



# LANDTEK LIMITED

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July 23, 2018  
File: 18196

## Hunt Club Valley

465 Briadean Road  
Cambridge, Ontario  
N3H 4R6

Attention: Mr. Ms. Terri Johns,

**Re: Limited Phase 2 Soil Sampling Program – Maple Grove Road & Speedsville Road  
(Southeast Corner Area) Cambridge, ON**

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## INTRODUCTION

Landtek Limited is pleased to submit the findings of the soil sampling program that was to assess the potential impacts to surface soil from the historical spill at the northwest corner area of the intersection of Speedsville Road and Maple Grove Road, and on Speedsville Road; and a metal products company at the northeast corner area of the intersection of Speedsville Road and Maple Grove Road. The work was initiated following authorization to proceed from Ms. Terri Johns of Hunt Club Valley.

Landtek recently completed a Phase 1 Environment Site Assessment (ESA) for the Land (Property) located at the southeast corner area of the intersection of Maple Grove Road & Speedsville Road, Cambridge in June, 2018. Based on the findings of this Phase 1 ESA, it was the opinion of Landtek Limited that there was need to undertake further environmental evaluation of the site at this time.

The soil sampling program was completed in general accordance with CSA Standard Z769-00 as well as current guidelines described in Ontario Regulation 153/04. The soil and groundwater quality standards and regulations came into effect in 2011 (Soil, Ground Water and Sediment Standards for Use under Part XV.1 of the Environmental Protection Act, April 15, 2011).

It is understood that the information obtained as part of this program may be used for due diligence purposes and that the future use of the site will be for residential purposes.

## METHODOLOGY

The objectives of the soil sampling was to assess the quality of the overburden (sand/silty sand) on site; (1) undertake sampling of subsurface soils by means of hand augured boreholes; (2) carry out chemical testing of soil to assist in the assessment of existing conditions; and, (3) evaluate and report on the findings to present the existing environmental conditions of the site.

Sample locations were marked out in the field prior to completing intrusive investigative fieldwork. Underground utilities in the test areas were located by public and private utility locating services by the client. Samples locations were augured on July 14, 2018 under the supervision of a representative of Landtek Limited.

Samples were obtained at regular intervals and the sample equipment was washed with phosphate free detergent and rinsed between samples to avoid cross contamination. Soil conditions were logged and soil samples were taken following protocols outlined in CSA Z769-00 as well as the Ministry of Environment and Climate Change (MOE) Guidance on Sampling and Analytical Methods for Use at Contaminated Sites in Ontario', dated May, 1996. Screening for Total Combustible Vapours (TCV) and volatile organic compounds were performed on all samples using a Gastechtor 1238ME.

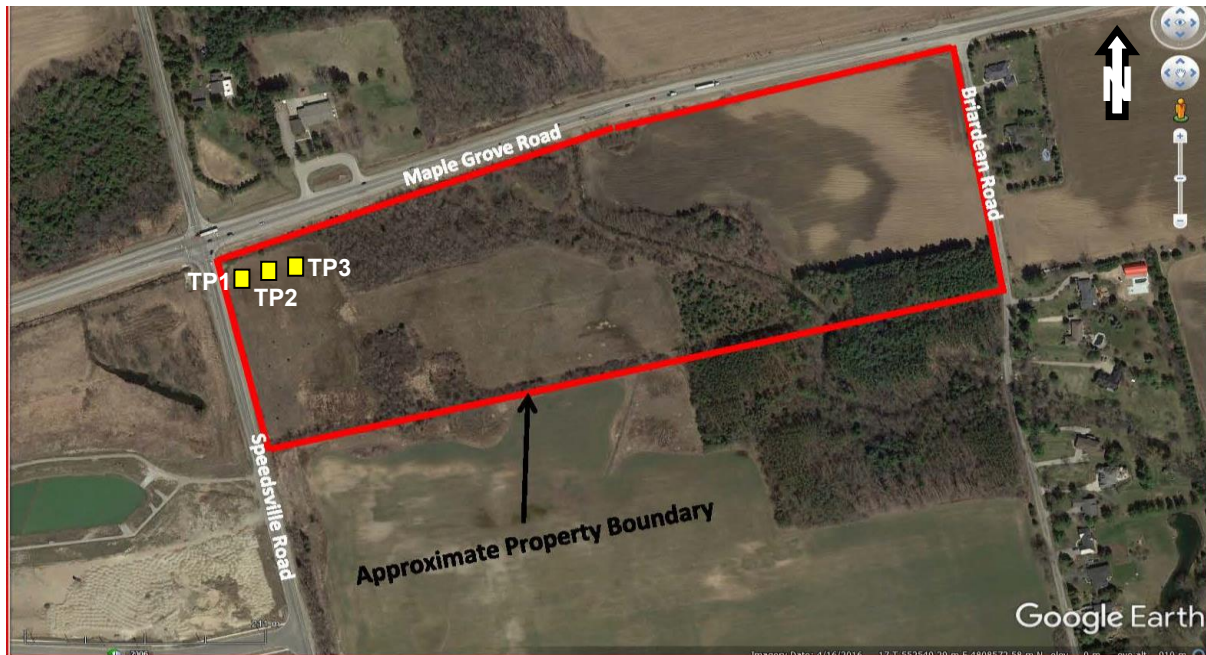
The soil samples were transported to Landtek Limited's laboratory in a cooled insulated container. Soil samples were visually examined to determine the textural classification, and samples were selected for chemical analyses based on visual and olfactory indicators as well as TCV and VOC readings.

Soil samples were submitted for chemical analyses to ALS Laboratories Limited (Canadian Accredited Environmental Laboratory). Soil sample characterization testing included metals and inorganics (M&I), petroleum hydrocarbons (PHC) and volatile organic compounds (VOCs).

## **SITE DESCRIPTION**

The municipal address of the Site is 800 Briardean Road and the legal description of the Site is legally described as Part of Lot 11, Concession 1, BEASLEY'S LOWER BLK TWP OF WATERLOO AS IN WS650024 EXCEPT PTS 10 & 14 67R2769; CAMBRIDGE. The total size of the Site is approximately 13.88 hectares (34.30 acres).

The Site is approximately rectangular in shape and is bound by Maple Grove Road to the north, Briardean Road to the east, Speedsville Road to the west, and undeveloped land to the south. Vacant agricultural lands occupy the south and west adjacent properties, residential developments occupy the east adjacent properties, and vacant agricultural land occupy the north adjacent properties with the exception of a school and building located at the northwest area across Maple Grove Road. The Site is as shown on Figure 1 on the following page.



**FIGURE 1 – Sample Locations**

**Legend**

- TP1    Sample Locations

**SUBSURFACE CONDITIONS**

The soil conditions are presented in the following sections. Fill was encountered in all boreholes at the subject site. A description of borehole logs is presented in **Attachment 1**.

**Top soil**

Topsoil was encountered to a depth of approximately 175 mm below ground surface (bgs).

**Silty Sand**

Silty clay was encountered in all test location underlying the fill and extended to the full depth of the investigated sample locations at 1.0 m bgs. TCV and VOC readings taken on the native soil samples indicate that the vapour concentrations are less than 5 ppm.

**Groundwater**

Water seepage was not encountered during the excavating activities. The groundwater conditions are expected to vary according to the time of the year and seasonal changes in precipitation.

## **SAMPLING METHODOLOGIES**

### **Soil Sampling**

Soil sample collection was taken according to field/laboratory screening results where there was visual, olfactory, or vapour detection of potential impact. Soil conditions were logged and soil samples were taken following protocols outlined in accordance with the MOE Protocol for Analytical Methods Used in the Assessment of Properties under Part XV.1 of the Environmental Protection Act, and generally accepted industry methods.

Samples obtained for analyses of petroleum hydrocarbons F2-F4 (PHC), were performed by removing a portion of the soil sample and placing it into a sealable container (ie. glass jar). Samples obtained for PHC Fraction 1, VOCs were sampled using a plastic syringe sampling device that allows the measurement of a precise amount of soil sample from the undisturbed soil to be placed and field preserved in a methanol vial. All samples were placed and stored in a cooler with an ice pack for transportation to the analytical laboratory.

### **Field Screening Measurements**

Field screening tests included the following:

- Determining the textural classification of the sample and, where feasible, its geologic description based on visual and manual inspection.
- Visual observation for evidence of chemical staining or free product.
- Determination of olfactory evidence of impact.
- Measurement of the headspace Total Combustible Vapour (TCV) and VOC concentrations.

During sampling, headspace soil samples were screened for undifferentiated VOC vapour readings using a Gastechtor 1238ME. Prior to screening, the Gastechtor was inspected and calibrated according to the manufacturer's recommendations.

## **RESULTS OF CHEMICAL TESTING**

The analytical results for soil samples have been compared to Table 2 of the MOECC *Soil, Groundwater and Sediment Standards for use under Part XV.1 of the Environmental Protection Act, April 15, 2011* for Residential/Parkland/Institutional (RPI) land uses and coarse textured soils.

Soil samples were submitted for chemical analyses to ALS Laboratories Limited (Canadian Accredited Environmental Laboratory). Soil sample characterization testing included metals, petroleum hydrocarbon compounds Fractions F1 to F4 and VOC parameters. The schedule of chemical testing and the summary of test results for soils are shown in **Table 1**. Samples were selected based on location and depth of potential areas of concern as well as olfactory or vapour reading indicators, where possible.

Certificates of analysis for the chemical testing including laboratory quality control data are presented in **Attachment 2**. The chemical test result summary indicates the following:

- Soil samples tested for metals and inorganics, PHC F1 to F4 and PAHs were below the MOECC Table 2 standards for RPI land uses and coarse textured soils in a potable groundwater condition in accordance with Ontario Regulation 153/04, with exception of exceedance of sodium adsorption ratio (SAR) in test pit TP1 at 0.0-0.3 mbgs.

**Table 1: Schedule of Chemical Analyses and Summary of Results for Soil**

Sample ID	Depth	Analyses Completed	Exceedances (ppm)		
			Parameter	Sample Results	Table 2 RPI **
TP1-SS1	0.0 -0.3m	PHCs F2-F4 -VOCs -metals	--	No exceedances	--
TP2-SS1	0.0-0.3 m	PHCs F2-F4 -VOCs -metals	--	No exceedances	--
TP3-SS1	0.0-0.3 m	PHCs F2-F4 -VOCs -metals	--	No exceedances	--

\*\* Sample results compared with *Soil, Ground Water, and Sediment Standards for Use Under Part XV.1 of the Environmental Protection Act*, April 2011. Table 2 Residential/Parkland/Institutional land use standards (coarse texture soil).

The SAR parameter exceeding the 2011 MOE Table 2 Standards in soil sample from test pit TP1 is determined by the QP to be attributable to the de-icing activities on the neighbouring roadways (Speedsville Road and Maple Grove Road), and pursuant to O.Reg. 153/04, Section 48(3), is deemed not to exceed the Standards for the purposes of Part XV.1 of the Environmental Protection Act. All other groundwater samples and parameters met the 2011 MOE Table 2 Standards.

### **SUMMARY OF FINDINGS**

Based on the available background information and testing completed during the course of this investigation, the findings and recommendations are summarized as follows:

- Soil samples tested for metals & inorganics, BTEX &PHC F1 to F4 and VOCs were below the MOECC Table 2 standards for RPI land uses in a potable groundwater condition in accordance with O.Reg.153/04, with the exception of SAR at test pit TP1. However, this exceedance is deemed not to exceed the Standards for the purposes of Part XV.1 of the Environmental Protection Act, as it was determined by the QP to be attributable to the de-icing activities on the neighbouring roadways

### **CONCLUSIONS**

Based on the findings of the soil sampling program, soil met the applicable MOE Table 2 standards for RPI land use.

No additional environmental work is required based on the residential land use at this time.

### **CLOSURE AND LIMITATIONS**

This report relies on information obtained during this investigation as well as data established by others. Landtek Limited assumes that information provided by others is factual and accurate, and accepts no responsibility for any deficiency, misstatement, or inaccuracy in this report from information provided by others.

The Limitations of the Report, as stated in Enclosure 1, are an integral part of this report.

We trust this report is satisfactory for your purposes at this time. Should you have any questions, please do not hesitate to contact our office.

Yours very truly,

**LANDTEK LIMITED**



Henry Efebor, M.Sc., P.Geol.



Paul Blunt, P.Eng., QP<sub>ESA</sub>

**Attachment 1: Borehole Logs**

**Attachment 2: Laboratory Certificates of Analysis**

## **ENCLOSURE 1**

### **LIMITATIONS OF THE REPORT**

This report was prepared for the sole use of the Client and their legal counsel, and is intended to provide an evaluation of the current environmental conditions at the subject site. Any use that a third party makes of this report, or decisions made based on it, are the responsibility of the third party. Landtek Limited accepts no responsibility for damages of any type suffered by the third party as a result of actions or decisions made based on this report.

The conclusions and recommendations given in this report are based on information determined at the borehole locations. Subsurface conditions, ground water conditions and contaminant concentrations between and beyond the boreholes may be different from those encountered at the borehole locations, and conditions may become apparent during construction that could not be detected or anticipated at the time of the subsurface investigation. It is recommended practice that Landtek be retained during construction to confirm that the subsurface conditions throughout the site are consistent with the conditions encountered in the boreholes.

The conclusions and recommendations given in this report are based on information obtained from various sources noted, subsurface investigation, and a visual examination of the site. It is based on the conditions of the subject property at the time of the field investigation supplemented by a review of historical information to assess environmental conditions at the site reported. Landtek assumes that information provided by others is factual and accurate, and accepts no responsibility for any deficiency, misstatement, of inaccuracy in this report from information provided by others.

This assessment should not be considered a comprehensive audit that outlines all environmental liabilities or eliminates all risks of encountering environmental problems in some portions of the site. There is no warranty expressed or implied by this report concerning the status of the study site.

The report has been prepared in accordance with generally accepted environmental study and/or engineering practices. No other warranties, either expressed or implied, are made as to the professional services provided under the terms of our contract and included in this report.

The objective of this report was to assess the environmental conditions at the site, with respect to existing environmental regulations within the applicable jurisdiction. Compliance of past owners with applicable local, provincial and federal government laws and regulations was not included in our contract for services.

The site history performed herein relies on information supplied by others, such as local, provincial and federal agencies as other consultants. No attempt has been made to independently verify the accuracy of such information, unless specifically noted in our report.

Should the site conditions change or additional background data become available after this report has been issued, Landtek Limited should be made aware of the information and be given an opportunity to reassess the findings if it relates to environmental concerns.

**ATTACHMENT 1**

**BOREHOLE LOGS**



**Logs – December 23, 2015**

Location	Sample	Depth (mbg)	Lab Analysis	Soil Vapour (ppm)	Stratigraphy
TP1	SS1	0.0–0.3	-metals & inorganics	<5	Topsoil, organic, dark brown, wet
	SS2	0.3–0.6		<5	Silty clay, brown, moist
	SS3	0.6–1.0		<5	Silty clay, brown, moist
TP2	SS1	0.0–0.3	-PHCs F2-F4 -PAHs	<5	Topsoil, organic, dark brown, moist
	SS2	0.3–0.6		<5	Silty clay, brown, moist
	SS3	0.6–1.0		<5	Silty clay, brown, moist
TP3	SS1	0.0–0.3	-metals & inorganics	<5	Topsoil, organic, dark brown, moist
	SS2	0.3–0.6		<5	Silty clay, brown, moist
	SS3	0.6–1.0		<5	Silty clay, brown, moist
TP4	SS1	0.0–0.3	-PHCs F2-F4 -PAHs -metals & inorganics	<5	Topsoil, organic, dark brown, wet
	SS2	0.3–0.6		<5	Silty clay, brown, moist
	SS3	0.6–1.0		<5	Silty clay, brown, moist

## Notes:

m bg: metres below grade

PAH: polycyclic aromatic hydrocarbons

PHC: Petroleum hydrocarbons

ppm: parts per million (vapour)

**ATTACHMENT 2**

**LABORATORY CERTIFICATES OF ANALYSES  
Including Laboratory QA/QC Data**



LANDTEK LIMITED  
ATTN: PAUL BLUNT  
205 NEBO ROAD, UNIT 3  
HAMILTON ON L8W 2E1

Date Received: 16-JUL-18  
Report Date: 23-JUL-18 14:20 (MT)  
Version: FINAL

Client Phone: 905-383-3733

## Certificate of Analysis

**Lab Work Order #:** L2130022  
**Project P.O. #:** NOT SUBMITTED  
**Job Reference:** 18196  
**C of C Numbers:** 17-618796  
**Legal Site Desc:**



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Mathy Mahadeva  
Account Manager

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## Summary of Guideline Exceedances

Guideline		Client ID	Grouping	Analyte	Result	Guideline Limit	Unit
ALS ID							
<b>Ontario Regulation 153/04 - April 15, 2011 Standards - T2-Soil-Res/Park/Inst. Property Use (Coarse)</b>							
L2130022-1	TP1		Saturated Paste Extractables	SAR	7.25	5	SAR
<b>Ontario Regulation 153/04 - April 15, 2011 Standards - T2-Soil-Res/Park/Inst. Property Use (Fine)</b>							
L2130022-1	TP1		Saturated Paste Extractables	SAR	7.25	5	SAR

\* Please refer to the Reference Information section for an explanation of any qualifiers noted.

## Physical Tests - SOIL

Analyte	Unit	Guide Limits				
		#1	#2	L2130022-1	L2130022-2	L2130022-3
Conductivity	mS/cm	0.7	0.7	0.204	0.109	0.169
% Moisture	%	-	-	12.0	19.3	17.0
pH	pH units	-	-	7.61	7.53	7.61

**Guide Limit #1: T2-Soil-Res/Park/Inst. Property Use (Coarse)**

**Guide Limit #2: T2-Soil-Res/Park/Inst. Property Use (Fine)**

- Detection Limit for result exceeds Guideline Limit. Assessment against Guideline Limit cannot be made.
- Analytical result for this parameter exceeds Guide Limits listed. See Summary of Guideline Exceedances.

\* Please refer to the Reference Information section for an explanation of any qualifiers noted.

# ANALYTICAL REPORT

## Cyanides - SOIL

Lab ID	L2130022-1	L2130022-2	L2130022-3
Sample Date	14-JUL-18	14-JUL-18	14-JUL-18
Sample ID	TP1	TP2	TP3

Analyte	Unit	Guide Limits		
		#1	#2	
Cyanide, Weak Acid Diss	ug/g	0.051	0.051	<0.050
				<0.050
				<0.050

**Guide Limit #1: T2-Soil-Res/Park/Inst. Property Use (Coarse)**

**Guide Limit #2: T2-Soil-Res/Park/Inst. Property Use (Fine)**

Detection Limit for result exceeds Guideline Limit. Assessment against Guideline Limit cannot be made.

Analytical result for this parameter exceeds Guide Limits listed. See Summary of Guideline Exceedances.

\* Please refer to the Reference Information section for an explanation of any qualifiers noted.

## Saturated Paste Extractables - SOIL

		Lab ID	L2130022-1	L2130022-2	L2130022-3
		Sample Date	14-JUL-18	14-JUL-18	14-JUL-18
		Sample ID	TP1	TP2	TP3
		Guide Limits			
Analyte	Unit	#1	#2		
SAR	SAR	5	5	7.25 <sup>SAR:M</sup>	0.71 <sup>SAR:M</sup> 1.42 <sup>SAR:M</sup>
Calcium (Ca)	mg/L	-	-	1.3	4.1 4.9
Magnesium (Mg)	mg/L	-	-	<1.0	<1.0 <1.0
Sodium (Na)	mg/L	-	-	30.2	5.2 11.4

**Guide Limit #1: T2-Soil-Res/Park/Inst. Property Use (Coarse)**

**Guide Limit #2: T2-Soil-Res/Park/Inst. Property Use (Fine)**

Detection Limit for result exceeds Guideline Limit. Assessment against Guideline Limit cannot be made.

Analytical result for this parameter exceeds Guide Limits listed. See Summary of Guideline Exceedances.

\* Please refer to the Reference Information section for an explanation of any qualifiers noted.

## Metals - SOIL

Analyte	Unit	Guide Limits				
		#1	#2	Lab ID	Sample Date	Sample ID
				L2130022-1	14-JUL-18	TP1
				L2130022-2	14-JUL-18	TP2
				L2130022-3	14-JUL-18	TP3
Antimony (Sb)	ug/g	7.5	7.5	<1.0	<1.0	<1.0
Arsenic (As)	ug/g	18	18	3.2	1.3	<1.0
Barium (Ba)	ug/g	390	390	50.4	15.5	12.3
Beryllium (Be)	ug/g	4	5	<0.50	<0.50	<0.50
Boron (B)	ug/g	120	120	7.2	<5.0	<5.0
Boron (B), Hot Water Ext.	ug/g	1.5	1.5	0.22	0.24	0.17
Cadmium (Cd)	ug/g	1.2	1.2	<0.50	<0.50	<0.50
Chromium (Cr)	ug/g	160	160	13.8	7.9	4.5
Cobalt (Co)	ug/g	22	22	4.7	2.2	1.6
Copper (Cu)	ug/g	140	180	10.2	3.4	5.4
Lead (Pb)	ug/g	120	120	11.7	11.1	6.1
Mercury (Hg)	ug/g	0.27	1.8	0.0157	0.0337	0.0124
Molybdenum (Mo)	ug/g	6.9	6.9	<1.0	<1.0	<1.0
Nickel (Ni)	ug/g	100	130	10.2	4.4	4.1
Selenium (Se)	ug/g	2.4	2.4	<1.0	<1.0	<1.0
Silver (Ag)	ug/g	20	25	<0.20	<0.20	<0.20
Thallium (Tl)	ug/g	1	1	<0.50	<0.50	<0.50
Uranium (U)	ug/g	23	23	<1.0	<1.0	<1.0
Vanadium (V)	ug/g	86	86	23.0	11.9	6.2
Zinc (Zn)	ug/g	340	340	59.0	40.5	35.1

**Guide Limit #1: T2-Soil-Res/Park/Inst. Property Use (Coarse)**

**Guide Limit #2: T2-Soil-Res/Park/Inst. Property Use (Fine)**

- Detection Limit for result exceeds Guideline Limit. Assessment against Guideline Limit cannot be made.
- Analytical result for this parameter exceeds Guide Limits listed. See Summary of Guideline Exceedances.

\* Please refer to the Reference Information section for an explanation of any qualifiers noted.





# ANALYTICAL REPORT

## Speciated Metals - SOIL

Analyte	Unit	Guide Limits		Lab ID	Sample Date	Sample ID
		#1	#2	L2130022-1	L2130022-2	L2130022-3
Chromium, Hexavalent	ug/g	8	10	L2130022-1	14-JUL-18	TP1
				L2130022-2	14-JUL-18	TP2
				L2130022-3	14-JUL-18	TP3

Guide Limit #1: T2-Soil-Res/Park/Inst. Property Use (Coarse)

Guide Limit #2: T2-Soil-Res/Park/Inst. Property Use (Fine)

- Detection Limit for result exceeds Guideline Limit. Assessment against Guideline Limit cannot be made.
- Analytical result for this parameter exceeds Guide Limits listed. See Summary of Guideline Exceedances.

\* Please refer to the Reference Information section for an explanation of any qualifiers noted.



# ANALYTICAL REPORT

## Volatile Organic Compounds - SOIL

Analyte	Unit	Guide Limits		Lab ID	L2130022-1	L2130022-2	L2130022-3
		#1	#2	Sample Date	14-JUL-18	14-JUL-18	14-JUL-18
				Sample ID	TP1	TP2	TP3
Acetone	ug/g	16	28		<0.50	<0.50	<0.50
Benzene	ug/g	0.21	0.17		<0.0068	<0.0068	<0.0068
Bromodichloromethane	ug/g	1.5	1.9		<0.050	<0.050	<0.050
Bromoform	ug/g	0.27	0.26		<0.050	<0.050	<0.050
Bromomethane	ug/g	0.05	0.05		<0.050	<0.050	<0.050
Carbon tetrachloride	ug/g	0.05	0.12		<0.050	<0.050	<0.050
Chlorobenzene	ug/g	2.4	2.7		<0.050	<0.050	<0.050
Dibromochloromethane	ug/g	2.3	2.9		<0.050	<0.050	<0.050
Chloroform	ug/g	0.05	0.18		<0.050	<0.050	<0.050
1,2-Dibromoethane	ug/g	0.05	0.05		<0.050	<0.050	<0.050
1,2-Dichlorobenzene	ug/g	1.2	1.7		<0.050	<0.050	<0.050
1,3-Dichlorobenzene	ug/g	4.8	6		<0.050	<0.050	<0.050
1,4-Dichlorobenzene	ug/g	0.083	0.097		<0.050	<0.050	<0.050
Dichlorodifluoromethane	ug/g	16	25		<0.050	<0.050	<0.050
1,1-Dichloroethane	ug/g	0.47	0.6		<0.050	<0.050	<0.050
1,2-Dichloroethane	ug/g	0.05	0.05		<0.050	<0.050	<0.050
1,1-Dichloroethylene	ug/g	0.05	0.05		<0.050	<0.050	<0.050
cis-1,2-Dichloroethylene	ug/g	1.9	2.5		<0.050	<0.050	<0.050
trans-1,2-Dichloroethylene	ug/g	0.084	0.75		<0.050	<0.050	<0.050
Methylene Chloride	ug/g	0.1	0.96		<0.050	<0.050	<0.050
1,2-Dichloropropane	ug/g	0.05	0.085		<0.050	<0.050	<0.050
cis-1,3-Dichloropropene	ug/g	-	-		<0.030	<0.030	<0.030
trans-1,3-Dichloropropene	ug/g	-	-		<0.030	<0.030	<0.030
1,3-Dichloropropene (cis & trans)	ug/g	0.05	0.081		<0.042	<0.042	<0.042
Ethylbenzene	ug/g	1.1	1.6		<0.018	<0.018	<0.018
n-Hexane	ug/g	2.8	34		<0.050	<0.050	<0.050
Methyl Ethyl Ketone	ug/g	16	44		<0.50	<0.50	<0.50
Methyl Isobutyl Ketone	ug/g	1.7	4.3		<0.50	<0.50	<0.50
MTBE	ug/g	0.75	1.4		<0.050	<0.050	<0.050
Styrene	ug/g	0.7	2.2		<0.050	<0.050	<0.050

Guide Limit #1: T2-Soil-Res/Park/Inst. Property Use (Coarse)

Guide Limit #2: T2-Soil-Res/Park/Inst. Property Use (Fine)

\* Please refer to the Reference Information section for an explanation of any qualifiers noted.

## Volatile Organic Compounds - SOIL

Analyte	Unit	Guide Limits		Lab ID	L2130022-1	L2130022-2	L2130022-3
		#1	#2	Sample Date	14-JUL-18	14-JUL-18	14-JUL-18
				Sample ID	TP1	TP2	TP3
1,1,1,2-Tetrachloroethane	ug/g	0.058	0.05	<0.050	<0.050	<0.050	<0.050
1,1,2,2-Tetrachloroethane	ug/g	0.05	0.05	<0.050	<0.050	<0.050	<0.050
Tetrachloroethylene	ug/g	0.28	2.3	<0.050	<0.050	<0.050	<0.050
Toluene	ug/g	2.3	6	<0.080	<0.080	<0.080	<0.080
1,1,1-Trichloroethane	ug/g	0.38	3.4	<0.050	<0.050	<0.050	<0.050
1,1,2-Trichloroethane	ug/g	0.05	0.05	<0.050	<0.050	<0.050	<0.050
Trichloroethylene	ug/g	0.061	0.52	<0.010	<0.010	<0.010	<0.010
Trichlorofluoromethane	ug/g	4	5.8	<0.050	<0.050	<0.050	<0.050
Vinyl chloride	ug/g	0.02	0.022	<0.020	<0.020	<0.020	<0.020
o-Xylene	ug/g	-	-	<0.020	<0.020	<0.020	<0.020
m+p-Xylenes	ug/g	-	-	<0.030	<0.030	<0.030	<0.030
Xylenes (Total)	ug/g	3.1	25	<0.050	<0.050	<0.050	<0.050
Surrogate: 4-Bromofluorobenzene	%	-	-	110.8	111.0	101.2	
Surrogate: 1,4-Difluorobenzene	%	-	-	114.5	114.1	104.1	

**Guide Limit #1: T2-Soil-Res/Park/Inst. Property Use (Coarse)**

**Guide Limit #2: T2-Soil-Res/Park/Inst. Property Use (Fine)**

Detection Limit for result exceeds Guideline Limit. Assessment against Guideline Limit cannot be made.

Analytical result for this parameter exceeds Guide Limits listed. See Summary of Guideline Exceedances.

\* Please refer to the Reference Information section for an explanation of any qualifiers noted.

## Hydrocarbons - SOIL

Analyte	Unit	Guide Limits		Lab ID	L2130022-1	L2130022-2	L2130022-3
		#1	#2	Sample Date	14-JUL-18	14-JUL-18	14-JUL-18
				Sample ID	TP1	TP2	TP3
F1 (C6-C10)	ug/g	55	65		<5.0	<5.0	<5.0
F1-BTEX	ug/g	55	65		<5.0	<5.0	<5.0
F2 (C10-C16)	ug/g	98	150		<10	<10	<10
F3 (C16-C34)	ug/g	300	1300		<50	<50	<50
F4 (C34-C50)	ug/g	2800	5600		<50	<50	<50
Total Hydrocarbons (C6-C50)	ug/g	-	-		<72	<72	<72
Chrom. to baseline at nC50		-	-		YES	YES	YES
Surrogate: 2-Bromobenzotrifluoride	%	-	-		88.3	91.2	87.0
Surrogate: 3,4-Dichlorotoluene	%	-	-		71.9	77.0	69.8

**Guide Limit #1: T2-Soil-Res/Park/Inst. Property Use (Coarse)**

**Guide Limit #2: T2-Soil-Res/Park/Inst. Property Use (Fine)**

Detection Limit for result exceeds Guideline Limit. Assessment against Guideline Limit cannot be made.

Analytical result for this parameter exceeds Guide Limits listed. See Summary of Guideline Exceedances.

\* Please refer to the Reference Information section for an explanation of any qualifiers noted.

# Reference Information

## Qualifiers for Individual Parameters Listed:

Qualifier	Description
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SAR:M Reported SAR represents a maximum value. Actual SAR may be lower if both Ca and Mg were detectable.

## Methods Listed (if applicable):

ALS Test Code	Matrix	Test Description	Method Reference**
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**B-HWS-R511-WT** Soil Boron-HWE-O.Reg 153/04 (July 2011) HW EXTR, EPA 6010B

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.

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).

**CN-WAD-R511-WT** Soil Cyanide (WAD)-O.Reg 153/04 (July 2011) MOE 3015/APHA 4500CN I-WAD

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.

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).

**CR-CR6-IC-WT** Soil Hexavalent Chromium in Soil SW846 3060A/7199

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 diphenylcarbazide in a sulphuric acid solution.

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).

**EC-WT** Soil Conductivity (EC) MOEE E3138

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.

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).

**F1-F4-511-CALC-WT** Soil F1-F4 Hydrocarbon Calculated Parameters CCME CWS-PHC, Pub #1310, Dec 2001-S

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

Hydrocarbon results are expressed on a dry weight basis.

In cases where results for both F4 and F4G are reported, the greater of the two results must be used in any application of the CWS PHC guidelines and the gravimetric heavy hydrocarbons cannot be added to the C6 to C50 hydrocarbons.

In samples where BTEX and F1 were analyzed, F1-BTEX represents a value where the sum of Benzene, Toluene, Ethylbenzene and total Xylenes has been subtracted from F1.

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

Unless otherwise qualified, the following quality control criteria have been met for the F1 hydrocarbon range:

1. All extraction and analysis holding times were met.
2. Instrument performance showing response factors for C6 and C10 within 30% of the response factor for toluene.
3. Linearity of gasoline response within 15% throughout the calibration range.

# Reference Information

**Methods Listed (if applicable):**

ALS Test Code	Matrix	Test Description	Method Reference**
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Unless otherwise qualified, the following quality control criteria have been met for the F2-F4 hydrocarbon ranges:

1. All extraction and analysis holding times were met.
2. Instrument performance showing C10, C16 and C34 response factors within 10% of their average.
3. Instrument performance showing the C50 response factor within 30% of the average of the C10, C16 and C34 response factors.
4. Linearity of diesel or motor oil response within 15% throughout the calibration range.

**F1-HS-511-WT**                      Soil                      F1-O.Reg 153/04 (July 2011)                      E3398/CCME TIER 1-HS

Fraction F1 is determined by extracting a soil or sediment sample as received with methanol, then analyzing by headspace-GC/FID.

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)

This method uses a heated strong acid digestion with HNO3 and HCl and is intended to liberate metals that may be environmentally available. Silicate minerals are not solubilized. Dependent on sample matrix, some metals may be only partially recovered, including Al, Ba, Be, Cr, Sr, Ti, Tl, V, W, and Zr. Volatile forms of sulfur (including sulfide) may not be captured, as they may be lost during sampling, storage, or digestion. Analysis is by Collision/Reaction Cell ICPMS.

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

**MOISTURE-WT**                      Soil                      % Moisture                      Gravimetric: Oven Dried

**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.

# Reference Information

**Methods Listed (if applicable):**

ALS Test Code	Matrix	Test Description	Method Reference**
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).			
<b>SAR-R511-WT</b>	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).			
<b>VOC-1,3-DCP-CALC-WT</b>	Soil	Regulation 153 VOCs	SW8260B/SW8270C
<b>VOC-511-HS-WT</b>	Soil	VOC-O.Reg 153/04 (July 2011)	SW846 8260 (511)
Soil and sediment samples are extracted in methanol and analyzed by headspace-GC/MS.			
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).			
<b>XYLENES-SUM-CALC-WT</b>	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.

Chain of Custody Numbers:

17-618796

*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

**GLOSSARY OF REPORT TERMS**

*Surrogates are compounds that are similar in behaviour to target analyte(s), but that do not normally occur in environmental samples. For applicable tests, surrogates are added to samples prior to analysis as a check on recovery. In reports that display the D.L. column, laboratory objectives for surrogates are listed there.*

- mg/kg - milligrams per kilogram based on dry weight of sample*
- mg/kg wwt - milligrams per kilogram based on wet weight of sample*
- mg/kg lwt - milligrams per kilogram based on lipid-adjusted weight*
- mg/L - unit of concentration based on volume, parts per million.*

*< - Less than.*

*D.L. - The reporting limit.*

*N/A - Result not available. Refer to qualifier code and definition for explanation.*

*Test results reported relate only to the samples as received by the laboratory.*

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

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

*Application of guidelines is provided "as is" without warranty of any kind, either expressed or implied, including, but not limited to fitness for a particular purpose, or non-infringement. ALS assumes no responsibility for errors or omissions in the information.*



**Environmental**

## Quality Control Report

Workorder: L2130022

Report Date: 23-JUL-18

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Client: LANDTEK LIMITED  
 205 NEBO ROAD, UNIT 3  
 HAMILTON ON L8W 2E1

Contact: PAUL BLUNT

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
<b>B-HWS-R511-WT</b>								
	<b>Soil</b>							
<b>Batch</b>	<b>R4132789</b>							
<b>WG2826407-4</b>	<b>DUP</b>	<b>L2131323-3</b>						
Boron (B), Hot Water Ext.		0.20	0.19		ug/g	5.4	30	19-JUL-18
<b>WG2826407-2</b>	<b>IRM</b>	<b>HOTB-SAL_SOIL5</b>						
Boron (B), Hot Water Ext.			94.8		%		70-130	19-JUL-18
<b>WG2826407-3</b>	<b>LCS</b>							
Boron (B), Hot Water Ext.			82.5		%		70-130	19-JUL-18
<b>WG2826407-1</b>	<b>MB</b>							
Boron (B), Hot Water Ext.			<0.10		ug/g		0.1	19-JUL-18
<b>CN-WAD-R511-WT</b>								
	<b>Soil</b>							
<b>Batch</b>	<b>R4132642</b>							
<b>WG2825079-3</b>	<b>DUP</b>	<b>L2130022-3</b>						
Cyanide, Weak Acid Diss		<0.050	<0.050	RPD-NA	ug/g	N/A	35	18-JUL-18
<b>WG2825079-2</b>	<b>LCS</b>							
Cyanide, Weak Acid Diss			95.7		%		80-120	18-JUL-18
<b>WG2825079-1</b>	<b>MB</b>							
Cyanide, Weak Acid Diss			<0.050		ug/g		0.05	18-JUL-18
<b>WG2825079-4</b>	<b>MS</b>	<b>L2130022-3</b>						
Cyanide, Weak Acid Diss			105.8		%		70-130	18-JUL-18
<b>CR-CR6-IC-WT</b>								
	<b>Soil</b>							
<b>Batch</b>	<b>R4133045</b>							
<b>WG2824749-3</b>	<b>CRM</b>	<b>WT-SQC012</b>						
Chromium, Hexavalent			85.0		%		70-130	18-JUL-18
<b>WG2824749-4</b>	<b>DUP</b>	<b>L2129427-1</b>						
Chromium, Hexavalent		<0.20	<0.20	RPD-NA	ug/g	N/A	35	18-JUL-18
<b>WG2824749-2</b>	<b>LCS</b>							
Chromium, Hexavalent			84.7		%		80-120	18-JUL-18
<b>WG2824749-1</b>	<b>MB</b>							
Chromium, Hexavalent			<0.20		ug/g		0.2	18-JUL-18
<b>EC-WT</b>								
	<b>Soil</b>							
<b>Batch</b>	<b>R4133136</b>							
<b>WG2826400-4</b>	<b>DUP</b>	<b>WG2826400-3</b>						
Conductivity		0.647	0.700		mS/cm	7.9	20	19-JUL-18
<b>WG2826590-1</b>	<b>LCS</b>							
Conductivity			107.9		%		90-110	19-JUL-18
<b>WG2826400-1</b>	<b>MB</b>							
Conductivity			<0.0040		mS/cm		0.004	19-JUL-18
<b>F1-HS-511-WT</b>								
	<b>Soil</b>							





### Quality Control Report

Workorder: L2130022

Report Date: 23-JUL-18

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Client: LANDTEK LIMITED  
205 NEBO ROAD, UNIT 3  
HAMILTON ON L8W 2E1

Contact: PAUL BLUNT

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
<b>F1-HS-511-WT</b>		<b>Soil</b>						
<b>Batch</b>	<b>R4138270</b>							
<b>WG2823803-4</b>	<b>DUP</b>	<b>WG2823803-3</b>						
F1 (C6-C10)		<5.0	<5.0	RPD-NA	ug/g	N/A	30	23-JUL-18
<b>WG2823803-2</b>	<b>LCS</b>							
F1 (C6-C10)			100.2		%		80-120	23-JUL-18
<b>WG2823803-1</b>	<b>MB</b>							
F1 (C6-C10)			<5.0		ug/g		5	23-JUL-18
Surrogate: 3,4-Dichlorotoluene			83.2		%		60-140	23-JUL-18
<b>WG2823803-6</b>	<b>MS</b>	<b>L2129654-2</b>						
F1 (C6-C10)			95.6		%		60-140	23-JUL-18
<b>F2-F4-511-WT</b>		<b>Soil</b>						
<b>Batch</b>	<b>R4133396</b>							
<b>WG2824757-3</b>	<b>DUP</b>	<b>WG2824757-3</b>						
F2 (C10-C16)		<10	<10	RPD-NA	ug/g	N/A	30	19-JUL-18
F3 (C16-C34)		<50	<50	RPD-NA	ug/g	N/A	30	19-JUL-18
F4 (C34-C50)		<50	<50	RPD-NA	ug/g	N/A	30	19-JUL-18
<b>WG2824757-2</b>	<b>LCS</b>							
F2 (C10-C16)			98.6		%		80-120	19-JUL-18
F3 (C16-C34)			99.2		%		80-120	19-JUL-18
F4 (C34-C50)			96.3		%		80-120	19-JUL-18
<b>WG2824757-1</b>	<b>MB</b>							
F2 (C10-C16)			<10		ug/g		10	19-JUL-18
F3 (C16-C34)			<50		ug/g		50	19-JUL-18
F4 (C34-C50)			<50		ug/g		50	19-JUL-18
Surrogate: 2-Bromobenzotrifluoride			83.5		%		60-140	19-JUL-18
<b>WG2824757-4</b>	<b>MS</b>	<b>WG2824757-5</b>						
F2 (C10-C16)			103.8		%		60-140	19-JUL-18
F3 (C16-C34)			106.6		%		60-140	19-JUL-18
F4 (C34-C50)			105.3		%		60-140	19-JUL-18
<b>HG-200.2-CVAA-WT</b>		<b>Soil</b>						
<b>Batch</b>	<b>R4132952</b>							
<b>WG2826397-2</b>	<b>CRM</b>	<b>WT-CANMET-TILL1</b>						
Mercury (Hg)			108.3		%		70-130	19-JUL-18
<b>WG2826397-6</b>	<b>DUP</b>	<b>WG2826397-5</b>						
Mercury (Hg)		0.0157	0.0152		ug/g	3.4	40	19-JUL-18
<b>WG2826397-3</b>	<b>LCS</b>							
Mercury (Hg)			114.5		%		80-120	19-JUL-18
<b>WG2826397-1</b>	<b>MB</b>							



### Quality Control Report

Workorder: L2130022

Report Date: 23-JUL-18

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Client: LANDTEK LIMITED  
205 NEBO ROAD, UNIT 3  
HAMILTON ON L8W 2E1

Contact: PAUL BLUNT

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
<b>HG-200.2-CVAA-WT</b>	<b>Soil</b>							
<b>Batch</b>	<b>R4132952</b>							
<b>WG2826397-1</b>	<b>MB</b>							
Mercury (Hg)			<0.0050		mg/kg		0.005	19-JUL-18
<b>MET-200.2-CCMS-WT</b>	<b>Soil</b>							
<b>Batch</b>	<b>R4133563</b>							
<b>WG2826397-2</b>	<b>CRM</b>	<b>WT-CANMET-TILL1</b>						
Antimony (Sb)			94.9		%		70-130	19-JUL-18
Arsenic (As)			99.1		%		70-130	19-JUL-18
Barium (Ba)			96.5		%		70-130	19-JUL-18
Beryllium (Be)			95.1		%		70-130	19-JUL-18
Boron (B)			2.8		mg/kg		0-8.2	19-JUL-18
Cadmium (Cd)			100.5		%		70-130	19-JUL-18
Chromium (Cr)			97.3		%		70-130	19-JUL-18
Cobalt (Co)			96.0		%		70-130	19-JUL-18
Copper (Cu)			100.0		%		70-130	19-JUL-18
Lead (Pb)			102.3		%		70-130	19-JUL-18
Molybdenum (Mo)			94.5		%		70-130	19-JUL-18
Nickel (Ni)			97.8		%		70-130	19-JUL-18
Selenium (Se)			0.28		mg/kg		0.11-0.51	19-JUL-18
Silver (Ag)			0.21		mg/kg		0.13-0.33	19-JUL-18
Thallium (Tl)			0.133		mg/kg		0.077-0.18	19-JUL-18
Uranium (U)			102.2		%		70-130	19-JUL-18
Vanadium (V)			96.7		%		70-130	19-JUL-18
Zinc (Zn)			94.2		%		70-130	19-JUL-18
<b>WG2826397-6</b>	<b>DUP</b>	<b>WG2826397-5</b>						
Antimony (Sb)		<0.10	<0.10	RPD-NA	ug/g	N/A	30	19-JUL-18
Arsenic (As)		3.16	2.99		ug/g	5.4	30	19-JUL-18
Barium (Ba)		50.4	46.7		ug/g	7.7	40	19-JUL-18
Beryllium (Be)		0.37	0.32		ug/g	15	30	19-JUL-18
Boron (B)		7.2	5.7		ug/g	22	30	19-JUL-18
Cadmium (Cd)		0.147	0.145		ug/g	1.1	30	19-JUL-18
Chromium (Cr)		13.8	12.7		ug/g	8.6	30	19-JUL-18
Cobalt (Co)		4.69	4.64		ug/g	1.0	30	19-JUL-18
Copper (Cu)		10.2	9.86		ug/g	3.6	30	19-JUL-18
Lead (Pb)		11.7	11.4		ug/g	2.5	40	19-JUL-18



### Quality Control Report

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Client: LANDTEK LIMITED  
205 NEBO ROAD, UNIT 3  
HAMILTON ON L8W 2E1

Contact: PAUL BLUNT

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
<b>MET-200.2-CCMS-WT</b>		<b>Soil</b>						
<b>Batch</b>	<b>R4133563</b>							
<b>WG2826397-6</b>	<b>DUP</b>	<b>WG2826397-5</b>						
Molybdenum (Mo)		0.24	0.21		ug/g	14	40	19-JUL-18
Nickel (Ni)		10.2	9.89		ug/g	2.8	30	19-JUL-18
Selenium (Se)		<0.20	<0.20	RPD-NA	ug/g	N/A	30	19-JUL-18
Silver (Ag)		<0.10	<0.10	RPD-NA	ug/g	N/A	40	19-JUL-18
Thallium (Tl)		0.083	0.076		ug/g	8.2	30	19-JUL-18
Uranium (U)		0.488	0.460		ug/g	6.0	30	19-JUL-18
Vanadium (V)		23.0	21.5		ug/g	6.9	30	19-JUL-18
Zinc (Zn)		59.0	56.6		ug/g	4.2	30	19-JUL-18
<b>WG2826397-4</b>	<b>LCS</b>							
Antimony (Sb)			101.1		%		80-120	19-JUL-18
Arsenic (As)			102.1		%		80-120	19-JUL-18
Barium (Ba)			103.3		%		80-120	19-JUL-18
Beryllium (Be)			96.9		%		80-120	19-JUL-18
Boron (B)			93.1		%		80-120	19-JUL-18
Cadmium (Cd)			97.3		%		80-120	19-JUL-18
Chromium (Cr)			101.0		%		80-120	19-JUL-18
Cobalt (Co)			96.2		%		80-120	19-JUL-18
Copper (Cu)			98.1		%		80-120	19-JUL-18
Lead (Pb)			100.7		%		80-120	19-JUL-18
Molybdenum (Mo)			103.6		%		80-120	19-JUL-18
Nickel (Ni)			98.5		%		80-120	19-JUL-18
Selenium (Se)			100.3		%		80-120	19-JUL-18
Silver (Ag)			99.5		%		80-120	19-JUL-18
Thallium (Tl)			98.2		%		80-120	19-JUL-18
Uranium (U)			105.9		%		80-120	19-JUL-18
Vanadium (V)			101.3		%		80-120	19-JUL-18
Zinc (Zn)			94.3		%		80-120	19-JUL-18
<b>WG2826397-1</b>	<b>MB</b>							
Antimony (Sb)			<0.10		mg/kg		0.1	19-JUL-18
Arsenic (As)			<0.10		mg/kg		0.1	19-JUL-18
Barium (Ba)			<0.50		mg/kg		0.5	19-JUL-18
Beryllium (Be)			<0.10		mg/kg		0.1	19-JUL-18
Boron (B)			<5.0		mg/kg		5	19-JUL-18
Cadmium (Cd)			<0.020		mg/kg		0.02	19-JUL-18



### Quality Control Report

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Client: LANDTEK LIMITED  
205 NEBO ROAD, UNIT 3  
HAMILTON ON L8W 2E1

Contact: PAUL BLUNT

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
<b>MET-200.2-CCMS-WT</b>								
	<b>Soil</b>							
<b>Batch</b>	<b>R4133563</b>							
<b>WG2826397-1</b>	<b>MB</b>							
Chromium (Cr)			<0.50		mg/kg		0.5	19-JUL-18
Cobalt (Co)			<0.10		mg/kg		0.1	19-JUL-18
Copper (Cu)			<0.50		mg/kg		0.5	19-JUL-18
Lead (Pb)			<0.50		mg/kg		0.5	19-JUL-18
Molybdenum (Mo)			<0.10		mg/kg		0.1	19-JUL-18
Nickel (Ni)			<0.50		mg/kg		0.5	19-JUL-18
Selenium (Se)			<0.20		mg/kg		0.2	19-JUL-18
Silver (Ag)			<0.10		mg/kg		0.1	19-JUL-18
Thallium (Tl)			<0.050		mg/kg		0.05	19-JUL-18
Uranium (U)			<0.050		mg/kg		0.05	19-JUL-18
Vanadium (V)			<0.20		mg/kg		0.2	19-JUL-18
Zinc (Zn)			<2.0		mg/kg		2	19-JUL-18
<b>MOISTURE-WT</b>								
	<b>Soil</b>							
<b>Batch</b>	<b>R4131468</b>							
<b>WG2825128-3</b>	<b>DUP</b>	<b>L2130103-24</b>						
% Moisture		19.5	19.5		%	0.4	20	18-JUL-18
<b>WG2825128-2</b>	<b>LCS</b>							
% Moisture			101.3		%		90-110	18-JUL-18
<b>WG2825128-1</b>	<b>MB</b>							
% Moisture			<0.10		%		0.1	18-JUL-18
<b>PH-WT</b>								
	<b>Soil</b>							
<b>Batch</b>	<b>R4132906</b>							
<b>WG2825282-1</b>	<b>DUP</b>	<b>L2129892-1</b>						
pH		7.36	7.36	J	pH units	0.00	0.3	19-JUL-18
<b>WG2826586-1</b>	<b>LCS</b>							
pH			6.93		pH units		6.9-7.1	19-JUL-18
<b>SAR-R511-WT</b>								
	<b>Soil</b>							
<b>Batch</b>	<b>R4132799</b>							
<b>WG2826400-4</b>	<b>DUP</b>	<b>WG2826400-3</b>						
Calcium (Ca)		76.9	83.1		mg/L	7.8	30	19-JUL-18
Sodium (Na)		12.8	12.5		mg/L	2.1	30	19-JUL-18
Magnesium (Mg)		7.8	8.2		mg/L	4.2	30	19-JUL-18
<b>WG2826400-2</b>	<b>IRM</b>	<b>WT SAR2</b>						
Calcium (Ca)			78.5		%		70-130	19-JUL-18
Sodium (Na)			88.0		%		70-130	19-JUL-18



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Client: LANDTEK LIMITED  
205 NEBO ROAD, UNIT 3  
HAMILTON ON L8W 2E1

Contact: PAUL BLUNT

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
<b>SAR-R511-WT</b>		<b>Soil</b>						
<b>Batch</b>	<b>R4132799</b>							
<b>WG2826400-2</b>	<b>IRM</b>	<b>WT SAR2</b>						
Magnesium (Mg)			79.6		%		70-130	19-JUL-18
<b>WG2826400-1</b>	<b>MB</b>							
Calcium (Ca)			<1.0		mg/L		1	19-JUL-18
Sodium (Na)			<1.0		mg/L		1	19-JUL-18
Magnesium (Mg)			<1.0		mg/L		1	19-JUL-18
<b>VOC-511-HS-WT</b>		<b>Soil</b>						
<b>Batch</b>	<b>R4138270</b>							
<b>WG2823803-4</b>	<b>DUP</b>	<b>WG2823803-3</b>						
1,1,1,2-Tetrachloroethane		<0.050	<0.050	RPD-NA	ug/g	N/A	40	23-JUL-18
1,1,2,2-Tetrachloroethane		<0.050	<0.050	RPD-NA	ug/g	N/A	40	23-JUL-18
1,1,1-Trichloroethane		<0.050	<0.050	RPD-NA	ug/g	N/A	40	23-JUL-18
1,1,2-Trichloroethane		<0.050	<0.050	RPD-NA	ug/g	N/A	40	23-JUL-18
1,1-Dichloroethane		<0.050	<0.050	RPD-NA	ug/g	N/A	40	23-JUL-18
1,1-Dichloroethylene		<0.050	<0.050	RPD-NA	ug/g	N/A	40	23-JUL-18
1,2-Dibromoethane		<0.050	<0.050	RPD-NA	ug/g	N/A	40	23-JUL-18
1,2-Dichlorobenzene		<0.050	<0.050	RPD-NA	ug/g	N/A	40	23-JUL-18
1,2-Dichloroethane		<0.050	<0.050	RPD-NA	ug/g	N/A	40	23-JUL-18
1,2-Dichloropropane		<0.050	<0.050	RPD-NA	ug/g	N/A	40	23-JUL-18
1,3-Dichlorobenzene		<0.050	<0.050	RPD-NA	ug/g	N/A	40	23-JUL-18
1,4-Dichlorobenzene		<0.050	<0.050	RPD-NA	ug/g	N/A	40	23-JUL-18
Acetone		<0.50	<0.50	RPD-NA	ug/g	N/A	40	23-JUL-18
Benzene		<0.0068	<0.0068	RPD-NA	ug/g	N/A	40	23-JUL-18
Bromodichloromethane		<0.050	<0.050	RPD-NA	ug/g	N/A	40	23-JUL-18
Bromoform		<0.050	<0.050	RPD-NA	ug/g	N/A	40	23-JUL-18
Bromomethane		<0.050	<0.050	RPD-NA	ug/g	N/A	40	23-JUL-18
Carbon tetrachloride		<0.050	<0.050	RPD-NA	ug/g	N/A	40	23-JUL-18
Chlorobenzene		<0.050	<0.050	RPD-NA	ug/g	N/A	40	23-JUL-18
Chloroform		<0.050	<0.050	RPD-NA	ug/g	N/A	40	23-JUL-18
cis-1,2-Dichloroethylene		<0.050	<0.050	RPD-NA	ug/g	N/A	40	23-JUL-18
cis-1,3-Dichloropropene		<0.030	<0.030	RPD-NA	ug/g	N/A	40	23-JUL-18
Dibromochloromethane		<0.050	<0.050	RPD-NA	ug/g	N/A	40	23-JUL-18
Dichlorodifluoromethane		<0.050	<0.050	RPD-NA	ug/g	N/A	40	23-JUL-18
Ethylbenzene		<0.018	<0.018	RPD-NA	ug/g	N/A	40	23-JUL-18



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Client: LANDTEK LIMITED  
 205 NEBO ROAD, UNIT 3  
 HAMILTON ON L8W 2E1

Contact: PAUL BLUNT

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
<b>VOC-511-HS-WT</b>		<b>Soil</b>						
<b>Batch</b>	<b>R4138270</b>							
<b>WG2823803-4</b>	<b>DUP</b>	<b>WG2823803-3</b>						
n-Hexane		<0.050	<0.050	RPD-NA	ug/g	N/A	40	23-JUL-18
Methylene Chloride		<0.050	<0.050	RPD-NA	ug/g	N/A	40	23-JUL-18
MTBE		<0.050	<0.050	RPD-NA	ug/g	N/A	40	23-JUL-18
m+p-Xylenes		<0.030	<0.030	RPD-NA	ug/g	N/A	40	23-JUL-18
Methyl Ethyl Ketone		<0.50	<0.50	RPD-NA	ug/g	N/A	40	23-JUL-18
Methyl Isobutyl Ketone		<0.50	<0.50	RPD-NA	ug/g	N/A	40	23-JUL-18
o-Xylene		<0.020	<0.020	RPD-NA	ug/g	N/A	40	23-JUL-18
Styrene		<0.050	<0.050	RPD-NA	ug/g	N/A	40	23-JUL-18
Tetrachloroethylene		<0.050	<0.050	RPD-NA	ug/g	N/A	40	23-JUL-18
Toluene		<0.080	<0.080	RPD-NA	ug/g	N/A	40	23-JUL-18
trans-1,2-Dichloroethylene		<0.050	<0.050	RPD-NA	ug/g	N/A	40	23-JUL-18
trans-1,3-Dichloropropene		<0.030	<0.030	RPD-NA	ug/g	N/A	40	23-JUL-18
Trichloroethylene		<0.010	<0.010	RPD-NA	ug/g	N/A	40	23-JUL-18
Trichlorofluoromethane		<0.050	<0.050	RPD-NA	ug/g	N/A	40	23-JUL-18
Vinyl chloride		<0.020	<0.020	RPD-NA	ug/g	N/A	40	23-JUL-18
<b>WG2823803-2</b>	<b>LCS</b>							
1,1,1,2-Tetrachloroethane			110.8		%		60-130	23-JUL-18
1,1,2,2-Tetrachloroethane			105.6		%		60-130	23-JUL-18
1,1,1-Trichloroethane			98.8		%		60-130	23-JUL-18
1,1,2-Trichloroethane			113.8		%		60-130	23-JUL-18
1,1-Dichloroethane			95.7		%		60-130	23-JUL-18
1,1-Dichloroethylene			78.1		%		60-130	23-JUL-18
1,2-Dibromoethane			111.2		%		70-130	23-JUL-18
1,2-Dichlorobenzene			105.3		%		70-130	23-JUL-18
1,2-Dichloroethane			105.9		%		60-130	23-JUL-18
1,2-Dichloropropane			105.4		%		70-130	23-JUL-18
1,3-Dichlorobenzene			102.4		%		70-130	23-JUL-18
1,4-Dichlorobenzene			102.5		%		70-130	23-JUL-18
Acetone			120.4		%		60-140	23-JUL-18
Benzene			97.8		%		70-130	23-JUL-18
Bromodichloromethane			103.7		%		50-140	23-JUL-18
Bromoform			103.9		%		70-130	23-JUL-18
Bromomethane			78.9		%		50-140	23-JUL-18



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Client: LANDTEK LIMITED  
 205 NEBO ROAD, UNIT 3  
 HAMILTON ON L8W 2E1

Contact: PAUL BLUNT

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
<b>VOC-511-HS-WT</b>								
	<b>Soil</b>							
<b>Batch</b>	<b>R4138270</b>							
<b>WG2823803-2</b>	<b>LCS</b>							
Carbon tetrachloride			96.8		%		70-130	23-JUL-18
Chlorobenzene			105.1		%		70-130	23-JUL-18
Chloroform			103.6		%		70-130	23-JUL-18
cis-1,2-Dichloroethylene			99.3		%		70-130	23-JUL-18
cis-1,3-Dichloropropene			106.3		%		70-130	23-JUL-18
Dibromochloromethane			110.7		%		60-130	23-JUL-18
Dichlorodifluoromethane			72.1		%		50-140	23-JUL-18
Ethylbenzene			105.8		%		70-130	23-JUL-18
n-Hexane			112.5		%		70-130	23-JUL-18
Methylene Chloride			94.7		%		70-130	23-JUL-18
MTBE			104.9		%		70-130	23-JUL-18
m+p-Xylenes			104.3		%		70-130	23-JUL-18
Methyl Ethyl Ketone			118.9		%		60-140	23-JUL-18
Methyl Isobutyl Ketone			109.9		%		60-140	23-JUL-18
o-Xylene			106.3		%		70-130	23-JUL-18
Styrene			106.3		%		70-130	23-JUL-18
Tetrachloroethylene			107.3		%		60-130	23-JUL-18
Toluene			104.6		%		70-130	23-JUL-18
trans-1,2-Dichloroethylene			90.6		%		60-130	23-JUL-18
trans-1,3-Dichloropropene			111.5		%		70-130	23-JUL-18
Trichloroethylene			103.4		%		60-130	23-JUL-18
Trichlorofluoromethane			94.0		%		50-140	23-JUL-18
Vinyl chloride			62.0		%		60-140	23-JUL-18
<b>WG2823803-1</b>	<b>MB</b>							
1,1,1,2-Tetrachloroethane			<0.050		ug/g		0.05	23-JUL-18
1,1,2,2-Tetrachloroethane			<0.050		ug/g		0.05	23-JUL-18
1,1,1-Trichloroethane			<0.050		ug/g		0.05	23-JUL-18
1,1,2-Trichloroethane			<0.050		ug/g		0.05	23-JUL-18
1,1-Dichloroethane			<0.050		ug/g		0.05	23-JUL-18
1,1-Dichloroethylene			<0.050		ug/g		0.05	23-JUL-18
1,2-Dibromoethane			<0.050		ug/g		0.05	23-JUL-18
1,2-Dichlorobenzene			<0.050		ug/g		0.05	23-JUL-18
1,2-Dichloroethane			<0.050		ug/g		0.05	23-JUL-18
1,2-Dichloropropane			<0.050		ug/g		0.05	23-JUL-18



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Client: LANDTEK LIMITED  
205 NEBO ROAD, UNIT 3  
HAMILTON ON L8W 2E1

Contact: PAUL BLUNT

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
<b>VOC-511-HS-WT</b>								
	<b>Soil</b>							
<b>Batch</b>	<b>R4138270</b>							
<b>WG2823803-1 MB</b>								
1,3-Dichlorobenzene			<0.050		ug/g		0.05	23-JUL-18
1,4-Dichlorobenzene			<0.050		ug/g		0.05	23-JUL-18
Acetone			<0.50		ug/g		0.5	23-JUL-18
Benzene			<0.0068		ug/g		0.0068	23-JUL-18
Bromodichloromethane			<0.050		ug/g		0.05	23-JUL-18
Bromoform			<0.050		ug/g		0.05	23-JUL-18
Bromomethane			<0.050		ug/g		0.05	23-JUL-18
Carbon tetrachloride			<0.050		ug/g		0.05	23-JUL-18
Chlorobenzene			<0.050		ug/g		0.05	23-JUL-18
Chloroform			<0.050		ug/g		0.05	23-JUL-18
cis-1,2-Dichloroethylene			<0.050		ug/g		0.05	23-JUL-18
cis-1,3-Dichloropropene			<0.030		ug/g		0.03	23-JUL-18
Dibromochloromethane			<0.050		ug/g		0.05	23-JUL-18
Dichlorodifluoromethane			<0.050		ug/g		0.05	23-JUL-18
Ethylbenzene			<0.018		ug/g		0.018	23-JUL-18
n-Hexane			<0.050		ug/g		0.05	23-JUL-18
Methylene Chloride			<0.050		ug/g		0.05	23-JUL-18
MTBE			<0.050		ug/g		0.05	23-JUL-18
m+p-Xylenes			<0.030		ug/g		0.03	23-JUL-18
Methyl Ethyl Ketone			<0.50		ug/g		0.5	23-JUL-18
Methyl Isobutyl Ketone			<0.50		ug/g		0.5	23-JUL-18
o-Xylene			<0.020		ug/g		0.02	23-JUL-18
Styrene			<0.050		ug/g		0.05	23-JUL-18
Tetrachloroethylene			<0.050		ug/g		0.05	23-JUL-18
Toluene			<0.080		ug/g		0.08	23-JUL-18
trans-1,2-Dichloroethylene			<0.050		ug/g		0.05	23-JUL-18
trans-1,3-Dichloropropene			<0.030		ug/g		0.03	23-JUL-18
Trichloroethylene			<0.010		ug/g		0.01	23-JUL-18
Trichlorofluoromethane			<0.050		ug/g		0.05	23-JUL-18
Vinyl chloride			<0.020		ug/g		0.02	23-JUL-18
Surrogate: 1,4-Difluorobenzene			112.2		%		50-140	23-JUL-18
Surrogate: 4-Bromofluorobenzene			108.4		%		50-140	23-JUL-18
<b>WG2823803-5 MS</b>		<b>L2129654-1</b>						
1,1,1,2-Tetrachloroethane			119.6		%		50-140	23-JUL-18





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Client: LANDTEK LIMITED  
 205 NEBO ROAD, UNIT 3  
 HAMILTON ON L8W 2E1

Contact: PAUL BLUNT

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
<b>VOC-511-HS-WT</b>	<b>Soil</b>							
<b>Batch</b>	<b>R4138270</b>							
<b>WG2823803-5 MS</b>		<b>L2129654-1</b>						
1,1,2,2-Tetrachloroethane			110.7		%		50-140	23-JUL-18
1,1,1-Trichloroethane			108.4		%		50-140	23-JUL-18
1,1,2-Trichloroethane			121.1		%		50-140	23-JUL-18
1,1-Dichloroethane			103.5		%		50-140	23-JUL-18
1,1-Dichloroethylene			85.4		%		50-140	23-JUL-18
1,2-Dibromoethane			116.9		%		50-140	23-JUL-18
1,2-Dichlorobenzene			116.2		%		50-140	23-JUL-18
1,2-Dichloroethane			112.7		%		50-140	23-JUL-18
1,2-Dichloropropane			112.9		%		50-140	23-JUL-18
1,3-Dichlorobenzene			114.0		%		50-140	23-JUL-18
1,4-Dichlorobenzene			113.6		%		50-140	23-JUL-18
Acetone			126.2		%		50-140	23-JUL-18
Benzene			106.7		%		50-140	23-JUL-18
Bromodichloromethane			111.4		%		50-140	23-JUL-18
Bromoform			109.9		%		50-140	23-JUL-18
Bromomethane			85.1		%		50-140	23-JUL-18
Carbon tetrachloride			107.1		%		50-140	23-JUL-18
Chlorobenzene			114.0		%		50-140	23-JUL-18
Chloroform			113.1		%		50-140	23-JUL-18
cis-1,2-Dichloroethylene			106.5		%		50-140	23-JUL-18
cis-1,3-Dichloropropene			109.3		%		50-140	23-JUL-18
Dibromochloromethane			118.4		%		50-140	23-JUL-18
Dichlorodifluoromethane			78.9		%		50-140	23-JUL-18
Ethylbenzene			115.2		%		50-140	23-JUL-18
n-Hexane			125.2		%		50-140	23-JUL-18
Methylene Chloride			101.5		%		50-140	23-JUL-18
MTBE			116.3		%		50-140	23-JUL-18
m+p-Xylenes			113.4		%		50-140	23-JUL-18
Methyl Ethyl Ketone			117.2		%		50-140	23-JUL-18
Methyl Isobutyl Ketone			113.5		%		50-140	23-JUL-18
o-Xylene			115.9		%		50-140	23-JUL-18
Styrene			114.3		%		50-140	23-JUL-18
Tetrachloroethylene			118.2		%		50-140	23-JUL-18



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Client: LANDTEK LIMITED  
 205 NEBO ROAD, UNIT 3  
 HAMILTON ON L8W 2E1

Contact: PAUL BLUNT

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
<b>VOC-511-HS-WT</b>								
	<b>Soil</b>							
<b>Batch</b>	<b>R4138270</b>							
<b>WG2823803-5 MS</b>		<b>L2129654-1</b>						
Toluene			113.8		%		50-140	23-JUL-18
trans-1,2-Dichloroethylene			97.6		%		50-140	23-JUL-18
trans-1,3-Dichloropropene			114.0		%		50-140	23-JUL-18
Trichloroethylene			112.7		%		50-140	23-JUL-18
Trichlorofluoromethane			103.6		%		50-140	23-JUL-18
Vinyl chloride			67.6		%		50-140	23-JUL-18

# Quality Control Report

Workorder: L2130022

Report Date: 23-JUL-18

Client: LANDTEK LIMITED  
205 NEBO ROAD, UNIT 3  
HAMILTON ON L8W 2E1  
Contact: PAUL BLUNT

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## Legend:

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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:

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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.

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## 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.

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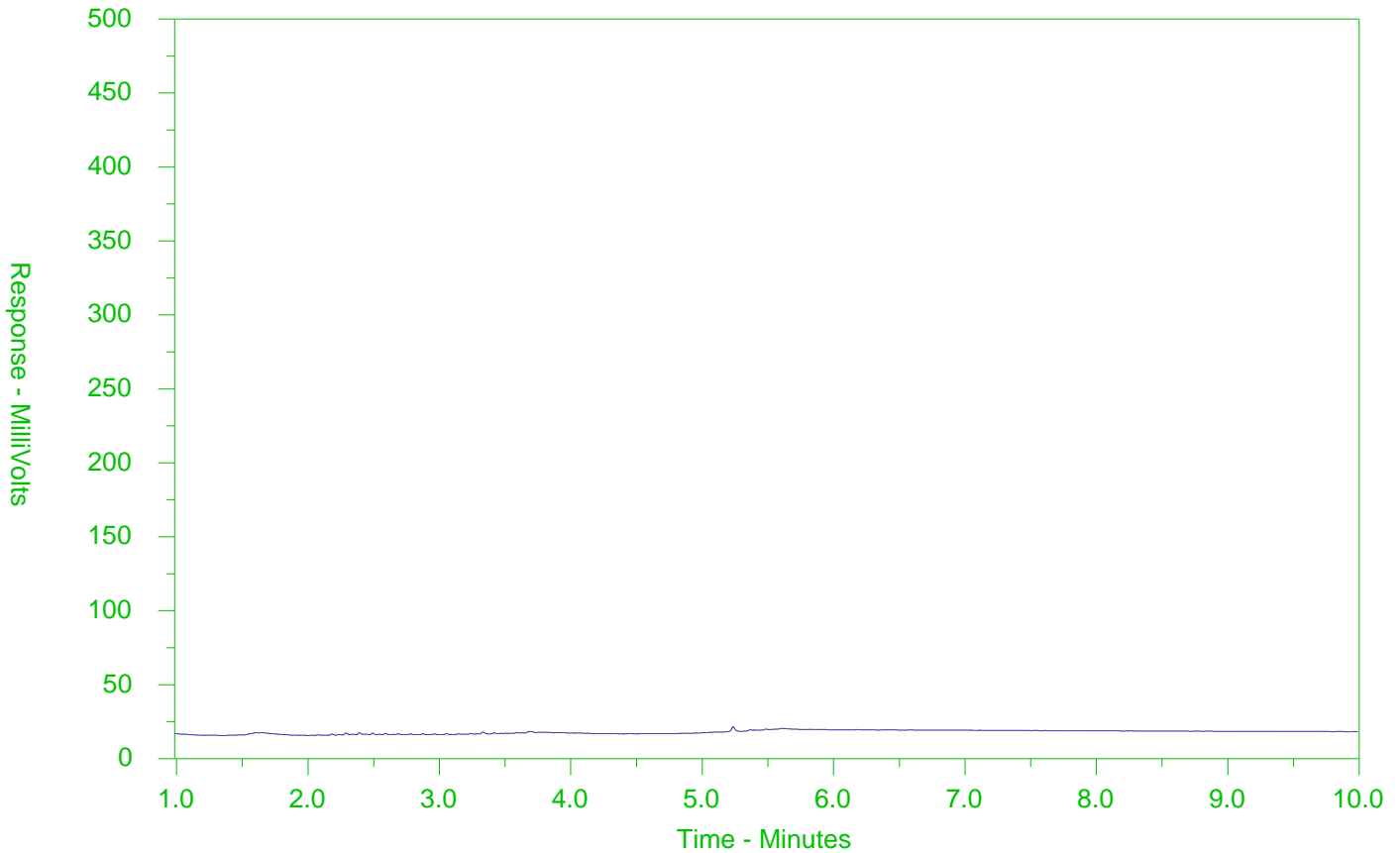
The ALS Quality Control Report is provided to ALS clients upon request. ALS includes comprehensive QC checks with every analysis to ensure our high standards of quality are met. Each QC result has a known or expected target value, which is compared against pre-determined data quality objectives to provide 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: L2130022-1  
 Client Sample ID: TP1



← 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.

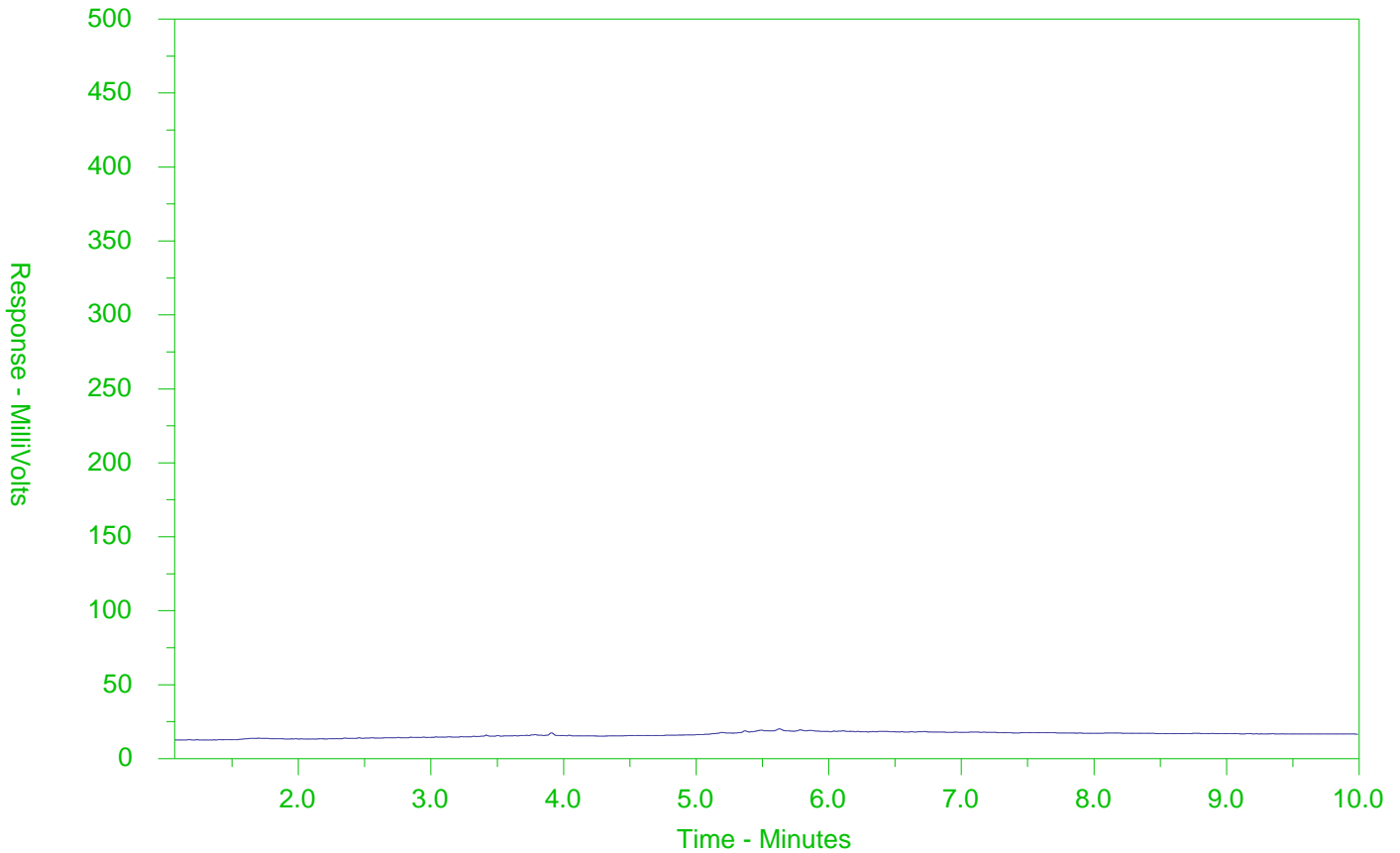
Peak heights in this report are a function of the sample concentration, the sample amount extracted, the sample dilution factor and the scale at the left.

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](http://www.alsglobal.com).

# CCME F2-F4 HYDROCARBON DISTRIBUTION REPORT



ALS Sample ID: L2130022-2  
 Client Sample ID: TP2



← 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.

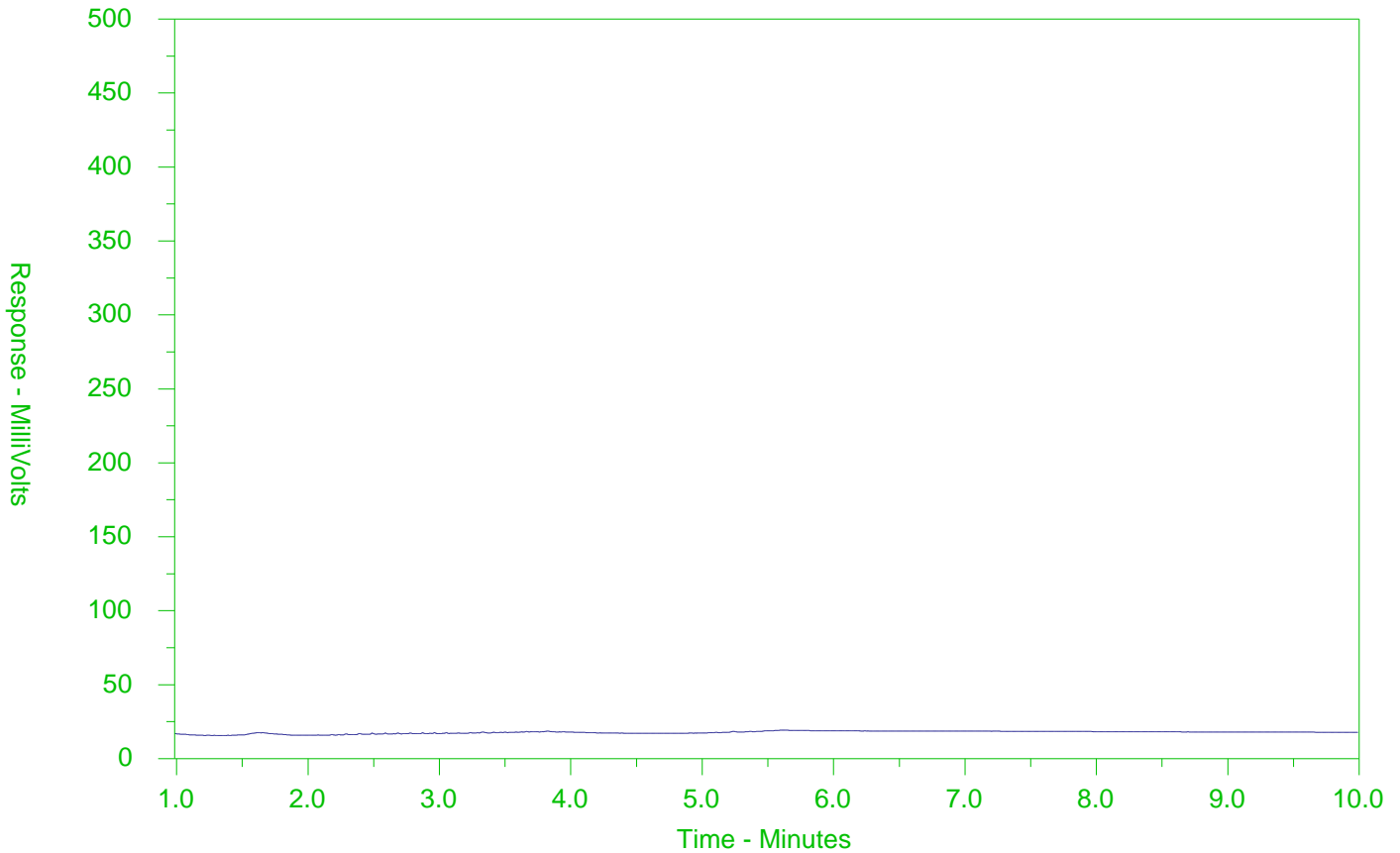
Peak heights in this report are a function of the sample concentration, the sample amount extracted, the sample dilution factor and the scale at the left.

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](http://www.alsglobal.com).

# CCME F2-F4 HYDROCARBON DISTRIBUTION REPORT



ALS Sample ID: L2130022-3  
 Client Sample ID: TP3



← 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](http://www.alsglobal.com).

