



Phase II Environmental Site Assessment

Portion of 1459 Regent Avenue West
Winnipeg, MB

Prepared for:

IBI Group

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Attn: Tony Withall

April 20, 2015

Pinchin File: 103257



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EXECUTIVE SUMMARY

Pinchin Ltd. (Pinchin) was retained through an Authorization to Proceed signed by Tony Withall of IBI Group (Client) to conduct a Phase II Environmental Site Assessment (ESA) at a portion of the property located at 1459 Regent Avenue West in Winnipeg, MB (hereafter referred to as the Site).

The Site is developed with a portion of a coverall building and an asphalt parking lot.

The purpose of this Phase II ESA is required as part of the due diligence requirements in relation to the potential acquisition of the Site for future redevelopment as a commercial restaurant.

The results of a Phase I ESA completed by Stantec Consulting Ltd. (Stantec) in 2011 identified the following potential issues of environmental concern:

- Activities at 1459 Regent Avenue including hazardous waste generation, auto repair operations, hydraulic hoists, floor drains, an oil/water separator, exterior staining in the vicinity of the used oil aboveground storage tank (AST) and drum storage area, interior chemical storage and a former on-Site underground storage tank (UST); and
- Mohawk Oil Company Ltd. (Mohawk), formerly located at 1439 Regent Avenue West (approximately 50 m east of the Site), is listed as a contaminated/impacted site by Manitoba Conservation and had three 22,730 L USTs, one 45,460 L UST and one 25,000 L UST.

Stantec reported that the location of the on-Site UST was unknown. Pinchin contacted Manitoba Conservation and Water Stewardship (Manitoba Conservation) to obtain a figure identifying the location of the UST. Pinchin was retained by the Client to conduct a Phase II ESA to address the above noted items of potential environmental concern identified by Stantec.

The Phase II ESA was completed at the Site by Pinchin between March 12 and April 7, 2015, and consisted of the advancement of six boreholes, three of which were completed as groundwater monitoring wells.



Select “worst case” soil samples collected during the borehole drilling program were submitted for a combination of laboratory analysis of benzene, toluene, ethylbenzene and xylenes (collectively “BTEX”), petroleum hydrocarbons (PHCs) in the F1 to F4 fraction range (F1-F4), volatile organic compounds (VOCs) and polycyclic aromatic hydrocarbons (PAHs). Groundwater samples collected from the newly installed groundwater monitoring wells were submitted for a combination of laboratory analysis of BTEX, PHCs (F1-F4), VOCs and PAHs.

Based on Site-specific information, the soil quality was assessed based on the Canadian Council of Ministers of the Environment (CCME) “*Environmental Quality Guidelines*” accessed on the CCME web site in April, 2015, the CCME “*Canada-Wide Standards for Petroleum Hydrocarbons in Soil*”, dated 2008 and the CCME “*Canadian Environmental Soil Quality Guidelines for the Protection of Environmental and Human Health - Polycyclic Aromatic Hydrocarbons*”, dated 2010 (hereafter collectively referred to as the “CCME Soil Guidelines”).

The CCME does not provide groundwater criteria for non-potable groundwater conditions and Manitoba Conservation and Water Stewardship does not specify which guidelines to use for non-potable groundwater conditions. As such, groundwater quality was assessed based on the Ontario Ministry of the Environment and Climate Change (MOECC) “*Soil, Ground Water and Sediment Standards for Use Under Part XV.1 of the Environmental Protection Act*”, dated April 15, 2011 (MOECC Groundwater Guidelines).

Reported concentrations in the soil and groundwater samples submitted for analysis of BTEX, PHCs (F1-F4), VOCs and PAHs satisfied the CCME Soil Guidelines and MOECC Groundwater Guidelines respectively.

Based on the findings of this Phase II ESA, it is Pinchin’s opinion that no further subsurface investigation is required for the Site in relation to the findings of the Stantec Phase I ESA.

This Executive Summary is subject to the same standard limitations as contained in the report and must be read in conjunction with the entire report.



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1.0 INTRODUCTION

Pinchin Ltd. (Pinchin) was retained through an Authorization to Proceed signed by Tony Withall of IBI Group (Client) to conduct a Phase II Environmental Site Assessment (ESA) of a portion of the property located at 1459 Regent Avenue in Winnipeg, MB (hereafter referred to as the Site). The Site location is shown on Figure 1 (all Figures are provided in Appendix I).

The Site is developed with a portion of a coverall building and an asphalt parking lot.

The purpose of this Phase II ESA is required as part of the due diligence requirements in relation to the potential acquisition of the Site for future redevelopment as a commercial restaurant.

This Phase II ESA was completed in general accordance with the Canadian Standards Association document entitled "*Phase II Environmental Site Assessment, CSA Standard Z769-00 (R2013)*", dated 2000 and reaffirmed in 2013.

1.1 Background

Pinchin reviewed the following document that was provided to Pinchin for review by the Client:

- "*Phase I Environmental Site Assessment, 1459 Regent Avenue West, Winnipeg, MB, Final Report*" completed by Stantec Consulting Ltd. (Stantec) for Manitoba Lotteries Corporation dated May 31, 2011 (2011 Stantec Phase I ESA Report).

Based on our review of the 2011 Stantec Phase I ESA Report, the following potential issues of environmental concern were identified that could give rise to potential subsurface impacts in connection with the Site:

- Activities at 1459 Regent Avenue including hazardous waste generation, auto repair operations, hydraulic hoists, floor drains, an oil/water separator, exterior staining in the vicinity of the used oil aboveground storage tank (AST) and drum storage area, interior chemical storage and a former on-Site underground storage tank (UST); and
- Mohawk Oil Company Ltd. (Mohawk), formerly located at 1439 Regent Avenue West (approximately 50 m east of the Site), is listed as a contaminated/impacted site by Manitoba Conservation and had three 22,730 L USTs, one 45,460 L UST and one 25,000 L UST.



Stantec reported that the location of the on-Site UST was unknown. Pinchin contacted Manitoba Conservation and Water Stewardship (Manitoba Conservation) to obtain a figure identifying the location of the UST. The UST location is shown on Figure 3. Pinchin was retained by the Client to conduct a Phase II ESA to address the above noted items of potential environmental concern identified by Stantec.

1.2 Scope of Work

The scope of work completed by Pinchin, as outlined in the Pinchin proposal entitled *“Proposal for Phase II Environmental Site Assessment Portion of 1459 Regent Avenue, Winnipeg, MB”* submitted to the Client on March 12, 2015, included the following:

- Advancement of up to three boreholes following the clearance of underground services, all of which were instrumented with a monitoring well;
- Submission of select “worst case” soil samples for a combination of laboratory analysis of benzene, toluene, ethylbenzene and xylenes (collectively “BTEX”), petroleum hydrocarbons (PHCs) in the F1 to F4 fraction ranges (F1-F4), volatile organic compounds (VOCs), polycyclic aromatic hydrocarbons (PAHs);
- Collection of groundwater samples from each of the newly installed monitoring wells and previously installed monitoring wells, following well development and purging, for a combination of laboratory analysis of BTEX, PHCs (F1-F4), VOCs and PAHs;
- Monitor the groundwater levels and for the presence of non-aqueous phase liquid (NAPL) within the newly-installed groundwater monitoring wells using an interface probe.
- Comparison of the soil and groundwater laboratory analytical results to the applicable regulatory criteria; and
- Preparation of a factual report detailing the findings of the Phase II ESA and recommendations.

2.0 METHODOLOGY

The investigation methodology was conducted in general accordance with the Manitoba Conservation guidelines entitled *“Environmental Site Assessments in Manitoba”*, dated October 2014 and *“Manitoba Criteria for BTEX in Investigation Results”*, dated October 2014 (*Manitoba Conservation Guidelines*) and Pinchin’s standard operating procedures (SOPs).



2.1 Borehole Investigation

Pinchin retained Maple Leaf Drilling Ltd. (Maple Leaf) to complete the borehole drilling program at the Site on March 12, 2015 and March 25, 2015 following the clearance of underground services in the vicinity of the work area by public utility locators and a private utility locator retained by Pinchin.

The boreholes were advanced to a maximum depth of 6.1 metres below ground surface (mbgs) using a truck mounted drill rig equipped with solid stem augers. Soil samples were collected at regular 0.75 metre (m) intervals from the auger flights. Discrete soil samples were collected from the auger flights and containerized in laboratory-supplied glass sampling jars.

Subsurface soil conditions were logged on-Site by Pinchin personnel at the time of drilling. Soil samples were examined for visual and olfactory evidence of impacts and a portion of each sample was analyzed in the field for solvent and petroleum-derived vapour concentrations in soil headspace using a photoionization detector (PID) and a hydrocarbon surveyor operated in methane elimination mode (RKI Eagle 2).

The integrity of the soil samples originally collected on March 12, 2015 was compromised during their transfer to the lab for analysis and were therefore, no longer acceptable for laboratory analysis. Pinchin returned to the Site on March 25, 2015 and advanced an additional three boreholes, each within a 0.5 m vicinity of the existing monitoring wells that were originally installed on March 12, 2015. Sampling was completed using identical methods. The samples collected on March 25, 2015 were subsequently labeled according to which original borehole they were drilled near (i.e., BH1B-S4 was collected from borehole BH1B in the vicinity of borehole BH1 (MW1)).

The approximate locations of the boreholes are shown on Figure 2 and a description of the subsurface stratigraphy encountered during the drilling program is documented in the borehole logs included in Appendix II.

2.2 Monitoring Well Installation

Groundwater monitoring wells were installed in boreholes BH1 (MW1), BH2 (MW2) and BH3 (MW3) to enable groundwater monitoring and sampling. The monitoring wells were constructed with 5.2 centimetre (cm) inner diameter (ID) flush-threaded Schedule 40 polyvinyl chloride (PVC) risers, followed by a length of 5.2 cm ID No. 10 slot PVC screen that intersected the water table.

Each well screen was sealed at the bottom using a threaded cap and each riser was sealed at the top with a lockable J-plug cap. Silica sand was placed around and above the screened interval to form a filter pack around the well screen. A layer of bentonite was placed above the silica sand and was extended to the ground surface. A protective flush-mount cover was installed at the ground surface over each riser pipe and cemented in place.

The approximate locations of the monitoring wells are shown on Figure 2. The monitoring well construction details are shown on the borehole logs included in Appendix II and on Table 1 in Appendix III (all Tables are provided within Appendix III).

2.3 Groundwater Monitoring

The water levels within the monitoring wells were measured on March 28, 2015 and April 7, 2015 using an interface probe. The presence/absence of NAPL was also assessed during groundwater monitoring using the interface probe.

2.4 Sampling and Laboratory Analysis

2.4.1 Soil

One most apparent "worst case" soil sample, based on vapour concentrations as well as visual and/or olfactory considerations, recovered from each borehole was submitted for a combination of laboratory analysis of BTEX, PHCs (F1-F4), VOCs and PAHs.

The approximate borehole locations are shown on Figure 2. Table 1 provides a summary of the soil samples submitted for laboratory analysis.

2.4.2 Groundwater

On April 7, 2015, all newly installed groundwater monitoring wells were developed by being purged until dry, in accordance with Pinchin's SOPs. Upon groundwater recovery, groundwater samples were collected from these monitoring wells and submitted for a combination of laboratory analysis of BTEX, PHCs (F1-F4), VOCs, and PAHs.

All monitoring well development, purging and sampling activities were conducted using dedicated inertial pumps comprised of Waterra polyethylene tubing and foot valves as well as dedicated disposable PVC bailers to draw groundwater to the surface.

The approximate monitoring well locations are shown on Figure 2. Table 1 provides a summary of the groundwater samples submitted for laboratory analysis.

2.4.3 Analytical Laboratory

Selected soil and groundwater samples were delivered to Maxxam Analytics Inc. (Maxxam) in Winnipeg, MB for analysis. Maxxam is an independent laboratory accredited by the Standards Council of Canada and the Canadian Association for Laboratory Accreditation. Formal chain of custody records of the sample submissions were maintained between Pinchin and the staff at Maxxam.

2.5 QA/QC Protocols

Various quality assurance/quality control (QA/QC) protocols were followed during the Phase II ESA to ensure that representative samples were obtained and that representative analytical data were reported by the laboratory.

Field QA/QC protocols that were employed by Pinchin included the following:

- Care was exercised not to obtain soil samples that were in direct contact with the drilling equipment or that had been smeared along the edge of the borehole;
- Soil and groundwater samples were placed in laboratory-supplied glass sample jars;
- The monitoring wells were developed following installation and were purged to remove stagnant water prior to sample collection so that representative groundwater samples could be obtained. Dedicated purging and sampling equipment was used for monitoring well development, purging and sampling to minimize the potential for cross-contamination;
- Soil and groundwater samples were placed in coolers on ice immediately upon collection, with appropriate sample temperatures maintained prior to submission to the laboratory;
- Dedicated and disposable nitrile gloves were used for sample handling;
- Non-dedicated monitoring and sampling equipment (e.g., interface probe, soil sampling knife) was cleaned before initial use and between uses to minimize the potential for cross-contamination; and
- Sample collection and handling procedures were performed in general accordance with the *Manitoba Conservation Guidelines* and Pinchin's SOPs for Phase II ESAs.

Maxxam's internal laboratory QA/QC consisted of the analysis of laboratory duplicate, method blank, matrix spike and spiked blank samples, and an evaluation of surrogate recoveries.

2.6 Regulatory Criteria

Manitoba Conservation has adopted Canadian Council of Ministers of the Environment (CCME) guidelines as the regulatory criteria applicable to soil conditions in Manitoba. Analytical results of soil samples are compared to criteria set forth in the CCME "*Environmental Quality Guidelines*" that are accessed at the CCME web site, the CCME "*Canada-Wide Standards for Petroleum Hydrocarbons in Soil*", dated 2008, and the CCME "*Canadian Environmental Soil Quality Guidelines for the Protection of Environmental and Human Health - Polycyclic Aromatic Hydrocarbons*", dated 2010. These guidelines are collectively referred to as the "CCME Soil Guidelines".

For assessing groundwater quality, Manitoba Conservation has adopted the following guidelines depending on groundwater conditions and/or receptor pathways:

- Ontario Ministry of the Environment and Climate Change (MOECC) "*Soil, Ground Water and Sediment Standards for Use Under Part XV.1 of the Environmental Protection Act*", dated April 15, 2011 (MOECC Groundwater Guidelines) for non-potable groundwater conditions;
- Health Canada "*Guidelines for Canadian Drinking Water Quality*", dated August 2012 for potable groundwater conditions;
- CCME "*Canadian Water Quality Guidelines for the Protection of Aquatic Life*", dated 1999 for protection of freshwater aquatic life; and
- CCME "*Canadian Water Quality Guidelines for the Protection of Agricultural Water Uses*", dated 1999 for protection of livestock watering.

The above guidelines have been developed using a risk-based approach. The application of the appropriate criteria is dependent upon several site-specific conditions including:

- The existing/proposed land use;
- The existing/potential groundwater use;
- Soil depth; and
- Soil texture.

Guidelines are further subdivided into the following types of protection:

- Human health guidelines; and
- Environmental health guidelines.

Within each of these categories, several pathways are listed that describe how the chemical or compound in question would come in contact with the receptor. If a pathway is not applicable to a site, or a specific area of a site, then the corresponding guideline value is not applicable. If future use of a site is modified, pathways that were not applicable can become applicable and need to be reassessed.

Site-specific details for the evaluation of applicable pathways are as noted below.

- The Site is a commercial property and commercial land use guidelines are applicable to the Site. It is Pinchin's understanding that the Site will be redeveloped as a commercial restaurant.
- Potable water for the Site and surrounding area is supplied by the City of Winnipeg, with Shoal Lake serving as the water source. As such, groundwater is not a potable source on-Site or in the vicinity of the Site.
- Groundwater is not used for livestock watering at the Site and the Site is located more than 30 m from the nearest water body. Therefore, the livestock watering and freshwater aquatic life pathways are not applicable to the Site.
- Native soils at the Site are prominently comprised of fine-grained soils (clay and silt) and fine-grained guidelines are applicable to the Site.
- The human health vapour inhalation pathway is applicable within 30 cm of a building foundation (or proposed building foundation). For the purpose of this Phase II ESA, the human health vapour inhalation pathway has been considered applicable to the Site.
- The environmental health soil contact, human health ingestion, and human health dermal contact pathways are applicable in areas where access to the soil is possible (i.e., not under asphalt, concrete or a building foundation). The areas of the Site included in this Phase II ESA were covered by asphalt and, therefore, the environmental health soil contact, human health ingestion and human health dermal contact pathways are considered to be not applicable to the Site.
- The off-Site migration check, management limit, and nutrient and energy cycling checks are applicable to all areas of the Site.

Based on the above evaluation, all soil analytical results have been compared to the CCME Soil Guidelines for commercial land use and fine-grained soils, excluding the protection of potable groundwater, livestock watering and aquatic life. All groundwater analytical results have been compared to the MOECC Groundwater Guidelines for commercial land use and fine-grained soils excluding the protection of potable groundwater and aquatic life.

The above evaluation is based on Pinchin's observation of Site conditions at the time of the Phase II ESA. If Site conditions or use of the Site changes in the future, the applicable pathways should be re-evaluated.

3.0 RESULTS

3.1 Site Geology and Hydrogeology

Based on the soil samples recovered during the borehole drilling program, the soil stratigraphy at the drilling locations below the asphalt surface generally consists of fill material comprised of granular and clay fill to a depth between approximately 0.10 and 1.7 mbgs.

Native subsurface material underlying the fill material was observed to generally consist of silt, silty clay and clay that extended to the maximum borehole completion depth of 6.1 mbgs. Moist soil conditions were generally observed between 1.4 and 6.1 mbgs.

A detailed description of the subsurface stratigraphy encountered during borehole advancement is documented in the borehole logs located in Appendix II.

The water level information obtained during groundwater monitoring is presented in Table 2 and on the borehole logs in Appendix II. The depth to groundwater measured within the monitoring wells ranged from 4.27 mbgs at monitoring well BH3 (MW3) to 5.71 mbgs at monitoring well BH1 (MW1) on April 7, 2015.

The Red River is located approximately 4.3 kilometres (km) west of the Site. The topography of the Site and surrounding area were observed to be flat. Groundwater flow at the Site is inferred to be towards the west based on the location of the Red River.

3.2 Soil Headspace Vapour Concentrations

Vapour concentrations measured in the headspace of soil samples collected during the drilling investigation are presented on the borehole logs in Appendix II and ranged from 0 parts per million by volume (ppm_v) to a maximum of 15 ppm_v in soil sample BH1-S4 collected at an approximate depth of 2.6 mbgs.

3.3 Field Observations

No odours or staining were observed in the soil samples collected during the borehole drilling program.

No odours or evidence of NAPL were observed during groundwater monitoring and sampling.

3.4 Analytical

3.4.1 Soil

As indicated in Tables 3 through 5, reported concentrations of BTEX, PHCs (F1-F4), VOCs and PAHs in the soil samples submitted for analysis met the CCME Soil Guidelines.

The laboratory Certificate of Analysis for the soil samples is provided in Appendix IV.

3.4.2 Groundwater

As indicated in Tables 6 through 8, reported concentrations in the groundwater samples submitted for analysis of BTEX, PHCs (F1-F4), VOCs and PAHs met the MOECC Groundwater Guidelines.

The laboratory Certificate of Analysis for the groundwater samples is provided in Appendix IV.

4.0 FINDINGS AND CONCLUSIONS

Based on the work completed, a summary of the activities and findings of this Phase II ESA are noted below.

- Pinchin retained Maple Leaf to advance three boreholes at the Site on March 12, 2015 and an additional three boreholes on March 25, 2015. The boreholes were advanced to a maximum depth of 6.1 mbgs using a truck mounted drill rig equipped with solid stem augers. Three of the boreholes were instrumented with monitoring wells to enable groundwater monitoring and sampling.

- The soil stratigraphy at the drilling locations generally consists of fill material comprised of granular and clay fill to a depth between approximately 0.10 and 1.7 mbgs. Native subsurface material underlying the fill material was observed to generally consist of silt, silty clay and clay that extended to the maximum borehole completion depth of 6.1 mbgs. Moist soil conditions were generally observed between 1.4 and 6.1 mbgs.
- Groundwater levels at the Site measured on April 7, 2015 varied between 4.27 mbgs BH3 (MW3) and 5.71 mbgs BH1 (MW1). Inferred groundwater flow is expected to be west based on the presence of the Red River west of the Site.
- Based on Site-specific information, the soil quality was assessed based on the CCME Guidelines for commercial land use, fine-textured soils excluding the protection of potable water, livestock watering and freshwater aquatic life.
- Based on Site-specific information, the groundwater quality was assessed based on the MOECC Groundwater Guidelines for commercial land use, fine-textured soils excluding the protection of potable water and freshwater aquatic life.
- Three “worst case” soil samples based on the results of field screening were submitted for a combination of laboratory analysis of BTEX, PHCs (F1-F4), VOCs and PAHs.
- Groundwater samples were collected from monitoring wells BH1 (MW1), BH2 (MW2) and BH3 (MW3) installed by Pinchin on April 7, 2015 and were submitted for a combination of laboratory analysis of BTEX, PHCs (F1-F4), VOCs and PAHs.
- Reported concentrations in the soil and groundwater samples submitted for analysis of BTEX, PHCs (F1-F4), VOCs and PAHs satisfied their respective CCME Soil Guidelines and MOECC Groundwater Guidelines respectively.

Based on the findings of this Phase II ESA, it is Pinchin’s opinion that no further subsurface investigation is required for the Site in relation to the findings of the 2011 Stantec Phase I ESA.



5.0 LIMITATIONS

This Phase II ESA was performed for IBI Group (Client) in order to investigate potential environmental impacts at a portion of the property located at 1459 Regent Avenue West, Winnipeg, MB (Site). The term recognized environmental condition means the presence or likely presence of any hazardous substance on a property under conditions that indicate an existing release, past release, or a material threat of a release of a hazardous substance into structures on the property or into the ground, groundwater, or surface water of the property. This Phase II ESA does not quantify the extent of the current and/or recognized environmental condition or the cost of any remediation.

Conclusions derived are specific to the immediate area of study and cannot be extrapolated extensively away from sample locations. Samples have been analyzed for a limited number of contaminants that are expected to be present at the Site, and the absence of information relating to a specific contaminant does not indicate that it is not present.

No environmental site assessment can wholly eliminate uncertainty regarding the potential for recognized environmental conditions on a property. Performance of this Phase II ESA to the standards established by Pinchin is intended to reduce, but not eliminate, uncertainty regarding the potential for recognized environmental conditions on the Site, and recognizes reasonable limits on time and cost.

This Phase II ESA was performed in general compliance with currently acceptable practices for environmental site investigations, and specific Client requests, as applicable to this Site.

This report was prepared for the exclusive use of the Client, subject to the conditions and limitations contained within the duly authorized proposal. Any use which a third party makes of this report, or any reliance on or decisions to be made based on it, are the responsibility of the third parties. If additional parties require reliance on this report, written authorization from Pinchin will be required. Pinchin disclaims responsibility of consequential financial effects on transactions or property values, or requirements for follow-up actions and costs. No other warranties are implied or expressed. Furthermore, this report should not be construed as legal advice.



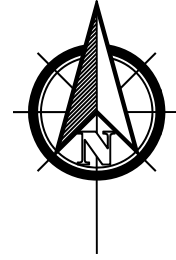
Pinchin will not be responsible for any consequential or indirect damages. Pinchin will only be liable for damages resulting from the negligence of Pinchin. Pinchin will not be liable for any losses or damage if the Client has failed, within a period of two years following the date upon which the claim is discovered (Claim Period), to commence legal proceedings against Pinchin to recover such losses or damage unless the laws of the jurisdiction which governs the Claim Period which is applicable to such claim provides that the applicable Claim Period is greater than two years and cannot be abridged by the contract between the Client and Pinchin, in which case the Claim Period shall be deemed to be extended by the shortest additional period which results in this provision being legally enforceable.

Pinchin makes no other representations whatsoever, including those concerning the legal significance of its findings, or as to other legal matters touched on in this report, including, but not limited to, ownership of any property, or the application of any law to the facts set forth herein. With respect to regulatory compliance issues, regulatory statutes are subject to interpretation and these interpretations may change over time.

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Template: Master Report for Phase II ESA - Stage 2 PSI, EDR, February 26, 2015

APPENDIX I
Figures



PROJECT NAME			
PHASE II ENVIRONMENTAL SITE ASSESSMENT			
CLIENT NAME			
IBI GROUP			
PROJECT LOCATION			
PORTION OF 1459 REGENT AVENUE WEST, WINNIPEG, MB			
DRAWING NAME			FIGURE NO.
KEY MAP			1
SCALE	PROJECT NO.	DATE	
NTS	103257	APRIL 2015	



LEGEND



BOREHOLE/MONITORING
WELL LOCATION

PROJECT NAME

PHASE II ENVIRONMENTAL SITE ASSESSMENT

CLIENT NAME

IBI GROUP

PROJECT LOCATION

PORTION OF 1459 REGENT AVENUE WEST, WINNIPEG, MB

FIGURE NAME

BOREHOLE/MONITORING WELL LOCATION PLAN

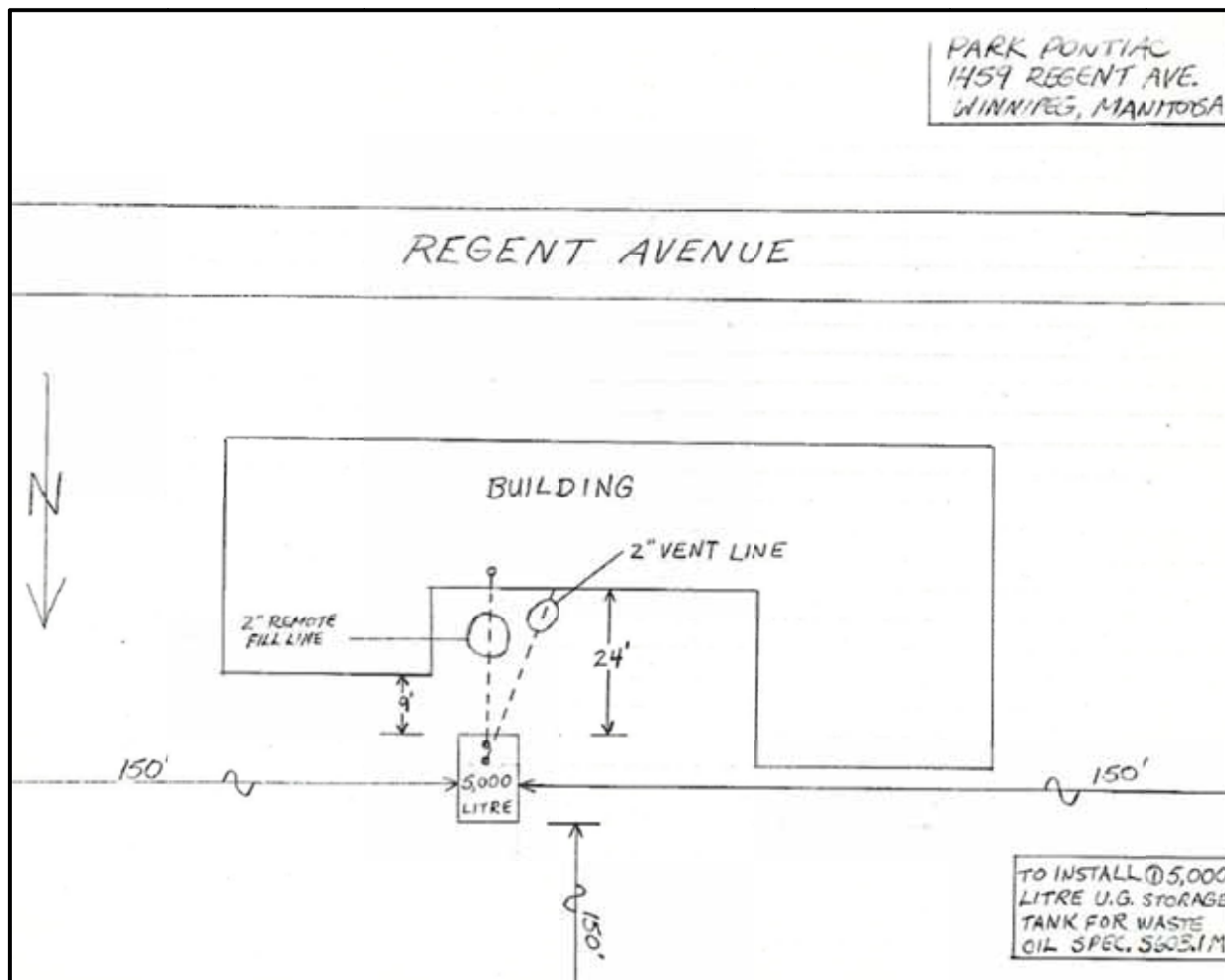
FIGURE NO.

2

APPROXIMATE SCALE
AS SHOWN

PROJECT NO.
103257

DATE
APRIL 2015



PROJECT NAME

PHASE II ENVIRONMENTAL SITE ASSESSMENT

CLIENT NAME

IBI GROUP

PROJECT LOCATION

PORTION OF 1459 REGENT AVENUE WEST, WINNIPEG, MB

DRAWING NAME

UST LOCATION PLAN

FIGURE NO.

SCALE

NTS

PROJECT NO.

103257

DATE

APRIL 2015

3

APPENDIX II
Borehole Logs



Log of Borehole: BH1 (MW1)

Project #: 103257

Logged By: SPM

Project: Phase II Environmental Site Assessment

Client: IBI Group

Location: Portion of 1459 Regent Avenue West, Winnipeg, MB

Drill Date: March 12, 2015

Project Manager: JML

SUBSURFACE PROFILE					SAMPLE				
Depth	Symbol	Description	Measured Depth (m)	Monitoring Well Details	Sampler #	Recovery (%)	Sample ID	Soil Vapour Concentration PID/CGI	Laboratory Analysis
0		Ground Surface	0.00						
0		Asphalt							
1		Granular Fill							
2		Brown, stones, silt, sand, frost	0.61		1	100	S1	0/0	
3		Clay Fill							
4		Brown, silt, stones, frost							
5			1.68						
6		Clay			2	100	S2	0/0	
7		Brown, silt, moist			3	100	S3	1/0	
8			2.59						
9		Silt			4	100	S4	15/1	
10		Brown, moist	2.90		5	100	S5	2/0	
11		Clay							
12		Brown, silt, moist			6	100	S6	0/0	
13					7	100	S7	0/0	
14									
15					8	100	S8	0/0	
16									
17					9	100	S9	0/0	
18									
19									
20			6.10						
21		End of Borehole							

Contractor: Maple Leaf Drilling Ltd.

Pinchin Ltd.

Grade Elevation: -

Drilling Method: Solid Stem Auger

54 Terracon Place
Winnipeg, MB R2J 4G7

Top of Casing Elevation: -

Well Casing Size: 5.2 cm

Sheet: 1 of 1



Log of Borehole: BH2 (MW2)

Project #: 103257

Logged By: SPM

Project: Phase II Environmental Site Assessment

Client: IBI Group

Location: Portion of 1459 Regent Avenue West, Winnipeg, MB

Drill Date: March 12, 2015

Project Manager: JML

SUBSURFACE PROFILE					SAMPLE				
Depth	Symbol	Description	Measured Depth (m)	Monitoring Well Details	Sampler #	Recovery (%)	Sample ID	Soil Vapour Concentration PID/CGI	Laboratory Analysis
0		Ground Surface	0.00						
1		Asphalt							
2		Granular Fill Brown, stones, silt, sand, frost	0.61		1	100	S1	0/0	
3		Clay Fill Brown, silt, stones, frost							
4									
5			1.68						
6		Clay Brown, silt, moist			2	100	S2	0/5	
7									
8					3	100	S3	1/10	
9									
10					4	100	S4	0/0	
11									
12					5	100	S5	0/0	
13									
14					6	100	S6	0/0	
15			4.57						
16		End of Borehole							
17									
18									
19									
20									
21									

Contractor: Maple Leaf Drilling Ltd.

Pinchin Ltd.

Grade Elevation: -

Drilling Method: Solid Stem Auger

54 Terracon Place
Winnipeg, MB R2J 4G7

Top of Casing Elevation: -

Well Casing Size: 5.2 cm

Sheet: 1 of 1



Log of Borehole: BH3 (MW3)

Project #: 103257

Logged By: SPM

Project: Phase II Environmental Site Assessment

Client: IBI Group

Location: Portion of 1459 Regent Avenue West, Winnipeg, MB

Drill Date: March 12, 2015

Project Manager: JML

SUBSURFACE PROFILE					SAMPLE				
Depth	Symbol	Description	Measured Depth (m)	Monitoring Well Details	Sampler #	Recovery (%)	Sample ID	Soil Vapour Concentration PID/CGI	Laboratory Analysis
0		Ground Surface	0.00						
0		Asphalt							
1		Granular Fill							
2		Brown, stones, silt, sand, frost	0.61		1	100	S1	1/0	
3		Clay Fill							
4		Brown, silt, stones, frost							
5			1.68		2	100	S2	0/0	
6		Clay							
7		Brown, silt, moist							
8			2.44		3	100	S3	1/0	
9		Silt							
10		Brown, moist	2.90		4	100	S4	0/0	
11		Clay							
12		Brown, silt, moist							
13					5	100	S5	0/0	
14									
15			4.57		6	100	S6	0/0	
16		End of Borehole							
17									
18									
19									
20									
21									

Contractor: Maple Leaf Drilling Ltd.

Pinchin Ltd.

Grade Elevation: -

Drilling Method: Solid Stem Auger

54 Terracon Place
Winnipeg, MB R2J 4G7

Top of Casing Elevation: -

Well Casing Size: 5.2 cm

Sheet: 1 of 1



Log of Borehole: BH1B

Project #: 103257

Logged By: SPM

Project: Phase II Environmental Site Assessment

Client: IBI Group

Location: Portion of 1459 Regent Avenue West, Winnipeg, MB

Drill Date: March 25, 2015

Project Manager: JML

SUBSURFACE PROFILE					SAMPLE				
Depth	Symbol	Description	Measured Depth (m)	Monitoring Well Details	Sampler #	Recovery (%)	Sample ID	Soil Vapour Concentration PID/CGI	Laboratory Analysis
0		Ground Surface	0.00						
1		Asphalt							
2		Granular Fill Brown, stones, silt, sand, frost	0.61		1	100	S1	0/0	
3		Clay Fill Brown, silt, stones, frost							
4									
5			1.68						
6		Clay Brown, silt, moist			2	100	S2	0/0	
7									
8			2.59		3	100	S3	1/0	
9		Silt Brown, moist	2.90		4	100	S4	10/0	VOCs, PHCs (F1-F4), PAHs
10		Clay Brown, silt, moist			5	100	S5	1/0	
11									
12					6	100	S6	0/0	
13									
14									
15					7	100	S7	0/0	
16									
17					8	100	S8	0/0	
18									
19									
20			6.10		9	100	S9	0/0	
21		End of Borehole							

Contractor: Maple Leaf Drilling Ltd.

Pinchin Ltd.

Grade Elevation: -

Drilling Method: Solid Stem Auger

54 Terracon Place
Winnipeg, MB R2J 4G7

Top of Casing Elevation: -

Well Casing Size: 5.2 cm

Sheet: 1 of 1



Log of Borehole: BH2B

Project #: 103257

Logged By: SPM

Project: Phase II Environmental Site Assessment

Client: IBI Group

Location: Portion of 1459 Regent Avenue West, Winnipeg, MB

Drill Date: March 12, 2015

Project Manager: JML

SUBSURFACE PROFILE					SAMPLE				
Depth	Symbol	Description	Measured Depth (m)	Monitoring Well Details	Sampler #	Recovery (%)	Sample ID	Soil Vapour Concentration PID/CGI	Laboratory Analysis
0		Ground Surface	0.00						
1		Asphalt							
2		Granular Fill Brown, stones, silt, sand, frost	0.61		1	100	S1	0/0	
3		Clay Fill Brown, silt, stones, frost							
4									
5			1.68						
6		Clay Brown, silt, moist			2	100	S2	1/0	
7									
8			2.59		3	100	S3	5/1	BTEX, PHCs (F1-F4)
9		Clay Brown, silt, moist			4	100	S4	0/0	
10									
11					5	100	S5	0/0	
12									
13					6	100	S6	0/0	
14									
15			4.57						
16		End of Borehole							
17									
18									
19									
20									
21									

Contractor: Maple Leaf Drilling Ltd.

Pinchin Ltd.

Grade Elevation: -

Drilling Method: Solid Stem Auger

54 Terracon Place
Winnipeg, MB R2J 4G7

Top of Casing Elevation: -

Well Casing Size: 5.2 cm

Sheet: 1 of 1



Log of Borehole: BH3B

Project #: 103257

Logged By: SPM

Project: Phase II Environmental Site Assessment

Client: IBI Group

Location: Portion of 1459 Regent Avenue West, Winnipeg, MB

Drill Date: March 12, 2015

Project Manager: JML

SUBSURFACE PROFILE					SAMPLE				
Depth	Symbol	Description	Measured Depth (m)	Monitoring Well Details	Sampler #	Recovery (%)	Sample ID	Soil Vapour Concentration PID/CGI	Laboratory Analysis
0		Ground Surface	0.00						
1		Asphalt							
2		Granular Fill Brown, stones, silt, sand, frost	0.61						
3		Clay Fill Brown, silt, stones, frost			1	100	S1	0/0	
4									
5			1.68						
6		Clay Brown, silt, moist			2	100	S2	0/0	
7									
8			2.44						
9		Silt Brown, moist			3	100	S3	2/0	BTEX, PHCs (F1-F4)
10			2.90						
11		Clay Brown, silt, moist			4	100	S4	0/0	
12									
13									
14									
15			4.57		5	100	S5	0/0	
16									
17									
18									
19									
20					6	100	S6	0/0	
21									
		End of Borehole							

Contractor: Maple Leaf Drilling Ltd.

Pinchin Ltd.

Grade Elevation: -

Drilling Method: Solid Stem Auger

54 Terracon Place
Winnipeg, MB R2J 4G7

Top of Casing Elevation: -

Well Casing Size: 5.2 cm

Sheet: 1 of 1

APPENDIX III
Summary Tables

Table 1
Samples Submitted for Laboratory Analysis
Phase II Environmental Site Assessment
Portion of 1459 Regent Avenue West
Winnipeg, MB

Samples			Parameters											Rationale			
Sample Location	Sample Identifier	Sample Depth (mbgs)	SOIL SAMPLES									GROUNDWATER SAMPLES					
				PHCs (F1 - F4)	BTEX	Metals Analysis	VOCs	PAHs	Grain Size Analysis	TCLP VOCs	pH Analysis		PHCs		BTEX	VOCs	PAHs
BH1B	BH1B-S4	2.6		●	●		●	●				●					Assess soil conditions in relation to historical off-Site operations.
BH1 (MW1)	MW1	-											●	●	●	●	Assess groundwater conditions in relation to historical off-Site operations.
BH2B	BH2B-S3	2.25		●	●							●					Assess soil conditions in relation to historical off-Site operations.
BH2 (MW2)	MW2	-											●	●			Assess groundwater conditions in relation to historical off-Site operations.
BH3B	BH3B-S3	2.45		●	●							●					Assess soil conditions in relation to historical off-Site operations.
BH3 (MW3)	MW3	-											●	●			Assess groundwater conditions in relation to historical off-Site operations.

Notes:

mbgs Metres Below Ground Surface
 PHCs Petroleum Hydrocarbons
 BTEX Benzene, Toluene, Ethylbenzene, and Xylenes
 PAH Polycyclic Aromatic Hydrocarbons
 VOCs Volatile Organic Compounds
 TCLP Toxicity Characteristic Leaching Procedure

Table 2
Groundwater Level Data
Phase II Environmental Site Assessment
Portion of 1459 Regent Avenue West
Winnipeg, MB

Well Number	Date (dd/mm/yyyy)	NAPL Level Measurement from TOC (m)	Water Level Measurement from TOC (m)	Water Level Measurement from Ground (mbgs)	Product Thickness (m)
BH1 (MW1)	7/4/2015	ND	5.60	5.71	ND
BH2 (MW2)	7/4/2015	ND	4.20	4.32	ND
BH3 (MW3)	7/4/2015	ND	4.18	4.27	ND

Notes:

NAPL Non-Aqueous Phase Liquid

ND Not Detected

TOC Indicates Top of Casing

m Metres

mbgs Metres Below Ground Surface

Table 3
Petroleum Hydrocarbon and BTEX Analysis for Soil
Phase II Environmental Site Assessment
Portion of 1459 Regent Avenue West
Winnipeg, MB

Parameter		Sample Identification			CCME Guidelines ^a	
		BH1B-S4	BH2B-S3	BH3B-S3	Surface (< 1.5 mbgs)	Subsoil (> 1.5 mbgs)
		2.6 mbgs	2.25 mbgs	2.45 mbgs		
		Fine	Fine	Fine		
BTEX	Benzene	<0.0050	<0.0056 (1)	<0.0050	2.8	2.9
	Toluene	<0.020	<0.020	0.051	330	660
	Ethylbenzene	<0.010	<0.010	<0.010	430	860
	Xylenes	<0.040	<0.040	<0.040	230	460
PHCs	F1 (C6-C10)	<10	<10	<10	320	800
	F2 (C10-C16)	<20	<20	<20	260	1,000
	F3 (C16-C34)	<20	47	28	2,500	5,000
	F4 (C34-C50)	<20	<20	<20	6,600	10,000
	Methyl-tert-butylether (MTBE)	<0.10	<0.10	<0.10	NG	NG

Note:

- All concentrations in milligrams per kilogram (mg/kg) unless otherwise noted
- BTEX = Benzene, Toluene, Ethylbenzene, Xylenes
- PHCs = Petroleum Hydrocarbons
- < = concentration is less than the laboratory's minimum reportable detection limit
- (1) = Regular Detection Limit raised due to sample matrix interference
- BH1B-S4 = sample was collected from Borehole BH1B, Sample Number 4
- 2.6 mbgs = sample was collected at 2.6 metres below ground surface
- CCME = Canadian Council of the Ministers of the Environment
- ^a Referenced from the CCME Canadian Environmental Quality Guidelines, Accessed On-Line in November 2014
- Data represents the most stringent criteria for commercial land-use, excluding the protection of potable water and aquatic life
- Concentrations in **BOLD** print indicates concentration exceeds referenced guideline

Table 4
Volatile Organic Compound Analysis for Soil
Phase II Environmental Site Assessment
Portion of 1459 Regent Avenue West
Winnipeg, MB

Parameter	Sample Identification	CCME Guideline ^a
	BH1B-S4	
	2.6 mbgs	
1,1,1,2-Tetrachloroethane	<0.025	NG
1,1,1-Trichloroethane	<0.025	NG
1,1,2,2-Tetrachloroethane	<0.025	NG
1,1,2-Trichloroethane	<0.025	NG
1,1-Dichloroethane	<0.025	NG
1,1-Dichloroethene	<0.025	50
1,2,3-Trichlorobenzene	<0.025	NG
1,2,4-Trichlorobenzene	<0.025	50
1,2-Dibromoethane	<0.025	50
1,2-Dichlorobenzene	<0.025	50
1,2-Dichloroethane	<0.025	50
1,2-Dichloropropane	<0.025	50
1,3-Dichlorobenzene	<0.025	50
1,4-Dichlorobenzene	<0.025	50
Bromodichloromethane	<0.050	NG
Bromoform	<0.050	50
Bromomethane	<0.30	0.01
Carbon Tetrachloride	<0.025	NG
Chlorobenzene	<0.025	NG
Chlorodibromomethane	<0.050	NG
Chloroethane	<0.10	50
Chloroform	<0.050	NG
Chloromethane	<0.10	NG
cis-1,2-Dichloroethene	<0.025	0.5
cis-1,3-Dichloropropene	<0.050	10
Dichloromethane	<0.10	NG
Hexachlorobutadiene	<0.20	NG
Styrene	<0.030	50
Tetrachloroethene	<0.025	10
trans-1,2-Dichloroethene	<0.025	10
trans-1,3-Dichloropropene	<0.050	10
Trichloroethene	<0.0090	10
Trichlorofluoromethane	<0.20	NG
Vinyl Chloride	<0.060	10

Note:

- All concentrations in milligrams per kilogram (mg/kg) unless otherwise noted
- VOCs = Volatile Organic Compounds
- NG = no guideline for corresponding parameter
- < = concentration is less than the laboratory's minimum reportable detection limit
- BH1B-S4 = sample was collected from Borehole BH1B, Sample Number 4
- 2.6 mbgs = sample was collected from 2.6 metres below ground surface
- CCME = Canadian Council of the Ministers of the Environment
- ^a Referenced from the CCME Canadian Environmental Quality Guidelines, Accessed On-Line in November 2014
- Data represents the most stringent criteria for commercial land-use excluding the protection of potable water and freshwater life
- ^b Detection limits raised due to matrix interference.
- Concentrations in **BOLD** print indicates concentration exceeds referenced guideline

Table 5
Polycyclic Aromatic Hydrocarbon Analysis for Soil
Phase II Environmental Site Assessment
Portion of 1459 Regent Avenue West
Winnipeg, MB

Parameter	Sample Identification	CCME Guideline ^a
	BH1B-S4	
	2.6 mbgs	
Benzo(a)Pyrene Equivalency ^b	0.04	5.3
2-Methylnaphthalene	<0.010	NG
Acenaphthene	<0.020	NG
Acenaphthylene	<0.0050	320
Anthracene	<0.0050	32
Benzo(a)anthracene	<0.020	10
Benzo(a)pyrene	<0.020	1.4
Benzo(b&j)fluoranthene	<0.0040	NG
Benzo(b)fluoranthene	<0.020	10
Benzo(g,h,i)perylene	<0.020	NG
Benzo(k)fluoranthene	<0.020	10
Chrysene	<0.020	NG
Dibenz(a,h)anthracene	<0.020	10
Fluoranthene	<0.020	180
Fluorene	<0.020	NG
Indeno(1,2,3-cd)pyrene	<0.020	10
Naphthalene	<0.050	22
Phenanthrene	<0.050	50
Pyrene	<0.050	100
Low Molecular Weight PAHs	<0.050	NG
High Molecular Weight PAHs	<0.050	NG
Total PAH	<0.050	NG

Note:

- All concentrations in milligrams per kilogram (mg/kg) unless otherwise noted
- PAHs = Polycyclic Aromatic Hydrocarbons
- NG = no guideline for corresponding parameter
- < = concentration is less than the laboratory's minimum reportable detection limit
- BH1B-S4 = sample was collected from Borehole BH1B, Sample Number 4
- 2.6 mbgs = sample was collected from 2.6 metres below ground surface
- CCME = Canadian Council of the Ministers of the Environment
- ^a Referenced from the CCME Canadian Environmental Soil Quality Guidelines for the Protection of Environmental and Human Health Polycyclic Aromatic Hydrocarbons, dated 2010
Value listed represents the most stringent criteria for commercial properties excluding protection of potable water and freshwater life
- ^b Benzo(a)pyrene Total Potency Equivalents is calculated by summing the products of the detectable levels of following parameters by their respective Benzo(a)pyrene Equivalency Factor : Benzo(a)anthracene (0.1), Benzo(a)pyrene (1), Benzo(b+j)fluoranthene (0.1), Benzo(k)fluoranthene (0.1), Benzo(g,h,i)perylene (0.01), Chrysene (0.01), Dibenz(a,h)anthracene (1) and Indeno(1,2,3-c,d)pyrene (0.1)
- ^c Detection limits raised due to matrix interference.
- Concentrations in **BOLD** print indicates concentration exceeds referenced guideline

Table 6
Petroleum Hydrocarbon and BTEX Analysis for Groundwater
Phase II Environmental Site Assessment
Portion of 1459 Regent Avenue West
Winnipeg, MB

Parameter		Sample Identification			MOECC Guidelines ^a
		MW1	MW2	MW3	
BTEX	Benzene	<0.40	<0.40	<0.40	44 ^b 430 ^c
	Toluene	<0.40	<0.40	<0.40	18,000
	Ethylbenzene	<0.40	<0.40	<0.40	2,300
	Xylenes	<0.40	<0.8	<0.8	4,200
PHCs	F1 (C6-C10)	<300	<300	<300	750
	F2 (C10-C16)	<150	<150	<150	150
	F3 (C16-C34)	<150	<150	<150	500
	F4 (C34-C50)	<150	<150	<150	500
	Methyl-tert-butylether (MTBE)	<4.0	<4.0	<4.0	NG

Note:

- All concentrations in micrograms per litre (µg/L) unless otherwise noted
- NA = Not Analyzed
- BTEX = Benzene, Toluene, Ethylbenzene, Xylenes
- PHCs = Petroleum Hydrocarbons
- < = concentration is less than the laboratory's minimum reportable detection limit
- MW1 = sample was collected from Monitoring Well BH1 (MW1)
- ^a Referenced from the Ontario Ministry of the Environment and Climate Control: Soil, Ground Water and Sediment Standards for Use Under Part XV.1 of the Environmental Protection Act, April 15, 2011
- ^b Value listed represents the most stringent criteria for all property types, coarse-grained soils excluding protection of potable water (Table 3)
- ^c Value listed represents the most stringent criteria for all property types, fine-grained soils excluding protection of potable water (Table 3)
- Concentrations in **BOLD** print indicates concentration exceeds referenced guideline

Table 7
Voatile Organic Compound Analysis for Groundwater
Phase II Environmental Site Assessment
Portion of 1459 Regent Avenue West
Winnipeg, MB

Parameters	Sample Identification	MOECC Guidelines ^a
	MW1	
1,1,1,2-Tetrachloroethane	<0.50	3.3 ^b 28 ^c
1,1,1-Trichloroethane	<0.50	640 ^b 6,700 ^c
1,1,2,2-Tetrachloroethane	<0.50	3.2 ^b 15 ^c
1,1,2Trichloro-1,2,2Trifluoroethane	<2.0	NG
1,1,2-Trichloroethane	<0.50	4.7 ^b 30 ^c
1,1-Dichloroethane	<0.50	320 ^b 3,100 ^c
1,1-Dichloroethene	<0.50	1.6 ^b 17 ^c
1,2,3-Trichlorobenzene	<2.0	NG
1,2,4-Trichlorobenzene	<2.0	180 ^b 850 ^c
1,2-Dibromoethane	<0.20	0.25 ^b 0.83 ^c
1,2-Dichlorobenzene	<0.50	4,600 ^b 9,600 ^c
1,2-Dichloroethane	<0.50	1.6 ^b 12 ^c
1,2-Dichloropropane	<0.50	16 ^b 140 ^c
1,3-Dichlorobenzene	<0.50	9,600
1,4-Dichlorobenzene	<0.50	8 ^b 67 ^c
Bromodichloromethane	<1.0	85,000
Bromoform	<1.0	380 ^b 770 ^c
Bromomethane	<1.0	5.6 ^b 56 ^c
Carbon Tetrachloride	<0.50	0.79 ^b 8.4 ^c
Chlorobenzene	<0.50	630
Chlorodibromomethane	<1.0	82,000
Chloroethane	<1.0	NG
Chloroform	<1.0	2.4 ^b 22 ^c
Chloromethane	<1.0	NG
cis-1,2-Dichloroethene	<1.0	1.6 ^b 17 ^c
cis-1,3-Dichloropropene	<1.0	NG
Dichlorodifluoromethane	<2.0	4,400
Dichloromethane	<2.0	610 ^b 5,500 ^c
Hexachlorobutadiene	<0.50	0.44 ^b 4.5 ^c
Styrene	<0.50	1,300 ^b 9,100 ^c
Tetrachloroethene	<0.50	1.6 ^b 17 ^c
trans-1,2-Dichloroethene	<1.0	1.6 ^b 17 ^c
trans-1,3-Dichloropropene	<1.0	NG
Trichloroethene	<0.50	1.6 ^b 17 ^c
Trichlorofluoromethane	<4.0	2,500
Vinyl Chloride	<0.50	0.5 ^b 1.7 ^c

Note:

- All concentrations in ug/L or equivalent unless otherwise noted
- VOCs = Volatile Organic Compounds
- NG = no guideline for correspong parameter
- < = concentration is less than the laboratory's minimum reportable detection limit
- MW1 = sample was collected from monitoring well BH1 (MW1)
- ^a Referenced from the Ontario Ministry of the Environment and Climate Change: Soil, Ground Water and Sediment Standards for Use Under Part XV.1 of the Environmental Protection Act, April 15, 2011
- ^b Value listed represents the most stringent criteria for all property types, coarse-grained soils excluding protection of potable water (Table 3)
- ^c Value listed represents the most stringent criteria for all property types, fine-grained soils excluding protection of potable water (Table 3)
- Concentrations in **BOLD** print indicates concentration exceeds referenced guideline

Table 8
Polycyclic Aromatic Hydrocarbon Analysis for Groundwater
Phase II Environmental Site Assessment
Portion of 1459 Regent Avenue West
Winnipeg, MB

Parameter	Sample Identification	MOECC Guidelines ^a
	MW1	
Naphthalene	<0.10	1,400 ^b 6,400 ^c
2-Methylnaphthalene	<0.10	1,800
Quinoline	<0.24	NG
Acenaphthylene	<0.050	1.8
Acenaphthene	<0.050	600 ^b 1,700 ^c
Fluorene	<0.050	400
Phenanthrene	0.12	580
Anthracene	0.010	2.4
Acridine	<0.050	NG
Fluoranthene	0.067	130
Pyrene	0.066	68
Benzo(a)anthracene	0.015	4.7
Chrysene	<0.050	1
Benzo(b&j)fluoranthene	<0.050	0.75
Benzo(k)fluoranthene	<0.050	0.4
Benzo(a)pyrene	<0.0090	0.81
Indeno(1,2,3-cd)pyrene	<0.050	0.2
Dibenz(a,h)anthracene	<0.050	0.52
Benzo(g,h,i)perylene	<0.050	0.2
Low Molecular Weight PAH's	<0.24	NG
High Molecular Weight PAH's	0.15	NG
Total PAHs	0.28	NG

- Note:**
- All concentrations in micrograms per Litre (µg/L) or equivalent unless otherwise noted
 - PAHs = Polycyclic Aromatic Hydrocarbons
 - NG = no applicable guideline for corresponding parameter
 - < = concentration is less than the laboratory's minimum reportable detection limit
 - MW1 = sample was collected from Monitoring Well BH1 (MW1)
 - MOECC = Ontario Ministry of the Environment and Climate Change
 - ^a Referenced from the Ontario Ministry of the Environment and Climate Change: Soil, Ground Water and Sediment Standards for Use Under Part XV.1 of the Environmental Protection Act, April 15, 2011
 - ^b Value listed represents the most stringent criteria for all property types, coarse-grained soils excluding protection of potable water (Table 3)
 - ^c Value listed represents the most stringent criteria for all property types, fine-grained soils excluding protection of potable water (Table 3)
 - Concentrations in **BOLD** print indicates concentration exceeds referenced guideline

APPENDIX IV
Laboratory Certificates of Analysis

Your Project #: 103257
Your C.O.C. #: N000048

Attention:SEAN MULVEY

PINCHIN ENVIRONMENTAL LTD
54 Terracon Pl.
Winnipeg, MB
CANADA R2J 4G7

Report Date: 2015/04/15
Report #: R1845469
Version: 2 - Revision

CERTIFICATE OF ANALYSIS – REVISED REPORT

MAXXAM JOB #: B524498

Received: 2015/03/26, 13:30

Sample Matrix: Soil
Samples Received: 3

Analyses	Quantity	Date Extracted	Date Analyzed	Laboratory Method	Analytical Method
BTEX/MTBE Soil LH, VH, F1 SIM/MS (1)	2	2015/03/27	2015/03/31	BBY8SOP-00010/11	EPA 8260c R3 m
Volatile F1-BTEX (1)	1	N/A	2015/03/31	BBY WI-00033	Auto Calc
Volatile F1-BTEX (1)	1	N/A	2015/04/01	BBY WI-00033	Auto Calc
Volatile F1-BTEX (1)	1	N/A	2015/04/02	BBY WI-00033	Auto Calc
CCME Hydrocarbons (F2-F4 in soil) (2)	3	2015/03/27	2015/03/30	WINSOP-00056	CCME PHC-CWS
Moisture	3	N/A	2015/03/30	WIN SOP-00060	Carter Method 51.2
PAH in Soil by GC/MS (SIM) - CCME (1)	1	2015/03/27	2015/03/30	BBY8SOP-00022	EPA 8270d R4 m
Benzo[a]pyrene Equivalency (1)	1	N/A	2015/03/31	BBY WI-00033	Auto Calc
Total LMW, HMW, Total PAH Calc (1)	1	N/A	2015/03/31	BBY WI-00033	Auto Calc
VOCs, VH, F1, LH in Soil by HS GC/MS (1)	1	2015/03/27	2015/04/01	BBY8-SOP-00009	EPA 8260c R3 m

Reference Method suffix "m" indicates test methods incorporate validated modifications from specific reference methods to improve performance.

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

(1) This test was performed by Maxxam Vancouver

(2) This method complies with the reference method for the CWS PHC and is validated for use in the laboratory.

The hydrocarbon results are expressed as a dry weight basis.

Encryption Key

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

Janelle Kochan, B.Sc., Project Manager

Email: JKochan@maxxam.ca

Phone# (204)772-7276 Ext:2209

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

Maxxam Job #: B524498
Report Date: 2015/04/15

PINCHIN ENVIRONMENTAL LTD
Client Project #: 103257

RESULTS OF CHEMICAL ANALYSES OF SOIL

Maxxam ID		LY3575		LY3576	LY3577		
Sampling Date		2015/03/25 10:00		2015/03/25 11:00	2015/03/25 12:00		
COC Number		N000048		N000048	N000048		
	Units	BH1B-S4	QC Batch	BH2B-S3	BH3B-S3	RDL	QC Batch
Calculated Parameters							
F1 (C6-C10) - BTEX	mg/kg	<10	7848710	<10	<10	10	7848263
Physical Properties							
Moisture	%	26	7849429	32	26	0.3	7849429
RDL = Reportable Detection Limit							

Maxxam Job #: B524498
Report Date: 2015/04/15

PINCHIN ENVIRONMENTAL LTD
Client Project #: 103257

PETROLEUM HYDROCARBONS (CCME)

Maxxam ID		LY3575	LY3576	LY3577		
Sampling Date		2015/03/25 10:00	2015/03/25 11:00	2015/03/25 12:00		
COC Number		N000048	N000048	N000048		
	Units	BH1B-S4	BH2B-S3	BH3B-S3	RDL	QC Batch
Ext. Pet. Hydrocarbon						
F2 (C10-C16 Hydrocarbons)	mg/kg	<20	<20	<20	20	7849436
F3 (C16-C34 Hydrocarbons)	mg/kg	<20	47	28	20	7849436
F4 (C34-C50 Hydrocarbons)	mg/kg	<20	<20	<20	20	7849436
Reached Baseline at C50	mg/kg	Yes	Yes	Yes		7849436
Surrogate Recovery (%)						
O-TERPHENYL (sur.)	%	95	93	93		7849436
RDL = Reportable Detection Limit						

Maxxam Job #: B524498
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PINCHIN ENVIRONMENTAL LTD
Client Project #: 103257

SEMIVOLATILE ORGANICS BY GC-MS (SOIL)

Maxxam ID		LY3575		
Sampling Date		2015/03/25 10:00		
COC Number		N000048		
	Units	BH1B-S4	RDL	QC Batch
Calculated Parameters				
Index of Additive Cancer Risk(IARC)	N/A	0.31	0.10	7848266
Benzo[a]pyrene equivalency	N/A	<0.10	0.10	7848266
Polycyclic Aromatics				
Naphthalene	mg/kg	<0.010	0.010	7851353
2-Methylnaphthalene	mg/kg	<0.020	0.020	7851353
Acenaphthylene	mg/kg	<0.0050	0.0050	7851353
Acenaphthene	mg/kg	<0.0050	0.0050	7851353
Fluorene	mg/kg	<0.020	0.020	7851353
Phenanthrene	mg/kg	<0.020	0.020	7851353
Anthracene	mg/kg	<0.0040	0.0040	7851353
Fluoranthene	mg/kg	<0.020	0.020	7851353
Pyrene	mg/kg	<0.020	0.020	7851353
Benzo(a)anthracene	mg/kg	<0.020	0.020	7851353
Chrysene	mg/kg	<0.020	0.020	7851353
Benzo(b&j)fluoranthene	mg/kg	<0.020	0.020	7851353
Benzo(b)fluoranthene	mg/kg	<0.020	0.020	7851353
Benzo(k)fluoranthene	mg/kg	<0.020	0.020	7851353
Benzo(a)pyrene	mg/kg	<0.020	0.020	7851353
Indeno(1,2,3-cd)pyrene	mg/kg	<0.050	0.050	7851353
Dibenz(a,h)anthracene	mg/kg	<0.050	0.050	7851353
Benzo(g,h,i)perylene	mg/kg	<0.050	0.050	7851353
Low Molecular Weight PAH's	mg/kg	<0.050	0.050	7848031
High Molecular Weight PAH's	mg/kg	<0.050	0.050	7848031
Total PAH	mg/kg	<0.050	0.050	7848031
Surrogate Recovery (%)				
D10-ANTHRACENE (sur.)	%	81		7851353
D8-ACENAPHTHYLENE (sur.)	%	73		7851353
D8-NAPHTHALENE (sur.)	%	85		7851353
TERPHENYL-D14 (sur.)	%	82		7851353
RDL = Reportable Detection Limit				

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PINCHIN ENVIRONMENTAL LTD
Client Project #: 103257

BTEX BY GC-MS (SOIL)

Maxxam ID		LY3576			LY3577		
Sampling Date		2015/03/25 11:00			2015/03/25 12:00		
COC Number		N000048			N000048		
	Units	BH2B-S3	RDL	QC Batch	BH3B-S3	RDL	QC Batch
Volatiles							
Methyl-tert-butylether (MTBE)	mg/kg	<0.10	0.10	7851349	<0.10	0.10	7852875
Benzene	mg/kg	<0.0056 (1)	0.0056	7851349	<0.0050	0.0050	7852875
Toluene	mg/kg	<0.020	0.020	7851349	0.051	0.020	7852875
Ethylbenzene	mg/kg	<0.010	0.010	7851349	<0.010	0.010	7852875
m & p-Xylene	mg/kg	<0.040	0.040	7851349	<0.040	0.040	7852875
o-Xylene	mg/kg	<0.040	0.040	7851349	<0.040	0.040	7852875
Xylenes (Total)	mg/kg	<0.040	0.040	7851349	<0.040	0.040	7852875
(C6-C10)	mg/kg	<10	10	7851349	<10	10	7852875
Surrogate Recovery (%)							
1,4-Difluorobenzene (sur.)	%	102		7851349	103		7852875
4-Bromofluorobenzene (sur.)	%	102		7851349	98		7852875
D10-ETHYLBENZENE (sur.)	%	109		7851349	92		7852875
D4-1,2-Dichloroethane (sur.)	%	103		7851349	105		7852875
RDL = Reportable Detection Limit							
(1) RDL raised due to sample matrix interference.							

Maxxam Job #: B524498
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PINCHIN ENVIRONMENTAL LTD
Client Project #: 103257

VOLATILE ORGANICS BY GC-MS (SOIL)

Maxxam ID		LY3575		
Sampling Date		2015/03/25 10:00		
COC Number		N000048		
	Units	BH1B-S4	RDL	QC Batch
Volatiles				
Chloromethane	mg/kg	<0.10	0.10	7853740
Vinyl chloride	mg/kg	<0.060	0.060	7853740
Bromomethane	mg/kg	<0.30	0.30	7853740
Chloroethane	mg/kg	<0.10	0.10	7853740
Trichlorofluoromethane	mg/kg	<0.20	0.20	7853740
1,1-dichloroethene	mg/kg	<0.025	0.025	7853740
Dichloromethane	mg/kg	<0.10	0.10	7853740
trans-1,2-dichloroethene	mg/kg	<0.025	0.025	7853740
1,1-dichloroethane	mg/kg	<0.025	0.025	7853740
cis-1,2-dichloroethene	mg/kg	<0.025	0.025	7853740
Chloroform	mg/kg	<0.050	0.050	7853740
1,1,1-trichloroethane	mg/kg	<0.025	0.025	7853740
1,2-dichloroethane	mg/kg	<0.025	0.025	7853740
Carbon tetrachloride	mg/kg	<0.025	0.025	7853740
Benzene	mg/kg	<0.0050	0.0050	7853740
Methyl-tert-butylether (MTBE)	mg/kg	<0.10	0.10	7853740
1,2-dichloropropane	mg/kg	<0.025	0.025	7853740
Trichloroethene	mg/kg	<0.0090	0.0090	7853740
Bromodichloromethane	mg/kg	<0.050	0.050	7853740
cis-1,3-dichloropropene	mg/kg	<0.050	0.050	7853740
trans-1,3-dichloropropene	mg/kg	<0.050	0.050	7853740
1,1,2-trichloroethane	mg/kg	<0.025	0.025	7853740
Toluene	mg/kg	<0.020	0.020	7853740
Chlorodibromomethane	mg/kg	<0.050	0.050	7853740
1,2-dibromoethane	mg/kg	<0.025	0.025	7853740
Tetrachloroethene	mg/kg	<0.025	0.025	7853740
Chlorobenzene	mg/kg	<0.025	0.025	7853740
1,1,1,2-tetrachloroethane	mg/kg	<0.025	0.025	7853740
Ethylbenzene	mg/kg	<0.010	0.010	7853740
m & p-Xylene	mg/kg	<0.040	0.040	7853740
Bromoform	mg/kg	<0.050	0.050	7853740
Styrene	mg/kg	<0.030	0.030	7853740
o-Xylene	mg/kg	<0.040	0.040	7853740
Xylenes (Total)	mg/kg	<0.040	0.040	7853740
1,1,2,2-tetrachloroethane	mg/kg	<0.025	0.025	7853740
1,2-dichlorobenzene	mg/kg	<0.025	0.025	7853740
RDL = Reportable Detection Limit				

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PINCHIN ENVIRONMENTAL LTD
Client Project #: 103257

VOLATILE ORGANICS BY GC-MS (SOIL)

Maxxam ID		LY3575		
Sampling Date		2015/03/25 10:00		
COC Number		N000048		
	Units	BH1B-S4	RDL	QC Batch
1,3-dichlorobenzene	mg/kg	<0.025	0.025	7853740
1,4-dichlorobenzene	mg/kg	<0.025	0.025	7853740
1,2,3-trichlorobenzene	mg/kg	<0.025	0.025	7853740
Hexachlorobutadiene	mg/kg	<0.20	0.20	7853740
1,2,4-trichlorobenzene	mg/kg	<0.025	0.025	7853740
(C6-C10)	mg/kg	<10	10	7853740
Surrogate Recovery (%)				
1,4-Difluorobenzene (sur.)	%	102		7853740
4-Bromofluorobenzene (sur.)	%	99		7853740
D10-ETHYLBENZENE (sur.)	%	103		7853740
D4-1,2-Dichloroethane (sur.)	%	101		7853740
RDL = Reportable Detection Limit				

Maxxam Job #: B524498
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PINCHIN ENVIRONMENTAL LTD
Client Project #: 103257

GENERAL COMMENTS

Revised Report (2015/04/15): Sample IDs updated as per client request.

Results relate only to the items tested.

Maxxam Job #: B524498
Report Date: 2015/04/15

QUALITY ASSURANCE REPORT

PINCHIN ENVIRONMENTAL LTD
Client Project #: 103257

QC Batch	Parameter	Date	Matrix Spike		Spiked Blank		Method Blank		RPD	
			% Recovery	QC Limits	% Recovery	QC Limits	Value	Units	Value (%)	QC Limits
7849436	O-TERPHENYL (sur.)	2015/03/30	92	50 - 130	87	50 - 130	91	%		
7851349	1,4-Difluorobenzene (sur.)	2015/03/30	99	60 - 140	99	60 - 140	104	%		
7851349	4-Bromofluorobenzene (sur.)	2015/03/30	104	70 - 140	102	70 - 140	103	%		
7851349	D10-ETHYLBENZENE (sur.)	2015/03/30	101	60 - 130	90	60 - 130	101	%		
7851349	D4-1,2-Dichloroethane (sur.)	2015/03/30	97	60 - 140	94	60 - 140	102	%		
7851353	D10-ANTHRACENE (sur.)	2015/03/30	76	60 - 130	90	60 - 130	92	%		
7851353	D8-ACENAPHTHYLENE (sur.)	2015/03/30	72	50 - 130	82	50 - 130	85	%		
7851353	D8-NAPHTHALENE (sur.)	2015/03/30	79	50 - 130	91	50 - 130	97	%		
7851353	TERPHENYL-D14 (sur.)	2015/03/30	73	60 - 130	87	60 - 130	87	%		
7852875	1,4-Difluorobenzene (sur.)	2015/03/31	102	60 - 140	104	60 - 140	104	%		
7852875	4-Bromofluorobenzene (sur.)	2015/03/31	98	70 - 140	98	70 - 140	97	%		
7852875	D10-ETHYLBENZENE (sur.)	2015/03/31	94	60 - 130	83	60 - 130	89	%		
7852875	D4-1,2-Dichloroethane (sur.)	2015/03/31	102	60 - 140	101	60 - 140	106	%		
7853740	1,4-Difluorobenzene (sur.)	2015/04/01	103	70 - 130	103	70 - 130	104	%		
7853740	4-Bromofluorobenzene (sur.)	2015/04/01	97	70 - 130	96	70 - 130	103	%		
7853740	D10-ETHYLBENZENE (sur.)	2015/04/01	113	50 - 130	91	50 - 130	107	%		
7853740	D4-1,2-Dichloroethane (sur.)	2015/04/01	105	70 - 130	102	70 - 130	97	%		
7849429	Moisture	2015/03/30					<0.3	%	3.6	20
7849436	F2 (C10-C16 Hydrocarbons)	2015/03/30	103	50 - 130	98	70 - 130	<20	mg/kg	NC	50
7849436	F3 (C16-C34 Hydrocarbons)	2015/03/30	102	50 - 130	99	70 - 130	<20	mg/kg	NC	50
7849436	F4 (C34-C50 Hydrocarbons)	2015/03/30	104	50 - 130	99	70 - 130	<20	mg/kg	NC	50
7851349	(C6-C10)	2015/03/30			113	60 - 140	<10	mg/kg	NC	40
7851349	Benzene	2015/03/30	109	60 - 140	105	60 - 140	<0.0050	mg/kg	NC	40
7851349	Ethylbenzene	2015/03/30	110	60 - 140	105	60 - 140	<0.010	mg/kg	NC	40
7851349	m & p-Xylene	2015/03/30	100	60 - 140	97	60 - 140	<0.040	mg/kg	NC	40
7851349	Methyl-tert-butylether (MTBE)	2015/03/30					<0.10	mg/kg	NC	40
7851349	o-Xylene	2015/03/30	107	60 - 140	103	60 - 140	<0.040	mg/kg	NC	40
7851349	Toluene	2015/03/30	100	60 - 140	96	60 - 140	<0.020	mg/kg	NC	40
7851349	Xylenes (Total)	2015/03/30					<0.040	mg/kg	NC	40
7851353	2-Methylnaphthalene	2015/03/30	69	40 - 130	80	50 - 130	<0.020	mg/kg		
7851353	Acenaphthene	2015/03/30	72	40 - 130	84	50 - 130	<0.0050	mg/kg		
7851353	Acenaphthylene	2015/03/30	70	40 - 130	80	50 - 130	<0.0050	mg/kg		

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QUALITY ASSURANCE REPORT(CONT'D)

PINCHIN ENVIRONMENTAL LTD
Client Project #: 103257

QC Batch	Parameter	Date	Matrix Spike		Spiked Blank		Method Blank		RPD	
			% Recovery	QC Limits	% Recovery	QC Limits	Value	Units	Value (%)	QC Limits
7851353	Anthracene	2015/03/30	70	40 - 130	85	60 - 130	<0.0040	mg/kg		
7851353	Benzo(a)anthracene	2015/03/30	64	40 - 130	73	60 - 130	<0.020	mg/kg		
7851353	Benzo(a)pyrene	2015/03/30	69	40 - 130	78	60 - 130	<0.020	mg/kg		
7851353	Benzo(b&j)fluoranthene	2015/03/30	61	40 - 130	70	60 - 130	<0.020	mg/kg		
7851353	Benzo(b)fluoranthene	2015/03/30	61	40 - 130	70	60 - 130	<0.020	mg/kg		
7851353	Benzo(g,h,i)perylene	2015/03/30	68	40 - 130	74	60 - 130	<0.050	mg/kg		
7851353	Benzo(k)fluoranthene	2015/03/30	72	40 - 130	84	60 - 130	<0.020	mg/kg		
7851353	Chrysene	2015/03/30	70	40 - 130	79	60 - 130	<0.020	mg/kg		
7851353	Dibenz(a,h)anthracene	2015/03/30	67	40 - 130	75	60 - 130	<0.050	mg/kg		
7851353	Fluoranthene	2015/03/30	71	40 - 130	84	60 - 130	<0.020	mg/kg		
7851353	Fluorene	2015/03/30	72	40 - 130	82	50 - 130	<0.020	mg/kg		
7851353	Indeno(1,2,3-cd)pyrene	2015/03/30	73	40 - 130	80	60 - 130	<0.050	mg/kg		
7851353	Naphthalene	2015/03/30	69	40 - 130	79	50 - 130	<0.010	mg/kg		
7851353	Phenanthrene	2015/03/30	70	40 - 130	81	60 - 130	<0.020	mg/kg		
7851353	Pyrene	2015/03/30	71	40 - 130	84	60 - 130	<0.020	mg/kg		
7852875	(C6-C10)	2015/03/31			100	60 - 140	<10	mg/kg	NC	40
7852875	Benzene	2015/03/31	110	60 - 140	95	60 - 140	<0.0050	mg/kg	NC	40
7852875	Ethylbenzene	2015/03/31	96	60 - 140	82	60 - 140	<0.010	mg/kg	NC	40
7852875	m & p-Xylene	2015/03/31	91	60 - 140	79	60 - 140	<0.040	mg/kg	NC	40
7852875	Methyl-tert-butylether (MTBE)	2015/03/31					<0.10	mg/kg	NC	40
7852875	o-Xylene	2015/03/31	93	60 - 140	79	60 - 140	<0.040	mg/kg	NC	40
7852875	Toluene	2015/03/31	92	60 - 140	79	60 - 140	<0.020	mg/kg	NC	40
7852875	Xylenes (Total)	2015/03/31					<0.040	mg/kg	NC	40
7853740	(C6-C10)	2015/04/01			103	60 - 140	<10	mg/kg	NC	40
7853740	1,1,1,2-tetrachloroethane	2015/04/01	103	60 - 140	90	60 - 140	<0.025	mg/kg	NC	40
7853740	1,1,1-trichloroethane	2015/04/01	98	60 - 140	96	60 - 140	<0.025	mg/kg	NC	40
7853740	1,1,2,2-tetrachloroethane	2015/04/01	98	60 - 140	100	60 - 140	<0.025	mg/kg	NC	40
7853740	1,1,2-trichloroethane	2015/04/01	105	60 - 140	88	60 - 140	<0.025	mg/kg	NC	40
7853740	1,1-dichloroethane	2015/04/01	95	60 - 140	91	60 - 140	<0.025	mg/kg	NC	40
7853740	1,1-dichloroethene	2015/04/01	88	60 - 140	87	60 - 140	<0.025	mg/kg	NC	40
7853740	1,2,3-trichlorobenzene	2015/04/01	97	60 - 140	97	60 - 140	<0.025	mg/kg	NC	40
7853740	1,2,4-trichlorobenzene	2015/04/01	95	60 - 140	96	60 - 140	<0.025	mg/kg	NC	40

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QUALITY ASSURANCE REPORT(CONT'D)

PINCHIN ENVIRONMENTAL LTD
Client Project #: 103257

QC Batch	Parameter	Date	Matrix Spike		Spiked Blank		Method Blank		RPD	
			% Recovery	QC Limits	% Recovery	QC Limits	Value	Units	Value (%)	QC Limits
7853740	1,2-dibromoethane	2015/04/01	112	60 - 140	93	60 - 140	<0.025	mg/kg	NC	40
7853740	1,2-dichlorobenzene	2015/04/01	96	60 - 140	99	60 - 140	<0.025	mg/kg	NC	40
7853740	1,2-dichloroethane	2015/04/01	101	60 - 140	94	60 - 140	<0.025	mg/kg	NC	40
7853740	1,2-dichloropropane	2015/04/01	98	60 - 140	99	60 - 140	<0.025	mg/kg	NC	40
7853740	1,3-dichlorobenzene	2015/04/01	93	60 - 140	99	60 - 140	<0.025	mg/kg	NC	40
7853740	1,4-dichlorobenzene	2015/04/01	94	60 - 140	98	60 - 140	<0.025	mg/kg	NC	40
7853740	Benzene	2015/04/01	103	60 - 140	102	60 - 140	<0.0050	mg/kg	NC	40
7853740	Bromodichloromethane	2015/04/01	102	60 - 140	95	60 - 140	<0.050	mg/kg	NC	40
7853740	Bromoform	2015/04/01	91	60 - 140	94	60 - 140	<0.050	mg/kg	NC	40
7853740	Bromomethane	2015/04/01	95	40 - 150	90	40 - 150	<0.30	mg/kg	NC	40
7853740	Carbon tetrachloride	2015/04/01	98	60 - 140	96	60 - 140	<0.025	mg/kg	NC	40
7853740	Chlorobenzene	2015/04/01	107	60 - 140	94	60 - 140	<0.025	mg/kg	NC	40
7853740	Chlorodibromomethane	2015/04/01	110	60 - 140	93	60 - 140	<0.050	mg/kg	NC	40
7853740	Chloroethane	2015/04/01	83	40 - 150	81	40 - 150	<0.10	mg/kg	NC	40
7853740	Chloroform	2015/04/01	102	60 - 140	97	60 - 140	<0.050	mg/kg	NC	40
7853740	Chloromethane	2015/04/01	76	40 - 150	76	40 - 150	<0.10	mg/kg	NC	40
7853740	cis-1,2-dichloroethene	2015/04/01	98	60 - 140	94	60 - 140	<0.025	mg/kg	NC	40
7853740	cis-1,3-dichloropropene	2015/04/01	107	60 - 140	93	60 - 140	<0.050	mg/kg	NC	40
7853740	Dichloromethane	2015/04/01	112	60 - 140	106	60 - 140	<0.10	mg/kg	NC	40
7853740	Ethylbenzene	2015/04/01	114	60 - 140	100	60 - 140	<0.010	mg/kg	NC	40
7853740	Hexachlorobutadiene	2015/04/01	92	60 - 140	95	40 - 150	<0.20	mg/kg	NC	40
7853740	m & p-Xylene	2015/04/01	116	60 - 140	102	60 - 140	<0.040	mg/kg	NC	40
7853740	Methyl-tert-butylether (MTBE)	2015/04/01					<0.10	mg/kg	NC	40
7853740	o-Xylene	2015/04/01	104	60 - 140	102	60 - 140	<0.040	mg/kg	NC	40
7853740	Styrene	2015/04/01	103	60 - 140	100	60 - 140	<0.030	mg/kg	NC	40
7853740	Tetrachloroethene	2015/04/01	99	60 - 140	87	60 - 140	<0.025	mg/kg	NC	40
7853740	Toluene	2015/04/01	107	60 - 140	95	60 - 140	<0.020	mg/kg	NC	40
7853740	trans-1,2-dichloroethene	2015/04/01	92	60 - 140	90	60 - 140	<0.025	mg/kg	NC	40
7853740	trans-1,3-dichloropropene	2015/04/01	123	60 - 140	100	60 - 140	<0.050	mg/kg	NC	40
7853740	Trichloroethene	2015/04/01	101	60 - 140	94	60 - 140	<0.0090	mg/kg	NC	40
7853740	Trichlorofluoromethane	2015/04/01	108	40 - 150	110	40 - 150	<0.20	mg/kg	NC	40
7853740	Vinyl chloride	2015/04/01	83	40 - 150	81	40 - 150	<0.060	mg/kg	NC	40

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QUALITY ASSURANCE REPORT(CONT'D)

PINCHIN ENVIRONMENTAL LTD
Client Project #: 103257

QC Batch	Parameter	Date	Matrix Spike		Spiked Blank		Method Blank		RPD	
			% Recovery	QC Limits	% Recovery	QC Limits	Value	Units	Value (%)	QC Limits
7853740	Xylenes (Total)	2015/04/01					<0.040	mg/kg	NC	40
<p>Duplicate: Paired analysis of a separate portion of the same sample. Used to evaluate the variance in the measurement.</p> <p>Matrix Spike: A sample to which a known amount of the analyte of interest has been added. Used to evaluate sample matrix interference.</p> <p>Spiked Blank: A blank matrix sample to which a known amount of the analyte, usually from a second source, has been added. Used to evaluate method accuracy.</p> <p>Method Blank: A blank matrix containing all reagents used in the analytical procedure. Used to identify laboratory contamination.</p> <p>Surrogate: A pure or isotopically labeled compound whose behavior mirrors the analytes of interest. Used to evaluate extraction efficiency.</p> <p>NC (Duplicate RPD): The duplicate RPD was not calculated. The concentration in the sample and/or duplicate was too low to permit a reliable RPD calculation (one or both samples < 5x RDL).</p>										

Maxxam Job #: B524498
Report Date: 2015/04/15

PINCHIN ENVIRONMENTAL LTD
Client Project #: 103257

VALIDATION SIGNATURE PAGE

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



Andy Lu, Data Validation Coordinator

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



Page 1 of 1

INVOICE INFORMATION		REPORT INFORMATION (if different from invoice)		PROJECT INFORMATION		MAXXAM JOB NUMBER	
Company Name: <u>PINCHIN</u>		Company Name: _____		Quotation #: _____		<u>B524498</u>	
Contact Name: <u>SEAN MULVEY</u>		Contact Name: _____		P.O. #: _____			
Address: <u>54 TERRACON PL</u> <u>WINNIPEG</u>		Address: _____		Project #: <u>103257</u>		CHAIN OF CUSTODY #	
Phone: <u>742 6583</u> Fax: _____		Phone: _____ Fax: _____		Project Name: _____		<u>N 000048</u>	
Email: _____		Email: _____		Location: _____			
				Sampled By: _____			

[illegible]

***MANDATORY SECTIONS IN GREY MUST BE FILLED OUT. AN INCOMPLETE CHAIN OF CUSTODY MAY RESULT IN ANALYTICAL TAT DELAYS.**

CoC-1028 - WINFCD-00161/1

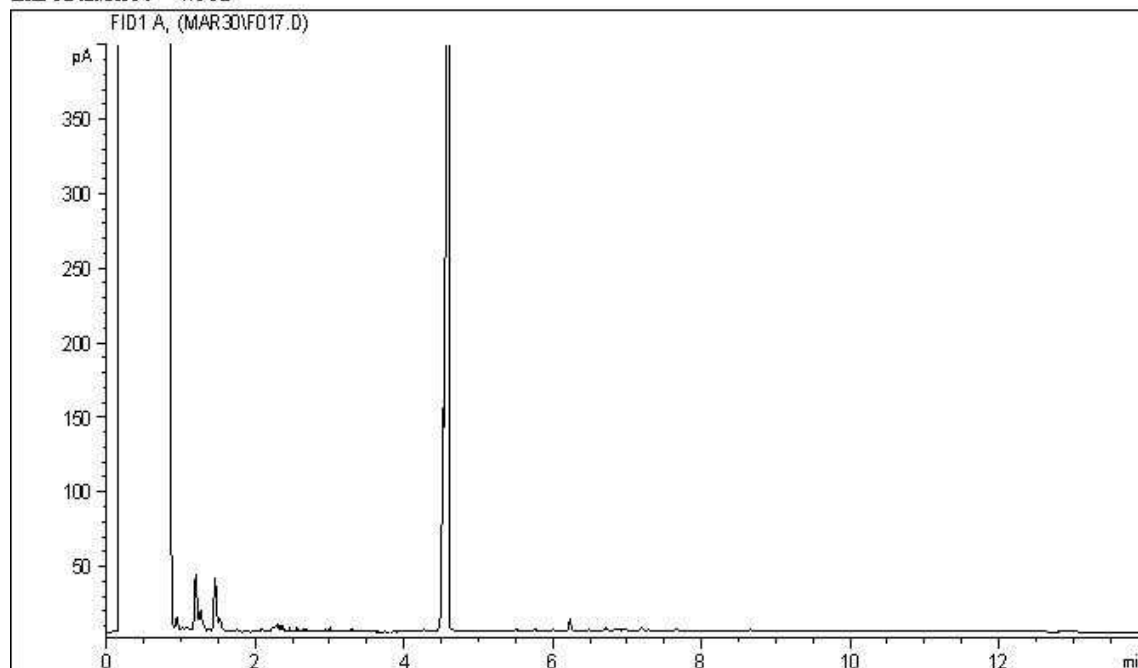
Maxxam International Corporation o/a Maxxam

White: Maxxam

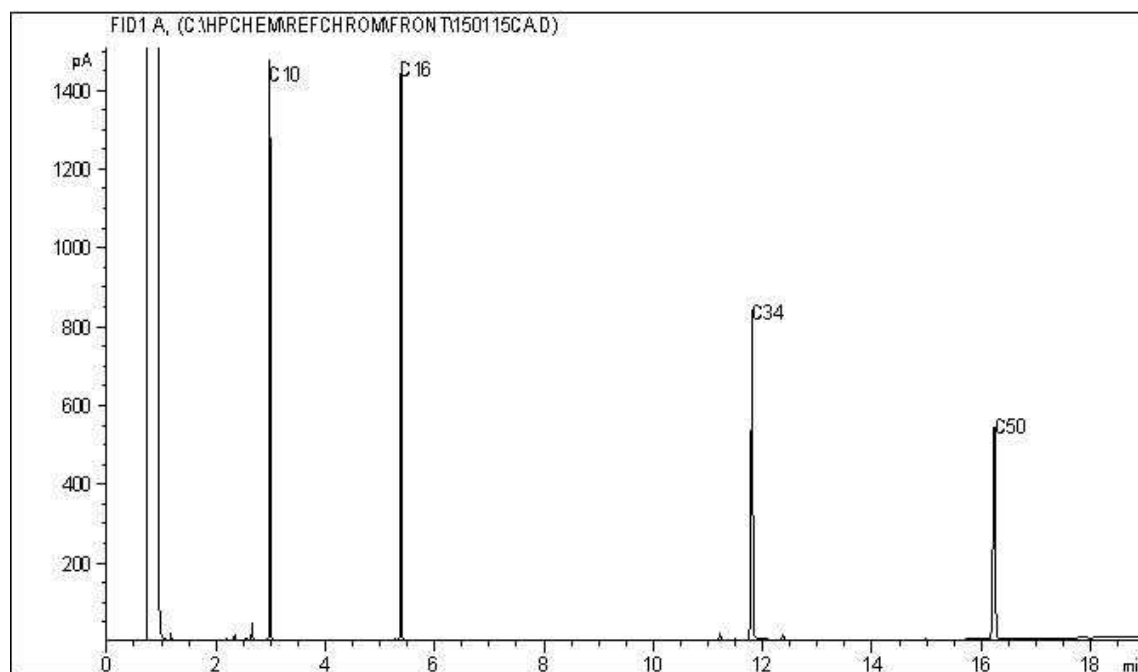
Yellow: Client Copy

CCME Hydrocarbons (F2-F4 in soil) Chromatogram

Instrument: WGC1



Carbon Range Distribution - Reference Chromatogram



TYPICAL PRODUCT CARBON NUMBER RANGES

Gasoline: C4 - C12

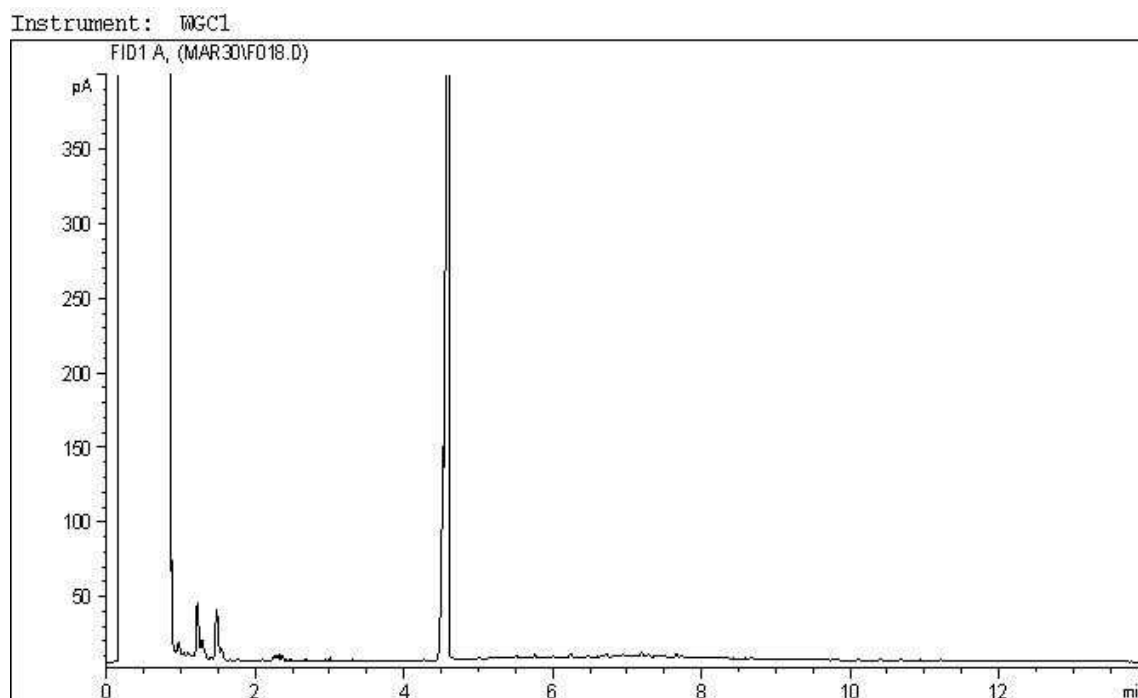
Diesel: C8 - C22

Wax: C20 - C30

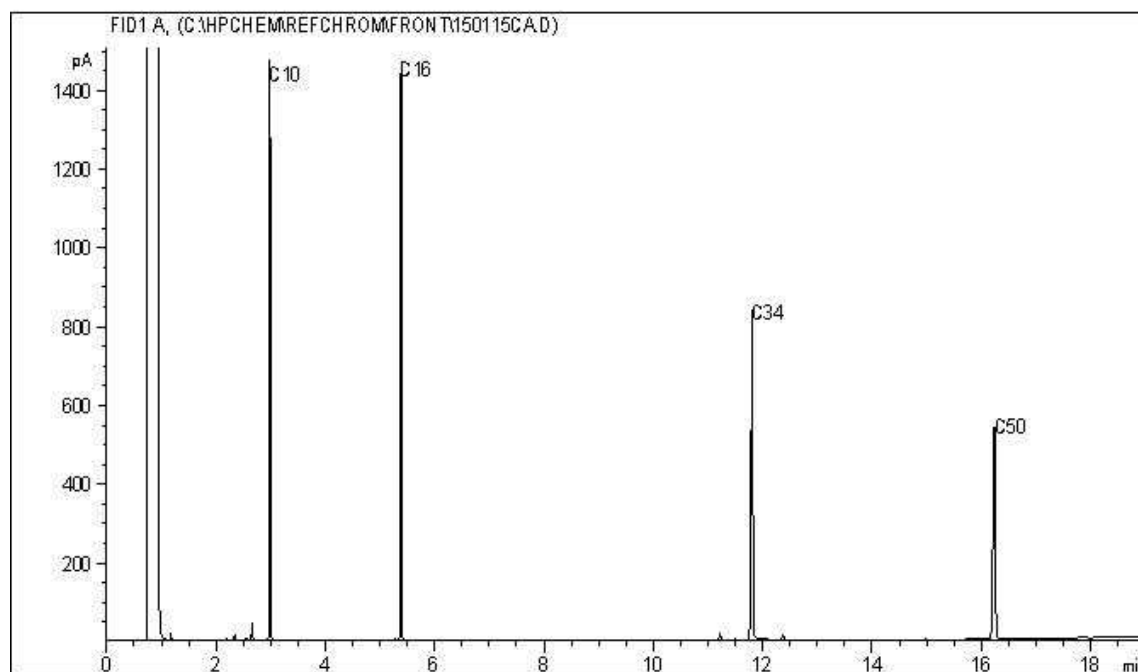
Lubricating Oils: C20 - C40

Note: This information is provided for reference purposes only. Should detailed chemist interpretation or fingerprinting be required, please contact the laboratory.

CCME Hydrocarbons (F2-F4 in soil) Chromatogram



Carbon Range Distribution - Reference Chromatogram



TYPICAL PRODUCT CARBON NUMBER RANGES

Gasoline: C4 - C12

Diesel: C8 - C22

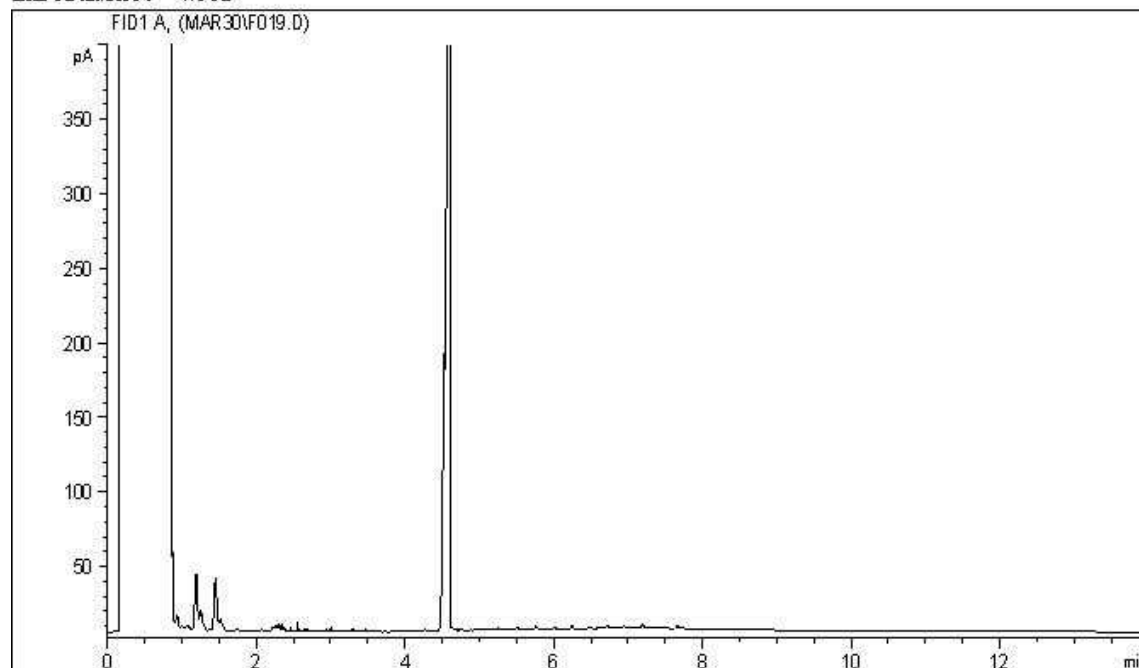
Wax: C20 - C30

Lubricating Oils: C20 - C40

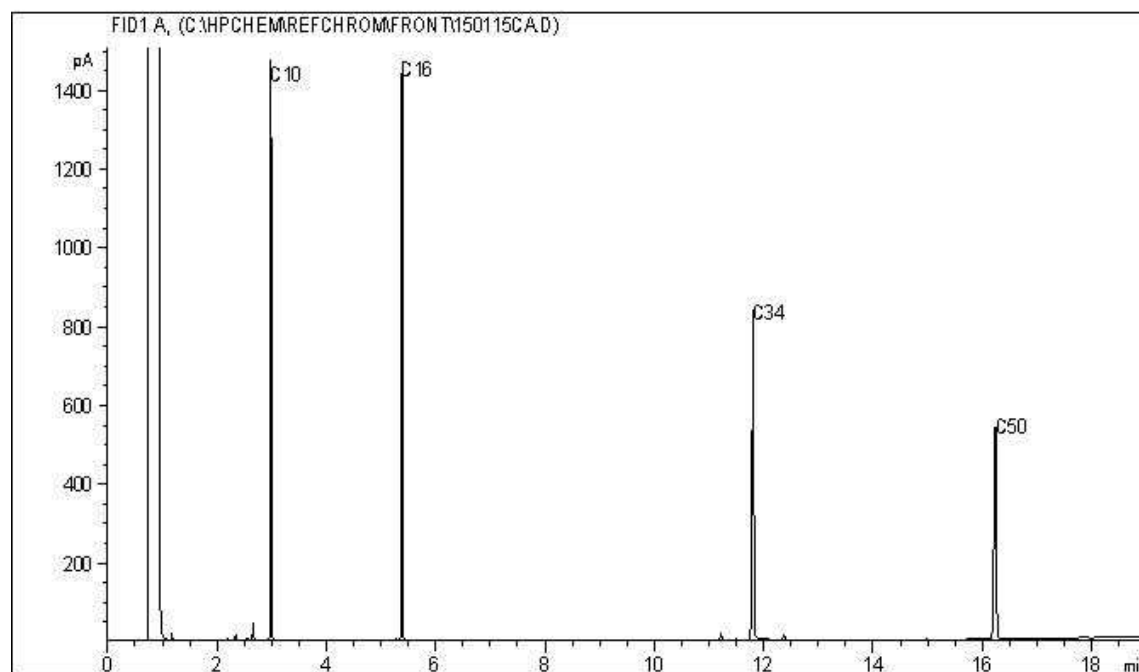
Note: This information is provided for reference purposes only. Should detailed chemist interpretation or fingerprinting be required, please contact the laboratory.

CCME Hydrocarbons (F2-F4 in soil) Chromatogram

Instrument: WGC1



Carbon Range Distribution - Reference Chromatogram



TYPICAL PRODUCT CARBON NUMBER RANGES

Gasoline: C4 - C12

Diesel: C8 - C22

Wax: C28 - C32

Lubricating Oils: C20 - C40

Note: This information is provided for reference purposes only. Should detailed chemist interpretation or fingerprinting be required, please contact the laboratory.

Your Project #: 103257
Your C.O.C. #: N006265

Attention:SEAN MULVEY

PINCHIN ENVIRONMENTAL LTD
54 Terracon Pl.
Winnipeg, MB
CANADA R2J 4G7

Report Date: 2015/04/09

Report #: R1842702

Version: 1 - Final

CERTIFICATE OF ANALYSIS

MAXXAM JOB #: B527538

Received: 2015/04/07, 14:15

Sample Matrix: Water
Samples Received: 3

Analyses	Quantity	Date Extracted	Date Analyzed	Laboratory Method	Analytical Method
BTEX/F1 in Water by HS GC/MS	2	N/A	2015/04/07	WINSOP-00054 WINSOP-00055	EPA8260C/CCME PHCCWS
CCME Hydrocarbons (F2-F4 in water)	3	2015/04/08	2015/04/08	WINSOP-00056	CCME PHC-CWS
PAH in Water by GC/MS (SIM) (1)	1	2015/04/08	2015/04/09	BBY8SOP-00021	EPA 8270d R4 m
Total LMW, HMW, Total PAH Calc (1)	1	N/A	2015/04/09	BBY WI-00033	Auto Calc
VOCs, VH, F1, LH in Water by HS GC/MS (1)	1	2015/04/08	2015/04/09	BBY8SOP-00009	EPA 8260c R3 m
Volatile F1-BTEX (1)	1	N/A	2015/04/09	BBY WI-00033	Auto Calc

Reference Method suffix "m" indicates test methods incorporate validated modifications from specific reference methods to improve performance.

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

(1) This test was performed by Maxxam Vancouver

Encryption Key

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

Janelle Kochan, B.Sc., Project Manager

Email: JKochan@maxxam.ca

Phone# (204)772-7276 Ext:2209

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

Maxxam Job #: B527538
Report Date: 2015/04/09

PINCHIN ENVIRONMENTAL LTD
Client Project #: 103257

RESULTS OF CHEMICAL ANALYSES OF WATER

Maxxam ID		LZ9359		
Sampling Date		2015/04/07 12:00		
COC Number		N006265		
	Units	MW1	RDL	QC Batch
Calculated Parameters				
F1 (C6-C10) - BTEX	ug/L	<300	300	7857689
Polycyclic Aromatics				
Low Molecular Weight PAH's	ug/L	<0.24	0.24	7857168
High Molecular Weight PAH's	ug/L	0.15	0.050	7857168
Total PAH	ug/L	0.28	0.24	7857168
RDL = Reportable Detection Limit				

Maxxam Job #: B527538
Report Date: 2015/04/09

PINCHIN ENVIRONMENTAL LTD
Client Project #: 103257

PETROLEUM HYDROCARBONS (CCME)

Maxxam ID		LZ9359	LZ9360	LZ9361		
Sampling Date		2015/04/07 12:00	2015/04/07 12:10	2015/04/07 12:20		
COC Number		N006265	N006265	N006265		
	Units	MW1	MW2	MW3	RDL	QC Batch
Ext. Pet. Hydrocarbon						
F2 (C10-C16 Hydrocarbons)	mg/L	<0.15	<0.15	<0.15	0.15	7858095
F3 (C16-C34 Hydrocarbons)	mg/L	<0.15	<0.15	<0.15	0.15	7858095
F4 (C34-C50 Hydrocarbons)	mg/L	<0.15	<0.15	<0.15	0.15	7858095
Surrogate Recovery (%)						
O-TERPHENYL (sur.)	%	93	89	92		7858095
RDL = Reportable Detection Limit						

Maxxam Job #: B527538
Report Date: 2015/04/09

PINCHIN ENVIRONMENTAL LTD
Client Project #: 103257

SEMIVOLATILE ORGANICS BY GC-MS (WATER)

Maxxam ID		LZ9359		
Sampling Date		2015/04/07 12:00		
COC Number		N006265		
	Units	MW1	RDL	QC Batch
Polycyclic Aromatics				
Naphthalene	ug/L	<0.10	0.10	7858285
2-Methylnaphthalene	ug/L	<0.10	0.10	7858285
Quinoline	ug/L	<0.24	0.24	7858285
Acenaphthylene	ug/L	<0.050	0.050	7858285
Acenaphthene	ug/L	<0.050	0.050	7858285
Fluorene	ug/L	<0.050	0.050	7858285
Phenanthrene	ug/L	0.12	0.050	7858285
Anthracene	ug/L	0.010	0.010	7858285
Acridine	ug/L	<0.050	0.050	7858285
Fluoranthene	ug/L	0.067	0.020	7858285
Pyrene	ug/L	0.066	0.020	7858285
Benzo(a)anthracene	ug/L	0.015	0.010	7858285
Chrysene	ug/L	<0.050	0.050	7858285
Benzo(b&j)fluoranthene	ug/L	<0.050	0.050	7858285
Benzo(k)fluoranthene	ug/L	<0.050	0.050	7858285
Benzo(a)pyrene	ug/L	<0.0090	0.0090	7858285
Indeno(1,2,3-cd)pyrene	ug/L	<0.050	0.050	7858285
Dibenz(a,h)anthracene	ug/L	<0.050	0.050	7858285
Benzo(g,h,i)perylene	ug/L	<0.050	0.050	7858285
Surrogate Recovery (%)				
D10-ANTHRACENE (sur.)	%	99		7858285
D8-ACENAPHTHYLENE (sur.)	%	95		7858285
D8-NAPHTHALENE (sur.)	%	90		7858285
D9-Acridine	%	82		7858285
TERPHENYL-D14 (sur.)	%	94		7858285
RDL = Reportable Detection Limit				

Maxxam Job #: B527538
Report Date: 2015/04/09

PINCHIN ENVIRONMENTAL LTD
Client Project #: 103257

VOLATILE ORGANICS BY GC-MS (WATER)

Maxxam ID		LZ9359			LZ9360	LZ9361		
Sampling Date		2015/04/07 12:00			2015/04/07 12:10	2015/04/07 12:20		
COC Number		N006265			N006265	N006265		
	Units	MW1	RDL	QC Batch	MW2	MW3	RDL	QC Batch
Volatiles								
Benzene	ug/L	<0.40	0.40	7858688	<0.4	<0.4	0.4	7857193
Chloromethane	ug/L	<1.0	1.0	7858688				
Toluene	ug/L	<0.40	0.40	7858688	<0.4	<0.4	0.4	7857193
Vinyl chloride	ug/L	<0.50	0.50	7858688				
Ethylbenzene	ug/L	<0.40	0.40	7858688	<0.4	<0.4	0.4	7857193
Chloroethane	ug/L	<1.0	1.0	7858688				
o-Xylene	ug/L	<0.40	0.40	7858688	<0.4	<0.4	0.4	7857193
m & p-Xylene	ug/L	<0.40	0.40	7858688	<0.8	<0.8	0.8	7857193
Trichlorofluoromethane	ug/L	<4.0	4.0	7858688				
Xylenes (Total)	ug/L	<0.40	0.40	7858688	<0.8	<0.8	0.8	7857193
1,1,2Trichloro-1,2,2Trifluoroethane	ug/L	<2.0	2.0	7858688				
Methyl-tert-butylether (MTBE)	ug/L	<4.0	4.0	7858688	<4	<4	4	7857193
Dichlorodifluoromethane	ug/L	<2.0	2.0	7858688				
F1 (C6-C10) - BTEX	ug/L				<300	<300	300	7857193
1,1-dichloroethene	ug/L	<0.50	0.50	7858688				
(C6-C10)	ug/L	<300	300	7858688	<300	<300	300	7857193
Dichloromethane	ug/L	<2.0	2.0	7858688				
trans-1,2-dichloroethene	ug/L	<1.0	1.0	7858688				
1,1-dichloroethane	ug/L	<0.50	0.50	7858688				
cis-1,2-dichloroethene	ug/L	<1.0	1.0	7858688				
Chloroform	ug/L	<1.0	1.0	7858688				
1,1,1-trichloroethane	ug/L	<0.50	0.50	7858688				
1,2-dichloroethane	ug/L	<0.50	0.50	7858688				
Carbon tetrachloride	ug/L	<0.50	0.50	7858688				
1,2-dichloropropane	ug/L	<0.50	0.50	7858688				
cis-1,3-dichloropropene	ug/L	<1.0	1.0	7858688				
trans-1,3-dichloropropene	ug/L	<1.0	1.0	7858688				
Bromomethane	ug/L	<1.0	1.0	7858688				
1,1,2-trichloroethane	ug/L	<0.50	0.50	7858688				
Trichloroethene	ug/L	<0.50	0.50	7858688				
Chlorodibromomethane	ug/L	<1.0	1.0	7858688				
1,2-dibromoethane	ug/L	<0.20	0.20	7858688				
Tetrachloroethene	ug/L	<0.50	0.50	7858688				
Bromodichloromethane	ug/L	<1.0	1.0	7858688				
Bromoform	ug/L	<1.0	1.0	7858688				
Styrene	ug/L	<0.50	0.50	7858688				
RDL = Reportable Detection Limit								

Maxxam Job #: B527538
Report Date: 2015/04/09

PINCHIN ENVIRONMENTAL LTD
Client Project #: 103257

VOLATILE ORGANICS BY GC-MS (WATER)

Maxxam ID		LZ9359			LZ9360	LZ9361		
Sampling Date		2015/04/07 12:00			2015/04/07 12:10	2015/04/07 12:20		
COC Number		N006265			N006265	N006265		
	Units	MW1	RDL	QC Batch	MW2	MW3	RDL	QC Batch
1,1,1,2-tetrachloroethane	ug/L	<0.50	0.50	7858688				
1,1,2,2-tetrachloroethane	ug/L	<0.50	0.50	7858688				
1,2-dichlorobenzene	ug/L	<0.50	0.50	7858688				
1,3-dichlorobenzene	ug/L	<0.50	0.50	7858688				
1,4-dichlorobenzene	ug/L	<0.50	0.50	7858688				
Chlorobenzene	ug/L	<0.50	0.50	7858688				
1,2,3-trichlorobenzene	ug/L	<2.0	2.0	7858688				
1,2,4-trichlorobenzene	ug/L	<2.0	2.0	7858688				
Hexachlorobutadiene	ug/L	<0.50	0.50	7858688				
Surrogate Recovery (%)								
4-Bromofluorobenzene (sur.)	%				92	93		7857193
D4-1,2-Dichloroethane (sur.)	%				99	106		7857193
D8-TOLUENE (sur.)	%				105	104		7857193
1,4-Difluorobenzene (sur.)	%	101		7858688				
4-Bromofluorobenzene (sur.)	%	93		7858688				
D4-1,2-Dichloroethane (sur.)	%	94		7858688				
RDL = Reportable Detection Limit								

Maxxam Job #: B527538
Report Date: 2015/04/09

PINCHIN ENVIRONMENTAL LTD
Client Project #: 103257

GENERAL COMMENTS

Results relate only to the items tested.

Maxxam Job #: B527538
Report Date: 2015/04/09

QUALITY ASSURANCE REPORT

PINCHIN ENVIRONMENTAL LTD
Client Project #: 103257

QC Batch	Parameter	Date	Matrix Spike		Spiked Blank		Method Blank		RPD	
			% Recovery	QC Limits	% Recovery	QC Limits	Value	Units	Value (%)	QC Limits
7857193	4-Bromofluorobenzene (sur.)	2015/04/07	98	60 - 140	98	60 - 140	94	%		
7857193	D4-1,2-Dichloroethane (sur.)	2015/04/07	101	60 - 140	102	60 - 140	102	%		
7857193	D8-TOLUENE (sur.)	2015/04/07	103	60 - 140	104	60 - 140	103	%		
7858095	O-TERPHENYL (sur.)	2015/04/08	101	50 - 130	103	50 - 130	91	%		
7858285	D10-ANTHRACENE (sur.)	2015/04/08	94	60 - 130	104	60 - 130	100	%		
7858285	D8-ACENAPHTHYLENE (sur.)	2015/04/08	94	50 - 130	98	50 - 130	95	%		
7858285	D8-NAPHTHALENE (sur.)	2015/04/08	87	50 - 130	95	50 - 130	97	%		
7858285	D9-Acridine	2015/04/08	81	50 - 130	97	50 - 130	93	%		
7858285	TERPHENYL-D14 (sur.)	2015/04/08	67	60 - 130	99	60 - 130	96	%		
7858688	1,4-Difluorobenzene (sur.)	2015/04/09	101	70 - 130	98	70 - 130	99	%		
7858688	4-Bromofluorobenzene (sur.)	2015/04/09	107	70 - 130	93	70 - 130	94	%		
7858688	D4-1,2-Dichloroethane (sur.)	2015/04/09	96	70 - 130	95	70 - 130	95	%		
7857193	(C6-C10)	2015/04/07	90	70 - 130	73	70 - 130	<300	ug/L	NC	40
7857193	Benzene	2015/04/07	89	70 - 130	86	70 - 130	<0.4	ug/L	NC	40
7857193	Ethylbenzene	2015/04/07	97	70 - 130	94	70 - 130	<0.4	ug/L	NC	40
7857193	F1 (C6-C10) - BTEX	2015/04/07					<300	ug/L	NC	40
7857193	m & p-Xylene	2015/04/07	100	70 - 130	98	70 - 130	<0.8	ug/L	NC	40
7857193	Methyl-tert-butylether (MTBE)	2015/04/07	94	70 - 130	93	70 - 130	<4	ug/L		
7857193	o-Xylene	2015/04/07	99	70 - 130	96	70 - 130	<0.4	ug/L	NC	40
7857193	Toluene	2015/04/07	91	70 - 130	88	70 - 130	<0.4	ug/L	NC	40
7857193	Xylenes (Total)	2015/04/07					<0.8	ug/L	NC	40
7858095	F2 (C10-C16 Hydrocarbons)	2015/04/08	100	50 - 130	102	70 - 130	<0.15	mg/L	NC	40
7858095	F3 (C16-C34 Hydrocarbons)	2015/04/08	105	50 - 130	106	70 - 130	<0.15	mg/L	NC	40
7858095	F4 (C34-C50 Hydrocarbons)	2015/04/08	107	50 - 130	111	70 - 130	<0.15	mg/L	NC	40
7858285	2-Methylnaphthalene	2015/04/08	NC	50 - 130	88	50 - 130	<0.10	ug/L	NC	40
7858285	Acenaphthene	2015/04/08	NC	50 - 130	90	50 - 130	<0.050	ug/L	NC	40
7858285	Acenaphthylene	2015/04/08	NC	50 - 130	90	50 - 130	<0.050	ug/L	NC	40
7858285	Acridine	2015/04/08	NC	50 - 130	87	50 - 130	<0.050	ug/L	NC	40
7858285	Anthracene	2015/04/08	NC	60 - 130	94	60 - 130	<0.010	ug/L	NC	40
7858285	Benzo(a)anthracene	2015/04/08	NC	60 - 130	80	60 - 130	<0.010	ug/L	NC	40
7858285	Benzo(a)pyrene	2015/04/08	NC	60 - 130	82	60 - 130	<0.0090	ug/L	NC	40
7858285	Benzo(b&j)fluoranthene	2015/04/08	NC	60 - 130	84	60 - 130	<0.050	ug/L	NC	40

Maxxam Job #: B527538
Report Date: 2015/04/09

QUALITY ASSURANCE REPORT(CONT'D)

PINCHIN ENVIRONMENTAL LTD
Client Project #: 103257

QC Batch	Parameter	Date	Matrix Spike		Spiked Blank		Method Blank		RPD	
			% Recovery	QC Limits	% Recovery	QC Limits	Value	Units	Value (%)	QC Limits
7858285	Benzo(g,h,i)perylene	2015/04/08	NC	60 - 130	82	60 - 130	<0.050	ug/L	NC	40
7858285	Benzo(k)fluoranthene	2015/04/08	NC	60 - 130	82	60 - 130	<0.050	ug/L	NC	40
7858285	Chrysene	2015/04/08	NC	60 - 130	86	60 - 130	<0.050	ug/L	NC	40
7858285	Dibenz(a,h)anthracene	2015/04/08	NC	60 - 130	81	60 - 130	<0.050	ug/L	NC	40
7858285	Fluoranthene	2015/04/08	NC	60 - 130	81	60 - 130	<0.020	ug/L	NC	40
7858285	Fluorene	2015/04/08	NC	50 - 130	82	50 - 130	<0.050	ug/L	NC	40
7858285	Indeno(1,2,3-cd)pyrene	2015/04/08	NC	60 - 130	85	60 - 130	<0.050	ug/L	NC	40
7858285	Naphthalene	2015/04/08	NC	50 - 130	84	50 - 130	<0.10	ug/L	NC	40
7858285	Phenanthrene	2015/04/08	NC	60 - 130	85	60 - 130	<0.050	ug/L	NC	40
7858285	Pyrene	2015/04/08	NC	60 - 130	83	60 - 130	<0.020	ug/L	NC	40
7858285	Quinoline	2015/04/08	660 (1)	50 - 130	101	50 - 130	<0.24	ug/L	NC	40
7858688	(C6-C10)	2015/04/09			86	70 - 130	<300	ug/L		
7858688	1,1,1,2-tetrachloroethane	2015/04/09	96	70 - 130	86	70 - 130	<0.50	ug/L	NC	30
7858688	1,1,1-trichloroethane	2015/04/09	88	70 - 130	85	70 - 130	<0.50	ug/L	NC	30
7858688	1,1,2,2-tetrachloroethane	2015/04/09	86	70 - 130	86	70 - 130	<0.50	ug/L	NC	30
7858688	1,1,2Trichloro-1,2,2Trifluoroethane	2015/04/09					<2.0	ug/L		
7858688	1,1,2-trichloroethane	2015/04/09	95	70 - 130	90	70 - 130	<0.50	ug/L	NC	30
7858688	1,1-dichloroethane	2015/04/09	85	70 - 130	77	70 - 130	<0.50	ug/L	NC	30
7858688	1,1-dichloroethene	2015/04/09	87	70 - 130	81	70 - 130	<0.50	ug/L	NC	30
7858688	1,2,3-trichlorobenzene	2015/04/09	104	70 - 130	97	70 - 130	<2.0	ug/L		
7858688	1,2,4-trichlorobenzene	2015/04/09	106	70 - 130	93	70 - 130	<2.0	ug/L		
7858688	1,2-dibromoethane	2015/04/09	98	70 - 130	91	70 - 130	<0.20	ug/L	NC	30
7858688	1,2-dichlorobenzene	2015/04/09	97	70 - 130	91	70 - 130	<0.50	ug/L	NC	30
7858688	1,2-dichloroethane	2015/04/09	80	70 - 130	79	70 - 130	<0.50	ug/L	NC	30
7858688	1,2-dichloropropane	2015/04/09	91	70 - 130	88	70 - 130	<0.50	ug/L	NC	30
7858688	1,3-dichlorobenzene	2015/04/09	97	70 - 130	91	70 - 130	<0.50	ug/L	NC	30
7858688	1,4-dichlorobenzene	2015/04/09	96	70 - 130	90	70 - 130	<0.50	ug/L	NC	30
7858688	Benzene	2015/04/09	92	70 - 130	89	70 - 130	<0.40	ug/L	NC	30
7858688	Bromodichloromethane	2015/04/09	83	70 - 130	79	70 - 130	<1.0	ug/L	NC	30
7858688	Bromoform	2015/04/09	83	70 - 130	83	70 - 130	<1.0	ug/L	NC	30
7858688	Bromomethane	2015/04/09	83	60 - 140	74	60 - 140	<1.0	ug/L	NC	30
7858688	Carbon tetrachloride	2015/04/09	87	70 - 130	82	70 - 130	<0.50	ug/L	NC	30

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QUALITY ASSURANCE REPORT(CONT'D)

PINCHIN ENVIRONMENTAL LTD
Client Project #: 103257

QC Batch	Parameter	Date	Matrix Spike		Spiked Blank		Method Blank		RPD	
			% Recovery	QC Limits	% Recovery	QC Limits	Value	Units	Value (%)	QC Limits
7858688	Chlorobenzene	2015/04/09	107	70 - 130	97	70 - 130	<0.50	ug/L	NC	30
7858688	Chlorodibromomethane	2015/04/09	90	70 - 130	85	70 - 130	<1.0	ug/L	NC	30
7858688	Chloroethane	2015/04/09	77	60 - 140	68	60 - 140	<1.0	ug/L	NC	30
7858688	Chloroform	2015/04/09	87	70 - 130	85	70 - 130	<1.0	ug/L	NC	30
7858688	Chloromethane	2015/04/09	79	60 - 140	69	60 - 140	<1.0	ug/L	NC	30
7858688	cis-1,2-dichloroethene	2015/04/09	90	70 - 130	87	70 - 130	<1.0	ug/L	NC	30
7858688	cis-1,3-dichloropropene	2015/04/09	89	70 - 130	81	70 - 130	<1.0	ug/L	NC	30
7858688	Dichlorodifluoromethane	2015/04/09	69	60 - 140	62	60 - 140	<2.0	ug/L	NC	30
7858688	Dichloromethane	2015/04/09	103	70 - 130	96	70 - 130	<2.0	ug/L	NC	30
7858688	Ethylbenzene	2015/04/09	100	70 - 130	92	70 - 130	<0.40	ug/L	NC	30
7858688	Hexachlorobutadiene	2015/04/09	100	70 - 130	94	70 - 130	<0.50	ug/L		
7858688	m & p-Xylene	2015/04/09	101	70 - 130	93	70 - 130	<0.40	ug/L	NC	30
7858688	Methyl-tert-butylether (MTBE)	2015/04/09	87	70 - 130	81	70 - 130	<4.0	ug/L	NC	30
7858688	o-Xylene	2015/04/09	100	70 - 130	92	70 - 130	<0.40	ug/L	NC	30
7858688	Styrene	2015/04/09	100	70 - 130	91	70 - 130	<0.50	ug/L	NC	30
7858688	Tetrachloroethene	2015/04/09	NC	70 - 130	87	70 - 130	<0.50	ug/L	5.6	30
7858688	Toluene	2015/04/09	100	70 - 130	92	70 - 130	<0.40	ug/L	NC	30
7858688	trans-1,2-dichloroethene	2015/04/09	91	70 - 130	82	70 - 130	<1.0	ug/L	NC	30
7858688	trans-1,3-dichloropropene	2015/04/09	87	70 - 130	79	70 - 130	<1.0	ug/L	NC	30
7858688	Trichloroethene	2015/04/09	94	70 - 130	87	70 - 130	<0.50	ug/L	NC	30
7858688	Trichlorofluoromethane	2015/04/09	105	60 - 140	96	60 - 140	<4.0	ug/L	NC	30
7858688	Vinyl chloride	2015/04/09	89	60 - 140	77	60 - 140	<0.50	ug/L	NC	30

Maxxam Job #: B527538
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QUALITY ASSURANCE REPORT(CONT'D)

PINCHIN ENVIRONMENTAL LTD
Client Project #: 103257

QC Batch	Parameter	Date	Matrix Spike		Spiked Blank		Method Blank		RPD	
			% Recovery	QC Limits	% Recovery	QC Limits	Value	Units	Value (%)	QC Limits
7858688	Xylenes (Total)	2015/04/09					<0.40	ug/L	NC	30
<p>Duplicate: Paired analysis of a separate portion of the same sample. Used to evaluate the variance in the measurement.</p> <p>Matrix Spike: A sample to which a known amount of the analyte of interest has been added. Used to evaluate sample matrix interference.</p> <p>Spiked Blank: A blank matrix sample to which a known amount of the analyte, usually from a second source, has been added. Used to evaluate method accuracy.</p> <p>Method Blank: A blank matrix containing all reagents used in the analytical procedure. Used to identify laboratory contamination.</p> <p>Surrogate: A pure or isotopically labeled compound whose behavior mirrors the analytes of interest. Used to evaluate extraction efficiency.</p> <p>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 too small to permit a reliable recovery calculation (matrix spike concentration was less than 2x that of the native sample concentration).</p> <p>NC (Duplicate RPD): The duplicate RPD was not calculated. The concentration in the sample and/or duplicate was too low to permit a reliable RPD calculation (one or both samples < 5x RDL).</p> <p>(1) Recovery or RPD for this parameter is outside control limits. The overall quality control for this analysis meets acceptability criteria.</p>										

Maxxam Job #: B527538
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VALIDATION SIGNATURE PAGE

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



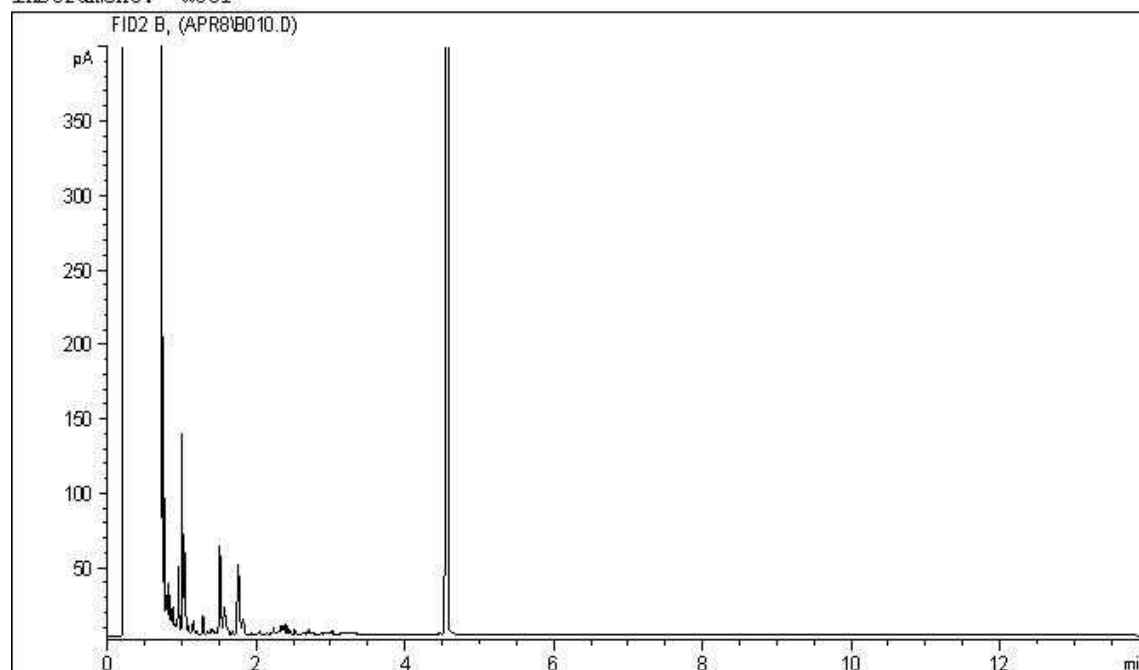
Rob Reinert, Data Validation Coordinator

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

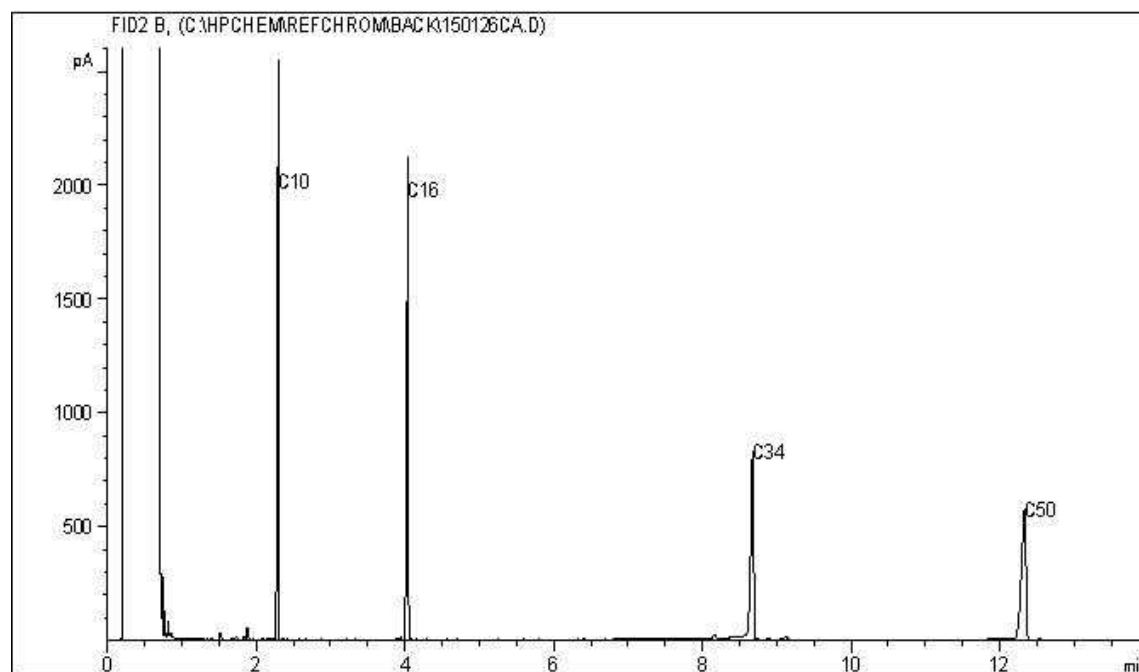
***MANDATORY SECTIONS IN GREY MUST BE FILLED OUT. AN INCOMPLETE CHAIN OF CUSTODY MAY RESULT IN ANALYTICAL TAT DELAYS.**

CCME Hydrocarbons (F2-F4 in water) Chromatogram

Instrument: WGC1



Carbon Range Distribution - Reference Chromatogram



TYPICAL PRODUCT CARBON NUMBER RANGES

Gasoline: C4 - C12

Diesel: C8 - C22

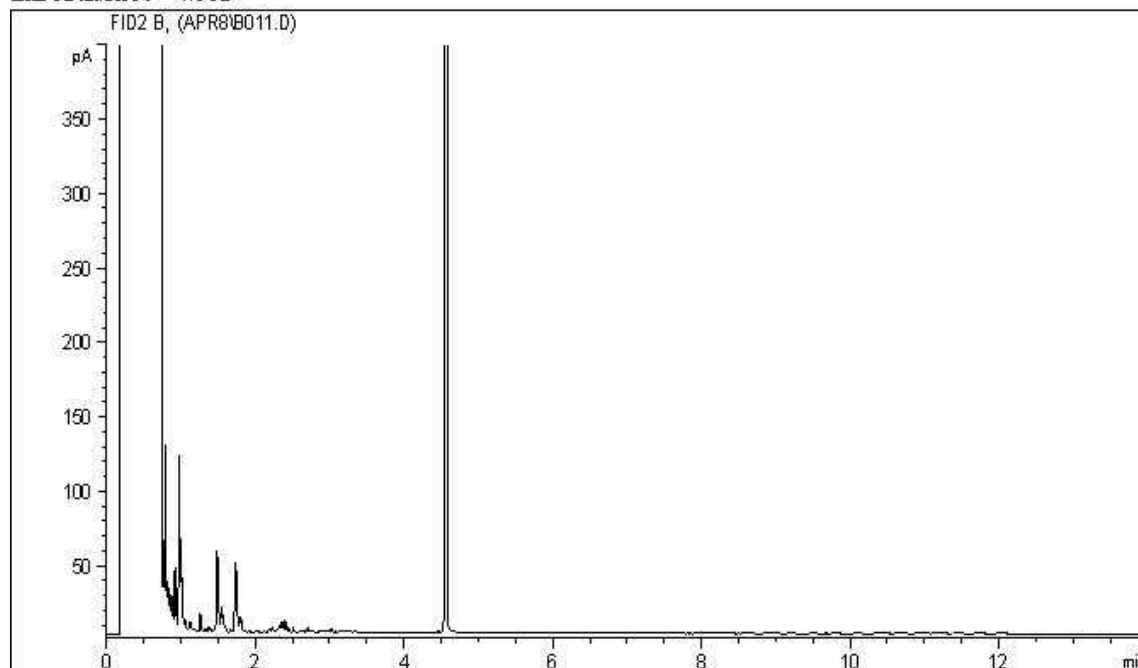
Wax: C18 - C32

Lubricating Oils: C20 - C40

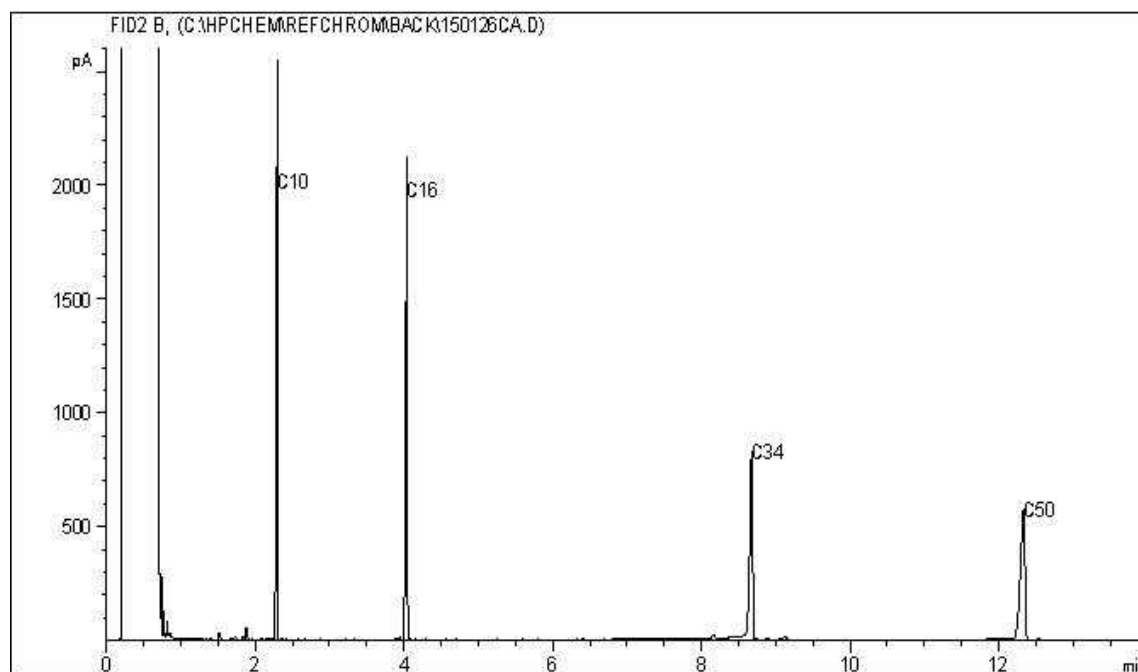
Note: This information is provided for reference purposes only. Should detailed chemist interpretation or fingerprinting be required, please contact the laboratory.

CCME Hydrocarbons (F2-F4 in water) Chromatogram

Instrument: WGC1



Carbon Range Distribution - Reference Chromatogram



TYPICAL PRODUCT CARBON NUMBER RANGES

Gasoline: C4 - C12

Diesel: C8 - C22

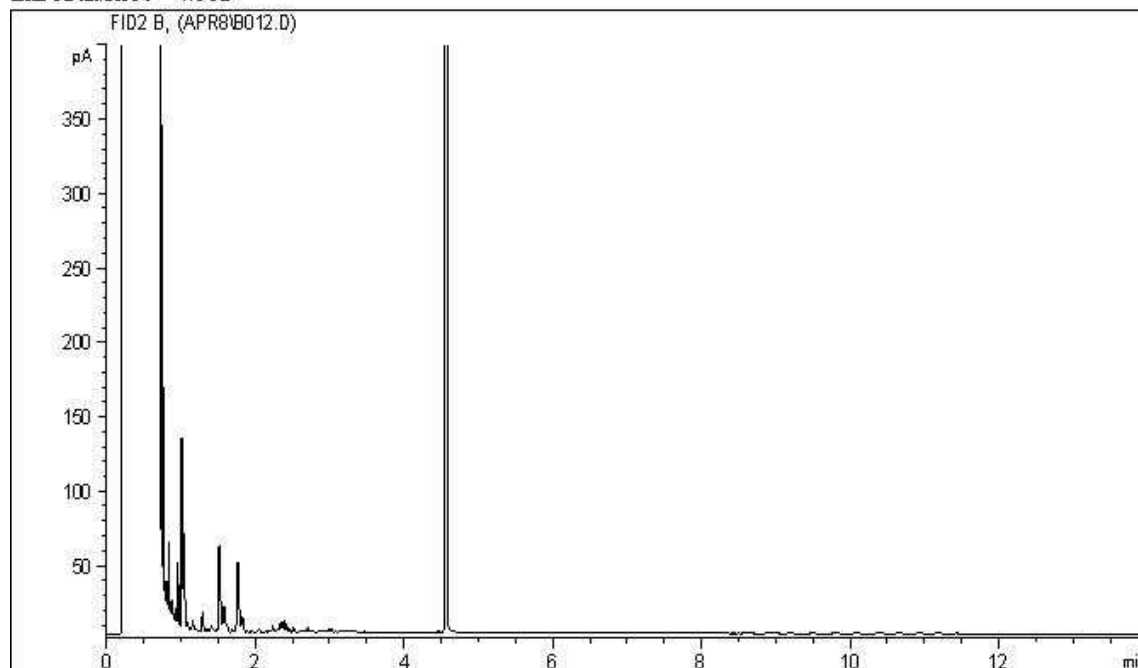
Waxes: C28 - C32

Lubricating Oils: C20 - C40

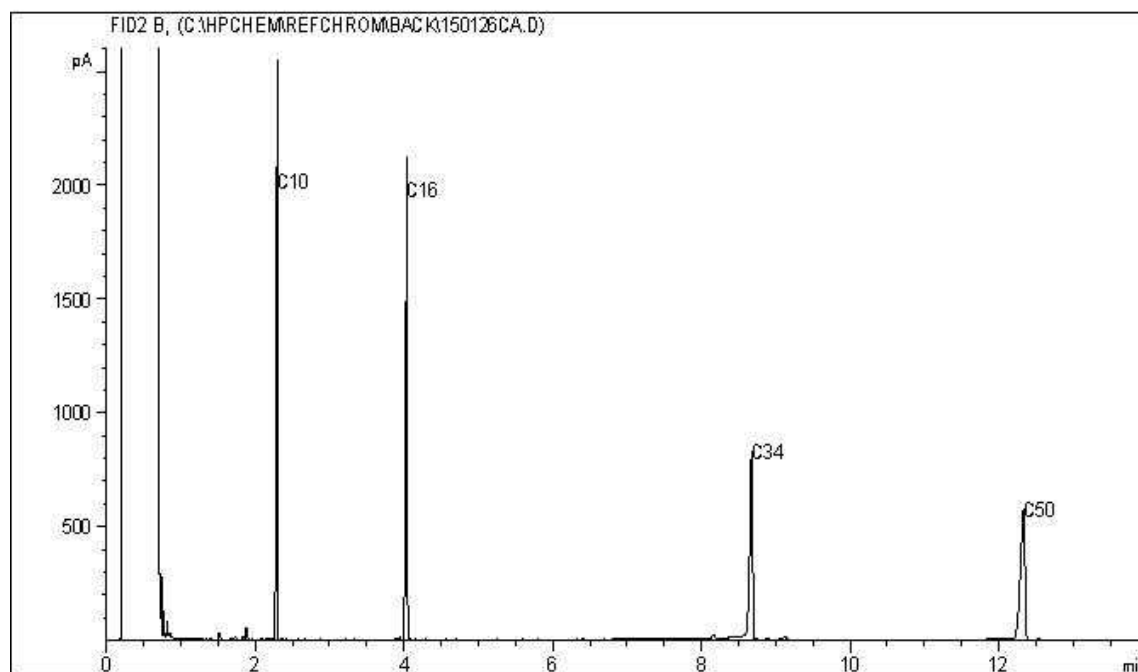
Note: This information is provided for reference purposes only. Should detailed chemist interpretation or fingerprinting be required, please contact the laboratory.

CCME Hydrocarbons (F2-F4 in water) Chromatogram

Instrument: WGC1



Carbon Range Distribution - Reference Chromatogram



TYPICAL PRODUCT CARBON NUMBER RANGES

Gasoline: C4 - C12

Diesel: C8 - C22

Wax: C20 - C30

Lubricating Oils: C20 - C40

Note: This information is provided for reference purposes only. Should detailed chemist interpretation or fingerprinting be required, please contact the laboratory.