

CITY OF TORONTO

GROUNDWATER SAMPLING REPORT

FINAL REPORT

Lakeshore Boulevard East, Toronto, Ontario

JULY 2010

DISTRIBUTION:

CITY OF TORONTO TERRAPEX ENVIRONMENTAL LTD. 2 COPIES + 1 PDF COPY 1 COPY **PROJECT # CT1770.00**



July 21, 2010 CT1770.00

City of Toronto Metro Hall, 16th Floor 55 John Street Torontol, Ontario M5V 3C6

Attention: Mr. Allen Jones, Sr. Environmental Specialist

Re: Final Report on Groundwater Sampling Lakeshore Boulevard East, Toronto, Ontario

Dear Mr. Jones:

Terrapex Environmental Ltd. is pleased to submit two (2) copies of our final report on the groundwater sampling conducted at the site located at Lakeshore Boulevard East in Toronto, Ontario. Terrapex appreciated the opportunity to provide our services on this project. Should you have any questions, or if there is any additional information we can provide, please call.

Sincerely, TERRAPEX ENVIRONMENTAL LTD.

Peter Sutton, P.Eng. Senior Project Manager

Attachment

49 Coldwater Road, North York, Ontario M3B 1Y8 Ph: (416) 245-0011 Fax: (416) 245-0012

EXECUTIVE SUMMARY

Terrapex Environmental Ltd. (Terrapex) was retained by the City of Toronto to conduct a groundwater analytical investigation of previously installed groundwater monitoring wells within sections of the Leslie Street and Lake Shore Boulevard East road allowance between the Don Roadway and Leslie Street in Toronto, Ontario.

The objectives of the work program were to collect additional data regarding the environmental quality of groundwater at the site, and to evaluate previous conclusions by Aqua Terre and others regarding potential risks or hazards to receptors at the site associated with the concentrations, if any, of various metallic parameters, polynuclear aromatic hydrocarbons (PAHs), volatile organic compounds (VOCs), and/or general petroleum hydrocarbon F1, F2, F3, and F4 "fraction" parameters in groundwater.

The scope of services provided as part of this work program included:

- attending the site to monitor the depths to groundwater within eight (8) previously installed monitoring wells (identified as BH602, BH603, BH604, BH605, BH702, BH704, BH705 and BH706);
- collecting a groundwater sample for laboratory analyses of selected metallic parameters, VOCs, PAHs and the F1 through F4 general petroleum hydrocarbon parameters; and,
- completing laboratory analysis, evaluating results and providing a final report, including a statement regarding public safety and groundwater quality.

Concentrations of the tested parameters within the recovered groundwater samples were each less than the corresponding Ontario Ministry of the Environment (MOE) Site Condition Standards applicable for a generic non-potable groundwater condition and coarse-textured soil that are listed in Table 3 of the March 9, 2004 *Soil, Ground Water and Sediment Standards for Use Under Part XV.1 of the Environmental Protection Act.*

As the generic Site Condition Standards were established to be protective of possible human health and ecological receptors, no concerns regarding risks or hazards to the public are associated with the groundwater analytical results.

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1.0 INTRODUCTION

Terrapex Environmental Ltd. (Terrapex) was retained by the City of Toronto to conduct a groundwater analytical investigation of previously installed groundwater monitoring wells along Lake Shore Boulevard East and Leslie Street in Toronto, Ontario.

It is understood that this study was required as follow up to recommendations offered in the May 13, 2009 report to the City of Toronto prepared by Aqua Terre Solutions Inc. (Aqua Terre) and entitled *Soil and Groundwater Sampling, Lakeshore Boulevard East, Toronto, Ontario* (Aqua Terre, 2009).

1.1 SITE DESCRIPTION AND BACKGROUND

The study area (the site) comprises sections of the Leslie Avenue and Lakeshore Boulevard East road allowance between the Don Roadway and Leslie Street. From documentation prepared and/or reviewed by Aqua Terre, it is understood that contaminated soil was identified during the final stages of dismantling the former eastern extent of the F. G. Gardiner Expressway. Following the completion of a site specific risk assessment, these impacts were reportedly managed in situ by the City of Toronto through selected removal of soil, the establishment of an engineered cap (comprising a thickness of "uncontaminated" soil overtop remaining contaminated soils), and conducting long term site inspection and monitoring.

The 2009 Aqua Terre report documents a work program undertaken on behalf of the City of Toronto to evaluate the efficacy of the various risk management measures implemented along the Lakeshore Road East road allowance in two areas (identified as "Area A" and "Area B") through:

- reviewing previous reports and other documentation related to the site (note that these documents were not provided to Terrapex);
- collecting near surface soil samples from thirty locations at the site;
- submitting forty composite soil samples for laboratory analyses; and,
- collecting groundwater samples for laboratory analyses from ten previously installed monitoring wells at the site. It should be noted that due to ice and snow cover at the time of the Aqua Terre work program, four of the ten wells could not be located or accessed.

In their report, Aqua Terre concludes that the engineered cap is sufficiently thick and the public are not at risk from the underlying contaminated soils.

It was also reported that with the exception of some polynuclear aromatic hydrocarbon (PAH) parameters, the laboratory analytical results for the groundwater samples collected

by Aqua Terre did not exceed Ontario Ministry of the Environment (MOE) Site Condition Standards applicable for a generic non-potable groundwater condition and coarse-textured soil that are listed in Table 3 of the March 9, 2004 *Soil, Ground Water and Sediment Standards for Use Under Part XV.1 of the Environmental Protection Act* (MOE, 2004). Aqua Terre reported that the PAH results exceeding MOE generic Table 3 Site Condition Standards referenced above were likely the result of sediment within the recovered groundwater samples, rather than actual dissolved contaminants.

As a result, Aqua Terre concluded that the public are not at risk from the underlying groundwater. However, it was also recommended that additional sampling efforts be made to address the number of inaccessible wells during Aqua Terre's work program.

The site location and general site layout are shown on Figures 1 and 2, respectively. Selected site photographs are provided in Appendix I.

1.2 STUDY OBJECTIVES

The objectives of the work program described herein are to collect additional data regarding the environmental quality of groundwater at the site, and to evaluate the previous conclusions by Aqua Terre regarding potential risks or hazards to receptors (e.g., human health) at the site associated with the concentrations, if any, of various metallic parameters, volatile organic compounds (VOCs), PAHs, and/or general petroleum hydrocarbon F1, F2, F3, and F4 "fraction" parameters in groundwater.

1.3 SCOPE OF WORK

The scope of the services provided by Terrapex during this work program included:

- Attending the site to monitor the depths to groundwater within ten previously installed monitoring wells (identified as BH602, BH603, BH604, BH605, BH700, BH702, BH704, BH705, BH706, and BH707 by Aqua Terre) using a Solinst water level meter, or equivalent;
- Immediately following groundwater monitoring, instrumenting each well with new dedicated sampling tubing, and purging the water within the well;
- Immediately following purging of each well, collecting a groundwater sample for laboratory analyses of selected metallic parameters, PAHs, VOCs, and the F1 through F4 general petroleum hydrocarbon parameters;
- Preparing and submitting one (1) field blank sample and one (1) field duplicate sample for laboratory analyses, along with one (1) trip spike sample prepared by the laboratory, as field program quality assurance / quality control (QA/QC) measures; and,

• Evaluating the nature and degree of groundwater impact, if any, using the generic MOE Table 3 Site Condition Standards (MOE, 2004).

2.0 WORK PROGRAM DESCRIPTION

2.1 WORK PROGRAM PREPARATION

Prior to groundwater sampling, the previous Aqua Terre report was reviewed to determine the location of the monitoring wells at the site.

A site-specific health and safety plan (HASP) was also prepared by Terrapex prior to commencing field work. All team members, including sub-contractors, read and signed the HASP before working at the site.

2.2 GROUNDWATER MONITORING AND SAMPLING

Groundwater monitoring and sampling of the monitoring wells was completed between December 8 and 15, 2009. Monitoring activities comprised measuring the depth to water in the wells using a Heron interface probe. The presence and apparent thicknesses of any light non-aqueous phase liquids (LNAPL), if applicable, were also assessed using the interface probe.

Prior to sampling, each well was instrumented with a new dedicated sampling tubing, and the water within each well was purged using a Solinst peristaltic pump, or equivalent. Purging rates were be limited to permit no more than 25% draw down within each well, and were continued until geochemical parameters such as pH, conductivity, dissolved oxygen, oxidations-reduction potential, and turbidity were stabilized to within an approximate variance of 10%.

Each recovered groundwater sample was submitted for laboratory analysis of petroleum hydrocarbon parameters, inorganics, PAHs and VOCs. All samples were collected directly in pre-cleaned, laboratory supplied bottles, placed in a cooler with ice, and shipped with signed chain of custody to Maxxam.

Monitoring wells BH700 and BH707 could not be located during the Terrapex work program. As it appeared that landscaping improvements had recently been made along the Lakeshore Road East road allowance, it is possible that the protective well casings associated with these installations have been covered through the additional of soil and similar materials (BH700) and/or decorative paving stones (BH707).

In addition, due to field error, samples collected from BH706 were mistakenly identified as BH606.

2.3 QUALITY ASSURANCE/QUALITY CONTROL (QA/QC) PROGRAM

One field blank water sample (identified as sample "BH699") prepared using analyte-free water supplied by the laboratory, one field duplicate of the groundwater sample recovered from BH705 (identified as sample "BH799"), and one field trip spike water sample (identified as sample "TSPK") prepared by the laboratory were also prepared and submitted for laboratory analyses by Terrapex as field program QA/QC measures.

Sample BH699 was submitted for laboratory analyses of metallic parameters, PAHs, VOCs, and the general petroleum hydrocarbon parameters. Samples BH799 and TPSK were submitted for laboratory analyses of metallic parameters, PAHs, and VOCs.

With the exception of the trip spike sample, the laboratory was not informed of the number or nature of the Terrapex QA/QC submissions.

3.0 RESULTS

3.1 GROUNDWATER

Monitoring and sampling were conducted between on December 8 and 15, 2009. Measured depths to groundwater during this period were between 1.84 and 2.77 m below the top of pipe. Light non-aqueous phase liquid (LNAPL) was not detected in the wells.

A summary of the groundwater monitoring data is provided in Table 1 (attached).

3.2 ANALYTICAL RESULTS

Laboratory analytical results for metallic parameters, PAHs, VOCs and general petroleum hydrocarbon parameters are summarized in Tables 2, 3, 4, and 5, respectively. Copies of the corresponding MOE generic Table 3 Site Condition Standards are also provided in each table.

As indicated in the tables, concentrations of the tested parameters were each less than the corresponding MOE generic Table 3 Site Condition Standards.

Generic Site Condition Standards have not been established by MOE for concentrations of the general F1 through F4 petroleum hydrocarbon parameters in groundwater in a non-potable groundwater situation (e.g., the standards listed in Table 3 of the March 9, 2004 *Soil, Ground Water and Sediment Standards for Use Under Part XV.1 of the Environmental Protection Act* document). However, concentrations of these parameters within the recovered Terrapex samples were generally less than the laboratory's reported detection limit. Where detectable concentrations were reported, the reported concentrations were less than the corresponding Site Condition Standards (MOE, 2004) that would be applicable to a generic potable groundwater condition and coarse-textured soil (i.e., concentrations of the sum of the F1 and F2 parameters and sum of the F3 and F4 parameters less than 1,000 μ g/L).

Accordingly, no particular concerns are attached to the documented concentrations of the F1 through F4 parameters in groundwater at the site.

Copies of the Laboratory Certificates of Analyses for groundwater samples are provided in Appendix I (attached).

3.3 QA/QC RESULTS

Maxxam's Quality Assurance/Quality Control (QA/QC) program consisted of the analysis of laboratory replicates, process and method blanks, process percent recoveries, matrix spikes, method spikes and surrogate percent recoveries, as appropriate for the particular analysis protocol.

A review of the quality assurance reports attached to the laboratory certificates of analyses indicate that the laboratory QA/QC samples were generally within the quality control limits.

Terrapex submitted a field blank sample ("BH699") and a field duplicate sample ("BH799"). A review of the laboratory analytical results indicates that detectable concentrations of the tested parameters were not reported for the field blank sample, and that acceptable correlation was reported between the results of the duplicate sample BH799 and its corresponding sample pair (BH705).

Terrapex also submitted a trip spike sample ("TPSK"). The laboratory reported that acceptable recovery was observed for the tested parameters.

On the basis of the above, QA/QC results for the work program are considered acceptable.

4.0 DISCUSSION OF RESULTS

With the exception of some PAH compounds, the Terrapex analytical results are considered to have duplicated the findings of the 2009 Aqua Terre groundwater sampling program (Aqua Terre, 2009). Aqua Terre did report laboratory analytical results for some PAH compounds that exceeded the corresponding MOE generic Table 3 Site Condition Standards, but concluded these results were likely the result of sediment within their recovered samples and not dissolved contaminants.

The sampling techniques employed by Terrapex during this work program were selected to minimize the entrainment of sediment and other particular within groundwater samples recovered from the existing monitoring wells. As reported previously, concentrations of the tested parameters (including PAHs) within the Terrapex groundwater samples were each less than the corresponding MOE generic Table 3 Site Condition Standards (MOE, 2004). These results support the Aqua Terre conclusion that elevated PAH results from their sampling program were a result of sediment, rather than dissolved contaminants in groundwater.

As the generic Site Condition Standards were established to be protective of possible human health and ecological receptors, no concerns regarding risks or hazards to the public are associated with the groundwater analytical results.

5.0 **REFERENCES**

Aqua Terre Solutions Inc. (Aqua Terre), 2009. Soil and Groundwater Sampling, Lakeshore Boulevard East, Toronto, Ontario. May 13, 2009.

Ontario Ministry of the Environment (MOE), 2004. *Soil, Ground Water and Sediment Standards for Use Under Part XV.1 of the Environmental Protection Act.* March 9, 2004.

6.0 CLOSURE

This project and report have been completed in accordance with the terms of reference for this project as agreed upon by City of Toronto and Terrapex Environmental Ltd. and generally accepted engineering or environmental consulting practices in this area. The reported information is believed to provide a reasonable representation of the general environmental conditions at the site, however, the data were collected at specific locations and conditions may vary at other locations. The assessment was also limited to a study of those chemical parameters specifically addressed in this report.

This report has been prepared for the sole use of City of Toronto. Terrapex Environmental Ltd. accepts no liability for claims arising from the use of this report, or from actions taken or decisions made as a result of this report, by parties other than City of Toronto.

FOR

Caitlin Vanderkooy, M.Env Sc. Environmental Scientist

ROFESSIONA 21- July. 2010 P. L. A. SUTTON BOUINCE OF O Peter Sutton, P.Eng **Consulting Engineer**

FIGURES





TABLES

TABLE 1 GROUNDWATER MONITORING DATA

WELL NUMBER	DATE	DEPTH TO WATER FROM T.O.P. ¹	DEPTH TO BOTTOM FROM T.O.P. ²	LNAPL THICKNESS ³
BH602	14-Dec-09	2.09	6.97	None
BH603	14-Dec-09	2.00	7.02	None
BH604	14-Dec-09	2.13	6.99	None
BH605	14-Dec-09	2.57	5.73	None
BH702	08-Dec-09	1.84	4.39	None
BH704	08-Dec-09	2.46	4.67	None
BH705	14-Dec-09	2.77	4.24	None
BH706	14-Dec-09	2.21	5.19	None

¹ Depth to groundwater, in metres from top of PVC pipe.

² Depth to the bottom of the well, in metres from top of PVC pipe.

³ Measured thickness of liquid non-aqueous phase liquid in metres, if

- Not measured.

Entered By:	CV
Reviewed By:	JS

TABLE 2 WATER ANALYTICAL RESULTS - METALS

Lakeshore Boulevard East, Toronto, Ontario

Terrapex Sample Name			BH602	BH603	BH604	BH605	BH606	BH 702
		TABLE 3						
		STANDARD ¹						
	Units							
Sampling Date	-	-	14-Dec-09	14-Dec-09	14-Dec-09	14-Dec-09	15-Dec-09	08-Dec-09
Sample Location	-	-	BH602	BH603	BH604	BH605	BH706	BH702
Antimony	µg/L	16,000	0.8	< 0.5	< 0.5	< 0.5	< 0.5	< 5
Arsenic	µg/L	480	59	< 5	2	< 1	< 1	< 10
Barium	µg/L	23,000	350	290	150	320	700	210
Beryllium	µg/L	53	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 5
Boron	µg/L	50,000	3,300	780	1,400	680	2,300	280
Cadmium	µg/L	11	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 1
Chromium	µg/L	2,000	93	< 5	< 5	< 5	< 5	< 50
Cobalt	µg/L	100	3.5	0.5	0.5	1.3	2.7	< 5
Copper	µg/L	23	< 1	< 1	< 1	1	< 1	< 10
Lead	μg/L	32	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 5
Molybdenum	μg/L	7,300	< 1	< 1	< 1	< 1	< 1	< 10
Nickel	μg/L	1,600	4	< 1	1	< 1	2	< 10
Selenium	μg/L	50	< 2	< 2	< 2	< 2	< 2	< 20
Silver	µg/L	1.2	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 1
Sodium	µg/L	ns	1,000,000	940,000	120,000	160,000	140,000	1,600,000
Thallium	µg/L	400	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.5
Vanadium	µg/L	200	9	< 5	3	1	5	15
Zinc	µg/L	1,100	< 5	< 5	< 5	96	5	< 50

1	Standard from Soil, Ground Water and Sediment Standards for
	Use Under Part XV.1 of the Environmental Protection Act for
	all types of land use, coarse textured soil, in a non-potable
	groundwater situation
ns	No standard
CV Reading	Combustible vapour reading (ppm or % LEL) in well headspace
ppm	Parts per million (by volume)
% LEL	Percent of the lower explosive limit
BOLD	Exceeds standard

Entered By: CV Reviewed By: JS

TABLE 2 WATER ANALYTICAL RESULTS - METALS Lakeshore Boulevard East, Toronto, Ontario

(CONTINUED)

Terrapex Sample Name			BH 704	BH705	BH799	BH699
		TABLE 3			Field	Field
		STANDARD 1			Duplicate of	Blank
	Units				BH705	
Sampling Date	-	-	08-Dec-09	14-Dec-09	14-Dec-09	15-Dec-09
Sample Location	-	-	BH704	BH705	BH705	-
Antimony	µg/L	16,000	< 5	1.7	1.2	< 0.5
Arsenic	µg/L	480	< 10	13	12	< 1
Barium	µg/L	23,000	350	290	310	< 5
Beryllium	µg/L	53	< 5	< 0.5	< 0.5	< 0.5
Boron	µg/L	50,000	310	280	290	< 10
Cadmium	µg/L	11	< 1	< 0.1	< 0.1	< 0.1
Chromium	µg/L	2,000	< 50	< 5	< 5	< 5
Cobalt	µg/L	100	< 5	< 0.5	< 0.5	< 0.5
Copper	µg/L	23	< 10	< 1	1	< 1
Lead	µg/L	32	< 5	< 0.5	< 0.5	< 0.5
Molybdenum	µg/L	7,300	< 10	< 1	< 1	< 1
Nickel	µg/L	1,600	< 10	< 1	< 1	< 1
Selenium	µg/L	50	< 20	< 2	< 2	< 2
Silver	µg/L	1.2	< 1	< 0.1	< 0.1	< 0.1
Sodium	µg/L	ns	2,800,000	1,100,000	1,000,000	< 100
Thallium	µg/L	400	< 0.5	< 0.05	< 0.05	< 0.05
Vanadium	µg/L	200	16	2	< 5	< 1
Zinc	μg/L	1,100	< 50	< 5	10	< 5

1	Standard from <i>Soil, Ground Water and Sediment Standards for</i> <i>Use Under Part XV.1 of the Environmental Protection Act</i> for all types of land use, coarse textured soil, in a non-potable groundwater situation
ns	No standard
CV Reading ppm % LEL	Combustible vapour reading (ppm or % LEL) in well headspace Parts per million (by volume) Percent of the lower explosive limit

BOLD Exceeds standard

Entered By: CV Reviewed By: JS

(CONTINUED)

Terrapex Sample Name			TSPK
		TABLE 3	Trip
		STANDARD 1	Spike
	Units		
Sampling Date	-	-	23-Nov-09
Sample Location	-	-	-
•			
Antimony	% recovery	16,000	240
Arsenic	% recovery	480	240
Barium	% recovery	23,000	480
Beryllium	% recovery	53	490
Boron	% recovery	50,000	480
Cadmium	% recovery	11	490
Chromium	% recovery	2,000	470
Cobalt	% recovery	100	460
Copper	% recovery	23	460
Lead	% recovery	32	470
Molybdenum	% recovery	7,300	480
Nickel	% recovery	1,600	460
Selenium	% recovery	50	240
Silver	% recovery	1.2	31
Sodium	% recovery	ns	24000
Thallium	% recovery	400	230
Vanadium	% recovery	200	470
Zinc	% recovery	1,100	480

1	Standard from Soil, Ground Water and Sediment Standards for	CV
	Use Under Part XV.1 of the Environmental Protection Act for	JS
	all types of land use, coarse textured soil, in a non-potable	
	groundwater situation	
ns	No standard	
CV Reading	Combustible vapour reading (ppm or % LEL) in well headspace	
ppm	Parts per million (by volume)	
% LEL	Percent of the lower explosive limit	
BOLD	Exceeds standard	

TABLE 3 WATER ANALYTICAL RESULTS - PAHs

Lakeshore Boulevard East, Toronto, Ontario

Terrapex Sample Name			BH602	BH603	BH604	BH605	BH606	BH702
		TABLE 3						
		STANDARD ¹						
	Units							
Sampling Date	-	-	14-Dec-09	14-Dec-09	14-Dec-09	14-Dec-09	15-Dec-09	08-Dec-09
Sample Location	-	-	BH602	BH603	BH604	BH605	BH706	BH702
Acenaphthene	µg/L	1,700	< 0.05	< 0.05	0.20	1.0	1.1	0.30
Acenaphthylene	μg/L	2,000	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
Anthracene	μg/L	12	< 0.05	< 0.05	< 0.05	0.11	0.15	< 0.05
Benzo(a)anthracene	μg/L	5.0	0.17	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
Benzo(a)pyrene	μg/L	1.9	0.05	< 0.01	< 0.01	0.02	< 0.01	< 0.01
Benzo(b,j)fluoranthene ²	µg/L	7.0	0.07	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
Benzo(g,h,i)perylene	µg/L	0.2	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
Benzo(k)fluoranthene	µg/L	0.4	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
Chrysene	μg/L	3.0	0.17	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
Dibenzo(a,h)anthracene	μg/L	0.25	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
Fluoranthene	μg/L	130	0.18	< 0.05	< 0.05	0.18	0.21	< 0.05
Fluorene	μg/L	290	< 0.05	< 0.05	0.19	0.64	0.65	0.12
Indeno(1,2,3-cd)pyrene	μg/L	0.27	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
Methylnapthalene, 1-	μg/L	13,000	< 0.1	< 0.05	0.62	0.26	0.22	1.6
Methylnapthalene, 2-	μg/L	13,000	< 0.05	< 0.05	0.20	< 0.05	< 0.05	0.87
Napthalene	µg/L	5,900	0.11	0.05	0.13	0.13	0.21	17
Phenanthrene	µg/L	63	< 0.05	< 0.05	< 0.05	0.07	< 0.05	0.07
Pyrene	µg/L	40	0.19	< 0.05	< 0.05	0.13	0.15	< 0.05

 1
 Standard from Soil, Ground Water and Sediment Standards for

 Use Under Part XV.1 of the Environmental Protection Act for

 all types of land use, coarse textured soil, in a non-potable

 groundwater situation

 2

 Listed criteria are for the sum of benzo(b)fluoranthene and benzo(j)fluoranthene, however the reported laboratory result is for benzo(b)fluoranthene only

 ns
 No standard

 BOLD
 Exceeds standard

Entered By: CV Reviewed By: JS

TABLE 3 WATER ANALYTICAL RESULTS - PAHs

Lakeshore Boulevard East, Toronto, Ontario

Terrapex Sample Name BH704 BH705 BH799 BH699 TABLE 3 Field Field STANDARD 1 Duplicate of Blank BH705 Units Sampling Date 08-Dec-09 14-Dec-09 14-Dec-09 15-Dec-09 --Sample Location BH704 BH705 BH705 --Acenaphthene 0.09 < 0.05 µg/L 1,700 0.12 0.14 Acenaphthylene 2,000 < 0.05 < 0.05 < 0.05 µg/L < 0.05 Anthracene µg/L 12 < 0.05 < 0.05 < 0.05 < 0.05 Benzo(a)anthracene < 0.05 < 0.05 µg/L 5.0 < 0.05 < 0.05 Benzo(a)pyrene µg/L 1.9 < 0.01 < 0.01 < 0.01 < 0.01 Benzo(b,j)fluoranthene² µg/L 7.0 < 0.05 < 0.05 < 0.05 < 0.05 Benzo(g,h,i)perylene µg/L 0.2 < 0.1 < 0.1 < 0.1 < 0.1 Benzo(k)fluoranthene 0.4 < 0.05 < 0.05 µg/L < 0.05 < 0.05 Chrysene 3.0 < 0.05 < 0.05 < 0.05 < 0.05 µg/L Dibenzo(a,h)anthracene µg/L 0.25 < 0.1 < 0.1 < 0.1 < 0.1 Fluoranthene µg/L 130 < 0.05 < 0.05 < 0.05 < 0.05 Fluorene µg/L 290 0.13 < 0.05 0.06 < 0.05 Indeno(1,2,3-cd)pyrene 0.27 < 0.1 < 0.1 < 0.1 µg/L < 0.1 < 0.05 Methylnapthalene, 1-13,000 0.20 < 0.05 < 0.05 µg/L Methylnapthalene, 2-13,000 0.13 < 0.05 < 0.05 < 0.05 µg/L Napthalene µg/L 5,900 1.3 < 0.05 < 0.05 < 0.05 Phenanthrene µg/L 63 0.20 < 0.05 < 0.05 < 0.05 Pyrene µg/L 40 < 0.05 < 0.05 < 0.05 < 0.05

(CONTINUED)

- 1 Standard from Soil, Ground Water and Sediment Standards for Use Under Part XV.1 of the Environmental Protection Act for all types of land use, coarse textured soil, in a non-potable groundwater situation 2 Listed criteria are for the sum of benzo(b)fluoranthene and benzo(j)fl however the reported laboratory result is for benzo(b)fluoranthene or ns No standard
- Exceeds standard BOLD

TERRAPEX ENVIRONMENTAL LTD.

Entered By: Reviewed By: JS

CV

TABLE 3 WATER ANALYTICAL RESULTS - PAHs Lakeshore Boulevard East, Toronto, Ontario

(CONTINUED)

CV

Terrapex Sample Name			TSPK
		TABLE 3	Trip
		STANDARD 1	Spike
	Units		
Sampling Date	-	-	27-Nov-09
Sample Location	-	-	-
Acenaphthene	% recovery	1,700	93
Acenaphthylene	% recovery	2,000	86
Anthracene	% recovery	12	93
Benzo(a)anthracene	% recovery	5.0	110
Benzo(a)pyrene	% recovery	1.9	96
Benzo(b,j)fluoranthene ²	% recovery	7.0	98
Benzo(g,h,i)perylene	% recovery	0.2	84
Benzo(k)fluoranthene	% recovery	0.4	110
Chrysene	% recovery	3.0	110
Dibenzo(a,h)anthracene	% recovery	0.25	86
Fluoranthene	% recovery	130	110
Fluorene	% recovery	290	98
Indeno(1,2,3-cd)pyrene	% recovery	0.27	83
Methylnapthalene, 1-	% recovery	13,000	86
Methylnapthalene, 2-	% recovery	13,000	80
Napthalene	% recovery	5,900	79
Phenanthrene	% recovery	63	98
Pyrene	% recovery	40	110

1	Standard from Soil, Ground Water and Sediment Standards for	Entered By:				
	Use Under Part XV.1 of the Environmental Protection Act for	Reviewed By:				
	all types of land use, coarse textured soil, in a non-potable	_				
	groundwater situation					
2	Listed criteria are for the sum of benzo(b)fluoranthene and benzo(j)fluoranthene,					
	however the reported laboratory result is for benzo(b)fluoranthene	only				
ns	No standard					
BOLD	Exceeds standard					

Torranov Sample Name			BH602	BH603	RH604
renapex Sample Name			BHOUZ	БПООЗ	BH004
	Linite	OTANDAND			
Sampling Date	-	_	14-Dec-09	14-Dec-09	14-Dec-09
Sample Location	_	_	BH602	BH603	BH604
			BHOOL	Bridde	Bricor
Acetone	µg/L	3,300	< 50	< 10	< 20
Benzene	µg/L	1,900	0.7	< 0.1	< 0.2
Bromodichloromethane	µg/L	50,000	< 0.5	< 0.1	< 0.2
Bromoform	µg/L	840	< 1	< 0.2	< 0.4
Bromomethane	µg/L	3.7	< 3	< 0.5	< 1
Carbon tetrachloride	μg/L	17	< 0.5	< 0.1	< 0.2
Chlorobenzene	μg/L	500	< 0.5	< 0.1	< 0.2
Chloroform	µg/L	430	< 0.5	< 0.1	< 0.2
Dibromochloromethane	µg/L	50,000	< 1	< 0.2	< 0.4
Dichlorobenzene 1,2-	µg/L	7,600	< 1	< 0.2	< 0.4
Dichlorobenzene, 1,3-	µg/L	7,600	< 1	< 0.2	< 0.4
Dichlorobenzene,1,4-	µg/L	7,600	< 1	< 0.2	< 0.4
Dichloroethane, 1,1-	µg/L	9,000	< 0.5	< 0.1	< 0.2
Dichloroethane, 1,2-	µg/L	17	< 1	< 0.2	< 0.4
Dichloroethylene, 1,1-	µg/L	0.66	< 0.5	< 0.1	< 0.2
Dichloroethylene, cis-1,2-	µg/L	70	< 0.5	< 0.1	< 0.2
Dichloroethylene, trans-1,2-	µg/L	100	< 0.5	< 0.1	< 0.2
Dichloropropane, 1,2-	µg/L	9.3	< 0.5	< 0.1	< 0.2
Dichloropropene, 1,3-	µg/L	3.8	< 2	< 0.4	< 0.8
Ethylbenzene	µg/L	28,000	< 0.5	< 0.1	< 0.2
Ethylene dibromide	µg/L	3.3	< 1	< 0.2	< 0.4
Methyl ethyl ketone	µg/L	50,000	< 30	< 5	< 10
Methyl isobutyl ketone	µg/L	50,000	< 30	< 5	< 10
Methyl tert butyl ether	µg/L	50,000	< 1	< 0.2	< 0.4
Methylene Chloride	µg/L	50,000	< 3	< 0.5	< 1
Styrene	µg/L	940	< 1	< 0.2	< 0.4
Tetrachloroethane, 1,1,1,2-	µg/L	6.0	< 0.5	< 0.1	< 0.2
Tetrachloroethane, 1,1,2,2-	µg/L	22	< 1	< 0.2	< 0.4
Tetrachloroethylene	µg/L	5.0	< 0.5	< 0.1	< 0.2
Toluene	µg/L	5,900	< 1	< 0.2	< 0.4
Trichloroethane, 1,1,1-	µg/L	200	< 0.5	< 0.1	< 0.2
Trichloroethane, 1,1,2-	µg/L	16,000	< 1	< 0.2	< 0.4
Trichloroethylene	µg/L	50	< 0.5	< 0.1	< 0.2
Vinyl chloride	µg/L	0.5	< 1	< 0.2	< 0.4
m,p-Xylenes	µg/L	ns	3.6	< 0.1	< 0.2
o-Xylene	µg/L	ns	< 0.5	< 0.1	< 0.2
Xylenes (total)	µg/L	5,600	3.6	< 0.1	< 0.2

Standard from Soil, Ground Water and Sediment Standards for Use Under Part XV.1 of the Environmental Protection Act for all types of land use, coarse textured soil, in a non-potable groundwater situation No standard

ns No standard
BOLD Exceeds standard

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Entered By:

Reviewed By:

CV

Terrapex Sample Name			BH605	BH606	BH 702
		TABLE 3	2	2.1000	2
		STANDARD ¹			
	Units	-			
Sampling Date	-	-	14-Dec-09	15-Dec-09	08-Dec-09
Sample Location	-	-	BH605	BH706	BH702
Acetone	µg/L	3,300	< 50	< 20	< 100
Benzene	µg/L	1,900	< 0.5	< 0.2	< 1
Bromodichloromethane	µg/L	50,000	< 0.5	< 0.2	< 1
Bromoform	µg/L	840	< 1	< 0.4	< 2
Bromomethane	µg/L	3.7	< 3	< 1	< 5
Carbon tetrachloride	µg/L	17	< 0.5	< 0.2	< 1
Chlorobenzene	µg/L	500	0.8	< 0.2	< 1
Chloroform	µg/L	430	< 0.5	< 0.2	< 1
Dibromochloromethane	µg/L	50,000	< 1	< 0.4	< 2
Dichlorobenzene 1,2-	µg/L	7,600	< 1	< 0.4	< 2
Dichlorobenzene, 1,3-	µg/L	7,600	< 1	< 0.4	< 2
Dichlorobenzene,1,4-	µg/L	7,600	< 1	0.6	< 2
Dichloroethane, 1,1-	µg/L	9,000	< 0.5	< 0.2	< 1
Dichloroethane, 1,2-	µg/L	17	< 1	< 0.4	< 2
Dichloroethylene, 1,1-	µg/L	0.66	< 0.5	< 0.2	< 1
Dichloroethylene, cis-1,2-	µg/L	70	< 0.5	< 0.2	< 1
Dichloroethylene, trans-1,2-	µg/L	100	< 0.5	< 0.2	< 1
Dichloropropane, 1,2-	µg/L	9.3	< 0.5	< 0.2	< 1
Dichloropropene, 1,3-	µg/L	3.8	< 2	< 0.8	< 4
Ethylbenzene	µg/L	28,000	< 0.5	< 0.2	< 1
Ethylene dibromide	µg/L	3.3	< 1	< 0.4	< 2
Methyl ethyl ketone	µg/L	50,000	< 30	< 10	< 50
Methyl isobutyl ketone	µg/L	50,000	< 30	< 10	< 50
Methyl tert butyl ether	µg/L	50,000	< 1	< 0.4	< 2
Methylene Chloride	µg/L	50,000	< 3	< 1	< 5
Styrene	µg/L	940	< 1	< 0.4	< 2
Tetrachloroethane, 1,1,1,2-	µg/L	6.0	< 0.5	< 0.2	< 1
Tetrachloroethane, 1,1,2,2-	µg/L	22	< 1	< 0.4	< 2
Tetrachloroethylene	µg/L	5.0	< 0.5	< 0.2	< 1
Toluene	µg/L	5,900	< 1	< 0.4	< 2
Trichloroethane, 1,1,1-	µg/L	200	< 0.5	< 0.2	< 1
Trichloroethane, 1,1,2-	µg/L	16,000	< 1	< 0.4	< 2
Trichloroethylene	µg/L	50	< 0.5	< 0.2	< 1
Vinyl chloride	µg/L	0.5	< 1	< 0.4	< 2
m,p-Xylenes	µg/L	ns	< 0.5	< 0.2	< 1
o-Xylene	µg/L	ns	< 0.5	< 0.2	< 1
Xylenes (total)	µg/L	5,600	< 0.5	< 0.2	< 1

(CONTINUED)

Standard from Soil, Ground Water and Sediment Standards for Use Under Part XV.1 of the Environmental Protection Act for all types of land use, coarse textured soil, in a non-potable groundwater situation No standard

BOLD Exceeds standard

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Entered By:

Reviewed By:

CV

Terrapey Sample Name			BH 704	BH705	BH700
Tenapex Sample Name		TABLE 3	BI1704	BHT05	Field
		STANDARD 1			Duplicate of
	Units	01/11/2/11/2			BH705
Sampling Date	-	-	08-Dec-09	14-Dec-09	14-Dec-09
Sample Location	-	-	BH704	BH705	BH705
Acetone	µg/L	3,300	< 100	< 20	< 20
Benzene	μg/L	1,900	1	< 0.2	< 0.2
Bromodichloromethane	µg/L	50,000	< 1	< 0.2	< 0.2
Bromoform	µg/L	840	< 2	< 0.4	< 0.4
Bromomethane	µg/L	3.7	< 5	< 1	< 1
Carbon tetrachloride	µg/L	17	< 1	< 0.2	< 0.2
Chlorobenzene	µg/L	500	< 1	< 0.2	< 0.2
Chloroform	µg/L	430	< 1	< 0.2	< 0.2
Dibromochloromethane	µg/L	50,000	< 2	< 0.4	< 0.4
Dichlorobenzene 1,2-	µg/L	7,600	< 2	< 0.4	< 0.4
Dichlorobenzene, 1,3-	µg/L	7,600	< 2	< 0.4	< 0.4
Dichlorobenzene,1,4-	µg/L	7,600	< 2	< 0.4	< 0.4
Dichloroethane, 1,1-	µg/L	9,000	< 1	< 0.2	< 0.2
Dichloroethane, 1,2-	µg/L	17	< 2	< 0.4	< 0.4
Dichloroethylene, 1,1-	µg/L	0.66	< 1	< 0.2	< 0.2
Dichloroethylene, cis-1,2-	µg/L	70	< 1	< 0.2	< 0.2
Dichloroethylene, trans-1,2-	µg/L	100	< 1	< 0.2	< 0.2
Dichloropropane, 1,2-	µg/L	9.3	< 1	< 0.2	< 0.2
Dichloropropene, 1,3-	µg/L	3.8	< 4	< 0.8	< 0.8
Ethylbenzene	µg/L	28,000	< 1	< 0.2	< 0.2
Ethylene dibromide	µg/L	3.3	< 2	< 0.4	< 0.4
Methyl ethyl ketone	µg/L	50,000	< 50	< 10	< 10
Methyl isobutyl ketone	µg/L	50,000	< 50	< 10	< 10
Methyl tert butyl ether	µg/L	50,000	< 2	< 0.4	< 0.4
Methylene Chloride	µg/L	50,000	< 5	< 1	< 1
Styrene	µg/L	940	< 2	< 0.4	< 0.4
Tetrachloroethane, 1,1,1,2-	µg/L	6.0	< 1	< 0.2	< 0.2
Tetrachloroethane, 1,1,2,2-	µg/L	22	< 2	< 0.4	< 0.4
Tetrachloroethylene	µg/L	5.0	< 1	< 0.2	< 0.2
Toluene	µg/L	5,900	< 2	< 0.4	< 0.4
Trichloroethane, 1,1,1-	µg/L	200	< 1	< 0.2	< 0.2
Trichloroethane, 1,1,2-	µg/L	16,000	< 2	< 0.4	< 0.4
Trichloroethylene	µg/L	50	< 1	< 0.2	< 0.2
Vinyl chloride	µg/L	0.5	< 2	< 0.4	< 0.4
m,p-Xylenes	µg/L	ns	< 1	< 0.2	< 0.2
o-Xylene	µg/L	ns	< 1	< 0.2	< 0.2
Xylenes (total)	µg/L	5,600	< 1	< 0.2	< 0.2

(CONTINUED)

Standard from *Soil, Ground Water and Sediment Standards for Use Under Part XV.1 of the Environmental Protection Act* for all types of land use, coarse textured soil, in a non-potable groundwater situation No standard

ns No standard BOLD Exceeds standard

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Entered By:

Reviewed By:

CV

Terrapex Sample Name			BH699
		TABLE 3	Field
		STANDARD 1	Blank
	Units		
Sampling Date	-	-	-
Sample Location	-	-	-
Acetone	µg/L	3,300	< 100
Benzene	µg/L	1,900	< 1
Bromodichloromethane	µg/L	50,000	< 1
Bromoform	µg/L	840	< 2
Bromomethane	µg/L	3.7	< 5
Carbon tetrachloride	µg/L	17	< 1
Chlorobenzene	μg/L	500	< 1
Chloroform	µg/L	430	< 1
Dibromochloromethane	μg/L	50,000	< 2
Dichlorobenzene 1,2-	µg/L	7,600	< 2
Dichlorobenzene, 1,3-	µg/L	7,600	< 2
Dichlorobenzene,1,4-	µg/L	7,600	< 2
Dichloroethane, 1,1-	µg/L	9,000	< 1
Dichloroethane, 1,2-	µg/L	17	< 2
Dichloroethylene, 1,1-	µg/L	0.66	< 1
Dichloroethylene, cis-1,2-	µg/L	70	< 1
Dichloroethylene, trans-1,2-	µg/L	100	< 1
Dichloropropane, 1,2-	µg/L	9.3	< 1
Dichloropropene, 1,3-	µg/L	3.8	< 4
Ethylbenzene	µg/L	28,000	< 1
Ethylene dibromide	µg/L	3.3	< 2
Methyl ethyl ketone	µg/L	50,000	< 50
Methyl isobutyl ketone	µg/L	50,000	< 50
Methyl tert butyl ether	µg/L	50,000	< 2
Methylene Chloride	μg/L	50,000	< 5
Styrene	μg/L	940	< 2
Tetrachloroethane, 1,1,1,2-	µg/L	6.0	< 1
Tetrachloroethane, 1,1,2,2-	µg/L	22	< 2
Tetrachloroethylene	μg/L	5.0	< 1
Toluene	μg/L	5,900	< 2
Trichloroethane, 1,1,1-	μg/L	200	< 1
Trichloroethane, 1,1,2-	μg/L	16,000	< 2
Trichloroethylene	μg/L	50	< 1
Vinyl chloride	μg/L	0.5	< 2
m,p-Xylenes	μg/L	ns	< 1
o-Xylene	μg/L	ns	< 1
Xylenes (total)	μg/L	5,600	< 2

(CONTINUED)

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Standard from Soil, Ground Water and Sediment Standards for Use Under Part XV.1 of the Environmental Protection Act for all types of land use, coarse textured soil, in a non-potable groundwater situation No standard

Entered By: _____ Reviewed By: _____ CV JS

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BOLD Exceeds standard

TABLE 4	WATER ANALYTICAL RESULTS - VOCs
	Lakeshore Blvd East, Toronto, Ontario

(CONTINUED)

Terrapex Sample Name			TSPK
		TABLE 3	Trip
		STANDARD 1	Spike
	Units		
Sampling Date	-	-	30-Nov-09
Sample Location	-	-	-
Acetone	% recovery	3,300	78
Benzene	% recovery	1,900	99
Bromodichloromethane	% recovery	50,000	96
Bromoform	% recovery	840	90
Bromomethane	% recovery	3.7	86
Carbon tetrachloride	% recovery	17	86
Chlorobenzene	% recovery	500	94
Chloroform	% recovery	430	98
Dibromochloromethane	% recovery	50,000	97
Dichlorobenzene 1,2-	% recovery	7,600	93
Dichlorobenzene, 1,3-	% recovery	7,600	94
Dichlorobenzene,1,4-	% recovery	7,600	94
Dichloroethane, 1,1-	% recovery	9,000	100
Dichloroethane, 1,2-	% recovery	17	99
Dichloroethylene, 1,1-	% recovery	0.66	100
Dichloroethylene, cis-1,2-	% recovery	70	96
Dichloroethylene, trans-1,2-	% recovery	100	93
Dichloropropane, 1,2-	% recovery	9.3	110
Dichloropropene, cis-1,3-	% recovery	ns	79
Dichloropropene, trans-1,3-	% recovery	ns	79
Ethylbenzene	% recovery	28,000	100
Ethylene dibromide	% recovery	3.3	100
Methyl ethyl ketone	% recovery	50,000	91
Methyl isobutyl ketone	% recovery	50,000	110
Methyl tert butyl ether	% recovery	50,000	96
Methylene Chloride	% recovery	50,000	98
Styrene	% recovery	940	100
Tetrachloroethane, 1,1,1,2-	% recovery	6.0	93
Tetrachloroethane, 1,1,2,2-	% recovery	22	100
Tetrachloroethylene	% recovery	5.0	84
Toluene	% recovery	5,900	99
Trichloroethane, 1,1,1-	% recovery	200	90
Trichloroethane, 1,1,2-	% recovery	16,000	100
Trichloroethylene	% recovery	50	88
Vinyl chloride	% recovery	0.5	100
m,p-Xylenes	% recovery	ns	99
o-Xylene	% recovery	ns	100

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Standard from Soil, Ground Water and Sediment Standards for Use Under Part XV.1 of the Environmental Protection Act for all types of land use, coarse textured soil, in a non-potable groundwater situation No standard Entered By: CV Reviewed By: JS

ns **BOLD**

<u>D</u> Exceeds standard

TABLE 5 WATER ANALYTICAL RESULTS - PETROLEUM HYDROCARBONS Lakeshore Boulevard East. Toronto. Ontario

Terrapex Sample Name			BH602	BH603	BH604	BH605	BH606	BH702
		TABLE 3						
		STANDARD ¹						
	Units							
Sampling Date	-	-	14-Dec-09	14-Dec-09	14-Dec-09	14-Dec-09	15-Dec-09	08-Dec-09
Sample Location	na	-	BH602	BH603	BH604	BH605	BH706	BH702
Petroleum Hydrocarbons, F1	μg/L	ns	< 100	< 100	< 100	< 100	< 100	< 100
Petroleum Hydrocarbons, F2	µg/L	ns	< 100	< 100	< 100	< 100	< 100	< 100
Petroleum Hydrocarbons, F3	µg/L	ns	990	< 100	< 100	< 100	< 100	< 100
Petroleum Hydrocarbons, F4	µg/L	ns	< 100	< 100	< 100	< 100	< 100	< 100

¹

Standard from Soil, Ground Water and Sediment Standards for Use Under Part XV.1 of the Environmental Protection Act for all types of land use, coarse textured soil, in a non-potable groundwater situation

ns

BOLD Exceeds standard

No standard

Entered By: CV Reviewed By: JS

TERRAPEX ENVIRONMENTAL LTD.

TABLE 5 WATER ANALYTICAL RESULTS - PETROLEUM HYDROCARBONS (CONTINUED) Lakeshore Boulevard East, Toronto, Ontario

Terrapex Sample Name			BH704	BH705	BH799	BH699
		TABLE 3			Field	Field
		STANDARD 1			Duplicate of	Blank
	Units				BH705	
Sampling Date	-	-	08-Dec-09	14-Dec-09	14-Dec-09	15-Dec-09
Sample Location	na	-	BH704	BH705	BH705	-
Petroleum Hydrocarbons, F1	µg/L	ns	< 100	< 100	< 100	< 100
Petroleum Hydrocarbons, F2	µg/L	ns	< 100	< 100	< 100	< 100
Petroleum Hydrocarbons, F3	µg/L	ns	< 100	< 100	< 100	< 100
Petroleum Hydrocarbons, F4	µg/L	ns	< 100	< 100	< 100	< 100

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Standard from Soil, Ground Water and Sediment Standards for Use Under Part XV.1 of the Environmental Protection Act for all types of land use, coarse textured soil, in a non-potable groundwater situation Entered By: CV Reviewed By: JS

ns

BOLD Exceeds standard

No standard

APPENDIX I LABORATORY CERTIFICATES OF ANALYSIS



CONFIRMATION-RECEIPT OF SAMPLES FOR ANALYSIS

Client Project #: CT1770.00 PO #: 90055 Quote #: A72317 Site Location: TORONTO

Report will be sent to:

Peter Sutton Terrapex Environmental Ltd 49 Coldwater Rd Toronto M3B 1Y8 Ph 4162450011- 234 Fax 416-245-0012 p.sutton@terrapex.com 2 Samples

Samples Received 2009/12/09 Client Confirmation 2009/12/09 Expected Report Delivery 2009/12/17 18:00

Invoice will be sent to: ACCOUNTS PAYABLE Terrapex Environmental Ltd 49 Coldwater Rd Toronto M3B 1Y8 accounts.payable@terrapex.com

We have received t	he following samples:
BH 702	Sampled 2009/12/04

BH 702
Maxxam #: EP3682
*O'Reg 153 ICPMS Dissolved Metals
*OReg 153 Petroleum Hydrocarbons
O'Reg 153 Polyaromatic Hydrocarbons
O'Reg 153 Volatile Organics
Sample Disposal Charge

Sampled 2009/12/04

Maxxam #: EP3683 *O'Reg 153 ICPMS Dissolved Metals *OReg 153 Petroleum Hydrocarbons O'Reg 153 Polyaromatic Hydrocarbons O'Reg 153 Volatile Organics Sample Disposal Charge

Comments:

BH 704

WE RECEIVED THE FOLLOWING SAMPLES. THE ANALYSES REQUESTED ARE LISTED BELOW. AN ADDITIONAL FEE OF APPROXIMATELY \$20 PER SAMPLE SHALL BE CHARGED TO THE CLIENT FOR DISPOSAL OF HAZARDOUS SAMPLES IF NOT STATED ON THE COC TO RETURN THE SAMPLES FOR DISPOSAL BY THE CLIENT. SHOULD YOU REQUIRE FURTHER DETAILS PLEASE CONTACT OUR TECHNICAL SERVICE DEPARTMENT AT (905) 817-5700 OR 1-800-563-6266, REFERENCING THE REPORT #. PLEASE NOTE THAT, UNLESS SPECIAL STORAGE ARRANGEMENTS ARE MADE, ALL SAMPLES WILL BE DISCARDED 30 DAYS AFTER RECEPTION OF SAMPLES. NON-REGULAR SAMPLES ARE FLAGGED AS (C)OMPOSITE BY LAB, (H)OLD, OR (L)EACHATE TO BE PERFORMED. For revisions please contact your Maxxam Project Management team at Ph (905) 817-5700 or Fax (905) 817-5777. Your Project Manager is: KRISTEN BURMEISTER

COC# 00621713

Matrix: WATER



Maxxam Job # A9G6765 PARAMETERS FOR ANALYSIS REQUESTED

The values listed below are RDL's and not results. Report Detection Limit (RDL) may be elevated if there are matrix interferences or limited sample amounts.

Maxxam # EP3682, Sample IDN: BH 7	702		
Maxxam # EP3683, Sample IDN: BH 7	704		
OREG 153 PETROLEUM HYDROCAR	BONS		
F2 (C10-C16 Hydrocarbons)	100 ug/L	F3 (C16-C34 Hydrocarbons)	100 ug/L
F4 (C34-C50 Hydrocarbons)	100 ug/L	Reached Baseline at C50	
F1 (C6-C10) - BTEX	100 ug/L	F1 (C6-C10)	100 ug/L
O'REG 153 ICPMS DISSOLVED META	ALS		
Chromium (Cr)	5 ug/L	Cobalt (Co)	0.5 ug/L
Copper (Cu)	1 ug/L	Lead (Pb)	0.5 ug/L
Antimony (Sb)	0.5 ug/L	Molybdenum (Mo)	1 ug/L
Nickel (Ni)	1 ug/L	Selenium (Se)	2 ug/L
Silver (Ag)	0.1 ug/L	Sodium (Na)	100 ug/L
Arsenic (As)	1 ug/L	Thallium (TI)	0.05 ug/L
Vanadium (V)	1 ug/L	Zinc (Zn)	5 ug/L
Barium (Ba)	5 ug/L	Beryllium (Be)	0.5 ug/L
Boron (B)	10 ug/L	Cadmium (Cd)	0.1 ug/L
O'REG 153 POLYAROMATIC HYDRO	CARBONS		
Naphthalene	0.05 ug/L	Chrysene	0.05 ug/L
Benzo(k)fluoranthene	0.05 ug/L	Benzo(a)pyrene	0.01 ug/L
Acenaphthylene	0.05 ug/L	Indeno(1,2,3-cd)pyrene	0.1 ug/L
Dibenz(a,h)anthracene	0.1 ug/L	Benzo(g,h,i)perylene	0.1 ug/L
2-Methylnaphthalene	0.05 ug/L	Acenaphthene	0.05 ug/L
Benzo(b/j)fluoranthene	0.05 ug/L	Fluorene	0.05 ug/L
1-Methylnaphthalene	0.05 ug/L	Benzo(a)anthracene	0.05 ug/L
Phenanthrene	0.05 ug/L	Anthracene	0.05 ug/L
Fluoranthene	0.05 ug/L	Pyrene	0.05 ug/L
O'REG 153 VOLATILE ORGANICS			
Chlorobenzene	0.1 ug/L	1,3-Dichlorobenzene	0.2 ug/L
1,4-Dichlorobenzene	0.2 ug/L	1,2-Dichlorobenzene	0.2 ug/L
cis-1,2-Dichloroethylene	0.1 ug/L	Chloroform	0.1 ug/L
1,1,1-Trichloroethane	0.1 ug/L	Carbon Tetrachloride	0.1 ug/L
1,2-Dichloroethane	0.2 ug/L	Trichloroethylene	0.1 ug/L
1,2-Dichloropropane	0.1 ug/L	Bromodichloromethane	0.1 ug/L
Vinyl Chloride	0.2 ug/L	cis-1,3-Dichloropropene	0.2 ug/L
trans-1,3-Dichloropropene	0.2 ug/L	1,1,2-Trichloroethane	0.2 ug/L
Tetrachloroethylene	0.1 ug/L	Dibromochloromethane	0.2 ug/L
Bromoform	0.2 ug/L	1,1,2,2-Tetrachloroethane	0.2 ug/L
Bromomethane	0.5 ug/L	1,1-Dichloroethylene	0.1 ug/L
Methylene Chloride(Dichloromethane)	0.5 ug/L	trans-1,2-Dichloroethylene	0.1 ug/L
1,1-Dichloroethane	0.1 ug/L	Benzene	0.1 ug/L
p+m-Xylene	0.1 ug/L	Toluene	0.2 ug/L
Ethylbenzene	0.1 ug/L	o-Xylene	0.1 ug/L
Xylene (Total)	0.1 ug/L	Styrene	0.2 ug/L
Acetone (2-Propanone)	10 ug/L	1,1,1,2-Tetrachloroethane	0.1 ug/L
Methyl Isobutyl Ketone	5 ug/L		


O'REG 153 VOLATILE ORGANICS Ethylene Dibromide Methyl Ethyl Ketone (2-Butanone)

0.2 ug/L 5 ug/L

Methyl t-butyl ether (MTBE)

0.2 ug/L



A9G6765: Price Confirmation

#	DESCRIPTION	Matrix	QUOTE #	F	PRICE	TOTAL	SURCHARGE
	Surcharge	Legend: (D/H) - Days/Hour	rs TAT				
2	PRICE PACKAGE: O'REG 153 VOLATILE	WATER	A72317 \$	6 1	100.00	\$ 200.00	0% ()
	ORGANICS						
2	PRICE PACKAGE: O'REG 153 POLYAROMATIC	WATER	A72317 \$	5 1	110.00	\$ 220.00	0% ()
	HYDROCARBONS						
2	PRICE PACKAGE: OREG 153 PETROLEUM	WATER	A72317 \$	5 1	120.00	\$ 240.00	0% ()
	HYDROCARBONS						
2	SAMPLE DISPOSAL CHARGE	WATER	A72317 \$	5	1.75	\$ 3.50	

MAXXAM JOB NUMBER	CT INFORMATION	PROJE		ce)	invoi	s from	differ	N (if	ATIC	DRM	INFO	REPORT		nev p	E INFORMATION	INVOICE	-
	72317	#: <u>A</u>	Quotation	_		oice	inv	75	ne a	am	5	ompany Name:	1 0	ntal It.	X Environm	Name: Terrapex	mpa
	10055	0	P.O. #:	-		10		18		E.		ontact Name:	C	2 .	- Sutton	lame: Peter	tac
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00 621/13	pronto	70	Location:	TER	AEIS	BURN	EN H	ISTE	KR			ione:	12 Pi	245-00	11_Fax: _416	416-245-0011	none:
	TS	iy:	Sampled	22								nail:	Er		errapex.con	. sutton @ ter	nail:
T) REQUIRED	TURNAROUND TIME (TA		ecific)			;	676	19G0	ł					RITERIA	REGULATORY		
NOTICE FOR RUSH	LEASE PROVIDE ADVANCE PROJECTS	P		28	V-8	EN		0	YK			Water Cha	Drinking	lease use th	g water samples -	r regulated drinking Form	ote:
A PARTICIPATION OF	r (Standard) TAT:	Regula		Î	1							1414	0	1. N. 1.	450		
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D and Dioxins/Furans are > 5 days -	ote that TAT for certain tests such as BOI our Project Manager for details.	Please no contact y					40	1	3	als F	ulate		FRUN	CXAM.	LIVERY TO MA	ING UNTIL DEL	
COMMENTS	COMMENTS / TAT	# of Corit.					2	4	15	Met	Reg	Matrix (GW, SW, Soil, etc.)	Time Sampled	Date Sampled	ification	Sample Identifi	
		114					XY	XX	X	Y	N	GW	-	Dec 8/09		BH702 .	i i
		113				4	XX	X	X	Y	N	GW	F	ec8/09		BH704	2
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Your P.O. #: 90055 Your Project #: CT1770.00 Site: TORONTO Your C.O.C. #: 00621713

Attention: Peter Sutton Terrapex Environmental Ltd 49 Coldwater Rd Toronto, ON M3B 1Y8

Report Date: 2009/12/16

CERTIFICATE OF ANALYSIS

MAXXAM JOB #: A9G6765 Received: 2009/12/09, 16:04

Sample Matrix: Water # Samples Received: 2

		Date	Date		Method
Analyses	Quantity	Extracted	Analyzed	Laboratory Method	Reference
Petroleum Hydro. CCME F1 & BTEX in Water	2	N/A	2009/12/15	CAM SOP-00315	CCME CWS
Petroleum Hydrocarbons F2-F4 in Water	2	2009/12/15	2009/12/15	CAM SOP-00316	CCME Hydrocarbons
Dissolved Metals by ICPMS	2	N/A	2009/12/15	CAM SOP-00447	EPA 6020
PAH Compounds in Water by GC/MS (SIM)	2	2009/12/12	2009/12/14	CAM SOP-00318	EPA 8270
Volatile Organic Compounds in Water	2	N/A	2009/12/12	CAM SOP-00226	EPA 8260 modified

* RPDs calculated using raw data. The rounding of final results may result in the apparent difference.

* Results relate only to the items tested.

Encryption Key

Please direct all questions regarding this Certificate of Analysis to your Project Manager.

KRISTEN BURMEISTER, Project Manager Email: Kristen.Burmeister@maxxamanalytics.com Phone# (905) 817-5700 Ext:5816

Maxxam has procedures in place to guard against improper use of the electronic signature and have the required "signatories", as per section 5.10.2 of ISO/IEC 17025:2005(E), signing the reports. SCC and CALA have approved this reporting process and electronic report format.

For Service Group specific validation please refer to the Validation Signature Page

Total cover pages: 1

Page 1 of 11



Terrapex Environmental Ltd Client Project #: CT1770.00 Project name: TORONTO Your P.O. #: 90055

ELEMENTS BY ATOMIC SPECTROSCOPY (WATER)

Maxxam ID		EP3682	EP3683		
Sampling Date		2009/12/04	2009/12/04		
	Units	BH 702	BH 704	RDL	QC Batch
Metals					
Dissolved Antimony (Sb)	ug/L	ND	ND	5	2036366
Dissolved Arsenic (As)	ug/L	ND	ND	10	2036366
Dissolved Barium (Ba)	ug/L	210	350	50	2036366
Dissolved Beryllium (Be)	ug/L	ND	ND	5	2036366
Dissolved Boron (B)	ug/L	280	310	100	2036366
Dissolved Cadmium (Cd)	ug/L	ND	ND	1	2036366
Dissolved Chromium (Cr)	ug/L	ND	ND	50	2036366
Dissolved Cobalt (Co)	ug/L	ND	ND	5	2036366
Dissolved Copper (Cu)	ug/L	ND	ND	10	2036366
Dissolved Lead (Pb)	ug/L	ND	ND	5	2036366
Dissolved Molybdenum (Mo)	ug/L	ND	ND	10	2036366
Dissolved Nickel (Ni)	ug/L	ND	ND	10	2036366
Dissolved Selenium (Se)	ug/L	ND	ND	20	2036366
Dissolved Silver (Ag)	ug/L	ND	ND	1	2036366
Dissolved Sodium (Na)	ug/L	1600000	2800000	1000	2036366
Dissolved Thallium (TI)	ug/L	ND	ND	0.5	2036366
Dissolved Vanadium (V)	ug/L	15	16	10	2036366
Dissolved Zinc (Zn)	ug/L	ND	ND	50	2036366





Terrapex Environmental Ltd Client Project #: CT1770.00 Project name: TORONTO Your P.O. #: 90055

SEMI-VOLATILE ORGANICS BY GC-MS (WATER)

Maxxam ID		EP3682	EP3683		
Sampling Date		2009/12/04	2009/12/04		
	Units	BH 702	BH 704	RDL	QC Batch
Polyaromatic Hydrocarbon	s		·		
Acenaphthene	ug/L	0.30	0.09	0.05	2034745
Acenaphthylene	ug/L	ND	ND	0.05	2034745
Anthracene	ug/L	ND	ND	0.05	2034745
Benzo(a)anthracene	ug/L	ND	ND	0.05	2034745
Benzo(a)pyrene	ug/L	ND	ND	0.01	2034745
Benzo(b/j)fluoranthene	ug/L	ND	ND	0.05	2034745
Benzo(g,h,i)perylene	ug/L	ND	ND	0.1	2034745
Benzo(k)fluoranthene	ug/L	ND	ND	0.05	2034745
Chrysene	ug/L	ND	ND	0.05	2034745
Dibenz(a,h)anthracene	ug/L	ND	ND	0.1	2034745
Fluoranthene	ug/L	ND	ND	0.05	2034745
Fluorene	ug/L	0.12	0.13	0.05	2034745
Indeno(1,2,3-cd)pyrene	ug/L	ND	ND	0.1	2034745
1-Methylnaphthalene	ug/L	1.6	0.20	0.05	2034745
2-Methylnaphthalene	ug/L	0.87	0.13	0.05	2034745
Naphthalene	ug/L	17	1.3	0.05	2034745
Phenanthrene	ug/L	0.07	0.20	0.05	2034745
Pyrene	ug/L	ND	ND	0.05	2034745
Surrogate Recovery (%)		•		•	
D10-Anthracene	%	99	88		2034745
D14-Terphenyl (FS)	%	108	96		2034745
D7-Quinoline	%	94	81		2034745
D8-Acenaphthylene	%	91	71		2034745



Terrapex Environmental Ltd Client Project #: CT1770.00 Project name: TORONTO Your P.O. #: 90055

VOLATILE ORGANICS BY GC/MS (WATER)

Maxxam ID		EP3682	EP3683		
Sampling Date		2009/12/04	2009/12/04		
	Units	BH 702	BH 704	RDL	QC Batch
Volatile Organics			_	-	
Acetone (2-Propanone)	ug/L	ND	ND	100	2033647
Benzene	ug/L	ND	1	1	2033647
Bromodichloromethane	ug/L	ND	ND	1	2033647
Bromoform	ug/L	ND	ND	2	2033647
Bromomethane	ug/L	ND	ND	5	2033647
Carbon Tetrachloride	ug/L	ND	ND	1	2033647
Chlorobenzene	ug/L	ND	ND	1	2033647
Chloroform	ug/L	ND	ND	1	2033647
Dibromochloromethane	ug/L	ND	ND	2	2033647
1,2-Dichlorobenzene	ug/L	ND	ND	2	2033647
1,3-Dichlorobenzene	ug/L	ND	ND	2	2033647
1,4-Dichlorobenzene	ug/L	ND	ND	2	2033647
1,1-Dichloroethane	ug/L	ND	ND	1	2033647
1,2-Dichloroethane	ug/L	ND	ND	2	2033647
1,1-Dichloroethylene	ug/L	ND	ND	1	2033647
cis-1,2-Dichloroethylene	ug/L	ND	ND	1	2033647
trans-1,2-Dichloroethylene	ug/L	ND	ND	1	2033647
1,2-Dichloropropane	ug/L	ND	ND	1 2	2033647
cis-1,3-Dichloropropene	ug/L	ND	ND		2033647
trans-1,3-Dichloropropene	ug/L	ND	ND	2	2033647
Ethylbenzene	ug/L	ND	ND	1	2033647
Ethylene Dibromide	ug/L	ND	ND	2	2033647
Methylene Chloride(Dichloromethane)	ug/L	ND	ND	5	2033647
Methyl Isobutyl Ketone	ug/L	ND	ND	50	2033647
Methyl Ethyl Ketone (2-Butanone)	ug/L	ND	ND	50	2033647
Methyl t-butyl ether (MTBE)	ug/L	ND	ND	2	2033647
Styrene	ug/L	ND	ND	2	2033647
1,1,1,2-Tetrachloroethane	ug/L	ND	ND	1	2033647
1,1,2,2-Tetrachloroethane	ug/L	ND	ND	2	2033647
Tetrachloroethylene	ug/L	ND	ND	1	2033647
Toluene	ug/L	ND	ND	2	2033647
1,1,1-Trichloroethane	ug/L	ND	ND	1	2033647
1.1.2-Trichloroethane	ua/L	ND	ND	2	2033647

ND = Not detected RDL = Reportable Detection Limit QC Batch = Quality Control Batch



Terrapex Environmental Ltd Client Project #: CT1770.00 Project name: TORONTO Your P.O. #: 90055

VOLATILE ORGANICS BY GC/MS (WATER)

Maxxam ID		EP3682	EP3683		
Sampling Date		2009/12/04	2009/12/04		
	Units	BH 702	BH 704	RDL	QC Batch
Trichloroethylene	ug/L	ND	ND	1	2033647
Vinyl Chloride	ug/L	ND	ND	2	2033647
p+m-Xylene	ug/L	ND	ND	1	2033647
o-Xylene	ug/L	ND	ND	1	2033647
Xylene (Total)	ug/L	ND	ND	1	2033647
Surrogate Recovery (%)					
4-Bromofluorobenzene	%	90	91		2033647
D4-1,2-Dichloroethane	%	81	82		2033647
D8-Toluene	%	102	100		2033647

PETROLEUM HYDROCARBONS (CCME)

Maxxam ID		EP3682	EP3683		
Sampling Date		2009/12/04	2009/12/04		
·	Units	BH 702	BH 704	RDL	QC Batch
BTEX & F1 Hydrocarbons					
F1 (C6-C10)	ug/L	ND	ND	100	2036396
F1 (C6-C10) - BTEX	ug/L	ND	ND	100	2036396
F2-F4 Hydrocarbons					
F2 (C10-C16 Hydrocarbons)	ug/L	ND	ND	100	2036037
F3 (C16-C34 Hydrocarbons)	ug/L	ND	ND	100	2036037
F4 (C34-C50 Hydrocarbons)	ug/L	ND	ND	100	2036037
Reached Baseline at C50	ug/L	YES	YES		2036037
Surrogate Recovery (%)					
1,4-Difluorobenzene	%	96	103		2036396
4-Bromofluorobenzene	%	99	99		2036396
D10-Ethylbenzene	%	109	108		2036396
D4-1,2-Dichloroethane	%	93	99		2036396
o-Terphenyl	%	121	125		2036037



Terrapex Environmental Ltd Client Project #: CT1770.00 Project name: TORONTO Your P.O. #: 90055

GENERAL COMMENTS

VOC Analysis: Due to foaming, the samples required dilution. The detection limits were adjusted ac

F1-BTEX Analysis: The BTEX results used for the F1-BTEX calculation were obtained from Headspace-GC analysis.

Sample EP3682-01: Metal analysis: Due to the sample matrix, sample required dilution. Detection limits were adjusted accordingly.

Sample EP3683-01: Metal analysis: Due to the sample matrix, sample required dilution. Detection limits were adjusted accordingly.



Driven by Service and Science

Terrapex Environmental Ltd Client Project #: CT1770.00 Project name: TORONTO Your P.O. #: 90055

QUALITY ASSURANCE REPORT

			Matrix S	Spike	Spiked	Blank	Method Bla	nk	RF	PD
QC Batch	Parameter	Date	% Recovery	QC Limits	% Recovery	QC Limits	Value	Units	Value (%)	QC Limits
2033647	4-Bromofluorobenzene	2009/12/12	98	70 - 130	99	70 - 130	92	%		
2033647	D4-1,2-Dichloroethane	2009/12/12	92	70 - 130	91	70 - 130	95	%		
2033647	D8-Toluene	2009/12/12	101	70 - 130	103	70 - 130	103	%		
2033647	Acetone (2-Propanone)	2009/12/12	66	60 - 140	61	60 - 140	ND, RDL=10	ug/L	NC	40
2033647	Benzene	2009/12/12	100	70 - 130	91	70 - 130	ND, RDL=0.1	ug/L	NC	40
2033647	Bromodichloromethane	2009/12/12	95	70 - 130	88	70 - 130	ND, RDL=0.1	ug/L	NC	40
2033647	Bromoform	2009/12/12	87	70 - 130	80	70 - 130	ND, RDL=0.2	ug/L	NC	40
2033647	Bromomethane	2009/12/12	97	60 - 140	84	60 - 140	ND, RDL=0.5	ug/L	NC	40
2033647	Carbon Tetrachloride	2009/12/12	104	70 - 130	97	70 - 130	ND, RDL=0.1	ug/L	NC	40
2033647	Chlorobenzene	2009/12/12	101	70 - 130	94	70 - 130	ND, RDL=0.1	ug/L	NC	40
2033647	Chloroform	2009/12/12	97	70 - 130	90	70 - 130	ND, RDL=0.1	ug/L	NC	40
2033647	Dibromochloromethane	2009/12/12	108	70 - 130	99	70 - 130	ND, RDL=0.2	ug/L	NC	40
2033647	1,2-Dichlorobenzene	2009/12/12	97	70 - 130	92	70 - 130	ND, RDL=0.2	ug/L	NC	40
2033647	1,3-Dichlorobenzene	2009/12/12	95	70 - 130	89	70 - 130	ND, RDL=0.2	ug/L	NC	40
2033647	1,4-Dichlorobenzene	2009/12/12	97	70 - 130	92	70 - 130	ND, RDL=0.2	ug/L	NC	40
2033647	1,1-Dichloroethane	2009/12/12	92	70 - 130	86	70 - 130	ND, RDL=0.1	ug/L	NC	40
2033647	1,2-Dichloroethane	2009/12/12	94	70 - 130	87	70 - 130	ND, RDL=0.2	ug/L	NC	40
2033647	1,1-Dichloroethylene	2009/12/12	95	70 - 130	90	70 - 130	ND, RDL=0.1	ug/L	NC	40
2033647	cis-1,2-Dichloroethylene	2009/12/12	100	70 - 130	92	70 - 130	ND, RDL=0.1	ug/L	NC	40
2033647	trans-1,2-Dichloroethylene	2009/12/12	100	70 - 130	94	70 - 130	ND, RDL=0.1	ug/L	NC	40
2033647	1,2-Dichloropropane	2009/12/12	100	70 - 130	91	70 - 130	ND, RDL=0.1	ug/L	NC	40
2033647	cis-1,3-Dichloropropene	2009/12/12	96	70 - 130	87	70 - 130	ND, RDL=0.2	ug/L	NC	40
2033647	trans-1,3-Dichloropropene	2009/12/12	95	70 - 130	86	70 - 130	ND, RDL=0.2	ug/L	NC	40
2033647	Ethylbenzene	2009/12/12	101	70 - 130	95	70 - 130	ND, RDL=0.1	ug/L	NC	40
2033647	Ethylene Dibromide	2009/12/12	103	70 - 130	95	70 - 130	ND, RDL=0.2	ug/L	NC	40
2033647	MethyleneChloride(Dichloromethane)	2009/12/12	102	70 - 130	96	70 - 130	ND, RDL=0.5	ug/L	NC	40
2033647	Methyl Isobutyl Ketone	2009/12/12	97	60 - 140	87	60 - 140	ND, RDL=5	ug/L	NC	40
2033647	Methyl Ethyl Ketone (2-Butanone)	2009/12/12	75	60 - 140	68	60 - 140	ND, RDL=5	ug/L	NC	40
2033647	Methyl t-butyl ether (MTBE)	2009/12/12	95	70 - 130	85	70 - 130	ND, RDL=0.2	ug/L	NC	40
2033647	Styrene	2009/12/12	111	70 - 130	104	70 - 130	ND, RDL=0.2	ug/L	NC	40
2033647	1,1,1,2-Tetrachloroethane	2009/12/12	106	70 - 130	99	70 - 130	ND, RDL=0.1	ug/L	NC	40
2033647	1,1,2,2-Tetrachloroethane	2009/12/12	101	70 - 130	94	70 - 130	ND, RDL=0.2	ug/L	NC	40
2033647	Tetrachloroethylene	2009/12/12	100	70 - 130	95	70 - 130	ND, RDL=0.1	ug/L	NC	40
2033647	Toluene	2009/12/12	103	70 - 130	93	70 - 130	ND, RDL=0.2	ug/L	NC	40
2033647	1,1,1-Trichloroethane	2009/12/12	95	70 - 130	89	70 - 130	ND, RDL=0.1	ug/L	NC	40
2033647	1,1,2-Trichloroethane	2009/12/12	97	70 - 130	90	70 - 130	ND, RDL=0.2	ug/L	NC	40
2033647	Trichloroethylene	2009/12/12	97	70 - 130	91	70 - 130	ND, RDL=0.1	ug/L	NC	40
2033647	Vinyl Chloride	2009/12/12	87	70 - 130	82	70 - 130	ND, RDL=0.2	ug/L	NC	40
2033647	p+m-Xylene	2009/12/12	100	70 - 130	93	70 - 130	ND, RDL=0.1	ug/L	NC	40



Driven by Service and Science

Terrapex Environmental Ltd Client Project #: CT1770.00 Project name: TORONTO Your P.O. #: 90055

QUALITY ASSURANCE REPORT

			Matrix	Spike	Spiked	Blank	Method Bla	nk	RF	D
QC Batch	Parameter	Date	% Recovery	QC Limits	% Recovery	QC Limits	Value	Units	Value (%)	QC Limits
2033647	o-Xylene	2009/12/12	101	70 - 130	94	70 - 130	ND, RDL=0.1	ug/L	NC	40
2033647	Xylene (Total)	2009/12/12					ND, RDL=0.1	ug/L	NC	40
2034745	D10-Anthracene	2009/12/14	95	30 - 130	95	30 - 130	101	%		
2034745	D14-Terphenyl (FS)	2009/12/14	104	30 - 130	100	30 - 130	108	%		
2034745	D7-Quinoline	2009/12/14	93	30 - 130	104	30 - 130	109	%		
2034745	D8-Acenaphthylene	2009/12/14	93	30 - 130	85	30 - 130	91	%		
2034745	Acenaphthene	2009/12/14	93	30 - 130	88	30 - 130	ND, RDL=0.05	ug/L	NC	40
2034745	Acenaphthylene	2009/12/14	92	30 - 130	86	30 - 130	ND, RDL=0.05	ug/L	NC	40
2034745	Anthracene	2009/12/14	102	30 - 130	99	30 - 130	ND, RDL=0.05	ug/L	NC	40
2034745	Benzo(a)anthracene	2009/12/14	112	30 - 130	107	30 - 130	ND, RDL=0.05	ug/L	NC	40
2034745	Benzo(a)pyrene	2009/12/14	97	30 - 130	93	30 - 130	ND, RDL=0.01	ug/L	NC	40
2034745	Benzo(b/j)fluoranthene	2009/12/14	101	30 - 130	98	30 - 130	ND, RDL=0.05	ug/L	NC	40
2034745	Benzo(g,h,i)perylene	2009/12/14	81	30 - 130	79	30 - 130	ND, RDL=0.1	ug/L	NC	40
2034745	Benzo(k)fluoranthene	2009/12/14	106	30 - 130	103	30 - 130	ND, RDL=0.05	ug/L	NC	40
2034745	Chrysene	2009/12/14	110	30 - 130	107	30 - 130	ND, RDL=0.05	ug/L	NC	40
2034745	Dibenz(a,h)anthracene	2009/12/14	90	30 - 130	87	30 - 130	ND, RDL=0.1	ug/L	NC	40
2034745	Fluoranthene	2009/12/14	111	30 - 130	106	30 - 130	ND, RDL=0.05	ug/L	NC	40
2034745	Fluorene	2009/12/14	103	30 - 130	97	30 - 130	ND, RDL=0.05	ug/L	NC	40
2034745	Indeno(1,2,3-cd)pyrene	2009/12/14	86	30 - 130	84	30 - 130	ND, RDL=0.1	ug/L	NC	40
2034745	1-Methylnaphthalene	2009/12/14	83	30 - 130	87	30 - 130	ND, RDL=0.05	ug/L	NC	40
2034745	2-Methylnaphthalene	2009/12/14	80	30 - 130	77	30 - 130	ND, RDL=0.05	ug/L	NC	40
2034745	Naphthalene	2009/12/14	79	30 - 130	78	30 - 130	ND, RDL=0.05	ug/L	NC	40
2034745	Phenanthrene	2009/12/14	102	30 - 130	99	30 - 130	ND, RDL=0.05	ug/L	NC	40
2034745	Pyrene	2009/12/14	111	30 - 130	107	30 - 130	ND, RDL=0.05	ug/L	NC	40
2036037	o-Terphenyl	2009/12/15	128	30 - 130	126	30 - 130	125	%		
2036037	F2 (C10-C16 Hydrocarbons)	2009/12/15	127	60 - 130	113	60 - 130	ND, RDL=100	ug/L	NC	50
2036037	F3 (C16-C34 Hydrocarbons)	2009/12/15	127	60 - 130	113	60 - 130	ND, RDL=100	ug/L	NC	50
2036037	F4 (C34-C50 Hydrocarbons)	2009/12/15	127	60 - 130	113	60 - 130	ND, RDL=100	ug/L	NC	50
2036366	Dissolved Antimony (Sb)	2009/12/15	103	80 - 120	100	90 - 110	ND, RDL=0.5	ug/L	NC	25
2036366	Dissolved Arsenic (As)	2009/12/15	100	80 - 120	100	90 - 110	ND, RDL=1	ug/L	NC	25
2036366	Dissolved Barium (Ba)	2009/12/15	NC	80 - 120	99	90 - 110	ND, RDL=5	ug/L	0.3	25
2036366	Dissolved Beryllium (Be)	2009/12/15	101	80 - 120	98	90 - 110	ND, RDL=0.5	ug/L	NC	25
2036366	Dissolved Boron (B)	2009/12/15	102	80 - 120	96	90 - 110	ND, RDL=10	ug/L	3.3	25
2036366	Dissolved Cadmium (Cd)	2009/12/15	100	80 - 120	98	90 - 110	ND, RDL=0.1	ug/L	NC	25
2036366	Dissolved Chromium (Cr)	2009/12/15	100	80 - 120	98	90 - 110	ND, RDL=5	ug/L	NC	25
2036366	Dissolved Cobalt (Co)	2009/12/15	98	80 - 120	99	90 - 110	ND, RDL=0.5	ug/L	NC	25
2036366	Dissolved Copper (Cu)	2009/12/15	97	80 - 120	96	90 - 110	ND, RDL=1	ug/L	NC	25
2036366	Dissolved Lead (Pb)	2009/12/15	97	80 - 120	97	90 - 110	ND, RDL=0.5	ug/L	NC	25
2036366	Dissolved Molybdenum (Mo)	2009/12/15	105	80 - 120	99	90 - 110	ND, RDL=1	ug/L	0.3	25



Driven by Service and Science

Terrapex Environmental Ltd Client Project #: CT1770.00 Project name: TORONTO Your P.O. #: 90055

QUALITY ASSURANCE REPORT

			Matrix	Spike	Spiked	Blank	Method Bla	nk	RF	PD
QC Batch	Parameter	Date	% Recovery	QC Limits	% Recovery	QC Limits	Value	Units	Value (%)	QC Limits
2036366	Dissolved Nickel (Ni)	2009/12/15	97	80 - 120	99	90 - 110	ND, RDL=1	ug/L	NC	25
2036366	Dissolved Selenium (Se)	2009/12/15	101	80 - 120	100	90 - 110	ND, RDL=2	ug/L	NC	25
2036366	Dissolved Silver (Ag)	2009/12/15	87	80 - 120	96	90 - 110	ND, RDL=0.1	ug/L	NC	25
2036366	Dissolved Sodium (Na)	2009/12/15	NC	80 - 120	107	90 - 110	ND, RDL=100	ug/L	0.7	25
2036366	Dissolved Thallium (TI)	2009/12/15	96	80 - 120	96	90 - 110	ND, RDL=0.05	ug/L	NC	25
2036366	Dissolved Vanadium (V)	2009/12/15	102	80 - 120	100	90 - 110	ND, RDL=1	ug/L	NC	25
2036366	Dissolved Zinc (Zn)	2009/12/15	99	80 - 120	98	90 - 110	ND, RDL=5	ug/L	NC	25
2036396	1,4-Difluorobenzene	2009/12/15	106	70 - 130	107	70 - 130	105	%		
2036396	4-Bromofluorobenzene	2009/12/15	101	70 - 130	100	70 - 130	99	%		
2036396	D10-Ethylbenzene	2009/12/15	102	70 - 130	102	70 - 130	107	%		
2036396	D4-1,2-Dichloroethane	2009/12/15	102	70 - 130	100	70 - 130	98	%		
2036396	F1 (C6-C10)	2009/12/15	82	70 - 130	95	70 - 130	ND, RDL=100	ug/L	NC	40
2036396	F1 (C6-C10) - BTEX	2009/12/15					ND, RDL=100	ug/L	NC	40

N/A = Not Applicable

RDL = Reportable Detection Limit

RPD = Relative Percent Difference

Duplicate: Paired analysis of a separate portion of the same sample. Used to evaluate the variance in the measurement.

Matrix Spike: A sample to which a known amount of the analyte of interest has been added. Used to evaluate sample matrix interference.

Spiked Blank: A blank matrix to which a known amount of the analyte has been added. Used to evaluate analyte recovery.

Method Blank: A blank matrix containing all reagents used in the analytical procedure. Used to identify laboratory contamination.

Surrogate: A pure or isotopically labeled compound whose behavior mirrors the analytes of interest. Used to evaluate extraction efficiency.

NC (Matrix Spike): The recovery in the matrix spike was not calculated. The relative difference between the concentration in the parent sample and the spiked amount was not sufficiently significant to permit a reliable recovery calculation.

NC (RPD): The RPD was not calculated. The level of analyte detected in the parent sample and its duplicate was not sufficiently significant to permit a reliable calculation.

Page 9 of 11



Validation Signature Page

Maxxam Job #: A9G6765

The analytical data and all QC contained in this report were reviewed and validated by the following individual(s).

Carriere

CRISTINA CARRIERE, Scientific Services

FLOYD MAYEDE, Senior Analyst

MAMDOUH SALIB, Analyst, Hydrocarbons

Juzana Popuni SUZANA POPOVIO, Supervisor, Hydrocarbons

Maxxam has procedures in place to guard against improper use of the electronic signature and have the required "signatories", as per section 5.10.2 of ISO/IEC 17025:2005(E), signing the reports. SCC and CALA have approved this reporting process and electronic report format.

R	MAXXAM JOB NUMBER	IECT INFORMATION	PROJ		n invoice	ers fron	V (if diffe	IATIO	NFORM	REPORT I			VOICE INFORMATION	-
		72317	#: <u>A</u>	Quotatio		ioice	s inc	ne c	San	ompany Name:	d co	ental It	rapex Environmi	pany Name: Ter
_		90055	- (P.O. #:		1	18	_		ontact Name:	Co	3. 1.	eter Sutton	act Name:
<i>‡</i>	CHAIN OF CUSTODY #	T1770.00	C	Project						ddress:	Ac	od	7 Coldwater Roe	ess: 4
	0004740		ame: 💻	Project	9 16:04	Dec-0	9-1					3B 1Y8	ronto, ON M	To
	00 621 / 13	Toronto	7	Location	MEIST	BUR	STEN	KRI		none:	12 Ph	-245-00	-0011 Fax: 416	e: 416-245
		Jis	Ву: 🚺	Sample						mail:	En	,	@ terrapex.com	p. sutton
1	AT) REQUIRED	TURNAROUND TIME (TA		pecific)		5	9G676	Ā			and a second second	CRITERIA	REGULATORY	
	NOTICE FOR RUSH	PLEASE PROVIDE ADVANCE PROJECTS			VV-828	El)	YK		Water Cha	a Drinking	please use th	frinking water samples -	: For regulated
3-	(call Lab for #) 3 days D and Dioxins/Furans are > 5 days - T COMMENTS	S to 7 Working Days S to 7 Working Days TAT: Rush Confirmation #: 1 day 2 days DATE Required: TIME Required: note that TAT for certain tests such as BOI tyour Project Manager for details. OOMMENTS / TAT	Piease n contact 1 # of Cont. 11 *			XX PAHS	× × F1/VUC × × PHC F2-F4	×× 153 Metals shortlist	Z Z Regulated Drinking Water? (Y / N) ✓ ✓ Metals Field Filtered? (Y / N)	Jse tary m ality: C of A? TIME OF Matrix (GW, SW, Soil, etc.) G W G W	Sewer U Sanit Storn Municipa Oriteria on FROM Time Sampled	I / Parkland / Commercial Fine Report DL (<10°C XXAM. Date Sampled Dec 8/09 Dec 8/09	Reg. 153 Table 1 Table 2 Table 3 Table 6 Table 6 Table 6 Table 6 Table 6 Table 6 Table 7 Table 7 Ta	MISA PWQO Reg. 558 ther (specify): MPLES MUS APLING UNT Sample BH702 BH704
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ot	Temperature (°C) on Receipt	SUBMITTED	Ø	nme m PM	7	g 2m	Ac.)	e/Print	D BY (Signatur	RECEIVE		D BY (Signature/Print)	RELINQUISH
	3/4/3°C			6:04	12/09	100	20		/	SHAIDU	AD !	EM ch	JAPFAR SALE	tall Sate



Maxxam Job # A9H0180

CONFIRMATION-RECEIPT OF SAMPLES FOR ANALYSIS

Client Project #: CT1770.00 PO #: 90055 Quote #: A72317 Site Location: TORONTO	9 Samples	Samples Received 2 Client Confirmation 2 Expected Report D	2009/12/16 2009/12/16 pelivery 2009/12/24 18:00
Report will be sent to:	Invoice will be ser	nt to:	
Peter Sutton	Accounts Pavable		
Terrapex Environmental Ltd	Terrapex Environmer	ntal Ltd	
49 Coldwater Rd	49 Coldwater Rd		
Toronto	Toronto		
M3B 1Y8	M3B 1Y8		
PN 4162450011-234 Fax 416-245-0012	accounts.payable@te	errapex.com	
p.sutton@terrapex.com			
We have received the following s	amples:		
BH705	Sampled 2009/12/14	COC# 00621724	Matrix: WATER
Maxxam #: ER1645			
*OReg 153 ICPMS DISSOIVEd Metals			
O'Reg 153 Polyaromatic Hydrocarbons			
O'Reg 153 Volatile Organics			
Sample Disposal Charge			
BH799	Sampled 2009/12/14		
Maxxam #: ER1646			
*OReg 153 ICPMS Dissolved Metals *OReg 153 Petroleum Hydrocarbons			
O'Reg 153 Polvaromatic Hydrocarbons			
O'Reg 153 Volatile Organics			
Sample Disposal Charge			
BH602	Sampled 2009/12/14		
Maxxam #: ER1647			
*O'Reg 153 ICPMS Dissolved Metals			
O'Reg 153 Petroleum Hydrocarbons			
O'Reg 153 Volatile Organics			
Sample Disposal Charge			
BH603	Sampled 2009/12/14		
Maxxam #: ER1648			
*O'Reg 153 ICPMS Dissolved Metals			
O'Reg 153 Polyaromatic Hydrocarbons			



O'Reg 153 Volatile Organics Sample Disposal Charge

BH604

Sampled 2009/12/14

Maxxam #: ER1649 *O'Reg 153 ICPMS Dissolved Metals *OReg 153 Petroleum Hydrocarbons O'Reg 153 Polyaromatic Hydrocarbons O'Reg 153 Volatile Organics Sample Disposal Charge

BH605

Sampled 2009/12/14

Maxxam #: ER1650 *O'Reg 153 ICPMS Dissolved Metals *OReg 153 Petroleum Hydrocarbons O'Reg 153 Polyaromatic Hydrocarbons O'Reg 153 Volatile Organics Sample Disposal Charge

BH606

Sampled 2009/12/15

Maxxam #: ER1651 *O'Reg 153 ICPMS Dissolved Metals *OReg 153 Petroleum Hydrocarbons O'Reg 153 Polyaromatic Hydrocarbons O'Reg 153 Volatile Organics Sample Disposal Charge

BH699

Sampled 2009/12/15

Maxxam #: ER1652 *O'Reg 153 ICPMS Dissolved Metals *OReg 153 Petroleum Hydrocarbons O'Reg 153 Polyaromatic Hydrocarbons O'Reg 153 Volatile Organics Sample Disposal Charge

TSPK

Sampled 2009/11/27

Maxxam #: ER1653 *O'Reg 153 ICPMS Dissolved Metals O'Reg 153 Polyaromatic Hydrocarbons O'Reg 153 Volatile Organics *Petroleum Hydro. CCME F1 & BTEX in Water Sample Disposal Charge

Comments:

WE RECEIVED THE FOLLOWING SAMPLES. THE ANALYSES REQUESTED ARE LISTED BELOW. AN ADDITIONAL FEE OF APPROXIMATELY \$20 PER SAMPLE SHALL BE CHARGED TO THE CLIENT FOR DISPOSAL OF HAZARDOUS SAMPLES IF NOT STATED ON THE COC TO RETURN THE SAMPLES FOR DISPOSAL BY THE CLIENT. SHOULD YOU REQUIRE FURTHER DETAILS PLEASE CONTACT OUR TECHNICAL SERVICE DEPARTMENT AT (905) 817-5700 OR 1-800-563-6266, REFERENCING THE REPORT #. PLEASE NOTE THAT, UNLESS SPECIAL STORAGE ARRANGEMENTS ARE MADE, ALL SAMPLES WILL BE DISCARDED 30 DAYS AFTER RECEPTION OF SAMPLES. NON-REGULAR SAMPLES ARE FLAGGED AS (C)OMPOSITE BY LAB, (H)OLD, OR (L)EACHATE TO BE PERFORMED. For revisions please contact your Maxam Project Management team at Ph (905) 817-5700 or Fax (905) 817-5777. Your Project Manager is: KRISTEN BURMEISTER



Maxxam Job # A9H0180 PARAMETERS FOR ANALYSIS REQUESTED

The values listed below are RDL's and not results. Report Detection Limit (RDL) may be elevated if there are matrix interferences or limited sample amounts.

Maxxam # ER1645, Sample IDN: BH Maxxam # ER1646, Sample IDN: BH Maxxam # ER1647, Sample IDN: BH Maxxam # ER1648, Sample IDN: BH Maxxam # ER1649, Sample IDN: BH Maxxam # ER1650, Sample IDN: BH Maxxam # ER1651, Sample IDN: BH Maxxam # ER1652, Sample IDN: BH	705 799 602 603 604 605 606 699		
OREG 153 PETROLEUM HYDROCA	RBONS		
F2 (C10-C16 Hydrocarbons)	100 ug/L	F3 (C16-C34 Hydrocarbons)	100 ug/L
F4 (C34-C50 Hydrocarbons)	100 ug/L	Reached Baseline at C50	
F1 (C6-C10) - BTEX	100 ug/L	F1 (C6-C10)	100 ug/L
Maxxam # ER1645, Sample IDN: BH	705		
Maxxam # ER1646, Sample IDN: BH	799		
Maxxam # ER1647, Sample IDN: BH	602		
Maxxam # ER1648, Sample IDN: BH	603		
Maxxam # ER1649, Sample IDN: BH	604		
Maxxam # ER1650, Sample IDN: BH	605		
Maxxam # ER1651, Sample IDN: BH	606		
Maxxam # ER1652, Sample IDN: BH	699		
Maxxam # ER1653, Sample IDN: TS	PK		
O'REG 153 ICPMS DISSOLVED MET	ALS		
Chromium (Cr)	5 ug/L	Cobalt (Co)	0.5 ug/L
Copper (Cu)	1 ug/L	Lead (Pb)	0.5 ug/L
Antimony (Sb)	0.5 ug/L	Molybdenum (Mo)	1 ug/L
Nickel (Ni)	1 ug/L	Selenium (Se)	2 ug/L
Silver (Ag)	0.1 ug/L	Sodium (Na)	100 ug/L
Arsenic (As)	1 ug/L	Thallium (TI)	0.05 ug/L
Vanadium (V)	1 ug/L	Zinc (Zn)	5 ug/L
Barium (Ba)	5 ug/L	Beryllium (Be)	0.5 ug/L
Boron (B)	10 ug/L	Cadmium (Cd)	0.1 ug/L
O'REG 153 POLYAROMATIC HYDRO	DCARBONS		
Naphthalene	0.05 ug/L	Chrysene	0.05 ug/L
Benzo(k)fluoranthene	0.05 ug/L	Benzo(a)pyrene	0.01 ug/L
Acenaphthylene	0.05 ug/L	Indeno(1,2,3-cd)pyrene	0.1 ug/L
Dibenz(a,h)anthracene	0.1 ug/L	Benzo(g,h,i)perylene	0.1 ug/L
2-Methylnaphthalene	0.05 ug/L	Acenaphthene	0.05 ug/L
Benzo(b/j)fluoranthene	0.05 ug/L	Fluorene	0.05 ug/L
1-Methylnaphthalene	0.05 ug/L	Benzo(a)anthracene	0.05 ug/L
Phenanthrene	0.05 ug/L	Anthracene	0.05 ug/L
Fluoranthene	0.05 ug/L	Pyrene	0.05 ug/L
O'REG 153 VOLATILE ORGANICS			
Chlorobenzene	0.1 ug/L	1,3-Dichlorobenzene	0.2 ug/L
1,4-Dichlorobenzene	0.2 ug/L		



O'REG 153 VOLATILE ORGANICS 1 2-Dichlorobenzene

1,2-Dichlorobenzene	0.2 ug/L		
cis-1,2-Dichloroethylene	0.1 ug/L	Chloroform	0.1 ug/L
1,1,1-Trichloroethane	0.1 ug/L	Carbon Tetrachloride	0.1 ug/L
1,2-Dichloroethane	0.2 ug/L	Trichloroethylene	0.1 ug/L
1,2-Dichloropropane	0.1 ug/L	Bromodichloromethane	0.1 ug/L
Vinyl Chloride	0.2 ug/L	cis-1,3-Dichloropropene	0.2 ug/L
trans-1,3-Dichloropropene	0.2 ug/L	1,1,2-Trichloroethane	0.2 ug/L
Tetrachloroethylene	0.1 ug/L	Dibromochloromethane	0.2 ug/L
Bromoform	0.2 ug/L	1,1,2,2-Tetrachloroethane	0.2 ug/L
Bromomethane	0.5 ug/L	1,1-Dichloroethylene	0.1 ug/L
Methylene Chloride(Dichloromethane)	0.5 ug/L	trans-1,2-Dichloroethylene	0.1 ug/L
1,1-Dichloroethane	0.1 ug/L	Benzene	0.1 ug/L
p+m-Xylene	0.1 ug/L	Toluene	0.2 ug/L
Ethylbenzene	0.1 ug/L	o-Xylene	0.1 ug/L
Xylene (Total)	0.1 ug/L	Styrene	0.2 ug/L
Acetone (2-Propanone)	10 ug/L	1,1,1,2-Tetrachloroethane	0.1 ug/L
Methyl Isobutyl Ketone	5 ug/L	Ethylene Dibromide	0.2 ug/L
Methyl Ethyl Ketone (2-Butanone)	5 ug/L	Methyl t-butyl ether (MTBE)	0.2 ug/L

Maxxam # ER1653, Sample IDN: TSPK

PETROLEUM HYDRO. CCME F1 & BTEX IN WATER F1 (C6-C10) - BTEX 100 ug/L

F1 (C6-C10)

100 ug/L



A9H0180: Price Confirmation

#	DESCRIPTION	Matrix	QUOTE #	PRICE	TOTAL	SURCHARGE
	Surcharge	Legend: (D/H) - Days/Hour	s TAT			
9	PRICE PACKAGE: O'REG 153 VOLATILE	WATER	A72317 \$	100.00 \$	900.00	0% ()
	ORGANICS					
9	PRICE PACKAGE: O'REG 153 POLYAROMATIC	WATER	A72317 \$	110.00 \$	990.00	0% ()
	HYDROCARBONS					
8	PRICE PACKAGE: OREG 153 PETROLEUM	WATER	A72317 \$	120.00 \$	960.00	0% ()
	HYDROCARBONS					
9	SAMPLE DISPOSAL CHARGE	WATER	A72317 \$	1.75 \$	15.75	
1	PETROLEUM HYDRO. CCME F1 & BTEX IN WATER	WATER	A72317 \$	60.00 \$	60.00	

INVOICE INFORMATION			REPORT	INFO	RM/	ATIO	N (if	diffe	ers from	n invoid	e)			PROJE	CT INFORMA	A	9H0180
Tangan Faunahan	tel Ita	1 00	mnany Name:	30	am	e i	95	14	NOU	e		a	Quotation #	t:	A72317	DKN	N ENV-707
Party Name: Terrapex Environment	1101 110		ntact Name:							<i>a</i>		P.	20. #:	-	90055		11
intact Name: <u>PCTCP square</u>	and	Ad	dress'									р	Project #:	C	T1770.00		CHAIN OF CUSTODY #
dress: 91 coldward he	2B 14	2		10				1	•		35	Р	Project Nar	me: 🗾			0000000
411-246-0011 500 416-2	45-001	12 ph	one:				Fax:					L	ocation:	1	Toronto	-	00 621/24
one: TIG-275-001 Pax. 110	com	En	nail:									s	Sampled B	y:	Tis		1 Contraction
ail: p. summer Granden				T	٨٨		212	REO	UESTE	D (Plea	se be s	pecif	fic)		TURNAROUM	D TIME (1	TAT) REQUIRED
REGULATORY CI	RITERIA	e Drinking	Water Chain of	f	AN	ALI	515 1	IL GE						i de F	LEASE PROVIDE	ADVANCE	E NOTICE FOR RUSH
MISA Reg. 153 MISA Reg. 153 PWQO Reg. 558 Table 1 Table 2 Table 2 Table 3 Table 6 Coarse Other (specify): AMPLES MUST BE KEPT COO AMPLING UNTIL DELIVERY TO MAX Sample Identification	/ Parkland Commercial Fine Report 1 L (<10°C KXAM. Date Sampled	Sewer U Sanit Storr Municipa Criteria on FROM	se tary n ality: C of A? I TIME OF Matrix (GW, SW, Soil, etc.	Regulated Drinking Water? (Y / N)	Metals Field Filtered? (Y / N)	153 Metals Shortlist	FILVOC	PHC F2-F4	PAHS					Regula Rush	ar (Standard) TAT: 5 to 7 Working I TAT: Rush Confirm 1 day 2 DATE Required: TIME Required: tote that TAT for certain te your Project Manager for COMI	Days ation #: days	(call Lab for #)] 3 days OD and Dioxins/Furans are > 5 day AT COMMENTS
BH705 1	Jec 14/09	-	GW	N	Y	X	X	X	×					10		_	
BH799	1	-		1	Y	X	X	X	X					10		-	10100
BH602		-	-		Y	X	X	X	X					11		-	109 DEC 16 15:00
BH603		-			Y	X	×	×	×		1			11			
RH604		-			Y	×	*	X	×					11		_	the second s
BH605	*	-	12		Y	X	×	X	×					11		-	
BH606	Dec 15/09	-			Y	X	X	X	X					11		_	and the second second
BH699	V	-	Y		Y	X	X	X	X			-		11			
TSPK-PAH-09-210 1	Vov 27/09	3:00PM			N		-		×		-	-		1		-	
0 TSPK-M-09-205 N	10v 23/09	11:30 AM			N	X		2.2						1			*
1 TRIP SPIKE LOT # 484 M	Vov 30/09	2:30 M			N		×							3			
2 TSPK-F1BW-09-215 N	VOV 30/09	10-50 AM	V		N		×		_					3			
RELINQUISHED BY (Signature/Print)	1	RECEIVE	ED BY (Signat	ure/F	Print)				Da	e	1.	Tim	ne	100	# JARS USED AN SUBMITTED	DNOT	Laboratory Use Only
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01	U	Acili	M					M	1111	11	11	:0	D.	1			3/2/200

ENVCOCFORM-MISS-09/08



Your P.O. #: 90055 Your Project #: CT1770.00 Site: TORONTO Your C.O.C. #: 00621724

Attention: Peter Sutton Terrapex Environmental Ltd 49 Coldwater Rd Toronto, ON

M3B 1Y8

Report Date: 2009/12/23

CERTIFICATE OF ANALYSIS

MAXXAM JOB #: A9H0180 Received: 2009/12/16, 16:00

Sample Matrix: Water # Samples Received: 9

		Date	Date		Method
Analyses	Quantity	Extracted	Analyzed	Laboratory Method	Reference
Petroleum Hydro. CCME F1 & BTEX in Water	8	N/A	2009/12/18	CAM SOP-00315	CCME CWS
Petroleum Hydro. CCME F1 & BTEX in Water	1	N/A	2009/12/22	CAM SOP-00315	CCME CWS
Petroleum Hydrocarbons F2-F4 in Water	8	2009/12/21	2009/12/22	CAM SOP-00316	CCME Hydrocarbons
Dissolved Metals by ICPMS	9	N/A	2009/12/22	CAM SOP-00447	EPA 6020
PAH Compounds in Water by GC/MS (SIM)	9	2009/12/18	2009/12/19	CAM SOP-00318	EPA 8270
Volatile Organic Compounds in Water	1	N/A	2009/12/21	CAM SOP-00226	EPA 8260 modified
Volatile Organic Compounds in Water	8	N/A	2009/12/22	CAM SOP-00226	EPA 8260 modified

* RPDs calculated using raw data. The rounding of final results may result in the apparent difference.

* Results relate only to the items tested.

Encryption Key

Please direct all questions regarding this Certificate of Analysis to your Project Manager.

KRISTEN BURMEISTER, Project Manager Email: Kristen.Burmeister@maxxamanalytics.com Phone# (905) 817-5700 Ext:5816

Maxxam has procedures in place to guard against improper use of the electronic signature and have the required "signatories", as per section 5.10.2 of ISO/IEC 17025:2005(E), signing the reports. SCC and CALA have approved this reporting process and electronic report format.

For Service Group specific validation please refer to the Validation Signature Page

Total cover pages: 1

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Terrapex Environmental Ltd Client Project #: CT1770.00 Project name: TORONTO Your P.O. #: 90055

ELEMENTS BY ATOMIC SPECTROSCOPY (WATER)

Maxxam ID		ER1645		ER1646	ER1647	ER1648		ER1649	ER1650	ER1651	ER1652	ER1653		
Sampling Date		2009/12/14		2009/12/14	2009/12/14	2009/12/14		2009/12/14	2009/12/14	2009/12/15	2009/12/15	2009/11/23		
												11:30		
	Units	BH705	RDL	BH799	BH602	BH603	RDL	BH604	BH605	BH606	BH699	TSPK	RDL	QC Batch
Metals														
Dissolved Antimony (Sb)	ug/L	1.7	0.5	1.2	0.8	ND	0.5	ND	ND	ND	ND	240	0.5	2041791
Dissolved Arsenic (As)	ug/L	13	1	12(1)	59(1)	ND(1)	5	2	ND	ND	ND	240	1	2041791
Dissolved Barium (Ba)	ug/L	290	5	310	350	290	5	150	320	700	ND	480	5	2041791
Dissolved Beryllium (Be)	ug/L	ND	0.5	ND	ND	ND	0.5	ND	ND	ND	ND	490	0.5	2041791
Dissolved Boron (B)	ug/L	280	10	290	3300	780	10	1400	680	2300	ND	480	10	2041791
Dissolved Cadmium (Cd)	ug/L	ND	0.1	ND	ND	ND	0.1	ND	ND	ND	ND	490	0.1	2041791
Dissolved Chromium (Cr)	ug/L	ND	5	ND	93	ND	5	ND	ND	ND	ND	470	5	2041791
Dissolved Cobalt (Co)	ug/L	ND	0.5	ND	3.5	0.5	0.5	0.5	1.3	2.7	ND	460	0.5	2041791
Dissolved Copper (Cu)	ug/L	ND	1	1	ND	ND	1	ND	1	ND	ND	460	1	2041791
Dissolved Lead (Pb)	ug/L	ND	0.5	ND	ND	ND	0.5	ND	ND	ND	ND	470	0.5	2041791
Dissolved Molybdenum (Mo)	ug/L	ND	1	ND	ND	ND	1	ND	ND	ND	ND	480	1	2041791
Dissolved Nickel (Ni)	ug/L	ND	1	ND	4	ND	1	1	ND	2	ND	460	1	2041791
Dissolved Selenium (Se)	ug/L	ND	2	ND	ND	ND	2	ND	ND	ND	ND	240	2	2041791
Dissolved Silver (Ag)	ug/L	ND	0.1	ND	ND	ND	0.1	ND	ND	ND	ND	31	0.1	2041791
Dissolved Sodium (Na)	ug/L	1100000	100	1000000	1000000	940000	1000	120000	160000	140000	ND	24000	100	2041791
Dissolved Thallium (TI)	ug/L	ND	0.05	ND	ND	ND	0.05	ND	ND	ND	ND	230	0.05	2041791
Dissolved Vanadium (V)	ug/L	2	1	ND(1)	9(1)	ND(1)	5	3	1	5	ND	470	1	2041791
Dissolved Zinc (Zn)	ug/L	ND	5	10	ND	ND	5	ND	96	5	ND	480	5	2041791

ND = Not detected

RDL = Reportable Detection Limit

QC Batch = Quality Control Batch

(1) - Detection Limit was raised due to matrix interferences.



Terrapex Environmental Ltd Client Project #: CT1770.00 Project name: TORONTO Your P.O. #: 90055

SEMI-VOLATILE ORGANICS BY GC-MS (WATER)

Maxxam ID		ER1645	ER1646		ER1647		
Sampling Date		2009/12/14	2009/12/14		2009/12/14		
	Units	BH705	BH799	RDL	BH602	RDL	QC Batch
Polyaromatic Hydrocarbons	6						
Acenaphthene	ug/L	0.12	0.14	0.05	ND	0.05	2039955
Acenaphthylene	ug/L	ND	ND	0.05	ND	0.05	2039955
Anthracene	ug/L	ND	ND	0.05	ND	0.05	2039955
Benzo(a)anthracene	ug/L	ND	ND	0.05	0.17	0.05	2039955
Benzo(a)pyrene	ug/L	ND	ND	0.01	0.05	0.01	2039955
Benzo(b/j)fluoranthene	ug/L	ND	ND	0.05	0.07	0.05	2039955
Benzo(g,h,i)perylene	ug/L	ND	ND	0.1	ND	0.1	2039955
Benzo(k)fluoranthene	ug/L	ND	ND	0.05	ND	0.05	2039955
Chrysene	ug/L	ND	ND	0.05	0.17	0.05	2039955
Dibenz(a,h)anthracene	ug/L	ND	ND	0.1	ND	0.1	2039955
Fluoranthene	ug/L	ND	ND	0.05	0.18	0.05	2039955
Fluorene	ug/L	ND	0.06	0.05	ND	0.05	2039955
Indeno(1,2,3-cd)pyrene	ug/L	ND	ND	0.1	ND	0.1	2039955
1-Methylnaphthalene	ug/L	ND	ND	0.05	ND(1)	0.1	2039955
2-Methylnaphthalene	ug/L	ND	ND	0.05	ND	0.05	2039955
Naphthalene	ug/L	ND	ND	0.05	0.11	0.05	2039955
Phenanthrene	ug/L	ND	ND	0.05	ND	0.05	2039955
Pyrene	ug/L	ND	ND	0.05	0.19	0.05	2039955
Surrogate Recovery (%)							
D10-Anthracene	%	94	96		95		2039955
D14-Terphenyl (FS)	%	104	103		101		2039955
D7-Quinoline	%	67	77		62		2039955
D8-Acenaphthylene	%	61	70		58		2039955

ND = Not detected

RDL = Reportable Detection Limit

QC Batch = Quality Control Batch

(1) - Detection Limit was raised due to matrix interferences.



Terrapex Environmental Ltd Client Project #: CT1770.00 Project name: TORONTO Your P.O. #: 90055

SEMI-VOLATILE ORGANICS BY GC-MS (WATER)

Maxxam ID		ER1648	ER1649	ER1650	ER1651	ER1652		ER1653		
Sampling Date		2009/12/14	2009/12/14	2009/12/14	2009/12/15	2009/12/15		2009/11/27		
								15:00		
	Units	BH603	BH604	BH605	BH606	BH699	RDL	TSPK	RDL	QC Batch
Polyaromatic Hydrocarbons	<u>s</u>									
Acenaphthene	ug/L	ND	0.20	1.0	1.1	ND	0.05	93	1	2039955
Acenaphthylene	ug/L	ND	ND	ND	ND	ND	0.05	86	1	2039955
Anthracene	ug/L	ND	ND	0.11	0.15	ND	0.05	93	1	2039955
Benzo(a)anthracene	ug/L	ND	ND	ND	ND	ND	0.05	110	1	2039955
Benzo(a)pyrene	ug/L	ND	ND	0.02	ND	ND	0.01	96	1	2039955
Benzo(b/j)fluoranthene	ug/L	ND	ND	ND	ND	ND	0.05	98	1	2039955
Benzo(g,h,i)perylene	ug/L	ND	ND	ND	ND	ND	0.1	84	1	2039955
Benzo(k)fluoranthene	ug/L	ND	ND	ND	ND	ND	0.05	110	1	2039955
Chrysene	ug/L	ND	ND	ND	ND	ND	0.05	110	1	2039955
Dibenz(a,h)anthracene	ug/L	ND	ND	ND	ND	ND	0.1	86	1	2039955
Fluoranthene	ug/L	ND	ND	0.18	0.21	ND	0.05	110	1	2039955
Fluorene	ug/L	ND	0.19	0.64	0.65	ND	0.05	98	1	2039955
Indeno(1,2,3-cd)pyrene	ug/L	ND	ND	ND	ND	ND	0.1	83	1	2039955
1-Methylnaphthalene	ug/L	ND	0.62	0.26	0.22	ND	0.05	86	1	2039955
2-Methylnaphthalene	ug/L	ND	0.20	ND	ND	ND	0.05	80	1	2039955
Naphthalene	ug/L	0.05	0.13	0.13	0.21	ND	0.05	79	1	2039955
Phenanthrene	ug/L	ND	ND	0.07	ND	ND	0.05	98	1	2039955
Pyrene	ug/L	ND	ND	0.13	0.15	ND	0.05	110	1	2039955
Surrogate Recovery (%)				-			-		-	
D10-Anthracene	%	97	99	99	98	102		93		2039955
D14-Terphenyl (FS)	%	100	103	102	101	103		98		2039955
D7-Quinoline	%	85	85	86	88	55		87		2039955
D8-Acenaphthylene	%	76	81	79	83	72		82		2039955

ND = Not detected RDL = Reportable Detection Limit QC Batch = Quality Control Batch



Terrapex Environmental Ltd Client Project #: CT1770.00 Project name: TORONTO Your P.O. #: 90055

VOLATILE ORGANICS BY GC/MS (WATER)

Maxxam ID		ER1645	ER1646		ER1647		ER1648		
Sampling Date		2009/12/14	2009/12/14		2009/12/14		2009/12/14		
	Units	BH705	BH799	RDL	BH602	RDL	BH603	RDL	QC Batch
Volatile Organics									
Acetone (2-Propanone)	ug/L	ND	ND	20	ND	50	ND	10	2040133
Benzene	ug/L	ND	ND	0.2	0.7	0.5	ND	0.1	2040133
Bromodichloromethane	ug/L	ND	ND	0.2	ND	0.5	ND	0.1	2040133
Bromoform	ug/L	ND	ND	0.4	ND	1	ND	0.2	2040133
Bromomethane	ug/L	ND	ND	1	ND	3	ND	0.5	2040133
Carbon Tetrachloride	ug/L	ND	ND	0.2	ND	0.5	ND	0.1	2040133
Chlorobenzene	ug/L	ND	ND	0.2	ND	0.5	ND	0.1	2040133
Chloroform	ug/L	ND	ND	0.2	ND	0.5	ND	0.1	2040133
Dibromochloromethane	ug/L	ND	ND	0.4	ND	1	ND	0.2	2040133
1,2-Dichlorobenzene	ug/L	ND	ND	0.4	ND	1	ND	0.2	2040133
1,3-Dichlorobenzene	ug/L	ND	ND	0.4	ND	1	ND	0.2	2040133
1,4-Dichlorobenzene	ug/L	ND	ND	0.4	ND	1	ND	0.2	2040133
1,1-Dichloroethane	ug/L	ND	ND	0.2	ND	0.5	ND	0.1	2040133
1,2-Dichloroethane	ug/L	ND	ND	0.4	ND	1	ND	0.2	2040133
1,1-Dichloroethylene	ug/L	ND	ND	0.2	ND	0.5	ND	0.1	2040133
cis-1,2-Dichloroethylene	ug/L	ND	ND	0.2	ND	0.5	ND	0.1	2040133
trans-1,2-Dichloroethylene	ug/L	ND	ND	0.2	ND	0.5	ND	0.1	2040133
1,2-Dichloropropane	ug/L	ND	ND	0.2	ND	0.5	ND	0.1	2040133
cis-1,3-Dichloropropene	ug/L	ND	ND	0.4	ND	1	ND	0.2	2040133
trans-1,3-Dichloropropene	ug/L	ND	ND	0.4	ND	1	ND	0.2	2040133
Ethylbenzene	ug/L	ND	ND	0.2	ND	0.5	ND	0.1	2040133
Ethylene Dibromide	ug/L	ND	ND	0.4	ND	1	ND	0.2	2040133
Methylene Chloride(Dichloromethane)	ug/L	ND	ND	1	ND	3	ND	0.5	2040133
Methyl Isobutyl Ketone	ug/L	ND	ND	10	ND	30	ND	5	2040133
Methyl Ethyl Ketone (2-Butanone)	ug/L	ND	ND	10	ND	30	ND	5	2040133
Methyl t-butyl ether (MTBE)	ug/L	ND	ND	0.4	ND	1	ND	0.2	2040133
Styrene	ug/L	ND	ND	0.4	ND	1	ND	0.2	2040133
1,1,1,2-Tetrachloroethane	ug/L	ND	ND	0.2	ND	0.5	ND	0.1	2040133
1,1,2,2-Tetrachloroethane	ug/L	ND	ND	0.4	ND	1	ND	0.2	2040133
Tetrachloroethylene	ug/L	ND	ND	0.2	ND	0.5	ND	0.1	2040133
Toluene	ug/L	ND	ND	0.4	ND	1	ND	0.2	2040133
1,1,1-Trichloroethane	ug/L	ND	ND	0.2	ND	0.5	ND	0.1	2040133
1.1.2-Trichloroethane	ua/L	ND	ND	0.4	ND	1	ND	0.2	2040133

ND = Not detected RDL = Reportable Detection Limit

QC Batch = Quality Control Batch



Terrapex Environmental Ltd Client Project #: CT1770.00 Project name: TORONTO Your P.O. #: 90055

VOLATILE ORGANICS BY	GC/MS	(WATER)
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Maxxam ID		ER1645	ER1646		ER1647		ER1648		
Sampling Date		2009/12/14	2009/12/14		2009/12/14		2009/12/14		
	Units	BH705	BH799	RDL	BH602	RDL	BH603	RDL	QC Batch
Trichloroethylene	ug/L	ND	ND	0.2	ND	0.5	ND	0.1	2040133
Vinyl Chloride	ug/L	ND	ND	0.4	ND	1	ND	0.2	2040133
p+m-Xylene	ug/L	ND	ND	0.2	3.6	0.5	ND	0.1	2040133
o-Xylene	ug/L	ND	ND	0.2	ND	0.5	ND	0.1	2040133
Xylene (Total)	ug/L	ND	ND	0.2	3.6	0.5	ND	0.1	2040133
Surrogate Recovery (%)									
4-Bromofluorobenzene	%	83	83		112		108		2040133
D4-1,2-Dichloroethane	%	116	118		115		114		2040133
D8-Toluene	%	109	107		107		107		2040133



Terrapex Environmental Ltd Client Project #: CT1770.00 Project name: TORONTO Your P.O. #: 90055

VOLATILE ORGANICS BY GC/MS (WATER)

Maxxam ID		ER1649		ER1650		ER1651		ER1652	ER1653		
Sampling Date		2009/12/14		2009/12/14		2009/12/15		2009/12/15	2009/11/30		
									14:30		
	Units	BH604	RDL	BH605	RDL	BH606	RDL	BH699	TSPK	RDL	QC Batch
Volatile Organics											
Acetone (2-Propanone)	ug/L	ND	20	ND	50	ND	20	ND	78	10	2040133
Benzene	ug/L	ND	0.2	ND	0.5	ND	0.2	ND	99	0.1	2040133
Bromodichloromethane	ug/L	ND	0.2	ND	0.5	ND	0.2	ND	96	0.1	2040133
Bromoform	ug/L	ND	0.4	ND	1	ND	0.4	ND	90	0.2	2040133
Bromomethane	ug/L	ND	1	ND	3	ND	1	ND	86	0.5	2040133
Carbon Tetrachloride	ug/L	ND	0.2	ND	0.5	ND	0.2	ND	86	0.1	2040133
Chlorobenzene	ug/L	ND	0.2	0.8	0.5	ND	0.2	ND	94	0.1	2040133
Chloroform	ug/L	ND	0.2	ND	0.5	ND	0.2	ND	98	0.1	2040133
Dibromochloromethane	ug/L	ND	0.4	ND	1	ND	0.4	ND	97	0.2	2040133
1,2-Dichlorobenzene	ug/L	ND	0.4	ND	1	ND	0.4	ND	93	0.2	2040133
1,3-Dichlorobenzene	ug/L	ND	0.4	ND	1	ND	0.4	ND	94	0.2	2040133
1,4-Dichlorobenzene	ug/L	ND	0.4	ND	1	0.6	0.4	ND	94	0.2	2040133
1,1-Dichloroethane	ug/L	ND	0.2	ND	0.5	ND	0.2	ND	100	0.1	2040133
1,2-Dichloroethane	ug/L	ND	0.4	ND	1	ND	0.4	ND	99	0.2	2040133
1,1-Dichloroethylene	ug/L	ND	0.2	ND	0.5	ND	0.2	ND	100	0.1	2040133
cis-1,2-Dichloroethylene	ug/L	ND	0.2	ND	0.5	ND	0.2	ND	96	0.1	2040133
trans-1,2-Dichloroethylene	ug/L	ND	0.2	ND	0.5	ND	0.2	ND	93	0.1	2040133
1,2-Dichloropropane	ug/L	ND	0.2	ND	0.5	ND	0.2	ND	110	0.1	2040133
cis-1,3-Dichloropropene	ug/L	ND	0.4	ND	1	ND	0.4	ND	79	0.2	2040133
trans-1,3-Dichloropropene	ug/L	ND	0.4	ND	1	ND	0.4	ND	79	0.2	2040133
Ethylbenzene	ug/L	ND	0.2	ND	0.5	ND	0.2	ND	100	0.1	2040133
Ethylene Dibromide	ug/L	ND	0.4	ND	1	ND	0.4	ND	100	0.2	2040133
Methylene Chloride(Dichloromethane)	ug/L	ND	1	ND	3	ND	1	ND	98	0.5	2040133
Methyl Isobutyl Ketone	ug/L	ND	10	ND	30	ND	10	ND	110	5	2040133
Methyl Ethyl Ketone (2-Butanone)	ug/L	ND	10	ND	30	ND	10	ND	91	5	2040133
Methyl t-butyl ether (MTBE)	ug/L	ND	0.4	ND	1	ND	0.4	ND	96	0.2	2040133
Styrene	ug/L	ND	0.4	ND	1	ND	0.4	ND	100	0.2	2040133
1,1,1,2-Tetrachloroethane	ug/L	ND	0.2	ND	0.5	ND	0.2	ND	93	0.1	2040133
1,1,2,2-Tetrachloroethane	ug/L	ND	0.4	ND	1	ND	0.4	ND	100	0.2	2040133
Tetrachloroethylene	ug/L	ND	0.2	ND	0.5	ND	0.2	ND	84	0.1	2040133
Toluene	ug/L	ND	0.4	ND	1	ND	0.4	ND	99	0.2	2040133
1,1,1-Trichloroethane	ug/L	ND	0.2	ND	0.5	ND	0.2	ND	90	0.1	2040133

ND = Not detected RDL = Reportable Detection Limit QC Batch = Quality Control Batch



Terrapex Environmental Ltd Client Project #: CT1770.00 Project name: TORONTO Your P.O. #: 90055

VOLATILE ORGANICS BY GC/MS (WATER)

Maxxam ID		ER1649		ER1650		ER1651		ER1652	ER1653		
Sampling Date		2009/12/14		2009/12/14		2009/12/15		2009/12/15	2009/11/30		
									14:30		
	Units	BH604	RDL	BH605	RDL	BH606	RDL	BH699	TSPK	RDL	QC Batch
1,1,2-Trichloroethane	ug/L	ND	0.4	ND	1	ND	0.4	ND	100	0.2	2040133
Trichloroethylene	ug/L	ND	0.2	ND	0.5	ND	0.2	ND	88	0.1	2040133
Vinyl Chloride	ug/L	ND	0.4	ND	1	ND	0.4	ND	100	0.2	2040133
p+m-Xylene	ug/L	ND	0.2	ND	0.5	ND	0.2	ND	99	0.1	2040133
o-Xylene	ug/L	ND	0.2	ND	0.5	ND	0.2	ND	100	0.1	2040133
Xylene (Total)	ug/L	ND	0.2	ND	0.5	ND	0.2	ND		0.1	2040133
Surrogate Recovery (%)											
4-Bromofluorobenzene	%	86		85		113		83	93		2040133
D4-1,2-Dichloroethane	%	117		114		115		114	104		2040133
D8-Toluene	%	108		109		106		107	106		2040133



Terrapex Environmental Ltd Client Project #: CT1770.00 Project name: TORONTO Your P.O. #: 90055

PETROLEUM HYDROCARBONS (CCME)

Maxxam ID		ER1645		ER1646	ER1647	ER1648	ER1649	ER1650	ER1651	ER1652	ER1653		
Sampling Date		2009/12/14		2009/12/14	2009/12/14	2009/12/14	2009/12/14	2009/12/14	2009/12/15	2009/12/15	2009/11/30		
											10:50		
	Units	BH705	QC Batch	BH799	BH602	BH603	BH604	BH605	BH606	BH699	TSPK	RDL	QC Batch
BTEX & F1 Hydrocarbons													
Benzene	ug/L										86	N/A	2039826
Toluene	ug/L										88	N/A	2039826
Ethylbenzene	ug/L										89	N/A	2039826
o-Xylene	ug/L										93	N/A	2039826
p+m-Xylene	ug/L										90	N/A	2039826
F1 (C6-C10)	ug/L	ND	2042401	ND		100	2039826						
F1 (C6-C10) - BTEX	ug/L	ND	2042401	ND		100	2039826						
F2-F4 Hydrocarbons													
F2 (C10-C16 Hydrocarbons)	ug/L	ND	2041751	ND		100	2041751						
F3 (C16-C34 Hydrocarbons)	ug/L	ND	2041751	ND	990	ND	ND	ND	ND	ND		100	2041751
F4 (C34-C50 Hydrocarbons)	ug/L	ND	2041751	ND		100	2041751						
Reached Baseline at C50	ug/L	YES	2041751	YES			2041751						
Surrogate Recovery (%)									-		-		
1,4-Difluorobenzene	%	100	2042401	101	100	102	102	102	102	104	103		2039826
4-Bromofluorobenzene	%	99	2042401	101	105	101	101	102	101	99	100		2039826
D10-Ethylbenzene	%	101	2042401	93	94	93	93	93	93	96	94		2039826
D4-1,2-Dichloroethane	%	90	2042401	98	100	99	98	99	98	99	100		2039826
o-Terphenyl	%	102	2041751	102	103	101	100	102	100	100			2041751



Terrapex Environmental Ltd Client Project #: CT1770.00 Project name: TORONTO Your P.O. #: 90055

GENERAL COMMENTS

F1-BTEX Analysis: The BTEX results used for the F1-BTEX calculation were obtained from Headspace-GC analysis.

VOC Analysis: Due to foaming, most of the samples required dilution. The detection limits were adjusted accordingly.

Sample ER1653-01: F1-BTEX Analysis: Trip spike results are expressed as percentage of the spiked amounts.

F1-BTEX Analysis: Analysis was performed past sample holding time. This may increase the variability associated with these results.

VOC Analysis: Trip Spike results are expressed as percent recoveries.



Terrapex Environmental Ltd Client Project #: CT1770.00 Project name: TORONTO Your P.O. #: 90055

QUALITY ASSURANCE REPORT

			Matrix S	Spike	Spiked	Blank	Method Blar	nk	RF	D
QC Batch	Parameter	Date	% Recovery	QC Limits	% Recovery	QC Limits	Value	Units	Value (%)	QC Limits
2039826	1,4-Difluorobenzene	2009/12/18	103	70 - 130	104	70 - 130	104	%		
2039826	4-Bromofluorobenzene	2009/12/18	102	70 - 130	102	70 - 130	101	%		
2039826	D10-Ethylbenzene	2009/12/18	95	70 - 130	96	70 - 130	95	%		
2039826	D4-1,2-Dichloroethane	2009/12/18	102	70 - 130	102	70 - 130	97	%		
2039826	Benzene	2009/12/18	89	70 - 130	89	70 - 130	ND, RDL=0.2	ug/L	NC	40
2039826	Toluene	2009/12/18	95	70 - 130	96	70 - 130	ND, RDL=0.2	ug/L	NC	40
2039826	Ethylbenzene	2009/12/18	101	70 - 130	101	70 - 130	ND, RDL=0.2	ug/L	NC	40
2039826	o-Xylene	2009/12/18	103	70 - 130	103	70 - 130	ND, RDL=0.2	ug/L	NC	40
2039826	p+m-Xylene	2009/12/18	100	70 - 130	101	70 - 130	ND, RDL=0.4	ug/L	NC	40
2039826	F1 (C6-C10)	2009/12/18	89	70 - 130	104	70 - 130	ND, RDL=100	ug/L	NC	40
2039826	F1 (C6-C10) - BTEX	2009/12/18					ND, RDL=100	ug/L	NC	40
2039955	D10-Anthracene	2009/12/18	92	30 - 130	96	30 - 130	98	%		
2039955	D14-Terphenyl (FS)	2009/12/18	97	30 - 130	101	30 - 130	101	%		
2039955	D7-Quinoline	2009/12/18	79	30 - 130	90	30 - 130	86	%		
2039955	D8-Acenaphthylene	2009/12/18	74	30 - 130	86	30 - 130	80	%		
2039955	Acenaphthene	2009/12/18	74	30 - 130	85	30 - 130	ND, RDL=0.05	ug/L	NC	40
2039955	Acenaphthylene	2009/12/18	70	30 - 130	81	30 - 130	ND, RDL=0.05	ug/L	NC	40
2039955	Anthracene	2009/12/18	93	30 - 130	96	30 - 130	ND, RDL=0.05	ug/L	NC	40
2039955	Benzo(a)anthracene	2009/12/18	101	30 - 130	106	30 - 130	ND, RDL=0.05	ug/L	NC	40
2039955	Benzo(a)pyrene	2009/12/18	91	30 - 130	97	30 - 130	ND, RDL=0.01	ug/L	1.7	40
2039955	Benzo(b/j)fluoranthene	2009/12/18	85	30 - 130	88	30 - 130	ND, RDL=0.05	ug/L	NC	40
2039955	Benzo(g,h,i)perylene	2009/12/18	86	30 - 130	82	30 - 130	ND, RDL=0.1	ug/L	NC	40
2039955	Benzo(k)fluoranthene	2009/12/18	92	30 - 130	101	30 - 130	ND, RDL=0.05	ug/L	NC	40
2039955	Chrysene	2009/12/18	98	30 - 130	104	30 - 130	ND, RDL=0.05	ug/L	NC	40
2039955	Dibenz(a,h)anthracene	2009/12/18	88	30 - 130	83	30 - 130	ND, RDL=0.1	ug/L	NC	40
2039955	Fluoranthene	2009/12/18	97	30 - 130	102	30 - 130	ND, RDL=0.05	ug/L	NC	40
2039955	Fluorene	2009/12/18	83	30 - 130	90	30 - 130	ND, RDL=0.05	ug/L	NC	40
2039955	Indeno(1,2,3-cd)pyrene	2009/12/18	88	30 - 130	82	30 - 130	ND, RDL=0.1	ug/L	NC	40
2039955	1-Methylnaphthalene	2009/12/18	67	30 - 130	81	30 - 130	ND, RDL=0.05	ug/L	NC	40
2039955	2-Methylnaphthalene	2009/12/18	62	30 - 130	75	30 - 130	ND, RDL=0.05	ug/L	NC	40
2039955	Naphthalene	2009/12/18	62	30 - 130	78	30 - 130	ND, RDL=0.05	ug/L	NC	40
2039955	Phenanthrene	2009/12/18	90	30 - 130	94	30 - 130	ND, RDL=0.05	ug/L	NC	40
2039955	Pyrene	2009/12/18	97	30 - 130	101	30 - 130	ND, RDL=0.05	ug/L	NC	40
2040133	4-Bromofluorobenzene	2009/12/21	94	70 - 130	94	70 - 130	85	%		
2040133	D4-1,2-Dichloroethane	2009/12/21	106	70 - 130	106	70 - 130	106	%		
2040133	D8-Toluene	2009/12/21	105	70 - 130	105	70 - 130	108	%		
2040133	Acetone (2-Propanone)	2009/12/21	89	60 - 140	86	60 - 140	ND, RDL=10	ug/L		
2040133	Benzene	2009/12/21	110	70 - 130	112	70 - 130	ND, RDL=0.1	ug/L		
2040133	Bromodichloromethane	2009/12/21	101	70 - 130	101	70 - 130	ND, RDL=0.1	ug/L		



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Terrapex Environmental Ltd Client Project #: CT1770.00 Project name: TORONTO Your P.O. #: 90055

QUALITY ASSURANCE REPORT

			Matrix S	Spike	Spiked	Blank	Method Bla	nk	RP	D
QC Batch	Parameter	Date	% Recovery	QC Limits	% Recovery	QC Limits	Value	Units	Value (%)	QC Limits
2040133	Bromoform	2009/12/21	95	70 - 130	91	70 - 130	ND, RDL=0.2	ug/L		
2040133	Bromomethane	2009/12/21	93	60 - 140	89	60 - 140	ND, RDL=0.5	ug/L		
2040133	Carbon Tetrachloride	2009/12/21	97	70 - 130	92	70 - 130	ND, RDL=0.1	ug/L		
2040133	Chlorobenzene	2009/12/22	100	70 - 130	101	70 - 130	ND, RDL=0.1	ug/L	NC	40
2040133	Chloroform	2009/12/21	106	70 - 130	107	70 - 130	ND, RDL=0.1	ug/L		
2040133	Dibromochloromethane	2009/12/21	100	70 - 130	97	70 - 130	ND, RDL=0.2	ug/L		
2040133	1,2-Dichlorobenzene	2009/12/21	95	70 - 130	97	70 - 130	ND, RDL=0.2	ug/L		
2040133	1,3-Dichlorobenzene	2009/12/21	95	70 - 130	99	70 - 130	ND, RDL=0.2	ug/L		
2040133	1,4-Dichlorobenzene	2009/12/21	96	70 - 130	100	70 - 130	ND, RDL=0.2	ug/L		
2040133	1,1-Dichloroethane	2009/12/21	110	70 - 130	112	70 - 130	ND, RDL=0.1	ug/L		
2040133	1,2-Dichloroethane	2009/12/21	107	70 - 130	109	70 - 130	ND, RDL=0.2	ug/L		
2040133	1,1-Dichloroethylene	2009/12/21	114	70 - 130	118	70 - 130	ND, RDL=0.1	ug/L		
2040133	cis-1,2-Dichloroethylene	2009/12/21	103	70 - 130	105	70 - 130	ND, RDL=0.1	ug/L		
2040133	trans-1,2-Dichloroethylene	2009/12/21	104	70 - 130	106	70 - 130	ND, RDL=0.1	ug/L		
2040133	1,2-Dichloropropane	2009/12/21	120	70 - 130	121	70 - 130	ND, RDL=0.1	ug/L		
2040133	cis-1,3-Dichloropropene	2009/12/21	103	70 - 130	101	70 - 130	ND, RDL=0.2	ug/L		
2040133	trans-1,3-Dichloropropene	2009/12/21	98	70 - 130	94	70 - 130	ND, RDL=0.2	ug/L		
2040133	Ethylbenzene	2009/12/21	107	70 - 130	109	70 - 130	ND, RDL=0.1	ug/L		
2040133	Ethylene Dibromide	2009/12/21	104	70 - 130	104	70 - 130	ND, RDL=0.2	ug/L		
2040133	MethyleneChloride(Dichloromethane)	2009/12/21	114	70 - 130	114	70 - 130	ND, RDL=0.5	ug/L		
2040133	Methyl Isobutyl Ketone	2009/12/21	124	60 - 140	122	60 - 140	ND, RDL=5	ug/L		
2040133	Methyl Ethyl Ketone (2-Butanone)	2009/12/21	102	60 - 140	101	60 - 140	ND, RDL=5	ug/L		
2040133	Methyl t-butyl ether (MTBE)	2009/12/21	105	70 - 130	105	70 - 130	ND, RDL=0.2	ug/L		
2040133	Styrene	2009/12/21	109	70 - 130	113	70 - 130	ND, RDL=0.2	ug/L		
2040133	1,1,1,2-Tetrachloroethane	2009/12/21	97	70 - 130	94	70 - 130	ND, RDL=0.1	ug/L		
2040133	1,1,2,2-Tetrachloroethane	2009/12/21	108	70 - 130	106	70 - 130	ND, RDL=0.2	ug/L		
2040133	Tetrachloroethylene	2009/12/21	89	70 - 130	92	70 - 130	ND, RDL=0.1	ug/L		
2040133	Toluene	2009/12/21	107	70 - 130	107	70 - 130	ND, RDL=0.2	ug/L		
2040133	1,1,1-Trichloroethane	2009/12/21	96	70 - 130	95	70 - 130	ND, RDL=0.1	ug/L		
2040133	1,1,2-Trichloroethane	2009/12/21	103	70 - 130	102	70 - 130	ND, RDL=0.2	ug/L		
2040133	Trichloroethylene	2009/12/21	93	70 - 130	96	70 - 130	ND, RDL=0.1	ug/L		
2040133	Vinyl Chloride	2009/12/21	105	70 - 130	107	70 - 130	ND, RDL=0.2	ug/L		
2040133	p+m-Xylene	2009/12/21	104	70 - 130	105	70 - 130	ND, RDL=0.1	ug/L		
2040133	o-Xylene	2009/12/21	105	70 - 130	105	70 - 130	ND, RDL=0.1	ug/L		
2040133	Xylene (Total)	2009/12/21					ND, RDL=0.1	ug/L		
2041751	o-Terphenyl	2009/12/22	106	30 - 130	107	30 - 130	101	%		
2041751	F2 (C10-C16 Hydrocarbons)	2009/12/21	76	60 - 130	90	60 - 130	ND, RDL=100	ug/L	NC	50
2041751	F3 (C16-C34 Hydrocarbons)	2009/12/21	76	60 - 130	90	60 - 130	ND, RDL=100	ug/L	NC	50
2041751	F4 (C34-C50 Hydrocarbons)	2009/12/21	76	60 - 130	90	60 - 130	ND, RDL=100	ug/L	NC	50



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Terrapex Environmental Ltd Client Project #: CT1770.00 Project name: TORONTO Your P.O. #: 90055

QUALITY ASSURANCE REPORT

			Matrix S	Spike	Spiked	Blank	Method Bla	nk	RPD		
QC Batch	Parameter	Date	% Recovery	QC Limits	% Recovery	QC Limits	Value	Units	Value (%)	QC Limits	
2041791	Dissolved Antimony (Sb)	2009/12/22	105	80 - 120	101	90 - 110	ND, RDL=0.5	ug/L	NC	25	
2041791	Dissolved Arsenic (As)	2009/12/22	102	80 - 120	99	90 - 110	ND, RDL=1	ug/L	NC	25	
2041791	Dissolved Barium (Ba)	2009/12/22	99	80 - 120	98	90 - 110	ND, RDL=5	ug/L	2.1	25	
2041791	Dissolved Beryllium (Be)	2009/12/22	103	80 - 120	101	90 - 110	ND, RDL=0.5	ug/L	NC	25	
2041791	Dissolved Boron (B)	2009/12/22	99	80 - 120	98	90 - 110	ND, RDL=10	ug/L			
2041791	Dissolved Cadmium (Cd)	2009/12/22	103	80 - 120	101	90 - 110	ND, RDL=0.1	ug/L	NC	25	
2041791	Dissolved Chromium (Cr)	2009/12/22	100	80 - 120	98	90 - 110	ND, RDL=5	ug/L	NC	25	
2041791	Dissolved Cobalt (Co)	2009/12/22	97	80 - 120	95	90 - 110	ND, RDL=0.5	ug/L	NC	25	
2041791	Dissolved Copper (Cu)	2009/12/22	95	80 - 120	97	90 - 110	ND, RDL=1	ug/L	NC	25	
2041791	Dissolved Lead (Pb)	2009/12/22	97	80 - 120	99	90 - 110	ND, RDL=0.5	ug/L	NC	25	
2041791	Dissolved Molybdenum (Mo)	2009/12/22	103	80 - 120	100	90 - 110	ND, RDL=1	ug/L	NC	25	
2041791	Dissolved Nickel (Ni)	2009/12/22	95	80 - 120	96	90 - 110	ND, RDL=1	ug/L	NC	25	
2041791	Dissolved Selenium (Se)	2009/12/22	103	80 - 120	100	90 - 110	ND, RDL=2	ug/L	NC	25	
2041791	Dissolved Silver (Ag)	2009/12/22	87	80 - 120	99	90 - 110	ND, RDL=0.1	ug/L	NC	25	
2041791	Dissolved Sodium (Na)	2009/12/22	NC(1)	80 - 120	97	90 - 110	ND, RDL=100	ug/L	2.4	25	
2041791	Dissolved Thallium (TI)	2009/12/22	96	80 - 120	99	90 - 110	ND, RDL=0.05	ug/L	NC	25	
2041791	Dissolved Vanadium (V)	2009/12/22	99	80 - 120	96	90 - 110	ND, RDL=1	ug/L	NC	25	
2041791	Dissolved Zinc (Zn)	2009/12/22	101	80 - 120	101	90 - 110	ND, RDL=5	ug/L	NC	25	
2042401	1,4-Difluorobenzene	2009/12/22	98	70 - 130	102	70 - 130	101	%			
2042401	4-Bromofluorobenzene	2009/12/22	98	70 - 130	101	70 - 130	100	%			
2042401	D10-Ethylbenzene	2009/12/22	101	70 - 130	104	70 - 130	106	%			
2042401	D4-1,2-Dichloroethane	2009/12/22	89	70 - 130	90	70 - 130	89	%			
2042401	F1 (C6-C10)	2009/12/22	119	70 - 130	97	70 - 130	ND, RDL=100	ug/L	0.9	40	
2042401	F1 (C6-C10) - BTEX	2009/12/22					ND, RDL=100	ug/L	NC	40	

N/A = Not Applicable

RDL = Reportable Detection Limit

RPD = Relative Percent Difference

Duplicate: Paired analysis of a separate portion of the same sample. Used to evaluate the variance in the measurement.

Matrix Spike: A sample to which a known amount of the analyte of interest has been added. Used to evaluate sample matrix interference.

Spiked Blank: A blank matrix to which a known amount of the analyte has been added. Used to evaluate analyte recovery.

Method Blank: A blank matrix containing all reagents used in the analytical procedure. Used to identify laboratory contamination.

Surrogate: A pure or isotopically labeled compound whose behavior mirrors the analytes of interest. Used to evaluate extraction efficiency.

NC (Matrix Spike): The recovery in the matrix spike was not calculated. The relative difference between the concentration in the parent sample and the spiked amount was not sufficiently significant to permit a reliable recovery calculation.

NC (RPD): The RPD was not calculated. The level of analyte detected in the parent sample and its duplicate was not sufficiently significant to permit a reliable calculation.

(1) - The recovery in the matrix spike was not calculated (NC). Spiked concentration was less than 2x that native to the sample.



Validation Signature Page

Maxxam Job #: A9H0180

The analytical data and all QC contained in this report were reviewed and validated by the following individual(s).

MAMDOUH SALIB, Analyst, Hydrocarbons

Yuanz fron YUANZHOU, gc\ms Technician

Juzana Permi SUZANA POPOVIO, Supervisor, Hydrocarbons

Carriere

CRISTINA CARRIERE, Scientific Services

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Maxxam has procedures in place to guard against improper use of the electronic signature and have the required "signatories", as per section 5.10.2 of ISO/IEC 17025:2005(E), signing the reports. SCC and CALA have approved this reporting process and electronic report format.

			REPORT I	NFO	RMA	TION	l (if c	liffer	rs from invo	oice)			PRO	JECT INFORMA	A	9H0180	
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MISA Reg. 153 PWQO PWQO Reg. 558 Reg. 5	I / Parkland / Commercial Fine Report (DL (<10°C XXAM. Date Sampled	Sewer U Sani Ston Municip Criteria on FROM Time Sampled	ise tary ality: C of A? I TIME OF Matrix (GW, SW, Soil, etc.)	Regulated Drinking Water? (Y / N)	Metals Field Filtered? (Y / N)	153 Metals Shortlist	FIJVOC	PHC +2-54	14Hs				Please contact # of	ular (Standard) TAT: 5 to 7 Working Days TAT: Rush Confirmatio 1 day 2 day DATE Required: TIME Required: enote that TAT for certain tests s ct your Project Manager for detail COMMEN	s n #: s uch as B s. NTS / T/	(call Lab for #)] 3 days OD and Dioxins/Furans are > 5 day AT COMMENTS	
BH705	Dec 14/09	-	GW	N	Y	X	XX	KI	κ	_			10)			
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BH602		-	-		Y	X	XI	X	X	-	-		11		-	109 DEC 19 TBION	
BH603		-			Y	X	X	X	X	-	-		1				
BH604		-	-		Y	X	*	N	X	-	-		11		-		
BH605	Y	-			Y	X	X	X	X	-	-		-11				
BH606	Dec 15/09	-			Y	X	X	N,	X	-	-						
BH699	V	-	Y	Y	I.	X	N	X	5		-					3111	
TSPK-PAH-09-210	Nov 21/01	3:00PM			N	V					-						
0 TSPK-M-09-205	Nov 23/09	11:30 AM			N		7	- 14		-	-		2		dir.		
1 TRIP SPIKE LOT # 484	Nov 30/09	2:30 M			N		N	_		-	-		2		-		
2 TSPK-FIBW-09-215	NOV 30/09	10-50 AM			N		X		Dult			Time	3	# JARS USED AND N	от	Laboratory Use Only	
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Maxxam Analytics International Corporation o/a Maxxam Analytics 6740 Campobello Road, MIssissauga, Ontario, L5N 2L8 Tel: (905) 817-5700 Toll-Free: 800-563-6266 Fax: (905) 817-5777 www.maxxam.ca

APPENDIX II SELECTED PHOTOGRAPHS


PHOTO 1: VIEW OF AREA "B" FACING SOUTHEAST.





PHOTO 3: VIEW OF MONITORING WELL "BH604" IN AREA "A", FACING NORTHWEST.





PHOTO 5: VIEW OF MONITORING WELL "BH704"IN AREA "A", FACING SOUTH.



PHOTO 6: VIEW OF MONITORING WELL "BH603" IN AREA "A", FACING NORTH.



PHOTO 7: VIEW OF MONITORING WELL "BH702" IN AREA "A", FACING WEST.



PHOTO 8: VIEW OF MONITORING WELL "BH602" IN AREA "A", FACING NORTH.

APPENDIX III CITY OF TORONTO BACKGROUND INFORMATION



Technical Services Division John Minor, Development Engineering Manager, Soil & Metro Hall, 16th Floor 55 John Street Toronto, ON , M5V 3C6 Fax: 416 392-4426

Groundwater Quality Unit Tel: 416 338-2824

Date: July 14, 2010

Re: Additional Background Information – Gardiner East Dismantling **Contaminated Soil Issue**

As part of the public record concerning the management of the contaminated lands along Lake Shore Boulevard East, the following background is necessary to provide a context for the work that has been carried out from 2001 - 2006 by Shaheen & Peaker (now Coffey Geotechnics), from 2008 – 2009 by Aqua Terre (now SNC Lavalin) and in 2009 – 2010 by Terrapex Environmental Ltd.

Background:

In 2006, in response to concerns raised by the community, the City of Toronto looked into the monitoring of soil and groundwater at the sites and provided summaries. It was determined that some of the historical data was missing. The City of Toronto undertook to identify any data gaps, fill them, and generate a report. Aqua Terre has reviewed each previous report prepared by Shaheen & Peaker and summarized them in the first 5-6 pages of their report which was released in November 2009. The purpose of this work was to establish a baseline, and the conclusion is that the first 30 cm of soil is an adequate degree of protection for the public.

For the groundwater, the findings were similar to the previous data except for PAHs. It is not clear why PAHs were detected, but it could be due to sedimentation in the samples. The sampling program performed by Terrapex was to sample all of the groundwater wells again, including the ones they were unable to test last time. This groundwater sampling was carried out in December 2009. The results of this sampling indicate that the groundwater quality meets the provincial standards for non-potable groundwater use. As such, no further groundwater sampling is warranted.

Conclusions:

This is the final environmental monitoring report regarding the Gardiner East Dismantling Environmental Monitoring Issue. The results indicate that the groundwater quality at all locations sampled meets the Soil Ground Water and Sediment Standards for Use Under Part XV.1 of the Environmental Protection Act (March 2004). Therefore, no further groundwater monitoring is warranted. This

report is to be reviewed and relied upon in conjunction with the Aqua Terre report titled Soil and Groundwater Sampling Lakeshore Boulevard East Toronto, Ontario, dated May 13, 2009 and revised November 13, 2009 which details soil cap conditions and provides conclusions with regard to public safety. The report contains recommendations for long-term work including surface integrity inspections and maintenance efforts to maintain cap integrity and thickness. The area is covered by vegetation and hard surfaces (such as concrete sidewalks, bicycle paths) which provide additional protection by preventing incidental contact with the contaminants underlying the cap. APPENDIX IV QUALIFICATIONS OF THE ASSESSORS



PETER SUTTON, P.Eng.

Education:	B.Sc. (Hons.) Geological Engineering B.A. Economics	1995 1994	Queen's University, Kingston Queen's University, Kingston			
Courses Completed:	 Phase I Environmental Site Assessments (Associated Environmental Site Assessors of Canada) Monitoring Natural Attenuation and In-Situ Remediation of Groundwater (Geoflow Inc. / University of Waterloo) DNAPLs in Fractured Geologic Material (Geoflow Inc. / University of Waterloo) Standard First Aid and CPR Petroleum Oriented Safety Training (POST) Workplace Hazardous Materials Information System (WHMIS) Business Writing & Grammar Skills (Skill Path Seminars) Excelling as a First-Time Manager or Supervisor (Skill Path Seminars) Fundamental of Personnel Law for Managers and Supervisors (Human Resources Council) 					
Professional Associations:	Licensed Professional Engineer, Association of Designated Consulting Engineer, Association of Association of Groundwater Scientists and Eng Association for Environmental Health and Scie	n of Professional Engineers of Ontario n of Professional Engineers of Ontario Engineers ciences				

EXPERIENCE

2004 to present - Terrapex Environmental Ltd., Toronto, Ontario

Consulting Engineer and Senior Project Manager

Responsible for management of a wide range of site assessment and remediation projects. Member of corporate management team. Responsibilities include senior review of reports and other documentation and management / supervision of professional and technical members of Terrapex staff.

Typical projects include:

- Phase I Environmental Site Assessments
- Geo-Environmental Investigation of soil and groundwater
- Management/Remediation of contaminated soil and groundwater
- Peer Review of environmental work programs completed by other parties

1997 to 2004 – Aqua Terre Solutions Inc., Toronto, Ontario

Project Engineer

Project manager and technical support for geo-environmental engineering projects. Participant in "management team" for Toronto office.

Professional responsibilities include:

- Collaboration in establishment of office procedures and budgets and recruitment of technical and administrative staff
- Supervision and mentoring of between six to eight professional and technician-level staff
- Project management of environmental investigation and remedial work programs including cost projection, budget tracking, scheduling, and supervision of other team members
- Design and implementation of environmental investigations (soil, groundwater, surface water, sediments, and building materials) in accordance with regulatory and industry protocols
- Development, implementation, and supervision of remedial action plans for contaminated sites, including design, implementation, and operation of pilot test and full-scale in-situ remedial systems
- Senior technical review of written reports



- Preparation of detailed proposals for complex and simple projects
- Liaison with and presentation to clients, contractors and the public
- Business development and marketing

1995 to 1997 – Altech Environmental Consulting Ltd., Toronto, Ontario

Associate, Site Investigation and Remediation Services

Technical collaboration in geo-environmental engineering projects

Duties and responsibilities include:

- Management of project budgets and schedules
- Completion and/or supervision of environmental assessment and remediation work programs
- Collaboration in design and implementation of in-situ remedial systems
- Preparation of written reports
- Preparation of detailed proposals for complex and simple projects
- Liaison with and presentation to clients, contractors and the public
- Business development and marketing

SELECTED PROJECT EXPERIENCE

Phase I Environmental Site Assessments

Various clients: Project manager/lead assessor for Phase I ESAs completed in accordance with CSA Standard Z768 and/or ASTM Standard E1527 at more than 100 industrial/commercial sites.

Phase II Environmental Site Assessments

Various clients: Managed or collaborated in more than 400 intrusive soil and groundwater investigations involving borehole drilling, test pit excavation and/or surface soil sampling at locations throughout Ontario.

City of Toronto: Overall Project Manager for the completion of various geo-environmental and geotechnical investigations at a former landfill in support of an application under Section 46 of the Ontario *Environmental Protection Act.* It was determined that the landfill accepted construction debris and industrial wastes, including calcium hydroxide sludge. The investigations included inductive electromagnetic and electrical resistivity tomography geophysical investigations, installation of multi-level monitoring wells, and subsurface vapour monitoring and sampling.

Confidential client: Managed intrusive environmental investigations at approximately 25 equipment rental facilities in Ontario and Quebec in support of potential purchases.

Industrial client: Completed a baseline environmental investigation at a 150 Ha scrap yard and metal recycling facility in southwestern Ontario.

Confidential client: Completed baseline environmental investigations at approximately 15 private fuel outlets throughout Ontario.

Confidential client: Completed intrusive environmental investigations to characterize soil and groundwater impacts at a dry cleaning facility in the Greater Toronto Area following the accidental discharge of approximately 2,500 L of solvent to ground surface.

Confidential client: Completed intrusive soil and groundwater investigations in the vicinity of former underground storage tank systems at approximately 40 locations throughout Ontario.



Petroleum client: Completed electromagnetic surveys and baseline environmental investigations at approximately 30 retail fuel outlets in Ontario.

Site Remediation/Decommissioning

Various clients: Managed or collaborated in more than 75 successful site remediation/decommissioning projects involving petroleum hydrocarbon, chlorinated solvent and inorganic contaminants.

Petroleum client: Designed an in-situ air sparing/bioventing system to remediate residual petroleum hydrocarbon impacts on properties adjacent to a former retail fuel outlet in downtown Toronto. Remaining impacts were located in areas inaccessible to heavy equipment at depths greater than practicable for hand excavation.

Petroleum client: Designed, installed, and operated pilot test and full-scale in-situ multi-phase extraction systems in a two-phase extraction ("slurping") configuration to remediate petroleum hydrocarbon impacts, including light non-aqueous phase liquid (LNAPL), associated with a catastrophic failure of an underground storage tank at an active retail fuel outlet in the Greater Toronto Area.

Various clients: Designed, installed, and operated pneumatic LNAPL recovery systems employing both total fluid and "LNAPL-only" recovery configurations at more than 20 locations in southern Ontario.

Confidential client: Managed the decommissioning of an industrial facility in the Greater Toronto Area which included the recovery of approximately 25,000 L of LNAPL and the excavation of more than 10,000 metric tonnes of impacted soil.

Petroleum client: Designed, implemented, and managed a Monitored Natural Attenuation program to manage residual volatile organic compound contamination at a former retail fuel outlet and automotive servicing facility in southern Ontario, including liaison with regulatory authorities.

Petroleum client: Collaborated in the completion of screening level risk assessments of remaining petroleum hydrocarbon impacts at and in the vicinity of two former retail fuel outlets in southern Ontario.

Petroleum client: Designed, installed, and operated pilot test and full-scale in-situ multi-phase extraction systems in a dual-phase extraction configuration to remediate petroleum hydrocarbon impacts at a former retail fuel outlet in the Greater Toronto Area.

Petroleum client: Designed, installed, and operated LNAPL recovery system employing both total fluid recovery, oil/water separators and air stripper and granular activated carbon effluent treatment at an active retail fuel outlet in the Greater Toronto Area. Approximately 6,000 L of LNAPL was recovered over an 18 month period.

Various petroleum clients: Collaborated in the design, installation and operation of pilot test and full-scale soil vapour extraction and air sparging remedial system at five former retail fuel outlets in Ontario.

Confidential client: Managed the emergency remediation of a spill of approximately 15,000 L of aviation fuel resulting from the catastrophic failure of an above ground storage tank at an airfield facility in Ontario. Project requirements included coordination with emergency services and liaison with regulatory authorities.

Industrial client: Designed, installed, and operated an in-situ soil vapour extraction remedial system in the solvent underground storage tank area of an industrial facility in the Greater Toronto Area.

Petroleum client: Collaborated in an investigation of the cause of an explosion at an active retail fuel outlet. Collaborated in the design, installation, and operation of an in-situ soil vapour extraction system to mitigate future explosion hazards or vapour intrusions into on-site buildings.

Various Clients: Supervised the removal of underground storage tank systems at numerous commercial, industrial, institutional and residential locations.



Environmental Management

Petroleum Client: Project manager and senior engineer for a permanent ex-situ soil bioremediation facility in southern Ontario for a six year period. The facility utilized bioventing with mixed-organic media biofilters for off-gas treatment and achieved throughput of up to 18,000 metric tonnes per year.

Public Works and Government Services Canada / Department of National Defence: Completed an environmental audit of the retrofit ("docking work program") of the HMCS Halifax, a Canadian Forces Halifax-class multi-role patrol frigate.

Various petroleum clients: Designed, implemented, and managed "Contaminant Management Plans" at more than 30 retail fuel outlets in Ontario, including liaison with regulatory authorities.

Petroleum client: Conducted waste management audits at more than 80 retail fuel outlets in Ontario with existing or former automotive service bay facilities. Collaborated in the development of Pollution Prevention (P2) Plans in accordance with municipal By-Law 457/00 (Sewer Use By-Law) for approximately 35 locations in the City of Toronto.

Confidential client: Completed Environmental Audit Programs at several manufacturing facilities in South and Central America on behalf of a Canadian beverage manufacturer undertaking joint ventures with foreign manufacturing companies and/or governments.

Ontario Realty Corp.: Completed a waste inventory in support of decommissioning the former Wellesley Central Hospital and Princess Margaret Hospital facilities at Wellesley Street East and Sherbourne Street in Toronto, Ontario.

Consulting and Audit Canada: Provided technical assistance in quantifying environmental liabilities associated with soil and/or groundwater contamination at railway properties prior to the privatization of Canadian National Railway.

Confidential client: Assessed the condition and status of underground fuel oil storage tanks at over 80 locations in Ontario, including the completion of electromagnetic surveys to identify abandoned underground storage tanks. Collaborated in the subsequent development of an underground storage tank management program for the client.

Peer Review/Expert Witness Testimony

555816 Ontario Inc. (o/a Campbellville Sand & Gravel Supply): Provided expert witness testimony in hydrogeology, contaminant hydrogeology, contaminated site assessment and remediation, and waste (inert fill) management at an Ontario Municipal Board (OMB) hearing. The OMB rejected a proposal by the Ministry of Natural Resources (MNR) to prohibit additional importation of inert fill to rehabilitate the aggregate pit, and found that the public interest was best served by filling the pit, rather than leaving the groundwater table exposed as proposed by MNR.

City of Toronto: Overall Project Manager and Senior Environmental Engineer for an independent peer review of an area-wide remedial program involving risk assessment/risk management for approximately 20 ha of former industrial lands east of the downtown core.

Municipal clients: Completed more than 50 peer reviews of environmental assessment and remediation reports associated with redevelopment applications in the City of Toronto and City of Vaughan. Work was completed on behalf of the municipality.

Industrial client: Completed peer reviews of several adjoining industrial properties in support of the expansion of an existing industrial facility in Toronto, Ontario. Supervised environmental investigation and remediation programs completed by third parties.

Industrial client: Provided technical assistance and advice in hydrogeology and contaminated site assessment and remediation on behalf of a client for their civil claim against a neighbouring property owner. The claim alleged that petroleum hydrocarbon impacted soil and groundwater present at the client's property resulted from a former private fuel dispensing outlet on the neighbouring property.



Confidential clients: Completed an independent peer review of environmental investigation reports prepared on behalf of two neighbouring property owners to determine likely source(s) of tetrachloroethylene and trichloroethylene in groundwater.

Confidential client: Completed peer reviews of approximately 10 retail fuel outlet decommissioning programs at properties leased to integrated petroleum companies. Work was completed on behalf of the lessor.

Confidential client: Completed peer reviews of environmental reports on behalf of a real estate developer prior to potential property acquisitions. Completed confirmatory environmental investigation programs at several locations, and supervised the subsequent excavation of approximately 3,000 and 4,500 metric tonnes of impacted overburden by third parties at two locations.

Petroleum client: Provided technical assistance and advice in contaminated site assessment and remediation on behalf of a client in defence of a civil claim from a neighbouring property owner. The claimant sought compensation for petroleum hydrocarbon impacted soil and groundwater present on the neighbouring property resulting from a former retail fuel outlet on the client's property. The client acknowledged responsibility for the contamination but alleged that the damages sought exceeded the likely costs to remediate the neighbouring property.

Petroleum client: Completed peer reviews of existing environmental reports in support of an acquisition of approximately 30 active retail fuel outlets. Provided technical assistance in quantifying environmental liabilities associated with soil and/or groundwater contamination at each location.



CAITLIN VANDERKOOY, M.Env.Sc.

Education:	B.Sc. (Hons) Earth and Environmental Science M. Env. Sc. Earth and Environmental Science	2007 2009	McMaster University University of Toronto		
Courses Completed:	Standard First Aid and CPR Petroleum Oriented Safety Training (POST) Workplace Hazardous Materials Information System (WHMIS) 40-hour OSHA Training Course for Hazardous Waste Operations Fall Protection Awareness Training				
Professional Associations:	Canadian Environmental Practitioner in training (C	EPIT)			

EXPERIENCE

2007 to Present - Terrapex Environmental Ltd., Toronto, Ontario

Environmental Scientist

Duties and responsibilities include:

- Phase I Environmental Site Assessments including research and review historical data, site inspections and reporting;
- Conduct Designated Substance Surveys, including sample collection, data compilation and reporting;
- Phase II Environmental Site Assessments including co-ordination and supervision of drilling and test pitting operations, soil logging and sampling, installation of monitoring wells, hydrogeological assessment of ground water movement and contaminant plumes, report preparation;
- Remediation Programs including; supervision of contaminated soil removal programs, progress and confirmatory soil sampling, data compilation and interpretation;
- Site monitoring including ex-situ soil remediation system, groundwater monitoring well networks, groundwater treatment systems.

2006 – Hamilton Conservation Authority, Hamilton, Ontario

Water Resource Technician (Co-op)

Duties and responsibilities include:

- Executed monthly surface water sampling of seven stream locations and analyzed the results, to ascertain the water quality of the Hamilton watershed;
- Restored and updated five stream water level and precipitation gauges across the Hamilton area;
- Created a partnership between the Hamilton Conservation Authority and the Ontario Ministry of Agriculture, Food and Rural Affairs to study the amount of phosphorous and nitrogen being contributed to the Hamilton watershed from agriculture;
- Contributed to the Halton Conservation Authorities baseflow study by measuring stream flow velocities during drought periods in the summer.



2005 – Jacques Whitford Environmental, Markham, Ontario

Field Technician (Co-op)

Duties and responsibilities include:

- Investigated the hydrogeology of sites in Southern Ontario through drilling, sampling and history reviews;
- Performed two waste audits to determine the changing needs of Toronto's population;
- Extracted contaminants from groundwater wells through passive and active methods.

SELECTED PROJECT EXPERIENCE

Phase I Environmental Site Assessments (ESAs)

Various Industrial and Commercial Facilities, and Residential properties in Ontario: Conducted on-site inspections and interviews associated with Phase I ESAs, and completed regulatory reviews, historical information searches, summaries/evaluations and reports.

Designated Substance Surveys

Various Industrial and Light Industrial Facilities, Residential and Commercial Properties, Ontario: Work experience includes indentifying and cataloging various designated substances including polychlorinated biphenyls (PCBs), ureaformaldehyde foam insulation (UFFI), ozone-depleting substance (ODS), and "designated substances" per the Ontario Occupational Health and Safety Act as well as conduct asbestos surveys, tank audits and lead sampling programs, review of laboratory results and report compilation.

Phase II Environmental Site Assessments (ESAs)

Various Industrial and Commercial Facilities, Ontario: Work experience includes managing field activities regarding the collection and interpretation of geologic and hydrogeologic field data including; completion of utility locates, preparation of health & safety plans, subcontractor supervision of test pitting, soil borings and well installations, soil and groundwater sampling, surveying, analyses of laboratory results and report compilation.

Industrial Facility (pervious metals foundry) Ontario: Conducted an extensive Phase II ESA, which included the installation of over forty boreholes and monitoring wells both outside and inside the facility. Contaminants of concern included metals, polycyclic aromatic hydrocarbons and petroleum hydrocarbons.

Retail Gasoline Outlet: Installed monitoring wells to greater than 55 meters below grade with both a track mounted and a sonic drill rig. Collected groundwater samples and conducted field hydraulic conductivity tests.

Gasoline Retail Fuel Outlets, Ontario: Conducted Phase I and II ESAs for various petroleum clients in Ontario including borehole and monitoring well installation, technical data interpretation and report preparation.

Site Remediation

Former Gasoline Retail Fuel Outlet, Ontario: Directed and observed the aeration and nutrient addition to soil biopiles which were impacted by diesel fuel. Successfully remediated soil to below the MOE standards.

Vapour and Air Quality Monitoring

Various Commercial Facilities, Ontario: Conducted air sampling and monitoring programs inside several commercial buildings to identify the possible presence of methane or volatile organic parameters.

Proposed Public School Location, Ontario: Coordinated and supervised the installation of monitors to evaluate the requirements for a methane capturing system prior to the construction of a public school.



JAFFAR SALEEM, B.Sc.

Education:	B.Sc. (Hons) Hydrology Environmental Engineering (Post-Graduate Diploma)	2007 2009	University of Toronto, Scarborough Conestoga College, Kitchener		
Courses Completed:	Advanced Watershed Monitoring Petroleum Oriented Safety Training (POST) Workplace Hazardous Materials Information System (WHMIS) 40-hour OSHA Training Course for Hazardous Waste Operations Transportation of Dangerous Good (TDGA) Confined Space Entry				
Professional Associations:					

EXPERIENCE

2009 to present – Terrapex Environmental Ltd., Toronto, Ontario

Environmental Scientist

Duties and responsibilities include:

- Phase I Environmental Site Assessments including; historical research, site inspection, report
 preparation
- Designated Substances Surveys including; site inspection, sampling, laboratory data analysis and report preparation
- Phase II Environmental Site Assessments including; co-ordination and supervision of drilling and test pitting operations, installation of monitoring wells and groundwater sampling, soil logging and sampling, assessment of ground water flow, movement and contaminant plumes, carrying out station surveys, client and contractor liaison, and report preparation
- Supervision of underground storage tank (UST) decommissioning and remedial excavations, report preparation
- Air Quality Assessments including: ambient air quality assessment and sampling, site reconnaissance, report preparation

2007 to 2009 – Premier Environmental Services Inc., Cambridge, Ontario

Environmental Scientist

Duties and responsibilities include:

- Phase I Environmental Site Assessment including: historical research, site inspection, report preparation
- Designated Substances Surveys including; site inspection, sampling, laboratory data analysis and report preparation
- Phase II Environmental Site Assessment including; supervision of drilling operation, soil logging and sampling, installation of monitoring wells and groundwater sampling, hydrogeological assessment of ground water movement and contaminant plumes, report preparation
- Supervision of underground storage tank (UST) decommissioning and remedial excavations, report preparation
- Coordination and supervision of geophysical, geotechnical and remediation contractors, including liaison with external analytical laboratories
- Creating aquifer response charts, datasheets and hydrographs, borehole logs and groundwater modeling figures
- Proposals, budget and report preparation



SELECTED PROJECT EXPERIENCE

Phase I Environmental Site Assessments

Various Clients: Assistance/management of numerous Phase I ESAs at various sites in Ontario, including agricultural, commercial and residential properties. Conducted Designated Substances Surveys at several sites where demolition of the buildings was anticipated.

School Board: Conducted Phase I ESA of a secondary school for due diligence purposes in advance of a property transaction.

Federal Government: Completed field inspections for enhanced Phase I ESAs of 25 rural sites in a very tight timeframe. Work included surface soil sampling and compliance auditing of above-ground fuel storage tanks.

Phase II Environmental Site Assessments

Commercial: Conducted assessments of over ten franchise fast food restaurant in Ontario, Quebec and Alberta, dealing with groundwater and soil contamination.

Industrial: Conducted an assessment of a former chemical manufacturing facility in Cambridge, Ontario, focusing on chlorinated solvent contamination.

Federal Government/Crown Corporation: Conducted and managed a multi-stage assessment of Port Credit Marina for potential real estate transaction, including supervising a geotechnical investigation, and carrying out an environmental soil and groundwater investigation.

Air Quality Assessments

Commercial: Conducted assessments and air sampling programs for a franchise fast food restaurant in Ontario.

Site Remediation

Petroleum Client: Supervised and managed in-situ potassium permanganate remediation projects and contractors for various clients in Ontario, including verification soil and groundwater sampling.

Industrial Client: Supervised and managed in-situ bioremediation for chlorinated solvents contaminated paint manufacturing facility in Toronto.

International Petroleum Client: Assisted remediation contractor with remediation system design and implementation in Saudi Arabia.

Technical Papers and Presentations

Hydrogeological Assessment and Groundwater Resource Study for the Island of Barbados, Technical Report for the Government of Barbados on behalf of R.J Burnside & Associates Ltd., Conestoga College, April 2009.