June 15, 2012

Gordon Marine Limited
129 South Street
Gananoque, ON K7G 1A1

Attention: Mr. Sandy Gordon

Re: Environmental Peer Review
Gordon Marine - 129 South Street, Gananoque, Ontario
Pinchin File: 74984

Dear Mr. Gordon:

Pinchin Environmental Ltd. ("Pinchin") was retained by Gordon Marine Ltd. (the "Client") to complete an Environmental Peer Review ("EPR") of several reports which detail the results of an environmental program previously completed by others at the above-referenced property (hereafter referred to as the "Site"). The EPR is required as part of the Due Diligence requirements in order to support the potential divestiture of the Site.

ENVIRONMENTAL PEER REVIEW

As part of the EPR, Pinchin reviewed the following reports provided by Client:

- "*Phase I and II Environmental Site Assessment, 129 South Street, Gananoque, Ontario*" prepared by EXP Services Inc. ("EXP"), dated November 18, 2011 (the "EXP Phase I/II ESA Report"); and
- "*Screening Level Risk Assessment, Gordon Marine, 129 South Street, Gananoque, Ontario*" prepared by EXP, dated November 18, 2011 (the "EXP SLRA Report").

A summary of the reports, as well as Pinchin's comments with respect to the findings and conclusions, are provided below.

EXP PHASE I ESA

EXP was retained to by the Client to conduct an Environmental Site Assessment ("ESA") at the Site. EXP indicated that the Phase I ESA report was completed in conformance with Canadian Standards Association ("CSA") guidance document CSA Z769-00.

Site and Surrounding Land Use Description

At the time of the EXP Phase I/II ESA, the Site was developed with a two storey commercial building and one warehouse building ("Site Buildings") occupied by Gordon Marine Ltd.. On-Site operations included boat retail, service, maintenance and a marina. As part of the marina operations, three underground storage tanks ("USTs"), two USTs containing gasoline and one UST containing diesel fuel, were located on the south-east corner of the Site. These USTs reportedly supplied fuel to three dispensers, located on the pier, for refuelling of boats. The upper storey of the commercial building was occupied by a new boat showroom while the lower level was occupied by the maintenance facility. At the time of the investigation, the warehouse building was utilized for the storage of boats.

It should be noted that potable water is provided to the Site through the Town of Gananoque municipal services, which utilizes the Saint Lawrence River as the water source, and sanitary wastewater is discharged to the municipal sewer system.

Surrounding Properties

At the time of the EXP Phase I/II ESA, the Site was bounded immediately to the north by South Street with predominant residential land use adjacent to the Site's north, east and west elevations. A commercial property (i.e. Thousand Island Playhouse), was located to the east of the Site. The Saint Lawrence River was located immediately south of the Site.

Site and Surrounding Land Use History

- Based on information provided in the EXP Phase I/II ESA, it was reported that the Site was historically used as a coal storage yard (Sampson Coal Company);
- EXP reviewed aerial photographs dated 1953, 1962, 1967, 1978, 1991 and 2006, which indicated that the Site was developed as a marina between 1962 and 1967. EXP based this conclusion on the fact that no docks were visible in the aerial photos taken between 1953 and 1962. The surrounding land use appeared to remain relatively consistent throughout the time period covered by the aerial photos, however, detail as to the exact land use and configuration was not provided;
- EXP reviewed a Fire Insurance Plan ("FIP") circa 1947, which indicated that a coal pile, three coal sheds and one coke structure was formerly located on the southeast corner of the Site; and
- As part of the Phase I ESA, EXP also reviewed Property Use Directories for the Town of Gananoque for the years of 1927 and 1929. These directories pre-date the current land use, however, EXP indicated that the majority of the surrounding land use was for residential purposes, with the exception of the Citizen's Coal and Forwarding Company Limited and Sampson Coal Company Limited that is inferred to have occupied the Site.

Regulatory Information Review

EXP requested information from the Ontario Ministry of the Environment ("MOE") and the Technical Standards and Safety Authority ("TSSA"). A response from the MOE had not been received at the time that the EXP Phase I/II ESA Report was issued.

A response was received from the TSSA which indicated that there were three USTs registered to the Site which included:

- Two single-walled steel USTs, each with a capacity of 13,600 L, were installed in 1988 and were protected by sacrificial anodes; and
- One single-walled steel UST, with a 4,500 L capacity, was installed in 1998 and was protected by sacrificial anodes.

As reportedly documented in the TSSA response, the TSSA completed a full Site audit in 2003 and issued orders of non-compliance. However, a follow-up inspection completed in 2006 found the Site to be in full compliance with TSSA standards. In addition, the TSSA had no records of any outstanding instructions, incident reports, spills or contamination records.

Findings

The following is an abbreviated summary of the findings of the Phase I ESA Report. EXP concluded by identifying that the following areas of potential environmental concerns ("APECs") at the Site:

- Past uses of the Site included operations as a coal yard with associated coal pile, three coal storage sheds and one coke storage shed;
- Current use as a marina, which included boat maintenance and the operation of three USTs located on the south-east corner of the Site;
- Operation as a marina generated volumes of waste oils, antifreeze, solvents and gasoline which are stored in aboveground storage tanks ("ASTs") located in the warehouse building; and,
- Fill of unknown origin and quality may have been utilized to build up the property during development.

It should be noted that EXP outlined several other APECs such as the potential for mercury in light ballasts, lead in paint and the use of asbestos within the Site Buildings; however, Pinchin does not consider these to be relevant in the identification and assessment of impacts to soil and groundwater which underlies the Site.

EXP PHASE II ESA

Based on the APECs outlined above, EXP was subsequently retained by the Client to complete a Phase II ESA at the Site, in order to define the presence or absence of environmental impacts to the soil and groundwater which underlies the Site.

On May 24, 2011, EXP field personnel supervised the advancement of four boreholes (BH-1 through BH-4) at the Site. Two of the completed boreholes (BH-1 and BH-2) were instrumented with monitoring wells installed within the overburden soils to enable groundwater monitoring and sampling. The borehole and monitoring well locations were selected to confirm the soil and groundwater conditions in the vicinity of the USTs (BH-1/MW-1), in the vicinity of the water oil AST located within the warehouse (BH-2/MW-2 and BH-3), and to assess the imported fill material of unknown origin located across the northern portion of the Site (BH-4). It should also be noted that two surficial soil samples (S-1 and S-2) were collected from the vicinity of the waste oil AST, located within the warehouse.

On May 27, 2011, EXP field personnel installed dedicated waterra tubing and foot valve within each of the monitoring wells in order to initiate the purging and sampling activities. Prior to purging the monitoring wells, static groundwater levels were measured and recorded, the monitoring wells were subsequently purged a minimum of three well volumes to remove the stagnant water and groundwater samples were collected.

One "worst case" soil sample was collected per borehole based field screening results and one groundwater sample was collected per monitoring well. All soil and groundwater samples were submitted to Maxxam Analytics Inc. ("Maxxam") of Mississauga, Ontario for chemical analysis of a combination or parameters including petroleum hydrocarbons ("PHCs") (F1 to F4), volatile organic compounds ("VOCs"), polycyclic aromatic hydrocarbons ("PAHs") and metals.

The results were compared to the current Table 9 Standards which are outlined in the document entitled *"Soil, Ground Water and Sediment Standards for Use Under Part XV.1 of the Environmental Protection Act"* April 15, 2011, for non-potable groundwater conditions for a non-agricultural Site which is located within 30 metres of a water body (hereafter referred to as the "*Table 9 Standards*").

Initial Results

The results of the laboratory analysis indicated that the following soil samples reported concentrations of one or more target parameters which exceeded the applicable *Table 9 Standards:*

- Soil sample #3 collected from borehole BH-1 reported concentrations of toluene and xylenes which exceeded the applicable *Table 9 Standards*;

- Soil sample #2 collected from borehole BH-2 reported concentrations of PHCs (F2 and F3), toluene, benzene, ethylbenzene, hexane and xylenes which exceeded the applicable *Table 9 Standards*;

- The surficial soil samples S-1 and S-2 reported concentrations of PHCs (F2 through F4) and xylenes which exceeded the applicable *Table 9 Standards;* and

- Soil sample #1 collected from borehole BH-1 reported concentrations of several metals and PAH parameters which exceeded the applicable *Table 9 Standards.*

The results of the laboratory analysis indicated that the groundwater samples collected from MW-1 and MW-2 reported concentrations of several metal and PAH target parameters which exceeded the applicable *Table 9 Standards.*

Delineation Sampling in the Vicinity of AST

In order to delineate the lateral extent of the shallow PHC-impacted soil identified in the vicinity of the AST located in the warehouse building, EXP returned to the Site on July 20, 2011 to supervise the advancement of ten shallow boreholes.

A total of nine soil samples were submitted to Maxxam for chemical analysis of a combination or parameters including PHCs (F1 to F4), VOCs, PAHs and metals.

The results of the laboratory analysis indicated that the following soil samples reported concentrations of one or more target parameters which exceeded the applicable Table 9 Standards:

- Soil samples collected from BH-D1, BH-D4, BH-D5b and BH-D8 reported concentrations of one or more PHC fractions which exceeded the applicable *Table 9 Standards*;

- All soil samples reported concentrations of benzene, toluene, ethylbenzene and/or xylenes which exceeded the applicable *Table 9 Standards;* and

- Soil sample BH-D2 reported concentrations of several metals and PAH parameters which exceeded the applicable *Table 9 Standards.*

EXP concluded by reporting:

- *"Based on the identification of potential contaminants of concern in the soil and shallow groundwater at the Site at concentrations in excess of the MOE (2011) Table 9 generic Site Condition Standards, a Screening Level Risk Assessment was recommended."*

Pinchin Comments

On June 4, 2012, Pinchin was on Site to conduct groundwater monitoring and sampling of monitoring wells MW-1 and MW-2, previously installed on Site by EXP, in order to verify the concentrations of several PAH parameters reported by EXP. Groundwater monitoring wells were developed by removing three to five well casing volumes, or were purged until dry, in accordance with Pinchin's standard field procedures. Upon groundwater recovery, groundwater samples were collected from these monitoring wells and submitted for laboratory analysis of PAHs. All monitoring well development, purging and sampling activities were conducted using dedicated low flow disposable PVC bailers to draw groundwater to the surface.

The groundwater samples collected from MW-1 and MW-2 were delivered to Paracel Laboratories Ltd. ("Paracel") in Ottawa, Ontario for analysis. Paracel is an independent laboratory accredited by the Canadian Association for Laboratory Accreditation. Formal chain of custody records of the sample submissions were maintained between Pinchin and the staff at Paracel.

The results of the laboratory analysis indicated that the groundwater samples collected from MW-1 and MW-2 reported concentrations of several PAH target parameters which exceeded the applicable Table 9 Standards. However, it should be noted that concentrations of PAHs in groundwater samples collected by Pinchin were reported to be significantly lower than concentrations of PAHs in groundwater samples collected by EXP. It is Pinchin's opinion that the elevated concentrations of PAHs measured by EXP may have been the result of groundwater sampling techniques (i.e. use of Waterra and foot valve, as opposed to low flow PVC bailer sampling methodology utilized by Pinchin in order to reduce sediment content and minimize false-positive results).

It should be noted that Pinchin was provided with a Tanknology Tank Test Report, completed on the USTs at the Site in June 2011. The Tanknology Tank Test Report indicated that all tanks passed the Vacutect Test. Based on the analytical results provided by EXP and the Tanknology Tank Test Report, the identified marginal impacts appear to be localized and do not appear to represent a significant environmental concern.

Based on a review of the provided documentation, it is Pinchin's opinion that the EXP Phase I/II ESA completed at the Site was conducted in general accordance with standard engineering

practices for the completion of these types of investigations. The EXP Phase I/II ESA Report appears to have been completed in general accordance with the requirements of the applicable industry standards, and Pinchin is in general agreement with EXPs conclusions. As a precaution, consideration could be given to collecting an additional round of groundwater samples from monitoring wells MW-1 and MW-2, in order to confirm the most recent concentrations of PAHs in groundwater. Measures should be taken during monitoring to reduce sediment within the groundwater samples,

EXP 2011 SCREENING LEVEL RISK ASSESSMENT

EXP was retained by the Client to conduct a Screening Level Risk Assessment ("SLRA") at the Site. The objective of the SLRA was to provide the Client with an understanding of the potential on-Site risks posed to both human and ecological receptors resulting from the potential contaminants of concern ("PCOCs") in soil and groundwater through the continued use of the Site as a commercial marina. The SLRA was not conducted for the purposes of obtaining a Record of Site Condition ("RSC") through the Ministry of Environment ("MOE").

The southern boundary of the Site is located along the Saint Lawrence River therefore the SLRA evaluated the potential risks associated with the exceedances of the MOE (2011) *Table 9 Generic Site Condition Standards for Use within 30 metres of a water body, ("Table 9 Standards").* The SLRA was based on available data and Site conditions current to the date of the report.

EXP conducted the SLRA using the commercial/industrial land use criteria, however there is currently a residential dwelling located in the northwestern portion of the Site. Based on current regulatory practices criteria should be chosen based on the most sensitive land use. It is Pinchin's understanding, based on information provided by the Client that the future land use of the Site is to remain strictly commercial/industrial even though the Site is currently zoned for residential land use.

The identified PCOCs on-Site included several metals, PAHs, benzene, toluene, ethylbenzene, xylenes (collectively referred to as "BTEX") and PHCs (F1 to F4) in soil, as well as mercury and PAHs in groundwater.

HUMAN HEALTH RISK ASSESSMENT

The human health SLRA developed a conceptual site model ("CSM") prior to addressing the potential adverse health effects at the Site. The CSM identified the following critical human health receptors and the applicable exposure pathways at the Site:

Receptor	Pathway
Long-Term Worker	➢ **Dermal Contact with Soil;** ➢ **Soil Ingestion;**
Property Visitors (Adult)	➢ **Soil Particulate Inhalation; and** ➢ **Inhalation of indoor air (via the volatile PCOCs identified in soil and groundwater).**

Incomplete Exposure Pathways

EXP stated that volatile vapours undergo considerable dilution and dispersion in the ambient environment. As such both the soil and groundwater to outdoor air pathways were considered incomplete and not assessed as part of the SLRA.

Potable water at the Site is provided through the municipal water distribution system; and as such, the on-Site potable groundwater ingestion and dermal contact exposure pathways were considered incomplete and not further evaluated as part of the SLRA.

The PCOCs identified in soil and groundwater was further evaluated against the human health based soil quality guidelines ("SQG_{HH}") for the applicable exposure pathways. The following soil and groundwater components were selected for the protection of human health:

- Direct contact pathways for Long-Term Worker receptor ("S2");
- Soil to indoor air ("S-IA"); and
- Groundwater to Indoor air ("GW-IA")

These values were selected from the *"Rationale for the Development of Soil and Groundwater Standards for Use at Contaminated Sites in Ontario,"* dated April 15, 2011 ("MOE Rationale Document"). These values were specifically selected from the *"Table 3 Full Depth soil component criteria for a Non-Potable Water Scenario in Industrial/Commercial land use (coarse-textured soil)."*

Based on our review, Pinchin notes that the initial screening of PCOCs was conducted using the *Table 9 Standards* due to the Sites proximity to the St. Lawrence River. Since the Site is within 30 m of a surface water body, the *Table 9* component criteria should have been used, instead of the *Table 3* component criteria when assessing the applicable human health pathways. Discussion of errors is discussed in the following sections.

Soil COCs

Based on the results of the supplemental screening, concentrations of arsenic as well as several PAHs were identified in soil at concentrations that would likely cause adverse health risks to the Long-Term Worker receptor. As a result risk management measures ("RMMs") are required.

Concentrations of benzene, xylenes, and PHC F2 exceeded the soil to indoor air pathway and as a result and indoor air quality assessment ("IAQA") was conducted by EXP.

Pinchin compared the maximum soil concentrations to the *Table 9* component criteria and no changes are noted due to exposure to on Site soil.

Groundwater COCs

Based on the results of the supplemental screening, all concentrations identified on Site were below the groundwater to indoor air pathway when compared to the GW2 component criteria for a non-potable commercial/industrial site.

Pinchin compared the maximum groundwater concentrations identified on Site to the GW2 component criteria for a site within 30 m of surface water body. Concentrations of mercury identified in groundwater exceeded this GW2 component criteria (0.6ug/L vs. component criteria of 0.29ug/L). The *Table 9* human health groundwater component criteria are applicable to a residential site (no commercial/industrial component criteria are available); this value is considered conservative for the current and continued commercial/industrial land use of the Site. It is Pinchin's opinion that the application of the GW2 component criteria for a non-potable commercial/industrial Site is applicable, and no changes are noted due to exposure to on Site groundwater.

Indoor Air Quality Assessment

The IAQA was conducted by EXP to determine if indoor air was being impacted by elevated concentrations of benzene, xylenes and PHC F2 identified in soil. A total of three (3) air samples were submitted for analysis, including one (1) outdoor air sample. Pinchin notes no duplicate or trip blank samples were taken for quality assurance/quality control purposes.

The concentrations of indoor air were compared to the MOE *"Health Based Indoor Air Criteria,"* for an industrial site, obtained from the MOE *Modified Generic Risk Assessment Model*, dated April 15, 2011. The results of the IAQA indicated that concentrations of benzene obtained from both interior samples within the warehouse exceed the MOE criteria. EXP indicated that the elevated benzene concentrations could be the result of vapour intrusion and/or

interferences from other sources, this was not confirmed and as a result RMMs were recommended.

Site impacts were not assumed to be present in the vicinity of the main building; as a result no indoor air samples were required within this building space.

ECOLOGICAL RISK ASSESSMENT

The ecological SLRA developed by EXP generated a conceptual site model ("CSM") prior to addressing the potential adverse health effects at the Site. It was determined, through a Ministry of Natural Resources ("MNR") database that the Site was not within an area of Natural Significance or Scientific Interest ("ANSI"). The CSM identified the following critical ecological receptors and the applicable exposure pathways at the Site:

Source	Secondary Source	Exposure Route	Receptor
Impacted Soil or Groundwater	Soil or Groundwater	Direct Contact	Terrestrial Vegetation and Soil Invertebrates
		Direct Contact and Indirect Contact	➢ Terrestrial & Aquatic Birds ➢ Mammals ➢ Reptiles & Amphibians
	Surface Water	Indirect Contact	➢ Aquatic Vegetation and Aquatic Invertebrates ➢ Mammals ➢ Reptiles & Amphibians ➢ Fish

Incomplete Pathways

It was noted that the soil leaching to groundwater to surface water pathway ("S-GW3") soil component criteria was not considered in the SLRA. This pathway was not considered applicable for the Site since actual groundwater concentrations were collected at the Site and were further evaluated against the groundwater to surface water pathway. Based on our review, Pinchin agrees with this approach.

The PCOCs identified in soil and groundwater was further evaluated against the ecological component criteria. The following soil and groundwater components were selected for the protection of human health:

- Plants & Soil Organisms ("P&O");
- Mammals & Birds ("M&B"); and
- Groundwater to Surface Water ("GW3")

As indicated in the human health SLRA, Pinchin notes that the initial screening of PCOCs was conducted using the *Table 9 Standards* due to the Sites proximity to the St. Lawrence River. Since the Site is within 30 m of a surface water body, the *Table 9* component criteria should have been used, instead of the *Table 3* component criteria.

Soil COCs

Based on the results of the supplemental screening, concentrations of PHC F2, PHC F3 and arsenic exceed the P&O component criteria at the Site. Based on Pinchin's review of the maximum soil concentrations in comparison to the *Table 9* component criteria, no additional COCs were identified in soil for the ecological receptors. As a result RMMs are required to mitigate the risks to terrestrial vegetation and soil invertebrates.

Groundwater COCs

Based on the results of the supplemental screening, all concentrations identified on Site were below the groundwater to indoor air pathway when compared to the GW3 (groundwater to surface water) component criteria for a non-potable commercial/industrial site. However, as stated above the Site is within 30m of a surface water body and the component criteria selected by EXP were not appropriate for the current site conditions.

Since the Site is classified as a *Table 9 Standards* the concentrations of several PAHs identified in groundwater exceeded the GW3 component criteria for a site within 30 m of a surface water body.

As a result Pinchin collected an additional round of groundwater data from MW1 and MW2 to confirm the PAH results identified by EXP. As identified in the table below, concentrations of several PAHs exceed the *Table 9 Standards*¸ however are below the Table 9 GW 3 component criteria, except for a marginal exceedance of benzo[ghi]perylene. This exceedance is likely due to suspended sediments within the groundwater sample and not due to contaminated groundwater.

PINCHIN PAH GROUNDWATER DATA (ug/L)

Parameter	MDL	MOE Table 9 Standards	Table 9 GW3 Component Criteria	Sample	
				MW-1 East Side	MW-2 West Side
				1223092-01	1223092-02
				6/4/2012	6/4/2012
Polycyclic Aromatic Hydrocarbons					
Acenaphthene	**0.05**	**0.072**	5200	**0.09**	<0.05
Acenaphthylene	**0.05**	**0.093**	1.4	**0.11**	**0.12**
Anthracene	0.01	0.22	1	0.15	0.21
Benzo[a]anthracene	**0.01**	**0.36**	1.8	**0.53**	**0.55**
Benzo[a]pyrene	**0.01**	**0.3**	2.1	**0.44**	**0.42**
Benzo[b]fluoranthene	**0.05**	**0.47**	4.2	**0.65**	**0.78**
Benzo[g,h,i]perylene	**0.05**	**0.68**	**0.2**	**0.3**	**0.3**
Benzo[k]fluoranthene	0.05	0.48	1.4	0.45	0.59
1,1-Biphenyl	0.05	0.05	1700	<0.05	<0.05
Chrysene	0.05	2.8	0.7	0.62	0.59
Dibenzo[a,h]anthracene	0.05	0.1	0.4	0.06	0.09
Fluoranthene	0.01	0.69	73	1.42	1.07
Fluorene	0.05	0.19	290	0.12	<0.05
Indeno[1,2,3-cd]pyrene	0.05	0.23	1.4	0.25	0.24
Methylnaphthalene (1&2)	0.1	0.59	1500	0.15	0.1
Naphthalene	0.05	0.09	6200	0.1	0.11
Phenanthrene	0.05	0.69	380	0.93	0.53
Pyrene	0.01	1	5.7	1.3	0.93

Notes:

Bold =	Parameter exceeds the MOE Table 9 SCSs
Bold =	Parameter exceeds the Table 9 GW3 Component Criteria

PINCHIN CONCLUSIONS, RECOMMENDATIONS AND RISK MANAGEMENT MEASURES

The results of the SLRA required the implementation of RMMs in order to block the direct contact pathway with soil for the Long-Term Worker as well as terrestrial vegetation and soil invertebrates. EXP recommended the implementation of surface coverings in order to mitigate the risks to on Site receptors. EXP noted that surface cover systems (i.e. building footprint and paved/gravel covers areas) are in place at the Site. Pinchin agrees that with the continued use and monitoring of these existing surface coverings risks to human and ecological receptors are mitigated.

EXP stated that the likely source of the benzene concentrations identified within the warehouse were due to vapour intrusion or an interference from other sources, however, EXP recommended the use of a vapour barrier system within the warehouse in order to prevent the potential vapour intrusion of the subsurface impacts into the indoor air space. A vapour barrier was installed at the Site. The vapour barrier described in the SLRA is deemed suitable to effectively render the subsurface vapour migration pathway incomplete.

Based on Pinchin's review of the EXP SLRA, and additional groundwater sampling completed by Pinchin in June 2012, no concerns were identified with respect to human or ecological health at the Site. The SLRA was assessed using Site specific information and the technical methods contained in Ontario Regulation 153/04, as amended by Ontario Regulation 511/09 ("O.Reg. 153/04, amended"). Under the current Site conditions, no further assessment or remedial work is warranted with respect to the environmental concerns identified in the EXP Phase I/II ESA as it pertains to the continued commercial land use of the Site.

LIMITATIONS

This peer review was performed in order to identify potential issues of environmental concern associated with the Site located at 129 South Street, Gananoque, Ontario. This peer review was performed in general accordance 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 Gordon Marine Ltd., subject to the conditions and limitations contained within the duly authorized work plan. 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. Such reliance will only be provided by Pinchin following written authorization from Client. No other warranties are implied or expressed.

Pinchin will only be held liable for damages resulting from negligence of Pinchin. Pinchin will not be liable for any losses or damage if the Client has failed, within a period of two (2) years following the date upon which the claim is discovered within the meaning of the Limitations Act, 2002 (Ontario), to commence legal proceedings against Pinchin to recover such losses or damage. It should be noted that the EXP SLRA was conducted for "due diligence" purposes and is not a substitute for a complete risk assessment under O.Reg. 153/04, as amended. Should a Record of Site Condition be required to be filed with the MOE, additional site characterization will need to be completed at the Site.

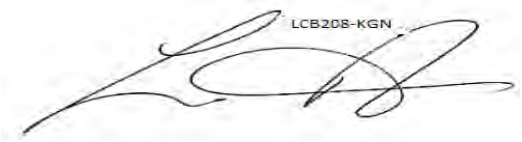
We trust that the foregoing information is satisfactory for your present needs. Should you have any questions or require additional information, please do not hesitate to contact the undersigned.

Yours truly,

Pinchin Environmental Ltd.

per: Peter Roberts, P.Eng.
Office Manager
Environmental Due Diligence & Remediation
proberts@pinchin.com

per: Vanessa Grande, B.Sc.
Risk Assessor
Environmental Due Diligence & Remediation
vgrande@pinchin.com



per: Larry Backman, B.Sc.S.
Senior Vice President, National Accounts
Environmental Due Diligence & Remediation
lbackman@pinchin.com

J:\74000s\74984 GordonMarine,129SouthStreet,Gananoque,SA2\74984 Peer Review Letter - final .doc

Gordon Marine (Gananoque) Ltd.

129 South Street, Gananoque, ON

Screening Level Risk Assessment

Gordon Marine, 129 South Street, Gananoque, ON

Type of Document:
Final

Project Name:
Screening Level Risk Assessment

Project Number:
BRM-00016690-C0

Prepared By:
exp
1595 Clark Boulevard
Brampton, ON L6T 4V1
Canada
T: 905.793.9800
F: 905.793.0641
www.exp.com

Date Submitted:
18/11/11

Executive Summary

Exp Services Inc. (formerly Trow Associates Inc.) was retained by Gordon Marine (Gananoque) Ltd. ('GML') to conduct a Screening Level Risk Assessment (SLRA) on the known soil and groundwater impacts at the Gordon Marine property located at 129 South Street in Gananoque, Ontario (hereinafter referred to as the 'Site'). Authorization for **exp** to proceed with the project was provided by Mr. Neil Gordon of GML.

Previous environmental investigations conducted at the Site included the advancement of test pits and boreholes, as well as the installation of monitoring wells at various locations across the property. The results of the investigations indicated the presence of benzene, toluene, ethylbenzene and total xylenes (collectively known as BTEX), petroleum hydrocarbons (PHC), fractions F1 to F4, hexane, select metals and polyaromatic hydrocarbons (PAHs) in soil above the Ontario Ministry of the Environment (MOE, 2011a) Table 9 Generic Site Condition Standards for Use within 30 m of a Water Body in a non-potable groundwater condition. The results also indicated mercury and select PAHs in groundwater above the Ontario Ministry of the Environment (MOE, 2011a) Table 9 Generic Site Condition Standards.

The objective of the SLRA is to provide GML with an understanding of the potential on-Site risks posed to both human and ecological receptors, resulting from the known impacts in soil and groundwater through the continued use of the Site as a commercial marina. This submission is not intended to support the filing of a Record of Site Condition (RSC). If an RSC is necessary, a formal Risk Assessment is required and must satisfy the procedures and requirements set out in Ontario Regulation 153/04.

The results of the screening level human health risk assessment indicate that that there are potential adverse effects associated with human receptors via the soil dermal contact exposure pathway and via the indoor air inhalation pathway. As such, risk management measures (RMM) are required for the protection of the on-Site human receptors.

The results of the screening level ecological risk assessment indicate that there are potential adverse effects associated with terrestrial ecological receptors via the direct and indirect contact exposure pathways. As such, RMM are required for the protection of the on-Site ecological receptors.

In order to mitigate the potential risks posed to the Site receptors, it is recommended that the existing soil cover systems (*i.e.* building footprints and paved/gravel covered surfaces) be maintained across the complete aerial extent of the Site; and, that the vapour barrier system be maintained beneath the on-Site warehouse building.

Due to the presence of the risk management measures outlined in the report, the Site is considered to be safe for continued use as a commercial facility at this time.

Table of Contents

Page

List of Appendices

Appendix A – Maxxam Certificates of Analysis (Air)

List of Tables

Page

Chapter 1 –
Introduction and Background

1 Introduction and Background

Exp Services Inc. (formerly Trow Associates Inc.) was retained by Gordon Marine (Gananoque) Ltd. ('GML') to conduct a Screening Level Risk Assessment (SLRA) on the known soil and groundwater impacts at the Gordon Marine property located at 129 South Street in Gananoque, Ontario (hereinafter referred to as the 'Site'). Authorization for **exp** to proceed with the project was provided by Mr. Neil Gordon of GML.

1.1 Background

The site is located at 129 South Street on the shoreline of the St. Lawrence River in the Town of Gananoque, Ontario. The subject property is approximately 0.5 hectares (1.24 acres) in size, and is currently occupied by two (2) commercial buildings, which includes a warehouse (used for boat storage) at the southwest edge of the site, and a boat showroom on the east end of the site. It is noted that a residential dwelling is located near the northwest corner of the site at 119 South Street. However, the residential building is a separate property and is therefore not included in the SLRA. The site is bounded by the St. Lawrence River to the south; commercial property to the east; community land use (South Street) followed by residential properties to the north; and, residential land use to the west.

Three (3) underground storage tanks (USTs) which include two (2) gasoline and one (1) diesel-filled UST, are located at the southeast end of the site along the St. Lawrence shoreline. One fuel pump is located on the land north of the USTs and three (3) fuel pumps are situated on a dock located in the St. Lawrence River. One (1) above ground storage tank (AST) is located in the warehouse and is used for oil.

The site is primarily occupied by building footprints, paved driveways and parking areas with limited vegetative areas. The vegetated areas comprise a small patch of trees and shrubs along the eastern edge of the property behind the Site building; and, a small patch of trees, grasses and shrubs on the western side of the property adjacent to the warehouse.

Previous environmental investigations conducted at the Site included the advancement of test pits and boreholes, as well as the installation of monitoring wells at various locations across the property. The results of the investigations indicated the presence of benzene, toluene, ethylbenzene and total xylenes (collectively known as BTEX), petroleum hydrocarbons (PHC), fractions F1 to F4, hexane, select metals and polyaromatic hydrocarbons (PAHs) in soil above the Ontario Ministry of the Environment (MOE, 2011a) Table 9 Generic Site Condition Standards for Use within 30 m of a Water Body in a non-potable groundwater condition. The results also indicated mercury and select PAHs in groundwater above the Ontario Ministry of the Environment (MOE, 2011a) Table 9 Generic Site Condition Standards.

1.2 Objectives

The objective of the SLRA is to provide GML with an understanding of the potential on-Site risks posed to both human and ecological receptors, resulting from the known impacts in soil and groundwater through the continued use of the Site as a commercial marina. This submission is not intended to support the filing of a Record of Site Condition (RSC). If an RSC is necessary, a formal Risk Assessment is required and must satisfy the procedures and requirements set out in Ontario Regulation 153/04.

1.3 Scope of Work

The following scope of work was undertaken as part of this assignment:

- Identify the potential contaminants of concern (based on the available data);
- Development of a conceptual site model;

- Determine potential receptors;
- Identify the various potential exposure pathways;
- Perform a qualitative exposure assessment of the potential adverse effects;
- Conduct a Limited Indoor Air Quality Assessment; and,
- Prepare preliminary Site mitigation measures (if required).

The SLRA is based on the available analytical data and current Site conditions, and evaluates the potential adverse effects posed to the potential human and ecological receptors from exposure to the known impacts in soil and groundwater based on the continued use of the Site as a commercial marina. Should additional Site information become available, the SLRA should be re-evaluated to determine if the conclusions presented in the report are still valid.

1.4 Screening Level Risk Assessment Approach

For the purpose of this assignment, the soil data obtained for the Site is compared to the human health and ecological based soil quality guidelines (SQG) for the relevant exposure pathways identified in the human health (Section 3) and ecological (Section 4) risk assessment sections of this report. These criteria, which are obtained from the MOE (2011b) Table 3 Soil Component Criteria in a full-depth, non-potable water scenario, represent the human health/ecological based soil components of the generic MOE Table 9 Site Condition Standards (SCS).

Similarly, the groundwater data obtained for the Site is compared to the human health and ecological based groundwater quality guidelines (GQG) for the relevant exposure pathways identified in the human health (Section 3) and ecological (Section 4) risk assessment sections of this report. These criteria, which are obtained from the MOE (2011b) Table 9 Groundwater Component Criteria within 30 m of a Water Body, represent the human health/ecological based groundwater components of the generic MOE Table 9 SCS.

As part of the derivation of the generic MOE Table 9 SCS, the MOE develops risk-based values deemed protective of the various Site receptor/exposure pathway scenarios, which are referred to as component values. The various receptors included in these scenarios include industrial human receptors, plants and soil organisms, birds and mammals, as well as off-Site aquatic ecological receptors. Some of the exposure pathways included in the scenarios comprise the dermal contact, ingestion, soil/groundwater to indoor air inhalation, and the groundwater migration to surface water. Each of these scenarios is evaluated separately by the MOE for each contaminant of concern regulated under O.Reg. 153/04. Following the development of the component values, the most stringent component value is set as the generic Table 9 SCS, unless the risk-based values are below the Ontario background concentrations. In the latter case, the background concentrations are set as the generic Table 9 SCS.

It is acknowledged that the soil cover systems currently in place at the Site (i.e. building footprints, paved/gravel covered areas) would be considered risk management measures, which would effectively eliminate the direct soil contact exposure pathways for the human and ecological receptors. However, for the purpose of this assignment, and as a conservative measure, all direct contact soil exposure pathways are considered to be complete.

Chapter 2 –
Potential Contaminants of Concern

2 Potential Contaminants of Concern

2.1 Contaminants of Concern Selection Process

For the purpose of this SLRA, potential contaminants of concern (COC) were determined from a comparison of the analytical results reported for the soil and groundwater samples obtained from the Site against the MOE (2011a) Table 9: Generic Site Condition Standards (SCS) for Use within 30 m of a Water Body in a non-potable groundwater condition. These SCS were considered appropriate given that the Site is adjacent to the St. Lawrence River. A parameter was selected as a potential COC in soil and groundwater if its maximum concentration exceeded its applicable Table 9 SCS.

The following reports were reviewed for the preparation of the SLRA:

- **exp** (2011a) Phase I and II Environmental Site Assessment, 129 South Street, Gananoque, Ontario. Prepared by **exp Services Inc.**, November 18, 2011.
- **exp** (2011b) Observation Report – Gordon Marine Vapour Barrier Membrane Installation. Prepared by **exp Services Inc.**, 20 October 2011.

Based on a review of the data obtained from the above mentioned reports, the soil and groundwater contaminant inventories were determined, and are presented in Tables 2-1 and 2-2, respectively.

Table 2-1: Soil Contaminant Inventory

Parameter	Maximum Concentration (µg/g)	MOE (2011a) Table 9 SCS (µg/g)	Location (Sample Depth)	Sampling Date
Benzene	5.8	0.02	BH-D1 1-1 (0-0.61 m bgs)	20 July 2011
Ethylbenzene	5.8	0.05	BH-D1 1-1 (0-0.61 m bgs)	20 July 2011
Toluene	53	0.2	BH-D1 1-1 (0-0.61 m bgs)	20 July 2011
Xylenes (Total)	80	0.05	BH-D1 1-1 (0-0.61 m bgs)	20 July 2011
PHC F1 (C6-C10) - BTEX	230	25	BH-D1 1-1 (0-0.61 m bgs)	20 July 2011
PHC F2 (C10-C16)	1900	10	BH-2-2 BH-2 (0.30-0.91 m bgs)	24 May 2011
PHC F3 (C16-C34)	2400	240	BH-D4 4-1 (0-0.61 m bgs)	20 July 2011
PHC F4 (C34-C50)	2200	120	BH-D4 4-1 (0-0.61 m bgs)	20 July 2011
Hexane	1.5	0.05	BH-D1 1-1 (0-0.61 m bgs)	20 July 2011
Antimony	2.5	1.3	BH-1-1 BH-1 (0.15-0.76 m bgs)	24 May 2011
Arsenic	200	18	BH-1-1 BH-1 (0.15-0.76 m bgs)	24 May 2011
Barium	360	220	BH-1-1 BH-1 (0.15-0.76 m bgs)	24 May 2011

Parameter	Maximum Concentration (µg/g)	MOE (2011a) Table 9 SCS (µg/g)	Location (Sample Depth)	Sampling Date
Lead	600	120	BH-1-1 BH-1 (0.15-0.76 m bgs)	24 May 2011
Molybdenum	2.4	2	BH-1-1 BH-1 (0.15-0.76 m bgs)	24 May 2011
Selenium	9.4	1.5	BH-1-1 BH-1 (0.15-0.76 m bgs)	24 May 2011
Acenaphthene	0.16	0.072	BH-1-3 BH-1 (1.5-2.1 m bgs)	24 May 2011
Acenaphthylene	0.11	0.093	BH-1-3 BH-1 (1.5-2.1 m bgs)	24 May 2011
Anthracene	0.28	0.22	BH-1-3 BH-1 (1.5-2.1 m bgs)	24 May 2011
Benzo(a)anthracene	1.3	0.36	BH-1-3 BH-1 (1.5-2.1 m bgs)	24 May 2011
Benzo(a)pyrene	0.86	0.3	BH-1-3 BH-1 (1.5-2.1 m bgs)	24 May 2011
Benzo(b)fluoranthene	1.2	0.47	BH-D2 2-1 (0-0.61 m bgs)	24 May 2011
Dibenz(a,h)anthracene	0.13	0.1	BH-1-3 BH-1 (1.5-2.1 m bgs)	24 May 2011
Fluoranthene	3.4	0.69	BH-1-3 BH-1 (1.5-2.1 m bgs)	24 May 2011
Indeno(1,2,3-cd)pyrene	0.5	0.23	BH-1-3 BH-1 (1.5-2.1 m bgs)	24 May 2011
1-Methylnaphthalene	0.29	0.59*	BH-1-3 BH-1 (1.5-2.1 m bgs)	24 May 2011
2-Methylnaphthalene	0.38		BH-1-3 BH-1 (1.5-2.1 m bgs)	24 May 2011
Naphthalene	0.28	0.09	BH-1-3 BH-1 (1.5-2.1 m bgs)	24 May 2011
Phenanthrene	1.5	0.69	BH-1-3 BH-1 (1.5-2.1 m bgs)	24 May 2011
Pyrene	3	1	BH-1-3 BH-1 (1.5-2.1 m bgs)	24 May 2011

m bgs = meters below ground surface; PHC = petroleum hydrocarbon
*Criteria applies to sum of 1- and 2- methylnaphthalene

Table 2-2: Groundwater Contaminant Inventory

Parameter	Maximum Concentration (µg/L)	MOE (2011a) Table 9 SCS (µg/L)	Location	Sampling Date
Mercury	0.6	0.29	MW-1	24 May 11
Anthracene	2.1	1	MW-1	24 May 11
Benzo(a)anthracene	6.2	1.8	MW-1	24 May 11
Benzo(a)pyrene	5.2	0.81	MW-1	24 May 11
Benzo(b)fluoranthene	6.4	0.75	MW-1	24 May 11
Benzo(g,h,i)perylene	2.1	0.2	MW-1	24 May 11
Benzo(k)fluoranthene	2	0.4	MW-1	24 May 11
Chrysene	6	0.7	MW-1	24 May 11
Dibenz(a,h)anthracene	0.6	0.4	MW-1	24 May 11
Indeno(1,2,3-cd)pyrene	2.6	0.2	MW-1	24 May 11
Pyrene	16	5.7	MW-1	24 May 11

Refer to the previous environmental investigations listed above for further information pertaining to the information relied on in the preparation of this SLRA, including the complete laboratory certificates of analysis.

2.2 Location of Site Impacts

2.2.1 Soil Impacts

The review of the previous environmental investigation conducted at the Site indicates that the soil impacts are located within the fill material at various locations across the southern portion of the Site, and within the warehouse building. It is anticipated that the soil impacts are attributed to the on-Site operations (i.e. dispensing and refueling operations) and the use of poor quality fill material.

2.2.2 Groundwater Impacts

The review of the previous environmental investigations conducted at the Site indicates that the groundwater impacts were identified near the USTs on the western corner of the site. It is anticipated that these impacts are due to the historical use of poor quality fill material. Recent groundwater monitoring at the Site indicates that the depth to groundwater ranged from 0.56 to 0.91 m below grade.

Chapter 3 –
Human Health Risk Assessment (HHRA)

3 Human Health Risk Assessment (HHRA)

3.1 Human Health Conceptual Site Model

A conceptual model was developed prior to addressing the potential adverse effects at the Site. The conceptual model is Site specific and consists of the evaluation of the potential adverse effects resulting from the current Site conditions (*i.e.*, Site remaining as a commercial marina).

This information is used to identify the relevant Site receptors and the complete exposure pathways by which the receptors may be exposed to the COCs present in Site media, taking into account the contaminant characteristics and fate and transport mechanisms. The human health conceptual Site model is divided into three (3) components:

- Receptor Characterization;
- Exposure Pathway Analysis; and,
- Exposure Assessment.

The following sections describe each component of the human health conceptual Site model.

3.2 Receptor Characterization

The critical human receptors that may be present at the Site based on the current and continued use of the Site as a commercial marina consists of a long-term (indoor) worker and property visitors (adult).

3.3 Exposure Pathway Analysis

An exposure pathway describes the course that the potential COCs take from the source to a potential receptor. An exposure pathway links the sources, locations, and types of environmental releases with the receptor locations and activity patterns to determine the significant pathways of human exposure.

Based on the identification of potential COCs in soil and groundwater (Section 2), the on-Site receptors may potentially be exposed to the COCs via the following exposure pathways:

- Dermal contact with soil;
- Soil ingestion;
- Soil particulate inhalation; and,
- Inhalation of indoor air (via the volatile COCs in soil and groundwater).

It should be noted that volatile vapours emitted from soil to outdoor air are assumed to undergo considerable dilution and dispersion in the ambient environment. As such, the exposure of the Site receptors to the volatile COCs in soil and groundwater to ambient air was considered to be an incomplete pathway.

The Site is provided with potable water through the municipal water distribution system; and as such, the on-Site potable groundwater ingestion and dermal contact exposure pathways are deemed to be incomplete. Therefore, these exposure pathways are not evaluated in this SLRA.

3.4 Exposure Assessment

3.4.1 Soil Impacts

To provide a better characterization of the Site impacts in terms of potential human health concerns, the soil data for the Site has been compared to human health based soil quality guidelines (SQG_{HH}) for the relevant exposure pathways identified in Section 3.3. These criteria represent the human health based component of the generic criteria described previously. As such, the SQG_{HH} applied in this SLRA were the direct contact pathways for long-term commercial worker receptors (S2), and indoor air inhalation (S-IA) pathways, where applicable, selected from the MOE (2011b) Table 3 Full Depth soil component criteria for a Non-Potable Water Scenario in Industrial/Commercial land use and coarse-textured soil.

Refer to Table 3-1 for a comparison of the maximum on-Site COC concentrations against the applicable soil component criteria.

Table 3-1: SQG_{HH} Values Applied to Site Soil Quality Data

Parameter	Maximum Concentration (µg/g)	SQG_{HH} Criteria[a] (µg/g)	Exposure Pathway
Benzene	**5.8**	13	Direct soil contact (S2)
		0.32	**Indoor air inhalation (S-IA)**
Ethylbenzene	5.8	22000	Direct soil contact (S2)
		9.5	Indoor air inhalation (S-IA)
Toluene	53	18000	Direct soil contact (S2)
		99	Indoor air inhalation (S-IA)
Xylenes (Total)	**80**	44000	Direct soil contact (S2)
		50	**Indoor air inhalation (S-IA)**
PHC F1 (C6-C10) – BTEX	230	47000	Direct soil contact (S2)
		580	Indoor air inhalation (S-IA)
F2 (C10-C16)	**1900**	22000	Direct soil contact (S2)
		380	**Indoor air inhalation (S-IA)**
F3 (C16-C34)	2400	40000	Direct soil contact (S2)
F4 (C34-C50)	2200	42000	Direct soil contact (S2)

Parameter	Maximum Concentration (µg/g)	SQG_{HH} Criteria[a] (µg/g)	Exposure Pathway
Hexane	1.5	21000000	Direct soil contact (S3) [C]
		46	Indoor air inhalation (S-IA)
Antimony	2.5	63	Direct soil contact (S2)
Arsenic	**200**	**1.3**	**Direct soil contact (S2)**
Barium	360	32000	Direct soil contact (S2)
Lead	600	1000	Direct soil contact (S2)
Molybdenum	2.4	1200	Direct soil contact (S2)
Selenium	9.4	1200	Direct soil contact (S2)
Acenaphthene	0.16	96	Direct soil contact (S2)
		120	Indoor air inhalation (S-IA)
Acenaphthylene	0.11	9.6	Direct soil contact (S2)
		6.6	Indoor air inhalation (S-IA)
Anthracene	0.28	42000	Direct soil contact (S2)
		NV	Indoor air inhalation (S-IA)
Benzo(a)anthracene	**1.3**	**0.96**	**Direct soil contact (S2)**
		970	Indoor air inhalation (S-IA)
Benzo(a)pyrene	**0.86**	**0.096**	**Direct soil contact (S2)**
		12000	Indoor air inhalation (S-IA)
Benzo(b)fluoranthene	**1.2**	**0.96**	**Direct soil contact (S2)**
		81000	Indoor air inhalation (S-IA)
Dibenzo(a,h)anthracene	**0.13**	**0.096**	**Direct soil contact (S2)**
		480000	Indoor air inhalation (S-IA)

Parameter	Maximum Concentration (µg/g)	SQG_{HH} Criteria[(a)] (µg/g)	Exposure Pathway
Fluoranthene	3.4	9.6	Direct soil contact (S2)
		3700	Indoor air inhalation (S-IA)
Indeno(1,2,3-cd)pyrene	0.5	0.96	Direct soil contact (S2)
		670000	Indoor air inhalation (S-IA)
Methylnaphthalene, 2-(1-)	0.67[b]	560	Direct soil contact (S2)
		NV	Indoor air inhalation (S-IA)
Naphthalene	0.28	2800	Direct soil contact (S2)
		9.6	Indoor air inhalation (S-IA)
Phenanthrene	1.5	NV	Direct soil contact (S2)
		NV	Indoor air inhalation (S-IA)
Pyrene	3	96	Direct soil contact (S2)
		28000	Indoor air inhalation (S-IA)

(a) SQG_{HH} for Non-Potable scenario with Industrial/Commercial Land Use and coarse-textured soils.
(b) Equals sum of 1- and 2-methylnaphthalene concentrations
(c) S3 value, which is based on protection of construction workers, was used as a surrogate due to the lack of an S2 value.
Bold = maximum COC concentration in excess of SQG_{HH}
NV = no value provided

Based on the results of the comparison of the maximum on-Site concentrations of the COCs in soil with the applicable human health soil quality guidelines, arsenic, benzo(a)anthracene, benzo(a)pyrene, benzo(b)fluoranthene and dibenzo(a,h)anthracene are present in soil at concentrations that may pose a potential risk to human receptors via the soil dermal contact exposure pathways (S2), in the absence of risk management measures.

In addition, benzene, total xylenes and PHC F2 are present at concentrations that may pose a potential risk to human receptors via the soil to indoor air inhalation exposure pathway (S-IA). As such, further actions are required to evaluate this pathway. It is recommended that a limited indoor air quality assessment be conducted in order to assess the actual concentrations of benzene, total xylenes and PHC F2 (if any) within the indoor air space of the on-Site warehouse building (see Section 5).

It should be noted that there were no applicable human health component criteria available for the soil to indoor air inhalation exposure pathway for anthracene and 1- and 2-methylnaphthalene. However, as neither COC is sufficiently volatile, the soil to indoor air exposure pathway is not considered to be complete for these parameters.

In addition, there were no applicable human health soil component criteria available for phenanthrene; and as such, there is a level of uncertainty associated with the potential risk posed to human receptors from exposure to phenanthrene in soil. However, as an alternative to the direct human health component values, the human health soil leaching to potable groundwater (S-GW1) component criterion was applied for the assessment of risks from exposure to phenanthrene. The comparison of the maximum on-Site concentration of phenanthrene (1.5 µg/g) to the S-GW1 criterion for phenanthrene (270 µg/g) indicates that the maximum on-Site concentration of phenanthrene is less than the human health component value. As such, phenanthrene is not likely to pose an adverse effect to on-Site human receptors.

3.4.2 Groundwater Impacts

To provide a better characterization of the Site impacts in terms of potential human health concerns, the groundwater data for the Site has been compared to human health based groundwater quality guidelines (GQG_{HH}) for the relevant exposure pathways identified in Section 3.3. These criteria represent the human health based component of the generic criteria described previously. As such, the GQG_{HH} applied in this SLRA were the indoor air inhalation (GW2) component criteria selected from the MOE (2011b) Groundwater Components for Non-potable Water Scenario for Coarse Textured Soil at an Industrial site, as presented in Table 3-2.

Table 3-2: GQG_{HH} Values Applied to Site Groundwater Quality Data

Parameter	Maximum Concentration (µg/L)	GQG_{HH} Criteria[(a)] (µg/L)	Exposure Pathway
Mercury	0.6	6.1	Indoor Air inhalation (GW2)
Anthracene	2.1	NV	Indoor Air inhalation (GW2)
Benzo(a)anthracene	6.2	1800	Indoor Air inhalation (GW2)
Benzo(a)pyrene	5.2	2500	Indoor Air inhalation (GW2)
Benzo(b)fluoranthene	6.4	25000	Indoor Air inhalation (GW2)
Benzo(g,h,i)perylene	2.1	NV	Indoor Air inhalation (GW2)
Benzo(k)fluoranthene	2	28000	Indoor Air inhalation (GW2)
Chrysene	6	63000	Indoor Air inhalation (GW2)
Dibenzo(a,h)anthracene	0.6	20000	Indoor Air inhalation (GW2)
Indeno(1,2,3-cd)pyrene	2.6	42000	Indoor Air inhalation (GW2)
Pyrene	16	250000	Indoor Air inhalation (GW2)

(a) GQG_{HH} for Non-Potable scenario with Industrial/Commercial Land Use and coarse-textured soils.
Bold = maximum COC concentration in excess of GQG_{HH}
NV = no value provided

The comparison of the maximum on-Site concentrations of the COCs in groundwater with the applicable human health groundwater quality guidelines indicates that all COCs in groundwater are at concentrations below the GQG_{HH}, where GQG_{HH} exist. As such, these COCs are not likely to pose an adverse effect to on-Site human receptors.

It should be noted that there are no available indoor air inhalation component criteria for anthracene or benzo(g,h,i)perylene in groundwater. However, as neither COC is sufficiently volatile, the groundwater to indoor air exposure pathway is not considered to be complete for these parameters.

Chapter 4 –
Ecological Risk Assessment (ERA)

4 Ecological Risk Assessment (ERA)

4.1 Ecological Conceptual Site Model

A conceptual model was developed prior to addressing the potential adverse effects at the Site. The conceptual model is Site specific and consists of the evaluation of the potential adverse effects resulting from the current Site conditions (*i.e.*, Site remaining as a commercial marina).

The Ministry of Natural Resources (MNR) Natural Heritage Information Centre (NHIC, 2011) database was searched to determine whether the Site is located on or within an Area of Natural or Scientific Interest (ANSI). There are no known ANSI located on or within the Site, as per the MNR database.

It is noted that the majority of the Site is covered by the Site buildings' footprints and paved laneways and parking areas. The vegetation currently present on-Site is limited to a small patch of trees and shrubs along the eastern edge of the property behind the Site building; and, a small patch of trees, grasses and shrubs on the western side of the property adjacent to the warehouse and the private dwelling. The depth to groundwater at the site ranges from 0.56 and 0.91 m below grade.

Based on the data obtained in the previous investigations, valued ecosystem components (VECs) were identified as potential ecological receptors. The potential ecological receptors that are likely to be present on a typical commercial property consist of terrestrial vegetation, soil invertebrates and small birds and mammals. In addition, given the proximity of the Site to a water body, aquatic receptors are also considered VECs as part of this ERA, and may include aquatic vegetation, aquatic invertebrates, reptiles and amphibians, aquatic and semi-aquatic birds and mammals, and fish.

It should be noted that there are various current and historical disturbance factors present on the Site. These include historical use of the site as a coal storage site and the current use of the Site as a commercial marina (high boat traffic and presence of manufactured shorelines). Therefore, the wildlife potentially present on and in vicinity of the Site are likely highly adaptable and tolerant of human activities.

Although there is currently limited vegetation at the Site since the existing property is primarily covered by building footprints and paved areas, for the purpose of this SLRA, terrestrial vegetation was considered to be an on-Site VEC. Soil invertebrates were also considered VECs because of their part in the food chain and, in the case of earthworms, their role in the improvement of soil quality. Terrestrial wildlife, such as small, burrowing mammals and small birds are considered VECs because of their role in the ecological food web, and their potentially intimate contact with soil.

Soil COCs can be taken up directly by ecological receptors that have contact with soil; additionally, soil COCs can leach into groundwater, where they can be taken up indirectly by ecological receptors that have contact with groundwater. Also, given the proximity of the Site to a surface water body, the potential exists for soil COCs to leach into groundwater and discharge into surface water where aquatic ecological receptors may come in contact with COCs.

The relevant on-Site exposure pathways considered in the ERA for terrestrial vegetation are via the root contact/uptake of soil and groundwater COCs. The relevant exposure pathways for soil invertebrates are via the dermal contact and ingestion of soil and groundwater COCs. The relevant exposure pathways for terrestrial birds and mammals are via the ingestion of soil and groundwater COCs directly and the ingestion of tissue residue with COCs; it is noted that the dermal contact exposure pathway is considered to be incomplete for birds and mammals due to the sufficient protection by feathers and fur, respectively.

The relevant on-Site exposure pathways considered in the ERA for aquatic vegetation are via the root, stem and foliar contact/uptake of surface water discharge. The relevant exposure pathways for aquatic invertebrates are via the dermal contact and ingestion of surface waters. The relevant exposure

pathways for reptiles, amphibians, aquatic birds and mammals, and fish are via the dermal contact and ingestion of groundwater via surface water, and the ingestion of tissue residue with COCs. In addition, COCs in surface water may also be taken up by fish via gill uptake.

Although a soil cover is present across the majority of the site (*i.e.* building footprints, driveways, etc.), for the purposes of this SLRA, all exposure pathways were considered complete. However, for ease of the evaluation, and given that several specific exposure pathways are not evaluated separately by regulatory agencies, exposure pathways are identified by either direct or indirect contact with COCs in environmental media.

Given that the Site is within 30 m of a surface water body, for the purposes of this ERA, off-Site aquatic receptors are evaluated as if they are present on-Site.

The on-Site valued ecological components and potential exposure pathways are listed in Table 4-1.

Table 4-1: On-Site Ecological Conceptual Site Model

Primary Source	Secondary Source	Exposure Route	Receptor
Impacted Soil or Groundwater	Soil or Groundwater	Direct Contact	Terrestrial Vegetation
	Soil or Groundwater	Direct Contact	Soil Invertebrates
	Soil or Groundwater	Direct and Indirect Contact	Terrestrial & Aquatic Birds and Mammals, Reptiles & Amphibians
	Surface Water	Indirect Contact	Aquatic Vegetation
		Indirect Contact	Aquatic Invertebrates
		Indirect Contact	Terrestrial & Aquatic Birds and Mammals, Reptiles & Amphibians, Fish

4.2 Receptor Characterization

For the purpose of this SLRA it was assumed that animals and plants found on-Site are, to some degree, adapted to urban settings, given the proximity to urban developments. Typical terrestrial receptors may include terrestrial vegetation such as trees, shrubs and grasses; soil invertebrates such as earthworms, centipedes and beetles; terrestrial mammals such as mice, raccoons and squirrels; and, terrestrial birds such as robins, pigeons and hawks. Typical aquatic receptors may include aquatic and semi-aquatic vegetation such as cattails and pondweed; aquatic invertebrates such as freshwater mussels and benthic invertebrates; reptiles and amphibians such as turtles, frogs and snakes; aquatic mammals such as minks and weasels; aquatic birds such as geese and ducks; and, freshwater fish.

4.3 Exposure Pathway Analysis

The relevant on-Site exposure pathways considered in the ERA for terrestrial vegetation are via the root contact/uptake of soil and groundwater COCs (direct contact). The relevant exposure pathways for soil invertebrates are via the dermal contact and ingestion of soil and groundwater COCs (direct contact). The relevant exposure pathways for terrestrial birds and mammals are via the ingestion of soil and

groundwater COCs (direct contact) and the ingestion of tissue residue with COCs (indirect contact); it is noted that the dermal contact exposure pathway is considered to be incomplete for birds and mammals due to the sufficient protection by feathers and fur, respectively.

The relevant on-Site exposure pathways considered in the ERA for aquatic vegetation are via the root, stem and foliar contact/uptake of surface water (indirect contact). The relevant exposure pathways for aquatic invertebrates are via the dermal contact and ingestion of surface water (indirect contact). The relevant exposure pathways for reptiles, amphibians, aquatic birds and mammals, and fish are via the dermal contact and ingestion of surface water (indirect contact), and the ingestion of tissue residue with COCs (indirect contact). In addition, COCs in surface water may also be taken up by fish via gill uptake (indirect contact).

For the purposes of this SLRA, all exposure pathways were considered complete; however, for ease of the evaluation, and given that several specific exposure pathways are not evaluated separately by regulatory agencies, exposure pathways are identified by either direct or indirect contact with COCs in environmental media.

Assessment Endpoints

Assessment endpoints are health and growth for vegetation; growth and reproduction for invertebrates; and health, growth, reproduction and population effects for other wildlife.

Fate and Transport of COCs

The ultimate fate and transport of contaminants will depend on a wide range of characteristics of the soil, groundwater and surface water, as well as the physical and chemical properties of the individual COCs.

4.4 Risk Characterization

4.4.1 Soil Impacts

To provide a better characterization of the Site impacts in terms of potential ecological concerns, the soil data for the Site has been compared to ecological based soil quality guidelines for the relevant exposure pathways identified in Section 4.3. These criteria represent the ecological based component of the generic criteria described previously. As such, the ecotoxicity criteria applied in this SLRA are applicable to terrestrial plants & soil organisms, and terrestrial mammals & birds selected from the MOE (2011b) Table 3 Full Depth soil component criteria for a Non-Potable Water Scenario in Industrial/Commercial land use and coarse-textured soil. These values are also considered protective of the aquatic organisms.

It is noted that the S-GW3 soil component criteria protective of the soil leaching to groundwater and eventually discharging to surface water exposure pathway is not considered as part of this evaluation. Groundwater samples were collected from the Site and therefore, the actual groundwater data will be screened against the groundwater to surface water (GW3) criteria in Section 4.4.2. As such, the soil leaching to groundwater exposure pathway (S-GW3) is not considered further as part of this ERA.

The maximum on-Site COC concentrations are compared against ecotoxicity criteria in Table 4-2, below.

Table 4-2: Ecotoxicity Values Applied to Site Soil Quality Data

Parameter	Maximum Concentration (µg/g)	SQG_{ECO} Criteria[a] (µg/g)	Exposure Pathway
Benzene	0.05	180	Plants & soil organisms
		6800	Mammals & birds
Toluene	53	500	Plants & soil organisms
		14000	Mammals & birds
Xylenes (Total)	80	350	Plants & soil organisms
		47000	Mammals & birds
PHC F1 (C6-C10) – BTEX	230	320	Plants & soil organisms
		NV	Mammals & birds
PHC F2 (C10-C16)	**1900**	**260**	**Plants & soil organisms**
		NV	Mammals & birds
PHC F3 (C16-C34)	**2400**	**1700**	**Plants & soil organisms**
		NV	Mammals & birds
PHC F4 (C34-C50)	2200	3300	Plants & soil organisms
		NV	Mammals & birds
Hexane	1.5	NV	Plants & soil organisms
		NV	Mammals & birds
Antimony	2.5	40	Plants & soil organisms
		1500	Mammals & birds
Arsenic	**200**	**40**	**Plants & soil organisms**
		330	Mammals & birds
Barium	360	1500	Plants & soil organisms
		670	Mammals & birds

Parameter	Maximum Concentration (µg/g)	SQG_{ECO} Criteria[a] (µg/g)	Exposure Pathway
Lead	**600**	1100	Plants & soil organisms
		32	**Mammals & birds**
Molybdenum	2.4	40	Plants & soil organisms
		74	Mammals & birds
Selenium	**9.4**	10	Plants & soil organisms
		5.5	**Mammals & birds**
Acenaphthene	0.16	NV	Plants & soil organisms
		46000	Mammals & birds
Acenaphthylene	0.11	NV	Plants & soil organisms
		NV	Mammals & birds
Anthracene	0.28	32	Plants & soil organisms
		470000	Mammals & birds
Benzo(a)anthracene	**1.3**	**1**	**Plants & soil organisms**
		NV	Mammals & birds
Benzo(a)pyrene	0.86	72	Plants & soil organisms
		46000	Mammals & birds
Benzo(b)fluoranthene	1.2	NV	Plants & soil organisms
		NV	Mammals & birds
Dibenzo(a,h)anthracene	0.13	NV	Plants & soil organisms
		NV	Mammals & birds
Fluoranthene	3.4	180	Plants & soil organisms
		120000	Mammals & birds

Parameter	Maximum Concentration (µg/g)	SQG_{ECO} Criteria[a] (µg/g)	Exposure Pathway
Indeno(1,2,3-cd)pyrene	0.5	0.76	Plants & soil organisms
		NV	Mammals & birds
Methylnaphthalene, 2-(1-)	0.67[b]	NV	Plants & soil organisms
		NV	Mammals & birds
Naphthalene	0.28	22	Plants & soil organisms
		1300	Mammals & birds
Phenanthrene	1.5	12	Plants & soil organisms
		36000	Mammals & birds
Pyrene	3	NV	Plants & soil organisms
		99000	Mammals & birds

(a) SQG_{ECO} soil component criteria for a Non-Potable Water Scenario in Industrial/Commercial land use and coarse-textured soil
(b) Equals sum of 1- and 2-methylnaphthalene concentrations
Bold = maximum COC concentration in excess of SQG_{ECO}
NV = no value provided

Based on the results of the comparison of the maximum on-Site concentrations of the COCs in soil with the applicable ecological soil quality guidelines, PHC F2 (C10-C16), PHC F3 (C16-C34), arsenic, and benzo(a)anthracene, are present in soil at concentrations in excess of ecological criteria protective of plants and soil organisms, in the absence of risk management measures. Lead and selenium are present in soil at concentrations in excess of ecological criteria protective of mammals and birds, in the absence of risk management measures.

4.4.2 Groundwater Impacts

To provide a better characterization of the Site impacts in terms of potential ecological concerns, the groundwater data for the Site has been compared to ecologically based groundwater quality guidelines (GQG_{ECO}) for the relevant exposure pathways identified in Section 4.3. These criteria represent the ecologically based component of the generic criteria described previously. As such, the GQG_{ECO} applied in this SLRA are applicable to terrestrial vegetation aquatic vegetation, soil invertebrates, terrestrial and aquatic birds and mammals, reptiles and amphibians, and fish and are selected from the MOE (2011c) Groundwater Component Criteria for Non-potable Water Scenario with coarse textured soil, as presented in Table 4-3.

Table 4-3: GQG_{ECO} Values Applied to Site Groundwater Quality Data

Parameter	Maximum Concentration (µg/L)	GQG_{ECO} Criteria[(a)] (µg/L)	Exposure Pathway
Mercury	0.6	1.3×10^{13}	Indirect contact (GW3)
Anthracene	2.1	2.4	Indirect contact (GW3)
Benzo(a)anthracene	6.2	1.6×10^{11}	Indirect contact (GW3)
Benzo(a)pyrene	5.2	3.4×10^{12}	Indirect contact (GW3)
Benzo(b)fluoranthene	6.4	6.9×10^{12}	Indirect contact (GW3)
Benzo(g,h,i)perylene	2.1	3.3×10^{11}	Indirect contact (GW3)
Benzo(k)fluoranthene	2	2.3×10^{12}	Indirect contact (GW3)
Chrysene	6	1.1×10^{11}	Indirect contact (GW3)
Dibenz(a,h)anthracene	0.6	6.6×10^{11}	Indirect contact (GW3)
Indeno(1,2,3-cd)pyrene	2.6	2.3×10^{13}	Indirect contact (GW3)
Pyrene	16	2700	Indirect contact (GW3)

(a) GQG_{ECO} for Non-Potable scenario with coarse-textured soils.
Bold = maximum COC concentration in excess of GQG_{HH}
NV = no value provided

Based on the results of the comparison of the maximum on-Site concentrations of the COCs in groundwater with the applicable ecological groundwater quality guidelines, all COCs are present in groundwater at concentrations below the ecological screening criteria. As such, these COCs are not likely to pose an adverse effect to on-Site or off-Site ecological receptors.

Chapter 5 –
Limited Indoor Air Quality Assessment

5 Limited Indoor Air Quality Assessment

5.1 Objectives

The results of the human health risk assessment (Section 3) indicated that benzene, xylenes and PHC F2 were present in soil at concentrations that may pose a potential concern to the on-Site human receptors (*i.e.* long-term worker) via the soil to indoor air inhalation exposure pathway.

In order to determine the potential risk to the on-Site human receptors, it was recommended that a limited indoor air quality (IAQ) assessment be conducted in order to assess the actual concentrations of benzene, xylenes and PHC F2 (if any) within the indoor air space of the on-Site warehouse building due to the presence of the AST and associated soil impacts. Based on the limited chemical data available at this time, and given the inferred groundwater flow direction to the south, the Site impacts are not assumed to be present in the vicinity of the main building, and as such, the limited IAQ assignment focused on the warehouse building only.

The objective of the limited IAQ assessment is to aid in the evaluation of potential vapour intrusion into the building resulting from the benzene, xylenes and PHC F2 impacts in soil, due to the potential of vapour migrating upwards into the building envelope.

5.2 Approach

In order to determine if a realistic potential exists at a subject Site for volatilization of contaminants to indoor air, multiple lines of evidence were examined. Where required, the following lines of evidence were examined: the use of MOE derived soil criterion protective of indoor air; the completion of a limited indoor air quality assessment; and, numerical evaluation for contaminant volatilization potential.

As previously indicated in Section 3, the first screening method used was the comparison of MOE derived indoor air inhalation acceptable criteria to the on-Site soil and/or groundwater concentration. If the Site concentrations met the MOE derived indoor criteria, then the Site was deemed acceptable for continued use of the property for the current land use. Hence no further evaluation is required.

Recognizing that MOE derived indoor air criterion in soil and groundwater is based on overly conservative assumptions, it has been exp's experience with similar sites that the actual potential for volatilization of contaminants to indoor air is very limited due to various Site-specific factors. To examine whether this actual potential exists, a limited indoor air quality assessment was conducted. The second screening method included the comparison of the actual indoor air concentrations to the MOE indoor air criteria deemed protective of human health in a commercial setting (Section 5.5). Given the conservative nature of the MOE indoor air criteria, in the event the indoor air concentrations were below the MOE values, no further evaluation was deemed necessary.

While indoor air quality testing is a good indicator, the test results were further verified qualitatively and/or quantitatively to ensure that the measured indoor air concentrations represent air intrusion from impacted media below the floor slabs, and that the results were not biased or influenced by internal factors such as emissions from building occupant and/or other interfering components.

5.3 Scope of Work

For the purpose of this assignment, the following scope of work was undertaken:

- Monitor total VOCs within the warehouse building, as well as outdoors to provide a reference, using real time instrumentation.

- Conduct indoor air quality sampling at two (2) locations on the ground level of the building, and one (1) outdoor reference location.
- Submission of samples to an accredited laboratory for analysis of benzene, xylenes, and PHC Fraction F2 in accordance with standard methodology.
- Collect and review the analytical data and provide interpretation and presentation of data, together with recommendations, if required.

The above scope of work is intended to provide an initial assessment of possible exposure of building occupants to specific subsurface contamination at the time of sampling. Vapour intrusion is highly Site specific and advection or diffusion of vapours is affected by changing source conditions, building conditions, diurnal and seasonal fluctuations, soil conditions and proximity of contaminants.

5.4 Methodology

The indoor air sampling program conducted at the Site consisted of the collection of both indoor and outdoor air samples. Prior to the collection of the indoor and outdoor air samples, a walkthrough of the building was conducted to identify potential sources. Screening of the indoor air space of the Site building for total organic vapours was performed to identify potential unrelated source contaminants and optimum sampling locations using a photo-ionization detector (PID), ppb-RAE Plus, equipped with a 10.6 electron volt lamp and calibrated with 10 parts per million (ppm) isobutylene reference gas, provided by Pine Environmental Services Inc. of Mississauga, Ontario.

In order to obtain analytical data representative of the floor space, two (2) indoor air sampling locations were established within the warehouse Site building, including one (1) location near the AST on the east side of the building, and one (1) location in the centre of the building. One (1) outdoor air sample was collected near the south-west corner of the building in order to obtain ambient air samples for background reference.

To determine the presence and quantity of individual volatile organic compounds within indoor air, samples were collected onto thermal desorption tubes (EPA method TO-17). Gilian® pumps were calibrated to sample indoor air at a flow rate of approximately 50 mL/min over a period of approximately two (2) hours onto "mixed bed" thermal desorption tubes. Each tube was assigned a unique sample identification number and placed approximately 1.5 metres above the floor or ground surface, at the respective sampling locations. On completion of sampling, the tubes were capped and submitted to Maxxam Analytics Inc. (Maxxam) of Mississauga, Ontario for analysis of benzene, xylenes and PHC F2 subfractions.

Sampling times and flow rates were chosen to provide optimal sample volume for analysis.

Analysis was conducted for benzene, total xylenes, and PHC Fraction F2 ($C_{>10} - C_{16}$), in the form of its aliphatic and aromatic subfractions. Maxxam is accredited under the Canadian Association for Laboratory Accreditation (CALA). The air quality samples were analyzed by Maxxam using USEPA method EPA TO-17 following method specific quality assurance/quality control (QA/QC) protocols.

5.5 Results and Findings

5.5.1 Screening for Total Volatile Organic Compounds

Field screening of the indoor air space for total organic vapours using a PID was performed within the building prior to and upon completion of the collection of air samples. Levels of total organic vapours on the ground floor generally ranged from 300 to <500 parts per billion (ppb) as isobutylene, with the exception of two (2) "hot spots", where elevated levels of VOCs were encountered (*i.e.* 524 ppb and 615 ppb).

5.5.2 Assessment of Air Quality

The results of air samples submitted for benzene, xylenes and PHC Fraction F2 analysis are summarized in Table 5-1. For the purpose of this assessment, the analytical results for PHC F2 are expressed in terms of its aliphatic and aromatic subfractions.

For the purpose of this assignment, the indoor air analytical results are compared against the Risk-Based Indoor Air Quality Criteria derived by the MOE for Industrial sites as part of the Modified Generic Risk Assessment (MGRA) spreadsheet models (MOE, 2011c). The indoor air criteria selected are the human health based indoor air criteria protective of industrial receptors and are summarized in Table 5-1.

Table 5-1: Benzene, Xylenes, PHC Fraction F2 Air Results

Parameter	Indoor-Southeast Corner (16690-1) (µg/m^3)	Indoor-Centre (16609-2) (µg/m^3)	Oudoor Air (16690-3) (µg/m^3)	MOE (2011c) Health Based Indoor Air Criteria (Industrial) [Lowest Risk Level] (µg/m^3)
Benzene	**19.6**	**20.00**	<7.94	**1.63**
Total Xylenes	130	14.80	<7.94	501
Aliphatic ($C_{>10}$ – C_{12})	5.27	<32.3	<31.7	1788
Aliphatic ($C_{>12}$ – C_{16})	<3.33	<32.3	<31.7	1788
Aromatic ($C_{>10}$ - C_{12})	95	<32.3	<31.7	358
Aromatic ($C_{>12}$ - C_{16})	<3.33	<32.3	<31.7	358

Bold = COC concentration in excess of MOE criteria

As summarized in Table 5-1, the analytical results indicate that benzene was detected at both indoor locations in excess of MOE Health Based Indoor Air Criteria for Industrial properties (MOE, 2011c). Although benzene was detected at levels in exceedance of the MOE criteria, it should be noted that the elevated benzene levels can be the result of vapour intrusion and/or interferences from other sources. However, based on the fact that this SLRA was conducted on limited sampling locations and events, for conservative purposes, risk management measures are recommended for the Site.

5.5.3 Assessment of Air Quality

Quality Assurance/Quality Control

Laboratory QA/QC measures undertaken by Maxxam as part of their analytical protocols included the preparation and analysis of spike blanks and method blanks to quantify accuracy and the precision/reproducibility of the analytical procedures. The QA/QC results are reported in the certificate of analysis provided by Maxxam. A copy of the certificate of analysis is provided in Appendix A. Review of the laboratory QA/QC results indicates that all results were within applicable control limits and no data qualifications are necessary.

Chapter 6 –
Results and Conclusions

6 Recommendations and Conclusions

6.1 Results

Based on the information available at this time and the assumptions reported in this SLRA, there are potential risks posed to human receptors from exposure to arsenic, benzo(a)anthracene, benzo(a)pyrene, benzo(b)fluoranthene, and dibenzo(a,h)anthracene in soil via the direct contact exposure pathway. As such, RMM are required for the protection of the on-Site human receptors via direct contact pathways with soil.

In addition, the results of the limited IAQ assessment indicated that there are no potential risks posed to human receptors from exposure to xylenes and PHC F2 via the soil to indoor air exposure pathway. However, concentrations of benzene were detected in the indoor air samples collected at the Site in excess of the human health based indoor air quality criteria. Based on the fact that this SLRA was conducted on limited sampling locations and events, for conservative purposes, RMM are required for the protection of the on-Site human receptors via indoor air inhalation in the on-Site warehouse building.

Based on the information available at this time and the assumptions reported in this SLRA, there are potential risks posed to terrestrial ecological receptors from exposure to PHC F2, PHC F3, arsenic, lead, selenium, and benzo(a)anthracene via the direct and indirect contact exposure pathways. As such, RMM are required for the protection of the on-Site ecological receptors.

6.2 Recommendations

The findings of the SLRA indicate that surface cover systems are required to prevent the direct exposure of the human and ecological receptors to select COCs in soil. As such, it is recommended that the existing soil cover systems (*i.e.* building footprints and paved/gravel covered surfaces) be maintained across the complete aerial extent of the Site.

The results of the Limited IAQ Assessment also indicated that there were potential risks posed to human receptors from exposure to benzene in the indoor air of the warehouse building, in the absence of RMM. As such, further actions to mitigate human health risk, which includes the installation of a vapour barrier system in the warehouse building, are required.

6.2.1 Maintain Integrity of Soil Cover Systems

Although the surface cover systems (i.e. building footprint and paved/gravel covered areas) are currently in place at the Site, in order to mitigate the potential risks posed to the on-Site human and ecological receptors in the future, it is recommended that the soil cover systems be maintained so as to prevent human and ecological direct contact with the impacted soils.

The surface cover system is to be inspected on a periodic basis so as to ensure that there are no breaches in the cover system (*i.e.* cracks, gaps in hard cap and gravel cover). The inspection is to take place on a quarterly basis by on-Site maintenance personnel, and any breaches in the hard cap or gravel cover are to be repaired immediately so as to ensure the on-Site receptors do not have direct access to the COCs in soil.

6.2.2 Vapour Barrier System

In order to prevent the potential vapour intrusion of the subsurface impacts into the indoor air space of the warehouse, it is recommended that a vapour barrier system be installed within the on-Site warehouse building. Based on chemical data available at this time, and given the inferred groundwater flow direction to the south, the Site impacts are not assumed to be present in the vicinity of the main building, and as such, it is not anticipated that a vapour barrier system is required for the main showroom building.

The vapour barrier system is to have demonstrated gas permeability characteristics to prevent benzene migration into the indoor air space, and is to have demonstrated chemical compatibility to the on-Site COCs in soil and groundwater. The vapour barrier is to be installed by a licensed contractor on top of suitably prepared engineered fill and/or geotextile materials (as per engineer's specifications), and should be inspected following installation so as to ensure it is installed in accordance with the manufacturer's specifications.

As of October 20th 2011, a vapour barrier membrane was installed beneath the floor slab of the boat warehouse that occupies the southern corner of the Site. The membrane (HAZGARD 100) was installed by Layfield Environmental Systems Ltd. (LESL) on behalf of GML. The HAZGARD 100 membrane was placed on top of a non-woven geotextile protective mat, which was situated on top of the prepared granular bedding material. An additional protective layer of geotextile was added on top of the HAZGARD 100 prior to placing additional granular material and the overlying asphalt.

Based on the documentation provided by Layfield, the HAZGARD 100 is deemed suitable to effectively render the soil to indoor air exposure pathway incomplete, thereby mitigating risks to potential Site receptors via this exposure pathway.

6.3 Conclusions

Due to the presence of the risk management measures outlined in Section 6.2, the Site is considered to be safe for continued use as a commercial facility at this time.

Chapter 7 – References

7 References

This study was conducted in general accordance with the applicable Regulations, Guidelines, Policies, Standards, Protocols and Objectives administered by the Ministry of the Environment. Specific reference is made to the following:

CCME [Canadian Council of Ministers of the Environment] (1996) A framework for ecological risk assessment: General guidance. Canadian Council of Ministers of the Environment, Publication No. PN 1195.

CCME (1997) A framework for ecological risk assessment: Technical appendices. Canadian Council of Ministers of the Environment, Publication No. PN 1274.

EC [Environment Canada] (1994) A framework for ecological risk assessment at contaminated sites in Canada: review and recommendations. Environment Canada Scientific Series No. 199.

HC [Health Canada] (2004) Federal Contaminated Site Risk Assessment in Canada Part I: Guidance on Human Health Preliminary Quantitative Risk Assessment (PQRA). Health Canada.

MNR [Ministry of Natural Resources] (2011) Natural Heritage Information Centre (NHIC) Database. Accessed November 2, 2011.

MOE [Ontario Ministry of the Environment] (2004) Ontario Regulation 153/04 (made under the Environmental Protection Act), Ontario Ministry of the Environment, May 2004.

MOE (2011a) Soil, Ground Water and Sediment Standards for Use Under Part XV.1 of the *Environmental Protection Act*, Ontario Ministry of the Environment, April 15, 2011.

MOE (2011b) Rationale for the Development of Soil and Ground Water Standards for Use at Contaminated Sites in Ontario, Ontario Ministry of the Environment, April 15, 2011.

MOE (2011c) Modified Generic Risk Assessment Model. Ontario Ministry of the Environment, April, 2011.

US EPA [United States Environmental Protection Agency] (2003) Guidance for Developing Ecological Soil Screening Levels (Eco SSLs). Evaluation of Dermal Contact and Inhalation Exposure Pathways for the Purpose of Setting Eco-SSLs. Attachment 1-3. OSWER Directive No. 92857-55.

US EPA (2004) Risk Assessment Guidance for Superfund Volume I: Human Health Evaluation Manual. Part E, Supplemental Guidance for Dermal Risk Assessment. EPA/540/R/99/005.

Previous environmental investigations and sampling programs include:

exp (2011a) Phase I and II Environmental Site Assessment, 129 South Street, Gananoque, Ontario. Prepared by **exp Services Inc.**, November 18, 2011.

exp (2011b) Observation Report – Gordon Marine Vapour Barrier Membrane Installation. Prepared by **exp Services Inc.**, 20 October 2011.

Chapter 8 – General Limitations

8 General Limitations

Information in this report is considered to be privileged and confidential and has been prepared exclusively for GML. The purpose of this report is to provide GML with an evaluation of the potential risks associated with human health and the environment based on the known soil and groundwater impacts at the subject property at this time.

The information presented in this report is based on information provided by others and visual observations as identified herein. Achieving the objectives stated in this report has required us to arrive at conclusions based upon the best information presently known to us. No investigative method can completely eliminate the possibility of obtaining partially imprecise or incomplete information; it can only reduce the possibility to an acceptable level. Professional judgment was exercised in gathering and analyzing the information obtained and in the formulation of the conclusions. Like all professional persons rendering advice, we do not act as absolute insurers of the conclusions we reach, but we commit ourselves to care and competence in reaching those conclusions.

This report was prepared for the exclusive use of GML and may not be reproduced in whole or in part, without the prior written consent of **exp**, or used or relied upon in whole or in part by other parties for any purposes whatsoever. Any use which a third party makes of this report, or any part thereof, or any reliance on or decisions to be made based on it, are the responsibility of such third parties. **Exp** Services Inc. accepts no responsibility for damages, if any, suffered by any third party as a result of decisions made or actions based on this report.

The SLRA was prepared based on the available site information and evaluated the potential adverse effects posed to the potential human and ecological receptors based on the continued use of the Site as a commercial property. Should additional Site information become available, the SLRA should be re-evaluated to determine if the conclusions presented in the report are still valid. If a Record of Site Condition is necessary, a formal Risk Assessment is required and must satisfy the procedures and requirements set out in Ontario Regulation 153/04.

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

Yours truly,

exp Services Inc.

Rob Helik, P.Eng.
Group Leader – Risk Assessment Services

Prem Manicks, P.Geo.
Associate

Appendix A –
Maxxam Certificates of Analysis (Air)

Maxxam

Success Through Science®

Your Project #: KIN16690D
Your C.O.C. #: G028404

Attention: Paula Formanek
exp.
4 Cataraqui St
Suite 315
Kingston, ON
K7K 1Z7

Report Date: 2011/11/18

CERTIFICATE OF ANALYSIS

MAXXAM JOB #: B1C4263
Received: 2011/08/16, 14:20

Sample Matrix: AIR
Samples Received: 3

Analyses	Quantity	Date Extracted	Date Analyzed	Laboratory Method	Method Reference
BTEX Fractionation in Air (TO-17mod)	1	N/A	2011/08/19	BRL SOP-00300	EPA TO-17mod
BTEX Fractionation in Air (TO-17mod)	2	N/A	2011/08/23	BRL SOP-00300	EPA TO-17mod

Encryption Key

Cristina Bacchus
18 Nov 2011 14:38:08 -05:00

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

THERESA STEPHENSON, Project Manager
Email: TStephenson@maxxam.ca
Phone# (905) 817-5763

==========

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.

Total cover pages: 1

Maxxam Job #: B1C4263
Report Date: 2011/11/18

exp.
Client Project #: KIN16690D

VOLATILE ORGANIC HYDROCARBONS BY GC/MS (AIR)

Maxxam ID		KO2927							
Sampling Date		2011/08/15 09:38							
COC Number		G028404							
	Units	**16690-1**	**RDL**	**Vol (L)**	**ug/m3**	**DL (ug/m3)**	**ppbv**	**DL (ppbv)**	**QC Batch**
Benzene	ng	118	5	6.00	19.6	0.833	6.14	0.261	2599345
Total Xylenes	ng	780	5	6.00	130	0.833	N/A	N/A	2599345
Aliphatic >C10-C12	ng	32	20	6.00	5.27	3.33	N/A	N/A	2599345
Aliphatic >C12-C16	ng	<20	20	6.00	<3.33	3.33	N/A	N/A	2599345
Aromatic >C10-C12	ng	570	20	6.00	95.0	3.33	N/A	N/A	2599345
Aromatic >C12-C16	ng	<20	20	6.00	<3.33	3.33	N/A	N/A	2599345
Surrogate Recovery (%)									
1,4-Difluorobenzene	%	107	N/A	N/A	N/A	N/A	N/A	N/A	2599345
Bromochloromethane	%	106	N/A	N/A	N/A	N/A	N/A	N/A	2599345
D5-Chlorobenzene	%	104	N/A	N/A	N/A	N/A	N/A	N/A	2599345

N/A = Not Applicable
RDL = Reportable Detection Limit
QC Batch = Quality Control Batch

Maxxam ID		KO2928							
Sampling Date		2011/08/15 09:45							
COC Number		G028404							
	Units	**16690-2**	**RDL**	**Vol (L)**	**ug/m3**	**DL (ug/m3)**	**ppbv**	**DL (ppbv)**	**QC Batch**
Benzene	ng	124	50	6.20	20.0	8.06	6.27	2.52	2599362
Total Xylenes	ng	92	50	6.20	14.8	8.06	N/A	N/A	2599362
Aliphatic >C10-C12	ng	<200	200	6.20	<32.3	32.3	N/A	N/A	2599362
Aliphatic >C12-C16	ng	<200	200	6.20	<32.3	32.3	N/A	N/A	2599362
Aromatic >C10-C12	ng	<200	200	6.20	<32.3	32.3	N/A	N/A	2599362
Aromatic >C12-C16	ng	<200	200	6.20	<32.3	32.3	N/A	N/A	2599362
Surrogate Recovery (%)									
1,4-Difluorobenzene	%	103	N/A	N/A	N/A	N/A	N/A	N/A	2599362
Bromochloromethane	%	94	N/A	N/A	N/A	N/A	N/A	N/A	2599362
D5-Chlorobenzene	%	103	N/A	N/A	N/A	N/A	N/A	N/A	2599362

N/A = Not Applicable
RDL = Reportable Detection Limit
QC Batch = Quality Control Batch

Maxxam Analytics International Corporation o/a Maxxam Analytics 6740 Campobello Road, Mississauga, Ontario, L5N 2L8 Tel: (905) 817-5700 Toll-Free: 800-563-6266 Fax: (905) 817-5777 www.maxxam.ca

Maxxam Job #: B1C4263
Report Date: 2011/11/18

exp.
Client Project #: KIN16690D

VOLATILE ORGANIC HYDROCARBONS BY GC/MS (AIR)

Maxxam ID		KO2929							
Sampling Date		2011/08/15 09:56							
COC Number		G028404							
	Units	**16690-3**	**RDL**	**Vol (L)**	**ug/m3**	**DL (ug/m3)**	**ppbv**	**DL (ppbv)**	**QC Batch**
Benzene	ng	<50	50	6.30	<7.94	7.94	<2.48	2.48	2599362
Total Xylenes	ng	<50	50	6.30	<7.94	7.94	N/A	N/A	2599362
Aliphatic >C10-C12	ng	<200	200	6.30	<31.7	31.7	N/A	N/A	2599362
Aliphatic >C12-C16	ng	<200	200	6.30	<31.7	31.7	N/A	N/A	2599362
Aromatic >C10-C12	ng	<200	200	6.30	<31.7	31.7	N/A	N/A	2599362
Aromatic >C12-C16	ng	<200	200	6.30	<31.7	31.7	N/A	N/A	2599362
Surrogate Recovery (%)									
1,4-Difluorobenzene	%	102	N/A	N/A	N/A	N/A	N/A	N/A	2599362
Bromochloromethane	%	98	N/A	N/A	N/A	N/A	N/A	N/A	2599362
D5-Chlorobenzene	%	104	N/A	N/A	N/A	N/A	N/A	N/A	2599362

N/A = Not Applicable
RDL = Reportable Detection Limit
QC Batch = Quality Control Batch

Maxxam Analytics International Corporation o/a Maxxam Analytics 6740 Campobello Road, Mississauga, Ontario, L5N 2L8 Tel: (905) 817-5700 Toll-Free: 800-563-6266 Fax: (905) 817-5777 www.maxxam.ca

Maxxam Job #: B1C4263
Report Date: 2011/11/18

exp.
Client Project #: KIN16690D

GENERAL COMMENTS

PHC F1 subfractions removed. CUY 11/2/11

Sample KO2928-01: BTEXFRA-ST: Analyzed 10X dilution of sample based upon high levels in KO2927. Detection limits have been adjusted accordingly.

Sample KO2929-01: BTEXFRA-ST: Analyzed 10X dilution of sample based upon high levels in KO2927. Detection limits have been adjusted accordingly.

Volumes have been submitted by the client.

Results relate only to the items tested.

Maxxam Analytics International Corporation o/a Maxxam Analytics 6740 Campobello Road, Mississauga, Ontario, L5N 2L8 Tel: (905) 817-5700 Toll-Free: 800-563-6266 Fax: (905) 817-5777 www.maxxam.ca

exp.
Attention: Paula Formanek
Client Project #: KIN16690D
P.O. #:
Site Location:

Quality Assurance Report

Maxxam Job Number: GB1C4263

QA/QC Batch Num Init	QC Type	Parameter	Date Analyzed yyyy/mm/dd	Value	Recovery	Units	QC Limits
2599345 DBJ	Spiked Blank	1,4-Difluorobenzene	2011/08/19		111	%	60 - 140
		Bromochloromethane	2011/08/19		110	%	60 - 140
		D5-Chlorobenzene	2011/08/19		110	%	60 - 140
		Benzene	2011/08/19		105	%	N/A
		Total Xylenes	2011/08/19		105	%	N/A
	Method Blank	1,4-Difluorobenzene	2011/08/19		105	%	60 - 140
		Bromochloromethane	2011/08/19		98	%	60 - 140
		D5-Chlorobenzene	2011/08/19		100	%	60 - 140
		Benzene	2011/08/19	<5		ng	
		Total Xylenes	2011/08/19	<5		ng	
		Aliphatic >C10-C12	2011/08/19	<20		ng	
		Aliphatic >C12-C16	2011/08/19	<20		ng	
		Aromatic >C10-C12	2011/08/19	<20		ng	
		Aromatic >C12-C16	2011/08/19	<20		ng	
2599362 DBJ	Spiked Blank	1,4-Difluorobenzene	2011/08/23		106	%	60 - 140
		Bromochloromethane	2011/08/23		105	%	60 - 140
		D5-Chlorobenzene	2011/08/23		108	%	60 - 140
		Benzene	2011/08/23		107	%	N/A
		Total Xylenes	2011/08/23		111	%	N/A
	Method Blank	1,4-Difluorobenzene	2011/08/23		103	%	60 - 140
		Bromochloromethane	2011/08/23		99	%	60 - 140
		D5-Chlorobenzene	2011/08/23		108	%	60 - 140
		Benzene	2011/08/23	<5		ng	
		Total Xylenes	2011/08/23	<5		ng	
		Aliphatic >C10-C12	2011/08/23	<20		ng	
		Aliphatic >C12-C16	2011/08/23	<20		ng	
		Aromatic >C10-C12	2011/08/23	<20		ng	
		Aromatic >C12-C16	2011/08/23	<20		ng	

Spiked Blank: A blank matrix to which a known amount of the analyte has been added. Used to evaluate analyte recovery.
Method Blank: A blank matrix containing all reagents used in the analytical procedure. Used to identify laboratory contamination.
Surrogate: A pure or isotopically labeled compound whose behavior mirrors the analytes of interest. Used to evaluate extraction efficiency.

Maxxam Analytics International Corporation o/a Maxxam Analytics 6740 Campobello Road, Mississauga, Ontario, L5N 2L8 Tel: (905) 817-5700 Toll-Free: 800-563-6266 Fax: (905) 817-5777 www.maxxam.ca

Gordon Marine Ltd.

Phase I and II Environmental Site Assessment
129 South Street
Gananoque, Ontario

Type of Document
Final

Project Name
Phase I and II Environmental Site Assessment

Project Number
KIN-00016690-A0

Prepared By:

exp Services Inc.
Suite 315 The Woolen Mill
4 Cataraqui Street
Kingston, ON K7K1Z7

Date Submitted
11.11.18

Executive Summary

Exp Services Inc. (**exp**) was retained by Gordon Marine Ltd. to conduct a Phase I and II ESA at the property located at 129 South Street in Gananoque, Ontario (hereinafter referred to as the Site or Property). The Site is legally described as Lots 671, 672, 673 and 674, Plan 86, Town of Gananoque, Ontario. The location of the Site is shown on Figure 1. The Site is currently owned by Gordon Marine Ltd. The purpose of this Phase I ESA was to determine if past or present Site activities have resulted in actual or potential contamination at the Site.

The work was carried out in general accordance with the Canadian Standards Association (CSA) Standard Z768-01 (R2006), 'Phase I Environmental Site Assessment'. The objective of the Phase II ESA was to define and characterize subsurface conditions on-site and obtain quantitative data confirming the presence or absence and magnitude of soil and/or groundwater contamination if present. The Phase II ESA component was conducted in conjunction with the Phase I ESA and generally followed the requirements of the current CSA Standard Z769-00, 'Phase II Environmental Site Assessments'

Please note that general environmental management and housekeeping practices were reviewed as part of this assessment insofar as they could impact the environmental condition of the property, however, a detailed review of regulatory compliance issues was beyond the scope of this investigation.

This Phase I ESA does not constitute an audit of environmental management practices, indicate geotechnical conditions or identify geologic hazards.

A written response from some of the regulatory agencies typically requires several months to receive. If upon receipt of the response from the regulatory agencies, significant environmental issues are identified, **exp** will forward their response to the Gordon Marine Ltd. as an addendum to this report.

Based on the results of this Phase I ESA, a number of areas of potential environmental concern (APEC) were identified at the Site. **Exp**'s observations and action recommendations are summarized in the following tables:

Summary of Potential Concerns Identified in the Phase I ESA:

APEC	Media	PCOCs	Comments	Relative Degree of Environmental Risk
Subject Property				
Regulated Building Materials	Air	Asbestos	Based on the age of the building and the results of the Site visit, there is a potential for the presence of asbestos-containing	Low unless demolition or renovation

APEC	Media	PCOCs	Comments	Relative Degree of Environmental Risk
			materials to be present in the Site buildings. These materials, if present, do not pose a risk to current occupants as long as they are in use and in good condition.	planned
Regulated building materials	Soil and Groundwater	Polychlorinated biphenyls (PCBs)	PCBs were used in fluorescent light ballasts manufactured prior to 1978. Based on the age of the buildings and the results of the Site visit, there is the potential that PCB-containing light ballasts may be present in the Site buildings. These materials, if present, do not pose a risk to current occupants as long as they are in use and properly sealed.	Low unless demolition or renovation planned
Regulated Building Materials	Air, Soil and Groundwater	Mercury	Based on the results of the Site visit, there is a potential for the presence of mercury-containing thermostats to be present in the Site buildings. Mercury-containing thermostats present no risk to the current occupants if in-use and in good condition. In addition, mercury containing paints may have historically been used at the Site buildings. If in poor condition, mercury containing paints may pose a health risk to occupants or workers from ingestion of paint chips or inhalation of mercury vapours and dust from preparing painted surfaces during renovations.	Low unless demolition or renovation planned
Regulated building materials	Air, Soil and groundwater	Lead	Based on the age of the Site buildings and the observations made during the Site visit, lead-based paints may have historically been used at the Site. If in poor condition, lead-based paints may pose a health risk to occupants or workers from potential ingestion of paint chips or inhalation of dust from preparing painted surfaces during renovations.	Low unless demolition or renovation planned
Historical uses of the subject Site.	Soil and groundwater	Petroleum Hydrocarbons (PHC), Volatile Organic Compounds (VOCs), Heavy Metals; and Polycyclic Aromatic	Past uses of the Site include a coal yard and marina. Review of Fire insurance plans identified a large coal pile along the waterfront and 3 coal sheds and 1 coke shed/structure located on the property. Boat maintenance and repair operations are currently conducted at the Site. Boats are stored at the north and south exterior grounds of the Site and as well as the	Moderate to High

APEC	Media	PCOCs	Comments	Relative Degree of Environmental Risk
		Hydrocarbons (PAHs)	interior of the showroom (new boats) and warehouse.	
Three UST's are located at the southeast corner of the Site.	Soil and groundwater	PHC, BTEX (benzene, toluene, ethylbenzene and xylenes)	Two (2) 13,600 litre gasoline and one (1) 4,500 litre diesel USTs are located at the southeast end of the Site. Three fuel pumps are located on a dock in the St. Lawrence River and one fuel pump is located on exterior grounds north of the USTs.	Moderate to High
Waste oil AST and filled drums present in warehouse.	Soil and groundwater.	PHC, BTEX	Waste oil AST with concrete secondary containment and waste antifreeze/solvent/gas drums were located on gravel surface in the warehouse. Staining was observed on a wood skid located adjacent to the AST.	Moderate to High
Floor drains discharge directly to the sanitary sewer.	Sanitary Sewer Water.	PHC, VOCs	Floor drains in the maintenance shop and showroom discharge directly to the municipal sanitary sewer. No pre-treatment was observed.	Low to High
Fill	Soil and groundwater.	PAHs and heavy metals.	Fill of unknown origin and quality may have been utilized to build up the property.	Low to High

APEC – Areas of Potential Environmental Concern
PCOC – Potential Contaminants of Concern
UST – Underground storage tank
AST – Aboveground storage tank

Recommendations:

Issue Identified	Recommendation	Rational
There is a potential for the presence of asbestos-containing materials to be present in the Site buildings.	If renovations or demolition of the buildings are planned, it is recommended that these materials be managed in accordance with the applicable regulations and guidelines.	Once asbestos-containing materials are disturbed, asbestos fibres may be air-born and pose health concerns.
There is the potential that PCB-containing light ballasts may be present in the Site buildings.	If renovations or demolition of the buildings are planned, it is recommended that light fixtures be assessed and managed in accordance with the applicable regulations and guidelines.	Once PCBs are released they may pose health and environmental concerns.
There is a potential for the presence of mercury-containing thermostats and mercury containing paints in the Site buildings.	If renovations or demolition are planned, it is recommended that these materials be assessed and managed in accordance with applicable regulations and guidelines.	To eliminate exposure to the workers and potential impact to the soil and groundwater.

Lead-based paints may have historically been used at the Site buildings.	If renovations or demolition are planned, it is recommended that this material be assessed and managed in accordance with applicable regulations and guidelines.	To eliminate exposure to the workers and potential impact to the soil and groundwater.
Historical uses of the Site.	Complete a Phase II ESA including subsurface investigations at the southern exterior of the Property.	Identify the potential for soil and groundwater impact.
Three USTs and marine gasoline and diesel filling station are located on-Site.	Complete a Phase II ESA including subsurface investigations in the area of the USTs. It is recommended that vacuum testing of all three USTs be conducted to evaluate the integrity of the tanks and test for potential leaks.	Identify the potential for soil and groundwater impact. To minimize potential for soil and groundwater impact.
Storage and filling of waste oil, solvents and other chemicals.	Complete a Phase II ESA including subsurface investigations in the area of the AST. It is recommended that secondary containment for the waste drums be constructed. It is recommended that the most up to date Best Management Practices are followed; including having a Spills Action Plan in place; and maintaining an up to date registration with the Hazardous Waste Information Network (HWIN) for all hazardous wastes that are generated and/or stored on-Site.	Identify the potential for soil and groundwater impact. To minimize potential for soil and groundwater impact.
Fill	Complete a Phase II ESA including subsurface investigations.	Identify the potential for soil and groundwater impact.
Floor drains discharge directly to the sanitary sewer. No pre-treatment was observed.	Care should be taken to ensure fluids containing oil, grease, solvents and other chemicals are not discharged to the sanitary sewer. It is recommended that an oil-water separator or other treatment system be installed to prevent discharge of oil and grease resulting from the washing and maintaining of boats and marine equipment.	To meet the Town of Gananoque Sanitary Sewer Use Bylaw.

Summary and Recommendations Indentified in the Phase II ESA:

- Four (4) boreholes (BH-1, BH-2, BH-3 and BH-4) were advanced at the Site to depths of up to 4.5 m below grade. The near surface stratigraphy generally consisted of sandy gravel fill at the southeast to sand, gravel and clay at the southeast and sandy to silty clay underlain with sand at the north. Dark to black sandy topsoil and/or gravel was observed in the upper 1 metre in the boreholes at the south (BH-1, BH-2 and BH-3). A strong odour resembling weathered petroleum hydrocarbons was observed in the dark coloured material at BH-2.

- Analytical results for soil and groundwater samples collected from the Site were assessed against the MOE (2011) Table (9) Generic Site Condition Standards for Use within 30 m of a Water Body in a Non-Potable Ground Water Condition. Assessment of the soil samples analytical results indicated the detection of several chemical constituents at concentrations that exceeded *Table 9* SCS including PHC fractions F2 and F3, benzene, ethylbenzene, toluene, hexane and xylenes, various metals and PAHs. PHC fractions F2, F3 and F4 were also detected at concentrations in excess of the *Table 9* SCS in two (2) surficial samples (less than 1.5 m below grade) collected in the vicinity of the AST and waste drums and xylenes in one (1) surficial sample.

- Two (2) boreholes (BH-1 and BH-3) were instrumented as monitoring wells to assess the quality of the shallow groundwater beneath the Site. The results of the laboratory analysis indicated that the detection of mercury and a number of PAH compounds in the groundwater samples at concentrations in excess of the *Table 9* SCS.

- Based on the identification of potential contaminants of concern (COCs) in the soil and shallow groundwater at the Site at concentrations in excess of the MOE (2011) *Table 9* generic SCS, a Screening Level Risk Assessment (SLRA) was recommended. The objective of the SLRA is to assess whether COCs identified in soil and groundwater at the Site are at acceptable levels and do not pose potential risks to human and ecological receptors relevant to the current Site settings and for the continued use of the Site for the current land use.

Summary of Findings of Delineation Sampling in the Vicinity of the AST:

The following is a summary resulting from the delineation soil sampling investigation at 129 South Street, Gananoque, Ontario:

- Ten boreholes (BH-D1 through BH-D4, BH-D5 and BH-D5b, and BH-D6 through BH-D9) were advanced to collect soil samples for the analysis of PHC and BTEX to determine the extent and magnitude of the soil impacts identified in the Phase II ESA in the vicinity of the AST on-Site to depths ranging from 0.81 to 3.05 metres below grade;
- The near surface stratigraphy in the vicinity of the AST and solvent waste is comprised of clayey sand and gravel fill layer from 0.81 to 3.05 m in thickness, which is underlain at borehole locations BH-D1, BH-D3 and BH-D4 by a layer of native sand beginning at depths of approximately 2.44 m below grade and extending to depths of at least 3.05 m below grade;
- One or more of PHC Fraction F1-F4 were detected at concentrations in excess of the *Table 9* SGS at BH-D1 (F1 to F4), BH-D4 (F2 to F4), BH-D5b (F2 to F4) and BH-D8 (F3);
- Benzene, toluene and ethylbenzene were detected at concentrations in excess of the *Table 9* SCS at BH-D1, BH-D2, BH-D3, BH-D4, BH-D5b, BH-D6, BH-D7 and BH-D9;
- Total xylenes were detected at concentrations in excess of the *Table 9* SCS in all submitted samples; and
- The PAHs anthracene, benzo(a)anthracene, benzo(a)pyrene, benzo(b/j)perylene, fluoranthene, ideno(1,2,3-cd)pyrene, naphthalene, phenanthrene, pyrene were detected in sample BH-D2 at concentrations in excess of the *Table 9* SCS.
- The TCLP soil sample results indicate that the soil is a non-hazardous waste and is suitable for disposal by a MOE licensed hauler at a MOE approved waste disposal facility.

Based on the findings of the Phase II ESA and the Delineation Soil Sampling, which identified the presence of potential contaminants of concern including PHCs, BTEX, PAHs and metals in soil and/or groundwater at concentrations in excess of applicable MOE (2011) Site Condition Standards, a Screening Level Risk Assessment (SLRA) is recommended to manage the Site impacts. The SLRA provides for the evaluation of potential risks to relevant human and ecological receptors from exposure to contaminants of concern at the Site and where risks are found to exceed acceptable levels, the identification of risk management measures to mitigate these risks.

Table of Contents

Page

List of Figures

List of Tables

List of Appendices

1.0 Introduction

Exp Services Inc. (**exp**) was retained by Gordon Marine Ltd. to conduct a Phase I and II Environmental Site Assessment (ESA) at the property located at 129 South Street in Gananoque, Ontario (hereinafter referred to as the Site or Property). The Site is legally described as Lots 671, 672, 673 and 674, Plan 86, Town of Gananoque, Ontario. The location of the Site is shown on Figure 1. The Site is currently owned by Gordon Marine Ltd.

Exp conducted the Phase I ESA in accordance with the scope of work described in **exp**'s proposal dated May 12, 2011. The Phase I ESA was prepared to comply with the general requirements of CSA Standard Z768-01 (R2006), 'Phase I Environmental Site Assessment', published in November 2001 and re-affirmed in 2006.

Exp understands that this Phase I ESA will be used as a due diligence investigation in support of a real estate or financing agreement.

The Phase II ESA was undertaken to assess for the presence or absence of potential contaminants of concern in soil and groundwater associated with areas of potential environmental concern identified in the Phase I ESA. Based on the findings of the Phase II ESA, which identified petroleum hydrocarbon impacts in the near surface soils beneath the Site, a supplemental borehole delineation soil sampling program was conducted by **exp** to define the extent and magnitude of these impacts.

This report presents the findings of the Phase I and II ESAs and the Delineation Soil Sampling and includes conclusions and recommendations based on **exp**'s assessment of the Site and analytical results reported for soil and groundwater samples collected from the Site.

1.1 Objective

The objective of the Phase I ESA was to identify actual or potential contamination at the Site. The work was carried out in general accordance with the Canadian Standards Association (CSA) Standard Z768-01 (R2006), 'Phase I Environmental Site Assessment'. The objective of the Phase II ESA was to define and characterize subsurface conditions on-Site and obtain quantitative data confirming the presence or absence and magnitude of soil and/or groundwater contamination if present. The Phase II ESA component was conducted in conjunction with the Phase I ESA and generally followed the requirements of the current CSA Standard Z769-00, 'Phase II Environmental Site Assessments'. As a result of the findings of the Phase II ESA, a supplemental delineation soil sampling program was conducted with the objective to define the extent and magnitude of the soil impacts identified in the Phase II ESA in the vicinity of the AST.

1.2 Scope of Work

The Phase I scope of work included a review of historical land use and occupancy records, a visual inspection of the Site and surrounding properties, and compilation of this information into a Phase I ESA report.

The scope of work for the Phase II ESA included the following:

- Drilling of four (4) boreholes and instrumentation of two (2) of the boreholes as monitoring wells completed into the shallow overburden material;
- Collection of two (2) surficial soil samples (less than 1.5 m below grade) in the vicinity of the AST;
- Submission of five (5) soil samples for laboratory analysis of Petroleum Hydrocarbon (PHC) fractions F1-F4 and Volatile Organic Compounds (VOCs);
- Submission of one (1) soil sample for laboratory analysis of Polycyclic Aromatic Hydrocarbons (PAHs);
- Submission of two (2) soil samples for laboratory analysis of metals;
- Submission of two (2) shallow overburden groundwater samples for laboratory analysis of PHC fractions F1-F4 and VOCs, and one (1) overburden groundwater sample for laboratory analysis of metals and PAHs;
- Evaluation of soil and groundwater analytical results against applicable Ontario Ministry of the Environment Site Condition Standards to determine whether there are any potential contaminants of concern on-Site and, if required, delineate the extent of contamination and potential for off-Site impact.

It should be noted that the actual scope of work varied slightly compared to the proposed scope of work as outlined in **exp**'s proposal (May 7, 2011). One (1) additional borehole was advanced at the north end of the Property and two additional surficial soil samples based on field observations were collected in the vicinity of the above ground storage tank and solvent waste drums located in the warehouse.

The scope of work for the additional delineation sampling included the following:

- Advance boreholes to collect additional soil samples to delineate the extent of soil impacts encountered in the vicinity of the AST and solvent waste drums located in the warehouse at the southwest end of the property.

- Collect a sample of the impacted soil for Toxicity Characteristic Leaching Procedure (TCLP) soil analysis and waste classification determination;

1.3 Deviations

The Phase I ESA was conducted in accordance with the requirements of a Phase I ESA, as defined in Clause 6.1 of CSA Z768-01 (R2006).

2.0 Site Description

The Site is located on the shoreline of the St. Lawrence River, at 129 South Street in the Town of Gananoque, Ontario (see Figures 1 and 2). The Site is legally described as Lots 671, 672, 673 and 674, Plan 86, Town of Gananoque.

The Site is the current location of a boat retail, service and maintenance facility and marina. The property has a steep southerly slope toward the St. Lawrence River. The upper northern end of the Site is used for boat storage and parking. A boat showroom is located on the east end of the Site with a maintenance area located in the lower level. A warehouse is located at the southwest end of the Site. At the time of **exp**'s Site visit the warehouse was utilized for boat storage. Waste oil and solvent storage was also observed in the warehouse. Reportedly, three underground storage tanks (USTs) (gasoline and diesel) are located at the southeast end of the Site along the St. Lawrence River shoreline. Visible evidence of the presence of the USTs included what appeared to be three (3) vent and three (3) fill pipes at the southeast end of the Site. One fuel pump was located on the land north of the UST's and three (3) fuel pumps were situated on a dock located along the St. Lawrence River.

The Site is bounded by South Street to the north with residential properties beyond, residential properties to the west, a residential property and a commercial property (Thousand Islands Playhouse) to the east, and the St. Lawrence River to the south. Photographs of the Site are provided in Appendix A.

The Site and surrounding area are municipally serviced. Potable water is provided to the Site via the Town of Gananoque water distribution system while sanitary wastewater is discharged to the municipal sewer system. Eastern Ontario Power Inc. supplies the electrical service to the existing buildings, while natural gas distribution to the Site is provided by Union Gas.

The historical use of the Site included a coal yard (Sampson Coal Company). As indicated from Fire Insurance Plans (Circa 1947, See Section 3.1.2) a coal pile was formerly located at the southeast corner of the Site as well as three coal sheds and one coke structure.

3.0 Phase I Environmental Site Assessment

3.1 Records Review / Land Use History

Available public records, as noted below, were reviewed to obtain information and to establish the land use history of the Site and the adjacent properties.

3.1.1 Aerial Photographs

Aerial photographs of the Site dated 1953, 1962, 1967, 1978, 1991 and 2006 were obtained from Queen's University Map and Air Photo Library and *Live Air Traffic Control* (http://www.liveatc.net), in order to review the development and land use history of the Site. The review of the aerial photographs indicated the following:

Photo Year	Site	North	East	South	West
1953	Large structure at southwest. Dark area along south end of Property (possible coal pile). Small structure at east end.	Road and small structures (beyond)	Two large structures.	St. Lawrence River.	Small structures (view obstructed with tree canopy cover).
1962	Large structure at southwest. Laneway leading from northwest to southeast to a mound of material (possible coal pile). No docks visible.	Road and small structures (beyond).	Two small structures and one large structure.	St. Lawrence River.	Tree canopy cover.
1967	Warehouse at southwest. Small structure northwest. Small structure northeast. Docks present.	Road and small structures (beyond).	Two small structures and two large structures.	St. Lawrence River.	Small structures (view obstructed with tree canopy cover).

1978	Warehouse at southwest. Small structure at northwest. Large structure at southeast. Docks present.	Road and small structures (beyond).	Two small structures and two large structures.	St. Lawrence River.	Small structures (view obstructed with tree canopy cover).
1991	Warehouse at southwest. Small structure at northwest. Large structure at southeast, building footprint reconfigured since 1978. Docks present.	Road and small structures (beyond).	One small structure and two large structures.	St. Lawrence River.	Small structures.
2006	Warehouse at southwest. Small structure at northwest. Large structure at southeast. Docks present.	Road and small structures (beyond).	One small structure and two large structures.	St. Lawrence River.	Small structures.

The aerial photograph review showed that the Site was developed as a marina between 1962 and 1967. From 1953 to 1962, there were no visible docks and dark mounds of material were evident at the south end of the property. Based on the historical use of the Site as a coal yard, the dark mounds possibly were coal piles.

3.1.2 Fire Insurance Plans

Fire insurance plans dated 1947 were reviewed for the Site and immediate adjacent properties at the Douglas Library (Special Collections), Queen's University. The pertinent details of the plans as they relate to the Site and adjacent properties are denoted below:

- Site:
  - The Property was labelled as Sampson Coal Company. A large coal shed was located at the southwest end of the Property. Two smaller coal sheds were located on the

Property: one at the southeast end and one at the northwest end. Five (5) other small structures were located on the Property including a weigh scale and a coke shed/structure.

- Adjacent Properties:
  - West:
    - Three structures existed on the adjacent property to the west including a boat house and a garage.
  - North:
    - South Street existed along the north property boundary.
    - Residential properties existed further to the north.
  - East:
    - An armoury was located to the north east and Gananoque Canoe and Motor Boat Club was located to the south east.
  - South:
    - St. Lawrence River.

3.1.3 Property Use Directories

Available Town of Gananoque directories dated 1927 and 1929 were reviewed at the Central Branch of the Frontenac Public Library. Later directories were not reviewed as this information was not available at the time of review. The findings of the directories that were reviewed are summarized below:

- 1927:
  - South Street (east from Stone to William)
    - North Side:
      - Residential
    - South Side:
      - Four residential properties
      - Citizen's Coal and Forwarding Company Limited
      - Residential properties
- 1929:
  - South Street (east from Stone to William)
    - North Side:
      - Residential
    - South Side:
      - Four residential properties
      - Sampson Coal Company Limited
      - Residential properties

The review of these directories indicated that Sampson Coal Company Limited was present at the Site in 1927 and 1929 as it was shown in the 1947 Fire Insurance Plan.

3.1.4 Land Title Search

A land title search was not completed as part of this Phase I ESA. It was determined that a land title search was not necessary due to the amount of background information already available regarding the Site.

3.1.5 Regulatory Information

The appropriate regulatory agencies at the provincial and municipal levels were contacted to obtain information regarding environmental permits, past or pending environmental control orders or complaints, outstanding environmental regulatory non-compliance issues and Sewer Use By-Law infractions. **Exp** did not identify any need for contacting any federal agencies.

Letters were forwarded to the following agencies:

1. The Ontario Ministry of the Environment Freedom of Information, Protection of Privacy Office; and

2. The Technical Standards and Safety Authority (TSSA), Fuel Safety Branch.

A written response from some of the regulatory agencies such as the Ministry of the Environment typically requires several months. A Copy of the confirmation response from the MOE is included in Appendix B. If upon receipt of the response from the MOE, significant environmental issues are identified, **exp** will forward their response to Gordon Marine Ltd. as an addendum to this report.

The TSSA searched their computer database (covering 1990 to present) for records of fuel storage at the Site and forwarded available information to **exp**. A Copy of the response from the TSSA is included in Appendix B. The following table provides details on the fuel storage tanks located at the Site:

Tank	Contents	Volume	Material	Corrosion Protection	Year Installed
1	gasoline	13,600 L	Steel (Single Wall)	Sacrificial anode	1988
2	gasoline	13,600 L	Steel (Single Wall)	Sacrificial anode	1988
3	diesel	4,500 L	Steel (Single Wall)	Sacrificial anode	1988

As indicated in the documentation provided in Appendix "B" the TSSA conducted a full Site audit in 2003 and issued orders on non-compliance. A periodic inspection conducted by the TSSA on July 31, 2006 found the Site in compliance. Furthermore, the TSSA has no record of any outstanding instructions, incident reports, fuel oil spills, or contamination records respecting the above-mentioned property.

3.1.6 Prior Environmental or Geotechnical Reports

To **exp**'s knowledge, a Phase I and II ESA report was previously completed for the Site in 2004 by Quinte-Eco Consultants Inc. of Belleville, Ontario. A review of this report revealed the following:

- Small amounts of paints and motor oil were stored in the parts department.
- Small amounts of chemicals were stored for sale in the show room and parts department. The specific details regarding the types of chemicals were not noted in the report.
- Batteries and used batteries were stored on Site.
- A 200 gallon waste oil AST was located in the warehouse. The tank did not have spill containment. Spill containment for the AST was recommended.
- Three USTs were located southeast of the main building (2 – 12,500 litre gasoline tanks and 1 – 5,000 litre diesel tank).
- Quite-Eco Consultants Inc. stated in the Phase I and II ESA report that fill material was utilized to build up the shoreline at the south end of the property.
- Quinte-Eco Consultants Inc. noted black layers in the soil material retrieved from two of the borehole locations.
- Quinte-Eco Consultants Inc. submitted one (1) soil sample for analysis of PAHs and one (1) soil sample for total purgeables, heavy oils and diesel range organics. The submitted soil samples met MOE (1998) Table B criteria (Surface Soil and Groundwater Criteria for Residential/Parkland Commercial/Industrial Land Use for a Non-Potable Groundwater Condition) for the tested parameters.
- Groundwater quality was not evaluated and no monitoring wells were installed during the Phase II conducted by Quite-Eco Consultants Inc.

- Quinte-Eco Consultants Inc. concluded in the report that there were no significant environmental issues for the Property.

3.1.7 Topographic Maps

Topographic maps of the Site dated 1950, 1962, 1973, 1991 and 2000 were obtained from Queen's University Map and Air Photo Library. The review of the topographic maps identified the following:

Map Year	Site	North	East	South	West
1950	No buildings noted on Site.	Road.	Two small structures and one large structure.	St. Lawrence River.	One small structure.
1962	No buildings noted on Site.	Road.	Two small structures and one large structure.	St. Lawrence River.	One small structure.
1973	Site is located in an urban area. One large structure noted.	Urban area. Road.	Two large structures.	St. Lawrence River.	Urban area.
1991	Urban area. Site is labeled as a Marina. Dock is visible.	Urban area. Road.	Urban area. One large structure (Fire Hall)	St. Lawrence River.	Urban area.
2000	Urban area. Site is labeled as a Marina. Dock is visible.	Urban area. Road.	Urban area. One large structure (Fire Hall)	St. Lawrence River.	Urban area.

3.1.8 Geological and Soil Maps

The following geological and soil maps were reviewed:

- *Physiography of the Eastern Portion of Southern Ontario*, Map 2227, Ont. Dept. of Mines and Northern Affairs, 1972.
- *Geological Highway Map*, Ontario Geological Survey, Map 2441, 1979.

The review of the geological maps identified the following:

- Physiography mapping indicates that the Site is situated within a physiographic formation comprised of shallow till and rock ridges.

- The geological map indicates that the area is located near the division of two (2) geological formations of the late to middle Precambrian age and the Cambrian age, including:
  - Felsic intrusive rocks including granite, granophyre, granodiorite, quartz diorite, quartz monzonite, syenite, trondhjemite, and derived gneisses; and
  - Potsdam or Nepean formation, including sandstone.

3.1.9 Company Records

No company records were made available by the client at the time of this assessment.

3.1.10 Land Use Documents

A review of the following publications was carried out as part of this Phase I ESA:

- Inventory of Coal Gasification Plant Waste Sites in Ontario (June 1991);
- Waste Disposal Site Inventory (June 1991); and
- Inventory of PCB Storage Sites, 1995.

The review of the above noted publications revealed the presence of two former waste disposal sites within the Town of Gananoque. Both waste sites were located over 1 km north of the Site and are not expected to have an impact on the Site. No coal gasification sites or PCB Storage sites were located within 1 km of the Site.

3.1.11 Utility Company Records

No utility company records were available at the time of this assessment.

3.1.12 Public Health Concerns

No public health concerns were identified.

4.0 Visual Site Assessment

On May 19, 2011, Matthew Whitney, P.Eng. of **exp** conducted a visit at the Site in accordance with **exp**'s internal health and safety protocols and the Ministry of Labour health and safety Regulations. The purpose of the visit was to assess the current Site conditions.

Please note that general environmental management and housekeeping practices were reviewed as part of this assessment insofar as they could impact the environmental condition of the property, however, a detailed review of regulatory compliance issues was beyond the scope of our investigation.

A visual review at the Site and surrounding properties was conducted. Observations were made over the areal extent of the Site. Adjoining properties were observed from within the grounds of the Site or from municipal lands.

At the time of the Site visit, the weather was cloudy with scattered thunderstorm activity.

Photographs were taken of the Site and surrounding properties and are included in Appendix A. The Site observations are reviewed in Section 4.1.

4.1 Subject Site

4.1.1 Property Use

The Site is located at 129 South Street and is situated on the St. Lawrence River shoreline, approximately 150 metres east of the Gananoque River in the Town of Gananoque, Ontario. The property has a steep southerly slope towards the St. Lawrence River.

The Site is bounded by South Street to the north with residential properties beyond (Photo 13; Appendix A), residential properties to the west (Photos 8 and 12), residential (Photo 1) and a commercial property (Thousand Islands Playhouse; Photos 9 and 10) to the east, and the St. Lawrence River to the south.

The Site is currently occupied by Gordon Marine, a boat retail, storage and maintenance facility and marina. A marine gasoline filling station serviced by three (3) gasoline/diesel fuel UST's is located at the southeast end of the Property. Three (3) fill and three (3) vent pipes are visible at the location of the USTs (Photos 9 and 10). The historical use of the Site prior to its current development as a Marina included a coal yard (Sampson Coal Company and Citizen's Coal and Forwarding Company Limited). No visual evidence of the former use as a coal yard was observed during the visit.

4.1.2 Buildings and Structures

Two buildings are located on the Site; the main building (including a boat showroom and offices on the upper floor and a parts and maintenance shop on the lower floor; Photos 2 through 7) and a warehouse utilized for storage of boats and waste oil and solvents.

Reportedly, the neighbouring rental residential property located at 119 South Street (Photo 8) is also owned by Gordon Marine Ltd., however, the neighbouring residential dwelling was not part of this assessment.

The main building consisted of concrete and carpeted flooring, painted drywall or plaster walls. Suspended ceiling tiles were utilized in some areas. Outcropping bedrock was also observed at the north end of the lower level of the main building. The warehouse consisted of a metal framed structure with plaster/drywall interior partition walls. The ground cover in the warehouse consisted of gravel. Natural gas furnaces were located in the main building and the warehouse, although natural gas service to the warehouse has reportedly been disconnected. Boat docks are located at the south end of the property extending into the St. Lawrence River. Three USTs are located at the southeast end of the property (Photo 10). Three fuel pumps are located on the eastern most dock and one fuel pump is located at grade, north of the USTs (Photo 9).

4.1.3 Limitations at the Site

The interior areas of the Site buildings were reviewed during the Site visit. However, no interior observations were made in concealed spaces such as above ceilings, or behind walls in the subject buildings.

4.1.4 Chemical Inventory, Storage and Handling

During **exp**'s Site visit the following chemical inventory, storage or handling was observed at the Site:

Main Building - Parts area:

- Various fluids such as motor oils, gear lubricants, and engine coolant, and batteries for retail sale (Photo 15).

Main Building - Maintenance area:

- Two parts cleaning wash bins containing a liquid with a noticeable odour (Photo 16);
- One 20 litre Kleen-Solv container (Photo 16);

- One 20 litre waste oil container (Photo 16);
- One 60 litre gear oil container;
- An outboard motor test tank with a film on the surface of the water (Photo 18);
- Five gasoline and/or diesel containers (Photos 16 and 18); and
- Various small containers of oils and fuel additives.
- Dark staining was observed on the concrete floor in the maintenance (Photo 17) and parts cleaning areas (Photo 16).

Warehouse:

- One 200 gallon waste oil AST with concrete secondary containment (Photo 21). Dark staining was observed inside the concrete containment unit (Photo 22).
- 60 litre metal drum labelled antifreeze stored on gravel.
- 50 litre metal drum approximately half full labelled gas stored on gravel. A solvent odour was observed in the vicinity of the drum (Photo 23).
- Various empty gas cans, containers and drums stored on a wood skid (Photo 23).
- Old batteries (approximately 10) stored on wood skid (Photo 24).
- Three – 60 litre drums of gear oil stored on wood skid (Photo 24).

4.1.5 Storage Tanks and Containers

The presence/absence and condition (if present) of underground storage tanks (USTs) and aboveground storage tanks (ASTs) at the Site were assessed during the Site visit. One AST was located on the Site at the time of the visit. The tank was located in the warehouse inside a concrete secondary containment. Dark staining was observed inside the containment unit as well as on the wood skid located adjacent to the AST. Petroleum Hydrocarbon odours were noted in the soil beneath the wood skid.

Two metal waste drums were located on the gravel surface adjacent to the waste oil AST. One drum was labelled antifreeze and the other drum was labelled gas. Mr. Gordon advised that the drum labelled gas was waste solvents from the cleaning stations. A solvent odour was observed in the soil beneath the waste solvent drum.

What appeared to be vent and fill pipes for three (3) USTs were observed at the southwest end of the Site. Reportedly, the USTs consist of two (2) 13,600 litre gasoline units and one 4,500 litre diesel unit.

4.1.6 Special Attention Substances

4.1.6.1 Polychlorinated Biphenyls (PCBs)

The manufacture of PCBs in North America was prohibited under the Toxic Substances Control Act (1977). Their use as a constituent of new products manufactured in or imported into Canada was prohibited by regulations in 1977 and 1980. As such, sites developed or significantly renovated after 1980 are unlikely to have PCB containing equipment on the Site. Potential equipment, which could contain PCBs, include fluorescent mercury and sodium vapour light ballasts, oil filled capacitors and transformers. A review of the Site was conducted to evaluate the potential presence of PCB containing equipment in use or stored at the Site.

Any electrical equipment containing PCBs must be disposed in accordance with Ontario Regulation 362 when it is removed from service for disposal (while in operation, any potential PCB containing devices are not considered PCB containing until out of service).

Potential PCB containing equipment observed at the Site was limited to any fluorescent light fixtures located within the Site buildings.

4.1.6.2 Asbestos-Containing Materials (ACMs)

Asbestos-containing materials (ACMs) are fibrous hydrated silicates, and can be found in building materials as either "unbound" or "bound" asbestos. Friable asbestos refers to materials where the asbestos fibres can be separated from the material with which it is associated. Non-Friable asbestos refers to asbestos, which is associated with a binding agent (such as tar or cement). Friable asbestos is commonly found in boiler and pipe insulation. Non-Friable asbestos is typically found in roofing tars, floor and ceiling tiles, and asbestos cement.

ACMs in the workplace are defined as a Designated Substance under the Ontario Occupational Health and Safety Act (OHSA). Under OHSA, persons in the workplace are required to be notified of the presence of ACMs once they are suspected to be present, and if there is a potential for workers to be exposed. The use of ACMs was discontinued in Canada in the late 1970s/early 1980s, although friable asbestos can still be found in recently constructed buildings.

Exp anticipates that given the age of the original Site structures (pre 1967), there is potential that ACMs may be present in building materials especially in plasters, ceiling tile and insulation. However, **exp** did not take intrusive measures to locate ACMs, or conduct any sampling/testing

for ACMs during the Site inspection. If renovations or demolition are planned, it is recommended that these materials (if present) be assessed and managed in accordance with applicable regulations and guidelines.

4.1.6.3 Ozone Depleting Substances (ODSs)

Refrigerants including freons and halons were formerly comprised of chlorofluorocarbons (CFCs), which were banned from production in Canada in 1996, and a ban on their use slated for 2010. The use of these materials is still permitted but equipment must be serviced by a licensed contractor such that CFCs are contained and not released to the environment during servicing or operation.

ODSs at the Site may be present within any refrigeration units or air conditioning equipment located in the Site structures.

4.1.6.4 Lead

Lead has frequently been used in oil-based paints, roofing materials, cornices, tank linings, electrical conduits and soft solders for tinplate and plumbing. The use of lead based paints (LBPs) was phased out circa 1976. Paint that was produced or used between 1976 and 1980 may contain small amounts of lead. Paint that was produced or used prior to 1950 may contain high levels of lead. The main concern regarding lead paint is its potential to become lead dust or chips either through deterioration and/or mechanical means (i.e., sanding, abrasion, etc.). Exposure to lead dust or chips occurs by ingestion or inhalation. Additionally, solder on any copper plumbing pipes may contain lead.

It is **exp**'s opinion that there is potential for LBPs within the Site's building. The painted surfaces in the structure were not observed to be peeling and flaking. If renovations or demolition are planned, it is recommended that these materials (if present) be assessed and managed in accordance with applicable regulations and guidelines.

Additionally, solder on any copper plumbing pipes throughout the Site structures may contain lead. Copper plumbing pipes were observed in the structure. Sampling/testing for the presence of lead within the Site structure was not a part of this investigation.

4.1.6.5 Urea Formaldehyde Foam Insulation (UFFI)

UFFI was formerly sprayed into cavities of walls and above ceiling as an insulating material. UFFI has been discontinued from commercial use since the early 1980s. The age of the original Site structures (pre 1967) is such that UFFI use is possible. However, during **exp**'s Site visit

there was no evidence, such as patched circular holes in walls that suggested UFFI was used in the Site structures. Therefore, the potential for presence of UFFI is low.

4.1.6.6 Mercury

Mercury could be found in some batteries, light bulbs, old paints, thermostats, old mirrors, etc. Based on an investigation by Consumer and Corporate Affairs Canada, and an assessment of potential health risks by Health and Welfare Canada, in 1991 the decision was made to eliminate the use of mercury compounds in indoor latex paints. The Canadian Paint and Coatings Association (CPCA) supported the withdrawal and all Canadian manufacturers and formulators of the preservative voluntarily agreed to remove "interior uses" from their product labels.

It is **exp**'s opinion that there is potential for mercury based paints within the Site building on the original painted surfaces. The painted surfaces in the structure were not observed to be peeling and flaking.

4.1.6.7 Mould

No evidence of mould was observed at the Site at the time of this assessment.

4.1.6.8 Radon

Based on the overburden and bedrock materials underlying the Site, it is unlikely that radon gas emissions would be a concern at the Site.

Mr. Ben McNeil, Health Inspector, Leeds, Grenville and Lanark Public Health Unit, was contacted regarding any known concerns regarding radon gas emissions in the area of the Site. Mr. McNeil advised that he is unaware of any issues with radon emissions in this area, however he advised that the Health Unit does not conduct radon gas screening.

4.1.6.9 Other Substances

No other special attention substances were present at the Site at the time of this Phase I ESA.

4.1.6.10 Unidentified Substances

No unidentified substances were present at the Site at the time of this Phase I ESA.

4.1.6.11 Air Emissions

Regulatory control of air emissions in Ontario is the responsibility of the MOE. According to the

Environmental Protection Act (EPA), a Certificate of Approval (CofA (Air)) is required for any equipment that may discharge a contaminant into the natural environment if the equipment was installed, modified or altered after June 29, 1988. According to the MOE, permitting of any equipment installed prior to this date, which has not been modified or altered, is not required. The EPA also provides a list of specific equipment and conditions, which are exempt from requiring CofA (Air) (i.e., fuel burning equipment for comfort heating in a building using natural gas or number 2 fuel oil at a rate of less than 1.5 million British Thermal Units per hour [BTU/hour]).

No active or passive air emissions were observed at the Site during **exp**'s investigation.

4.1.6.12 Odour

Chemical odours were noted in the vicinity of the parts cleaning station located in the maintenance shop and in the vicinity of the AST and adjacent waste drums located in the warehouse. No other chemical or other odours were noted during this investigation.

4.1.6.13 Noise

No excessive noise was detected at the Site during this investigation.

4.1.6.14 Sewage and Wastewater Disposal

The Site and surrounding area is serviced by the Town of Gananoque municipal sanitary and storm sewer systems. Industrial wastewater is not generated on the Site.

4.1.6.15 Liquid Chemical Waste Generation, Storage & Disposal

Waste motor oil generated from boat maintenance is stored in an AST located in the warehouse. Waste cleaning solvents, antifreeze, and used gasoline is stored in drums located south of the AST. Reportedly the liquid wastes are removed and disposed off-Site by Safety Kleen, however the waste manifests were not available at the time of review.

4.1.6.16 Solid Waste Generation, Storage & Disposal

No special or hazardous solid industrial wastes are generated at the Site. The Site is not registered as a generator of special or hazardous solid industrial wastes.

4.1.6.17 Topographic, Geologic and Hydrogeologic Conditions

The topography of the Site slopes steeply to the south toward the St. Lawrence River. It is

expected that storm water drainage from the Site is directed to the River.

From the general topography of the area, it is expected that regional groundwater flow will be to the south toward the St. Lawrence River.

4.1.6.18 Water Courses, Ditches and Site Drainage

Storm water drainage from the Site is directed by the steep topography to the south to the St. Lawrence River. Storm water drainage from the warehouse is reportedly discharged to the St. Lawrence River via a private catchment basin. Surface water drains from the gravel laneway leading to the warehouse via a catch basin to the parking area below.

4.1.6.19 Drains and Sumps

Two drains were observed in the Site building: the maintenance shop (Photo 19) and the showroom. Reportedly, the drain in the maintenance shop is pumped to the sanitary sewage pump (Photo 20) that is located at the southeast end of the building. The sanitary sewage is then pumped to the municipal sanitary sewer system located north of the Site.

4.1.6.20 Abandoned and Existing Wells

No water wells (abandoned or existing) were identified at the Site during this Phase I ESA.

4.1.6.21 Potable Water Sources

Potable water sources are provided to the Site and surrounding area by the Town of Gananoque water distribution system.

4.1.6.22 Fill Materials

It is suspected that granular fill material was utilized to build up the shoreline along the St. Lawrence River.

4.1.6.23 Stained Materials

Dark staining was observed inside the concrete secondary containment enclosure and on the wood skid located in front of waste oil AST. Hydrocarbon odours were noted in the underlying soil beneath wood skid. The soil in the vicinity of the wood was investigated in the Phase II ESA as discussed in Section 7 below.

Solvent odours were noted in the underlying soil at the solvent/antifreeze/gasoline waste drums

located south of the waste oil AST. The soil in the vicinity of the wood was investigated in the Phase II ESA as discussed in Section 7 below.

Dark staining was observed on the concrete floor in the maintenance (Photo 17) and parts cleaning areas (Photo 16). The concrete floor was observed to be in good condition in the dark stained areas with no cracking or chipping.

4.1.6.24 Stressed Vegetation

No areas of stressed vegetation were present at the time of this Phase I ESA.

4.1.6.25 Roads, Parking Facilities and Right of Ways

The property consists of a gravel parking/storage area at the north end and a gravel laneway leading south to the west end of the showroom. An asphalt laneway leads further south to the warehouse. The area south of the main building consists of asphalt cover closer to the building and gravel cover closer to the River. This area is used for launching and storage of boats. Additional boat storage is located in the warehouse at the southwest end of the property. Several docks are located in the St. Lawrence River at the south end of the property.

4.1.6.26 Pits and Lagoons

No pits or lagoons were observed at the time of this investigation.

4.1.6.27 Other Issues

No other issues were identified during this Phase I ESA.

4.2 Adjacent Properties

The conditions of the adjacent properties were observed at the time of **exp**'s Site visit. The findings of the visual reconnaissance of the adjacent properties are as follows:

- **North** – Predominately residential properties (Photo 13).
- **East** – A commercial property, Thousand Islands Play House (Photos 10 and 11) and residential properties (Photo 1).
- **West** – Residential properties (Photos 8 and 12).
- **South** – St. Lawrence River.

Generally, the current land uses noted for the adjacent properties are not expected to have a significant potential environmental liability towards the Site.

5.0 Interview Participants

5.1 Methodology

At the time of the Site visit Mr. Neil Gordon of Gordon Marine Ltd. accompanied **exp** and provided verbal information regarding the Site's history and building systems. Mr. Gordon provided **exp** with a tour of the Site buildings and external grounds.

The relevant information provided by Mr. Gordon has been integrated into this report, in the appropriate sections.

Exp's standard Questionnaire was given to Mr. Gordon of Gordon Marine Ltd. A copy of the completed Questionnaire is included in Appendix C.

5.1 Government Officials

Ms. Bonnie Dingwall, Clerk at the Town of Gananoque was contacted. Ms. Dingwall advised that the Town of Ganaoque has no environmental assessment documents in the geographical area of the Gordon Marine property.

5.2 Third Parties

No third parties were interviewed during this Phase I ESA study.

6.0 Summary and Recommendations – Phase I ESA

The results of this Phase I ESA indicate the following conclusions in table format regarding the expected environmental conditions and potential liabilities of the Site:

APEC	Media	PCOCs	Comments	Relative Degree of Environmental Risk
Subject Property				
Regulated Building Materials	Air	Asbestos	Based on the age of the building and the results of the Site visit, there is a potential for the presence of asbestos-containing materials to be present in the Site buildings. These materials, if present, do not pose a risk to current occupants as long as they are in use and in good condition.	Low unless demolition or renovation planned
Regulated building materials	Soil and Groundwater	Polychlorinated biphenyls (PCBs)	PCBs were used in fluorescent light ballasts manufactured prior to 1978. Based on the age of the buildings and the results of the Site visit, there is the potential that PCB-containing light ballasts may be present in the Site buildings. These materials, if present, do not pose a risk to current occupants as long as they are in use and properly sealed.	Low unless demolition or renovation planned
Regulated Building Materials	Air, Soil and Groundwater	Mercury	Based on the results of the Site visit, there is a potential for the presence of mercury-containing thermostats to be present in the Site buildings. Mercury-containing thermostats present no risk to the current occupants if in-use and in good condition. In addition, mercury containing paints may have historically been used at the Site buildings. If in poor condition, mercury containing paints may pose a health risk to occupants or workers from ingestion of paint chips or inhalation of mercury vapours and dust from preparing painted surfaces during renovations.	Low unless demolition or renovation planned

APEC	Media	PCOCs	Comments	Relative Degree of Environmental Risk
Regulated building materials	Air, Soil and groundwater	Lead	Based on the age of the Site buildings and the observations made during the Site visit, lead-based paints may have historically been used at the Site. If in poor condition, lead-based paints may pose a health risk to occupants or workers from potential ingestion of paint chips or inhalation of dust from preparing painted surfaces during renovations.	Low unless demolition or renovation planned
Historical uses of the subject Site.	Soil and groundwater	Petroleum Hydrocarbons (PHC), Volatile Organic Compounds (VOCs), Heavy Metals; and Polycyclic Aromatic Hydrocarbons (PAHs)	Past uses of the Site include a coal yard and marina. Review of Fire insurance plans identified a large coal pile along the waterfront and 3 coal sheds and 1 coke shed/structure located on the property. Boat maintenance and repair operations are currently conducted at the Site. Boats are stored at the north and south exterior grounds of the Site and as well as the interior of the showroom (new boats) and warehouse.	Moderate to High
Three UST's are located at the southeast corner of the Site.	Soil and groundwater	PHC, BTEX (benzene, toluene, ethylbenzene and xylenes)	Two (2) 13,600 litre gasoline and one (1) 4,500 litre diesel USTs are located at the southeast end of the Site. Three fuel pumps are located on a dock in the St. Lawrence River and one fuel pump is located on exterior grounds north of the USTs.	Moderate to High
Waste oil AST and filled drums present in warehouse.	Soil and groundwater.	PHC, BTEX	Waste oil AST with concrete secondary containment and waste antifreeze/solvent/gas drums were located on gravel surface in the warehouse. Staining was observed on a wood skid located adjacent to the AST.	Moderate to High
Floor drains discharge directly to the sanitary sewer.	Sanitary Sewer Water.	PHC, VOCs	Floor drains in the maintenance shop and showroom discharge directly to the municipal sanitary sewer. No pre-treatment was observed.	Low to High
Fill	Soil and groundwater.	PAHs and heavy metals.	Fill of unknown origin and quality may have been utilized to build up the property.	Low to High

APEC – Areas of Potential Environmental Concern
PCOC – Potential Contaminants of Concern
UST – Underground storage tank
AST – Aboveground storage tank

Recommendations:

Issue Identified	Recommendation	Rational
There is a potential for the presence of asbestos-containing materials to be present in the Site buildings.	If renovations or demolition of the buildings are planned, it is recommended that these materials be managed in accordance with the applicable regulations and guidelines.	Once asbestos-containing materials are disturbed, asbestos fibres may be air-born and pose health concerns.
There is the potential that PCB-containing light ballasts may be present in the Site buildings.	If renovations or demolition of the buildings are planned, it is recommended that light fixtures be assessed and managed in accordance with the applicable regulations and guidelines.	Once PCBs are released they may pose health and environmental concerns.
There is a potential for the presence of mercury-containing thermostats and mercury containing paints in the Site buildings.	If renovations or demolition are planned, it is recommended that these materials be assessed and managed in accordance with applicable regulations and guidelines.	To eliminate exposure to the workers and potential impact to the soil and groundwater.
Lead-based paints may have historically been used at the Site buildings.	If renovations or demolition are planned, it is recommended that this material be assessed and managed in accordance with applicable regulations and guidelines.	To eliminate exposure to the workers and potential impact to the soil and groundwater.
Historical uses of the Site.	Complete a Phase II ESA including subsurface investigations at the southern exterior of the Property.	Identify the potential for soil and groundwater impact.
Three USTs and marine gasoline and diesel filling station are located on-Site.	Complete a Phase II ESA including subsurface investigations in the area of the USTs. It is recommended that vacuum testing of all three USTs be conducted to evaluate the integrity of the tanks and test for potential leaks.	Identify the potential for soil and groundwater impact. To minimize potential for soil and groundwater impact.
Storage and filling of waste oil, solvents and other chemicals.	Complete a Phase II ESA including subsurface investigations in the area of the AST. It is recommended that secondary containment for the waste drums be constructed.	Identify the potential for soil and groundwater impact. To minimize potential for soil and groundwater impact.

	It is recommended that the most up to date Best Management Practices are followed; including having a Spills Action Plan in place; and maintaining an up to date registration with the Hazardous Waste Information Network (HWIN) for all hazardous wastes that are generated and/or stored on-Site.	
Fill	Complete a Phase II ESA including subsurface investigations.	Identify the potential for soil and groundwater impact.
Floor drains discharge directly to the sanitary sewer. No pre-treatment was observed.	Care should be taken to ensure fluids containing oil, grease, solvents and other chemicals are not discharged to the sanitary sewer. It is recommended that an oil-water separator or other treatment system be installed to prevent discharge of oil and grease resulting from the washing and maintaining of boats and marine equipment.	To meet the Town of Gananoque Sanitary Sewer Use Bylaw.

7.0 Phase II Environmental Site Assessment

7.1 Introduction

Exp was retained by Gordon Marine Ltd. to conduct a Phase II ESA in conjunction with the Phase I ESA at the property located at 129 South Street in Gananoque, Ontario. The Site is legally described as Lots 671, 672, 673 and 674, Plan 86, Town of Gananoque, Ontario. The location of the Site is shown on Figure 1. The Site is currently owned by Gordon Marine Ltd.

7.1.1 Objective

The purpose of the Phase II ESA was to define subsurface conditions on-Site and obtain quantitative data confirming the presence or absence of potential contaminants of concern in soil and groundwater associated with potential areas of environmental concern at the Site including a former coal yard and the existing boat retail/maintenance facility and marina.

The borehole locations were selected to evaluate conditions in the vicinity of areas of potential concern identified in the Phase I ESA including the presence of three USTs (gasoline and diesel) located at the southeast end of the Site, a waste oil AST and filled drums located in the warehouse, the historical use of the Site as a coal yard, and the potential that fill of unknown origin and quality may have been utilized to build up the property. Analytical test groups were selected based on the potential contaminants of concerns that may be associated with the areas of potential environmental concern identified at the Site. Details on the selection of specific sampling locations are provided in Section 7.2.

7.1.2 Scope of Work

As discussed above, the scope of work for the Phase II ESA included the following:

- Drilling of four (4) boreholes to depths of up to 4.5 m within the shallow fill and overburden materials beneath the Site.
- Collection of two (2) surficial soil samples (depths of less than 1.5 m below grade);
- Completion of two (2) boreholes as monitoring wells screened within the shallow overburden groundwater;
- Submission of five soil samples for laboratory analysis of Petroleum Hydrocarbon (PHC) fractions F1-F4 and Volatile Organic Compounds (VOCs), two (2) soil samples for metals and one soil sample for Polycyclic Aromatic Hydrocarbons (PAHs);

- Submission of two (2) shallow overburden groundwater samples for laboratory analysis of PHC fractions F1-F4 and VOCs and one (1) groundwater sample for metals and PAHs; and

- Evaluation of soil and groundwater results against applicable Ontario Ministry of the Environment Site Condition Standards to assess for potential contaminants of concern and, if required, delineate the extent of contamination and potential for off-Site impact.

7.2 Methodology

In order to verify the on-Site subsurface conditions, an intrusive environmental investigation was undertaken to obtain quantitative data confirming the presence or absence of potential contaminants of concern in soil and groundwater associated with the APECs identified in the Phase I ESA.

On May 24, 2011, four boreholes (BH-1 through BH-4) were advanced into the surficial fill and upper overburden materials at the Site up to depths of 4.5 m below grade. Bedrock was not encountered in any of the boreholes. All boreholes were advanced by Canadian Environmental Drilling of Battersea, Ontario using a truck mounted drill rig equipped for geoenvironmental subsurface sampling. The borehole and monitoring well locations are shown on Figure 2. Borehole locations were selected based on the findings from the Phase I ESA. The borehole locations were selected to represent soil and groundwater conditions in the vicinity of the USTs (BH-1) and in the vicinity of the waste oil AST in the warehouse (BH-3). Boreholes BH-1 through BH-3 were also located along the south end of the Site to assess for potential remnants of the former use of the Site as a coal yard. Borehole BH-4 was advanced at the north end of the Site to determine the subsurface conditions and assess the potential for fill at the north end of the property. All efforts were directed and supervised by a technical representative from **exp**. Prior to drilling, public and private utility service locate clearances were obtained.

During borehole advancement, continuous split spoon sampling was conducted in order to define the subsurface stratigraphy and to collect soil samples for chemical analysis. Upon retrieval, and the soil cores were visually examined, logged and samples transferred into pre-cleaned laboratory supplied glass jars and polyethylene storage bags. New disposable nitrile gloves were worn during the handling of each split spoon sample. The "jarred" soil samples were placed in an insulated cooler, chilled with ice. The split-spoon sampling devices were decontaminated with soapy water and then rinsed with water by Canadian Environmental prior to each use.

Two surficial samples were also collected at the locations shown in Figure 2. In order to collect the samples the granular material was excavated at the surficial sampling locations with a clean shovel. The shovel was decontaminated with soapy water and then rinsed with water between sampling locations. Upon retrieval the samples were transferred into laboratory supplied glass jars and were placed in an insulated cooler, chilled with ice.

Prior to field screening the bagged soil samples were allowed to acclimate to approximately room temperature. The bagged soil samples were screened for total volatile organic compounds using a MuliRAE Photoionization Detector (PID). The PID was calibrated using 100.0 ppm isobutylene reference gas on December 1, 2010 by Pine Environmental Services Inc. of Mississauga, Ontario. Vapour readings in parts per million were recorded by inserting the detector tip into the polyethylene bag containing the soil sample and sampling the air in the headspace of the bag. The vapour readings are presented on the borehole logs (Appendix D). Based on the soil vapour survey results and visual/olfactory evidence, representative soil samples were selected and submitted to Maxxam Analytics Inc. (Maxxam) of Mississauga, Ontario for analysis of PHC fractions F1-F4, VOCs, metals and PAHs.

As shown on Figure 2, two boreholes were completed as monitoring wells (MW-1 and MW-2) screened within the shallow overburden groundwater. MW-1 and MW-2 were equipped with 50 mm diameter slotted screens, 3.35 and 1.52 m in length and 50 mm diameter risers to 0.15 and 0.14 m below grade, respectively. A sand pack filter media was placed from the base of the monitoring wells (3.35 and 2.44 m below grade at MW-1 and MW-2, respectively) to above the slotted screens (0.61 m below grade at both MW-1 and MW-2). Bentonite hole plug was used to seal the monitoring wells from the top of the sand pack to below surface grade. The monitoring wells were outfitted with metal flush mount covers.

On May 27, 2011, the two monitoring wells were outfitted with dedicated waterra tubing and foot valves and were purged in preparation for groundwater sampling. Prior to collection of the groundwater samples approximately 3.7 well volumes were purged from MW-1 and approximately 2 well volumes were purged from MW-2. MW-2 was purged dry three (3) times. Prior to collecting a groundwater sample, the static water level (SWL) was also measured in the monitoring wells and the water column was checked for the presence of free product utilizing a Solinst Interface Meter. Groundwater samples were collected directly into laboratory containers supplied by Maxxam. Upon retrieval, the groundwater samples were placed into a chilled cooler for shipment to Maxxam for laboratory analysis of PHC fractions F1-F4, VOCs, PAHs and/or metals.

Each soil and groundwater sample was assigned a unique sample identification number and were submitted to the receiving laboratory following chain of custody protocols.

7.3 Assessment of Soil and Groundwater Analytical Results

The soil and groundwater analytical results were assessed against applicable Site Condition Standard as presented in the MOE document "*Soil, Ground Water and Sediment Standards for Use Under Part XV.1 of the Environmental Protection Act, April 15, 2011*" (MOE 2011). The MOE (2011) document presents background site condition standards (SCS) as provided in Table 1 and generic SCS as provided in Tables 2 to 9. The generic SCS are effects based values

protective of human health and the environment for different land use scenarios, groundwater conditions (i.e., potable/non-potable), shallow soil conditions and proximity to a surface water body.

The Site conditions and field observations are used to determine the applicable MOE (2011) SCS to assess the soil and groundwater analytical data. Generally, areas that are serviced with municipal potable water supplies would qualify for assessment using the SCS in MOE (2011) *Table 3 (Full Depth Generic Site Condition Standards in a Non-Potable Ground Water Condition)*. Properties which are located within 30 metres of a water body are classified as potential susceptible to aquatic impacts from direct soil movement and limited groundwater dilution. Assessment of analytical results for sites located within 30 metres of a water body should reference the SCS in *Table 9 (Generic Site Condition Standards for Use within 30 m of a Water Body in a Non-Potable Groundwater Condition) (Table 9)* of MOE (2011).

Therefore based on the non-potable ground conditions and proximity to surface water, the *Table 9* SCS for residential, parkland, institutional, industrial, commercial and community property use were selected as the SCS to evaluate soil and groundwater conditions for the Site.

7.4 Results

7.4.1 General Observations in Subsurface Materials

The soil conditions and other relevant information at each borehole location were logged in detail in the borehole logs (Appendix D). The overburden at the southeast borehole (BH-1) consisted of sandy gravel fill to 2.13 m below grade with a large boulder beneath. The overburden at BH-2 consisted of a 0.15 m thick layer of gravel underlain with 0.15 m of topsoil, 0.61 m of sand and topsoil and at minimum 1.83 m thick layer of sand and gravel. The overburden at BH-3 consisted of a 0.30 m thick layer of clay underlain with 1.22 m of sand, gravel and clay, underlain with a minimum 0.61 m thick layer of clay with gravel.

A slight fuel or solvent odour was observed at BH-1 and a strong odour resembling weathered petroleum hydrocarbons was observed at BH-2. No odours were observed at BH-3 or BH-4. PID readings in the retrieved soil material at BH-1 ranged from 0.0 ppm (0.15 to 1.37 m below grade) to 0.1 ppm (1.37 to 2.13 m) below grade, BH-2 ranged from 0 to 1.0 ppm with the highest reading of 1.0 ppm detected in the material retrieved from 0.30 to 0.91 m below grade, and 0.0 ppm at BH-3 and BH-4.

The groundwater levels at the monitoring wells were measured on May 27 and July 22, 2011 at 0.56 and 0.72 m below grade, respectively at MW-1 and 0.91 and 0.99 m, respectively at MW-2 indicating a minimum saturated thickness of 4.02 and 1.50 m at MW-1 and MW-2, respectively. Free product was not detected with the interface meter in either monitoring well.

The water level of the St. Lawrence River was measured on July 22, 2011 at 0.35 metres below the top of the concrete sidewalk along the River. The relative water level elevations of the monitoring wells and the River on July 22, 2011 are presented in Figure 4. The elevations are based on an assumed elevation of 100.00 m at the concrete base of the flagpole at the southeast end of the Site.

Due to the limited groundwater elevation data that was available, groundwater flow in the shallow overburden cannot be resolved, however based on the general topography, it is likely south towards the River. However, at the southern portion of the property as illustrated in Figure 4, the direction is dependent on the relative elevations of the River and groundwater table.

7.4.2 Analytical Results

7.4.2.1 Soil

To assess for the presence of potential contaminants of concern soil samples representative of each borehole location were submitted to Maxxam. Three (3) soil samples (one from each of the boreholes BH-1, BH-2 and BH-3) at depths of 1.5 to 2.1 m, 0.30 to 0.91 m, 0.30 to 0.91 m below grade, respectively were forwarded for chemical analysis of PHC fractions F1-F4 and VOCs. Two (2) samples were submitted for analysis of metals from BH-1 (0.15 to 0.76 m below grade) and BH-4 (0.91 to 1.5 m below grade) and one sample was submitted for analysis of PAHs from BH-1 (0.15 to 0.76 m below grade).

Surficial soil samples collected from the vicinity of the AST and waste drums located in the warehouse at the southwest end of the property and were submitted for analysis of PHC F1-F4 and VOC.

The results for the soil samples submitted for analysis of PHC and VOC from boreholes (BH-1, BH-2 and BH-3) and surficial soil samples are summarized in Table 1 and the salient results below:

- Toluene and xylenes were detected at concentrations in sample BH-1-3 in excess of the *Table 9* SCS;
- PHC fractions F2 and F3, benzene, ethylbenzene, toluene, hexane, and xylenes (total) were detected in sample BH-2-2 at concentrations in excess of the *Table 9* SCS;
- PHC and VOCs were detected in sample BH-3-2 at concentrations meeting the *Table 9* SCS or were reported as non-detect, at reporting detection limits less than the *Table 9* SCS; and

- PHC fractions F2, F3, and F4 in surficial samples S-1 and S-2 and xylenes in sample S-1 were detected at concentrations in excess of the *Table 9* SCS.

The results for the soil samples submitted from soil sample BH-1-1 for analysis of PAHs and metals are summarized as follows:

- The metals antimony, arsenic, barium, lead, molybdenum and selenium were detected at concentrations in excess of *Table 9* SCS.

- The PAHs acenaphthalene, acenaphthylene, anthracene, benzo(a)anthracene, benzo(a)pyrene, benzo(b/j)fluoranthene, dibenz(a,h)anthracene, fluoranthene, ideno(1,2,3-cd)pyrene, 1- and 2- methylnaphthalene, napthhalene, phenanthrene and pyrene were detected at concentrations in excess of the *Table 9* SCS.

The results for the soil sample BH-4-3 submitted for analysis of metals indicate detected concentrations less than the *Table 9* SCS or were reported as non-detect, at reporting detection limits less than the *Table 9* SCS.

7.4.2.2 Groundwater

To assess for the presence of potential contaminants of concern groundwater samples from the two monitoring wells (MW-1 and MW-2) were submitted to Maxxam for analysis of PHC fractions (F1-F4) and VOCs. Additional groundwater samples for analysis of PAHs and metals were submitted to Maxxam. As summarized in Table 2, mercury and various PAHs including anthracene, benzo(a)anthracene, benzo(a)pyrene, benzo(b/j)fluoranthene, benzo(g,h,i)perylene, benzo(k)fluoranthene, chrysene, dibenz(a,h)anthracene, ideno(1,2,3-cd)pyrene and pyrene were detected in the MW-1 sample at concentrations in excess of the *Table 9* SCS. The PHC fractions and VOC results for both groundwater samples were almost all non-detect with RDLs less than the *Table 9* SCS and were detected at concentrations less than the Table 9 SCS.

8.0 Summary and Recommendations – Phase II ESA

The following summary and recommendations are made based on the Phase II ESA recently conducted at 129 South Street in Gananoque, Ontario:

- Four (4) boreholes (BH-1, BH-2, BH-3 and BH-4) were advanced at the Site to depths of up to 4.5 m below grade. The near surface stratigraphy generally consisted of sandy gravel fill at the southeast to sand, gravel and clay at the southeast and sandy to silty clay underlain with sand at the north. Dark to black sandy topsoil and/or gravel was observed in the upper 1 metre in the boreholes at the south (BH-1, BH-2 and BH-3). A strong odour resembling weathered petroleum hydrocarbons was observed in the dark coloured material at BH-2.

- Analytical results for soil and groundwater samples collected from the Site were assessed against the MOE (2011) Table (9) Generic Site Condition Standards for Use within 30 m of a Water Body in a Non-Potable Ground Water Condition. Assessment of the soil samples analytical results indicated the detection of several chemical constituents at concentrations that exceeded *Table 9* SCS including PHC fractions F2 and F3, benzene, ethylbenzene, toluene, hexane and xylenes, various metals and PAHs. PHC fractions F2, F3 and F4 were also detected at concentrations in excess of the *Table 9* SCS in two (2) surficial samples (less than 1.5 m below grade) collected in the vicinity of the AST and waste drums and xylenes in one (1) surficial sample.

- Two (2) boreholes (BH-1 and BH-3) were instrumented as monitoring wells to assess the quality of the shallow groundwater beneath the Site. The results of the laboratory analysis indicated that the detection of mercury and a number of PAH compounds in the groundwater samples at concentrations in excess of the *Table 9* SCS.

- Based on the identification of potential contaminants of concern (COCs) in the soil and shallow groundwater at the Site at concentrations in excess of the MOE (2011) *Table 9* generic SCS, a Screening Level Risk Assessment (SLRA) was recommended. The objective of the SLRA is to assess whether COCs identified in soil and groundwater at the Site are at acceptable levels and do not pose potential risks to human and ecological receptors relevant to the current Site settings and for the continued use of the Site for the current land use.

9.0 Delineation Sampling in Vicinity of AST

9.1 Introduction

Exp was retained by Gordon Marine Limited to conduct delineation sampling in the vicinity of a waste oil AST and waste solvent drums located in the warehouse at the southwest end of the Site. The work was conducted to delineate the extent of soil contamination found in the Phase II ESA.

9.1.1 Scope of Work

The scope of work included the following:

- Advance boreholes to collect additional soil samples to delineate the extent of soil impacts encountered in the vicinity of the AST and solvent waste drums located in the warehouse at the southwest end of the property.
- Collect a sample of the impacted soil for Toxicity Characteristic Leaching Procedure (TCLP) soil analysis and waste classification determination;

9.2 Methodology

On July 20, 2011, ten boreholes (BH-D1 through BH-D9, and BH-D5b) were advanced into the on-Site fill and overburden materials to depths up to 3.05 metres below grade or refusal. All boreholes were advanced by Canadian Environmental Drilling of Battersea, Ontario using portable equipment equipped for geoenvironmental subsurface sampling. The borehole locations are shown on Figure 5. All efforts were directed and supervised by a technical representative from **exp**. Prior to drilling, public and private utility service locate clearances were obtained.

During borehole advancement, continuous split spoon sampling was conducted in order to define the subsurface stratigraphy and to collect soil samples for chemical analysis. Upon retrieval, the soil cores were visually examined, logged and samples transferred into laboratory supplied glass jars and polyethylene storage bags for field screening. The "jarred" soil samples were placed in an insulated cooler, chilled with ice. The split-spoon sampling devices were decontaminated by Canadian Environmental prior to each use.

Prior to field screening the soil samples were allowed to acclimate to approximately room temperature. The bagged soil samples were screened for total volatile organic compounds using a MuliRAE Photoionization Detector (PID). The PID was calibrated using 100.0 ppm isobutylene on December 1, 2010 by Pine Environmental Services Inc. of Mississauga, Ontario. Vapour readings in parts per million were recorded by inserting the detector tip into the polyethylene bag containing the soil sample and sampling the air in the headspace of the bag. The vapour readings are presented on the borehole logs (Appendix D). Based on the soil vapour survey results and visual/olfactory evidence, representative soil samples were selected and

submitted to Maxxam Analytics Inc. (Maxxam) of Mississauga, Ontario for analysis of PHC fractions F1-F4, VOCs, metals and PAHs.

In total nine (9) soil samples were submitted for laboratory analysis as follows: seven (7) soil samples for PHC fractions F1-F4 and BTEX, one (1) soil sample for PHC fractions F1-F4 and VOCs; and 1 soil sample for PAHs.

9.3 Evaluation of Soil Analytical Results

As discussed in Section 7.3 above, based on the non-potable groundwater condition and proximity to a surface water body the MOE (2011) *Table 9* generic SCS for residential, parkland, institutional, industrial, commercial and community property use were deemed appropriate criteria to evaluate soil and groundwater quality of the Site.

9.4 Results

A total of 10 boreholes (BH-D1 through BH-D9 and BH-D5b) were advanced into the fill and overburden material in the vicinity of the AST and waste solvent drums located in the warehouse up to depths of 3.05 m below grade. The borehole locations are shown in Figure 5. Borehole logs are also attached.

The near surface stratigraphy in the vicinity of the AST and solvent waste is comprised of a surficial clayey sand and gravel fill layer from 0.81 to 3.05 m in thickness, which is underlain at borehole locations BH-D1, BH-D3 and BH-D4 by a layer of native sand beginning at depths of approximately 2.44 m below grade and extending to depths of at least 3.05 m below grade. The soil material was wet in the soil cores from depths beginning at 0.61 m below grade.

The results for the submitted soil samples from the delineation boreholes are summarized in Table 3 and the salient findings below:

- One or more of PHC Fractions F1-F4 were detected at concentrations in excess of the *Table 9* SGS at BH-D1 (F1 to F4), BH-D4 (F2 to F4), BH-D5b (F2 to F4) and BH-D8 (F3);
- Benzene, toluene and ethylbenzene were detected at concentrations in excess of the *Table 9* SCS at BH-D1, BH-D2, BH-D3, BH-D4, BH-D5b, BH-D6, BH-D7 and BH-D9;
- Total xylenes were detected at concentrations in excess of the *Table 9* SCS in all submitted samples; and
- The PAHs (anthracene, benzo(a)anthracene, benzo(a)pyrene, benzo(b/j)perylene, fluoranthene, ideno(1,2,3-cd)pyrene, naphthalene, phenanthrene, pyrene) were detected in sample BH-D2 at concentrations in excess of the *Table 9* SCS.

As summarized in Table 4 assessment of the TCLP sample against Ontario Regulation 558, Schedule 4 Leachate Quality Criteria indicated that the impacted soil material is a non-hazardous

waste. The material therefore is suitable for disposal by a licensed hauler at a MOE approved waste disposal facility.

9.5 Summary

The following is a summary resulting from the delineation soil sampling investigation at 129 South Street, Gananoque, Ontario:

- Ten boreholes (BH-D1 through BH-D4, BH-D5 and BH-D5b, and BH-D6 through BH-D9) were advanced to collect soil samples for the analysis of PHC and BTEX to determine the extent and magnitude of the soil impacts identified in the Phase II ESA in the vicinity of the AST on-Site to depths ranging from 0.81 to 3.05 metres below grade;
- The near surface stratigraphy in the vicinity of the AST and solvent waste is comprised of clayey sand and gravel fill layer from 0.81 to 3.05 m in thickness, which is underlain at borehole locations BH-D1, BH-D3 and BH-D4 by a layer of native sand beginning at depths of approximately 2.44 m below grade and extending to depths of at least 3.05 m below grade;
- One or more of PHC Fraction F1-F4 were detected at concentrations in excess of the *Table 9* SGS at BH-D1 (F1 to F4), BH-D4 (F2 to F4), BH-D5b (F2 to F4) and BH-D8 (F3);
- Benzene, toluene and ethylbenzene were detected at concentrations in excess of the *Table 9* SCS at BH-D1, BH-D2, BH-D3, BH-D4, BH-D5b, BH-D6, BH-D7 and BH-D9;
- Total xylenes were detected at concentrations in excess of the *Table 9* SCS in all submitted samples; and
- The PAHs anthracene, benzo(a)anthracene, benzo(a)pyrene, benzo(b/j)perylene, fluoranthene, ideno(1,2,3-cd)pyrene, naphthalene, phenanthrene, pyrene were detected in sample BH-D2 at concentrations in excess of the *Table 9* SCS.
- The TCLP soil sample results indicate that the soil is a non-hazardous waste and is suitable for disposal by a MOE licensed hauler at a MOE approved waste disposal facility.

Based on the findings of the Phase II ESA and the Delineation Soil Sampling, which identified the presence of potential contaminants of concern including PHCs, BTEX, PAHs and metals in soil and/or groundwater at concentrations in excess of applicable MOE (2011) Site Condition Standards, a Screening Level Risk Assessment (SLRA) is recommended to manage the Site impacts. The SLRA provides for the evaluation of potential risks to relevant human and ecological receptors from exposure to contaminants of concern at the Site and where risks are found to exceed acceptable levels, the identification of risk management measures to mitigate these risks.

10.0 Qualifications of Assessor

Exp services Inc. (founded in 1957) provides a full range of environmental services through a full-time Environmental Services Group. **exp**'s Environmental Services Group has developed a strong working relationship with clients in both the private and public sectors and has developed a positive relationship with the Ontario Ministry of the Environment. Personnel in the numerous branch offices form part of a large network of full-time dedicated environmental professionals in the **exp** organization.

The Site reconnaissance and subsurface investigations were conducted by Mr. Matthew Whitney, P.Eng. Mr. Whitney has been trained to conduct Phase I and II ESAs in accordance with the CSA Standard and has conducted Phase I and II ESAs for various clients and government agencies and is routinely engaged in this field.

Paula A. Formanek, M.Sc. (Eng.), P.Geo., QP is a Senior Hydrogeologist at **exp**, and manager of the Kingston Branch. She has been with the firm since 1989 and is responsible for many hundreds of Environmental Site Assessments, remediation projects, and other investigations for residential, industrial, commercial and institutional properties.

11.0 References

1. **Canadian Standards Association. November 2001, re-affirmed 2006.** *Z768-01 (R2006) Phase I Environmental Site Assessment.*

2. **Ontario Ministry of Environment, June 1991.** *Waste Disposal Site Inventory.*

3. **Ontario Ministry of Environment, June 1991.** *Inventory of Coal Gasification Plant Waste Sites in Ontario.*

4. **Ontario Ministry of Environment, 1995.** *Inventory of PCB Storage Sites.*

5. **Ontario Dept. of Mines and Northern Affairs, 1972.** *Physiography of the Eastern Portion of Southern Ontario,* **Map 2227.**

6. **Ontario Geological Survey, 1979.** *Geological Highway Map,* **Map 2441.**

7. **Ontario Ministry of Environment, December 1996.** *Guidance on Sampling and Analytical Methods for Use at Contaminated Sites in Ontario.*

8. **Ontario Ministry of the Environment,** April 15, 2011. *Soil, Ground Water and Sediment Standards for Use Under Part XV.1 of the Environmental Protection Act.*

12.0 Limitations

The information presented in this report is based on information gathered from available sources, provided by others and visual observations as identified herein. This Phase II ESA was designed to define subsurface conditions at a specific location on the Site and obtain quantitative data confirming the presence or absence of soil and groundwater contamination at this location. The findings cannot be extended to portions of the Site, which were unavailable for direct observation or were outside of the subsurface investigation area.

Some of the information presented in this report is based on information provided by others and visual observations as identified herein. This type of limited investigation is designed to provide information to support an overall Phase I Environmental Site Assessment of the current environmental conditions of the Site. Sampling and analysis of soils and groundwater were carried out as part of the Phase II ESA. The findings cannot be extended to portions of the Site that were unavailable for direct observation at the time of **exp**'s observations.

Virtually no scope of work, no matter how exhaustive, can identify all contaminants or all conditions above or below ground. For example, conditions elsewhere on the property may differ from those encountered, and conditions may change with time. Therefore, no warranty is provided that all Site conditions are represented by those identified at specific locations.

It is possible that unexpected environmental conditions may be encountered on the Site that has not been explored within the scope of the Phase II ESA. Should such an event occur, **exp** should be notified in order that we may determine if modifications to our conclusions are necessary.

Achieving the objectives stated in this report has required us to arrive at conclusions based upon the best information presently known to us. No investigative method can completely eliminate the possibility of obtaining partially imprecise or incomplete information; it can only reduce the possibility to an acceptable level. Professional judgement was exercised in gathering and analyzing the information obtained and in the formulation of the conclusions. Like all professional persons rendering advice, we do not act as absolute insurers of the conclusions we reach, but we commit ourselves to care and competence in reaching those conclusions.

It should also be noted that current guidelines and regulations are subject to change, and such changes when put into effect, could alter the conclusions and recommendations noted in this report.

The conclusions and recommendations noted throughout this report reflect the current Site conditions at the time of this investigation. Past Site conditions and compliance of previous owners with applicable regulations was not within the scope of this investigation.

It is possible that unexpected environmental conditions may be encountered on the Site, which have not been explored within the scope of this evaluation. Should such an event occur, **exp** should be notified in order that we may determine if modifications to our conclusions are necessary.

This report was prepared by **exp** for the exclusive use of **exp**'s client Gordon Marine Ltd. This report may not be reproduced in whole or in part, without the prior written consent of **exp**, or used or relied upon in whole or in part by a party other than Gordon Marine Ltd. Any use which a third party makes of this report, or any part thereof, or any reliance on or decisions to be made based on it, are the sole responsibility of such third parties. **Exp** Services Inc. accepts no responsibility for damages, if any, suffered by any third party as a result of decisions made or actions based on this report.

Exp acknowledges and agrees for itself, its successors and assigns that, subject to the limitations and qualifications contained in this report, Gordon Marine Ltd., its affiliates, successors and assigns may rely on this report as accurately representing conditions at the property as of the date this report was prepared, and may rely on this report in evaluating the environmental condition of the property in the same manner as the party for whom this report was originally prepared.

We trust this summary report is satisfactory for your purposes. If you have any questions regarding our submission, please do not hesitate to contact this office.

Exp Services Inc.

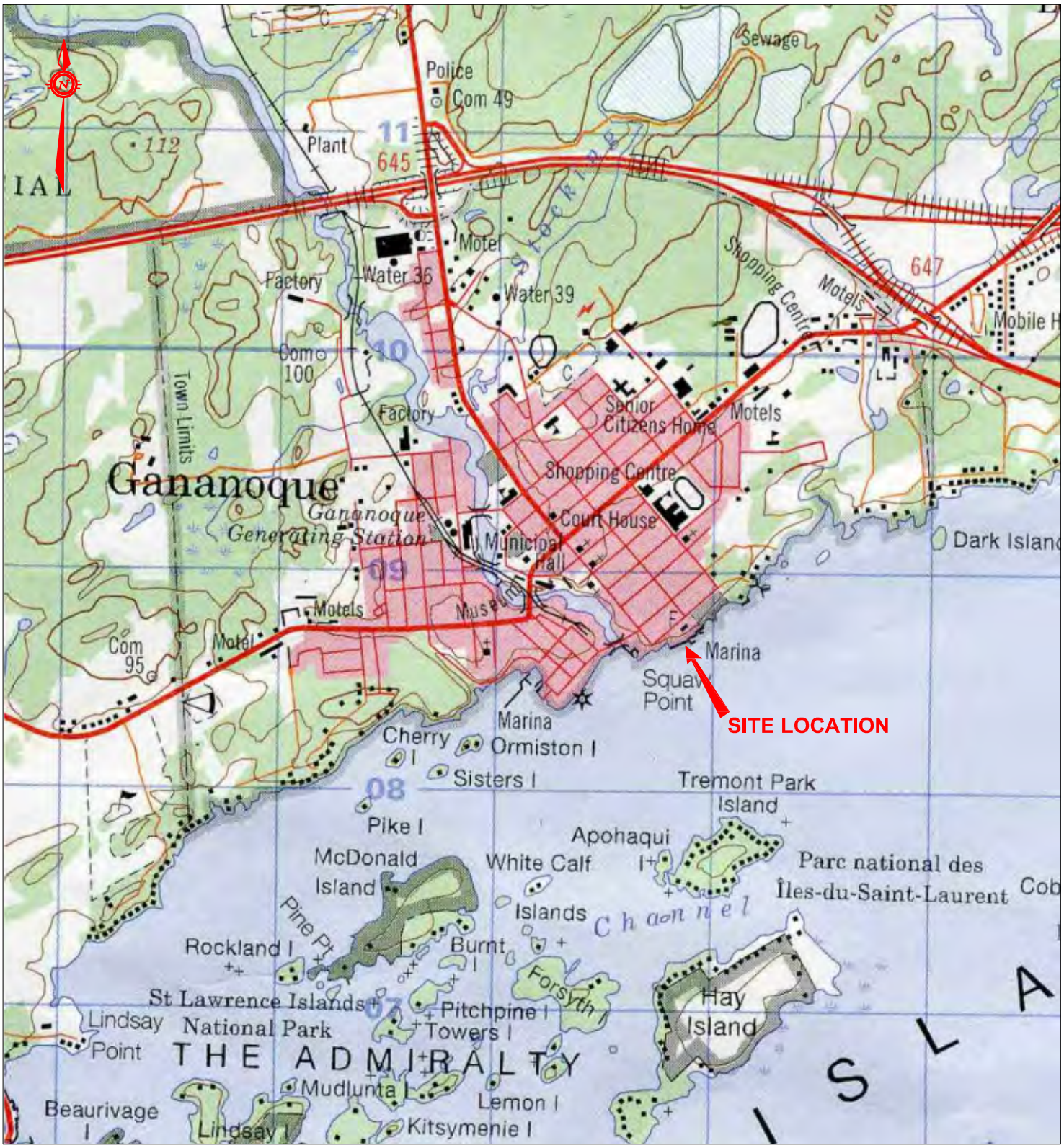
LICENSED PROFESSIONAL ENGINEER
M. P. WHITNEY
100110298
PROVINCE OF ONTARIO

Matthew P. Whitney, P. Eng.
Project Engineer

PROFESSIONAL GEOSCIENTIST
PAULA A. FORMANEK
PRACTISING MEMBER
1117
ONTARIO

Paula A. Formanek, M.Sc. (Eng.), P.Geo., QP
Sr. Hydrogeologist
Branch Manager

Figures



exp Services Inc.

315-4 Cataraqui Street, Kingston, Ontario K7K 1Z7

DATE: Nov. 2011	CLIENT: Gordon Marine Ltd.	DRAWING NO: KIN-16690-A0
SCALE: NTS	TITLE: Site Location Plan 129 South Street Gananoque, Ontario	Fig. 1

Legend

Property Line (Approximate)

Note: All Locations Approximate

exp Services Inc.

315-4 Cataraqui Street, Kingston, Ontario K7K 1Z7

DATE: Nov. 2011	CLIENT: Gordon Marine Ltd.	DRAWING NO: KIN-16690-A0
SCALE: NTS	TITLE: Site Plan 129 South Street Gananoque, Ontario	Fig. 2

Legend

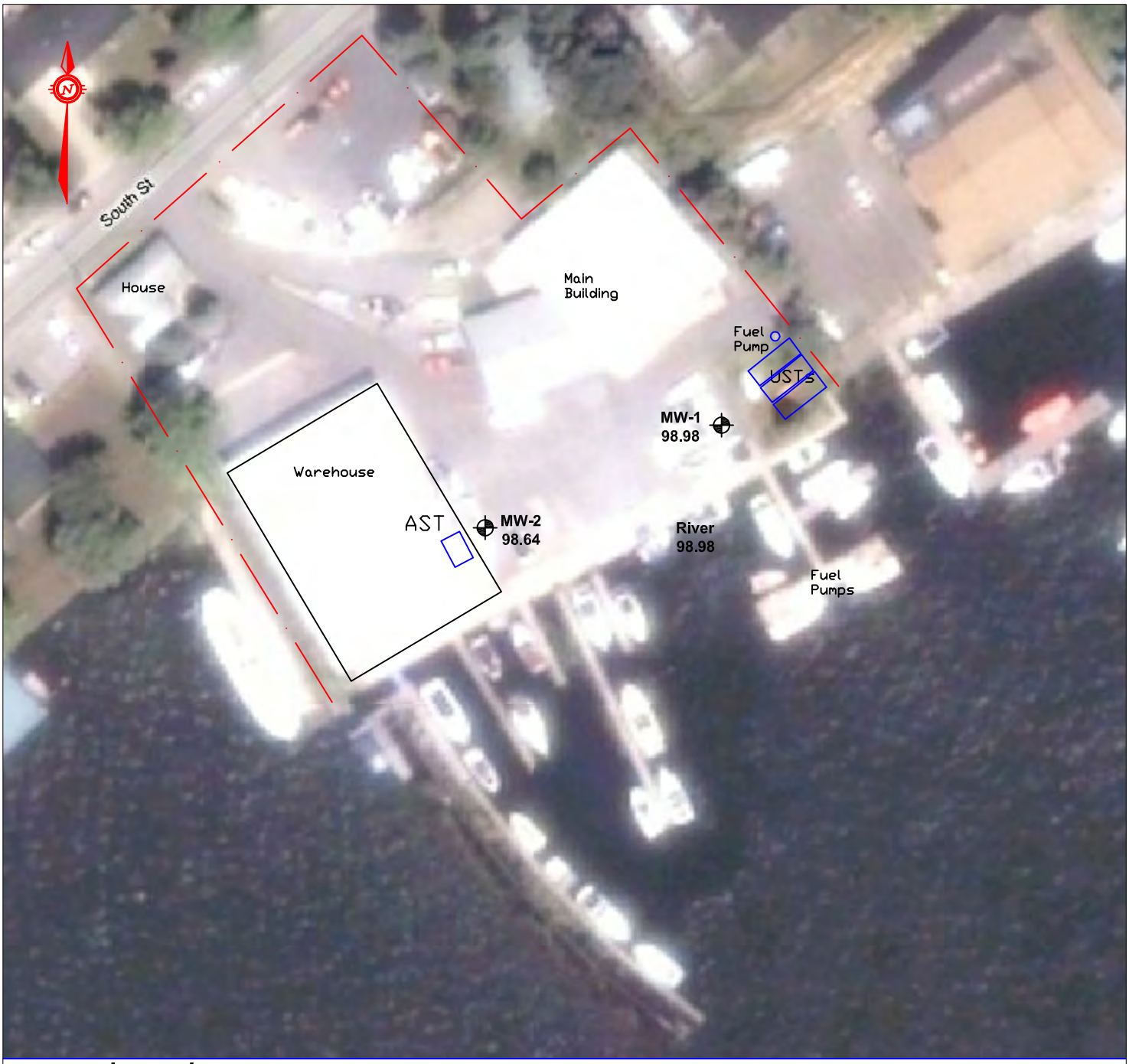
BH-1 / MW-1	Borehole Location and ID / Monitoring Well Location and ID
x S-1	Surficial Soil Sample ID and Location
	Property Line (Approximate)

Note: All Locations Approximate

exp Services Inc.

315-4 Cataraqui Street, Kingston, Ontario K7K 1Z7

DATE: Nov. 2011	CLIENT: Gordon Marine Ltd.	DRAWING NO: KIN-16690-A0
SCALE: NTS	TITLE: Borehole and Monitoring Well Location Plan 129 South Street Gananoque, Ontario	Fig. 3



Legend

MW-1 98.98 — Monitoring Well Location and ID / Water Elevation

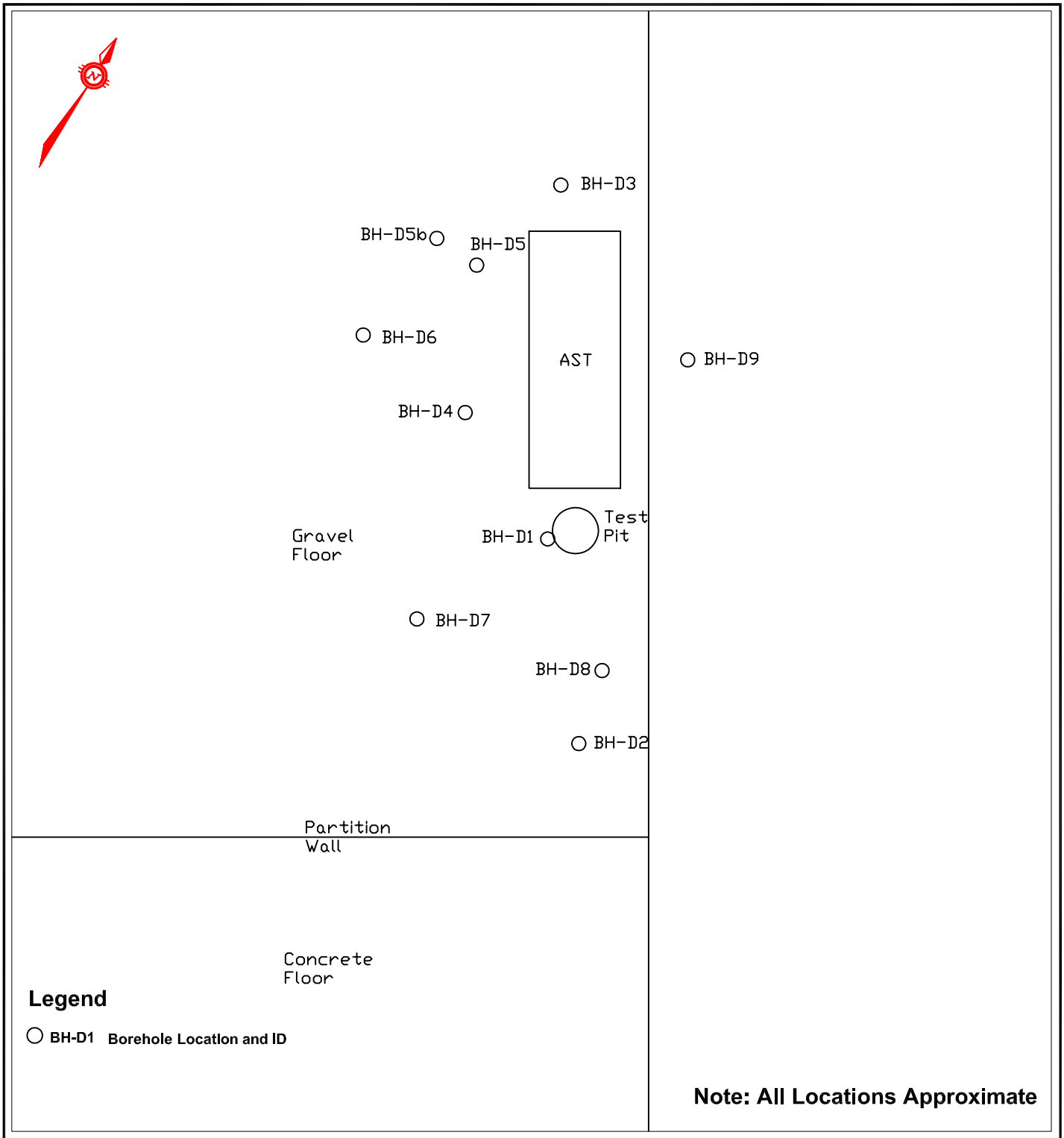
Property Line (Approximate)

Note: All Locations Approximate

exp Services Inc.

315-4 Cataraqui Street, Kingston, Ontario K7K 1Z7

DATE: July 2011	CLIENT: Gordon Marine Ltd.	DRAWING NO: KIN-16690-A0
SCALE: NTS	TITLE: Water Level Elevations (July 22, 2011) 129 South Street Gananoque, Ontario	Fig. 4



exp Services Inc.

315-4 Cataraqui Street, Kingston, Ontario K7K 1Z7

DATE: Nov. 2011	CLIENT: Gordon Marine Ltd.	DRAWING NO: KIN-16690-A0
SCALE: 1:50	TITLE: Delineation Sampling Borehole Location Plan 129 South Street Gananoque, Ontario	Fig. 5

Tables

TABLE 1 - Overburden Soil Samples Results - Surficial Soil Samples and Boreholes
PHC, VOCs, PAH and Metals

PARAMETER	RDL	UNITS	Criteria[b] Table 9	May 24, 2011							
				BH-1-1 BH-1 0.15-0.76m	BH-1-3 BH-1 1.5-2.1m	BH2-2 BH-2 0.30-0.91m	BH3-2 BH-2 0.30-0.91m	BH-4-3 BH-4 0.91-1.5m	BH-4-3 BH-4 0.91-1.5m Lab Dup	S-1 Surficial 0.10m	S-2 Surficial 0.30m
Petroleum Hydrocarbons (PHC)											
F1 (C6-C10) excluding BTEX	10	µg/g	25	-	nd	21	10	-	-	nd (<100)	nd
F2 (C10-C16)	10	µg/g	10	-	nd	**1,900**	nd	-	-	**1,100**	**17**
F3 (C16-C34)	10	µg/g	240	-	94	**960**	220	-	-	**1,200**	**1,000**
F4 (C34-C50)	10	µg/g	120	-	nd	18	31	-	-	**490**	**860**
Volatile Organic Compounds (VOCs)											
Acetone	0.1	µg/g	0.5	-	nd (<5)	nd (<5)	nd	-	-	nd (<50)	nd
Benzene	0.002	µg/g	0.02	-	nd (<0.1)	**0.9**	nd	-	-	nd (<1)	nd
Bromodichloromethane	0.002	µg/g	0.05	-	nd (<0.1)	nd (<0.1)	nd	-	-	nd (<1)	nd
Bromoform	0.002	µg/g	0.05	-	nd (<0.1)	nd (<0.1)	nd	-	-	nd (<1)	nd
Bromomethane	0.003	µg/g	0.05	-	nd (<0.2)	nd (<0.2)	nd	-	-	nd (<2)	nd
Carbon Tetrachloride	0.002	µg/g	0.05	-	nd (<0.1)	nd (<0.1)	nd	-	-	nd (<1)	nd
Chlorobenzene	0.002	µg/g	0.05	-	nd (<0.1)	nd (<0.1)	nd	-	-	nd (<1)	nd
Chloroform	0.002	µg/g	0.05	-	nd (<0.1)	nd (<0.1)	nd	-	-	nd (<1)	nd
Dibromochloromethane	0.002	µg/g	0.05	-	nd (<0.1)	nd (<0.1)	nd	-	-	nd (<1)	nd
1,2-Dichlorobenzene	0.002	µg/g	0.05	-	nd (<0.1)	nd (<0.1)	nd	-	-	nd (<1)	nd
1,3-Dichlorobenzene	0.002	µg/g	0.05	-	nd (<0.1)	nd (<0.1)	nd	-	-	nd (<1)	nd
1,4-Dichlorobenzene	0.002	µg/g	0.05	-	nd (<0.1)	nd (<0.1)	nd	-	-	nd (<1)	nd
Dichlorodifluoromethane	0.005	µg/g	0.05	-	nd (<0.3)	nd (<0.3)	nd	-	-	nd (<3)	nd
1,1-Dichloroethane	0.002	µg/g	0.05	-	nd (<0.1)	nd (<0.1)	nd	-	-	nd (<1)	nd
1,2-Dichloroethane	0.002	µg/g	0.05	-	nd (<0.1)	nd (<0.1)	nd	-	-	nd (<1)	nd
1,1-Dichloroethylene	0.002	µg/g	0.05	-	nd (<0.1)	nd (<0.1)	nd	-	-	nd (<1)	nd
cis-1,2-Dichloroethylene	0.002	µg/g	0.05	-	nd (<0.1)	nd (<0.1)	nd	-	-	nd (<1)	nd
trans-1,2-Dichloroethylene	0.002	µg/g	0.05	-	nd (<0.1)	nd (<0.1)	nd	-	-	nd (<1)	nd
1,2-Dichloropropane	0.002	µg/g	0.05	-	nd (<0.1)	nd (<0.1)	nd	-	-	nd (<1)	nd
cis-1,3-Dichloropropene	0.002	µg/g	0.05	-	nd (<0.1)	nd (<0.1)	nd	-	-	nd (<1)	nd
trans-1,3-Dichloropropene	0.002	µg/g	0.05	-	nd (<0.1)	nd (<0.1)	nd	-	-	nd (<1)	nd
Ethylbenzene	0.002	µg/g	0.05	-	nd (<0.1)	**1.2**	nd	-	-	nd (<1)	nd
Ethylene Dibromide	0.002	µg/g	0.05	-	nd (<0.1)	nd (<0.1)	nd	-	-	nd (<1)	nd
Hexane	0.005	µg/g	0.05	-	nd (<0.3)	**0.7**	nd	-	-	nd (<3)	0.005
Methylene Chloride (Dichloromethane)	0.003	µg/g	0.05	-	nd (<0.2)	nd (<0.2)	nd	-	-	nd (<2)	nd
Methyl Isobutyl Ketone	0.03	µg/g	0.5	-	nd (<1)	nd (<1)	nd	-	-	nd (<10)	nd
Methyl Ethyl Ketone (2-Butanone)	0.03	µg/g	0.5	-	nd (<1)	nd (<1)	nd	-	-	nd (<10)	nd
Methyl t-butyl ether (MTBE)	0.002	µg/g	0.05	-	nd (<0.1)	nd (<0.1)	nd	-	-	nd (<1)	nd
Styrene	0.002	µg/g	0.05	-	nd (<0.1)	nd (<0.1)	nd	-	-	nd (<1)	nd
1,1,1,2-Tetrachloroethane	0.002	µg/g	0.05	-	nd (<0.1)	nd (<0.1)	nd	-	-	nd (<1)	nd
1,1,2,2-Tetrachloroethane	0.002	µg/g	0.05	-	nd (<0.1)	nd (<0.1)	nd	-	-	nd (<1)	nd
Tetrachloroethylene	0.002	µg/g	0.05	-	nd (<0.1)	nd (<0.1)	nd	-	-	nd (<1)	nd
Toluene	0.002	µg/g	0.2	-	**0.4**	**4.1**	0.003	-	-	nd (<1)	0.002
1,1,1-Trichloroethane	0.002	µg/g	0.05	-	nd (<0.1)	nd (<0.1)	nd	-	-	nd (<1)	nd
1,1,2-Trichloroethane	0.002	µg/g	0.05	-	nd (<0.1)	nd (<0.1)	nd	-	-	nd (<1)	nd
Trichloroethylene	0.002	µg/g	0.05	-	nd (<0.1)	nd (<0.1)	nd	-	-	nd (<1)	nd
Vinyl Chloride	0.002	µg/g	0.02	-	nd (<0.1)	nd (<0.1)	nd	-	-	nd (<1)	nd
p+m Xylene	0.002	µg/g	-	-	0.4	3.8	nd	-	-	nd (<1)	nd
o-Xylene	0.002	µg/g	-	-	0.2	2.7	nd	-	-	3	nd
Xylene (Total)	0.002	µg/g	0.05	-	**0.6**	**6.5**	nd	-	-	**3**	nd
Trichlorofluoromethane	0.002	µg/g	0.25	-	nd (<0.1)	nd (<0.1)	nd	-	-	nd (<1)	nd

b MOE's Soil, Ground Water and Sediment Standards under Part XV.1 of the Environmental Protection Act, April 15, 2011
(Table 9 - Generic Site Condition Standards for Use within 30 m of a Water Body in a Non-Potable Groundwater Condition)
(Residential/Parkland/Institutional/Industrial/Commercial/Community property use for coarse grained soil)

Equals or exceeds Table 9 criteria

NV No value derived
- Not Applicable
RDL Reportable Detection Limit
nd Not detected above RDL
nd (< #) Not detected above elevated RDL

TABLE 1 (Continued) - Overburden Soil Samples Results - Surficial Soil Samples and Boreholes
PHC, VOCs, PAH and metals

PARAMETER	RDL	UNITS	Criteria* Table 9	May 24, 2011							
				BH-1-1 BH-1 0.15-0.76m	BH-1-3 BH-1 1.5-2.1m	BH2-2 BH-2 0.30-0.91m	BH3-2 BH-2 0.30-0.91m	BH-4-3 BH-4 0.91-1.5m	BH-4-3 BH-4 0.91-1.5m Lab Dup	S-1 Surficial 0.10m	S-2 Surficial 0.30m
Metals and Inorganics											
Conductivity	0.002	mS/cm	0.7	0.59	-	-	-	0.15	-	-	-
Available (CaCl2) pH	-	pH	-	6.39	-	-	-	7.44	-	-	-
Antimony (Sb)	0.2	µg/g	1.3	**2.5**	-	-	-	nd	nd	-	-
Arsenic (As)	1	µg/g	18	**200**	-	-	-	nd	nd	-	-
Barium (Ba)	0.5	µg/g	220	**360**	-	-	-	22	23	-	-
Beryllium (Be)	0.2	µg/g	2.5	0.2	-	-	-	nd	0.2	-	-
Boron (B)	5	µg/g	36	5	-	-	-	nd	nd	-	-
Cadmium (Cd)	0.1	µg/g	1.2	nd	-	-	-	nd	nd	-	-
Chromium (Cr)	1	µg/g	70	12	-	-	-	6	6	-	-
Chromium (VI)	0.2	µg/g	0.66	nd (<0.4)	-	-	-	nd	-	-	-
Cobalt (Co)	0.1	µg/g	22	4.4	-	-	-	3.0	3.1	-	-
Copper (Cu)	0.5	µg/g	92	53	-	-	-	8.0	8.5	-	-
Lead (Pb)	1	µg/g	120	**600**	-	-	-	2	2	-	-
Molybdenum (Mo)	0.5	µg/g	2	**2.4**	-	-	-	nd	nd	-	-
Nickel (Ni)	0.5	µg/g	82	10	-	-	-	5.5	5.6	-	-
Selenium (Se)	0.5	µg/g	1.5	**9.4**	-	-	-	nd	nd	-	-
Silver (Ag)	0.2	µg/g	0.5	0.2	-	-	-	nd	nd	-	-
Thallium (Tl)	0.05	µg/g	1	0.34	-	-	-	nd	0.05	-	-
Uranium (U)	0.05	µg/g	2.5	0.68	-	-	-	0.25	0.25	-	-
Vanadium (V)	5	µg/g	86	31	-	-	-	16	16	-	-
Zinc (Zn)	5	µg/g	290	54	-	-	-	14	14	-	-
Polycyclic Aromatic Hydrocarbons (PAHs)											
Acenaphthene	0.02	µg/g	0.072	-	**0.16**	-	-	-	-	-	-
Acenaphthylene	0.01	µg/g	0.093	-	**0.11**	-	-	-	-	-	-
Anthracene	0.01	µg/g	0.22	-	**0.28**	-	-	-	-	-	-
Benzo(a)anthracene	0.02	µg/g	0.36	-	**1.3**	-	-	-	-	-	-
Benzo(a)pyrene	0.01	µg/g	0.3	-	**0.86**	-	-	-	-	-	-
Benzo(b/j)fluoranthene	0.02	µg/g	0.47	-	**1.0**	-	-	-	-	-	-
Benzo(g,h,i)perylene	0.04	µg/g	0.68	-	0.40	-	-	-	-	-	-
Benzo(k)fluoranthene	0.02	µg/g	0.48	-	0.31	-	-	-	-	-	-
Chrysene	0.02	µg/g	2.8	-	1.1	-	-	-	-	-	-
Dibenz(a,h)anthracene	0.04	µg/g	0.1	-	**0.13**	-	-	-	-	-	-
Fluoranthene	0.01	µg/g	0.69	-	**3.4**	-	-	-	-	-	-
Fluorene	0.01	µg/g	0.19	-	0.15	-	-	-	-	-	-
Ideno(1,2,3-cd)pyrene	0.04	µg/g	0.23	-	**0.50**	-	-	-	-	-	-
1-Methylnaphthalene	0.01	µg/g	0.59*	-	**0.29**	-	-	-	-	-	-
2-Methylnaphthanlene	0.01	µg/g	0.59*	-	**0.38**	-	-	-	-	-	-
Naphthalene	0.01	µg/g	0.09	-	**0.28**	-	-	-	-	-	-
Phenanthrene	0.01	µg/g	0.69	-	**1.5**	-	-	-	-	-	-
Pyrene	0.01	µg/g	1	-	**3.0**	-	-	-	-	-	-

b MOE's Soil, Ground Water and Sediment Standards under Part XV.1 of the Environmental Protection Act, April 15, 2011
(Table 9 - Generic Site Condition Standards for Use within 30 m of a Water Body in a Non-Potable Groundwater Condition)
(Residential/Parkland/Institutional/Industrial/Commercial/Community property use for coarse grained soil)

Equals or exceeds Table 9 criteria

* Criteria applies to sum of 1- and 2- Methylnaphthalene
NV No value derived
\- Not Applicable
RDL Reportable Detection Limit
nd Not detected above RDL
nd (< #) Not detected above elevated RDL

TABLE 2 - Groundwater Samples Results
PHC, VOCs, PAH and metals

PARAMETER	RDL	UNITS	Criteria[b] Table 9	27-May-11	
				MW-1	MW-2
Petroleum Hydrocarbons (PHC)					
F1 (C6-C10) excluding BTEX	100	µg/L	420	nd	nd
F2 (C10-C16)	100	µg/L	150	nd	nd
F3 (C16-C34)	100	µg/L	500	200	460
F4 (C34-C50)	100	µg/L	500	nd	270
Volatile Organic Compounds (VOCs)					
Acetone	10	µg/L	100,000	nd	nd
Benzene	0.1	µg/L	44	nd	nd
Bromodichloromethane	0.1	µg/L	67,000	nd	nd
Bromoform	0.2	µg/L	380	nd	nd
Bromomethane	0.5	µg/L	5.6	nd	nd
Carbon Tetrachloride	0.1	µg/L	0.79	nd	nd
Chlorobenzene	0.1	µg/L	500	nd	nd
Chloroform	0.1	µg/L	2.4	0.2	nd
Dibromochloromethane	0.2	µg/L	65,000	nd	nd
1,2-Dichlorobenzene	0.2	µg/L	4,600	nd	nd
1,3-Dichlorobenzene	0.2	µg/L	7,600	nd	nd
1,4-Dichlorobenzene	0.2	µg/L	8	nd	nd
Dichlorodifluoromethane	0.5	µg/L	3,500	nd	nd
1,1-Dichloroethane	0.1	µg/L	320	nd	nd
1,2-Dichloroethane	0.2	µg/L	1.6	nd	nd
1,1-Dichloroethylene	0.1	µg/L	1.6	nd	nd
cis-1,2-Dichloroethylene	0.1	µg/L	1.6	nd	nd
trans-1,2-Dichloroethylene	0.1	µg/L	1.6	nd	nd
1,2-Dichloropropane	0.1	µg/L	16	nd	nd
cis-1,3-Dichloropropene	0.2	µg/L	5.2	nd	nd
trans-1,3-Dichloropropene	0.2	µg/L	5.2	nd	nd
Ethylbenzene	0.1	µg/L	1,800	nd	nd
Ethylene Dibromide	0.2	µg/L	0.25	nd	nd
Hexane	0.5	µg/L	51	nd	nd
Methylene Chloride (Dichloromethane)	0.5	µg/L	610	nd	nd
Methyl Isobutyl Ketone	5	µg/L	140,000	nd	nd
Methyl Ethyl Ketone (2-Butanone)	5	µg/L	470,000	nd	nd
Methyl t-butyl ether (MTBE)	0.2	µg/L	190	nd	nd
Styrene	0.2	µg/L	1,300	nd	nd
1,1,1,2-Tetrachloroethane	0.1	µg/L	3.3	nd	nd
1,1,2,2-Tetrachloroethane	0.2	µg/L	3.2	nd	nd
Tetrachloroethylene	0.1	µg/L	1.6	nd	nd
Toluene	0.2	µg/L	14,000	nd	nd
1,1,1-Trichloroethane	0.1	µg/L	640	nd	nd
1,1,2-Trichloroethane	0.2	µg/L	4.7	nd	nd
Trichloroethylene	0.1	µg/L	1.6	nd	nd
Vinyl Chloride	0.2	µg/L	0.5	nd	nd
p+m Xylene	0.1	µg/L	-	nd	nd
o-Xylene	0.1	µg/L	-	nd	nd
Xylene (Total)	0.1	µg/L	3,300	nd	nd
Trichlorofluoromethane	0.2	µg/L	2,000	nd	nd

b MOE's Soil, Ground Water and Sediment Standards under Part XV.1 of the Environmental Protection Act, April 15, 2011 (Table 9 - Generic Site Condition Standards for Use within 30 m of a Water Body in a Non-Potable Groundwater Condition) (All Types of Property Use)

Equals or exceeds Table 9 criteria

NV No value derived
- Not Applicable
RDL Reportable Detection Limit
nd Not detected above RDL
nd (< #) Not detected above elevated RDL

TABLE 2 (Continued) - Groundwater Samples Results
PHC, VOCs, PAH and metals

PARAMETER	RDL	UNITS	Criteria[b] Table 9	MW-1	MW-2
Metals					
Antimony (Sb)	0.5	µg/L	16,000	0.6	-
Arsenic (As)	1	µg/L	1,500	1	-
Barium (Ba)	5	µg/L	23,000	190	-
Beryllium (Be)	0.5	µg/L	53	nd	-
Boron (B)	10	µg/L	36,000	54	-
Cadmium (Cd)	0.1	µg/L	2.1	nd	-
Chromium (Cr)	5	µg/L	640	nd	-
Cobalt (Co)	0.5	µg/L	52	1.4	-
Copper (Cu)	1	µg/L	69	1	-
Lead (Pb)	0.5	µg/L	20	nd	-
Molybdenum (Mo)	1	µg/L	7,300	1	-
Nickel (Ni)	1	µg/L	390	2	-
Selenium (Se)	2	µg/L	50	nd	-
Silver (Ag)	0.1	µg/L	1.2	0.2	-
Sodium (Na)	100	µg/L	1,800,000	100,000	-
Thallium (Tl)	0.05	µg/L	400	nd	-
Uranium (U)	0.1	µg/L	330	0.9	-
Vanadium (V)	1	µg/L	200	1	-
Zinc (Zn)	5	µg/L	890	5	-
Free Cyanide	2	µg/L	52	nd	-
Chloride (Cl)	1	µg/L	1,800,000	180,000	-
Chromium (VI)	5	µg/L	110	nd	-
Mercury (Hg)	0.1	µg/L	0.29	**0.6**	-
Polycyclic Aromatic Hydrocarbons (PAHs)					
Acenaphthene	0.05	µg/L	600	0.77	-
Acenaphthylene	0.05	µg/L	1.4	0.66	-
Anthracene	0.05	µg/L	1	**2.1**	-
Benzo(a)anthracene	0.05	µg/L	1.8	**6.2**	-
Benzo(a)pyrene	0.01	µg/L	0.81	**5.2**	-
Benzo(b/j)fluoranthene	0.05	µg/L	0.75	**6.4**	-
Benzo(g,h,i)perylene	0.1	µg/L	0.2	**2.1**	-
Benzo(k)fluoranthene	0.05	µg/L	0.4	**2**	-
Chrysene	0.05	µg/L	0.7	**6**	-
Dibenz(a,h)anthracene	0.1	µg/L	0.4	**0.6**	-
Fluoranthene	0.05	µg/L	73	20	-
Fluorene	0.05	µg/L	290	1.1	-
Ideno(1,2,3-cd)pyrene	0.1	µg/L	0.2	**2.6**	-
1-Methylnaphthalene	0.05	µg/L	1,500*	1.9	-
2-Methylnaphthanlene	0.05	µg/L	1,500*	2.9	-
Naphthalene	0.05	µg/L	1,400	1.8	-
Phenanthrene	0.03	µg/L	380	14	-
Pyrene	0.05	µg/L	5.7	**16**	-

b MOE's Soil, Ground Water and Sediment Standards under Part XV.1 of the Environmental Protection Act, April 15, 2011 (Table 9 - Generic Site Condition Standards for Use within 30 m of a Water Body in a Non-Potable Groundwater Condition) (All Types of Property Use)

#	Equals or exceeds Table 9 criteria
*	Criteria applies to sum of 1- and 2- Methylnaphthalene
NV	No value derived
-	Not Applicable
RDL	Reportable Detection Limit
nd	Not detected above RDL
nd (< #)	Not detected above elevated RDL

TABLE 3 - Delineation Soil Sample Results
PHC, VOCs, and PAH

PARAMETER	RDL	UNITS	Criteria[b] Table 9	July 20, 2011							
				BH-D1 1-1 0-0.61m	BH-D3 3-1 0-0.61m	BH-D4 4-1 0-0.61m	BH-D5b 5b-1 0-0.61m	BH-D6 6-1 0-0.61m	BH-D7 7-1 0-0.61m	BH-D8 8-1 0-0.61m	BH-D9 9-1 0-0.61m
Petroleum Hydrocarbons (PHC)											
F1 (C6-C10) excluding BTEX	10	µg/g	25	230	<10	<10	<10	<10	<10	<10	<10
F2 (C10-C16)	10	µg/g	10	940	<10	18	78	<10	<10	<10	<10
F3 (C16-C34)	10	µg/g	240	1,400	36	2,400	1,400	28	27	300	150
F4 (C34-C50)	10	µg/g	120	300	<10	2,200	920	21	<10	84	25
F4g (Gravimetric)	100	µg/g	120	-	-	3,800	2,200	-	-	-	-
Volatile Organic Compounds (VOCs)											
Acetone	5	µg/g	0.5	<5	-	-	-	-	-	-	-
Benzene	0.02	µg/g	0.02	5.8	0.05	0.05	0.06	0.05	0.10	<0.02	0.25
Bromodichloromethane	0.5	µg/g	0.05	<0.5	-	-	-	-	-	-	-
Bromoform	0.5	µg/g	0.05	<0.5	-	-	-	-	-	-	-
Bromomethane	0.5	µg/g	0.05	<0.5	-	-	-	-	-	-	-
Carbon Tetrachloride	0.5	µg/g	0.05	<0.5	-	-	-	-	-	-	-
Chlorobenzene	0.5	µg/g	0.05	<0.5	-	-	-	-	-	-	-
Chloroform	0.5	µg/g	0.05	<0.5	-	-	-	-	-	-	-
Dibromochloromethane	0.5	µg/g	0.05	<0.5	-	-	-	-	-	-	-
1,2-Dichlorobenzene	0.5	µg/g	0.05	<0.5	-	-	-	-	-	-	-
1,3-Dichlorobenzene	0.5	µg/g	0.05	<0.5	-	-	-	-	-	-	-
1,4-Dichlorobenzene	0.5	µg/g	0.05	<0.5	-	-	-	-	-	-	-
Dichlorodifluoromethane	0.5	µg/g	0.05	<0.5	-	-	-	-	-	-	-
1,1-Dichloroethane	0.5	µg/g	0.05	<0.5	-	-	-	-	-	-	-
1,2-Dichloroethane	0.5	µg/g	0.05	<0.5	-	-	-	-	-	-	-
1,1-Dichloroethylene	0.5	µg/g	0.05	<0.5	-	-	-	-	-	-	-
cis-1,2-Dichloroethylene	0.5	µg/g	0.05	<0.5	-	-	-	-	-	-	-
trans-1,2-Dichloroethylene	0.5	µg/g	0.05	<0.5	-	-	-	-	-	-	-
1,2-Dichloropropane	0.5	µg/g	0.05	<0.5	-	-	-	-	-	-	-
cis-1,3-Dichloropropene	0.3	µg/g	0.05	<0.3	-	-	-	-	-	-	-
trans-1,3-Dichloropropene	0.4	µg/g	0.05	<0.4	-	-	-	-	-	-	-
Ethylbenzene	0.02	µg/g	0.05	5.8	0.07	0.08	0.11	0.10	0.09	<0.02	0.16
Ethylene Dibromide	0.5	µg/g	0.05	<0.5	-	-	-	-	-	-	-
Hexane	0.5	µg/g	0.05	1.5	-	-	-	-	-	-	-
Methylene Chloride (Dichloromethane)	0.5	µg/g	0.05	<0.5	-	-	-	-	-	-	-
Methyl Isobutyl Ketone	5	µg/g	0.5	<5	-	-	-	-	-	-	-
Methyl Ethyl Ketone (2-Butanone)	5	µg/g	0.5	<5	-	-	-	-	-	-	-
Methyl t-butyl ether (MTBE)	0.5	µg/g	0.05	<0.5	-	-	-	-	-	-	-
Styrene	2	µg/g	0.05	<2 (c)	-	-	-	-	-	-	-
1,1,1,2-Tetrachloroethane	0.5	µg/g	0.05	<0.5	-	-	-	-	-	-	-
1,1,2,2-Tetrachloroethane	0.5	µg/g	0.05	<0.5	-	-	-	-	-	-	-
Tetrachloroethylene	0.5	µg/g	0.05	<0.5	-	-	-	-	-	-	-
Toluene	0.02	µg/g	0.2	53	0.34	0.34	0.32	0.35	0.47	0.02	1.1
1,1,1-Trichloroethane	0.5	µg/g	0.05	<0.5	-	-	-	-	-	-	-
1,1,2-Trichloroethane	0.5	µg/g	0.05	<0.5	-	-	-	-	-	-	-
Trichloroethylene	0.5	µg/g	0.05	<0.5	-	-	-	-	-	-	-
Vinyl Chloride	0.2	µg/g	0.02	<0.2	-	-	-	-	-	-	-
p+m Xylene	0.04	µg/g	-	47	0.36	0.41	0.58	0.49	0.53	0.09	1.3
o-Xylene	0.02	µg/g	-	33	0.21	0.25	0.39	0.27	0.28	0.13	0.64
Xylene (Total)	0.04	µg/g	0.05	80	0.57	0.66	0.96	0.76	0.81	0.21	1.9
Trichlorofluoromethane	0.5	µg/g	0.25	<0.5	-	-	-	-	-	-	-

b MOE's Soil, Ground Water and Sediment Standards under Part XV.1 of the Environmental Protection Act, April 15, 2011
(Table 9 - Generic Site Condition Standards for Use within 30 m of a Water Body in a Non-Potable Groundwater Condition)
(Residential/Parkland/Institutional/Industrial/Commercial/Community property use for coarse grained soil)

Equals or exceeds Table 9 criteria

NV No value derived
- Not Applicable
RDL Reportable Detection Limit

TABLE 3 - Delineation Soil Sample Results (Continued)
PHC, VOCs, and PAH

PARAMETER	RDL	UNITS	Criteria* Table 9	July 20, 2011 BH-D2 2-1 0-0.61m
Polycyclic Aromatic Hydrocarbons (PAHs)				
Acenaphthene	0.02	µg/g	0.072	<0.05
Acenaphthylene	0.01	µg/g	0.093	<0.03
Anthracene	0.01	µg/g	0.22	0.25
Benzo(a)anthracene	0.02	µg/g	0.36	0.93
Benzo(a)pyrene	0.01	µg/g	0.3	0.73
Benzo(b/j)fluoranthene	0.02	µg/g	0.47	1.20
Benzo(g,h,i)perylene	0.04	µg/g	0.68	0.40
Benzo(k)fluoranthene	0.02	µg/g	0.48	0.45
Chrysene	0.02	µg/g	2.8	0.80
Dibenz(a,h)anthracene	0.04	µg/g	0.1	<0.1
Fluoranthene	0.01	µg/g	0.69	1.9
Fluorene	0.01	µg/g	0.19	0.06
Ideno(1,2,3-cd)pyrene	0.04	µg/g	0.23	0.5
1-Methylnaphthalene	0.01	µg/g	0.59*	0.24
2-Methylnaphthanlene	0.01	µg/g	0.59*	0.31
Naphthalene	0.01	µg/g	0.09	0.19
Phenanthrene	0.01	µg/g	0.69	1.3
Pyrene	0.01	µg/g	1	1.4

b MOE's Soil, Ground Water and Sediment Standards under Part XV.1 of the Environmental Protection Act, April 15, 2011 (Table 9 - Generic Site Condition Standards for Use within 30 m of a Water Body in a Non-Potable Groundwater Condition) (Residential/Parkland/Institutional/Industrial/Commercial/Community property use for coarse grained soil)

Equals or exceeds Table 9 criteria

* Criteria applies to sum of 1- and 2- Methylnaphthalene
NV No value derived
\- Not Applicable
RDL Reportable Detection Limit
nd Not detected above RDL

TABLE 4 - Toxicity Characteristic Leaching Procedure Results

PARAMETER	RDL	UNITS	Criteria*	July 20, 2011
				TCLP
VOCs				
Benzene	0.02	mg/L	0.5	nd
Carbon Tetrachloride	0.02	mg/L	0.5	nd
Chlorobenzene	0.02	mg/L	8	nd
Chloroform	0.02	mg/L	10	nd
1,2-Dichlorobenzene	0.05	mg/L	20	nd
1,4-Dichlorobenzene	0.05	mg/L	0.5	nd
1,2-Dichloroethane	0.05	mg/L	0.5	nd
1,1-Dichloroethylene	0.02	mg/L	1.4	nd
Methylene Chloride	0.2	mg/L	5	nd
Methy Ethyl Ketone	1	mg/L	200	nd
Tetrachloroethylene	0.02	mg/L	3	nd
Trichloroethylene	0.02	mg/L	5	nd
Vinyl Chloride	0.02	mg/L	0.2	nd
METALS				
Arsenic	0.2	mg/L	2.5	nd
Barium	0.2	mg/L	100	1.8
Boron	0.1	mg/L	500	0.1
Cadmium	0.05	mg/L	0.5	nd
Chromium	0.1	mg/L	5	nd
Lead	0.1	mg/L	5	nd
Mercury	0.001	mg/L	0.1	nd
Selenium	0.1	mg/L	1	nd
Silver	0.01	mg/L	5	nd
Uranium	0.01	mg/L	10	nd
Inorganics				
Fluoride	0.1	mg/L	150	0.4
Free Cyanide	0.002	mg/L	20	nd
Nitrite (N)	0.01	mg/L	-	nd
Nitrate (N)	0.1	mg/L	-	nd
Nitrate + Nitrite	0.1	mg/L	1,000	nd
Semivolatile Organics				
Benzo(a)pyrene	0.0001	mg/L	0.001	nd
m/p-Cresol	0.0025	mg/L	200	nd
o-Cresol	0.0025	mg/L	200	0.0048
Cresol Total	0.005	mg/L	200	nd
2,4-Dichlorophenol	0.0025	mg/L	90	nd
Hexachlorobenzene	0.01	mg/L	0.13	nd
Hexachloroethane	0.01	mg/L	3	nd
Nitrobenzene	0.01	mg/L	2	nd
Pentachlorophenol	0.0025	mg/L	6	nd
Pyridine	0.01	mg/L	5	nd
2,3,4,6-Tetrachlorophenol	0.0025	mg/L	10	nd
2,4,5-Trichlorophenol	0.0005	mg/L	400	nd
2,4,6-Trichlorophenol	0.0025	mg/L	0.5	nd

* Ontario Regulation 558, Schedule 4 - Leachate Quality Criteria

Equals or exceeds O.Reg 558 Schedule 4 criteria
\- Not Applicable
RDL Reportable Detection Limit

Appendix A –

Site Photographs

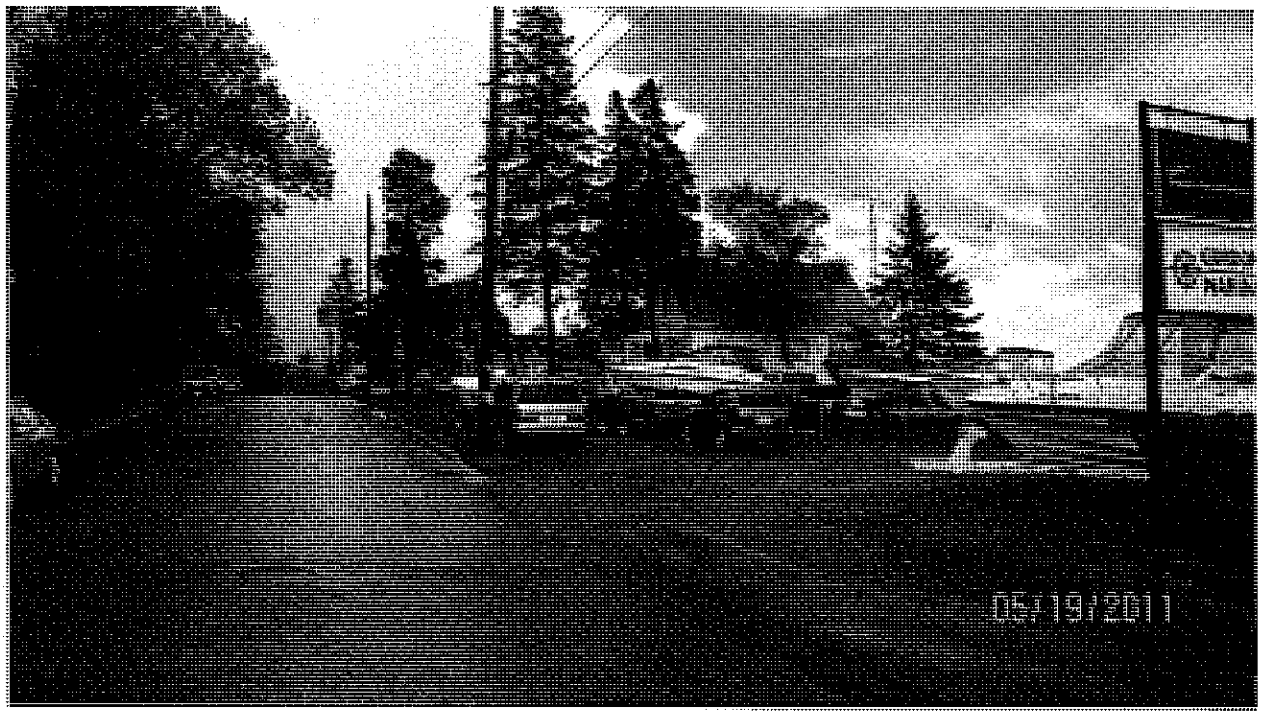


Photo 1 – Easterly view of north end of site.

Photo 2 – Easterly view of main building.

Photo 3 – Northerly view of main building. The maintenance shop (lower level) and offices (upper level).

Photo 4 – Northerly view of show room in the main building.

Photo 5 – Northerly view of site.

Photo 6 – Westerly view along southern shoreline.

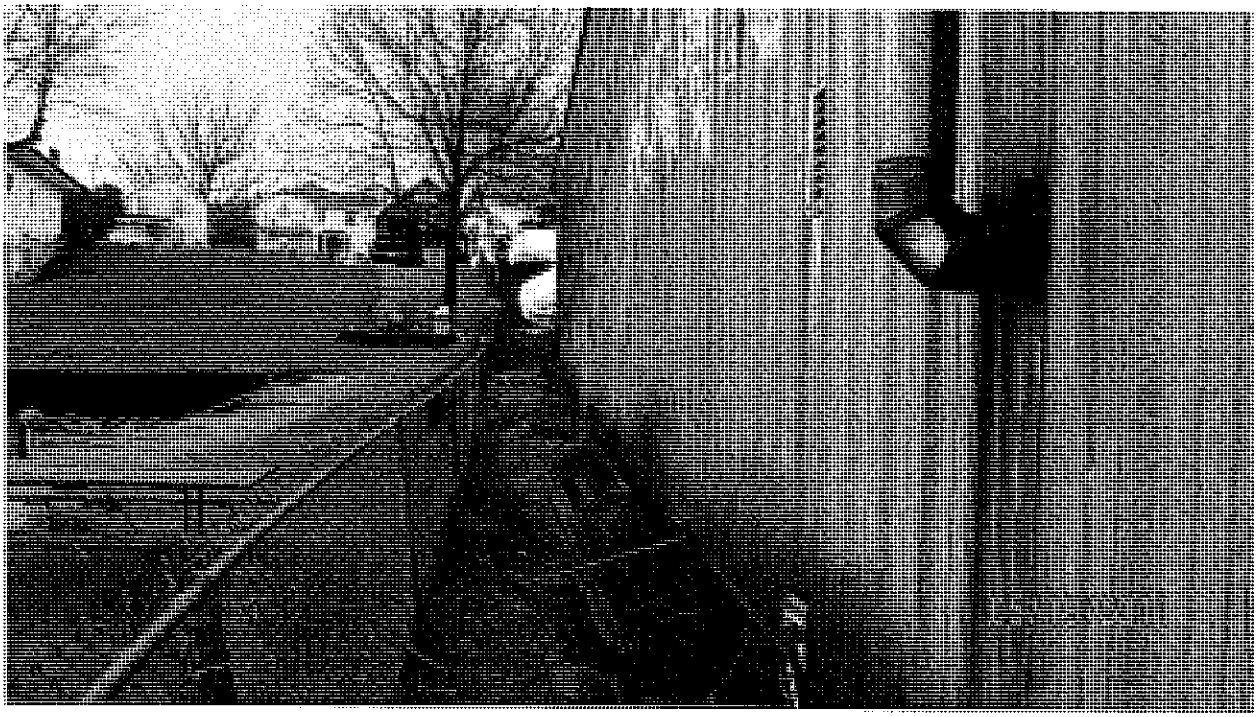


Photo 7 – Northerly view along west end of site.

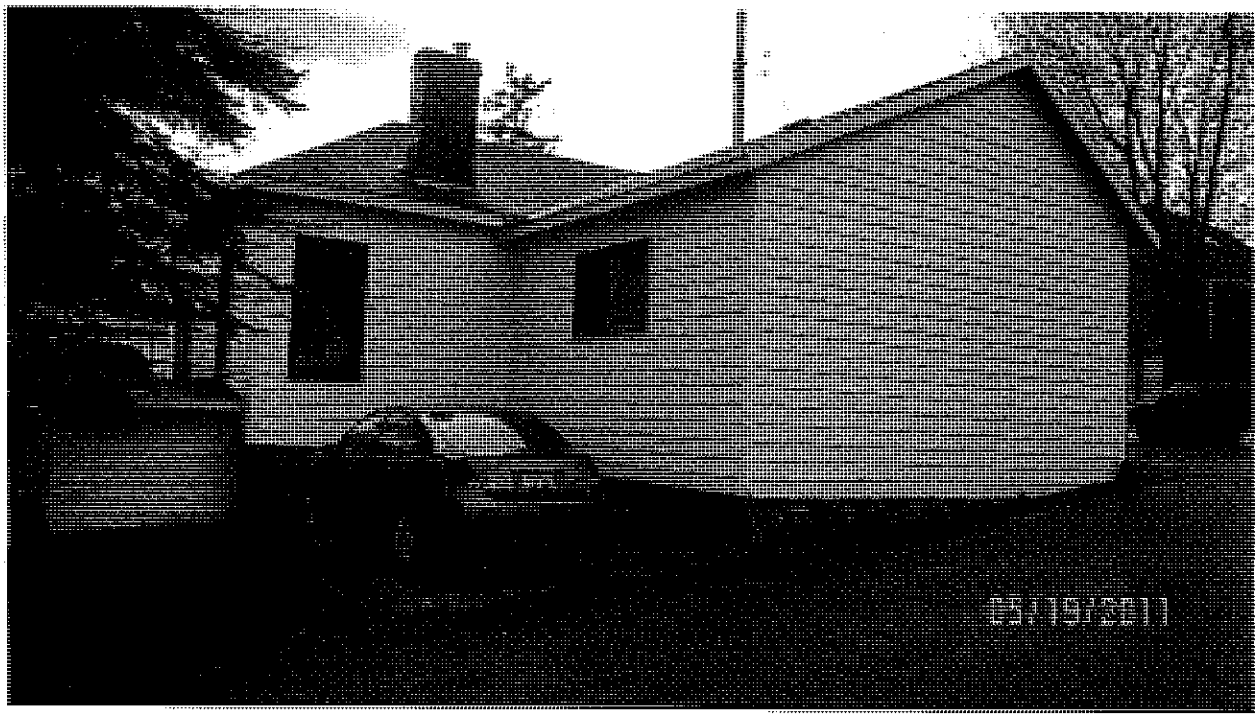


Photo 8 – Residential dwelling located at northwest end of site at 119 South Street.

Photo 9 – View of fuel pump island.

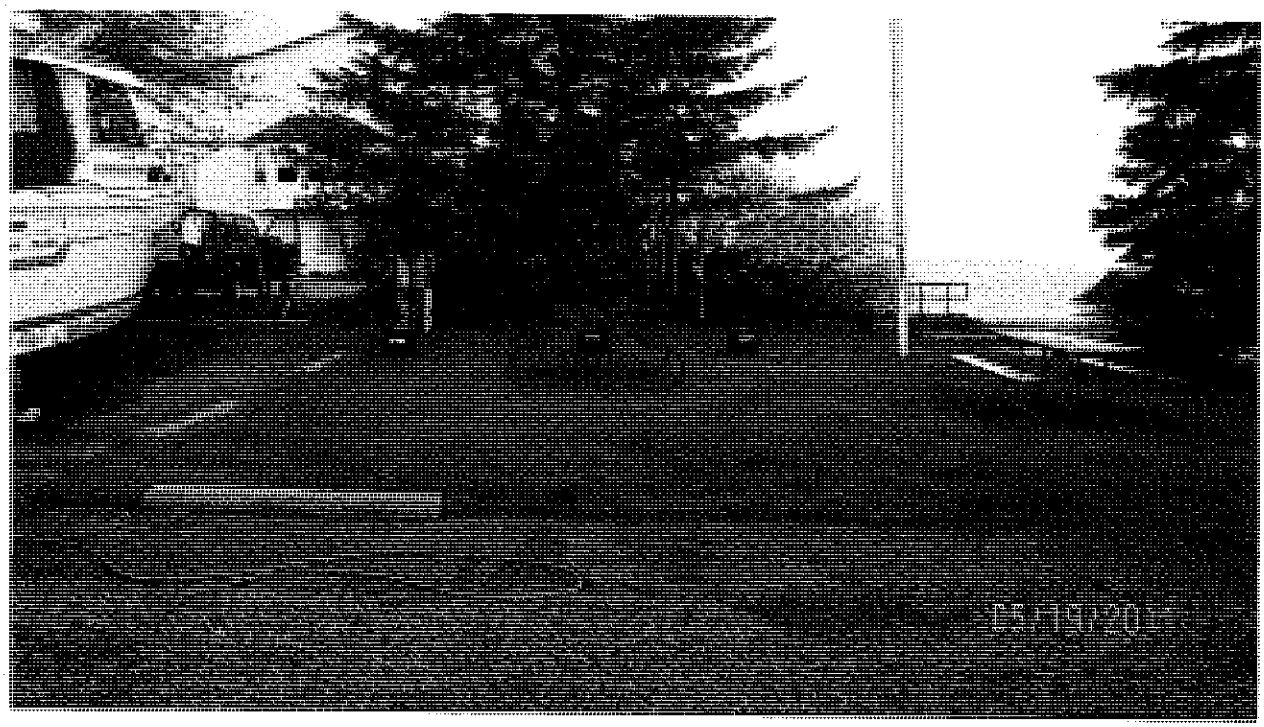


Photo 10 – Easterly view of UST and fuel pump. Adjacent property is the Thousand Islands Playhouse.

Photo 11 – View of adjacent property to the east - Thousand Islands Playhouse

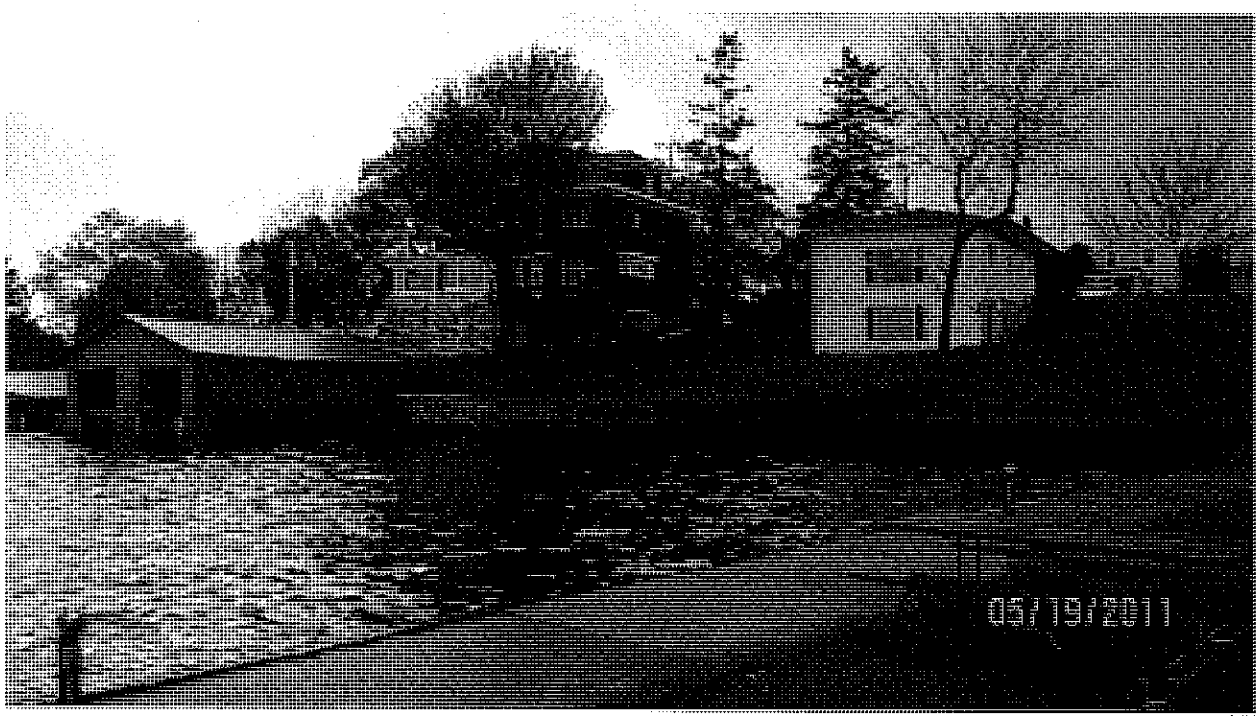


Photo 12 – Northerly view of adjacent properties to the west.

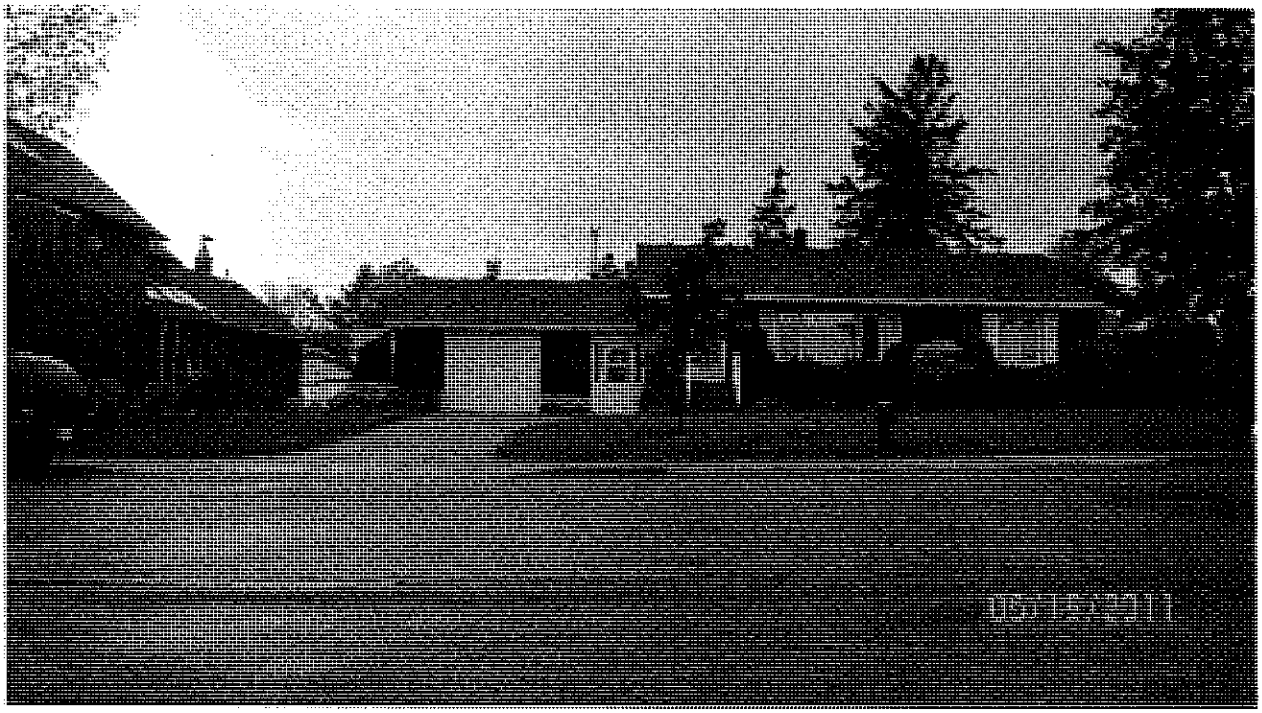


Photo 13 – Northerly view of adjacent property to the north.

Photo 14 –Interior view of the Showroom

Photo 15 – View of retail merchandise in the sales area of the main building

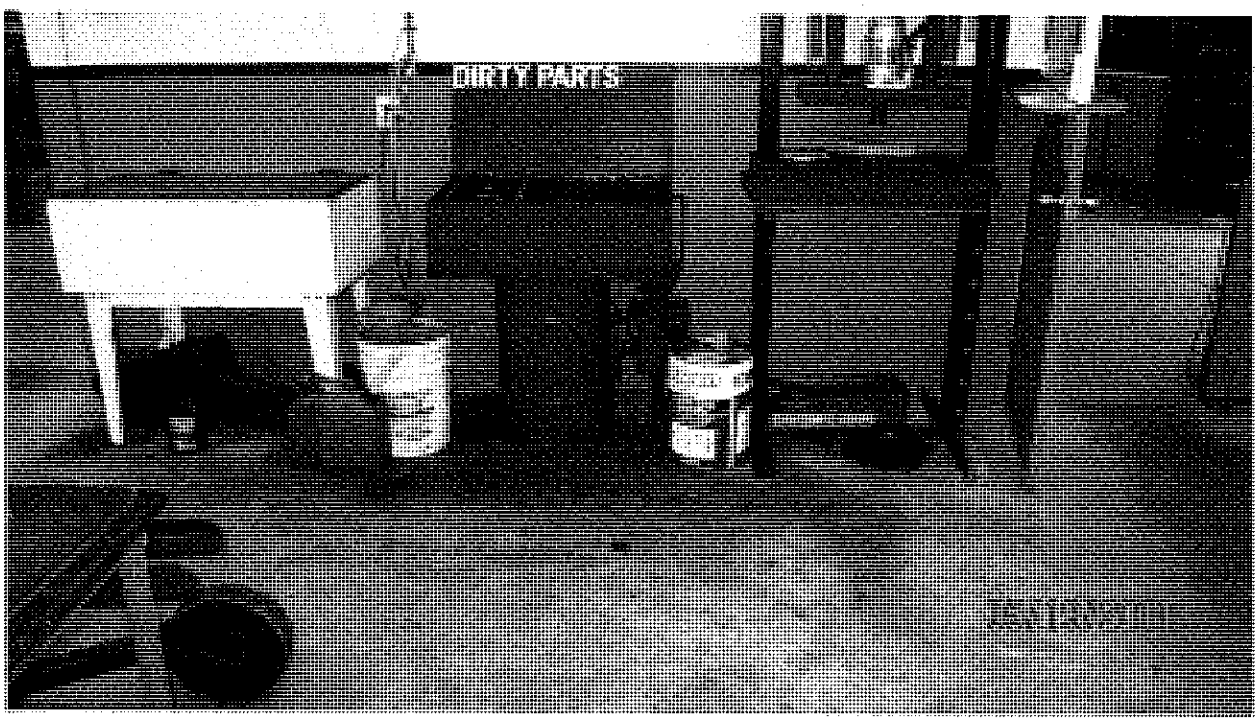


Photo 16 – Solvent parts washing stations. Note waste oil container with funnel and dark staining on the concrete.

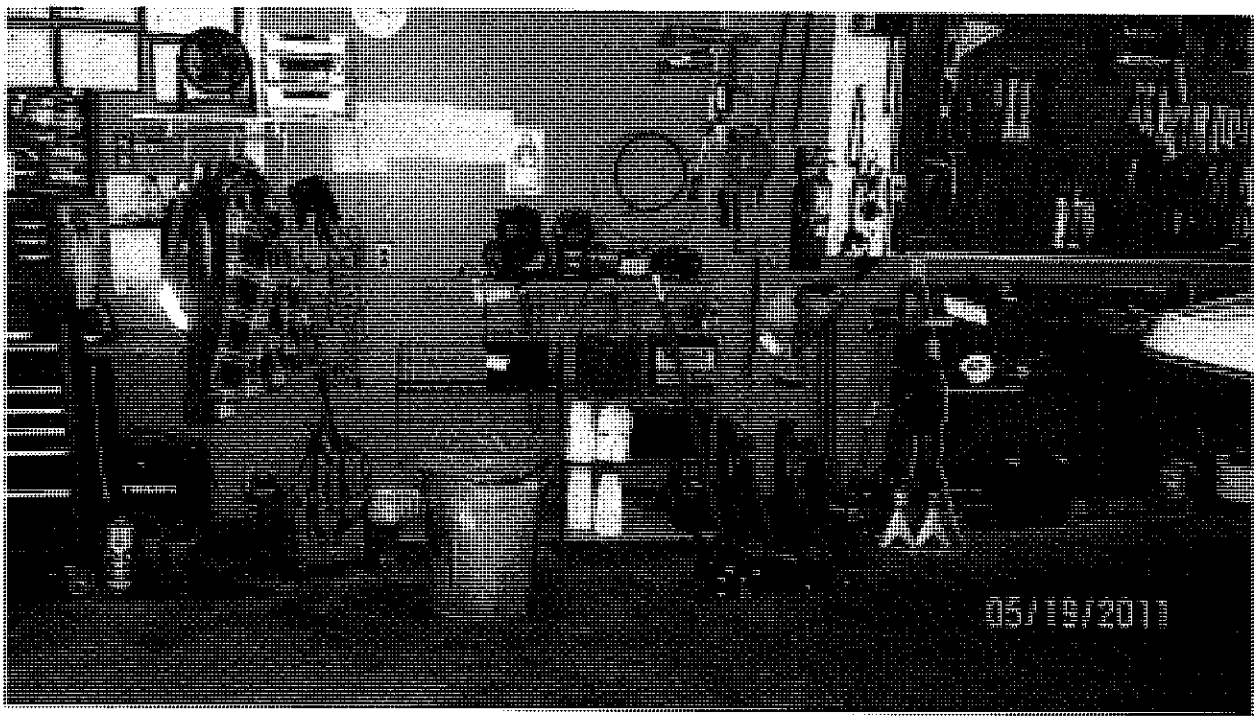


Photo 17 – Maintenance shop. Note dark staining on concrete floor.

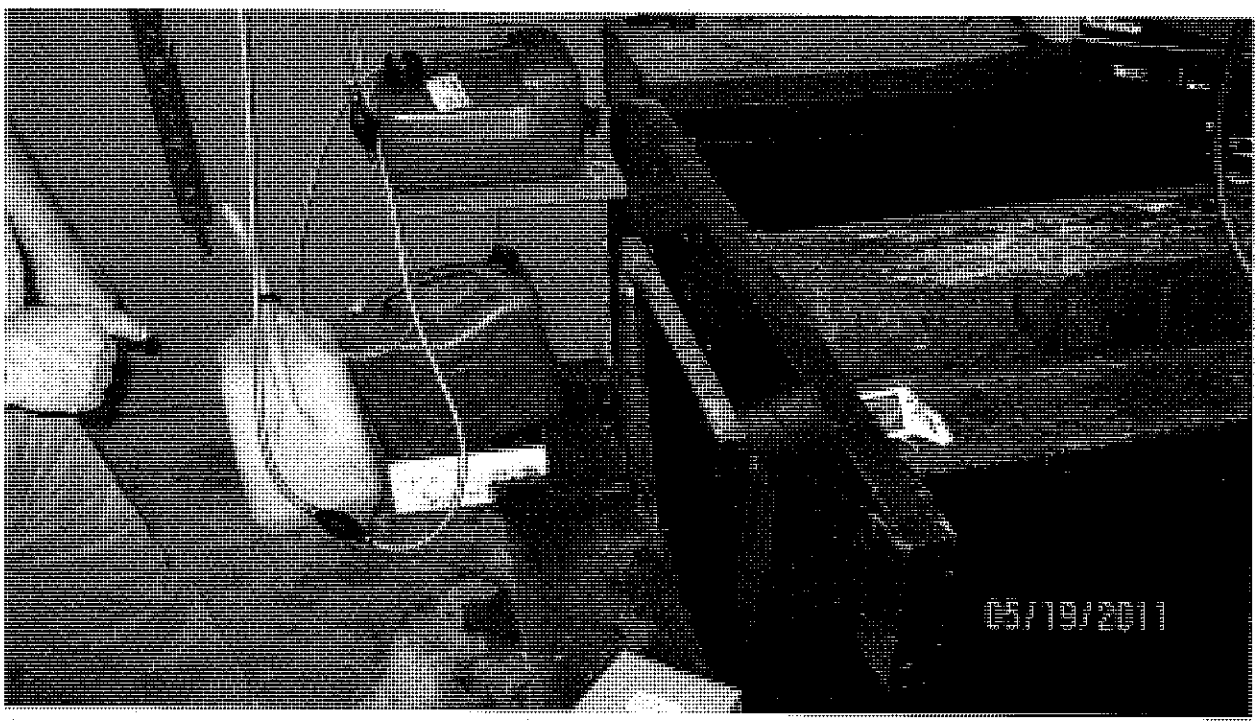


Photo 18 – View of the outboard motor test tank located at the west end of the maintenance shop.

Photo 19 – Floor drain in the maintenance shop. Reportedly, the floor drain is pumped to the sanitary sewage drain.

Photo 20 – Sanitary sewage pump.

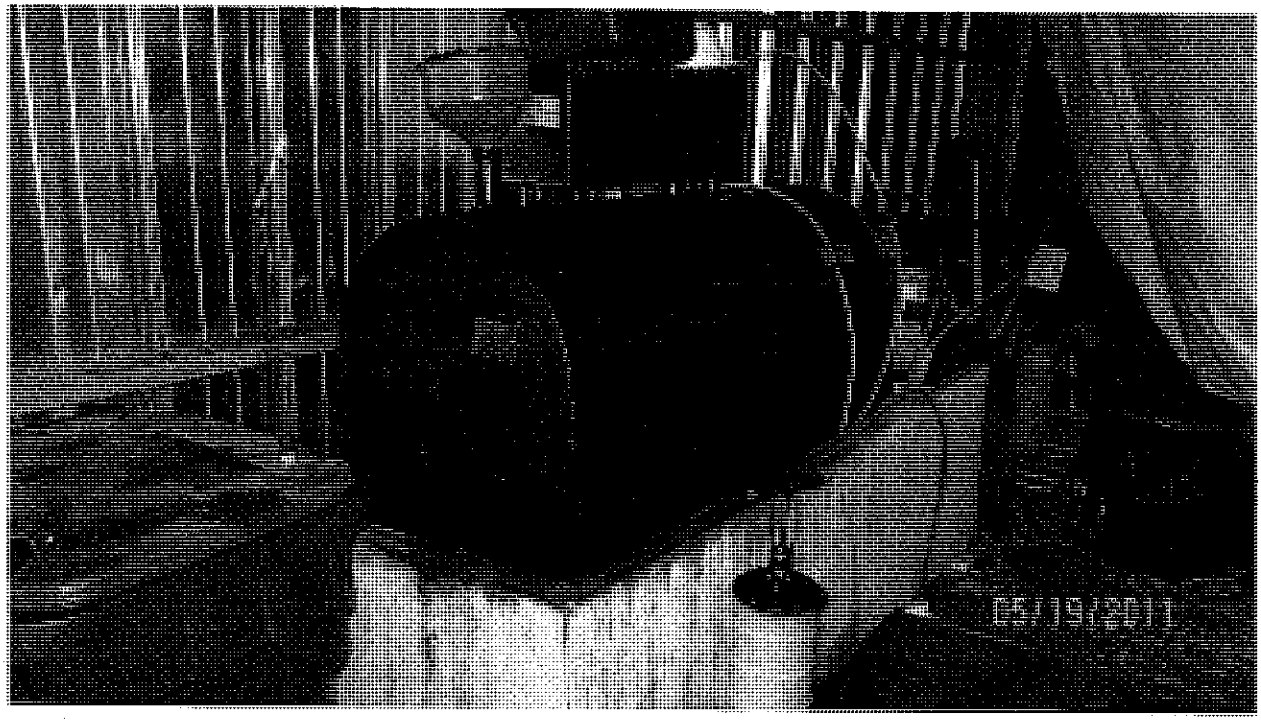


Photo 21 – View of waste oil AST and various empty drums and containers in the warehouse.

Photo 22 – View of staining inside the concrete secondary containment.

Photo 23 – View of waste containers.

Photo 24 – View of oil drums and old batteries in warehouse.

Appendix B –

Regulatory Documents

16690

Ministry of the Environment

Freedom of Information and Protection of Privacy Office

12th Floor
40 St. Clair Avenue West
Toronto ON M4V 1M2
Tel: (416) 314-4075
Fax: (416) 314-4285

Ministère de l'Environnement

Bureau de l'accès à l'information et de la protection de la vie privée

12e étage
40, avenue St. Clair ouest
Toronto ON M4V 1M2
Tél. : (416) 314-4075
Téléc. : (416) 314-4285

Ontario

May 27, 2011

Matt Whitney
exp Services Inc
4 Cataraqui Street, 315 The Woolen Mill
Kingston, ON K7K 1Z7

Dear Matt Whitney:

RE: ***Freedom of Information and Protection of Privacy Act* Request**
Our File # A-2011-02193, Your Reference KIN16690

The Ministry is in receipt of your request made pursuant to the *Freedom of Information and Protection of Privacy Act* and has received your payment in the amount of $5.00 (non-refundable application fee), along with your $30.00 deposit.

The search is being conducted on the following: 129 South Street, Gananoque. If there is any discrepancy please contact us immediately.

You may expect a reply or additional communication as your request is processed. For your information, the Ministry charges for search and preparation time and photocopying.

If you have any questions regarding this matter, please contact Liz Mico at (416) 212-0559.

Yours truly,

Donna Currie
FOI Coordinator
Freedom of Information and Protection of Privacy Office

16690

14th Floor, Centre Tower
3300 Bloor Street West
Toronto, Ontario
Canada M8X 2X4
Tel.: 416.734.3300
Fax: 416.231.1626
Toll Free: 1.877.682.8772

www.tssa.org

Administration and Customer Services

Tel: (416) 734-3570
Fax: (416) 734-3568

27 May 2011
File No: FS 34978

Matthew Whitney
Project Engineer
Suite 315
The Woolen Mill
4 Cataraqui Street
KINGSTON ON K7K 1Z7

Dear Sir:

RE: 129 South Street, Gananoque, Ontario – Your Reference No: KIN-00016690-A0

This is with reference to your request and fee of $50.00 + HST, for information on the above location.

Enclosed are computerised screen prints showing an active marina along with equipment details showing underground fuel storage tank details. Copies of the inspection reports are also enclosed.

After a search of our files, TSSA has no record of any further outstanding instructions, incident reports, fuel oil spills, or contamination records respecting the above-mentioned property.

This is all the information the Fuels Safety Division has at this time regarding the above address.

It should be noted that the Fuels Safety Division did not register private fuel underground/aboveground storage tanks prior to January of 1990 or furnace oil tanks prior to May 1, 2002. Also note that the Fuels Safety Division does not register waste oil tanks in apartments, office buildings, residences etc. or ABOVEGROUND gas or diesel tanks.

Although TSSA believes the information provided pursuant to your request is accurate, please note that TSSA does not warrant this information in any way whatsoever.

Yours truly,

Prem Lal
Coordinator Public Information Services

ORACLE **Installed Base**

Home Profile Sign Out Help

Item Instances

General
Additional Attributes
Assets
Party Relationships
- Owner
- Parties
- Accounts
- Contacts
- Summary

Pricing
Counters
Contracts
Notes
Transactions
Service Requests
Repair Orders
History
Operating Units
Configuration

Quick Find Item Instance Go Advanced Search

Logged In As PLAL

Item Instance Details

Item Instance: 9477944
Item: FS MARINA
Item Description: FS Marina

General Attributes

Organization Name TSSA Item Master
Last Version Label 1
Revision
System Go
Item Instance Type
Operational Status Not Used
Status Active
Quantity 1
Start Date 02-JAN-1989
Shipped On Date
End Date
Return By Date
Actual Return Date

Instance Name
Version Label Date 02-JAN-1989 0:00
New Version Label
External Reference
Accounting Classification Customer Product
Lot Number : not lot-controlled
Condition
UOM Each
Start Time 0:00
Shipped On Time
End Time
Return By Time
Actual Return Time

* Indicates required field.
Time format is HH24:MM
Note: You do not have permission to make updates in this page.

☑ Creation Completed

Owner

Party Type Party
Party Name: GORDON MARINE (GANANOQUE) LTD
Party Number: 169168
Account Number: 76472
Account Name GORDON MARINE (GANANOQUE) LTD

Current Location

* Type Party Site Go
Party Name GORDON MARINE Go
Party Number 169168 Go
*Line 1 129 SOUTH ST Go
Site Number 171227 Go
Address 129 SOUTH ST
GANANOQUE, K7G 1A1, CA

Installed At

Installed Date 02-JAN-1989
Installed Time 0:00
Time format is HH24:MM

Change in installed date does not change contract date.

Type Go

Order

Sales Order Number
Sales Order Date

Sales Order Line

Purchase Order Number

Agreement Name

Item Flags

- [x] BOM Enabled
- [x] IB Trackable
- [ ] Inventory Trackable
- [x] Sellable
- [ ] Shippable

Item Views

- [ ] Merchant
- [x] Customer

Descriptive Flexfields

Context Value: FS Facility

Select Context Value and click 'Go' to show relevant fields.

Facility Type 2:

Facility Type 3:

Total Capacity - Liquid Fuel Tanks (L): 31700

Total Capacity - Propane Tank s (USWG):

ORACLE Installed Base

Item Instances

General
Additional Attributes
Assets
Party Relationships

Owner
Parties
Accounts
Contacts
Summary
Pricing
Counters
Contracts
Notes
Transactions
Service Requests
Repair Orders
History
Operating Units
Configuration

Quick Find Item Instance Go Advanced Search

Logged In As PLAL

Contracts

Item Instance: 9477944
Item: FS MARINA
Item Description: FS Marina

Contract Number	Coverage Name	Coverage Description	Service Name	Service Description	Warranty	Modifier Number	Status	Start Date	End Date	Termination Date
0013320001-C	Fuels Safety Licence-Facility-Liquid Fuels	Fuels Safety Licence-Facility-Liquid Fuels	FS MARINA LICENCE	Fuels Safety Licence - Marina	N	17	Expired	01-AUG-2009	31-JUL-2010	
0013320001-C	Fuels Safety Licence-Facility-Liquid Fuels	Fuels Safety Licence-Facility-Liquid Fuels	FS PRO INSP GASOLINE	Fuels Safety - Pro-rated Inspection	N	01-JUN-10 17:34:31	Active	01-AUG-2010	31-JUL-2011	
0013320001-C	Fuels Safety Licence-Facility-Liquid Fuels	Fuels Safety Licence-Facility-Liquid Fuels	FS MARINA LICENCE	Fuels Safety Licence - Marina	N	01-JUN-10 17:34:31	Active	01-AUG-2010	31-JUL-2011	
0013320001-C	Fuels Safety Licence-Facility-Liquid Fuels	Fuels Safety Licence-Facility-Liquid Fuels	FS PRO INSP GASOLINE	Fuels Safety - Pro-rated Inspection	N	17	Expired	01-AUG-2009	31-JUL-2010	

Installed Base

Item	**FS LIQUID FUEL TANK**	System Owner	**GORDON MARINE (GANANOQUE) LTD**
Item Description	**FS Liquid Fuel Tank**	Account Number	**76472**

Other Item Instance Details

- Transaction History
- Item Instance History
- Operating Units
- Contracts
- Orders
- Service Requests
- Orders and Directives

General | Location | Associations | Configuration | Counters | Notes

External Reference		New Version Label	
Organization	**TSSA Item Master**	Last Version Label	**1**
Revision		Creation Date	**19-Jul-2000 20:15:15**
Instance Name		Status	**Active**
Quantity	**1**	Install Date	**25-May-2009 00:00:00**
UOM	**Each**	Expiration Date	
Item Instance Type		Shipped On Date	
Item Condition		Return By Date	
Accounting Classification	**Customer Product**	Actual Return Date	
Operational Status Code	**Not Used**		

Hide Instance Flex Fields

Fuel Type1	**Gasoline** Gasoline
Fuel Type2	
Fuel Type3	
Capacity (L)	**13600**
Tank Material	**Steel** Steel
Tank Type	**Liquid Fuel Single Wall UST** Liquid Fuel Single Wall UST
FS Corrosion Protection	**Sacrificial anode** Sacrificial anode
Overfill Protection Type	
Installation Year	**1988**
ULC Standard	
Manufacturer	
Model	
Serial Number	
Description	**2009VBS**

Show Additional Attributes

Return to Instance Search

Installed Base

Close Window Preferences

Item Instance | Counters | Mass Update

Item Instances | Systems | Transactions

Item Instance: Item Instances > View : Item Instance : 9477944 > View : Item Instance : 10758156 >

View : Item Instance : 10758173

Item	FS LIQUID FUEL TANK	System Owner	GORDON MARINE (GANANOQUE) LTD
Item Description	FS Liquid Fuel Tank	Account Number	76472

Other Item Instance Details

- Transaction History
- Item Instance History
- Operating Units
- Contracts
- Orders
- Service Requests
- Orders and Directives

General | Location | Associations | Configuration | Counters | Notes

External Reference		New Version Label	
Organization	TSSA Item Master	Last Version Label	1
Revision		Creation Date	19-Jul-2000 20:15:15
Instance Name		Status	Active
Quantity	1	Install Date	25-May-2009 00:00:00
UOM	Each	Expiration Date	
Item Instance Type		Shipped On Date	
Item Condition		Return By Date	
Accounting Classification	Customer Product	Actual Return Date	
Operational Status Code	Not Used		

Hide Instance Flex Fields

Fuel Type1	Gasoline Gasoline
Fuel Type2	
Fuel Type3	
Capacity (L)	13600
Tank Material	Steel Steel
Tank Type	Liquid Fuel Single Wall UST Liquid Fuel Single Wall UST
FS Corrosion Protection	Sacrificial anode Sacrificial anode
Overfill Protection Type	
Installation Year	1988
ULC Standard	
Manufacturer	
Model	
Serial Number	
Description	2009VBS

Show Additional Attributes

Return to Instance Search

Installed Base

Item	**FS LIQUID FUEL TANK**	System	
Item Description	**FS Liquid Fuel Tank**	Owner	**GORDON MARINE (GANANOQUE) LTD**
		Account Number	**76472**

Other Item Instance Details

- Transaction History
- Item Instance History
- Operating Units
- Contracts
- Orders
- Service Requests
- Orders and Directives

General | **Location** | **Associations** | **Configuration** | **Counters** | **Notes**

External Reference		New Version Label	
Organization	**TSSA Item Master**	Last Version Label	**1**
Revision		Creation Date	**19-Jul-2000 20:15:15**
Instance Name		Status	**Active**
Quantity	**1**	Install Date	**25-May-2009 00:00:00**
UOM	**Each**	Expiration Date	
Item Instance Type		Shipped On Date	
Item Condition		Return By Date	
Accounting Classification	**Customer Product**	Actual Return Date	
Operational Status Code	**Not Used**		

⊟ Hide Instance Flex Fields

⊞ Show Additional Attributes

Fuel Type1	**Diesel** Diesel
Fuel Type2	
Fuel Type3	
Capacity (L)	**4500**
Tank Material	**Steel** Steel
Tank Type	**Liquid Fuel Single Wall UST** Liquid Fuel Single Wall UST
FS Corrosion Protection	**Sacrificial anode** Sacrificial anode
Overfill Protection Type	
Installation Year	**1988**
ULC Standard	
Manufacturer	
Model	
Serial Number	
Description	**2009VBS**

Perform Periodic Inspection (FS) for Job 009477954-010 (FS PIN 2003-14277)

Description: Gananoque Marin
129 South Street, Gananoque, K7G 1A1

Assignments

Status: Complete by LANGD

Assigned To: David Lang

Outcome: Inspection Complete

Schedule

Scheduled Start: Jun 27, 2006

Scheduled Complete: mmm dd, yyyy

Actual Start: mmm dd, yyyy hh:mm

Actual Complete: Jul 31, 2006 11:43

Reports

Details | Deficiencies | Time | Documents | Comments | O/S Orders | Resolved/Orders | Create Def

Inspection Report Number: FS-2003-0024134

Periodic - First Inspection

Date of Inspection: 7/31/2006

Re-Inspection Date: mmm dd, yyyy

Orders Issued To: Gananoque Marine

To insert general comments on the inspection report, click on the "Comments" Tab and Right Click Insert the comments.

Have you entered your time and saved your report ?: (•) Yes ( ) No

Risk Factor: Green

Inspection Display Address: 129 SOUTH ST, GANANOQUE, ON, CA K7G 1A1

License Number: 0013320001-C

Tank Vehicle 'Serial-Unit' Numbers:

TECHNICAL STANDARDS and SAFETY AUTHORITY

www.tssa.org

14th Floor, Centre Tower
3300 Bloor Street West
Toronto, Ontario M8X 2X4
Ph - (416) 734-3300, Fax - (416) 231-1626
Toll - 1-877-682-8772

Fuel Safety Inspection Report

Technical Standards and Safety Act, 2000

1 *Report Number:* FS-2003-0024134
2 *File Number:* FS PIN 2003-14277

3 *Location Address*	4 *License/Serial Number*	5 *Job Type*	6 *Inspection Date*
129 SOUTH ST GANANOQUE, ON K7G 1A1 CANADA	0013320001-C	Periodic Inspection (FS)	Jul 31, 2006
	7 *Facility Type*	Marina	

8 *Client*
GORDON MARINE (GANANOQUE) LTD
129 SOUTH ST P O BOX 25 PO BOX 25
GANANOQUE, ON K7G 2T6
CA

The Facility/Equipment is inspected in accordance with Ontario's Technical Standards & Safety Act and the appropriate regulations and codes. When an Inspector's order is issued, time limits for compliance reflect the severity of the violation and serve to avoid disruption of service. In the interim period the recipient must ensure that additional precautions are taken for safe use.

INSPECTION NOTE:

1. Conducted periodic inspection of marina.
2. Site in compliance.

13 *Total Time*	14 *Travel Time*	15 *Billable Hours*	16 *Additional Charges*
2	0.5	0	

Voluntary Compliance Option* - Eligible? Yes X No *Please refer to guidelines

I hereby confirm that all the Inspector's orders, appearing on this inspection report have been completed.

Print Name Gananoque Marine *Client Signature* _____

David Lang — *Inspector*

(613) 392-5497 — *Inspector Fax Number*

As a not-for-profit regulatory authority, TSSA operates on a cost recovery basis. An invoice will be issued for this activity.

Putting Public Safety First

(Note: This is not an invoice)

Perform Periodic Inspection (FS) for Job 009477954-008 (FS PIN 2002-04158)

Description: E-070281 CQ

Assignments

Status: Complete by LANGD

Assigned To: David Lang

Outcome: Minor Deficiencies - Must Reinspect

Schedule

Scheduled Start: Aug 11, 2006

Scheduled Complete: mmm dd, yyyy

Actual Start: mmm dd, yyyy hh:mm

Actual Complete: Aug 12, 2004 16:23

Reports

Details | Deficiencies | Time | Documents | Comments | O/S Orders | Resolved/Orders | Create Def

Show Resolved?

Description	Found By	Date	Resolved By	Date
Deficiences	This Process	Aug 12, 2004	Record Voluntary Complianc	Oct 29, 2004
Deficiences	This Process	Aug 12, 2004	Record Voluntary Complianc	Oct 29, 2004
Deficiences	Perform Periodic Inspection	Aug 11, 2003	This Process	Aug 12, 2004
Deficiences	Perform Periodic Inspection	Aug 11, 2003	This Process	Aug 12, 2004
Deficiences	Perform Periodic Inspection	Aug 11, 2003	This Process	Aug 12, 2004
Deficiences	Perform Periodic Inspection	Aug 11, 2003	This Process	Aug 12, 2004
Deficiences	Perform Periodic Inspection	Aug 11, 2003	This Process	Aug 12, 2004
Deficiences	Perform Periodic Inspection	Aug 11, 2003	This Process	Aug 12, 2004
Deficiences	Perform Periodic Inspection	Aug 11, 2003	This Process	Aug 12, 2004

Technical Standards and Safety Authority

Inspector's Report

Part A

Issued under Technical Standards and Safety Act

Report Number: E-070281

Location Inspected	Gordon Marine
Address	129 South Street
City / Town	Gananoque
Postal Code	K7G 1A1
Telephone Number	
Operator's Name	Sandy Gordon
License Number	0013320001-C

Owner's Name	Gordon Marine (Gananoque) Limited
Address	129 South Street, PO Box 25
City / Town	Gananoque
Postal Code	K7G 2T6
Telephone Number	613-382-4315
Fuel Supplier	McKeown & Wood

Contractor

OPERATION/SUB	LOC TYPE	POP DENS	FUEL	CLASS	REASON	TRIGGER	ACTION
14	02	01	GAS/DIEL	03	26	01	01

ACT	REG.	DURATION	TRAVEL	BILLABLE	BILL	OCC RATE	CAUSE
TSS	217/01	4.0	1.25	5.25	2		

CON FACT	OCC DATE	OCC TIME	FIELD 1	SITE REM		COMPLETED?	
					[ ] Yes [X] No		[X] Yes [ ] No

Audit Summary

1. Follow-up to Inspector's Orders E-070031, 21 Jul 03.
2. Reissued orders on non-compliances.
3. When orders have been complied with, fax completed "IMPORTANT NOTICE" to 613-392-5497.

Equipment / Appliance / Component

Type

Description

Manufacturer

Model | Serial Number

Material

Fuel Input Rating

Date of Manufacture

Installation Date

Supply Pressure | Manifold Pressure

TECHNICAL STANDARDS & SAFETY AUTHORITY RECEIVED JUL 13 2004 FUELS SAFETY CORPORATE SERVICES DIVISION

Equipment / Appliance / Component

Type

Description

Manufacturer

Model | Serial Number

Material AUG 12 2004

Fuel Input Rating

Date of Manufacture

Installation Date

Supply Pressure | Manifold Pressure

As a not-for-profit regulatory authority, the Technical Standards and Safety Authority operates on a cost recovery basis. An invoice will be issued for this activity.

Client's Signature	Inspector's Name	Badge Number	284		
Sandy Gordon	Dave Lang	Date of Inspection	Y 2004	M 6	D 23

Technical Standards and Safety Authority

Inspector's instructions/orders Part B

Report Number: E-070281

Issued under Ontario's Technical Standards and Safety Act

Date: 2004-06-23

Location address:
129 South Street, Gananoque, K7G 1A1

Issued to:
Gordon Marine (Gananoque) Limited

Mailing address:
129 South Street, PO Box 25, Gananoque, K7G 2T6

Your attention is requested to:

Act: **TECHNICAL STANDARDS AND SAFETY ACT**

Regulation: **217/01**

Licence #	Registration #	Certificate #
0013320001-C		

Order #	Section	You are hereby instructed to correct the following infractions:	Compliance date
1	4.6.9	Approved spill and leak containment shall be provided for the dispensers or pumps in order to prevent product from escaping into the environment. ***Comply with section 4.6.9. Provide approved spill and leak containment wells beneath the pumps.*** ***This is a non-compliance of Order number 4 from Inspector's Report E-070031, 21 July 2003.***	***9 July 2004***
2	6.1.43	Hoses through which product is transferred to the fuel tank of a water craft shall not exceed a length of 4.6 metres unless a retracting mechanism is used, in which case, the maximum hose length shall not exceed 10 metres. ***Comply with section 6.1.4.3. Provide retraction mechanisms for hoses that exceed 4.6 metres, but are less than 10 metres in length.*** ***This is a non-compliance of Order number 8 from Inspector's Report E-070031, 21 July 2003.***	***9 July 2004***

Received by: **Sandy Gordon**	Inspector: **Dave Lang**
Position: **Owner**	Signature:
Signature: Sandy Gordon	Badge # **284**

Perform Periodic Inspection (FS) for Job 009477954-008 (FS PIN 2002-04158)

Description: E070031 - AK

Assignments

Status: Complete by LANGD

Assigned To: David Lang

Outcome: Minor Deficiencies - Must Reinspect

Schedule

Scheduled Start: Aug 29, 2001

Scheduled Complete: mmm dd, yyyy

Actual Start: Aug 11, 2003 16:12

Actual Complete: Aug 11, 2003 16:21

Reports

Details | Deficiencies | Time | Documents | Comments | O/S Orders | Resolved/Orders | Create Def

Show Resolved?

Description	Found By	Date	Resolved By	Date
Deficiences	This Process	Aug 11, 2003	Perform Periodic Inspection	Aug 12, 2004
Deficiences	This Process	Aug 11, 2003	Perform Periodic Inspection	Aug 12, 2004
Deficiences	This Process	Aug 11, 2003	Perform Periodic Inspection	Aug 12, 2004
Deficiences	This Process	Aug 11, 2003	Perform Periodic Inspection	Aug 12, 2004
Deficiences	This Process	Aug 11, 2003	Perform Periodic Inspection	Aug 12, 2004
Deficiences	This Process	Aug 11, 2003	Perform Periodic Inspection	Aug 12, 2004
Deficiences	This Process	Aug 11, 2003	Perform Periodic Inspection	Aug 12, 2004
Deficiences	This Process	Aug 11, 2003	Perform Periodic Inspection	Aug 12, 2004
Deficiences	This Process	Aug 11, 2003	Perform Periodic Inspection	Aug 12, 2004

FS 2002-0004158 FS PIN 2602-0415.

Technical Standards and Safety Authority

Inspector's Report - Part A

Issued under Ontario's *Technical Standards and Safety Act*
Fuels Safety Regulations

Report No. E-070031

PLEASE PRINT

Location Inspected	Owner's Name
GORDON MARINE GANANOQUE (LTD)	GORDON MARINE (GANANOQUE) LTD
Address: 129 SOUTH STREET	Address: 129 SOUTH ST. PO BOX 25
City/town: GANANOQUE	City/town: GANANOQUE
Postal Code: K7G1A1 Tel. No.	Postal Code: K7G2T6 Tel. No.
Operator's Name	Fuel Supplier City
Licence No. 001332 0001-C	

Contractor	Registration No.

OPERATION/SUB	LOC TYPE	POP DEN	FUEL	CLASS	REASON	TRIGGER	ACTION
14	04	05	GAS/DIEL	03	26	01	01

ACT	REG	DURATION	TRAVEL	BILLABLE	BILL 1 X 3	OCC RATE	CAUSE
TSS	217/01	3.0	.5	3.5			

CON FACT	OCC DATE	OCC TIME	FIELD 1	SITE REM	COMPLETED?
				☐ Yes ☑ No	☐ Yes ☑ No

Investigation/Audit/Occurrence Summary

1/ CONDUCTED FULL SITE AUDIT
2/ ISSUED ORDERS ON NON-COMPLIANCES

Equipment/Appliance/Component

Type
Description
Manufacturer
Model Serial No.
Material
Fuel Input Rating
Date of Manufacture
Installation Date
Supply Pressure Manifold Pressure

AUG 11 2003

Equipment/Appliance/Component

Type
Description
Manufacturer
Model Serial No.
Material
Fuel Input Rating
Date of Manufacture
Installation Date
Supply Pressure Manifold Pressure

RECEIVED JUL 30 2003 FUELS SAFETY CORPORATE SERVICES DIVISION

As a not-for-profit regulatory authority, the Technical Standards and Safety Authority operates on a cost recovery basis. An invoice will be issued for this activity.

Client's Signature	Inspector's Name	Badge #	Date of Inspection
Sandy Gordon	DAVE LANG	284	21 JUL 03

FS 09181 (11/02)

FS 2002-000415 8 FS PIN 2602-0415

Technical Standards and Safety Authority

Inspector's Instructions/Orders Part B

Report No. E-070031

Issued under Ontario's Energy Act and Gasoline Handling Act

Date: 2003 07 21 (Y M D)

Location Address (No RR's)	129 SOUTH STREET, GANANOQUE
Issued To	GORDON MARINE (GANANOQUE) LTD
Position	
Mailing Address	129 SOUTH STREET, PO BOX 25, GANANOQUE, K7G2T6
Your attention is requested pursuant to: Act	TSS
Regulation	217/01

Licence #	Expiry	Registration #	Expiry	Certificate #	Expiry
0013320001-C	2004/07/31				

Order #	Section	You are hereby instructed to correct the following infraction(s)	Compliance Date
1	1.1.8	Every retail outlet, marina, private outlet and bulk plant and every vehicle shall be maintained in a safe operating condition by the owner or operator and shall be operated safely. Any defective equipment or component shall be repaired or replaced.	
-ORDER-		COMPLY WITH SECTION 1.1.8. HOSE ON LAND PUMP HAS LOSS OF CONTINUITY. MARK HOSE CHECKED BY MAINTENANCE PERSON (2) RETRACTION MECHANISMS ON ALL PUMPS ARE IN NEED OF [illegible] SIGNS OF	21 AUG 03
2	2.3.1.3	The corrosion protection system for an underground storage tank system shall be tested and certified in writing to be in working order by a professional engineer or by a person with qualifications approved by the Director, at intervals not exceeding two (2) years. The record of testing and certification shall be retained in accordance with sections 1.1.3. and 1.1.4.	
-ORDER-		COMPLY WITH SECTION 2.3.1.3. FAX COPY OF CERTIFICATION OF CORROSION PROTECTION SYSTEM TO 613-392-5497.	21 AUG 03

Received By: (print)	Inspector: (print) DAVE LANG
Position:	Signature:
Signature:	Inspector's Badge #: 284

FS 09221 (09/98)

FS 2002-000415 8 ESPIN 2002-0415

Technical Standards and Safety Authority

Inspector's Instructions/Orders Part B

Report No. E-070031

Issued under Ontario's **Energy Act** and **Gasoline Handling Act**

Date: 2003 07 21 (Y M D)

Location Address (No RR's)	SAME AS PAGE 1
Issued To	Position
Mailing Address	
Your attention is requested pursuant to:	Act: TSS — Regulation: 217/01

Licence #	Expiry	Registration #	Expiry	Certificate #	Expiry
0013320001	2004/07/31				

Order #	Section	You are hereby instructed to correct the following infraction(s)	Compliance Date
3	4.2.1.4	Where the fill pipe for an underground storage tank is above grade level, it shall be provided with protection against vehicle impact.	
-ORDER-		COMPLY WITH SECTION 4.2.1.4 PROVIDE ALL PIPES	21 AUG 03
4	4.6.9	Approved spill and leak containment shall be provided for the dispensers or pumps in order to prevent product from escaping into the environment.	
-ORDER-		COMPLY WITH SECTION 4.6.9. PROVIDE APPROVED SPILL & LEAK CONTAINMENT FOR PUMPS UNDER + DRY	21 AUG 03
5	4.6.12	A nozzle used for dispensing leaded gasoline or diesel shall not have a spout diameter less than 23.62 millimetres.	
-ORDER-		COMPLY WITH SECTION 4.6.12. ENSURE DIESEL NOZZLE IS PROPER SIZE.	21 AUG 03

Received By: (print)	Inspector: (print) DAVE LANG
Position:	Signature:
Signature: Sandy Jordan	Inspector's Badge #: 284

FS 09221(09/98)

ES 2002 000458 ESPIN 2002-00458

Technical Standards and Safety Authority

Inspector's Instructions/Orders Part B

Report No. E-070031

Issued under Ontario's **Energy Act** and **Gasoline Handling Act**

Date: 2003 07 21 (Y M D)

Location Address (No RR's)	SAME AS PAGE 1		
Issued To		Position	
Mailing Address			
Your attention is requested pursuant to:	Act: TSS	Regulation: 217/01	
Licence # / Expiry	0013320001-C 2004/07/31	Registration # / Expiry	Certificate # / Expiry

Order #	Section	You are hereby instructed to correct the following infraction(s)	Compliance Date
6	5.3.3.	Pipe lines attached to piers, wharves or docks shall be protected from damage and shall be provided with an easily accessible valve to shut off fuel supply located at or within 1.8 metres of the landward approach to the pier, wharf, or dock	
-ORDER-		COMPLY WITH SECTION 5.3.3. UNBOLT BOARDS	21 AUG 03
7	5.3.8	At each marina there shall be two legible signs visible to all persons using the dispensers with minimum dimensions of 18.5cm y 8.25cm with one sign bearing the words, "WARNING – NO ONE OTHER THAN THE FUEL ATTENDANT SHALL BE ON BOARD A WATERCRAFT DURING REFUELLING." And the other bearing the words, "WARNING – ALL ENGINES SHALL BE OFF DURING REFUELLING AND THERE SHALL BE NO SOURCES OF IGNITION ON BOARD OR WITHIN 3 METRES OF THE FUEL TRANSFER POINT."	
-ORDER-		COMPLY WITH SECTION 5.3.8. PROVIDE SIGNAGE	21 AUG 03

Received By: (print)	Inspector: (print) DAVE LANG
Position:	Signature:
Signature: Sandy Gordon	Inspector's Badge #: 284

FS 09221(09/98)

Technical Standards and Safety Authority

Inspector's Instructions/Orders Part B

Report No. E-070031

Issued under Ontario's Energy Act and Gasoline Handling Act

Date: 2003 07 31 (Y M D)

Location Address (No RR's): SAME AS PAGE 1

Issued To | Position

Mailing Address

Your attention is requested pursuant to: Act: TSS | Regulation: 217/01

Licence #	Expiry	Registration #	Expiry	Certificate #	Expiry
0013320001	2004/07/31				

Order #	Section	You are hereby instructed to correct the following infraction(s)	Compliance Date
8	6.1.4.3.	Hoses through which product is transferred to the fuel tank of a watercraft shall not exceed a length of 4.6 metres unless a retracting mechanism is used, in which case, the maximum hose length shall not exceed 10 metres.	
-ORDER-		COMPLY WITH SECTION 6.1.4.3. RETRACTION MECHANISMS ARE TO BE USED FOR HOSES / LENGTH / C	21 AUG 03
9	6.2.3	At every facility there shall be a sign installed, clearly visible to all persons that sets forth the types of portable containers acceptable for the filling of gasoline.	
-ORDER-		COMPLY WITH SECTION 6.2.3. PROVIDE SIGNAGE WHICH IS CLEARLY VISIBLE	21 AUG 03
10	6.7.1	A person who employs another person as an attendant of a facility or as a driver of a tank vehicle shall take every reasonable precaution to ensure that the attendant or driver, as the case may be, complies with the Liquid Fuels Handling Regulation made under the Technical Standards & Safety Act, & Ontario Regulation 217/01,	

Received By: (print)	Inspector: (print) DAVE LANG
Position:	Signature:
Signature: Sandy K.A Lobo	Inspector's Badge #: 284

FS 09221 (09/98)

Technical Standards and Safety Authority

Inspector's Instructions/Orders Part B

Report No. E-070031

Issued under Ontario's Energy Act and Gasoline Handling Act

Date: 2003 07 21 (Y M D)

Location Address (No RR's): SAME AS PAGE 1

Issued To | Position

Mailing Address

Your attention is requested pursuant to: Act: TSS | Regulation: 217/01

Licence #	Expiry	Registration #	Expiry	Certificate #	Expiry
0013320001	2004/07/31				

Order #	Section	You are hereby instructed to correct the following infraction(s)	Compliance Date
10	6.7.1.	and shall,	
		a. ensure that every employee at the facility or	
		vehicle driver	
		i is trained in the use of all equipment, and	
		ii is trained to take action in the event of a spill or	
		leak of product or any emergency condition, and	
		iii maintain a record of the training in accordance	
		with sections 1.1.3 and 1.1.4	
-ORDER-		COMPLY WITH SECTION 6.7.1. MAINTAIN	
		EMPLOYEE SIGNED RECORDS OF TRAINING	
		IN ACCORDANCE WITH SECTIONS 1.1.3 & 1.1.4	21 AUG 03
11	6.9.1.4	**The operator of a facility shall ensure that the fire**	
		extinguishers required by Ontario Regulation 217/01 or	
		the Chief Fire Official are inspected, tested and	
		maintained in accordance with the requirements of the	
		Ontario Fire Code.	
-ORDER-		COMPLY WITH SECTION 6.9.1.4 ENSURE	
		FIRE EXTINGUISHERS ARE INSPECTED ANNUALLY	21 AUG 0

Received By: (print)	Inspector: (print) DAVE LANG
Position:	Signature:
Signature:	Inspector's Badge #: 284

FS 09221(09/98)

Perform Periodic Inspection (FS) for Job 009477954-002 (E006419)

Description: E006419 Marina 26

Assignments

Status: Complete by STRATUIJ

Assigned To: John Stratulk

Outcome: Inspection Complete

Schedule

Scheduled Start: mmm dd, yyyy

Scheduled Complete: mmm dd, yyyy

Actual Start: Aug 29, 1998 00:00

Actual Complete: Aug 29, 1998 00:00

Reports

Details | Deficiencies | Time | Documents | Comments | O/S Orders | Resolved/Orders | Create Def

Inspection Report Number: E006419

Date of Inspection: 8/29/1998

Re-Inspection Date: mmm dd, yyyy

Orders Issued To:

To insert general comments on the inspection report, click on the "Comments" Tab and Right Click Insert the comments.

Have you entered your time and saved your report ?: Yes No

Inspection Display Address: 129 SOUTH ST, GANANOQUE, ON, CA K7G 1A1

Risk Factor:

License Number: 0013320001-C

Tank Vehicle 'Serial-Unit' Numbers:

Technical Standards and Safety Authority

Inspector's Report / Rapport de l'inspecteur(trice) Part A/Partie A

Issued under Ontario's Energy Act and/or Gasoline Handling Act
Délivré en vertu de Loi sur les hydrocarbures ou de la Loi sur la manutention de l'essence de l'Ontario

Report No / N° de rapport: E- 006419

Location Inspected / Lieu inspecté
Gordon Marine
Address / Adresse: 129 South Street PO Box 25
City/town / Ville: Cananoque Ont.
Postal Code / Code postal: K7A-2T6 Tel. No. / N° de tél.: 613-382-4315
Operator's Name / Nom de la personne responsable: JAN Gordon Shortall.
Licence No / N° de permis: 0013320601.

Owner's Name / Nom du/de la propriétaire
Address / Adresse
City/town / Ville
Postal Code / Code postal — Tel. No. / N° de tél.
Fuel Supplier / Fournisseur de combustible: Petro Canada. — City / Ville

Contractor / Entrepreneur — Registration # / N° d'inscription

OPERATION/ACTIVITÉ	SUB TYPE/SOUS TYPE	LOC TYPE/ TYPE DE LIEU	POP DENS/ DENS. DE POP.	FUEL/COMBUSTIBLE	CLASS/CATÉGORIE	REASON/RAISON	TRIGGER/ MOTIVÉ PAR:
14	—	02	01	Gasoline	03	26	01

ACTION / MESURES PRISES	ACT/LOI	REG/RÈGLEMENT	DURATION/DURÉE	BILLABLE/ À FACTURER	TRAVEL/VOYAGE	BILL FACTURER Y/N O/N	
	C.H.A.	521/93	1.5	/	.5	/	

DAMAGE /DOMMAGES	OCC RATE/ GRAV. DE L'ACC.	CAUSE/CAUSE	CON FACT/ FACT. CONTR.	OCC DATE/ DATE DE L'ACC.	OCC TIME/ HEURE DE L'ACC.	MANDATED MANDAT Y/N O/N	
						/	

FIELD 1/DOMAINE 1	CALL/INTERVENTION	CONSULT CONSULT. Y/N O/N	SITE REM REMÉDIER Y/N O/N				COMPLETED? TERMINÉE? Y/N O/N
	01						/

Comments/Commentaires
On Site To Audit Fuel facility.
Conformed To The C.H.A. At the time of Audit

Equipment/Appliance/Component / Matériel/Appareil/Composant

Type/Type — Code/Code
Description/Description
Manufacturer/Fabricant
Model/Modèle — Serial No/ N° de serie
Material/Matériel
Corrosion Protection/Protection contre la corrosion
Fuel Input Rating/Débit de combustible
Capacity/Capacité
Installation Date/Date d'installation
Manufacture Date/Date de fabrication
Supply Pressure/ Pression d'alimentation — Manifold Pressure/ Pression d'admission

Equipment/Appliance/Component / Matériel/Appareil/Composant

Type/Type — Code/Code
Description/Description
Manufacturer/Fabricant
Model/Modèle — Serial No/ N° de serie
Material/Matériel
Corrosion Protection/Protection contre la corrosion
Fuel Input Rating/Débit de combustible
Capacity/Capacité
Installation Date/Date d'installation
Manufacture Date/Date de fabrication
Supply Pressure/ Pression d'alimentation — Manifold Pressure/ Pression d'admission

TECHNICAL STANDARDS & SAFETY AUTHORITY RECEIVED SEP 15 1998 FUELS SAFETY CORPORATE SERVICES DIVISION

Client's Signature/Signature du client/de la cliente: Jan Gordon Shortall

Inspector's Name/Nom de l'inspecteur(trice)

Badge No / N° d'insigne: 192

Date of Inspection/ Date d'inspection: Y/A 98 M/M 05 D/J 28

FS 09181 (05/97)

Head Office

INCIDENT REPORT

TRANSMITTAL SLIP

REPORT #: IR-88-06-27

LOCATION OF INCIDENT
129 South St Gananoque.

DATE
24-06-88

INSPECTOR
F. Amo

REGIONAL MANAGERS COMMENTS
No further action

DATE
July 14/88

CHIEF INSPECTORS COMMENTS

DATE

ENGINEERING/LEGAL COMMENTS

DATE

FINAL DISPOSITION:

FILE CLOSED BY:

DATE
July 14/88

MINISTRY OF CONSUMER
AND COMMERCIAL RELATIONS
FUELS SAFETY BRANCH
JUL 1 8 1988
OFFICE OF
CHIEF INSPECTOR

Inspector's Name (please print)	Inspector's Location	Date of Investigation (Day / Month / Year)	Time of Investigation
Frank Amo	Kingston	25 / 06 / 88	10:30 ☒ a.m. ☐ p.m.

Location (where incident occurred)	Date of Incident (Day / Month / Year)	Time of Incident
129 South Street, Gananoque, Ontario K7G 2T6	24 / 06 / 88	6:00 ☐ a.m. ☒ p.m.

Cause of Incident (✓) Check one

☐ Mechanical Failure ☐ Accidental ☐ Out of Domain, referred to:
☐ Lack of Maintenance ☒ Undetermined

Type of Incident (if more than one, note primary incident as 1, subsequent incident as 2, etc.)

☐ Asphyxiation ☒ Fire ☐ Explosion
☐ Carburetion ☐ Product Escape

Fuel Utilization (✓) Check one

☐ Residential (Single Family) ☐ Institutional
☐ Residential (Multi Family) ☐ Motor Vehicle
☒ Commercial ☐ Recreational Vehicle
☐ Industrial

Fuel Type (✓) Check one

☒ Natural Gas
☐ Oil
☐ Propane
☐ Gasoline

Fuel Supplier (name & address)

ICG Utilities

Owner (name & address)

Mr. S. Gordon,
R. R. #3,
GANANOQUE, Ontario.

Tenant (name & address, if different to property)

Equipment Involved

Rudd 60/60 Water Heater

Estimated Value of Damage	Description of Damage
$ 600,000.00	East half of two story building, completely destroyed

Fatalities (name, address & age)	Personal Injuries (name, address, age & type of injury)
Nil	Nil

Synopsis

Fire of unknown origin caused total destruction of one half of marina facility including upstairs apartment.

INTRODUCTION

Frank Webb, Regional Manager, along with Area Inspector, Frank Amo, received call from Gananoque Fire Dept. - Re: Fire Investigation.

Fire Chief Elect, Mr. J. Stephenson, requested our attendance at the scene to examine natural gas fired hot water heater and installation.

Arrived on site approximately 10:00 A.M., May 25, 1988 with Fire Chief Elect, J. Stephenson. Also in attendance were J. Palfrey, Manager, ICG Utilities and Serviceman, J. Lollar.

Investigation consisted of examination of all natural gas fired equipment, gas supply lines, venting and examination of a witness.

Signature of Inspector:

Frank Amo July 14/88

HEAD OFFICE COPY

09047 (86)

129 South St Gananoque

Date of Incident: June 24, 1988.

BACKGROUND

This location consists of wood from two storey building set back from 129 South Street about 200 feet on a lot of undetermined dimension.

Fire damage very visible to outside of the structure. Fire seemed to be restricted to easterly half of building.

Natural Gas fired hot water heater was situated in the south-east end of building. Natural Gas fired forced air furnace located in same area of structure. Two rooms west was located another Natural Gas fired forced air furnace. Also, at west end of building was a unit heater Natural Gas fired.

Approximately 6:00 P.M., May 24,1988, Mr. S. Gordon, part owner of Gordons' Marina, went into utility room. When he open the door he noticed smoke. By the time he told his wife to phone the Fire Dept. and to get out of building, the flames quickly spread, completely destroying east end of building.

DETAILS

1. Rudd 60/60 water heater
2. Water heater located in north west corner of utility room.
3. Vent 4 inches south west from heater to class a chimney intact and supported.
4. Vertical draft diverter - out of alignment - together with 2 X 90° adjustable elbowes.
5. Gas supply to heater 3/4" wrought iron - vertical mode - out of alignment at overall shut off valve.
6. Shut off valve - WBL - approved - evidence of exposure to high heat and split open at both pipe collars.
7. Valve in open position
8. Operating control - connected to supply line and burner.
9. Thermocouple connected to pilot and operating control.
10. Pilot aluminum supply line connected to pilot and control - no evidence of exposure to flame.
11. Pressure and temperature valve - casing burnt off.

3048 (06)

Signature of Inspector:

129 South St Gananoque.

June 24, 1988.

DETAILS CONTINUED

12. Burner baffle box - inside clean and intact.

13. Front casing of heater from top of burner box entry to top and including top - evidence of flame exposure.

14. Wooden dividing wall adjacent to heater from door opening to about the gas line connection burnt from and including sill to ceiling.

15. Dividing wall from gas line at heater to a point behind heater - no fire exposure at sill up to a point about 2' high.

16. Rear casing of heater - no evidence of flame exposure.

17. Staircase rising behind heater - no evidence of flame exposure to stair stringer.

Forced Air Furnace in Utility Room

18. Clare Heclar

Model G101LB

Input 101,000

19. Gas line 3/4" intact.

20. Overall shut off valve - open - intact - no flame exposure.

21. 5" single wall vent - complete - intact connected to class a chimney.

22. Furnace casing - complete - no evidence of fire exposure.

Forced Air Furnace in Stock Room

23. Furnace make - not identified - mounted on combustible stand.

24. No access to burner and controls.

25. 5" single wall vent - rises vertically to class B vent - intact

26. Cold air return - terminates at side of negative chamber door.

27. 3/4" gas line intact.

28. 3/4" overall shut off valve open and intact.

29. Furnace shows no evidence of exposure to fire.

Signature of Inspector:

9048 (86)

Location (where incident occurred): 129 South St - Gananoque.

Date of Incident: June 24, 1988.

DETAILS CONTINUED

Unit Heater in Repair Shop

30. Model J100-6SA

Serial No. F1455

Input 100,000

31. Suspended from ceiling at north end of shop

32. 6" single wall vent connected to class B vent

33. No class B ceiling plate

34. Burner access door missing

35. Gas line connected - intact

36. Overall shut off valve - open and intact

37. No evidence to flame exposure

Natural Gas Meter

Make - Rockwell International RC415 located north-west corner of apartment

Regulator

Make - Fisher 2619988

- Fisher 289H

Mr. J. Szabo, of the Fire Marshall's Office, requested that the two gasoline tanks and one diesel tank be tested for possible leaks - re: gasoline smell in fire location.

Fuel's safety branch ordered tanks to be tested - Re: M. A. Bar gasoline maintanence.

All tanks, vents and suction lines uncovered. Pressure tested tanks and vents together at 7lb. P.S.I. All suction lines tested separately at 60lb. P.S.I.

Pressure was applied for 24 hours with no evidence of a pressure drop.

Tanks and lines released and returned to service.

CONCLUSION

From the evidence as viewed, we were unable to arrive at any conclusion pertaining to the involvement of the equipment with the fire.

Signature of

a (86)

129 South St- Gananoque.

Cause of Incident:

June 24, 1988.

Undetermined

Attachments (√)

☑ Photographs

☐ Other Reports

☐ Exhibits

☐ Other

☐ Statements

Signature of Inspector:

Date: 1.1.12/88

(98) 6904

Appendix C –

Completed Questionnaire

STANDARD PHASE I ESA QUESTIONNAIRE

Project #:	Date: May 19 2011
Owner: Gordon Marine Ltd	Occupant:
Address: 129 South St. Gananoque, On. K7G 1A1	
Property Description and Size: 1.5 acres.	

1. Has the property or an adjacent property currently or previously been used for an industrial or commercial use? If yes, please specify activities and time frames.

Owner			Occupants			Observed During Site Visit	
(Yes)	No	Unknown	(Yes)	No	Unknown	Yes	No

NOTES:

2. Are, or have there been in the past, the property or any of the adjacent properties used for industries/activities/storage/related activities of: chemicals; electrical equipment; metal smelting, processing; finishing; mining; milling; petroleum and natural gas drilling/production/ processing/retailing and distribution (including gasoline station); transportation; junkyard; waste disposal/landfill/waste treatment or processing; recycling; wood and pulp and paper products; appliance equipment or engine repair/reconditioning/salvage; ash deposit from boilers or other thermal facilities; asphalt tar manufacturer; coal gasification; medical/chemical/radiological or biological labs; rifle or pistol firing ranges; road salt storage facilities; dry cleaning; sites which have been or likely have been contaminated by substances migrating from other properties; commercial printing facility; and photo developing laboratory? If applicable, identify which.

Owner			Occupants			Observed During Site Visit	
Yes	(No)	Unknown	Yes	No	Unknown	Yes	No

NOTES:

3. Are there or have there been in the past, any damaged or discarded automotive or industrial batteries, pesticides, paints, or other chemicals in the aggregate, stored on or used at the property or on any of the adjacent properties? If yes, please specify location.

Owner	Occupants	Observed During Site Visit
Yes (No) Unknown	Yes No Unknown	Yes No

NOTES:

4. Are there currently, or have there been in the past, any industrial containers of chemicals located on the property or on any of the adjacent properties? If yes, please specify location.

Owner	Occupants	Observed During Site Visit
Yes (No) Unknown	Yes No Unknown	Yes No

NOTES:

5 Are you aware or do you have any prior knowledge that fill material has been brought onto the property that originated from an unknown origin or contaminated site? If yes, please specify location.

Owner	Occupants	Observed During Site Visit
Yes (No) Unknown	Yes No Unknown	Yes No

NOTES:

6 Are there currently, or have there been in the past, any pits, ponds, or lagoons located on the property in connection with waste treatment or waste disposal? If yes, please specify location.

Owner	Occupants	Observed During Site Visit
Yes (No) Unknown	Yes No Unknown	Yes No

NOTES:

7 Is there currently any, or has there been in the past, stained soil on the property? If yes, please specify location.

Owner	Occupants	Observed During Site Visit
Yes (No) Unknown	Yes No Unknown	Yes No

NOTES:

8 Are there currently, or have there been in the past, any registered or unregistered storage tanks (above or underground) located on the property? If yes, please specify location.

Owner			Occupants			Observed During Site Visit	
(Yes)	No	Unknown	Yes	No	Unknown	Yes	No

NOTES: 3 gas U.S.T. storage tanks.
1 oil a.S.T. tank

9 Are there currently, or have there been in the past, any vent pipes, fill pipes, or access ways indicating a fill pipe protruding from the ground on the property or adjacent to any structure located on the property? If yes, please specify location.

Owner			Occupants			Observed During Site Visit	
(Yes)	No	Unknown	Yes	No	Unknown	Yes	No

NOTES:
3 vent + 3 fill pipes

10 Is there currently, or have there been in the past, evidence of leaks, spills or staining by substances other than water, or foul odours, associated with any flooring, drains, walls, ceilings, or exposed grounds on the property? If yes, please specify location.

Owner			Occupants			Observed During Site Visit	
Yes	(No)	Unknown	Yes	No	Unknown	Yes	No

NOTES:

11a. If the property is served by a private well or non-public water system, is there evidence or do you have prior knowledge that contaminants have been identified in the well or system that exceed guidelines applicable to the water system? If yes, please specify location.

Owner			Occupants			Observed During Site Visit	
Yes	(No)	Unknown	Yes	No	Unknown	Yes	No

NOTES:

11b. If the property served by a private well or non-public water system, have there been in the past, any well designated as contaminated by any government environmental/health agency? If yes, please specify location.

Owner	Occupants	Observed During Site Visit
Yes (No) Unknown	Yes No Unknown	Yes No

NOTES:

12. Are you aware of any environmental liens or governmental notification relating to past or recurrent violations of environmental laws with respect to the property or any facility located on the property? If yes, please specify.

Owner	Occupants	Observed During Site Visit
Yes (No) Unknown	Yes No Unknown	Yes No

NOTES:

13. Are you aware of current or past existence of hazardous substances or petroleum products with respect to the property or any facility located on the property? If yes, please specify.

Owner	Occupants	Observed During Site Visit
(Yes) No Unknown	Yes No Unknown	Yes No

NOTES: as #8

14. Are you aware of any current or past existence of environmental violations with respect to the property or any facility located on the property? If yes, please specify.

Owner	Occupants	Observed During Site Visit
Yes (No) Unknown	Yes No Unknown	Yes No

NOTES:

15. Are you aware of any environmental site assessment of the property or facility that indicated the presence of hazardous substances or petroleum products on, or contamination of, the property or recommended further assessment of the property? If yes, please specify.

Owner			Occupants			Observed During Site Visit	
Yes	(No)	Unknown	Yes	No	Unknown	Yes	No

NOTES:

16. Are you ware of any past, threatened, or pending lawsuits or administrative proceedings concerning a release or threatened release of any hazardous substance or petroleum products involving the property by any owner or occupant of the property? If yes, please specify.

Owner			Occupants			Observed During Site Visit	
Yes	(No)	Unknown	Yes	No	Unknown	Yes	No

NOTES:

17a. Does the property discharge wastewater (not including sanitary waste or storm water) onto or adjacent to the property and/or into a storm water system? If yes, please specify.

Owner			Occupants			Observed During Site Visit	
Yes	(No)	Unknown	Yes	No	Unknown	Yes	No

NOTES:

17b. Does the property discharge wastewater (not including sanitary waste or storm water) onto or adjacent to the property and/or into a sanitary sewer system? If yes, please specify.

Owner			Occupants			Observed During Site Visit	
Yes	(No)	Unknown	Yes	No	Unknown	Yes	No

NOTES:

18. Are you aware of any hazardous substances or petroleum products, unidentified waste materials, tires, automotive or industrial batteries, or any other waste materials that have been dumped above grade, buried and/or burned on the property? If yes, please specify.

Owner	Occupants	Observed During Site Visit
Yes (No) Unknown	Yes No Unknown	Yes No

NOTES:

19. Is there, or been in the past, a transformer, capacitor, or any hydraulic equipment for which there are any records indicating the presence of PCBs? If yes, please specify.

Owner	Occupants	Observed During Site Visit
Yes (No) Unknown	Yes No Unknown	Yes No

NOTES:

Date Prepared: May 19/2011

Signature of Assessor: _____

Name of Assessor: _____

Signature of Occupant/Employee: [signature]

Name of Occupant/Employee: Neil D Gordon

Signature of Owner: [signature]

Name of Owner: Neil D Gordon

Appendix D –

Borehole Logs

exp.

exp Services Inc.
315 The Woolen Mill
4 Cataraqui Street
Kingston, ON K7K 1Z7

Log Of Borehole: BH-1

Monitoring Well: MW-1

Project No.: KIN-00016690-A0

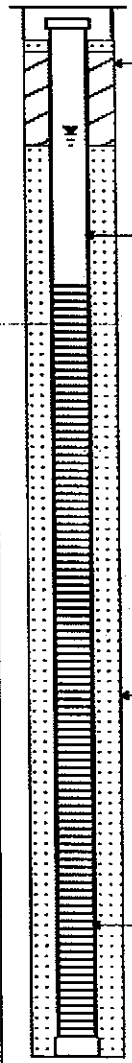
Project: Phase I/II ESA

Client: Gordon Marine

Location: 129 South Street, Gananoque, Ontario

Logged by: MW

SUBSURFACE PROFILE			SAMPLE						
Depth (ft / m)	Symbol	Description	Depth/Elev.	Blow Counts	Sample I.D.	Vapour ppm	Recovery	Well Completion Details	Comments
0 / 0		Ground Surface	99.67						
		Gravel	99.52	-	-	-	-		
1		Gravel							
2		***Sandy Gravel*** Black to light brown. Moist. No odour.	98.91	5/5/4/9	BH-1-1	0.0	67%		
3 / 1		***Gravel*** Brown gravelly fill. Saturated. No odour.	98.30	2/2/2/2	BH-1-2	0.0	54%		
5		***Gravel*** Brown gravelly fill. Wet. Slight fuel or solvent odour. Slight sheen in water in hole.	97.54	6/18/3/3	BH-1-3	0.1	23%		
7 / 2		***Rock*** Cored. Large rock at 2.1 and 2.4. Becoming softer beneath. Thin strip of rubber beneath large rock. Bedrock not encountered.							
10 / 3				Core	-	-	-		
13 / 4			95.10						
15		End of Borehole							
16									



Bentonite

WL 0.56 m (May 27, 2011)

51 mm PVC Riser

Soil Sample BH-1-1 Submitted for Metals

Soil Sample BH-1-3 Submitted for PHC, VOC and PAH

Sand

51 mm Slot 10 PVC Screen

Drilled By: Canadian Environmental Drilling

Drill Method: Split-Spoon/Hollow Stem Auger

Drill Date: May 24, 2011

Hole Size: 200 mm

Datum: local

Sheet: 1 of 1

exp Services Inc.
315 The Woolen Mill
4 Cataraqui Street
Kingston, ON K7K 1Z7

Log Of Borehole: BH-2

Monitoring Well:

Project No.: KIN-00016690-A0

Project: Phase I/II ESA

Client: Gordon Marine

Location: 129 South Street, Gananoque, Ontario

Logged by: MW

SUBSURFACE PROFILE			SAMPLE						
Depth (ft / m)	Symbol	Description	Depth/Elev.	Blow Counts	Sample I.D.	Vapour ppm	Recovery	Well Completion Details	Comments
0 / 0		Ground Surface	0.00						
		Gravel Gravel	-0.15 / -0.30	Auger	BH-2-1	0.0	-		
1		***Topsoil*** Dark topsoil. Dry.		10/7/5/5	BH-2-2	1.0	100%		Soil Sample BH-2-2 Submitted for PHC and VOC
2		***Sandy Topsoil*** Dark sand and topsoil. Moist. Strong Coal Odour.	-0.91						
3 / 1		***Sand and Gravel*** Sand to sandy gravel. Some cobbles. Wet.		6/6/6/8	BH-2-3	0.4	29%		
4			-1.52						
5		***Sand and Gravel*** Orange brown. Saturated. No odour.		10/11/8/4	BH-2-4	0.3	54%		
6 / 2			-2.13						
7		***Gravelly Sand*** Brown to rusty colour. Saturated. No odour.		2/3/7/11	BH-2-5	0.2	58%		
8			-2.74						
9		End of Borehole							
10 / 3									
11									
12									
13 / 4									
14									
15									
16									

Drilled By: Canadian Environmental Drilling

Drill Method: Split-Spoon/Solid Stem Auger

Drill Date: May 24, 2011

Hole Size: 100 mm

Datum: local

Sheet: 1 of 1

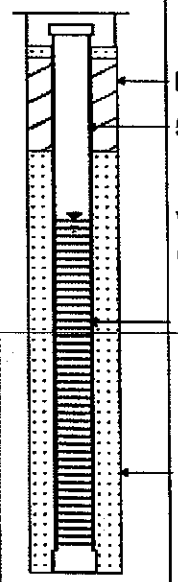
exp.

exp Services Inc.
315 The Woolen Mill
4 Cataraqui Street
Kingston, ON K7K 1Z7

Log Of Borehole: BH-3

Project No.: KIN-00016690-A0
Monitoring Well: MW-2
Project: Phase I/II ESA
Client: Gordon Marine
Location: 129 South Street, Gananoque, Ontario
Logged by: MW

SUBSURFACE PROFILE			SAMPLE						
Depth (ft / m)	Symbol	Description	Depth/Elev.	Blow Counts	Sample I.D.	Vapour ppm	Recovery	Well Completion Details	Comments
0 / 0		Ground Surface	99.62						
1		***Clay*** Clay, some gravel.	99.32	Auger	BH-3-1	-	-		
2		***Sandy Gravel and Clay*** Black sandy gravel and clay. Wet. No odour.	98.71	3/3/7/2	BH-3-2	0.0	42%		
3 / 1		***Sand to Clay*** Sand to saturated clay with gravel. No odour.	98.10	11/6/5/6	BH-3-3	0.0	46%		
5		***Clay*** Clay with gravel. Reddish colour. Saturated. No odour.	97.49	9/48/9/11	BH-3-4	0.0	46%		
7 / 2		End of Borehole							
10 / 3									
13 / 4									
16									



Soil Sample BH-3-2 Submitted for PHC and VOC

Drilled By: Canadian Environmental Drilling
Drill Method: Split-Spoon/Hollow Stem Auger
Drill Date: May 24, 2011

Hole Size: 100 mm
Datum: local
Sheet: 1 of 1

exp Services Inc.
315 The Woolen Mill
4 Cataraqui Street
Kingston, ON K7K 1Z7

Log Of Borehole: BH-4

Monitoring Well:

Project No.: KIN-00016690-A0

Project: Phase I/II ESA

Client: Gordon Marine

Location: 129 South Street, Gananoque, Ontario

Logged by: MW

SUBSURFACE PROFILE			SAMPLE						
Depth (ft / m)	Symbol	Description	Depth/Elev.	Blow Counts	Sample I.D.	Vapour ppm	Recovery	Well Completion Details	Comments
0 / 0		Ground Surface	0.00						
		Sandy Clay Brown sandy clay. Dry. No odour or staining.	-0.30	Auger	BH4-1	0.0	-		
2		***Silty Clay*** Brown silty clay. Dry. No staining or odour.	-0.91	5/6/7/13	BH-4-2	0.0	100%		Soil Sample BH-4-3 Submitted for metals analysis.
3 / 1		***Sand*** Light brown. Dry. No odour or staining.	-1.52	9/9/9/7	BH-4-3	0.0	100%		
5		End of Borehole							
6 / 2									
8									
9 / 3									
10									
11									
12									
13									

Drilled By: Canadian Environmental Drilling

Drill Method: Split-Spoon/Solid Stem Auger

Drill Date: May 24, 2011

Hole Size: 100 mm

Datum: local

Sheet: 1 of 1

exp Services Inc.
315 The Woolen Mill
4 Cataraqui Street
Kingston, ON K7K 1Z7

Log Of Borehole: BH-D1

Monitoring Well:

Project No.: KIN-16690-B0

Project: Delineation Sampling

Client: Gordon Marine

Location: 129 South Street, Gananoque, Ontario

Logged by: MW

SUBSURFACE PROFILE			SAMPLE						
Depth (ft / m)	Symbol	Description	Depth/Elev.	Blow Counts	Sample I.D.	Vapour ppm	Recovery	Well Completion Details	Comments
0 / 0		Ground Surface	0.00						
0 – 2 / 0		***Fill*** Sand and gravel. Brown to dark to rusty brown. Strong PHC and/or solvent odour. Very Moist.	-0.61	1-1	-	0.0	58%		
2 – 4 / 1		***Fill*** Sand and gravel. Brown to reddish brown to medium brown. PHC odour. Wet.	-1.22	1-2	-	1.5	67%		Soil Sample 1-1 Submitted for PHC and VOC.
4 – 6 / 1		***Fill*** Sand and gravel. Strong PHC and/or solvent odour. Saturated.	-1.83	1-3	-	1.0	33%		
6 – 8 / 2		***Fill*** Sand and gravel to sandy silty clay. Slight PHC odour. Saturated.	-2.44	1-4	-	0.8	25%		
8 – 10 / 2 – 3		***Sand*** Coarse to fine grained. Slight PHC odour. Saturated.	-3.05	1-5	-	0.2	100%		
10 / 3		End of Borehole							

Drilled By: Canadian Environmental Drilling

Drill Method: Split-Spoon/Portable Jackhammer

Drill Date: July 20, 2011

Hole Size: 38 mm

Datum: local

Sheet: 1 of 1

exp Services Inc.
315 The Woolen Mill
4 Cataraqui Street
Kingston, ON K7K 1Z7

Log Of Borehole: BH-D2

Monitoring Well:

Project No.: KIN-16690-B0

Project: Delineation Sampling

Client: Gordon Marine

Location: 129 South Street, Gananoque, Ontario

Logged by: MW

SUBSURFACE PROFILE			SAMPLE						
Depth (ft / m)	Symbol	Description	Depth/Elev.	Blow Counts	Sample I.D.	Vapour ppm	Recovery	Well Completion Details	Comments
0 / 0		Ground Surface	0.00						
0 – 2 / 0 – 1		***Fill*** Sand and gravel. Brown to dark to rusty brown. Strong PHC and/or solvent odour. Very Moist.	-0.61	2-1	-	0.0	45%		
2 – 4 / 1 – 1.22		***Fill*** Sand and gravel. Brown to rusty brown. Saturated. Refusal at 1.22 m.	-1.22	2-2	-	0.0	46%		Soil Sample 2-1 Submitted for PAH.
		End of Borehole							

Drilled By: Canadian Environmental Drilling

Drill Method: Split-Spoon/Portable Jackhammer

Drill Date: July 20, 2011

Hole Size: 38 mm

Datum: local

Sheet: 1 of 1

exp Services Inc.
315 The Woolen Mill
4 Cataraqui Street
Kingston, ON K7K 1Z7

Log Of Borehole: BH-D3

Monitoring Well:

Project No.: KIN-16690-B0

Project: Delineation Sampling

Client: Gordon Marine

Location: 129 South Street, Gananoque, Ontario

Logged by: MW

SUBSURFACE PROFILE			SAMPLE						
Depth (ft / m)	Symbol	Description	Depth/Elev.	Blow Counts	Sample I.D.	Vapour ppm	Recovery	Well Completion Details	Comments
0 / 0		Ground Surface	0.00						
1		***Fill*** Gravelly clay to sand and gravel. Dark at bottom. No odour.	-0.61	3-1	-	0.0	54%		
2 / 1		***Fill*** Sand and gravel to clayey sand. Wet. No odour.	-1.22	3-2	-	0.0	54%		Soil Sample 3-1 Submitted for PHC and BTEX.
4		***Fill*** Sand and gravel. Brown. Saturated. Wet.	-1.83	3-3	-	0.0	25%		
6 / 2		***Fill*** Sand and Gravel to Sand. PHC and septic odour. Wet.	-2.44	3-4	-	0.0	50%		
8		***Sand*** Strong PHC odour. Wet.	-3.05	3-5	-	0.0	100%		
10 / 3		End of Borehole							
11									
12									
13									

Drilled By: Canadian Environmental Drilling

Drill Method: Split-Spoon/Portable Jackhammer

Drill Date: July 20, 2011

Hole Size: 38 mm

Datum: local

Sheet: 1 of 1

exp Services Inc.
315 The Woolen Mill
4 Cataraqui Street
Kingston, ON K7K 1Z7

Log Of Borehole: BH-D4

Monitoring Well:

Project No.: KIN-16690-B0

Project: Delineation Sampling

Client: Gordon Marine

Location: 129 South Street, Gananoque, Ontario

Logged by: MW

SUBSURFACE PROFILE			SAMPLE						
Depth (ft / m)	Symbol	Description	Depth/Elev.	Blow Counts	Sample I.D.	Vapour ppm	Recovery	Well Completion Details	Comments
0 / 0		Ground Surface	0.00						
0 – 1		***Fill*** Sand and gravel. Brown to dark coloured. Slight PHC odour. Dry.	-0.61	4-1	-	0.0	67%		
2 – 3 / 1		***Fill*** Sand and gravel to sandy silty clay with gravel. Brown to dark coloured. No odour. Wet.	-1.22	4-2	-	0.0	63%		Soil Sample 4-1 Submitted for PHC and BTEX.
4 – 5		***Fill*** Sand and Gravel. No odour. Saturated.	-1.83	4-3	-	0.0	38%		
6 – 7 / 2		***Fill*** Sand and Gravel. Brown. Slight PHC odour. Wet.	-2.36	4-4	-	0.0	50%		
8		Refusal at 2.36 m. End of Borehole							
9 – 10 / 3									
11 – 12									
13									

Drilled By: Canadian Environmental Drilling

Drill Method: Split-Spoon/Portable Jackhammer

Drill Date: July 20, 2011

Hole Size: 38 mm

Datum: local

Sheet: 1 of 1

exp Services Inc.
315 The Woolen Mill
4 Cataraqui Street
Kingston, ON K7K 1Z7

Log Of Borehole: BH-D5

Monitoring Well:

Project No.: KIN-16690-B0

Project: Delineation Sampling

Client: Gordon Marine

Location: 129 South Street, Gananoque, Ontario

Logged by: MW

SUBSURFACE PROFILE			SAMPLE						
Depth (ft / m)	Symbol	Description	Depth/Elev.	Blow Counts	Sample I.D.	Vapour ppm	Recovery	Well Completion Details	Comments
0 / 0		Ground Surface	0.00						
0 – 1		***Fill*** Sand and Gravel. Dug by shovel. Dry. Slight PHC odour.	-0.46	5-1	-	0.0	-		
1 – 2		***Fill*** Sand and gravel. Brown. No odour. Wet.	-0.81	5-2	-	0.0	33%		
2 – 3		Refusal at 0.81 m.							
1		End of Borehole							
4 – 5									
6 – 7									
2									
8 – 9									
10 – 11									
3									
12 – 13									

Drilled By: Canadian Environmental Drilling

Drill Method: Split-Spoon/Portable Jackhammer

Drill Date: July 20, 2011

Hole Size: 38 mm

Datum: local

Sheet: 1 of 1

exp Services Inc.
315 The Woolen Mill
4 Cataraqui Street
Kingston, ON K7K 1Z7

Log Of Borehole: BH-D5b

Project No.: KIN-16690-B0
Monitoring Well:
Project: Delineation Sampling
Client: Gordon Marine
Location: 129 South Street, Gananoque, Ontario
Logged by: MW

SUBSURFACE PROFILE			SAMPLE						
Depth (ft / m)	Symbol	Description	Depth/Elev.	Blow Counts	Sample I.D.	Vapour ppm	Recovery	Well Completion Details	Comments
0 / 0		Ground Surface	0.00						
0–1 / 0		***Fill*** Gravel and clay to sand and gravel. Slight PHC odour. Dry.	-0.61	5b-1	-	0.0	63%		
2–3 / 1		***Fill*** Sand and gravel to clay with gravel. Brown. Wet.	-1.22	5b-2	-	0.0	54%		Soil Sample 5b-1 Submitted for PHC and BTEX.
4–5 / 1		***Fill*** Sand and gravel. Weathered PHC odour. Saturated.	-1.42	5b-3	-	0.0	33%		
6 / 2		Refusal at 1.42 m. End of Borehole							
7–13 / 2–3									

Drilled By: Canadian Environmental Drilling
Hole Size: 38 mm
Drill Method: Split-Spoon/Portable Jackhammer
Datum: local
Drill Date: July 20, 2011
Sheet: 1 of 1

exp Services Inc.
315 The Woolen Mill
4 Cataraqui Street
Kingston, ON K7K 1Z7

Log Of Borehole: BH-D6

Monitoring Well:

Project No.: KIN-16690-B0

Project: Delineation Sampling

Client: Gordon Marine

Location: 129 South Street, Gananoque, Ontario

Logged by: MW

SUBSURFACE PROFILE			SAMPLE						
Depth (ft / m)	Symbol	Description	Depth/Elev.	Blow Counts	Sample I.D.	Vapour ppm	Recovery	Well Completion Details	Comments
0 / 0		Ground Surface	0.00						
0 – 1		***Fill*** Gravel to sandy clay and gravel. Dark coloured at bottom. No odour. Moist.	-0.61	6-1	-	0.0	63%		
2 – 3 / 1		***Fill*** Sand and gravel to clay with gravel. Dark layer at bottom of spoon. Slight PHC odour. Wet.	-1.22	6-2	-	0.0	54%		Soil Sample 6-1 Submitted for PHC and BTEX.
4		***Fill*** Sand and gravel. No odour. Saturated.	-1.42	6-3	-	0.0	100%		
5		Refusal at 1.42 m.							
6 / 2		End of Borehole							
7 – 13 / 3									

Drilled By: Canadian Environmental Drilling

Drill Method: Split-Spoon/Portable Jackhammer

Drill Date: July 20, 2011

Hole Size: 38 mm

Datum: local

Sheet: 1 of 1

exp Services Inc.
315 The Woolen Mill
4 Cataraqui Street
Kingston, ON K7K 1Z7

Log Of Borehole: BH-D7

Monitoring Well:

Project No.: KIN-16690-B0

Project: Delineation Sampling

Client: Gordon Marine

Location: 129 South Street, Gananoque, Ontario

Logged by: MW

SUBSURFACE PROFILE			SAMPLE						
Depth (ft / m)	Symbol	Description	Depth/Elev.	Blow Counts	Sample I.D.	Vapour ppm	Recovery	Well Completion Details	Comments
0 / 0		Ground Surface	0.00						
1		***Fill*** Sand and gravel. Rusty brown to dark coloured. Slight PHC odour. Moist.	-0.61	7-1	-	0.0	25%		
2 / 3 / 1		***Fill*** Brown sand and gravel to brown clay, sand and gravel. Slight PHC odour. Wet.	-1.22	7-2	-	0.0	58%		Soil Sample 7-1 Submitted for PHC and BTEX.
4		Refusal at 1.22 m. End of Borehole							
5 / 6 / 2 / 7 / 8 / 9 / 10 / 3 / 11 / 12 / 13									

Drilled By: Canadian Environmental Drilling

Drill Method: Split-Spoon/Portable Jackhammer

Drill Date: July 20, 2011

Hole Size: 38 mm

Datum: local

Sheet: 1 of 1

exp Services Inc.
315 The Woolen Mill
4 Cataraqui Street
Kingston, ON K7K 1Z7

Log Of Borehole: BH-D8

Monitoring Well:

Project No.: KIN-16690-B0

Project: Delineation Sampling

Client: Gordon Marine

Location: 129 South Street, Gananoque, Ontario

Logged by: MW

SUBSURFACE PROFILE			SAMPLE						
Depth (ft / m)	Symbol	Description	Depth/Elev.	Blow Counts	Sample I.D.	Vapour ppm	Recovery	Well Completion Details	Comments
0 / 0		Ground Surface	0.00						
0 – 1 / 0		***Fill*** Sand and gravel. No odour. Dry.	-0.61	8-1	-	0.0	25%		
2 – 3 / 1		***Fill*** Gravel. Dark coloured at top. Sandstone cobble at bottom. No odour. Wet.	-1.02	8-2	-	0.0	56%		
4 – 5		***Fill*** Sand and gravel. Rusty brown. Slight PHC odour. Saturated.	-1.60	8-3	-	0.0	43%		Soil Sample 8-1 Submitted for PHC and BTEX.
6 – 7 / 2		***Fill*** Sand and gravel to sandy clay with gravel. Brown. No odour. Saturated.	-2.21	8-4	-	0.0	63%		
8 – 10 / 3		***Sand*** Sand with shell fragments. No odour. Wet.	-3.05	8-5	-	0.0	73%		
10 – 13		End of Borehole							

Drilled By: Canadian Environmental Drilling

Drill Method: Split-Spoon/Portable Jackhammer

Drill Date: July 20, 2011

Hole Size: 38 mm

Datum: local

Sheet: 1 of 1

exp Services Inc.
315 The Woolen Mill
4 Cataraqui Street
Kingston, ON K7K 1Z7

Log Of Borehole: BH-D9

Monitoring Well:

Project No.: KIN-16690-B0

Project: Delineation Sampling

Client: Gordon Marine

Location: 129 South Street, Gananoque, Ontario

Logged by: MW

SUBSURFACE PROFILE			SAMPLE						
Depth (ft / m)	Symbol	Description	Depth/Elev.	Blow Counts	Sample I.D.	Vapour ppm	Recovery	Well Completion Details	Comments
0 / 0		Ground Surface	0.00						
0 – 1		***Fill*** Clay with gravel. Brown with dark coloured layers. No odour. Moist.	-0.61	9-1	-	0.0	54%		
2 – 3 / 1		***Fill*** Dark coloured sand and gravel to brown silty sandy clay with gravel. No odour. Wet.	-1.22	9-2	-	0.0	50%		Soil Sample 9-1 Submitted for PHC and BTEX.
4 – 5		***Fill*** Sand and gravel. No odour. Saturated.	-1.83	9-3	-	0.0	33%		
6 – 7 / 2		***Fill*** Sand and gravel. Brown with dark coloured layer. No odour. Saturated.	-2.44	9-4	-	0.0	54%		
8 – 9		***Fill*** Sand and gravel. No odour. Saturated.	-3.05	9-5	-	0.0	100%		
10 / 3		End of Borehole							
11 – 13									

Drilled By: Canadian Environmental Drilling

Drill Method: Split-Spoon/Portable Jackhammer

Drill Date: July 20, 2011

Hole Size: 38 mm

Datum: local

Sheet: 1 of 1

Appendix E –

Unabbreviated Laboratory Reports

Maxxam

Success Through Science®

Your Project #: KIN16690
Your C.O.C. #: 00572586

Attention: PAULA FORMANEK
exp.
4 Cataraqui St
Suite 315
Kingston, ON
K7K 1Z7

Report Date: 2011/06/09
This report supersedes all previous reports with the same Maxxam job number

CERTIFICATE OF ANALYSIS

MAXXAM JOB #: B174548
Received: 2011/05/26, 09:00

Sample Matrix: Soil
Samples Received: 5

Analyses	Quantity	Date Extracted	Date Analyzed	Laboratory Method	Method Reference
Conductivity	2	N/A	2011/06/08	CAM SOP-00414	APHA 2510
Hexavalent Chromium in Soil by IC (1)	2	N/A	2011/06/08	CAM SOP-00436	EPA SW846-3060/7199
Petroleum Hydro. CCME F1 & BTEX in Soil	3	2011/05/27	2011/05/31	CAM SOP-00315	CCME CWS
Petroleum Hydrocarbons F2-F4 in Soil	3	2011/05/29	2011/05/30	CAM SOP-00316	CCME CWS
Acid Extr. Metals (aqua regia) by ICPMS	2	2011/05/31	2011/05/31	CAM SOP-00447	EPA 6020
Moisture	1	N/A	2011/05/28	CAM SOP-00445	McKeague 2nd ed 1978
Moisture	2	N/A	2011/05/31	CAM SOP-00445	McKeague 2nd ed 1978
Moisture	1	N/A	2011/06/06	CAM SOP-00445	McKeague 2nd ed 1978
Moisture	1	N/A	2011/06/07	CAM SOP-00445	McKeague 2nd ed 1978
PAH Compounds in Soil by GC/MS (SIM)	1	2011/05/27	2011/05/28	CAM SOP - 00318	EPA 8270
pH CaCl2 EXTRACT	2	2011/06/08	2011/06/08	CAM SOP-00413	SM 4500 H
Sodium Adsorption Ratio (SAR)	2	2011/06/06	2011/06/09	CAM SOP-00102	EPA 6010
Volatile Organic Compounds in Soil	2	2011/05/27	2011/05/31	CAM SOP-00226	EPA 8260 modified
Volatile Organic Compounds in Soil	1	2011/05/27	2011/06/01	CAM SOP-00226	EPA 8260 modified

* RPDs calculated using raw data. The rounding of final results may result in the apparent difference.
* Results relate only to the items tested.

(1) Soils are reported on a dry weight basis unless otherwise specified.

Encryption Key

Sara Saroop
09 Jun 2011 17:35:02 -04:00

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

SARA SAROOP, Project Manager
Email: SSaroop@maxxam.ca
Phone# (905) 817-5700 Ext:5821

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.

Total cover pages: 1

Maxxam Job #: B174548
Report Date: 2011/06/09

exp.
Client Project #: KIN16690

O'REG 153 PETROLEUM HYDROCARBONS (SOIL)

Maxxam ID		JP8185		JP8186	JP8187		
Sampling Date		2011/05/24		2011/05/24	2011/05/24		
	Units	BH-1-3	QC Batch	BH-2-2	BH-3-2	RDL	QC Batch
Inorganics							
Moisture	%	18	2502122	22	18	1	2504230
BTEX & F1 Hydrocarbons							
F1 (C6-C10)	ug/g	<10	2502175	22	11	10	2502175
F1 (C6-C10) - BTEX	ug/g	<10	2502175	21	10	10	2502175
F2-F4 Hydrocarbons							
F2 (C10-C16 Hydrocarbons)	ug/g	<10	2502150	1900	<10	10	2502150
F3 (C16-C34 Hydrocarbons)	ug/g	94	2502150	960	220	10	2502150
F4 (C34-C50 Hydrocarbons)	ug/g	<10	2502150	18	31	10	2502150
Reached Baseline at C50	ug/g	YES	2502150	YES	YES		2502150
Surrogate Recovery (%)							
1,4-Difluorobenzene	%	99	2502175	92	99		2502175
4-Bromofluorobenzene	%	100	2502175	110	102		2502175
D10-Ethylbenzene	%	85	2502175	82	86		2502175
D4-1,2-Dichloroethane	%	101	2502175	94	101		2502175
o-Terphenyl	%	106	2502150	104	103		2502150

O'REG 153 METALS & INORGANICS SHORT LIST (SOIL)

Maxxam ID		JP8188	JP8188			JP8189		
Sampling Date		2011/05/24	2011/05/24			2011/05/24		
	Units	BH-4-3	BH-4-3 Lab-Dup	RDL	QC Batch	BH-1-1	RDL	QC Batch
Calculated Parameters								
Sodium Adsorption Ratio	N/A	0.31			2510213	0.13		2510213
Inorganics								
Chromium (VI)	ug/g	<0.2		0.2	2512021	<0.4 (1)	0.4	2512031
Conductivity	mS/cm	0.15		0.002	2513165	0.59	0.002	2513165
Moisture	%	5	5	1	2511719	25	1	2511371
Available (CaCl2) pH	pH	7.44			2513175	6.39		2513175

N/A = Not Applicable
RDL = Reportable Detection Limit
QC Batch = Quality Control Batch
(1) - Due to colour interferences, sample required dilution. Detection limit was adjusted accordingly.

Maxxam Job #: B174548
Report Date: 2011/06/09

exp.
Client Project #: KIN16690

O'REG 153 METALS BY ICPMS (SOIL)

Maxxam ID		JP8188	JP8188		JP8189		
Sampling Date		2011/05/24	2011/05/24		2011/05/24		
	Units	BH-4-3	BH-4-3 Lab-Dup	QC Batch	BH-1-1	RDL	QC Batch
Metals							
Acid Extractable Antimony (Sb)	ug/g	<0.2	<0.2	2504259	2.5	0.2	2503995
Acid Extractable Arsenic (As)	ug/g	<1	<1	2504259	200	1	2503995
Acid Extractable Barium (Ba)	ug/g	22	23	2504259	360	0.5	2503995
Acid Extractable Beryllium (Be)	ug/g	<0.2	0.2	2504259	0.2	0.2	2503995
Acid Extractable Boron (B)	ug/g	<5	<5	2504259	5	5	2503995
Acid Extractable Cadmium (Cd)	ug/g	<0.1	<0.1	2504259	<0.1	0.1	2503995
Acid Extractable Chromium (Cr)	ug/g	6	6	2504259	12	1	2503995
Acid Extractable Cobalt (Co)	ug/g	3.0	3.1	2504259	4.4	0.1	2503995
Acid Extractable Copper (Cu)	ug/g	8.0	8.5	2504259	53	0.5	2503995
Acid Extractable Lead (Pb)	ug/g	2	2	2504259	600	1	2503995
Acid Extractable Molybdenum (Mo)	ug/g	<0.5	<0.5	2504259	2.4	0.5	2503995
Acid Extractable Nickel (Ni)	ug/g	5.5	5.6	2504259	10	0.5	2503995
Acid Extractable Selenium (Se)	ug/g	<0.5	<0.5	2504259	9.4	0.5	2503995
Acid Extractable Silver (Ag)	ug/g	<0.2	<0.2	2504259	0.2	0.2	2503995
Acid Extractable Thallium (Tl)	ug/g	<0.05	0.05	2504259	0.34	0.05	2503995
Acid Extractable Uranium (U)	ug/g	0.25	0.25	2504259	0.68	0.05	2503995
Acid Extractable Vanadium (V)	ug/g	16	16	2504259	31	5	2503995
Acid Extractable Zinc (Zn)	ug/g	14	14	2504259	54	5	2503995

RDL = Reportable Detection Limit
QC Batch = Quality Control Batch

Maxxam Job #: B174548
Report Date: 2011/06/09

exp.
Client Project #: KIN16690

O'REG 153 POLYAROMATIC HYDROCARBONS (SOIL)

Maxxam ID		JP8185		
Sampling Date		2011/05/24		
	Units	BH-1-3	RDL	QC Batch
Polyaromatic Hydrocarbons				
Acenaphthene	ug/g	0.16	0.02	2501494
Acenaphthylene	ug/g	0.11	0.01	2501494
Anthracene	ug/g	0.28	0.01	2501494
Benzo(a)anthracene	ug/g	1.3	0.02	2501494
Benzo(a)pyrene	ug/g	0.86	0.01	2501494
Benzo(b/j)fluoranthene	ug/g	1.0	0.02	2501494
Benzo(g,h,i)perylene	ug/g	0.40	0.04	2501494
Benzo(k)fluoranthene	ug/g	0.31	0.02	2501494
Chrysene	ug/g	1.1	0.02	2501494
Dibenz(a,h)anthracene	ug/g	0.13	0.04	2501494
Fluoranthene	ug/g	3.4	0.01	2501494
Fluorene	ug/g	0.15	0.01	2501494
Indeno(1,2,3-cd)pyrene	ug/g	0.50	0.04	2501494
1-Methylnaphthalene	ug/g	0.29	0.01	2501494
2-Methylnaphthalene	ug/g	0.38	0.01	2501494
Naphthalene	ug/g	0.28	0.01	2501494
Phenanthrene	ug/g	1.5	0.01	2501494
Pyrene	ug/g	3.0	0.01	2501494
Surrogate Recovery (%)				
D10-Anthracene	%	88		2501494
D14-Terphenyl (FS)	%	80		2501494
D8-Acenaphthylene	%	90		2501494

RDL = Reportable Detection Limit
QC Batch = Quality Control Batch

Maxxam Job #: B174548
Report Date: 2011/06/09

exp.
Client Project #: KIN16690

O'REG 153 VOLATILE ORGANICS (SOIL)

Maxxam ID		JP8185	JP8186		JP8187		
Sampling Date		2011/05/24	2011/05/24		2011/05/24		
	Units	BH-1-3	BH-2-2	RDL	BH-3-2	RDL	QC Batch
Volatile Organics							
Acetone (2-Propanone)	ug/g	<5	<5	5	<0.1	0.1	2502331
Benzene	ug/g	<0.1	0.9	0.1	<0.002	0.002	2502331
Bromodichloromethane	ug/g	<0.1	<0.1	0.1	<0.002	0.002	2502331
Bromoform	ug/g	<0.1	<0.1	0.1	<0.002	0.002	2502331
Bromomethane	ug/g	<0.2	<0.2	0.2	<0.003	0.003	2502331
Carbon Tetrachloride	ug/g	<0.1	<0.1	0.1	<0.002	0.002	2502331
Chlorobenzene	ug/g	<0.1	<0.1	0.1	<0.002	0.002	2502331
Chloroform	ug/g	<0.1	<0.1	0.1	<0.002	0.002	2502331
Dibromochloromethane	ug/g	<0.1	<0.1	0.1	<0.002	0.002	2502331
1,2-Dichlorobenzene	ug/g	<0.1	<0.1	0.1	<0.002	0.002	2502331
1,3-Dichlorobenzene	ug/g	<0.1	<0.1	0.1	<0.002	0.002	2502331
1,4-Dichlorobenzene	ug/g	<0.1	<0.1	0.1	<0.002	0.002	2502331
Dichlorodifluoromethane (FREON 12)	ug/g	<0.3	<0.3	0.3	<0.005	0.005	2502331
1,1-Dichloroethane	ug/g	<0.1	<0.1	0.1	<0.002	0.002	2502331
1,2-Dichloroethane	ug/g	<0.1	<0.1	0.1	<0.002	0.002	2502331
1,1-Dichloroethylene	ug/g	<0.1	<0.1	0.1	<0.002	0.002	2502331
cis-1,2-Dichloroethylene	ug/g	<0.1	<0.1	0.1	<0.002	0.002	2502331
trans-1,2-Dichloroethylene	ug/g	<0.1	<0.1	0.1	<0.002	0.002	2502331
1,2-Dichloropropane	ug/g	<0.1	<0.1	0.1	<0.002	0.002	2502331
cis-1,3-Dichloropropene	ug/g	<0.1	<0.1	0.1	<0.002	0.002	2502331
trans-1,3-Dichloropropene	ug/g	<0.1	<0.1	0.1	<0.002	0.002	2502331
Ethylbenzene	ug/g	<0.1	1.2	0.1	<0.002	0.002	2502331
Ethylene Dibromide	ug/g	<0.1	<0.1	0.1	<0.002	0.002	2502331
Hexane	ug/g	<0.3	0.7	0.3	<0.005	0.005	2502331
Methylene Chloride(Dichloromethane)	ug/g	<0.2	<0.2	0.2	<0.003	0.003	2502331
Methyl Isobutyl Ketone	ug/g	<1	<1	1	<0.03	0.03	2502331
Methyl Ethyl Ketone (2-Butanone)	ug/g	<1	<1	1	<0.03	0.03	2502331
Methyl t-butyl ether (MTBE)	ug/g	<0.1	<0.1	0.1	<0.002	0.002	2502331
Styrene	ug/g	<0.1	<0.1	0.1	<0.002	0.002	2502331
1,1,1,2-Tetrachloroethane	ug/g	<0.1	<0.1	0.1	<0.002	0.002	2502331
1,1,2,2-Tetrachloroethane	ug/g	<0.1	<0.1	0.1	<0.002	0.002	2502331
Tetrachloroethylene	ug/g	<0.1	<0.1	0.1	<0.002	0.002	2502331
Toluene	ug/g	0.4	4.1	0.1	0.003	0.002	2502331
1,1,1-Trichloroethane	ug/g	<0.1	<0.1	0.1	<0.002	0.002	2502331
1,1,2-Trichloroethane	ug/g	<0.1	<0.1	0.1	<0.002	0.002	2502331

RDL = Reportable Detection Limit
QC Batch = Quality Control Batch

Maxxam Job #: B174548
Report Date: 2011/06/09

exp.
Client Project #: KIN16690

O'REG 153 VOLATILE ORGANICS (SOIL)

Maxxam ID		JP8185	JP8186		JP8187		
Sampling Date		2011/05/24	2011/05/24		2011/05/24		
	Units	BH-1-3	BH-2-2	RDL	BH-3-2	RDL	QC Batch
Trichloroethylene	ug/g	<0.1	<0.1	0.1	<0.002	0.002	2502331
Vinyl Chloride	ug/g	<0.1	<0.1	0.1	<0.002	0.002	2502331
p+m-Xylene	ug/g	0.4	3.8	0.1	<0.002	0.002	2502331
o-Xylene	ug/g	0.2	2.7	0.1	<0.002	0.002	2502331
Xylene (Total)	ug/g	0.6	6.5	0.1	<0.002	0.002	2502331
Trichlorofluoromethane (FREON 11)	ug/g	<0.1	<0.1	0.1	<0.002	0.002	2502331
Surrogate Recovery (%)							
4-Bromofluorobenzene	%	116	119		59(1)		2502331
D4-1,2-Dichloroethane	%	123	120		91		2502331
D8-Toluene	%	91	93		154(2)		2502331

RDL = Reportable Detection Limit
QC Batch = Quality Control Batch
(1) - The recovery for the surrogate compound was below the control limit for duplicate analyses of the soil sample. This likely indicates the presence of a sample matrix effect. As a result, there is an increased level of uncertainty associated with the values reported for this sample.
(2) - The recovery for the surrogate compound was above the control limit for duplicate analyses of the soil sample. This likely indicates the presence of a sample matrix effect. As a result, there is an increased level of uncertainty associated with the values reported for this sample.

Maxxam Job #: B174548
Report Date: 2011/06/09

exp.
Client Project #: KIN16690

GENERAL COMMENTS

VOC Analysis: Due to a level of target analytes and/or petroleum hydrocarbon compounds beyond the appropriate range, some of the samples could not be analysed by the low level direct purge method. These samples were preextracted in methanol and the extracts analysed by high level purge & trap (US EPA Method 5035) gas chromatography/mass spectrometry using US EPA Method 8260C (modified). The DLs were adjusted accordingly.

Sample JP8185-01: PAH Analysis: Due to the sample matrix, sample required dilution. Detection limits were adjusted accordingly.

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

Sample JP8186-01: F1-BTEX Analysis:The BTEX results used for the F1-BTEX calculation were obtained from Headspace-GC analysis.

Sample JP8187-01: F1-BTEX Analysis:The BTEX results used for the F1-BTEX calculation were obtained from Headspace-GC analysis.

Sample JP8188-01: SAR Analysis: Sodium was not detected. To report SAR the sodium detection limit was used in the calculation. This value represents a maximum ratio.

Sample JP8189-01: SAR Analysis: Sodium was not detected. To report SAR the sodium detection limit was used in the calculation. This value represents a maximum ratio.

Maxxam Job #: B174548
Report Date: 2011/06/09

exp.
Client Project #: KIN16690

QUALITY ASSURANCE REPORT

			Matrix Spike		Spiked Blank		Method Blank		RPD		QC Standard	
QC Batch	Parameter	Date	% Recovery	QC Limits	% Recovery	QC Limits	Value	Units	Value (%)	QC Limits	% Recovery	QC Limits
2501494	D10-Anthracene	2011/05/28	92	30 - 130	95	30 - 130	105	%				
2501494	D14-Terphenyl (FS)	2011/05/28	81	30 - 130	82	30 - 130	84	%				
2501494	D8-Acenaphthylene	2011/05/28	84	30 - 130	91	30 - 130	82	%				
2501494	Acenaphthene	2011/05/28	97	30 - 130	106	30 - 130	<0.01	ug/g	NC	50		
2501494	Acenaphthylene	2011/05/28	107	30 - 130	116	30 - 130	<0.005	ug/g	NC	50		
2501494	Anthracene	2011/05/28	108	30 - 130	113	30 - 130	<0.005	ug/g	NC	50		
2501494	Benzo(a)anthracene	2011/05/28	93	30 - 130	102	30 - 130	<0.01	ug/g	33.5	50		
2501494	Benzo(a)pyrene	2011/05/28	85	30 - 130	97	30 - 130	<0.005	ug/g	29.4	50		
2501494	Benzo(b/j)fluoranthene	2011/05/28	84	30 - 130	96	30 - 130	<0.01	ug/g	36.3	50		
2501494	Benzo(g,h,i)perylene	2011/05/28	71	30 - 130	79	30 - 130	<0.02	ug/g	NC	50		
2501494	Benzo(k)fluoranthene	2011/05/28	73	30 - 130	83	30 - 130	<0.01	ug/g	12.4	50		
2501494	Chrysene	2011/05/28	79	30 - 130	95	30 - 130	<0.01	ug/g	32.4	50		
2501494	Dibenz(a,h)anthracene	2011/05/28	83	30 - 130	85	30 - 130	<0.02	ug/g	NC	50		
2501494	Fluoranthene	2011/05/28	84	30 - 130	107	30 - 130	<0.005	ug/g	35.4	50		
2501494	Fluorene	2011/05/28	104	30 - 130	109	30 - 130	<0.005	ug/g	NC	50		
2501494	Indeno(1,2,3-cd)pyrene	2011/05/28	81	30 - 130	86	30 - 130	<0.02	ug/g	NC	50		
2501494	1-Methylnaphthalene	2011/05/28	98	30 - 130	110	30 - 130	<0.005	ug/g	NC	50		
2501494	2-Methylnaphthalene	2011/05/28	92	30 - 130	105	30 - 130	<0.005	ug/g	NC	50		
2501494	Naphthalene	2011/05/28	85	30 - 130	101	30 - 130	<0.005	ug/g	NC	50		
2501494	Phenanthrene	2011/05/28	91	30 - 130	102	30 - 130	<0.005	ug/g	51.3(1,2)	50		
2501494	Pyrene	2011/05/28	88	30 - 130	107	30 - 130	<0.005	ug/g	32.3	50		
2502122	Moisture	2011/05/28							4.1	20		
2502150	o-Terphenyl	2011/05/30	100	30 - 130	97	30 - 130	103	%				
2502150	F2 (C10-C16 Hydrocarbons)	2011/05/31	92	60 - 130	88	60 - 130	<10	ug/g	NC	50		
2502150	F3 (C16-C34 Hydrocarbons)	2011/05/31	92	60 - 130	88	60 - 130	<10	ug/g	NC	50		
2502150	F4 (C34-C50 Hydrocarbons)	2011/05/31	92	60 - 130	88	60 - 130	<10	ug/g	NC	50		
2502175	1,4-Difluorobenzene	2011/05/30	99	60 - 140	99	60 - 140	98	%				
2502175	4-Bromofluorobenzene	2011/05/30	102	60 - 140	100	60 - 140	101	%				
2502175	D10-Ethylbenzene	2011/05/30	84	30 - 130	87	30 - 130	83	%				
2502175	D4-1,2-Dichloroethane	2011/05/30	103	60 - 140	102	60 - 140	99	%				
2502175	F1 (C6-C10)	2011/05/31	102	60 - 140	91	60 - 140	<10	ug/g	NC	50		
2502175	F1 (C6-C10) - BTEX	2011/05/31					<10	ug/g	NC	50		
2502331	4-Bromofluorobenzene	2011/05/31	89	60 - 140	103	60 - 140	102	%				
2502331	D4-1,2-Dichloroethane	2011/05/31	93	60 - 140	95	60 - 140	97	%				
2502331	D8-Toluene	2011/05/31	108	60 - 140	96	60 - 140	98	%				
2502331	Acetone (2-Propanone)	2011/06/01	103	24 - 171	96	60 - 140	<0.1	ug/g	NC	50		
2502331	Benzene	2011/06/01	69	39 - 137	97	60 - 140	<0.002	ug/g	NC	50		
2502331	Bromodichloromethane	2011/06/01	70	45 - 131	96	60 - 140	<0.002	ug/g	NC	50		
2502331	Bromoform	2011/06/01	87	44 - 131	112	60 - 140	<0.002	ug/g	NC	50		
2502331	Bromomethane	2011/06/01	41	20 - 146	67	60 - 140	<0.003	ug/g	NC	50		

QUALITY ASSURANCE REPORT

			Matrix Spike		Spiked Blank		Method Blank		RPD		QC Standard	
QC Batch	Parameter	Date	% Recovery	QC Limits	% Recovery	QC Limits	Value	Units	Value (%)	QC Limits	% Recovery	QC Limits
2502331	Carbon Tetrachloride	2011/06/01	71	40 - 139	100	60 - 140	<0.002	ug/g	NC	50		
2502331	Chlorobenzene	2011/06/01	79	45 - 140	97	60 - 140	<0.002	ug/g	NC	50		
2502331	Chloroform	2011/06/01	72	48 - 128	97	60 - 140	<0.002	ug/g	NC	50		
2502331	Dibromochloromethane	2011/06/01	87	52 - 135	102	60 - 140	<0.002	ug/g	NC	50		
2502331	1,2-Dichlorobenzene	2011/06/01	92	39 - 145	100	60 - 140	<0.002	ug/g	NC	50		
2502331	1,3-Dichlorobenzene	2011/06/01	97	38 - 158	101	60 - 140	<0.002	ug/g	NC	50		
2502331	1,4-Dichlorobenzene	2011/06/01	106	35 - 159	109	60 - 140	<0.002	ug/g	NC	50		
2502331	Dichlorodifluoromethane (FREON 12)	2011/06/01	73	60 - 140	89	60 - 140	<0.005	ug/g	NC	50		
2502331	1,1-Dichloroethane	2011/06/01	71	48 - 131	97	60 - 140	<0.002	ug/g	NC	50		
2502331	1,2-Dichloroethane	2011/06/01	72	43 - 123	96	60 - 140	<0.002	ug/g	NC	50		
2502331	1,1-Dichloroethylene	2011/06/01	75	50 - 134	99	60 - 140	<0.002	ug/g	NC	50		
2502331	cis-1,2-Dichloroethylene	2011/06/01	74	45 - 136	99	60 - 140	<0.002	ug/g	NC	50		
2502331	trans-1,2-Dichloroethylene	2011/06/01	74	45 - 136	97	60 - 140	<0.002	ug/g	NC	50		
2502331	1,2-Dichloropropane	2011/06/01	71	51 - 130	96	60 - 140	<0.002	ug/g	NC	50		
2502331	cis-1,3-Dichloropropene	2011/06/01	78	39 - 143	106	60 - 140	<0.002	ug/g	NC	50		
2502331	trans-1,3-Dichloropropene	2011/06/01	86	33 - 135	98	60 - 140	<0.002	ug/g	NC	50		
2502331	Ethylbenzene	2011/06/01	64	46 - 150	98	60 - 140	<0.002	ug/g	NC	50		
2502331	Ethylene Dibromide	2011/06/01	88	48 - 136	99	60 - 140	<0.002	ug/g	NC	50		
2502331	Hexane	2011/06/01	48(1, 3)	60 - 140	86	60 - 140	<0.005	ug/g	NC	50		
2502331	Methylene Chloride(Dichloromethane)	2011/06/01	73	47 - 124	94	60 - 140	<0.003	ug/g	NC	50		
2502331	Methyl Isobutyl Ketone	2011/06/01	88	48 - 133	101	60 - 140	<0.03	ug/g	NC	50		
2502331	Methyl Ethyl Ketone (2-Butanone)	2011/06/01	102	39 - 160	101	60 - 140	<0.03	ug/g	NC	50		
2502331	Methyl t-butyl ether (MTBE)	2011/06/01	82	37 - 150	109	60 - 140	<0.002	ug/g	NC	50		
2502331	Styrene	2011/06/01	68	27 - 148	95	60 - 140	<0.002	ug/g	NC	50		
2502331	1,1,1,2-Tetrachloroethane	2011/06/01	80	51 - 140	100	60 - 140	<0.002	ug/g	NC	50		
2502331	1,1,2,2-Tetrachloroethane	2011/06/01	77	46 - 128	95	60 - 140	<0.002	ug/g	NC	50		
2502331	Tetrachloroethylene	2011/06/01	75	45 - 154	92	60 - 140	<0.002	ug/g	NC	50		
2502331	Toluene	2011/06/01	71	30 - 158	95	60 - 140	<0.002	ug/g	12.0	50		
2502331	1,1,1-Trichloroethane	2011/06/01	70	44 - 136	97	60 - 140	<0.002	ug/g	NC	50		
2502331	1,1,2-Trichloroethane	2011/06/01	85	56 - 135	94	60 - 140	<0.002	ug/g	NC	50		
2502331	Trichloroethylene	2011/06/01	77	39 - 146	99	60 - 140	<0.002	ug/g	NC	50		
2502331	Vinyl Chloride	2011/06/01	62	34 - 136	83	60 - 140	<0.002	ug/g	NC	50		
2502331	p+m-Xylene	2011/06/01	NC(4)	29 - 161	98	60 - 140	<0.002	ug/g	36.4	50		
2502331	o-Xylene	2011/06/01	NC(4)	45 - 150	102	60 - 140	<0.002	ug/g	48.1	50		
2502331	Trichlorofluoromethane (FREON 11)	2011/06/01	70	45 - 140	91	60 - 140	<0.002	ug/g	NC	50		
2502331	Xylene (Total)	2011/06/01					<0.002	ug/g	41.4	50		
2503995	Acid Extractable Antimony (Sb)	2011/05/31	109	75 - 125			<0.2	ug/g	NC	35	102	75 - 125
2503995	Acid Extractable Arsenic (As)	2011/05/31	107	75 - 125			<1	ug/g	NC	35	97	75 - 125
2503995	Acid Extractable Barium (Ba)	2011/05/31	NC	75 - 125			<0.5	ug/g	3.0	35	99	75 - 125
2503995	Acid Extractable Beryllium (Be)	2011/05/31	114	75 - 125			<0.2	ug/g	NC	35	103	75 - 125

Maxxam Job #: B174548
Report Date: 2011/06/09

exp.
Client Project #: KIN16690

QUALITY ASSURANCE REPORT

			Matrix Spike		Spiked Blank		Method Blank		RPD		QC Standard	
QC Batch	Parameter	Date	% Recovery	QC Limits	% Recovery	QC Limits	Value	Units	Value (%)	QC Limits	% Recovery	QC Limits
2503995	Acid Extractable Boron (B)	2011/05/31	121	75 - 125			<5	ug/g	NC	35	102	75 - 125
2503995	Acid Extractable Cadmium (Cd)	2011/05/31	110	75 - 125			<0.1	ug/g	NC	35	103	75 - 125
2503995	Acid Extractable Chromium (Cr)	2011/05/31	108	75 - 125			<1	ug/g	4.4	35	98	75 - 125
2503995	Acid Extractable Cobalt (Co)	2011/05/31	102	75 - 125			<0.1	ug/g	0.7	35	96	75 - 125
2503995	Acid Extractable Copper (Cu)	2011/05/31	103	75 - 125			<0.5	ug/g	2.0	35	98	75 - 125
2503995	Acid Extractable Lead (Pb)	2011/05/31	103	75 - 125			<1	ug/g	NC	35	98	75 - 125
2503995	Acid Extractable Molybdenum (Mo)	2011/05/31	108	75 - 125			<0.5	ug/g	NC	35	98	75 - 125
2503995	Acid Extractable Nickel (Ni)	2011/05/31	103	75 - 125			<0.5	ug/g	2.6	35	98	75 - 125
2503995	Acid Extractable Selenium (Se)	2011/05/31	107	75 - 125			<0.5	ug/g	NC	35	101	75 - 125
2503995	Acid Extractable Silver (Ag)	2011/05/31	107	75 - 125			<0.2	ug/g	NC	35	98	75 - 125
2503995	Acid Extractable Thallium (Tl)	2011/05/31	101	75 - 125			<0.05	ug/g	NC	35	95	75 - 125
2503995	Acid Extractable Uranium (U)	2011/05/31	106	75 - 125			<0.05	ug/g	2.2	25	97	75 - 125
2503995	Acid Extractable Vanadium (V)	2011/05/31	109	75 - 125			<5	ug/g	NC	35	97	75 - 125
2503995	Acid Extractable Zinc (Zn)	2011/05/31	105	75 - 125			<5	ug/g	NC	35	102	75 - 125
2504230	Moisture	2011/05/31							0.8	20		
2504259	Acid Extractable Antimony (Sb)	2011/05/31	101	75 - 125			<0.2	ug/g	NC	35	110	75 - 125
2504259	Acid Extractable Arsenic (As)	2011/05/31	99	75 - 125			<1	ug/g	NC	35	102	75 - 125
2504259	Acid Extractable Barium (Ba)	2011/05/31	100	75 - 125			<0.5	ug/g	6.7	35	101	75 - 125
2504259	Acid Extractable Beryllium (Be)	2011/05/31	104	75 - 125			<0.2	ug/g	NC	35	107	75 - 125
2504259	Acid Extractable Boron (B)	2011/05/31	110	75 - 125			<5	ug/g	NC	35	113	75 - 125
2504259	Acid Extractable Cadmium (Cd)	2011/05/31	101	75 - 125			<0.1	ug/g	NC	35	109	75 - 125
2504259	Acid Extractable Chromium (Cr)	2011/05/31	100	75 - 125			<1	ug/g	4.1	35	101	75 - 125
2504259	Acid Extractable Cobalt (Co)	2011/05/31	96	75 - 125			<0.1	ug/g	3.4	35	102	75 - 125
2504259	Acid Extractable Copper (Cu)	2011/05/31	98	75 - 125			<0.5	ug/g	6.3	35	104	75 - 125
2504259	Acid Extractable Lead (Pb)	2011/05/31	96	75 - 125			<1	ug/g	NC	35	100	75 - 125
2504259	Acid Extractable Molybdenum (Mo)	2011/05/31	97	75 - 125			<0.5	ug/g	NC	35	105	75 - 125
2504259	Acid Extractable Nickel (Ni)	2011/05/31	96	75 - 125			<0.5	ug/g	2.5	35	103	75 - 125
2504259	Acid Extractable Selenium (Se)	2011/05/31	102	75 - 125			<0.5	ug/g	NC	35	107	75 - 125
2504259	Acid Extractable Silver (Ag)	2011/05/31	98	75 - 125			<0.2	ug/g	NC	35	103	75 - 125
2504259	Acid Extractable Thallium (Tl)	2011/05/31	94	75 - 125			<0.05	ug/g	NC	35	97	75 - 125
2504259	Acid Extractable Uranium (U)	2011/05/31	97	75 - 125			<0.05	ug/g	NC	25	99	75 - 125
2504259	Acid Extractable Vanadium (V)	2011/05/31	98	75 - 125			<5	ug/g	NC	35	99	75 - 125
2504259	Acid Extractable Zinc (Zn)	2011/05/31	99	75 - 125			<5	ug/g	NC	35	108	75 - 125
2511371	Moisture	2011/06/06							2.3	20		
2511719	Moisture	2011/06/07							NC	20		
2512021	Chromium (VI)	2011/06/08	89	75 - 125	93	80 - 120	<0.2	ug/g	NC	25	84	75 - 125

Maxxam Job #: B174548
Report Date: 2011/06/09

exp.
Client Project #: KIN16690

QUALITY ASSURANCE REPORT

			Matrix Spike		Spiked Blank		Method Blank		RPD		QC Standard	
QC Batch	Parameter	Date	% Recovery	QC Limits	% Recovery	QC Limits	Value	Units	Value (%)	QC Limits	% Recovery	QC Limits
2512031	Chromium (VI)	2011/06/08	0(1, 5)	75 - 125	106	80 - 120	<0.2	ug/g	NC	25	87	75 - 125
2513165	Conductivity	2011/06/08					<0.002	mS/cm	1.7	35	100	75 - 125

N/A = Not Applicable
RPD = Relative Percent Difference
Duplicate: Paired analysis of a separate portion of the same sample. Used to evaluate the variance in the measurement.
Matrix Spike: A sample to which a known amount of the analyte of interest has been added. Used to evaluate sample matrix interference.
QC Standard: A blank matrix to which a known amount of the analyte has been added. Used to evaluate analyte recovery.
Spiked Blank: A blank matrix to which a known amount of the analyte has been added. Used to evaluate analyte recovery.
Method Blank: A blank matrix containing all reagents used in the analytical procedure. Used to identify laboratory contamination.
Surrogate: A pure or isotopically labeled compound whose behavior mirrors the analytes of interest. Used to evaluate extraction efficiency.
NC (Matrix Spike): The recovery in the matrix spike was not calculated. The relative difference between the concentration in the parent sample and the spiked amount was not sufficiently significant to permit a reliable recovery calculation.
NC (RPD): The RPD was not calculated. The level of analyte detected in the parent sample and its duplicate was not sufficiently significant to permit a reliable calculation.
(1) - Recovery or RPD for this parameter is outside control limits. The overall quality control for this analysis meets acceptability criteria.
(2) - Duplicate results exceeded RPD acceptance criteria. The variability in the results for this analyte may be more pronounced.
(3) - The recovery was below the lower control limit. This may represent a low bias in some results for this specific analyte.
(4) - The recovery in the matrix spike was not calculated (NC). Because of the high concentration of this analyte in the parent sample, the relative difference between the spiked and unspiked concentrations is not sufficiently significant to permit a reliable recovery calculation.
(5) - The matrix spike recovery was below the lower control limit. This may be due in part to the reducing environment of the sample.

Validation Signature Page

Maxxam Job #: B174548

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

Cristina Carriere

CRISTINA CARRIERE, Scientific Services

Eva Pranjic

EWA PRANJIC, M.Sc., C.Chem, Scientific Specialist

Floyd Mayede

FLOYD MAYEDE, Senior Analyst

M. Riskallah

MEDHAT RISKALLAH, Manager, Hydrocarbon Department

Validation Signature Page

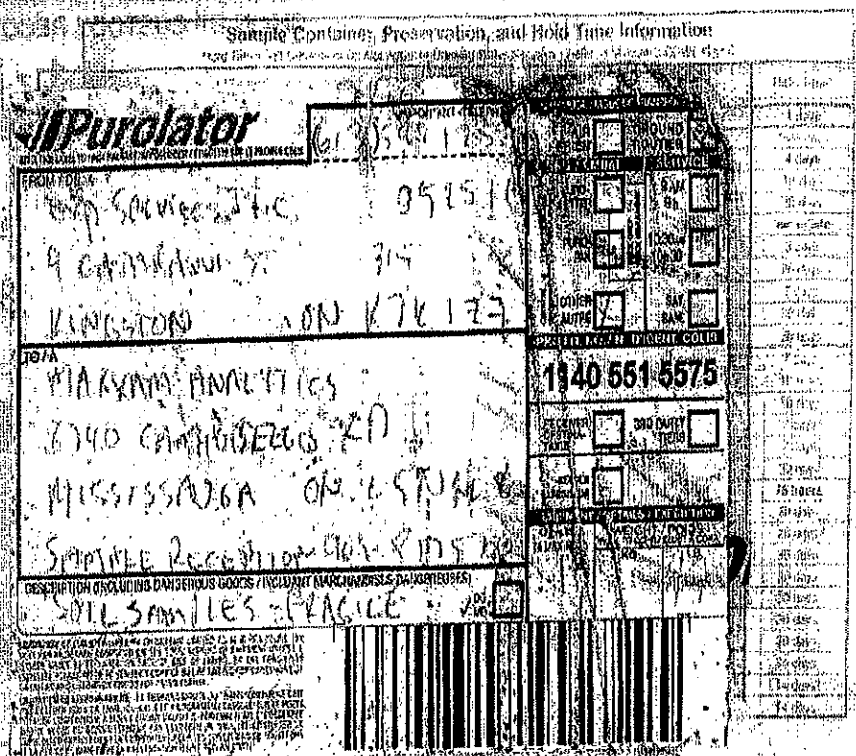
Maxxam Job #: B174548

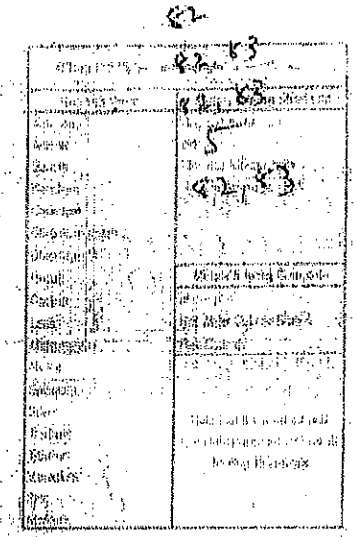
The analytical data and all QC contained in this report were reviewed and validated by the following individual(s).

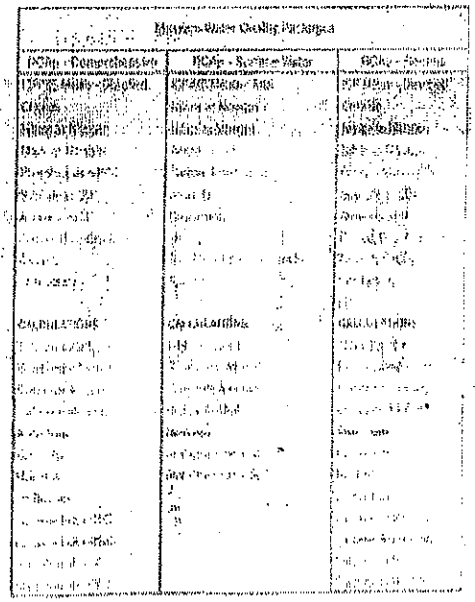
Suzana Popović

SUZANA POPOVIC, Supervisor, Hydrocarbons

Maxxam has procedures in place to guard against improper use of the electronic signature and have the required "signatories", as per section 5.10.2 of ISO/IEC 17025:2005(E), signing the reports. For Service Group specific validation please refer to the Validation Signature Page.


Sample Container, Preservation, and Hold Time Information
Purolator
1140 551 5575
SOIL





CHAIN OF CUSTODY RECORD

Page 1 of 1

Maxxam Analytics Inc. 6740 Campobello Road, Mississauga, ON L5N 2L8
Phone: 905-817-5700 Fax: 905-817-5778 Toll Free: (800) 563-6266

26-May-11 09:00
SARA SAROOP
B174548
SEL ENV-178

INVOICE INFORMATION	REPORT INFORMATION	PROJECT INFORMATION	MAXXAM JOB NUMBER
Company Name: Exp	Company Name:	Quotation #:	
Contact Name: MATT WHITNEY	Contact Name:	P.O. #:	CHAIN OF CUSTODY #
Address: 315-4 CATARAQUI ST KINGSTON ON K7K 1Z7	Address:	Project #: KIN-00690	0057258 6
Phone: 613 542 1153 Fax: 613 547 3160	Phone:	Project Name:	
Email: matthew.whitney@exp.com	Email:	Location:	
		Sampled By: MW	

REGULATORY CRITERIA

Note: For regulated drinking water samples - please use the Drinking Water Chain of Custody Form.

MISA Reg. 153 Sewer Use: X Other (Reg 153/11) Table 3 (specify)
PWQO Table 1 Sanitary
Table 2 Storm
Table 3 Region
Reg. 558
Report Criteria on Guidance? [ ]

SAMPLES MUST BE KEPT COOL (<10°C) FROM TIME OF SAMPLING UNTIL DELIVERY TO MAXXAM.

ANALYSIS REQUESTED (Please be specific)

Regulated Criteria (Y/N) | Modified Criteria (Y/N)

	Sample Identification	Date Sampled	Time Sampled	Matrix (soil, sw, ss, etc.)	Regulated Criteria (Y/N)	Modified Criteria (Y/N)	PAC F1-F4	VOC	metals	PAH	# of Cont.	COMMENTS / TAT COMMENTS
1	BH-1-3	May 24/11	AM	Soil	N	N	X	X		X	1	
2	BH-2-2		PM				X	X			1	
3	BH-3-2		PM				X	X			2	
4	BH-4-3		PM						X		1	
5	BH-1-1	↓	AM	↓	↓	↓			X		1	
6												
7												
8												
9												
10												
11												
12												

TURNAROUND TIME (TAT) REQUIRED

PLEASE PROVIDE ADVANCE NOTICE FOR RUSH PROJECTS.

Regular (Standard) TAT: X 5 to 7 Working Days

Rush TAT: Rush Confirmation #: (call Lab for #)
[ ] 1 day [ ] 2 days [ ] 3 days

DATE Required:

TIME Required:

Please note that TAT for certain tests such as BOD and Phenols/Fluoride are > 5 days - contact your Project Manager for details.

RELINQUISHED BY (Signature/Print)	RECEIVED BY (Signature/Print)	Date	Time
MATT WHITNEY May 25/11	Maxxam AURA DAVIS	2011/05/26	09:00

Laboratory Use Only

Temperature (°C) on Receipt	Condition of Sample on Receipt
2/2/1 C	[ ] OK [ ] SIF

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

White: Maxxam Yellow: Mar Pink: Client

ENV009-CHT-05/09

Maxxam

Your Project #: 16690X
Your C.O.C. #: 00572587

Attention: PAULA FORMANEK
exp.
4 Cataraqui St
Suite 315
Kingston, ON
K7K 1Z7

Report Date: 2011/06/02

CERTIFICATE OF ANALYSIS

MAXXAM JOB #: B174414
Received: 2011/05/26, 09:00

Sample Matrix: Soil
Samples Received: 2

Analyses	Quantity	Date Extracted	Date Analyzed	Laboratory Method	Method Reference
Petroleum Hydro. CCME F1 & BTEX in Soil	2	2011/05/26	2011/05/31	CAM SOP-00315	CCME CWS
Petroleum Hydrocarbons F2-F4 in Soil	2	2011/05/26	2011/05/28	CAM SOP-00316	CCME CWS
Moisture	2	N/A	2011/05/28	CAM SOP-00445	McKeague 2nd ed 1978
Volatile Organic Compounds in Soil	1	2011/05/27	2011/05/31	CAM SOP-00226	EPA 8260 modified
Volatile Organic Compounds in Soil	1	2011/05/27	2011/06/02	CAM SOP-00226	EPA 8260 modified

* RPDs calculated using raw data. The rounding of final results may result in the apparent difference.
* Results relate only to the items tested.

Encryption Key

Maryam Arghandeh
02 Jun 2011 17:43:20 -04:00

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

SARA SAROOP, Project Manager
Email: SSaroop@maxxam.ca
Phone# (905) 817-5700 Ext:5821

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.

Total cover pages: 1

Maxxam

Maxxam Job #: B174414
Report Date: 2011/06/02

exp.
Client Project #: 16690X

O'REG 153 PETROLEUM HYDROCARBONS (SOIL)

Maxxam ID		JP7622		JP7623		
Sampling Date		2011/05/24		2011/05/24		
	Units	S-1	RDL	S-2	RDL	QC Batch
Inorganics						
Moisture	%	6	1	7	1	2500841
BTEX & F1 Hydrocarbons						
F1 (C6-C10)	ug/g	<100	100	<10	10	2501814
F1 (C6-C10) - BTEX	ug/g	<100	100	<10	10	2501814
F2-F4 Hydrocarbons						
F2 (C10-C16 Hydrocarbons)	ug/g	1100	10	17	10	2499798
F3 (C16-C34 Hydrocarbons)	ug/g	1200	10	1000	10	2499798
F4 (C34-C50 Hydrocarbons)	ug/g	490	10	860	10	2499798
Reached Baseline at C50	ug/g	YES		YES		2499798
Surrogate Recovery (%)						
1,4-Difluorobenzene	%	106		107		2501814
4-Bromofluorobenzene	%	98		98		2501814
D10-Ethylbenzene	%	85		87		2501814
D4-1,2-Dichloroethane	%	96		99		2501814
o-Terphenyl	%	110		110		2499798

RDL = Reportable Detection Limit
QC Batch = Quality Control Batch

Maxxam Analytics International Corporation o/a Maxxam Analytics 6740 Campobello Road, Mississauga, Ontario, L5N 2L8 Tel: (905) 817-5700 Toll-Free: 800-563-6266 Fax: (905) 817-5777 www.maxxam.ca

Maxxam

Maxxam Job #: B174414
Report Date: 2011/06/02

exp.
Client Project #: 16690X

O'REG 153 VOLATILE ORGANICS (SOIL)

Maxxam ID		JP7622		JP7623		
Sampling Date		2011/05/24		2011/05/24		
	Units	S-1	RDL	S-2	RDL	QC Batch
Volatile Organics						
Acetone (2-Propanone)	ug/g	<50	50	<0.1	0.1	2502318
Benzene	ug/g	<1	1	<0.002	0.002	2502318
Bromodichloromethane	ug/g	<1	1	<0.002	0.002	2502318
Bromoform	ug/g	<1	1	<0.002	0.002	2502318
Bromomethane	ug/g	<2	2	<0.003	0.003	2502318
Carbon Tetrachloride	ug/g	<1	1	<0.002	0.002	2502318
Chlorobenzene	ug/g	<1	1	<0.002	0.002	2502318
Chloroform	ug/g	<1	1	<0.002	0.002	2502318
Dibromochloromethane	ug/g	<1	1	<0.002	0.002	2502318
1,2-Dichlorobenzene	ug/g	<1	1	<0.002	0.002	2502318
1,3-Dichlorobenzene	ug/g	<1	1	<0.002	0.002	2502318
1,4-Dichlorobenzene	ug/g	<1	1	<0.002	0.002	2502318
Dichlorodifluoromethane (FREON 12)	ug/g	<3	3	<0.005	0.005	2502318
1,1-Dichloroethane	ug/g	<1	1	<0.002	0.002	2502318
1,2-Dichloroethane	ug/g	<1	1	<0.002	0.002	2502318
1,1-Dichloroethylene	ug/g	<1	1	<0.002	0.002	2502318
cis-1,2-Dichloroethylene	ug/g	<1	1	<0.002	0.002	2502318
trans-1,2-Dichloroethylene	ug/g	<1	1	<0.002	0.002	2502318
1,2-Dichloropropane	ug/g	<1	1	<0.002	0.002	2502318
cis-1,3-Dichloropropene	ug/g	<1	1	<0.002	0.002	2502318
trans-1,3-Dichloropropene	ug/g	<1	1	<0.002	0.002	2502318
Ethylbenzene	ug/g	<1	1	<0.002	0.002	2502318
Ethylene Dibromide	ug/g	<1	1	<0.002	0.002	2502318
Hexane	ug/g	<3	3	0.005	0.005	2502318
Methylene Chloride(Dichloromethane)	ug/g	<2	2	<0.003	0.003	2502318
Methyl Isobutyl Ketone	ug/g	<10	10	<0.03	0.03	2502318
Methyl Ethyl Ketone (2-Butanone)	ug/g	<10	10	<0.03	0.03	2502318
Methyl t-butyl ether (MTBE)	ug/g	<1	1	<0.002	0.002	2502318
Styrene	ug/g	<1	1	<0.002	0.002	2502318
1,1,1,2-Tetrachloroethane	ug/g	<1	1	<0.002	0.002	2502318
1,1,2,2-Tetrachloroethane	ug/g	<1	1	<0.002	0.002	2502318
Tetrachloroethylene	ug/g	<1	1	<0.002	0.002	2502318
Toluene	ug/g	<1	1	0.002	0.002	2502318
1,1,1-Trichloroethane	ug/g	<1	1	<0.002	0.002	2502318
1,1,2-Trichloroethane	ug/g	<1	1	<0.002	0.002	2502318

RDL = Reportable Detection Limit
QC Batch = Quality Control Batch

Maxxam Analytics International Corporation o/a Maxxam Analytics 6740 Campobello Road, Mississauga, Ontario, L5N 2L8 Tel: (905) 817-5700 Toll-Free: 800-563-6266 Fax: (905) 817-5777 www.maxxam.ca

Maxxam

Maxxam Job #: B174414
Report Date: 2011/06/02

exp.
Client Project #: 16690X

O'REG 153 VOLATILE ORGANICS (SOIL)

Maxxam ID		JP7622		JP7623		
Sampling Date		2011/05/24		2011/05/24		
	Units	S-1	RDL	S-2	RDL	QC Batch
Trichloroethylene	ug/g	<1	1	<0.002	0.002	2502318
Vinyl Chloride	ug/g	<1	1	<0.002	0.002	2502318
p+m-Xylene	ug/g	<1	1	<0.002	0.002	2502318
o-Xylene	ug/g	3	1	<0.002	0.002	2502318
Xylene (Total)	ug/g	3	1	<0.002	0.002	2502318
Trichlorofluoromethane (FREON 11)	ug/g	<1	1	<0.002	0.002	2502318
Surrogate Recovery (%)						
4-Bromofluorobenzene	%	107		74		2502318
D4-1,2-Dichloroethane	%	108		95		2502318
D8-Toluene	%	98		132		2502318

RDL = Reportable Detection Limit
QC Batch = Quality Control Batch

Maxxam Analytics International Corporation o/a Maxxam Analytics 6740 Campobello Road, Mississauga, Ontario, L5N 2L8 Tel: (905) 817-5700 Toll-Free: 800-563-6266 Fax: (905) 817-5777 www.maxxam.ca

Maxxam

Maxxam Job #: B174414
Report Date: 2011/06/02

exp.
Client Project #: 16690X

GENERAL COMMENTS

Sample JP7622-01: F1/BTEX Analysis:Due to high amount of late eluting hydrocarbons, sample required dilution. Reporting limits were adjusted accordingly.

VOC Analysis: Due to a level of target analyte and petroleum hydrocarbon compounds beyond the appropriate range, the sample could not be analysed by the low level direct purge method. The sample was preextracted in methanol and the extract analysed by high level purge & trap (US EPA Method 5035) gas chromatography/mass spectrometry using US EPA Method 8260C (modified). The DLs were adjusted accordingly.

Maxxam Analytics International Corporation o/a Maxxam Analytics 6740 Campobello Road, Mississauga, Ontario, L5N 2L8 Tel: (905) 817-5700 Toll-Free: 800-563-6266 Fax: (905) 817-5777 www.maxxam.ca

Maxxam

Maxxam Job #: B174414
Report Date: 2011/06/02

exp.
Client Project #: 16690X

QUALITY ASSURANCE REPORT

			Matrix Spike		Spiked Blank		Method Blank		RPD	
QC Batch	Parameter	Date	% Recovery	QC Limits	% Recovery	QC Limits	Value	Units	Value (%)	QC Limits
2499798	o-Terphenyl	2011/05/27	101	30 - 130	102	30 - 130	110	%		
2499798	F2 (C10-C16 Hydrocarbons)	2011/05/28	104	60 - 130	87	60 - 130	<10	ug/g	NC	50
2499798	F3 (C16-C34 Hydrocarbons)	2011/05/28	104	60 - 130	87	60 - 130	<10	ug/g	NC	50
2499798	F4 (C34-C50 Hydrocarbons)	2011/05/28	104	60 - 130	87	60 - 130	<10	ug/g	NC	50
2500841	Moisture	2011/05/28							5.5	20
2501814	1,4-Difluorobenzene	2011/05/30	107	60 - 140	104	60 - 140	105	%		
2501814	4-Bromofluorobenzene	2011/05/30	97	60 - 140	98	60 - 140	95	%		
2501814	D10-Ethylbenzene	2011/05/30	88	30 - 130	77	30 - 130	79	%		
2501814	D4-1,2-Dichloroethane	2011/05/30	97	60 - 140	96	60 - 140	95	%		
2501814	F1 (C6-C10)	2011/05/30	108	60 - 140	98	60 - 140	<10	ug/g	NC	50
2501814	F1 (C6-C10) - BTEX	2011/05/30					<10	ug/g	NC	50
2502318	4-Bromofluorobenzene	2011/05/31	97	60 - 140	105	60 - 140	99	%		
2502318	D4-1,2-Dichloroethane	2011/05/31	90	60 - 140	106	60 - 140	99	%		
2502318	D8-Toluene	2011/05/31	99	60 - 140	97	60 - 140	99	%		
2502318	Acetone (2-Propanone)	2011/05/31	118	24 - 171	106	60 - 140	<0.1	ug/g	NC	50
2502318	Benzene	2011/05/31	96	39 - 137	100	60 - 140	<0.002	ug/g	NC	50
2502318	Bromodichloromethane	2011/05/31	90	45 - 131	104	60 - 140	<0.002	ug/g	NC	50
2502318	Bromoform	2011/05/31	105	44 - 131	118	60 - 140	<0.002	ug/g	NC	50
2502318	Bromomethane	2011/05/31	54	20 - 146	85	60 - 140	<0.003	ug/g	NC	50
2502318	Carbon Tetrachloride	2011/05/31	98	40 - 139	111	60 - 140	<0.002	ug/g	NC	50
2502318	Chlorobenzene	2011/05/31	99	45 - 140	100	60 - 140	<0.002	ug/g	NC	50
2502318	Chloroform	2011/05/31	95	48 - 128	104	60 - 140	<0.002	ug/g	NC	50
2502318	Dibromochloromethane	2011/05/31	99	52 - 135	108	60 - 140	<0.002	ug/g	NC	50
2502318	1,2-Dichlorobenzene	2011/05/31	105	39 - 145	103	60 - 140	<0.002	ug/g	NC	50
2502318	1,3-Dichlorobenzene	2011/05/31	107	38 - 158	106	60 - 140	<0.002	ug/g	NC	50
2502318	1,4-Dichlorobenzene	2011/05/31	116	35 - 159	113	60 - 140	<0.002	ug/g	NC	50
2502318	Dichlorodifluoromethane (FREON 12)	2011/05/31	88	60 - 140	96	60 - 140	<0.005	ug/g		
2502318	1,1-Dichloroethane	2011/05/31	94	48 - 131	102	60 - 140	<0.002	ug/g	NC	50
2502318	1,2-Dichloroethane	2011/05/31	90	43 - 123	107	60 - 140	<0.002	ug/g	NC	50
2502318	1,1-Dichloroethylene	2011/05/31	100	50 - 134	108	60 - 140	<0.002	ug/g	NC	50
2502318	cis-1,2-Dichloroethylene	2011/05/31	97	45 - 136	102	60 - 140	<0.002	ug/g	NC	50
2502318	trans-1,2-Dichloroethylene	2011/05/31	97	45 - 138	100	60 - 140	<0.002	ug/g	NC	50
2502318	1,2-Dichloropropane	2011/05/31	93	51 - 130	104	60 - 140	<0.002	ug/g	NC	50
2502318	cis-1,3-Dichloropropene	2011/05/31	100	39 - 143	112	60 - 140	<0.002	ug/g	NC	50
2502318	trans-1,3-Dichloropropene	2011/05/31	95	33 - 135	107	60 - 140	<0.002	ug/g	NC	50
2502318	Ethylbenzene	2011/05/31	107	46 - 150	104	60 - 140	<0.002	ug/g	NC	50
2502318	Ethylene Dibromide	2011/05/31	98	48 - 136	104	60 - 140	<0.002	ug/g	NC	50
2502318	Hexane	2011/05/31	87	60 - 140	95	60 - 140	<0.005	ug/g		
2502318	MethyleneChloride(Dichloromethane)	2011/05/31	93	47 - 124	98	60 - 140	<0.003	ug/g	NC	50
2502318	Methyl Isobutyl Ketone	2011/05/31	106	48 - 133	111	60 - 140	<0.03	ug/g	NC	50

Maxxam Analytics International Corporation o/a Maxxam Analytics 6740 Campobello Road, Mississauga, Ontario, L5N 2L8 Tel: (905) 817-5700 Toll-Free: 800-563-6266 Fax: (905) 817-5777 www.maxxam.ca

Maxxam

Maxxam Job #: B174414
Report Date: 2011/06/02

exp.
Client Project #: 16690X

QUALITY ASSURANCE REPORT

			Matrix Spike		Spiked Blank		Method Blank		RPD	
QC Batch	Parameter	Date	% Recovery	QC Limits	% Recovery	QC Limits	Value	Units	Value (%)	QC Limits
2502318	Methyl Ethyl Ketone (2-Butanone)	2011/05/31	121	39 - 160	111	60 - 140	<0.03	ug/g	NC	50
2502318	Methyl t-butyl ether (MTBE)	2011/05/31	105	37 - 150	112	60 - 140	<0.002	ug/g	NC	50
2502318	Styrene	2011/05/31	96	27 - 148	98	60 - 140	<0.002	ug/g	NC	50
2502318	1,1,1,2-Tetrachloroethane	2011/05/31	102	51 - 140	105	60 - 140	<0.002	ug/g	NC	50
2502318	1,1,2,2-Tetrachloroethane	2011/05/31	79	46 - 128	99	60 - 140	<0.002	ug/g	NC	50
2502318	Tetrachloroethylene	2011/05/31	98	45 - 154	95	60 - 140	<0.002	ug/g	NC	50
2502318	Toluene	2011/05/31	99	30 - 158	97	60 - 140	<0.002	ug/g	NC	50
2502318	1,1,1-Trichloroethane	2011/05/31	95	44 - 136	107	60 - 140	<0.002	ug/g	NC	50
2502318	1,1,2-Trichloroethane	2011/05/31	95	56 - 135	97	60 - 140	<0.002	ug/g	NC	50
2502318	Trichloroethylene	2011/05/31	98	39 - 146	104	60 - 140	<0.002	ug/g	NC	50
2502318	Vinyl Chloride	2011/05/31	84	34 - 136	91	60 - 140	<0.002	ug/g	NC	50
2502318	p+m-Xylene	2011/05/31	104	29 - 161	104	60 - 140	<0.002	ug/g	NC	50
2502318	o-Xylene	2011/05/31	115	45 - 150	108	60 - 140	<0.002	ug/g	NC	50
2502318	Trichlorofluoromethane (FREON 11)	2011/05/31	92	45 - 140	101	60 - 140	<0.002	ug/g		
2502318	Xylene (Total)	2011/05/31					<0.002	ug/g	NC	50

N/A = Not Applicable
RPD = Relative Percent Difference
Duplicate: Paired analysis of a separate portion of the same sample. Used to evaluate the variance in the measurement.
Matrix Spike: A sample to which a known amount of the analyte of interest has been added. Used to evaluate sample matrix interference.
Spiked Blank: A blank matrix to which a known amount of the analyte has been added. Used to evaluate analyte recovery.
Method Blank: A blank matrix containing all reagents used in the analytical procedure. Used to identify laboratory contamination.
Surrogate: A pure or isotopically labeled compound whose behavior mirrors the analytes of interest. Used to evaluate extraction efficiency.
NC (RPD): The RPD was not calculated. The level of analyte detected in the parent sample and its duplicate was not sufficiently significant to permit a reliable calculation.

Maxxam Analytics International Corporation o/a Maxxam Analytics 6740 Campobello Road, Mississauga, Ontario, L5N 2L8 Tel: (905) 817-5700 Toll-Free: 800-563-6266 Fax: (905) 817-5777 www.maxxam.ca

Maxxam

Validation Signature Page

Maxxam Job #: B174414

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

Cristina Carriere

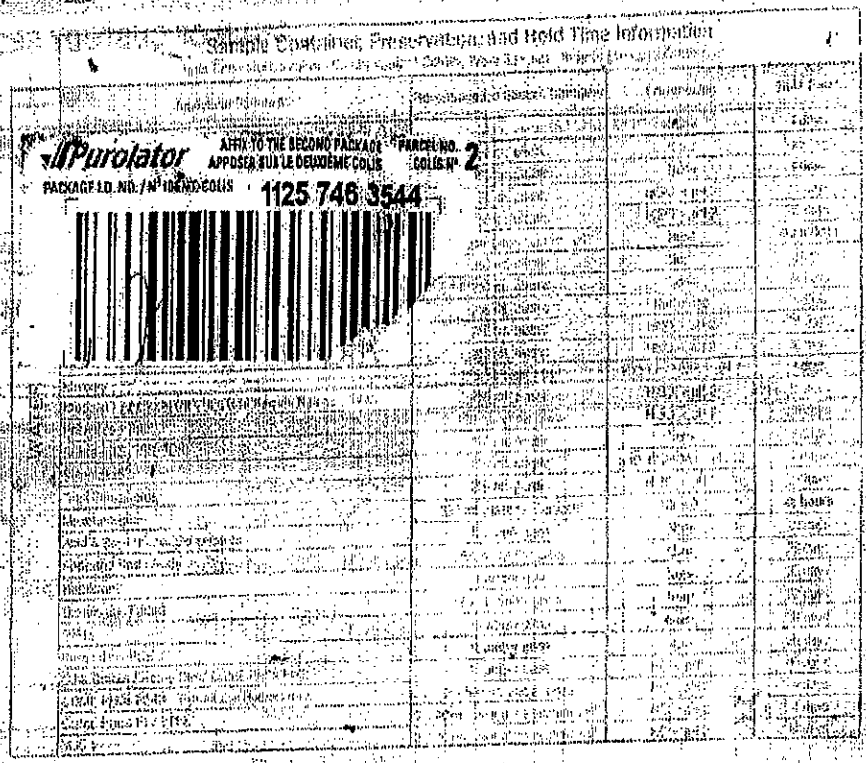
CRISTINA CARRIERE, Scientific Services

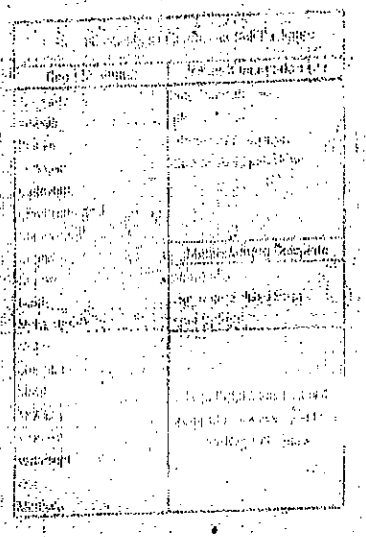
M. Riskallah

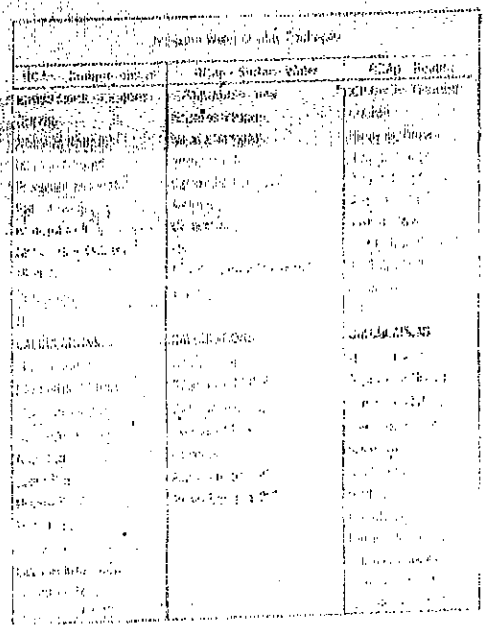
MEDHAT RISKALLAH, Manager, Hydrocarbon Department

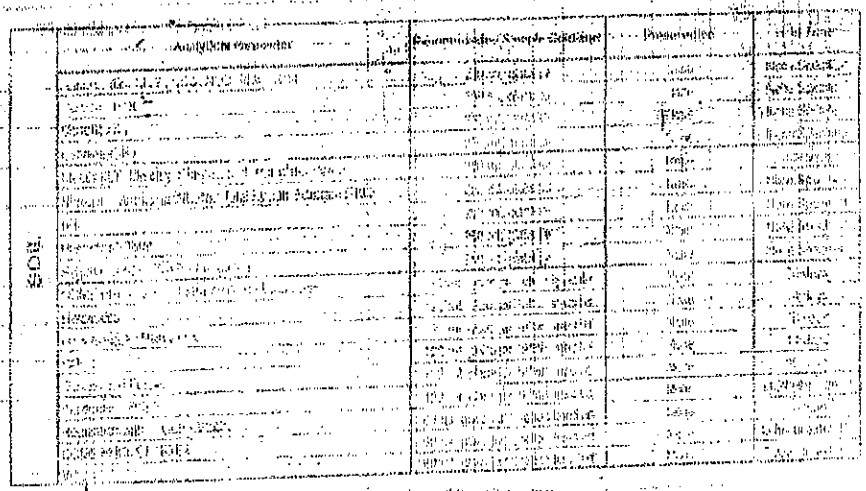
Maxxam has procedures in place to guard against improper use of the electronic signature and have the required "signatories", as per section 5.10.2 of ISO/IEC 17025:2005(E), signing the reports. For Service Group specific validation please refer to the Validation Signature Page.

Maxxam Analytics International Corporation o/a Maxxam Analytics 6740 Campobello Road, Mississauga, Ontario, L5N 2L8 Tel: (905) 817-5700 Toll-Free: 800-563-6266 Fax: (905) 817-5777 www.maxxam.ca









Maxxam Analytics International Corporation o/a Maxxam Analytics 6740 Campobello Road, Mississauga, Ontario, L5N 2L8 Tel: (905) 817-5700 Toll-Free: 800-563-6266 Fax: (905) 817-5777 www.maxxam.ca

Maxxam Analytics Inc. IMMEDIATE 6740 Campobello Road, Mississauga, ON L5N 2L8 Phone: 905-817-5700 Fax: 905-817-5778 Toll Free: (800) 563-6266

CHAIN OF CUSTODY RECORD

Page 1 of 1

INVOICE INFORMATION	REPORT INFORMATION	PROJECT INFORMATION	MAXXAM JOB NUMBER
Company Name: CSP	26-May-11 09:00	Quotation #:	
Contact Name: Matt Whitney	SARA SAROOP	P.O. #:	CHAIN OF CUSTODY #
Address: 3/5-4 Cataraqui St Kingston ON K7K 1Z7	B174414	Project #: 1669DX	0057258/
Phone: 613 542 1153 Fax: 613 542 7767	SEL ENV-178	Project Name:	
Email: mattwhitney@csp.com		Location:	
		Sampled By: MW	

REGULATORY CRITERIA

Note: For regulated drinking water samples - please use the Drinking Water Chain of Custody Form.

- [ ] MISA
- [ ] PWQO
- Reg. 153: [ ] Table 1 [ ] Table 2 [ ] Table 3
- Sewer Use: [ ] Sanitary [ ] Storm Region: ______
- [x] Other: Reg 153/11 Table 9 (specify)
- [ ] Reg. 558
- Report Criteria on C of A? [ ]

SAMPLES MUST BE KEPT COOL (<10°C) FROM TIME OF SAMPLING UNTIL DELIVERY TO MAXXAM.

ANALYSIS REQUESTED (Please be specific)

Sample Identification	Date Sampled	Time Sampled	Matrix (GW, SW, Soil, etc.)	Regulated Drinking Water? (Y/N)	Metals Field Filtered? (Y/N)	PHC F1-F4/VOC	# of Cont.	COMMENTS / TAT COMMENTS
S-1	24/5/11	1M	Soil	N	N	X	2	
S-2	↓	1M	Soil	N	N	X	2	

TURNAROUND TIME (TAT) REQUIRED

PLEASE PROVIDE ADVANCE NOTICE FOR RUSH PROJECTS.

Regular (Standard) TAT:
- [x] 5 to 7 Working Days

Rush TAT: Rush Confirmation #: ______ (call Lab for #)
- [ ] 1 day [ ] 2 days [ ] 3 days

DATE Required: ______

TIME Required: ______

Please note that TAT for certain tests such as BOD and Dioxins/Furans are > 5 days - contact your Project Manager for details.

RELINQUISHED BY (Signature/Print)	RECEIVED BY (Signature/Print)	Date	Time	Temperature (°C) on Receipt	Condition of Sample on Receipt
Matt Whitney May 25/11	Alka Dave	2011/05/26	09:00	6/5/7 5°C	[ ] OK [ ] SIF

Laboratory Use Only

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

White: Maxxam Yellow: Mail Pink: Client

COC-ONT-05/06

Maxxam

Success Through Science

Your Project #: KIN 16690 A0
Your C.O.C. #: 26512901, 265129-01-01

Attention: Paula Formanek
exp.
4 Cataraqui St
Suite 315
Kingston, ON
K7K 1Z7

Report Date: 2011/06/06

CERTIFICATE OF ANALYSIS

MAXXAM JOB #: B176147
Received: 2011/05/28, 10:05

Sample Matrix: Water
Samples Received: 2

Analyses	Quantity	Date Extracted	Date Analyzed	Laboratory Method	Method Reference
Chloride by Automated Colourimetry	1	N/A	2011/06/06	CAM SOP-00463	SM 4500 Cl E
Chromium (VI) in Water	1	N/A	2011/06/03	CAM SOP-00436	EPA 7199
Free Cyanide	1	N/A	2011/05/31	CAM SOP-00457	SM4500-CN-I Modified
Petroleum Hydro. CCME F1 & BTEX in Water	2	N/A	2011/06/01	CAM SOP-00315	CCME CWS
Petroleum Hydrocarbons F2-F4 in Water	2	2011/06/01	2011/06/02	CAM SOP-00316	CCME Hydrocarbons
Mercury	1	2011/06/01	2011/06/01	CAM SOP-00453	EPA 7470
Dissolved Metals by ICPMS	1	N/A	2011/06/03	CAM SOP-00447	EPA 6020
PAH Compounds in Water by GC/MS (SIM)	1	2011/05/31	2011/06/02	CAM SOP-00318	EPA 8270
Volatile Organic Compounds in Water	2	N/A	2011/06/02	CAM SOP-00226	EPA 8260 modified

* RPDs calculated using raw data. The rounding of final results may result in the apparent difference.
* Results relate only to the items tested.

Encryption Key

Sara Saroop
06 Jun 2011 14:33:12 -04:00

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

SARA SAROOP, Project Manager
Email: SSaroop@maxxam.ca
Phone# (905) 817-5700 Ext:5821

==========

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.

Total cover pages: 1

Maxxam Job #: B176147
Report Date: 2011/06/06

exp.
Client Project #: KIN 16690 A0

OREG 153 PETROLEUM HYDROCARBONS (WATER)

Maxxam ID		JQ5471	JQ5472		
Sampling Date		2011/05/27 10:00	2011/05/27 11:00		
	Units	MW-1	MW-2	RDL	QC Batch
BTEX & F1 Hydrocarbons					
F1 (C6-C10)	ug/L	<100	<100	100	2505103
F1 (C6-C10) - BTEX	ug/L	<100	<100	100	2505103
F2-F4 Hydrocarbons					
F2 (C10-C16 Hydrocarbons)	ug/L	<100	<100	100	2506118
F3 (C16-C34 Hydrocarbons)	ug/L	200	460	100	2506118
F4 (C34-C50 Hydrocarbons)	ug/L	<100	270	100	2506118
Reached Baseline at C50	ug/L	YES	YES		2506118
Surrogate Recovery (%)					
1,4-Difluorobenzene	%	106	104		2505103
4-Bromofluorobenzene	%	96	100		2505103
D10-Ethylbenzene	%	102	106		2505103
D4-1,2-Dichloroethane	%	118	129		2505103
o-Terphenyl	%	103	105		2506118

RDL = Reportable Detection Limit
QC Batch = Quality Control Batch

Maxxam Analytics International Corporation o/a Maxxam Analytics 6740 Campobello Road, Mississauga, Ontario, L5N 2L8 Tel: (905) 817-5700 Toll-Free: 800-563-6266 Fax: (905) 817-5777 www.maxxam.ca

Maxxam Job #: B176147
Report Date: 2011/06/06

exp.
Client Project #: KIN 16690 A0

O'REG 153 POLYAROMATIC HYDROCARBONS (WATER)

Maxxam ID		JQ5471		
Sampling Date		2011/05/27 10:00		
	Units	MW-1	RDL	QC Batch
Polyaromatic Hydrocarbons				
Acenaphthene	ug/L	0.77	0.05	2504644
Acenaphthylene	ug/L	0.66	0.05	2504644
Anthracene	ug/L	2.1	0.05	2504644
Benzo(a)anthracene	ug/L	6.2	0.05	2504644
Benzo(a)pyrene	ug/L	5.2	0.01	2504644
Benzo(b/j)fluoranthene	ug/L	6.4	0.05	2504644
Benzo(g,h,i)perylene	ug/L	2.1	0.1	2504644
Benzo(k)fluoranthene	ug/L	2.0	0.05	2504644
Chrysene	ug/L	6.0	0.05	2504644
Dibenz(a,h)anthracene	ug/L	0.6	0.1	2504644
Fluoranthene	ug/L	20	0.05	2504644
Fluorene	ug/L	1.1	0.05	2504644
Indeno(1,2,3-cd)pyrene	ug/L	2.6	0.1	2504644
1-Methylnaphthalene	ug/L	1.9	0.05	2504644
2-Methylnaphthalene	ug/L	2.9	0.05	2504644
Naphthalene	ug/L	1.8	0.05	2504644
Phenanthrene	ug/L	14	0.03	2504644
Pyrene	ug/L	16	0.05	2504644
Surrogate Recovery (%)				
D10-Anthracene	%	54		2504644
D14-Terphenyl (FS)	%	57		2504644
D8-Acenaphthylene	%	42		2504644

RDL = Reportable Detection Limit
QC Batch = Quality Control Batch

Maxxam Analytics International Corporation o/a Maxxam Analytics 6740 Campobello Road, Mississauga, Ontario, L5N 2L8 Tel: (905) 817-5700 Toll-Free: 800-563-6266 Fax: (905) 817-5777 www.maxxam.ca

Maxxam Job #: B176147
Report Date: 2011/06/06

exp.
Client Project #: KIN 16690 A0

O'REG 153 VOLATILE ORGANICS (WATER)

Maxxam ID		JQ5471	JQ5472		
Sampling Date		2011/05/27 10:00	2011/05/27 11:00		
	Units	MW-1	MW-2	RDL	QC Batch
Volatile Organics					
Acetone (2-Propanone)	ug/L	<10	<10	10	2503790
Benzene	ug/L	<0.1	<0.1	0.1	2503790
Bromodichloromethane	ug/L	<0.1	<0.1	0.1	2503790
Bromoform	ug/L	<0.2	<0.2	0.2	2503790
Bromomethane	ug/L	<0.5	<0.5	0.5	2503790
Carbon Tetrachloride	ug/L	<0.1	<0.1	0.1	2503790
Chlorobenzene	ug/L	<0.1	<0.1	0.1	2503790
Chloroform	ug/L	0.2	<0.1	0.1	2503790
Dibromochloromethane	ug/L	<0.2	<0.2	0.2	2503790
1,2-Dichlorobenzene	ug/L	<0.2	<0.2	0.2	2503790
1,3-Dichlorobenzene	ug/L	<0.2	<0.2	0.2	2503790
1,4-Dichlorobenzene	ug/L	<0.2	<0.2	0.2	2503790
Dichlorodifluoromethane (FREON 12)	ug/L	<0.5	<0.5	0.5	2503790
1,1-Dichloroethane	ug/L	<0.1	<0.1	0.1	2503790
1,2-Dichloroethane	ug/L	<0.2	<0.2	0.2	2503790
1,1-Dichloroethylene	ug/L	<0.1	<0.1	0.1	2503790
cis-1,2-Dichloroethylene	ug/L	<0.1	<0.1	0.1	2503790
trans-1,2-Dichloroethylene	ug/L	<0.1	<0.1	0.1	2503790
1,2-Dichloropropane	ug/L	<0.1	<0.1	0.1	2503790
cis-1,3-Dichloropropene	ug/L	<0.2	<0.2	0.2	2503790
trans-1,3-Dichloropropene	ug/L	<0.2	<0.2	0.2	2503790
Ethylbenzene	ug/L	<0.1	<0.1	0.1	2503790
Ethylene Dibromide	ug/L	<0.2	<0.2	0.2	2503790
Hexane	ug/L	<0.5	<0.5	0.5	2503790
Methylene Chloride(Dichloromethane)	ug/L	<0.5	<0.5	0.5	2503790
Methyl Isobutyl Ketone	ug/L	<5	<5	5	2503790
Methyl Ethyl Ketone (2-Butanone)	ug/L	<5	<5	5	2503790
Methyl t-butyl ether (MTBE)	ug/L	<0.2	<0.2	0.2	2503790
Styrene	ug/L	<0.2	<0.2	0.2	2503790
1,1,1,2-Tetrachloroethane	ug/L	<0.1	<0.1	0.1	2503790
1,1,2,2-Tetrachloroethane	ug/L	<0.2	<0.2	0.2	2503790
Tetrachloroethylene	ug/L	<0.1	<0.1	0.1	2503790
Toluene	ug/L	<0.2	<0.2	0.2	2503790
1,1,1-Trichloroethane	ug/L	<0.1	<0.1	0.1	2503790
1,1,2-Trichloroethane	ug/L	<0.2	<0.2	0.2	2503790

RDL = Reportable Detection Limit
QC Batch = Quality Control Batch

Maxxam Analytics International Corporation o/a Maxxam Analytics 6740 Campobello Road, Mississauga, Ontario, L5N 2L8 Tel: (905) 817-5700 Toll-Free: 800-563-6266 Fax: (905) 817-5777 www.maxxam.ca

Maxxam Job #: B176147
Report Date: 2011/06/06

exp.
Client Project #: KIN 16690 A0

O'REG 153 VOLATILE ORGANICS (WATER)

Maxxam ID		JQ5471	JQ5472		
Sampling Date		2011/05/27 10:00	2011/05/27 11:00		
	Units	MW-1	MW-2	RDL	QC Batch
Trichloroethylene	ug/L	<0.1	<0.1	0.1	2503790
Vinyl Chloride	ug/L	<0.2	<0.2	0.2	2503790
p+m-Xylene	ug/L	<0.1	<0.1	0.1	2503790
o-Xylene	ug/L	<0.1	<0.1	0.1	2503790
Xylene (Total)	ug/L	<0.1	<0.1	0.1	2503790
Trichlorofluoromethane (FREON 11)	ug/L	<0.2	<0.2	0.2	2503790
Surrogate Recovery (%)					
4-Bromofluorobenzene	%	98	98		2503790
D4-1,2-Dichloroethane	%	95	100		2503790
D8-Toluene	%	102	100		2503790

RDL = Reportable Detection Limit
QC Batch = Quality Control Batch

Maxxam Analytics International Corporation o/a Maxxam Analytics 6740 Campobello Road, Mississauga, Ontario, L5N 2L8 Tel: (905) 817-5700 Toll-Free: 800-563-6266 Fax: (905) 817-5777 www.maxxam.ca

Maxxam Job #: B176147
Report Date: 2011/06/06

exp.
Client Project #: KIN 16690 A0

O'REG 153 INORGANICS PACKAGE (WATER)

Maxxam ID		JQ5471		
Sampling Date		2011/05/27 10:00		
	Units	MW-1	RDL	QC Batch
Inorganics				
Free Cyanide	ug/L	<2	2	2503669
Dissolved Chloride (Cl)	mg/L	180	1	2507894
Metals				
Chromium (VI)	ug/L	<5	5	2507104
Mercury (Hg)	ug/L	0.6	0.1	2505414
Dissolved Antimony (Sb)	ug/L	0.6	0.5	2508067
Dissolved Arsenic (As)	ug/L	1	1	2508067
Dissolved Barium (Ba)	ug/L	190	5	2508067
Dissolved Beryllium (Be)	ug/L	<0.5	0.5	2508067
Dissolved Boron (B)	ug/L	54	10	2508067
Dissolved Cadmium (Cd)	ug/L	<0.1	0.1	2508067
Dissolved Chromium (Cr)	ug/L	<5	5	2508067
Dissolved Cobalt (Co)	ug/L	1.4	0.5	2508067
Dissolved Copper (Cu)	ug/L	1	1	2508067
Dissolved Lead (Pb)	ug/L	<0.5	0.5	2508067
Dissolved Molybdenum (Mo)	ug/L	1	1	2508067
Dissolved Nickel (Ni)	ug/L	2	1	2508067
Dissolved Selenium (Se)	ug/L	<2	2	2508067
Dissolved Silver (Ag)	ug/L	0.2	0.1	2508067
Dissolved Sodium (Na)	ug/L	100000	100	2508067
Dissolved Thallium (Tl)	ug/L	<0.05	0.05	2508067
Dissolved Uranium (U)	ug/L	0.9	0.1	2508067
Dissolved Vanadium (V)	ug/L	1	1	2508067
Dissolved Zinc (Zn)	ug/L	5	5	2508067

RDL = Reportable Detection Limit
QC Batch = Quality Control Batch

Maxxam Analytics International Corporation o/a Maxxam Analytics 6740 Campobello Road, Mississauga, Ontario, L5N 2L8 Tel: (905) 817-5700 Toll-Free: 800-563-6266 Fax: (905) 817-5777 www.maxxam.ca

Maxxam Job #: B176147
Report Date: 2011/06/06

exp.
Client Project #: KIN 16690 A0

QUALITY ASSURANCE REPORT

			Matrix Spike		Spiked Blank		Method Blank		RPD	
QC Batch	Parameter	Date	% Recovery	QC Limits	% Recovery	QC Limits	Value	Units	Value (%)	QC Limits
2503669	Free Cyanide	2011/05/31	119	80 - 120	105	80 - 120	<2	ug/L	NC	25
2503790	4-Bromofluorobenzene	2011/06/01	106	70 - 130	103	70 - 130	98	%		
2503790	D4-1,2-Dichloroethane	2011/06/01	102	70 - 130	97	70 - 130	99	%		
2503790	D8-Toluene	2011/06/01	103	70 - 130	101	70 - 130	101	%		
2503790	Acetone (2-Propanone)	2011/06/01	107	60 - 140	115	60 - 140	<10	ug/L		
2503790	Benzene	2011/06/01	101	70 - 130	98	70 - 130	<0.1	ug/L		
2503790	Bromodichloromethane	2011/06/01	99	70 - 130	101	70 - 130	<0.1	ug/L		
2503790	Bromoform	2011/06/01	97	70 - 130	97	70 - 130	<0.2	ug/L		
2503790	Bromomethane	2011/06/01	100	60 - 140	107	60 - 140	<0.5	ug/L		
2503790	Carbon Tetrachloride	2011/06/01	99	70 - 130	100	70 - 130	<0.1	ug/L		
2503790	Chlorobenzene	2011/06/01	102	70 - 130	100	70 - 130	<0.1	ug/L		
2503790	Chloroform	2011/06/01	102	70 - 130	100	70 - 130	<0.1	ug/L		
2503790	Dibromochloromethane	2011/06/01	114	70 - 130	113	70 - 130	<0.2	ug/L		
2503790	1,2-Dichlorobenzene	2011/06/01	100	70 - 130	102	70 - 130	<0.2	ug/L		
2503790	1,3-Dichlorobenzene	2011/06/01	97	70 - 130	101	70 - 130	<0.2	ug/L		
2503790	1,4-Dichlorobenzene	2011/06/01	99	70 - 130	102	70 - 130	<0.2	ug/L		
2503790	Dichlorodifluoromethane (FREON 12)	2011/06/01	111	60 - 140	118	60 - 140	<0.5	ug/L		
2503790	1,1-Dichloroethane	2011/06/01	97	70 - 130	92	70 - 130	<0.1	ug/L		
2503790	1,2-Dichloroethane	2011/06/01	103	70 - 130	99	70 - 130	<0.2	ug/L		
2503790	1,1-Dichloroethylene	2011/06/01	101	70 - 130	106	70 - 130	<0.1	ug/L		
2503790	cis-1,2-Dichloroethylene	2011/06/01	98	70 - 130	97	70 - 130	<0.1	ug/L		
2503790	trans-1,2-Dichloroethylene	2011/06/01	97	70 - 130	104	70 - 130	<0.1	ug/L		
2503790	1,2-Dichloropropane	2011/06/01	97	70 - 130	97	70 - 130	<0.1	ug/L		
2503790	cis-1,3-Dichloropropene	2011/06/01	101	70 - 130	102	70 - 130	<0.2	ug/L		
2503790	trans-1,3-Dichloropropene	2011/06/01	102	70 - 130	97	70 - 130	<0.2	ug/L		
2503790	Ethylbenzene	2011/06/01	105	70 - 130	103	70 - 130	<0.1	ug/L		
2503790	Ethylene Dibromide	2011/06/01	110	70 - 130	106	70 - 130	<0.2	ug/L		
2503790	Hexane	2011/06/01	121	70 - 130	123	70 - 130	<0.5	ug/L		
2503790	Methylene Chloride(Dichloromethane)	2011/06/01	92	70 - 130	103	70 - 130	<0.5	ug/L		
2503790	Methyl Isobutyl Ketone	2011/06/01	106	70 - 130	99	70 - 130	<5	ug/L		
2503790	Methyl Ethyl Ketone (2-Butanone)	2011/06/01	105	60 - 140	94	60 - 140	<5	ug/L		
2503790	Methyl t-butyl ether (MTBE)	2011/06/01	104	70 - 130	110	70 - 130	<0.2	ug/L		
2503790	Styrene	2011/06/01	113	70 - 130	110	70 - 130	<0.2	ug/L		
2503790	1,1,1,2-Tetrachloroethane	2011/06/01	105	70 - 130	106	70 - 130	<0.1	ug/L		
2503790	1,1,2,2-Tetrachloroethane	2011/06/01	115	70 - 130	106	70 - 130	<0.2	ug/L		
2503790	Tetrachloroethylene	2011/06/01	101	70 - 130	102	70 - 130	<0.1	ug/L		
2503790	Toluene	2011/06/01	104	70 - 130	99	70 - 130	<0.2	ug/L		
2503790	1,1,1-Trichloroethane	2011/06/01	98	70 - 130	95	70 - 130	<0.1	ug/L		
2503790	1,1,2-Trichloroethane	2011/06/01	109	70 - 130	101	70 - 130	<0.2	ug/L		
2503790	Trichloroethylene	2011/06/01	98	70 - 130	102	70 - 130	<0.1	ug/L	NC	30

Maxxam Job #: B176147
Report Date: 2011/06/06

exp.
Client Project #: KIN 16690 A0

QUALITY ASSURANCE REPORT

			Matrix Spike		Spiked Blank		Method Blank		RPD	
QC Batch	Parameter	Date	% Recovery	QC Limits	% Recovery	QC Limits	Value	Units	Value (%)	QC Limits
2503790	Vinyl Chloride	2011/06/01	99	70 - 130	104	70 - 130	<0.2	ug/L		
2503790	p+m-Xylene	2011/06/01	104	70 - 130	102	70 - 130	<0.1	ug/L		
2503790	o-Xylene	2011/06/01	105	70 - 130	102	70 - 130	<0.1	ug/L		
2503790	Trichlorofluoromethane (FREON 11)	2011/06/01	104	70 - 130	108	70 - 130	<0.2	ug/L		
2503790	Xylene (Total)	2011/06/01					<0.1	ug/L		
2504644	D10-Anthracene	2011/06/01	90	30 - 130	66	30 - 130	72	%		
2504644	D14-Terphenyl (FS)	2011/06/01	100	30 - 130	85	30 - 130	83	%		
2504644	D8-Acenaphthylene	2011/06/01	83	30 - 130	56	30 - 130	67	%		
2504644	Acenaphthene	2011/06/01	80	30 - 130	54	30 - 130	<0.05	ug/L	NC	40
2504644	Acenaphthylene	2011/06/01	88	30 - 130	59	30 - 130	<0.05	ug/L	NC	40
2504644	Anthracene	2011/06/01	107	30 - 130	79	30 - 130	<0.05	ug/L	NC	40
2504644	Benzo(a)anthracene	2011/06/01	101	30 - 130	82	30 - 130	<0.05	ug/L	NC	40
2504644	Benzo(a)pyrene	2011/06/01	96	30 - 130	79	30 - 130	<0.01	ug/L		
2504644	Benzo(b/j)fluoranthene	2011/06/01	96	30 - 130	82	30 - 130	<0.05	ug/L	NC	40
2504644	Benzo(g,h,i)perylene	2011/06/01	67	30 - 130	58	30 - 130	<0.1	ug/L	NC	40
2504644	Benzo(k)fluoranthene	2011/06/01	89	30 - 130	77	30 - 130	<0.05	ug/L	NC	40
2504644	Chrysene	2011/06/01	90	30 - 130	77	30 - 130	<0.05	ug/L	NC	40
2504644	Dibenz(a,h)anthracene	2011/06/01	71	30 - 130	61	30 - 130	<0.1	ug/L	NC	40
2504644	Fluoranthene	2011/06/01	115	30 - 130	93	30 - 130	<0.05	ug/L	NC	40
2504644	Fluorene	2011/06/01	93	30 - 130	65	30 - 130	<0.05	ug/L	NC	40
2504644	Indeno(1,2,3-cd)pyrene	2011/06/01	74	30 - 130	63	30 - 130	<0.1	ug/L	NC	40
2504644	1-Methylnaphthalene	2011/06/01	79	30 - 130	52	30 - 130	<0.05	ug/L	NC(1)	40
2504644	2-Methylnaphthalene	2011/06/01	76	30 - 130	50	30 - 130	<0.05	ug/L	NC	40
2504644	Naphthalene	2011/06/01	70	30 - 130	47	30 - 130	<0.05	ug/L	NC	40
2504644	Phenanthrene	2011/06/01	106	30 - 130	76	30 - 130	<0.03	ug/L	NC	40
2504644	Pyrene	2011/06/01	114	30 - 130	93	30 - 130	<0.05	ug/L	NC	40
2505103	1,4-Difluorobenzene	2011/06/01	96	70 - 130	95	70 - 130	94	%		
2505103	4-Bromofluorobenzene	2011/06/01	102	70 - 130	93	70 - 130	94	%		
2505103	D10-Ethylbenzene	2011/06/01	121	70 - 130	114	70 - 130	93	%		
2505103	D4-1,2-Dichloroethane	2011/06/01	113	70 - 130	105	70 - 130	75	%		
2505103	F1 (C6-C10)	2011/06/01	83	70 - 130	91	70 - 130	<100	ug/L	NC	40
2505103	F1 (C6-C10) - BTEX	2011/06/01					<100	ug/L	NC	40
2505414	Mercury (Hg)	2011/06/01	104	75 - 125	102	80 - 120	<0.1	ug/L	NC	25
2506118	o-Terphenyl	2011/06/02	103	30 - 130	97	30 - 130	96	%		
2506118	F2 (C10-C16 Hydrocarbons)	2011/06/02	NC(2)	60 - 130	79	60 - 130	<100	ug/L	36.3	50
2506118	F3 (C16-C34 Hydrocarbons)	2011/06/02	77	60 - 130	90	60 - 130	<100	ug/L	NC	50
2506118	F4 (C34-C50 Hydrocarbons)	2011/06/02	105	60 - 130	94	60 - 130	<100	ug/L	NC	50
2506118	Chromium (VI)	2011/06/03	118	80 - 120	98	90 - 110	<5	ug/L	NC	25
2507104	Dissolved Chloride (Cl)	2011/06/06	NC	75 - 125	103	80 - 120	<1	mg/L	2.0	20
2507894	Dissolved Antimony (Sb)	2011/06/03	107	80 - 120	104	90 - 110	<0.5	ug/L	NC	25

Maxxam Job #: B176147
Report Date: 2011/06/06

exp.
Client Project #: KIN 16690 A0

QUALITY ASSURANCE REPORT

			Matrix Spike		Spiked Blank		Method Blank		RPD	
QC Batch	Parameter	Date	% Recovery	QC Limits	% Recovery	QC Limits	Value	Units	Value (%)	QC Limits
2508067	Dissolved Arsenic (As)	2011/06/03	106	80 - 120	105	90 - 110	<1	ug/L	NC	25
2508067	Dissolved Barium (Ba)	2011/06/03	101	80 - 120	103	90 - 110	<5	ug/L	1	25
2508067	Dissolved Beryllium (Be)	2011/06/03	102	80 - 120	104	90 - 110	<0.5	ug/L	NC	25
2508067	Dissolved Boron (B)	2011/06/03	98	80 - 120	102	90 - 110	<10	ug/L	0.04	25
2508067	Dissolved Cadmium (Cd)	2011/06/03	102	80 - 120	102	90 - 110	<0.1	ug/L	NC	25
2508067	Dissolved Chromium (Cr)	2011/06/03	101	80 - 120	103	90 - 110	<5	ug/L	NC	25
2508067	Dissolved Cobalt (Co)	2011/06/03	99	80 - 120	102	90 - 110	<0.5	ug/L	NC	25
2508067	Dissolved Copper (Cu)	2011/06/03	98	80 - 120	101	90 - 110	<1	ug/L	NC	25
2508067	Dissolved Lead (Pb)	2011/06/03	99	80 - 120	102	90 - 110	<0.5	ug/L	NC	25
2508067	Dissolved Molybdenum (Mo)	2011/06/03	107	80 - 120	104	90 - 110	<1	ug/L	NC	25
2508067	Dissolved Nickel (Ni)	2011/06/03	97	80 - 120	102	90 - 110	<1	ug/L	NC	25
2508067	Dissolved Selenium (Se)	2011/06/03	107	80 - 120	102	90 - 110	<2	ug/L	NC	25
2508067	Dissolved Silver (Ag)	2011/06/03	83	80 - 120	100	90 - 110	0.1, RDL=0.1	ug/L	NC	25
2508067	Dissolved Sodium (Na)	2011/06/03	NC	80 - 120	104	90 - 110	<100	ug/L	0.4	25
2508067	Dissolved Thallium (Tl)	2011/06/03	98	80 - 120	103	90 - 110	<0.05	ug/L	NC	25
2508067	Dissolved Uranium (U)	2011/06/03	102	80 - 120	104	90 - 110	<0.1	ug/L	NC	25
2508067	Dissolved Vanadium (V)	2011/06/03	104	80 - 120	103	90 - 110	<1	ug/L	NC	25
2508067	Dissolved Zinc (Zn)	2011/06/03	98	80 - 120	101	90 - 110	<5	ug/L	NC	25

N/A = Not Applicable
RDL = Reportable Detection Limit
RPD = Relative Percent Difference
Duplicate: Paired analysis of a separate portion of the same sample. Used to evaluate the variance in the measurement.
Matrix Spike: A sample to which a known amount of the analyte of interest has been added. Used to evaluate sample matrix interference.
Spiked Blank: A blank matrix to which a known amount of the analyte has been added. Used to evaluate analyte recovery.
Method Blank: A blank matrix containing all reagents used in the analytical procedure. Used to identify laboratory contamination.
Surrogate: A pure or isotopically labeled compound whose behavior mirrors the analytes of interest. Used to evaluate extraction efficiency.
NC (Matrix Spike): The recovery in the matrix spike was not calculated. The relative difference between the concentration in the parent sample and the spiked amount was not sufficiently significant to permit a reliable recovery calculation.
NC (RPD): The RPD was not calculated. The level of analyte detected in the parent sample and its duplicate was not sufficiently significant to permit a reliable calculation.
(1) - Duplicate results exceeded RPD acceptance criteria. The variability in the results for flagged analytes may be more pronounced.
(2) - The recovery in the matrix spike was not calculated (NC), spike level <2 X native concentration.

Maxxam Analytics International Corporation o/a Maxxam Analytics 6740 Campobello Road, Mississauga, Ontario, L5N 2L8 Tel: (905) 817-5700 Toll-Free: 800-563-6266 Fax: (905) 817-5777 www.maxxam.ca

Validation Signature Page

Maxxam Job #: B176147

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

ABDI MOHAMUD, Senior Analyst

CRISTINA CARRIERE, Scientific Services

MEDHAT RISKALLAH, Manager, Hydrocarbon Department

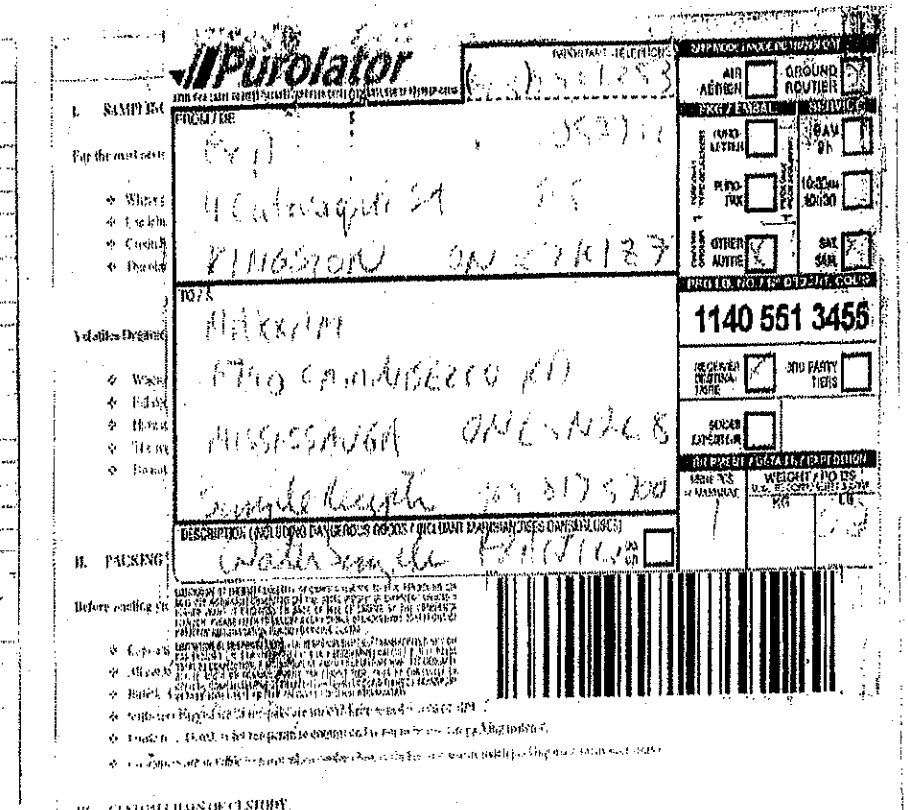
ALINA SEGAL, Manager Main Lab - Organics

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 Analytics International Corporation o/a Maxxam Analytics 6740 Campobello Road, Mississauga, Ontario, L5N 2L8 Tel: (905) 817-5700 Toll-Free: 800-563-6266 Fax: (905) 817-5777 www.maxxam.ca

Sample Container, Preservation, and Hold Time Information

Analytical Parameter	Recommended Sample Container	Preservative	Hold Time*
[illegible]	[illegible]	[illegible]	[illegible]



Analytical Parameter	Recommended Sample Container	Preservative	Hold Time*
[illegible]	[illegible]	[illegible]	[illegible]

Maxxam Analytics International Corporation o/a Maxxam Analytics 6740 Campobello Road, Mississauga, Ontario, L5N 2L8 Tel: (905) 817-5700 Toll-Free: 800-563-6266 Fax: (905) 817-5777 www.maxxam.ca

Maxxam — Maxxam Analytics International Corporation o/a Maxxam Analytics
6740 Campobello Road, Mississauga, Ontario Canada L5N 2L8 Tel:(905) 817-5700 Toll-free:800-563-6266 Fax:(905) 817-5777 www.maxxam.ca

CHAIN OF CUSTODY

28-May-11 10:05
SARA SAROOP
B176147
MAF ENV-608
C#283120-01-01

Page 1 of 1

Lab Use Only: BOTTLE ORDER #: 283120
PROJECT MANAGER: SARA SAROOP

INVOICE INFORMATION:
Company Name: #17500 exp.
Contact Name: Paula Formanek
Address: 4 Cataraqui St Suite 315, Kingston ON K7K 1Z7
Phone: (613)542-1253 Fax: (613)547-3767
Email: paula.formanek@exp.com, fraser.armstrong@exp.c

REPORT INFORMATION (if differs from invoice):
Company Name:
Contact Name:
Address:
Phone: Fax:
Email:

PROJECT INFORMATION:
Quotation #: A7A051
P.O. #:
Project #: KIN 16690 A0
Project Name:
Site #:
Sampled By:

REGULATORY CRITERIA:
☐ MISA Reg. 1230d Sewer Use: ☐ Sanitary ☐ Storm ☐ Combined
☐ PWQO ☐ Table 1 ☐ Table 2 ☐ Table 3 ☐ Table 6 ☐ Residential/Parkland ☐ Industrial/Commercial ☐ Medium/Fine ☐ Coarse
☐ Reg. 558 Municipality:
Other (specify): Table 9 (Reg 153/11) Report Criteria on C of A? ☐

Reg. 153 ☐ 2004 ☐ 2011

SPECIAL INSTRUCTIONS:

Note: For regulated drinking water samples - please use the Drinking Water Chain of Custody Form

SAMPLES MUST BE KEPT COOL (< 10°C) FROM TIME OF SAMPLING UNTIL DELIVERY TO MAXXAM

ANALYSIS REQUESTED (Please be specific):

#	Sample Barcode Label	Sample (Location) Identification	Date Sampled	Time Sampled	Matrix	Regulated Drinking Water? (Y/N)	Metals Field Filtered? (Y/N)	O'Reg 153 Petroleum Hydrocarbons	O'Reg 153 Volatile Organics	O'Reg 153 Polyaromatic Hydrocarbons	O'Reg 153 Metals & Inorganics						# of Bottles	Comments
1		MW-1	27/5/11	10AM	GW	N	N	X	X	X	X						14	
2		MW-2	27/5/11	11AM	GW	N	N	X	X								7	
3																		
4																		
5																		
6																		
7																		
8																		
9																		
10																		

TURNAROUND TIME (TAT) REQUIRED:
PLEASE PROVIDE ADVANCE NOTICE FOR RUSH PROJECTS
Regular (Standard) TAT: ☒
(will be applied if Rush TAT is not specified)
Standard TAT = 5-7 Working days for most tests.
Please note: Standard TAT for certain tests such as BOD and Dioxins/Furans are > 5 days - contact your Project Manager for details.
Job Specific Rush TAT (if applies to entire submission) ☐
Date Required: Time Required:
Rush Confirmation Number: (call lab for #)

RELINQUISHED BY: (Signature/Print)	Date: (YY/MM/DD)	Time:	RECEIVED BY: (Signature/Print)	Date: (YY/MM/DD)	Time:	# Jars Used and Not Submitted
[signature] MATT WHITNEY	11/05/27	1pm	[signature] DAVID CHAN	2011/05/28	10:05	

Laboratory Use Only: Time Sensitive ☐ Temperature (°C) on Receipt: 1/0/1°C Custody Seal Intact on Cooler? ☐ Yes ☐ No

White: Maxxam Yellow: Client

* IT IS THE RESPONSIBILITY OF THE RELINQUISHER TO ENSURE THE ACCURACY OF THE CHAIN OF CUSTODY RECORD. AN INCOMPLETE CHAIN OF CUSTODY MAY RESULT IN ANALYTICAL TAT DELAYS.

Maxxam Analytics International Corporation o/a Maxxam Analytics

Maxxam

Success Through Science

Your Project #: KIN-16690B
Your C.O.C. #: 27170601, 271706-01-01

Attention: Paula Formanek
exp.
4 Cataraqui St
Suite 315
Kingston, ON
K7K 1Z7

Report Date: 2011/08/02

CERTIFICATE OF ANALYSIS

MAXXAM JOB #: B1B0318
Received: 2011/07/23, 10:34

Sample Matrix: Soil
Samples Received: 9

Analyses	Quantity	Date Extracted	Date Analyzed	Laboratory Method	Method Reference
Petroleum Hydro. CCME F1 & BTEX in Soil	8	2011/07/25	2011/07/26	CAM SOP-00315	CCME CWS
Petroleum Hydrocarbons F2-F4 in Soil	8	2011/07/26	2011/07/27	CAM SOP-00316	CCME CWS
F4G (CCME Hydrocarbons Gravimetric)	2	2011/07/28	2011/07/30	CAM SOP-00316	CCME CWS
Moisture	7	N/A	2011/07/27	CAM SOP-00445	McKeague 2nd ed 1978
Moisture	2	N/A	2011/07/28	CAM SOP-00445	McKeague 2nd ed 1978
PAH Compounds in Soil by GC/MS (SIM)	1	2011/07/26	2011/07/27	CAM SOP - 00318	EPA 8270
Volatile Organic Compounds in Soil	1	2011/07/26	2011/07/29	CAM SOP-00226	EPA 8260 modified

Remarks:

Maxxam Analytics has performed all analytical testing herein in accordance with ISO 17025 and the Protocol for Analytical Methods Used in the Assessment of Properties under Part XV.1 of the Environmental Protection Act. All methodologies comply with this document and are validated for use in the laboratory. The methods and techniques employed in this analysis conform to the performance criteria (detection limits, accuracy and precision) as outlined in the Protocol for Analytical Methods Used in the Assessment of Properties under Part XV.1 of the Environmental Protection Act.

The CWS PHC methods employed by Maxxam conform to all prescribed elements of the reference method and performance based elements have been validated. All modifications have been validated and proven equivalent following the 'Alberta Environment Draft Addenda to the CWS-PHC, Appendix 6, Validation of Alternate Methods'. Documentation is available upon request. Maxxam has made the following improvements to the CWS-PHC reference benchmark method: (i) Headspace for F1; and, (ii) Mechanical extraction for F2-F4. Note: F4G cannot be added to the C6 to C50 hydrocarbons. The extraction date for samples field preserved with methanol for F1 and Volatile Organic Compounds is considered to be the date sampled.

Maxxam Analytics is accredited by SCC (Lab ID 97) for all specific parameters as required by Ontario Regulation 153/04. Maxxam Analytics is limited in liability to the actual cost of analysis unless otherwise agreed in writing. There is no other warranty expressed or implied. Samples will be retained at Maxxam Analytics for three weeks from receipt of data or as per contract.

* RPDs calculated using raw data. The rounding of final results may result in the apparent difference.
* Results relate only to the items tested.

../2

Maxxam Job #: B1B0318
Report Date: 2011/08/02

exp.
Client Project #: KIN-16690B

Encryption Key

Sara Saroop
02 Aug 2011 11:45:13 -04:00

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

SARA SAROOP, Project Manager
Email: SSaroop@maxxam.ca
Phone# (905) 817-5700 Ext:5821

==========

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.

Total cover pages: 2

exp.
Client Project #: KIN-16690B

Maxxam Job #: B1B0318
Report Date: 2011/08/02

O'REG 153 PAHS (SOIL)

BH 02 0-0.6 m

Maxxam ID		KH3050		
Sampling Date		2011/07/20 09:40		
	Units	2-1	RDL	QC Batch
Inorganics				
Moisture	%	17	1	2565236
Polyaromatic Hydrocarbons				
Acenaphthene	ug/g	<0.05	0.05	2562596
Acenaphthylene	ug/g	<0.03	0.03	2562596
Anthracene	ug/g	0.25	0.03	2562596
Benzo(a)anthracene	ug/g	0.93	0.05	2562596
Benzo(a)pyrene	ug/g	0.73	0.03	2562596
Benzo(b/j)fluoranthene	ug/g	1.2	0.05	2562596
Benzo(g,h,i)perylene	ug/g	0.4	0.1	2562596
Benzo(k)fluoranthene	ug/g	0.45	0.05	2562596
Chrysene	ug/g	0.80	0.05	2562596
Dibenz(a,h)anthracene	ug/g	<0.1	0.1	2562596
Fluoranthene	ug/g	1.9	0.03	2562596
Fluorene	ug/g	0.06	0.03	2562596
Indeno(1,2,3-cd)pyrene	ug/g	0.5	0.1	2562596
1-Methylnaphthalene	ug/g	0.24	0.03	2562596
2-Methylnaphthalene	ug/g	0.31	0.03	2562596
Naphthalene	ug/g	0.19	0.03	2562596
Phenanthrene	ug/g	1.3	0.03	2562596
Pyrene	ug/g	1.4	0.03	2562596
Surrogate Recovery (%)				
D10-Anthracene	%	78		2562596
D14-Terphenyl (FS)	%	59		2562596
D8-Acenaphthylene	%	51		2562596

RDL = Reportable Detection Limit
QC Batch = Quality Control Batch

Maxxam Analytics International Corporation o/a Maxxam Analytics 6740 Campobello Road, Mississauga, Ontario, L5N 2L8 Tel: (905) 817-5700 Toll-Free: 800-563-6266 Fax: (905) 817-5777 www.maxxam.ca

Maxxam Job #: B1B0318
Report Date: 2011/08/02

exp.
Client Project #: KIN-16690B

O'REG 153 PETROLEUM HYDROCARBONS (SOIL)

BH-1D 0-0.61m BH-D3 0-0.61m BH-D4 0-0.61m

Maxxam ID		KH3042		KH3043	KH3044		
Sampling Date		2011/07/20 08:30		2011/07/20 10:20	2011/07/20 11:40		
	Units	1-1	QC Batch	3-1	4-1	RDL	QC Batch
Inorganics							
Moisture	%	15	2565236	13	10	1	2563709
BTEX & F1 Hydrocarbons							
Benzene	ug/g			0.05	0.05	0.02	2561757
Toluene	ug/g			0.34	0.34	0.02	2561757
Ethylbenzene	ug/g			0.07	0.08	0.02	2561757
o-Xylene	ug/g			0.21	0.25	0.02	2561757
p+m-Xylene	ug/g			0.36	0.41	0.04	2561757
Total Xylenes	ug/g			0.57	0.66	0.04	2561757
F1 (C6-C10)	ug/g	320	2561757	<10	<10	10	2561757
F1 (C6-C10) - BTEX	ug/g	230	2561757	<10	<10	10	2561757
F2-F4 Hydrocarbons							
F2 (C10-C16 Hydrocarbons)	ug/g	940	2562049	<10	18	10	2562049
F3 (C16-C34 Hydrocarbons)	ug/g	1400	2562049	36	2400	10	2562049
F4 (C34-C50 Hydrocarbons)	ug/g	300	2562049	<10	2200	10	2562049
Reached Baseline at C50	ug/g	YES	2562049	YES	NO		2562049
Surrogate Recovery (%)							
1,4-Difluorobenzene	%	93	2561757	99	99		2561757
4-Bromofluorobenzene	%	100	2561757	95	95		2561757
D10-Ethylbenzene	%	100	2561757	95	91		2561757
D4-1,2-Dichloroethane	%	101	2561757	103	104		2561757
o-Terphenyl	%	106	2562049	104	114		2562049

RDL = Reportable Detection Limit
QC Batch = Quality Control Batch

Maxxam Analytics International Corporation o/a Maxxam Analytics 6740 Campobello Road, Mississauga, Ontario, L5N 2L8 Tel: (905) 817-5700 Toll-Free: 800-563-6266 Fax: (905) 817-5777 www.maxxam.ca

Maxxam Job #: B1B0318
Report Date: 2011/08/02

exp.
Client Project #: KIN-16690B

BH-D7 BH-D8 BH-D9

O'REG 153 PETROLEUM HYDROCARBONS (SOIL)

BH-B 0-0.61m BH-D6 0-0.61m 0-0.61m 0-0.61m 0-0.61m

Maxxam ID		KH3045	KH3046	KH3047	KH3048	KH3049		
Sampling Date		2011/07/20 13:00	2011/07/20 13:45	2011/07/20 14:20	2011/07/20 14:45	2011/07/20 15:45		
	Units	**5B-1**	**6-1**	**7-1**	**8-1**	**9-1**	**RDL**	**QC Batch**
Inorganics								
Moisture	%	13	6	14	7	16	1	2563709
BTEX & F1 Hydrocarbons								
Benzene	ug/g	0.06	0.05	0.10	<0.02	0.25	0.02	2561757
Toluene	ug/g	0.32	0.35	0.47	0.02	1.1	0.02	2561757
Ethylbenzene	ug/g	0.11	0.10	0.09	<0.02	0.16	0.02	2561757
o-Xylene	ug/g	0.39	0.27	0.28	0.13	0.64	0.02	2561757
p+m-Xylene	ug/g	0.58	0.49	0.53	0.09	1.3	0.04	2561757
Total Xylenes	ug/g	0.96	0.76	0.81	0.21	1.9	0.04	2561757
F1 (C6-C10)	ug/g	<10	<10	<10	<10	11	10	2561757
F1 (C6-C10) - BTEX	ug/g	<10	<10	<10	<10	<10	10	2561757
F2-F4 Hydrocarbons								
F2 (C10-C16 Hydrocarbons)	ug/g	78	<10	<10	<10	<10	10	2562049
F3 (C16-C34 Hydrocarbons)	ug/g	1400	28	27	300	150	10	2562049
F4 (C34-C50 Hydrocarbons)	ug/g	920	21	<10	84	25	10	2562049
Reached Baseline at C50	ug/g	NO	YES	YES	YES	YES		2562049
Surrogate Recovery (%)								
1,4-Difluorobenzene	%	101	100	97	102	98		2561757
4-Bromofluorobenzene	%	96	97	94	96	95		2561757
D10-Ethylbenzene	%	97	100	93	93	96		2561757
D4-1,2-Dichloroethane	%	105	105	104	106	105		2561757
o-Terphenyl	%	105	106	103	112	110		2562049

RDL = Reportable Detection Limit
QC Batch = Quality Control Batch

Maxxam Analytics International Corporation o/a Maxxam Analytics 6740 Campobello Road, Mississauga, Ontario, L5N 2L8 Tel: (905) 817-5700 Toll-Free: 800-563-6266 Fax: (905) 817-5777 www.maxxam.ca

Maxxam Job #: B1B0318
Report Date: 2011/08/02

exp.
Client Project #: KIN-16690B

O'REG 153 VOLATILE ORGANICS (SOIL)

BH-D1 0-0.61

Maxxam ID		KH3042		
Sampling Date		2011/07/20 08:30		
	Units	1-1	RDL	QC Batch
Volatile Organics				
Acetone (2-Propanone)	ug/g	<5	5	2560846
Benzene	ug/g	5.8	0.2	2560846
Bromodichloromethane	ug/g	<0.5	0.5	2560846
Bromoform	ug/g	<0.5	0.5	2560846
Bromomethane	ug/g	<0.5	0.5	2560846
Carbon Tetrachloride	ug/g	<0.5	0.5	2560846
Chlorobenzene	ug/g	<0.5	0.5	2560846
Chloroform	ug/g	<0.5	0.5	2560846
Dibromochloromethane	ug/g	<0.5	0.5	2560846
1,2-Dichlorobenzene	ug/g	<0.5	0.5	2560846
1,3-Dichlorobenzene	ug/g	<0.5	0.5	2560846
1,4-Dichlorobenzene	ug/g	<0.5	0.5	2560846
Dichlorodifluoromethane (FREON 12)	ug/g	<0.5	0.5	2560846
1,1-Dichloroethane	ug/g	<0.5	0.5	2560846
1,2-Dichloroethane	ug/g	<0.5	0.5	2560846
1,1-Dichloroethylene	ug/g	<0.5	0.5	2560846
cis-1,2-Dichloroethylene	ug/g	<0.5	0.5	2560846
trans-1,2-Dichloroethylene	ug/g	<0.5	0.5	2560846
1,2-Dichloropropane	ug/g	<0.5	0.5	2560846
cis-1,3-Dichloropropene	ug/g	<0.3	0.3	2560846
trans-1,3-Dichloropropene	ug/g	<0.4	0.4	2560846
Ethylbenzene	ug/g	5.8	0.2	2560846
Ethylene Dibromide	ug/g	<0.5	0.5	2560846
Hexane	ug/g	1.5	0.5	2560846
Methylene Chloride(Dichloromethane)	ug/g	<0.5	0.5	2560846
Methyl Isobutyl Ketone	ug/g	<5	5	2560846
Methyl Ethyl Ketone (2-Butanone)	ug/g	<5	5	2560846
Methyl t-butyl ether (MTBE)	ug/g	<0.5	0.5	2560846
Styrene	ug/g	<2(1)	2	2560846
1,1,1,2-Tetrachloroethane	ug/g	<0.5	0.5	2560846
1,1,2,2-Tetrachloroethane	ug/g	<0.5	0.5	2560846
Tetrachloroethylene	ug/g	<0.5	0.5	2560846
Toluene	ug/g	53	0.2	2560846
1,1,1-Trichloroethane	ug/g	<0.5	0.5	2560846

RDL = Reportable Detection Limit
QC Batch = Quality Control Batch
(1) - Detection limit was raised due to interference from coeluting o-xylene.

Maxxam Job #: B1B0318
Report Date: 2011/08/02

exp.
Client Project #: KIN-16690B

O'REG 153 VOLATILE ORGANICS (SOIL)

Maxxam ID		KH3042		
Sampling Date		2011/07/20 08:30		
	Units	1-1	RDL	QC Batch
1,1,2-Trichloroethane	ug/g	<0.5	0.5	2560846
Trichloroethylene	ug/g	<0.5	0.5	2560846
Vinyl Chloride	ug/g	<0.2	0.2	2560846
p+m-Xylene	ug/g	47	0.2	2560846
o-Xylene	ug/g	33	0.2	2560846
Xylene (Total)	ug/g	80	0.2	2560846
Trichlorofluoromethane (FREON 11)	ug/g	<0.5	0.5	2560846
Surrogate Recovery (%)				
4-Bromofluorobenzene	%	103		2560846
D10-o-Xylene	%	NC(1)		2560846
D4-1,2-Dichloroethane	%	100		2560846
D8-Toluene	%	100		2560846

PETROLEUM HYDROCARBONS (CCME)

Maxxam ID		KH3044	KH3045		
Sampling Date		2011/07/20 11:40	2011/07/20 13:00		
	Units	4-1	5B-1	RDL	QC Batch
F2-F4 Hydrocarbons					
F4G-sg (Grav. Heavy Hydrocarbons)	ug/g	3800	2200	100	2565593

NC = Non-calculable
RDL = Reportable Detection Limit
QC Batch = Quality Control Batch
(1) - Extraction surrogate recovery not calculable (NC) due to high dilution required.

Maxxam Analytics International Corporation o/a Maxxam Analytics 6740 Campobello Road, Mississauga, Ontario, L5N 2L8 Tel: (905) 817-5700 Toll-Free: 800-563-6266 Fax: (905) 817-5777 www.maxxam.ca

Maxxam Job #: B1B0318
Report Date: 2011/08/02

exp.
Client Project #: KIN-16690B

Test Summary

Maxxam ID KH3042 **Collected** 2011/07/20
Sample ID 1-1 **Shipped**
Matrix Soil **Received** 2011/07/23

Test Description	Instrumentation	Batch	Extracted	Analyzed	Analyst
Petroleum Hydro. CCME F1 & BTEX in Soil	HSGC/MSFD	2561757	2011/07/25	2011/07/26	GEORGETA RUSU
Petroleum Hydrocarbons F2-F4 in Soil	GC/FID	2562049	2011/07/26	2011/07/27	BARBARA WOWK
Moisture	BAL	2565236	N/A	2011/07/28	GAURAV KALIA
Volatile Organic Compounds in Soil	P&T/MS	2560846	2011/07/26	2011/07/29	FERESHTEH SHAFIEI

Maxxam ID KH3043 **Collected** 2011/07/20
Sample ID 3-1 **Shipped**
Matrix Soil **Received** 2011/07/23

Test Description	Instrumentation	Batch	Extracted	Analyzed	Analyst
Petroleum Hydro. CCME F1 & BTEX in Soil	HSGC/MSFD	2561757	2011/07/25	2011/07/26	GEORGETA RUSU
Petroleum Hydrocarbons F2-F4 in Soil	GC/FID	2562049	2011/07/26	2011/07/27	BARBARA WOWK
Moisture	BAL	2563709	N/A	2011/07/27	LAKHVIR KALER

Maxxam ID KH3044 **Collected** 2011/07/20
Sample ID 4-1 **Shipped**
Matrix Soil **Received** 2011/07/23

Test Description	Instrumentation	Batch	Extracted	Analyzed	Analyst
Petroleum Hydro. CCME F1 & BTEX in Soil	HSGC/MSFD	2561757	2011/07/25	2011/07/26	GEORGETA RUSU
Petroleum Hydrocarbons F2-F4 in Soil	GC/FID	2562049	2011/07/26	2011/07/27	BARBARA WOWK
F4G (CCME Hydrocarbons Gravimetric)	BAL	2565593	2011/07/28	2011/07/30	LOVELPREET THIND
Moisture	BAL	2563709	N/A	2011/07/27	LAKHVIR KALER

Maxxam Analytics International Corporation o/a Maxxam Analytics 6740 Campobello Road, Mississauga, Ontario, L5N 2L8 Tel: (905) 817-5700 Toll-Free: 800-563-6266 Fax: (905) 817-5777 www.maxxam.ca

Maxxam Job #: B1B0318
Report Date: 2011/08/02

exp.
Client Project #: KIN-16690B

Test Summary

Maxxam ID KH3045 **Collected** 2011/07/20
Sample ID 5B-1 **Shipped**
Matrix Soil **Received** 2011/07/23

Test Description	Instrumentation	Batch	Extracted	Analyzed	Analyst
Petroleum Hydro. CCME F1 & BTEX in Soil	HSGC/MSFD	2561757	2011/07/25	2011/07/26	GEORGETA RUSU
Petroleum Hydrocarbons F2-F4 in Soil	GC/FID	2562049	2011/07/26	2011/07/27	BARBARA WOWK
F4G (CCME Hydrocarbons Gravimetric)	BAL	2565593	2011/07/28	2011/07/30	LOVELPREET THIND
Moisture	BAL	2563709	N/A	2011/07/27	LAKHVIR KALER

Maxxam ID KH3046 **Collected** 2011/07/20
Sample ID 6-1 **Shipped**
Matrix Soil **Received** 2011/07/23

Test Description	Instrumentation	Batch	Extracted	Analyzed	Analyst
Petroleum Hydro. CCME F1 & BTEX in Soil	HSGC/MSFD	2561757	2011/07/25	2011/07/26	GEORGETA RUSU
Petroleum Hydrocarbons F2-F4 in Soil	GC/FID	2562049	2011/07/26	2011/07/27	BARBARA WOWK
Moisture	BAL	2563709	N/A	2011/07/27	LAKHVIR KALER

Maxxam ID KH3047 **Collected** 2011/07/20
Sample ID 7-1 **Shipped**
Matrix Soil **Received** 2011/07/23

Test Description	Instrumentation	Batch	Extracted	Analyzed	Analyst
Petroleum Hydro. CCME F1 & BTEX in Soil	HSGC/MSFD	2561757	2011/07/25	2011/07/26	GEORGETA RUSU
Petroleum Hydrocarbons F2-F4 in Soil	GC/FID	2562049	2011/07/26	2011/07/27	BARBARA WOWK
Moisture	BAL	2563709	N/A	2011/07/27	LAKHVIR KALER

Maxxam Analytics International Corporation o/a Maxxam Analytics 6740 Campobello Road, Mississauga, Ontario, L5N 2L8 Tel: (905) 817-5700 Toll-Free: 800-563-6266 Fax: (905) 817-5777 www.maxxam.ca

Maxxam Job #: B1B0318
Report Date: 2011/08/02

exp.
Client Project #: KIN-16690B

Test Summary

Maxxam ID KH3048 **Collected** 2011/07/20
Sample ID 8-1 **Shipped**
Matrix Soil **Received** 2011/07/23

Test Description	Instrumentation	Batch	Extracted	Analyzed	Analyst
Petroleum Hydro. CCME F1 & BTEX in Soil	HSGC/MSFD	2561757	2011/07/25	2011/07/26	GEORGETA RUSU
Petroleum Hydrocarbons F2-F4 in Soil	GC/FID	2562049	2011/07/26	2011/07/27	BARBARA WOWK
Moisture	BAL	2563709	N/A	2011/07/27	LAKHVIR KALER

Maxxam ID KH3049 **Collected** 2011/07/20
Sample ID 9-1 **Shipped**
Matrix Soil **Received** 2011/07/23

Test Description	Instrumentation	Batch	Extracted	Analyzed	Analyst
Petroleum Hydro. CCME F1 & BTEX in Soil	HSGC/MSFD	2561757	2011/07/25	2011/07/26	GEORGETA RUSU
Petroleum Hydrocarbons F2-F4 in Soil	GC/FID	2562049	2011/07/26	2011/07/27	BARBARA WOWK
Moisture	BAL	2563709	N/A	2011/07/27	LAKHVIR KALER

Maxxam ID KH3050 **Collected** 2011/07/20
Sample ID 2-1 **Shipped**
Matrix Soil **Received** 2011/07/23

Test Description	Instrumentation	Batch	Extracted	Analyzed	Analyst
Moisture	BAL	2565236	N/A	2011/07/28	GAURAV KALIA
PAH Compounds in Soil by GC/MS (SIM)	GC/MS	2562596	2011/07/26	2011/07/27	YUAN ZHOU

Maxxam Analytics International Corporation o/a Maxxam Analytics 6740 Campobello Road, Mississauga, Ontario, L5N 2L8 Tel: (905) 817-5700 Toll-Free: 800-563-6266 Fax: (905) 817-5777 www.maxxam.ca

Maxxam Job #: B1B0318
Report Date: 2011/08/02

exp.
Client Project #: KIN-16690B

GENERAL COMMENTS

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

Sample KH3042-01: F1-BTEX Analysis: The BTEX results used for the F1-BTEX calculation were obtained from Headspace-GC analysis.

VOC Analysis: Due to high concentrations of target analytes, sample required dilution. Detection limits were adjusted accordingly.

Sample KH3050-01: PAH Analysis: Due to the sample matrix, sample required dilution. Detection limits were adjusted accordingly.

Maxxam Analytics International Corporation o/a Maxxam Analytics 6740 Campobello Road, Mississauga, Ontario, L5N 2L0 Tel: (905) 817-5700 Toll-Free: 800-563-6266 Fax: (905) 817-5777 www.maxxam.ca

Maxxam Job #: B1B0318
Report Date: 2011/08/02

exp.
Client Project #: KIN-16690B

QUALITY ASSURANCE REPORT

			Matrix Spike		Spiked Blank		Method Blank		RPD	
QC Batch	Parameter	Date	% Recovery	QC Limits	% Recovery	QC Limits	Value	Units	Value (%)	QC Limits
2560846	4-Bromofluorobenzene	2011/07/29	103	60 - 140	103	60 - 140	95	%		
2560846	D10-o-Xylene	2011/07/29	116	50 - 130	113	50 - 130	114	%		
2560846	D4-1,2-Dichloroethane	2011/07/29	102	60 - 140	101	60 - 140	101	%		
2560846	D8-Toluene	2011/07/29	98	60 - 140	100	60 - 140	99	%		
2560846	Acetone (2-Propanone)	2011/07/29	85	60 - 140	72	60 - 140	<0.5	ug/g	NC	50
2560846	Benzene	2011/07/29	99	60 - 140	102	60 - 140	<0.02	ug/g	NC	50
2560846	Bromodichloromethane	2011/07/29	99	60 - 140	102	60 - 140	<0.05	ug/g	NC	50
2560846	Bromoform	2011/07/29	107	60 - 140	109	60 - 140	<0.05	ug/g	NC	50
2560846	Bromomethane	2011/07/29	78	60 - 140	81	60 - 140	<0.05	ug/g	NC	50
2560846	Carbon Tetrachloride	2011/07/29	98	60 - 140	99	60 - 140	<0.05	ug/g	NC	50
2560846	Chlorobenzene	2011/07/29	103	60 - 140	105	60 - 140	<0.05	ug/g	NC	50
2560846	Chloroform	2011/07/29	101	60 - 140	103	60 - 140	<0.05	ug/g	NC	50
2560846	Dibromochloromethane	2011/07/29	105	60 - 140	109	60 - 140	<0.05	ug/g	NC	50
2560846	1,2-Dichlorobenzene	2011/07/29	103	60 - 140	106	60 - 140	<0.05	ug/g	NC	50
2560846	1,3-Dichlorobenzene	2011/07/29	100	60 - 140	104	60 - 140	<0.05	ug/g	NC	50
2560846	1,4-Dichlorobenzene	2011/07/29	104	60 - 140	106	60 - 140	<0.05	ug/g	NC	50
2560846	Dichlorodifluoromethane (FREON 12)	2011/07/29	91	60 - 140	96	60 - 140	<0.05	ug/g	NC	50
2560846	1,1-Dichloroethane	2011/07/29	100	60 - 140	102	60 - 140	<0.05	ug/g	NC	50
2560846	1,2-Dichloroethane	2011/07/29	104	60 - 140	107	60 - 140	<0.05	ug/g	NC	50
2560846	1,1-Dichloroethylene	2011/07/29	98	60 - 140	101	60 - 140	<0.05	ug/g	NC	50
2560846	cis-1,2-Dichloroethylene	2011/07/29	98	60 - 140	101	60 - 140	<0.05	ug/g	NC	50
2560846	trans-1,2-Dichloroethylene	2011/07/29	98	60 - 140	101	60 - 140	<0.05	ug/g	NC	50
2560846	1,2-Dichloropropane	2011/07/29	103	60 - 140	105	60 - 140	<0.05	ug/g	NC	50
2560846	cis-1,3-Dichloropropene	2011/07/29	108	60 - 140	111	60 - 140	<0.03	ug/g	NC	50
2560846	trans-1,3-Dichloropropene	2011/07/29	104	60 - 140	108	60 - 140	<0.04	ug/g	NC	50
2560846	Ethylbenzene	2011/07/29	103	60 - 140	104	60 - 140	<0.02	ug/g	NC	50
2560846	Ethylene Dibromide	2011/07/29	108	60 - 140	111	60 - 140	<0.05	ug/g	NC	50
2560846	Hexane	2011/07/29	103	60 - 140	104	60 - 140	<0.05	ug/g	NC	50
2560846	MethyleneChloride(Dichloromethane)	2011/07/29	99	60 - 140	102	60 - 140	<0.05	ug/g	NC	50
2560846	Methyl Isobutyl Ketone	2011/07/29	108	60 - 140	112	60 - 140	<0.5	ug/g	NC	50
2560846	Methyl Ethyl Ketone (2-Butanone)	2011/07/29	98	60 - 140	91	60 - 140	<0.5	ug/g	NC	50
2560846	Methyl t-butyl ether (MTBE)	2011/07/29	113	60 - 140	116	60 - 140	<0.05	ug/g	NC	50
2560846	Styrene	2011/07/29	89	60 - 140	92	60 - 140	<0.05	ug/g	NC	50
2560846	1,1,1,2-Tetrachloroethane	2011/07/29	104	60 - 140	107	60 - 140	<0.05	ug/g	NC	50
2560846	1,1,2,2-Tetrachloroethane	2011/07/29	107	60 - 140	111	60 - 140	<0.05	ug/g	NC	50
2560846	Tetrachloroethylene	2011/07/29	96	60 - 140	99	60 - 140	<0.05	ug/g	NC	50
2560846	Toluene	2011/07/29	99	60 - 140	101	60 - 140	<0.02	ug/g	NC	50
2560846	1,1,1-Trichloroethane	2011/07/29	100	60 - 140	102	60 - 140	<0.05	ug/g	NC	50
2560846	1,1,2-Trichloroethane	2011/07/29	105	60 - 140	110	60 - 140	<0.05	ug/g	NC	50
2560846	Trichloroethylene	2011/07/29	100	60 - 140	102	60 - 140	<0.05	ug/g	NC	50

Maxxam Analytics International Corporation o/a Maxxam Analytics 6740 Campobello Road, Mississauga, Ontario, L5N 2L8 Tel: (905) 817-5700 Toll-Free: 800-563-6266 Fax: (905) 817-5777 www.maxxam.ca

Maxxam Job #: B1B0318
Report Date: 2011/08/02

exp.
Client Project #: KIN-16690B

QUALITY ASSURANCE REPORT

			Matrix Spike		Spiked Blank		Method Blank		RPD	
QC Batch	Parameter	Date	% Recovery	QC Limits	% Recovery	QC Limits	Value	Units	Value (%)	QC Limits
2560846	Vinyl Chloride	2011/07/29	95	60 - 140	97	60 - 140	<0.02	ug/g	NC	50
2560846	p+m-Xylene	2011/07/29	102	60 - 140	105	60 - 140	<0.02	ug/g	NC	50
2560846	o-Xylene	2011/07/29	99	60 - 140	103	60 - 140	<0.02	ug/g	NC	50
2560846	Trichlorofluoromethane (FREON 11)	2011/07/29	93	60 - 140	95	60 - 140	<0.05	ug/g	NC	50
2560846	Xylene (Total)	2011/07/29					<0.02	ug/g	NC	50
2561757	1,4-Difluorobenzene	2011/07/25	99	60 - 140	101	60 - 140	104	%		
2561757	4-Bromofluorobenzene	2011/07/25	96	60 - 140	96	60 - 140	96	%		
2561757	D10-Ethylbenzene	2011/07/25	95	30 - 130	93	30 - 130	95	%		
2561757	D4-1,2-Dichloroethane	2011/07/25	108	60 - 140	110	60 - 140	113	%		
2561757	Benzene	2011/07/26	96	60 - 140	95	60 - 140	<0.02	ug/g	NC	50
2561757	Toluene	2011/07/26	104	60 - 140	101	60 - 140	<0.02	ug/g	NC	50
2561757	Ethylbenzene	2011/07/26	99	60 - 140	98	60 - 140	<0.02	ug/g	NC	50
2561757	o-Xylene	2011/07/26	99	60 - 140	95	60 - 140	<0.02	ug/g	NC	50
2561757	p+m-Xylene	2011/07/26	101	60 - 140	99	60 - 140	<0.04	ug/g	NC	50
2561757	F1 (C6-C10)	2011/07/26	85	60 - 140	87	60 - 140	<10	ug/g	NC	50
2561757	Total Xylenes	2011/07/26					<0.04	ug/g	NC	50
2561757	F1 (C6-C10) - BTEX	2011/07/26					<10	ug/g	NC	50
2562049	o-Terphenyl	2011/07/26	107	30 - 130	108	30 - 130	99	%		
2562049	F2 (C10-C16 Hydrocarbons)	2011/07/27	103	60 - 130	97	60 - 130	<10	ug/g	NC	50
2562049	F3 (C16-C34 Hydrocarbons)	2011/07/27	105	60 - 130	99	60 - 130	<10	ug/g	NC	50
2562049	F4 (C34-C50 Hydrocarbons)	2011/07/27	102	60 - 130	99	60 - 130	<10	ug/g	NC	50
2562596	D10-Anthracene	2011/07/26	69	30 - 130	67	30 - 130	73	%		
2562596	D14-Terphenyl (FS)	2011/07/26	68	30 - 130	74	30 - 130	88	%		
2562596	D8-Acenaphthylene	2011/07/26	57	30 - 130	62	30 - 130	53	%		
2562596	Acenaphthene	2011/07/27	70	30 - 130	78	30 - 130	<0.01	ug/g	NC	50
2562596	Acenaphthylene	2011/07/27	65	30 - 130	76	30 - 130	<0.005	ug/g	5.1	50
2562596	Anthracene	2011/07/27	76	30 - 130	73	30 - 130	<0.005	ug/g	4.4	50
2562596	Benzo(a)anthracene	2011/07/27	71	30 - 130	90	30 - 130	<0.01	ug/g	1.6	50
2562596	Benzo(a)pyrene	2011/07/27	76	30 - 130	76	30 - 130	<0.005	ug/g	6.4	50
2562596	Benzo(b/j)fluoranthene	2011/07/27	73	30 - 130	83	30 - 130	<0.01	ug/g	4.9	50
2562596	Benzo(g,h,i)perylene	2011/07/27	67	30 - 130	66	30 - 130	<0.02	ug/g	6.8	50
2562596	Benzo(k)fluoranthene	2011/07/27	77	30 - 130	86	30 - 130	<0.01	ug/g	2.1	50
2562596	Chrysene	2011/07/27	70	30 - 130	82	30 - 130	<0.01	ug/g	2.9	50
2562596	Dibenz(a,h)anthracene	2011/07/27	81	30 - 130	80	30 - 130	<0.02	ug/g	NC	50
2562596	Fluoranthene	2011/07/27	72	30 - 130	84	30 - 130	<0.005	ug/g	7.4	50
2562596	Fluorene	2011/07/27	72	30 - 130	81	30 - 130	<0.005	ug/g	NC	50
2562596	Indeno(1,2,3-cd)pyrene	2011/07/27	67	30 - 130	72	30 - 130	<0.02	ug/g	7.9	50
2562596	1-Methylnaphthalene	2011/07/27	71	30 - 130	68	30 - 130	<0.005	ug/g	NC	50
2562596	2-Methylnaphthalene	2011/07/27	62	30 - 130	69	30 - 130	<0.005	ug/g	NC	50
2562596	Naphthalene	2011/07/27	60	30 - 130	66	30 - 130	<0.005	ug/g	4.5	50

Maxxam Analytics International Corporation o/a Maxxam Analytics 6740 Campobello Road, Mississauga, Ontario, L5N 2L8 Tel: (905) 817-5700 Toll-Free: 800-563-6266 Fax: (905) 817-5777 www.maxxam.ca

Maxxam Job #: B1B0318
Report Date: 2011/08/02

exp.
Client Project #: KIN-16690B

QUALITY ASSURANCE REPORT

			Matrix Spike		Spiked Blank		Method Blank		RPD	
QC Batch	Parameter	Date	% Recovery	QC Limits	% Recovery	QC Limits	Value	Units	Value (%)	QC Limits
2562596	Phenanthrene	2011/07/27	76	30 - 130	77	30 - 130	<0.005	ug/g	NC	50
2562596	Pyrene	2011/07/27	71	30 - 130	87	30 - 130	<0.005	ug/g	7.0	50
2563709	Moisture	2011/07/27							0.5	20
2565236	Moisture	2011/07/28							4.8	20
2565593	F4G-sg (Grav. Heavy Hydrocarbons)	2011/07/30	102	65 - 135	99	65 - 135	<100	ug/g	14.8	50

N/A = Not Applicable
RPD = Relative Percent Difference
Duplicate: Paired analysis of a separate portion of the same sample. Used to evaluate the variance in the measurement.
Matrix Spike: A sample to which a known amount of the analyte of interest has been added. Used to evaluate sample matrix interference.
Spiked Blank: A blank matrix to which a known amount of the analyte has been added. Used to evaluate analyte recovery.
Method Blank: A blank matrix containing all reagents used in the analytical procedure. Used to identify laboratory contamination.
Surrogate: A pure or isotopically labeled compound whose behavior mirrors the analytes of interest. Used to evaluate extraction efficiency.
NC (RPD): The RPD was not calculated. The level of analyte detected in the parent sample and its duplicate was not sufficiently significant to permit a reliable calculation.

Maxxam Analytics International Corporation o/a Maxxam Analytics 6740 Campobello Road, Mississauga, Ontario, L5N 2L8 Tel: (905) 817-5700 Toll-Free: 800-563-6266 Fax: (905) 817-5777 www.maxxam.ca

Validation Signature Page

Maxxam Job #: B1B0318

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

CRISTINA CARRIERE, Scientific Services

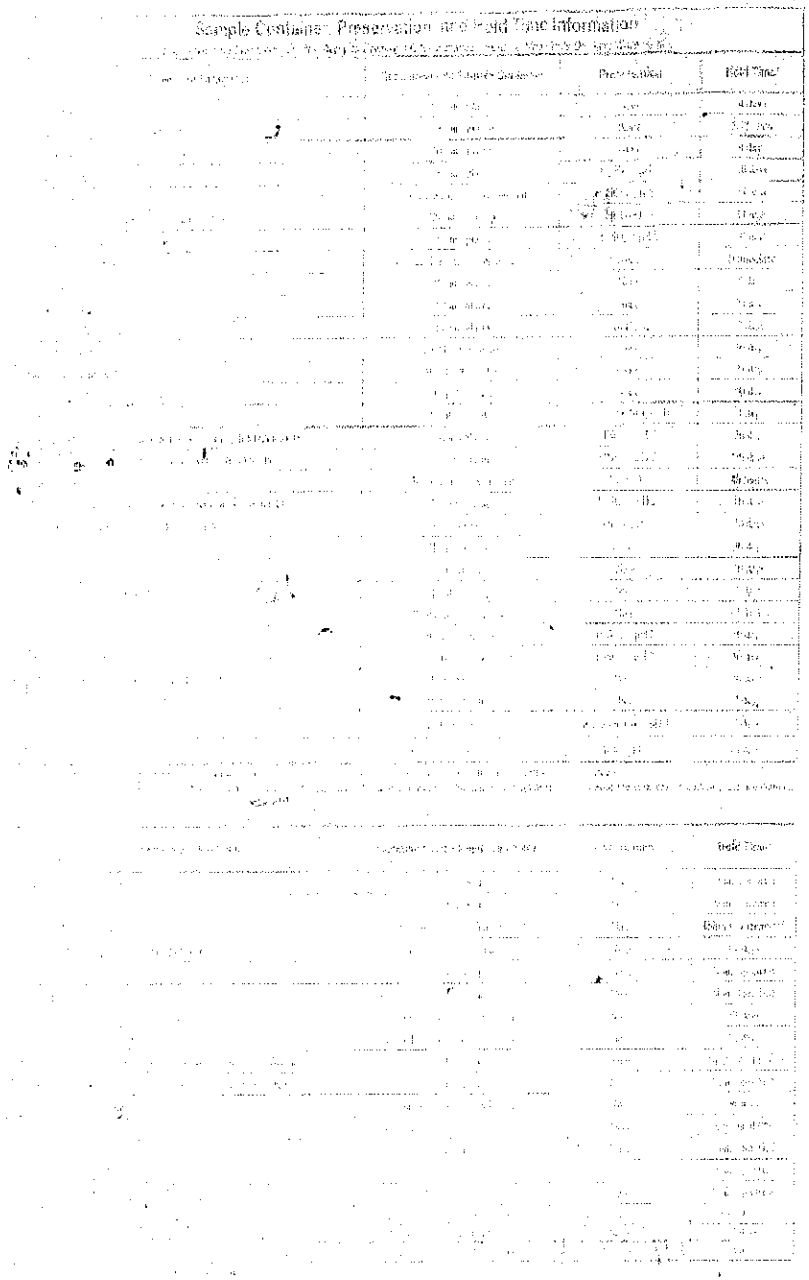
MEDHAT RISKALLAH, Manager, Hydrocarbon Department

SUZANA POPOVIC, Supervisor, Hydrocarbons

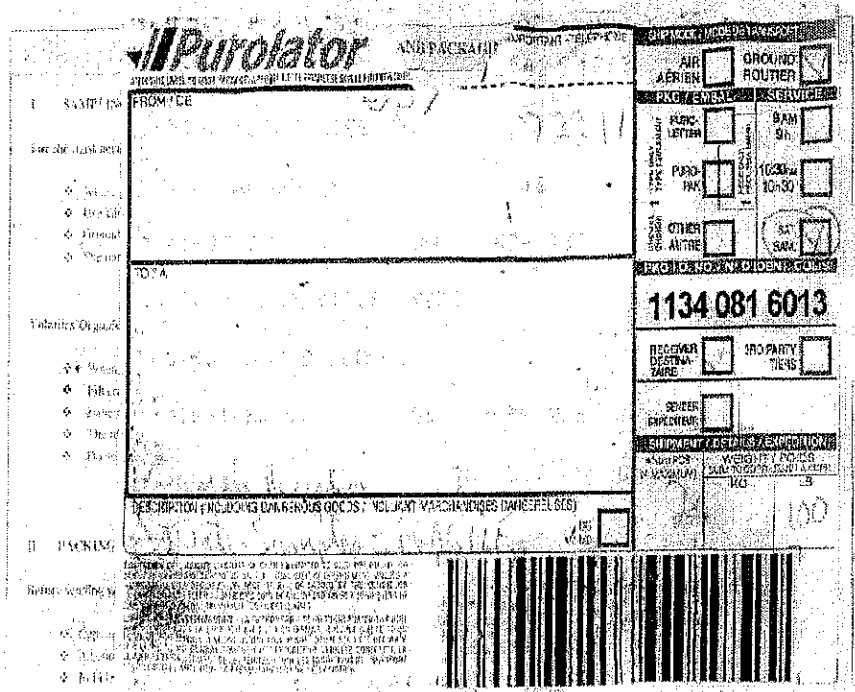
YUAN ZHOU, gc\ms Technician

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 Analytics International Corporation o/a Maxxam Analytics 6740 Campobello Road, Mississauga, Ontario, L5N 2L8 Tel: (905) 817-5700 Toll-Free: 800-563-6266 Fax: (905) 817-5777 www.maxxam.ca



Sample Container, Preservation and Hold Time Information



Maxxam

Maxxam Analytics International Corporation o/a Maxxam Analytics
6740 Campobello Road, Mississauga, Ontario Canada L5N 2L8 Tel (905) 817-5700 Toll-free 800-563-6266 Fax (905) 817-5777 www.maxxam.ca

CHAIN O

23-Jul-11 10:34
SARA SAROOP
B1B0318
FW ENV-211

Page 1 of 1

INVOICE INFORMATION:		REPORT INFORMATION (if differs from invoice):		PROJECT INFORMAT	
Company Name:	#17500 exp	Company Name:		Quotation #:	B13974
Contact Name:	Paula Formanek	Contact Name:		P.O. #:	
Address:	4 Calaraqui St Suite 315	Address:		Project #:	KIN-16690B
	Kingston ON K7K 7Z7			Project Name:	
Phone:	(613)542-1253 Fax: (613)547-3767	Phone:	Fax:	Site #:	
Email:	paula.formanek@exp.com, fraser.armstrong@exp.c	Email:		Sampled By:	

Ry Use Only:
BOTTLE ORDER #:
27-706
CHAIN OF CUSTODY #:
Cal217(6601-07
PROJECT MANAGER:
SARA SAROOP

Regulation 153 (2011): Table 1 / Table 2 / Table 3 / Table 4 / Res/Park / Ind/Comm / Agr/Other / Medium/Fine / Coarse / For RSC

Other Regulations: SCVE / Reg. 558 / MSA / PWQO / Other / Sanitary Sewer Bylaw / Storm Sewer Bylaw / Municipality

SPECIAL INSTRUCTIONS

Include Criteria on Certificate of Analysis (Y/N)?

Note: For MOE regulated drinking water samples - please use the Drinking Water Chain of Custody Form

SAMPLES MUST BE KEPT COOL (< 10°C) FROM TIME OF SAMPLING UNTIL DELIVERY TO MAXXAM

TURNAROUND TIME (TAT) REQUIRED:

PLEASE PROVIDE ADVANCE NOTICE FOR RUSH PROJECTS

Regular (Standard) TAT:
(will be applied if Rush TAT is not specified)
Standard TAT = 5-7 Working days for most tests
Please note: Standard TAT for certain tests such as BOD and Dioxins/Furans are > 5 days - contact your Project Manager for details.

Job Specific Rush TAT (if applies to entire submission)
Date Required: Time Required:
Rush Confirmation Number: (call lab for #)

	Sample Barcode Label	Sample (Location) Identification	Date Sampled	Time Sampled	Matrix	Regulated Drinking Water? (Y/N)	Metals Field Filtered? (Y/N)	BTEX F1-F4/BTEX	PHC F1-F4	VOC	PAH	# of Bottles	Comments
1		1-1	20/7/11	8:30 am	SOIL	N			X	X		5	
2		3-1		10:20 am				X				3	
3		4-1		11:40 am				X				3	
4		56-1		1:00 pm				X				3	
5		6-1		1:45 pm				X				3	
6		7-1		2:20 pm				X				3	
7		8-1		3:45 pm				X				3	
8		9-1		3:45 pm				X				3	
9		2-1		9:40 am							X	1	
10													

*RELINQUISHED BY: (Signature/Print)	Date: (YY/MM/DD)	Time:	RECEIVED BY: (Signature/Print)	Date: (YY/MM/DD)	Time:	# Jars Used and Not Submitted	Laboratory Use Only: Time Received	Temperature (°C) on Receipt	Custody Seal Present	Yes	No
[illegible] WITHDRAWN	11/07/21		DAVID CHAN	20/07/23	10:34			6/5/4°C		X	

White: Maxxam Yellow: Client

*IT IS THE RESPONSIBILITY OF THE RELINQUISHER TO ENSURE THE ACCURACY OF THE CHAIN OF CUSTODY RECORD. AN INCOMPLETE CHAIN OF CUSTODY MAY RESULT IN ANALYTICAL TAT DELAYS.

Maxxam Analytics International Corporation o/a Maxxam Analytics 6740 Campobello Road, Mississauga, Ontario, L5N 2L0 Tel: (905) 817-5700 Toll-Free: 800-563-6266 Fax: (905) 817-5777 www.maxxam.ca

Maxxam

Success Through Science

Your Project #: KIN-16690B
Your C.O.C. #: 27170201, 271702-01-01

Attention: Paula Formanek
exp.
4 Cataraqui St
Suite 315
Kingston, ON
K7K 1Z7

Report Date: 2011/08/03

CERTIFICATE OF ANALYSIS

MAXXAM JOB #: B1B1304
Received: 2011/07/26, 08:58

Sample Matrix: Soil
Samples Received: 1

Analyses	Quantity	Date Extracted	Date Analyzed	Laboratory Method	Method Reference
Semivolatile Organic Compounds (TCLP)	1	2011/07/29	2011/07/30	CAM SOP-00301	EPA 8270 modified
Cyanide (WAD) in Leachates	1	N/A	2011/07/29	CAM SOP-00457	SM 4500 CN-I
Fluoride by ISE in Leachates	1	2011/07/29	2011/07/29	CAM SOP-00448	SM 4500FC
Mercury (TCLP Leachable) (mg/L)	1	N/A	2011/08/02	CAM SOP-00453	EPA 7470
Total Metals in TCLP Leachate by ICPMS	1	2011/07/29	2011/08/02	CAM SOP-00447	EPA 6020
Nitrate(NO3) + Nitrite(NO2) in Leachate	1	N/A	2011/08/02	CAM SOP-00440	SM 4500 NO3I/NO2B
TCLP - % Solids	1	2011/07/28	2011/07/29	CAM SOP-00401	EPA 1311 modified
TCLP - Extraction Fluid	1	N/A	2011/07/29	CAM SOP-00401	EPA 1311 modified
TCLP - Initial and final pH	1	N/A	2011/07/29	CAM SOP-00401	EPA 1311 modified
TCLP Zero Headspace Extraction	1	2011/07/29	2011/07/29	CAM SOP-00430	EPA 1311 modified
VOCs in ZHE Leachates	1	2011/08/02	2011/08/03	CAM SOP 00226	EPA 8260 modified

Remarks:

Maxxam Analytics has performed all analytical testing herein in accordance with ISO 17025 and the Protocol for Analytical Methods Used in the Assessment of Properties under Part XV.1 of the Environmental Protection Act. All methodologies comply with this document and are validated for use in the laboratory. The methods and techniques employed in this analysis conform to the performance criteria (detection limits, accuracy and precision) as outlined in the Protocol for Analytical Methods Used in the Assessment of Properties under Part XV.1 of the Environmental Protection Act.

The CWS PHC methods employed by Maxxam conform to all prescribed elements of the reference method and performance based elements have been validated. All modifications have been validated and proven equivalent following the 'Alberta Environment Draft Addenda to the CWS-PHC, Appendix 6, Validation of Alternate Methods'. Documentation is available upon request. Maxxam has made the following improvements to the CWS-PHC reference benchmark method: (i) Headspace for F1; and, (ii) Mechanical extraction for F2-F4. Note: F4G cannot be added to the C6 to C50 hydrocarbons. The extraction date for samples field preserved with methanol for F1 and Volatile Organic Compounds is considered to be the date sampled.

Maxxam Analytics is accredited by SCC (Lab ID 97) for all specific parameters as required by Ontario Regulation 153/04. Maxxam Analytics is limited in liability to the actual cost of analysis unless otherwise agreed in writing. There is no other warranty expressed or implied. Samples will be retained at Maxxam Analytics for three weeks from receipt of data or as per contract.

* RPDs calculated using raw data. The rounding of final results may result in the apparent difference.
* Results relate only to the items tested.

../2

Maxxam Job #: B1B1304
Report Date: 2011/08/03

exp.
Client Project #: KIN-16690B

Sampler Initials: MW

Encryption Key

Maryam Arghandeh
03 Aug 2011 17:45:18 -04:00

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

SARA SAROOP, Project Manager
Email: SSaroop@maxxam.ca
Phone# (905) 817-5700 Ext:5821

==========

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.

Total cover pages: 2

Maxxam Job #: B1B1304
Report Date: 2011/08/03

exp.
Client Project #: KIN-16690B

Sampler Initials: MW

O'REG 558 TCLP VOLATILE ORGANICS (SOIL)

Maxxam ID		KH8936		
Sampling Date		2011/07/20		
	Units	**TCLP**	**RDL**	**QC Batch**
Charge/Prep Analysis				
Amount Extracted (Wet Weight) (g)	N/A	25	N/A	2566241
Volatile Organics				
Leachable Benzene	mg/L	<0.02	0.02	2567937
Leachable Carbon Tetrachloride	mg/L	<0.02	0.02	2567937
Leachable Chlorobenzene	mg/L	<0.02	0.02	2567937
Leachable Chloroform	mg/L	<0.02	0.02	2567937
Leachable 1,2-Dichlorobenzene	mg/L	<0.05	0.05	2567937
Leachable 1,4-Dichlorobenzene	mg/L	<0.05	0.05	2567937
Leachable 1,2-Dichloroethane	mg/L	<0.05	0.05	2567937
Leachable 1,1-Dichloroethylene	mg/L	<0.02	0.02	2567937
Leachable Methylene Chloride(Dichloromethane)	mg/L	<0.2	0.2	2567937
Leachable Methyl Ethyl Ketone (2-Butanone)	mg/L	<1	1	2567937
Leachable Tetrachloroethylene	mg/L	<0.02	0.02	2567937
Leachable Trichloroethylene	mg/L	<0.02	0.02	2567937
Leachable Vinyl Chloride	mg/L	<0.02	0.02	2567937
Surrogate Recovery (%)				
Leachable 4-Bromofluorobenzene	%	93		2567937
Leachable D4-1,2-Dichloroethane	%	118		2567937
Leachable D8-Toluene	%	91		2567937

N/A = Not Applicable
RDL = Reportable Detection Limit
QC Batch = Quality Control Batch

Maxxam Analytics International Corporation o/a Maxxam Analytics 6740 Campobello Road, Mississauga, Ontario, L5N 2L8 Tel: (905) 817-5700 Toll-Free: 800-563-6266 Fax: (905) 817-5777 www.maxxam.ca

Maxxam Job #: B1B1304
Report Date: 2011/08/03

exp.
Client Project #: KIN-16690B

Sampler Initials: MW

O'REG 558 TCLP INORGANICS PACKAGE (SOIL)

Maxxam ID		KH8936	KH8936		
Sampling Date		2011/07/20	2011/07/20		
	Units	TCLP	TCLP Lab-Dup	RDL	QC Batch
Inorganics					
Leachable Fluoride (F-)	mg/L	0.4	0.4	0.1	2566317
Leachable Free Cyanide	mg/L	<0.002	<0.002	0.002	2566457
Leachable Nitrite (N)	mg/L	<0.01	<0.01	0.01	2566451
Leachable Nitrate (N)	mg/L	<0.1	<0.1	0.1	2566451
Leachable Nitrate + Nitrite	mg/L	<0.1	<0.1	0.1	2566451
Metals					
Leachable Mercury (Hg)	mg/L	<0.001	<0.001	0.001	2566519
Leachable Arsenic (As)	mg/L	<0.2		0.2	2566876
Leachable Barium (Ba)	mg/L	1.8		0.2	2566876
Leachable Boron (B)	mg/L	0.1		0.1	2566876
Leachable Cadmium (Cd)	mg/L	<0.05		0.05	2566876
Leachable Chromium (Cr)	mg/L	<0.1		0.1	2566876
Leachable Lead (Pb)	mg/L	<0.1		0.1	2566876
Leachable Selenium (Se)	mg/L	<0.1		0.1	2566876
Leachable Silver (Ag)	mg/L	<0.01		0.01	2566876
Leachable Uranium (U)	mg/L	<0.01		0.01	2566876

O'REG 558 TCLP LEACHATE PREPARATION (SOIL)

Maxxam ID		KH8936	KH8936		
Sampling Date		2011/07/20	2011/07/20		
	Units	TCLP	TCLP Lab-Dup	RDL	QC Batch
Inorganics					
Final pH	pH	6.02	6.04		2566249
Initial pH	pH	8.69	8.70		2566249
TCLP - % Solids	%	100	100	0.2	2566245
TCLP Extraction Fluid	N/A	FLUID 1	FLUID 1		2566248

N/A = Not Applicable
RDL = Reportable Detection Limit
QC Batch = Quality Control Batch

Maxxam Analytics International Corporation o/a Maxxam Analytics 6740 Campobello Road, Mississauga, Ontario, L5N 2L8 Tel: (905) 817-5700 Toll-Free: 800-563-6266 Fax: (905) 817-5777 www.maxxam.ca

Maxxam Job #: B1B1304
Report Date: 2011/08/03

exp.
Client Project #: KIN-16690B

Sampler Initials: MW

O'REG 558 TCLP SEMI-VOLATILE ORGANICS (SOIL)

Maxxam ID		KH8936		
Sampling Date		2011/07/20		
	Units	TCLP	RDL	QC Batch
Semivolatile Organics				
Leachable Benzo(a)pyrene	ug/L	<0.1	0.1	2566680
Leachable m/p-Cresol	ug/L	<2.5	2.5	2566680
Leachable o-Cresol	ug/L	4.8	2.5	2566680
Leachable Cresol Total	ug/L	<5	5	2566680
Leachable 2,4-Dichlorophenol	ug/L	<2.5	2.5	2566680
Leachable Hexachlorobenzene	ug/L	<10	10	2566680
Leachable Hexachloroethane	ug/L	<10	10	2566680
Leachable Nitrobenzene	ug/L	<10	10	2566680
Leachable Pentachlorophenol	ug/L	<2.5	2.5	2566680
Leachable Pyridine	ug/L	<10	10	2566680
Leachable 2,3,4,6-Tetrachlorophenol	ug/L	<2.5	2.5	2566680
Leachable 2,4,5-Trichlorophenol	ug/L	<0.5	0.5	2566680
Leachable 2,4,6-Trichlorophenol	ug/L	<2.5	2.5	2566680
Surrogate Recovery (%)				
Leachable 2,4,6-Tribromophenol	%	84		2566680
Leachable 2-Fluorobiphenyl	%	68		2566680
Leachable 2-Fluorophenol	%	33		2566680
Leachable D14-Terphenyl (FS)	%	85		2566680
Leachable D5-Nitrobenzene	%	73		2566680
Leachable D5-Phenol	%	28		2566680

RDL = Reportable Detection Limit
QC Batch = Quality Control Batch

Maxxam Analytics International Corporation o/a Maxxam Analytics 6740 Campobello Road, Mississauga, Ontario, L5N 2L8 Tel: (905) 817-5700 Toll-Free: 800-563-6266 Fax: (905) 817-5777 www.maxxam.ca

Maxxam Job #: B1B1304
Report Date: 2011/08/03

exp.
Client Project #: KIN-16690B

Sampler Initials: MW

Test Summary

Maxxam ID KH8936 **Collected** 2011/07/20
Sample ID TCLP **Shipped**
Matrix Soil **Received** 2011/07/26

Test Description	Instrumentation	Batch	Extracted	Analyzed	Analyst
Semivolatile Organic Compounds (TCLP)	GC/MS	2566680	2011/07/29	2011/07/30	MICHAEL WANG
Cyanide (WAD) in Leachates	TECH/CN	2566457	N/A	2011/07/29	LOUISE HARDING
Fluoride by ISE in Leachates	ISE	2566317	2011/07/29	2011/07/29	YOGESH PATEL
Mercury (TCLP Leachable) (mg/L)	CVAA	2566519	N/A	2011/08/02	MAGDALENA CARLOS
Total Metals in TCLP Leachate by ICPMS	ICP1/MS	2566876	2011/07/29	2011/08/02	JOHN BOWMAN
Nitrate(NO3) + Nitrite(NO2) in Leachate	LACH	2566451	N/A	2011/08/02	LEYLA SIAHPOOSH
TCLP - % Solids	BAL	2566245	2011/07/28	2011/07/29	JIAN (KEN) WANG
TCLP - Extraction Fluid		2566248	N/A	2011/07/29	JIAN (KEN) WANG
TCLP - Initial and final pH	PH	2566249	N/A	2011/07/29	JIAN (KEN) WANG
TCLP Zero Headspace Extraction		2566241	2011/07/29	2011/07/29	FOZIA TABASUM
VOCs in ZHE Leachates	GC/MS	2567937	2011/08/02	2011/08/03	ADRIANA ZURITA

Maxxam ID KH8936 Dup **Collected** 2011/07/20
Sample ID TCLP **Shipped**
Matrix Soil **Received** 2011/07/26

Test Description	Instrumentation	Batch	Extracted	Analyzed	Analyst
Cyanide (WAD) in Leachates	TECH/CN	2566457	N/A	2011/07/29	LOUISE HARDING
Fluoride by ISE in Leachates	ISE	2566317	2011/07/29	2011/07/29	YOGESH PATEL
Mercury (TCLP Leachable) (mg/L)	CVAA	2566519	N/A	2011/08/02	MAGDALENA CARLOS
Nitrate(NO3) + Nitrite(NO2) in Leachate	LACH	2566451	N/A	2011/08/02	LEYLA SIAHPOOSH
TCLP - % Solids	BAL	2566245	2011/07/28	2011/07/29	JIAN (KEN) WANG
TCLP - Extraction Fluid		2566248	N/A	2011/07/29	JIAN (KEN) WANG
TCLP - Initial and final pH	PH	2566249	N/A	2011/07/29	JIAN (KEN) WANG

Maxxam Analytics International Corporation o/a Maxxam Analytics 6740 Campobello Road, Mississauga, Ontario, L5N 2L8 Tel: (905) 817-5700 Toll-Free: 800-563-6266 Fax: (905) 817-5777 www.maxxam.ca

Maxxam Job #: B1B1304
Report Date: 2011/08/03

exp.
Client Project #: KIN-16690B

Sampler Initials: MW

QUALITY ASSURANCE REPORT

			Matrix Spike		Spiked Blank		Method Blank		RPD		Leachate Blank	
QC Batch	Parameter	Date	% Recovery	QC Limits	% Recovery	QC Limits	Value	Units	Value (%)	QC Limits	Value	Units
2566317	Leachable Fluoride (F-)	2011/07/29	97	80 - 120	99	85 - 115	<0.1	mg/L	NC	25	<0.1	mg/L
2566451	Leachable Nitrite (N)	2011/08/02	111	80 - 120	106	85 - 115	<0.01	mg/L	NC	25	<0.01	mg/L
2566451	Leachable Nitrate (N)	2011/08/02	110	80 - 120	108	85 - 115	<0.1	mg/L	NC	25	<0.1	mg/L
2566451	Leachable Nitrate + Nitrite	2011/08/02					<0.1	mg/L	NC	25	<0.1	mg/L
2566457	Leachable Free Cyanide	2011/07/29	91	80 - 120	102	80 - 120	<0.002	mg/L	NC	20	<0.002	mg/L
2566519	Leachable Mercury (Hg)	2011/08/02	115	75 - 125	109	80 - 120	<0.001	mg/L	NC	25	<0.001	mg/L
2566680	Leachable 2,4,6-Tribromophenol	2011/07/29	85	10 - 130	88	10 - 130	86	%				
2566680	Leachable 2-Fluorobiphenyl	2011/07/29	70	30 - 130	73	30 - 130	75	%				
2566680	Leachable 2-Fluorophenol	2011/07/29	39	10 - 130	43	10 - 130	38	%				
2566680	Leachable D14-Terphenyl (FS)	2011/07/29	95	30 - 130	97	30 - 130	94	%				
2566680	Leachable D5-Nitrobenzene	2011/07/29	72	30 - 130	76	30 - 130	78	%				
2566680	Leachable D5-Phenol	2011/07/29	31	10 - 130	33	10 - 130	28	%				
2566680	Leachable Benzo(a)pyrene	2011/07/30	89	30 - 130	86	30 - 130	<0.1	ug/L	NC	40		
2566680	Leachable m/p-Cresol	2011/07/29	66	10 - 130	68	10 - 130	<2.5	ug/L				
2566680	Leachable o-Cresol	2011/07/29	71	10 - 130	74	10 - 130	<2.5	ug/L				
2566680	Leachable 2,4-Dichlorophenol	2011/07/29	83	10 - 130	86	10 - 130	<2.5	ug/L				
2566680	Leachable Hexachlorobenzene	2011/07/29	88	30 - 130	92	30 - 130	<10	ug/L				
2566680	Leachable Hexachloroethane	2011/07/29	39	30 - 130	41	30 - 130	<10	ug/L				
2566680	Leachable Nitrobenzene	2011/07/29	81	30 - 130	85	30 - 130	<10	ug/L				
2566680	Leachable Pentachlorophenol	2011/07/29	97	30 - 130	99	30 - 130	<2.5	ug/L				
2566680	Leachable Pyridine	2011/07/29	26(1, 2)	30 - 130	24(1, 2)	30 - 130	<10	ug/L				
2566680	Leachable 2,3,4,6-Tetrachlorophenol	2011/07/29	95	10 - 130	82	10 - 130	<2.5	ug/L				
2566680	Leachable 2,4,5-Trichlorophenol	2011/07/29	93	10 - 130	96	10 - 130	<0.5	ug/L				
2566680	Leachable 2,4,6-Trichlorophenol	2011/07/29	88	10 - 130	91	10 - 130	<2.5	ug/L				
2566680	Leachable Cresol Total	2011/07/29					<5	ug/L				
2566876	Leachable Arsenic (As)	2011/08/02	102	75 - 125	96	85 - 115	<0.2	mg/L	NC	25	<0.2	mg/L
2566876	Leachable Barium (Ba)	2011/08/02	NC	75 - 125	97	85 - 115	<0.2	mg/L	NC	25	<0.2	mg/L
2566876	Leachable Boron (B)	2011/08/02	96	75 - 125	92	85 - 115	<0.1	mg/L	NC	25	<0.1	mg/L
2566876	Leachable Cadmium (Cd)	2011/08/02	103	75 - 125	99	85 - 115	<0.05	mg/L	NC	25	<0.05	mg/L
2566876	Leachable Chromium (Cr)	2011/08/02	105	75 - 125	97	85 - 115	<0.1	mg/L	NC	25	<0.1	mg/L
2566876	Leachable Lead (Pb)	2011/08/02	99	75 - 125	98	85 - 115	<0.1	mg/L	NC	25	<0.1	mg/L
2566876	Leachable Selenium (Se)	2011/08/02	102	75 - 125	99	85 - 115	<0.1	mg/L	NC	25	<0.1	mg/L
2566876	Leachable Silver (Ag)	2011/08/02	95	75 - 125	90	85 - 115	<0.01	mg/L	NC	25	<0.01	mg/L
2566876	Leachable Uranium (U)	2011/08/02	105	75 - 125	103	85 - 115	<0.01	mg/L	NC	25	<0.01	mg/L
2567937	Leachable 4-Bromofluorobenzene	2011/08/03	101	70 - 130	101	70 - 130	94	%				
2567937	Leachable D4-1,2-Dichloroethane	2011/08/03	101	70 - 130	105	70 - 130	111	%				
2567937	Leachable D8-Toluene	2011/08/03	107	70 - 130	106	70 - 130	93	%				
2567937	Leachable Benzene	2011/08/03	99	70 - 130	99	70 - 130	<0.02	mg/L	NC	30		
2567937	Leachable Carbon Tetrachloride	2011/08/03	104	70 - 130	103	70 - 130	<0.02	mg/L	NC	30		
2567937	Leachable Chlorobenzene	2011/08/03	101	70 - 130	99	70 - 130	<0.02	mg/L	NC	30		

Maxxam Analytics International Corporation o/a Maxxam Analytics 6740 Campobello Road, Mississauga, Ontario, L5N 2L8 Tel: (905) 817-5700 Toll-Free: 800-563-6266 Fax: (905) 817-5777 www.maxxam.ca

Maxxam Job #: B1B1304
Report Date: 2011/08/03

exp.
Client Project #: KIN-16690B

Sampler Initials: MW

QUALITY ASSURANCE REPORT

			Matrix Spike		Spiked Blank		Method Blank		RPD		Leachate Blank	
QC Batch	Parameter	Date	% Recovery	QC Limits	% Recovery	QC Limits	Value	Units	Value (%)	QC Limits	Value	Units
2567937	Leachable Chloroform	2011/08/03	104	70 - 130	105	70 - 130	<0.02	mg/L	NC	30		
2567937	Leachable 1,2-Dichlorobenzene	2011/08/03	103	70 - 130	99	70 - 130	<0.05	mg/L	NC	30		
2567937	Leachable 1,4-Dichlorobenzene	2011/08/03	101	70 - 130	98	70 - 130	<0.05	mg/L	NC	30		
2567937	Leachable 1,2-Dichloroethane	2011/08/03	103	70 - 130	106	70 - 130	<0.05	mg/L	NC	30		
2567937	Leachable 1,1-Dichloroethylene	2011/08/03	104	70 - 130	104	70 - 130	<0.02	mg/L	NC	30		
2567937	Leachable Methylene Chloride(Dichloromethane)	2011/08/03	106	70 - 130	109	70 - 130	<0.2	mg/L	NC	30		
2567937	Leachable Methyl Ethyl Ketone (2-Butanone)	2011/08/03	97	60 - 140	102	60 - 140	<1	mg/L	NC	30		
2567937	Leachable Tetrachloroethylene	2011/08/03	100	70 - 130	99	70 - 130	<0.02	mg/L	NC	30		
2567937	Leachable Trichloroethylene	2011/08/03	102	70 - 130	102	70 - 130	<0.02	mg/L	NC	30		
2567937	Leachable Vinyl Chloride	2011/08/03	103	70 - 130	104	70 - 130	<0.02	mg/L	NC	30		

N/A = Not Applicable
RPD = Relative Percent Difference
Matrix Spike: A sample to which a known amount of the analyte of interest has been added. Used to evaluate sample matrix interference.
Leachate Blank: A blank matrix containing all reagents used in the leaching procedure. Used to determine any process contamination.
Spiked Blank: A blank matrix to which a known amount of the analyte has been added. Used to evaluate analyte recovery.
Method Blank: A blank matrix containing all reagents used in the analytical procedure. Used to identify laboratory contamination.
Surrogate: A pure or isotopically labeled compound whose behavior mirrors the analytes of interest. Used to evaluate extraction efficiency.
NC (Matrix Spike): The recovery in the matrix spike was not calculated. The relative difference between the concentration in the parent sample and the spiked amount was not sufficiently significant to permit a reliable recovery calculation.
NC (RPD): The RPD was not calculated. The level of analyte detected in the parent sample and its duplicate was not sufficiently significant to permit a reliable calculation.
(1) - Recovery or RPD for this parameter is outside control limits. The overall quality control for this analysis meets acceptability criteria.
(2) - The recovery was below the lower control limit. This may represent a low bias in some results for this specific analyte.

Maxxam Analytics International Corporation o/a Maxxam Analytics 6740 Campobello Road, Mississauga, Ontario, L5N 2L8 Tel: (905) 817-5700 Toll-Free: 800-563-6266 Fax: (905) 817-5777 www.maxxam.ca

Validation Signature Page

Maxxam Job #: B1B1304

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

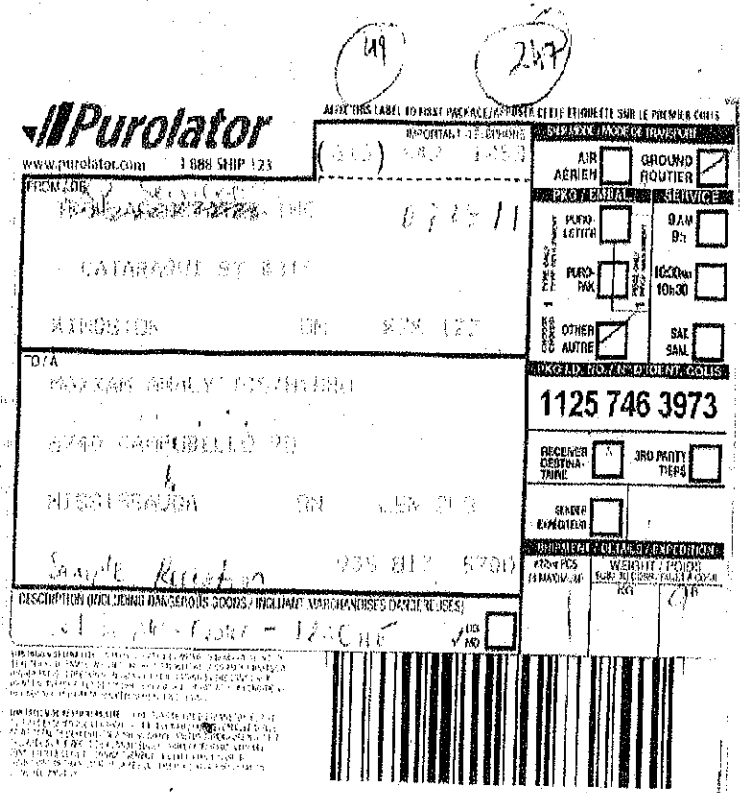
EWA PRANJIC, M.Sc., C.Chem, Scientific Specialist

FLOYD MAYEDE, Senior Analyst

==========

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 Analytics International Corporation o/a Maxxam Analytics 6740 Campobello Road, Mississauga, Ontario, L5N 2L8 Tel: (905) 817-5700 Toll-Free: 800-563-6266 Fax: (905) 817-5777 www.maxxam.ca


Purolator
www.purolator.com 1 888 SHIP 123
AIR AERIEN
GROUND ROUTIER
PUROLETTER
PUROPAK
OTHER AUTRE
1125 746 3973
RECEIVER DESTINATAIRE
3RD PARTY TIERS
SENDER EXPÉDITEUR

Maxxam

Maxxam Analytics International Corporation o/a Maxxam Analytics
6740 Campobello Road, Mississauga, Ontario, L5N 2L8 Tel: (905) 817-5700 Toll-Free: 800-563-6266 Fax: (905) 817-5777 www.maxxam.ca

CHAIN OF CUSTODY

26-Jul-11 08:58
SARA SAROOP
B1B1304
VPA ENV-247

Page 1 of 1

Only:

BOTTLE ORDER #: 271702

CHAIN OF CUSTODY #: C#271702-01-01

PROJECT MANAGER: SARA SAROOP

INVOICE INFORMATION:

Company Name: #17500 exp
Contact Name: Paula Formanek
Address: 4 Cataraqui St Suite 315, Kingston ON K7K 1Z7
Phone: (613)542-1253 Fax: (613)547-3767
Email: paula.formanek@exp.com, fraser.armstrong@exp.c

REPORT INFORMATION (if differs from invoice):

Company Name:
Contact Name:
Address:
Phone: Fax:
Email:

PROJECT INFORMATION:

Quotation #: B13974
P.O. #:
Project #: KIN-16680D
Project Name:
Site #:
Sampled By: MW

Regulation 153 (2011): Table 1 / Table 2 / Table 3 / Table ___ / Res/Park / Ind/Comm / Agri/Conv / Medium/Fine / Coarse / For RSC

Other Regulations: CCME / Reg. 558 / MISA / PWQO / Other ___ / Sanitary Sewer Bylaw / Storm Sewer Bylaw / Municipality ___

SPECIAL INSTRUCTIONS

Include Criteria on Certificate of Analysis (Y/N)? ___

Note: For MOE regulated drinking water samples - please use the Drinking Water Chain of Custody Form

SAMPLES MUST BE KEPT COOL (< 10°C) FROM TIME OF SAMPLING UNTIL DELIVERY TO MAXXAM

ANALYSIS REQUESTED (Please be specific):

TURNAROUND TIME (TAT) REQUIRED:

PLEASE PROVIDE ADVANCE NOTICE FOR RUSH PROJECTS

Regular (Standard) TAT: (will be applied if Rush TAT is not specified) — [X]
Standard TAT = 5-7 Working days for most tests.
Please note: Standard TAT for certain tests such as BOD and Dioxins/Furans is > 5 days - contact your Project Manager for details.

Job Specific Rush TAT (if applies to entire submission)
Date Required: ___ Time Required: ___ [ ]
Rush Confirmation Number: ___ (call lab for #)

	Sample Barcode Label	Sample (Location) Identification	Date Sampled	Time Sampled	Matrix	Regulated Drinking Water? (Y/N)	Metals Field Filtered? (Y/N)	F1/BTEX	F2-F4	PAHs	TCLP (metals + inorganics)	TCLP (VOCs)	TCLP (Semi Volatiles)	# of Bottles	Comments
1		TCLP	July 20/11		SOIL						✓	✓	✓	2	
2					SOIL										
3					SOIL										
4					SOIL										
5					SOIL										
6					SOIL										
7					SOIL										
8					SOIL										
9					SOIL										
10					SOIL										

RELINQUISHED BY: (Signature/Print)	Date: (YY/MM/DD)	Time:	RECEIVED BY: (Signature/Print)	Date: (YY/MM/DD)	Time:	# Jars Used and Not Submitted	Time Sensitive	Temperature (°C) on Receipt	Laboratory Use Only: Custody Seal	Yes	No
Zoltek / Troy Virtue	11/07/25	5pm	DAVID CHAN	2011/07/26	08:58			4/4/4°C	Present		
									Intact		

White: Maxxam Yellow: Client

IT IS THE RESPONSIBILITY OF THE RELINQUISHER TO ENSURE THE ACCURACY OF THE CHAIN OF CUSTODY RECORD. AN INCOMPLETE CHAIN OF CUSTODY MAY RESULT IN ANALYTICAL TAT DELAYS.

Maxxam Analytics International Corporation o/a Maxxam Analytics 6740 Campobello Road, Mississauga, Ontario, L5N 2L8 Tel: (905) 817-5700 Toll-Free: 800-563-6266 Fax: (905) 817-5777 www.maxxam.ca