



**MBN**  
environmental  
engineering inc

November 21, 2021

MBN-21-693

Mr. Benjamin Jones  
Fusion Homes  
500 Hanlon Creek Blvd  
Guelph, Ontario N1C 0A1

**Re: Soil Sampling Summary – Gamma Parcel**  
**374 MacAlister Blvd, Guelph, ON (Site)**

Dear Mr. Jones:

#### Introduction

MBN Environmental Engineering Inc. (MBN) was retained by Fusion Homes (Fusion) to oversee the excavation of test pits and to collect soil samples at the above-referenced Site. MBN previously completed a Phase One ESA at the Site in February 2017. The Phase One ESA identified the presence of imported fill stockpiles at the Site which were considered a Potentially Contaminating Activity (PCA). MBN recommended a Phase Two ESA to determine if the fill had impacted the Site. During a subsequent Phase One ESA Update in February 2019 MBN noted that the majority of the fill piles had been removed from the Site. MBN again recommended a Phase Two ESA to investigate the potential impacts from the imported fill materials. The Phase Two ESA test pit program was completed during two events as described below.

#### September 2021

Six soil samples were collected from six test pits on September 28, 2021 using a backhoe operated by Stamml Inc, as coordinated by Fusion. The test pit locations, shown on Figure 1, were selected by MBN to be representative of the total Site area, including former fill stockpile locations and areas where fill had not been stockpiled. The respective sample elevations (metres below ground surface) are provided in Table 1.

There was no deleterious material (i.e., building debris, garbage etc.) observed in any of the test pits, with the exception of some bricks at TP-4. A summary of the respective test pit observations is provided in Table 2.

The soil samples were submitted for analysis of petroleum hydrocarbons (PHCs) fractions one to four (F1-4); volatile organic compounds (VOCs); metals and inorganics; polycyclic aromatic hydrocarbons (PAHs) and polychlorinated biphenyls (PCBs) under chain of custody protocols to ALS Canada Ltd. (ALS) of Waterloo, Ontario. ALS is accredited with the Canadian Association for Laboratory Accreditation Inc.

The sample analytical results are summarized in the attached Table 1. The laboratory analytical certificate is included in Attachment A.



There were no exceedances of the Ministry of Environment, Conservation and Parks (MECP) Table 2 (potable groundwater) Site Condition Standards (SCS) in a residential/parkland/institutional property use for any of the parameters analyzed with the exception of the following:

- Zinc - TP-2 and TP-5 with reported concentrations of 357 ug/g and 497 ug/g, respectively. The MECP Table 2 SCS for zinc is 340 ug/g.

#### November 2021

On November 11, 2021 MBN oversaw the excavation of three additional test pits at each of the original TP-2 and TP-5 locations. One soil sample was collected from each of the six test pits. Clean Shot Environmental Services Inc. (Clean Shot) was retained by MBN to complete the test pit excavations. The test pits were excavated in the immediate proximity of the two original test pits and the samples were collected from the same depth below ground surface as the original samples. The purpose of the additional excavations was to collect samples for metals analysis so that average zinc concentrations from the four samples (at each location) could be calculated and compared the MECP SCS. Determining the average concentration for a parameter using this methodology is an accepted practice pursuant to O.Reg 153/04, as amended. The samples were submitted for metals and inorganics analysis.

At TP-2 the reported zinc concentrations for GAMMA-2A, GAMMA-2B and GAMMA-2C were 222 ug/g, 232 ug/g and 240 ug/g. These concentrations in conjunction with the original zinc sample concentration at TP-2 of 357 ug/g results in an average zinc concentration of 262.8 ug/g. The MECP Table 2 SCS for zinc is 340 ug/g. Thus, there is not a zinc exceedance at TP-2.

At TP-5 the reported zinc concentrations for GAMMA-5A, GAMMA-5B and GAMMA-5C were 560 ug/g, 313 ug/g and 699 ug/g. These concentrations in conjunction with the original zinc sample concentration at TP-5 of 497 ug/g results in an average zinc concentration of 517.3 ug/g. The MECP Table 2 SCS for zinc is 340 ug/g. Thus, there is considered to be a zinc exceedance at TP-5.

Given the magnitude of the zinc concentrations at TP-5 additional sampling for averaging purposes is unlikely to yield a data set that meets the MECP SCS. It is likely that excavation and off-Site disposal, complete with confirmatory sampling of the excavation floor and sidewalls will be required.

#### Closure

We trust this summary meets your requirements. Please do not hesitate to contact me if you have any questions or comments.

Sincerely yours,  
MBN Environmental Engineering Inc.

Drew Stoltz, P.Eng.  
Principal

**FIGURE**

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SOURCE: BASE IMAGE TAKEN FROM CITY OF GUELPH, 2021


**PLAN VIEW**  
1 : 1500

**LEGEND**

TP-1  
 TEXT PIT/SOIL SAMPLE LOCATION

SCALE BAR



 29 St. Charles Street East, Maryhill, On, NOB 2B0	FIGURE 1 SOIL SAMPLE LOCATIONS FUSION HOMES-GAMMA PARCEL 374 MACALISTER BLVD, GUELPH		DATE OCTOBER 2021	PROJ. NO. MBN21-693
			FILE NO. MBN21-693-FIGS	DWG. NO. FIG-01

## TABLES

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**TABLE 2**

**TEST PIT OBSERVATION SUMMARY  
FUSION HOMES - GAMMA PARCEL  
374 MACALISTER BLVD, GUELPH, ONTARIO**

<b>LOCATION</b>	<b>OBSERVATIONS</b>
TP1	Beneath' historic fill pile. Sampled native sandy rocky/cobbles, stiff. No odour/discolouration
TP2	Fill overlying thin native topsoil layer overlying native sandy gravel. No odour/discolouration
TP3	Appears should be fill based on elevation compared to Victoria Road but native sand/gravel/cobbles throughout. No odour/discolouration
TP4	Sampled fill pile present. Sand, clay, topsoil, rocks, a few bricks. No odour/discolouration
TP5	Native from ground surface. Sandy with cobbles. No odour/discolouration
TP6	Native from ground surface. Gravelly sand. No odour/discolouration

**ATTACHMENT A**

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**LABORATORY CERTIFICATES OF ANALYSIS**





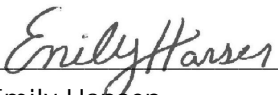
MBN ENVIRONMENTAL ENGINEERING INC.  
ATTN: DREW STOLTZ  
29 St. Charles Street, East  
Maryhill ON NOB 2B0

Date Received: 28-SEP-21  
Report Date: 04-OCT-21 14:52 (MT)  
Version: FINAL

Client Phone: 519-804-7408

## Certificate of Analysis

Lab Work Order #: L2644664  
Project P.O. #: NOT SUBMITTED  
Job Reference: MBN-21-693  
C of C Numbers: 20-898275  
Legal Site Desc:

  
\_\_\_\_\_  
Emily Hansen  
Account Manager

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

ADDRESS: 60 Northland Road, Unit 1, Waterloo, ON N2V 2B8 Canada | Phone: +1 519 886 6910 | Fax: +1 519 886 9047  
ALS CANADA LTD Part of the ALS Group An ALS Limited Company



# ANALYTICAL GUIDELINE REPORT

MBN-21-693

Sample Details		Result	Qualifier	D.L.	Units	Analyzed	Guideline Limits	
Grouping	Analyte						#1	#2
L2644664-1	GAMMA-1							
Sampled By: CLIENT on 28-SEP-21								
Matrix: SOIL								
<b>Physical Tests</b>								
Conductivity		0.146		0.0040	mS/cm	01-OCT-21	0.7	0.7
% Moisture		6.70		0.25	%	30-SEP-21		
pH		7.72		0.10	pH units	04-OCT-21		
<b>Cyanides</b>								
Cyanide, Weak Acid Diss		<0.050		0.050	ug/g	01-OCT-21	0.051	0.051
<b>Saturated Paste Extractables</b>								
SAR		0.20		0.10	SAR	30-SEP-21	5	5
Calcium (Ca)		18.8		0.50	mg/L	30-SEP-21		
Magnesium (Mg)		4.17		0.50	mg/L	30-SEP-21		
Sodium (Na)		3.64		0.50	mg/L	30-SEP-21		
<b>Metals</b>								
Antimony (Sb)		<1.0		1.0	ug/g	30-SEP-21	7.5	7.5
Arsenic (As)		2.8		1.0	ug/g	30-SEP-21	18	18
Barium (Ba)		33.5		1.0	ug/g	30-SEP-21	390	390
Beryllium (Be)		<0.50		0.50	ug/g	30-SEP-21	4	5
Boron (B)		6.2		5.0	ug/g	30-SEP-21	120	120
Boron (B), Hot Water Ext.		<0.10		0.10	ug/g	30-SEP-21	1.5	1.5
Cadmium (Cd)		<0.50		0.50	ug/g	30-SEP-21	1.2	1.2
Chromium (Cr)		11.4		1.0	ug/g	30-SEP-21	160	160
Cobalt (Co)		3.7		1.0	ug/g	30-SEP-21	22	22
Copper (Cu)		10.4		1.0	ug/g	30-SEP-21	140	180
Lead (Pb)		31.9		1.0	ug/g	30-SEP-21	120	120
Mercury (Hg)		0.0155		0.0050	ug/g	01-OCT-21	0.27	1.8
Molybdenum (Mo)		<1.0		1.0	ug/g	30-SEP-21	6.9	6.9
Nickel (Ni)		8.0		1.0	ug/g	30-SEP-21	100	130
Selenium (Se)		<1.0		1.0	ug/g	30-SEP-21	2.4	2.4
Silver (Ag)		<0.20		0.20	ug/g	30-SEP-21	20	25
Thallium (Tl)		<0.50		0.50	ug/g	30-SEP-21	1	1
Uranium (U)		<1.0		1.0	ug/g	30-SEP-21	23	23
Vanadium (V)		22.2		1.0	ug/g	30-SEP-21	86	86
Zinc (Zn)		206		5.0	ug/g	30-SEP-21	340	340
<b>Speciated Metals</b>								
Chromium, Hexavalent		0.21		0.20	ug/g	01-OCT-21	8	10
<b>Volatile Organic Compounds</b>								
Acetone		<0.50		0.50	ug/g	30-SEP-21	16	28
Benzene		<0.0068		0.0068	ug/g	30-SEP-21	0.21	0.17
Bromodichloromethane		<0.050		0.050	ug/g	30-SEP-21	1.5	1.9
Bromoform		<0.050		0.050	ug/g	30-SEP-21	0.27	0.26
Bromomethane		<0.050		0.050	ug/g	30-SEP-21	0.05	0.05
Carbon tetrachloride		<0.050		0.050	ug/g	30-SEP-21	0.05	0.12
Chlorobenzene		<0.050		0.050	ug/g	30-SEP-21	2.4	2.7
Dibromochloromethane		<0.050		0.050	ug/g	30-SEP-21	2.3	2.9
Chloroform		<0.050		0.050	ug/g	30-SEP-21	0.05	0.18
1,2-Dibromoethane		<0.050		0.050	ug/g	30-SEP-21	0.05	0.05
1,2-Dichlorobenzene		<0.050		0.050	ug/g	30-SEP-21	1.2	1.7

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

\* Analytical result for this parameter exceeds Guideline Limit listed on this report. Guideline Limits applied:

**Ontario Regulation 153/04 - April 15, 2011 Standards = [Suite] - T2-RPI-Soil (Coarse/Fine)**

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

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



# ANALYTICAL GUIDELINE REPORT

MBN-21-693

Sample Details		Result	Qualifier	D.L.	Units	Analyzed	Guideline Limits	
Grouping	Analyte						#1	#2
L2644664-1	GAMMA-1							
Sampled By: CLIENT on 28-SEP-21								
Matrix: SOIL								
<b>Volatile Organic Compounds</b>								
	1,3-Dichlorobenzene	<0.050		0.050	ug/g	30-SEP-21	4.8	6
	1,4-Dichlorobenzene	<0.050		0.050	ug/g	30-SEP-21	0.083	0.097
	Dichlorodifluoromethane	<0.050		0.050	ug/g	30-SEP-21	16	25
	1,1-Dichloroethane	<0.050		0.050	ug/g	30-SEP-21	0.47	0.6
	1,2-Dichloroethane	<0.050		0.050	ug/g	30-SEP-21	0.05	0.05
	1,1-Dichloroethylene	<0.050		0.050	ug/g	30-SEP-21	0.05	0.05
	cis-1,2-Dichloroethylene	<0.050		0.050	ug/g	30-SEP-21	1.9	2.5
	trans-1,2-Dichloroethylene	<0.050		0.050	ug/g	30-SEP-21	0.084	0.75
	Methylene Chloride	<0.050		0.050	ug/g	30-SEP-21	0.1	0.96
	1,2-Dichloropropane	<0.050		0.050	ug/g	30-SEP-21	0.05	0.085
	cis-1,3-Dichloropropene	<0.030		0.030	ug/g	30-SEP-21		
	trans-1,3-Dichloropropene	<0.030		0.030	ug/g	30-SEP-21		
	1,3-Dichloropropene (cis & trans)	<0.042		0.042	ug/g	30-SEP-21	0.05	0.081
	Ethylbenzene	<0.018		0.018	ug/g	30-SEP-21	1.1	1.6
	n-Hexane	<0.050		0.050	ug/g	30-SEP-21	2.8	34
	Methyl Ethyl Ketone	<0.50		0.50	ug/g	30-SEP-21	16	44
	Methyl Isobutyl Ketone	<0.50		0.50	ug/g	30-SEP-21	1.7	4.3
	MTBE	<0.050		0.050	ug/g	30-SEP-21	0.75	1.4
	Styrene	<0.050		0.050	ug/g	30-SEP-21	0.7	2.2
	1,1,1,2-Tetrachloroethane	<0.050		0.050	ug/g	30-SEP-21	0.058	0.05
	1,1,2,2-Tetrachloroethane	<0.050		0.050	ug/g	30-SEP-21	0.05	0.05
	Tetrachloroethylene	<0.050		0.050	ug/g	30-SEP-21	0.28	2.3
	Toluene	<0.080		0.080	ug/g	30-SEP-21	2.3	6
	1,1,1-Trichloroethane	<0.050		0.050	ug/g	30-SEP-21	0.38	3.4
	1,1,2-Trichloroethane	<0.050		0.050	ug/g	30-SEP-21	0.05	0.05
	Trichloroethylene	<0.010		0.010	ug/g	30-SEP-21	0.061	0.52
	Trichlorofluoromethane	<0.050		0.050	ug/g	30-SEP-21	4	5.8
	Vinyl chloride	<0.020		0.020	ug/g	30-SEP-21	0.02	0.022
	o-Xylene	<0.020		0.020	ug/g	30-SEP-21		
	m+p-Xylenes	<0.030		0.030	ug/g	30-SEP-21		
	Xylenes (Total)	<0.050		0.050	ug/g	30-SEP-21	3.1	25
	Surrogate: 4-Bromofluorobenzene	90.6		50-140	%	30-SEP-21		
	Surrogate: 1,4-Difluorobenzene	92.3		50-140	%	30-SEP-21		
<b>Hydrocarbons</b>								
	F1 (C6-C10)	<5.0		5.0	ug/g	30-SEP-21	55	65
	F1-BTEX	<5.0		5.0	ug/g	01-OCT-21	55	65
	F2 (C10-C16)	<10		10	ug/g	01-OCT-21	98	150
	F2-Naphth	<10		10	ug/g	01-OCT-21		
	F3 (C16-C34)	<50		50	ug/g	01-OCT-21	300	1300
	F3-PAH	<50		50	ug/g	01-OCT-21		
	F4 (C34-C50)	<50		50	ug/g	01-OCT-21	2800	5600
	Total Hydrocarbons (C6-C50)	<72		72	ug/g	01-OCT-21		
	Chrom. to baseline at nC50	YES			No Unit	01-OCT-21		
	Surrogate: 2-Bromobenzotrifluoride	85.9		60-140	%	01-OCT-21		
	Surrogate: 3,4-Dichlorotoluene	80.4		60-140	%	30-SEP-21		
<b>Polycyclic Aromatic Hydrocarbons</b>								

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

\* Analytical result for this parameter exceeds Guideline Limit listed on this report. Guideline Limits applied:

**Ontario Regulation 153/04 - April 15, 2011 Standards = [Suite] - T2-RPI-Soil (Coarse/Fine)**

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

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



# ANALYTICAL GUIDELINE REPORT

MBN-21-693

Sample Details		Result	Qualifier	D.L.	Units	Analyzed	Guideline Limits	
Grouping	Analyte						#1	#2
L2644664-1	GAMMA-1							
Sampled By: CLIENT on 28-SEP-21								
Matrix: SOIL								
<b>Polycyclic Aromatic Hydrocarbons</b>								
Acenaphthene		<0.050		0.050	ug/g	30-SEP-21	7.9	29
Acenaphthylene		<0.050		0.050	ug/g	30-SEP-21	0.15	0.17
Anthracene		<0.050		0.050	ug/g	30-SEP-21	0.67	0.74
Benzo(a)anthracene		<0.050		0.050	ug/g	30-SEP-21	0.5	0.63
Benzo(a)pyrene		<0.050		0.050	ug/g	30-SEP-21	0.3	0.3
Benzo(b&j)fluoranthene		<0.050		0.050	ug/g	30-SEP-21	0.78	0.78
Benzo(g,h,i)perylene		<0.050		0.050	ug/g	30-SEP-21	6.6	7.8
Benzo(k)fluoranthene		<0.050		0.050	ug/g	30-SEP-21	0.78	0.78
Chrysene		<0.050		0.050	ug/g	30-SEP-21	7	7.8
Dibenz(a,h)anthracene		<0.050		0.050	ug/g	30-SEP-21	0.1	0.1
Fluoranthene		<0.050		0.050	ug/g	30-SEP-21	0.69	0.69
Fluorene		<0.050		0.050	ug/g	30-SEP-21	62	69
Indeno(1,2,3-cd)pyrene		<0.050		0.050	ug/g	30-SEP-21	0.38	0.48
1+2-Methylnaphthalenes		<0.042		0.042	ug/g	30-SEP-21	0.99	3.4
1-Methylnaphthalene		<0.030		0.030	ug/g	30-SEP-21	0.99	3.4
2-Methylnaphthalene		<0.030		0.030	ug/g	30-SEP-21	0.99	3.4
Naphthalene		<0.013		0.013	ug/g	30-SEP-21	0.6	0.75
Phenanthrene		<0.046		0.046	ug/g	30-SEP-21	6.2	7.8
Pyrene		<0.050		0.050	ug/g	30-SEP-21	78	78
Surrogate: 2-Fluorobiphenyl		88.7		50-140	%	30-SEP-21		
Surrogate: d14-Terphenyl		89.5		50-140	%	30-SEP-21		
<b>Polychlorinated Biphenyls</b>								
Aroclor 1242		<0.010		0.010	ug/g	30-SEP-21		
Aroclor 1248		<0.010		0.010	ug/g	30-SEP-21		
Aroclor 1254		<0.010		0.010	ug/g	30-SEP-21		
Aroclor 1260		<0.010		0.010	ug/g	30-SEP-21		
Total PCBs		<0.020		0.020	ug/g	30-SEP-21	0.35	0.35
Surrogate: d14-Terphenyl		100.8		60-140	%	30-SEP-21		
L2644664-2	GAMMA-2							
Sampled By: CLIENT on 28-SEP-21								
Matrix: SOIL								
<b>Physical Tests</b>								
Conductivity		0.132		0.0040	mS/cm	01-OCT-21	0.7	0.7
% Moisture		7.80		0.25	%	30-SEP-21		
pH		7.58		0.10	pH units	04-OCT-21		
<b>Cyanides</b>								
Cyanide, Weak Acid Diss		<0.050		0.050	ug/g	01-OCT-21	0.051	0.051
<b>Saturated Paste Extractables</b>								
SAR		<0.10		0.10	SAR	30-SEP-21	5	5
Calcium (Ca)		18.7		0.50	mg/L	30-SEP-21		
Magnesium (Mg)		4.77		0.50	mg/L	30-SEP-21		
Sodium (Na)		0.72		0.50	mg/L	30-SEP-21		
<b>Metals</b>								
Antimony (Sb)		<1.0		1.0	ug/g	30-SEP-21	7.5	7.5
Arsenic (As)		3.0		1.0	ug/g	30-SEP-21	18	18

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

\* Analytical result for this parameter exceeds Guideline Limit listed on this report. Guideline Limits applied:

**Ontario Regulation 153/04 - April 15, 2011 Standards = [Suite] - T2-RPI-Soil (Coarse/Fine)**

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

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



# ANALYTICAL GUIDELINE REPORT

MBN-21-693

Sample Details		Result	Qualifier	D.L.	Units	Analyzed	Guideline Limits	
Grouping	Analyte						#1	#2
L2644664-2	GAMMA-2							
Sampled By:	CLIENT on 28-SEP-21							
Matrix:	SOIL							
<b>Metals</b>								
Barium (Ba)		20.8		1.0	ug/g	30-SEP-21	390	390
Beryllium (Be)		<0.50		0.50	ug/g	30-SEP-21	4	5
Boron (B)		5.1		5.0	ug/g	30-SEP-21	120	120
Boron (B), Hot Water Ext.		<0.10		0.10	ug/g	30-SEP-21	1.5	1.5
Cadmium (Cd)		0.55		0.50	ug/g	30-SEP-21	1.2	1.2
Chromium (Cr)		9.8		1.0	ug/g	30-SEP-21	160	160
Cobalt (Co)		3.1		1.0	ug/g	30-SEP-21	22	22
Copper (Cu)		9.2		1.0	ug/g	30-SEP-21	140	180
Lead (Pb)		43.3		1.0	ug/g	30-SEP-21	120	120
Mercury (Hg)		0.0161		0.0050	ug/g	01-OCT-21	0.27	1.8
Molybdenum (Mo)		<1.0		1.0	ug/g	30-SEP-21	6.9	6.9
Nickel (Ni)		6.8		1.0	ug/g	30-SEP-21	100	130
Selenium (Se)		<1.0		1.0	ug/g	30-SEP-21	2.4	2.4
Silver (Ag)		<0.20		0.20	ug/g	30-SEP-21	20	25
Thallium (Tl)		<0.50		0.50	ug/g	30-SEP-21	1	1
Uranium (U)		<1.0		1.0	ug/g	30-SEP-21	23	23
Vanadium (V)		22.4		1.0	ug/g	30-SEP-21	86	86
Zinc (Zn)		357		5.0	ug/g	30-SEP-21	*340	*340
<b>Speciated Metals</b>								
Chromium, Hexavalent		0.31		0.20	ug/g	01-OCT-21	8	10
<b>Volatile Organic Compounds</b>								
Acetone		<0.50		0.50	ug/g	30-SEP-21	16	28
Benzene		<0.0068		0.0068	ug/g	30-SEP-21	0.21	0.17
Bromodichloromethane		<0.050		0.050	ug/g	30-SEP-21	1.5	1.9
Bromoform		<0.050		0.050	ug/g	30-SEP-21	0.27	0.26
Bromomethane		<0.050		0.050	ug/g	30-SEP-21	0.05	0.05
Carbon tetrachloride		<0.050		0.050	ug/g	30-SEP-21	0.05	0.12
Chlorobenzene		<0.050		0.050	ug/g	30-SEP-21	2.4	2.7
Dibromochloromethane		<0.050		0.050	ug/g	30-SEP-21	2.3	2.9
Chloroform		<0.050		0.050	ug/g	30-SEP-21	0.05	0.18
1,2-Dibromoethane		<0.050		0.050	ug/g	30-SEP-21	0.05	0.05
1,2-Dichlorobenzene		<0.050		0.050	ug/g	30-SEP-21	1.2	1.7
1,3-Dichlorobenzene		<0.050		0.050	ug/g	30-SEP-21	4.8	6
1,4-Dichlorobenzene		<0.050		0.050	ug/g	30-SEP-21	0.083	0.097
Dichlorodifluoromethane		<0.050		0.050	ug/g	30-SEP-21	16	25
1,1-Dichloroethane		<0.050		0.050	ug/g	30-SEP-21	0.47	0.6
1,2-Dichloroethane		<0.050		0.050	ug/g	30-SEP-21	0.05	0.05
1,1-Dichloroethylene		<0.050		0.050	ug/g	30-SEP-21	0.05	0.05
cis-1,2-Dichloroethylene		<0.050		0.050	ug/g	30-SEP-21	1.9	2.5
trans-1,2-Dichloroethylene		<0.050		0.050	ug/g	30-SEP-21	0.084	0.75
Methylene Chloride		<0.050		0.050	ug/g	30-SEP-21	0.1	0.96
1,2-Dichloropropane		<0.050		0.050	ug/g	30-SEP-21	0.05	0.085
cis-1,3-Dichloropropene		<0.030		0.030	ug/g	30-SEP-21		
trans-1,3-Dichloropropene		<0.030		0.030	ug/g	30-SEP-21		
1,3-Dichloropropene (cis & trans)		<0.042		0.042	ug/g	30-SEP-21	0.05	0.081

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

\* Analytical result for this parameter exceeds Guideline Limit listed on this report. Guideline Limits applied:

**Ontario Regulation 153/04 - April 15, 2011 Standards = [Suite] - T2-RPI-Soil (Coarse/Fine)**

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

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



# ANALYTICAL GUIDELINE REPORT

MBN-21-693

Sample Details		Result	Qualifier	D.L.	Units	Analyzed	Guideline Limits	
Grouping	Analyte						#1	#2
L2644664-2	GAMMA-2							
Sampled By: CLIENT on 28-SEP-21								
Matrix: SOIL								
<b>Volatile Organic Compounds</b>								
	Ethylbenzene	<0.018		0.018	ug/g	30-SEP-21	1.1	1.6
	n-Hexane	<0.050		0.050	ug/g	30-SEP-21	2.8	34
	Methyl Ethyl Ketone	<0.50		0.50	ug/g	30-SEP-21	16	44
	Methyl Isobutyl Ketone	<0.50		0.50	ug/g	30-SEP-21	1.7	4.3
	MTBE	<0.050		0.050	ug/g	30-SEP-21	0.75	1.4
	Styrene	<0.050		0.050	ug/g	30-SEP-21	0.7	2.2
	1,1,1,2-Tetrachloroethane	<0.050		0.050	ug/g	30-SEP-21	0.058	0.05
	1,1,2,2-Tetrachloroethane	<0.050		0.050	ug/g	30-SEP-21	0.05	0.05
	Tetrachloroethylene	<0.050		0.050	ug/g	30-SEP-21	0.28	2.3
	Toluene	<0.080		0.080	ug/g	30-SEP-21	2.3	6
	1,1,1-Trichloroethane	<0.050		0.050	ug/g	30-SEP-21	0.38	3.4
	1,1,2-Trichloroethane	<0.050		0.050	ug/g	30-SEP-21	0.05	0.05
	Trichloroethylene	<0.010		0.010	ug/g	30-SEP-21	0.061	0.52
	Trichlorofluoromethane	<0.050		0.050	ug/g	30-SEP-21	4	5.8
	Vinyl chloride	<0.020		0.020	ug/g	30-SEP-21	0.02	0.022
	o-Xylene	<0.020		0.020	ug/g	30-SEP-21		
	m+p-Xylenes	<0.030		0.030	ug/g	30-SEP-21		
	Xylenes (Total)	<0.050		0.050	ug/g	30-SEP-21	3.1	25
	Surrogate: 4-Bromofluorobenzene	99.4		50-140	%	30-SEP-21		
	Surrogate: 1,4-Difluorobenzene	102.4		50-140	%	30-SEP-21		
<b>Hydrocarbons</b>								
	F1 (C6-C10)	<5.0		5.0	ug/g	30-SEP-21	55	65
	F1-BTEX	<5.0		5.0	ug/g	01-OCT-21	55	65
	F2 (C10-C16)	<10		10	ug/g	01-OCT-21	98	150
	F2-Naphth	<10		10	ug/g	01-OCT-21		
	F3 (C16-C34)	<50		50	ug/g	01-OCT-21	300	1300
	F3-PAH	<50		50	ug/g	01-OCT-21		
	F4 (C34-C50)	<50		50	ug/g	01-OCT-21	2800	5600
	Total Hydrocarbons (C6-C50)	<72		72	ug/g	01-OCT-21		
	Chrom. to baseline at nC50	YES			No Unit	01-OCT-21		
	Surrogate: 2-Bromobenzotrifluoride	92.1		60-140	%	01-OCT-21		
	Surrogate: 3,4-Dichlorotoluene	99.9		60-140	%	30-SEP-21		
<b>Polycyclic Aromatic Hydrocarbons</b>								
	Acenaphthene	<0.050		0.050	ug/g	30-SEP-21	7.9	29
	Acenaphthylene	<0.050		0.050	ug/g	30-SEP-21	0.15	0.17
	Anthracene	<0.050		0.050	ug/g	30-SEP-21	0.67	0.74
	Benzo(a)anthracene	<0.050		0.050	ug/g	30-SEP-21	0.5	0.63
	Benzo(a)pyrene	<0.050		0.050	ug/g	30-SEP-21	0.3	0.3
	Benzo(b&j)fluoranthene	<0.050		0.050	ug/g	30-SEP-21	0.78	0.78
	Benzo(g,h,i)perylene	<0.050		0.050	ug/g	30-SEP-21	6.6	7.8
	Benzo(k)fluoranthene	<0.050		0.050	ug/g	30-SEP-21	0.78	0.78
	Chrysene	<0.050		0.050	ug/g	30-SEP-21	7	7.8
	Dibenz(a,h)anthracene	<0.050		0.050	ug/g	30-SEP-21	0.1	0.1
	Fluoranthene	<0.050		0.050	ug/g	30-SEP-21	0.69	0.69
	Fluorene	<0.050		0.050	ug/g	30-SEP-21	62	69
	Indeno(1,2,3-cd)pyrene	<0.050		0.050	ug/g	30-SEP-21	0.38	0.48

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

\* Analytical result for this parameter exceeds Guideline Limit listed on this report. Guideline Limits applied:

**Ontario Regulation 153/04 - April 15, 2011 Standards = [Suite] - T2-RPI-Soil (Coarse/Fine)**

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

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



# ANALYTICAL GUIDELINE REPORT

MBN-21-693

Sample Details		Result	Qualifier	D.L.	Units	Analyzed	Guideline Limits	
Grouping	Analyte						#1	#2
L2644664-2	GAMMA-2							
Sampled By: CLIENT on 28-SEP-21								
Matrix: SOIL								
<b>Polycyclic Aromatic Hydrocarbons</b>								
1+2-Methylnaphthalenes		<0.042		0.042	ug/g	30-SEP-21	0.99	3.4
1-Methylnaphthalene		<0.030		0.030	ug/g	30-SEP-21	0.99	3.4
2-Methylnaphthalene		<0.030		0.030	ug/g	30-SEP-21	0.99	3.4
Naphthalene		<0.013		0.013	ug/g	30-SEP-21	0.6	0.75
Phenanthrene		<0.046		0.046	ug/g	30-SEP-21	6.2	7.8
Pyrene		<0.050		0.050	ug/g	30-SEP-21	78	78
Surrogate: 2-Fluorobiphenyl		88.7		50-140	%	30-SEP-21		
Surrogate: d14-Terphenyl		88.8		50-140	%	30-SEP-21		
<b>Polychlorinated Biphenyls</b>								
Aroclor 1242		<0.010		0.010	ug/g	30-SEP-21		
Aroclor 1248		<0.010		0.010	ug/g	30-SEP-21		
Aroclor 1254		<0.010		0.010	ug/g	30-SEP-21		
Aroclor 1260		<0.010		0.010	ug/g	30-SEP-21		
Total PCBs		<0.020		0.020	ug/g	30-SEP-21	0.35	0.35
Surrogate: d14-Terphenyl		97.0		60-140	%	30-SEP-21		
L2644664-3	GAMMA-3							
Sampled By: CLIENT on 28-SEP-21								
Matrix: SOIL								
<b>Physical Tests</b>								
Conductivity		0.129		0.0040	mS/cm	01-OCT-21	0.7	0.7
% Moisture		7.18		0.25	%	30-SEP-21		
pH		7.43		0.10	pH units	04-OCT-21		
<b>Cyanides</b>								
Cyanide, Weak Acid Diss		<0.050		0.050	ug/g	01-OCT-21	0.051	0.051
<b>Saturated Paste Extractables</b>								
SAR		<0.10		0.10	SAR	30-SEP-21	5	5
Calcium (Ca)		17.6		0.50	mg/L	30-SEP-21		
Magnesium (Mg)		3.66		0.50	mg/L	30-SEP-21		
Sodium (Na)		1.35		0.50	mg/L	30-SEP-21		
<b>Metals</b>								
Antimony (Sb)		<1.0		1.0	ug/g	30-SEP-21	7.5	7.5
Arsenic (As)		2.6		1.0	ug/g	30-SEP-21	18	18
Barium (Ba)		30.8		1.0	ug/g	30-SEP-21	390	390
Beryllium (Be)		<0.50		0.50	ug/g	30-SEP-21	4	5
Boron (B)		5.5		5.0	ug/g	30-SEP-21	120	120
Boron (B), Hot Water Ext.		0.10		0.10	ug/g	30-SEP-21	1.5	1.5
Cadmium (Cd)		<0.50		0.50	ug/g	30-SEP-21	1.2	1.2
Chromium (Cr)		11.0		1.0	ug/g	30-SEP-21	160	160
Cobalt (Co)		3.4		1.0	ug/g	30-SEP-21	22	22
Copper (Cu)		9.7		1.0	ug/g	30-SEP-21	140	180
Lead (Pb)		22.3		1.0	ug/g	30-SEP-21	120	120
Mercury (Hg)		0.0134		0.0050	ug/g	01-OCT-21	0.27	1.8
Molybdenum (Mo)		<1.0		1.0	ug/g	30-SEP-21	6.9	6.9
Nickel (Ni)		7.3		1.0	ug/g	30-SEP-21	100	130
Selenium (Se)		<1.0		1.0	ug/g	30-SEP-21	2.4	2.4

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

\* Analytical result for this parameter exceeds Guideline Limit listed on this report. Guideline Limits applied:

**Ontario Regulation 153/04 - April 15, 2011 Standards = [Suite] - T2-RPI-Soil (Coarse/Fine)**

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

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



# ANALYTICAL GUIDELINE REPORT

MBN-21-693

Sample Details		Result	Qualifier	D.L.	Units	Analyzed	Guideline Limits	
Grouping	Analyte						#1	#2
L2644664-3	GAMMA-3							
Sampled By: CLIENT on 28-SEP-21								
Matrix: SOIL								
<b>Metals</b>								
	Silver (Ag)	<0.20		0.20	ug/g	30-SEP-21	20	25
	Thallium (Tl)	<0.50		0.50	ug/g	30-SEP-21	1	1
	Uranium (U)	<1.0		1.0	ug/g	30-SEP-21	23	23
	Vanadium (V)	21.6		1.0	ug/g	30-SEP-21	86	86
	Zinc (Zn)	147		5.0	ug/g	30-SEP-21	340	340
<b>Speciated Metals</b>								
	Chromium, Hexavalent	<0.20		0.20	ug/g	01-OCT-21	8	10
<b>Volatile Organic Compounds</b>								
	Acetone	<0.50		0.50	ug/g	30-SEP-21	16	28
	Benzene	<0.0068		0.0068	ug/g	30-SEP-21	0.21	0.17
	Bromodichloromethane	<0.050		0.050	ug/g	30-SEP-21	1.5	1.9
	Bromoform	<0.050		0.050	ug/g	30-SEP-21	0.27	0.26
	Bromomethane	<0.050		0.050	ug/g	30-SEP-21	0.05	0.05
	Carbon tetrachloride	<0.050		0.050	ug/g	30-SEP-21	0.05	0.12
	Chlorobenzene	<0.050		0.050	ug/g	30-SEP-21	2.4	2.7
	Dibromochloromethane	<0.050		0.050	ug/g	30-SEP-21	2.3	2.9
	Chloroform	<0.050		0.050	ug/g	30-SEP-21	0.05	0.18
	1,2-Dibromoethane	<0.050		0.050	ug/g	30-SEP-21	0.05	0.05
	1,2-Dichlorobenzene	<0.050		0.050	ug/g	30-SEP-21	1.2	1.7
	1,3-Dichlorobenzene	<0.050		0.050	ug/g	30-SEP-21	4.8	6
	1,4-Dichlorobenzene	<0.050		0.050	ug/g	30-SEP-21	0.083	0.097
	Dichlorodifluoromethane	<0.050		0.050	ug/g	30-SEP-21	16	25
	1,1-Dichloroethane	<0.050		0.050	ug/g	30-SEP-21	0.47	0.6
	1,2-Dichloroethane	<0.050		0.050	ug/g	30-SEP-21	0.05	0.05
	1,1-Dichloroethylene	<0.050		0.050	ug/g	30-SEP-21	0.05	0.05
	cis-1,2-Dichloroethylene	<0.050		0.050	ug/g	30-SEP-21	1.9	2.5
	trans-1,2-Dichloroethylene	<0.050		0.050	ug/g	30-SEP-21	0.084	0.75
	Methylene Chloride	<0.050		0.050	ug/g	30-SEP-21	0.1	0.96
	1,2-Dichloropropane	<0.050		0.050	ug/g	30-SEP-21	0.05	0.085
	cis-1,3-Dichloropropene	<0.030		0.030	ug/g	30-SEP-21		
	trans-1,3-Dichloropropene	<0.030		0.030	ug/g	30-SEP-21		
	1,3-Dichloropropene (cis & trans)	<0.042		0.042	ug/g	30-SEP-21	0.05	0.081
	Ethylbenzene	<0.018		0.018	ug/g	30-SEP-21	1.1	1.6
	n-Hexane	<0.050		0.050	ug/g	30-SEP-21	2.8	34
	Methyl Ethyl Ketone	<0.50		0.50	ug/g	30-SEP-21	16	44
	Methyl Isobutyl Ketone	<0.50		0.50	ug/g	30-SEP-21	1.7	4.3
	MTBE	<0.050		0.050	ug/g	30-SEP-21	0.75	1.4
	Styrene	<0.050		0.050	ug/g	30-SEP-21	0.7	2.2
	1,1,1,2-Tetrachloroethane	<0.050		0.050	ug/g	30-SEP-21	0.058	0.05
	1,1,2,2-Tetrachloroethane	<0.050		0.050	ug/g	30-SEP-21	0.05	0.05
	Tetrachloroethylene	<0.050		0.050	ug/g	30-SEP-21	0.28	2.3
	Toluene	<0.080		0.080	ug/g	30-SEP-21	2.3	6
	1,1,1-Trichloroethane	<0.050		0.050	ug/g	30-SEP-21	0.38	3.4
	1,1,2-Trichloroethane	<0.050		0.050	ug/g	30-SEP-21	0.05	0.05
	Trichloroethylene	<0.010		0.010	ug/g	30-SEP-21	0.061	0.52

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

\* Analytical result for this parameter exceeds Guideline Limit listed on this report. Guideline Limits applied:

**Ontario Regulation 153/04 - April 15, 2011 Standards = [Suite] - T2-RPI-Soil (Coarse/Fine)**

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

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





# ANALYTICAL GUIDELINE REPORT

MBN-21-693

Sample Details		Result	Qualifier	D.L.	Units	Analyzed	Guideline Limits	
Grouping	Analyte						#1	#2
L2644664-3	GAMMA-3							
Sampled By: CLIENT on 28-SEP-21								
Matrix: SOIL								
<b>Volatile Organic Compounds</b>								
	Trichlorofluoromethane	<0.050		0.050	ug/g	30-SEP-21	4	5.8
	Vinyl chloride	<0.020		0.020	ug/g	30-SEP-21	0.02	0.022
	o-Xylene	<0.020		0.020	ug/g	30-SEP-21		
	m+p-Xylenes	<0.030		0.030	ug/g	30-SEP-21		
	Xylenes (Total)	<0.050		0.050	ug/g	30-SEP-21	3.1	25
	Surrogate: 4-Bromofluorobenzene	95.5		50-140	%	30-SEP-21		
	Surrogate: 1,4-Difluorobenzene	99.0		50-140	%	30-SEP-21		
<b>Hydrocarbons</b>								
	F1 (C6-C10)	<5.0		5.0	ug/g	30-SEP-21	55	65
	F1-BTEX	<5.0		5.0	ug/g	01-OCT-21	55	65
	F2 (C10-C16)	<10		10	ug/g	01-OCT-21	98	150
	F2-Naphth	<10		10	ug/g	01-OCT-21		
	F3 (C16-C34)	<50		50	ug/g	01-OCT-21	300	1300
	F3-PAH	<50		50	ug/g	01-OCT-21		
	F4 (C34-C50)	<50		50	ug/g	01-OCT-21	2800	5600
	Total Hydrocarbons (C6-C50)	<72		72	ug/g	01-OCT-21		
	Chrom. to baseline at nC50	YES			No Unit	01-OCT-21		
	Surrogate: 2-Bromobenzotrifluoride	83.2		60-140	%	01-OCT-21		
	Surrogate: 3,4-Dichlorotoluene	99.6		60-140	%	30-SEP-21		
<b>Polycyclic Aromatic Hydrocarbons</b>								
	Acenaphthene	<0.050		0.050	ug/g	30-SEP-21	7.9	29
	Acenaphthylene	<0.050		0.050	ug/g	30-SEP-21	0.15	0.17
	Anthracene	<0.050		0.050	ug/g	30-SEP-21	0.67	0.74
	Benzo(a)anthracene	<0.050		0.050	ug/g	30-SEP-21	0.5	0.63
	Benzo(a)pyrene	<0.050		0.050	ug/g	30-SEP-21	0.3	0.3
	Benzo(b&j)fluoranthene	<0.050		0.050	ug/g	30-SEP-21	0.78	0.78
	Benzo(g,h,i)perylene	<0.050		0.050	ug/g	30-SEP-21	6.6	7.8
	Benzo(k)fluoranthene	<0.050		0.050	ug/g	30-SEP-21	0.78	0.78
	Chrysene	<0.050		0.050	ug/g	30-SEP-21	7	7.8
	Dibenz(a,h)anthracene	<0.050		0.050	ug/g	30-SEP-21	0.1	0.1
	Fluoranthene	<0.050		0.050	ug/g	30-SEP-21	0.69	0.69
	Fluorene	<0.050		0.050	ug/g	30-SEP-21	62	69
	Indeno(1,2,3-cd)pyrene	<0.050		0.050	ug/g	30-SEP-21	0.38	0.48
	1+2-Methylnaphthalenes	<0.042		0.042	ug/g	30-SEP-21	0.99	3.4
	1-Methylnaphthalene	<0.030		0.030	ug/g	30-SEP-21	0.99	3.4
	2-Methylnaphthalene	<0.030		0.030	ug/g	30-SEP-21	0.99	3.4
	Naphthalene	<0.013		0.013	ug/g	30-SEP-21	0.6	0.75
	Phenanthrene	<0.046		0.046	ug/g	30-SEP-21	6.2	7.8
	Pyrene	<0.050		0.050	ug/g	30-SEP-21	78	78
	Surrogate: 2-Fluorobiphenyl	89.7		50-140	%	30-SEP-21		
	Surrogate: d14-Terphenyl	90.6		50-140	%	30-SEP-21		
<b>Polychlorinated Biphenyls</b>								
	Aroclor 1242	<0.010		0.010	ug/g	30-SEP-21		
	Aroclor 1248	<0.010		0.010	ug/g	30-SEP-21		
	Aroclor 1254	<0.010		0.010	ug/g	30-SEP-21		
	Aroclor 1260	<0.010		0.010	ug/g	30-SEP-21		

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

\* Analytical result for this parameter exceeds Guideline Limit listed on this report. Guideline Limits applied:

**Ontario Regulation 153/04 - April 15, 2011 Standards = [Suite] - T2-RPI-Soil (Coarse/Fine)**

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

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



# ANALYTICAL GUIDELINE REPORT

MBN-21-693

Sample Details		Result	Qualifier	D.L.	Units	Analyzed	Guideline Limits							
Grouping	Analyte						#1	#2						
L2644664-3	GAMMA-3													
Sampled By: CLIENT on 28-SEP-21														
Matrix: SOIL														
<b>Polychlorinated Biphenyls</b>														
Total PCBs		<0.020		0.020	ug/g	30-SEP-21	0.35	0.35						
Surrogate: d14-Terphenyl		101.7		60-140	%	30-SEP-21								
L2644664-4	GAMMA-4													
Sampled By: CLIENT on 28-SEP-21														
Matrix: SOIL														
<b>Physical Tests</b>														
Conductivity		0.180		0.0040	mS/cm	01-OCT-21	0.7	0.7						
% Moisture		9.47		0.25	%	30-SEP-21								
pH		7.50		0.10	pH units	04-OCT-21								
<b>Cyanides</b>														
Cyanide, Weak Acid Diss		<0.050		0.050	ug/g	01-OCT-21	0.051	0.051						
<b>Saturated Paste Extractables</b>														
SAR		0.10		0.10	SAR	30-SEP-21	5	5						
Calcium (Ca)		26.6		0.50	mg/L	30-SEP-21								
Magnesium (Mg)		4.40		0.50	mg/L	30-SEP-21								
Sodium (Na)		2.20		0.50	mg/L	30-SEP-21								
<b>Metals</b>														
Antimony (Sb)		<1.0		1.0	ug/g	30-SEP-21	7.5	7.5						
Arsenic (As)		3.5		1.0	ug/g	30-SEP-21	18	18						
Barium (Ba)		37.8		1.0	ug/g	30-SEP-21	390	390						
Beryllium (Be)		<0.50		0.50	ug/g	30-SEP-21	4	5						
Boron (B)		5.8		5.0	ug/g	30-SEP-21	120	120						
Boron (B), Hot Water Ext.		0.19		0.10	ug/g	30-SEP-21	1.5	1.5						
Cadmium (Cd)		<0.50		0.50	ug/g	30-SEP-21	1.2	1.2						
Chromium (Cr)		12.3		1.0	ug/g	30-SEP-21	160	160						
Cobalt (Co)		3.8		1.0	ug/g	30-SEP-21	22	22						
Copper (Cu)		10.2		1.0	ug/g	30-SEP-21	140	180						
Lead (Pb)		34.1		1.0	ug/g	30-SEP-21	120	120						
Mercury (Hg)		0.0270		0.0050	ug/g	01-OCT-21	0.27	1.8						
Molybdenum (Mo)		<1.0		1.0	ug/g	30-SEP-21	6.9	6.9						
Nickel (Ni)		7.9		1.0	ug/g	30-SEP-21	100	130						
Selenium (Se)		<1.0		1.0	ug/g	30-SEP-21	2.4	2.4						
Silver (Ag)		<0.20		0.20	ug/g	30-SEP-21	20	25						
Thallium (Tl)		<0.50		0.50	ug/g	30-SEP-21	1	1						
Uranium (U)		<1.0		1.0	ug/g	30-SEP-21	23	23						
Vanadium (V)		23.0		1.0	ug/g	30-SEP-21	86	86						
Zinc (Zn)		191		5.0	ug/g	30-SEP-21	340	340						
<b>Speciated Metals</b>														
Chromium, Hexavalent		<0.20		0.20	ug/g	01-OCT-21	8	10						
<b>Volatile Organic Compounds</b>														
Acetone		<0.50		0.50	ug/g	30-SEP-21	16	28						
Benzene		<0.0068		0.0068	ug/g	30-SEP-21	0.21	0.17						
Bromodichloromethane		<0.050		0.050	ug/g	30-SEP-21	1.5	1.9						
Bromoform		<0.050		0.050	ug/g	30-SEP-21	0.27	0.26						

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

\* Analytical result for this parameter exceeds Guideline Limit listed on this report. Guideline Limits applied:

**Ontario Regulation 153/04 - April 15, 2011 Standards = [Suite] - T2-RPI-Soil (Coarse/Fine)**

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

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



# ANALYTICAL GUIDELINE REPORT

MBN-21-693

Sample Details		Result	Qualifier	D.L.	Units	Analyzed	Guideline Limits	
Grouping	Analyte						#1	#2
L2644664-4	GAMMA-4							
Sampled By: CLIENT on 28-SEP-21								
Matrix: SOIL								
<b>Volatile Organic Compounds</b>								
	Bromomethane	<0.050		0.050	ug/g	30-SEP-21	0.05	0.05
	Carbon tetrachloride	<0.050		0.050	ug/g	30-SEP-21	0.05	0.12
	Chlorobenzene	<0.050		0.050	ug/g	30-SEP-21	2.4	2.7
	Dibromochloromethane	<0.050		0.050	ug/g	30-SEP-21	2.3	2.9
	Chloroform	<0.050		0.050	ug/g	30-SEP-21	0.05	0.18
	1,2-Dibromoethane	<0.050		0.050	ug/g	30-SEP-21	0.05	0.05
	1,2-Dichlorobenzene	<0.050		0.050	ug/g	30-SEP-21	1.2	1.7
	1,3-Dichlorobenzene	<0.050		0.050	ug/g	30-SEP-21	4.8	6
	1,4-Dichlorobenzene	<0.050		0.050	ug/g	30-SEP-21	0.083	0.097
	Dichlorodifluoromethane	<0.050		0.050	ug/g	30-SEP-21	16	25
	1,1-Dichloroethane	<0.050		0.050	ug/g	30-SEP-21	0.47	0.6
	1,2-Dichloroethane	<0.050		0.050	ug/g	30-SEP-21	0.05	0.05
	1,1-Dichloroethylene	<0.050		0.050	ug/g	30-SEP-21	0.05	0.05
	cis-1,2-Dichloroethylene	<0.050		0.050	ug/g	30-SEP-21	1.9	2.5
	trans-1,2-Dichloroethylene	<0.050		0.050	ug/g	30-SEP-21	0.084	0.75
	Methylene Chloride	<0.050		0.050	ug/g	30-SEP-21	0.1	0.96
	1,2-Dichloropropane	<0.050		0.050	ug/g	30-SEP-21	0.05	0.085
	cis-1,3-Dichloropropene	<0.030		0.030	ug/g	30-SEP-21		
	trans-1,3-Dichloropropene	<0.030		0.030	ug/g	30-SEP-21		
	1,3-Dichloropropene (cis & trans)	<0.042		0.042	ug/g	30-SEP-21	0.05	0.081
	Ethylbenzene	<0.018		0.018	ug/g	30-SEP-21	1.1	1.6
	n-Hexane	<0.050		0.050	ug/g	30-SEP-21	2.8	34
	Methyl Ethyl Ketone	<0.50		0.50	ug/g	30-SEP-21	16	44
	Methyl Isobutyl Ketone	<0.50		0.50	ug/g	30-SEP-21	1.7	4.3
	MTBE	<0.050		0.050	ug/g	30-SEP-21	0.75	1.4
	Styrene	<0.050		0.050	ug/g	30-SEP-21	0.7	2.2
	1,1,1,2-Tetrachloroethane	<0.050		0.050	ug/g	30-SEP-21	0.058	0.05
	1,1,2,2-Tetrachloroethane	<0.050		0.050	ug/g	30-SEP-21	0.05	0.05
	Tetrachloroethylene	<0.050		0.050	ug/g	30-SEP-21	0.28	2.3
	Toluene	<0.080		0.080	ug/g	30-SEP-21	2.3	6
	1,1,1-Trichloroethane	<0.050		0.050	ug/g	30-SEP-21	0.38	3.4
	1,1,2-Trichloroethane	<0.050		0.050	ug/g	30-SEP-21	0.05	0.05
	Trichloroethylene	<0.010		0.010	ug/g	30-SEP-21	0.061	0.52
	Trichlorofluoromethane	<0.050		0.050	ug/g	30-SEP-21	4	5.8
	Vinyl chloride	<0.020		0.020	ug/g	30-SEP-21	0.02	0.022
	o-Xylene	<0.020		0.020	ug/g	30-SEP-21		
	m+p-Xylenes	<0.030		0.030	ug/g	30-SEP-21		
	Xylenes (Total)	<0.050		0.050	ug/g	30-SEP-21	3.1	25
	Surrogate: 4-Bromofluorobenzene	88.7		50-140	%	30-SEP-21		
	Surrogate: 1,4-Difluorobenzene	90.3		50-140	%	30-SEP-21		
<b>Hydrocarbons</b>								
	F1 (C6-C10)	<5.0		5.0	ug/g	30-SEP-21	55	65
	F1-BTEX	<5.0		5.0	ug/g	01-OCT-21	55	65
	F2 (C10-C16)	<10		10	ug/g	01-OCT-21	98	150
	F2-Naphth	<10		10	ug/g	01-OCT-21		
	F3 (C16-C34)	<50		50	ug/g	01-OCT-21	300	1300

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

\* Analytical result for this parameter exceeds Guideline Limit listed on this report. Guideline Limits applied:

**Ontario Regulation 153/04 - April 15, 2011 Standards = [Suite] - T2-RPI-Soil (Coarse/Fine)**

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

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



# ANALYTICAL GUIDELINE REPORT

MBN-21-693

Sample Details		Result	Qualifier	D.L.	Units	Analyzed	Guideline Limits	
Grouping	Analyte						#1	#2
L2644664-4	GAMMA-4							
Sampled By: CLIENT on 28-SEP-21								
Matrix: SOIL								
<b>Hydrocarbons</b>								
F3-PAH		<50		50	ug/g	01-OCT-21		
F4 (C34-C50)		<50		50	ug/g	01-OCT-21	2800	5600
Total Hydrocarbons (C6-C50)		<72		72	ug/g	01-OCT-21		
Chrom. to baseline at nC50		YES			No Unit	01-OCT-21		
Surrogate: 2-Bromobenzotrifluoride		91.0		60-140	%	01-OCT-21		
Surrogate: 3,4-Dichlorotoluene		90.3		60-140	%	30-SEP-21		
<b>Polycyclic Aromatic Hydrocarbons</b>								
Acenaphthene		<0.050		0.050	ug/g	30-SEP-21	7.9	29
Acenaphthylene		<0.050		0.050	ug/g	30-SEP-21	0.15	0.17
Anthracene		<0.050		0.050	ug/g	30-SEP-21	0.67	0.74
Benzo(a)anthracene		<0.050		0.050	ug/g	30-SEP-21	0.5	0.63
Benzo(a)pyrene		<0.050		0.050	ug/g	30-SEP-21	0.3	0.3
Benzo(b&j)fluoranthene		<0.050		0.050	ug/g	30-SEP-21	0.78	0.78
Benzo(g,h,i)perylene		<0.050		0.050	ug/g	30-SEP-21	6.6	7.8
Benzo(k)fluoranthene		<0.050		0.050	ug/g	30-SEP-21	0.78	0.78
Chrysene		<0.050		0.050	ug/g	30-SEP-21	7	7.8
Dibenz(a,h)anthracene		<0.050		0.050	ug/g	30-SEP-21	0.1	0.1
Fluoranthene		<0.050		0.050	ug/g	30-SEP-21	0.69	0.69
Fluorene		<0.050		0.050	ug/g	30-SEP-21	62	69
Indeno(1,2,3-cd)pyrene		<0.050		0.050	ug/g	30-SEP-21	0.38	0.48
1+2-Methylnaphthalenes		<0.042		0.042	ug/g	30-SEP-21	0.99	3.4
1-Methylnaphthalene		<0.030		0.030	ug/g	30-SEP-21	0.99	3.4
2-Methylnaphthalene		<0.030		0.030	ug/g	30-SEP-21	0.99	3.4
Naphthalene		<0.013		0.013	ug/g	30-SEP-21	0.6	0.75
Phenanthrene		<0.046		0.046	ug/g	30-SEP-21	6.2	7.8
Pyrene		<0.050		0.050	ug/g	30-SEP-21	78	78
Surrogate: 2-Fluorobiphenyl		91.3		50-140	%	30-SEP-21		
Surrogate: d14-Terphenyl		91.3		50-140	%	30-SEP-21		
<b>Polychlorinated Biphenyls</b>								
Aroclor 1242		<0.010		0.010	ug/g	30-SEP-21		
Aroclor 1248		<0.010		0.010	ug/g	30-SEP-21		
Aroclor 1254		<0.010		0.010	ug/g	30-SEP-21		
Aroclor 1260		<0.010		0.010	ug/g	30-SEP-21		
Total PCBs		<0.020		0.020	ug/g	30-SEP-21	0.35	0.35
Surrogate: d14-Terphenyl		103.4		60-140	%	30-SEP-21		
L2644664-5	GAMMA-5							
Sampled By: CLIENT on 28-SEP-21								
Matrix: SOIL								
<b>Physical Tests</b>								
Conductivity		0.107		0.0040	mS/cm	01-OCT-21	0.7	0.7
% Moisture		5.00		0.25	%	30-SEP-21		
pH		7.63		0.10	pH units	04-OCT-21		
<b>Cyanides</b>								
Cyanide, Weak Acid Diss		<0.050		0.050	ug/g	01-OCT-21	0.051	0.051
<b>Saturated Paste Extractables</b>								

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

\* Analytical result for this parameter exceeds Guideline Limit listed on this report. Guideline Limits applied:

Ontario Regulation 153/04 - April 15, 2011 Standards = [Suite] - T2-RPI-Soil (Coarse/Fine)

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

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



# ANALYTICAL GUIDELINE REPORT

MBN-21-693

Sample Details		Result	Qualifier	D.L.	Units	Analyzed	Guideline Limits	
Grouping	Analyte						#1	#2
L2644664-5	GAMMA-5							
Sampled By: CLIENT on 28-SEP-21								
Matrix: SOIL								
<b>Saturated Paste Extractables</b>								
	SAR	<0.10		0.10	SAR	30-SEP-21	5	5
	Calcium (Ca)	14.0		0.50	mg/L	30-SEP-21		
	Magnesium (Mg)	2.43		0.50	mg/L	30-SEP-21		
	Sodium (Na)	0.70		0.50	mg/L	30-SEP-21		
<b>Metals</b>								
	Antimony (Sb)	<1.0		1.0	ug/g	30-SEP-21	7.5	7.5
	Arsenic (As)	2.2		1.0	ug/g	30-SEP-21	18	18
	Barium (Ba)	11.8		1.0	ug/g	30-SEP-21	390	390
	Beryllium (Be)	<0.50		0.50	ug/g	30-SEP-21	4	5
	Boron (B)	<5.0		5.0	ug/g	30-SEP-21	120	120
	Boron (B), Hot Water Ext.	<0.10		0.10	ug/g	30-SEP-21	1.5	1.5
	Cadmium (Cd)	<0.50		0.50	ug/g	30-SEP-21	1.2	1.2
	Chromium (Cr)	7.5		1.0	ug/g	30-SEP-21	160	160
	Cobalt (Co)	2.5		1.0	ug/g	30-SEP-21	22	22
	Copper (Cu)	6.3		1.0	ug/g	30-SEP-21	140	180
	Lead (Pb)	37.1		1.0	ug/g	30-SEP-21	120	120
	Mercury (Hg)	0.0145		0.0050	ug/g	01-OCT-21	0.27	1.8
	Molybdenum (Mo)	<1.0		1.0	ug/g	30-SEP-21	6.9	6.9
	Nickel (Ni)	5.4		1.0	ug/g	30-SEP-21	100	130
	Selenium (Se)	<1.0		1.0	ug/g	30-SEP-21	2.4	2.4
	Silver (Ag)	<0.20		0.20	ug/g	30-SEP-21	20	25
	Thallium (Tl)	<0.50		0.50	ug/g	30-SEP-21	1	1
	Uranium (U)	<1.0		1.0	ug/g	30-SEP-21	23	23
	Vanadium (V)	17.1		1.0	ug/g	30-SEP-21	86	86
	Zinc (Zn)	497		5.0	ug/g	30-SEP-21	*340	*340
<b>Speciated Metals</b>								
	Chromium, Hexavalent	<0.20		0.20	ug/g	01-OCT-21	8	10
<b>Volatile Organic Compounds</b>								
	Acetone	<0.50		0.50	ug/g	30-SEP-21	16	28
	Benzene	<0.0068		0.0068	ug/g	30-SEP-21	0.21	0.17
	Bromodichloromethane	<0.050		0.050	ug/g	30-SEP-21	1.5	1.9
	Bromoform	<0.050		0.050	ug/g	30-SEP-21	0.27	0.26
	Bromomethane	<0.050		0.050	ug/g	30-SEP-21	0.05	0.05
	Carbon tetrachloride	<0.050		0.050	ug/g	30-SEP-21	0.05	0.12
	Chlorobenzene	<0.050		0.050	ug/g	30-SEP-21	2.4	2.7
	Dibromochloromethane	<0.050		0.050	ug/g	30-SEP-21	2.3	2.9
	Chloroform	<0.050		0.050	ug/g	30-SEP-21	0.05	0.18
	1,2-Dibromoethane	<0.050		0.050	ug/g	30-SEP-21	0.05	0.05
	1,2-Dichlorobenzene	<0.050		0.050	ug/g	30-SEP-21	1.2	1.7
	1,3-Dichlorobenzene	<0.050		0.050	ug/g	30-SEP-21	4.8	6
	1,4-Dichlorobenzene	<0.050		0.050	ug/g	30-SEP-21	0.083	0.097
	Dichlorodifluoromethane	<0.050		0.050	ug/g	30-SEP-21	16	25
	1,1-Dichloroethane	<0.050		0.050	ug/g	30-SEP-21	0.47	0.6
	1,2-Dichloroethane	<0.050		0.050	ug/g	30-SEP-21	0.05	0.05
	1,1-Dichloroethylene	<0.050		0.050	ug/g	30-SEP-21	0.05	0.05

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

\* Analytical result for this parameter exceeds Guideline Limit listed on this report. Guideline Limits applied:

**Ontario Regulation 153/04 - April 15, 2011 Standards = [Suite] - T2-RPI-Soil (Coarse/Fine)**

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

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



# ANALYTICAL GUIDELINE REPORT

MBN-21-693

Sample Details		Result	Qualifier	D.L.	Units	Analyzed	Guideline Limits	
Grouping	Analyte						#1	#2
L2644664-5	GAMMA-5							
Sampled By:	CLIENT on 28-SEP-21							
Matrix:	SOIL							
<b>Volatile Organic Compounds</b>								
	cis-1,2-Dichloroethylene	<0.050		0.050	ug/g	30-SEP-21	1.9	2.5
	trans-1,2-Dichloroethylene	<0.050		0.050	ug/g	30-SEP-21	0.084	0.75
	Methylene Chloride	<0.050		0.050	ug/g	30-SEP-21	0.1	0.96
	1,2-Dichloropropane	<0.050		0.050	ug/g	30-SEP-21	0.05	0.085
	cis-1,3-Dichloropropene	<0.030		0.030	ug/g	30-SEP-21		
	trans-1,3-Dichloropropene	<0.030		0.030	ug/g	30-SEP-21		
	1,3-Dichloropropene (cis & trans)	<0.042		0.042	ug/g	30-SEP-21	0.05	0.081
	Ethylbenzene	<0.018		0.018	ug/g	30-SEP-21	1.1	1.6
	n-Hexane	<0.050		0.050	ug/g	30-SEP-21	2.8	34
	Methyl Ethyl Ketone	<0.50		0.50	ug/g	30-SEP-21	16	44
	Methyl Isobutyl Ketone	<0.50		0.50	ug/g	30-SEP-21	1.7	4.3
	MTBE	<0.050		0.050	ug/g	30-SEP-21	0.75	1.4
	Styrene	<0.050		0.050	ug/g	30-SEP-21	0.7	2.2
	1,1,1,2-Tetrachloroethane	<0.050		0.050	ug/g	30-SEP-21	0.058	0.05
	1,1,2,2-Tetrachloroethane	<0.050		0.050	ug/g	30-SEP-21	0.05	0.05
	Tetrachloroethylene	<0.050		0.050	ug/g	30-SEP-21	0.28	2.3
	Toluene	<0.080		0.080	ug/g	30-SEP-21	2.3	6
	1,1,1-Trichloroethane	<0.050		0.050	ug/g	30-SEP-21	0.38	3.4
	1,1,2-Trichloroethane	<0.050		0.050	ug/g	30-SEP-21	0.05	0.05
	Trichloroethylene	<0.010		0.010	ug/g	30-SEP-21	0.061	0.52
	Trichlorofluoromethane	<0.050		0.050	ug/g	30-SEP-21	4	5.8
	Vinyl chloride	<0.020		0.020	ug/g	30-SEP-21	0.02	0.022
	o-Xylene	<0.020		0.020	ug/g	30-SEP-21		
	m+p-Xylenes	<0.030		0.030	ug/g	30-SEP-21		
	Xylenes (Total)	<0.050		0.050	ug/g	30-SEP-21	3.1	25
	Surrogate: 4-Bromofluorobenzene	100.8		50-140	%	30-SEP-21		
	Surrogate: 1,4-Difluorobenzene	102.9		50-140	%	30-SEP-21		
<b>Hydrocarbons</b>								
	F1 (C6-C10)	<5.0		5.0	ug/g	30-SEP-21	55	65
	F1-BTEX	<5.0		5.0	ug/g	01-OCT-21	55	65
	F2 (C10-C16)	<10		10	ug/g	01-OCT-21	98	150
	F2-Naphth	<10		10	ug/g	01-OCT-21		
	F3 (C16-C34)	<50		50	ug/g	01-OCT-21	300	1300
	F3-PAH	<50		50	ug/g	01-OCT-21		
	F4 (C34-C50)	<50		50	ug/g	01-OCT-21	2800	5600
	Total Hydrocarbons (C6-C50)	<72		72	ug/g	01-OCT-21		
	Chrom. to baseline at nC50	YES			No Unit	01-OCT-21		
	Surrogate: 2-Bromobenzotrifluoride	85.2		60-140	%	01-OCT-21		
	Surrogate: 3,4-Dichlorotoluene	104.5		60-140	%	30-SEP-21		
<b>Polycyclic Aromatic Hydrocarbons</b>								
	Acenaphthene	<0.050		0.050	ug/g	30-SEP-21	7.9	29
	Acenaphthylene	<0.050		0.050	ug/g	30-SEP-21	0.15	0.17
	Anthracene	<0.050		0.050	ug/g	30-SEP-21	0.67	0.74
	Benzo(a)anthracene	<0.050		0.050	ug/g	30-SEP-21	0.5	0.63
	Benzo(a)pyrene	<0.050		0.050	ug/g	30-SEP-21	0.3	0.3
	Benzo(b&j)fluoranthene	<0.050		0.050	ug/g	30-SEP-21	0.78	0.78

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

\* Analytical result for this parameter exceeds Guideline Limit listed on this report. Guideline Limits applied:

**Ontario Regulation 153/04 - April 15, 2011 Standards = [Suite] - T2-RPI-Soil (Coarse/Fine)**

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

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



# ANALYTICAL GUIDELINE REPORT

MBN-21-693

Sample Details		Result	Qualifier	D.L.	Units	Analyzed	Guideline Limits	
Grouping	Analyte						#1	#2
L2644664-5	GAMMA-5							
Sampled By: CLIENT on 28-SEP-21								
Matrix: SOIL								
<b>Polycyclic Aromatic Hydrocarbons</b>								
	Benzo(g,h,i)perylene	<0.050		0.050	ug/g	30-SEP-21	6.6	7.8
	Benzo(k)fluoranthene	<0.050		0.050	ug/g	30-SEP-21	0.78	0.78
	Chrysene	<0.050		0.050	ug/g	30-SEP-21	7	7.8
	Dibenz(a,h)anthracene	<0.050		0.050	ug/g	30-SEP-21	0.1	0.1
	Fluoranthene	<0.050		0.050	ug/g	30-SEP-21	0.69	0.69
	Fluorene	<0.050		0.050	ug/g	30-SEP-21	62	69
	Indeno(1,2,3-cd)pyrene	<0.050		0.050	ug/g	30-SEP-21	0.38	0.48
	1+2-Methylnaphthalenes	<0.042		0.042	ug/g	30-SEP-21	0.99	3.4
	1-Methylnaphthalene	<0.030		0.030	ug/g	30-SEP-21	0.99	3.4
	2-Methylnaphthalene	<0.030		0.030	ug/g	30-SEP-21	0.99	3.4
	Naphthalene	<0.013		0.013	ug/g	30-SEP-21	0.6	0.75
	Phenanthrene	<0.046		0.046	ug/g	30-SEP-21	6.2	7.8
	Pyrene	<0.050		0.050	ug/g	30-SEP-21	78	78
	Surrogate: 2-Fluorobiphenyl	89.6		50-140	%	30-SEP-21		
	Surrogate: d14-Terphenyl	88.9		50-140	%	30-SEP-21		
<b>Polychlorinated Biphenyls</b>								
	Aroclor 1242	<0.010		0.010	ug/g	30-SEP-21		
	Aroclor 1248	<0.010		0.010	ug/g	30-SEP-21		
	Aroclor 1254	<0.010		0.010	ug/g	30-SEP-21		
	Aroclor 1260	<0.010		0.010	ug/g	30-SEP-21		
	Total PCBs	<0.020		0.020	ug/g	30-SEP-21	0.35	0.35
	Surrogate: d14-Terphenyl	98.6		60-140	%	30-SEP-21		
L2644664-6	GAMMA-6							
Sampled By: CLIENT on 28-SEP-21								
Matrix: SOIL								
<b>Physical Tests</b>								
	Conductivity	0.0909		0.0040	mS/cm	01-OCT-21	0.7	0.7
	% Moisture	11.9		0.25	%	30-SEP-21		
	pH	7.57		0.10	pH units	04-OCT-21		
<b>Cyanides</b>								
	Cyanide, Weak Acid Diss	<0.050		0.050	ug/g	01-OCT-21	0.051	0.051
<b>Saturated Paste Extractables</b>								
	SAR	<0.10		0.10	SAR	30-SEP-21	5	5
	Calcium (Ca)	13.4		0.50	mg/L	30-SEP-21		
	Magnesium (Mg)	2.89		0.50	mg/L	30-SEP-21		
	Sodium (Na)	0.72		0.50	mg/L	30-SEP-21		
<b>Metals</b>								
	Antimony (Sb)	<1.0		1.0	ug/g	30-SEP-21	7.5	7.5
	Arsenic (As)	2.8		1.0	ug/g	30-SEP-21	18	18
	Barium (Ba)	31.6		1.0	ug/g	30-SEP-21	390	390
	Beryllium (Be)	<0.50		0.50	ug/g	30-SEP-21	4	5
	Boron (B)	7.4		5.0	ug/g	30-SEP-21	120	120
	Boron (B), Hot Water Ext.	<0.10		0.10	ug/g	30-SEP-21	1.5	1.5
	Cadmium (Cd)	0.55		0.50	ug/g	30-SEP-21	1.2	1.2
	Chromium (Cr)	9.5		1.0	ug/g	30-SEP-21	160	160

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\* Analytical result for this parameter exceeds Guideline Limit listed on this report. Guideline Limits applied:

**Ontario Regulation 153/04 - April 15, 2011 Standards = [Suite] - T2-RPI-Soil (Coarse/Fine)**

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

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



# ANALYTICAL GUIDELINE REPORT

MBN-21-693

Sample Details		Result	Qualifier	D.L.	Units	Analyzed	Guideline Limits	
Grouping	Analyte						#1	#2
L2644664-6	GAMMA-6							
Sampled By: CLIENT on 28-SEP-21								
Matrix: SOIL								
<b>Metals</b>								
	Cobalt (Co)	3.4		1.0	ug/g	30-SEP-21	22	22
	Copper (Cu)	10.3		1.0	ug/g	30-SEP-21	140	180
	Lead (Pb)	27.6		1.0	ug/g	30-SEP-21	120	120
	Mercury (Hg)	0.0121		0.0050	ug/g	01-OCT-21	0.27	1.8
	Molybdenum (Mo)	<1.0		1.0	ug/g	30-SEP-21	6.9	6.9
	Nickel (Ni)	7.2		1.0	ug/g	30-SEP-21	100	130
	Selenium (Se)	<1.0		1.0	ug/g	30-SEP-21	2.4	2.4
	Silver (Ag)	<0.20		0.20	ug/g	30-SEP-21	20	25
	Thallium (Tl)	<0.50		0.50	ug/g	30-SEP-21	1	1
	Uranium (U)	<1.0		1.0	ug/g	30-SEP-21	23	23
	Vanadium (V)	18.4		1.0	ug/g	30-SEP-21	86	86
	Zinc (Zn)	190		5.0	ug/g	30-SEP-21	340	340
<b>Speciated Metals</b>								
	Chromium, Hexavalent	<0.20		0.20	ug/g	01-OCT-21	8	10
<b>Volatile Organic Compounds</b>								
	Acetone	<0.50		0.50	ug/g	30-SEP-21	16	28
	Benzene	<0.0068		0.0068	ug/g	30-SEP-21	0.21	0.17
	Bromodichloromethane	<0.050		0.050	ug/g	30-SEP-21	1.5	1.9
	Bromoform	<0.050		0.050	ug/g	30-SEP-21	0.27	0.26
	Bromomethane	<0.050		0.050	ug/g	30-SEP-21	0.05	0.05
	Carbon tetrachloride	<0.050		0.050	ug/g	30-SEP-21	0.05	0.12
	Chlorobenzene	<0.050		0.050	ug/g	30-SEP-21	2.4	2.7
	Dibromochloromethane	<0.050		0.050	ug/g	30-SEP-21	2.3	2.9
	Chloroform	<0.050		0.050	ug/g	30-SEP-21	0.05	0.18
	1,2-Dibromoethane	<0.050		0.050	ug/g	30-SEP-21	0.05	0.05
	1,2-Dichlorobenzene	<0.050		0.050	ug/g	30-SEP-21	1.2	1.7
	1,3-Dichlorobenzene	<0.050		0.050	ug/g	30-SEP-21	4.8	6
	1,4-Dichlorobenzene	<0.050		0.050	ug/g	30-SEP-21	0.083	0.097
	Dichlorodifluoromethane	<0.050		0.050	ug/g	30-SEP-21	16	25
	1,1-Dichloroethane	<0.050		0.050	ug/g	30-SEP-21	0.47	0.6
	1,2-Dichloroethane	<0.050		0.050	ug/g	30-SEP-21	0.05	0.05
	1,1-Dichloroethylene	<0.050		0.050	ug/g	30-SEP-21	0.05	0.05
	cis-1,2-Dichloroethylene	<0.050		0.050	ug/g	30-SEP-21	1.9	2.5
	trans-1,2-Dichloroethylene	<0.050		0.050	ug/g	30-SEP-21	0.084	0.75
	Methylene Chloride	<0.050		0.050	ug/g	30-SEP-21	0.1	0.96
	1,2-Dichloropropane	<0.050		0.050	ug/g	30-SEP-21	0.05	0.085
	cis-1,3-Dichloropropene	<0.030		0.030	ug/g	30-SEP-21		
	trans-1,3-Dichloropropene	<0.030		0.030	ug/g	30-SEP-21		
	1,3-Dichloropropene (cis & trans)	<0.042		0.042	ug/g	30-SEP-21	0.05	0.081
	Ethylbenzene	<0.018		0.018	ug/g	30-SEP-21	1.1	1.6
	n-Hexane	<0.050		0.050	ug/g	30-SEP-21	2.8	34
	Methyl Ethyl Ketone	<0.50		0.50	ug/g	30-SEP-21	16	44
	Methyl Isobutyl Ketone	<0.50		0.50	ug/g	30-SEP-21	1.7	4.3
	MTBE	<0.050		0.050	ug/g	30-SEP-21	0.75	1.4
	Styrene	<0.050		0.050	ug/g	30-SEP-21	0.7	2.2

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

\* Analytical result for this parameter exceeds Guideline Limit listed on this report. Guideline Limits applied:

**Ontario Regulation 153/04 - April 15, 2011 Standards = [Suite] - T2-RPI-Soil (Coarse/Fine)**

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

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





# ANALYTICAL GUIDELINE REPORT

MBN-21-693

Sample Details		Result	Qualifier	D.L.	Units	Analyzed	Guideline Limits	
Grouping	Analyte						#1	#2
L2644664-6	GAMMA-6							
Sampled By:	CLIENT on 28-SEP-21							
Matrix:	SOIL							
<b>Volatile Organic Compounds</b>								
	1,1,1,2-Tetrachloroethane	<0.050		0.050	ug/g	30-SEP-21	0.058	0.05
	1,1,2,2-Tetrachloroethane	<0.050		0.050	ug/g	30-SEP-21	0.05	0.05
	Tetrachloroethylene	<0.050		0.050	ug/g	30-SEP-21	0.28	2.3
	Toluene	<0.080		0.080	ug/g	30-SEP-21	2.3	6
	1,1,1-Trichloroethane	<0.050		0.050	ug/g	30-SEP-21	0.38	3.4
	1,1,2-Trichloroethane	<0.050		0.050	ug/g	30-SEP-21	0.05	0.05
	Trichloroethylene	<0.010		0.010	ug/g	30-SEP-21	0.061	0.52
	Trichlorofluoromethane	<0.050		0.050	ug/g	30-SEP-21	4	5.8
	Vinyl chloride	<0.020		0.020	ug/g	30-SEP-21	0.02	0.022
	o-Xylene	<0.020		0.020	ug/g	30-SEP-21		
	m+p-Xylenes	<0.030		0.030	ug/g	30-SEP-21		
	Xylenes (Total)	<0.050		0.050	ug/g	30-SEP-21	3.1	25
	Surrogate: 4-Bromofluorobenzene	97.2		50-140	%	30-SEP-21		
	Surrogate: 1,4-Difluorobenzene	100.9		50-140	%	30-SEP-21		
<b>Hydrocarbons</b>								
	F1 (C6-C10)	<5.0		5.0	ug/g	30-SEP-21	55	65
	F1-BTEX	<5.0		5.0	ug/g	01-OCT-21	55	65
	F2 (C10-C16)	<10		10	ug/g	01-OCT-21	98	150
	F2-Naphth	<10		10	ug/g	01-OCT-21		
	F3 (C16-C34)	<50		50	ug/g	01-OCT-21	300	1300
	F3-PAH	<50		50	ug/g	01-OCT-21		
	F4 (C34-C50)	<50		50	ug/g	01-OCT-21	2800	5600
	Total Hydrocarbons (C6-C50)	<72		72	ug/g	01-OCT-21		
	Chrom. to baseline at nC50	YES			No Unit	01-OCT-21		
	Surrogate: 2-Bromobenzotrifluoride	73.2		60-140	%	01-OCT-21		
	Surrogate: 3,4-Dichlorotoluene	102.9		60-140	%	30-SEP-21		
<b>Polycyclic Aromatic Hydrocarbons</b>								
	Acenaphthene	<0.050		0.050	ug/g	30-SEP-21	7.9	29
	Acenaphthylene	<0.050		0.050	ug/g	30-SEP-21	0.15	0.17
	Anthracene	<0.050		0.050	ug/g	30-SEP-21	0.67	0.74
	Benzo(a)anthracene	<0.050		0.050	ug/g	30-SEP-21	0.5	0.63
	Benzo(a)pyrene	<0.050		0.050	ug/g	30-SEP-21	0.3	0.3
	Benzo(b&j)fluoranthene	<0.050		0.050	ug/g	30-SEP-21	0.78	0.78
	Benzo(g,h,i)perylene	<0.050		0.050	ug/g	30-SEP-21	6.6	7.8
	Benzo(k)fluoranthene	<0.050		0.050	ug/g	30-SEP-21	0.78	0.78
	Chrysene	<0.050		0.050	ug/g	30-SEP-21	7	7.8
	Dibenz(a,h)anthracene	<0.050		0.050	ug/g	30-SEP-21	0.1	0.1
	Fluoranthene	<0.050		0.050	ug/g	30-SEP-21	0.69	0.69
	Fluorene	<0.050		0.050	ug/g	30-SEP-21	62	69
	Indeno(1,2,3-cd)pyrene	<0.050		0.050	ug/g	30-SEP-21	0.38	0.48
	1+2-Methylnaphthalenes	<0.042		0.042	ug/g	30-SEP-21	0.99	3.4
	1-Methylnaphthalene	<0.030		0.030	ug/g	30-SEP-21	0.99	3.4
	2-Methylnaphthalene	<0.030		0.030	ug/g	30-SEP-21	0.99	3.4
	Naphthalene	<0.013		0.013	ug/g	30-SEP-21	0.6	0.75
	Phenanthrene	<0.046		0.046	ug/g	30-SEP-21	6.2	7.8
	Pyrene	<0.050		0.050	ug/g	30-SEP-21	78	78

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

\* Analytical result for this parameter exceeds Guideline Limit listed on this report. Guideline Limits applied:

**Ontario Regulation 153/04 - April 15, 2011 Standards = [Suite] - T2-RPI-Soil (Coarse/Fine)**

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

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



# ANALYTICAL GUIDELINE REPORT

MBN-21-693

Sample Details		Result	Qualifier	D.L.	Units	Analyzed	Guideline Limits							
Grouping	Analyte						#1	#2						
L2644664-6	GAMMA-6													
Sampled By: CLIENT on 28-SEP-21														
Matrix: SOIL														
<b>Polycyclic Aromatic Hydrocarbons</b>														
	Surrogate: 2-Fluorobiphenyl	91.2		50-140	%	30-SEP-21								
	Surrogate: d14-Terphenyl	91.7		50-140	%	30-SEP-21								
<b>Polychlorinated Biphenyls</b>														
	Aroclor 1242	<0.010		0.010	ug/g	30-SEP-21								
	Aroclor 1248	<0.010		0.010	ug/g	30-SEP-21								
	Aroclor 1254	<0.010		0.010	ug/g	30-SEP-21								
	Aroclor 1260	<0.010		0.010	ug/g	30-SEP-21								
	Total PCBs	<0.020		0.020	ug/g	30-SEP-21	0.35	0.35						
	Surrogate: d14-Terphenyl	101.2		60-140	%	30-SEP-21								

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

\* Analytical result for this parameter exceeds Guideline Limit listed on this report. Guideline Limits applied:

**Ontario Regulation 153/04 - April 15, 2011 Standards = [Suite] - T2-RPI-Soil (Coarse/Fine)**

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

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

## Reference Information

### 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
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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 and as of November 30, 2020), unless a subset of the Analytical Test Group (ATG) has been requested (the Protocol states that all analytes in an ATG must be reported).

CN-WAD-R511-WT	Soil	Cyanide (WAD)-O.Reg 153/04 (July 2011)	MOE 3015/APHA 4500CN I-WAD
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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 and as of November 30, 2020), unless a subset of the Analytical Test Group (ATG) has been requested (the Protocol states that all analytes in an ATG must be reported).

CR-CR6-IC-WT	Soil	Hexavalent Chromium in Soil	SW846 3060A/7199
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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
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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
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Analytical methods used for analysis of CCME Petroleum Hydrocarbons have been validated and comply with the Reference Method for the CWS PHC.

Hydrocarbon results are expressed on a dry weight basis.

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

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

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

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

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

Unless otherwise qualified, the following quality control criteria have been met for the F2-F4 hydrocarbon ranges:

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

F1-HS-511-WT	Soil	F1-O.Reg 153/04 (July 2011)	E3398/CCME TIER 1-HS
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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 and as of November 30, 2020), unless a subset of the Analytical Test Group (ATG) has been requested (the Protocol states that all analytes in an ATG must be reported).

## Reference Information

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 and as of November 30, 2020), 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 200.2/6020B (mod)

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

Limitations: This method is intended to liberate environmentally available metals. Silicate minerals are not solubilized. Some metals may be only partially recovered (matrix dependent), including Al, Ba, Be, Cr, S, Sr, Ti, Tl, V, W, and Zr. Elemental Sulfur may be poorly recovered by this method. Volatile forms of sulfur (e.g. sulfide, H<sub>2</sub>S) 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 and as of November 30, 2020), unless a subset of the Analytical Test Group (ATG) has been requested (the Protocol states that all analytes in an ATG must be reported).

PCB-511-WT      Soil      PCB-O.Reg 153/04 (July 2011)    SW846 3510/8082

An aliquot of a solid sample is extracted with a solvent, extract is cleaned up and analyzed on the 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 and as of November 30, 2020), 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).

## Reference Information

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 and as of November 30, 2020), unless a subset of the Analytical Test Group (ATG) has been requested (the Protocol states that all analytes in an ATG must be reported).

VOC-1,3-DCP-CALC-WT      Soil      Regulation 153 VOCs      SW8260B/SW8270C

VOC-511-HS-WT      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 and as of November 30, 2020), unless a subset of the Analytical Test Group (ATG) has been requested (the Protocol states that all analytes in an ATG must be reported).

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.

Chain of Custody numbers:

20-898275

*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	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. Guideline limits are not adjusted for the hardness, pH or temperature of the sample (the most conservative values are used). Measurement uncertainty is not applied to test results prior to comparison with specified criteria values.



### Quality Control Report

Workorder: L2644664

Report Date: 04-OCT-21

Page 1 of 20

Client: MBN ENVIRONMENTAL ENGINEERING INC.  
29 St. Charles Street, East  
Maryhill ON N0B 2B0

Contact: DREW STOLTZ

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
<b>B-HWS-R511-WT</b>								
	<b>Soil</b>							
<b>Batch</b>	<b>R5605317</b>							
<b>WG3628124-4</b>	<b>DUP</b>	<b>L2644661-5</b>						
Boron (B), Hot Water Ext.		<0.10	<0.10	RPD-NA	ug/g	N/A	30	30-SEP-21
<b>WG3628124-2</b>	<b>IRM</b>	<b>WT SAR4</b>						
Boron (B), Hot Water Ext.			93.8		%		70-130	30-SEP-21
<b>WG3628124-3</b>	<b>LCS</b>							
Boron (B), Hot Water Ext.			102.0		%		70-130	30-SEP-21
<b>WG3628124-1</b>	<b>MB</b>							
Boron (B), Hot Water Ext.			<0.10		ug/g		0.1	30-SEP-21
<b>CN-WAD-R511-WT</b>								
	<b>Soil</b>							
<b>Batch</b>	<b>R5607314</b>							
<b>WG3628145-3</b>	<b>DUP</b>	<b>L2644574-2</b>						
Cyanide, Weak Acid Diss		<0.050	<0.050	RPD-NA	ug/g	N/A	35	01-OCT-21
<b>WG3628145-2</b>	<b>LCS</b>							
Cyanide, Weak Acid Diss			96.8		%		80-120	01-OCT-21
<b>WG3628145-1</b>	<b>MB</b>							
Cyanide, Weak Acid Diss			<0.050		ug/g		0.05	01-OCT-21
<b>WG3628145-4</b>	<b>MS</b>	<b>L2644574-2</b>						
Cyanide, Weak Acid Diss			103.6		%		70-130	01-OCT-21
<b>CR-CR6-IC-WT</b>								
	<b>Soil</b>							
<b>Batch</b>	<b>R5606039</b>							
<b>WG3627799-4</b>	<b>CRM</b>	<b>WT-SQC012</b>						
Chromium, Hexavalent			82.9		%		70-130	01-OCT-21
<b>WG3627897-9</b>	<b>CRM</b>	<b>WT-SQC012</b>						
Chromium, Hexavalent			76.3		%		70-130	01-OCT-21
<b>WG3627799-3</b>	<b>DUP</b>	<b>L2644661-5</b>						
Chromium, Hexavalent		<0.20	<0.20	RPD-NA	ug/g	N/A	35	01-OCT-21
<b>WG3627897-8</b>	<b>DUP</b>	<b>L2645018-1</b>						
Chromium, Hexavalent		<0.20	<0.20	RPD-NA	ug/g	N/A	35	01-OCT-21
<b>WG3627799-2</b>	<b>LCS</b>							
Chromium, Hexavalent			93.4		%		80-120	01-OCT-21
<b>WG3627897-7</b>	<b>LCS</b>							
Chromium, Hexavalent			83.8		%		80-120	01-OCT-21
<b>WG3627799-1</b>	<b>MB</b>							
Chromium, Hexavalent			<0.20		ug/g		0.2	01-OCT-21
<b>WG3627897-6</b>	<b>MB</b>							
Chromium, Hexavalent			<0.20		ug/g		0.2	01-OCT-21
<b>EC-WT</b>								
	<b>Soil</b>							



### Quality Control Report

Workorder: L2644664

Report Date: 04-OCT-21

Page 2 of 20

Client: MBN ENVIRONMENTAL ENGINEERING INC.  
29 St. Charles Street, East  
Maryhill ON N0B 2B0

Contact: DREW STOLTZ

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
<b>EC-WT</b>		<b>Soil</b>						
<b>Batch</b>	<b>R5606261</b>							
<b>WG3628129-4</b>	<b>DUP</b>	<b>WG3628129-3</b>						
Conductivity		0.160	0.156		mS/cm	2.7	20	01-OCT-21
<b>WG3628129-2</b>	<b>IRM</b>	<b>WT SAR4</b>						
Conductivity			107.5		%		70-130	01-OCT-21
<b>WG3629595-1</b>	<b>LCS</b>							
Conductivity			93.8		%		90-110	01-OCT-21
<b>WG3628129-1</b>	<b>MB</b>							
Conductivity			<0.0040		mS/cm		0.004	01-OCT-21
<b>F1-HS-511-WT</b>		<b>Soil</b>						
<b>Batch</b>	<b>R5605128</b>							
<b>WG3627144-4</b>	<b>DUP</b>	<b>WG3627144-3</b>						
F1 (C6-C10)		<5.0	<5.0	RPD-NA	ug/g	N/A	30	30-SEP-21
<b>WG3627144-2</b>	<b>LCS</b>							
F1 (C6-C10)			97.9		%		80-120	30-SEP-21
<b>WG3627144-1</b>	<b>MB</b>							
F1 (C6-C10)			<5.0		ug/g		5	30-SEP-21
Surrogate: 3,4-Dichlorotoluene			83.6		%		60-140	30-SEP-21
<b>WG3627144-5</b>	<b>MS</b>	<b>WG3627144-3</b>						
F1 (C6-C10)			101.1		%		60-140	30-SEP-21
<b>Batch</b>	<b>R5605393</b>							
<b>WG3627728-4</b>	<b>DUP</b>	<b>WG3627728-3</b>						
F1 (C6-C10)		<5.0	<5.0	RPD-NA	ug/g	N/A	30	30-SEP-21
<b>WG3627728-2</b>	<b>LCS</b>							
F1 (C6-C10)			95.1		%		80-120	30-SEP-21
<b>WG3627728-1</b>	<b>MB</b>							
F1 (C6-C10)			<5.0		ug/g		5	30-SEP-21
Surrogate: 3,4-Dichlorotoluene			95.4		%		60-140	30-SEP-21
<b>WG3627728-5</b>	<b>MS</b>	<b>WG3627728-3</b>						
F1 (C6-C10)			109.4		%		60-140	30-SEP-21
<b>F2-F4-511-WT</b>		<b>Soil</b>						
<b>Batch</b>	<b>R5606286</b>							
<b>WG3628134-3</b>	<b>DUP</b>	<b>WG3628134-5</b>						
F2 (C10-C16)		47	44		ug/g	6.1	30	01-OCT-21
F3 (C16-C34)		817	937		ug/g	14	30	01-OCT-21
F4 (C34-C50)		270	331		ug/g	21	30	01-OCT-21
<b>WG3628134-2</b>	<b>LCS</b>							
F2 (C10-C16)			90.5		%		80-120	01-OCT-21



### Quality Control Report

Workorder: L2644664

Report Date: 04-OCT-21

Page 3 of 20

Client: MBN ENVIRONMENTAL ENGINEERING INC.  
29 St. Charles Street, East  
Maryhill ON N0B 2B0

Contact: DREW STOLTZ

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
<b>F2-F4-511-WT</b>	<b>Soil</b>							
<b>Batch</b>	<b>R5606286</b>							
<b>WG3628134-2</b>	<b>LCS</b>							
F3 (C16-C34)			89.7		%		80-120	01-OCT-21
F4 (C34-C50)			85.1		%		80-120	01-OCT-21
<b>WG3628134-1</b>	<b>MB</b>							
F2 (C10-C16)			<10		ug/g		10	01-OCT-21
F3 (C16-C34)			<50		ug/g		50	01-OCT-21
F4 (C34-C50)			<50		ug/g		50	01-OCT-21
Surrogate: 2-Bromobenzotrifluoride			90.3		%		60-140	01-OCT-21
<b>WG3628134-4</b>	<b>MS</b>	<b>WG3628134-5</b>						
F2 (C10-C16)			88.1		%		60-140	01-OCT-21
F3 (C16-C34)			95.1		%		60-140	01-OCT-21
F4 (C34-C50)			98.2		%		60-140	01-OCT-21
<b>HG-200.2-CVAA-WT</b>	<b>Soil</b>							
<b>Batch</b>	<b>R5606088</b>							
<b>WG3628914-2</b>	<b>CRM</b>	<b>WT-SS-2</b>						
Mercury (Hg)			102.7		%		70-130	01-OCT-21
<b>WG3628914-4</b>	<b>DUP</b>	<b>L2644574-5</b>						
Mercury (Hg)		0.0172	0.0144		ug/g	17	40	01-OCT-21
<b>WG3628914-3</b>	<b>LCS</b>							
Mercury (Hg)			108.0		%		80-120	01-OCT-21
<b>WG3628914-1</b>	<b>MB</b>							
Mercury (Hg)			<0.0050		mg/kg		0.005	01-OCT-21
<b>MET-200.2-CCMS-WT</b>	<b>Soil</b>							
<b>Batch</b>	<b>R5605960</b>							
<b>WG3628115-2</b>	<b>CRM</b>	<b>WT-SS-2</b>						
Antimony (Sb)			97.5		%		70-130	30-SEP-21
Arsenic (As)			107.1		%		70-130	30-SEP-21
Barium (Ba)			108.8		%		70-130	30-SEP-21
Beryllium (Be)			90.6		%		70-130	30-SEP-21
Boron (B)			8.6		mg/kg		3.5-13.5	30-SEP-21
Cadmium (Cd)			104.2		%		70-130	30-SEP-21
Chromium (Cr)			113.8		%		70-130	30-SEP-21
Cobalt (Co)			104.6		%		70-130	30-SEP-21
Copper (Cu)			112.4		%		70-130	30-SEP-21
Lead (Pb)			103.4		%		70-130	30-SEP-21
Molybdenum (Mo)			103.2		%		70-130	30-SEP-21





## Quality Control Report

Workorder: L2644664

Report Date: 04-OCT-21

Page 4 of 20

Client: MBN ENVIRONMENTAL ENGINEERING INC.  
 29 St. Charles Street, East  
 Maryhill ON N0B 2B0

Contact: DREW STOLTZ

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
<b>MET-200.2-CCMS-WT</b>								
<b>Soil</b>								
<b>Batch R5605960</b>								
<b>WG3628115-2 CRM</b>		<b>WT-SS-2</b>						
Nickel (Ni)			104.6		%		70-130	30-SEP-21
Selenium (Se)			0.14		mg/kg		0-0.34	30-SEP-21
Silver (Ag)			83.7		%		70-130	30-SEP-21
Thallium (Tl)			0.075		mg/kg		0.029-0.129	30-SEP-21
Uranium (U)			95.4		%		70-130	30-SEP-21
Vanadium (V)			107.2		%		70-130	30-SEP-21
Zinc (Zn)			105.0		%		70-130	30-SEP-21
<b>WG3628115-6 DUP</b>		<b>WG3628115-5</b>						
Antimony (Sb)		0.13	0.12		ug/g	7.7	30	30-SEP-21
Arsenic (As)		4.77	4.97		ug/g	4.2	30	30-SEP-21
Barium (Ba)		58.4	67.0		ug/g	14	40	30-SEP-21
Beryllium (Be)		0.54	0.59		ug/g	8.6	30	30-SEP-21
Boron (B)		7.2	8.3		ug/g	15	30	30-SEP-21
Cadmium (Cd)		0.095	0.099		ug/g	4.1	30	30-SEP-21
Chromium (Cr)		17.2	18.4		ug/g	6.9	30	30-SEP-21
Cobalt (Co)		11.3	11.5		ug/g	2.3	30	30-SEP-21
Copper (Cu)		24.7	25.2		ug/g	1.8	30	30-SEP-21
Lead (Pb)		9.35	10.6		ug/g	12	40	30-SEP-21
Molybdenum (Mo)		0.35	0.35		ug/g	0.3	40	30-SEP-21
Nickel (Ni)		22.2	23.0		ug/g	3.3	30	30-SEP-21
Selenium (Se)		<0.20	<0.20	RPD-NA	ug/g	N/A	30	30-SEP-21
Silver (Ag)		<0.10	<0.10	RPD-NA	ug/g	N/A	40	30-SEP-21
Thallium (Tl)		0.129	0.133		ug/g	3.2	30	30-SEP-21
Uranium (U)		0.501	0.520		ug/g	3.8	30	30-SEP-21
Vanadium (V)		25.6	27.5		ug/g	7.0	30	30-SEP-21
Zinc (Zn)		52.9	54.0		ug/g	2.1	30	30-SEP-21
<b>WG3628115-4 LCS</b>								
Antimony (Sb)			97.6		%		80-120	30-SEP-21
Arsenic (As)			96.1		%		80-120	30-SEP-21
Barium (Ba)			96.2		%		80-120	30-SEP-21
Beryllium (Be)			89.9		%		80-120	30-SEP-21
Boron (B)			87.5		%		80-120	30-SEP-21
Cadmium (Cd)			91.5		%		80-120	30-SEP-21



### Quality Control Report

Workorder: L2644664

Report Date: 04-OCT-21

Page 5 of 20

Client: MBN ENVIRONMENTAL ENGINEERING INC.  
29 St. Charles Street, East  
Maryhill ON N0B 2B0

Contact: DREW STOLTZ

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
<b>MET-200.2-CCMS-WT</b>	<b>Soil</b>							
<b>Batch</b>	<b>R5605960</b>							
<b>WG3628115-4</b>	<b>LCS</b>							
Chromium (Cr)			93.6		%		80-120	30-SEP-21
Cobalt (Co)			92.0		%		80-120	30-SEP-21
Copper (Cu)			92.0		%		80-120	30-SEP-21
Lead (Pb)			90.0		%		80-120	30-SEP-21
Molybdenum (Mo)			96.1		%		80-120	30-SEP-21
Nickel (Ni)			91.6		%		80-120	30-SEP-21
Selenium (Se)			93.9		%		80-120	30-SEP-21
Silver (Ag)			82.6		%		80-120	30-SEP-21
Thallium (Tl)			93.6		%		80-120	30-SEP-21
Uranium (U)			85.5		%		80-120	30-SEP-21
Vanadium (V)			96.9		%		80-120	30-SEP-21
Zinc (Zn)			91.4		%		80-120	30-SEP-21
<b>WG3628115-1</b>	<b>MB</b>							
Antimony (Sb)			<0.10		mg/kg		0.1	30-SEP-21
Arsenic (As)			<0.10		mg/kg		0.1	30-SEP-21
Barium (Ba)			<0.50		mg/kg		0.5	30-SEP-21
Beryllium (Be)			<0.10		mg/kg		0.1	30-SEP-21
Boron (B)			<5.0		mg/kg		5	30-SEP-21
Cadmium (Cd)			<0.020		mg/kg		0.02	30-SEP-21
Chromium (Cr)			<0.50		mg/kg		0.5	30-SEP-21
Cobalt (Co)			<0.10		mg/kg		0.1	30-SEP-21
Copper (Cu)			<0.50		mg/kg		0.5	30-SEP-21
Lead (Pb)			<0.50		mg/kg		0.5	30-SEP-21
Molybdenum (Mo)			<0.10		mg/kg		0.1	30-SEP-21
Nickel (Ni)			<0.50		mg/kg		0.5	30-SEP-21
Selenium (Se)			<0.20		mg/kg		0.2	30-SEP-21
Silver (Ag)			<0.10		mg/kg		0.1	30-SEP-21
Thallium (Tl)			<0.050		mg/kg		0.05	30-SEP-21
Uranium (U)			<0.050		mg/kg		0.05	30-SEP-21
Vanadium (V)			<0.20		mg/kg		0.2	30-SEP-21
Zinc (Zn)			<2.0		mg/kg		2	30-SEP-21

**MOISTURE-WT**                      **Soil**



### Quality Control Report

Workorder: L2644664

Report Date: 04-OCT-21

Page 6 of 20

Client: MBN ENVIRONMENTAL ENGINEERING INC.  
29 St. Charles Street, East  
Maryhill ON N0B 2B0

Contact: DREW STOLTZ

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
<b>MOISTURE-WT</b>		<b>Soil</b>						
<b>Batch</b>	<b>R5604943</b>							
<b>WG3627225-3</b>	<b>DUP</b>	<b>L2644661-5</b>						
% Moisture		12.5	12.5		%	0.1	20	30-SEP-21
<b>WG3627225-2</b>	<b>LCS</b>							
% Moisture			99.5		%		90-110	30-SEP-21
<b>WG3627225-1</b>	<b>MB</b>							
% Moisture			<0.25		%		0.25	30-SEP-21
<b>PAH-511-WT</b>		<b>Soil</b>						
<b>Batch</b>	<b>R5605588</b>							
<b>WG3627344-3</b>	<b>DUP</b>	<b>WG3627344-5</b>						
1-Methylnaphthalene		<0.030	<0.030	RPD-NA	ug/g	N/A	40	30-SEP-21
2-Methylnaphthalene		<0.030	<0.030	RPD-NA	ug/g	N/A	40	30-SEP-21
Acenaphthene		<0.050	<0.050	RPD-NA	ug/g	N/A	40	30-SEP-21
Acenaphthylene		<0.050	<0.050	RPD-NA	ug/g	N/A	40	30-SEP-21
Anthracene		<0.050	<0.050	RPD-NA	ug/g	N/A	40	30-SEP-21
Benzo(a)anthracene		<0.050	<0.050	RPD-NA	ug/g	N/A	40	30-SEP-21
Benzo(a)pyrene		<0.050	<0.050	RPD-NA	ug/g	N/A	40	30-SEP-21
Benzo(b&j)fluoranthene		<0.050	<0.050	RPD-NA	ug/g	N/A	40	30-SEP-21
Benzo(g,h,i)perylene		<0.050	<0.050	RPD-NA	ug/g	N/A	40	30-SEP-21
Benzo(k)fluoranthene		<0.050	<0.050	RPD-NA	ug/g	N/A	40	30-SEP-21
Chrysene		<0.050	<0.050	RPD-NA	ug/g	N/A	40	30-SEP-21
Dibenz(a,h)anthracene		<0.050	<0.050	RPD-NA	ug/g	N/A	40	30-SEP-21
Fluoranthene		<0.050	<0.050	RPD-NA	ug/g	N/A	40	30-SEP-21
Fluorene		<0.050	<0.050	RPD-NA	ug/g	N/A	40	30-SEP-21
Indeno(1,2,3-cd)pyrene		<0.050	<0.050	RPD-NA	ug/g	N/A	40	30-SEP-21
Naphthalene		<0.013	<0.013	RPD-NA	ug/g	N/A	40	30-SEP-21
Phenanthrene		<0.046	<0.046	RPD-NA	ug/g	N/A	40	30-SEP-21
Pyrene		<0.050	<0.050	RPD-NA	ug/g	N/A	40	30-SEP-21
<b>WG3627344-2</b>	<b>LCS</b>							
1-Methylnaphthalene			94.9		%		50-140	30-SEP-21
2-Methylnaphthalene			91.1		%		50-140	30-SEP-21
Acenaphthene			89.4		%		50-140	30-SEP-21
Acenaphthylene			86.3		%		50-140	30-SEP-21
Anthracene			77.4		%		50-140	30-SEP-21
Benzo(a)anthracene			88.6		%		50-140	30-SEP-21
Benzo(a)pyrene			77.0		%		50-140	30-SEP-21



### Quality Control Report

Workorder: L2644664

Report Date: 04-OCT-21

Page 7 of 20

Client: MBN ENVIRONMENTAL ENGINEERING INC.  
29 St. Charles Street, East  
Maryhill ON N0B 2B0

Contact: DREW STOLTZ

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
<b>PAH-511-WT</b>	<b>Soil</b>							
<b>Batch</b>	<b>R5605588</b>							
<b>WG3627344-2 LCS</b>								
Benzo(b&j)fluoranthene			90.1		%		50-140	30-SEP-21
Benzo(g,h,i)perylene			71.6		%		50-140	30-SEP-21
Benzo(k)fluoranthene			85.2		%		50-140	30-SEP-21
Chrysene			92.1		%		50-140	30-SEP-21
Dibenz(a,h)anthracene			77.0		%		50-140	30-SEP-21
Fluoranthene			83.7		%		50-140	30-SEP-21
Fluorene			82.8		%		50-140	30-SEP-21
Indeno(1,2,3-cd)pyrene			73.2		%		50-140	30-SEP-21
Naphthalene			85.5		%		50-140	30-SEP-21
Phenanthrene			85.5		%		50-140	30-SEP-21
Pyrene			83.8		%		50-140	30-SEP-21
<b>WG3627344-1 MB</b>								
1-Methylnaphthalene			<0.030		ug/g		0.03	30-SEP-21
2-Methylnaphthalene			<0.030		ug/g		0.03	30-SEP-21
Acenaphthene			<0.050		ug/g		0.05	30-SEP-21
Acenaphthylene			<0.050		ug/g		0.05	30-SEP-21
Anthracene			<0.050		ug/g		0.05	30-SEP-21
Benzo(a)anthracene			<0.050		ug/g		0.05	30-SEP-21
Benzo(a)pyrene			<0.050		ug/g		0.05	30-SEP-21
Benzo(b&j)fluoranthene			<0.050		ug/g		0.05	30-SEP-21
Benzo(g,h,i)perylene			<0.050		ug/g		0.05	30-SEP-21
Benzo(k)fluoranthene			<0.050		ug/g		0.05	30-SEP-21
Chrysene			<0.050		ug/g		0.05	30-SEP-21
Dibenz(a,h)anthracene			<0.050		ug/g		0.05	30-SEP-21
Fluoranthene			<0.050		ug/g		0.05	30-SEP-21
Fluorene			<0.050		ug/g		0.05	30-SEP-21
Indeno(1,2,3-cd)pyrene			<0.050		ug/g		0.05	30-SEP-21
Naphthalene			<0.013		ug/g		0.013	30-SEP-21
Phenanthrene			<0.046		ug/g		0.046	30-SEP-21
Pyrene			<0.050		ug/g		0.05	30-SEP-21
Surrogate: 2-Fluorobiphenyl			87.7		%		50-140	30-SEP-21
Surrogate: d14-Terphenyl			85.3		%		50-140	30-SEP-21
<b>WG3627344-4 MS</b>		<b>WG3627344-5</b>						
1-Methylnaphthalene			92.6		%		50-140	30-SEP-21



### Quality Control Report

Workorder: L2644664

Report Date: 04-OCT-21

Page 8 of 20

Client: MBN ENVIRONMENTAL ENGINEERING INC.  
29 St. Charles Street, East  
Maryhill ON N0B 2B0

Contact: DREW STOLTZ

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
<b>PAH-511-WT</b>	<b>Soil</b>							
<b>Batch</b>	<b>R5605588</b>							
<b>WG3627344-4 MS</b>		<b>WG3627344-5</b>						
2-Methylnaphthalene			89.0		%		50-140	30-SEP-21
Acenaphthene			87.5		%		50-140	30-SEP-21
Acenaphthylene			84.8		%		50-140	30-SEP-21
Anthracene			78.7		%		50-140	30-SEP-21
Benzo(a)anthracene			90.5		%		50-140	30-SEP-21
Benzo(a)pyrene			77.4		%		50-140	30-SEP-21
Benzo(b&j)fluoranthene			88.8		%		50-140	30-SEP-21
Benzo(g,h,i)perylene			69.9		%		50-140	30-SEP-21
Benzo(k)fluoranthene			83.5		%		50-140	30-SEP-21
Chrysene			90.3		%		50-140	30-SEP-21
Dibenz(a,h)anthracene			74.9		%		50-140	30-SEP-21
Fluoranthene			87.3		%		50-140	30-SEP-21
Fluorene			82.7		%		50-140	30-SEP-21
Indeno(1,2,3-cd)pyrene			73.3		%		50-140	30-SEP-21
Naphthalene			85.5		%		50-140	30-SEP-21
Phenanthrene			85.3		%		50-140	30-SEP-21
Pyrene			87.5		%		50-140	30-SEP-21
<b>PCB-511-WT</b>	<b>Soil</b>							
<b>Batch</b>	<b>R5605703</b>							
<b>WG3627344-3 DUP</b>		<b>WG3627344-5</b>						
Aroclor 1242		<0.010	<0.010	RPD-NA	ug/g	N/A	40	30-SEP-21
Aroclor 1248		<0.010	<0.010	RPD-NA	ug/g	N/A	40	30-SEP-21
Aroclor 1254		<0.010	<0.010	RPD-NA	ug/g	N/A	40	30-SEP-21
Aroclor 1260		<0.010	<0.010	RPD-NA	ug/g	N/A	40	30-SEP-21
<b>WG3627344-2 LCS</b>								
Aroclor 1242			94.9		%		60-140	30-SEP-21
Aroclor 1248			82.3		%		60-140	30-SEP-21
Aroclor 1254			93.1		%		60-140	30-SEP-21
Aroclor 1260			104.1		%		60-140	30-SEP-21
<b>WG3627344-1 MB</b>								
Aroclor 1242			<0.010		ug/g		0.01	30-SEP-21
Aroclor 1248			<0.010		ug/g		0.01	30-SEP-21
Aroclor 1254			<0.010		ug/g		0.01	30-SEP-21
Aroclor 1260			<0.010		ug/g		0.01	30-SEP-21



### Quality Control Report

Workorder: L2644664

Report Date: 04-OCT-21

Page 9 of 20

Client: MBN ENVIRONMENTAL ENGINEERING INC.  
 29 St. Charles Street, East  
 Maryhill ON N0B 2B0

Contact: DREW STOLTZ

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
<b>PCB-511-WT</b>								
<b>Soil</b>								
<b>Batch R5605703</b>								
<b>WG3627344-1</b>	<b>MB</b>							
Surrogate: d14-Terphenyl			94.7		%		60-140	30-SEP-21
<b>WG3627344-4</b>	<b>MS</b>	<b>WG3627344-5</b>						
Aroclor 1242			98.3		%		60-140	30-SEP-21
Aroclor 1254			89.4		%		60-140	30-SEP-21
Aroclor 1260			109.5		%		60-140	30-SEP-21
<b>PH-WT</b>								
<b>Soil</b>								
<b>Batch R5607228</b>								
<b>WG3628144-1</b>	<b>DUP</b>	<b>L2644574-1</b>						
pH		7.67	7.68	J	pH units	0.01	0.3	04-OCT-21
<b>WG3630660-1</b>	<b>LCS</b>							
pH			6.98		pH units		6.9-7.1	04-OCT-21
<b>SAR-R511-WT</b>								
<b>Soil</b>								
<b>Batch R5605756</b>								
<b>WG3628129-4</b>	<b>DUP</b>	<b>WG3628129-3</b>						
Calcium (Ca)		19.5	19.1		mg/L	2.1	30	30-SEP-21
Sodium (Na)		6.21	6.08		mg/L	2.1	30	30-SEP-21
Magnesium (Mg)		4.12	4.08		mg/L	1.0	30	30-SEP-21
<b>WG3628129-2</b>	<b>IRM</b>	<b>WT SAR4</b>						
Calcium (Ca)			104.7		%		70-130	30-SEP-21
Sodium (Na)			96.0		%		70-130	30-SEP-21
Magnesium (Mg)			106.0		%		70-130	30-SEP-21
<b>WG3628129-5</b>	<b>LCS</b>							
Calcium (Ca)			103.0		%		80-120	30-SEP-21
Sodium (Na)			100.8		%		80-120	30-SEP-21
Magnesium (Mg)			101.4		%		80-120	30-SEP-21
<b>WG3628129-1</b>	<b>MB</b>							
Calcium (Ca)			<0.50		mg/L		0.5	30-SEP-21
Sodium (Na)			<0.50		mg/L		0.5	30-SEP-21
Magnesium (Mg)			<0.50		mg/L		0.5	30-SEP-21
<b>VOC-511-HS-WT</b>								
<b>Soil</b>								
<b>Batch R5605128</b>								
<b>WG3627144-4</b>	<b>DUP</b>	<b>WG3627144-3</b>						
1,1,1,2-Tetrachloroethane		<0.050	<0.050	RPD-NA	ug/g	N/A	40	30-SEP-21
1,1,2,2-Tetrachloroethane		<0.050	<0.050	RPD-NA	ug/g	N/A	40	30-SEP-21
1,1,1-Trichloroethane		<0.050	<0.050	RPD-NA	ug/g	N/A	40	30-SEP-21



### Quality Control Report

Workorder: L2644664

Report Date: 04-OCT-21

Page 10 of 20

Client: MBN ENVIRONMENTAL ENGINEERING INC.  
29 St. Charles Street, East  
Maryhill ON N0B 2B0

Contact: DREW STOLTZ

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
<b>VOC-511-HS-WT</b>								
	<b>Soil</b>							
<b>Batch</b>	<b>R5605128</b>							
<b>WG3627144-4</b>	<b>DUP</b>	<b>WG3627144-3</b>						
1,1,2-Trichloroethane		<0.050	<0.050	RPD-NA	ug/g	N/A	40	30-SEP-21
1,1-Dichloroethane		<0.050	<0.050	RPD-NA	ug/g	N/A	40	30-SEP-21
1,1-Dichloroethylene		<0.050	<0.050	RPD-NA	ug/g	N/A	40	30-SEP-21
1,2-Dibromoethane		<0.050	<0.050	RPD-NA	ug/g	N/A	40	30-SEP-21
1,2-Dichlorobenzene		<0.050	<0.050	RPD-NA	ug/g	N/A	40	30-SEP-21
1,2-Dichloroethane		<0.050	<0.050	RPD-NA	ug/g	N/A	40	30-SEP-21
1,2-Dichloropropane		<0.050	<0.050	RPD-NA	ug/g	N/A	40	30-SEP-21
1,3-Dichlorobenzene		<0.050	<0.050	RPD-NA	ug/g	N/A	40	30-SEP-21
1,4-Dichlorobenzene		<0.050	<0.050	RPD-NA	ug/g	N/A	40	30-SEP-21
Acetone		<0.50	<0.50	RPD-NA	ug/g	N/A	40	30-SEP-21
Benzene		<0.0068	<0.0068	RPD-NA	ug/g	N/A	40	30-SEP-21
Bromodichloromethane		<0.050	<0.050	RPD-NA	ug/g	N/A	40	30-SEP-21
Bromoform		<0.050	<0.050	RPD-NA	ug/g	N/A	40	30-SEP-21
Bromomethane		<0.050	<0.050	RPD-NA	ug/g	N/A	40	30-SEP-21
Carbon tetrachloride		<0.050	<0.050	RPD-NA	ug/g	N/A	40	30-SEP-21
Chlorobenzene		<0.050	<0.050	RPD-NA	ug/g	N/A	40	30-SEP-21
Chloroform		<0.050	<0.050	RPD-NA	ug/g	N/A	40	30-SEP-21
cis-1,2-Dichloroethylene		<0.050	<0.050	RPD-NA	ug/g	N/A	40	30-SEP-21
cis-1,3-Dichloropropene		<0.030	<0.030	RPD-NA	ug/g	N/A	40	30-SEP-21
Dibromochloromethane		<0.050	<0.050	RPD-NA	ug/g	N/A	40	30-SEP-21
Dichlorodifluoromethane		<0.050	<0.050	RPD-NA	ug/g	N/A	40	30-SEP-21
Ethylbenzene		<0.018	<0.018	RPD-NA	ug/g	N/A	40	30-SEP-21
n-Hexane		<0.050	<0.050	RPD-NA	ug/g	N/A	40	30-SEP-21
Methylene Chloride		<0.050	<0.050	RPD-NA	ug/g	N/A	40	30-SEP-21
MTBE		<0.050	<0.050	RPD-NA	ug/g	N/A	40	30-SEP-21
m+p-Xylenes		<0.030	<0.030	RPD-NA	ug/g	N/A	40	30-SEP-21
Methyl Ethyl Ketone		<0.50	<0.50	RPD-NA	ug/g	N/A	40	30-SEP-21
Methyl Isobutyl Ketone		<0.50	<0.50	RPD-NA	ug/g	N/A	40	30-SEP-21
o-Xylene		<0.020	<0.020	RPD-NA	ug/g	N/A	40	30-SEP-21
Styrene		<0.050	<0.050	RPD-NA	ug/g	N/A	40	30-SEP-21
Tetrachloroethylene		<0.050	<0.050	RPD-NA	ug/g	N/A	40	30-SEP-21
Toluene		<0.080	<0.080	RPD-NA	ug/g	N/A	40	30-SEP-21
trans-1,2-Dichloroethylene		<0.050	<0.050		ug/g			30-SEP-21



## Quality Control Report

Workorder: L2644664

Report Date: 04-OCT-21

Page 11 of 20

Client: MBN ENVIRONMENTAL ENGINEERING INC.  
 29 St. Charles Street, East  
 Maryhill ON N0B 2B0

Contact: DREW STOLTZ

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
<b>VOC-511-HS-WT</b>								
	<b>Soil</b>							
<b>Batch</b>	<b>R5605128</b>							
<b>WG3627144-4</b>	<b>DUP</b>	<b>WG3627144-3</b>						
trans-1,2-Dichloroethylene		<0.050	<0.050	RPD-NA	ug/g	N/A	40	30-SEP-21
trans-1,3-Dichloropropene		<0.030	<0.030	RPD-NA	ug/g	N/A	40	30-SEP-21
Trichloroethylene		<0.010	<0.010	RPD-NA	ug/g	N/A	40	30-SEP-21
Trichlorofluoromethane		<0.050	<0.050	RPD-NA	ug/g	N/A	40	30-SEP-21
Vinyl chloride		<0.020	<0.020	RPD-NA	ug/g	N/A	40	30-SEP-21
<b>WG3627144-2</b>	<b>LCS</b>							
1,1,1,2-Tetrachloroethane			93.6		%		60-130	30-SEP-21
1,1,2,2-Tetrachloroethane			77.8		%		60-130	30-SEP-21
1,1,1-Trichloroethane			97.2		%		60-130	30-SEP-21
1,1,2-Trichloroethane			88.2		%		60-130	30-SEP-21
1,1-Dichloroethane			95.4		%		60-130	30-SEP-21
1,1-Dichloroethylene			95.5		%		60-130	30-SEP-21
1,2-Dibromoethane			88.1		%		70-130	30-SEP-21
1,2-Dichlorobenzene			96.1		%		70-130	30-SEP-21
1,2-Dichloroethane			88.6		%		60-130	30-SEP-21
1,2-Dichloropropane			92.2		%		70-130	30-SEP-21
1,3-Dichlorobenzene			103.2		%		70-130	30-SEP-21
1,4-Dichlorobenzene			101.4		%		70-130	30-SEP-21
Acetone			87.8		%		60-140	30-SEP-21
Benzene			93.1		%		70-130	30-SEP-21
Bromodichloromethane			96.8		%		50-140	30-SEP-21
Bromoform			84.0		%		70-130	30-SEP-21
Bromomethane			89.6		%		50-140	30-SEP-21
Carbon tetrachloride			98.4		%		70-130	30-SEP-21
Chlorobenzene			95.8		%		70-130	30-SEP-21
Chloroform			94.8		%		70-130	30-SEP-21
cis-1,2-Dichloroethylene			91.6		%		70-130	30-SEP-21
cis-1,3-Dichloropropene			90.7		%		70-130	30-SEP-21
Dibromochloromethane			92.5		%		60-130	30-SEP-21
Dichlorodifluoromethane			58.7		%		50-140	30-SEP-21
Ethylbenzene			98.8		%		70-130	30-SEP-21
n-Hexane			93.8		%		70-130	30-SEP-21
Methylene Chloride			93.1		%		70-130	30-SEP-21





### Quality Control Report

Workorder: L2644664

Report Date: 04-OCT-21

Page 12 of 20

Client: MBN ENVIRONMENTAL ENGINEERING INC.  
29 St. Charles Street, East  
Maryhill ON N0B 2B0

Contact: DREW STOLTZ

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
<b>VOC-511-HS-WT</b>		<b>Soil</b>						
<b>Batch</b>	<b>R5605128</b>							
<b>WG3627144-2</b>	<b>LCS</b>							
MTBE			94.7		%		70-130	30-SEP-21
m+p-Xylenes			99.8		%		70-130	30-SEP-21
Methyl Ethyl Ketone			78.6		%		60-140	30-SEP-21
Methyl Isobutyl Ketone			68.4		%		60-140	30-SEP-21
o-Xylene			95.8		%		70-130	30-SEP-21
Styrene			95.7		%		70-130	30-SEP-21
Tetrachloroethylene			104.6		%		60-130	30-SEP-21
Toluene			98.9		%		70-130	30-SEP-21
trans-1,2-Dichloroethylene			99.6		%		60-130	30-SEP-21
trans-1,3-Dichloropropene			90.3		%		70-130	30-SEP-21
Trichloroethylene			97.1		%		60-130	30-SEP-21
Trichlorofluoromethane			91.6		%		50-140	30-SEP-21
Vinyl chloride			77.5		%		60-140	30-SEP-21
<b>WG3627144-1</b>	<b>MB</b>							
1,1,1,2-Tetrachloroethane			<0.050		ug/g		0.05	30-SEP-21
1,1,2,2-Tetrachloroethane			<0.050		ug/g		0.05	30-SEP-21
1,1,1-Trichloroethane			<0.050		ug/g		0.05	30-SEP-21
1,1,2-Trichloroethane			<0.050		ug/g		0.05	30-SEP-21
1,1-Dichloroethane			<0.050		ug/g		0.05	30-SEP-21
1,1-Dichloroethylene			<0.050		ug/g		0.05	30-SEP-21
1,2-Dibromoethane			<0.050		ug/g		0.05	30-SEP-21
1,2-Dichlorobenzene			<0.050		ug/g		0.05	30-SEP-21
1,2-Dichloroethane			<0.050		ug/g		0.05	30-SEP-21
1,2-Dichloropropane			<0.050		ug/g		0.05	30-SEP-21
1,3-Dichlorobenzene			<0.050		ug/g		0.05	30-SEP-21
1,4-Dichlorobenzene			<0.050		ug/g		0.05	30-SEP-21
Acetone			<0.50		ug/g		0.5	30-SEP-21
Benzene			<0.0068		ug/g		0.0068	30-SEP-21
Bromodichloromethane			<0.050		ug/g		0.05	30-SEP-21
Bromoform			<0.050		ug/g		0.05	30-SEP-21
Bromomethane			<0.050		ug/g		0.05	30-SEP-21
Carbon tetrachloride			<0.050		ug/g		0.05	30-SEP-21
Chlorobenzene			<0.050		ug/g		0.05	30-SEP-21
Chloroform			<0.050		ug/g		0.05	30-SEP-21



### Quality Control Report

Workorder: L2644664

Report Date: 04-OCT-21

Page 13 of 20

Client: MBN ENVIRONMENTAL ENGINEERING INC.  
29 St. Charles Street, East  
Maryhill ON N0B 2B0

Contact: DREW STOLTZ

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
<b>VOC-511-HS-WT</b>								
	<b>Soil</b>							
<b>Batch</b>	<b>R5605128</b>							
<b>WG3627144-1 MB</b>								
cis-1,2-Dichloroethylene			<0.050		ug/g		0.05	30-SEP-21
cis-1,3-Dichloropropene			<0.030		ug/g		0.03	30-SEP-21
Dibromochloromethane			<0.050		ug/g		0.05	30-SEP-21
Dichlorodifluoromethane			<0.050		ug/g		0.05	30-SEP-21
Ethylbenzene			<0.018		ug/g		0.018	30-SEP-21
n-Hexane			<0.050		ug/g		0.05	30-SEP-21
Methylene Chloride			<0.050		ug/g		0.05	30-SEP-21
MTBE			<0.050		ug/g		0.05	30-SEP-21
m+p-Xylenes			<0.030		ug/g		0.03	30-SEP-21
Methyl Ethyl Ketone			<0.50		ug/g		0.5	30-SEP-21
Methyl Isobutyl Ketone			<0.50		ug/g		0.5	30-SEP-21
o-Xylene			<0.020		ug/g		0.02	30-SEP-21
Styrene			<0.050		ug/g		0.05	30-SEP-21
Tetrachloroethylene			<0.050		ug/g		0.05	30-SEP-21
Toluene			<0.080		ug/g		0.08	30-SEP-21
trans-1,2-Dichloroethylene			<0.050		ug/g		0.05	30-SEP-21
trans-1,3-Dichloropropene			<0.030		ug/g		0.03	30-SEP-21
Trichloroethylene			<0.010		ug/g		0.01	30-SEP-21
Trichlorofluoromethane			<0.050		ug/g		0.05	30-SEP-21
Vinyl chloride			<0.020		ug/g		0.02	30-SEP-21
Surrogate: 1,4-Difluorobenzene			101.6		%		50-140	30-SEP-21
Surrogate: 4-Bromofluorobenzene			99.5		%		50-140	30-SEP-21
<b>WG3627144-5 MS</b>		<b>WG3627144-3</b>						
1,1,1,2-Tetrachloroethane			96.9		%		50-140	30-SEP-21
1,1,1,2,2-Tetrachloroethane			89.1		%		50-140	30-SEP-21
1,1,1-Trichloroethane			99.5		%		50-140	30-SEP-21
1,1,2-Trichloroethane			92.6		%		50-140	30-SEP-21
1,1-Dichloroethane			97.9		%		50-140	30-SEP-21
1,1-Dichloroethylene			102.2		%		50-140	30-SEP-21
1,2-Dibromoethane			91.5		%		50-140	30-SEP-21
1,2-Dichlorobenzene			97.4		%		50-140	30-SEP-21
1,2-Dichloroethane			93.1		%		50-140	30-SEP-21
1,2-Dichloropropane			96.3		%		50-140	30-SEP-21
1,3-Dichlorobenzene			100.7		%		50-140	30-SEP-21



### Quality Control Report

Workorder: L2644664

Report Date: 04-OCT-21

Page 14 of 20

Client: MBN ENVIRONMENTAL ENGINEERING INC.  
29 St. Charles Street, East  
Maryhill ON N0B 2B0

Contact: DREW STOLTZ

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
<b>VOC-511-HS-WT</b>								
	<b>Soil</b>							
<b>Batch</b>	<b>R5605128</b>							
<b>WG3627144-5 MS</b>		<b>WG3627144-3</b>						
1,4-Dichlorobenzene			99.4		%		50-140	30-SEP-21
Acetone			101.0		%		50-140	30-SEP-21
Benzene			95.7		%		50-140	30-SEP-21
Bromodichloromethane			101.7		%		50-140	30-SEP-21
Bromoform			91.1		%		50-140	30-SEP-21
Bromomethane			103.5		%		50-140	30-SEP-21
Carbon tetrachloride			100.8		%		50-140	30-SEP-21
Chlorobenzene			97.3		%		50-140	30-SEP-21
Chloroform			97.4		%		50-140	30-SEP-21
cis-1,2-Dichloroethylene			93.2		%		50-140	30-SEP-21
cis-1,3-Dichloropropene			96.6		%		50-140	30-SEP-21
Dibromochloromethane			95.5		%		50-140	30-SEP-21
Dichlorodifluoromethane			104.8		%		50-140	30-SEP-21
Ethylbenzene			98.0		%		50-140	30-SEP-21
n-Hexane			102.3		%		50-140	30-SEP-21
Methylene Chloride			96.4		%		50-140	30-SEP-21
MTBE			98.4		%		50-140	30-SEP-21
m+p-Xylenes			99.2		%		50-140	30-SEP-21
Methyl Ethyl Ketone			88.0		%		50-140	30-SEP-21
Methyl Isobutyl Ketone			79.3		%		50-140	30-SEP-21
o-Xylene			96.5		%		50-140	30-SEP-21
Styrene			98.3		%		50-140	30-SEP-21
Tetrachloroethylene			101.2		%		50-140	30-SEP-21
Toluene			97.4		%		50-140	30-SEP-21
trans-1,2-Dichloroethylene			101.8		%		50-140	30-SEP-21
trans-1,3-Dichloropropene			96.1		%		50-140	30-SEP-21
Trichloroethylene			98.1		%		50-140	30-SEP-21
Trichlorofluoromethane			101.8		%		50-140	30-SEP-21
Vinyl chloride			94.1		%		50-140	30-SEP-21
<b>Batch</b>	<b>R5605393</b>							
<b>WG3627728-4 DUP</b>		<b>WG3627728-3</b>						
1,1,1,2-Tetrachloroethane		<0.050	<0.050	RPD-NA	ug/g	N/A	40	30-SEP-21
1,1,2,2-Tetrachloroethane		<0.050	<0.050	RPD-NA	ug/g	N/A	40	30-SEP-21
1,1,1-Trichloroethane		<0.050	<0.050		ug/g			30-SEP-21



### Quality Control Report

Workorder: L2644664

Report Date: 04-OCT-21

Page 15 of 20

Client: MBN ENVIRONMENTAL ENGINEERING INC.  
29 St. Charles Street, East  
Maryhill ON N0B 2B0

Contact: DREW STOLTZ

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
<b>VOC-511-HS-WT</b>		<b>Soil</b>						
<b>Batch</b>	<b>R5605393</b>							
<b>WG3627728-4</b>	<b>DUP</b>	<b>WG3627728-3</b>						
1,1,1-Trichloroethane		<0.050	<0.050	RPD-NA	ug/g	N/A	40	30-SEP-21
1,1,2-Trichloroethane		<0.050	<0.050	RPD-NA	ug/g	N/A	40	30-SEP-21
1,1-Dichloroethane		<0.050	<0.050	RPD-NA	ug/g	N/A	40	30-SEP-21
1,1-Dichloroethylene		<0.050	<0.050	RPD-NA	ug/g	N/A	40	30-SEP-21
1,2-Dibromoethane		<0.050	<0.050	RPD-NA	ug/g	N/A	40	30-SEP-21
1,2-Dichlorobenzene		<0.050	<0.050	RPD-NA	ug/g	N/A	40	30-SEP-21
1,2-Dichloroethane		<0.050	<0.050	RPD-NA	ug/g	N/A	40	30-SEP-21
1,2-Dichloropropane		<0.050	<0.050	RPD-NA	ug/g	N/A	40	30-SEP-21
1,3-Dichlorobenzene		<0.050	<0.050	RPD-NA	ug/g	N/A	40	30-SEP-21
1,4-Dichlorobenzene		<0.050	<0.050	RPD-NA	ug/g	N/A	40	30-SEP-21
Acetone		<0.50	<0.50	RPD-NA	ug/g	N/A	40	30-SEP-21
Benzene		<0.0068	<0.0068	RPD-NA	ug/g	N/A	40	30-SEP-21
Bromodichloromethane		<0.050	<0.050	RPD-NA	ug/g	N/A	40	30-SEP-21
Bromoform		<0.050	<0.050	RPD-NA	ug/g	N/A	40	30-SEP-21
Bromomethane		<0.050	<0.050	RPD-NA	ug/g	N/A	40	30-SEP-21
Carbon tetrachloride		<0.050	<0.050	RPD-NA	ug/g	N/A	40	30-SEP-21
Chlorobenzene		<0.050	<0.050	RPD-NA	ug/g	N/A	40	30-SEP-21
Chloroform		<0.050	<0.050	RPD-NA	ug/g	N/A	40	30-SEP-21
cis-1,2-Dichloroethylene		<0.050	<0.050	RPD-NA	ug/g	N/A	40	30-SEP-21
cis-1,3-Dichloropropene		<0.030	<0.030	RPD-NA	ug/g	N/A	40	30-SEP-21
Dibromochloromethane		<0.050	<0.050	RPD-NA	ug/g	N/A	40	30-SEP-21
Dichlorodifluoromethane		<0.050	<0.050	RPD-NA	ug/g	N/A	40	30-SEP-21
Ethylbenzene		<0.018	<0.018	RPD-NA	ug/g	N/A	40	30-SEP-21
n-Hexane		<0.050	<0.050	RPD-NA	ug/g	N/A	40	30-SEP-21
Methylene Chloride		<0.050	<0.050	RPD-NA	ug/g	N/A	40	30-SEP-21
MTBE		<0.050	<0.050	RPD-NA	ug/g	N/A	40	30-SEP-21
m+p-Xylenes		<0.030	<0.030	RPD-NA	ug/g	N/A	40	30-SEP-21
Methyl Ethyl Ketone		<0.50	<0.50	RPD-NA	ug/g	N/A	40	30-SEP-21
Methyl Isobutyl Ketone		<0.50	<0.50	RPD-NA	ug/g	N/A	40	30-SEP-21
o-Xylene		<0.020	<0.020	RPD-NA	ug/g	N/A	40	30-SEP-21
Styrene		<0.050	<0.050	RPD-NA	ug/g	N/A	40	30-SEP-21
Tetrachloroethylene		<0.050	<0.050	RPD-NA	ug/g	N/A	40	30-SEP-21
Toluene		<0.080	<0.080		ug/g			30-SEP-21



## Quality Control Report

Workorder: L2644664

Report Date: 04-OCT-21

Page 16 of 20

Client: MBN ENVIRONMENTAL ENGINEERING INC.  
 29 St. Charles Street, East  
 Maryhill ON N0B 2B0

Contact: DREW STOLTZ

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
<b>VOC-511-HS-WT</b>		<b>Soil</b>						
<b>Batch</b>	<b>R5605393</b>							
<b>WG3627728-4</b>	<b>DUP</b>	<b>WG3627728-3</b>						
Toluene		<0.080	<0.080	RPD-NA	ug/g	N/A	40	30-SEP-21
trans-1,2-Dichloroethylene		<0.050	<0.050	RPD-NA	ug/g	N/A	40	30-SEP-21
trans-1,3-Dichloropropene		<0.030	<0.030	RPD-NA	ug/g	N/A	40	30-SEP-21
Trichloroethylene		<0.010	<0.010	RPD-NA	ug/g	N/A	40	30-SEP-21
Trichlorofluoromethane		<0.050	<0.050	RPD-NA	ug/g	N/A	40	30-SEP-21
Vinyl chloride		<0.020	<0.020	RPD-NA	ug/g	N/A	40	30-SEP-21
<b>WG3627728-2</b>	<b>LCS</b>							
1,1,1,2-Tetrachloroethane			86.8		%		60-130	30-SEP-21
1,1,1,2,2-Tetrachloroethane			84.6		%		60-130	30-SEP-21
1,1,1-Trichloroethane			87.6		%		60-130	30-SEP-21
1,1,2-Trichloroethane			88.9		%		60-130	30-SEP-21
1,1-Dichloroethane			84.4		%		60-130	30-SEP-21
1,1-Dichloroethylene			84.5		%		60-130	30-SEP-21
1,2-Dibromoethane			86.9		%		70-130	30-SEP-21
1,2-Dichlorobenzene			86.3		%		70-130	30-SEP-21
1,2-Dichloroethane			82.8		%		60-130	30-SEP-21
1,2-Dichloropropane			83.3		%		70-130	30-SEP-21
1,3-Dichlorobenzene			85.5		%		70-130	30-SEP-21
1,4-Dichlorobenzene			84.3		%		70-130	30-SEP-21
Acetone			81.9		%		60-140	30-SEP-21
Benzene			83.9		%		70-130	30-SEP-21
Bromodichloromethane			90.9		%		50-140	30-SEP-21
Bromoform			84.5		%		70-130	30-SEP-21
Bromomethane			86.5		%		50-140	30-SEP-21
Carbon tetrachloride			88.2		%		70-130	30-SEP-21
Chlorobenzene			86.1		%		70-130	30-SEP-21
Chloroform			86.6		%		70-130	30-SEP-21
cis-1,2-Dichloroethylene			88.8		%		70-130	30-SEP-21
cis-1,3-Dichloropropene			81.1		%		70-130	30-SEP-21
Dibromochloromethane			84.8		%		60-130	30-SEP-21
Dichlorodifluoromethane			64.6		%		50-140	30-SEP-21
Ethylbenzene			84.5		%		70-130	30-SEP-21
n-Hexane			76.6		%		70-130	30-SEP-21



### Quality Control Report

Workorder: L2644664

Report Date: 04-OCT-21

Page 17 of 20

Client: MBN ENVIRONMENTAL ENGINEERING INC.  
29 St. Charles Street, East  
Maryhill ON N0B 2B0

Contact: DREW STOLTZ

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
<b>VOC-511-HS-WT</b>		<b>Soil</b>						
<b>Batch</b>	<b>R5605393</b>							
<b>WG3627728-2</b>	<b>LCS</b>							
Methylene Chloride			81.4		%		70-130	30-SEP-21
MTBE			83.6		%		70-130	30-SEP-21
m+p-Xylenes			84.6		%		70-130	30-SEP-21
Methyl Ethyl Ketone			79.9		%		60-140	30-SEP-21
Methyl Isobutyl Ketone			72.7		%		60-140	30-SEP-21
o-Xylene			84.8		%		70-130	30-SEP-21
Styrene			85.8		%		70-130	30-SEP-21
Tetrachloroethylene			90.9		%		60-130	30-SEP-21
Toluene			88.5		%		70-130	30-SEP-21
trans-1,2-Dichloroethylene			79.3		%		60-130	30-SEP-21
trans-1,3-Dichloropropene			82.2		%		70-130	30-SEP-21
Trichloroethylene			88.5		%		60-130	30-SEP-21
Trichlorofluoromethane			81.8		%		50-140	30-SEP-21
Vinyl chloride			71.0		%		60-140	30-SEP-21
<b>WG3627728-1</b>	<b>MB</b>							
1,1,1,2-Tetrachloroethane			<0.050		ug/g		0.05	30-SEP-21
1,1,1,2,2-Tetrachloroethane			<0.050		ug/g		0.05	30-SEP-21
1,1,1-Trichloroethane			<0.050		ug/g		0.05	30-SEP-21
1,1,2-Trichloroethane			<0.050		ug/g		0.05	30-SEP-21
1,1-Dichloroethane			<0.050		ug/g		0.05	30-SEP-21
1,1-Dichloroethylene			<0.050		ug/g		0.05	30-SEP-21
1,2-Dibromoethane			<0.050		ug/g		0.05	30-SEP-21
1,2-Dichlorobenzene			<0.050		ug/g		0.05	30-SEP-21
1,2-Dichloroethane			<0.050		ug/g		0.05	30-SEP-21
1,2-Dichloropropane			<0.050		ug/g		0.05	30-SEP-21
1,3-Dichlorobenzene			<0.050		ug/g		0.05	30-SEP-21
1,4-Dichlorobenzene			<0.050		ug/g		0.05	30-SEP-21
Acetone			<0.50		ug/g		0.5	30-SEP-21
Benzene			<0.0068		ug/g		0.0068	30-SEP-21
Bromodichloromethane			<0.050		ug/g		0.05	30-SEP-21
Bromoform			<0.050		ug/g		0.05	30-SEP-21
Bromomethane			<0.050		ug/g		0.05	30-SEP-21
Carbon tetrachloride			<0.050		ug/g		0.05	30-SEP-21
Chlorobenzene			<0.050		ug/g		0.05	30-SEP-21



### Quality Control Report

Workorder: L2644664

Report Date: 04-OCT-21

Page 18 of 20

Client: MBN ENVIRONMENTAL ENGINEERING INC.  
29 St. Charles Street, East  
Maryhill ON N0B 2B0

Contact: DREW STOLTZ

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
<b>VOC-511-HS-WT</b>								
	<b>Soil</b>							
<b>Batch</b>	<b>R5605393</b>							
<b>WG3627728-1</b>	<b>MB</b>							
Chloroform			<0.050		ug/g		0.05	30-SEP-21
cis-1,2-Dichloroethylene			<0.050		ug/g		0.05	30-SEP-21
cis-1,3-Dichloropropene			<0.030		ug/g		0.03	30-SEP-21
Dibromochloromethane			<0.050		ug/g		0.05	30-SEP-21
Dichlorodifluoromethane			<0.050		ug/g		0.05	30-SEP-21
Ethylbenzene			<0.018		ug/g		0.018	30-SEP-21
n-Hexane			<0.050		ug/g		0.05	30-SEP-21
Methylene Chloride			<0.050		ug/g		0.05	30-SEP-21
MTBE			<0.050		ug/g		0.05	30-SEP-21
m+p-Xylenes			<0.030		ug/g		0.03	30-SEP-21
Methyl Ethyl Ketone			<0.50		ug/g		0.5	30-SEP-21
Methyl Isobutyl Ketone			<0.50		ug/g		0.5	30-SEP-21
o-Xylene			<0.020		ug/g		0.02	30-SEP-21
Styrene			<0.050		ug/g		0.05	30-SEP-21
Tetrachloroethylene			<0.050		ug/g		0.05	30-SEP-21
Toluene			<0.080		ug/g		0.08	30-SEP-21
trans-1,2-Dichloroethylene			<0.050		ug/g		0.05	30-SEP-21
trans-1,3-Dichloropropene			<0.030		ug/g		0.03	30-SEP-21
Trichloroethylene			<0.010		ug/g		0.01	30-SEP-21
Trichlorofluoromethane			<0.050		ug/g		0.05	30-SEP-21
Vinyl chloride			<0.020		ug/g		0.02	30-SEP-21
Surrogate: 1,4-Difluorobenzene			106.1		%		50-140	30-SEP-21
Surrogate: 4-Bromofluorobenzene			100.6		%		50-140	30-SEP-21
<b>WG3627728-5</b>	<b>MS</b>	<b>WG3627728-3</b>						
1,1,1,2-Tetrachloroethane			104.7		%		50-140	30-SEP-21
1,1,1,2-Tetrachloroethane			100.9		%		50-140	30-SEP-21
1,1,1-Trichloroethane			109.2		%		50-140	30-SEP-21
1,1,2-Trichloroethane			107.8		%		50-140	30-SEP-21
1,1-Dichloroethane			105.3		%		50-140	30-SEP-21
1,1-Dichloroethylene			109.3		%		50-140	30-SEP-21
1,2-Dibromoethane			104.9		%		50-140	30-SEP-21
1,2-Dichlorobenzene			101.7		%		50-140	30-SEP-21
1,2-Dichloroethane			102.6		%		50-140	30-SEP-21
1,2-Dichloropropane			101.9		%		50-140	30-SEP-21



## Quality Control Report

Workorder: L2644664

Report Date: 04-OCT-21

Page 19 of 20

Client: MBN ENVIRONMENTAL ENGINEERING INC.  
 29 St. Charles Street, East  
 Maryhill ON N0B 2B0

Contact: DREW STOLTZ

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
<b>VOC-511-HS-WT</b>	<b>Soil</b>							
<b>Batch</b>	<b>R5605393</b>							
<b>WG3627728-5 MS</b>		<b>WG3627728-3</b>						
1,3-Dichlorobenzene			101.2		%		50-140	30-SEP-21
1,4-Dichlorobenzene			99.2		%		50-140	30-SEP-21
Acetone			106.3		%		50-140	30-SEP-21
Benzene			103.8		%		50-140	30-SEP-21
Bromodichloromethane			111.5		%		50-140	30-SEP-21
Bromoform			101.8		%		50-140	30-SEP-21
Bromomethane			115.4		%		50-140	30-SEP-21
Carbon tetrachloride			109.9		%		50-140	30-SEP-21
Chlorobenzene			104.1		%		50-140	30-SEP-21
Chloroform			107.2		%		50-140	30-SEP-21
cis-1,2-Dichloroethylene			110.5		%		50-140	30-SEP-21
cis-1,3-Dichloropropene			96.4		%		50-140	30-SEP-21
Dibromochloromethane			102.7		%		50-140	30-SEP-21
Dichlorodifluoromethane			118.1		%		50-140	30-SEP-21
Ethylbenzene			102.5		%		50-140	30-SEP-21
n-Hexane			102.4		%		50-140	30-SEP-21
Methylene Chloride			102.7		%		50-140	30-SEP-21
MTBE			96.5		%		50-140	30-SEP-21
m+p-Xylenes			102.1		%		50-140	30-SEP-21
Methyl Ethyl Ketone			96.4		%		50-140	30-SEP-21
Methyl Isobutyl Ketone			88.4		%		50-140	30-SEP-21
o-Xylene			102.3		%		50-140	30-SEP-21
Styrene			104.3		%		50-140	30-SEP-21
Tetrachloroethylene			110.8		%		50-140	30-SEP-21
Toluene			108.1		%		50-140	30-SEP-21
trans-1,2-Dichloroethylene			99.7		%		50-140	30-SEP-21
trans-1,3-Dichloropropene			95.8		%		50-140	30-SEP-21
Trichloroethylene			108.7		%		50-140	30-SEP-21
Trichlorofluoromethane			109.6		%		50-140	30-SEP-21
Vinyl chloride			100.2		%		50-140	30-SEP-21



# Quality Control Report

Workorder: L2644664

Report Date: 04-OCT-21

Client: MBN ENVIRONMENTAL ENGINEERING INC.  
29 St. Charles Street, East  
Maryhill ON N0B 2B0

Page 20 of 20

Contact: DREW STOLTZ

## 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.

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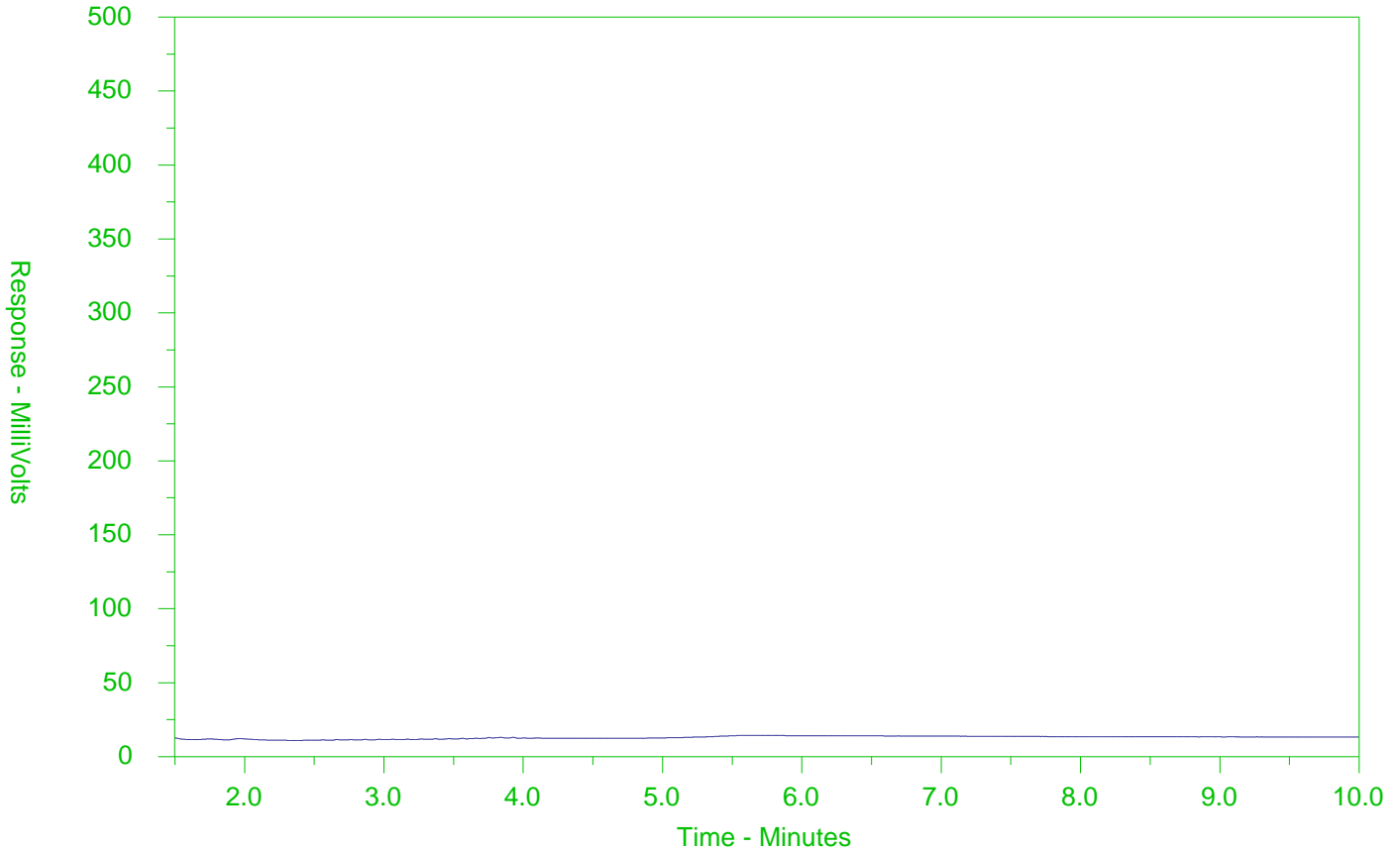
The ALS Quality Control Report is provided to ALS clients upon request. ALS includes comprehensive QC checks with every analysis to ensure our high standards of quality are met. Each QC result has a known or expected target value, which is compared against pre-determined data quality objectives to provide 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: L2644664-1  
 Client Sample ID: GAMMA-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.

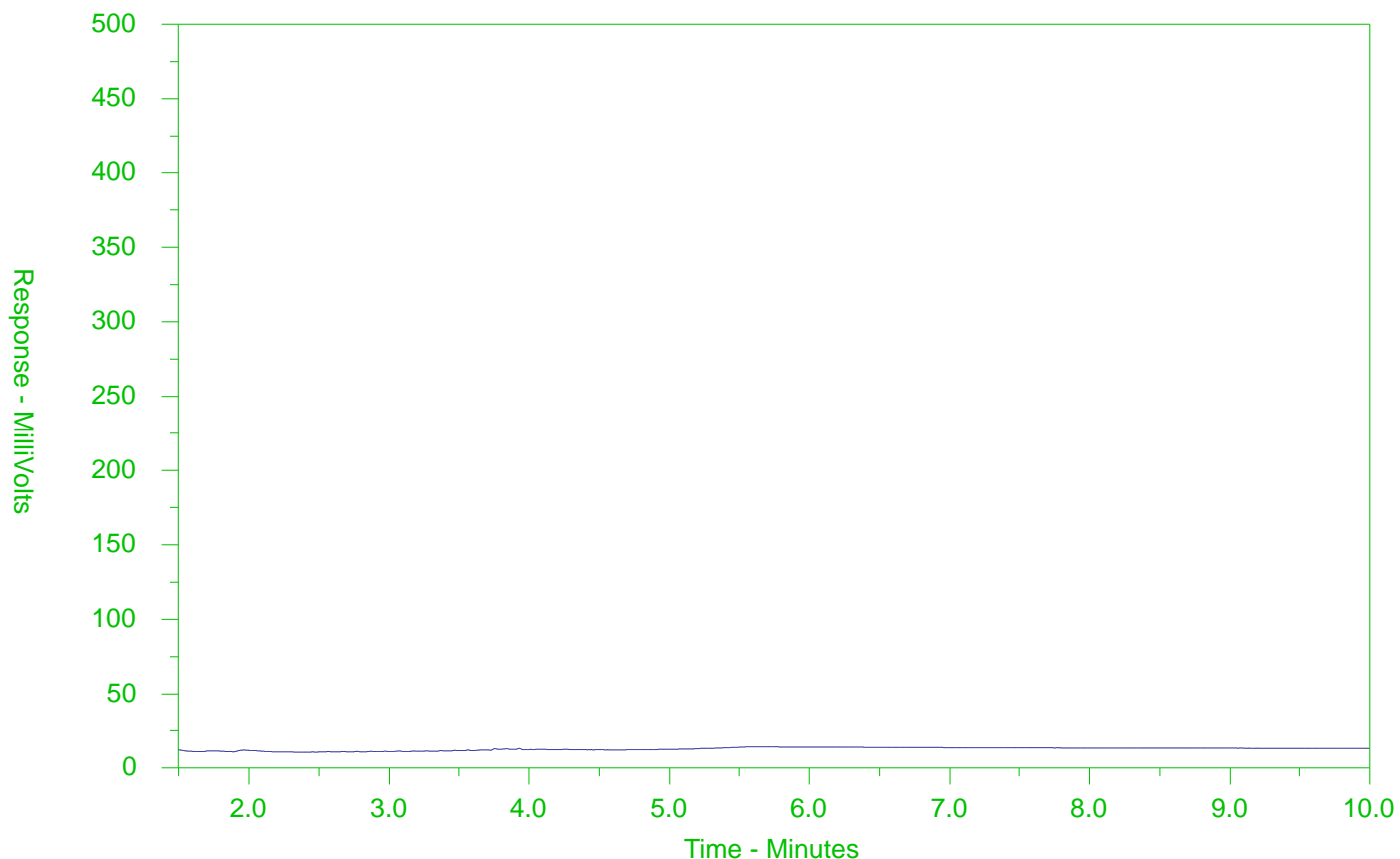
Peak heights in this report are a function of the sample concentration, the sample amount extracted, the sample dilution factor and the scale at the left.

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

# CCME F2-F4 HYDROCARBON DISTRIBUTION REPORT



ALS Sample ID: L2644664-3  
 Client Sample ID: GAMMA-3



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

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

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

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



www.alsglobal.com



L2644664-COFC

(COC) / Analytical Request Form

a Toll Free: 1 800 668 9878

COC Number: 20 - 398275

Page 1 of 1

<b>Report To</b> Company: <b>MAN ENVIRONMENTAL</b> Contact: <b>DREW STOLTZ</b> Phone: <b>519-804-7408</b> Street: <b>29 ST. CHARLES ST. E.</b> City/Province: <b>MARYHILL, ON</b> Postal Code: <b>N0B 2B0</b>		<b>Reports / Recipients</b> Select Report Format: <input checked="" type="checkbox"/> PDF <input checked="" type="checkbox"/> EXCEL <input type="checkbox"/> EDD (DIGITAL) Merge QC/QCI Reports with COA <input checked="" type="checkbox"/> YES <input type="checkbox"/> NO <input type="checkbox"/> N/A <input checked="" type="checkbox"/> Compare Results to Criteria on Report - provide details below if box checked Select Distribution: <input checked="" type="checkbox"/> EMAIL <input type="checkbox"/> MAIL <input type="checkbox"/> FAX Email 1 or Fax: <b>dstoltz@manenvironmental.com</b> Email 2 Email 3		<b>Turnaround Time (TAT) Requested</b> <input checked="" type="checkbox"/> Routine [R] if received by 3pm M-F - no surcharges apply <input type="checkbox"/> 4 day [P4] if received by 3pm M-F - 20% rush surcharge minimum <input type="checkbox"/> 3 day [P3] if received by 3pm M-F - 25% rush surcharge minimum <input type="checkbox"/> 2 day [P2] if received by 3pm M-F - 50% rush surcharge minimum <input type="checkbox"/> 1 day [E] if received by 3pm M-F - 100% rush surcharge minimum <input type="checkbox"/> Same day [E2] if received by 10am M-S - 200% rush surcharge. Additional fees may apply to rush requests on weekends, statutory holidays and non-routine tests		<b>AFFIX ALS BARCODE LABEL HERE (ALS use only)</b>																																	
<b>Invoice To</b> Same as Report To <input checked="" type="checkbox"/> YES <input type="checkbox"/> NO Copy of Invoice with Report <input type="checkbox"/> YES <input checked="" type="checkbox"/> NO Company: <b>AS ABOVE</b> Contact:		<b>Invoice Recipients</b> Select Invoice Distribution: <input checked="" type="checkbox"/> EMAIL <input type="checkbox"/> MAIL <input type="checkbox"/> FAX Email 1 or Fax: <b>AS ABOVE</b> Email 2		<b>Date and Time Required for all E&amp;P TATs:</b>																																			
<b>Project Information</b> ALS Account # / Quote #: <b>MAN-21-693</b> Job #: <b>MAN-21-693</b> PO / AFE: LSD:		<b>Oil and Gas Required Fields (client use)</b> AFE/Cost Center: Major/Minor Code: Requisitioner: Location:		<b>Analysis Request</b> Indicate Filtered (F), Preserved (P) or Filtered and Preserved (F/P) below		<table border="1"> <tr> <td rowspan="7">NUMBER OF CONTAINERS</td> <td>VOL / PHCL (F)</td> <td>PHCL (F) / PAH</td> <td>PCB</td> <td>METALS / INORGANICS</td> <td rowspan="7">SAMPLES ON HOLD</td> <td rowspan="7">EXTENDED STORAGE REQUIRED</td> <td rowspan="7">SUSPECTED HAZARD (see notes)</td> </tr> <tr><td>5</td><td>5</td><td>5</td><td>5</td></tr> <tr><td>5</td><td>5</td><td>5</td><td>5</td></tr> <tr><td>5</td><td>5</td><td>5</td><td>5</td></tr> <tr><td>5</td><td>5</td><td>5</td><td>5</td></tr> <tr><td>5</td><td>5</td><td>5</td><td>5</td></tr> <tr><td>5</td><td>5</td><td>5</td><td>5</td></tr> </table>		NUMBER OF CONTAINERS	VOL / PHCL (F)	PHCL (F) / PAH	PCB	METALS / INORGANICS	SAMPLES ON HOLD	EXTENDED STORAGE REQUIRED	SUSPECTED HAZARD (see notes)	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5
NUMBER OF CONTAINERS	VOL / PHCL (F)	PHCL (F) / PAH	PCB	METALS / INORGANICS	SAMPLES ON HOLD				EXTENDED STORAGE REQUIRED	SUSPECTED HAZARD (see notes)																													
	5	5	5	5																																			
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	5	5	5	5																																			
	5	5	5	5																																			
ALS Lab Work Order # (ALS use only): <b>L2644664</b>		ALS Contact: <b>EH</b>		Sampler: <b>D. STOLTZ</b>																																			
ALS Sample # (ALS use only)		Sample Identification and/or Coordinates (This description will appear on the report)		Date (dd-mmm-yy)		Time (hh:mm)																																	
		Gamma-1		28-SEP-21		SOIL																																	
		Gamma-2																																					
		Gamma-3																																					
		Gamma-4																																					
		Gamma-5																																					
		Gamma-6																																					
<b>Drinking Water (DW) Samples (client use)</b>		Notes / Specify Limits for result evaluation by selecting from drop-down below (Excel COC only)		<b>SAMPLE RECEIPT DETAILS (ALS use only)</b>																																			
Are samples taken from a Regulated DW System? <input type="checkbox"/> YES <input checked="" type="checkbox"/> NO		<b>* T2 RES</b>		Cooling Method: <input type="checkbox"/> NONE <input type="checkbox"/> ICE <input checked="" type="checkbox"/> ICE PACKS <input type="checkbox"/> FROZEN <input type="checkbox"/> COOLING INITIATED																																			
Are samples for human consumption/ use? <input type="checkbox"/> YES <input checked="" type="checkbox"/> NO				Submission Comments identified on Sample Receipt Notification: <input type="checkbox"/> YES <input type="checkbox"/> NO																																			
				Cooler Custody Seals Intact: <input type="checkbox"/> YES <input type="checkbox"/> N/A Sample Custody Seals Intact: <input type="checkbox"/> YES <input type="checkbox"/> N/A																																			
				INITIAL COOLER TEMPERATURES °C: <b>12.4</b> FINAL COOLER TEMPERATURES °C:																																			
<b>SHIPMENT RELEASE (client use)</b>		<b>INITIAL SHIPMENT RECEPTION (ALS use only)</b>		<b>FINAL SHIPMENT RECEPTION (ALS use only)</b>																																			
Released by: <b>Drew Stoltz</b> Date: <b>9/28/21</b> Time: <b>1445</b>		Received by: <b>[Signature]</b> Date: <b>9/28/21</b> Time: <b>15:00</b>		Received by: <b>[Signature]</b> Date: <b>9/28/21</b> Time: <b>15:00</b>																																			

REFER TO BACK PAGE FOR ALS LOCATIONS AND SAMPLING INFORMATION WHITE - LABORATORY COPY YELLOW - CLIENT COPY Failure to complete all portions of this form may delay analysis. Please fill in this form LEGIBLY. By the use of this form the user acknowledges and agrees with the Terms and Conditions as specified on the back page of the white - report copy. 1. If any water samples are taken from a Regulated Drinking Water (DW) System, please submit using an Authorized DW COC form.



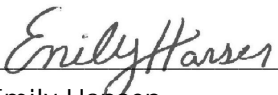
MBN ENVIRONMENTAL ENGINEERING INC.  
ATTN: DREW STOLTZ  
29 St. Charles Street, East  
Maryhill ON NOB 2B0

Date Received: 11-NOV-21  
Report Date: 19-NOV-21 08:55 (MT)  
Version: FINAL

Client Phone: 519-804-7408

## Certificate of Analysis

Lab Work Order #: L2661783  
Project P.O. #: NOT SUBMITTED  
Job Reference: MBN-21-693  
C of C Numbers: 20-895531  
Legal Site Desc:

  
\_\_\_\_\_  
Emily Hansen  
Account Manager

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ADDRESS: 60 Northland Road, Unit 1, Waterloo, ON N2V 2B8 Canada | Phone: +1 519 886 6910 | Fax: +1 519 886 9047  
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# ANALYTICAL GUIDELINE REPORT

MBN-21-693

Sample Details		Result	Qualifier	D.L.	Units	Analyzed	Guideline Limits				
Grouping	Analyte										
L2661783-1	GAMMA-2A										
Sampled By: D. STOLTZ on 11-NOV-21											
Matrix: SOIL											
<b>Physical Tests</b>											
Conductivity		0.153		0.0040	mS/cm	17-NOV-21	0.7				
% Moisture		7.66		0.25	%	12-NOV-21					
pH		7.59		0.10	pH units	18-NOV-21					
<b>Cyanides</b>											
Cyanide, Weak Acid Diss		<0.050		0.050	ug/g	16-NOV-21	0.051				
<b>Saturated Paste Extractables</b>											
SAR		<0.10		0.10	SAR	16-NOV-21	5				
Calcium (Ca)		13.9		0.50	mg/L	16-NOV-21					
Magnesium (Mg)		2.38		0.50	mg/L	16-NOV-21					
Sodium (Na)		1.17		0.50	mg/L	16-NOV-21					
<b>Metals</b>											
Antimony (Sb)		<1.0		1.0	ug/g	16-NOV-21	7.5				
Arsenic (As)		2.8		1.0	ug/g	16-NOV-21	18				
Barium (Ba)		32.5		1.0	ug/g	16-NOV-21	390				
Beryllium (Be)		<0.50		0.50	ug/g	16-NOV-21	4				
Boron (B)		<5.0		5.0	ug/g	16-NOV-21	120				
Boron (B), Hot Water Ext.		<0.10		0.10	ug/g	16-NOV-21	1.5				
Cadmium (Cd)		0.53		0.50	ug/g	16-NOV-21	1.2				
Chromium (Cr)		12.5		1.0	ug/g	16-NOV-21	160				
Cobalt (Co)		4.0		1.0	ug/g	16-NOV-21	22				
Copper (Cu)		13.3		1.0	ug/g	16-NOV-21	140				
Lead (Pb)		30.8		1.0	ug/g	16-NOV-21	120				
Mercury (Hg)		0.0238		0.0050	ug/g	16-NOV-21	0.27				
Molybdenum (Mo)		<1.0		1.0	ug/g	16-NOV-21	6.9				
Nickel (Ni)		8.5		1.0	ug/g	16-NOV-21	100				
Selenium (Se)		<1.0		1.0	ug/g	16-NOV-21	2.4				
Silver (Ag)		<0.20		0.20	ug/g	16-NOV-21	20				
Thallium (Tl)		<0.50		0.50	ug/g	16-NOV-21	1				
Uranium (U)		<1.0		1.0	ug/g	16-NOV-21	23				
Vanadium (V)		20.2		1.0	ug/g	16-NOV-21	86				
Zinc (Zn)		222		5.0	ug/g	16-NOV-21	340				
<b>Speciated Metals</b>											
Chromium, Hexavalent		0.35		0.20	ug/g	18-NOV-21	8				
L2661783-2	GAMMA-2B										
Sampled By: D. STOLTZ on 11-NOV-21											
Matrix: SOIL											
<b>Physical Tests</b>											
Conductivity		0.181		0.0040	mS/cm	17-NOV-21	0.7				
% Moisture		11.7		0.25	%	12-NOV-21					
pH		7.43		0.10	pH units	18-NOV-21					
<b>Cyanides</b>											
Cyanide, Weak Acid Diss		<0.050		0.050	ug/g	16-NOV-21	0.051				
<b>Saturated Paste Extractables</b>											
SAR		<0.10		0.10	SAR	16-NOV-21	5				

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

\* Analytical result for this parameter exceeds Guideline Limit listed on this report. Guideline Limits applied:

**T2-Soil-Res/Park/Inst. Property Use (Coarse)**

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



# ANALYTICAL GUIDELINE REPORT

MBN-21-693

Sample Details		Result	Qualifier	D.L.	Units	Analyzed	Guideline Limits		
Grouping	Analyte								
L2661783-2	GAMMA-2B								
Sampled By: D. STOLTZ on 11-NOV-21									
Matrix: SOIL									
<b>Saturated Paste Extractables</b>									
Calcium (Ca)		19.0		0.50	mg/L	16-NOV-21			
Magnesium (Mg)		3.78		0.50	mg/L	16-NOV-21			
Sodium (Na)		0.90		0.50	mg/L	16-NOV-21			
<b>Metals</b>									
Antimony (Sb)		<1.0		1.0	ug/g	16-NOV-21	7.5		
Arsenic (As)		3.7		1.0	ug/g	16-NOV-21	18		
Barium (Ba)		46.3		1.0	ug/g	16-NOV-21	390		
Beryllium (Be)		<0.50		0.50	ug/g	16-NOV-21	4		
Boron (B)		5.8		5.0	ug/g	16-NOV-21	120		
Boron (B), Hot Water Ext.		0.13		0.10	ug/g	16-NOV-21	1.5		
Cadmium (Cd)		0.63		0.50	ug/g	16-NOV-21	1.2		
Chromium (Cr)		17.1		1.0	ug/g	16-NOV-21	160		
Cobalt (Co)		4.7		1.0	ug/g	16-NOV-21	22		
Copper (Cu)		14.5		1.0	ug/g	16-NOV-21	140		
Lead (Pb)		38.1		1.0	ug/g	16-NOV-21	120		
Mercury (Hg)		0.0367		0.0050	ug/g	16-NOV-21	0.27		
Molybdenum (Mo)		<1.0		1.0	ug/g	16-NOV-21	6.9		
Nickel (Ni)		10.1		1.0	ug/g	16-NOV-21	100		
Selenium (Se)		<1.0		1.0	ug/g	16-NOV-21	2.4		
Silver (Ag)		<0.20		0.20	ug/g	16-NOV-21	20		
Thallium (Tl)		<0.50		0.50	ug/g	16-NOV-21	1		
Uranium (U)		<1.0		1.0	ug/g	16-NOV-21	23		
Vanadium (V)		25.3		1.0	ug/g	16-NOV-21	86		
Zinc (Zn)		232		5.0	ug/g	16-NOV-21	340		
<b>Speciated Metals</b>									
Chromium, Hexavalent		0.28		0.20	ug/g	18-NOV-21	8		
L2661783-3	GAMMA-2C								
Sampled By: D. STOLTZ on 11-NOV-21									
Matrix: SOIL									
<b>Physical Tests</b>									
Conductivity		0.270		0.0040	mS/cm	17-NOV-21	0.7		
% Moisture		16.6		0.25	%	12-NOV-21			
pH		6.96		0.10	pH units	18-NOV-21			
<b>Cyanides</b>									
Cyanide, Weak Acid Diss		<0.050		0.050	ug/g	16-NOV-21	0.051		
<b>Saturated Paste Extractables</b>									
SAR		<0.10		0.10	SAR	16-NOV-21	5		
Calcium (Ca)		31.8		0.50	mg/L	16-NOV-21			
Magnesium (Mg)		7.83		0.50	mg/L	16-NOV-21			
Sodium (Na)		0.97		0.50	mg/L	16-NOV-21			
<b>Metals</b>									
Antimony (Sb)		<1.0		1.0	ug/g	16-NOV-21	7.5		
Arsenic (As)		5.1		1.0	ug/g	16-NOV-21	18		
Barium (Ba)		62.1		1.0	ug/g	16-NOV-21	390		

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

\* Analytical result for this parameter exceeds Guideline Limit listed on this report. Guideline Limits applied:

**T2-Soil-Res/Park/Inst. Property Use (Coarse)**

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



# ANALYTICAL GUIDELINE REPORT

MBN-21-693

Sample Details		Result	Qualifier	D.L.	Units	Analyzed	Guideline Limits				
Grouping	Analyte										
L2661783-3	GAMMA-2C										
Sampled By: D. STOLTZ on 11-NOV-21											
Matrix: SOIL											
<b>Metals</b>											
Beryllium (Be)		<0.50		0.50	ug/g	16-NOV-21	4				
Boron (B)		5.5		5.0	ug/g	16-NOV-21	120				
Boron (B), Hot Water Ext.		0.70		0.10	ug/g	16-NOV-21	1.5				
Cadmium (Cd)		1.10		0.50	ug/g	16-NOV-21	1.2				
Chromium (Cr)		30.3		1.0	ug/g	16-NOV-21	160				
Cobalt (Co)		5.3		1.0	ug/g	16-NOV-21	22				
Copper (Cu)		22.9		1.0	ug/g	16-NOV-21	140				
Lead (Pb)		62.1		1.0	ug/g	16-NOV-21	120				
Mercury (Hg)		0.0821		0.0050	ug/g	16-NOV-21	0.27				
Molybdenum (Mo)		<1.0		1.0	ug/g	16-NOV-21	6.9				
Nickel (Ni)		10.9		1.0	ug/g	16-NOV-21	100				
Selenium (Se)		<1.0		1.0	ug/g	16-NOV-21	2.4				
Silver (Ag)		0.23		0.20	ug/g	16-NOV-21	20				
Thallium (Tl)		<0.50		0.50	ug/g	16-NOV-21	1				
Uranium (U)		<1.0		1.0	ug/g	16-NOV-21	23				
Vanadium (V)		32.9		1.0	ug/g	16-NOV-21	86				
Zinc (Zn)		240		5.0	ug/g	16-NOV-21	340				
<b>Speciated Metals</b>											
Chromium, Hexavalent		<0.20		0.20	ug/g	18-NOV-21	8				
L2661783-4	GAMMA-5A										
Sampled By: D. STOLTZ on 11-NOV-21											
Matrix: SOIL											
<b>Physical Tests</b>											
Conductivity		0.183		0.0040	mS/cm	17-NOV-21	0.7				
% Moisture		22.1		0.25	%	12-NOV-21					
pH		7.25		0.10	pH units	18-NOV-21					
<b>Cyanides</b>											
Cyanide, Weak Acid Diss		<0.050		0.050	ug/g	16-NOV-21	0.051				
<b>Saturated Paste Extractables</b>											
SAR		0.12		0.10	SAR	16-NOV-21	5				
Calcium (Ca)		15.6		0.50	mg/L	16-NOV-21					
Magnesium (Mg)		5.79		0.50	mg/L	16-NOV-21					
Sodium (Na)		2.19		0.50	mg/L	16-NOV-21					
<b>Metals</b>											
Antimony (Sb)		<1.0		1.0	ug/g	16-NOV-21	7.5				
Arsenic (As)		5.0		1.0	ug/g	16-NOV-21	18				
Barium (Ba)		47.1		1.0	ug/g	16-NOV-21	390				
Beryllium (Be)		<0.50		0.50	ug/g	16-NOV-21	4				
Boron (B)		7.6		5.0	ug/g	16-NOV-21	120				
Boron (B), Hot Water Ext.		0.18		0.10	ug/g	16-NOV-21	1.5				
Cadmium (Cd)		0.80		0.50	ug/g	16-NOV-21	1.2				
Chromium (Cr)		17.7		1.0	ug/g	16-NOV-21	160				
Cobalt (Co)		6.7		1.0	ug/g	16-NOV-21	22				
Copper (Cu)		18.2		1.0	ug/g	16-NOV-21	140				

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

\* Analytical result for this parameter exceeds Guideline Limit listed on this report. Guideline Limits applied:

**T2-Soil-Res/Park/Inst. Property Use (Coarse)**

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





# ANALYTICAL GUIDELINE REPORT

MBN-21-693

Sample Details		Result	Qualifier	D.L.	Units	Analyzed	Guideline Limits		
Grouping	Analyte								
L2661783-4	GAMMA-5A								
Sampled By: D. STOLTZ on 11-NOV-21							#1		
Matrix: SOIL									
<b>Metals</b>									
Lead (Pb)		76.7		1.0	ug/g	16-NOV-21	120		
Mercury (Hg)		0.0587		0.0050	ug/g	16-NOV-21	0.27		
Molybdenum (Mo)		<1.0		1.0	ug/g	16-NOV-21	6.9		
Nickel (Ni)		12.5		1.0	ug/g	16-NOV-21	100		
Selenium (Se)		<1.0		1.0	ug/g	16-NOV-21	2.4		
Silver (Ag)		<0.20		0.20	ug/g	16-NOV-21	20		
Thallium (Tl)		<0.50		0.50	ug/g	16-NOV-21	1		
Uranium (U)		<1.0		1.0	ug/g	16-NOV-21	23		
Vanadium (V)		43.0		1.0	ug/g	16-NOV-21	86		
Zinc (Zn)		560		5.0	ug/g	16-NOV-21	*340		
<b>Speciated Metals</b>									
Chromium, Hexavalent		0.57		0.20	ug/g	18-NOV-21	8		
L2661783-5	GAMMA-5B								
Sampled By: D. STOLTZ on 11-NOV-21							#1		
Matrix: SOIL									
<b>Physical Tests</b>									
Conductivity		0.0849		0.0040	mS/cm	17-NOV-21	0.7		
% Moisture		12.5		0.25	%	12-NOV-21			
pH		7.66		0.10	pH units	18-NOV-21			
<b>Cyanides</b>									
Cyanide, Weak Acid Diss		<0.050		0.050	ug/g	16-NOV-21	0.051		
<b>Saturated Paste Extractables</b>									
SAR		<0.10	SAR:DL	0.10	SAR	16-NOV-21	5		
Calcium (Ca)		4.20		0.50	mg/L	16-NOV-21			
Magnesium (Mg)		1.33		0.50	mg/L	16-NOV-21			
Sodium (Na)		<0.50		0.50	mg/L	16-NOV-21			
<b>Metals</b>									
Antimony (Sb)		<1.0		1.0	ug/g	16-NOV-21	7.5		
Arsenic (As)		1.8		1.0	ug/g	16-NOV-21	18		
Barium (Ba)		9.9		1.0	ug/g	16-NOV-21	390		
Beryllium (Be)		<0.50		0.50	ug/g	16-NOV-21	4		
Boron (B)		<5.0		5.0	ug/g	16-NOV-21	120		
Boron (B), Hot Water Ext.		<0.10		0.10	ug/g	16-NOV-21	1.5		
Cadmium (Cd)		<0.50		0.50	ug/g	16-NOV-21	1.2		
Chromium (Cr)		5.8		1.0	ug/g	16-NOV-21	160		
Cobalt (Co)		1.9		1.0	ug/g	16-NOV-21	22		
Copper (Cu)		3.7		1.0	ug/g	16-NOV-21	140		
Lead (Pb)		28.4		1.0	ug/g	16-NOV-21	120		
Mercury (Hg)		<0.0050		0.0050	ug/g	16-NOV-21	0.27		
Molybdenum (Mo)		<1.0		1.0	ug/g	16-NOV-21	6.9		
Nickel (Ni)		4.2		1.0	ug/g	16-NOV-21	100		
Selenium (Se)		<1.0		1.0	ug/g	16-NOV-21	2.4		
Silver (Ag)		<0.20		0.20	ug/g	16-NOV-21	20		
Thallium (Tl)		<0.50		0.50	ug/g	16-NOV-21	1		

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

\* Analytical result for this parameter exceeds Guideline Limit listed on this report. Guideline Limits applied:

**T2-Soil-Res/Park/Inst. Property Use (Coarse)**

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



# ANALYTICAL GUIDELINE REPORT

MBN-21-693

Sample Details		Result	Qualifier	D.L.	Units	Analyzed	Guideline Limits		
Grouping	Analyte								
L2661783-5	GAMMA-5B								
Sampled By: D. STOLTZ on 11-NOV-21							#1		
Matrix: SOIL									
<b>Metals</b>									
Uranium (U)		<1.0		1.0	ug/g	16-NOV-21	23		
Vanadium (V)		15.3		1.0	ug/g	16-NOV-21	86		
Zinc (Zn)		313		5.0	ug/g	16-NOV-21	340		
<b>Speciated Metals</b>									
Chromium, Hexavalent		<0.20		0.20	ug/g	18-NOV-21	8		
L2661783-6	GAMMA-5C								
Sampled By: D. STOLTZ on 11-NOV-21							#1		
Matrix: SOIL									
<b>Physical Tests</b>									
Conductivity		0.133		0.0040	mS/cm	17-NOV-21	0.7		
% Moisture		6.96		0.25	%	12-NOV-21			
pH		7.60		0.10	pH units	18-NOV-21			
<b>Cyanides</b>									
Cyanide, Weak Acid Diss		<0.050		0.050	ug/g	16-NOV-21	0.051		
<b>Saturated Paste Extractables</b>									
SAR		<0.10		0.10	SAR	16-NOV-21	5		
Calcium (Ca)		8.09		0.50	mg/L	16-NOV-21			
Magnesium (Mg)		2.28		0.50	mg/L	16-NOV-21			
Sodium (Na)		0.93		0.50	mg/L	16-NOV-21			
<b>Metals</b>									
Antimony (Sb)		<1.0		1.0	ug/g	16-NOV-21	7.5		
Arsenic (As)		2.3		1.0	ug/g	16-NOV-21	18		
Barium (Ba)		14.2		1.0	ug/g	16-NOV-21	390		
Beryllium (Be)		<0.50		0.50	ug/g	16-NOV-21	4		
Boron (B)		<5.0		5.0	ug/g	16-NOV-21	120		
Boron (B), Hot Water Ext.		<0.10		0.10	ug/g	16-NOV-21	1.5		
Cadmium (Cd)		<0.50		0.50	ug/g	16-NOV-21	1.2		
Chromium (Cr)		6.9		1.0	ug/g	16-NOV-21	160		
Cobalt (Co)		2.6		1.0	ug/g	16-NOV-21	22		
Copper (Cu)		8.7		1.0	ug/g	16-NOV-21	140		
Lead (Pb)		53.0		1.0	ug/g	16-NOV-21	120		
Mercury (Hg)		0.0134		0.0050	ug/g	16-NOV-21	0.27		
Molybdenum (Mo)		<1.0		1.0	ug/g	16-NOV-21	6.9		
Nickel (Ni)		6.6		1.0	ug/g	16-NOV-21	100		
Selenium (Se)		<1.0		1.0	ug/g	16-NOV-21	2.4		
Silver (Ag)		<0.20		0.20	ug/g	16-NOV-21	20		
Thallium (Tl)		<0.50		0.50	ug/g	16-NOV-21	1		
Uranium (U)		<1.0		1.0	ug/g	16-NOV-21	23		
Vanadium (V)		14.8		1.0	ug/g	16-NOV-21	86		
Zinc (Zn)		699		5.0	ug/g	16-NOV-21	*340		
<b>Speciated Metals</b>									
Chromium, Hexavalent		<0.20		0.20	ug/g	18-NOV-21	8		

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

\* Analytical result for this parameter exceeds Guideline Limit listed on this report. Guideline Limits applied:

**T2-Soil-Res/Park/Inst. Property Use (Coarse)**

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

## Reference Information

### Sample Parameter Qualifier key listed:

Qualifier	Description
SAR:DL	SAR is incalculable due to undetectable Na. Detection Limit represents maximum possible SAR value.

### Methods Listed (if applicable):

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

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 and as of November 30, 2020), unless a subset of the Analytical Test Group (ATG) has been requested (the Protocol states that all analytes in an ATG must be reported).

CN-WAD-R511-WT	Soil	Cyanide (WAD)-O.Reg 153/04 (July 2011)	MOE 3015/APHA 4500CN I-WAD
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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 and as of November 30, 2020), unless a subset of the Analytical Test Group (ATG) has been requested (the Protocol states that all analytes in an ATG must be reported).

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

HG-200.2-CVAA-WT	Soil	Mercury in Soil by CVAAS	EPA 200.2/1631E (mod)
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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 200.2/6020B (mod)
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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, H<sub>2</sub>S) may be excluded if lost during sampling, storage, or digestion.

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

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

## Reference Information

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 and as of November 30, 2020), unless a subset of the Analytical Test Group (ATG) has been requested (the Protocol states that all analytes in an ATG must be reported).

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

Chain of Custody numbers:

20-895531

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	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. Guideline limits are not adjusted for the hardness, pH or temperature of the sample (the most conservative values are used). Measurement uncertainty is not applied to test results prior to comparison with specified criteria values.



### Quality Control Report

Workorder: L2661783

Report Date: 19-NOV-21

Page 1 of 6

Client: MBN ENVIRONMENTAL ENGINEERING INC.  
29 St. Charles Street, East  
Maryhill ON N0B 2B0

Contact: DREW STOLTZ

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
<b>B-HWS-R511-WT</b>								
	<b>Soil</b>							
<b>Batch</b>	<b>R5649923</b>							
<b>WG3658824-5</b>	<b>DUP</b>	<b>L2661688-7</b>						
Boron (B), Hot Water Ext.		<0.10	<0.10	RPD-NA	ug/g	N/A	30	16-NOV-21
<b>WG3658824-2</b>	<b>IRM</b>	<b>WT SAR4</b>						
Boron (B), Hot Water Ext.			117.6		%		70-130	16-NOV-21
<b>WG3658824-3</b>	<b>LCS</b>							
Boron (B), Hot Water Ext.			116.0		%		70-130	16-NOV-21
<b>WG3658824-1</b>	<b>MB</b>							
Boron (B), Hot Water Ext.			<0.10		ug/g		0.1	16-NOV-21
<b>CN-WAD-R511-WT</b>								
	<b>Soil</b>							
<b>Batch</b>	<b>R5649925</b>							
<b>WG3656946-6</b>	<b>DUP</b>	<b>L2661495-1</b>						
Cyanide, Weak Acid Diss		<0.050	<0.050	RPD-NA	ug/g	N/A	35	16-NOV-21
<b>WG3656946-2</b>	<b>LCS</b>							
Cyanide, Weak Acid Diss			97.6		%		80-120	16-NOV-21
<b>WG3656946-1</b>	<b>MB</b>							
Cyanide, Weak Acid Diss			<0.050		ug/g		0.05	16-NOV-21
<b>WG3656946-5</b>	<b>MS</b>	<b>L2661495-1</b>						
Cyanide, Weak Acid Diss			95.1		%		70-130	16-NOV-21
<b>CR-CR6-IC-WT</b>								
	<b>Soil</b>							
<b>Batch</b>	<b>R5653751</b>							
<b>WG3657353-4</b>	<b>CRM</b>	<b>WT-SQC012</b>						
Chromium, Hexavalent			86.0		%		70-130	18-NOV-21
<b>WG3657353-3</b>	<b>DUP</b>	<b>L2661757-1</b>						
Chromium, Hexavalent		<0.20	<0.20	RPD-NA	ug/g	N/A	35	18-NOV-21
<b>WG3657353-2</b>	<b>LCS</b>							
Chromium, Hexavalent			89.6		%		80-120	18-NOV-21
<b>WG3657353-1</b>	<b>MB</b>							
Chromium, Hexavalent			<0.20		ug/g		0.2	18-NOV-21
<b>EC-WT</b>								
	<b>Soil</b>							
<b>Batch</b>	<b>R5652656</b>							
<b>WG3658858-5</b>	<b>DUP</b>	<b>WG3658858-4</b>						
Conductivity		0.205	0.215		mS/cm	4.8	20	17-NOV-21
<b>WG3658858-2</b>	<b>IRM</b>	<b>WT SAR4</b>						
Conductivity			113.5		%		70-130	17-NOV-21
<b>WG3660416-1</b>	<b>LCS</b>							
Conductivity			96.1		%		90-110	17-NOV-21
<b>WG3658858-1</b>	<b>MB</b>							



### Quality Control Report

Workorder: L2661783

Report Date: 19-NOV-21

Page 2 of 6

Client: MBN ENVIRONMENTAL ENGINEERING INC.  
29 St. Charles Street, East  
Maryhill ON N0B 2B0

Contact: DREW STOLTZ

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
<b>EC-WT</b>	<b>Soil</b>							
<b>Batch</b>	<b>R5652656</b>							
<b>WG3658858-1</b>	<b>MB</b>							
Conductivity			<0.0040		mS/cm		0.004	17-NOV-21
<b>HG-200.2-CVAA-WT</b>	<b>Soil</b>							
<b>Batch</b>	<b>R5649740</b>							
<b>WG3658861-2</b>	<b>CRM</b>	<b>WT-SS-2</b>						
Mercury (Hg)			94.0		%		70-130	16-NOV-21
<b>WG3658861-7</b>	<b>DUP</b>	<b>WG3658861-6</b>						
Mercury (Hg)		0.0101	0.0107		ug/g	5.2	40	16-NOV-21
<b>WG3658861-3</b>	<b>LCS</b>							
Mercury (Hg)			91.5		%		80-120	16-NOV-21
<b>WG3658861-1</b>	<b>MB</b>							
Mercury (Hg)			<0.0050		mg/kg		0.005	16-NOV-21
<b>MET-200.2-CCMS-WT</b>	<b>Soil</b>							
<b>Batch</b>	<b>R5650277</b>							
<b>WG3658861-2</b>	<b>CRM</b>	<b>WT-SS-2</b>						
Antimony (Sb)			96.9		%		70-130	16-NOV-21
Arsenic (As)			96.7		%		70-130	16-NOV-21
Barium (Ba)			98.8		%		70-130	16-NOV-21
Beryllium (Be)			99.1		%		70-130	16-NOV-21
Boron (B)			8.6		mg/kg		3.5-13.5	16-NOV-21
Cadmium (Cd)			97.7		%		70-130	16-NOV-21
Chromium (Cr)			94.1		%		70-130	16-NOV-21
Cobalt (Co)			95.3		%		70-130	16-NOV-21
Copper (Cu)			96.4		%		70-130	16-NOV-21
Lead (Pb)			94.7		%		70-130	16-NOV-21
Molybdenum (Mo)			90.8		%		70-130	16-NOV-21
Nickel (Ni)			95.9		%		70-130	16-NOV-21
Selenium (Se)			0.13		mg/kg		0-0.34	16-NOV-21
Silver (Ag)			85.9		%		70-130	16-NOV-21
Thallium (Tl)			0.072		mg/kg		0.029-0.129	16-NOV-21
Uranium (U)			85.8		%		70-130	16-NOV-21
Vanadium (V)			96.5		%		70-130	16-NOV-21
Zinc (Zn)			91.8		%		70-130	16-NOV-21
<b>WG3658861-7</b>	<b>DUP</b>	<b>WG3658861-6</b>						
Antimony (Sb)		<0.10	0.12	RPD-NA	ug/g	N/A	30	16-NOV-21



## Quality Control Report

Workorder: L2661783

Report Date: 19-NOV-21

Page 3 of 6

Client: MBN ENVIRONMENTAL ENGINEERING INC.  
 29 St. Charles Street, East  
 Maryhill ON N0B 2B0

Contact: DREW STOLTZ

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
<b>MET-200.2-CCMS-WT</b>								
	<b>Soil</b>							
<b>Batch</b>	<b>R5650277</b>							
<b>WG3658861-7</b>	<b>DUP</b>	<b>WG3658861-6</b>						
Arsenic (As)		3.00	3.11		ug/g	3.6	30	16-NOV-21
Barium (Ba)		108	110		ug/g	2.2	40	16-NOV-21
Beryllium (Be)		0.55	0.60		ug/g	7.8	30	16-NOV-21
Boron (B)		9.0	10.4		ug/g	14	30	16-NOV-21
Cadmium (Cd)		0.095	0.091		ug/g	4.3	30	16-NOV-21
Chromium (Cr)		24.6	25.0		ug/g	1.6	30	16-NOV-21
Cobalt (Co)		8.86	9.20		ug/g	3.8	30	16-NOV-21
Copper (Cu)		19.4	19.5		ug/g	0.7	30	16-NOV-21
Lead (Pb)		7.99	8.20		ug/g	2.5	40	16-NOV-21
Molybdenum (Mo)		0.43	0.44		ug/g	1.1	40	16-NOV-21
Nickel (Ni)		21.1	21.7		ug/g	3.0	30	16-NOV-21
Selenium (Se)		<0.20	<0.20	RPD-NA	ug/g	N/A	30	16-NOV-21
Silver (Ag)		<0.10	<0.10	RPD-NA	ug/g	N/A	40	16-NOV-21
Thallium (Tl)		0.111	0.115		ug/g	3.7	30	16-NOV-21
Uranium (U)		0.653	0.703		ug/g	7.4	30	16-NOV-21
Vanadium (V)		31.4	32.3		ug/g	2.9	30	16-NOV-21
Zinc (Zn)		46.0	47.1		ug/g	2.4	30	16-NOV-21
<b>WG3658861-4</b>	<b>LCS</b>							
Antimony (Sb)			97.6		%		80-120	16-NOV-21
Arsenic (As)			97.4		%		80-120	16-NOV-21
Barium (Ba)			98.5		%		80-120	16-NOV-21
Beryllium (Be)			98.1		%		80-120	16-NOV-21
Boron (B)			96.6		%		80-120	16-NOV-21
Cadmium (Cd)			94.5		%		80-120	16-NOV-21
Chromium (Cr)			95.9		%		80-120	16-NOV-21
Cobalt (Co)			95.6		%		80-120	16-NOV-21
Copper (Cu)			94.1		%		80-120	16-NOV-21
Lead (Pb)			94.3		%		80-120	16-NOV-21
Molybdenum (Mo)			100.9		%		80-120	16-NOV-21
Nickel (Ni)			93.3		%		80-120	16-NOV-21
Selenium (Se)			96.1		%		80-120	16-NOV-21
Silver (Ag)			98.9		%		80-120	16-NOV-21
Thallium (Tl)			97.1		%		80-120	16-NOV-21



## Quality Control Report

Workorder: L2661783

Report Date: 19-NOV-21

Page 4 of 6

Client: MBN ENVIRONMENTAL ENGINEERING INC.  
 29 St. Charles Street, East  
 Maryhill ON N0B 2B0

Contact: DREW STOLTZ

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
<b>MET-200.2-CCMS-WT</b>								
	<b>Soil</b>							
<b>Batch</b>	<b>R5650277</b>							
<b>WG3658861-4</b>	<b>LCS</b>							
Uranium (U)			95.0		%		80-120	16-NOV-21
Vanadium (V)			99.9		%		80-120	16-NOV-21
Zinc (Zn)			91.2		%		80-120	16-NOV-21
<b>WG3658861-1</b>	<b>MB</b>							
Antimony (Sb)			<0.10		mg/kg		0.1	16-NOV-21
Arsenic (As)			<0.10		mg/kg		0.1	16-NOV-21
Barium (Ba)			<0.50		mg/kg		0.5	16-NOV-21
Beryllium (Be)			<0.10		mg/kg		0.1	16-NOV-21
Boron (B)			<5.0		mg/kg		5	16-NOV-21
Cadmium (Cd)			<0.020		mg/kg		0.02	16-NOV-21
Chromium (Cr)			<0.50		mg/kg		0.5	16-NOV-21
Cobalt (Co)			<0.10		mg/kg		0.1	16-NOV-21
Copper (Cu)			<0.50		mg/kg		0.5	16-NOV-21
Lead (Pb)			<0.50		mg/kg		0.5	16-NOV-21
Molybdenum (Mo)			<0.10		mg/kg		0.1	16-NOV-21
Nickel (Ni)			<0.50		mg/kg		0.5	16-NOV-21
Selenium (Se)			<0.20		mg/kg		0.2	16-NOV-21
Silver (Ag)			<0.10		mg/kg		0.1	16-NOV-21
Thallium (Tl)			<0.050		mg/kg		0.05	16-NOV-21
Uranium (U)			<0.050		mg/kg		0.05	16-NOV-21
Vanadium (V)			<0.20		mg/kg		0.2	16-NOV-21
Zinc (Zn)			<2.0		mg/kg		2	16-NOV-21
<b>MOISTURE-WT</b>								
	<b>Soil</b>							
<b>Batch</b>	<b>R5643770</b>							
<b>WG3656939-3</b>	<b>DUP</b>	<b>L2661783-1</b>						
% Moisture		7.66	8.01		%	4.5	20	12-NOV-21
<b>WG3656939-2</b>	<b>LCS</b>							
% Moisture			99.3		%		90-110	12-NOV-21
<b>WG3656939-1</b>	<b>MB</b>							
% Moisture			<0.25		%		0.25	12-NOV-21
<b>PH-WT</b>								
	<b>Soil</b>							
<b>Batch</b>	<b>R5653839</b>							
<b>WG3656945-1</b>	<b>DUP</b>	<b>L2661783-1</b>						
pH		7.59	7.55	J	pH units	0.04	0.3	18-NOV-21
<b>WG3661056-1</b>	<b>LCS</b>							





### Quality Control Report

Workorder: L2661783

Report Date: 19-NOV-21

Page 5 of 6

Client: MBN ENVIRONMENTAL ENGINEERING INC.  
29 St. Charles Street, East  
Maryhill ON N0B 2B0

Contact: DREW STOLTZ

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
<b>PH-WT</b>	<b>Soil</b>							
<b>Batch</b>	<b>R5653839</b>							
<b>WG3661056-1</b>	<b>LCS</b>							
pH			6.99		pH units		6.9-7.1	18-NOV-21
<b>SAR-R511-WT</b>	<b>Soil</b>							
<b>Batch</b>	<b>R5650542</b>							
<b>WG3658858-5</b>	<b>DUP</b>	<b>WG3658858-4</b>						
Calcium (Ca)		3.34	3.57		mg/L	6.7	30	16-NOV-21
Sodium (Na)		29.6	31.2		mg/L	5.3	30	16-NOV-21
Magnesium (Mg)		0.68	0.72		mg/L	5.2	30	16-NOV-21
<b>WG3658858-2</b>	<b>IRM</b>	<b>WT SAR4</b>						
Calcium (Ca)			111.0		%		70-130	16-NOV-21
Sodium (Na)			91.3		%		70-130	16-NOV-21
Magnesium (Mg)			107.7		%		70-130	16-NOV-21
<b>WG3658858-3</b>	<b>LCS</b>							
Calcium (Ca)			102.0		%		80-120	16-NOV-21
Sodium (Na)			98.6		%		80-120	16-NOV-21
Magnesium (Mg)			99.2		%		80-120	16-NOV-21
<b>WG3658858-1</b>	<b>MB</b>							
Calcium (Ca)			<0.50		mg/L		0.5	16-NOV-21
Sodium (Na)			<0.50		mg/L		0.5	16-NOV-21
Magnesium (Mg)			<0.50		mg/L		0.5	16-NOV-21

# Quality Control Report

Workorder: L2661783

Report Date: 19-NOV-21

Client: MBN ENVIRONMENTAL ENGINEERING INC.  
29 St. Charles Street, East  
Maryhill ON N0B 2B0

Page 6 of 6

Contact: DREW STOLTZ

## 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.



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L2661783-COFC

orm

COC Number: 20 - 895531

Page 1 of 1

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

Company: **MAN ENVIRONMENTAL**

Contact: **DREW STOLTZ**

Phone: **519-804-1408**

Company address below will appear on the final report

Street: **29 St. CHARLES ST E**

City/Province: **MARYHILL ON**

Postal Code: **N3B 2B0**

Invoice To Same as Report To  YES  NO

Copy of Invoice with Report  YES  NO

Company: **AS ABOVE**

Contact:

**Project Information**

ALS Account # / Quote #: **MBN-21-693**

Job #: **MBN-21-693**

PO / AFE:

LSD:

Select Report Format:  PDF  EXCEL  EDD (DIGITAL)

Merge QC/QCI Reports with COA  YES  NO  N/A

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

Select Distribution:  EMAIL  MAIL  FAX

Email 1 or Fax: **dstoltz@manenvironmental.com**

Email 2:

Email 3:

**Invoice Recipients**

Select Invoice Distribution:  EMAIL  MAIL  FAX

Email 1 or Fax: **AS ABOVE**

Email 2:

**Oil and Gas Required Fields (client use)**

AFE/Cost Center: PO#

Major/Minor Code: Routing Code:

Requisitioner:

Location:

ALS Lab Work Order # (ALS use only): **L2661783 WA**

ALS Contact: **EH**

Sampler: **D. STOLTZ**

**Turnaround Time (TAT) Requested**

Routine [R] if received by 3pm M-F - no surcharges apply

4 day [P4] if received by 3pm M-F - 20% rush surcharge minimum

3 day [P3] if received by 3pm M-F - 25% rush surcharge minimum

2 day [P2] if received by 3pm M-F - 50% rush surcharge minimum

1 day [E] if received by 3pm M-F - 100% rush surcharge minimum

Same day [E2] if received by 10am M-S - 200% rush surcharge. Additional fees may apply to rush requests on weekends, statutory holidays and non-routine tests

**AFFIX ALS BARCODE LABEL HERE (ALS use only)**

ALS Sample # (ALS use only)	Sample Identification and/or Coordinates (This description will appear on the report)	Date (dd-mmm-yy)	Time (hh:mm)	Sample Type
	<b>GAMMA-2A</b>	<b>11-NOV-21</b>		<b>SOIL</b>
	<b>GAMMA-2B</b>	↓	↓	↓
	<b>GAMMA-2C</b>	↓	↓	↓
	<b>GAMMA-5A</b>	↓	↓	↓
	<b>GAMMA-5B</b>	↓	↓	↓
	<b>GAMMA-5C</b>	↓	↓	↓

**Date and Time Required for all E&P TATs:**

For all tests with rush TATs requested, please contact your AM to confirm availability.

**Analysis Request**

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

NUMBER OF CONTAINERS	METALS (INDICATED)	Analysis Request										SAMPLES ON HOLD	EXTENDED STORAGE REQUIRED	SUSPECTED HAZARD (see notes)	
1	✓														
1	✓														
1	✓														
1	✓														
1	✓														

**Drinking Water (DW) Samples<sup>1</sup> (client use)**

Notes / Specify Limits for result evaluation by selecting from drop-down below (Excel COC only)

Are samples taken from a Regulated DW System?  YES  NO

Are samples for human consumption/ use?  YES  NO

**T2-RES**

**SAMPLE RECEIPT DETAILS (ALS use only)**

Cooling Method:  NONE  ICE  ICE PACKS  FROZEN  COOLING INITIATED

Submission Comments identified on Sample Receipt Notification:  YES  NO

Cooler Custody Seals Intact:  YES  N/A Sample Custody Seals Intact:  YES  N/A

INITIAL COOLER TEMPERATURES °C: **9.3** FINAL COOLER TEMPERATURES °C:

**SHIPMENT RELEASE (client use)**

Released by: **Drew Stoltz** Date: **11/11/21** Time: **11:00**

**INITIAL SHIPMENT RECEPTION (ALS use only)**

Received by: **WJ** Date: **11/11/21** Time: **13:10**

**FINAL SHIPMENT RECEPTION (ALS use only)**