



GEMTEC

www.gemtec.ca

**Phase Two Environmental Site Assessment
Proposed Truck Repair Facility
Badger Daylighting
3025 Carp Road
Carp, Ontario**

experience • knowledge • integrity



expérience • connaissance • intégrité



GEMTEC

www.gemtec.ca

Submitted to:

Argue Construction Ltd.
2900 Carp Road
Carp, Ontario
K0A 1L0

**Phase Two Environmental Site Assessment
Proposed Truck Repair Facility
Badger Daylighting
3025 Carp Road
Carp, Ontario**

November 8, 2019
Project: 61730.61

GEMTEC Consulting Engineers and Scientists Limited
32 Steacie Drive
Ottawa, ON, Canada
K2K 2A9

November 8, 2019

File: 61730.61

Argue Construction Ltd.
2900 Carp Road
Carp, Ontario
K0A 1L0

Attention: Mr. Keith Riley

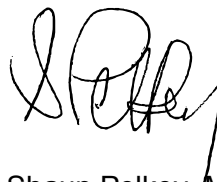
**Re:Phase Two Environmental Site Assessment
Proposed Truck Repair Facility
Badger Daylighting
3025 Carp Road
Carp, Ontario**

Enclosed is our Phase Two ESA report for the proposal dated October 24, 2019. The Phase Two ESA was completed in general accordance with Ontario Regulation 153/04, and describes the interpreted environmental conditions at the property.

We trust this information is sufficient for your current needs. If you have any questions or require further information, please contact the undersigned.



Nicole Soucy, B.A.Sc., M.A.Sc.
Environmental Scientist



Shaun Pelkey, M.Sc.E., P.Eng.
Principal, Environmental Engineer

NS/DP/SP

Enclosures

P:\0. Files\61700\61730.61\Phase Two ESA - Badger\61730.61_PhaseTwoESA_RPT01_V01_2019-11-8.docx

EXECUTIVE SUMMARY

GEMTEC Consulting Engineers and Scientists Limited (GEMTEC) was retained by Argue Construction Ltd., to complete a Phase Two Environmental Site Assessment (ESA) for the property located at 3025 Carp Road in Carp, Ontario.

The Phase Two ESA was completed following a Phase One ESA completed and submitted to Argue Construction Ltd., under separate cover. This Phase Two ESA has been completed in accordance with the requirements for Phase Two ESAs as defined in Part VII and Schedule E of Ontario Regulation 153/04, as amended. The purpose of this Phase Two ESA is to support a site plan application for redevelopment of the subject site.

The site is municipally addressed as 3025 Carp Road located in Carp, Ontario. Proposed site development includes construction of a warehouse building with office space, an access roadway, truck and office parking areas and a new water well and septic system. The subject property is currently vacant land, with a large sand pit excavation and piles of fill material.

Through completion of a Phase One ESA, the existing fill material piles were identified as the only Area of Potential Environmental Concern (APEC) on the subject site. The objective of this Phase Two ESA was to determine the soil quality within the areas of the site containing fill of unknown origins with respect to Ministry of Environment, Conservation and Parks, generic site condition standards.

The surficial geology of the subject site can be generally identified as fill material consisting of silt, sand and clay in varying compositions with organics and gravel/ boulders/ cobbles. Subsurface investigations also identified debris material including concrete, clay pipe, red bricks, wood and plastic in some areas of the site.

A total of six soil samples (four from test pits and two grab samples from the stockpiles identified on the subject property) were selected for analytical analysis based on the combustible headspace gas readings, visual, olfactory and tactile evidence of impacts and submitted to ALS Laboratory Group for analysis of metals and inorganics, polycyclic aromatic hydrocarbons (PAHs), petroleum hydrocarbons (PHCs) and benzene, toluene, ethylbenzene and xylene (BTEX).

The results of the Phase Two ESA indicated that soil quality in one location (19-GS-2) marginally exceeded MECP Table 8 standards for exceedance of benzo[a]pyrene. No other exceedances of MECP Table 8 standards were identified in site soils. Based on the exceedance of benzo[a]pyrene at 19-GS-2, it is recommended that soil in the vicinity of this location be disposed of at a MECP approved landfill during site redevelopment, pending the results of a toxicity characteristic leaching procedure (TCLP) analysis.

TABLE OF CONTENTS

1.0	INTRODUCTION.....	6
1.1	Site Description.....	6
1.2	Property Ownership	6
1.3	Current and Proposed Future Uses.....	6
1.4	Applicable Site Condition Standards	6
2.0	BACKGROUND INFORMATION	8
2.1	Physical Setting	8
2.2	Past Investigations.....	8
2.2.1	2019, Phase One Environmental Site Assessment by GEMTEC	8
3.0	INVESTIGATION METHODS	10
3.1	Test Pits.....	10
3.2	Soil Sampling.....	10
4.0	RESULTS OF THE INVESTIGATION	11
4.1	General.....	12
4.1.1	Site Geology	12
4.2	Soil Sample Results.....	12
4.3	Quality Assurance and Quality Control Results.....	13
5.0	CONCLUSIONS.....	14
6.0	REFERENCES.....	15
7.0	LIMITATION OF LIABILITY	16

LIST OF TABLES

Table 3.1: Summary of Soil Analyses.....	11
Table 4.1: Summary of Soil Sample Results	12

LIST OF APPENDICES

APPENDIX A	Figures
APPENDIX B	Test Pit Logs
APPENDIX C	Summary of Soil Samples
APPENDIX D	Laboratory Analytical Reports

1.0 INTRODUCTION

GEMTEC Consulting Engineers and Scientists Limited (GEMTEC) was retained by Argue Construction Ltd. to complete a Phase Two Environmental Site Assessment (ESA) for the property located at 3025 Carp Road (the 'subject property'). The site location is provided on the Key Plan, Figure A.1, Appendix A.

The Phase Two ESA was completed following a Phase One ESA (GEMTEC, 2019) completed and submitted to Argue Construction Ltd., under separate cover. Following the completion of the Phase One ESA one Area of Potential Environmental Concern (APEC) was identified on-site stemming from historical site use.

This Phase Two ESA has been completed in accordance with the requirements for Phase Two ESAs as defined in Part VII and Schedule E of Ontario Regulation 153/04, as amended by O. Reg. 511/09 in support of Site Plan Approval.

1.1 Site Description

The subject property is currently vacant land, owned by 1614791 Ontario Inc. The subject property consists of a large excavation, piles of fill material, and a gravel access road. The subject property boundary is shown on Figure A.2, Appendix A.

According to a review of historical records, the subject has never been developed and was used for agricultural purposes from prior to 1947 to sometime between 1947 and 1967, at which point resource extraction (sand pit) began on the subject site.

1.2 Property Ownership

The site is currently owned by owned by 1614791 Ontario Inc. The site representative is Keith Riley, 613-831-7044.

1.3 Current and Proposed Future Uses

Plans are being prepared to construct a truck repair facility for Badger Daylighting at 3025 Carp Road in Ottawa, Ontario. The proposed development includes a warehouse building with office space, access roadway, truck and office parking areas and a new water well and septic system. The building will consist of a slab on grade warehouse building with a footprint of about 775 square metres (8,340 square feet). Based on the plans provided to GEMTEC, an area for future building expansion is located on the northwest side of the proposed warehouse building.

1.4 Applicable Site Condition Standards

The Ministry of Environment, Conservation and Parks (MECP) Site Condition Standards (SCS) were selected based on site conditions and were selected for the site in accordance with the requirements of Ontario Regulation 153/04, Record of Site Condition – Part XV.1 of the

Environmental Protection Act (O. Reg. 153/04, Ministry of the Environment, Conservation and Parks, October 31, 2011).

The following information was considered in selecting the site condition standards:

- The most sensitive use of the property will be commercial;
- The site is located within 30 m of a water body;
- Not all neighbouring properties are supplied by municipal drinking water; and,
- Subsurface investigation completed on the subject site identified bedrock at depths less than 2.0 m.

Based on the above information the MECP Table 8 Generic Site Condition Standards for Use within 30 m of a Water Body in a Potable Groundwater Condition, Community Use (coarse textured soils) was selected for the subject property.

2.0 BACKGROUND INFORMATION

2.1 Physical Setting

Topographic mapping available through the Ontario Basic Mapping (GNC, 2004) and the Ministry of Natural Resources (MNR, 2014), were reviewed to determine topographic features in the vicinity of the subject property and study area. The elevation of the subject property is between 117 and 122 m above sea level and topography at the subject site and surrounding area is generally flat, sloping downward slightly to the north/ northeast.

Surficial and bedrock geology maps of the Ottawa area were reviewed. Based on the review, overburden in the vicinity of the subject property generally consists of sandy and silty compact diamicton in the eastern portion of subject property and gravel, sand and boulders in the western portion of the subject property, overlaying glacial till with a thickness of between 0 and 5 metres (ESRI, 2016). The bedrock is mapped as interbedded limestone and shale of the Verulam Formation (ESRI, 2016).

Groundwater flow often reflects topographic features and typically flows toward nearby lakes, rivers and wetland areas. Based on the topography and hydrogeological features, it is anticipated that local shallow groundwater would flow towards the north/ northeast.

2.2 Past Investigations

One historical assessment report was available for review as part of this Phase Two ESA.

2.2.1 2019, Phase One Environmental Site Assessment by GEMTEC

An ESA was completed for the subject property in 2019 by GEMTEC. The report was entitled “Phase One Environmental Site Assessment, Proposed Truck Repair Facility, Badger Daylighting, 3025 Carp Road, Carp, Ontario”.

A review of historical information pertaining to the subject site and adjacent properties identified, numerous potentially contaminating activities (PCAs) including but not limited to fill material of unknown quality, pesticide use and / or storage, waste disposal, manufacturing, and vehicle maintenance.

Fill material of unknown quality located on the subject property has been identified as a PCA, resulting in the identification of an APEC on the subject property, the APEC identified at the subject property is summarized below:

APEC 1: Importation of Fill Material of Unknown Quality on the subject property

Through a review of aerial photographs and site reconnaissance, fill material of unknown origin appears to have been piled on the subject property. The potentially associated contaminants of concern are metals & inorganics, and polycyclic aromatic hydrocarbons (PAHs), petroleum

hydrocarbons (PHC), benzene, toluene, ethylbenzene and xylene (BTEX), and volatile organic compounds (VOCs) (if presence is indicated through screening) in soil. This APEC is present across the north and eastern portions of the subject property.

Based on the APEC identified on the site, a Phase Two Environmental Site Assessment was recommended to investigate potential soil impacts on the subject property.

3.0 INVESTIGATION METHODS

3.1 Test Pits

Test pits were advanced on the subject property on October 28, 2019 to access if the soil conditions at selected test locations satisfy the applicable MECP SCS for the site. Potential contaminants of concern (COCs) identified in the Phase One ESA (GEMTEC, 2019) for soil at the site include metals and inorganics, PAHs, PHCs and BTEX.

Test pits were advanced using a rubber tire excavator provided and operated by Badger Daylighting, a copy of the test pit logs can be found in Appendix B. The approximate locations of the test pits are shown on the Test Pit Location Plan, Figure A.2, Appendix A. The test pit locations were selected by GEMTEC personnel and positioned at the site to investigate areas of identified fill placement. The locations of the test pits were determined using a Trimble R10 GPS survey instrument. The coordinates of the boreholes are referenced to NAD83 (CSRS) Epoch 2010, vertical network CGVD28 and are considered to be accurate within the tolerance of the instrument.

3.2 Soil Sampling

Soil samples were recovered from six test pits and two stockpiles identified on the subject property following the Guidance on Sampling and Analytical Methods for Use at Contaminated Sites in Ontario (MOE, 1996). Clean gloves were worn and changed between each sample to prevent cross contamination. Soil samples were collected directly into laboratory-supplied sampling containers. All samples were stored and shipped in laboratory supplied coolers. Samples were submitted to ALS Laboratory Group, of Nepean, Ontario, a CALA-certified analytical laboratory, under standard chain-of-custody procedures and in accordance with GEMTEC QA/QC procedures.

A total of 11 samples (nine samples recovered from the test pits, and the remaining two samples each from a stockpile identified on the subject property) were inspected in the field for visual, tactile and olfactory evidence of impact, and following a period of equilibration to ambient temperature, soil samples were screened in the field using an Eagle Series Portable Multi-Gas Detector. Field screening readings for the photoionization device (PID) were collected by sampling the soil vapours in the headspace of the re-sealable plastic sample bags, after allowing sample temperatures to rise above freezing temperature. The results of the soil vapour readings are provided on the Record of Test Pit Sheets in Appendix B.

The soil sampling program included the submission of soil samples for laboratory analysis of metals and inorganics, PAHs, PHCs and BTEX. Soil samples were selected based on soil vapour concentrations, visual, olfactory and tactile evidence of impact. A total of six soil samples (four from test pits and two from the stockpiles), were submitted to ALS Laboratory Group, a CALA

certified laboratory, for analysis of selected parameters. A summary of the soil samples screened and submitted for analyses of selected parameters are summarized in Table 3.1.

For soil samples collected for the analysis of PHC F1 and BTEX, a core of soil was placed in a pre-weighed laboratory prepared vial containing a measured amount of methanol.

Table 3.1: Summary of Soil Analyses

Test Pit	Sample	Gas Detector Reading HEX/IBL	Sample Depth (mbgs)	Soil Description	Analytical Analyses
TP19-5	SA1	0/0	0.00 – 0.46	Clayey silt, with organics	None
TP19-5	SA2	0/0	0.46 – 1.22	Silty clay, some sand, with organics	Metals & inorganics, PAHs, PHCs, and BTEX
TP19-6	SA1	0/0	0.00 – 1.07	Silty clay, some sand, with organics - red staining	Metals & inorganics, PAHs, PHCs, and BTEX
TP19-7	SA1	0/0	0.00 – 0.76	Clayey silt, with organics	None
TP19-8	SA1	0/0	0.00 – 0.30	Silty sand, some clay, with organics - red brick debris	Metals & inorganics, PAHs, PHCs, and BTEX
TP19-8	SA2	0/0	0.30 – 1.73	Silty sand/ sandy silt, some boulders, with organics - plastic, and red brick debris	None
TP19-9	SA1	0/0	0.00 – 0.76	Clayey silt with organics	None
TP19-9	SA2	0/0	0.76 – 1.83	Clayey silt with organics	None
TP19-10	SA1	0/0	0.00 – 0.91	Clayey silt with organics	Metals & inorganics, PAHs, PHCs, and BTEX
Pile 1	19-GS-1	0/0	Stockpile Grab Sample	Silty sand, some gravel, with organics, clay pipe, bricks wood and plastic	Metals & inorganics, PAHs, PHCs, and BTEX
Pile 2	19-GS-2	0/0	Stockpile Grab Sample	Silty sand, some gravel with organics, concrete, brick, plastic, and wood	Metals & inorganics, PAHs, PHCs, and BTEX

1. bgs – Below ground surface.
2. TP – Test pit
3. GS – Grab sample

4.0 RESULTS OF THE INVESTIGATION

4.1 General

Soil conditions identified in the test pits advanced as part of this investigation are provided on the Record of Test Pit sheets in Appendix B. The test pit logs indicate the subsurface conditions at the specific test locations only. Boundaries between zones on the logs are often not distinct, but rather are transitional and have been interpreted. Subsurface conditions at locations other than the test locations may vary from the conditions encountered in the testpits. The following presents an overview of the subsurface conditions encountered in the testpits advanced as part of this investigation.

4.1.1 Site Geology

The surficial geology of the subject site can be generally identified as fill material consisting of silt, sand and clay in varying compositions with organics and gravel/ boulders/ cobbles. Some of the samples locations also identified debris material including concrete, clay pipe, bricks wood and plastic. A summary of the soil description from each sample collected can be found in Table 2.1.

4.2 Soil Sample Results

Analytical results for the soil samples submitted for analyses and the selected MECP SCS are presented in Table C1, Appendix C. Laboratory certificates of analysis for soil samples are provided in Appendix D. A summary of the soil samples submitted and exceedances compared to the applicable MECP SCS is provided in Table 4.1.

Table 4.1: Summary of Soil Sample Results

Borehole	Sample	Depth Interval (m bgs)	Exceedances of MECP T8 SCS
TP19-5	SA2	0.46 – 1.22	None
TP19-6	SA1	0.00 – 1.04	None
TP19-8	SA1	0.00 – 0.30	None
TP19-10	SA1	0.00 – 0.91	None
Pile 1	19-GS-1	Stockpile Grab Sample	None
Pile 2	19-GS-2	Stockpile Grab Sample	Benzo[a]pyrene

1. MECP T8 SCS: Table 8 Generic Site Condition Standards for Use within 30 m of a Water Body in a Potable Groundwater Condition, Commercial Property Use, Coarse Soils (MOE, April 15, 2011)

4.3 Quality Assurance and Quality Control Results

A quality assurance/quality control (QA/QC) program was implemented during the environmental sampling. The QA/QC program consisted of the use of standard field protocols. The QA/QC program also included internal laboratory QC performed by ALS Laboratory Group of Nepean, Ontario.

GEMTECs review of ALSs QA/QC indicates that analytical results fell within acceptable QA/QC limits for constituent recovery as defined by the protocols for the analytical methods for all parameters analyzed.

Based on the measures discussed above, sample collection and handling protocols are considered acceptable and associated analytical results reproducible. The quality of the data from the investigation was sufficient in that decision making was not affected, and the overall objectives of the investigation and assessment were met.

5.0 CONCLUSIONS

Based on a review of historical information and completion of the Phase Two ESA described herein, the following provides a summary of the investigation. The site consists of the property municipally addressed as 3025 Carp Road located in Carp, Ontario. Proposed site development includes a warehouse building with office space, an access roadway, truck and office parking areas and a new water well and septic system. The subject property is currently vacant land, with a large sand pit excavation, and piles of fill material, resulting in one APEC on the site property:

- APEC 1: Importation of Fill Material of Unknown Quality on the subject property.

The surficial geology of the subject site can be generally identified as fill material consisting of silt, sand and clay in varying compositions with organics and gravel/ boulders/ cobbles. Some of the samples locations also identified debris material including concrete, clay pipe, red bricks, wood and plastic.

A total of six soil samples (four from test pits and two from the stockpiles identified on the subject property) were selected for analytical analysis based on the combustible headspace gas readings, visual, olfactory and tactile evidence of impacts and submitted to ALS Laboratory Group for analysis of metals and inorganics, PAHs, PHCs and BTEX. Analytical results indicated that one MECP Table 8 SCS exceedance of benzo[a]pyrene was identified at 19-GS-2. No MECP soil exceedances were identified in TP19-5, TP19-6, TP19-8, TP19-10, or 19-GS-1 for the parameters analyzed. Based on the exceedance of benzo[a]pyrene at 19-GS-2, it is recommended that soil in the vicinity of this location be disposed of at a MECP approved landfill during site redevelopment, pending the results of a toxicity characteristic leaching procedure (TCLP) analysis.

We trust this report provides sufficient information for your present purposes. If you have any questions concerning this report, please do not hesitate to contact our office.



Nicole Soucy, B.A.Sc., M.A.Sc.
Environmental Scientist



Shaun Pelkey, M.Sc.E., P.Eng.
Principal, Environmental Engineer



6.0 REFERENCES

City of Ottawa (Ottawa). 2019. GeoOttawa Maps Accessed: October and November 2019. Available: <http://maps.ottawa.ca/geoottawa/>.

Environmental Systems Research Institute (ESRI). 2011. ArcGIS Desktop: Release 10. Redlands, CA: Environmental Systems Research Institute.

GEMTEC. Phase One Environmental Site Assessment, Proposed Truck Repair Facility, Badger Daylighting, 3025 Carp Road, Carp, Ontario. November 5, 2019.

Geography Network Canada (GNC). October 2004. Ontario Basic Mapping Accessed: October 2019. Available: <http://www.geographynetwork.ca/website/obm/viewer.htm>.

Google Earth™ Satellite Imagery, 2019

Ontario Ministry of Natural Resources and Forestry (MNR). Make A Map: Natural Heritage Areas. 2014.

Ontario Ministry of the Environment and Climate Change. Guidance on sampling and analytical methods for use at contaminated sites in Ontario. Revised December 1996.

Ontario Ministry of the Environment (MOE). Soil, Groundwater and Sediment Standards for use under part XV.1 of the Environmental Protection Act. April 15, 2011.

Ontario Ministry of the Environment. January 1, 2014. Ontario Regulation 153/04, Made under the Environmental Protection Act, Part XV.1 – Records of Site Condition.

Ontario Ministry of the Environment Conservation and Parks. Management of Excess Soil - A Guide for Best Management Practices. April 5, 2016.

7.0 LIMITATION OF LIABILITY

This report was prepared for and the work referred to within it has been undertaken by GEMTEC Consulting Engineers and Scientists Ltd for Argue Construction Ltd. It is intended for the exclusive use of Argue Construction Ltd. This report may not be relied upon by any other person or entity without the express written consent of GEMTEC, and Robinson Consultants Inc. Nothing in this report is intended to provide a legal opinion.

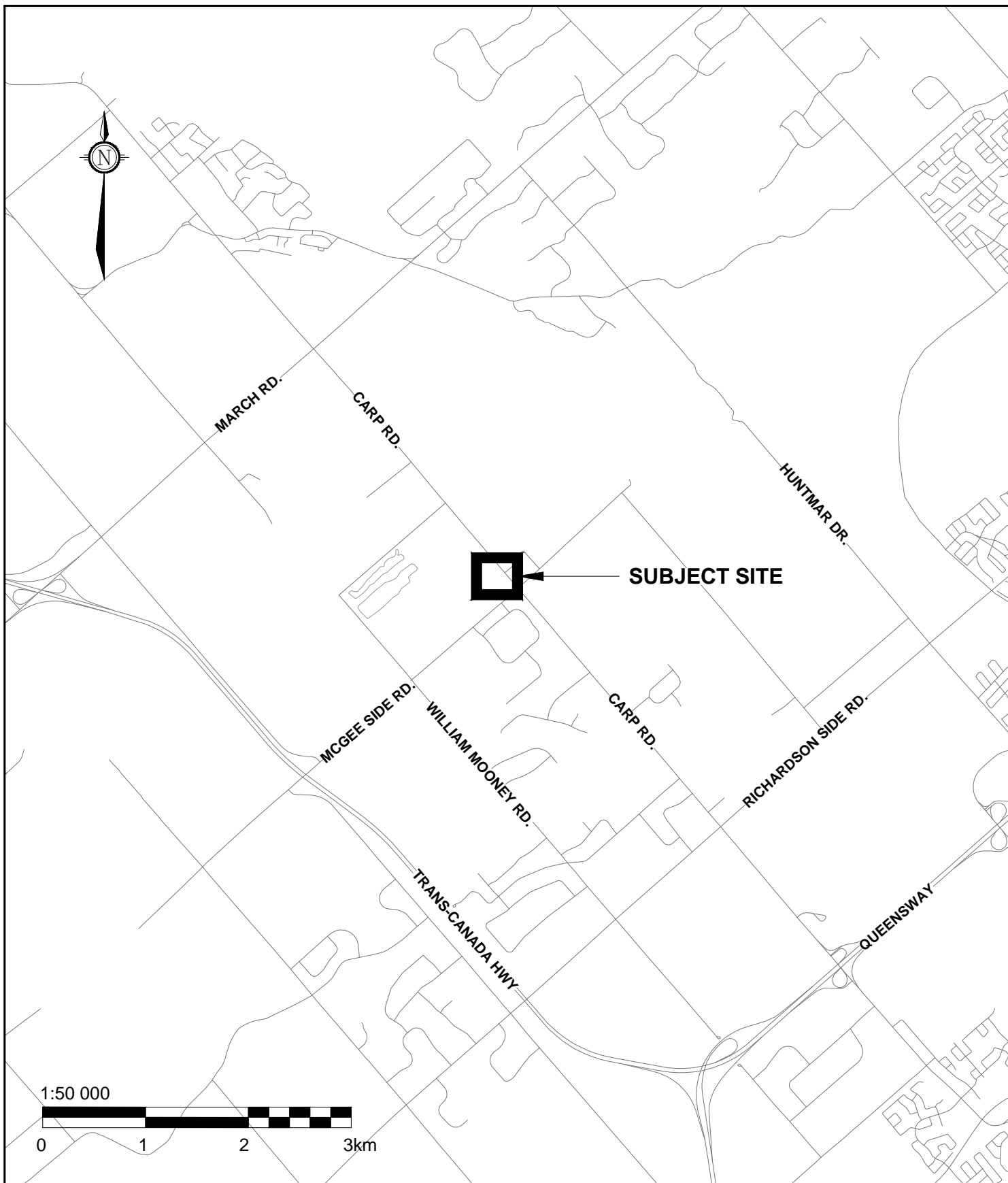
The investigation undertaken by GEMTEC with respect to this report and any conclusions or recommendations made in this report reflect the best judgements of GEMTEC based on the site conditions observed during the investigations undertaken at the date(s) identified in the report and on the information available at the time the report was prepared. This report has been prepared for the application noted and it is based, in part, on visual observations made at the site, subsurface investigations at discrete locations and depths and laboratory analyses of specific chemical parameters and material during a specific time interval, all as described in the report. Unless otherwise stated, the findings contained in this report cannot be extrapolated or extended to previous or future site conditions, portions of the site that were unavailable for direct investigation, subsurface locations on the site that were not investigated directly, or chemical parameters, materials or analysis which were not addressed. Chemical parameters other than those addressed by the investigation described in this report may exist in soil and groundwater elsewhere on the site, the chemical parameters addressed in the report may exist in soil and groundwater at other locations at the site that were not investigated and concentrations of the chemical parameters addressed which are different than those reported may exist at other locations on the site than those from where the samples were taken.

Should new information become available during future work, including excavations, borings or other studies, GEMTEC should be requested to review the information and, if necessary, reassess the conclusions presented herein.



APPENDIX A

Figures



GEMTEC

CONSULTING ENGINEERS
AND SCIENTISTS

32 Steacie Drive, Ottawa, ON K2K 2A9
T: (613) 836-1422 | www.gemtec.ca | ottawa@gemtec.ca

Project PHASE TWO ENVIRONMENTAL
SITE ASSESSMENT
3025 CARP ROAD
OTTAWA, ONTARIO

Drawing

KEY PLAN

Drwn By	Chkd By	Date
P.C.	N.S.	NOVEMBER 2019

Project No.
61730.61

Revision No.
0

FIGURE A.1



LEGEND

PROPERTY BOUNDARY

PROPOSED GRAVEL PARKING AREA

TEST PIT LOCATION IN PLAN
(current investigation by GEMTEC)

GRAB SAMPLE LOCATION IN PLAN
(current investigation by GEMTEC)

TP/GS #

XX.XX

TEST HOLE ID

GROUND SURFACE ELEVATION, IN METRES
GEODETIC DATUM

Scale

1:750

0

15

30

45m

GEMTEC
CONSULTING ENGINEERS
AND SCIENTISTS

32 Steacie Drive
Ottawa, ON K2K 2A9
Tel: (613) 836-1422
www.gemtec.ca
ottawa@gemtec.ca

Drawing

TEST PIT LOCATION PLAN

Client

AGUE CONSTRUCTION LTD.

Project

61730.61

Drwn by

Chkd by

P.C.

N.S.

PHASE TWO ENVIRONMENTAL
SITE ASSESSMENT
3025 CARP ROAD
OTTAWA, ONTARIO

Date

NOVEMBER 2019

Rev.

0

FIGURE A.2

\\hc-dc01\Projects\0. Files\61700\61730.61\Phase Two ESA - Badger\Drafting\Drawings\61730.61_Phase Two ESA_FG1_V01_2019-11-06.dwg, 19/11/06 2:10:00 PM



APPENDIX B

Borehole Logs

PROJECT: 61730.61



RECORD OF TEST PIT 19-5

SHEET 1 OF 1

LOCATION: See Test Pit Location Plan, Figure 2

DATUM: CGVD2013

DATE OF EXCAVATION: Oct 28 2019

DEPTH SCALE METRES	SOIL PROFILE			SAMPLE NUMBER	SAMPLE TYPE	ADDITIONAL LABORATORY TESTING	COMBUSTIBLE VAPOUR READINGS ON SAMPLE HEADSPACE (PARTS PER MILLION)				WATER LEVEL IN OPEN TEST PIT OR STANDPIPE INSTALLATION
	DESCRIPTION	STRATA PLOT	ELEV. DEPTH (m)				100	200	300	400	
0	Ground Surface						0				
	Clayey silt, with organics			1	GS						Backfilled with excavated material
	Silty clay, some sand, with organics		0.46	2	GS	Metals & inorganics, PAHs, PHCs, and BTEX					
1	End Test Pit on Bedrock		1.22								
2											
3											

PROJECT: 61730.61



RECORD OF TEST PIT 19-6

SHEET 1 OF 1

LOCATION: See Test Pit Location Plan, Figure 2

DATUM: CGVD2013

DATE OF EXCAVATION: Oct 28 2019

DEPTH SCALE METRES	SOIL PROFILE			SAMPLE NUMBER	SAMPLE TYPE	ADDITIONAL LABORATORY TESTING	COMBUSTIBLE VAPOUR READINGS ON SAMPLE HEADSPACE (PARTS PER MILLION)				WATER LEVEL IN OPEN TEST PIT OR STANDPIPE INSTALLATION
	DESCRIPTION	STRATA PLOT	ELEV. DEPTH (m)				100	200	300	400	
0	Ground Surface Silty clay, some sand, with organics - red staining			1	GS	Metals & inorganics, PAHs, PHCs, and BTEX	0				Backfilled with excavated material
1	End Test Pit on Bedrock		1.07								
2											
3											

PROJECT: 61730.61


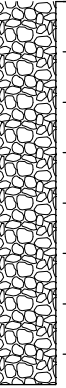
RECORD OF TEST PIT 19-7

SHEET 1 OF 1

LOCATION: See Test Pit Location Plan, Figure 2

DATUM: CGVD2013

DATE OF EXCAVATION: Oct 28 2019

DEPTH SCALE METRES	SOIL PROFILE			SAMPLE NUMBER	SAMPLE TYPE	ADDITIONAL LABORATORY TESTING	COMBUSTIBLE VAPOUR READINGS ON SAMPLE HEADSPACE (PARTS PER MILLION)				WATER LEVEL IN OPEN TEST PIT OR STANDPIPE INSTALLATION
	DESCRIPTION	STRATA PLOT	ELEV. DEPTH (m)				100	200	300	400	
0	Ground Surface Clayey silt, with organics			1	GS		0				Backfilled with excavated material
	End Test Pit on Bedrock		0.76								
1											
2											
3											

PROJECT: 61730.61



RECORD OF TEST PIT 19-8

SHEET 1 OF 1

LOCATION: See Test Pit Location Plan, Figure 2

DATUM: CGVD2013

DATE OF EXCAVATION: Oct 28 2019

DEPTH SCALE METRES	SOIL PROFILE			SAMPLE NUMBER	SAMPLE TYPE	ADDITIONAL LABORATORY TESTING	COMBUSTIBLE VAPOUR READINGS ON SAMPLE HEADSPACE (PARTS PER MILLION)				WATER LEVEL IN OPEN TEST PIT OR STANDPIPE INSTALLATION
	DESCRIPTION	STRATA PLOT	ELEV. DEPTH (m)				100	200	300	400	
0	Ground Surface						0				
	Silty sand, some clay, with organics - red brick debris			SA1	GS	Metals & inorganics, PAHs, PHCs, and BTEX	0				Backfilled with excavated material
	Silty sand/ sandy silt, some boulders, with organics - plastic, and red brick debris		0.30				0				
1				SA2	GS						
	End Test Pit on Bedrock		1.73								
2											
3											

PROJECT: 61730.61


RECORD OF TEST PIT 19-9

SHEET 1 OF 1

LOCATION: See Test Pit Location Plan, Figure 2

DATUM: CGVD2013

DATE OF EXCAVATION: Oct 28 2019

DEPTH SCALE METRES	SOIL PROFILE			SAMPLE NUMBER	SAMPLE TYPE	ADDITIONAL LABORATORY TESTING	COMBUSTIBLE VAPOUR READINGS ON SAMPLE HEADSPACE (PARTS PER MILLION)				WATER LEVEL IN OPEN TEST PIT OR STANDPIPE INSTALLATION
	DESCRIPTION	STRATA PLOT	ELEV. DEPTH (m)				100	200	300	400	
0	Ground Surface						0				
	Clayey silt with organics			SA1	GS						Backfilled with excavated material
1				SA2	GS						
2	End Test Pit on Bedrock		1.83								
3											

PROJECT: 61730.61


RECORD OF TEST PIT 19-10

SHEET 1 OF 1

LOCATION: See Test Pit Location Plan, Figure 2

DATUM: CGVD2013

DATE OF EXCAVATION: Oct 28 2019

DEPTH SCALE METRES	SOIL PROFILE			SAMPLE NUMBER	SAMPLE TYPE	ADDITIONAL LABORATORY TESTING	COMBUSTIBLE VAPOUR READINGS ON SAMPLE HEADSPACE (PARTS PER MILLION)				WATER LEVEL IN OPEN TEST PIT OR STANDPIPE INSTALLATION
	DESCRIPTION	STRATA PLOT	ELEV. DEPTH (m)				100	200	300	400	
0	Ground Surface Clayey silt with organics			1	GS	Metals & inorganics, PAHs, PHCs, and BTEX	0				Backfilled with excavated material
1											
2	Groundwater infiltration identified at 1.52 mbgs										
	End Test Pit on Bedrock		2.13								
3											



APPENDIX C

Summary of Soil Results

TABLE C1
SOIL ANALYTICAL RESULTS

		Sample Location: 3025 Carp Road							
		Sample ID:		TP19-5 SA2	TP19-6 SA1	TP19-8 SA2	TP19-10 SA1	19-GS-1	19-GS-2
		Date Sampled:		28-Oct-19	28-Oct-19	28-Oct-2019	28-Oct-2019	28-Oct-2019	28-Oct-2019
Parameter	Units	RDL	MECP Table 8*						
Physical Tests									
Conductivity	mS/cm	0.004	0.7	0.261	0.277	0.185	0.307	0.131	0.181
% Moisture	%	0.25	NS	12.3	17.5	12.6	10.7	9.31	9.03
pH	pH units	0.1	5-11	7.6	7.56	7.47	7.62	7.69	7.64
Cyanides									
Cyanide, Weak Acid Diss	ug/g	0.05	0.051	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050
Inorganics									
SAR	SAR	0.1	5	0.22	1.87	<0.10	0.68	<0.10	<0.10
Calcium (Ca)	mg/L	0.5	NS	25.3	10.5	11.3	25.9	7.15	11.3
Magnesium (Mg)	mg/L	0.5	NS	3.16	2.24	1.15	2.2	0.91	1.34
Sodium (Na)	mg/L	0.5	NS	4.44	25.6	1.27	13.5	0.77	1.23
Metals									
Antimony (Sb)	ug/g	1	1.3	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
Arsenic (As)	ug/g	1	18	2.4	2.5	2.7	2.4	1.3	1.7
Barium (Ba)	ug/g	1	220	124	168	97.4	90.7	29.4	47.7
Beryllium (Be)	ug/g	0.5	2.5	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
Boron (B), Hot Water Ext.	ug/g	0.1	1.5	0.29	0.17	0.15	0.15	0.47	0.36
Boron (B)	ug/g	5	36	7	5.3	6.3	7.7	<5.0	5.5
Cadmium (Cd)	ug/g	0.5	1.2	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
Chromium (Cr)	ug/g	1	70	31.9	44.4	24.5	18.9	7.8	12.2
Cobalt (Co)	ug/g	1	22	8.6	10.4	8.9	6.7	2.9	4.5
Copper (Cu)	ug/g	1	92	16.7	23.5	13.3	11.8	7.7	10.4
Lead (Pb)	ug/g	1	120	12.9	21.5	7.9	12.6	8	13.6
Mercury (Hg)	ug/g	0.005	0.27	0.0286	0.0335	0.0355	0.0379	0.0097	0.0188
Molybdenum (Mo)	ug/g	1	2	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
Nickel (Ni)	ug/g	1	82	17.3	25.3	14.1	12.9	5.1	8.7
Selenium (Se)	ug/g	1	1.5	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
Silver (Ag)	ug/g	0.2	0.5	<0.20	0.48	<0.20	<0.20	<0.20	<0.20
Thallium (Tl)	ug/g	0.5	1	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
Uranium (U)	ug/g	1	2.5	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
Vanadium (V)	ug/g	1	86	38.6	46.9	36.8	26.9	15.6	23.4
Zinc (Zn)	ug/g	5	290	52.3	70.7	36.6	40.5	19.1	25.2
Chromium, Hexavalent	ug/g	0.2	0.66	0.47	0.66	0.42	0.41	0.21	0.22
Volatile Organic Compounds									
Benzene	ug/g	0.0068	0.02	<0.0068	<0.0068	<0.0068	<0.0068	<0.0068	<0.0068
Ethylbenzene	ug/g	0.018	0.05	<0.018	<0.018	<0.018	<0.018	<0.018	<0.018
Toluene	ug/g	0.08	0.2	<0.080	<0.080	<0.080	<0.080	<0.080	0.089
o-Xylene	ug/g	0.02	NS	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020
m+p-Xylenes	ug/g	0.03	NS	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030
Xylenes (Total)	ug/g	0.05	0.05	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050
4-Bromofluorobenzene	%	-	NS	80.2	82.4	81	80.8	81.3	82.8
1,4-Difluorobenzene	%	-	NS	89.6	91.6	92.2	88.1	90.3	93.4
Hydrocarbons									
F1 (C6-C10)	ug/g	5	25	<5.0	<5.0	<5.0	5.1	<5.0	<5.0
F1-BTEX	ug/g	5	25	<5.0	<5.0	<5.0	5.1	<5.0	<5.0
F2 (C10-C16)	ug/g	10	10	<10	<10	<10	<10	<10	<10
F2-Naphth	ug/g	10	NS	<10	<10	<10	<10	<10	<10
F3 (C16-C34)	ug/g	50	240	63	<50	<50	<50	52	<50
F3-PAH	ug/g	50	NS	63	<50	<50	<50	<50	<50
F4 (C34-C50)	ug/g	50	120	99	<50	<50	<50	<50	<50
Total Hydrocarbons (C6-C50)	ug/g	72	NS	161	<72	<72	<72	<72	<72
Chrom. to baseline at nC50	-	-	NS	YES	YES	YES	YES	YES	YES
2-Bromobenzotrifluoride	%	-	NS	89	90.4	91.1	92	84.5	90.2
3,4-Dichlorotoluene	%	-	NS	90.6	70.5	91.3	94.1	87	93.6
Polycyclic Aromatic Hydrocarbons									
Acenaphthene	ug/g	0.05	0.072	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050
Acenaphthylene	ug/g	0.05	0.093	<0.050	<0.050	<0.050	<0.050	<0.050	0.07
Anthracene	ug/g	0.05	0.22	<0.050	0.053	<0.050	<0.050	0.056	0.069
Benzo(a)anthracene	ug/g	0.05	0.36	<0.050	0.187	<0.050	0.059	0.203	0.359
Benzo(a)pyrene	ug/g	0.05	0.3	<0.050	0.171	<0.050	<0.050	0.178	0.303
Benzo(b)fluoranthene	ug/g	0.05	0.47	<0.050	0.226	<0.050	0.072	0.243	0.403
Benzo(g,h,i)perylene	ug/g	0.05	0.68	<0.050	0.113	<0.050	<0.050	0.116	0.188
Benzo(k)fluoranthene	ug/g	0.05	0.48	<0.050	0.091	<0.050	<0.050	0.094	0.155
Chrysene	ug/g	0.05	2.8	<0.050	0.201	<0.050	0.061	0.209	0.373
Dibenzo(ah)anthracene	ug/g	0.05	0.1	<0.050	<0.050	<0.050	<0.050	<0.050	0.057
Fluoranthene	ug/g	0.05	0.69	<0.050	0.364	<0.050	0.101	0.362	0.618
Fluorene	ug/g	0.05	0.19	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050
Indeno(1,2,3-cd)pyrene	ug/g	0.05	0.23	<0.050	0.109	<0.050	<0.050	0.107	0.179
1+2-Methylnaphthalenes	ug/g	0.0424	0.59	<0.042	<0.042	<0.042	<0.042	<0.042	<0.042
1-Methylnaphthalene	ug/g	0.03	0.59	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030
2-Methylnaphthalene	ug/g	0.03	0.59	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030
Naphthalene	ug/g	0.013	0.09	<0.013	0.059	<0.013	<0.013	<0.013	<0.013
Phenanthrene	ug/g	0.046	0.69	<0.046	0.286	<0.046	<0.046	0.22	0.228
Pyrene	ug/g	0.05	1	<0.050	0.312	<0.050	0.087	0.294	0.53
2-Fluorobiphenyl	%	-	NS	92.9	92.3	91.8	89.3	91.4	92.4
p-Terphenyl d14	%	-	NS	82.3	82	81.1	78.4	78.5	80.3

Notes:

1 RDL - Reported Detection Limit

2 NS - No Standard

** - Table 8: Generic SCS for Use within 30 m of a Water Body in a Potable Groundwater Condition, Commercial Property Use, Coarse Soils (MOE, April 15, 2011)

4 **Bolded** - Exceeds MECP Table 8 SCS



APPENDIX D

Laboratory Analytical Reports



GEMTEC Consulting Engineers & Scientists
Limited
ATTN: NICOLE SOUCY
32 Steacie Drive
Ottawa ON K2K 2A9

Date Received: 28-OCT-19
Report Date: 04-NOV-19 16:21 (MT)
Version: FINAL

Client Phone: 613-836-1422

Certificate of Analysis

Lab Work Order #: L2373382

Project P.O. #: 61730.61

Job Reference: 61730.61

C of C Numbers:

Legal Site Desc:

Emily Smith
Account Manager

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

ADDRESS: 190 Colonnade Road, Unit 7, Ottawa, ON K2E 7J5 Canada | Phone: +1 613 225 8279 | Fax: +1 613 225 2801
ALS CANADA LTD Part of the ALS Group An ALS Limited Company

ALS ENVIRONMENTAL ANALYTICAL REPORT

Sample Details/Parameters		Result	Qualifier*	D.L.	Units	Extracted	Analyzed	Batch
L2373382-1 TP19-5 SA2								
Sampled By: CLIENT on 28-OCT-19								
Matrix: SOIL								
Physical Tests								
Conductivity		0.261		0.0040	mS/cm		01-NOV-19	R4895813
% Moisture		12.3		0.25	%	29-OCT-19	30-OCT-19	R4889578
pH		7.60		0.10	pH units		31-OCT-19	R4891170
Cyanides								
Cyanide, Weak Acid Diss		<0.050		0.050	ug/g	29-OCT-19	30-OCT-19	R4890170
Saturated Paste Extractables								
SAR		0.22		0.10	SAR		31-OCT-19	R4891487
Calcium (Ca)		25.3		0.50	mg/L		31-OCT-19	R4891487
Magnesium (Mg)		3.16		0.50	mg/L		31-OCT-19	R4891487
Sodium (Na)		4.44		0.50	mg/L		31-OCT-19	R4891487
Metals								
Antimony (Sb)		<1.0		1.0	ug/g	30-OCT-19	31-OCT-19	R4894926
Arsenic (As)		2.4		1.0	ug/g	30-OCT-19	31-OCT-19	R4894926
Barium (Ba)		124		1.0	ug/g	30-OCT-19	31-OCT-19	R4894926
Beryllium (Be)		<0.50		0.50	ug/g	30-OCT-19	31-OCT-19	R4894926
Boron (B)		7.0		5.0	ug/g	30-OCT-19	31-OCT-19	R4894926
Boron (B), Hot Water Ext.		0.29		0.10	ug/g	30-OCT-19	31-OCT-19	R4890947
Cadmium (Cd)		<0.50		0.50	ug/g	30-OCT-19	31-OCT-19	R4894926
Chromium (Cr)		31.9		1.0	ug/g	30-OCT-19	31-OCT-19	R4894926
Cobalt (Co)		8.6		1.0	ug/g	30-OCT-19	31-OCT-19	R4894926
Copper (Cu)		16.7		1.0	ug/g	30-OCT-19	31-OCT-19	R4894926
Lead (Pb)		12.9		1.0	ug/g	30-OCT-19	31-OCT-19	R4894926
Mercury (Hg)		0.0286		0.0050	ug/g	30-OCT-19	31-OCT-19	R4891987
Molybdenum (Mo)		<1.0		1.0	ug/g	30-OCT-19	31-OCT-19	R4894926
Nickel (Ni)		17.3		1.0	ug/g	30-OCT-19	31-OCT-19	R4894926
Selenium (Se)		<1.0		1.0	ug/g	30-OCT-19	31-OCT-19	R4894926
Silver (Ag)		<0.20		0.20	ug/g	30-OCT-19	31-OCT-19	R4894926
Thallium (Tl)		<0.50		0.50	ug/g	30-OCT-19	31-OCT-19	R4894926
Uranium (U)		<1.0		1.0	ug/g	30-OCT-19	31-OCT-19	R4894926
Vanadium (V)		38.6		1.0	ug/g	30-OCT-19	31-OCT-19	R4894926
Zinc (Zn)		52.3		5.0	ug/g	30-OCT-19	31-OCT-19	R4894926
Speciated Metals								
Chromium, Hexavalent		0.47		0.20	ug/g	29-OCT-19	31-OCT-19	R4891309
Volatile Organic Compounds								
Benzene		<0.0068		0.0068	ug/g	31-OCT-19	02-NOV-19	R4896322
Ethylbenzene		<0.018		0.018	ug/g	31-OCT-19	02-NOV-19	R4896322
Toluene		<0.080		0.080	ug/g	31-OCT-19	02-NOV-19	R4896322
o-Xylene		<0.020		0.020	ug/g	31-OCT-19	02-NOV-19	R4896322
m+p-Xylenes		<0.030		0.030	ug/g	31-OCT-19	02-NOV-19	R4896322
Xylenes (Total)		<0.050		0.050	ug/g		02-NOV-19	
Surrogate: 4-Bromofluorobenzene		80.2		50-140	%	31-OCT-19	02-NOV-19	R4896322
Surrogate: 1,4-Difluorobenzene		89.6		50-140	%	31-OCT-19	02-NOV-19	R4896322

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

ALS ENVIRONMENTAL ANALYTICAL REPORT

Sample Details/Parameters		Result	Qualifier*	D.L.	Units	Extracted	Analyzed	Batch
L2373382-1 TP19-5 SA2 Sampled By: CLIENT on 28-OCT-19 Matrix: SOIL								
Volatile Organic Compounds								
Hydrocarbons								
F1 (C6-C10)		<5.0		5.0	ug/g	31-OCT-19	02-NOV-19	R4896322
F1-BTEX		<5.0		5.0	ug/g		04-NOV-19	
F2 (C10-C16)		<10		10	ug/g	29-OCT-19	01-NOV-19	R4896035
F2-Naphth		<10		10	ug/g		04-NOV-19	
F3 (C16-C34)		63		50	ug/g	29-OCT-19	01-NOV-19	R4896035
F3-PAH		63		50	ug/g		04-NOV-19	
F4 (C34-C50)		99		50	ug/g	29-OCT-19	01-NOV-19	R4896035
Total Hydrocarbons (C6-C50)		161		72	ug/g		04-NOV-19	
Chrom. to baseline at nC50		YES				29-OCT-19	01-NOV-19	R4896035
Surrogate: 2-Bromobenzotrifluoride		89.0		60-140	%	29-OCT-19	01-NOV-19	R4896035
Surrogate: 3,4-Dichlorotoluene		90.6		60-140	%	31-OCT-19	02-NOV-19	R4896322
Polycyclic Aromatic Hydrocarbons								
Acenaphthene		<0.050		0.050	ug/g	29-OCT-19	04-NOV-19	R4896740
Acenaphthylene		<0.050		0.050	ug/g	29-OCT-19	04-NOV-19	R4896740
Anthracene		<0.050		0.050	ug/g	29-OCT-19	04-NOV-19	R4896740
Benzo(a)anthracene		<0.050		0.050	ug/g	29-OCT-19	04-NOV-19	R4896740
Benzo(a)pyrene		<0.050		0.050	ug/g	29-OCT-19	04-NOV-19	R4896740
Benzo(b)fluoranthene		<0.050		0.050	ug/g	29-OCT-19	04-NOV-19	R4896740
Benzo(g,h,i)perylene		<0.050		0.050	ug/g	29-OCT-19	04-NOV-19	R4896740
Benzo(k)fluoranthene		<0.050		0.050	ug/g	29-OCT-19	04-NOV-19	R4896740
Chrysene		<0.050		0.050	ug/g	29-OCT-19	04-NOV-19	R4896740
Dibenzo(ah)anthracene		<0.050		0.050	ug/g	29-OCT-19	04-NOV-19	R4896740
Fluoranthene		<0.050		0.050	ug/g	29-OCT-19	04-NOV-19	R4896740
Fluorene		<0.050		0.050	ug/g	29-OCT-19	04-NOV-19	R4896740
Indeno(1,2,3-cd)pyrene		<0.050		0.050	ug/g	29-OCT-19	04-NOV-19	R4896740
1+2-Methylnaphthalenes		<0.042		0.042	ug/g		04-NOV-19	
1-Methylnaphthalene		<0.030		0.030	ug/g	29-OCT-19	04-NOV-19	R4896740
2-Methylnaphthalene		<0.030		0.030	ug/g	29-OCT-19	04-NOV-19	R4896740
Naphthalene		<0.013		0.013	ug/g	29-OCT-19	04-NOV-19	R4896740
Phenanthrene		<0.046		0.046	ug/g	29-OCT-19	04-NOV-19	R4896740
Pyrene		<0.050		0.050	ug/g	29-OCT-19	04-NOV-19	R4896740
Surrogate: 2-Fluorobiphenyl		92.9		50-140	%	29-OCT-19	04-NOV-19	R4896740
Surrogate: p-Terphenyl d14		82.3		50-140	%	29-OCT-19	04-NOV-19	R4896740
L2373382-2 TP19-6 SA1 Sampled By: CLIENT on 28-OCT-19 Matrix: SOIL								
Physical Tests								
Conductivity		0.277		0.0040	mS/cm		01-NOV-19	R4895813
% Moisture		17.5		0.25	%	29-OCT-19	30-OCT-19	R4889578
pH		7.56		0.10	pH units		31-OCT-19	R4891170
Cyanides								

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

ALS ENVIRONMENTAL ANALYTICAL REPORT

Sample Details/Parameters		Result	Qualifier*	D.L.	Units	Extracted	Analyzed	Batch
L2373382-2 TP19-6 SA1								
Sampled By: CLIENT on 28-OCT-19								
Matrix: SOIL								
Cyanides								
Cyanide, Weak Acid Diss		<0.050		0.050	ug/g	29-OCT-19	30-OCT-19	R4890170
Saturated Paste Extractables								
SAR		1.87		0.10	SAR		31-OCT-19	R4891487
Calcium (Ca)		10.5		0.50	mg/L		31-OCT-19	R4891487
Magnesium (Mg)		2.24		0.50	mg/L		31-OCT-19	R4891487
Sodium (Na)		25.6		0.50	mg/L		31-OCT-19	R4891487
Metals								
Antimony (Sb)		<1.0		1.0	ug/g	30-OCT-19	31-OCT-19	R4894926
Arsenic (As)		2.5		1.0	ug/g	30-OCT-19	31-OCT-19	R4894926
Barium (Ba)		168		1.0	ug/g	30-OCT-19	31-OCT-19	R4894926
Beryllium (Be)		<0.50		0.50	ug/g	30-OCT-19	31-OCT-19	R4894926
Boron (B)		5.3		5.0	ug/g	30-OCT-19	31-OCT-19	R4894926
Boron (B), Hot Water Ext.		0.17		0.10	ug/g	30-OCT-19	31-OCT-19	R4890947
Cadmium (Cd)		<0.50		0.50	ug/g	30-OCT-19	31-OCT-19	R4894926
Chromium (Cr)		44.4		1.0	ug/g	30-OCT-19	31-OCT-19	R4894926
Cobalt (Co)		10.4		1.0	ug/g	30-OCT-19	31-OCT-19	R4894926
Copper (Cu)		23.5		1.0	ug/g	30-OCT-19	31-OCT-19	R4894926
Lead (Pb)		21.5		1.0	ug/g	30-OCT-19	31-OCT-19	R4894926
Mercury (Hg)		0.0335		0.0050	ug/g	30-OCT-19	31-OCT-19	R4891987
Molybdenum (Mo)		<1.0		1.0	ug/g	30-OCT-19	31-OCT-19	R4894926
Nickel (Ni)		25.3		1.0	ug/g	30-OCT-19	31-OCT-19	R4894926
Selenium (Se)		<1.0		1.0	ug/g	30-OCT-19	31-OCT-19	R4894926
Silver (Ag)		0.48		0.20	ug/g	30-OCT-19	31-OCT-19	R4894926
Thallium (Tl)		<0.50		0.50	ug/g	30-OCT-19	31-OCT-19	R4894926
Uranium (U)		<1.0		1.0	ug/g	30-OCT-19	31-OCT-19	R4894926
Vanadium (V)		46.9		1.0	ug/g	30-OCT-19	31-OCT-19	R4894926
Zinc (Zn)		70.7		5.0	ug/g	30-OCT-19	31-OCT-19	R4894926
Speciated Metals								
Chromium, Hexavalent		0.66		0.20	ug/g	29-OCT-19	31-OCT-19	R4891309
Volatile Organic Compounds								
Benzene		<0.0068		0.0068	ug/g	31-OCT-19	02-NOV-19	R4896322
Ethylbenzene		<0.018		0.018	ug/g	31-OCT-19	02-NOV-19	R4896322
Toluene		<0.080		0.080	ug/g	31-OCT-19	02-NOV-19	R4896322
o-Xylene		<0.020		0.020	ug/g	31-OCT-19	02-NOV-19	R4896322
m+p-Xylenes		<0.030		0.030	ug/g	31-OCT-19	02-NOV-19	R4896322
Xylenes (Total)		<0.050		0.050	ug/g		02-NOV-19	
Surrogate: 4-Bromofluorobenzene		82.4		50-140	%	31-OCT-19	02-NOV-19	R4896322
Surrogate: 1,4-Difluorobenzene		91.6		50-140	%	31-OCT-19	02-NOV-19	R4896322
Hydrocarbons								
F1 (C6-C10)		<5.0		5.0	ug/g	31-OCT-19	02-NOV-19	R4896322
F1-BTEX		<5.0		5.0	ug/g		04-NOV-19	
F2 (C10-C16)		<10		10	ug/g	29-OCT-19	01-NOV-19	R4896035

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

ALS ENVIRONMENTAL ANALYTICAL REPORT

Sample Details/Parameters		Result	Qualifier*	D.L.	Units	Extracted	Analyzed	Batch
L2373382-2 TP19-6 SA1 Sampled By: CLIENT on 28-OCT-19 Matrix: SOIL								
Hydrocarbons								
F2-Naphth		<10		10	ug/g		04-NOV-19	
F3 (C16-C34)		<50		50	ug/g	29-OCT-19	01-NOV-19	R4896035
F3-PAH		<50		50	ug/g		04-NOV-19	
F4 (C34-C50)		<50		50	ug/g	29-OCT-19	01-NOV-19	R4896035
Total Hydrocarbons (C6-C50)		<72		72	ug/g		04-NOV-19	
Chrom. to baseline at nC50		YES				29-OCT-19	01-NOV-19	R4896035
Surrogate: 2-Bromobenzotrifluoride		90.4		60-140	%	29-OCT-19	01-NOV-19	R4896035
Surrogate: 3,4-Dichlorotoluene		70.5		60-140	%	31-OCT-19	02-NOV-19	R4896322
Polycyclic Aromatic Hydrocarbons								
Acenaphthene		<0.050		0.050	ug/g	29-OCT-19	04-NOV-19	R4896740
Acenaphthylene		<0.050		0.050	ug/g	29-OCT-19	04-NOV-19	R4896740
Anthracene		0.053		0.050	ug/g	29-OCT-19	04-NOV-19	R4896740
Benzo(a)anthracene		0.187		0.050	ug/g	29-OCT-19	04-NOV-19	R4896740
Benzo(a)pyrene		0.171		0.050	ug/g	29-OCT-19	04-NOV-19	R4896740
Benzo(b)fluoranthene		0.226		0.050	ug/g	29-OCT-19	04-NOV-19	R4896740
Benzo(g,h,i)perylene		0.113		0.050	ug/g	29-OCT-19	04-NOV-19	R4896740
Benzo(k)fluoranthene		0.091		0.050	ug/g	29-OCT-19	04-NOV-19	R4896740
Chrysene		0.201		0.050	ug/g	29-OCT-19	04-NOV-19	R4896740
Dibenzo(ah)anthracene		<0.050		0.050	ug/g	29-OCT-19	04-NOV-19	R4896740
Fluoranthene		0.364		0.050	ug/g	29-OCT-19	04-NOV-19	R4896740
Fluorene		<0.050		0.050	ug/g	29-OCT-19	04-NOV-19	R4896740
Indeno(1,2,3-cd)pyrene		0.109		0.050	ug/g	29-OCT-19	04-NOV-19	R4896740
1+2-Methylnaphthalenes		<0.042		0.042	ug/g		04-NOV-19	
1-Methylnaphthalene		<0.030		0.030	ug/g	29-OCT-19	04-NOV-19	R4896740
2-Methylnaphthalene		<0.030		0.030	ug/g	29-OCT-19	04-NOV-19	R4896740
Naphthalene		0.059		0.013	ug/g	29-OCT-19	04-NOV-19	R4896740
Phenanthrene		0.286		0.046	ug/g	29-OCT-19	04-NOV-19	R4896740
Pyrene		0.312		0.050	ug/g	29-OCT-19	04-NOV-19	R4896740
Surrogate: 2-Fluorobiphenyl		92.3		50-140	%	29-OCT-19	04-NOV-19	R4896740
Surrogate: p-Terphenyl d14		82.0		50-140	%	29-OCT-19	04-NOV-19	R4896740
L2373382-3 TP19-8 SA2 Sampled By: CLIENT on 28-OCT-19 Matrix: SOIL								
Physical Tests								
Conductivity		0.185		0.0040	mS/cm		01-NOV-19	R4895813
% Moisture		12.6		0.25	%	29-OCT-19	30-OCT-19	R4889578
pH		7.47		0.10	pH units		31-OCT-19	R4891170
Cyanides								
Cyanide, Weak Acid Diss		<0.050		0.050	ug/g	29-OCT-19	30-OCT-19	R4890170
Saturated Paste Extractables								
SAR		<0.10		0.10	SAR		31-OCT-19	R4891487
Calcium (Ca)		11.3		0.50	mg/L		31-OCT-19	R4891487

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

ALS ENVIRONMENTAL ANALYTICAL REPORT

Sample Details/Parameters		Result	Qualifier*	D.L.	Units	Extracted	Analyzed	Batch
L2373382-3 TP19-8 SA2								
Sampled By: CLIENT on 28-OCT-19								
Matrix: SOIL								
Saturated Paste Extractables								
Magnesium (Mg)		1.15		0.50	mg/L		31-OCT-19	R4891487
Sodium (Na)		1.27		0.50	mg/L		31-OCT-19	R4891487
Metals								
Antimony (Sb)		<1.0		1.0	ug/g	30-OCT-19	31-OCT-19	R4894926
Arsenic (As)		2.7		1.0	ug/g	30-OCT-19	31-OCT-19	R4894926
Barium (Ba)		97.4		1.0	ug/g	30-OCT-19	31-OCT-19	R4894926
Beryllium (Be)		<0.50		0.50	ug/g	30-OCT-19	31-OCT-19	R4894926
Boron (B)		6.3		5.0	ug/g	30-OCT-19	31-OCT-19	R4894926
Boron (B), Hot Water Ext.		0.15		0.10	ug/g	30-OCT-19	31-OCT-19	R4890947
Cadmium (Cd)		<0.50		0.50	ug/g	30-OCT-19	31-OCT-19	R4894926
Chromium (Cr)		24.5		1.0	ug/g	30-OCT-19	31-OCT-19	R4894926
Cobalt (Co)		8.9		1.0	ug/g	30-OCT-19	31-OCT-19	R4894926
Copper (Cu)		13.3		1.0	ug/g	30-OCT-19	31-OCT-19	R4894926
Lead (Pb)		7.9		1.0	ug/g	30-OCT-19	31-OCT-19	R4894926
Mercury (Hg)		0.0355		0.0050	ug/g	30-OCT-19	31-OCT-19	R4891987
Molybdenum (Mo)		<1.0		1.0	ug/g	30-OCT-19	31-OCT-19	R4894926
Nickel (Ni)		14.1		1.0	ug/g	30-OCT-19	31-OCT-19	R4894926
Selenium (Se)		<1.0		1.0	ug/g	30-OCT-19	31-OCT-19	R4894926
Silver (Ag)		<0.20		0.20	ug/g	30-OCT-19	31-OCT-19	R4894926
Thallium (Tl)		<0.50		0.50	ug/g	30-OCT-19	31-OCT-19	R4894926
Uranium (U)		<1.0		1.0	ug/g	30-OCT-19	31-OCT-19	R4894926
Vanadium (V)		36.8		1.0	ug/g	30-OCT-19	31-OCT-19	R4894926
Zinc (Zn)		36.6		5.0	ug/g	30-OCT-19	31-OCT-19	R4894926
Speciated Metals								
Chromium, Hexavalent		0.42		0.20	ug/g	29-OCT-19	31-OCT-19	R4891309
Volatile Organic Compounds								
Benzene		<0.0068		0.0068	ug/g	31-OCT-19	02-NOV-19	R4896322
Ethylbenzene		<0.018		0.018	ug/g	31-OCT-19	02-NOV-19	R4896322
Toluene		<0.080		0.080	ug/g	31-OCT-19	02-NOV-19	R4896322
o-Xylene		<0.020		0.020	ug/g	31-OCT-19	02-NOV-19	R4896322
m+p-Xylenes		<0.030		0.030	ug/g	31-OCT-19	02-NOV-19	R4896322
Xylenes (Total)		<0.050		0.050	ug/g		02-NOV-19	
Surrogate: 4-Bromofluorobenzene		81.0		50-140	%	31-OCT-19	02-NOV-19	R4896322
Surrogate: 1,4-Difluorobenzene		92.2		50-140	%	31-OCT-19	02-NOV-19	R4896322
Hydrocarbons								
F1 (C6-C10)		<5.0		5.0	ug/g	31-OCT-19	02-NOV-19	R4896322
F1-BTEX		<5.0		5.0	ug/g		04-NOV-19	
F2 (C10-C16)		<10		10	ug/g	29-OCT-19	01-NOV-19	R4896035
F2-Naphth		<10		10	ug/g		04-NOV-19	
F3 (C16-C34)		<50		50	ug/g	29-OCT-19	01-NOV-19	R4896035
F3-PAH		<50		50	ug/g		04-NOV-19	
F4 (C34-C50)		<50		50	ug/g	29-OCT-19	01-NOV-19	R4896035

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

ALS ENVIRONMENTAL ANALYTICAL REPORT

Sample Details/Parameters		Result	Qualifier*	D.L.	Units	Extracted	Analyzed	Batch
L2373382-3 TP19-8 SA2 Sampled By: CLIENT on 28-OCT-19 Matrix: SOIL								
Hydrocarbons								
Total Hydrocarbons (C6-C50)		<72		72	ug/g		04-NOV-19	
Chrom. to baseline at nC50		YES				29-OCT-19	01-NOV-19	R4896035
Surrogate: 2-Bromobenzotrifluoride		91.1		60-140	%	29-OCT-19	01-NOV-19	R4896035
Surrogate: 3,4-Dichlorotoluene		91.3		60-140	%	31-OCT-19	02-NOV-19	R4896322
Polycyclic Aromatic Hydrocarbons								
Acenaphthene		<0.050		0.050	ug/g	29-OCT-19	04-NOV-19	R4896740
Acenaphthylene		<0.050		0.050	ug/g	29-OCT-19	04-NOV-19	R4896740
Anthracene		<0.050		0.050	ug/g	29-OCT-19	04-NOV-19	R4896740
Benzo(a)anthracene		<0.050		0.050	ug/g	29-OCT-19	04-NOV-19	R4896740
Benzo(a)pyrene		<0.050		0.050	ug/g	29-OCT-19	04-NOV-19	R4896740
Benzo(b)fluoranthene		<0.050		0.050	ug/g	29-OCT-19	04-NOV-19	R4896740
Benzo(g,h,i)perylene		<0.050		0.050	ug/g	29-OCT-19	04-NOV-19	R4896740
Benzo(k)fluoranthene		<0.050		0.050	ug/g	29-OCT-19	04-NOV-19	R4896740
Chrysene		<0.050		0.050	ug/g	29-OCT-19	04-NOV-19	R4896740
Dibenzo(ah)anthracene		<0.050		0.050	ug/g	29-OCT-19	04-NOV-19	R4896740
Fluoranthene		<0.050		0.050	ug/g	29-OCT-19	04-NOV-19	R4896740
Fluorene		<0.050		0.050	ug/g	29-OCT-19	04-NOV-19	R4896740
Indeno(1,2,3-cd)pyrene		<0.050		0.050	ug/g	29-OCT-19	04-NOV-19	R4896740
1+2-Methylnaphthalenes		<0.042		0.042	ug/g		04-NOV-19	
1-Methylnaphthalene		<0.030		0.030	ug/g	29-OCT-19	04-NOV-19	R4896740
2-Methylnaphthalene		<0.030		0.030	ug/g	29-OCT-19	04-NOV-19	R4896740
Naphthalene		<0.013		0.013	ug/g	29-OCT-19	04-NOV-19	R4896740
Phenanthrene		<0.046		0.046	ug/g	29-OCT-19	04-NOV-19	R4896740
Pyrene		<0.050		0.050	ug/g	29-OCT-19	04-NOV-19	R4896740
Surrogate: 2-Fluorobiphenyl		91.8		50-140	%	29-OCT-19	04-NOV-19	R4896740
Surrogate: p-Terphenyl d14		81.1		50-140	%	29-OCT-19	04-NOV-19	R4896740
L2373382-4 TP19-10 SA1 Sampled By: CLIENT on 28-OCT-19 Matrix: SOIL								
Physical Tests								
Conductivity		0.307		0.0040	mS/cm		01-NOV-19	R4895813
% Moisture		10.7		0.25	%	29-OCT-19	30-OCT-19	R4889578
pH		7.62		0.10	pH units		31-OCT-19	R4891170
Cyanides								
Cyanide, Weak Acid Diss		<0.050		0.050	ug/g	29-OCT-19	30-OCT-19	R4890170
Saturated Paste Extractables								
SAR		0.68		0.10	SAR		31-OCT-19	R4891487
Calcium (Ca)		25.9		0.50	mg/L		31-OCT-19	R4891487
Magnesium (Mg)		2.20		0.50	mg/L		31-OCT-19	R4891487
Sodium (Na)		13.5		0.50	mg/L		31-OCT-19	R4891487
Metals								
Antimony (Sb)		<1.0		1.0	ug/g	30-OCT-19	31-OCT-19	R4894926

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

ALS ENVIRONMENTAL ANALYTICAL REPORT

Sample Details/Parameters		Result	Qualifier*	D.L.	Units	Extracted	Analyzed	Batch
L2373382-4	TP19-10 SA1							
Sampled By:	CLIENT on 28-OCT-19							
Matrix:	SOIL							
Metals								
Arsenic (As)		2.4		1.0	ug/g	30-OCT-19	31-OCT-19	R4894926
Barium (Ba)		90.7		1.0	ug/g	30-OCT-19	31-OCT-19	R4894926
Beryllium (Be)		<0.50		0.50	ug/g	30-OCT-19	31-OCT-19	R4894926
Boron (B)		7.7		5.0	ug/g	30-OCT-19	31-OCT-19	R4894926
Boron (B), Hot Water Ext.		0.15		0.10	ug/g	30-OCT-19	31-OCT-19	R4890947
Cadmium (Cd)		<0.50		0.50	ug/g	30-OCT-19	31-OCT-19	R4894926
Chromium (Cr)		18.9		1.0	ug/g	30-OCT-19	31-OCT-19	R4894926
Cobalt (Co)		6.7		1.0	ug/g	30-OCT-19	31-OCT-19	R4894926
Copper (Cu)		11.8		1.0	ug/g	30-OCT-19	31-OCT-19	R4894926
Lead (Pb)		12.6		1.0	ug/g	30-OCT-19	31-OCT-19	R4894926
Mercury (Hg)		0.0379		0.0050	ug/g	30-OCT-19	31-OCT-19	R4891987
Molybdenum (Mo)		<1.0		1.0	ug/g	30-OCT-19	31-OCT-19	R4894926
Nickel (Ni)		12.9		1.0	ug/g	30-OCT-19	31-OCT-19	R4894926
Selenium (Se)		<1.0		1.0	ug/g	30-OCT-19	31-OCT-19	R4894926
Silver (Ag)		<0.20		0.20	ug/g	30-OCT-19	31-OCT-19	R4894926
Thallium (Tl)		<0.50		0.50	ug/g	30-OCT-19	31-OCT-19	R4894926
Uranium (U)		<1.0		1.0	ug/g	30-OCT-19	31-OCT-19	R4894926
Vanadium (V)		26.9		1.0	ug/g	30-OCT-19	31-OCT-19	R4894926
Zinc (Zn)		40.5		5.0	ug/g	30-OCT-19	31-OCT-19	R4894926
Speciated Metals								
Chromium, Hexavalent		0.41		0.20	ug/g	29-OCT-19	31-OCT-19	R4891309
Volatile Organic Compounds								
Benzene		<0.0068		0.0068	ug/g	31-OCT-19	02-NOV-19	R4896322
Ethylbenzene		<0.018		0.018	ug/g	31-OCT-19	02-NOV-19	R4896322
Toluene		<0.080		0.080	ug/g	31-OCT-19	02-NOV-19	R4896322
o-Xylene		<0.020		0.020	ug/g	31-OCT-19	02-NOV-19	R4896322
m+p-Xylenes		<0.030		0.030	ug/g	31-OCT-19	02-NOV-19	R4896322
Xylenes (Total)		<0.050		0.050	ug/g		02-NOV-19	
Surrogate: 4-Bromofluorobenzene		80.8		50-140	%	31-OCT-19	02-NOV-19	R4896322
Surrogate: 1,4-Difluorobenzene		88.1		50-140	%	31-OCT-19	02-NOV-19	R4896322
Hydrocarbons								
F1 (C6-C10)		5.1		5.0	ug/g	31-OCT-19	02-NOV-19	R4896322
F1-BTEX		5.1		5.0	ug/g		04-NOV-19	
F2 (C10-C16)		<10		10	ug/g	29-OCT-19	01-NOV-19	R4896035
F2-Naphth		<10		10	ug/g		04-NOV-19	
F3 (C16-C34)		<50		50	ug/g	29-OCT-19	01-NOV-19	R4896035
F3-PAH		<50		50	ug/g		04-NOV-19	
F4 (C34-C50)		<50		50	ug/g	29-OCT-19	01-NOV-19	R4896035
Total Hydrocarbons (C6-C50)		<72		72	ug/g		04-NOV-19	
Chrom. to baseline at nC50		YES				29-OCT-19	01-NOV-19	R4896035
Surrogate: 2-Bromobenzotrifluoride		92.0		60-140	%	29-OCT-19	01-NOV-19	R4896035
Surrogate: 3,4-Dichlorotoluene		94.1		60-140	%	31-OCT-19	02-NOV-19	R4896322

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

ALS ENVIRONMENTAL ANALYTICAL REPORT

Sample Details/Parameters		Result	Qualifier*	D.L.	Units	Extracted	Analyzed	Batch
L2373382-4 TP19-10 SA1 Sampled By: CLIENT on 28-OCT-19 Matrix: SOIL								
Hydrocarbons								
Polycyclic Aromatic Hydrocarbons								
Acenaphthene		<0.050		0.050	ug/g	29-OCT-19	04-NOV-19	R4896740
Acenaphthylene		<0.050		0.050	ug/g	29-OCT-19	04-NOV-19	R4896740
Anthracene		<0.050		0.050	ug/g	29-OCT-19	04-NOV-19	R4896740
Benzo(a)anthracene		0.059		0.050	ug/g	29-OCT-19	04-NOV-19	R4896740
Benzo(a)pyrene		<0.050		0.050	ug/g	29-OCT-19	04-NOV-19	R4896740
Benzo(b)fluoranthene		0.072		0.050	ug/g	29-OCT-19	04-NOV-19	R4896740
Benzo(g,h,i)perylene		<0.050		0.050	ug/g	29-OCT-19	04-NOV-19	R4896740
Benzo(k)fluoranthene		<0.050		0.050	ug/g	29-OCT-19	04-NOV-19	R4896740
Chrysene		0.061		0.050	ug/g	29-OCT-19	04-NOV-19	R4896740
Dibenzo(ah)anthracene		<0.050		0.050	ug/g	29-OCT-19	04-NOV-19	R4896740
Fluoranthene		0.101		0.050	ug/g	29-OCT-19	04-NOV-19	R4896740
Fluorene		<0.050		0.050	ug/g	29-OCT-19	04-NOV-19	R4896740
Indeno(1,2,3-cd)pyrene		<0.050		0.050	ug/g	29-OCT-19	04-NOV-19	R4896740
1+2-Methylnaphthalenes		<0.042		0.042	ug/g		04-NOV-19	
1-Methylnaphthalene		<0.030		0.030	ug/g	29-OCT-19	04-NOV-19	R4896740
2-Methylnaphthalene		<0.030		0.030	ug/g	29-OCT-19	04-NOV-19	R4896740
Naphthalene		<0.013		0.013	ug/g	29-OCT-19	04-NOV-19	R4896740
Phenanthrene		<0.046		0.046	ug/g	29-OCT-19	04-NOV-19	R4896740
Pyrene		0.087		0.050	ug/g	29-OCT-19	04-NOV-19	R4896740
Surrogate: 2-Fluorobiphenyl		89.3		50-140	%	29-OCT-19	04-NOV-19	R4896740
Surrogate: p-Terphenyl d14		78.4		50-140	%	29-OCT-19	04-NOV-19	R4896740
L2373382-5 19-GS-1 Sampled By: CLIENT on 28-OCT-19 Matrix: SOIL								
Physical Tests								
Conductivity		0.131		0.0040	mS/cm		01-NOV-19	R4895813
% Moisture		9.31		0.25	%	29-OCT-19	30-OCT-19	R4889578
pH		7.69		0.10	pH units		31-OCT-19	R4891170
Cyanides								
Cyanide, Weak Acid Diss		<0.050		0.050	ug/g	29-OCT-19	30-OCT-19	R4890170
Saturated Paste Extractables								
SAR		<0.10		0.10	SAR		31-OCT-19	R4891487
Calcium (Ca)		7.15		0.50	mg/L		31-OCT-19	R4891487
Magnesium (Mg)		0.91		0.50	mg/L		31-OCT-19	R4891487
Sodium (Na)		0.77		0.50	mg/L		31-OCT-19	R4891487
Metals								
Antimony (Sb)		<1.0		1.0	ug/g	30-OCT-19	31-OCT-19	R4894926
Arsenic (As)		1.3		1.0	ug/g	30-OCT-19	31-OCT-19	R4894926
Barium (Ba)		29.4		1.0	ug/g	30-OCT-19	31-OCT-19	R4894926
Beryllium (Be)		<0.50		0.50	ug/g	30-OCT-19	31-OCT-19	R4894926
Boron (B)		<5.0		5.0	ug/g	30-OCT-19	31-OCT-19	R4894926

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

ALS ENVIRONMENTAL ANALYTICAL REPORT

Sample Details/Parameters		Result	Qualifier*	D.L.	Units	Extracted	Analyzed	Batch
L2373382-5	19-GS-1							
Sampled By:	CLIENT on 28-OCT-19							
Matrix:	SOIL							
Metals								
Boron (B), Hot Water Ext.		0.47		0.10	ug/g	30-OCT-19	31-OCT-19	R4890947
Cadmium (Cd)		<0.50		0.50	ug/g	30-OCT-19	31-OCT-19	R4894926
Chromium (Cr)		7.8		1.0	ug/g	30-OCT-19	31-OCT-19	R4894926
Cobalt (Co)		2.9		1.0	ug/g	30-OCT-19	31-OCT-19	R4894926
Copper (Cu)		7.7		1.0	ug/g	30-OCT-19	31-OCT-19	R4894926
Lead (Pb)		8.0		1.0	ug/g	30-OCT-19	31-OCT-19	R4894926
Mercury (Hg)		0.0097		0.0050	ug/g	30-OCT-19	31-OCT-19	R4891987
Molybdenum (Mo)		<1.0		1.0	ug/g	30-OCT-19	31-OCT-19	R4894926
Nickel (Ni)		5.1		1.0	ug/g	30-OCT-19	31-OCT-19	R4894926
Selenium (Se)		<1.0		1.0	ug/g	30-OCT-19	31-OCT-19	R4894926
Silver (Ag)		<0.20		0.20	ug/g	30-OCT-19	31-OCT-19	R4894926
Thallium (Tl)		<0.50		0.50	ug/g	30-OCT-19	31-OCT-19	R4894926
Uranium (U)		<1.0		1.0	ug/g	30-OCT-19	31-OCT-19	R4894926
Vanadium (V)		15.6		1.0	ug/g	30-OCT-19	31-OCT-19	R4894926
Zinc (Zn)		19.1		5.0	ug/g	30-OCT-19	31-OCT-19	R4894926
Speciated Metals								
Chromium, Hexavalent		0.21		0.20	ug/g	30-OCT-19	31-OCT-19	R4891309
Volatile Organic Compounds								
Benzene		<0.0068		0.0068	ug/g	31-OCT-19	02-NOV-19	R4896322
Ethylbenzene		<0.018		0.018	ug/g	31-OCT-19	02-NOV-19	R4896322
Toluene		<0.080		0.080	ug/g	31-OCT-19	02-NOV-19	R4896322
o-Xylene		<0.020		0.020	ug/g	31-OCT-19	02-NOV-19	R4896322
m+p-Xylenes		<0.030		0.030	ug/g	31-OCT-19	02-NOV-19	R4896322
Xylenes (Total)		<0.050		0.050	ug/g		02-NOV-19	
Surrogate: 4-Bromofluorobenzene		81.3		50-140	%	31-OCT-19	02-NOV-19	R4896322
Surrogate: 1,4-Difluorobenzene		90.3		50-140	%	31-OCT-19	02-NOV-19	R4896322
Hydrocarbons								
F1 (C6-C10)		<5.0		5.0	ug/g	31-OCT-19	02-NOV-19	R4896322
F1-BTEX		<5.0		5.0	ug/g		04-NOV-19	
F2 (C10-C16)		<10		10	ug/g	29-OCT-19	01-NOV-19	R4896035
F2-Naphth		<10		10	ug/g		04-NOV-19	
F3 (C16-C34)		52		50	ug/g	29-OCT-19	01-NOV-19	R4896035
F3-PAH		<50		50	ug/g		04-NOV-19	
F4 (C34-C50)		<50		50	ug/g	29-OCT-19	01-NOV-19	R4896035
Total Hydrocarbons (C6-C50)		<72		72	ug/g		04-NOV-19	
Chrom. to baseline at nC50		YES				29-OCT-19	01-NOV-19	R4896035
Surrogate: 2-Bromobenzotrifluoride		84.5		60-140	%	29-OCT-19	01-NOV-19	R4896035
Surrogate: 3,4-Dichlorotoluene		87.0		60-140	%	31-OCT-19	02-NOV-19	R4896322
Polycyclic Aromatic Hydrocarbons								
Acenaphthene		<0.050		0.050	ug/g	29-OCT-19	04-NOV-19	R4896740
Acenaphthylene		<0.050		0.050	ug/g	29-OCT-19	04-NOV-19	R4896740
Anthracene		0.056		0.050	ug/g	29-OCT-19	04-NOV-19	R4896740

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

ALS ENVIRONMENTAL ANALYTICAL REPORT

Sample Details/Parameters		Result	Qualifier*	D.L.	Units	Extracted	Analyzed	Batch
L2373382-5 19-GS-1 Sampled By: CLIENT on 28-OCT-19 Matrix: SOIL								
Polycyclic Aromatic Hydrocarbons								
Benzo(a)anthracene		0.203		0.050	ug/g	29-OCT-19	04-NOV-19	R4896740
Benzo(a)pyrene		0.178		0.050	ug/g	29-OCT-19	04-NOV-19	R4896740
Benzo(b)fluoranthene		0.243		0.050	ug/g	29-OCT-19	04-NOV-19	R4896740
Benzo(g,h,i)perylene		0.116		0.050	ug/g	29-OCT-19	04-NOV-19	R4896740
Benzo(k)fluoranthene		0.094		0.050	ug/g	29-OCT-19	04-NOV-19	R4896740
Chrysene		0.209		0.050	ug/g	29-OCT-19	04-NOV-19	R4896740
Dibenzo(ah)anthracene		<0.050		0.050	ug/g	29-OCT-19	04-NOV-19	R4896740
Fluoranthene		0.362		0.050	ug/g	29-OCT-19	04-NOV-19	R4896740
Fluorene		<0.050		0.050	ug/g	29-OCT-19	04-NOV-19	R4896740
Indeno(1,2,3-cd)pyrene		0.107		0.050	ug/g	29-OCT-19	04-NOV-19	R4896740
1+2-Methylnaphthalenes		<0.042		0.042	ug/g		04-NOV-19	
1-Methylnaphthalene		<0.030		0.030	ug/g	29-OCT-19	04-NOV-19	R4896740
2-Methylnaphthalene		<0.030		0.030	ug/g	29-OCT-19	04-NOV-19	R4896740
Naphthalene		<0.013		0.013	ug/g	29-OCT-19	04-NOV-19	R4896740
Phenanthrene		0.220		0.046	ug/g	29-OCT-19	04-NOV-19	R4896740
Pyrene		0.294		0.050	ug/g	29-OCT-19	04-NOV-19	R4896740
Surrogate: 2-Fluorobiphenyl		91.4		50-140	%	29-OCT-19	04-NOV-19	R4896740
Surrogate: p-Terphenyl d14		78.5		50-140	%	29-OCT-19	04-NOV-19	R4896740
L2373382-6 19-GS-2 Sampled By: CLIENT on 28-OCT-19 Matrix: SOIL								
Physical Tests								
Conductivity		0.181		0.0040	mS/cm		01-NOV-19	R4895813
% Moisture		9.03		0.25	%	29-OCT-19	30-OCT-19	R4889578
pH		7.64		0.10	pH units		31-OCT-19	R4891170
Cyanides								
Cyanide, Weak Acid Diss		<0.050		0.050	ug/g	30-OCT-19	31-OCT-19	R4891556
Saturated Paste Extractables								
SAR		<0.10		0.10	SAR		31-OCT-19	R4891487
Calcium (Ca)		11.3		0.50	mg/L		31-OCT-19	R4891487
Magnesium (Mg)		1.34		0.50	mg/L		31-OCT-19	R4891487
Sodium (Na)		1.23		0.50	mg/L		31-OCT-19	R4891487
Metals								
Antimony (Sb)		<1.0		1.0	ug/g	30-OCT-19	31-OCT-19	R4894926
Arsenic (As)		1.7		1.0	ug/g	30-OCT-19	31-OCT-19	R4894926
Barium (Ba)		47.7		1.0	ug/g	30-OCT-19	31-OCT-19	R4894926
Beryllium (Be)		<0.50		0.50	ug/g	30-OCT-19	31-OCT-19	R4894926
Boron (B)		5.5		5.0	ug/g	30-OCT-19	31-OCT-19	R4894926
Boron (B), Hot Water Ext.		0.36		0.10	ug/g	30-OCT-19	31-OCT-19	R4890947
Cadmium (Cd)		<0.50		0.50	ug/g	30-OCT-19	31-OCT-19	R4894926
Chromium (Cr)		12.2		1.0	ug/g	30-OCT-19	31-OCT-19	R4894926
Cobalt (Co)		4.5		1.0	ug/g	30-OCT-19	31-OCT-19	R4894926

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

ALS ENVIRONMENTAL ANALYTICAL REPORT

Sample Details/Parameters		Result	Qualifier*	D.L.	Units	Extracted	Analyzed	Batch
L2373382-6	19-GS-2							
Sampled By:	CLIENT on 28-OCT-19							
Matrix:	SOIL							
Metals								
Copper (Cu)		10.4		1.0	ug/g	30-OCT-19	31-OCT-19	R4894926
Lead (Pb)		13.6		1.0	ug/g	30-OCT-19	31-OCT-19	R4894926
Mercury (Hg)		0.0188		0.0050	ug/g	30-OCT-19	31-OCT-19	R4891987
Molybdenum (Mo)		<1.0		1.0	ug/g	30-OCT-19	31-OCT-19	R4894926
Nickel (Ni)		8.7		1.0	ug/g	30-OCT-19	31-OCT-19	R4894926
Selenium (Se)		<1.0		1.0	ug/g	30-OCT-19	31-OCT-19	R4894926
Silver (Ag)		<0.20		0.20	ug/g	30-OCT-19	31-OCT-19	R4894926
Thallium (Tl)		<0.50		0.50	ug/g	30-OCT-19	31-OCT-19	R4894926
Uranium (U)		<1.0		1.0	ug/g	30-OCT-19	31-OCT-19	R4894926
Vanadium (V)		23.4		1.0	ug/g	30-OCT-19	31-OCT-19	R4894926
Zinc (Zn)		25.2		5.0	ug/g	30-OCT-19	31-OCT-19	R4894926
Speciated Metals								
Chromium, Hexavalent		0.22		0.20	ug/g	29-OCT-19	31-OCT-19	R4891309
Volatile Organic Compounds								
Benzene		<0.0068		0.0068	ug/g	31-OCT-19	02-NOV-19	R4896322
Ethylbenzene		<0.018		0.018	ug/g	31-OCT-19	02-NOV-19	R4896322
Toluene		0.089		0.080	ug/g	31-OCT-19	02-NOV-19	R4896322
o-Xylene		<0.020		0.020	ug/g	31-OCT-19	02-NOV-19	R4896322
m+p-Xylenes		<0.030		0.030	ug/g	31-OCT-19	02-NOV-19	R4896322
Xylenes (Total)		<0.050		0.050	ug/g		02-NOV-19	
Surrogate: 4-Bromofluorobenzene		82.8		50-140	%	31-OCT-19	02-NOV-19	R4896322
Surrogate: 1,4-Difluorobenzene		93.4		50-140	%	31-OCT-19	02-NOV-19	R4896322
Hydrocarbons								
F1 (C6-C10)		<5.0		5.0	ug/g	31-OCT-19	02-NOV-19	R4896322
F1-BTEX		<5.0		5.0	ug/g		04-NOV-19	
F2 (C10-C16)		<10		10	ug/g	29-OCT-19	01-NOV-19	R4896035
F2-Naphth		<10		10	ug/g		04-NOV-19	
F3 (C16-C34)		<50		50	ug/g	29-OCT-19	01-NOV-19	R4896035
F3-PAH		<50		50	ug/g		04-NOV-19	
F4 (C34-C50)		<50		50	ug/g	29-OCT-19	01-NOV-19	R4896035
Total Hydrocarbons (C6-C50)		<72		72	ug/g		04-NOV-19	
Chrom. to baseline at nC50		YES				29-OCT-19	01-NOV-19	R4896035
Surrogate: 2-Bromobenzotrifluoride		90.2		60-140	%	29-OCT-19	01-NOV-19	R4896035
Surrogate: 3,4-Dichlorotoluene		93.6		60-140	%	31-OCT-19	02-NOV-19	R4896322
Polycyclic Aromatic Hydrocarbons								
Acenaphthene		<0.050		0.050	ug/g	29-OCT-19	04-NOV-19	R4896740
Acenaphthylene		0.070		0.050	ug/g	29-OCT-19	04-NOV-19	R4896740
Anthracene		0.069		0.050	ug/g	29-OCT-19	04-NOV-19	R4896740
Benzo(a)anthracene		0.359		0.050	ug/g	29-OCT-19	04-NOV-19	R4896740
Benzo(a)pyrene		0.303		0.050	ug/g	29-OCT-19	04-NOV-19	R4896740
Benzo(b)fluoranthene		0.403		0.050	ug/g	29-OCT-19	04-NOV-19	R4896740
Benzo(g,h,i)perylene		0.188		0.050	ug/g	29-OCT-19	04-NOV-19	R4896740

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

ALS ENVIRONMENTAL ANALYTICAL REPORT

Sample Details/Parameters		Result	Qualifier*	D.L.	Units	Extracted	Analyzed	Batch
L2373382-6	19-GS-2							
Sampled By:	CLIENT on 28-OCT-19							
Matrix:	SOIL							
Polycyclic Aromatic Hydrocarbons								
Benzo(k)fluoranthene		0.155		0.050	ug/g	29-OCT-19	04-NOV-19	R4896740
Chrysene		0.373		0.050	ug/g	29-OCT-19	04-NOV-19	R4896740
Dibenzo(ah)anthracene		0.057		0.050	ug/g	29-OCT-19	04-NOV-19	R4896740
Fluoranthene		0.618		0.050	ug/g	29-OCT-19	04-NOV-19	R4896740
Fluorene		<0.050		0.050	ug/g	29-OCT-19	04-NOV-19	R4896740
Indeno(1,2,3-cd)pyrene		0.179		0.050	ug/g	29-OCT-19	04-NOV-19	R4896740
1+2-Methylnaphthalenes		<0.042		0.042	ug/g		04-NOV-19	
1-Methylnaphthalene		<0.030		0.030	ug/g	29-OCT-19	04-NOV-19	R4896740
2-Methylnaphthalene		<0.030		0.030	ug/g	29-OCT-19	04-NOV-19	R4896740
Naphthalene		<0.013		0.013	ug/g	29-OCT-19	04-NOV-19	R4896740
Phenanthrene		0.228		0.046	ug/g	29-OCT-19	04-NOV-19	R4896740
Pyrene		0.530		0.050	ug/g	29-OCT-19	04-NOV-19	R4896740
Surrogate: 2-Fluorobiphenyl		92.4		50-140	%	29-OCT-19	04-NOV-19	R4896740
Surrogate: p-Terphenyl d14		80.3		50-140	%	29-OCT-19	04-NOV-19	R4896740

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

Test Method References:

ALS Test Code	Matrix	Test Description	Method Reference**
B-HWS-R511-WT	Soil	Boron-HWE-O.Reg 153/04 (July 2011)	HW EXTR, EPA 6010B
<p>A dried solid sample is extracted with calcium chloride, the sample undergoes a heating process. After cooling the sample is filtered and analyzed by ICP/OES.</p> <p>Analysis conducted in accordance with the Protocol for Analytical Methods Used in the Assessment of Properties under Part XV.1 of the Environmental Protection Act (July 1, 2011).</p>			
BTX-511-HS-WT	Soil	BTEX-O.Reg 153/04 (July 2011)	SW846 8260
<p>BTX is determined by extracting a soil or sediment sample as received with methanol, then analyzing by headspace-GC/MS.</p> <p>Analysis conducted in accordance with the Protocol for Analytical Methods Used in the Assessment of Properties under Part XV.1 of the Environmental Protection Act (July 1, 2011).</p>			
CN-WAD-R511-WT	Soil	Cyanide (WAD)-O.Reg 153/04 (July 2011)	MOE 3015/APHA 4500CN I-WAD
<p>The sample is extracted with a strong base for 16 hours, and then filtered. The filtrate is then distilled where the cyanide is converted to cyanogen chloride by reacting with chloramine-T, the cyanogen chloride then reacts with a combination of barbituric acid and isonicotinic acid to form a highly colored complex.</p> <p>Analysis conducted in accordance with the Protocol for Analytical Methods Used in the Assessment of Properties under Part XV.1 of the Environmental Protection Act (July 1, 2011).</p>			
CR-CR6-IC-WT	Soil	Hexavalent Chromium in Soil	SW846 3060A/7199
<p>This analysis is carried out using procedures adapted from "Test Methods for Evaluating Solid Waste" SW-846, Method 7199, published by the United States Environmental Protection Agency (EPA). The procedure involves analysis for chromium (VI) by ion chromatography using diphenylcarbazine in a sulphuric acid solution.</p> <p>Analysis conducted in accordance with the Protocol for Analytical Methods Used in the Assessment of Properties under Part XV.1 of the Environmental Protection Act (July 1, 2011).</p>			
EC-WT	Soil	Conductivity (EC)	MOEE E3138
<p>A representative subsample is tumbled with de-ionized (DI) water. The ratio of water to soil is 2:1 v/w. After tumbling the sample is then analyzed by a conductivity meter.</p> <p>Analysis conducted in accordance with the Protocol for Analytical Methods Used in the Assessment of Properties under Part XV.1 of the Environmental Protection Act (July 1, 2011).</p>			
F1-F4-511-CALC-WT	Soil	F1-F4 Hydrocarbon Calculated Parameters	CCME CWS-PHC, Pub #1310, Dec 2001-S
<p>Analytical methods used for analysis of CCME Petroleum Hydrocarbons have been validated and comply with the Reference Method for the CWS PHC.</p> <p>Hydrocarbon results are expressed on a dry weight basis.</p> <p>In cases where results for both F4 and F4G are reported, the greater of the two results must be used in any application of the CWS PHC guidelines and the gravimetric heavy hydrocarbons cannot be added to the C6 to C50 hydrocarbons.</p> <p>In samples where BTEX and F1 were analyzed , F1-BTEX represents a value where the sum of Benzene, Toluene, Ethylbenzene and total Xylenes has been subtracted from F1.</p> <p>In samples where PAHs, F2 and F3 were analyzed, F2-Naphth represents the result where Naphthalene has been subtracted from F2. F3-PAH represents a result where the sum of Benzo(a)anthracene, Benzo(a)pyrene, Benzo(b)fluoranthene, Benzo(k)fluoranthene, Dibenzo(a,h)anthracene, Fluoranthene, Indeno(1,2,3-cd)pyrene, Phenanthrene, and Pyrene has been subtracted from F3.</p> <p>Unless otherwise qualified, the following quality control criteria have been met for the F1 hydrocarbon range:</p> <ol style="list-style-type: none">1. All extraction and analysis holding times were met.2. Instrument performance showing response factors for C6 and C10 within 30% of the response factor for toluene.3. Linearity of gasoline response within 15% throughout the calibration range. <p>Unless otherwise qualified, the following quality control criteria have been met for the F2-F4 hydrocarbon ranges:</p> <ol style="list-style-type: none">1. All extraction and analysis holding times were met.2. Instrument performance showing C10, C16 and C34 response factors within 10% of their average.3. Instrument performance showing the C50 response factor within 30% of the average of the C10, C16 and C34 response factors.4. Linearity of diesel or motor oil response within 15% throughout the calibration range.			
F1-HS-511-WT	Soil	F1-O.Reg 153/04 (July 2011)	E3398/CCME TIER 1-HS
<p>Fraction F1 is determined by extracting a soil or sediment sample as received with methanol, then analyzing by headspace-GC/FID.</p>			

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

F2-F4-511-WT	Soil	F2-F4-O.Reg 153/04 (July 2011)	CCME Tier 1
--------------	------	--------------------------------	-------------

Petroleum Hydrocarbons (F2-F4 fractions) are extracted from soil with 1:1 hexane:acetone using a rotary extractor. Extracts are treated with silica gel to remove polar organic interferences. F2, F3, & F4 are analyzed by GC-FID. F4G-sg is analyzed gravimetrically.

- Notes:
- 1. F2 (C10-C16): Sum of all hydrocarbons that elute between nC10 and nC16.
 - 2. F3 (C16-C34): Sum of all hydrocarbons that elute between nC16 and nC34.
 - 3. F4 (C34-C50): Sum of all hydrocarbons that elute between nC34 and nC50.
 - 4. F4G: Gravimetric Heavy Hydrocarbons
 - 5. F4G-sg: Gravimetric Heavy Hydrocarbons (F4G) after silica gel treatment.
 - 6. Where both F4 (C34-C50) and F4G-sg are reported for a sample, the larger of the two values is used for comparison against the relevant CCME guideline for F4.
 - 7. F4G-sg cannot be added to the C6 to C50 hydrocarbon results to obtain an estimate of total extractable hydrocarbons.
 - 8. This method is validated for use.
 - 9. Data from analysis of validation and quality control samples is available upon request.
 - 10. Reported results are expressed as milligrams per dry kilogram, unless otherwise indicated.

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

HG-200.2-CVAA-WT	Soil	Mercury in Soil by CVAAS	EPA 200.2/1631E (mod)
------------------	------	--------------------------	-----------------------

Soil samples are digested with nitric and hydrochloric acids, followed by analysis by CVAAS.

Analysis conducted in accordance with the Protocol for Analytical Methods Used in the Assessment of Properties under Part XV.1 of the Environmental Protection Act (July 1, 2011).

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

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

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

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

METHYLNAPS-CALC-WT	Soil	ABN-Calculated Parameters	SW846 8270
--------------------	------	---------------------------	------------

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

PAH-511-WT	Soil	PAH-O.Reg 153/04 (July 2011)	SW846 3510/8270
------------	------	------------------------------	-----------------

A representative sub-sample of soil is fortified with deuterium-labelled surrogates and a mechanical shaking technique is used to extract the sample with a mixture of methanol and toluene. The extracts are concentrated and analyzed by GC/MS. Results for benzo(b) fluoranthene may include contributions from benzo(j)fluoranthene, if also present in the sample.

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

PH-WT	Soil	pH	MOEE E3137A
-------	------	----	-------------

A minimum 10g portion of the sample is extracted with 20mL of 0.01M calcium chloride solution by shaking for at least 30 minutes. The aqueous layer is separated from the soil and then analyzed using a pH meter and electrode.

Analysis conducted in accordance with the Protocol for Analytical Methods Used in the Assessment of Properties under Part XV.1 of the Environmental Protection Act (July 1, 2011).

SAR-R511-WT	Soil	SAR-O.Reg 153/04 (July 2011)	SW846 6010C
-------------	------	------------------------------	-------------

A dried, disaggregated solid sample is extracted with deionized water, the aqueous extract is separated from the solid, acidified and then analyzed using a ICP/OES. The concentrations of Na, Ca and Mg are reported as per CALA requirements for calculated parameters. These individual parameters are not for comparison to any guideline.

Analysis conducted in accordance with the Protocol for Analytical Methods Used in the Assessment of Properties under Part XV.1 of the Environmental Protection Act (July 1, 2011).

XYLENES-SUM-CALC-
WT

Soil

Sum of Xylene Isomer
Concentrations

CALCULATION

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

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

The last two letters of the above test code(s) indicate the laboratory that performed analytical analysis for that test. Refer to the list below:

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

Chain of Custody Numbers:

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

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

Quality Control Report

Workorder: L2373382

Report Date: 04-NOV-19

Page 1 of 10

Client: GEMTEC Consulting Engineers & Scientists Limited
32 Steacie Drive
Ottawa ON K2K 2A9

Contact: NICOLE SOUCY

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
B-HWS-R511-WT		Soil						
Batch	R4890947							
WG3205938-4	DUP	L2372926-4						
Boron (B), Hot Water Ext.		0.10	0.10		ug/g	0.3	30	31-OCT-19
WG3205938-2	IRM	WT SAR3						
Boron (B), Hot Water Ext.			92.5		%		70-130	31-OCT-19
WG3205938-3	LCS							
Boron (B), Hot Water Ext.			99.9		%		70-130	31-OCT-19
WG3205938-1	MB							
Boron (B), Hot Water Ext.			<0.10		ug/g		0.1	31-OCT-19
BTX-511-HS-WT		Soil						
Batch	R4896322							
WG3207674-4	DUP	WG3207674-3						
Benzene		<0.0068	<0.0068	RPD-NA	ug/g	N/A	40	02-NOV-19
Ethylbenzene		<0.018	<0.018	RPD-NA	ug/g	N/A	40	02-NOV-19
m+p-Xylenes		<0.030	<0.030	RPD-NA	ug/g	N/A	40	02-NOV-19
o-Xylene		<0.020	<0.020	RPD-NA	ug/g	N/A	40	02-NOV-19
Toluene		<0.080	<0.080	RPD-NA	ug/g	N/A	40	02-NOV-19
WG3207674-2	LCS							
Benzene			83.2		%		70-130	02-NOV-19
Ethylbenzene			85.1		%		70-130	02-NOV-19
m+p-Xylenes			82.4		%		70-130	02-NOV-19
o-Xylene			83.5		%		70-130	02-NOV-19
Toluene			86.2		%		70-130	02-NOV-19
WG3207674-1	MB							
Benzene			<0.0068		ug/g		0.0068	02-NOV-19
Ethylbenzene			<0.018		ug/g		0.018	02-NOV-19
m+p-Xylenes			<0.030		ug/g		0.03	02-NOV-19
o-Xylene			<0.020		ug/g		0.02	02-NOV-19
Toluene			<0.080		ug/g		0.08	02-NOV-19
Surrogate: 1,4-Difluorobenzene			99.0		%		50-140	02-NOV-19
Surrogate: 4-Bromofluorobenzene			92.6		%		50-140	02-NOV-19
WG3207674-5	MS	L2373254-1						
Benzene			88.7		%		60-140	02-NOV-19
Ethylbenzene			85.3		%		60-140	02-NOV-19
m+p-Xylenes			83.8		%		60-140	02-NOV-19
o-Xylene			85.6		%		60-140	02-NOV-19
Toluene			87.9		%		60-140	02-NOV-19



Environmental

Quality Control Report

Workorder: L2373382

Report Date: 04-NOV-19

Page 3 of 10

Client: GEMTEC Consulting Engineers & Scientists Limited
32 Steacie Drive
Ottawa ON K2K 2A9

Contact: NICOLE SOUCY

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
EC-WT		Soil						
Batch	R4895813							
WG3206417-4	DUP	WG3206417-3						
Conductivity		0.253	0.225		mS/cm	12	20	01-NOV-19
WG3206417-2	IRM	WT SAR3						
Conductivity			106.8		%		70-130	01-NOV-19
WG3206723-1	LCS							
Conductivity			95.3		%		90-110	01-NOV-19
WG3206417-1	MB							
Conductivity			<0.0040		mS/cm		0.004	01-NOV-19
F1-HS-511-WT		Soil						
Batch	R4896322							
WG3207674-4	DUP	WG3207674-3						
F1 (C6-C10)		<5.0	<5.0	RPD-NA	ug/g	N/A	30	02-NOV-19
WG3207674-2	LCS							
F1 (C6-C10)			100.4		%		80-120	02-NOV-19
WG3207674-1	MB							
F1 (C6-C10)			<5.0		ug/g		5	02-NOV-19
Surrogate: 3,4-Dichlorotoluene			112.1		%		60-140	02-NOV-19
WG3207674-6	MS	L2373254-2						
F1 (C6-C10)			102.5		%		60-140	02-NOV-19
F2-F4-511-WT		Soil						
Batch	R4896035							
WG3205194-3	DUP	WG3205194-5						
F2 (C10-C16)		<10	<10	RPD-NA	ug/g	N/A	30	01-NOV-19
F3 (C16-C34)		<50	<50	RPD-NA	ug/g	N/A	30	01-NOV-19
F4 (C34-C50)		<50	<50	RPD-NA	ug/g	N/A	30	01-NOV-19
WG3205194-2	LCS							
F2 (C10-C16)			105.4		%		80-120	01-NOV-19
F3 (C16-C34)			103.9		%		80-120	01-NOV-19
F4 (C34-C50)			109.6		%		80-120	01-NOV-19
WG3205194-1	MB							
F2 (C10-C16)			<10		ug/g		10	01-NOV-19
F3 (C16-C34)			<50		ug/g		50	01-NOV-19
F4 (C34-C50)			<50		ug/g		50	01-NOV-19
Surrogate: 2-Bromobenzotrifluoride			86.5		%		60-140	01-NOV-19
WG3205194-4	MS	WG3205194-5						
F2 (C10-C16)			104.7		%		60-140	01-NOV-19
F3 (C16-C34)			104.9		%		60-140	

Quality Control Report

Workorder: L2373382

Report Date: 04-NOV-19

Page 4 of 10

Client: GEMTEC Consulting Engineers & Scientists Limited
32 Steacie Drive
Ottawa ON K2K 2A9

Contact: NICOLE SOUCY

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
F2-F4-511-WT	Soil							
Batch	R4896035							
WG3205194-4 MS		WG3205194-5						
F3 (C16-C34)			104.9		%		60-140	01-NOV-19
F4 (C34-C50)			112.8		%		60-140	01-NOV-19
HG-200.2-CVAA-WT	Soil							
Batch	R4891987							
WG3205919-2 CRM		WT-CANMET-TILL2						
Mercury (Hg)			104.3		%		70-130	31-OCT-19
WG3205919-6 DUP		WG3205919-5						
Mercury (Hg)		0.0073	0.0065		ug/g	11	40	31-OCT-19
WG3205919-3 LCS								
Mercury (Hg)			108.0		%		80-120	31-OCT-19
WG3205919-1 MB								
Mercury (Hg)			<0.0050		mg/kg		0.005	31-OCT-19
MET-200.2-CCMS-WT	Soil							
Batch	R4894926							
WG3205919-2 CRM		WT-CANMET-TILL2						
Antimony (Sb)			103.0		%		70-130	31-OCT-19
Arsenic (As)			93.7		%		70-130	31-OCT-19
Barium (Ba)			88.6		%		70-130	31-OCT-19
Beryllium (Be)			88.7		%		70-130	31-OCT-19
Boron (B)			2.9		mg/kg		0-8.6	31-OCT-19
Cadmium (Cd)			90.8		%		70-130	31-OCT-19
Chromium (Cr)			92.9		%		70-130	31-OCT-19
Cobalt (Co)			92.5		%		70-130	31-OCT-19
Copper (Cu)			92.2		%		70-130	31-OCT-19
Lead (Pb)			90.7		%		70-130	31-OCT-19
Molybdenum (Mo)			91.8		%		70-130	31-OCT-19
Nickel (Ni)			92.5		%		70-130	31-OCT-19
Selenium (Se)			0.31		mg/kg		0.15-0.55	31-OCT-19
Silver (Ag)			0.26		mg/kg		0.16-0.36	31-OCT-19
Thallium (Tl)			86.5		%		70-130	31-OCT-19
Uranium (U)			86.8		%		70-130	31-OCT-19
Vanadium (V)			90.9		%		70-130	31-OCT-19
Zinc (Zn)			90.6		%		70-130	31-OCT-19
WG3205919-6 DUP		WG3205919-5						
Antimony (Sb)		<0.10	<0.10		ug/g			31-OCT-19

Quality Control Report

Workorder: L2373382

Report Date: 04-NOV-19

Page 5 of 10

Client: GEMTEC Consulting Engineers & Scientists Limited
32 Steacie Drive
Ottawa ON K2K 2A9

Contact: NICOLE SOUCY

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
MET-200.2-CCMS-WT		Soil						
Batch	R4894926							
WG3205919-6	DUP	WG3205919-5						
Antimony (Sb)		<0.10	<0.10	RPD-NA	ug/g	N/A	30	31-OCT-19
Arsenic (As)		2.05	2.05		ug/g	0.0	30	31-OCT-19
Barium (Ba)		53.9	53.4		ug/g	0.8	40	31-OCT-19
Beryllium (Be)		0.34	0.31		ug/g	8.0	30	31-OCT-19
Boron (B)		7.2	7.4		ug/g	2.6	30	31-OCT-19
Cadmium (Cd)		0.056	0.056		ug/g	0.0	30	31-OCT-19
Chromium (Cr)		12.8	12.8		ug/g	0.2	30	31-OCT-19
Cobalt (Co)		4.34	4.37		ug/g	0.8	30	31-OCT-19
Copper (Cu)		9.59	9.71		ug/g	1.3	30	31-OCT-19
Lead (Pb)		4.58	4.55		ug/g	0.7	40	31-OCT-19
Molybdenum (Mo)		0.35	0.40		ug/g	14	40	31-OCT-19
Nickel (Ni)		9.22	9.33		ug/g	1.1	30	31-OCT-19
Selenium (Se)		<0.20	<0.20	RPD-NA	ug/g	N/A	30	31-OCT-19
Silver (Ag)		<0.10	<0.10	RPD-NA	ug/g	N/A	40	31-OCT-19
Thallium (Tl)		0.081	0.082		ug/g	0.7	30	31-OCT-19
Uranium (U)		0.633	0.641		ug/g	1.3	30	31-OCT-19
Vanadium (V)		19.8	20.1		ug/g	2.0	30	31-OCT-19
Zinc (Zn)		23.8	23.1		ug/g	3.0	30	31-OCT-19
WG3205919-4	LCS							
Antimony (Sb)			107.1		%		80-120	31-OCT-19
Arsenic (As)			97.2		%		80-120	31-OCT-19
Barium (Ba)			98.1		%		80-120	31-OCT-19
Beryllium (Be)			97.4		%		80-120	31-OCT-19
Boron (B)			93.7		%		80-120	31-OCT-19
Cadmium (Cd)			99.7		%		80-120	31-OCT-19
Chromium (Cr)			99.7		%		80-120	31-OCT-19
Cobalt (Co)			98.0		%		80-120	31-OCT-19
Copper (Cu)			95.7		%		80-120	31-OCT-19
Lead (Pb)			98.0		%		80-120	31-OCT-19
Molybdenum (Mo)			99.6		%		80-120	31-OCT-19
Nickel (Ni)			97.1		%		80-120	31-OCT-19
Selenium (Se)			97.8		%		80-120	31-OCT-19
Silver (Ag)			99.2		%		80-120	31-OCT-19

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
MET-200.2-CCMS-WT		Soil						
Batch	R4894926							
WG3205919-4	LCS							
Thallium (Tl)			98.7		%		80-120	31-OCT-19
Uranium (U)			98.0		%		80-120	31-OCT-19
Vanadium (V)			99.8		%		80-120	31-OCT-19
Zinc (Zn)			96.2		%		80-120	31-OCT-19
WG3205919-1	MB							
Antimony (Sb)			<0.10		mg/kg		0.1	31-OCT-19
Arsenic (As)			<0.10		mg/kg		0.1	31-OCT-19
Barium (Ba)			<0.50		mg/kg		0.5	31-OCT-19
Beryllium (Be)			<0.10		mg/kg		0.1	31-OCT-19
Boron (B)			<5.0		mg/kg		5	31-OCT-19
Cadmium (Cd)			<0.020		mg/kg		0.02	31-OCT-19
Chromium (Cr)			<0.50		mg/kg		0.5	31-OCT-19
Cobalt (Co)			<0.10		mg/kg		0.1	31-OCT-19
Copper (Cu)			<0.50		mg/kg		0.5	31-OCT-19
Lead (Pb)			<0.50		mg/kg		0.5	31-OCT-19
Molybdenum (Mo)			<0.10		mg/kg		0.1	31-OCT-19
Nickel (Ni)			<0.50		mg/kg		0.5	31-OCT-19
Selenium (Se)			<0.20		mg/kg		0.2	31-OCT-19
Silver (Ag)			<0.10		mg/kg		0.1	31-OCT-19
Thallium (Tl)			<0.050		mg/kg		0.05	31-OCT-19
Uranium (U)			<0.050		mg/kg		0.05	31-OCT-19
Vanadium (V)			<0.20		mg/kg		0.2	31-OCT-19
Zinc (Zn)			<2.0		mg/kg		2	31-OCT-19
MOISTURE-WT		Soil						
Batch	R4889578							
WG3205187-6	DUP	L2373342-1						
% Moisture		6.85	7.38		%	7.5	20	30-OCT-19
WG3205187-5	LCS							
% Moisture			100.0		%		90-110	30-OCT-19
WG3205187-4	MB							
% Moisture			<0.25		%		0.25	30-OCT-19
PAH-511-WT		Soil						

Quality Control Report

Workorder: L2373382

Report Date: 04-NOV-19

Page 7 of 10

Client: GEMTEC Consulting Engineers & Scientists Limited
32 Steacie Drive
Ottawa ON K2K 2A9

Contact: NICOLE SOUCY

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
PAH-511-WT		Soil						
Batch	R4896740							
WG3205044-3	DUP	WG3205044-5						
1-Methylnaphthalene		<0.030	<0.030	RPD-NA	ug/g	N/A	40	04-NOV-19
2-Methylnaphthalene		<0.030	<0.030	RPD-NA	ug/g	N/A	40	04-NOV-19
Acenaphthene		<0.050	<0.050	RPD-NA	ug/g	N/A	40	04-NOV-19
Acenaphthylene		<0.050	<0.050	RPD-NA	ug/g	N/A	40	04-NOV-19
Anthracene		<0.050	<0.050	RPD-NA	ug/g	N/A	40	04-NOV-19
Benzo(a)anthracene		<0.050	<0.050	RPD-NA	ug/g	N/A	40	04-NOV-19
Benzo(a)pyrene		<0.050	<0.050	RPD-NA	ug/g	N/A	40	04-NOV-19
Benzo(b)fluoranthene		<0.050	<0.050	RPD-NA	ug/g	N/A	40	04-NOV-19
Benzo(g,h,i)perylene		<0.050	<0.050	RPD-NA	ug/g	N/A	40	04-NOV-19
Benzo(k)fluoranthene		<0.050	<0.050	RPD-NA	ug/g	N/A	40	04-NOV-19
Chrysene		<0.050	<0.050	RPD-NA	ug/g	N/A	40	04-NOV-19
Dibenzo(ah)anthracene		<0.050	<0.050	RPD-NA	ug/g	N/A	40	04-NOV-19
Fluoranthene		<0.050	<0.050	RPD-NA	ug/g	N/A	40	04-NOV-19
Fluorene		<0.050	<0.050	RPD-NA	ug/g	N/A	40	04-NOV-19
Indeno(1,2,3-cd)pyrene		<0.050	<0.050	RPD-NA	ug/g	N/A	40	04-NOV-19
Naphthalene		<0.013	<0.013	RPD-NA	ug/g	N/A	40	04-NOV-19
Phenanthrene		<0.046	<0.046	RPD-NA	ug/g	N/A	40	04-NOV-19
Pyrene		<0.050	<0.050	RPD-NA	ug/g	N/A	40	04-NOV-19
WG3205044-2	LCS							
1-Methylnaphthalene			97.0		%		50-140	04-NOV-19
2-Methylnaphthalene			92.2		%		50-140	04-NOV-19
Acenaphthene			97.8		%		50-140	04-NOV-19
Acenaphthylene			98.1		%		50-140	04-NOV-19
Anthracene			95.3		%		50-140	04-NOV-19
Benzo(a)anthracene			102.3		%		50-140	04-NOV-19
Benzo(a)pyrene			98.4		%		50-140	04-NOV-19
Benzo(b)fluoranthene			103.7		%		50-140	04-NOV-19
Benzo(g,h,i)perylene			98.2		%		50-140	04-NOV-19
Benzo(k)fluoranthene			98.7		%		50-140	04-NOV-19
Chrysene			109.8		%		50-140	04-NOV-19
Dibenzo(ah)anthracene			98.6		%		50-140	04-NOV-19
Fluoranthene			98.1		%		50-140	04-NOV-19
Fluorene			96.0		%		50-140	04-NOV-19

Quality Control Report

Workorder: L2373382

Report Date: 04-NOV-19

Page 8 of 10

Client: GEMTEC Consulting Engineers & Scientists Limited
32 Steacie Drive
Ottawa ON K2K 2A9

Contact: NICOLE SOUCY

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
PAH-511-WT		Soil						
Batch	R4896740							
WG3205044-2	LCS							
Indeno(1,2,3-cd)pyrene			97.3		%		50-140	04-NOV-19
Naphthalene			95.3		%		50-140	04-NOV-19
Phenanthrene			98.0		%		50-140	04-NOV-19
Pyrene			98.1		%		50-140	04-NOV-19
WG3205044-1	MB							
1-Methylnaphthalene			<0.030		ug/g		0.03	04-NOV-19
2-Methylnaphthalene			<0.030		ug/g		0.03	04-NOV-19
Acenaphthene			<0.050		ug/g		0.05	04-NOV-19
Acenaphthylene			<0.050		ug/g		0.05	04-NOV-19
Anthracene			<0.050		ug/g		0.05	04-NOV-19
Benzo(a)anthracene			<0.050		ug/g		0.05	04-NOV-19
Benzo(a)pyrene			<0.050		ug/g		0.05	04-NOV-19
Benzo(b)fluoranthene			<0.050		ug/g		0.05	04-NOV-19
Benzo(g,h,i)perylene			<0.050		ug/g		0.05	04-NOV-19
Benzo(k)fluoranthene			<0.050		ug/g		0.05	04-NOV-19
Chrysene			<0.050		ug/g		0.05	04-NOV-19
Dibenzo(ah)anthracene			<0.050		ug/g		0.05	04-NOV-19
Fluoranthene			<0.050		ug/g		0.05	04-NOV-19
Fluorene			<0.050		ug/g		0.05	04-NOV-19
Indeno(1,2,3-cd)pyrene			<0.050		ug/g		0.05	04-NOV-19
Naphthalene			<0.013		ug/g		0.013	04-NOV-19
Phenanthrene			<0.046		ug/g		0.046	04-NOV-19
Pyrene			<0.050		ug/g		0.05	04-NOV-19
Surrogate: 2-Fluorobiphenyl			90.4		%		50-140	04-NOV-19
Surrogate: p-Terphenyl d14			77.2		%		50-140	04-NOV-19
WG3205044-4	MS	WG3205044-5						
1-Methylnaphthalene			93.3		%		50-140	04-NOV-19
2-Methylnaphthalene			88.3		%		50-140	04-NOV-19
Acenaphthene			94.1		%		50-140	04-NOV-19
Acenaphthylene			92.7		%		50-140	04-NOV-19
Anthracene			91.5		%		50-140	04-NOV-19
Benzo(a)anthracene			96.9		%		50-140	04-NOV-19
Benzo(a)pyrene			93.3		%		50-140	04-NOV-19
Benzo(b)fluoranthene			92.6		%		50-140	04-NOV-19



Environmental

Quality Control Report

Workorder: L2373382

Report Date: 04-NOV-19

Page 9 of 10

Client: GEMTEC Consulting Engineers & Scientists Limited
32 Steacie Drive
Ottawa ON K2K 2A9

Contact: NICOLE SOUCY

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
PAH-511-WT								
Soil								
Batch	R4896740							
WG3205044-4 MS		WG3205044-5						
Benzo(g,h,i)perylene			91.1		%		50-140	04-NOV-19
Benzo(k)fluoranthene			98.4		%		50-140	04-NOV-19
Chrysene			105.1		%		50-140	04-NOV-19
Dibenzo(ah)anthracene			93.0		%		50-140	04-NOV-19
Fluoranthene			93.4		%		50-140	04-NOV-19
Fluorene			91.8		%		50-140	04-NOV-19
Indeno(1,2,3-cd)pyrene			87.9		%		50-140	04-NOV-19
Naphthalene			91.5		%		50-140	04-NOV-19
Phenanthrene			94.7		%		50-140	04-NOV-19
Pyrene			93.0		%		50-140	04-NOV-19
PH-WT								
Soil								
Batch	R4891170							
WG3205218-1 DUP		L2373342-10						
pH		7.52	7.66	J	pH units	0.14	0.3	31-OCT-19
WG3206706-1 LCS								
pH			6.98		pH units		6.9-7.1	31-OCT-19
SAR-R511-WT								
Soil								
Batch	R4891487							
WG3206417-4 DUP		WG3206417-3						
Calcium (Ca)		5.17	5.68		mg/L	9.4	30	31-OCT-19
Sodium (Na)		25.8	30.3		mg/L	16	30	31-OCT-19
Magnesium (Mg)		0.51	0.57		mg/L	11	30	31-OCT-19
WG3206417-2 IRM		WT SAR3						
Calcium (Ca)			78.0		%		70-130	31-OCT-19
Sodium (Na)			105.5		%		70-130	31-OCT-19
Magnesium (Mg)			89.2		%		70-130	31-OCT-19
WG3206417-5 LCS								
Calcium (Ca)			109.3		%		70-130	31-OCT-19
Sodium (Na)			104.8		%		70-130	31-OCT-19
Magnesium (Mg)			108.0		%		70-130	31-OCT-19
WG3206417-1 MB								
Calcium (Ca)			<0.50		mg/L		0.5	31-OCT-19
Sodium (Na)			<0.50		mg/L		0.5	31-OCT-19
Magnesium (Mg)			<0.50		mg/L		0.5	31-OCT-19

Quality Control Report

Workorder: L2373382

Report Date: 04-NOV-19

Client: GEMTEC Consulting Engineers & Scientists Limited
32 Steacie Drive
Ottawa ON K2K 2A9
Contact: NICOLE SOUCY

Page 10 of 10

Legend:

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

Sample Parameter Qualifier Definitions:

Qualifier	Description
J	Duplicate results and limits are expressed in terms of absolute difference.
RPD-NA	Relative Percent Difference Not Available due to result(s) being less than detection limit.

Hold Time Exceedances:

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

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

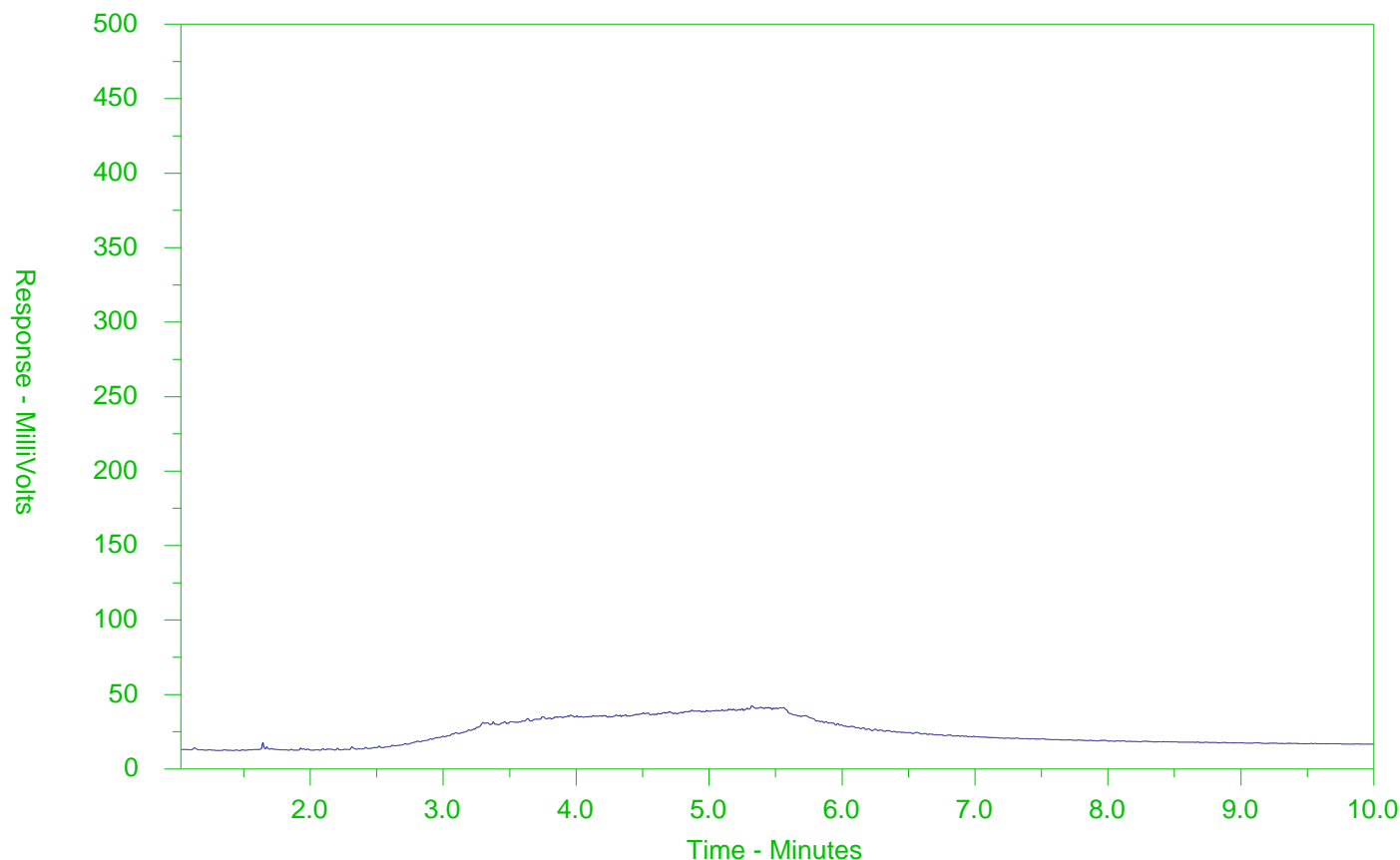
The ALS Quality Control Report is provided to ALS clients upon request. ALS includes comprehensive QC checks with every analysis to ensure our high standards of quality are met. Each QC result has a known or expected target value, which is compared against pre-determined data quality objectives to provide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

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

CCME F2-F4 HYDROCARBON DISTRIBUTION REPORT



ALS Sample ID: L2373382-1
Client Sample ID: TP19-5 SA2



← F2 →		← F3 →		← F4 →	
nC10	nC16		nC34		nC50
174°C	287°C		481°C		575°C
346°F	549°F		898°F		1067°F
Gasoline →			← Motor Oils/Lube Oils/Grease		
← Diesel/Jet Fuels →					

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

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

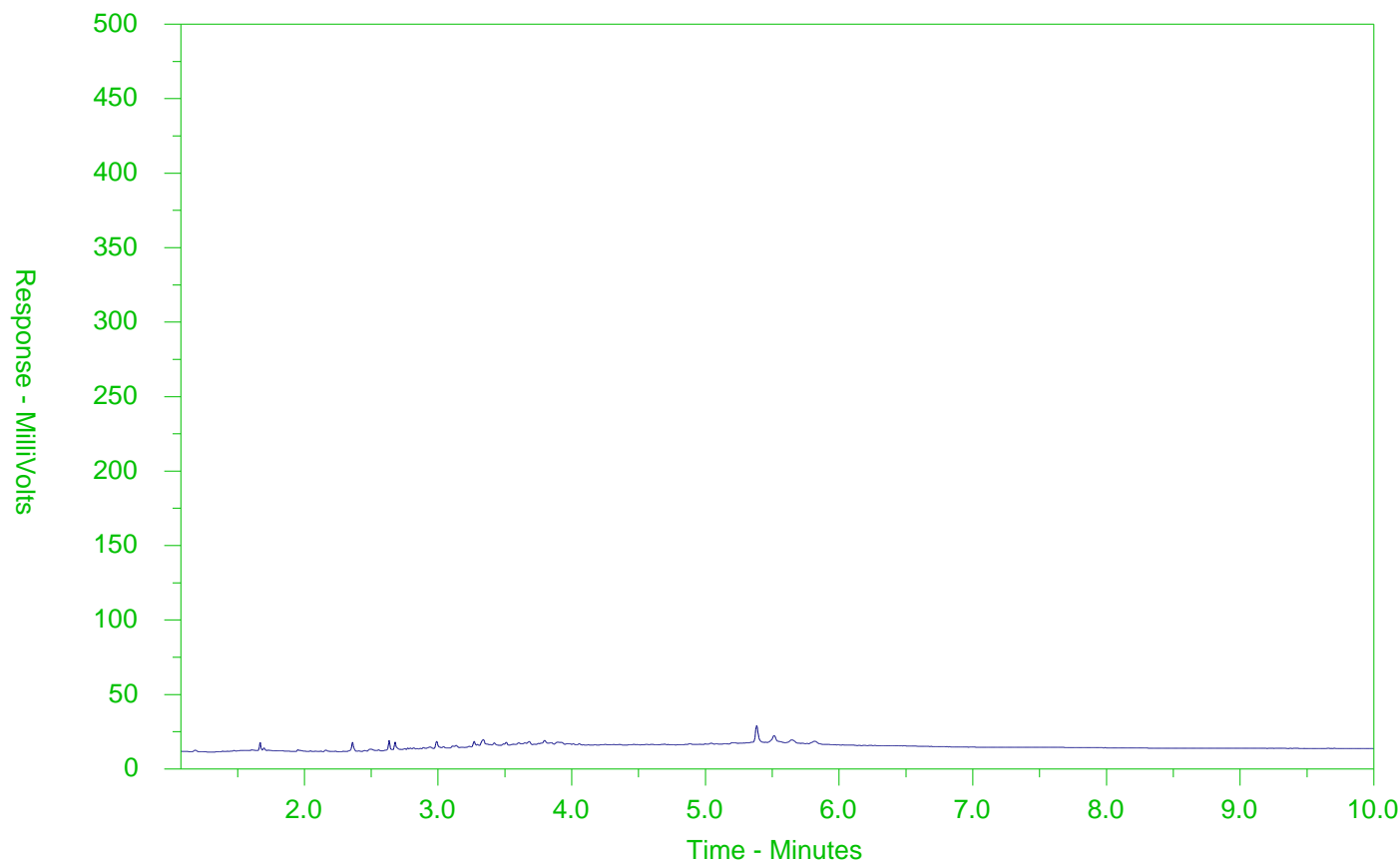
Peak heights in this report are a function of the sample concentration, the sample amount extracted, the sample dilution factor and the scale at the left.

Note: This chromatogram was produced using GC conditions that are specific to ALS Canada CCME F2-F4 method. Refer to the ALS Canada CCME F2-F4 Hydrocarbon Library for a collection of chromatograms from common reference samples (fuels, oils, etc.). The HDR Library can be found at www.alsglobal.com.

CCME F2-F4 HYDROCARBON DISTRIBUTION REPORT



ALS Sample ID: L2373382-2
Client Sample ID: TP19-6 SA1



← F2 →		← F3 →		← F4 →	
nC10	nC16		nC34		nC50
174°C	287°C		481°C		575°C
346°F	549°F		898°F		1067°F
Gasoline →			← Motor Oils/Lube Oils/Grease		
← Diesel/Jet Fuels →					

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

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

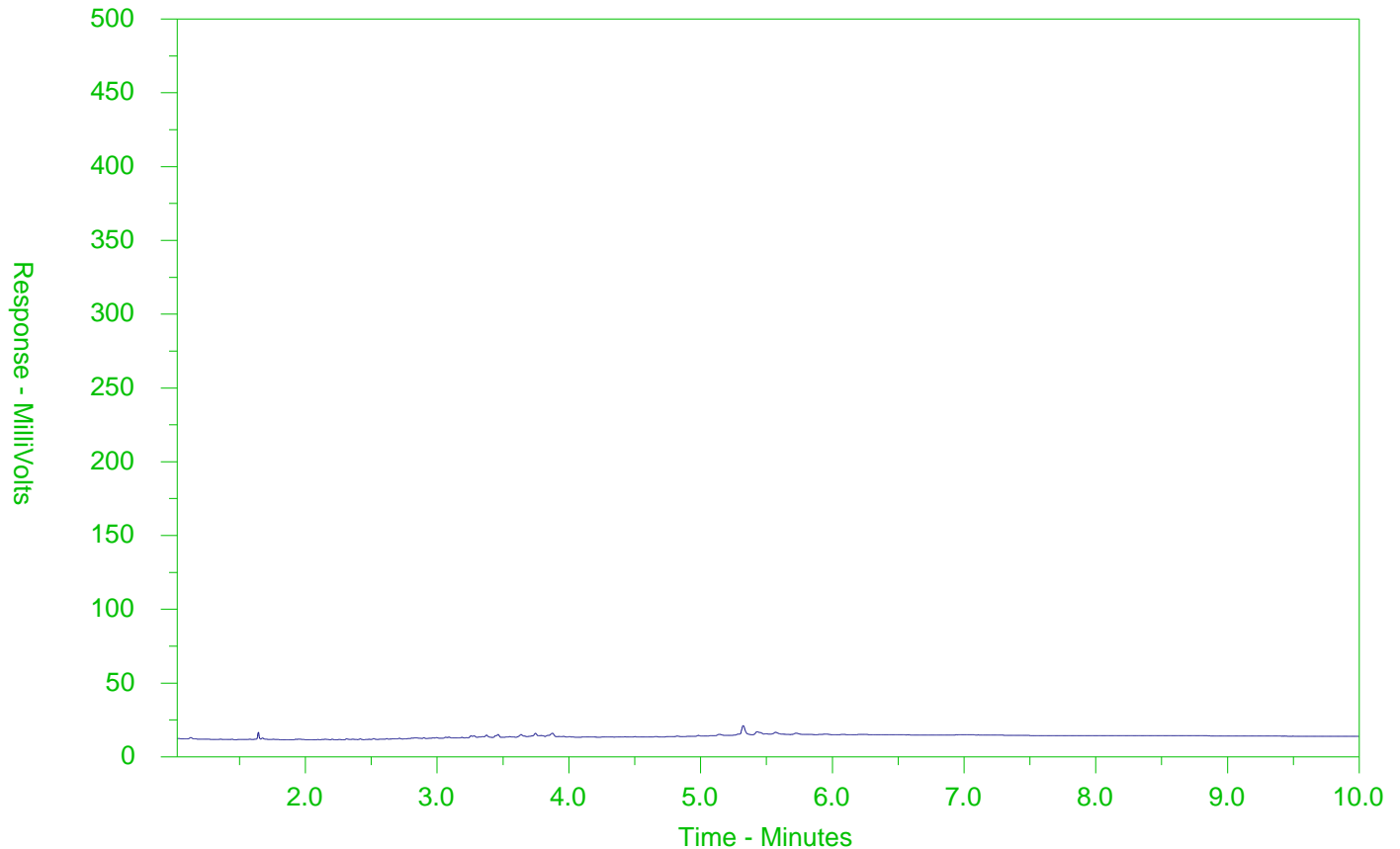
Peak heights in this report are a function of the sample concentration, the sample amount extracted, the sample dilution factor and the scale at the left.

Note: This chromatogram was produced using GC conditions that are specific to ALS Canada CCME F2-F4 method. Refer to the ALS Canada CCME F2-F4 Hydrocarbon Library for a collection of chromatograms from common reference samples (fuels, oils, etc.). The HDR Library can be found at www.alsglobal.com.

CCME F2-F4 HYDROCARBON DISTRIBUTION REPORT



ALS Sample ID: L2373382-3
Client Sample ID: TP19-8 SA2



← F2 →		← F3 →		← F4 →	
nC10	nC16		nC34		nC50
174°C	287°C		481°C		575°C
346°F	549°F		898°F		1067°F
Gasoline →			← Motor Oils/Lube Oils/Grease		
← Diesel/Jet Fuels →					

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

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

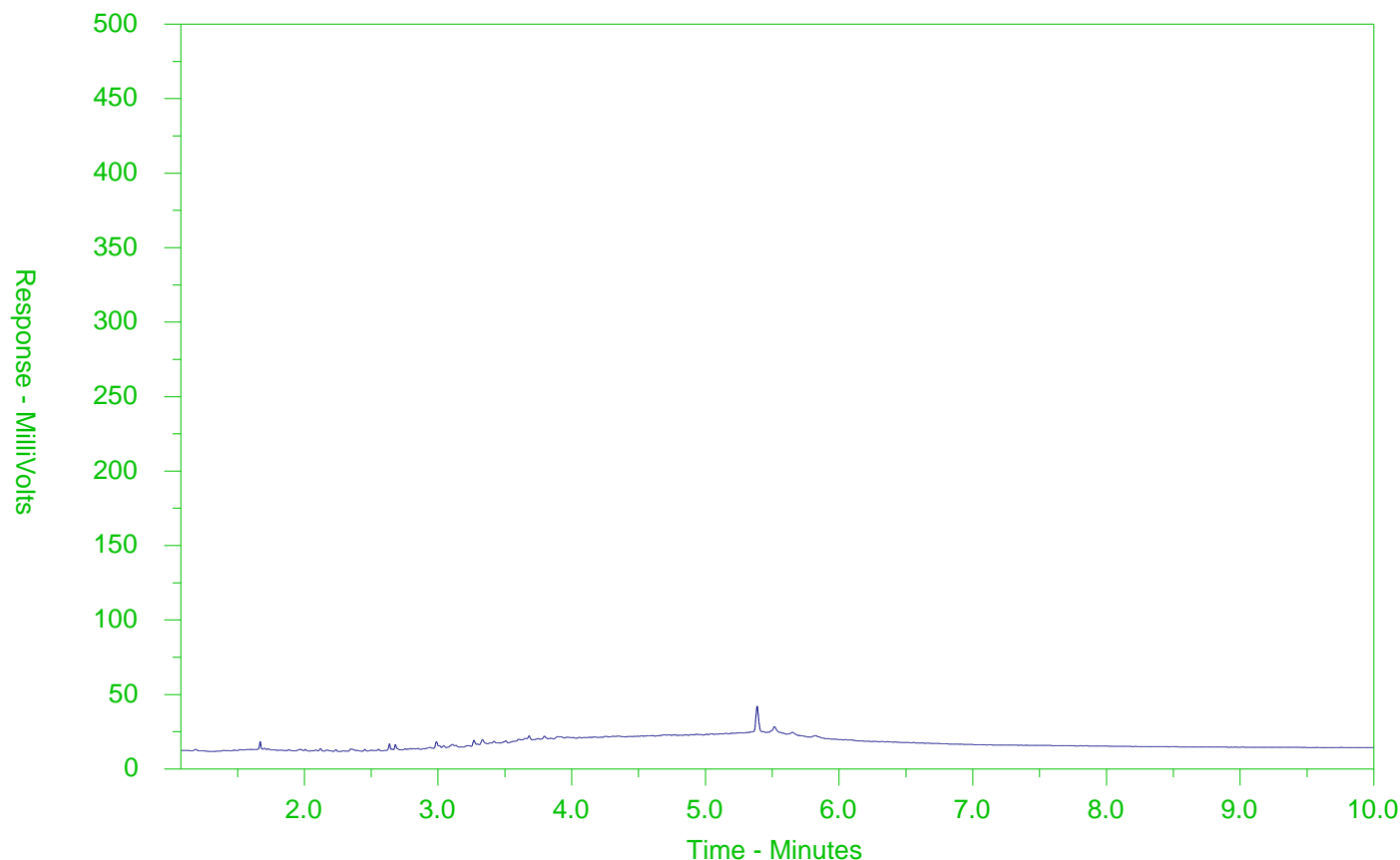
Peak heights in this report are a function of the sample concentration, the sample amount extracted, the sample dilution factor and the scale at the left.

Note: This chromatogram was produced using GC conditions that are specific to ALS Canada CCME F2-F4 method. Refer to the ALS Canada CCME F2-F4 Hydrocarbon Library for a collection of chromatograms from common reference samples (fuels, oils, etc.). The HDR Library can be found at www.alsglobal.com.

CCME F2-F4 HYDROCARBON DISTRIBUTION REPORT



ALS Sample ID: L2373382-4
Client Sample ID: TP19-10 SA1



← F2 →		← F3 →		← F4 →	
nC10	nC16		nC34		nC50
174°C	287°C		481°C		575°C
346°F	549°F		898°F		1067°F
Gasoline →			← Motor Oils/Lube Oils/Grease		
← Diesel/Jet Fuels →					

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

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

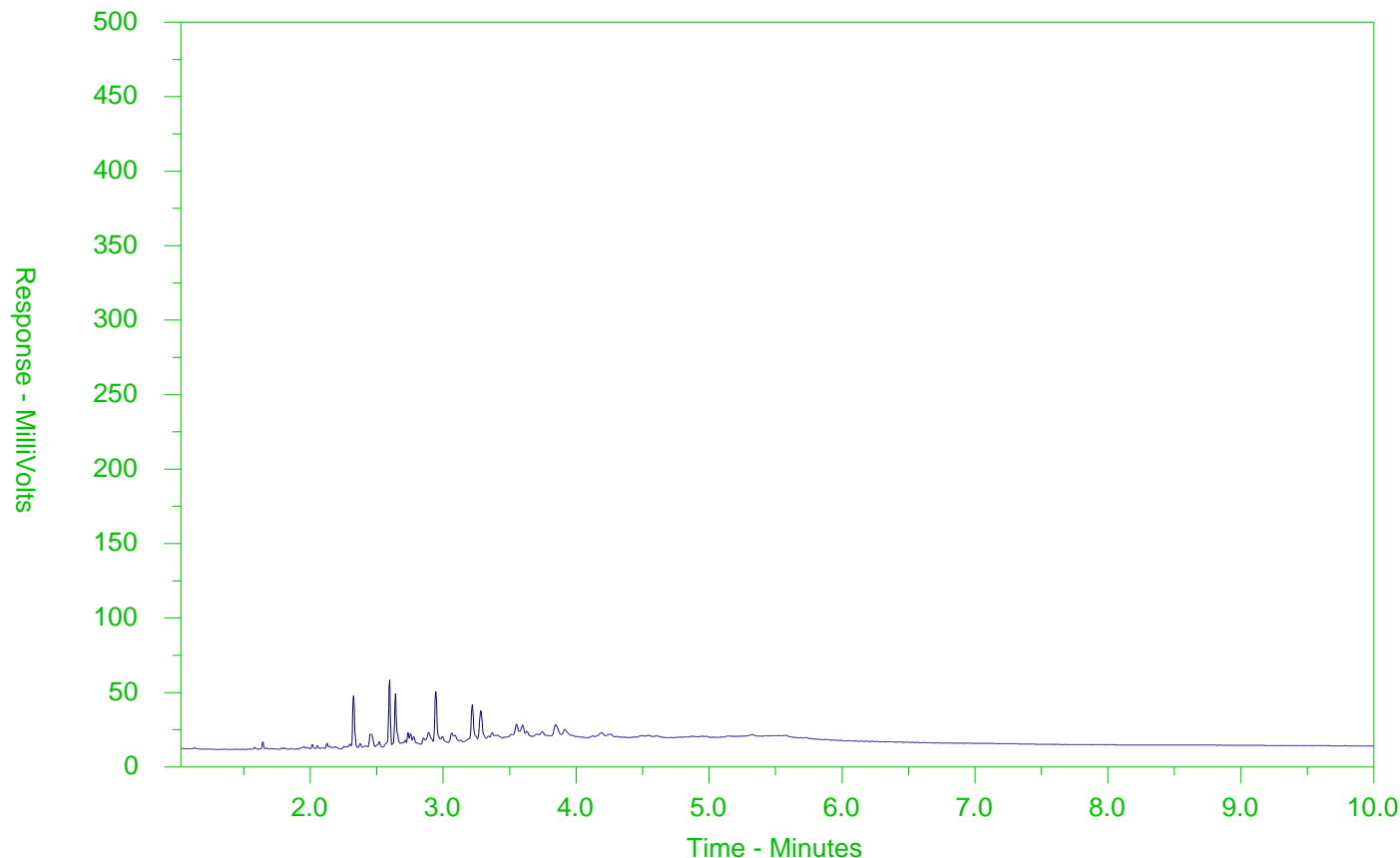
Peak heights in this report are a function of the sample concentration, the sample amount extracted, the sample dilution factor and the scale at the left.

Note: This chromatogram was produced using GC conditions that are specific to ALS Canada CCME F2-F4 method. Refer to the ALS Canada CCME F2-F4 Hydrocarbon Library for a collection of chromatograms from common reference samples (fuels, oils, etc.). The HDR Library can be found at www.alsglobal.com.

CCME F2-F4 HYDROCARBON DISTRIBUTION REPORT



ALS Sample ID: L2373382-5
Client Sample ID: 19-GS-1



← F2 →		← F3 →		← F4 →	
nC10	nC16		nC34		nC50
174°C	287°C		481°C		575°C
346°F	549°F		898°F		1067°F
Gasoline →			← Motor Oils/Lube Oils/Grease		
← Diesel/Jet Fuels →					

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

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

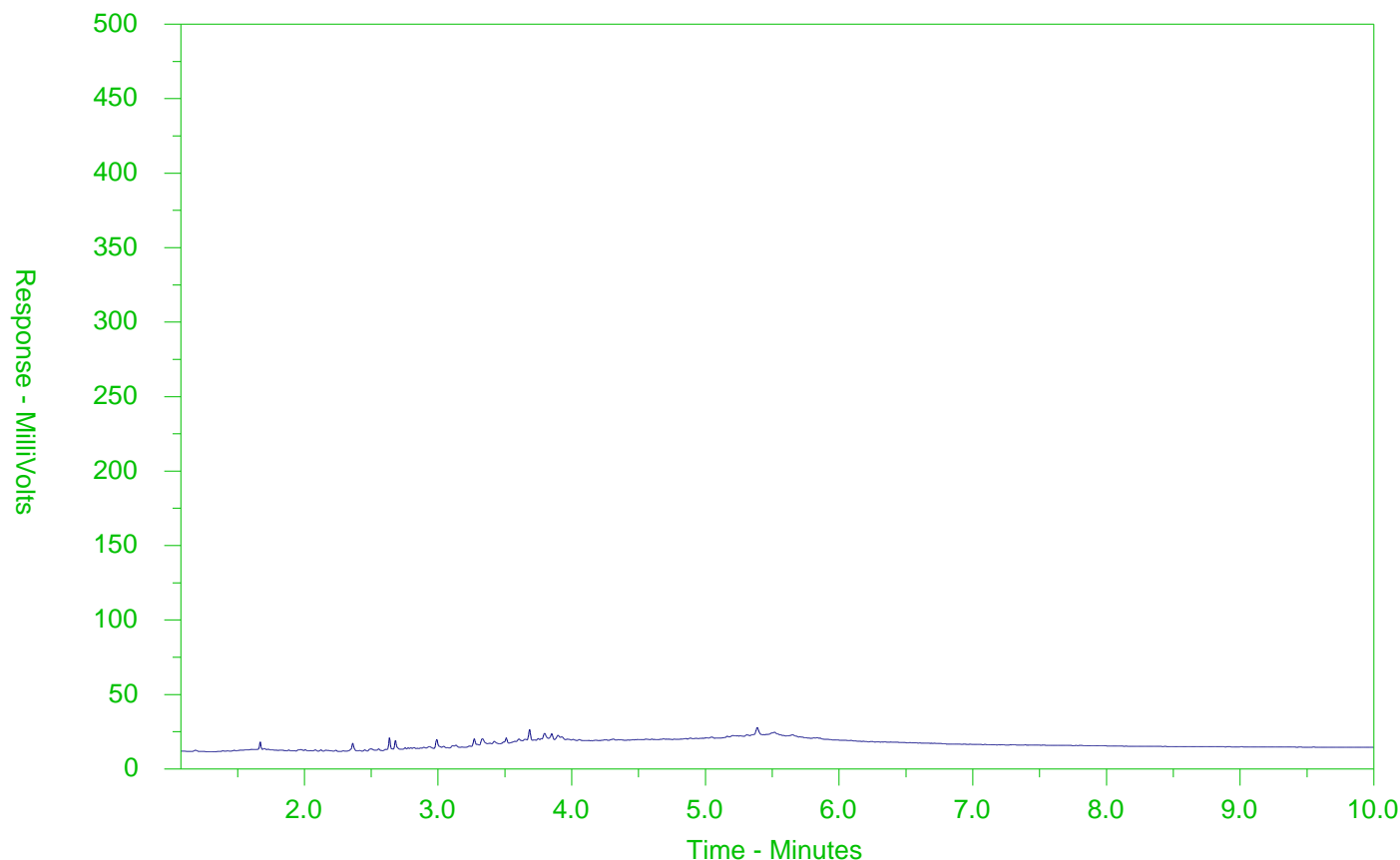
Peak heights in this report are a function of the sample concentration, the sample amount extracted, the sample dilution factor and the scale at the left.

Note: This chromatogram was produced using GC conditions that are specific to ALS Canada CCME F2-F4 method. Refer to the ALS Canada CCME F2-F4 Hydrocarbon Library for a collection of chromatograms from common reference samples (fuels, oils, etc.). The HDR Library can be found at www.alsglobal.com.

CCME F2-F4 HYDROCARBON DISTRIBUTION REPORT



ALS Sample ID: L2373382-6
Client Sample ID: 19-GS-2



← F2 →		← F3 →		← F4 →	
nC10	nC16		nC34		nC50
174°C	287°C		481°C		575°C
346°F	549°F		898°F		1067°F
Gasoline →			← Motor Oils/Lube Oils/Grease		
← Diesel/Jet Fuels →					

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

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

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

Note: This chromatogram was produced using GC conditions that are specific to ALS Canada CCME F2-F4 method. Refer to the ALS Canada CCME F2-F4 Hydrocarbon Library for a collection of chromatograms from common reference samples (fuels, oils, etc.). The HDR Library can be found at www.alsglobal.com.



www.alsglobal.com

Chain of Custody (COC) / Analytical Request Form

Canada Toll Free: 1 800 668 9878

L2373382-COCF

COC Number: 17 -

Page 1 of 1

Report To: Contact and company name below will appear on the final report

Company: Gemtec

Contact: Nicole Soucy

Phone: 613-836-1422 X265

Street: 32 Steacie Drive

City/Province: Kanata, ON

Postal Code: K2K 2A9

Invoice To: Same as Report To

Company: Copy of Invoice with Report

Contact: Email 1 or Fax nicole.soucy@gemtec.ca

Email 2

Email 3

Select Report Format: ☒ PDF ☒ EXCEL ☐ EDD (DIGITAL)Quality Control (QC) Report with Report ☐ YES ☐ NO

Compare Results to Criteria on Report - provide details below if box checked

Select Distribution: ☒ EMAIL ☐ MAIL ☐ FAX

Email 1 or Fax nicole.soucy@gemtec.ca

Email 2

Email 3

Select Invoice Distribution: ☒ EMAIL ☐ MAIL ☐ FAX

Email 1 or Fax nicole.soucy@gemtec.ca

Email 2

Email 3

Select Invoice Distribution: ☒ EMAIL ☐ MAIL ☐ FAX

Email 1 or Fax nicole.soucy@gemtec.ca

Email 2

Email 3

Select Invoice Distribution: ☒ EMAIL ☐ MAIL ☐ FAX

Email 1 or Fax nicole.soucy@gemtec.ca

Email 2

Email 3

Select Invoice Distribution: ☒ EMAIL ☐ MAIL ☐ FAX

Email 1 or Fax nicole.soucy@gemtec.ca

Email 2

Email 3

Select Invoice Distribution: ☒ EMAIL ☐ MAIL ☐ FAX

Email 1 or Fax nicole.soucy@gemtec.ca

Email 2

Email 3

Select Invoice Distribution: ☒ EMAIL ☐ MAIL ☐ FAX

Email 1 or Fax nicole.soucy@gemtec.ca

Email 2

Email 3

Select Invoice Distribution: ☒ EMAIL ☐ MAIL ☐ FAX

Email 1 or Fax nicole.soucy@gemtec.ca

Email 2

Select Service Level Below - Contact your AM to confirm all E&P TATs (surcharges may apply)

Regular (RT) ☒ Standard TAT if received by 3 pm - business days - no surcharges apply4 day (P4-20%) ☐ 1 Business day (E - 100%)3 day (P3-25%) ☐ Same Day, Weekend or Statutory holiday (E2 -200%)2 day (P2-50%) ☐ (Laboratory opening fees may apply) 1

Date and Time Required for all E&P TATs: dd-mm-yy hh:mm

For tests that cannot be performed according to the service level selected, you will be contacted.

Analysis Request

Indicate Filtered (F), Preserved (P) or Filtered and Preserved (FP) below

Metals and Inorganics

VOC

BTEX

F1-F4 (PHCs)

PAH

SUSPECTED HAZARD (see Special Instructions)

SAMPLES ON HOLD

NUMBER OF CONTAINERS

Metals and Inorganics

VOC

BTEX

F1-F4 (PHCs)

PAH

SUSPECTED HAZARD (see Special Instructions)

SAMPLES ON HOLD

NUMBER OF CONTAINERS

Metals and Inorganics

VOC

BTEX

F1-F4 (PHCs)

PAH

SUSPECTED HAZARD (see Special Instructions)

SAMPLES ON HOLD

NUMBER OF CONTAINERS

Metals and Inorganics

VOC

BTEX

F1-F4 (PHCs)

PAH

SUSPECTED HAZARD (see Special Instructions)

SAMPLES ON HOLD

NUMBER OF CONTAINERS

Metals and Inorganics

VOC

BTEX

F1-F4 (PHCs)

PAH

Select Service Level Below - Contact your AM to confirm all E&P TATs (surcharges may apply)

Regular (RT) ☒ Standard TAT if received by 3 pm - business days - no surcharges apply4 day (P4-20%) ☐ 1 Business day (E - 100%)3 day (P3-25%) ☐ Same Day, Weekend or Statutory holiday (E2 -200%)2 day (P2-50%) ☐ (Laboratory opening fees may apply) 1

Date and Time Required for all E&P TATs: dd-mm-yy hh:mm

For tests that cannot be performed according to the service level selected, you will be contacted.

Analysis Request

Indicate Filtered (F), Preserved (P) or Filtered and Preserved (FP) below

Metals and Inorganics

VOC

BTEX

F1-F4 (PHCs)

PAH

SUSPECTED HAZARD (see Special Instructions)

SAMPLES ON HOLD

NUMBER OF CONTAINERS

Metals and Inorganics

VOC

BTEX

F1-F4 (PHCs)

PAH

SUSPECTED HAZARD (see Special Instructions)

SAMPLES ON HOLD

NUMBER OF CONTAINERS

Metals and Inorganics

VOC

BTEX

F1-F4 (PHCs)

PAH

SUSPECTED HAZARD (see Special Instructions)

SAMPLES ON HOLD

NUMBER OF CONTAINERS

Metals and Inorganics

VOC

BTEX

F1-F4 (PHCs)

PAH

SUSPECTED HAZARD (see Special Instructions)

SAMPLES ON HOLD

NUMBER OF CONTAINERS

Metals and Inorganics

VOC

BTEX

F1-F4 (PHCs)

PAH

Select Service Level Below - Contact your AM to confirm all E&P TATs (surcharges may apply)

Regular (RT) ☒ Standard TAT if received by 3 pm - business days - no surcharges apply4 day (P4-20%) ☐ 1 Business day (E - 100%)3 day (P3-25%) ☐ Same Day, Weekend or Statutory holiday (E2 -200%)2 day (P2-50%) ☐ (Laboratory opening fees may apply) 1

Date and Time Required for all E&P TATs: dd-mm-yy hh:mm

For tests that cannot be performed according to the service level selected, you will be contacted.

Analysis Request

Indicate Filtered (F), Preserved (P) or Filtered and Preserved (FP) below

Metals and Inorganics

VOC

BTEX

F1-F4 (PHCs)

PAH

SUSPECTED HAZARD (see Special Instructions)

SAMPLES ON HOLD

NUMBER OF CONTAINERS

Metals and Inorganics

VOC

BTEX

F1-F4 (PHCs)

PAH

SUSPECTED HAZARD (see Special Instructions)

SAMPLES ON HOLD

NUMBER OF CONTAINERS

Metals and Inorganics

VOC

BTEX

F1-F4 (PHCs)

PAH

SUSPECTED HAZARD (see Special Instructions)

SAMPLES ON HOLD

NUMBER OF CONTAINERS

Metals and Inorganics

VOC

BTEX

F1-F4 (PHCs)

PAH

SUSPECTED HAZARD (see Special Instructions)

SAMPLES ON HOLD

NUMBER OF CONTAINERS

Metals and Inorganics

VOC

BTEX

F1-F4 (PHCs)

PAH

Select Service Level Below - Contact your AM to confirm all E&P TATs (surcharges may apply)

Regular (RT) ☒ Standard TAT if received by 3 pm - business days - no surcharges apply4 day (P4-20%) ☐ 1 Business day (E - 100%)3 day (P3-25%) ☐ Same Day, Weekend or Statutory holiday (E2 -200%)2 day (P2-50%) ☐ (Laboratory opening fees may apply) 1

Date and Time Required for all E&P TATs: dd-mm-yy hh:mm

For tests that cannot be performed according to the service level selected, you will be contacted.

Analysis Request

Indicate Filtered (F), Preserved (P) or Filtered and Preserved (FP) below

Metals and Inorganics

VOC

BTEX

F1-F4 (PHCs)

PAH

SUSPECTED HAZARD (see Special Instructions)

SAMPLES ON HOLD

NUMBER OF CONTAINERS

Metals and Inorganics

VOC

BTEX

F1-F4 (PHCs)

PAH

SUSPECTED HAZARD (see Special Instructions)

SAMPLES ON HOLD

NUMBER OF CONTAINERS

Metals and Inorganics

VOC

BTEX

F1-F4 (PHCs)

PAH

SUSPECTED HAZARD (see Special Instructions)

SAMPLES ON HOLD

NUMBER OF CONTAINERS

Metals and Inorganics

VOC

BTEX

F1-F4 (PHCs)

PAH

SUSPECTED HAZARD (see Special Instructions)

SAMPLES ON HOLD

NUMBER OF CONTAINERS

Metals and Inorganics

VOC

BTEX

F1-F4 (PHCs)

PAH

Select Service Level Below - Contact your AM to confirm all E&P TATs (surcharges may apply)

Regular (RT) ☒ Standard TAT if received by 3 pm - business days - no surcharges apply4 day (P4-20%) ☐ 1 Business day (E - 100%)3 day (P3-25%) ☐ Same Day, Weekend or Statutory holiday (E2 -200%)2 day (P2-50%) ☐ (Laboratory opening fees may apply) 1

Date and Time Required for all E&P TATs: dd-mm-yy hh:mm

For tests that cannot be performed according to the service level selected, you will be contacted.

Analysis Request

Indicate Filtered (F), Preserved (P) or Filtered and Preserved (FP) below

Metals and Inorganics

VOC

BTEX

F1-F4 (PHCs)

PAH

SUSPECTED HAZARD (see Special Instructions)

SAMPLES ON HOLD

NUMBER OF CONTAINERS

Metals and Inorganics

VOC

BTEX

F1-F4 (PHCs)

PAH

SUSPECTED HAZARD (see Special Instructions)

SAMPLES ON HOLD

NUMBER OF CONTAINERS

Metals and Inorganics

VOC

BTEX

F1-F4 (PHCs)

PAH

SUSPECTED HAZARD (see Special Instructions)

SAMPLES ON HOLD

NUMBER OF CONTAINERS

Metals and Inorganics

VOC

BTEX

F1-F4 (PHCs)

PAH

SUSPECTED HAZARD (see Special Instructions)

SAMPLES ON HOLD

NUMBER OF CONTAINERS

Metals and Inorganics

VOC

BTEX

F1-F4 (PHCs)

PAH

Select Service Level Below - Contact your AM to confirm all E&P TATs (surcharges may apply)

Regular (RT) ☒ Standard TAT if received by 3 pm - business days - no surcharges apply4 day (P4-20%) ☐ 1 Business day (E - 100%)3 day (P3-25%) ☐ Same Day, Weekend or Statutory holiday (E2 -200%)2 day (P2-50%) ☐ (Laboratory opening fees may apply) 1

Date and Time Required for all E&P TATs: dd-mm-yy hh:mm

For tests that cannot be performed according to the service level selected, you will be contacted.

Analysis Request

Indicate Filtered (F), Preserved (P) or Filtered and Preserved (FP) below

Metals and Inorganics

VOC

BTEX

F1-F4 (PHCs)

PAH

SUSPECTED HAZARD (see Special Instructions)

SAMPLES ON HOLD

NUMBER OF CONTAINERS

Metals and Inorganics

VOC

BTEX

F1-F4 (PHCs)

PAH

SUSPECTED HAZARD (see Special Instructions)

SAMPLES ON HOLD

NUMBER OF CONTAINERS

Metals and Inorganics

VOC

BTEX

F1-F4 (PHCs)

PAH

SUSPECTED HAZARD (see Special Instructions)

SAMPLES ON HOLD

NUMBER OF CONTAINERS

Metals and Inorganics

VOC

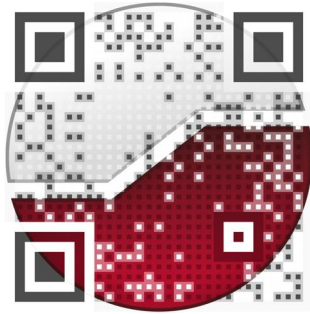
BTEX

F1-F4 (PHCs)

PAH

SUSPECTED HAZARD (see Special Instructions)

experience • knowledge • integrity



civil	civil
geotechnical	géotechnique
environmental	environnementale
field services	surveillance de chantier
materials testing	service de laboratoire des matériaux

expérience • connaissance • intégrité

