61	0.29	0.48	0.24	0.28	0.3	0.26				
Boron	ug/g	2	-	-	-	-	50,000	-	<2	<2	<2	<2	4.2	<2	<2	<2				
Cadmium	ug/g	0.04	150	1 pH < 7 4.5 pH 7 ≤ 7.5 30 pH 7.5 ≤ 8 70 pH ≥ 8	75	1 pH < 7 3 pH 7 ≤ 7.5 20 pH 7.5 ≤ 8 50 pH ≥ 8	-	-	0.249	0.107	0.239	0.109	2.86	1.24	0.138	0.094				
Chromium (hexavalent)	ug/g	0.4	-	60	-	60	-	-	<0.4	-	-	<0.4	-	-	-	-				
Chromium (Total)	ug/g	1	750	60 ^b , >1000mg/g ^c	250	60 ^b 300,000 ^c	-	-	63.9	53.1	43.6	41.7	34.2	24.9	25.4	19.4				
Chromium (Trivalent)	ug/g	1	-	>1,000,000	-	300,000	-	-	-	-	-	41.7	-	-	-	-				
Cobalt	ug/g	0.1	75	25	200	25	-	-	18.7	16.7	12.7	13.2	9.83	8.78	9.29	8.3				
Copper	ug/g	0.4	25,000	250 ^a	300	75 ^a	-	-	45.2	39.7	36.5	34.7	45.9	31.7	26.1	25.7				
Iron	ug/g	20	-	-	-	-	150,000	-	36,700	34,200	26,000	28,800	29,800	20,100	21,600	18,000				
Lead	ug/g	0.2	150	120 pH < 5.5 150 pH 5.5 ≤ 6.0 800 pH 6.0 ≤ 6.5 3500 pH 6.5 ≤ 7.0 7500 pH 7.0 ≤ 7.5 8500 pH ≥ 7.5	1,000	200 ^a	-	-	12.2	12.5	7.86	11.2	159	40.9	14.2	116				
Lithium	ug/g	0.1	-	-	-	-	450	-	16.3	19.1	8.01	14.5	7.73	7.93	9.25	8.32				
Manganese	ug/g	0.4	35,000	2,000	2,000	-	-	-	684	549	506	552	438	375	346	357				
Mercury	ug/g	0.04	75	-	75	-	-	-	<0.04	<0.04	<0.04	<0.04	0.064	<0.04	<0.04	<0.04				
Molybdenum	ug/g	0.1	1,500	15	150	650	-	-	0.98	0.8	0.81	0.93	2.08	1.35	0.88	1.08				
Nickel	ug/g	0.6	3,000	70 ^a	250	90 ^a	-	-	51.5	39.1	34.4	31.4	25.1	20.8	20.6	17.8				
Selenium	ug/g	0.2	1,500	1	2	1	-	-	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2				
Silver	ug/g	0.1	-	-	-	-	1,500	40	<0.1	<0.1	<0.1	<0.1	0.55	<0.1	<0.1	0.99				
Strontium	ug/g	0.2	-	-	-	-	150,000	-	108	153	93.4	134	258	204	246	238				
Thallium	ug/g	0.1	-	-	-	-	-	25	0.21	0.3	0.11	0.23	0.12	0.13	0.16	0.12				
Tin	ug/g	0.2	-	-	-	-	150,000	300	0.71	0.98	0.43	0.86	11.5	1.04	0.44	0.38				
Tungsten	ug/g	0.2	-	-	-	-	200	-	<0.2	<0.2	<0.2	<0.2	0.27	0.21	<0.2	<0.2				
Uranium	ug/g	0.05	750	30	2,000	150	-	-	1.67	0.853	0.873	0.725	0.609	0.639	0.554	0.537				
Vanadium	ug/g	1	1,500	100	300	-	-	-	76.9	59.6	57.2	49.8	31.2	29	33	27.4				
Zinc	ug/g	2	75,000	200 pH < 5.0 250 pH 5.0 ≤ 5.5 300 pH 5.5 ≤ 6.0 450 pH 6.0 ≤ 6.5 600 pH 6.5 ≤ 7.0 1000 pH 7.0 < 7.5 3000 pH 7.5 < 8.0 5500 pH ≥ 8.0	450	150 pH < 6.0 250 pH 6.0 ≤ 6.5 350 pH 6.5 ≤ 7.0 600 pH 7.0 ≤ 7.5 1500 pH 7.5 ≤ 8.0 3000 pH ≥ 8.0	-	-	87.5	75.8	60.5	68.3	227	134	54.3	48.8				

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 - 7 - Schedule 3.1 Part 3 - Generic numerical soil standards to protect ecological health
 - a - Standard is pH dependent, and only the most stringent standard is shown
 - b - Standard is for chromium, hexavalent. Hexavalent standard has been applied as a conservative measure. Speciation analysis is required to determine true standard.
 - c - Standard is for chromium, trivalent
 - d - Concentration exceeds applicable standards, but is less than BC CSR Protocol 4: Establishing Background Concentrations in Soil for Region 3/8 - Thompson/Nicola/Oakanagan (4 ug/g for selenium). Protocol 4 values only apply if soil is to stay in this region.
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Laboratory: ALS	Units	DL	BC CSR Schedule 3.1 Parts 1, 2 and 3 Commercial Land Use (CL) ¹							MW18-A1-01A	MW18-A1-01C	DUP-A (BFD of MW18-A1-01C)	MW18-A1-01D	MW18-A1-02A	MW18-A1-02C	MW18-A1-03B	MW18-A1-03D	MW18-A1-04A	MW18-A1-04D
			Intake of Contaminated Soil ²	Drinking Water ³	Toxicity to soil invertebrates and plants ⁴	GW Flow to SW Freshwater Aquatic Life ⁵	Human Health Soil ⁶	Ecological Health Soil ⁷	18-Dec-18	18-Dec-18	18-Dec-18	18-Dec-18	19-Dec-18	19-Dec-18	19-Dec-18	19-Dec-18	20-Dec-18	20-Dec-18	
Sample Collection Date	Lab Work Order	Sample Depth (mbgs)																	
Moisture	%	0.25	-	-	-	-	-	-	15.4	24.4	23.6	30.4	21.4	27	29.8	25.9	8.9	25.8	
pH	pH	0.1	-	-	-	-	-	-	-	-	7.88	-	7.74	-	8.07	-	7.89	-	
Petroleum Hydrocarbons:																			
EPHC10-19	ug/g	50	-	-	-	-	-	-	<50	<50	<50	<50	<50	<50	<50	<50	<50	<50	<50
EPHC19-32	ug/g	50	-	-	-	-	-	-	<50	<50	<50	<50	<50	<50	<50	<50	<50	<50	<50
LEPH	ug/g	50	-	-	-	-	2,000	2,000	<50	<50	<50	<50	<50	<50	<50	<50	<50	<50	<50
HEPH	ug/g	50	-	-	-	-	5,000	5,000	<50	<50	<50	<50	<50	<50	<50	<50	<50	<50	<50
VPH	ug/g	20	-	-	-	-	200	200	<20	<20	<23	<20	<20	<20	<21	<20	<20	<20	<20
Volatile Hydrocarbons (VH6-10)	ug/g	20	-	-	-	-	-	-	<20	<20	<23	<20	<20	<20	<21	<20	<20	<20	<20
Volatile Organic Compounds:																			
Benzene	ug/g	0.02	1,000	0.035	250	2.5	-	-	<0.02	<0.03	<0.03	<0.02	<0.03	<0.02	<0.02	<0.02	<0.02	<0.03	<0.03
Ethylbenzene	ug/g	0.05	25,000	15	650	200	-	-	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
MTBE	ug/g	0.04	-	-	-	-	20,000	-	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04
Styrene	ug/g	0.05	-	-	-	-	50,000	50	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Toluene	ug/g	0.2	20,000	6	450	0.5	-	-	<0.2	<0.2	<0.2	<0.2	<0.2	0.419	<0.2	<0.2	<0.2	<0.2	<0.2
Xylenes	ug/g	0.1	50,000	6.5	600	20	-	-	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1

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Notes:
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- 2 - Schedule 3.1 Part 1 - Human health protection, intake of contaminated soil
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Laboratory: ALS	Sample Collection Date	Units	DL	BC CSR Schedule 3.1 Parts 1, 2 and 3 Commercial Land Use (CL)						MW18-A1-01A	MW18-A1-01C	DUP-A (BFD of MW18-A1-01C)	MW18-A1-01D	MW18-A1-02A	MW18-A1-02C	MW18-A1-03B	MW18-A1-03D	MW18-A1-04A	MW18-A1-04D
				Intake of Contaminated Soil ²	Drinking Water ³	Toxicity to soil invertebrates and plants ⁴	GW Flow to SW Freshwater Aquatic Life ⁵	Human Health Soil ⁶	Ecological Health Soil ⁷	18-Dec-18	18-Dec-18	18-Dec-18	18-Dec-18	19-Dec-18	19-Dec-18	19-Dec-18	19-Dec-18	19-Dec-18	20-Dec-18
Lab Work Order	Sample Depth (mbgs)																		
Moisture	%	0.25	-	-	-	-	-	-	15.4	24.4	23.6	30.4	21.4	27	29.8	25.9	8.9	25.8	
pH	pH	0.1	-	-	-	-	-	-	-	-	7.88	-	7.74	-	8.07	-	7.89	-	
Polycyclic Aromatic Hydrocarbons:																			
Acenaphthene	ug/g	0.05	-	-	-	-	15,000	-	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Acenaphthylene	ug/g	0.05	-	-	-	-	-	-	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Anthracene	ug/g	0.05	75,000	-	30	-	-	-	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Benz(a)anthracene	ug/g	0.05	-	-	-	-	300	10	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Benzo(a) pyrene	ug/g	0.05	30	-	70	-	-	-	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Benzo(b+j)fluoranthene	ug/g	0.05	-	-	-	-	-	-	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Benzo(g,h,i)perylene	ug/g	0.05	-	-	-	-	-	-	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
2-chloronaphthalene		0.05	-	-	-	-	20,000	-	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Benzo(k)fluoranthene	ug/g	0.05	-	-	-	-	300	10	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Chrysene	ug/g	0.05	-	-	-	-	4,500	-	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Dibenz(a,h)anthracene	ug/g	0.05	-	-	-	-	30	10	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Fluoranthene	ug/g	0.05	10,000	-	200	-	-	-	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Fluorene	ug/g	0.05	-	-	-	-	9,500	-	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
1-Methylnaphthalene		0.05	-	-	-	-	1,000	-	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Indeno(1,2,3-c,d)pyrene	ug/g	0.05	-	-	-	-	300	10	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
2-Methylnaphthalene	ug/g	0.05	-	-	-	-	950	-	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Naphthalene	ug/g	0.05	5,000	100	20	75	-	-	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Phenanthrene	ug/g	0.05	-	-	-	-	10,000	50	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Pyrene	ug/g	0.05	-	-	-	-	7,500	100	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05

Colour Key: Exceeds Standard

- Notes:
- 1 - BC CSR B.C Reg 13/2019, including amendments to January 24, 2019, Schedule 3.1 Parts 1, 2 and 3 for Commercial Land Use
 - 2 - Schedule 3.1 Part 1 - Human health protection, intake of contaminated soil
 - 3 - Schedule 3.1 Part 1 - Human health protection, groundwater used for drinking water
 - 4 - Schedule 3.1 Part 1 - Environmental protection, toxicity to soil invertebrates and plants
 - 5 - Schedule 3.1 Part 1 - Environmental protection, groundwater flow to surface water, used by aquatic life (freshwater)
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- BFD - blind field duplicate
 "-" not analyzed or no standards apply
 "<" less than the laboratory reportable detection limit (DL) indicated.
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Laboratory: ALS	Units	DL	BC CSR Schedule 3.1 Parts 1, 2 and 3 Commercial Land Use (CL) ¹						MW18-A1-01A	MW18-A1-01D	MW18-A1-02C	MW18-A1-03B	MW18-A1-03D
			Intake of Contaminated Soil ²	Drinking Water ³	Toxicity to soil invertebrates and plants ⁴	GW Flow to SW Freshwater Aquatic Life ⁵	Human Health Soil ⁶	Ecological Health Soil ⁷	18-Dec-18	18-Dec-18	19-Dec-18	19-Dec-18	19-Dec-18
									8121868_8121868-01	8121868_8121868-05	8121868_8121868-08	8121868_8121868-11	8121868_8121868-13
									0.8 - 1.2 m	8.4 - 8.7 m	4.6 - 5.2 m	2.1 - 2.4 m	18.3 - 19.1 m
Moisture	%	0.25	-	-	-	-	-	15.4	30.4	27	29.8	25.9	
pH	pH	0.1	-	-	-	-	-	-	-	-	8.07	-	
Volatile Organic Compounds (VOC)													
Bromodichloromethane	ug/g	0.1	-	-	-	-	550	<0.1	<0.1	<0.1	<0.1	<0.1	
Bromoform	ug/g	0.1	-	-	-	-	4000	<0.1	<0.1	<0.1	<0.1	<0.1	
Carbon tetrachloride	ug/g	0.05	-	-	-	-	1000	<0.05	<0.05	<0.05	<0.05	<0.05	
Chlorobenzene	ug/g	0.05	-	-	-	-	5000	<0.05	<0.05	<0.05	<0.05	<0.05	
Chlorodibromomethane	ug/g	0.1	-	-	-	-	400	<0.1	<0.1	<0.1	<0.1	<0.1	
Chloroform	ug/g	0.05	-	-	-	-	2500	<0.05	<0.05	<0.05	<0.05	<0.05	
1,2-dibromoethane	ug/g	0.1	-	-	-	-	15	<0.1	<0.1	<0.1	<0.1	<0.1	
1,2-dichlorobenzene	ug/g	0.05	-	-	-	-	25,000	<0.05	<0.05	<0.05	<0.05	<0.05	
1,3-dichlorobenzene	ug/g	0.05	-	-	-	-	7500	<0.05	<0.05	<0.05	<0.05	<0.05	
1,4-dichlorobenzene	ug/g	0.05	-	-	-	-	30,000	<0.05	<0.05	<0.05	<0.05	<0.05	
1,2-dichloroethane	ug/g	0.05	-	-	-	-	350	<0.05	<0.05	<0.05	<0.05	<0.05	
1,1-dichloroethane	ug/g	0.05	-	-	-	-	50,000	<0.05	<0.05	<0.05	<0.05	<0.05	
1,1-dichloroethene	ug/g	0.05	-	-	-	-	15,000	<0.05	<0.05	<0.05	<0.05	<0.05	
cis-1,2-dichloroethene	ug/g	0.05	-	-	-	-	500	<0.05	<0.05	<0.05	<0.05	<0.05	
trans-1,2-dichloroethene	ug/g	0.05	-	-	-	-	5000	<0.05	<0.05	<0.05	<0.05	<0.05	
Dichloromethane	ug/g	0.1	-	-	-	-	1500	<0.1	<0.1	<0.1	<0.1	<0.1	
1,2-dichloropropane	ug/g	0.05	-	-	-	-	3500	<0.05	<0.05	<0.05	<0.05	<0.05	
1,1,1,2-tetrachloroethane	ug/g	0.05	-	-	-	-	150	<0.05	<0.05	<0.05	<0.05	<0.05	
Tetrachloroethene	ug/g	0.05	1500	-	30	2.5	-	<0.05	<0.05	<0.05	<0.05	<0.05	
1,1,1-trichloroethane	ug/g	0.05	-	-	-	-	500,000	<0.05	<0.05	<0.05	<0.05	<0.05	
1,1,2-trichloroethane	ug/g	0.05	-	-	-	-	1000	<0.05	<0.05	<0.05	<0.05	<0.05	
Trichloroethene	ug/g	0.04	150	-	25	0.3	-	<0.04	<0.04	<0.04	<0.04	<0.04	
Trichlorofluoromethane	ug/g	0.1	-	-	-	-	70000	<0.1	<0.1	<0.1	<0.1	<0.1	
Vinyl chloride	ug/g	0.1	-	-	-	-	45	<0.1	<0.1	<0.1	<0.1	<0.1	
Trihalomethanes	ug/g		-	-	-	-	-	<0.35	<0.35	<0.35	<0.35	<0.35	
1,3-Dichloropropene	ug/g	0.05	-	-	-	-	7500	<0.05	<0.05	<0.05	<0.05	<0.05	
Dibromomethane	ug/g	0.1	-	-	-	-	-	<0.1	<0.1	<0.1	<0.1	<0.1	

Colour Key:

Exceeds Standard

Notes:

- 1 - BC CSR B.C Reg 13/2019, including amendments to January 24, 2019, Schedule 3.1 Parts 1, 2 and 3 for Commercial Land Use
 - 2 - Schedule 3.1 Part 1 - Human health protection, intake of contaminated soil
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Laboratory: ALS	Units	DL	BC CSR Schedule 3.1 Parts 1, 2 and 3 Commercial Land Use (CL) ¹							MW18-A1-01A	MW18-A1-01C	MW18-A1-03B	MW18-A1-04D	SS18-A1-01
			Intake of Contaminated Soil ²	Drinking Water ³	Toxicity to soil invertebrates and plants ⁴	GW Flow to SW Freshwater Aquatic Life ⁵	Human Health Soil ⁶	Ecological Health Soil ⁷	18-Dec-18	18-Dec-18	19-Dec-18	20-Dec-18	20-Dec-18	
Sample Collection Date														
Lab Work Order														
Sample Depth (mbgs)														
Moisture	%	0.25	-	-	-	-	-	-	15.4	24.4	29.8	25.8	25.8	
pH	pH	0.1	-	-	-	-	-	-	-	-	8.07	-	-	-
Glycols														
Ethylene glycol	ug/g	10	500,000	10	6000	700	-	-	<10	<10	<10	<10	<10	<10
Diethylene glycol	ug/g	10	-	-	-	-	-	-	<10	<10	<10	<10	<10	<10
Propylene glycol	ug/g	10	-	-	-	-	-	-	<10	<10	<10	<10	<10	<10
Triethylene Glycol	ug/g	10	-	-	-	-	450,000	-	<10	<10	<10	<10	<10	<10

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Exceeds Standard

Notes:

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- 2 - Schedule 3.1 Part 1 - Human health protection, intake of contaminated soil
- 3 - Schedule 3.1 Part 1 - Human health protection, groundwater used for drinking water
- 4 - Schedule 3.1 Part 1 - Environmental protection, toxicity to soil invertebrates and plants
- 5 - Schedule 3.1 Part 1 - Environmental protection, groundwater flow to surface water, used by aquatic life (freshwater)
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- 7 - Schedule 3.1 Part 3 - Generic numerical soil standards to protect ecological health
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Laboratory: ALS	Sample Collection Date	Lab Work Order	Sample Depth (mbgs)	Units	DL	BC CSR Schedule 3.1 Parts 1, 2 and 3 Residential (low density) Land Use (RL) ¹				MW18-A1-01C	MW18-A1-02A	MW18-A1-03B	MW18-A1-04A	SS18-A1-01	SS18-A1-02	SS18-A1-03	SS18-A1-04								
						Intake of Contaminated Soil ²	Drinking Water ³	Toxicity to soil invertebrates and plants ⁴	GW Flow to SW Freshwater Aquatic Life ⁵	Groundwater Used for Irrigation ⁶	Human Health Soil ⁷	Ecological Health Soil ⁸	18-Dec-18	19-Dec-18	19-Dec-18	20-Dec-18	20-Dec-18	20-Dec-18	20-Dec-18	20-Dec-18	20-Dec-18				
Moisture	%	0.25	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	23.6	21.4	29.8	8.9	10.3	-	-	-
pH	pH	0.1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	7.88	7.74	8.07	7.89	7.8	7.93	8	8.26
Metals:																									
Aluminum	ug/g	40	-	-	-	-	-	-	40,000	-	-	-	-	-	-	-	-	17,800	20,700	10,400	16,100	9,020	8,250	9,330	7,530
Antimony	ug/g	0.1	-	-	-	-	-	-	250	20	-	-	-	-	-	-	-	0.38	0.12	0.37	0.12	3.88	0.47	0.11	<0.1
Arsenic	ug/g	0.3	20	10	25	10	10	-	-	-	-	-	-	-	-	-	-	6.65	3.11	7.02	2.82	5.2	2.35	1.76	1.95
Barium	ug/g	1	8,500	350	700	3,500	-	-	-	-	-	-	-	-	-	-	-	169	185	103	140	123	80.3	72	61.4
Beryllium	ug/g	0.1	85	1 ^a	150	1 ^a	8.5 ^a	-	-	-	-	-	-	-	-	-	-	0.5	0.61	0.29	0.48	0.24	0.28	0.3	0.26
Boron	ug/g	2	-	-	-	-	-	-	8,500	-	-	-	-	-	-	-	-	<2	<2	<2	<2	4.2	<2	<2	<2
Cadmium	ug/g	0.04	20	1 pH < 7 4.5 pH 7 ≤ 7.5 30 pH 7.5 ≤ 8 70 pH ≥ 8	30	1 pH < 7 3 pH 7 ≤ 7.5 20 pH 7.5 ≤ 8 50 pH ≥ 8	1 pH < 7 4.5 pH 7 ≤ 7.5 30 pH 7.5 ≤ 8 70 pH ≥ 8	-	-	-	-	-	-	-	-	-	-	0.249	0.107	0.239	0.109	2.86	1.24	0.138	0.094
Chromium (hexavalent)	ug/g	0.4	-	60	-	60	60	-	-	-	-	-	-	-	-	-	-	<0.4	-	-	<0.4	-	-	-	-
Chromium (Total)	ug/g	1	100	60 ^b , >1000mg/g ^c	200	60 ^b 300,000 ^c	60 ^b 15,000 ^c	-	-	-	-	-	-	-	-	-	-	63.9	53.1	43.6	41.7	34.2	24.9	25.4	19.4
Chromium (Trivalent)	ug/g	1	-	>1,000,000	-	300,000	15,000	-	-	-	-	-	-	-	-	-	-	-	-	-	41.7	-	-	-	-
Cobalt	ug/g	0.1	25	25	45	25	25	-	-	-	-	-	-	-	-	-	-	18.7	16.7	12.7	13.2	9.83	8.78	9.29	8.3
Copper	ug/g	0.4	3,500	250 ^a	150	75 ^a	75 ^a	-	-	-	-	-	-	-	-	-	-	45.2	39.7	36.5	34.7	45.9	31.7	26.1	25.7
Iron	ug/g	20	-	-	-	-	-	-	35,000	-	-	-	-	-	-	-	-	36,700	34,200	26,000	28,800	29,800	20,100	21,600	18,000
Lead	ug/g	0.2	120	120 pH < 5.5 150 pH 5.5 ≤ 6.0 800 pH 6.0 ≤ 6.5 3500 pH 6.5 ≤ 7.0 7500 pH 7.0 ≤ 7.5 8500 pH ≥ 7.5	550	200 ^a	350 ^a	-	-	-	-	-	-	-	-	-	-	12.2	12.5	7.86	11.2	159	40.9	14.2	116
Lithium	ug/g	0.1	-	-	-	-	-	-	30	-	-	-	-	-	-	-	-	16.3	19.1	8.01	14.5	7.73	7.93	9.25	8.32
Manganese	ug/g	0.4	6,000	2,000	2,000	-	2,000	-	-	-	-	-	-	-	-	-	-	684	549	506	552	438	375	346	357
Mercury	ug/g	0.04	10	-	40	-	-	-	-	-	-	-	-	-	-	-	-	<0.04	<0.04	<0.04	<0.04	0.064	<0.04	<0.04	<0.04
Molybdenum	ug/g	0.1	200	15	80	650	3	-	-	-	-	-	-	-	-	-	-	0.98	0.8	0.81	0.93	2.08	1.35	0.88	1.08
Nickel	ug/g	0.6	450	70 ^a	150	90 ^a	70 ^a	-	-	-	-	-	-	-	-	-	-	51.5	39.1	34.4	31.4	25.1	20.8	20.6	17.8
Selenium	ug/g	0.2	200	1	1.5	1	1	-	-	-	-	-	-	-	-	-	-	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2
Silver	ug/g	0.1	-	-	-	-	-	-	200	20	-	-	-	-	-	-	-	<0.1	<0.1	<0.1	<0.1	0.55	<0.1	<0.1	0.99
Strontium	ug/g	0.2	-	-	-	-	-	-	9,500	-	-	-	-	-	-	-	-	108	153	93.4	134	258	204	246	238
Thallium	ug/g	0.1	-	-	-	-	-	-	-	9	-	-	-	-	-	-	-	0.21	0.3	0.11	0.23	0.12	0.13	0.16	0.12
Tin	ug/g	0.2	-	-	-	-	-	-	25,000	50	-	-	-	-	-	-	-	0.71	0.98	0.43	0.86	11.5	1.04	0.44	0.38
Tungsten	ug/g	0.2	-	-	-	-	-	-	15	-	-	-	-	-	-	-	-	<0.2	<0.2	<0.2	<0.2	0.27	0.21	<0.2	<0.2
Uranium	ug/g	0.05	100	30	500	150	15	-	-	-	-	-	-	-	-	-	-	1.67	0.853	0.873	0.725	0.609	0.639	0.554	0.537
Vanadium	ug/g	1	200	100	150	-	350	-	-	-	-	-	-	-	-	-	-	76.9	59.6	57.2	49.8	31.2	29	33	27.4
Zinc	ug/g	2	10,000	200 pH < 5.0 250 pH 5.0 ≤ 5.5 300 pH 5.5 ≤ 6.0 450 pH 6.0 ≤ 6.5 600 pH 6.5 ≤ 7.0 1000 pH 7.0 < 7.5 3000 pH 7.5 < 8.0 5500 pH ≥ 8.0	450	150 pH < 6.0 250 pH 6.0 ≤ 6.5 350 pH 6.5 ≤ 7.0 600 pH 7.0 ≤ 7.5 1500 pH 7.5 ≤ 8.0 3000 pH ≥ 8.0	150 pH < 6.0 300 pH 6.0 ≤ 6.5 400 pH 6.5 ≤ 7.0 2000 pH 7.0 ≤ 7.5 5000 pH 7.5 ≤ 8.0 9000 pH ≥ 8.0	-	-	-	-	-	-	-	-	-	-	87.5	75.8	60.5	68.3	227	134	54.3	48.8

Colour Key: Exceeds Standard

Notes:

- 1 - BC CSR B.C Reg 13/2019, including amendments up to January 24, 2019, Schedule 3.1 Parts 1, 2 and 3 for Residential (low Density) Land Use Standards
 - 2 - Schedule 3.1 Part 1 - Human health protection, intake of contaminated soil
 - 3 - Schedule 3.1 Part 1 - Human health protection, groundwater used for drinking water
 - 4 - Schedule 3.1 Part 1 - Environmental protection, toxicity to soil invertebrates and plants
 - 5 - Schedule 3.1 Part 1 - Environmental protection, groundwater flow to surface water, used by aquatic life (freshwater)
 - 6 - Schedule 3.1 Part 1 - Environmental protection, groundwater used for irrigation
 - 7 - Schedule 3.1 Part 2 - Generic numerical soil standards to protect human health
 - 8 - Schedule 3.1 Part 3 - Generic numerical soil standards to protect ecological health
 - a - Standard is pH dependent, and only the most stringent standard is shown
 - b - Standard is for chromium, hexavalent. Hexavalent standard has been applied as a conservative measure. Speciation analysis is required to determine true standard.
 - c - Standard is for chromium, trivalent
 - d - Concentration exceeds applicable standards, but is less than BC CSR Protocol 4: Establishing Background Concentrations in Soil for Region 3/8 - Thompson/Nicola/Okanagan (4 ug/g for selenium). Protocol 4 values only apply if soil is to stay in this region.
- BFD - blind field duplicate
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Laboratory: ALS	Units	DL	BC CSR Schedule 3.1 Parts 1, 2 and 3 Residential (low density) Land Use (RL) ¹							MW18-A1-01A	MW18-A1-01C	DUP-A (BFD of MW18-A1-01C)	MW18-A1-01D	MW18-A1-02A	MW18-A1-02C	MW18-A1-03B	MW18-A1-03D	MW18-A1-04A	MW18-A1-04D
			Intake of Contaminated Soil ²	Drinking Water ³	Toxicity to soil invertebrates and plants ⁴	GW Flow to SW Freshwater Aquatic Life ⁵	Groundwater used for Irrigation ⁶	Human Health Soil ⁷	Ecological Health Soil ⁸	18-Dec-18	18-Dec-18	18-Dec-18	18-Dec-18	19-Dec-18	19-Dec-18	19-Dec-18	19-Dec-18	20-Dec-18	20-Dec-18
										8121868_8121868-01	8121868_8121868-04	8121868_8121868-03	8121868_8121868-05	8121868_8121868-06	8121868_8121868-08	8121868_8121868-11	8121868_8121868-13	8121868_8121868-15	8121868_8121868-18
										0.8 - 1.2 m	5.6 - 6.0 m	5.6 - 6.0 m	8.4 - 8.7 m	0.6 - 1.2 m	4.6 - 5.2 m	2.1 - 2.4 m	18.3 - 19.1 m	0.0 - 1.0 m	9.4 - 10.1 m
Moisture	%	0.25	-	-	-	-	-	-	15.4	24.4	23.6	30.4	21.4	27	29.8	25.9	8.9	25.8	
pH	pH	0.1	-	-	-	-	-	-	-	-	7.88	-	7.74	-	8.07	-	7.89	-	
Petroleum Hydrocarbons:																			
EPHC10-19	ug/g	50	-	-	-	-	-	-	<50	<50	<50	<50	<50	<50	<50	<50	<50	<50	
EPHC19-32	ug/g	50	-	-	-	-	-	-	<50	<50	<50	<50	<50	<50	<50	<50	<50	<50	
LEPH	ug/g	50	-	-	-	-	1,000	1,000	<50	<50	<50	<50	<50	<50	<50	<50	<50	<50	
HEPH	ug/g	50	-	-	-	-	1,000	1,000	<50	<50	<50	<50	<50	<50	<50	<50	<50	<50	
VPH	ug/g	20	-	-	-	-	200	200	<20	<20	<23	<20	<20	<20	<21	<20	<20	<20	
Volatile Hydrocarbons (VH6-10)	ug/g	20	-	-	-	-	-	-	<20	<20	<23	<20	<20	<20	<21	<20	<20	<20	
Volatile Organic Compounds:																			
Benzene	ug/g	0.02	150	0.035	100	2.5	-	-	<0.02	<0.03	<0.03	<0.02	<0.03	<0.02	<0.02	<0.02	<0.02	<0.03	
Ethylbenzene	ug/g	0.05	4,000	15	200	200	-	-	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	
MTBE	ug/g	0.04	-	-	-	-	4,000	-	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	
Styrene	ug/g	0.05	-	-	-	-	8,500	5	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	
Toluene	ug/g	0.2	3,500	6	150	0.5	-	-	<0.2	<0.2	<0.2	<0.2	<0.2	0.419	<0.2	<0.2	<0.2	<0.2	
Xylenes	ug/g	0.1	8,500	6.5	150	20	-	-	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	

Colour Key: Exceeds Standard

Notes:
 1 - BC CSR B.C Reg 13/2019, including ammendments up to January 24, 2019, Schedule 3.1 Parts 1, 2 and 3 for Residential (low Density) Land Use Standards
 2 - Schedule 3.1 Part 1 - Human health protection, intake of contaminated soil
 3 - Schedule 3.1 Part 1 - Human health protection, groundwater used for drinking water
 4 - Schedule 3.1 Part 1 - Environmental protection, toxicity to soil invertebrates and plants
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 "-" not analyzed or no standards apply
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Laboratory: ALS	Sample Collection Date	Units	DL	BC CSR Schedule 3.1 Parts 1, 2 and 3 Residential (low density) Land Use (RL) ¹							MW18-A1-01A	MW18-A1-01C	DUP-A (BFD of MW18-A1-01C)	MW18-A1-01D	MW18-A1-02A	MW18-A1-02C	MW18-A1-03B	MW18-A1-03D	MW18-A1-04A	MW18-A1-04D
				Intake of Contaminated Soil ²	Drinking Water ³	Toxicity to soil invertebrates and plants ⁴	GW Flow to SW ⁵	Freshwater Aquatic Life ⁵	Groundwater Used for Irrigation ⁶	Human Health Soil ⁷	Ecological Health Soil ⁸	18-Dec-18	18-Dec-18	18-Dec-18	18-Dec-18	19-Dec-18	19-Dec-18	19-Dec-18	19-Dec-18	19-Dec-18
Lab Work Order	Sample Depth (mbgs)																			
Moisture	%	0.25	-	-	-	-	-	-	-	15.4	24.4	23.6	30.4	21.4	27	29.8	25.9	8.9	25.8	
pH	pH	0.1	-	-	-	-	-	-	-	-	-	7.88	-	7.74	-	8.07	-	7.89	-	
Polycyclic Aromatic Hydrocarbons:																				
Acenaphthene	ug/g	0.05	-	-	-	-	-	-	-	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	
Acenaphthylene	ug/g	0.05	-	-	-	-	-	-	-	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	
Anthracene	ug/g	0.05	10,000	-	2.5	-	-	-	-	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	
Benzo(a)anthracene	ug/g	0.05	-	-	-	-	-	50	1	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	
Benzo(a) pyrene	ug/g	0.05	5	-	20	-	-	-	-	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	
Benzo(b+j)fluoranthene	ug/g	0.05	-	-	-	-	-	-	-	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	
Benzo(g,h,i)perylene	ug/g	0.05	-	-	-	-	-	-	-	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	
2-chloronaphthalene		0.05	-	-	-	-	-	1,500	-	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	
Benzo(k)fluoranthene	ug/g	0.05	-	-	-	-	-	50	1	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	
Chrysene	ug/g	0.05	-	-	-	-	-	200	-	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	
Dibenz(a,h)anthracene	ug/g	0.05	-	-	-	-	-	5	1	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	
Fluoranthene	ug/g	0.05	1500	-	50	-	-	-	-	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	
Fluorene	ug/g	0.05	-	-	-	-	-	600	-	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	
1-Methylnaphthalene		0.05	-	-	-	-	-	250	-	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	
Indeno(1,2,3-c,d)pyrene	ug/g	0.05	-	-	-	-	-	50	1	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	
2-Methylnaphthalene	ug/g	0.05	-	-	-	-	-	60	-	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	
Naphthalene	ug/g	0.05	850	100	0.6	75	-	-	-	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	
Phenanthrene	ug/g	0.05	-	-	-	-	-	1,500	5	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	
Pyrene	ug/g	0.05	-	-	-	-	-	1,000	10	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	

Colour Key: Exceeds Standard

- Notes:
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Laboratory: ALS	Units	DL	BC CSR Schedule 3.1 Parts 1, 2 and 3 Residential (low density) Land Use (RL) ¹								MW18-A1-01A	MW18-A1-01D	MW18-A1-02C	MW18-A1-03B	MW18-A1-03D	
Sample Collection Date			Intake of Contaminated Soil ²	Drinking Water ³	Toxicity to soil invertebrates and plants ⁴	GW Flow to SW ⁵	Freshwater Aquatic Life ⁵	Groundwater Used for Irrigation ⁶	Human Health Soil ⁶	Ecological Health Soil ⁷	18-Dec-18	18-Dec-18	19-Dec-18	19-Dec-18	19-Dec-18	
Lab Work Order			8121868_8121868-01	8121868_8121868-05	8121868_8121868-08	8121868_8121868-11	8121868_8121868-13									
Sample Depth (mbgs)			0.8 - 1.2 m	8.4 - 8.7 m	4.6 - 5.2 m	2.1 - 2.4 m	18.3 - 19.1 m									
Moisture	%	0.25	-	-	-	-	-	-	-	15.4	30.4	27	29.8	25.9		
pH	pH	0.1	-	-	-	-	-	-	-	-	-	-	8.07	-		
Volatile Organic Compounds (VOC)																
Bromodichloromethane	ug/g	0.1	-	-	-	-	-	100	-	<0.1	<0.1	<0.1	<0.1	<0.1		
Bromoform	ug/g	0.1	-	-	-	-	-	300	-	<0.1	<0.1	<0.1	<0.1	<0.1		
Carbon tetrachloride	ug/g	0.05	-	-	-	-	-	150	5	<0.05	<0.05	<0.05	<0.05	<0.05		
Chlorobenzene	ug/g	0.05	-	-	-	-	-	850	1	<0.05	<0.05	<0.05	<0.05	<0.05		
Chlorodibromomethane	ug/g	0.1	-	-	-	-	-	85	-	<0.1	<0.1	<0.1	<0.1	<0.1		
Chloroform	ug/g	0.05	-	-	-	-	-	400	5	<0.05	<0.05	<0.05	<0.05	<0.05		
1,2-dibromoethane	ug/g	0.1	-	-	-	-	-	3.5	-	<0.1	<0.1	<0.1	<0.1	<0.1		
1,2-dichlorobenzene	ug/g	0.05	-	-	-	-	-	3500	1	<0.05	<0.05	<0.05	<0.05	<0.05		
1,3-dichlorobenzene	ug/g	0.05	-	-	-	-	-	1000	1	<0.05	<0.05	<0.05	<0.05	<0.05		
1,4-dichlorobenzene	ug/g	0.05	-	-	-	-	-	4500	1	<0.05	<0.05	<0.05	<0.05	<0.05		
1,2-dichloroethane	ug/g	0.05	-	-	-	-	-	75	5	<0.05	<0.05	<0.05	<0.05	<0.05		
1,1-dichloroethane	ug/g	0.05	-	-	-	-	-	8500	5	<0.05	<0.05	<0.05	<0.05	<0.05		
1,1-dichloroethene	ug/g	0.05	-	-	-	-	-	2000	5	<0.05	<0.05	<0.05	<0.05	<0.05		
cis-1,2-dichloroethene	ug/g	0.05	-	-	-	-	-	85	5	<0.05	<0.05	<0.05	<0.05	<0.05		
trans-1,2-dichloroethene	ug/g	0.05	-	-	-	-	-	850	5	<0.05	<0.05	<0.05	<0.05	<0.05		
Dichloromethane	ug/g	0.1	-	-	-	-	-	250	5	<0.1	<0.1	<0.1	<0.1	<0.1		
1,2-dichloropropane	ug/g	0.05	-	-	-	-	-	600	5	<0.05	<0.05	<0.05	<0.05	<0.05		
1,1,2,2-tetrachloroethane	ug/g	0.05	-	-	-	-	-	35	-	<0.05	<0.05	<0.05	<0.05	<0.05		
Tetrachloroethene	ug/g	0.05	250	-	15	2.5	-	-	-	<0.05	<0.05	<0.05	<0.05	<0.05		
1,1,1-trichloroethane	ug/g	0.05	-	-	-	-	-	85,000	5	<0.05	<0.05	<0.05	<0.05	<0.05		
1,1,2-trichloroethane	ug/g	0.05	-	-	-	-	-	150	5	<0.05	<0.05	<0.05	<0.05	<0.05		
Trichloroethene	ug/g	0.04	20	-	15	0.3	-	-	-	<0.04	<0.04	<0.04	<0.04	<0.04		
Trichlorofluoromethane	ug/g	0.1	-	-	-	-	-	4500	-	<0.1	<0.1	<0.1	<0.1	<0.1		
Vinyl chloride	ug/g	0.1	-	-	-	-	-	0.95	-	<0.1	<0.1	<0.1	<0.1	<0.1		
Trihalomethanes	ug/g	-	-	-	-	-	-	-	-	<0.35	<0.35	<0.35	<0.35	<0.35		
1,3-Dichloropropene	ug/g	0.05	-	-	-	-	-	1000	5	<0.05	<0.05	<0.05	<0.05	<0.05		
Dibromomethane	ug/g	0.1	-	-	-	-	-	-	-	<0.1	<0.1	<0.1	<0.1	<0.1		

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Laboratory: ALS	Units	DL	BC CSR Schedule 3.1 Parts 1, 2 and 3 Residential (low density) Land Use (RL) ¹							MW18-A1-01A	MW18-A1-01C	MW18-A1-03B	MW18-A1-04D	SS18-A1-01
			Intake of Contaminated Soil ²	Drinking Water ³	Toxicity to soil invertebrates and plants ⁴	GW Flow to SW Freshwater Aquatic Life ⁵	Groundwater Used for Irrigation ⁶	Human Health Soil ⁷	Ecological Health Soil ⁸	18-Dec-18	18-Dec-18	19-Dec-18	20-Dec-18	20-Dec-18
										8121868_8121868-01	8121868_8121868-04	8121868_8121868-11	8121868_8121868-18	8121868_8121868-20
										0.8 - 1.2 m	5.6 - 6.0 m	2.1 - 2.4 m	9.4 - 10.1 m	0.0 - 1.0 m
Moisture	%	0.25	-	-	-	-	-	-	15.4	24.4	29.8	25.8	25.8	
pH	pH	0.1	-	-	-	-	-	-	-	-	8.07	-	-	
Glycols														
Ethylene glycol	ug/g	10	85,000	10	4000	700	-	-	<10	<10	<10	<10	<10	
Diethylene glycol	ug/g	10	-	-	-	-	-	-	<10	<10	<10	<10	<10	
Propylene glycol	ug/g	10	-	-	-	-	-	-	<10	<10	<10	<10	<10	
Triethylene Glycol	ug/g	10	-	-	-	-	30,000	-	<10	<10	<10	<10	<10	

Colour Key:

Exceeds Standard

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- 8 - Schedule 3.1 Part 3 - Generic numerical soil standards to protect ecological health
- BFD - blind field duplicate
- "-" not analyzed or no standards apply
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- DL - Laboratory detection limit

Laboratory: ALS	Sample Collection Date	Lab Work Order	Sample Depth (mbgs)	Units	DL	BC CSR Schedule 3.1 Parts 1, 2 and 3 Agricultural Land Use (AL) ¹							MW18-A1-01C	MW18-A1-02A	MW18-A1-03B	MW18-A1-04A	SS18-A1-01	SS18-A1-02	SS18-A1-03	SS18-A1-04			
						Intake of Contaminated Soil ²	Drinking Water ³	Toxicity to soil invertebrates and plants ⁴	Livestock ingesting soil and fodder ⁵	Major microbial functional impairment ⁶	GW Flow to SW Freshwater Aquatic Life ⁷	GW used for Livestock watering ⁸	GW used for irrigation ⁹	Human Health Soil ¹⁰	Ecological Health Soil ¹¹	18-Dec-18	19-Dec-18	19-Dec-18	20-Dec-18	20-Dec-18	20-Dec-18	20-Dec-18	20-Dec-18
																8121868_8121868-03	8121868_8121868-06	8121868_8121868-11	8121868_8121868-15	8121868_8121868-20	8121868_8121868-21	8121868_8121868-22	8121868_8121868-23
																5.6 - 6.0 m	0.6 - 1.2 m	2.1 - 2.4 m	0.0 - 1.0 m	0.0 - 0.1 m	0.0 - 0.1 m	0.0 - 0.1 m	0.0 - 0.1 m
Moisture	%	0.25	-	-	-	-	-	-	-	-	-	-	23.6	21.4	29.8	8.9	10.3	-	-	-			
pH	pH	0.1	-	-	-	-	-	-	-	-	-	-	7.88	7.74	8.07	7.89	7.8	7.93	8	8.26			
Metals:																							
Aluminum	ug/g	40	-	-	-	-	-	-	-	-	-	-	17,800	20,700	10,400	16,100	9,020	8,250	9,330	7,530			
Antimony	ug/g	0.1	-	-	-	-	-	-	-	-	-	-	0.38	0.12	0.37	0.12	3.88	0.47	0.11	<0.1			
Arsenic	ug/g	0.3	20	10	25	25	-	10	10	10	-	-	6.65	3.11	7.02	2.82	5.2	2.35	1.76	1.95			
Barium	ug/g	1	8,500	350	700	400	-	3,500	-	-	-	-	169	185	103	140	123	80.3	72	61.4			
Beryllium	ug/g	0.1	85	1 ^a	150	-	-	1 ^a	8.5 ^a	8.5 ^a	-	-	0.5	0.61	0.29	0.48	0.24	0.28	0.3	0.26			
Boron	ug/g	2	-	-	-	-	-	-	-	-	-	-	<2	<2	<2	<2	4.2	<2	<2	<2			
Cadmium	ug/g	0.04	20	1 pH < 7 4.5 pH 7 ≤ 7.5 30 pH 7.5 ≤ 8 70 pH ≥ 8	30	10	55	1 pH < 7 3 pH 7 ≤ 7.5 20 pH 7.5 ≤ 8 50 pH ≥ 8	4.5 ^a	1 pH < 7 4.5 pH 7 ≤ 7.5 30 pH 7.5 ≤ 8 70 pH ≥ 8	-	-	0.249	0.107	0.239	0.109	2.86	1.24	0.138	0.094			
Chromium (hexavalent)	ug/g	0.4	-	60	-	150	-	60	60	60	-	-	<0.4	-	-	<0.4	-	-	-	-			
Chromium (Total)	ug/g	1	100	60 ^b >1000mg/g ^c	200	150 ^b 60 ^c	60	60 ^b 300,000 ^c	60 ^b 150,000 ^c	60 ^b 15,000 ^c	-	-	63.9 ^d	53.1	43.6	41.7	34.2	24.9	25.4	19.4			
Chromium (Trivalent)	ug/g	1	-	>1000 mg/g	-	60	-	300,000	150,000	15,000	-	-	63.9 ^d	-	-	41.7	-	-	-	-			
Cobalt	ug/g	0.1	25	25	45	250	-	25	150	25	-	-	18.7	16.7	12.7	13.2	9.83	8.78	9.29	8.3			
Copper	ug/g	0.4	3,500	250 ^a	150	150	350	75 ^a	75 ^a	75 ^a	-	-	45.2	39.7	36.5	34.7	45.9	31.7	26.1	25.7			
Iron	ug/g	20	-	-	-	-	-	-	-	-	-	-	36,700	34,200	26,000	28,800	29,800	20,100	21,600	18,000			
Lead	ug/g	0.2	120	120 ^a	550	350	700	200 ^a	150 ^a	350 ^a	-	-	12.2	12.5	7.86	11.2	159	40.9	14.2	116			
Lithium	ug/g	0.1	-	-	-	-	-	-	-	-	30	-	16.3	19.1	8.01	14.5	7.73	7.93	9.25	8.32			
Manganese	ug/g	0.4	6,000	2000	2000	-	-	-	-	2000	-	-	684	549	506	552	438	375	346	357			
Mercury	ug/g	0.04	10	-	40	0.6	20	-	-	-	-	-	<0.04	<0.04	<0.04	<0.04	0.064	<0.04	<0.04	<0.04			
Molybdenum	ug/g	0.1	200	15	80	-	-	650	3.5	3	-	-	0.98	0.8	0.81	0.93	2.08	1.35	0.88	1.08			
Nickel	ug/g	0.6	450	70 ^a	150	250	150	90 ^a	70 ^a	70 ^a	-	-	51.5	39.1	34.4	31.4	25.1	20.8	20.6	17.8			
Selenium	ug/g	0.2	200	1	1.5	2	-	1	1	1	-	-	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2			
Silver	ug/g	0.1	-	-	-	-	-	-	-	-	200	20	<0.1	<0.1	<0.1	<0.1	0.55	<0.1	<0.1	0.99			
Strontium	ug/g	0.2	-	-	-	-	-	-	-	-	9500	-	108	153	93.4	134	258	204	246	238			
Thallium	ug/g	0.1	-	-	-	-	-	-	-	-	2	9	0.21	0.3	0.11	0.23	0.12	0.13	0.16	0.12			
Tin	ug/g	0.2	-	-	-	-	-	-	-	-	25,000	5	0.71	0.98	0.43	0.86	11.5	1.04	0.44	0.38			
Tungsten	ug/g	0.2	-	-	-	-	-	-	-	-	15	-	<0.2	<0.2	<0.2	<0.2	0.27	0.21	<0.2	<0.2			
Uranium	ug/g	0.05	100	30	500	35	-	150	300	15	-	-	1.67	0.853	0.873	0.725	0.609	0.639	0.554	0.537			
Vanadium	ug/g	1	200	100	150	-	250	-	350	350	-	-	76.9	59.6	57.2	49.8	31.2	29	33	27.4			
Zinc	ug/g	2	10,000	200 pH < 5.0 250 pH 5.0 ≤ 5.5 300 pH 5.5 ≤ 6.0 450 pH 6.0 ≤ 6.5 600 pH 6.5 ≤ 7.0 1000 pH 7.0 < 7.5 3000 pH 7.5 < 8.0 5500 pH ≥ 8.0	450	200	200	150 pH < 6.0 250 pH 6.0 ≤ 6.5 300 pH 6.5 ≤ 7.0 400 pH 7.0 < 7.5 1500 pH 7.5 < 8.0 3000 pH ≥ 8.0	150 pH < 5.5 200 pH 5.5 ≤ 6.0 300 pH 6.0 ≤ 6.5 400 pH 6.5 ≤ 7.0 750 pH 7.0 < 7.5 2000 pH 7.5 < 8.0 3500 pH ≥ 8.0	150 pH < 6.0 300 pH 6.0 ≤ 6.5 400 pH 6.5 ≤ 7.0 2000 pH 7.0 ≤ 7.5 5000 pH 7.5 ≤ 8.0 9000 pH ≥ 8.0	-	-	87.5	75.8	60.5	68.3	227	134	54.3	48.8			

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- 9 - Schedule 3.1 Part 1 - Environmental protection, groundwater used for irrigation
- 10 - Schedule 3.1 Part 2 - Generic numerical soil standards to protect human health
- 11 - Schedule 3.1 Part 3 - Generic numerical soil standards to protect ecological health
- a - Standard is pH dependent, and only the most stringent standard is shown
- b - Standard is for chromium, hexavalent. Hexavalent standard has been applied as a conservative measure. Speciation analysis is required to determine true standard.
- c - Standard is for chromium, trivalent
- d - Concentration exceeds applicable standards, but is less than BC CSR Protocol 4: Establishing Background Concentrations in Soil for Region 3/8 - Thompson/Nicola/Okanagan (4 ug/g for selenium) and (70 ug/g chromium). Protocol 4 values only apply if soil is to stay in this region.

Laboratory: ALS	Units	DL	BC CSR Schedule 3.1 Parts 1, 2 and 3 Agricultural Land Use (AL) ¹											MW18-A1-01A	MW18-A1-01C	DUP-A (BFD of MW18-A1-01C)	MW18-A1-01D	MW18-A1-02A	MW18-A1-02C	MW18-A1-03B	MW18-A1-03D	MW18-A1-04A	MW18-A1-04D
			Intake of Contaminated Soil ²	Drinking Water ³	Toxicity to soil invertebrates and plants ⁴	Livestock ingesting soil and fodder ⁵	Major microbial functional impairment ⁶	GW Flow to SW Freshwater Aquatic Life ⁷	GW used for livestock watering ⁸	GW used for irrigation ⁹	Human Health Soil ¹⁰	Ecological Health Soil ¹¹	18-Dec-18	18-Dec-18	18-Dec-18	18-Dec-18	19-Dec-18	19-Dec-18	19-Dec-18	19-Dec-18	20-Dec-18	20-Dec-18	
Sample Collection Date	Lab Work Order	Sample Depth (mbgs)	8121868_8121868-01											8121868_8121868-04	8121868_8121868-03	8121868_8121868-05	8121868_8121868-06	8121868_8121868-08	8121868_8121868-11	8121868_8121868-13	8121868_8121868-15	8121868_8121868-18	
			0.8 - 1.2 m											5.6 - 6.0 m	5.6 - 6.0 m	8.4 - 8.7 m	0.6 - 1.2 m	4.6 - 5.2 m	2.1 - 2.4 m	18.3 - 19.1 m	0.0 - 1.0 m	9.4 - 10.1 m	
Moisture	%	0.25	-	-	-	-	-	-	-	-	-	-	-	15.4	24.4	23.6	30.4	21.4	27	29.8	25.9	8.9	25.8
pH	pH	0.1	-	-	-	-	-	-	-	-	-	-	-	-	-	7.88	-	7.74	-	8.07	-	7.89	-
Petroleum Hydrocarbons:																							
EPHC10-19	ug/g	50	-	-	-	-	-	-	-	-	-	-	-	<50	<50	<50	<50	<50	<50	<50	<50	<50	<50
EPHC19-32	ug/g	50	-	-	-	-	-	-	-	-	-	-	-	<50	<50	<50	<50	<50	<50	<50	<50	<50	<50
LEPH	ug/g	50	-	-	-	-	-	-	-	-	-	1,000	1,000	<50	<50	<50	<50	<50	<50	<50	<50	<50	<50
HEPH	ug/g	50	-	-	-	-	-	-	-	-	-	1,000	1,000	<50	<50	<50	<50	<50	<50	<50	<50	<50	<50
VPH	ug/g	20	-	-	-	-	-	-	-	-	-	200	200	<20	<20	<23	<20	<20	<20	<21	<20	<20	<20
Volatile Hydrocarbons (VH6-10)	ug/g	20	-	-	-	-	-	-	-	-	-	-	-	<20	<20	<23	<20	<20	<20	<21	<20	<20	<20
Volatile Organic Compounds:																							
Benzene	ug/g	0.02	150	0.035	100	-	-	2.5	-	-	-	-	-	<0.02	<0.03	<0.03	<0.02	<0.03	<0.02	<0.02	<0.03	<0.03	
Ethylbenzene	ug/g	0.05	4,000	15	200	-	-	200	-	-	-	-	-	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	
MTBE	ug/g	0.04	-	-	-	-	-	-	-	-	-	4,000	-	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	
Styrene	ug/g	0.05	-	-	-	-	-	-	-	-	-	8,500	0.10	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	
Toluene	ug/g	0.2	3,500	6	150	-	-	0.5	-	-	-	-	-	<0.2	<0.2	<0.2	<0.2	<0.2	0.419	<0.2	<0.2	<0.2	
Xylenes	ug/g	0.1	8,500	6.5	150	-	-	20	-	-	-	-	-	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	

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- BFD - blind field duplicate
 "-" not analyzed or no standards apply
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Laboratory: ALS	Units	DL	BC CSR Schedule 3.1 Parts 1, 2 and 3 Agricultural Land Use (AL) ¹											MW18-A1-01A	MW18-A1-01C	DUP-A (BFD of MW18-A1-01C)	MW18-A1-01D	MW18-A1-02A	MW18-A1-02C	MW18-A1-03B	MW18-A1-03D	MW18-A1-04A	MW18-A1-04D
			Intake of Contaminated Soil ²	Drinking Water ³	Toxicity to soil invertebrates and plants ⁴	Livestock ingesting soil and fodder ⁵	Major microbial functional impairment ⁶ GW Flow to SW	Freshwater Aquatic Life ⁷	GW used for livestock watering ⁸	GW used for irrigation ⁹	Human Health Soil ¹⁰	Ecological Health Soil ¹¹	18-Dec-18	18-Dec-18	18-Dec-18	18-Dec-18	19-Dec-18	19-Dec-18	19-Dec-18	19-Dec-18	20-Dec-18	20-Dec-18	
													8121868_8121868-01	8121868_8121868-04	8121868_8121868-03	8121868_8121868-05	8121868_8121868-06	8121868_8121868-08	8121868_8121868-11	8121868_8121868-13	8121868_8121868-15	8121868_8121868-18	
													0.8 - 1.2 m	5.6 - 6.0 m	5.6 - 6.0 m	8.4 - 8.7 m	0.6 - 1.2 m	4.6 - 5.2 m	2.1 - 2.4 m	18.3 - 19.1 m	0.0 - 1.0 m	9.4 - 10.1 m	
Moisture	%	0.25	-	-	-	-	-	-	-	-	15.4	24.4	23.6	30.4	21.4	27	29.8	25.9	8.9	25.8			
pH	pH	0.1	-	-	-	-	-	-	-	-	-	-	7.88	-	7.74	-	8.07	-	7.89	-			
Polycyclic Aromatic Hydrocarbons:																							
Acenaphthene	ug/g	0.05	-	-	-	-	-	-	-	950	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05			
Acenaphthylene	ug/g	0.05	-	-	-	-	-	-	-	-	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05			
Anthracene	ug/g	0.05	10,000	-	2.5	-	-	-	-	-	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05			
Benz(a)anthracene	ug/g	0.05	-	-	-	-	-	-	-	50	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05			
Benzo(a) pyrene	ug/g	0.05	5	-	20	-	-	-	-	-	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05			
Benzo(b+j)fluoranthene	ug/g	0.05	-	-	-	-	-	-	-	50	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05			
Benzo(g,h,i)perylene	ug/g	0.05	-	-	-	-	-	-	-	-	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05			
2-chloronaphthalene	ug/g	0.05	-	-	-	-	-	-	-	1,500	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05			
Benzo(k)fluoranthene	ug/g	0.05	-	-	-	-	-	-	-	50	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05			
Chrysene	ug/g	0.05	-	-	-	-	-	-	-	200	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05			
Dibenz(a,h)anthracene	ug/g	0.05	-	-	-	-	-	-	-	5	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05			
Fluoranthene	ug/g	0.05	1,500	-	50	-	-	-	-	-	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05			
Fluorene	ug/g	0.05	-	-	-	-	-	-	-	600	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05			
1-Methylnaphthalene	ug/g	0.05	-	-	-	-	-	-	-	250	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05			
Indeno(1,2,3-c,d)pyrene	ug/g	0.05	-	-	-	-	-	-	-	50	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05			
2-Methylnaphthalene	ug/g	0.05	-	-	-	-	-	-	-	60	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05			
Naphthalene	ug/g	0.05	850	100	0.6	-	-	75	-	-	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05			
Phenanthrene	ug/g	0.05	-	-	-	-	-	-	-	1,500	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05			
Pyrene	ug/g	0.05	-	-	-	-	-	-	-	1,000	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05			

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Sample Collection Date			Intake of Contaminated Soil ²	Drinking Water ³	Toxicity to soil invertebrates and plants ⁴	Livestock ingesting soil and fodder ⁵	Major microbial functional impairment ⁶	GW Flow to SW ⁷	Freshwater Aquatic Life ⁷	GW used for livestock watering ⁸	GW used for irrigation ⁹	Human Health Soil ¹⁰	Ecological Health Soil ¹¹	18-Dec-18	18-Dec-18	19-Dec-18	19-Dec-18	19-Dec-18
Lab Work Order														8121868_8121868-01	8121868_8121868-05	8121868_8121868-08	8121868_8121868-11	8121868_8121868-13
Sample Depth (mbgs)														0.8 - 1.2 m	8.4 - 8.7 m	4.6 - 5.2 m	2.1 - 2.4 m	18.3 - 19.1 m
Moisture	%	0.25	-	-	-	-	-	-	-	-	-	-	15.4	30.4	27	29.8	25.9	
pH	pH	0.1	-	-	-	-	-	-	-	-	-	-	-	-	-	8.07	-	
Volatile Organic Compounds (VOC)																		
Bromodichloromethane	ug/g	0.1	-	-	-	-	-	-	-	-	-	-	<0.1	<0.1	<0.1	<0.1	<0.1	
Bromoform	ug/g	0.1	-	-	-	-	-	-	-	-	-	-	<0.1	<0.1	<0.1	<0.1	<0.1	
Carbon tetrachloride	ug/g	0.05	-	-	-	-	-	-	-	-	-	0.1	<0.05	<0.05	<0.05	<0.05	<0.05	
Chlorobenzene	ug/g	0.05	-	-	-	-	-	-	-	-	-	0.1	<0.05	<0.05	<0.05	<0.05	<0.05	
Chlorodibromomethane (DBCM)	ug/g	0.1	-	-	-	-	-	-	-	-	-	85	<0.1	<0.1	<0.1	<0.1	<0.1	
Chloroform	ug/g	0.05	-	-	-	-	-	-	-	-	-	400	<0.05	<0.05	<0.05	<0.05	<0.05	
1,2-dibromoethane	ug/g	0.1	-	-	-	-	-	-	-	-	-	3.5	<0.1	<0.1	<0.1	<0.1	<0.1	
1,2-dichlorobenzene	ug/g	0.05	-	-	-	-	-	-	-	-	-	3500	<0.05	<0.05	<0.05	<0.05	<0.05	
1,3-dichlorobenzene	ug/g	0.05	-	-	-	-	-	-	-	-	-	1000	<0.05	<0.05	<0.05	<0.05	<0.05	
1,4-dichlorobenzene	ug/g	0.05	-	-	-	-	-	-	-	-	-	4500	<0.05	<0.05	<0.05	<0.05	<0.05	
1,2-dichloroethane	ug/g	0.05	-	-	-	-	-	-	-	-	-	75	<0.05	<0.05	<0.05	<0.05	<0.05	
1,1-dichloroethane	ug/g	0.05	-	-	-	-	-	-	-	-	-	8500	<0.05	<0.05	<0.05	<0.05	<0.05	
1,1-dichloroethene	ug/g	0.05	-	-	-	-	-	-	-	-	-	2000	<0.05	<0.05	<0.05	<0.05	<0.05	
cis-1,2-dichloroethene	ug/g	0.05	-	-	-	-	-	-	-	-	-	85	<0.05	<0.05	<0.05	<0.05	<0.05	
trans-1,2-dichloroethene	ug/g	0.05	-	-	-	-	-	-	-	-	-	850	<0.05	<0.05	<0.05	<0.05	<0.05	
Dichloromethane	ug/g	0.1	-	-	-	-	-	-	-	-	-	250	<0.1	<0.1	<0.1	<0.1	<0.1	
1,2-dichloropropane	ug/g	0.05	-	-	-	-	-	-	-	-	-	600	<0.05	<0.05	<0.05	<0.05	<0.05	
1,1,2,2-tetrachloroethane	ug/g	0.05	-	-	-	-	-	-	-	-	-	35	<0.05	<0.05	<0.05	<0.05	<0.05	
Tetrachloroethene	ug/g	0.05	250	-	15	-	-	2.5	-	-	-	-	<0.05	<0.05	<0.05	<0.05	<0.05	
1,1,1-trichloroethane	ug/g	0.05	-	-	-	-	-	-	-	-	-	85,000	<0.05	<0.05	<0.05	<0.05	<0.05	
1,1,2-trichloroethane	ug/g	0.05	-	-	-	-	-	-	-	-	-	150	<0.05	<0.05	<0.05	<0.05	<0.05	
Trichloroethene	ug/g	0.04	20	-	15	-	-	0.3	-	-	-	-	<0.04	<0.04	<0.04	<0.04	<0.04	
Trichlorofluoromethane	ug/g	0.1	-	-	-	-	-	-	-	-	-	4500	<0.1	<0.1	<0.1	<0.1	<0.1	
Vinyl chloride	ug/g	0.1	-	-	-	-	-	-	-	-	-	0.95	<0.1	<0.1	<0.1	<0.1	<0.1	
Trihalomethanes	ug/g	0.35	-	-	-	-	-	-	-	-	-	-	<0.35	<0.35	<0.35	<0.35	<0.35	
1,3-Dichloropropene	ug/g	0.05	-	-	-	-	-	-	-	-	-	1000	<0.05	<0.05	<0.05	<0.05	<0.05	

Colour Key: Exceeds Standard

- Notes:
- 1 - BC CSR B.C Reg 13/2019, including amendments up to January 24, 2019, Schedule 3.1 Parts 1, 2 and 3 for Agricultural Land Use Standards
 - 2 - Schedule 3.1 Part 1 - Human health protection, intake of contaminated soil
 - 3 - Schedule 3.1 Part 1 - Human health protection, groundwater used for drinking water
 - 4 - Schedule 3.1 Part 1 - Environmental protection, toxicity to soil invertebrates and plants
 - 5 - Schedule 3.1 Part 1 - Environmental protection, livestock ingesting soil and fodder
 - 6 - Schedule 3.1 Part 1 - Environmental protection, major microbial functional impairment
 - 7 - Schedule 3.1 Part 1 - Environmental protection, groundwater flow to surface water, used by aquatic life (freshwater)
 - 8 - Schedule 3.1 Part 1 - Environmental protection, groundwater used for livestock watering
 - 9 - Schedule 3.1 Part 1 - Environmental protection, groundwater used for irrigation
 - 10 - Schedule 3.1 Part 2 - Generic numerical soil standards to protect human health
 - 11 - Schedule 3.1 Part 3 - Generic numerical soil standards to protect ecological health
- BFD - blind field duplicate
 "-" not analyzed or no standards apply
 "<" less than the laboratory reportable detection limit (DL) indicated.
 DL - Laboratory detection limit

Laboratory: ALS	Units	DL	BC CSR Schedule 3.1 Parts 1, 2 and 3 Agricultural Land Use (AL) ¹										MW18-A1-01A	MW18-A1-01C	MW18-A1-03B	MW18-A1-04D	SS18-A1-01
Sample Collection Date			Intake of Contaminated Soil ²	Drinking Water ³	Toxicity to soil invertebrates and plants ⁴	Livestock ingesting soil and fodder ⁵	Major microbial functional impairment ⁶	GW Flow to SW Freshwater Aquatic Life ⁷	GW used for livestock watering ⁸	GW used for irrigation ⁹	Human Health Soil ¹⁰	Ecological Health Soil ¹¹	18-Dec-18	18-Dec-18	19-Dec-18	20-Dec-18	20-Dec-18
Lab Work Order			8121868_8121868-01	8121868_8121868-04	8121868_8121868-11	8121868_8121868-18	8121868_8121868-20										
Sample Depth (mbgs)			0.8 - 1.2 m	5.6 - 6.0 m	2.1 - 2.4 m	9.4 - 10.1 m	0.0 - 1.0 m										
Moisture	%	0.25	-	-	-	-	-	-	-	-	-	15.4	24.4	29.8	25.8	25.8	
pH	pH	0.1	-	-	-	-	-	-	-	-	-	-	-	8.07	-	-	
Glycols																	
Ethylene glycol	ug/g	10	85,000	10	4000	-	-	700	-	-	-	<10	<10	<10	<10	<10	
Diethylene glycol	ug/g	10	-	-	-	-	-	-	-	-	-	<10	<10	<10	<10	<10	
Propylene glycol	ug/g	10	-	-	-	-	-	-	-	-	-	<10	<10	<10	<10	<10	
Triethylene Glycol	ug/g	10	-	-	-	-	-	-	-	-	30,000	<10	<10	<10	<10	<10	

Colour Key: Exceeds Standard

- Notes:**
- 1 - BC CSR B.C Reg 13/2019, including amendments up to January 24, 2019, Schedule 3.1 Parts 1, 2 and 3 for Agricultural Land Use Standards
 - 2 - Schedule 3.1 Part 1 - Human health protection, intake of contaminated soil
 - 3 - Schedule 3.1 Part 1 - Human health protection, groundwater used for drinking water
 - 4 - Schedule 3.1 Part 1 - Environmental protection, toxicity to soil invertebrates and plants
 - 5 - Schedule 3.1 Part 1 - Environmental protection, livestock ingesting soil and fodder
 - 6 - Schedule 3.1 Part 1 - Environmental protection, major microbial functional impairment
 - 7 - Schedule 3.1 Part 1 - Environmental protection, groundwater flow to surface water, used by aquatic life (freshwater)
 - 8 - Schedule 3.1 Part 1 - Environmental protection, groundwater used for livestock watering
 - 9 - Schedule 3.1 Part 1 - Environmental protection, groundwater used for irrigation
 - 10 - Schedule 3.1 Part 2 - Generic numerical soil standards to protect human health
 - 11 - Schedule 3.1 Part 3 - Generic numerical soil standards to protect ecological health
- BFD - blind field duplicate
 "-" not analyzed or no standards apply
 "<" less than the laboratory reportable detection limit (DL) indicated.
 DL - Laboratory detection limit

Laboratory Sample Collection Date Lab Work Order	Units	DL	BC CSR Schedule 3.3 Vapour Standards ¹			VP18-A1-01		VP18-A1-03	
			Agricultural/ Residential Use ²	Commercial Use ³	Industrial Use ⁴	21-Dec-18	21-Dec-18	21-Dec-18	21-Dec-18
						8121892_8121892-01	8121892_8121892-01	8121892_8121892-02	8121892_8121892-02
Analyte					Laboratory Vapour Concentrations ⁵	Outdoor Exposure Attenuation Factor Applied ⁶	Laboratory Vapour Concentrations ⁵	Outdoor Exposure Attenuation Factor Applied ⁷	
Air Volume, Client Supplied	L	-	-	-	-	3.156	3.156	3.345	3.345
Benzene	ug/m ³	0.6	1.5	4	10	2.2	0.00002024	5	0.0005
Bromodichloromethane	ug/m ³	0.3	40	100	800	<0.32	<0.000002944	<0.3	<0.00003
Bromoform	ug/m ³	0.3	9	30	85	<0.32	<0.000002944	<0.3	<0.00003
1,3-Butadiene	ug/m ³	1.2	2	2	3	<1.3	<0.00001196	<1.2	<0.00012
Carbon tetrachloride	ug/m ³	0.3	1.5	5	15	<0.32	<0.000002944	<0.3	<0.00003
Chlorobenzene	ug/m ³	0.3	10	30	90	<0.32	<0.000002944	<0.3	<0.00003
Chlorodibromomethane	ug/m ³	0.3	40	100	800	<0.32	<0.000002944	<0.3	<0.00003
Chloroethane	ug/m ³	1.5	10,000	30,000	90,000	<1.6	<0.00001472	<1.5	<0.00015
Chloroform	ug/m ³	0.3	100	300	900	<0.32	<0.000002944	3.6	0.00036
Decane	ug/m ³	0.9	2,500	8,000	25,000	2.9	0.00002668	2	0.0002
1,2-dibromoethane	ug/m ³	0.15	0.5	0.5	0.5	<0.16	<0.000001472	<0.15	<0.000015
1,2-dichlorobenzene	ug/m ³	0.3	200	600	2,000	<0.32	<0.000002944	<0.3	<0.00003
1,3-dichlorobenzene	ug/m ³	0.3	60	200	1,000	2	0.0000184	2	0.0002
1,4-dichlorobenzene	ug/m ³	0.3	800	2,500	7,500	<0.32	<0.000002944	<0.3	<0.00003
1,2-dichloroethane	ug/m ³	0.18	7	20	65	<0.19	<0.000001748	<0.18	<0.000018
1,1-dichloroethane	ug/m ³	0.3	500	1,500	4,500	<0.32	<0.000002944	<0.3	<0.00003
1,1-dichloroethene	ug/m ³	0.3	200	600	2,000	<0.32	<0.000002944	<0.3	<0.00003
cis-1,2-dichloroethene	ug/m ³	0.3	60	200	550	<0.32	<0.000002944	<0.3	<0.00003
trans-1,2-dichloroethene	ug/m ³	0.3	60	200	550	<0.32	<0.000002944	<0.3	<0.00003
Dichloromethane	ug/m ³	3	600	2,000	5,500	3.3	0.00003036	9.3	0.00093
1,2-dichloropropane	ug/m ³	0.3	4	10	35	<0.32	<0.000002944	<0.3	<0.00003
Ethylbenzene	ug/m ³	0.72	1,000	3,000	9,000	1.9	0.00001748	2	0.0002
Hexane	ug/m ³	3	700	2,000	6,500	4.4	0.00004048	4.3	0.00043
Isopropylbenzene	ug/m ³	0.3	400	1,000	3,500	<0.32	<0.000002944	<0.3	<0.00003
Methylcyclohexane	ug/m ³	1.5	1,500	5,000	35,000	9.5	0.0000874	8.2	0.00082
MTBE	ug/m ³	0.6	3,000	9,000	25,000	<0.63	<0.000005796	<0.6	<0.00006
Styrene	ug/m ³	0.3	1,000	3,000	9,000	<0.32	<0.000002944	<0.3	<0.00003
1,1,1,2-tetrachloroethane	ug/m ³	0.3	1.5	4	10	<0.32	<0.000002944	<0.3	<0.00003
1,1,2,2-tetrachloroethane	ug/m ³	0.21	40	100	800	<0.22	<0.000002024	<0.21	<0.000021
Tetrachloroethene	ug/m ³	1.5	40	100	350	15	0.0000138	11	0.0011
Toluene	ug/m ³	3	5,000	15,000	45,000	45	0.0000414	30	0.003
1,1,1-trichloroethane	ug/m ³	0.3	5,000	15,000	45,000	<0.32	<0.000002944	<0.3	<0.00003
1,1,2-trichloroethane	ug/m ³	0.3	0.5	0.6	2	<0.32	<0.000002944	<0.3	<0.00003
Trichloroethene	ug/m ³	0.15	2	6	20	<0.16	<0.000001472	<0.15	<0.000015
Trichlorofluoromethane	ug/m ³	0.3	700	2,000	6,500	1.5	0.0000138	1.4	0.00014
1,2,4-trimethylbenzene	ug/m ³	1.5	7	20	65	<1.6	<0.00001472	<1.5	<0.00015
1,3,5-trimethylbenzene	ug/m ³	1.4	3.5	10	65	<1.6	<0.00001472	<1.5	<0.00015
Vinyl chloride	ug/m ³	0.6	1	3.5	10	<0.63	<0.000005796	<0.6	<0.00006
Xylenes	ug/m ³	1.6	100	300	900	9.9	0.00009108	10	0.001
Ethyl methacrylate	ug/m ³	0.3	300	900	2,500	<0.32	<0.000002944	<0.3	<0.00003
Methyl Methacrylate	ug/m ³	0.6	700	2,000	6,500	<0.63	<0.000005796	<0.6	<0.00006
1,3-Dichloropropene	ug/m ³	0.6	2.5	7.5	25	<0.63	<0.000005796	<0.6	<0.00006
2-chlorotoluene	ug/m ³	1.5	40	100	800	<1.6	<0.00001472	<1.5	<0.00015
Bromobenzene	ug/m ³	0.3	60	200	550	<0.32	<0.000002944	<0.3	<0.00003
Dibromomethane	ug/m ³	0.3	4	10	35	<0.32	<0.000002944	<0.3	<0.00003
Dichlorodifluoromethane	ug/m ³	0.6	100	300	900	3.1	0.00002852	2.8	0.00028
Hexachlorobutadiene	ug/m ³	0.3	1	1.5	4	<0.32	<0.000002944	<0.3	<0.00003
Hexachloroethane	ug/m ³	1.2	30	90	250	<1.3	<0.00001196	<1.2	<0.00012
VHV	ug/m ³	600	-	-	-	720	0.0006624	700	0.07
VPHV	ug/m ³	600	1,000	3,000	11,500	650	0.000598	640	0.064
1,2,3-trichloropropane	ug/m ³	0.3	0.5	0.9	2.5	<0.32	<0.000002944	<0.3	<0.00003
1,2,4-trichlorobenzene	ug/m ³	0.3	7	20	65	<0.32	<0.000002944	<0.3	<0.00003
1,2-dibromo-3-chloropropane	ug/m ³	0.3	1	1	2	<0.32	<0.000002944	<0.3	<0.00003
1,3-dichloropropane	ug/m ³	0.45	1	3	20	<0.63	<0.000005796	<0.45	<0.000045
Methacrylonitrile	ug/m ³	0.3	30	90	250	<0.32	<0.000002944	<0.3	<0.00003
Nitrobenzene	ug/m ³	0.3	1	1	2.5	<0.32	<0.000002944	<0.3	<0.00003
Naphthalene	ug/m ³	0.3	3	9	25	<0.32	<0.000002944	<0.3	<0.00003
Methyl Ethyl Ketone	ug/m ³	1.5	5,000	15,000	45,000	<1.6	<0.00001472	<1.5	<0.00015
4-Methyl-2-pentanone	ug/m ³	0.6	3,000	9,000	25,000	1	0.0000092	0.87	0.000087
Acetone	ug/m ³	3	2,000	5,500	35,000	13	0.00001196	9	0.0009
Acrylonitrile	ug/m ³	0.3	0.5	0.5	1.5	<0.32	<0.000002944	<0.3	<0.00003
Allyl chloride	ug/m ³	0.3	1	3	9	<0.32	<0.000002944	<0.3	<0.00003
Carbon disulfide	ug/m ³	3	700	2,000	6,500	<3.2	<0.00002944	<3	<0.0003
Ethyl acetate	ug/m ³	1.5	70	200	650	<1.6	<0.00001472	<1.5	<0.00015
Ethyl ether	ug/m ³	0.6	400	1,000	8,000	<0.63	<0.000005796	1.2	0.00012
Tetrahydrofuran	ug/m ³	0.3	3.5	10	30	<0.32	<0.000002944	<0.3	<0.00003
Freon 113	ug/m ³	0.6	30,000	90,000	250,000	1.3	0.00001196	<0.6	<0.00006
Methyl acrylate	ug/m ³	1.5	20	60	200	<1.6	<0.00001472	<1.5	<0.00015

Colour Key:

Exceeds Standard with Attenuation Factor Applied
Parameter Exceeds Prior to Attenuation Factor Applied

Notes:

All concentrations expressed in ug/m³ unless otherwise indicated

- BC CSR B.C Reg 13/2019, including amendments to January 24, 2019 - Schedule 3.3 Generic Numerical Vapour Standards
- Schedule 3.3 Generic Numerical Vapour Standards for Agricultural/Residential Use Standards (AL&RL).
- Schedule 3.3 Generic Numerical Vapour Standards for Commercial Use Standards (CL).
- Schedule 3.3 Generic Numerical Vapour Standards for Industrial Use Standards (IL).
- Reported laboratory concentrations relative to field flow rate and air exposure volume collected during sampling.
- Adjusted sample concentrations based on an attenuation factor of 9.2×10^{-7} applied to reported concentrations as per Protocol 22 Indoor Exposure - subsurface 2.0m
- Adjusted sample concentrations based on an attenuation factor of 1.0×10^{-4} applied to reported concentrations as per Protocol 22 Indoor Exposure - < 1.0 m

"<" less than the laboratory reportable detection limit (DL) indicated.
 "-" parameter not analyzed and/or a standards does not exist for the parameter
 DL - Laboratory detection limit

APPENDIX D – LABORATORY CERTIFICATES OF ANALYSIS



CERTIFICATE OF ANALYSIS

REPORTED TO	McElhanney Consulting Services Ltd. - Victoria 500-3960 Quadra Street Victoria, BC V8X 4A3	WORK ORDER	8121868
ATTENTION	Martin Birse	RECEIVED / TEMP REPORTED	2018-12-22 11:42 / 9°C
PO NUMBER	2243-18023-00	REPORTED	2019-01-24 11:52
PROJECT	2121-00113-00 T2016	COC NUMBER	B73127
PROJECT INFO			

Introduction:

CARO Analytical Services is a testing laboratory full of smart, engaged scientists driven to make the world a safer and healthier place. Through our clients' projects we become an essential element for a better world. We employ methods conducted in accordance with recognized professional standards using accepted testing methodologies and quality control efforts. CARO is accredited by the Canadian Association for Laboratories Accreditation (CALA) to ISO 17025:2005 for specific tests listed in the scope of accreditation approved by CALA.

Big Picture Sidekicks



You know that the sample you collected after snowshoeing to site, digging 5 meters, and racing to get it on a plane so you can submit it to the lab for time sensitive results needed to make important and expensive decisions (whew) is VERY important. We know that too.

We've Got Chemistry



It's simple. We figure the more you enjoy working with our fun and engaged team members; the more likely you are to give us continued opportunities to support you.

Ahead of the Curve



Through research, regulation knowledge, and instrumentation, we are your analytical centre for the technical knowledge you need, BEFORE you need it, so you can stay up to date and in the know.

Work Order Comments:

This is a revised report; please refer to Appendix 3 for details.

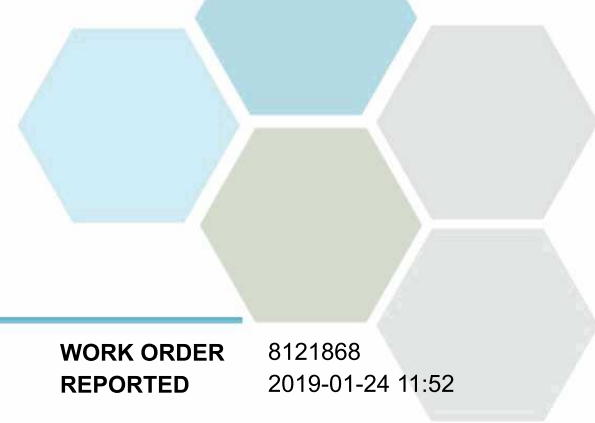
If you have any questions or concerns, please contact me at jnobrega@caro.ca

Authorized By:

Jessica Nobrega, B.Sc.
Client Service Manager

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#110 4011 Viking Way Richmond, BC V6V 2K9 | #102 3677 Highway 97N Kelowna, BC V1X 5C3 | 17225 109 Avenue Edmonton, AB T5S 1H7

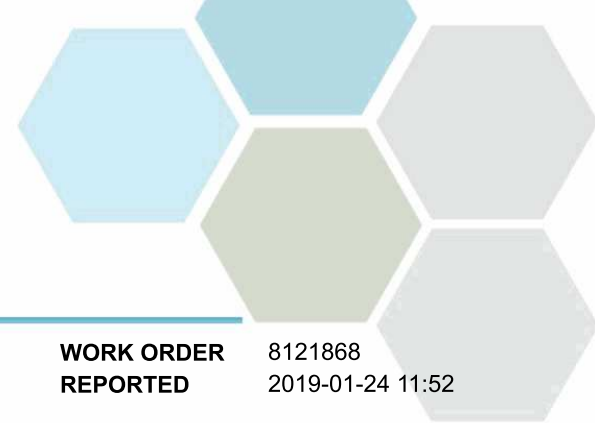


TEST RESULTS

REPORTED TO PROJECT McElhanney Consulting Services Ltd. - Victoria
2121-00113-00 T2016

WORK ORDER REPORTED 8121868
2019-01-24 11:52

Analyte	Result	RL	Units	Analyzed	Qualifier
MW18-A1-01A (8121868-01) Matrix: Soil Sampled: 2018-12-18 09:00					
BCMOE Aggregate Hydrocarbons					
VHs (6-10)	< 20	20	mg/kg dry	2019-01-02	
VPHs	< 20	20	mg/kg dry	N/A	
EPHs10-19	< 50	50	mg/kg dry	2018-12-31	
EPHs19-32	< 50	50	mg/kg dry	2018-12-31	
LEPHs	< 50	50	mg/kg dry	N/A	
HEPHs	< 50	50	mg/kg dry	N/A	
Surrogate: 2-Methylnonane (EPH/F2-4)	96	60-140	%	2018-12-31	
General Parameters					
Moisture	15.4	1.0	% wet	2019-01-02	
Glycols					
Propylene glycol	< 10	10	mg/kg dry	2019-01-02	
Ethylene glycol	< 10	10	mg/kg dry	2019-01-02	
Diethylene glycol	< 10	10	mg/kg dry	2019-01-02	
Triethylene glycol	< 10	10	mg/kg dry	2019-01-02	
Surrogate: Tetramethylene Glycol	86	70-119	%	2019-01-02	
Polycyclic Aromatic Hydrocarbons (PAH)					
Acenaphthene	< 0.050	0.050	mg/kg dry	2018-12-31	
Acenaphthylene	< 0.050	0.050	mg/kg dry	2018-12-31	
Anthracene	< 0.050	0.050	mg/kg dry	2018-12-31	
Benz(a)anthracene	< 0.050	0.050	mg/kg dry	2018-12-31	
Benzo(a)pyrene	< 0.050	0.050	mg/kg dry	2018-12-31	
Benzo(b+j)fluoranthene	< 0.050	0.050	mg/kg dry	2018-12-31	
Benzo(g,h,i)perylene	< 0.050	0.050	mg/kg dry	2018-12-31	
Benzo(k)fluoranthene	< 0.050	0.050	mg/kg dry	2018-12-31	
2-Chloronaphthalene	< 0.050	0.050	mg/kg dry	2018-12-31	
Chrysene	< 0.050	0.050	mg/kg dry	2018-12-31	
Dibenz(a,h)anthracene	< 0.050	0.050	mg/kg dry	2018-12-31	
Fluoranthene	< 0.050	0.050	mg/kg dry	2018-12-31	
Fluorene	< 0.050	0.050	mg/kg dry	2018-12-31	
Indeno(1,2,3-cd)pyrene	< 0.050	0.050	mg/kg dry	2018-12-31	
1-Methylnaphthalene	< 0.050	0.050	mg/kg dry	2018-12-31	
2-Methylnaphthalene	< 0.050	0.050	mg/kg dry	2018-12-31	
Naphthalene	< 0.050	0.050	mg/kg dry	2018-12-31	
Phenanthrene	< 0.050	0.050	mg/kg dry	2018-12-31	
Pyrene	< 0.050	0.050	mg/kg dry	2018-12-31	
Surrogate: Acenaphthene-d10	90	71-118	%	2018-12-31	
Surrogate: Chrysene-d12	116	58-121	%	2018-12-31	
Surrogate: Naphthalene-d8	81	59-132	%	2018-12-31	
Surrogate: Perylene-d12	113	50-133	%	2018-12-31	
Surrogate: Phenanthrene-d10	89	72-109	%	2018-12-31	



TEST RESULTS

REPORTED TO PROJECT McElhanney Consulting Services Ltd. - Victoria
2121-00113-00 T2016

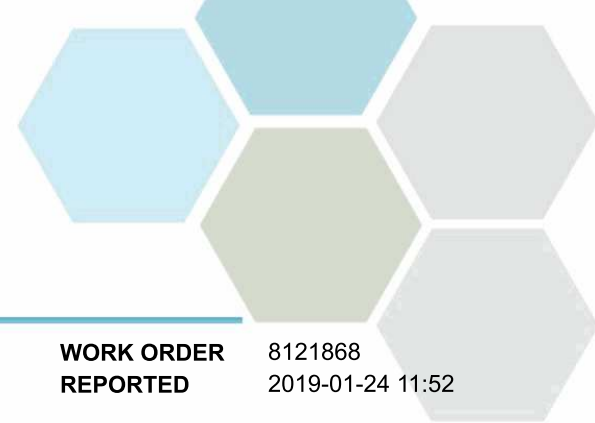
WORK ORDER REPORTED 8121868
2019-01-24 11:52

Analyte	Result	RL	Units	Analyzed	Qualifier
MW18-A1-01A (8121868-01) Matrix: Soil Sampled: 2018-12-18 09:00, Continued					
<i>Volatile Organic Compounds (VOC)</i>					
Benzene	< 0.020	0.020	mg/kg dry	2019-01-01	
Bromodichloromethane	< 0.100	0.100	mg/kg dry	2019-01-01	
Bromoform	< 0.100	0.100	mg/kg dry	2019-01-01	
Carbon tetrachloride	< 0.050	0.050	mg/kg dry	2019-01-01	
Chlorobenzene	< 0.050	0.050	mg/kg dry	2019-01-01	
Chloroform	< 0.050	0.050	mg/kg dry	2019-01-01	
Dibromochloromethane	< 0.100	0.100	mg/kg dry	2019-01-01	
1,2-Dibromoethane	< 0.100	0.100	mg/kg dry	2019-01-01	
Dibromomethane	< 0.100	0.100	mg/kg dry	2019-01-01	
1,2-Dichlorobenzene	< 0.050	0.050	mg/kg dry	2019-01-01	
1,3-Dichlorobenzene	< 0.050	0.050	mg/kg dry	2019-01-01	
1,4-Dichlorobenzene	< 0.050	0.050	mg/kg dry	2019-01-01	
1,1-Dichloroethane	< 0.050	0.050	mg/kg dry	2019-01-01	
1,2-Dichloroethane	< 0.050	0.050	mg/kg dry	2019-01-01	
1,1-Dichloroethylene	< 0.050	0.050	mg/kg dry	2019-01-01	
cis-1,2-Dichloroethylene	< 0.050	0.050	mg/kg dry	2019-01-01	
trans-1,2-Dichloroethylene	< 0.050	0.050	mg/kg dry	2019-01-01	
Dichloromethane	< 0.100	0.100	mg/kg dry	2019-01-01	
1,2-Dichloropropane	< 0.050	0.050	mg/kg dry	2019-01-01	
1,3-Dichloropropene (cis + trans)	< 0.050	0.050	mg/kg dry	2019-01-01	
Ethylbenzene	< 0.050	0.050	mg/kg dry	2019-01-01	
Methyl tert-butyl ether	< 0.040	0.040	mg/kg dry	2019-01-01	
Styrene	< 0.050	0.050	mg/kg dry	2019-01-01	
1,1,2,2-Tetrachloroethane	< 0.050	0.050	mg/kg dry	2019-01-01	
Tetrachloroethylene	< 0.050	0.050	mg/kg dry	2019-01-01	
Toluene	< 0.200	0.200	mg/kg dry	2019-01-01	
1,1,1-Trichloroethane	< 0.050	0.050	mg/kg dry	2019-01-01	
1,1,2-Trichloroethane	< 0.050	0.050	mg/kg dry	2019-01-01	
Trichloroethylene	< 0.040	0.040	mg/kg dry	2019-01-01	
Trichlorofluoromethane	< 0.100	0.100	mg/kg dry	2019-01-01	
Vinyl chloride	< 0.100	0.100	mg/kg dry	2019-01-01	
Xylenes (total)	< 0.100	0.100	mg/kg dry	2019-01-01	
Surrogate: Toluene-d8	86	60-140	%	2019-01-01	
Surrogate: 4-Bromofluorobenzene	80	60-140	%	2019-01-01	
Surrogate: 1,4-Dichlorobenzene-d4	78	60-140	%	2019-01-01	

MW18-A1-01C (8121868-03) | Matrix: Soil | Sampled: 2018-12-18 11:00

BCMOE Aggregate Hydrocarbons

VHs (6-10)	< 23	20	mg/kg dry	2019-01-02	RS3
VPHs	< 23	23	mg/kg dry	N/A	
EPHs10-19	< 50	50	mg/kg dry	2018-12-31	



TEST RESULTS

REPORTED TO PROJECT McElhanney Consulting Services Ltd. - Victoria
2121-00113-00 T2016

WORK ORDER REPORTED 8121868
2019-01-24 11:52

Analyte	Result	RL	Units	Analyzed	Qualifier
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MW18-A1-01C (8121868-03) | Matrix: Soil | Sampled: 2018-12-18 11:00, Continued

BCMOE Aggregate Hydrocarbons, Continued

EPHs19-32	< 50	50	mg/kg dry	2018-12-31	
LEPHs	< 50	50	mg/kg dry	N/A	
HEPHs	< 50	50	mg/kg dry	N/A	
Surrogate: 2-Methylnonane (EPH/F2-4)	103	60-140	%	2018-12-31	

General Parameters

Chromium, Hexavalent	< 0.40	0.40	mg/kg	2019-01-16	
Moisture	23.6	1.0	% wet	2019-01-02	
pH (1:2 H2O Solution)	7.88	0.10	pH units	2019-01-03	

Glycols

Propylene glycol	< 10	10	mg/kg dry	2019-01-02	
Ethylene glycol	< 10	10	mg/kg dry	2019-01-02	
Diethylene glycol	< 10	10	mg/kg dry	2019-01-02	
Triethylene glycol	< 10	10	mg/kg dry	2019-01-02	
Surrogate: Tetramethylene Glycol	78	70-119	%	2019-01-02	

Polycyclic Aromatic Hydrocarbons (PAH)

Acenaphthene	< 0.050	0.050	mg/kg dry	2018-12-31	
Acenaphthylene	< 0.050	0.050	mg/kg dry	2018-12-31	
Anthracene	< 0.050	0.050	mg/kg dry	2018-12-31	
Benz(a)anthracene	< 0.050	0.050	mg/kg dry	2018-12-31	
Benzo(a)pyrene	< 0.050	0.050	mg/kg dry	2018-12-31	
Benzo(b+j)fluoranthene	< 0.050	0.050	mg/kg dry	2018-12-31	
Benzo(g,h,i)perylene	< 0.050	0.050	mg/kg dry	2018-12-31	
Benzo(k)fluoranthene	< 0.050	0.050	mg/kg dry	2018-12-31	
2-Chloronaphthalene	< 0.050	0.050	mg/kg dry	2018-12-31	
Chrysene	< 0.050	0.050	mg/kg dry	2018-12-31	
Dibenz(a,h)anthracene	< 0.050	0.050	mg/kg dry	2018-12-31	
Fluoranthene	< 0.050	0.050	mg/kg dry	2018-12-31	
Fluorene	< 0.050	0.050	mg/kg dry	2018-12-31	
Indeno(1,2,3-cd)pyrene	< 0.050	0.050	mg/kg dry	2018-12-31	
1-Methylnaphthalene	< 0.050	0.050	mg/kg dry	2018-12-31	
2-Methylnaphthalene	< 0.050	0.050	mg/kg dry	2018-12-31	
Naphthalene	< 0.050	0.050	mg/kg dry	2018-12-31	
Phenanthrene	< 0.050	0.050	mg/kg dry	2018-12-31	
Pyrene	< 0.050	0.050	mg/kg dry	2018-12-31	
Surrogate: Acenaphthene-d10	98	71-118	%	2018-12-31	
Surrogate: Chrysene-d12	127	58-121	%	2018-12-31	S02
Surrogate: Naphthalene-d8	90	59-132	%	2018-12-31	
Surrogate: Perylene-d12	112	50-133	%	2018-12-31	
Surrogate: Phenanthrene-d10	99	72-109	%	2018-12-31	

Strong Acid Leachable Metals



TEST RESULTS

REPORTED TO PROJECT McElhanney Consulting Services Ltd. - Victoria
2121-00113-00 T2016

WORK ORDER REPORTED 8121868
2019-01-24 11:52

Analyte	Result	RL	Units	Analyzed	Qualifier
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MW18-A1-01C (8121868-03) | Matrix: Soil | Sampled: 2018-12-18 11:00, Continued

Strong Acid Leachable Metals, Continued

Aluminum	17800	40	mg/kg dry	2019-01-03	
Antimony	0.38	0.10	mg/kg dry	2019-01-03	
Arsenic	6.65	0.30	mg/kg dry	2019-01-03	
Barium	169	1.0	mg/kg dry	2019-01-03	
Beryllium	0.50	0.10	mg/kg dry	2019-01-03	
Boron	< 2.0	2.0	mg/kg dry	2019-01-03	
Cadmium	0.249	0.040	mg/kg dry	2019-01-03	
Chromium	63.9	1.0	mg/kg dry	2019-01-03	
Cobalt	18.7	0.10	mg/kg dry	2019-01-03	
Copper	45.2	0.40	mg/kg dry	2019-01-03	
Iron	36700	20	mg/kg dry	2019-01-03	
Lead	12.2	0.20	mg/kg dry	2019-01-03	
Lithium	16.3	0.10	mg/kg dry	2019-01-03	
Manganese	684	0.40	mg/kg dry	2019-01-03	
Mercury	< 0.040	0.040	mg/kg dry	2019-01-03	
Molybdenum	0.98	0.10	mg/kg dry	2019-01-03	
Nickel	51.5	0.60	mg/kg dry	2019-01-03	
Selenium	< 0.20	0.20	mg/kg dry	2019-01-03	
Silver	< 0.10	0.10	mg/kg dry	2019-01-03	
Strontium	108	0.20	mg/kg dry	2019-01-03	
Thallium	0.21	0.10	mg/kg dry	2019-01-03	
Tin	0.71	0.20	mg/kg dry	2019-01-03	
Tungsten	< 0.20	0.20	mg/kg dry	2019-01-03	
Uranium	1.67	0.050	mg/kg dry	2019-01-03	
Vanadium	76.9	1.0	mg/kg dry	2019-01-03	
Zinc	87.5	2.0	mg/kg dry	2019-01-03	

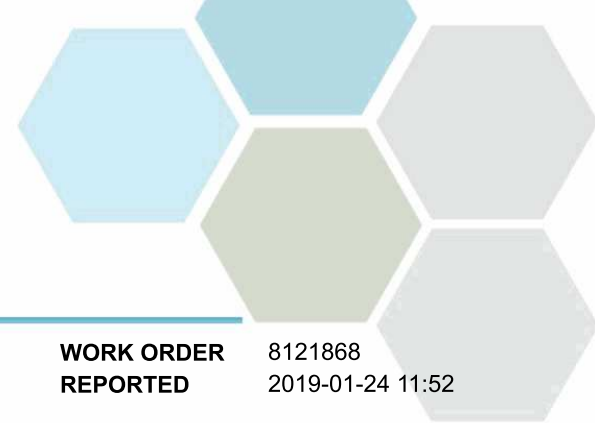
Volatile Organic Compounds (VOC)

Benzene	< 0.030	0.020	mg/kg dry	2019-01-01	
Ethylbenzene	< 0.050	0.050	mg/kg dry	2019-01-01	
Methyl tert-butyl ether	< 0.040	0.040	mg/kg dry	2019-01-01	
Styrene	< 0.050	0.050	mg/kg dry	2019-01-01	
Toluene	< 0.200	0.200	mg/kg dry	2019-01-01	
Xylenes (total)	< 0.100	0.100	mg/kg dry	2019-01-01	
Surrogate: Toluene-d8	82	60-140	%	2019-01-01	
Surrogate: 4-Bromofluorobenzene	75	60-140	%	2019-01-01	
Surrogate: 1,4-Dichlorobenzene-d4	70	60-140	%	2019-01-01	

DUP-A (8121868-04) | Matrix: Soil | Sampled: 2018-12-18

BCMOE Aggregate Hydrocarbons

VHs (6-10)	< 20	20	mg/kg dry	2019-01-02	
VPHs	< 20	20	mg/kg dry	N/A	

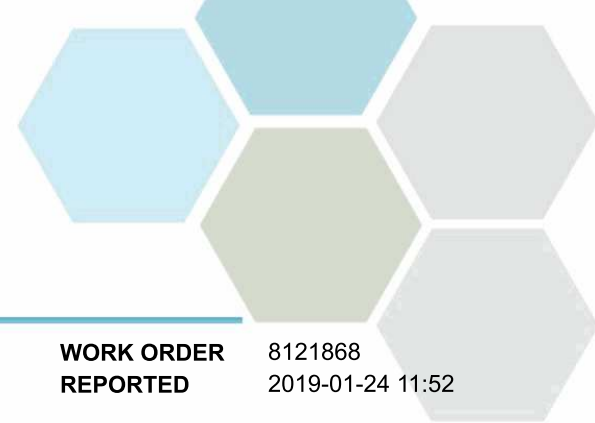


TEST RESULTS

REPORTED TO PROJECT McElhanney Consulting Services Ltd. - Victoria
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WORK ORDER REPORTED 8121868
2019-01-24 11:52

Analyte	Result	RL	Units	Analyzed	Qualifier
DUP-A (8121868-04) Matrix: Soil Sampled: 2018-12-18, Continued					
BCMOE Aggregate Hydrocarbons, Continued					
EPHs10-19	< 50	50	mg/kg dry	2018-12-31	
EPHs19-32	< 50	50	mg/kg dry	2018-12-31	
LEPHs	< 50	50	mg/kg dry	N/A	
HEPHs	< 50	50	mg/kg dry	N/A	
Surrogate: 2-Methylnonane (EPH/F2-4)	96	60-140	%	2018-12-31	
General Parameters					
Moisture	24.4	1.0	% wet	2019-01-02	
Polycyclic Aromatic Hydrocarbons (PAH)					
Acenaphthene	< 0.050	0.050	mg/kg dry	2018-12-31	
Acenaphthylene	< 0.050	0.050	mg/kg dry	2018-12-31	
Anthracene	< 0.050	0.050	mg/kg dry	2018-12-31	
Benz(a)anthracene	< 0.050	0.050	mg/kg dry	2018-12-31	
Benzo(a)pyrene	< 0.050	0.050	mg/kg dry	2018-12-31	
Benzo(b+j)fluoranthene	< 0.050	0.050	mg/kg dry	2018-12-31	
Benzo(g,h,i)perylene	< 0.050	0.050	mg/kg dry	2018-12-31	
Benzo(k)fluoranthene	< 0.050	0.050	mg/kg dry	2018-12-31	
2-Chloronaphthalene	< 0.050	0.050	mg/kg dry	2018-12-31	
Chrysene	< 0.050	0.050	mg/kg dry	2018-12-31	
Dibenz(a,h)anthracene	< 0.050	0.050	mg/kg dry	2018-12-31	
Fluoranthene	< 0.050	0.050	mg/kg dry	2018-12-31	
Fluorene	< 0.050	0.050	mg/kg dry	2018-12-31	
Indeno(1,2,3-cd)pyrene	< 0.050	0.050	mg/kg dry	2018-12-31	
1-Methylnaphthalene	< 0.050	0.050	mg/kg dry	2018-12-31	
2-Methylnaphthalene	< 0.050	0.050	mg/kg dry	2018-12-31	
Naphthalene	< 0.050	0.050	mg/kg dry	2018-12-31	
Phenanthrene	< 0.050	0.050	mg/kg dry	2018-12-31	
Pyrene	< 0.050	0.050	mg/kg dry	2018-12-31	
Surrogate: Acenaphthene-d10	89	71-118	%	2018-12-31	
Surrogate: Chrysene-d12	116	58-121	%	2018-12-31	
Surrogate: Naphthalene-d8	81	59-132	%	2018-12-31	
Surrogate: Perylene-d12	114	50-133	%	2018-12-31	
Surrogate: Phenanthrene-d10	90	72-109	%	2018-12-31	
Volatile Organic Compounds (VOC)					
Benzene	< 0.030	0.020	mg/kg dry	2019-01-01	
Ethylbenzene	< 0.050	0.050	mg/kg dry	2019-01-01	
Methyl tert-butyl ether	< 0.040	0.040	mg/kg dry	2019-01-01	
Styrene	< 0.050	0.050	mg/kg dry	2019-01-01	
Toluene	< 0.200	0.200	mg/kg dry	2019-01-01	
Xylenes (total)	< 0.100	0.100	mg/kg dry	2019-01-01	
Surrogate: Toluene-d8	80	60-140	%	2019-01-01	



TEST RESULTS

REPORTED TO PROJECT McElhanney Consulting Services Ltd. - Victoria
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WORK ORDER REPORTED 8121868
2019-01-24 11:52

Analyte	Result	RL	Units	Analyzed	Qualifier
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DUP-A (8121868-04) | Matrix: Soil | Sampled: 2018-12-18, Continued

Volatile Organic Compounds (VOC), Continued

Surrogate: 4-Bromofluorobenzene	71	60-140	%	2019-01-01	
Surrogate: 1,4-Dichlorobenzene-d4	67	60-140	%	2019-01-01	

MW18-A1-01D (8121868-05) | Matrix: Soil | Sampled: 2018-12-18 12:00

BCMOE Aggregate Hydrocarbons

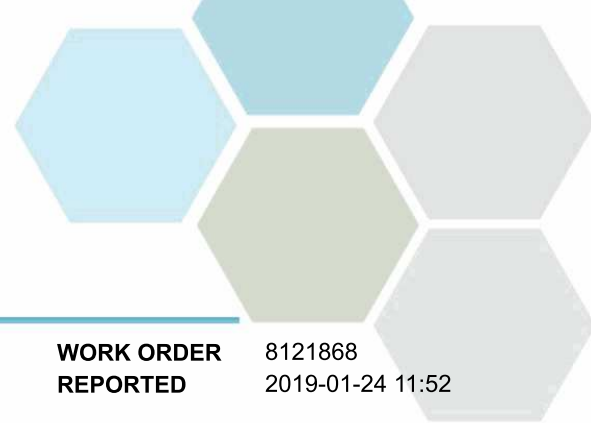
VHs (6-10)	< 20	20	mg/kg dry	2019-01-02	
VPHs	< 20	20	mg/kg dry	N/A	
EPHs10-19	< 50	50	mg/kg dry	2018-12-31	
EPHs19-32	< 50	50	mg/kg dry	2018-12-31	
LEPHs	< 50	50	mg/kg dry	N/A	
HEPHs	< 50	50	mg/kg dry	N/A	
Surrogate: 2-Methylnonane (EPH/F2-4)	105	60-140	%	2018-12-31	

General Parameters

Moisture	30.4	1.0	% wet	2019-01-02	
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Polycyclic Aromatic Hydrocarbons (PAH)

Acenaphthene	< 0.050	0.050	mg/kg dry	2018-12-31	
Acenaphthylene	< 0.050	0.050	mg/kg dry	2018-12-31	
Anthracene	< 0.050	0.050	mg/kg dry	2018-12-31	
Benz(a)anthracene	< 0.050	0.050	mg/kg dry	2018-12-31	
Benzo(a)pyrene	< 0.050	0.050	mg/kg dry	2018-12-31	
Benzo(b+j)fluoranthene	< 0.050	0.050	mg/kg dry	2018-12-31	
Benzo(g,h,i)perylene	< 0.050	0.050	mg/kg dry	2018-12-31	
Benzo(k)fluoranthene	< 0.050	0.050	mg/kg dry	2018-12-31	
2-Chloronaphthalene	< 0.050	0.050	mg/kg dry	2018-12-31	
Chrysene	< 0.050	0.050	mg/kg dry	2018-12-31	
Dibenz(a,h)anthracene	< 0.050	0.050	mg/kg dry	2018-12-31	
Fluoranthene	< 0.050	0.050	mg/kg dry	2018-12-31	
Fluorene	< 0.050	0.050	mg/kg dry	2018-12-31	
Indeno(1,2,3-cd)pyrene	< 0.050	0.050	mg/kg dry	2018-12-31	
1-Methylnaphthalene	< 0.050	0.050	mg/kg dry	2018-12-31	
2-Methylnaphthalene	< 0.050	0.050	mg/kg dry	2018-12-31	
Naphthalene	< 0.050	0.050	mg/kg dry	2018-12-31	
Phenanthrene	< 0.050	0.050	mg/kg dry	2018-12-31	
Pyrene	< 0.050	0.050	mg/kg dry	2018-12-31	
Surrogate: Acenaphthene-d10	87	71-118	%	2018-12-31	
Surrogate: Chrysene-d12	116	58-121	%	2018-12-31	
Surrogate: Naphthalene-d8	79	59-132	%	2018-12-31	
Surrogate: Perylene-d12	107	50-133	%	2018-12-31	
Surrogate: Phenanthrene-d10	88	72-109	%	2018-12-31	



TEST RESULTS

REPORTED TO PROJECT McElhanney Consulting Services Ltd. - Victoria
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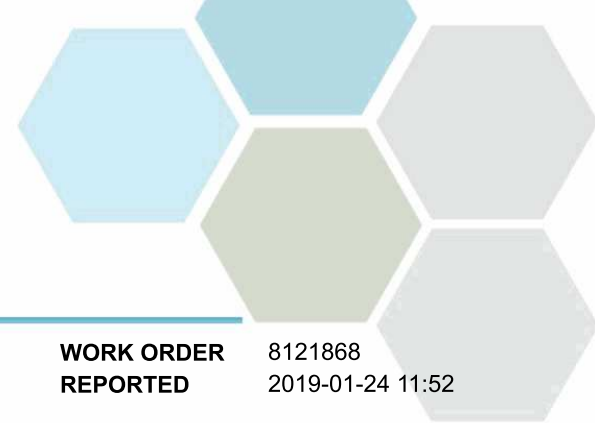
WORK ORDER REPORTED 8121868
2019-01-24 11:52

Analyte	Result	RL	Units	Analyzed	Qualifier
MW18-A1-01D (8121868-05) Matrix: Soil Sampled: 2018-12-18 12:00, Continued					
Volatile Organic Compounds (VOC)					
Benzene	< 0.020	0.020	mg/kg dry	2019-01-01	
Bromodichloromethane	< 0.100	0.100	mg/kg dry	2019-01-01	
Bromoform	< 0.100	0.100	mg/kg dry	2019-01-01	
Carbon tetrachloride	< 0.050	0.050	mg/kg dry	2019-01-01	
Chlorobenzene	< 0.050	0.050	mg/kg dry	2019-01-01	
Chloroform	< 0.050	0.050	mg/kg dry	2019-01-01	
Dibromochloromethane	< 0.100	0.100	mg/kg dry	2019-01-01	
1,2-Dibromoethane	< 0.100	0.100	mg/kg dry	2019-01-01	
Dibromomethane	< 0.100	0.100	mg/kg dry	2019-01-01	
1,2-Dichlorobenzene	< 0.050	0.050	mg/kg dry	2019-01-01	
1,3-Dichlorobenzene	< 0.050	0.050	mg/kg dry	2019-01-01	
1,4-Dichlorobenzene	< 0.050	0.050	mg/kg dry	2019-01-01	
1,1-Dichloroethane	< 0.050	0.050	mg/kg dry	2019-01-01	
1,2-Dichloroethane	< 0.050	0.050	mg/kg dry	2019-01-01	
1,1-Dichloroethylene	< 0.050	0.050	mg/kg dry	2019-01-01	
cis-1,2-Dichloroethylene	< 0.050	0.050	mg/kg dry	2019-01-01	
trans-1,2-Dichloroethylene	< 0.050	0.050	mg/kg dry	2019-01-01	
Dichloromethane	< 0.100	0.100	mg/kg dry	2019-01-01	
1,2-Dichloropropane	< 0.050	0.050	mg/kg dry	2019-01-01	
1,3-Dichloropropene (cis + trans)	< 0.050	0.050	mg/kg dry	2019-01-01	
Ethylbenzene	< 0.050	0.050	mg/kg dry	2019-01-01	
Methyl tert-butyl ether	< 0.040	0.040	mg/kg dry	2019-01-01	
Styrene	< 0.050	0.050	mg/kg dry	2019-01-01	
1,1,1,2-Tetrachloroethane	< 0.050	0.050	mg/kg dry	2019-01-01	
Tetrachloroethylene	< 0.050	0.050	mg/kg dry	2019-01-01	
Toluene	< 0.200	0.200	mg/kg dry	2019-01-01	
1,1,1-Trichloroethane	< 0.050	0.050	mg/kg dry	2019-01-01	
1,1,2-Trichloroethane	< 0.050	0.050	mg/kg dry	2019-01-01	
Trichloroethylene	< 0.040	0.040	mg/kg dry	2019-01-01	
Trichlorofluoromethane	< 0.100	0.100	mg/kg dry	2019-01-01	
Vinyl chloride	< 0.100	0.100	mg/kg dry	2019-01-01	
Xylenes (total)	< 0.100	0.100	mg/kg dry	2019-01-01	
Surrogate: Toluene-d8	81	60-140	%	2019-01-01	
Surrogate: 4-Bromofluorobenzene	74	60-140	%	2019-01-01	
Surrogate: 1,4-Dichlorobenzene-d4	68	60-140	%	2019-01-01	

MW18-A1-02A (8121868-06) | Matrix: Soil | Sampled: 2018-12-19 08:30

BCMOE Aggregate Hydrocarbons

VHs (6-10)	< 20	20	mg/kg dry	2019-01-02	
VPHs	< 20	20	mg/kg dry	N/A	
EPHs10-19	< 50	50	mg/kg dry	2019-01-03	



TEST RESULTS

REPORTED TO PROJECT McElhanney Consulting Services Ltd. - Victoria
2121-00113-00 T2016

WORK ORDER REPORTED 8121868
2019-01-24 11:52

Analyte	Result	RL	Units	Analyzed	Qualifier
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MW18-A1-02A (8121868-06) | Matrix: Soil | Sampled: 2018-12-19 08:30, Continued

BCMOE Aggregate Hydrocarbons, Continued

EPHs19-32	< 50	50	mg/kg dry	2019-01-03	
LEPHs	< 50	50	mg/kg dry	N/A	
HEPHs	< 50	50	mg/kg dry	N/A	
Surrogate: 2-Methylnonane (EPH/F2-4)	89	60-140	%	2019-01-03	

General Parameters

Moisture	21.4	1.0	% wet	2019-01-02	
pH (1:2 H2O Solution)	7.74	0.10	pH units	2019-01-03	

Polycyclic Aromatic Hydrocarbons (PAH)

Acenaphthene	< 0.050	0.050	mg/kg dry	2019-01-03	
Acenaphthylene	< 0.050	0.050	mg/kg dry	2019-01-03	
Anthracene	< 0.050	0.050	mg/kg dry	2019-01-03	
Benz(a)anthracene	< 0.050	0.050	mg/kg dry	2019-01-03	
Benzo(a)pyrene	< 0.050	0.050	mg/kg dry	2019-01-03	
Benzo(b+j)fluoranthene	< 0.050	0.050	mg/kg dry	2019-01-03	
Benzo(g,h,i)perylene	< 0.050	0.050	mg/kg dry	2019-01-03	
Benzo(k)fluoranthene	< 0.050	0.050	mg/kg dry	2019-01-03	
2-Chloronaphthalene	< 0.050	0.050	mg/kg dry	2019-01-03	
Chrysene	< 0.050	0.050	mg/kg dry	2019-01-03	
Dibenz(a,h)anthracene	< 0.050	0.050	mg/kg dry	2019-01-03	
Fluoranthene	< 0.050	0.050	mg/kg dry	2019-01-03	
Fluorene	< 0.050	0.050	mg/kg dry	2019-01-03	
Indeno(1,2,3-cd)pyrene	< 0.050	0.050	mg/kg dry	2019-01-03	
1-Methylnaphthalene	< 0.050	0.050	mg/kg dry	2019-01-03	
2-Methylnaphthalene	< 0.050	0.050	mg/kg dry	2019-01-03	
Naphthalene	< 0.050	0.050	mg/kg dry	2019-01-03	
Phenanthrene	< 0.050	0.050	mg/kg dry	2019-01-03	
Pyrene	< 0.050	0.050	mg/kg dry	2019-01-03	
Surrogate: Acenaphthene-d10	79	71-118	%	2019-01-03	
Surrogate: Chrysene-d12	118	58-121	%	2019-01-03	
Surrogate: Naphthalene-d8	77	59-132	%	2019-01-03	
Surrogate: Perylene-d12	95	50-133	%	2019-01-03	
Surrogate: Phenanthrene-d10	78	72-109	%	2019-01-03	

Strong Acid Leachable Metals

Aluminum	20700	40	mg/kg dry	2019-01-03	
Antimony	0.12	0.10	mg/kg dry	2019-01-03	
Arsenic	3.11	0.30	mg/kg dry	2019-01-03	
Barium	185	1.0	mg/kg dry	2019-01-03	
Beryllium	0.61	0.10	mg/kg dry	2019-01-03	
Boron	< 2.0	2.0	mg/kg dry	2019-01-03	
Cadmium	0.107	0.040	mg/kg dry	2019-01-03	



TEST RESULTS

REPORTED TO PROJECT McElhanney Consulting Services Ltd. - Victoria
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WORK ORDER REPORTED 8121868
2019-01-24 11:52

Analyte	Result	RL	Units	Analyzed	Qualifier
MW18-A1-02A (8121868-06) Matrix: Soil Sampled: 2018-12-19 08:30, Continued					
Strong Acid Leachable Metals, Continued					
Chromium	53.1	1.0	mg/kg dry	2019-01-03	
Cobalt	16.7	0.10	mg/kg dry	2019-01-03	
Copper	39.7	0.40	mg/kg dry	2019-01-03	
Iron	34200	20	mg/kg dry	2019-01-03	
Lead	12.5	0.20	mg/kg dry	2019-01-03	
Lithium	19.1	0.10	mg/kg dry	2019-01-03	
Manganese	549	0.40	mg/kg dry	2019-01-03	
Mercury	< 0.040	0.040	mg/kg dry	2019-01-03	
Molybdenum	0.80	0.10	mg/kg dry	2019-01-03	
Nickel	39.1	0.60	mg/kg dry	2019-01-03	
Selenium	< 0.20	0.20	mg/kg dry	2019-01-03	
Silver	< 0.10	0.10	mg/kg dry	2019-01-03	
Strontium	153	0.20	mg/kg dry	2019-01-03	
Thallium	0.30	0.10	mg/kg dry	2019-01-03	
Tin	0.98	0.20	mg/kg dry	2019-01-03	
Tungsten	< 0.20	0.20	mg/kg dry	2019-01-03	
Uranium	0.853	0.050	mg/kg dry	2019-01-03	
Vanadium	59.6	1.0	mg/kg dry	2019-01-03	
Zinc	75.8	2.0	mg/kg dry	2019-01-03	

Volatile Organic Compounds (VOC)

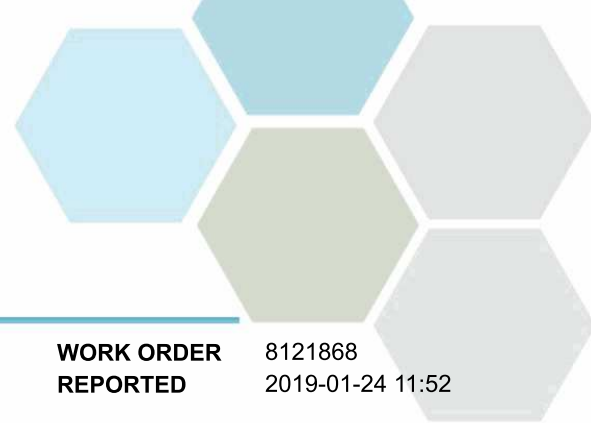
Benzene	< 0.030	0.020	mg/kg dry	2019-01-01	
Ethylbenzene	< 0.050	0.050	mg/kg dry	2019-01-01	
Methyl tert-butyl ether	< 0.040	0.040	mg/kg dry	2019-01-01	
Styrene	< 0.050	0.050	mg/kg dry	2019-01-01	
Toluene	< 0.200	0.200	mg/kg dry	2019-01-01	
Xylenes (total)	< 0.100	0.100	mg/kg dry	2019-01-01	
Surrogate: Toluene-d8	83	60-140	%	2019-01-01	
Surrogate: 4-Bromofluorobenzene	75	60-140	%	2019-01-01	
Surrogate: 1,4-Dichlorobenzene-d4	69	60-140	%	2019-01-01	

MW18-A1-02C (8121868-08) | Matrix: Soil | Sampled: 2018-12-19 09:00

BCMOE Aggregate Hydrocarbons

VHs (6-10)	< 20	20	mg/kg dry	2019-01-02	
VPHs	< 20	20	mg/kg dry	N/A	
EPHs10-19	< 50	50	mg/kg dry	2019-01-03	
EPHs19-32	< 50	50	mg/kg dry	2019-01-03	
LEPHs	< 50	50	mg/kg dry	N/A	
HEPHs	< 50	50	mg/kg dry	N/A	
Surrogate: 2-Methylnonane (EPH/F2-4)	85	60-140	%	2019-01-03	

General Parameters



TEST RESULTS

REPORTED TO PROJECT McElhanney Consulting Services Ltd. - Victoria
2121-00113-00 T2016

WORK ORDER REPORTED 8121868
2019-01-24 11:52

Analyte	Result	RL	Units	Analyzed	Qualifier
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MW18-A1-02C (8121868-08) | Matrix: Soil | Sampled: 2018-12-19 09:00, Continued

General Parameters, Continued

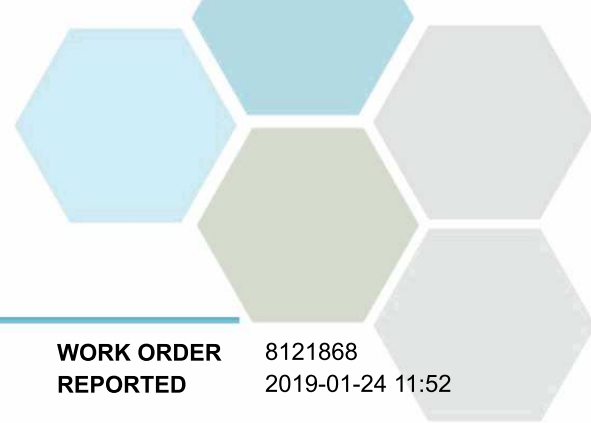
Moisture	27.0	1.0	% wet	2019-01-02	
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Polycyclic Aromatic Hydrocarbons (PAH)

Acenaphthene	< 0.050	0.050	mg/kg dry	2019-01-03	
Acenaphthylene	< 0.050	0.050	mg/kg dry	2019-01-03	
Anthracene	< 0.050	0.050	mg/kg dry	2019-01-03	
Benz(a)anthracene	< 0.050	0.050	mg/kg dry	2019-01-03	
Benzo(a)pyrene	< 0.050	0.050	mg/kg dry	2019-01-03	
Benzo(b+j)fluoranthene	< 0.050	0.050	mg/kg dry	2019-01-03	
Benzo(g,h,i)perylene	< 0.050	0.050	mg/kg dry	2019-01-03	
Benzo(k)fluoranthene	< 0.050	0.050	mg/kg dry	2019-01-03	
2-Chloronaphthalene	< 0.050	0.050	mg/kg dry	2019-01-03	
Chrysene	< 0.050	0.050	mg/kg dry	2019-01-03	
Dibenz(a,h)anthracene	< 0.050	0.050	mg/kg dry	2019-01-03	
Fluoranthene	< 0.050	0.050	mg/kg dry	2019-01-03	
Fluorene	< 0.050	0.050	mg/kg dry	2019-01-03	
Indeno(1,2,3-cd)pyrene	< 0.050	0.050	mg/kg dry	2019-01-03	
1-Methylnaphthalene	< 0.050	0.050	mg/kg dry	2019-01-03	
2-Methylnaphthalene	< 0.050	0.050	mg/kg dry	2019-01-03	
Naphthalene	< 0.050	0.050	mg/kg dry	2019-01-03	
Phenanthrene	< 0.050	0.050	mg/kg dry	2019-01-03	
Pyrene	< 0.050	0.050	mg/kg dry	2019-01-03	
Surrogate: Acenaphthene-d10	88	71-118	%	2019-01-03	
Surrogate: Chrysene-d12	131	58-121	%	2019-01-03	S02
Surrogate: Naphthalene-d8	80	59-132	%	2019-01-03	
Surrogate: Perylene-d12	105	50-133	%	2019-01-03	
Surrogate: Phenanthrene-d10	87	72-109	%	2019-01-03	

Volatile Organic Compounds (VOC)

Benzene	< 0.020	0.020	mg/kg dry	2019-01-01	
Bromodichloromethane	< 0.100	0.100	mg/kg dry	2019-01-01	
Bromoform	< 0.100	0.100	mg/kg dry	2019-01-01	
Carbon tetrachloride	< 0.050	0.050	mg/kg dry	2019-01-01	
Chlorobenzene	< 0.050	0.050	mg/kg dry	2019-01-01	
Chloroform	< 0.050	0.050	mg/kg dry	2019-01-01	
Dibromochloromethane	< 0.100	0.100	mg/kg dry	2019-01-01	
1,2-Dibromoethane	< 0.100	0.100	mg/kg dry	2019-01-01	
Dibromomethane	< 0.100	0.100	mg/kg dry	2019-01-01	
1,2-Dichlorobenzene	< 0.050	0.050	mg/kg dry	2019-01-01	
1,3-Dichlorobenzene	< 0.050	0.050	mg/kg dry	2019-01-01	
1,4-Dichlorobenzene	< 0.050	0.050	mg/kg dry	2019-01-01	
1,1-Dichloroethane	< 0.050	0.050	mg/kg dry	2019-01-01	
1,2-Dichloroethane	< 0.050	0.050	mg/kg dry	2019-01-01	



TEST RESULTS

REPORTED TO PROJECT McElhanney Consulting Services Ltd. - Victoria
2121-00113-00 T2016

WORK ORDER REPORTED 8121868
2019-01-24 11:52

Analyte	Result	RL	Units	Analyzed	Qualifier
MW18-A1-02C (8121868-08) Matrix: Soil Sampled: 2018-12-19 09:00, Continued					
Volatile Organic Compounds (VOC), Continued					
1,1-Dichloroethylene	< 0.050	0.050	mg/kg dry	2019-01-01	
cis-1,2-Dichloroethylene	< 0.050	0.050	mg/kg dry	2019-01-01	
trans-1,2-Dichloroethylene	< 0.050	0.050	mg/kg dry	2019-01-01	
Dichloromethane	< 0.100	0.100	mg/kg dry	2019-01-01	
1,2-Dichloropropane	< 0.050	0.050	mg/kg dry	2019-01-01	
1,3-Dichloropropene (cis + trans)	< 0.050	0.050	mg/kg dry	2019-01-01	
Ethylbenzene	< 0.050	0.050	mg/kg dry	2019-01-01	
Methyl tert-butyl ether	< 0.040	0.040	mg/kg dry	2019-01-01	
Styrene	< 0.050	0.050	mg/kg dry	2019-01-01	
1,1,1,2-Tetrachloroethane	< 0.050	0.050	mg/kg dry	2019-01-01	
Tetrachloroethylene	< 0.050	0.050	mg/kg dry	2019-01-01	
Toluene	0.419	0.200	mg/kg dry	2019-01-01	
1,1,1-Trichloroethane	< 0.050	0.050	mg/kg dry	2019-01-01	
1,1,2-Trichloroethane	< 0.050	0.050	mg/kg dry	2019-01-01	
Trichloroethylene	< 0.040	0.040	mg/kg dry	2019-01-01	
Trichlorofluoromethane	< 0.100	0.100	mg/kg dry	2019-01-01	
Vinyl chloride	< 0.100	0.100	mg/kg dry	2019-01-01	
Xylenes (total)	< 0.100	0.100	mg/kg dry	2019-01-01	
Surrogate: Toluene-d8	84	60-140	%	2019-01-01	
Surrogate: 4-Bromofluorobenzene	76	60-140	%	2019-01-01	
Surrogate: 1,4-Dichlorobenzene-d4	70	60-140	%	2019-01-01	

MW18-A1-03B (8121868-11) | Matrix: Soil | Sampled: 2018-12-19 13:00

BCMOE Aggregate Hydrocarbons

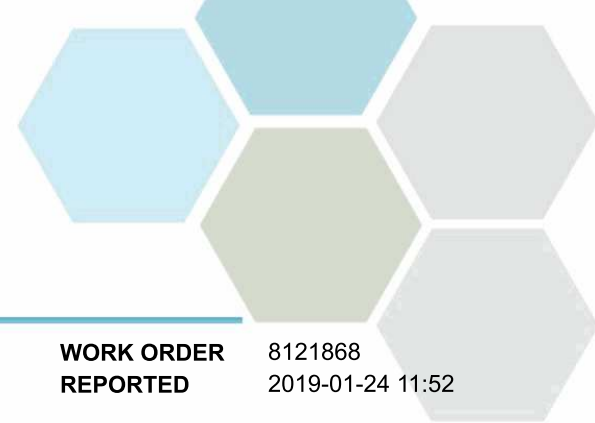
VHs (6-10)	< 21	20	mg/kg dry	2019-01-03	RS3
VPHs	< 21	21	mg/kg dry	N/A	
EPHs10-19	< 50	50	mg/kg dry	2019-01-03	
EPHs19-32	< 50	50	mg/kg dry	2019-01-03	
LEPHs	< 50	50	mg/kg dry	N/A	
HEPHs	< 50	50	mg/kg dry	N/A	
Surrogate: 2-Methylnonane (EPH/F2-4)	98	60-140	%	2019-01-03	

General Parameters

Moisture	29.8	1.0	% wet	2019-01-02	
pH (1:2 H2O Solution)	8.07	0.10	pH units	2019-01-03	

Glycols

Propylene glycol	< 10	10	mg/kg dry	2019-01-02	
Ethylene glycol	< 10	10	mg/kg dry	2019-01-02	
Diethylene glycol	< 10	10	mg/kg dry	2019-01-02	
Triethylene glycol	< 10	10	mg/kg dry	2019-01-02	
Surrogate: Tetramethylene Glycol	86	70-119	%	2019-01-02	



TEST RESULTS

REPORTED TO PROJECT McElhanney Consulting Services Ltd. - Victoria
2121-00113-00 T2016

WORK ORDER REPORTED 8121868
2019-01-24 11:52

Analyte	Result	RL	Units	Analyzed	Qualifier
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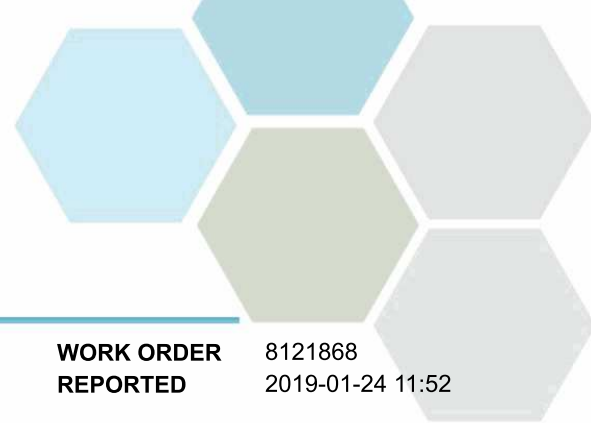
MW18-A1-03B (8121868-11) | Matrix: Soil | Sampled: 2018-12-19 13:00, Continued

Polycyclic Aromatic Hydrocarbons (PAH)

Acenaphthene	< 0.050	0.050	mg/kg dry	2019-01-03	
Acenaphthylene	< 0.050	0.050	mg/kg dry	2019-01-03	
Anthracene	< 0.050	0.050	mg/kg dry	2019-01-03	
Benz(a)anthracene	< 0.050	0.050	mg/kg dry	2019-01-03	
Benzo(a)pyrene	< 0.050	0.050	mg/kg dry	2019-01-03	
Benzo(b+j)fluoranthene	< 0.050	0.050	mg/kg dry	2019-01-03	
Benzo(g,h,i)perylene	< 0.050	0.050	mg/kg dry	2019-01-03	
Benzo(k)fluoranthene	< 0.050	0.050	mg/kg dry	2019-01-03	
2-Chloronaphthalene	< 0.050	0.050	mg/kg dry	2019-01-03	
Chrysene	< 0.050	0.050	mg/kg dry	2019-01-03	
Dibenz(a,h)anthracene	< 0.050	0.050	mg/kg dry	2019-01-03	
Fluoranthene	< 0.050	0.050	mg/kg dry	2019-01-03	
Fluorene	< 0.050	0.050	mg/kg dry	2019-01-03	
Indeno(1,2,3-cd)pyrene	< 0.050	0.050	mg/kg dry	2019-01-03	
1-Methylnaphthalene	< 0.050	0.050	mg/kg dry	2019-01-03	
2-Methylnaphthalene	< 0.050	0.050	mg/kg dry	2019-01-03	
Naphthalene	< 0.050	0.050	mg/kg dry	2019-01-03	
Phenanthrene	< 0.050	0.050	mg/kg dry	2019-01-03	
Pyrene	< 0.050	0.050	mg/kg dry	2019-01-03	
Surrogate: Acenaphthene-d10	92	71-118	%	2019-01-03	
Surrogate: Chrysene-d12	133	58-121	%	2019-01-03	S02
Surrogate: Naphthalene-d8	91	59-132	%	2019-01-03	
Surrogate: Perylene-d12	109	50-133	%	2019-01-03	
Surrogate: Phenanthrene-d10	92	72-109	%	2019-01-03	

Strong Acid Leachable Metals

Aluminum	10400	40	mg/kg dry	2019-01-03	
Antimony	0.37	0.10	mg/kg dry	2019-01-03	
Arsenic	7.02	0.30	mg/kg dry	2019-01-03	
Barium	103	1.0	mg/kg dry	2019-01-03	
Beryllium	0.29	0.10	mg/kg dry	2019-01-03	
Boron	< 2.0	2.0	mg/kg dry	2019-01-03	
Cadmium	0.239	0.040	mg/kg dry	2019-01-03	
Chromium	43.6	1.0	mg/kg dry	2019-01-03	
Cobalt	12.7	0.10	mg/kg dry	2019-01-03	
Copper	36.5	0.40	mg/kg dry	2019-01-03	
Iron	26000	20	mg/kg dry	2019-01-03	
Lead	7.86	0.20	mg/kg dry	2019-01-03	
Lithium	8.01	0.10	mg/kg dry	2019-01-03	
Manganese	506	0.40	mg/kg dry	2019-01-03	
Mercury	< 0.040	0.040	mg/kg dry	2019-01-03	
Molybdenum	0.81	0.10	mg/kg dry	2019-01-03	
Nickel	34.4	0.60	mg/kg dry	2019-01-03	



TEST RESULTS

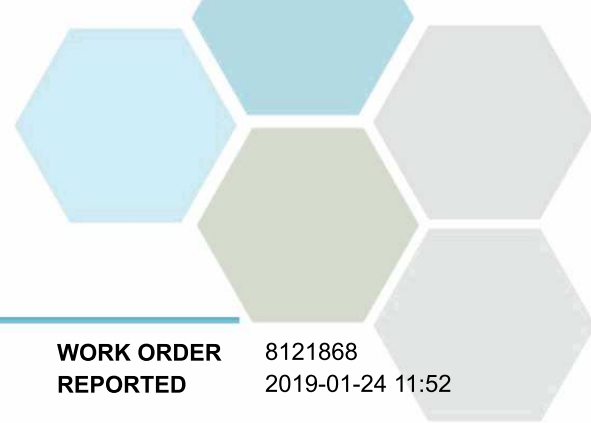
REPORTED TO PROJECT McElhanney Consulting Services Ltd. - Victoria
2121-00113-00 T2016

WORK ORDER REPORTED 8121868
2019-01-24 11:52

Analyte	Result	RL	Units	Analyzed	Qualifier
MW18-A1-03B (8121868-11) Matrix: Soil Sampled: 2018-12-19 13:00, Continued					
Strong Acid Leachable Metals, Continued					
Selenium	< 0.20	0.20	mg/kg dry	2019-01-03	
Silver	< 0.10	0.10	mg/kg dry	2019-01-03	
Strontium	93.4	0.20	mg/kg dry	2019-01-03	
Thallium	0.11	0.10	mg/kg dry	2019-01-03	
Tin	0.43	0.20	mg/kg dry	2019-01-03	
Tungsten	< 0.20	0.20	mg/kg dry	2019-01-03	
Uranium	0.873	0.050	mg/kg dry	2019-01-03	
Vanadium	57.2	1.0	mg/kg dry	2019-01-03	
Zinc	60.5	2.0	mg/kg dry	2019-01-03	

Volatile Organic Compounds (VOC)

Benzene	< 0.020	0.020	mg/kg dry	2019-01-01	
Bromodichloromethane	< 0.100	0.100	mg/kg dry	2019-01-01	
Bromoform	< 0.100	0.100	mg/kg dry	2019-01-01	
Carbon tetrachloride	< 0.050	0.050	mg/kg dry	2019-01-01	
Chlorobenzene	< 0.050	0.050	mg/kg dry	2019-01-01	
Chloroform	< 0.050	0.050	mg/kg dry	2019-01-01	
Dibromochloromethane	< 0.100	0.100	mg/kg dry	2019-01-01	
1,2-Dibromoethane	< 0.100	0.100	mg/kg dry	2019-01-01	
Dibromomethane	< 0.100	0.100	mg/kg dry	2019-01-01	
1,2-Dichlorobenzene	< 0.050	0.050	mg/kg dry	2019-01-01	
1,3-Dichlorobenzene	< 0.050	0.050	mg/kg dry	2019-01-01	
1,4-Dichlorobenzene	< 0.050	0.050	mg/kg dry	2019-01-01	
1,1-Dichloroethane	< 0.050	0.050	mg/kg dry	2019-01-01	
1,2-Dichloroethane	< 0.050	0.050	mg/kg dry	2019-01-01	
1,1-Dichloroethylene	< 0.050	0.050	mg/kg dry	2019-01-01	
cis-1,2-Dichloroethylene	< 0.050	0.050	mg/kg dry	2019-01-01	
trans-1,2-Dichloroethylene	< 0.050	0.050	mg/kg dry	2019-01-01	
Dichloromethane	< 0.100	0.100	mg/kg dry	2019-01-01	
1,2-Dichloropropane	< 0.050	0.050	mg/kg dry	2019-01-01	
1,3-Dichloropropene (cis + trans)	< 0.050	0.050	mg/kg dry	2019-01-01	
Ethylbenzene	< 0.050	0.050	mg/kg dry	2019-01-01	
Methyl tert-butyl ether	< 0.040	0.040	mg/kg dry	2019-01-01	
Styrene	< 0.050	0.050	mg/kg dry	2019-01-01	
1,1,2,2-Tetrachloroethane	< 0.050	0.050	mg/kg dry	2019-01-01	
Tetrachloroethylene	< 0.050	0.050	mg/kg dry	2019-01-01	
Toluene	< 0.200	0.200	mg/kg dry	2019-01-01	
1,1,1-Trichloroethane	< 0.050	0.050	mg/kg dry	2019-01-01	
1,1,2-Trichloroethane	< 0.050	0.050	mg/kg dry	2019-01-01	
Trichloroethylene	< 0.040	0.040	mg/kg dry	2019-01-01	
Trichlorofluoromethane	< 0.100	0.100	mg/kg dry	2019-01-01	
Vinyl chloride	< 0.100	0.100	mg/kg dry	2019-01-01	
Xylenes (total)	< 0.100	0.100	mg/kg dry	2019-01-01	



TEST RESULTS

REPORTED TO PROJECT McElhanney Consulting Services Ltd. - Victoria
2121-00113-00 T2016

WORK ORDER REPORTED 8121868
2019-01-24 11:52

Analyte	Result	RL	Units	Analyzed	Qualifier
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MW18-A1-03B (8121868-11) | Matrix: Soil | Sampled: 2018-12-19 13:00, Continued

Volatile Organic Compounds (VOC), Continued

Surrogate: Toluene-d8	82	60-140	%	2019-01-01	
Surrogate: 4-Bromofluorobenzene	72	60-140	%	2019-01-01	
Surrogate: 1,4-Dichlorobenzene-d4	62	60-140	%	2019-01-01	

MW18-A1-03D (8121868-13) | Matrix: Soil | Sampled: 2018-12-19 14:00

BCMOE Aggregate Hydrocarbons

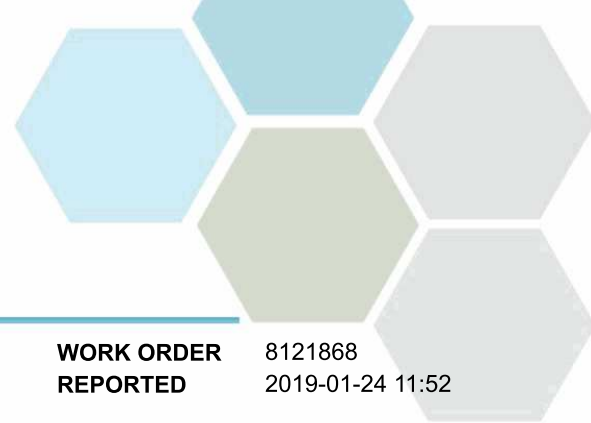
VHs (6-10)	< 20	20	mg/kg dry	2019-01-03	
VPHs	< 20	20	mg/kg dry	N/A	
EPHs10-19	< 50	50	mg/kg dry	2019-01-03	
EPHs19-32	< 50	50	mg/kg dry	2019-01-03	
LEPHs	< 50	50	mg/kg dry	N/A	
HEPHs	< 50	50	mg/kg dry	N/A	
Surrogate: 2-Methylnonane (EPH/F2-4)	83	60-140	%	2019-01-03	

General Parameters

Moisture	25.9	1.0	% wet	2019-01-02	
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Polycyclic Aromatic Hydrocarbons (PAH)

Acenaphthene	< 0.050	0.050	mg/kg dry	2019-01-03	
Acenaphthylene	< 0.050	0.050	mg/kg dry	2019-01-03	
Anthracene	< 0.050	0.050	mg/kg dry	2019-01-03	
Benz(a)anthracene	< 0.050	0.050	mg/kg dry	2019-01-03	
Benzo(a)pyrene	< 0.050	0.050	mg/kg dry	2019-01-03	
Benzo(b+j)fluoranthene	< 0.050	0.050	mg/kg dry	2019-01-03	
Benzo(g,h,i)perylene	< 0.050	0.050	mg/kg dry	2019-01-03	
Benzo(k)fluoranthene	< 0.050	0.050	mg/kg dry	2019-01-03	
2-Chloronaphthalene	< 0.050	0.050	mg/kg dry	2019-01-03	
Chrysene	< 0.050	0.050	mg/kg dry	2019-01-03	
Dibenz(a,h)anthracene	< 0.050	0.050	mg/kg dry	2019-01-03	
Fluoranthene	< 0.050	0.050	mg/kg dry	2019-01-03	
Fluorene	< 0.050	0.050	mg/kg dry	2019-01-03	
Indeno(1,2,3-cd)pyrene	< 0.050	0.050	mg/kg dry	2019-01-03	
1-Methylnaphthalene	< 0.050	0.050	mg/kg dry	2019-01-03	
2-Methylnaphthalene	< 0.050	0.050	mg/kg dry	2019-01-03	
Naphthalene	< 0.050	0.050	mg/kg dry	2019-01-03	
Phenanthrene	< 0.050	0.050	mg/kg dry	2019-01-03	
Pyrene	< 0.050	0.050	mg/kg dry	2019-01-03	
Surrogate: Acenaphthene-d10	94	71-118	%	2019-01-03	
Surrogate: Chrysene-d12	139	58-121	%	2019-01-03	S02
Surrogate: Naphthalene-d8	85	59-132	%	2019-01-03	
Surrogate: Perylene-d12	105	50-133	%	2019-01-03	
Surrogate: Phenanthrene-d10	93	72-109	%	2019-01-03	



TEST RESULTS

REPORTED TO PROJECT McElhanney Consulting Services Ltd. - Victoria
2121-00113-00 T2016

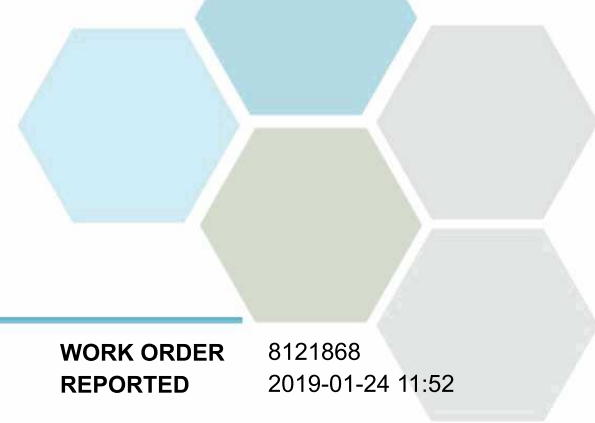
WORK ORDER REPORTED 8121868
2019-01-24 11:52

Analyte	Result	RL	Units	Analyzed	Qualifier
MW18-A1-03D (8121868-13) Matrix: Soil Sampled: 2018-12-19 14:00, Continued					
Volatile Organic Compounds (VOC)					
Benzene	< 0.020	0.020	mg/kg dry	2019-01-01	
Bromodichloromethane	< 0.100	0.100	mg/kg dry	2019-01-01	
Bromoform	< 0.100	0.100	mg/kg dry	2019-01-01	
Carbon tetrachloride	< 0.050	0.050	mg/kg dry	2019-01-01	
Chlorobenzene	< 0.050	0.050	mg/kg dry	2019-01-01	
Chloroform	< 0.050	0.050	mg/kg dry	2019-01-01	
Dibromochloromethane	< 0.100	0.100	mg/kg dry	2019-01-01	
1,2-Dibromoethane	< 0.100	0.100	mg/kg dry	2019-01-01	
Dibromomethane	< 0.100	0.100	mg/kg dry	2019-01-01	
1,2-Dichlorobenzene	< 0.050	0.050	mg/kg dry	2019-01-01	
1,3-Dichlorobenzene	< 0.050	0.050	mg/kg dry	2019-01-01	
1,4-Dichlorobenzene	< 0.050	0.050	mg/kg dry	2019-01-01	
1,1-Dichloroethane	< 0.050	0.050	mg/kg dry	2019-01-01	
1,2-Dichloroethane	< 0.050	0.050	mg/kg dry	2019-01-01	
1,1-Dichloroethylene	< 0.050	0.050	mg/kg dry	2019-01-01	
cis-1,2-Dichloroethylene	< 0.050	0.050	mg/kg dry	2019-01-01	
trans-1,2-Dichloroethylene	< 0.050	0.050	mg/kg dry	2019-01-01	
Dichloromethane	< 0.100	0.100	mg/kg dry	2019-01-01	
1,2-Dichloropropane	< 0.050	0.050	mg/kg dry	2019-01-01	
1,3-Dichloropropene (cis + trans)	< 0.050	0.050	mg/kg dry	2019-01-01	
Ethylbenzene	< 0.050	0.050	mg/kg dry	2019-01-01	
Methyl tert-butyl ether	< 0.040	0.040	mg/kg dry	2019-01-01	
Styrene	< 0.050	0.050	mg/kg dry	2019-01-01	
1,1,2,2-Tetrachloroethane	< 0.050	0.050	mg/kg dry	2019-01-01	
Tetrachloroethylene	< 0.050	0.050	mg/kg dry	2019-01-01	
Toluene	< 0.200	0.200	mg/kg dry	2019-01-01	
1,1,1-Trichloroethane	< 0.050	0.050	mg/kg dry	2019-01-01	
1,1,2-Trichloroethane	< 0.050	0.050	mg/kg dry	2019-01-01	
Trichloroethylene	< 0.040	0.040	mg/kg dry	2019-01-01	
Trichlorofluoromethane	< 0.100	0.100	mg/kg dry	2019-01-01	
Vinyl chloride	< 0.100	0.100	mg/kg dry	2019-01-01	
Xylenes (total)	< 0.100	0.100	mg/kg dry	2019-01-01	
Surrogate: Toluene-d8	77	60-140	%	2019-01-01	
Surrogate: 4-Bromofluorobenzene	70	60-140	%	2019-01-01	
Surrogate: 1,4-Dichlorobenzene-d4	62	60-140	%	2019-01-01	

MW18-A1-04A (8121868-15) | Matrix: Soil | Sampled: 2018-12-20 08:00

BCMOE Aggregate Hydrocarbons

VHs (6-10)	< 20	20	mg/kg dry	2019-01-03	
VPHs	< 20	20	mg/kg dry	N/A	
EPHs10-19	< 50	50	mg/kg dry	2019-01-03	

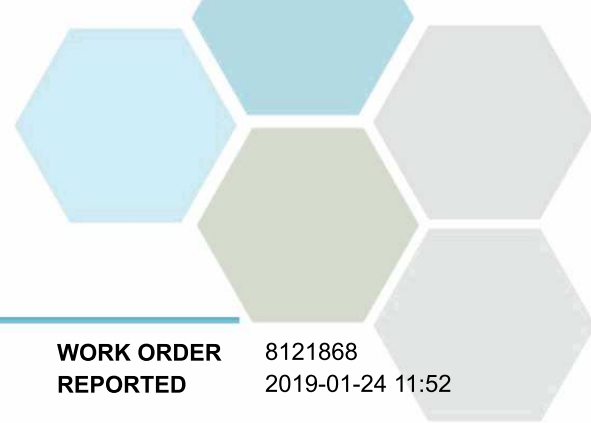


TEST RESULTS

REPORTED TO PROJECT McElhanney Consulting Services Ltd. - Victoria
2121-00113-00 T2016

WORK ORDER REPORTED 8121868
2019-01-24 11:52

Analyte	Result	RL	Units	Analyzed	Qualifier
MW18-A1-04A (8121868-15) Matrix: Soil Sampled: 2018-12-20 08:00, Continued					
BCMOE Aggregate Hydrocarbons, Continued					
EPHs19-32	< 50	50	mg/kg dry	2019-01-03	
LEPHs	< 50	50	mg/kg dry	N/A	
HEPHs	< 50	50	mg/kg dry	N/A	
Surrogate: 2-Methylnonane (EPH/F2-4)	89	60-140	%	2019-01-03	
Calculated Parameters					
Chromium, Trivalent	41.7	1.00	mg/kg dry	N/A	
General Parameters					
Chromium, Hexavalent	< 0.40	0.40	mg/kg	2019-01-03	
Moisture	8.9	1.0	% wet	2019-01-02	
pH (1:2 H2O Solution)	7.89	0.10	pH units	2019-01-03	
Polycyclic Aromatic Hydrocarbons (PAH)					
Acenaphthene	< 0.050	0.050	mg/kg dry	2019-01-03	
Acenaphthylene	< 0.050	0.050	mg/kg dry	2019-01-03	
Anthracene	< 0.050	0.050	mg/kg dry	2019-01-03	
Benz(a)anthracene	< 0.050	0.050	mg/kg dry	2019-01-03	
Benzo(a)pyrene	< 0.050	0.050	mg/kg dry	2019-01-03	
Benzo(b+j)fluoranthene	< 0.050	0.050	mg/kg dry	2019-01-03	
Benzo(g,h,i)perylene	< 0.050	0.050	mg/kg dry	2019-01-03	
Benzo(k)fluoranthene	< 0.050	0.050	mg/kg dry	2019-01-03	
2-Chloronaphthalene	< 0.050	0.050	mg/kg dry	2019-01-03	
Chrysene	< 0.050	0.050	mg/kg dry	2019-01-03	
Dibenz(a,h)anthracene	< 0.050	0.050	mg/kg dry	2019-01-03	
Fluoranthene	< 0.050	0.050	mg/kg dry	2019-01-03	
Fluorene	< 0.050	0.050	mg/kg dry	2019-01-03	
Indeno(1,2,3-cd)pyrene	< 0.050	0.050	mg/kg dry	2019-01-03	
1-Methylnaphthalene	< 0.050	0.050	mg/kg dry	2019-01-03	
2-Methylnaphthalene	< 0.050	0.050	mg/kg dry	2019-01-03	
Naphthalene	< 0.050	0.050	mg/kg dry	2019-01-03	
Phenanthrene	< 0.050	0.050	mg/kg dry	2019-01-03	
Pyrene	< 0.050	0.050	mg/kg dry	2019-01-03	
Surrogate: Acenaphthene-d10	95	71-118	%	2019-01-03	
Surrogate: Chrysene-d12	141	58-121	%	2019-01-03	S02
Surrogate: Naphthalene-d8	86	59-132	%	2019-01-03	
Surrogate: Perylene-d12	108	50-133	%	2019-01-03	
Surrogate: Phenanthrene-d10	93	72-109	%	2019-01-03	
Strong Acid Leachable Metals					
Aluminum	16100	40	mg/kg dry	2019-01-03	
Antimony	0.12	0.10	mg/kg dry	2019-01-03	
Arsenic	2.82	0.30	mg/kg dry	2019-01-03	
Barium	140	1.0	mg/kg dry	2019-01-03	



TEST RESULTS

REPORTED TO PROJECT McElhanney Consulting Services Ltd. - Victoria
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WORK ORDER REPORTED 8121868
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Analyte	Result	RL	Units	Analyzed	Qualifier
MW18-A1-04A (8121868-15) Matrix: Soil Sampled: 2018-12-20 08:00, Continued					
Strong Acid Leachable Metals, Continued					
Beryllium	0.48	0.10	mg/kg dry	2019-01-03	
Boron	< 2.0	2.0	mg/kg dry	2019-01-03	
Cadmium	0.109	0.040	mg/kg dry	2019-01-03	
Chromium	41.7	1.0	mg/kg dry	2019-01-03	
Cobalt	13.2	0.10	mg/kg dry	2019-01-03	
Copper	34.7	0.40	mg/kg dry	2019-01-03	
Iron	28800	20	mg/kg dry	2019-01-03	
Lead	11.2	0.20	mg/kg dry	2019-01-03	
Lithium	14.5	0.10	mg/kg dry	2019-01-03	
Manganese	552	0.40	mg/kg dry	2019-01-03	
Mercury	< 0.040	0.040	mg/kg dry	2019-01-03	
Molybdenum	0.93	0.10	mg/kg dry	2019-01-03	
Nickel	31.4	0.60	mg/kg dry	2019-01-03	
Selenium	< 0.20	0.20	mg/kg dry	2019-01-03	
Silver	< 0.10	0.10	mg/kg dry	2019-01-03	
Strontium	134	0.20	mg/kg dry	2019-01-03	
Thallium	0.23	0.10	mg/kg dry	2019-01-03	
Tin	0.86	0.20	mg/kg dry	2019-01-03	
Tungsten	< 0.20	0.20	mg/kg dry	2019-01-03	
Uranium	0.725	0.050	mg/kg dry	2019-01-03	
Vanadium	49.8	1.0	mg/kg dry	2019-01-03	
Zinc	68.3	2.0	mg/kg dry	2019-01-03	

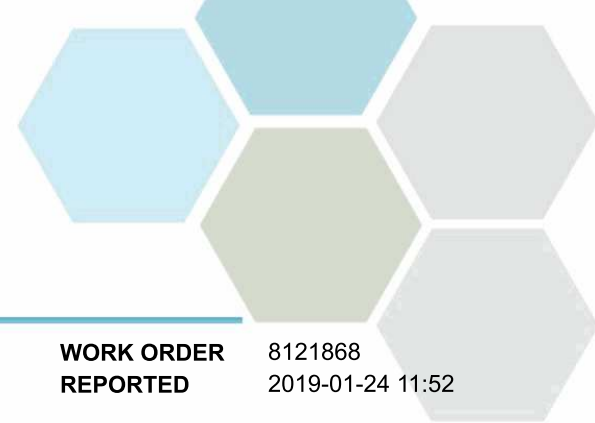
Volatile Organic Compounds (VOC)

Benzene	< 0.030	0.020	mg/kg dry	2019-01-01	
Ethylbenzene	< 0.050	0.050	mg/kg dry	2019-01-01	
Methyl tert-butyl ether	< 0.040	0.040	mg/kg dry	2019-01-01	
Styrene	< 0.050	0.050	mg/kg dry	2019-01-01	
Toluene	< 0.200	0.200	mg/kg dry	2019-01-01	
Xylenes (total)	< 0.100	0.100	mg/kg dry	2019-01-01	
Surrogate: Toluene-d8	72	60-140	%	2019-01-01	
Surrogate: 4-Bromofluorobenzene	65	60-140	%	2019-01-01	
Surrogate: 1,4-Dichlorobenzene-d4	59	60-140	%	2019-01-01	S02

MW18-A1-04D (8121868-18) | Matrix: Soil | Sampled: 2018-12-20 10:00

BCMOE Aggregate Hydrocarbons

VHs (6-10)	< 20	20	mg/kg dry	2019-01-03	
VPHs	< 20	20	mg/kg dry	N/A	
EPHs10-19	< 50	50	mg/kg dry	2019-01-03	
EPHs19-32	< 50	50	mg/kg dry	2019-01-03	
LEPHs	< 50	50	mg/kg dry	N/A	
HEPHs	< 50	50	mg/kg dry	N/A	



TEST RESULTS

REPORTED TO PROJECT McElhanney Consulting Services Ltd. - Victoria
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WORK ORDER REPORTED 8121868
2019-01-24 11:52

Analyte	Result	RL	Units	Analyzed	Qualifier
MW18-A1-04D (8121868-18) Matrix: Soil Sampled: 2018-12-20 10:00, Continued					
BCMOE Aggregate Hydrocarbons, Continued					
Surrogate: 2-Methylnonane (EPH/F2-4)	83	60-140	%	2019-01-03	
General Parameters					
Moisture	25.8	1.0	% wet	2019-01-02	
Glycols					
Propylene glycol	< 10	10	mg/kg dry	2019-01-02	
Ethylene glycol	< 10	10	mg/kg dry	2019-01-02	
Diethylene glycol	< 10	10	mg/kg dry	2019-01-02	
Triethylene glycol	< 10	10	mg/kg dry	2019-01-02	
Surrogate: Tetramethylene Glycol	77	70-119	%	2019-01-02	
Polycyclic Aromatic Hydrocarbons (PAH)					
Acenaphthene	< 0.050	0.050	mg/kg dry	2019-01-03	
Acenaphthylene	< 0.050	0.050	mg/kg dry	2019-01-03	
Anthracene	< 0.050	0.050	mg/kg dry	2019-01-03	
Benz(a)anthracene	< 0.050	0.050	mg/kg dry	2019-01-03	
Benzo(a)pyrene	< 0.050	0.050	mg/kg dry	2019-01-03	
Benzo(b+j)fluoranthene	< 0.050	0.050	mg/kg dry	2019-01-03	
Benzo(g,h,i)perylene	< 0.050	0.050	mg/kg dry	2019-01-03	
Benzo(k)fluoranthene	< 0.050	0.050	mg/kg dry	2019-01-03	
2-Chloronaphthalene	< 0.050	0.050	mg/kg dry	2019-01-03	
Chrysene	< 0.050	0.050	mg/kg dry	2019-01-03	
Dibenz(a,h)anthracene	< 0.050	0.050	mg/kg dry	2019-01-03	
Fluoranthene	< 0.050	0.050	mg/kg dry	2019-01-03	
Fluorene	< 0.050	0.050	mg/kg dry	2019-01-03	
Indeno(1,2,3-cd)pyrene	< 0.050	0.050	mg/kg dry	2019-01-03	
1-Methylnaphthalene	< 0.050	0.050	mg/kg dry	2019-01-03	
2-Methylnaphthalene	< 0.050	0.050	mg/kg dry	2019-01-03	
Naphthalene	< 0.050	0.050	mg/kg dry	2019-01-03	
Phenanthrene	< 0.050	0.050	mg/kg dry	2019-01-03	
Pyrene	< 0.050	0.050	mg/kg dry	2019-01-03	
Surrogate: Acenaphthene-d10	96	71-118	%	2019-01-03	
Surrogate: Chrysene-d12	145	58-121	%	2019-01-03	S02
Surrogate: Naphthalene-d8	88	59-132	%	2019-01-03	
Surrogate: Perylene-d12	113	50-133	%	2019-01-03	
Surrogate: Phenanthrene-d10	96	72-109	%	2019-01-03	
Volatile Organic Compounds (VOC)					
Benzene	< 0.030	0.020	mg/kg dry	2019-01-01	
Ethylbenzene	< 0.050	0.050	mg/kg dry	2019-01-01	
Methyl tert-butyl ether	< 0.040	0.040	mg/kg dry	2019-01-01	
Styrene	< 0.050	0.050	mg/kg dry	2019-01-01	
Toluene	< 0.200	0.200	mg/kg dry	2019-01-01	



TEST RESULTS

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WORK ORDER REPORTED 8121868
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Analyte	Result	RL	Units	Analyzed	Qualifier
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MW18-A1-04D (8121868-18) | Matrix: Soil | Sampled: 2018-12-20 10:00, Continued

Volatile Organic Compounds (VOC), Continued

Xylenes (total)	< 0.100	0.100	mg/kg dry	2019-01-01	
Surrogate: Toluene-d8	77	60-140	%	2019-01-01	
Surrogate: 4-Bromofluorobenzene	70	60-140	%	2019-01-01	
Surrogate: 1,4-Dichlorobenzene-d4	63	60-140	%	2019-01-01	

SS18-A1-01 (8121868-20) | Matrix: Soil | Sampled: 2018-12-20 13:00

General Parameters

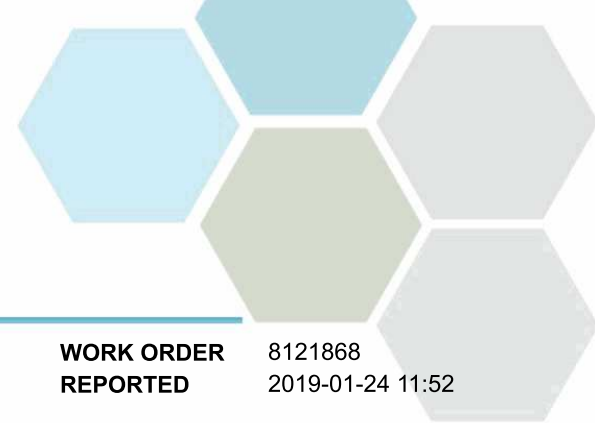
Moisture	10.3	1.0	% wet	2019-01-02	
pH (1:2 H2O Solution)	7.80	0.10	pH units	2019-01-03	

Glycols

Propylene glycol	< 10	10	mg/kg dry	2019-01-02	
Ethylene glycol	< 10	10	mg/kg dry	2019-01-02	
Diethylene glycol	< 10	10	mg/kg dry	2019-01-02	
Triethylene glycol	< 10	10	mg/kg dry	2019-01-02	
Surrogate: Tetramethylene Glycol	77	70-119	%	2019-01-02	

Strong Acid Leachable Metals

Aluminum	9020	40	mg/kg dry	2019-01-03	
Antimony	3.88	0.10	mg/kg dry	2019-01-03	
Arsenic	5.20	0.30	mg/kg dry	2019-01-03	
Barium	123	1.0	mg/kg dry	2019-01-03	
Beryllium	0.24	0.10	mg/kg dry	2019-01-03	
Boron	4.2	2.0	mg/kg dry	2019-01-03	
Cadmium	2.86	0.040	mg/kg dry	2019-01-03	
Chromium	34.2	1.0	mg/kg dry	2019-01-03	
Cobalt	9.83	0.10	mg/kg dry	2019-01-03	
Copper	45.9	0.40	mg/kg dry	2019-01-03	
Iron	29800	20	mg/kg dry	2019-01-03	
Lead	159	0.20	mg/kg dry	2019-01-03	
Lithium	7.73	0.10	mg/kg dry	2019-01-03	
Manganese	438	0.40	mg/kg dry	2019-01-03	
Mercury	0.064	0.040	mg/kg dry	2019-01-03	
Molybdenum	2.08	0.10	mg/kg dry	2019-01-03	
Nickel	25.1	0.60	mg/kg dry	2019-01-03	
Selenium	< 0.20	0.20	mg/kg dry	2019-01-03	
Silver	0.55	0.10	mg/kg dry	2019-01-03	
Strontium	258	0.20	mg/kg dry	2019-01-03	
Thallium	0.12	0.10	mg/kg dry	2019-01-03	
Tin	11.5	0.20	mg/kg dry	2019-01-03	
Tungsten	0.27	0.20	mg/kg dry	2019-01-03	
Uranium	0.609	0.050	mg/kg dry	2019-01-03	



TEST RESULTS

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WORK ORDER REPORTED 8121868
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Analyte	Result	RL	Units	Analyzed	Qualifier
SS18-A1-01 (8121868-20) Matrix: Soil Sampled: 2018-12-20 13:00, Continued					
<i>Strong Acid Leachable Metals, Continued</i>					
Vanadium	31.2	1.0	mg/kg dry	2019-01-03	
Zinc	227	2.0	mg/kg dry	2019-01-03	

SS18-A1-02 (8121868-21) | Matrix: Soil | Sampled: 2018-12-20 13:00

<i>General Parameters</i>					
pH (1:2 H2O Solution)	7.93	0.10	pH units	2019-01-03	
<i>Strong Acid Leachable Metals</i>					
Aluminum	8250	40	mg/kg dry	2019-01-03	
Antimony	0.47	0.10	mg/kg dry	2019-01-03	
Arsenic	2.35	0.30	mg/kg dry	2019-01-03	
Barium	80.3	1.0	mg/kg dry	2019-01-03	
Beryllium	0.28	0.10	mg/kg dry	2019-01-03	
Boron	< 2.0	2.0	mg/kg dry	2019-01-03	
Cadmium	1.24	0.040	mg/kg dry	2019-01-03	
Chromium	24.9	1.0	mg/kg dry	2019-01-03	
Cobalt	8.78	0.10	mg/kg dry	2019-01-03	
Copper	31.7	0.40	mg/kg dry	2019-01-03	
Iron	20100	20	mg/kg dry	2019-01-03	
Lead	40.9	0.20	mg/kg dry	2019-01-03	
Lithium	7.93	0.10	mg/kg dry	2019-01-03	
Manganese	375	0.40	mg/kg dry	2019-01-03	
Mercury	< 0.040	0.040	mg/kg dry	2019-01-03	
Molybdenum	1.35	0.10	mg/kg dry	2019-01-03	
Nickel	20.8	0.60	mg/kg dry	2019-01-03	
Selenium	< 0.20	0.20	mg/kg dry	2019-01-03	
Silver	< 0.10	0.10	mg/kg dry	2019-01-03	
Strontium	204	0.20	mg/kg dry	2019-01-03	
Thallium	0.13	0.10	mg/kg dry	2019-01-03	
Tin	1.04	0.20	mg/kg dry	2019-01-03	
Tungsten	0.21	0.20	mg/kg dry	2019-01-03	
Uranium	0.639	0.050	mg/kg dry	2019-01-03	
Vanadium	29.0	1.0	mg/kg dry	2019-01-03	
Zinc	134	2.0	mg/kg dry	2019-01-03	

SS18-A1-03 (8121868-22) | Matrix: Soil | Sampled: 2018-12-20 13:00

<i>General Parameters</i>					
pH (1:2 H2O Solution)	8.00	0.10	pH units	2019-01-03	
<i>Strong Acid Leachable Metals</i>					
Aluminum	9330	40	mg/kg dry	2019-01-03	



TEST RESULTS

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WORK ORDER REPORTED 8121868
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Analyte	Result	RL	Units	Analyzed	Qualifier
SS18-A1-03 (8121868-22) Matrix: Soil Sampled: 2018-12-20 13:00, Continued					
<i>Strong Acid Leachable Metals, Continued</i>					
Antimony	0.11	0.10	mg/kg dry	2019-01-03	
Arsenic	1.76	0.30	mg/kg dry	2019-01-03	
Barium	72.0	1.0	mg/kg dry	2019-01-03	
Beryllium	0.30	0.10	mg/kg dry	2019-01-03	
Boron	< 2.0	2.0	mg/kg dry	2019-01-03	
Cadmium	0.138	0.040	mg/kg dry	2019-01-03	
Chromium	25.4	1.0	mg/kg dry	2019-01-03	
Cobalt	9.29	0.10	mg/kg dry	2019-01-03	
Copper	26.1	0.40	mg/kg dry	2019-01-03	
Iron	21600	20	mg/kg dry	2019-01-03	
Lead	14.2	0.20	mg/kg dry	2019-01-03	
Lithium	9.25	0.10	mg/kg dry	2019-01-03	
Manganese	346	0.40	mg/kg dry	2019-01-03	
Mercury	< 0.040	0.040	mg/kg dry	2019-01-03	
Molybdenum	0.88	0.10	mg/kg dry	2019-01-03	
Nickel	20.6	0.60	mg/kg dry	2019-01-03	
Selenium	< 0.20	0.20	mg/kg dry	2019-01-03	
Silver	< 0.10	0.10	mg/kg dry	2019-01-03	
Strontium	246	0.20	mg/kg dry	2019-01-03	
Thallium	0.16	0.10	mg/kg dry	2019-01-03	
Tin	0.44	0.20	mg/kg dry	2019-01-03	
Tungsten	< 0.20	0.20	mg/kg dry	2019-01-03	
Uranium	0.554	0.050	mg/kg dry	2019-01-03	
Vanadium	33.0	1.0	mg/kg dry	2019-01-03	
Zinc	54.3	2.0	mg/kg dry	2019-01-03	

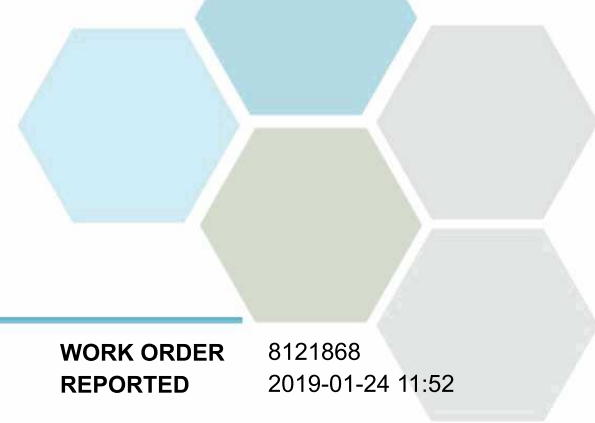
SS18-A1-04 (8121868-23) | Matrix: Soil | Sampled: 2018-12-20 13:00

General Parameters

pH (1:2 H2O Solution)	8.26	0.10	pH units	2019-01-03	
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Strong Acid Leachable Metals

Aluminum	7530	40	mg/kg dry	2019-01-03	
Antimony	< 0.10	0.10	mg/kg dry	2019-01-03	
Arsenic	1.95	0.30	mg/kg dry	2019-01-03	
Barium	61.4	1.0	mg/kg dry	2019-01-03	
Beryllium	0.26	0.10	mg/kg dry	2019-01-03	
Boron	< 2.0	2.0	mg/kg dry	2019-01-03	
Cadmium	0.094	0.040	mg/kg dry	2019-01-03	
Chromium	19.4	1.0	mg/kg dry	2019-01-03	
Cobalt	8.30	0.10	mg/kg dry	2019-01-03	
Copper	25.7	0.40	mg/kg dry	2019-01-03	



TEST RESULTS

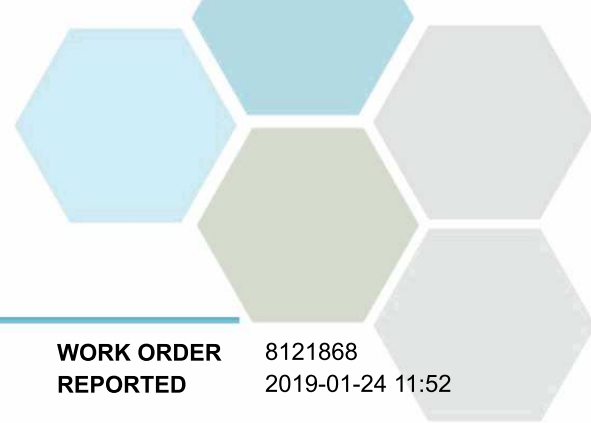
REPORTED TO PROJECT McElhanney Consulting Services Ltd. - Victoria
2121-00113-00 T2016

WORK ORDER REPORTED 8121868
2019-01-24 11:52

Analyte	Result	RL	Units	Analyzed	Qualifier
SS18-A1-04 (8121868-23) Matrix: Soil Sampled: 2018-12-20 13:00, Continued					
<i>Strong Acid Leachable Metals, Continued</i>					
Iron	18000	20	mg/kg dry	2019-01-03	
Lead	116	0.20	mg/kg dry	2019-01-03	
Lithium	8.32	0.10	mg/kg dry	2019-01-03	
Manganese	357	0.40	mg/kg dry	2019-01-03	
Mercury	< 0.040	0.040	mg/kg dry	2019-01-03	
Molybdenum	1.08	0.10	mg/kg dry	2019-01-03	
Nickel	17.8	0.60	mg/kg dry	2019-01-03	
Selenium	< 0.20	0.20	mg/kg dry	2019-01-03	
Silver	0.99	0.10	mg/kg dry	2019-01-03	
Strontium	238	0.20	mg/kg dry	2019-01-03	
Thallium	0.12	0.10	mg/kg dry	2019-01-03	
Tin	0.38	0.20	mg/kg dry	2019-01-03	
Tungsten	< 0.20	0.20	mg/kg dry	2019-01-03	
Uranium	0.537	0.050	mg/kg dry	2019-01-03	
Vanadium	27.4	1.0	mg/kg dry	2019-01-03	
Zinc	48.8	2.0	mg/kg dry	2019-01-03	

Sample Qualifiers:

- RS3 The Reporting Limits for this sample have been raised due to high moisture and/or organic content.
- S02 Surrogate recovery outside of control limits. Data accepted based on acceptable recovery of other surrogates.



APPENDIX 1: SUPPORTING INFORMATION

REPORTED TO PROJECT McElhanney Consulting Services Ltd. - Victoria
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Analysis Description	Method Ref.	Technique	Location
BTEX in Soil	EPA 5035A/5030B / EPA 8260D	Methanol Extract, Purge&Trap / GC-MSD (SIM)	Richmond
Chromium, Hexavalent in Soil	EPA 3060A / EPA 7196A	Alkaline Digestion / Colorimetry	Richmond
EPH in Soil	EPA 3570* / BCMOE EPHs*	Shaker Extraction (Hexane-Acetone 1:1) / Gas Chromatography (GC-FID)	Richmond
Glycols in Soil	EPA 8015B*	Water Extraction / Gas Chromatography (GC-FID)	Richmond
HEPHs in Soil	BCMOE LEPH/HEPH	Calculation	N/A
LEPHs in Soil	BCMOE LEPH/HEPH	Calculation	N/A
Moisture in Soil	ASTM D2974-87*	Gravimetry (Dried at 105C)	N/A
pH in Soil	Carter 16.2 / SM 4500-H+ B (2011)	1:2 Soil/Water Slurry / Electrometry	Richmond
Polycyclic Aromatic Hydrocarbons in Soil	EPA 3570* / EPA 8270D	Shaker Extraction (Hexane-Acetone 1:1) / GC-MSD (SIM)	Richmond
SALM in Soil	BCMOE SALM V.2 / EPA 6020B	HNO3+HCl Hot Block Digestion / Inductively Coupled Plasma-Mass Spectroscopy (ICP-MS)	Richmond
VH in Soil	EPA 5035A/5030B / BCMOE VHs	Methanol Extract, Purge&Trap / Purge&Trap or Headspace, Gas Chromatography (GC-FID)	Richmond
Volatile Organic Compounds in Soil	EPA 5035A/5030B / EPA 8260D	Methanol Extract, Purge&Trap / GC-MSD (SIM)	Richmond
VPHs in Soil	BCMOE VPH	Calculation: VH - (Benzene + Toluene + Ethylbenzene + Xylenes + Styrene)	N/A

Note: An asterisk in the Method Reference indicates that the CARO method has been modified from the reference method

Glossary of Terms:

RL	Reporting Limit (default)
% wet	Percent (as received basis)
<	Less than the specified Reporting Limit (RL) - the actual RL may be higher than the default RL due to various factors
mg/kg	Milligrams per kilogram (dry weight basis)
mg/kg dry	Milligrams per kilogram (dry weight basis)
pH units	pH < 7 = acidic, pH > 7 = basic
ASTM	ASTM International Test Methods
BCMOE	British Columbia Environmental Laboratory Manual, British Columbia Ministry of Environment
EPA	United States Environmental Protection Agency Test Methods
SM	Standard Methods for the Examination of Water and Wastewater, American Public Health Association

General Comments:

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



APPENDIX 2: QUALITY CONTROL RESULTS

REPORTED TO PROJECT McElhanney Consulting Services Ltd. - Victoria
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The following section displays the quality control (QC) data that is associated with your sample data. Groups of samples are prepared in "batches" and analyzed in conjunction with QC samples that ensure your data is of the highest quality. Common QC types include:

- **Method Blank (Blk):** A blank sample that undergoes sample processing identical to that carried out for the test samples. Method blank results are used to assess contamination from the laboratory environment and reagents.
- **Duplicate (Dup):** An additional or second portion of a randomly selected sample in the analytical run carried through the entire analytical process. Duplicates provide a measure of the analytical method's precision (reproducibility).
- **Blank Spike (BS):** A sample of known concentration which undergoes processing identical to that carried out for test samples, also referred to as a laboratory control sample (LCS). Blank spikes provide a measure of the analytical method's accuracy.
- **Matrix Spike (MS):** A second aliquot of sample is fortified with with a known concentration of target analytes and carried through the entire analytical process. Matrix spikes evaluate potential matrix effects that may affect the analyte recovery.
- **Reference Material (SRM):** A homogenous material of similar matrix to the samples, certified for the parameter(s) listed. Reference Materials ensure that the analytical process is adequate to achieve acceptable recoveries of the parameter(s) tested.

Each QC type is analyzed at a 5-10% frequency, i.e. one blank/duplicate/spike for every 10-20 samples. For all types of QC, the specified recovery (% Rec) and relative percent difference (RPD) limits are derived from long-term method performance averages and/or prescribed by the reference method.

Analyte	Result	RL Units	Spike Level	Source Result	% REC	REC Limit	% RPD	RPD Limit	Qualifier
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BCMOE Aggregate Hydrocarbons, Batch B8L1968

Blank (B8L1968-BLK1)									
					Prepared: 2018-12-30, Analyzed: 2018-12-31				
EPHs10-19	< 50	50 mg/kg wet							
EPHs19-32	< 50	50 mg/kg wet							
Surrogate: 2-Methylnonane (EPH/F2-4)	15.8	mg/kg wet	16.7		95	60-140			
LCS (B8L1968-BS2)									
					Prepared: 2018-12-30, Analyzed: 2018-12-31				
EPHs10-19	2200	50 mg/kg wet	2890		75	70-130			
EPHs19-32	3100	50 mg/kg wet	4180		73	70-130			
Surrogate: 2-Methylnonane (EPH/F2-4)	13.9	mg/kg wet	16.7		83	60-140			
Duplicate (B8L1968-DUP1)									
					Source: 8121868-01 Prepared: 2018-12-30, Analyzed: 2018-12-31				
EPHs10-19	< 50	50 mg/kg dry		< 50					40
EPHs19-32	< 50	50 mg/kg dry		< 50					40
Surrogate: 2-Methylnonane (EPH/F2-4)	17.8	mg/kg dry	18.6		96	60-140			
Reference (B8L1968-SRM1)									
					Prepared: 2018-12-30, Analyzed: 2018-12-31				
EPHs10-19	2400	50 mg/kg wet	3020		80	65-130			
EPHs19-32	3500	50 mg/kg wet	4330		81	65-130			
Surrogate: 2-Methylnonane (EPH/F2-4)	12.6	mg/kg wet	19.0		66	60-140			

BCMOE Aggregate Hydrocarbons, Batch B8L2023

Blank (B8L2023-BLK1)									
					Prepared: 2018-12-31, Analyzed: 2019-01-02				
VHs (6-10)	< 20	20 mg/kg wet							
LCS (B8L2023-BS2)									
					Prepared: 2018-12-31, Analyzed: 2019-01-02				
VHs (6-10)	310	20 mg/kg wet	410		76	70-130			
Duplicate (B8L2023-DUP1)									
					Source: 8121868-01 Prepared: 2018-12-18, Analyzed: 2019-01-02				
VHs (6-10)	< 20	20 mg/kg dry		< 20					27

BCMOE Aggregate Hydrocarbons, Batch B9A0004

Blank (B9A0004-BLK1)									
					Prepared: 2019-01-02, Analyzed: 2019-01-02				
EPHs10-19	< 50	50 mg/kg wet							
EPHs19-32	< 50	50 mg/kg wet							



APPENDIX 2: QUALITY CONTROL RESULTS

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Analyte	Result	RL Units	Spike Level	Source Result	% REC	REC Limit	% RPD	RPD Limit	Qualifier
BCMOE Aggregate Hydrocarbons, Batch B9A0004, Continued									
Blank (B9A0004-BLK1), Continued			Prepared: 2019-01-02, Analyzed: 2019-01-02						
Surrogate: 2-Methylnonane (EPH/F2-4)	16.0	mg/kg wet	16.7		96	60-140			
LCS (B9A0004-BS2)			Prepared: 2019-01-02, Analyzed: 2019-01-02						
EPHs10-19	2100	50 mg/kg wet	2890		73	70-130			
EPHs19-32	3000	50 mg/kg wet	4180		72	70-130			
Surrogate: 2-Methylnonane (EPH/F2-4)	15.1	mg/kg wet	16.7		91	60-140			
Duplicate (B9A0004-DUP1)			Source: 8121868-06		Prepared: 2019-01-02, Analyzed: 2019-01-02				
EPHs10-19	< 50	50 mg/kg dry		< 50				40	
EPHs19-32	< 50	50 mg/kg dry		< 50				40	
Surrogate: 2-Methylnonane (EPH/F2-4)	18.3	mg/kg dry	20.2		90	60-140			
Reference (B9A0004-SRM1)			Prepared: 2019-01-02, Analyzed: 2019-01-02						
EPHs10-19	2900	75 mg/kg wet	3020		95	65-130			
EPHs19-32	4100	75 mg/kg wet	4330		96	65-130			
Surrogate: 2-Methylnonane (EPH/F2-4)	23.0	mg/kg wet	25.0		92	60-140			
General Parameters, Batch B9A0015									
Blank (B9A0015-BLK1)			Prepared: 2019-01-02, Analyzed: 2019-01-03						
Chromium, Hexavalent	< 0.40	0.40 mg/kg							
LCS (B9A0015-BS1)			Prepared: 2019-01-02, Analyzed: 2019-01-03						
Chromium, Hexavalent	10.9	0.40 mg/kg	12.5		87	70-130			
Duplicate (B9A0015-DUP1)			Source: 8121868-15		Prepared: 2019-01-02, Analyzed: 2019-01-03				
Chromium, Hexavalent	< 0.40	0.40 mg/kg		< 0.40				35	
Matrix Spike (B9A0015-MS1)			Source: 8121868-15		Prepared: 2019-01-02, Analyzed: 2019-01-03				
Chromium, Hexavalent	11.6	0.40 mg/kg	12.5	< 0.40	93	70-130			
General Parameters, Batch B9A0142									
Reference (B9A0142-SRM1)			Prepared: 2019-01-03, Analyzed: 2019-01-03						
pH (1:2 H2O Solution)	6.60	0.10 pH units	6.73		98	95-105			
General Parameters, Batch B9A0988									
Blank (B9A0988-BLK1)			Prepared: 2019-01-15, Analyzed: 2019-01-16						
Chromium, Hexavalent	< 0.40	0.40 mg/kg							
LCS (B9A0988-BS1)			Prepared: 2019-01-15, Analyzed: 2019-01-16						
Chromium, Hexavalent	12.2	0.40 mg/kg	12.5		98	70-130			
Glycols, Batch B8L2024									
Blank (B8L2024-BLK1)			Prepared: 2018-12-31, Analyzed: 2019-01-02						
Propylene glycol	< 10	10 mg/kg wet							
Ethylene glycol	< 10	10 mg/kg wet							
Diethylene glycol	< 10	10 mg/kg wet							
Triethylene glycol	< 10	10 mg/kg wet							
Surrogate: Tetramethylene Glycol	158	mg/kg wet	208		76	70-119			

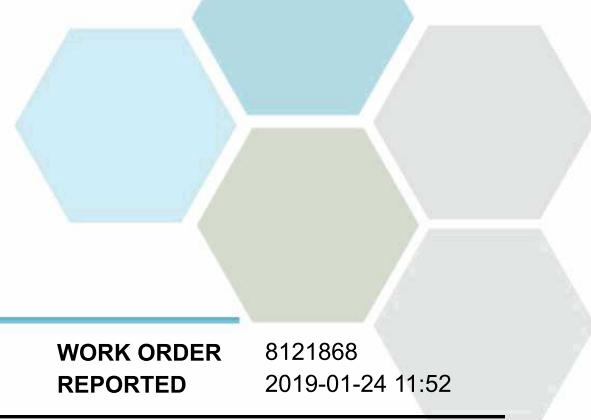


APPENDIX 2: QUALITY CONTROL RESULTS

REPORTED TO PROJECT McElhanney Consulting Services Ltd. - Victoria
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Analyte	Result	RL Units	Spike Level	Source Result	% REC	REC Limit	% RPD	RPD Limit	Qualifier
Glycols, Batch B8L2024, Continued									
LCS (B8L2024-BS1)					Prepared: 2018-12-31, Analyzed: 2019-01-02				
Propylene glycol	18	10 mg/kg wet	19.2		91	64-124			
Ethylene glycol	17	10 mg/kg wet	19.2		90	69-124			
Diethylene glycol	23	10 mg/kg wet	19.2		117	77-117			
Triethylene glycol	23	10 mg/kg wet	19.2		118	60-129			
Surrogate: Tetramethylene Glycol	176	mg/kg wet	225		78	70-119			
LCS Dup (B8L2024-BS1)					Prepared: 2018-12-31, Analyzed: 2019-01-02				
Propylene glycol	17	10 mg/kg wet	18.2		94	64-124	2	30	
Ethylene glycol	16	10 mg/kg wet	18.2		87	69-124	9	30	
Diethylene glycol	21	10 mg/kg wet	18.2		114	77-117	8	30	
Triethylene glycol	20	10 mg/kg wet	18.2		112	60-129	11	30	
Surrogate: Tetramethylene Glycol	173	mg/kg wet	213		81	70-119			
Polycyclic Aromatic Hydrocarbons (PAH), Batch B8L1968									
Blank (B8L1968-BLK1)					Prepared: 2018-12-30, Analyzed: 2018-12-31				
Acenaphthene	< 0.050	0.050 mg/kg wet							
Acenaphthylene	< 0.050	0.050 mg/kg wet							
Anthracene	< 0.050	0.050 mg/kg wet							
Benz(a)anthracene	< 0.050	0.050 mg/kg wet							
Benzo(a)pyrene	< 0.050	0.050 mg/kg wet							
Benzo(b+j)fluoranthene	< 0.050	0.050 mg/kg wet							
Benzo(g,h,i)perylene	< 0.050	0.050 mg/kg wet							
Benzo(k)fluoranthene	< 0.050	0.050 mg/kg wet							
2-Chloronaphthalene	< 0.050	0.050 mg/kg wet							
Chrysene	< 0.050	0.050 mg/kg wet							
Dibenz(a,h)anthracene	< 0.050	0.050 mg/kg wet							
Fluoranthene	< 0.050	0.050 mg/kg wet							
Fluorene	< 0.050	0.050 mg/kg wet							
Indeno(1,2,3-cd)pyrene	< 0.050	0.050 mg/kg wet							
1-Methylnaphthalene	< 0.050	0.050 mg/kg wet							
2-Methylnaphthalene	< 0.050	0.050 mg/kg wet							
Naphthalene	< 0.050	0.050 mg/kg wet							
Phenanthrene	< 0.050	0.050 mg/kg wet							
Pyrene	< 0.050	0.050 mg/kg wet							
Surrogate: Acenaphthene-d10	1.41	mg/kg wet	1.68		84	71-118			
Surrogate: Chrysene-d12	1.84	mg/kg wet	1.68		110	58-121			
Surrogate: Naphthalene-d8	1.24	mg/kg wet	1.68		74	59-132			
Surrogate: Perylene-d12	1.72	mg/kg wet	1.68		103	50-133			
Surrogate: Phenanthrene-d10	1.40	mg/kg wet	1.68		84	72-109			
LCS (B8L1968-BS1)					Prepared: 2018-12-30, Analyzed: 2018-12-31				
Acenaphthene	1.40	0.050 mg/kg wet	1.65		85	58-120			
Acenaphthylene	1.46	0.050 mg/kg wet	1.65		89	61-125			
Anthracene	1.61	0.050 mg/kg wet	1.67		97	69-116			
Benz(a)anthracene	1.62	0.050 mg/kg wet	1.67		97	64-115			
Benzo(a)pyrene	1.56	0.050 mg/kg wet	1.65		94	60-105			
Benzo(b+j)fluoranthene	3.55	0.050 mg/kg wet	3.33		107	57-126			
Benzo(g,h,i)perylene	1.54	0.050 mg/kg wet	1.65		93	61-132			
Benzo(k)fluoranthene	1.92	0.050 mg/kg wet	1.67		115	63-127			
2-Chloronaphthalene	1.23	0.050 mg/kg wet	1.67		74	50-140			
Chrysene	1.73	0.050 mg/kg wet	1.66		104	65-118			
Dibenz(a,h)anthracene	1.42	0.050 mg/kg wet	1.66		86	59-125			
Fluoranthene	1.72	0.050 mg/kg wet	1.63		106	77-121			
Fluorene	1.36	0.050 mg/kg wet	1.65		83	62-110			



APPENDIX 2: QUALITY CONTROL RESULTS

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Analyte	Result	RL Units	Spike Level	Source Result	% REC	REC Limit	% RPD	RPD Limit	Qualifier
Polycyclic Aromatic Hydrocarbons (PAH), Batch B8L1968, Continued									
LCS (B8L1968-BS1), Continued					Prepared: 2018-12-30, Analyzed: 2018-12-31				
Indeno(1,2,3-cd)pyrene	1.33	0.050 mg/kg wet	1.67		80	62-125			
1-Methylnaphthalene	1.22	0.050 mg/kg wet	1.64		74	56-122			
2-Methylnaphthalene	1.27	0.050 mg/kg wet	1.63		78	56-123			
Naphthalene	1.31	0.050 mg/kg wet	1.67		79	57-129			
Phenanthrene	1.63	0.050 mg/kg wet	1.65		99	69-115			
Pyrene	1.76	0.050 mg/kg wet	1.67		106	74-122			
Surrogate: Acenaphthene-d10	1.37	mg/kg wet	1.68		82	71-118			
Surrogate: Chrysene-d12	1.62	mg/kg wet	1.68		97	58-121			
Surrogate: Naphthalene-d8	1.37	mg/kg wet	1.68		82	59-132			
Surrogate: Perylene-d12	1.59	mg/kg wet	1.68		95	50-133			
Surrogate: Phenanthrene-d10	1.54	mg/kg wet	1.68		92	72-109			
Duplicate (B8L1968-DUP1)					Source: 8121868-01 Prepared: 2018-12-30, Analyzed: 2018-12-31				
Acenaphthene	< 0.050	0.050 mg/kg dry		< 0.050				50	
Acenaphthylene	< 0.050	0.050 mg/kg dry		< 0.050				50	
Anthracene	< 0.050	0.050 mg/kg dry		< 0.050				50	
Benz(a)anthracene	< 0.050	0.050 mg/kg dry		< 0.050				50	
Benzo(a)pyrene	< 0.050	0.050 mg/kg dry		< 0.050				50	
Benzo(b+j)fluoranthene	< 0.050	0.050 mg/kg dry		< 0.050				50	
Benzo(g,h,i)perylene	< 0.050	0.050 mg/kg dry		< 0.050				50	
Benzo(k)fluoranthene	< 0.050	0.050 mg/kg dry		< 0.050				50	
2-Chloronaphthalene	< 0.050	0.050 mg/kg dry		< 0.050				50	
Chrysene	< 0.050	0.050 mg/kg dry		< 0.050				50	
Dibenz(a,h)anthracene	< 0.050	0.050 mg/kg dry		< 0.050				50	
Fluoranthene	< 0.050	0.050 mg/kg dry		< 0.050				50	
Fluorene	< 0.050	0.050 mg/kg dry		< 0.050				50	
Indeno(1,2,3-cd)pyrene	< 0.050	0.050 mg/kg dry		< 0.050				50	
1-Methylnaphthalene	< 0.050	0.050 mg/kg dry		< 0.050				50	
2-Methylnaphthalene	< 0.050	0.050 mg/kg dry		< 0.050				50	
Naphthalene	< 0.050	0.050 mg/kg dry		< 0.050				50	
Phenanthrene	< 0.050	0.050 mg/kg dry		< 0.050				50	
Pyrene	< 0.050	0.050 mg/kg dry		< 0.050				50	
Surrogate: Acenaphthene-d10	1.57	mg/kg dry	1.87		84	71-118			
Surrogate: Chrysene-d12	2.21	mg/kg dry	1.87		118	58-121			
Surrogate: Naphthalene-d8	1.41	mg/kg dry	1.87		76	59-132			
Surrogate: Perylene-d12	1.99	mg/kg dry	1.87		106	50-133			
Surrogate: Phenanthrene-d10	1.61	mg/kg dry	1.87		86	72-109			
Matrix Spike (B8L1968-MS1)					Source: 8121868-01 Prepared: 2018-12-30, Analyzed: 2018-12-31				
Acenaphthene	1.49	0.050 mg/kg dry	1.80	< 0.050	83	50-140			
Acenaphthylene	1.58	0.050 mg/kg dry	1.80	< 0.050	88	50-140			
Anthracene	1.72	0.050 mg/kg dry	1.82	< 0.050	95	50-140			
Benz(a)anthracene	1.87	0.050 mg/kg dry	1.82	< 0.050	103	50-140			
Benzo(a)pyrene	1.84	0.050 mg/kg dry	1.80	< 0.050	102	50-140			
Benzo(b+j)fluoranthene	4.11	0.050 mg/kg dry	3.64	< 0.050	113	50-140			
Benzo(g,h,i)perylene	1.73	0.050 mg/kg dry	1.80	< 0.050	96	50-140			
Benzo(k)fluoranthene	2.10	0.050 mg/kg dry	1.82	< 0.050	115	50-140			
2-Chloronaphthalene	1.31	0.050 mg/kg dry	1.82	< 0.050	72	50-140			
Chrysene	2.03	0.050 mg/kg dry	1.81	< 0.050	112	50-140			
Dibenz(a,h)anthracene	1.52	0.050 mg/kg dry	1.81	< 0.050	84	50-140			
Fluoranthene	1.82	0.050 mg/kg dry	1.78	< 0.050	102	50-140			
Fluorene	1.45	0.050 mg/kg dry	1.80	< 0.050	81	50-140			
Indeno(1,2,3-cd)pyrene	1.49	0.050 mg/kg dry	1.82	< 0.050	82	50-140			
1-Methylnaphthalene	1.33	0.050 mg/kg dry	1.79	< 0.050	74	50-140			
2-Methylnaphthalene	1.37	0.050 mg/kg dry	1.78	< 0.050	77	50-140			



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Analyte	Result	RL Units	Spike Level	Source Result	% REC	REC Limit	% RPD	RPD Limit	Qualifier
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Polycyclic Aromatic Hydrocarbons (PAH), Batch B8L1968, Continued

Matrix Spike (B8L1968-MS1), Continued	Source: 8121868-01		Prepared: 2018-12-30, Analyzed: 2018-12-31						
Naphthalene	1.43	0.050 mg/kg dry	1.82	< 0.050	78	50-140			
Phenanthrene	1.73	0.050 mg/kg dry	1.80	< 0.050	96	50-140			
Pyrene	1.88	0.050 mg/kg dry	1.82	< 0.050	103	50-140			
Surrogate: Acenaphthene-d10	1.48	mg/kg dry	1.83		81	71-118			
Surrogate: Chrysene-d12	1.88	mg/kg dry	1.83		103	58-121			
Surrogate: Naphthalene-d8	1.47	mg/kg dry	1.83		80	59-132			
Surrogate: Perylene-d12	1.79	mg/kg dry	1.83		98	50-133			
Surrogate: Phenanthrene-d10	1.62	mg/kg dry	1.83		89	72-109			

Polycyclic Aromatic Hydrocarbons (PAH), Batch B9A0004

Blank (B9A0004-BLK1)	Prepared: 2019-01-02, Analyzed: 2019-01-02								
Acenaphthene	< 0.050	0.050 mg/kg wet							
Acenaphthylene	< 0.050	0.050 mg/kg wet							
Anthracene	< 0.050	0.050 mg/kg wet							
Benz(a)anthracene	< 0.050	0.050 mg/kg wet							
Benzo(a)pyrene	< 0.050	0.050 mg/kg wet							
Benzo(b+j)fluoranthene	< 0.050	0.050 mg/kg wet							
Benzo(g,h,i)perylene	< 0.050	0.050 mg/kg wet							
Benzo(k)fluoranthene	< 0.050	0.050 mg/kg wet							
2-Chloronaphthalene	< 0.050	0.050 mg/kg wet							
Chrysene	< 0.050	0.050 mg/kg wet							
Dibenz(a,h)anthracene	< 0.050	0.050 mg/kg wet							
Fluoranthene	< 0.050	0.050 mg/kg wet							
Fluorene	< 0.050	0.050 mg/kg wet							
Indeno(1,2,3-cd)pyrene	< 0.050	0.050 mg/kg wet							
1-Methylnaphthalene	< 0.050	0.050 mg/kg wet							
2-Methylnaphthalene	< 0.050	0.050 mg/kg wet							
Naphthalene	< 0.050	0.050 mg/kg wet							
Phenanthrene	< 0.050	0.050 mg/kg wet							
Pyrene	< 0.050	0.050 mg/kg wet							
Surrogate: Acenaphthene-d10	1.43	mg/kg wet	1.68		85	71-118			
Surrogate: Chrysene-d12	2.04	mg/kg wet	1.68		122	58-121			S02
Surrogate: Naphthalene-d8	1.38	mg/kg wet	1.68		82	59-132			
Surrogate: Perylene-d12	1.69	mg/kg wet	1.68		101	50-133			
Surrogate: Phenanthrene-d10	1.43	mg/kg wet	1.68		85	72-109			

LCS (B9A0004-BS1)	Prepared: 2019-01-02, Analyzed: 2019-01-02								
Acenaphthene	1.42	0.050 mg/kg wet	1.65		86	58-120			
Acenaphthylene	1.44	0.050 mg/kg wet	1.65		87	61-125			
Anthracene	1.64	0.050 mg/kg wet	1.67		98	69-116			
Benz(a)anthracene	1.89	0.050 mg/kg wet	1.67		113	64-115			
Benzo(a)pyrene	1.66	0.050 mg/kg wet	1.65		100	60-105			
Benzo(b+j)fluoranthene	3.18	0.050 mg/kg wet	3.33		96	57-126			
Benzo(g,h,i)perylene	1.26	0.050 mg/kg wet	1.65		76	61-132			
Benzo(k)fluoranthene	1.38	0.050 mg/kg wet	1.67		83	63-127			
2-Chloronaphthalene	1.24	0.050 mg/kg wet	1.67		74	50-140			
Chrysene	1.78	0.050 mg/kg wet	1.66		107	65-118			
Dibenz(a,h)anthracene	1.13	0.050 mg/kg wet	1.66		68	59-125			
Fluoranthene	1.64	0.050 mg/kg wet	1.63		100	77-121			
Fluorene	1.33	0.050 mg/kg wet	1.65		81	62-110			
Indeno(1,2,3-cd)pyrene	1.24	0.050 mg/kg wet	1.67		74	62-125			
1-Methylnaphthalene	1.24	0.050 mg/kg wet	1.64		76	56-122			
2-Methylnaphthalene	1.29	0.050 mg/kg wet	1.63		79	56-123			
Naphthalene	1.39	0.050 mg/kg wet	1.67		83	57-129			



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Analyte	Result	RL Units	Spike Level	Source Result	% REC	REC Limit	% RPD	RPD Limit	Qualifier
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Polycyclic Aromatic Hydrocarbons (PAH), Batch B9A0004, Continued

LCS (B9A0004-BS1), Continued

Prepared: 2019-01-02, Analyzed: 2019-01-02

Phenanthrene	1.63	0.050 mg/kg wet	1.65		98	69-115			
Pyrene	1.69	0.050 mg/kg wet	1.67		101	74-122			
Surrogate: Acenaphthene-d10	1.51	mg/kg wet	1.68		90	71-118			
Surrogate: Chrysene-d12	1.95	mg/kg wet	1.68		116	58-121			
Surrogate: Naphthalene-d8	1.52	mg/kg wet	1.68		91	59-132			
Surrogate: Perylene-d12	1.84	mg/kg wet	1.68		110	50-133			
Surrogate: Phenanthrene-d10	1.65	mg/kg wet	1.68		98	72-109			

Duplicate (B9A0004-DUP1)

Source: 8121868-06

Prepared: 2019-01-02, Analyzed: 2019-01-02

Acenaphthene	< 0.050	0.050 mg/kg dry	< 0.050						50
Acenaphthylene	< 0.050	0.050 mg/kg dry	< 0.050						50
Anthracene	< 0.050	0.050 mg/kg dry	< 0.050						50
Benz(a)anthracene	< 0.050	0.050 mg/kg dry	< 0.050						50
Benzo(a)pyrene	< 0.050	0.050 mg/kg dry	< 0.050						50
Benzo(b+j)fluoranthene	< 0.050	0.050 mg/kg dry	< 0.050						50
Benzo(g,h,i)perylene	< 0.050	0.050 mg/kg dry	< 0.050						50
Benzo(k)fluoranthene	< 0.050	0.050 mg/kg dry	< 0.050						50
2-Chloronaphthalene	< 0.050	0.050 mg/kg dry	< 0.050						50
Chrysene	< 0.050	0.050 mg/kg dry	< 0.050						50
Dibenz(a,h)anthracene	< 0.050	0.050 mg/kg dry	< 0.050						50
Fluoranthene	< 0.050	0.050 mg/kg dry	< 0.050						50
Fluorene	< 0.050	0.050 mg/kg dry	< 0.050						50
Indeno(1,2,3-cd)pyrene	< 0.050	0.050 mg/kg dry	< 0.050						50
1-Methylnaphthalene	< 0.050	0.050 mg/kg dry	< 0.050						50
2-Methylnaphthalene	< 0.050	0.050 mg/kg dry	< 0.050						50
Naphthalene	< 0.050	0.050 mg/kg dry	< 0.050						50
Phenanthrene	< 0.050	0.050 mg/kg dry	< 0.050						50
Pyrene	< 0.050	0.050 mg/kg dry	< 0.050						50
Surrogate: Acenaphthene-d10	1.83	mg/kg dry	2.03		90	71-118			
Surrogate: Chrysene-d12	2.67	mg/kg dry	2.03		131	58-121			S02
Surrogate: Naphthalene-d8	1.81	mg/kg dry	2.03		89	59-132			
Surrogate: Perylene-d12	2.13	mg/kg dry	2.03		105	50-133			
Surrogate: Phenanthrene-d10	1.86	mg/kg dry	2.03		92	72-109			

Matrix Spike (B9A0004-MS1)

Source: 8121868-06

Prepared: 2019-01-02, Analyzed: 2019-01-03

Acenaphthene	1.61	0.050 mg/kg dry	2.02	< 0.050	79	50-140			
Acenaphthylene	1.64	0.050 mg/kg dry	2.02	< 0.050	81	50-140			
Anthracene	1.87	0.050 mg/kg dry	2.04	< 0.050	92	50-140			
Benz(a)anthracene	2.09	0.050 mg/kg dry	2.04	< 0.050	103	50-140			
Benzo(a)pyrene	1.82	0.050 mg/kg dry	2.02	< 0.050	90	50-140			
Benzo(b+j)fluoranthene	3.84	0.050 mg/kg dry	4.08	< 0.050	94	50-140			
Benzo(g,h,i)perylene	1.49	0.050 mg/kg dry	2.02	< 0.050	74	50-140			
Benzo(k)fluoranthene	1.93	0.050 mg/kg dry	2.04	< 0.050	95	50-140			
2-Chloronaphthalene	1.58	0.050 mg/kg dry	2.04	< 0.050	77	50-140			
Chrysene	2.36	0.050 mg/kg dry	2.03	< 0.050	116	50-140			
Dibenz(a,h)anthracene	1.32	0.050 mg/kg dry	2.03	< 0.050	65	50-140			
Fluoranthene	1.84	0.050 mg/kg dry	2.00	< 0.050	92	50-140			
Fluorene	1.52	0.050 mg/kg dry	2.02	< 0.050	75	50-140			
Indeno(1,2,3-cd)pyrene	1.40	0.050 mg/kg dry	2.04	< 0.050	68	50-140			
1-Methylnaphthalene	1.69	0.050 mg/kg dry	2.01	< 0.050	84	50-140			
2-Methylnaphthalene	1.46	0.050 mg/kg dry	2.00	< 0.050	73	50-140			
Naphthalene	1.56	0.050 mg/kg dry	2.04	< 0.050	76	50-140			
Phenanthrene	1.80	0.050 mg/kg dry	2.02	< 0.050	89	50-140			
Pyrene	1.89	0.050 mg/kg dry	2.04	< 0.050	93	50-140			
Surrogate: Acenaphthene-d10	1.71	mg/kg dry	2.05		83	71-118			



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Analyte	Result	RL Units	Spike Level	Source Result	% REC	REC Limit	% RPD	RPD Limit	Qualifier
Polycyclic Aromatic Hydrocarbons (PAH), Batch B9A0004, Continued									
Matrix Spike (B9A0004-MS1), Continued		Source: 8121868-06		Prepared: 2019-01-02, Analyzed: 2019-01-03					
Surrogate: Chrysene-d12	2.28	mg/kg dry	2.05		111	58-121			
Surrogate: Naphthalene-d8	1.71	mg/kg dry	2.05		83	59-132			
Surrogate: Perylene-d12	2.07	mg/kg dry	2.05		101	50-133			
Surrogate: Phenanthrene-d10	1.85	mg/kg dry	2.05		90	72-109			

Strong Acid Leachable Metals, Batch B9A0001

Blank (B9A0001-BLK1)			Prepared: 2019-01-02, Analyzed: 2019-01-03						
Aluminum	< 40	40 mg/kg dry							
Antimony	< 0.10	0.10 mg/kg dry							
Arsenic	< 0.30	0.30 mg/kg dry							
Barium	< 1.0	1.0 mg/kg dry							
Beryllium	< 0.10	0.10 mg/kg dry							
Boron	< 2.0	2.0 mg/kg dry							
Cadmium	< 0.040	0.040 mg/kg dry							
Chromium	< 1.0	1.0 mg/kg dry							
Cobalt	< 0.10	0.10 mg/kg dry							
Copper	< 0.40	0.40 mg/kg dry							
Iron	< 20	20 mg/kg dry							
Lead	< 0.20	0.20 mg/kg dry							
Lithium	< 0.10	0.10 mg/kg dry							
Manganese	< 0.40	0.40 mg/kg dry							
Mercury	< 0.040	0.040 mg/kg dry							
Molybdenum	< 0.10	0.10 mg/kg dry							
Nickel	< 0.60	0.60 mg/kg dry							
Selenium	< 0.20	0.20 mg/kg dry							
Silver	< 0.10	0.10 mg/kg dry							
Strontium	< 0.20	0.20 mg/kg dry							
Thallium	< 0.10	0.10 mg/kg dry							
Tin	< 0.20	0.20 mg/kg dry							
Tungsten	< 0.20	0.20 mg/kg dry							
Uranium	< 0.050	0.050 mg/kg dry							
Vanadium	< 1.0	1.0 mg/kg dry							
Zinc	< 2.0	2.0 mg/kg dry							

Blank (B9A0001-BLK2)			Prepared: 2019-01-02, Analyzed: 2019-01-03						
Aluminum	< 40	40 mg/kg dry							
Antimony	< 0.10	0.10 mg/kg dry							
Arsenic	< 0.30	0.30 mg/kg dry							
Barium	< 1.0	1.0 mg/kg dry							
Beryllium	< 0.10	0.10 mg/kg dry							
Boron	< 2.0	2.0 mg/kg dry							
Cadmium	< 0.040	0.040 mg/kg dry							
Chromium	< 1.0	1.0 mg/kg dry							
Cobalt	< 0.10	0.10 mg/kg dry							
Copper	< 0.40	0.40 mg/kg dry							
Iron	< 20	20 mg/kg dry							
Lead	< 0.20	0.20 mg/kg dry							
Lithium	< 0.10	0.10 mg/kg dry							
Manganese	< 0.40	0.40 mg/kg dry							
Mercury	< 0.040	0.040 mg/kg dry							
Molybdenum	< 0.10	0.10 mg/kg dry							
Nickel	< 0.60	0.60 mg/kg dry							
Selenium	< 0.20	0.20 mg/kg dry							
Silver	< 0.10	0.10 mg/kg dry							



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Analyte	Result	RL Units	Spike Level	Source Result	% REC	REC Limit	% RPD	RPD Limit	Qualifier
Strong Acid Leachable Metals, Batch B9A0001, Continued									
Blank (B9A0001-BLK2), Continued					Prepared: 2019-01-02, Analyzed: 2019-01-03				
Strontium	< 0.20	0.20 mg/kg dry							
Thallium	< 0.10	0.10 mg/kg dry							
Tin	< 0.20	0.20 mg/kg dry							
Tungsten	< 0.20	0.20 mg/kg dry							
Uranium	< 0.050	0.050 mg/kg dry							
Vanadium	< 1.0	1.0 mg/kg dry							
Zinc	< 2.0	2.0 mg/kg dry							
Blank (B9A0001-BLK3)					Prepared: 2019-01-02, Analyzed: 2019-01-03				
Aluminum	< 40	40 mg/kg dry							
Antimony	< 0.10	0.10 mg/kg dry							
Arsenic	< 0.30	0.30 mg/kg dry							
Barium	< 1.0	1.0 mg/kg dry							
Beryllium	< 0.10	0.10 mg/kg dry							
Boron	< 2.0	2.0 mg/kg dry							
Cadmium	< 0.040	0.040 mg/kg dry							
Chromium	< 1.0	1.0 mg/kg dry							
Cobalt	< 0.10	0.10 mg/kg dry							
Copper	< 0.40	0.40 mg/kg dry							
Iron	< 20	20 mg/kg dry							
Lead	< 0.20	0.20 mg/kg dry							
Lithium	< 0.10	0.10 mg/kg dry							
Manganese	< 0.40	0.40 mg/kg dry							
Mercury	< 0.040	0.040 mg/kg dry							
Molybdenum	< 0.10	0.10 mg/kg dry							
Nickel	< 0.60	0.60 mg/kg dry							
Selenium	< 0.20	0.20 mg/kg dry							
Silver	< 0.10	0.10 mg/kg dry							
Strontium	< 0.20	0.20 mg/kg dry							
Thallium	< 0.10	0.10 mg/kg dry							
Tin	< 0.20	0.20 mg/kg dry							
Tungsten	< 0.20	0.20 mg/kg dry							
Uranium	< 0.050	0.050 mg/kg dry							
Vanadium	< 1.0	1.0 mg/kg dry							
Zinc	< 2.0	2.0 mg/kg dry							
Blank (B9A0001-BLK4)					Prepared: 2019-01-02, Analyzed: 2019-01-03				
Aluminum	< 40	40 mg/kg dry							
Antimony	< 0.10	0.10 mg/kg dry							
Arsenic	< 0.30	0.30 mg/kg dry							
Barium	< 1.0	1.0 mg/kg dry							
Beryllium	< 0.10	0.10 mg/kg dry							
Boron	< 2.0	2.0 mg/kg dry							
Cadmium	< 0.040	0.040 mg/kg dry							
Chromium	< 1.0	1.0 mg/kg dry							
Cobalt	< 0.10	0.10 mg/kg dry							
Copper	< 0.40	0.40 mg/kg dry							
Iron	< 20	20 mg/kg dry							
Lead	< 0.20	0.20 mg/kg dry							
Lithium	< 0.10	0.10 mg/kg dry							
Manganese	< 0.40	0.40 mg/kg dry							
Mercury	< 0.040	0.040 mg/kg dry							
Molybdenum	< 0.10	0.10 mg/kg dry							
Nickel	< 0.60	0.60 mg/kg dry							
Selenium	< 0.20	0.20 mg/kg dry							
Silver	< 0.10	0.10 mg/kg dry							

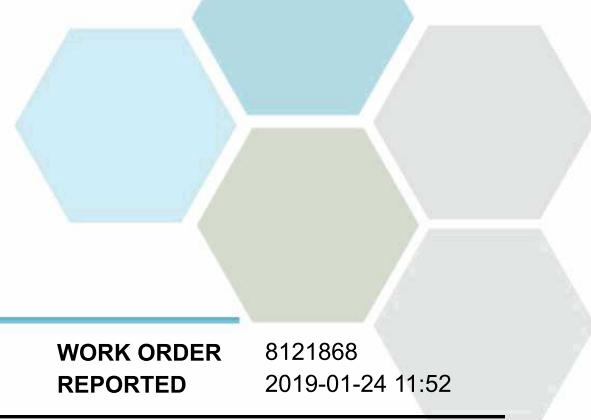


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REPORTED TO PROJECT McElhanney Consulting Services Ltd. - Victoria
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Analyte	Result	RL Units	Spike Level	Source Result	% REC	REC Limit	% RPD	RPD Limit	Qualifier
Strong Acid Leachable Metals, Batch B9A0001, Continued									
Blank (B9A0001-BLK4), Continued					Prepared: 2019-01-02, Analyzed: 2019-01-03				
Strontium	< 0.20	0.20 mg/kg dry							
Thallium	< 0.10	0.10 mg/kg dry							
Tin	< 0.20	0.20 mg/kg dry							
Tungsten	< 0.20	0.20 mg/kg dry							
Uranium	< 0.050	0.050 mg/kg dry							
Vanadium	< 1.0	1.0 mg/kg dry							
Zinc	< 2.0	2.0 mg/kg dry							
LCS (B9A0001-BS1)									
					Prepared: 2019-01-02, Analyzed: 2019-01-03				
Antimony	2.18	0.10 mg/kg dry	2.00		109	80-120			
Arsenic	2.24	0.30 mg/kg dry	2.00		112	80-120			
Barium	2.1	1.0 mg/kg dry	2.00		107	80-120			
Beryllium	1.89	0.10 mg/kg dry	2.00		95	80-120			
Boron	< 2.0	2.0 mg/kg dry	2.00		97	80-120			
Cadmium	2.12	0.040 mg/kg dry	2.00		106	80-120			
Chromium	2.3	1.0 mg/kg dry	2.00		113	80-120			
Cobalt	2.24	0.10 mg/kg dry	2.00		112	80-120			
Copper	2.21	0.40 mg/kg dry	2.00		111	80-120			
Iron	206	20 mg/kg dry	200		103	80-120			
Lead	2.10	0.20 mg/kg dry	2.00		105	80-120			
Lithium	1.74	0.10 mg/kg dry	2.00		87	80-120			
Manganese	2.04	0.40 mg/kg dry	2.00		102	80-120			
Mercury	0.107	0.040 mg/kg dry	0.100		107	80-120			
Molybdenum	2.03	0.10 mg/kg dry	2.00		101	80-120			
Nickel	2.21	0.60 mg/kg dry	2.00		110	80-120			
Selenium	2.26	0.20 mg/kg dry	2.00		113	80-120			
Silver	2.14	0.10 mg/kg dry	2.00		107	80-120			
Strontium	2.13	0.20 mg/kg dry	2.00		107	80-120			
Thallium	2.13	0.10 mg/kg dry	2.00		106	80-120			
Tin	2.20	0.20 mg/kg dry	2.00		110	80-120			
Tungsten	2.08	0.20 mg/kg dry	2.00		104	80-120			
Uranium	1.97	0.050 mg/kg dry	2.00		99	80-120			
Vanadium	2.2	1.0 mg/kg dry	2.00		112	80-120			
Zinc	2.2	2.0 mg/kg dry	2.00		112	80-120			
Duplicate (B9A0001-DUP1)									
			Source: 8121868-03		Prepared: 2019-01-02, Analyzed: 2019-01-03				
Aluminum	18300	40 mg/kg dry		17800			3	21	
Antimony	0.41	0.10 mg/kg dry		0.38				30	
Arsenic	6.63	0.30 mg/kg dry		6.65			< 1	30	
Barium	207	1.0 mg/kg dry		169			20	35	
Beryllium	0.49	0.10 mg/kg dry		0.50			2	28	
Boron	< 2.0	2.0 mg/kg dry		< 2.0				30	
Cadmium	0.247	0.040 mg/kg dry		0.249			< 1	30	
Chromium	64.1	1.0 mg/kg dry		63.9			< 1	30	
Cobalt	18.5	0.10 mg/kg dry		18.7			< 1	30	
Copper	45.3	0.40 mg/kg dry		45.2			< 1	30	
Iron	37000	20 mg/kg dry		36700			< 1	21	
Lead	12.4	0.20 mg/kg dry		12.2			2	40	
Lithium	16.8	0.10 mg/kg dry		16.3			3	22	
Manganese	677	0.40 mg/kg dry		684			1	27	
Mercury	0.048	0.040 mg/kg dry		< 0.040				40	
Molybdenum	0.98	0.10 mg/kg dry		0.98			< 1	40	
Nickel	51.6	0.60 mg/kg dry		51.5			< 1	30	
Selenium	0.34	0.20 mg/kg dry		< 0.20				27	
Silver	0.29	0.10 mg/kg dry		0.10				40	
Strontium	109	0.20 mg/kg dry		108			1	30	



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Analyte	Result	RL Units	Spike Level	Source Result	% REC	REC Limit	% RPD	RPD Limit	Qualifier
Strong Acid Leachable Metals, Batch B9A0001, Continued									
Duplicate (B9A0001-DUP1), Continued		Source: 8121868-03		Prepared: 2019-01-02, Analyzed: 2019-01-03					
Thallium	0.21	0.10 mg/kg dry		0.21				30	
Tin	2.25	0.20 mg/kg dry		0.71			104	40	RPD
Tungsten	< 0.20	0.20 mg/kg dry		< 0.20				40	
Uranium	1.66	0.050 mg/kg dry		1.67			< 1	30	
Vanadium	77.1	1.0 mg/kg dry		76.9			< 1	20	
Zinc	87.5	2.0 mg/kg dry		87.5			< 1	30	

Reference (B9A0001-SRM1)		Prepared: 2019-01-02, Analyzed: 2019-01-03							
Aluminum	18000	40 mg/kg dry	17500		103	70-130			
Antimony	6.54	0.10 mg/kg dry	6.46		101	70-130			
Arsenic	17.9	0.30 mg/kg dry	15.1		119	70-130			
Barium	82.4	1.0 mg/kg dry	80.6		102	70-130			
Beryllium	0.46	0.10 mg/kg dry	0.522		88	70-130			
Boron	2.8	2.0 mg/kg dry	3.00		95	70-130			
Cadmium	0.230	0.040 mg/kg dry	0.216		107	70-130			
Chromium	30.8	1.0 mg/kg dry	27.5		112	70-130			
Cobalt	13.8	0.10 mg/kg dry	12.4		111	70-130			
Copper	47.2	0.40 mg/kg dry	45.3		104	70-130			
Iron	33200	20 mg/kg dry	32600		102	70-130			
Lead	13.1	0.20 mg/kg dry	13.8		95	70-130			
Lithium	7.93	0.10 mg/kg dry	9.91		80	70-130			
Manganese	1040	0.40 mg/kg dry	1090		96	70-130			
Mercury	0.094	0.040 mg/kg dry	0.103		91	70-130			
Molybdenum	0.74	0.10 mg/kg dry	0.731		101	70-130			
Nickel	18.8	0.60 mg/kg dry	17.4		108	70-130			
Strontium	12.6	0.20 mg/kg dry	11.5		110	70-130			
Tin	1.06	0.20 mg/kg dry	1.03		103	70-130			
Uranium	0.784	0.050 mg/kg dry	0.837		94	70-130			
Vanadium	63.2	1.0 mg/kg dry	54.9		115	70-130			
Zinc	73.3	2.0 mg/kg dry	66.8		110	70-130			

Volatile Organic Compounds (VOC), Batch B8L2023

Blank (B8L2023-BLK1)		Prepared: 2018-12-31, Analyzed: 2019-01-01							
Benzene	< 0.030	0.030 mg/kg wet							
Bromodichloromethane	< 0.100	0.100 mg/kg wet							
Bromoform	< 0.100	0.100 mg/kg wet							
Carbon tetrachloride	< 0.050	0.050 mg/kg wet							
Chlorobenzene	< 0.050	0.050 mg/kg wet							
Chloroform	< 0.050	0.050 mg/kg wet							
Dibromochloromethane	< 0.100	0.100 mg/kg wet							
1,2-Dibromoethane	< 0.100	0.100 mg/kg wet							
Dibromomethane	< 0.100	0.100 mg/kg wet							
1,2-Dichlorobenzene	< 0.050	0.050 mg/kg wet							
1,3-Dichlorobenzene	< 0.050	0.050 mg/kg wet							
1,4-Dichlorobenzene	< 0.050	0.050 mg/kg wet							
1,1-Dichloroethane	< 0.050	0.050 mg/kg wet							
1,2-Dichloroethane	< 0.050	0.050 mg/kg wet							
1,1-Dichloroethylene	< 0.050	0.050 mg/kg wet							
cis-1,2-Dichloroethylene	< 0.050	0.050 mg/kg wet							
trans-1,2-Dichloroethylene	< 0.050	0.050 mg/kg wet							
Dichloromethane	< 0.100	0.100 mg/kg wet							
1,2-Dichloropropane	< 0.050	0.050 mg/kg wet							
1,3-Dichloropropene (cis + trans)	< 0.050	0.050 mg/kg wet							
Ethylbenzene	< 0.050	0.050 mg/kg wet							



APPENDIX 2: QUALITY CONTROL RESULTS

REPORTED TO PROJECT McElhanney Consulting Services Ltd. - Victoria
2121-00113-00 T2016

WORK ORDER REPORTED 8121868
2019-01-24 11:52

Analyte	Result	RL Units	Spike Level	Source Result	% REC	REC Limit	% RPD	RPD Limit	Qualifier
Volatile Organic Compounds (VOC), Batch B8L2023, Continued									
Blank (B8L2023-BLK1), Continued					Prepared: 2018-12-31, Analyzed: 2019-01-01				
Methyl tert-butyl ether	< 0.040	0.040 mg/kg wet							
Styrene	< 0.050	0.050 mg/kg wet							
1,1,2,2-Tetrachloroethane	< 0.050	0.050 mg/kg wet							
Tetrachloroethylene	< 0.050	0.050 mg/kg wet							
Toluene	< 0.200	0.200 mg/kg wet							
1,1,1-Trichloroethane	< 0.050	0.050 mg/kg wet							
1,1,2-Trichloroethane	< 0.050	0.050 mg/kg wet							
Trichloroethylene	< 0.040	0.040 mg/kg wet							
Trichlorofluoromethane	< 0.100	0.100 mg/kg wet							
Vinyl chloride	< 0.100	0.100 mg/kg wet							
Xylenes (total)	< 0.100	0.100 mg/kg wet							
Surrogate: Toluene-d8	3.24	mg/kg wet	4.24		76	60-140			
Surrogate: 4-Bromofluorobenzene	2.73	mg/kg wet	3.99		68	60-140			
Surrogate: 1,4-Dichlorobenzene-d4	2.62	mg/kg wet	3.95		66	60-140			
LCS (B8L2023-BS1)					Prepared: 2018-12-31, Analyzed: 2019-01-01				
Benzene	1.62	0.030 mg/kg wet	2.01		81	73-131			
Bromodichloromethane	1.78	0.100 mg/kg wet	2.02		88	69-121			
Bromoform	1.83	0.100 mg/kg wet	2.01		91	60-109			
Carbon tetrachloride	1.79	0.050 mg/kg wet	2.01		89	63-118			
Chlorobenzene	1.81	0.050 mg/kg wet	2.02		90	84-127			
Chloroform	1.83	0.050 mg/kg wet	2.01		91	80-135			
Dibromochloromethane	1.72	0.100 mg/kg wet	2.02		85	60-114			
1,2-Dibromoethane	1.64	0.100 mg/kg wet	2.01		81	66-121			
Dibromomethane	1.80	0.100 mg/kg wet	2.01		89	71-130			
1,2-Dichlorobenzene	2.10	0.050 mg/kg wet	2.01		104	77-129			
1,3-Dichlorobenzene	2.05	0.050 mg/kg wet	2.01		102	76-129			
1,4-Dichlorobenzene	2.10	0.050 mg/kg wet	2.01		105	79-125			
1,1-Dichloroethane	1.81	0.050 mg/kg wet	2.01		90	76-133			
1,2-Dichloroethane	1.95	0.050 mg/kg wet	2.01		97	72-140			
1,1-Dichloroethylene	1.81	0.050 mg/kg wet	2.01		90	60-135			
cis-1,2-Dichloroethylene	1.70	0.050 mg/kg wet	2.01		85	77-126			
trans-1,2-Dichloroethylene	1.77	0.050 mg/kg wet	2.01		88	74-125			
Dichloromethane	1.89	0.100 mg/kg wet	2.01		94	71-134			
1,2-Dichloropropane	1.64	0.050 mg/kg wet	2.01		82	78-126			
1,3-Dichloropropane (cis + trans)	3.08	0.050 mg/kg wet	4.00		77	60-116			
Ethylbenzene	1.53	0.050 mg/kg wet	2.01		76	71-127			
Methyl tert-butyl ether	1.73	0.040 mg/kg wet	2.00		87	60-131			
Styrene	1.63	0.050 mg/kg wet	2.01		81	65-126			
1,1,2,2-Tetrachloroethane	1.71	0.050 mg/kg wet	2.02		85	71-132			
Tetrachloroethylene	1.88	0.050 mg/kg wet	2.01		93	69-134			
Toluene	1.79	0.200 mg/kg wet	2.01		89	74-136			
1,1,1-Trichloroethane	1.66	0.050 mg/kg wet	2.02		82	70-131			
1,1,2-Trichloroethane	1.75	0.050 mg/kg wet	2.01		87	75-133			
Trichloroethylene	1.87	0.040 mg/kg wet	2.01		93	82-127			
Trichlorofluoromethane	2.12	0.100 mg/kg wet	2.00		106	50-150			
Vinyl chloride	2.12	0.100 mg/kg wet	2.00		106	50-143			
Xylenes (total)	4.94	0.100 mg/kg wet	6.01		82	71-125			
Surrogate: Toluene-d8	3.25	mg/kg wet	4.24		77	60-140			
Surrogate: 4-Bromofluorobenzene	3.80	mg/kg wet	3.99		95	60-140			
Surrogate: 1,4-Dichlorobenzene-d4	4.14	mg/kg wet	3.95		105	60-140			
Duplicate (B8L2023-DUP1)					Source: 8121868-01 Prepared: 2018-12-18, Analyzed: 2019-01-01				
Benzene	< 0.020	0.020 mg/kg dry	< 0.020					50	
Bromodichloromethane	< 0.100	0.100 mg/kg dry	< 0.100					50	
Bromoform	< 0.100	0.100 mg/kg dry	< 0.100					50	



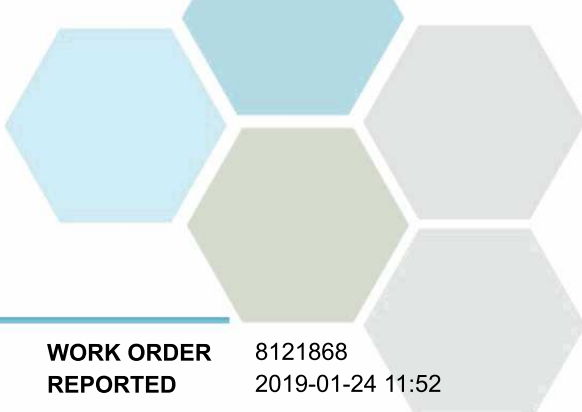
APPENDIX 2: QUALITY CONTROL RESULTS

REPORTED TO PROJECT McElhanney Consulting Services Ltd. - Victoria
2121-00113-00 T2016

WORK ORDER REPORTED 8121868
2019-01-24 11:52

Analyte	Result	RL Units	Spike Level	Source Result	% REC	REC Limit	% RPD	RPD Limit	Qualifier
Volatile Organic Compounds (VOC), Batch B8L2023, Continued									
Duplicate (B8L2023-DUP1), Continued		Source: 8121868-01		Prepared: 2018-12-18, Analyzed: 2019-01-01					
Carbon tetrachloride	< 0.050	0.050 mg/kg dry		< 0.050				50	
Chlorobenzene	< 0.050	0.050 mg/kg dry		< 0.050				50	
Chloroform	< 0.050	0.050 mg/kg dry		< 0.050				50	
Dibromochloromethane	< 0.100	0.100 mg/kg dry		< 0.100				50	
1,2-Dibromoethane	< 0.100	0.100 mg/kg dry		< 0.100				50	
Dibromomethane	< 0.100	0.100 mg/kg dry		< 0.100				50	
1,2-Dichlorobenzene	< 0.050	0.050 mg/kg dry		< 0.050				50	
1,3-Dichlorobenzene	< 0.050	0.050 mg/kg dry		< 0.050				50	
1,4-Dichlorobenzene	< 0.050	0.050 mg/kg dry		< 0.050				50	
1,1-Dichloroethane	< 0.050	0.050 mg/kg dry		< 0.050				50	
1,2-Dichloroethane	< 0.050	0.050 mg/kg dry		< 0.050				50	
1,1-Dichloroethylene	< 0.050	0.050 mg/kg dry		< 0.050				50	
cis-1,2-Dichloroethylene	< 0.050	0.050 mg/kg dry		< 0.050				50	
trans-1,2-Dichloroethylene	< 0.050	0.050 mg/kg dry		< 0.050				50	
Dichloromethane	< 0.100	0.100 mg/kg dry		< 0.100				50	
1,2-Dichloropropane	< 0.050	0.050 mg/kg dry		< 0.050				50	
1,3-Dichloropropene (cis + trans)	< 0.050	0.050 mg/kg dry		< 0.050				50	
Ethylbenzene	< 0.050	0.050 mg/kg dry		< 0.050				50	
Methyl tert-butyl ether	< 0.040	0.040 mg/kg dry		< 0.040				50	
Styrene	< 0.050	0.050 mg/kg dry		< 0.050				50	
1,1,2,2-Tetrachloroethane	< 0.050	0.050 mg/kg dry		< 0.050				50	
Tetrachloroethylene	< 0.050	0.050 mg/kg dry		< 0.050				50	
Toluene	0.214	0.200 mg/kg dry		< 0.200				50	
1,1,1-Trichloroethane	< 0.050	0.050 mg/kg dry		< 0.050				50	
1,1,2-Trichloroethane	< 0.050	0.050 mg/kg dry		< 0.050				50	
Trichloroethylene	< 0.040	0.040 mg/kg dry		< 0.040				50	
Trichlorofluoromethane	< 0.100	0.100 mg/kg dry		< 0.100				50	
Vinyl chloride	< 0.100	0.100 mg/kg dry		< 0.100				50	
Xylenes (total)	< 0.100	0.100 mg/kg dry		< 0.100				50	
Surrogate: Toluene-d8	3.85	mg/kg dry	4.25		91	60-140			
Surrogate: 4-Bromofluorobenzene	3.29	mg/kg dry	4.00		82	60-140			
Surrogate: 1,4-Dichlorobenzene-d4	3.11	mg/kg dry	3.96		78	60-140			

Matrix Spike (B8L2023-MS1)		Source: 8121868-01		Prepared: 2018-12-18, Analyzed: 2019-01-01					
Benzene	4.19	0.030 mg/kg dry	4.03	< 0.030	104	60-140			
Bromodichloromethane	4.38	0.100 mg/kg dry	4.05	< 0.100	108	60-140			
Bromoform	4.51	0.100 mg/kg dry	4.03	< 0.100	112	60-140			
Carbon tetrachloride	4.07	0.050 mg/kg dry	4.03	< 0.050	101	60-140			
Chlorobenzene	4.38	0.050 mg/kg dry	4.05	< 0.050	108	60-140			
Chloroform	4.49	0.050 mg/kg dry	4.03	< 0.050	111	60-140			
Dibromochloromethane	4.28	0.100 mg/kg dry	4.05	< 0.100	106	60-140			
1,2-Dibromoethane	4.04	0.100 mg/kg dry	4.03	< 0.100	100	60-140			
Dibromomethane	4.24	0.100 mg/kg dry	4.03	< 0.100	105	60-140			
1,2-Dichlorobenzene	4.80	0.050 mg/kg dry	4.03	< 0.050	118	60-140			
1,3-Dichlorobenzene	4.81	0.050 mg/kg dry	4.03	< 0.050	119	60-140			
1,4-Dichlorobenzene	4.86	0.050 mg/kg dry	4.03	< 0.050	121	60-140			
1,1-Dichloroethane	4.51	0.050 mg/kg dry	4.03	< 0.050	112	60-140			
1,2-Dichloroethane	4.65	0.050 mg/kg dry	4.03	< 0.050	116	60-140			
1,1-Dichloroethylene	4.47	0.050 mg/kg dry	4.03	< 0.050	111	60-140			
cis-1,2-Dichloroethylene	4.21	0.050 mg/kg dry	4.03	< 0.050	105	60-140			
trans-1,2-Dichloroethylene	4.36	0.050 mg/kg dry	4.03	< 0.050	108	60-140			
Dichloromethane	4.55	0.100 mg/kg dry	4.03	< 0.100	113	60-140			
1,2-Dichloropropane	4.05	0.050 mg/kg dry	4.03	< 0.050	100	60-140			
1,3-Dichloropropene (cis + trans)	7.94	0.050 mg/kg dry	8.02	< 0.050	99	60-140			
Ethylbenzene	4.16	0.050 mg/kg dry	4.03	< 0.050	103	60-140			
Methyl tert-butyl ether	4.35	0.040 mg/kg dry	4.01	< 0.040	108	60-140			



APPENDIX 2: QUALITY CONTROL RESULTS

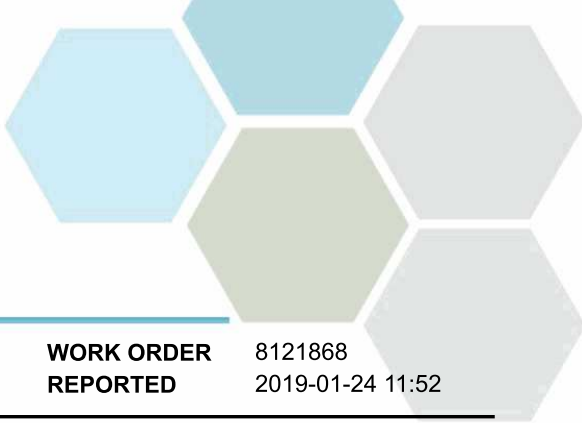
REPORTED TO PROJECT McElhanney Consulting Services Ltd. - Victoria
2121-00113-00 T2016

WORK ORDER REPORTED 8121868
2019-01-24 11:52

Analyte	Result	RL Units	Spike Level	Source Result	% REC	REC Limit	% RPD	RPD Limit	Qualifier
Volatile Organic Compounds (VOC), Batch B8L2023, Continued									
Matrix Spike (B8L2023-MS1), Continued		Source: 8121868-01		Prepared: 2018-12-18, Analyzed: 2019-01-01					
Styrene	4.57	0.050 mg/kg dry	4.03	< 0.050	113	60-140			
1,1,2,2-Tetrachloroethane	3.96	0.050 mg/kg dry	4.05	< 0.050	98	60-140			
Tetrachloroethylene	4.48	0.050 mg/kg dry	4.03	< 0.050	111	60-140			
Toluene	4.65	0.200 mg/kg dry	4.03	< 0.200	111	60-140			
1,1,1-Trichloroethane	4.21	0.050 mg/kg dry	4.05	< 0.050	104	60-140			
1,1,2-Trichloroethane	4.28	0.050 mg/kg dry	4.03	< 0.050	106	60-140			
Trichloroethylene	4.58	0.040 mg/kg dry	4.03	< 0.040	114	60-140			
Trichlorofluoromethane	5.23	0.100 mg/kg dry	4.01	< 0.100	130	50-150			
Vinyl chloride	5.02	0.100 mg/kg dry	4.01	< 0.100	125	50-150			
Xylenes (total)	13.5	0.100 mg/kg dry	12.0	< 0.100	112	60-140			
Surrogate: Toluene-d8	3.93	mg/kg dry	4.25		92	60-140			
Surrogate: 4-Bromofluorobenzene	4.69	mg/kg dry	4.00		117	60-140			
Surrogate: 1,4-Dichlorobenzene-d4	4.94	mg/kg dry	3.96		125	60-140			

QC Qualifiers:

RPD Relative percent difference (RPD) of duplicate analysis are outside of control limits for unknown reason(s).
S02 Surrogate recovery outside of control limits. Data accepted based on acceptable recovery of other surrogates.

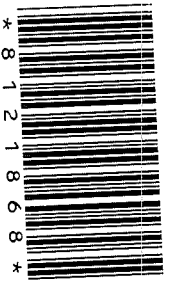


APPENDIX 3: REVISION HISTORY

REPORTED TO PROJECT McElhanney Consulting Services Ltd. - Victoria
2121-00113-00 T2016

WORK ORDER REPORTED 8121868
2019-01-24 11:52

Sample ID	Changed	Change	Analysis	Analyte(s)
8121868-03	2019-01-11	Added	Chromium, Hexavalent	



CARING ABOUT THE ENVIRONMENT...ously.

INVOICE TO: SAME AS REPORT TO

REPORT TO: McElweney Consulting

COMPANY: 3960 Quebec Street
 ADDRESS: Victoria BC

CONTACT: Nathan Bivise
 TEL/FAX: 778-626-0817

DELIVERY METHOD: EXCEL WATERTRAX OTHER*
 DATA FORMAT: EXCEL BC EMS OTHER*

EMAIL 1: jnbivise@mc-elweney.com
 EMAIL 2: nwhite@mc-elweney.com
 EMAIL 3:

SAMPLED BY: Nathan Bivise

COMPANY:
 ADDRESS:
 CONTACT:
 TEL/FAX:
 DELIVERY METHOD: EMAIL MAIL OTHER*

EMAIL 1:
 EMAIL 2:
 EMAIL 3:
 PO #: 2121-00113-00

DELIVERY METHOD: EMAIL MAIL OTHER*
 EMAIL 1:
 EMAIL 2:
 EMAIL 3:
 PO #: 2121-00113-00

DELIVERY METHOD: EXCEL WATERTRAX OTHER*
 DATA FORMAT: EXCEL BC EMS OTHER*

EMAIL 1:
 EMAIL 2:
 EMAIL 3:
 PO #: 2121-00113-00

SAMPLED BY: Nathan Bivise

MATRIX:	DRINKING WATER	OTHER WATER	SOIL	OTHER
CLIENT SAMPLE ID:				
NM18-A1-01A				
NM18-A1-01B				
NM18-A1-01C				
DZF-A				
NM18-A1-01D				
NM18-A1-02A				
NM18-A1-02B				
NM18-A1-02C				
NM18-A1-02D				
NM18-A1-03A				
NM18-A1-03B				
NM18-A1-03C				

CONTAINERS	DATE	TIME	CHLORINATED	FILTERED	PRESERVED	COMMENTS:
4	2018-12-18	9:00				
4	↓	10:00				
4	↓	11:00				
4	↓	12:00				
4	2018-12-18	8:30				
4	↓	8:45				
4	↓	9:00				
4	↓	9:30				
3	2018-12-19	12:00				
2	↓	13:00				

** If you would like to sign up for ClientConnect and/or Envirochain, CARO's online service offerings, please check here:

SHIPPING INSTRUCTIONS: Return Cooler(s)

Supplies Needed:

SAMPLE RETENTION: 30 Days (default) 60 Days 90 Days

Other (surcharges will apply):

* OTHER INSTRUCTIONS:

If you would like to talk to a real live Scientist about your project requirements, please check here:

ANALYSES REQUESTED:	BTEX	VPH	PHCF1	VOC	VPH	EPH	PHCF2-F4	PAH	L/HEPH	PHENOLS Chlorinated	Non-Chlor.	PCB	GLYCOLS	HAA	PESTICIDES	ACID HERBICIDES	METALS - WATER TOTAL	Hg	METALS - WATER DISSOLVED	Hg	METALS - SOIL (SALM)	inc. pH	pH	EC	ALK	TSS	VSS	TDS	BOD	COD	TOG	MOG	FECAL COLIFORMS	HPC	TOTAL COLIFORMS	E. coli	ASBESTOS	HOLD	POSSIBLE SAMPLE HAZARD CODE(S)
	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>		
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	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>			

RELINQUISHED BY: Nathan Bivise
 RECEIVED BY: TS w/l
 DATE: Dec 21/18
 TIME: 2:00pm

TURNAROUND TIME REQUESTED: Rush: 1 Day* 2 Day* 3 Day*

REGULATORY APPLICATION: Canadian Drinking Water Quality BC WQG BC HWR
 BC CSR Soil: W AL PL RL RL-AD RL-HD CL IL
 BC CSR Water: AW IW LW DW

CMME:
 OTHER:
 PROJECT NUMBER / INFO: 2121-00113-00 T 2018

ANALYSES REQUESTED:
 A: Biohazard
 B: Granule
 C: PCBs
 D: Asbestos
 E: Heavy Metals
 F: Flammable
 G: Strong Odour
 H: High Contamination
 I: Other (please specify)

SAMPLE RECEIPT CONDITION:
 COOLER 1 (°C): 8.6
 COOLER 2 (°C):
 COOLER 3 (°C):
 CUSTODY SEALS INTACT: NA Y N

DATE: Dec 21/18
 TIME: 3:30

CARCO

ANALYTICAL SERVICES
Caring About Results, Obviously.

CARCO.ca 1-888-311-8846

#110-4011 Viking Way, Richmond, BC V6V 2K9
#102-3677 Highway 97N, Kelowna, BC V1X 5C3
17225 109 Avenue NW, Edmonton, AB T5S 1H7

CHAIN OF CUSTODY RECORD CO# B 72858 PAGE 2 OF 2

CARO BC COC, Rev 2017-05

REPORT TO: See report

COMPANY: _____

ADDRESS: _____

CONTACT: _____

TEL/FAX: _____

DELIVERY METHOD: EMAIL MAIL OTHER*
 WATERTRAX ESdat
 DATA FORMAT: EXCEL BC EMS OTHER*

EMAIL 1: _____

EMAIL 2: _____

EMAIL 3: _____

INVOICE TO: _____

COMPANY: _____

ADDRESS: _____

CONTACT: _____

TEL/FAX: _____

DELIVERY METHOD: EMAIL MAIL OTHER*
 WATERTRAX ESdat
 DATA FORMAT: EXCEL BC EMS OTHER*

EMAIL 1: _____

EMAIL 2: _____

EMAIL 3: _____

*If you would like to sign up for ClientConnect and/or Envirochain, CARCO's online service offerings, please check here:

SAMPLED BY: Martin Bisse

CLIENT SAMPLE ID: _____

MATRIX: DRINKING WATER OTHER WATER SOIL OTHER

CONTAINERS: _____

DATE: _____

TIME: _____

CHLORINATED: FILTERED: PRESERVED:

COMMENTS: _____

DATE: _____

TIME: _____

CHLORINATED: FILTERED: PRESERVED:

COMMENTS: _____

DATE: _____

TIME: _____

CHLORINATED: FILTERED: PRESERVED:

COMMENTS: _____

SHIPPING INSTRUCTIONS: Return Cooler(s) 30 Days (default) 60 Days 90 Days Other (surcharges will apply): _____

REINQUISHED BY: Martin Bisse DATE: Dec 21/16 RECEIVED BY: _____ DATE: _____
 TURNAROUND TIME REQUESTED: _____ TIME: _____
 Routine: (5-7 Days) Rush: 1 Day* 2 Day* 3 Day*
 *Contact Lab To Confirm. Surcharges May Apply

PROJECT NUMBER / INFO: 2121-06113-00 T2016
 ANALYSES REQUESTED:
 BTEX VPH PHC F1
 VOC VPH
 EPH PHC F2-F4
 PAH L/HEPH
 PHENOLS Chlorinated Non-Chlor.
 PCB GLYCOLS HAA
 PESTICIDES ACID HERBICIDES
 METALS - WATER TOTAL Hg
 METALS - WATER DISSOLVED Hg
 METALS - SOIL (SALM) Inc. pH
 pH EC ALK
 TSS VSS TDS
 BOD COD
 TOG MOG
 FECAL COLIFORMS HPC
 TOTAL COLIFORMS E. coli
 ASBESTOS Speciated Cr+
 REGULATORY APPLICATION: Canadian Drinking Water Quality BC WQG BC HWF
 BC CSR Soil: WL AL PL R-ID R-HD CL TL
 BC CSR Water: AW IW LW DW
 OTHER: _____

CLIENT SAMPLE ID	MATRIX	# CONTAINERS	DATE	TIME	CHLORINATED	FILTERED	PRESERVED	COMMENTS	BTEX	VPH	PHC F1	VOC	VPH	EPH	PHC F2-F4	PAH	L/HEPH	PHENOLS	Chlorinated	Non-Chlor.	PCB	GLYCOLS	HAA	PESTICIDES	ACID HERBICIDES	METALS - WATER TOTAL	Hg	METALS - WATER DISSOLVED	Hg	METALS - SOIL (SALM)	Inc. pH	pH	EC	ALK	TSS	VSS	TDS	BOD	COD	TOG	MOG	FECAL COLIFORMS	HPC	TOTAL COLIFORMS	E. coli	ASBESTOS	HOLD	POSSIBLE SAMPLE HAZARD CODE(S)										
MW18-A1-03D		3	2018-12-19	14:00					X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X									
MW18-A1-03E		2	2018-12-19	14:20					X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X					
MW18-A1-04A		4	2018-12-22	8:00					X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X						
MW18-A1-04B		4		01:00					X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X						
MW18-A1-04C		2		9:30					X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X					
MW18-A1-04D		4		10:00					X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X				
MW18-A1-04E		3		10:00					X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X				
DUP-B		2		10:00					X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X				
5518-A1-01		2	2018-12-21	15:00					X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X			
5518-A1-02		2							X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	
5518-A1-03		2							X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
5518-A1-04		2							X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X

SAMPLE RECEIPT CONDITION:
 COOLER 1 (°C): _____ ICE: Y N
 COOLER 2 (°C): _____ ICE: Y N
 COOLER 3 (°C): _____ ICE: Y N
 CUSTODY SEALS INTACT: NA Y N



CERTIFICATE OF ANALYSIS

REPORTED TO	McElhanney Consulting Services Ltd. - Victoria 500-3960 Quadra Street Victoria, BC V8X 4A3	WORK ORDER	8121892
ATTENTION	Martin Birse	RECEIVED / TEMP REPORTED	2018-12-21 10:44 / 8°C
PO NUMBER	2243-18023-00	COC NUMBER	61786
PROJECT	2121-00113-00 T2016		
PROJECT INFO			

Introduction:

CARO Analytical Services is a testing laboratory full of smart, engaged scientists driven to make the world a safer and healthier place. Through our clients' projects we become an essential element for a better world. We employ methods conducted in accordance with recognized professional standards using accepted testing methodologies and quality control efforts. CARO is accredited by the Canadian Association for Laboratories Accreditation (CALA) to ISO 17025:2005 for specific tests listed in the scope of accreditation approved by CALA.

Big Picture Sidekicks



You know that the sample you collected after snowshoeing to site, digging 5 meters, and racing to get it on a plane so you can submit it to the lab for time sensitive results needed to make important and expensive decisions (whew) is VERY important. We know that too.

We've Got Chemistry



It's simple. We figure the more you enjoy working with our fun and engaged team members; the more likely you are to give us continued opportunities to support you.

Ahead of the Curve



Through research, regulation knowledge, and instrumentation, we are your analytical centre for the technical knowledge you need, BEFORE you need it, so you can stay up to date and in the know.

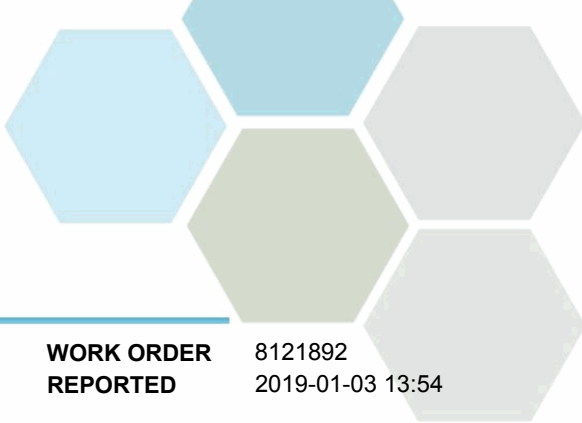
If you have any questions or concerns, please contact me at jnobrega@caro.ca

Authorized By:

Jessica Nobrega, B.Sc.
Client Service Manager

1-888-311-8846 | www.caro.ca

#110 4011 Viking Way Richmond, BC V6V 2K9 | #102 3677 Highway 97N Kelowna, BC V1X 5C3 | 17225 109 Avenue Edmonton, AB T5S 1H7

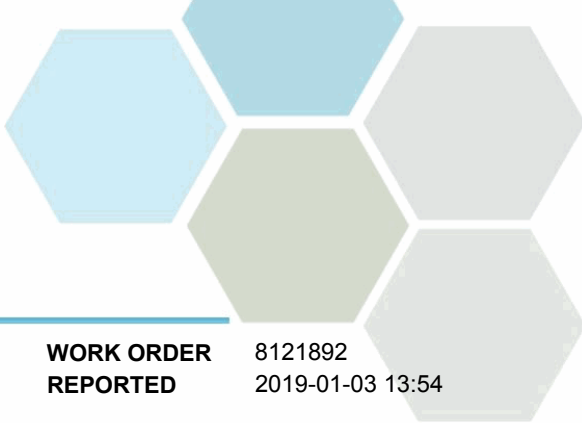


TEST RESULTS

REPORTED TO PROJECT McElhanney Consulting Services Ltd. - Victoria
2121-00113-00 T2016

WORK ORDER REPORTED 8121892
2019-01-03 13:54

Analyte	Result	RL	Units	Analyzed	Qualifier
VP18-A1-01 (8121892-01) Matrix: Air Sampled: 2018-12-21 08:48					
Sampling Flow: 105.2 mL/min		Sampling Time: 30 min			
Volatile Organic Compounds (VOC)					
Acetone	13	3.2	µg/m3	2018-12-28	
Acrylonitrile	< 0.32	0.32	µg/m3	2018-12-28	
Allyl chloride	< 0.32	0.32	µg/m3	2018-12-28	
Benzene	2.2	0.63	µg/m3	2018-12-28	
Bromobenzene	< 0.32	0.32	µg/m3	2018-12-28	
Bromodichloromethane	< 0.32	0.32	µg/m3	2018-12-28	
Bromoform	< 0.32	0.32	µg/m3	2018-12-28	
1,3-Butadiene	< 1.3	1.3	µg/m3	2018-12-28	
2-Butanone (MEK)	< 1.6	1.6	µg/m3	2018-12-28	
Carbon disulfide	< 3.2	3.2	µg/m3	2018-12-28	
Carbon tetrachloride	< 0.32	0.32	µg/m3	2018-12-28	
Chlorobenzene	< 0.32	0.32	µg/m3	2018-12-28	
Chloroethane	< 1.6	1.6	µg/m3	2018-12-28	
Chloroform	< 0.32	0.32	µg/m3	2018-12-28	
2-Chlorotoluene	< 1.6	1.6	µg/m3	2018-12-28	
n-Decane	2.9	0.95	µg/m3	2018-12-28	
1,2-Dibromo-3-chloropropane	< 0.32	0.32	µg/m3	2018-12-28	
Dibromochloromethane	< 0.32	0.32	µg/m3	2018-12-28	
1,2-Dibromoethane	< 0.16	0.16	µg/m3	2018-12-28	
Dibromomethane	< 0.32	0.32	µg/m3	2018-12-28	
1,2-Dichlorobenzene	< 0.32	0.32	µg/m3	2018-12-28	
1,3-Dichlorobenzene	2	0.32	µg/m3	2018-12-28	
1,4-Dichlorobenzene	< 0.32	0.32	µg/m3	2018-12-28	
Dichlorodifluoromethane	3.1	0.63	µg/m3	2018-12-28	
1,1-Dichloroethane	< 0.32	0.32	µg/m3	2018-12-28	
1,2-Dichloroethane	< 0.19	0.19	µg/m3	2018-12-28	
1,1-Dichloroethylene	< 0.32	0.32	µg/m3	2018-12-28	
cis-1,2-Dichloroethylene	< 0.32	0.32	µg/m3	2018-12-28	
trans-1,2-Dichloroethylene	< 0.32	0.32	µg/m3	2018-12-28	
Dichloromethane	3.3	3.2	µg/m3	2018-12-28	
1,2-Dichloropropane	< 0.32	0.32	µg/m3	2018-12-28	
1,3-Dichloropropane	< 0.63	0.63	µg/m3	2018-12-28	RA1
1,3-Dichloropropene (cis + trans)	< 0.63	0.63	µg/m3	2018-12-28	
Ethyl acetate	< 1.6	1.6	µg/m3	2018-12-28	
Ethylbenzene	1.9	1.6	µg/m3	2018-12-28	
Ethyl ether	< 0.63	0.63	µg/m3	2018-12-28	
Ethyl methacrylate	< 0.32	0.32	µg/m3	2018-12-28	
Hexachlorobutadiene	< 0.32	0.32	µg/m3	2018-12-28	
Hexachloroethane	< 1.3	1.3	µg/m3	2018-12-28	
n-Hexane	4.4	3.2	µg/m3	2018-12-28	
Isopropylbenzene (Cumene)	< 0.32	0.32	µg/m3	2018-12-28	



TEST RESULTS

REPORTED TO PROJECT McElhanney Consulting Services Ltd. - Victoria
2121-00113-00 T2016

WORK ORDER REPORTED 8121892
2019-01-03 13:54

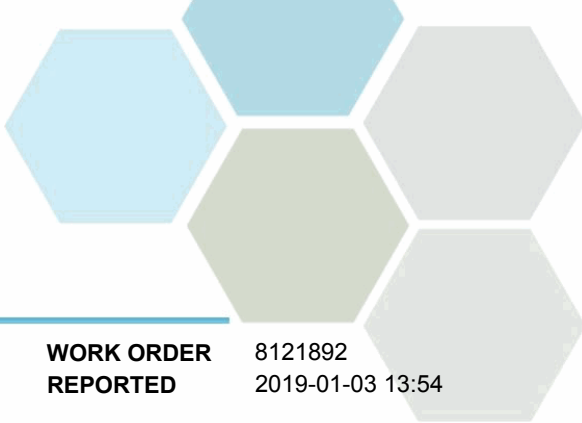
Analyte	Result	RL	Units	Analyzed	Qualifier
VP18-A1-01 (8121892-01) Matrix: Air Sampled: 2018-12-21 08:48, Continued					
Sampling Flow: 105.2 mL/min		Sampling Time: 30 min			
Volatile Organic Compounds (VOC), Continued					
Methacrylonitrile	< 0.32	0.32	µg/m3	2018-12-28	
Methyl acrylate	< 1.6	1.6	µg/m3	2018-12-28	
Methyl cyclohexane	9.5	1.6	µg/m3	2018-12-28	
Methyl tert-butyl ether	< 0.63	0.63	µg/m3	2018-12-28	
Methyl methacrylate	< 0.63	0.63	µg/m3	2018-12-28	
4-Methyl-2-Pentanone (MIBK)	1	0.63	µg/m3	2018-12-28	
Naphthalene	< 0.32	0.32	µg/m3	2018-12-28	
Nitrobenzene	< 0.32	0.32	µg/m3	2018-12-28	
Styrene	< 0.32	0.32	µg/m3	2018-12-28	
1,1,1,2-Tetrachloroethane	< 0.32	0.32	µg/m3	2018-12-28	
1,1,2,2-Tetrachloroethane	< 0.22	0.22	µg/m3	2018-12-28	
Tetrachloroethylene	15	1.6	µg/m3	2018-12-28	
Tetrahydrofuran	< 0.32	0.32	µg/m3	2018-12-28	
Toluene	45	3.2	µg/m3	2018-12-28	
1,2,4-Trichlorobenzene	< 0.32	0.32	µg/m3	2018-12-28	
1,1,1-Trichloroethane	< 0.32	0.32	µg/m3	2018-12-28	
1,1,2-Trichloro-1,2,2-trifluoroethane	1.3	0.63	µg/m3	2018-12-28	
1,1,2-Trichloroethane	< 0.32	0.32	µg/m3	2018-12-28	
Trichloroethylene	< 0.16	0.16	µg/m3	2018-12-28	
Trichlorofluoromethane	1.5	0.32	µg/m3	2018-12-28	
1,2,3-Trichloropropane	< 0.32	0.32	µg/m3	2018-12-28	
1,2,4-Trimethylbenzene	< 1.6	1.6	µg/m3	2018-12-28	
1,3,5-Trimethylbenzene	< 1.6	1.6	µg/m3	2018-12-28	
Vinyl chloride	< 0.63	0.63	µg/m3	2018-12-28	
Xylenes (total)	9.9	4.8	µg/m3	2018-12-28	
VHv (6-13)	720	630	µg/m3	2018-12-28	
VPHv	650	630	µg/m3	2018-12-28	
Surrogate: Toluene-d8	100	60-127	%	2018-12-28	

VP18-A1-03 (8121892-02) | Matrix: Air | Sampled: 2018-12-21 09:46

Sampling Flow: 111.5 mL/min Sampling Time: 30 min

Volatile Organic Compounds (VOC)

Acetone	9	3	µg/m3	2018-12-28	
Acrylonitrile	< 0.3	0.3	µg/m3	2018-12-28	
Allyl chloride	< 0.3	0.3	µg/m3	2018-12-28	
Benzene	5	0.6	µg/m3	2018-12-28	
Bromobenzene	< 0.3	0.3	µg/m3	2018-12-28	
Bromodichloromethane	< 0.3	0.3	µg/m3	2018-12-28	
Bromoform	< 0.3	0.3	µg/m3	2018-12-28	
1,3-Butadiene	< 1.2	1.2	µg/m3	2018-12-28	

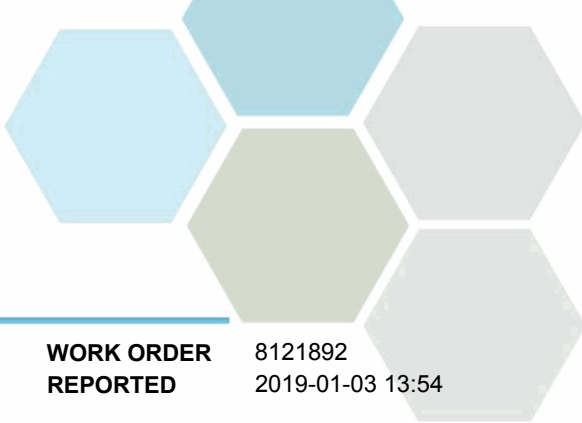


TEST RESULTS

REPORTED TO PROJECT McElhanney Consulting Services Ltd. - Victoria
2121-00113-00 T2016

WORK ORDER REPORTED 8121892
2019-01-03 13:54

Analyte	Result	RL	Units	Analyzed	Qualifier
VP18-A1-03 (8121892-02) Matrix: Air Sampled: 2018-12-21 09:46, Continued					
Sampling Flow: 111.5 mL/min		Sampling Time: 30 min			
<i>Volatile Organic Compounds (VOC), Continued</i>					
2-Butanone (MEK)	< 1.5	1.5	µg/m3	2018-12-28	
Carbon disulfide	< 3	3	µg/m3	2018-12-28	
Carbon tetrachloride	< 0.3	0.3	µg/m3	2018-12-28	
Chlorobenzene	< 0.3	0.3	µg/m3	2018-12-28	
Chloroethane	< 1.5	1.5	µg/m3	2018-12-28	
Chloroform	3.6	0.3	µg/m3	2018-12-28	
2-Chlorotoluene	< 1.5	1.5	µg/m3	2018-12-28	
n-Decane	2	0.9	µg/m3	2018-12-28	
1,2-Dibromo-3-chloropropane	< 0.3	0.3	µg/m3	2018-12-28	
Dibromochloromethane	< 0.3	0.3	µg/m3	2018-12-28	
1,2-Dibromoethane	< 0.15	0.15	µg/m3	2018-12-28	
Dibromomethane	< 0.3	0.3	µg/m3	2018-12-28	
1,2-Dichlorobenzene	< 0.3	0.3	µg/m3	2018-12-28	
1,3-Dichlorobenzene	2	0.3	µg/m3	2018-12-28	
1,4-Dichlorobenzene	< 0.3	0.3	µg/m3	2018-12-28	
Dichlorodifluoromethane	2.8	0.6	µg/m3	2018-12-28	
1,1-Dichloroethane	< 0.3	0.3	µg/m3	2018-12-28	
1,2-Dichloroethane	< 0.18	0.18	µg/m3	2018-12-28	
1,1-Dichloroethylene	< 0.3	0.3	µg/m3	2018-12-28	
cis-1,2-Dichloroethylene	< 0.3	0.3	µg/m3	2018-12-28	
trans-1,2-Dichloroethylene	< 0.3	0.3	µg/m3	2018-12-28	
Dichloromethane	9.3	3	µg/m3	2018-12-28	
1,2-Dichloropropane	< 0.3	0.3	µg/m3	2018-12-28	
1,3-Dichloropropane	< 0.45	0.45	µg/m3	2018-12-28	RA1
1,3-Dichloropropene (cis + trans)	< 0.6	0.6	µg/m3	2018-12-28	
Ethyl acetate	< 1.5	1.5	µg/m3	2018-12-28	
Ethylbenzene	2	1.5	µg/m3	2018-12-28	
Ethyl ether	1.2	0.6	µg/m3	2018-12-28	
Ethyl methacrylate	< 0.3	0.3	µg/m3	2018-12-28	
Hexachlorobutadiene	< 0.3	0.3	µg/m3	2018-12-28	
Hexachloroethane	< 1.2	1.2	µg/m3	2018-12-28	
n-Hexane	4.3	3	µg/m3	2018-12-28	
Isopropylbenzene (Cumene)	< 0.3	0.3	µg/m3	2018-12-28	
Methacrylonitrile	< 0.3	0.3	µg/m3	2018-12-28	
Methyl acrylate	< 1.5	1.5	µg/m3	2018-12-28	
Methyl cyclohexane	8.2	1.5	µg/m3	2018-12-28	
Methyl tert-butyl ether	< 0.6	0.6	µg/m3	2018-12-28	
Methyl methacrylate	< 0.6	0.6	µg/m3	2018-12-28	
4-Methyl-2-Pentanone (MIBK)	0.87	0.6	µg/m3	2018-12-28	
Naphthalene	< 0.3	0.3	µg/m3	2018-12-28	
Nitrobenzene	< 0.3	0.3	µg/m3	2018-12-28	



TEST RESULTS

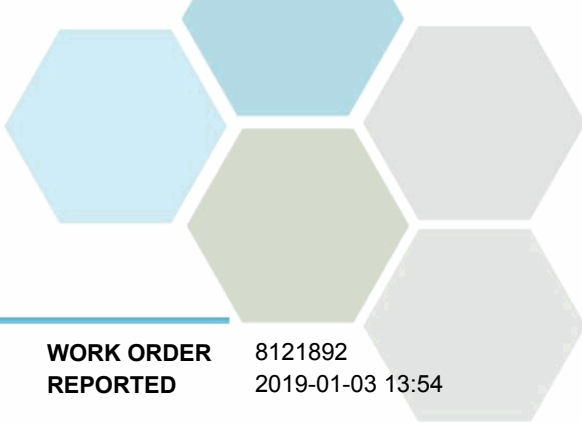
REPORTED TO PROJECT McElhanney Consulting Services Ltd. - Victoria
2121-00113-00 T2016

WORK ORDER REPORTED 8121892
2019-01-03 13:54

Analyte	Result	RL	Units	Analyzed	Qualifier
VP18-A1-03 (8121892-02) Matrix: Air Sampled: 2018-12-21 09:46, Continued					
Sampling Flow: 111.5 mL/min		Sampling Time: 30 min			
Volatile Organic Compounds (VOC), Continued					
Styrene	< 0.3	0.3	µg/m3	2018-12-28	
1,1,1,2-Tetrachloroethane	< 0.3	0.3	µg/m3	2018-12-28	
1,1,2,2-Tetrachloroethane	< 0.21	0.21	µg/m3	2018-12-28	
Tetrachloroethylene	11	1.5	µg/m3	2018-12-28	
Tetrahydrofuran	< 0.3	0.3	µg/m3	2018-12-28	
Toluene	30	3	µg/m3	2018-12-28	
1,2,4-Trichlorobenzene	< 0.3	0.3	µg/m3	2018-12-28	
1,1,1-Trichloroethane	< 0.3	0.3	µg/m3	2018-12-28	
1,1,2-Trichloro-1,2,2-trifluoroethane	< 0.6	0.6	µg/m3	2018-12-28	
1,1,2-Trichloroethane	< 0.3	0.3	µg/m3	2018-12-28	
Trichloroethylene	< 0.15	0.15	µg/m3	2018-12-28	
Trichlorofluoromethane	1.4	0.3	µg/m3	2018-12-28	
1,2,3-Trichloropropane	< 0.3	0.3	µg/m3	2018-12-28	
1,2,4-Trimethylbenzene	< 1.5	1.5	µg/m3	2018-12-28	
1,3,5-Trimethylbenzene	< 1.5	1.5	µg/m3	2018-12-28	
Vinyl chloride	< 0.6	0.6	µg/m3	2018-12-28	
Xylenes (total)	10	4.5	µg/m3	2018-12-28	
VHv (6-13)	700	600	µg/m3	2018-12-28	
VPHv	640	600	µg/m3	2018-12-28	
Surrogate: Toluene-d8	98	60-127	%	2018-12-28	

Sample Qualifiers:

RA1 The Reporting Limit has been raised due to matrix interference.



APPENDIX 1: SUPPORTING INFORMATION

REPORTED TO PROJECT McElhanney Consulting Services Ltd. - Victoria
2121-00113-00 T2016

WORK ORDER REPORTED 8121892
2019-01-03 13:54

Analysis Description	Method Ref.	Technique	Location
VOC/VH/VP in Air	EPA TO-17 (1999)	Thermal Desorption (TD) GC-MSD	Richmond

Glossary of Terms:

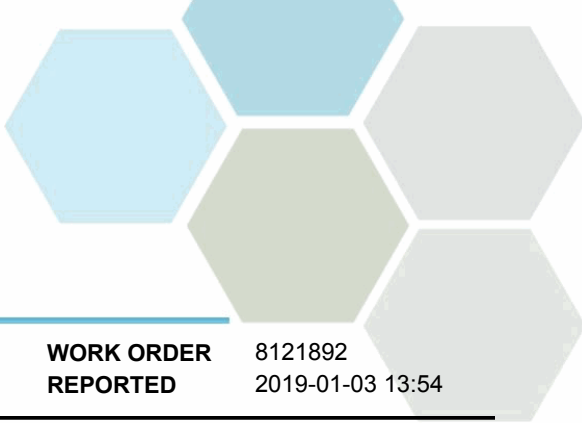
RL	Reporting Limit (default)
<	Less than the specified Reporting Limit (RL) - the actual RL may be higher than the default RL due to various factors
µg	Micrograms
EPA	United States Environmental Protection Agency Test Methods

Volatiles in Vapour by Thermal Desorption Comments:

If the sampling pump flow rate and sampling duration are available, results are converted from a weight basis (µg) to a weight per volume basis (µg/m³). In the event of a discrepancy between the lab-calibrated flow rate and field flow rate, the field flow rate will be used, unless indicated otherwise. Inaccurate sampling information could cause a significant bias in the results.

General Comments:

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



APPENDIX 2: QUALITY CONTROL RESULTS

REPORTED TO PROJECT McElhanney Consulting Services Ltd. - Victoria
2121-00113-00 T2016

WORK ORDER REPORTED 8121892
2019-01-03 13:54

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

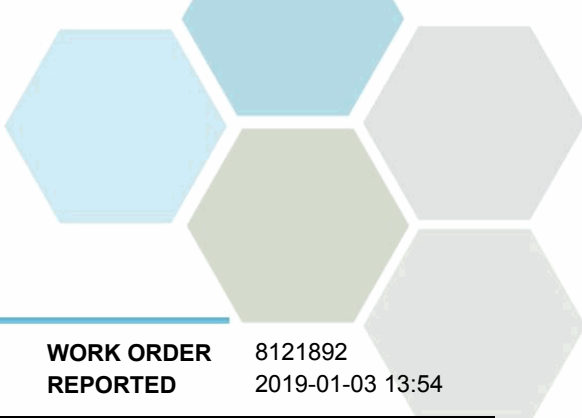
- **Method Blank (Blk):** A blank sample that undergoes sample processing identical to that carried out for the test samples. Method blank results are used to assess contamination from the laboratory environment and reagents.
- **Duplicate (Dup):** An additional or second portion of a randomly selected sample in the analytical run carried through the entire analytical process. Duplicates provide a measure of the analytical method's precision (reproducibility).
- **Blank Spike (BS):** A sample of known concentration which undergoes processing identical to that carried out for test samples, also referred to as a laboratory control sample (LCS). Blank spikes provide a measure of the analytical method's accuracy.
- **Matrix Spike (MS):** A second aliquot of sample is fortified with with a known concentration of target analytes and carried through the entire analytical process. Matrix spikes evaluate potential matrix effects that may affect the analyte recovery.
- **Reference Material (SRM):** A homogenous material of similar matrix to the samples, certified for the parameter(s) listed. Reference Materials ensure that the analytical process is adequate to achieve acceptable recoveries of the parameter(s) tested.

Each QC type is analyzed at a 5-10% frequency, i.e. one blank/duplicate/spike for every 10-20 samples. For all types of QC, the specified recovery (% Rec) and relative percent difference (RPD) limits are derived from long-term method performance averages and/or prescribed by the reference method.

Analyte	Result	RL Units	Spike Level	Source Result	% REC	REC Limit	% RPD	RPD Limit	Qualifier
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Volatile Organic Compounds (VOC), Batch B8L1910

Blank (B8L1910-BLK1)	Prepared: 2018-12-28, Analyzed: 2018-12-28								
Acetone	< 0.0100	0.0100 µg							
Acrylonitrile	< 0.0010	0.0010 µg							
Allyl chloride	< 0.0010	0.0010 µg							
Benzene	< 0.0020	0.0020 µg							
Bromobenzene	< 0.0010	0.0010 µg							
Bromodichloromethane	< 0.0010	0.0010 µg							
Bromoform	< 0.0010	0.0010 µg							
1,3-Butadiene	< 0.0040	0.0040 µg							
2-Butanone (MEK)	< 0.0050	0.0050 µg							
Carbon disulfide	< 0.0100	0.0100 µg							
Carbon tetrachloride	< 0.0010	0.0010 µg							
Chlorobenzene	< 0.0010	0.0010 µg							
Chloroethane	< 0.0050	0.0050 µg							
Chloroform	< 0.0010	0.0010 µg							
2-Chlorotoluene	< 0.0020	0.0020 µg							
n-Decane	< 0.0030	0.0030 µg							
1,2-Dibromo-3-chloropropane	< 0.0010	0.0010 µg							
Dibromochloromethane	< 0.0010	0.0010 µg							
1,2-Dibromoethane	< 0.0005	0.0005 µg							
Dibromomethane	< 0.0010	0.0010 µg							
1,2-Dichlorobenzene	< 0.0010	0.0010 µg							
1,3-Dichlorobenzene	< 0.0010	0.0010 µg							
1,4-Dichlorobenzene	< 0.0010	0.0010 µg							
Dichlorodifluoromethane	< 0.0020	0.0020 µg							
1,1-Dichloroethane	< 0.0010	0.0010 µg							
1,2-Dichloroethane	< 0.0006	0.0006 µg							
1,1-Dichloroethylene	< 0.0010	0.0010 µg							
cis-1,2-Dichloroethylene	< 0.0010	0.0010 µg							
trans-1,2-Dichloroethylene	< 0.0010	0.0010 µg							
Dichloromethane	< 0.0100	0.0100 µg							
1,2-Dichloropropane	< 0.0010	0.0010 µg							
1,3-Dichloropropane	< 0.0010	0.0010 µg							
1,3-Dichloropropene (cis + trans)	< 0.0020	0.0020 µg							
Ethyl acetate	< 0.0050	0.0050 µg							
Ethylbenzene	< 0.0050	0.0050 µg							

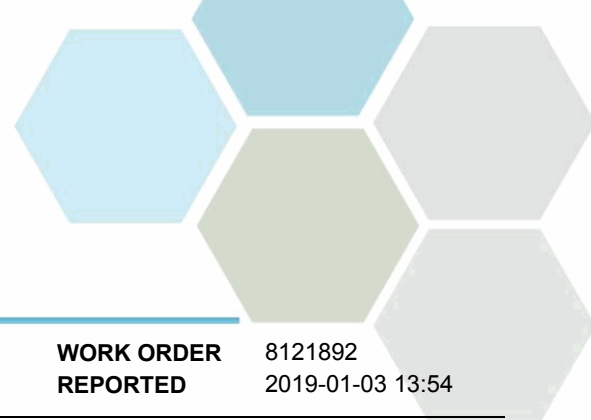


APPENDIX 2: QUALITY CONTROL RESULTS

REPORTED TO PROJECT McElhanney Consulting Services Ltd. - Victoria
2121-00113-00 T2016

WORK ORDER REPORTED 8121892
2019-01-03 13:54

Analyte	Result	RL Units	Spike Level	Source Result	% REC	REC Limit	% RPD	RPD Limit	Qualifier
Volatile Organic Compounds (VOC), Batch B8L1910, Continued									
Blank (B8L1910-BLK1), Continued					Prepared: 2018-12-28, Analyzed: 2018-12-28				
Ethyl ether	< 0.0020	0.0020 µg							
Ethyl methacrylate	< 0.0010	0.0010 µg							
Hexachlorobutadiene	< 0.0010	0.0010 µg							
Hexachloroethane	< 0.0040	0.0040 µg							
n-Hexane	< 0.0100	0.0100 µg							
Isopropylbenzene (Cumene)	< 0.0010	0.0010 µg							
Methacrylonitrile	< 0.0010	0.0010 µg							
Methyl acrylate	< 0.0050	0.0050 µg							
Methyl cyclohexane	< 0.0050	0.0050 µg							
Methyl tert-butyl ether	< 0.0020	0.0020 µg							
Methyl methacrylate	< 0.0020	0.0020 µg							
4-Methyl-2-Pentanone (MIBK)	< 0.0020	0.0020 µg							
Naphthalene	< 0.0010	0.0010 µg							
Nitrobenzene	< 0.0010	0.0010 µg							
Styrene	< 0.0010	0.0010 µg							
1,1,1,2-Tetrachloroethane	< 0.0010	0.0010 µg							
1,1,2,2-Tetrachloroethane	< 0.0007	0.0007 µg							
Tetrachloroethylene	< 0.0050	0.0050 µg							
Tetrahydrofuran	< 0.0010	0.0010 µg							
Toluene	< 0.0100	0.0100 µg							
1,2,4-Trichlorobenzene	< 0.0010	0.0010 µg							
1,1,1-Trichloroethane	< 0.0010	0.0010 µg							
1,1,2-Trichloro-1,2,2-trifluoroethane	< 0.0020	0.0020 µg							
1,1,2-Trichloroethane	< 0.0010	0.0010 µg							
Trichloroethylene	< 0.0005	0.0005 µg							
Trichlorofluoromethane	< 0.0010	0.0010 µg							
1,2,3-Trichloropropane	< 0.0010	0.0010 µg							
1,2,4-Trimethylbenzene	< 0.0050	0.0050 µg							
1,3,5-Trimethylbenzene	< 0.0050	0.0050 µg							
Vinyl chloride	< 0.0020	0.0020 µg							
Xylenes (total)	< 0.0150	0.0150 µg							
VHv (6-13)	< 2.00	2.00 µg							
VPHv	< 2.00	2.00 µg							
Surrogate: Toluene-d8	0.149	µg	0.123		121	60-127			
LCS (B8L1910-BS1)					Prepared: 2018-12-28, Analyzed: 2018-12-28				
Acetone	0.0349	0.0100 µg	0.0500		70	60-140			
Acrylonitrile	0.0326	0.0010 µg	0.0500		65	60-140			
Allyl chloride	0.0384	0.0010 µg	0.0500		77	60-140			
Benzene	0.0357	0.0020 µg	0.0500		71	60-140			
Bromobenzene	0.0383	0.0010 µg	0.0500		77	60-140			
Bromodichloromethane	0.0422	0.0010 µg	0.0505		84	60-140			
Bromoform	0.0382	0.0010 µg	0.0500		76	60-140			
1,3-Butadiene	0.0311	0.0040 µg	0.0500		62	60-140			
2-Butanone (MEK)	0.0328	0.0050 µg	0.0500		66	60-140			
Carbon disulfide	0.0328	0.0100 µg	0.0500		66	60-140			
Carbon tetrachloride	0.0407	0.0010 µg	0.0500		81	60-140			
Chlorobenzene	0.0384	0.0010 µg	0.0505		76	60-140			
Chloroethane	0.0335	0.0050 µg	0.0500		67	60-140			
Chloroform	0.0410	0.0010 µg	0.0500		82	60-140			
2-Chlorotoluene	0.0383	0.0020 µg	0.0500		77	60-140			
n-Decane	0.0437	0.0030 µg	0.0500		87	60-140			
1,2-Dibromo-3-chloropropane	0.0391	0.0010 µg	0.0500		78	60-140			
Dibromochloromethane	0.0396	0.0010 µg	0.0505		78	60-140			
1,2-Dibromoethane	0.0389	0.0005 µg	0.0500		78	60-140			
Dibromomethane	0.0387	0.0010 µg	0.0500		77	60-140			

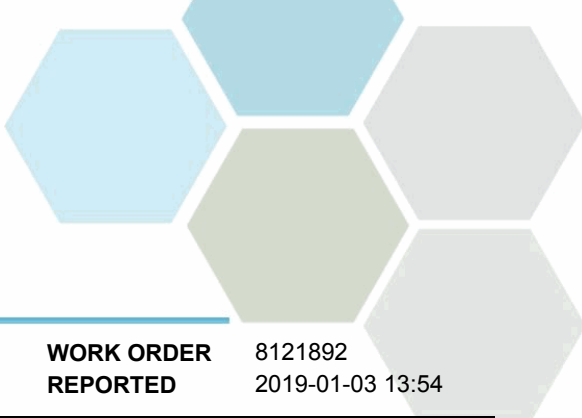


APPENDIX 2: QUALITY CONTROL RESULTS

REPORTED TO PROJECT McElhanney Consulting Services Ltd. - Victoria
2121-00113-00 T2016

WORK ORDER REPORTED 8121892
2019-01-03 13:54

Analyte	Result	RL Units	Spike Level	Source Result	% REC	REC Limit	% RPD	RPD Limit	Qualifier
Volatile Organic Compounds (VOC), Batch B8L1910, Continued									
LCS (B8L1910-BS1), Continued					Prepared: 2018-12-28, Analyzed: 2018-12-28				
1,2-Dichlorobenzene	0.0431	0.0010 µg	0.0500		86	60-140			
1,3-Dichlorobenzene	0.0406	0.0010 µg	0.0500		81	60-140			
1,4-Dichlorobenzene	0.0382	0.0010 µg	0.0500		76	60-140			
Dichlorodifluoromethane	0.0283	0.0020 µg	0.0500		57	60-140			SPK1
1,1-Dichloroethane	0.0364	0.0010 µg	0.0500		73	60-140			
1,2-Dichloroethane	0.0405	0.0006 µg	0.0500		81	60-140			
1,1-Dichloroethylene	0.0319	0.0010 µg	0.0500		64	60-140			
cis-1,2-Dichloroethylene	0.0365	0.0010 µg	0.0500		73	60-140			
trans-1,2-Dichloroethylene	0.0343	0.0010 µg	0.0500		69	60-140			
Dichloromethane	0.0345	0.0100 µg	0.0500		69	60-140			
1,2-Dichloropropane	0.0395	0.0010 µg	0.0500		79	60-140			
1,3-Dichloropropane	0.0382	0.0010 µg	0.0500		76	60-140			
1,3-Dichloropropene (cis + trans)	0.0704	0.0020 µg	0.100		70	60-140			
Ethyl acetate	0.0421	0.0050 µg	0.0500		84	60-140			
Ethylbenzene	0.0356	0.0050 µg	0.0500		71	60-140			
Ethyl ether	0.0288	0.0020 µg	0.0500		58	60-140			SPK1
Ethyl methacrylate	0.0400	0.0010 µg	0.0500		80	60-140			
Hexachlorobutadiene	0.0409	0.0010 µg	0.0500		82	60-140			
Hexachloroethane	0.0425	0.0040 µg	0.0498		85	60-140			
n-Hexane	0.0340	0.0100 µg	0.0498		68	60-140			
Isopropylbenzene (Cumene)	0.0391	0.0010 µg	0.0500		78	60-140			
Methacrylonitrile	0.0341	0.0010 µg	0.0500		68	60-140			
Methyl acrylate	0.0341	0.0050 µg	0.0500		68	60-140			
Methyl cyclohexane	0.0342	0.0050 µg	0.0500		68	60-140			
Methyl tert-butyl ether	0.0327	0.0020 µg	0.0500		65	60-140			
Methyl methacrylate	0.0354	0.0020 µg	0.0500		71	60-140			
4-Methyl-2-Pentanone (MIBK)	0.0356	0.0020 µg	0.0500		71	60-140			
Naphthalene	0.0340	0.0010 µg	0.0500		68	60-140			
Nitrobenzene	0.0334	0.0010 µg	0.0500		67	60-140			
Styrene	0.0368	0.0010 µg	0.0500		74	60-140			
1,1,1,2-Tetrachloroethane	0.0388	0.0010 µg	0.0500		78	60-140			
1,1,2,2-Tetrachloroethane	0.0420	0.0007 µg	0.0505		83	60-140			
Tetrachloroethylene	0.0405	0.0050 µg	0.0500		81	60-140			
Tetrahydrofuran	0.0347	0.0010 µg	0.0500		69	60-140			
Toluene	0.0375	0.0100 µg	0.0500		75	60-140			
1,2,4-Trichlorobenzene	0.0345	0.0010 µg	0.0500		69	60-140			
1,1,1-Trichloroethane	0.0404	0.0010 µg	0.0505		80	60-140			
1,1,2-Trichloro-1,2,2-trifluoroethane	0.0305	0.0020 µg	0.0500		61	60-140			
1,1,2-Trichloroethane	0.0402	0.0010 µg	0.0500		80	60-140			
Trichloroethylene	0.0389	0.0005 µg	0.0500		78	60-140			
Trichlorofluoromethane	0.0406	0.0010 µg	0.0500		81	60-140			
1,2,3-Trichloropropane	0.0413	0.0010 µg	0.0500		83	60-140			
1,2,4-Trimethylbenzene	0.0408	0.0050 µg	0.0505		81	60-140			
1,3,5-Trimethylbenzene	0.0402	0.0050 µg	0.0500		80	60-140			
Vinyl chloride	0.0314	0.0020 µg	0.0500		63	60-140			
Xylenes (total)	0.113	0.0150 µg	0.150		75	60-140			
LCS (B8L1910-BS2)					Prepared: 2018-12-28, Analyzed: 2018-12-28				
VHv (6-13)	9.79	2.00 µg	10.1		97	70-130			
LCS Dup (B8L1910-BSD1)					Prepared: 2018-12-29, Analyzed: 2018-12-29				
Acetone	0.0464	0.0100 µg	0.0500		93	60-140	28	30	
Acrylonitrile	0.0369	0.0010 µg	0.0500		74	60-140	12	30	
Allyl chloride	0.0363	0.0010 µg	0.0500		73	60-140	6	30	
Benzene	0.0436	0.0020 µg	0.0500		87	60-140	20	30	
Bromobenzene	0.0425	0.0010 µg	0.0500		85	60-140	10	30	

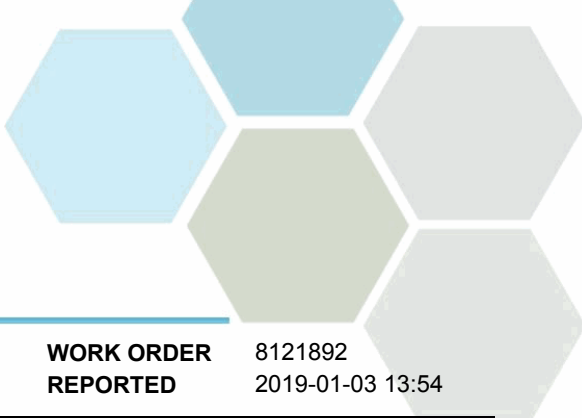


APPENDIX 2: QUALITY CONTROL RESULTS

REPORTED TO PROJECT McElhanney Consulting Services Ltd. - Victoria
2121-00113-00 T2016

WORK ORDER REPORTED 8121892
2019-01-03 13:54

Analyte	Result	RL Units	Spike Level	Source Result	% REC	REC Limit	% RPD	RPD Limit	Qualifier
Volatile Organic Compounds (VOC), Batch B8L1910, Continued									
LCS Dup (B8L1910-BSD1), Continued					Prepared: 2018-12-29, Analyzed: 2018-12-29				
Bromodichloromethane	0.0388	0.0010 µg	0.0505		77	60-140	8	30	
Bromoform	0.0350	0.0010 µg	0.0500		70	60-140	9	30	
1,3-Butadiene	0.0433	0.0040 µg	0.0500		87	60-140	33	30	RPD
2-Butanone (MEK)	0.0335	0.0050 µg	0.0500		67	60-140	2	30	
Carbon disulfide	0.0350	0.0100 µg	0.0500		70	60-140	6	30	
Carbon tetrachloride	0.0358	0.0010 µg	0.0500		72	60-140	13	30	
Chlorobenzene	0.0348	0.0010 µg	0.0505		69	60-140	10	30	
Chloroethane	0.0372	0.0050 µg	0.0500		74	60-140	10	30	
Chloroform	0.0407	0.0010 µg	0.0500		81	60-140	< 1	30	
2-Chlorotoluene	0.0419	0.0020 µg	0.0500		84	60-140	9	30	
n-Decane	0.0453	0.0030 µg	0.0500		91	60-140	4	30	
1,2-Dibromo-3-chloropropane	0.0434	0.0010 µg	0.0500		87	60-140	10	30	
Dibromochloromethane	0.0354	0.0010 µg	0.0505		70	60-140	11	30	
1,2-Dibromoethane	0.0360	0.0005 µg	0.0500		72	60-140	8	30	
Dibromomethane	0.0363	0.0010 µg	0.0500		73	60-140	6	30	
1,2-Dichlorobenzene	0.0461	0.0010 µg	0.0500		92	60-140	7	30	
1,3-Dichlorobenzene	0.0407	0.0010 µg	0.0500		81	60-140	< 1	30	
1,4-Dichlorobenzene	0.0495	0.0010 µg	0.0500		99	60-140	26	30	
Dichlorodifluoromethane	0.0351	0.0020 µg	0.0500		70	60-140	22	30	
1,1-Dichloroethane	0.0369	0.0010 µg	0.0500		74	60-140	1	30	
1,2-Dichloroethane	0.0384	0.0006 µg	0.0500		77	60-140	5	30	
1,1-Dichloroethylene	0.0364	0.0010 µg	0.0500		73	60-140	13	30	
cis-1,2-Dichloroethylene	0.0379	0.0010 µg	0.0500		76	60-140	4	30	
trans-1,2-Dichloroethylene	0.0370	0.0010 µg	0.0500		74	60-140	8	30	
Dichloromethane	0.0392	0.0100 µg	0.0500		78	60-140	13	30	
1,2-Dichloropropane	0.0371	0.0010 µg	0.0500		74	60-140	6	30	
1,3-Dichloropropane	0.0360	0.0010 µg	0.0500		72	60-140	6	30	
1,3-Dichloropropene (cis + trans)	0.0576	0.0020 µg	0.100		58	60-140	20	30	SPK1
Ethyl acetate	0.0363	0.0050 µg	0.0500		73	60-140	15	30	
Ethylbenzene	0.0360	0.0050 µg	0.0500		72	60-140	1	30	
Ethyl ether	0.0335	0.0020 µg	0.0500		67	60-140	15	30	
Ethyl methacrylate	0.0356	0.0010 µg	0.0500		71	60-140	12	30	
Hexachlorobutadiene	0.0448	0.0010 µg	0.0500		90	60-140	9	30	
Hexachloroethane	0.0423	0.0040 µg	0.0498		85	60-140	< 1	30	
n-Hexane	0.0348	0.0100 µg	0.0498		70	60-140	2	30	
Isopropylbenzene (Cumene)	0.0405	0.0010 µg	0.0500		81	60-140	3	30	
Methacrylonitrile	0.0348	0.0010 µg	0.0500		70	60-140	2	30	
Methyl acrylate	0.0327	0.0050 µg	0.0500		65	60-140	4	30	
Methyl cyclohexane	0.0339	0.0050 µg	0.0500		68	60-140	< 1	30	
Methyl tert-butyl ether	0.0244	0.0020 µg	0.0500		49	60-140	29	30	SPK1
Methyl methacrylate	0.0338	0.0020 µg	0.0500		68	60-140	5	30	
4-Methyl-2-Pentanone (MIBK)	0.0339	0.0020 µg	0.0500		68	60-140	5	30	
Naphthalene	0.0410	0.0010 µg	0.0500		82	60-140	19	30	
Nitrobenzene	0.0390	0.0010 µg	0.0500		78	60-140	16	30	
Styrene	0.0388	0.0010 µg	0.0500		78	60-140	5	30	
1,1,1,2-Tetrachloroethane	0.0357	0.0010 µg	0.0500		71	60-140	8	30	
1,1,2,2-Tetrachloroethane	0.0418	0.0007 µg	0.0505		83	60-140	< 1	30	
Tetrachloroethylene	0.0403	0.0050 µg	0.0500		81	60-140	< 1	30	
Tetrahydrofuran	0.0352	0.0010 µg	0.0500		70	60-140	1	30	
Toluene	0.0373	0.0100 µg	0.0500		75	60-140	< 1	30	
1,2,4-Trichlorobenzene	0.0413	0.0010 µg	0.0500		83	60-140	18	30	
1,1,1-Trichloroethane	0.0375	0.0010 µg	0.0505		74	60-140	7	30	
1,1,2-Trichloro-1,2,2-trifluoroethane	0.0327	0.0020 µg	0.0500		65	60-140	7	30	
1,1,2-Trichloroethane	0.0384	0.0010 µg	0.0500		77	60-140	4	30	
Trichloroethylene	0.0406	0.0005 µg	0.0500		81	60-140	4	30	
Trichlorofluoromethane	0.0434	0.0010 µg	0.0500		87	60-140	7	30	



APPENDIX 2: QUALITY CONTROL RESULTS

REPORTED TO PROJECT McElhanney Consulting Services Ltd. - Victoria
2121-00113-00 T2016

WORK ORDER REPORTED 8121892
2019-01-03 13:54

Analyte	Result	RL Units	Spike Level	Source Result	% REC	REC Limit	% RPD	RPD Limit	Qualifier
Volatile Organic Compounds (VOC), Batch B8L1910, Continued									
LCS Dup (B8L1910-BSD1), Continued					Prepared: 2018-12-29, Analyzed: 2018-12-29				
1,2,3-Trichloropropane	0.0410	0.0010 µg	0.0500		82	60-140	< 1	30	
1,2,4-Trimethylbenzene	0.0440	0.0050 µg	0.0505		87	60-140	7	30	
1,3,5-Trimethylbenzene	0.0432	0.0050 µg	0.0500		86	60-140	7	30	
Vinyl chloride	0.0361	0.0020 µg	0.0500		72	60-140	14	30	
Xylenes (total)	0.117	0.0150 µg	0.150		78	60-140	4	30	

QC Qualifiers:

RPD Relative percent difference (RPD) of duplicate analysis are outside of control limits for unknown reason(s).
SPK1 The recovery of this analyte was outside of established control limits. The data was accepted based on performance of other batch QC.



AIR SAMPLING FIELD TEST DATA SHEET & EQUIPMENT RENTAL FORM

1. Client Information

Client: McElhanney Victoria Date(s) Sampled: Dec 21/18
 Project: 2121-0018-00 Sampled by: MB
 Details: Auto Museum COC #: _____

2. Site Conditions

Weather: Sunny Temperature (°C): 3°C
 Humidity: _____ Pressure: _____

3. Regulatory Level (recommended sample volume for ALL land use categories is 2 L):

- Agricultural / Urban Park / Residential (RL) Commercial (CL)
 Industrial (IL) Parkade (PK)

Note: The recommended sample volumes required to achieve BC CSR Schedule 3.3 Generic Numerical Vapour Standards are based on a clean site. If the site is contaminated, the recommended volumes may exceed analytical capabilities to achieve the low reporting limits and as such the reporting limits for certain parameters may be raised. Lower sample volumes are recommended at contaminated sites with high PID and/or Gastech readings; please contact the lab to discuss further.

ORDER # C007695

4. Sampling Data (Shaded fields to be completed by CARO staff)

Pump ID	Client Sample ID / Location	Location Notes (e.g. Hot site, Tube ID, etc.)	Initial Flow Rate (mL/min)		Suggested Sampling Time (mins)	Sampling Period (Time)		Total Sampling Time (min)	Final Flow Rate (mL/min)	
			Inlet 1 Tube:	Inlet 2 Tube:		Start	Stop		Inlet 1	Inlet 2
57	VP18-A1-01	/	100	/	20	8:48	9:18	30 min		
57	VP18-A1-03	/	100			9:46	10:16	30 min		

In situ Flow Compliance
 105.2
 111.5

Equip. Rented To: Martin Bird Rental Date: _____ Returned Date: _____
 Initial Calibration by/date: SM 12/21/18 Final Calibration by/date: _____
 Pumps Rented: 1 Returned: _____ TD Tubes Rented: 3 Returned: _____ Condition: _____
 Chargers Rented: 1 Returned: _____ Purge Tubes: 2 Returned: _____ Rotameter: _____ COCs: ✓
 Tubing Type: Nylon Butting Tubing: ✓ Splitters: N/A Instruction Manual: ✓
 Comments: _____ Surrogate ID: C870437

Contact

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