

July 9, 2009

TF9169801

Damon Yost Emergency Response Manager Environmental Management, Inc. P.O. Box 700 Guthrie, OK 73044

Dear Mr. Yost:

#### Re: Soil Remediation Program – Final Report United Rentals Diesel Generator Spill, Butter Pot Provincial Park Trans Canada Highway, Newfoundland and Labrador

#### 1.0 INTRODUCTION

AMEC Earth & Environmental, a division of AMEC Americas Limited (AMEC), was retained by Environmental Management Inc. (EMI), on behalf of United Rentals, in May 2009 to conduct a Soil Remediation Program (SRP) in response to a reported diesel generator spill at the workshop/main generator area of Butter Pot Provincial Park, Trans Canada Highway (TCH), Newfoundland and Labrador (NL) (the "Site"). The Site is located approximately 25 km southwest of the City of St. John's (refer to Figure 1, Appendix A). Authorization to proceed with this assessment was given by Damon Yost, Emergency Response Manager with EMI, on May 21, 2009.

The following sections of this report provide the results of the SRP conducted at the location of the reported diesel generator spill in the workshop/main generator area of the park.

### 2.0 SITE DESCRIPTION AND HISTORY

The Site is currently owned and operated by the Parks and Natural Areas Division of the Department of Environment and Conservation (ENVC), Government of NL. The general Site location is presented on Figure 1 (Appendix A) and is based on a map of the provincial park obtained from the ENVC website<sup>1</sup>.

There are four buildings/storage sheds within the workshop/main generator area of the park, which include a water storage shed, a workshop, a groomer storage shed and a generator shed (refer to Photos 1, 2, 3 and 4, Appendix B). There is a horizontal, steel (double wall) 2,273 L diesel aboveground storage tank (AST) adjacent to the east side of the generator shed (refer to Photo 5, Appendix B). When in operation, the diesel generator, which is owned by the park and

<sup>&</sup>lt;sup>1</sup> Department of Environment and Conservation, Government of Newfoundland and Labrador, *Butter Pot Provincial Park*, viewed 1 June 2009, <u>http://www.env.gov.nl.ca/parks/library/pdf/campgrounds/ButterPot.pdf</u>.



stored inside the generator shed, is connected to this AST (refer to Photo 6, Appendix B). The 2,273 L diesel AST is stationed on a concrete pad. There is another smaller concrete pad adjacent to the southeast corner of the generator shed (refer to Photo 7, Appendix B). According to the Park Manager, the smaller concrete pad historically contained an AST. There is also a horizontal, steel 909 L heating oil AST adjacent to the east side of the workshop and a horizontal, steel 2,000 lb (approx.) propane AST on the south side of the generator shed (refer to Photos 5 and 8, Appendix B). The Park Manager indicated that the rusted AST was no longer in use and did not contain any oil. A detailed Site and sample location plan is provided in Figure 2 (Appendix A) and is based on field observations.

There is a drinking water well near the park office building which is located approximately 80 m south of the generator shed (refer to Figure 1, Appendix A). Potable water from this well is stored in a tank located inside the water storage shed, which is approximately 30 m northwest of the generator shed. There is an underground plastic waterline located along a trail that is situated south of the generator shed which connects the well to the water storage tank.

The majority of the Site exterior area is surfaced with gravel with some areas of grass, moss and shrubs. The ground surface on-Site gently slopes downward to the north towards a gravel parking area. Storm water flows overland towards the north. A large pond (Trailer Pond) is located approximately 200 m west of the Site (refer to Figure 1, Appendix A). A small stream is located approximately 100 m southeast of the Site which flows in a north-easterly direction along the west side of the highway on ramp towards a small pond located northeast of the park access road (refer to Photos 9 and 10, Appendix B).

# 3.0 BACKGROUND INFORMATION

According to the Park Manager, a portable diesel generator was rented from United Rentals on May 15, 2009 for use at the park over the Victoria holiday weekend. The portable generator was placed on the north side of the generator shed, in close proximity to the shed door, and was connected to the 2,273 L diesel AST. A leak from the United Rentals generator was reportedly discovered on May 18, 2009 by park staff. The fuel supply and generator were immediately shut-off and the leak was reported to United Rentals. A local company that routinely services the park owned generator was called to the Site to assist with stopping the leak. Upon inspection, it appeared that a crack had formed in the fuel filter inside the generator casing causing diesel fuel to spray out of the generator casing, under pressure, onto the ground surface underneath the generator. According to the Park Manager, it was estimated that approximately 100 L to 150 L of diesel oil may have leaked from the generator before the fuel filter was replaced and the leak was stopped. Park staff attempted to absorb and contain the spilled diesel oil using several rolls of toilet paper, approximately 250 lb of sawdust and 12 bags of spill absorbent material (refer to Photo 11, Appendix B). The surface soil within the spill area was reported to have been hand excavated by park staff with shovels and mixed with sawdust and absorbent material. According to the Park Manager, some of the mixed soil and sawdust/absorbent material was burned in the gravel parking area and some was placed in garbage bags and stored on-Site (refer to Photos 12 and 13, Appendix B).



At the request of EMI, a representative of AMEC's St. John's office, conducted a visual inspection of the diesel spill area. During the inspection, an area of surface staining, measuring approximately 7 m long by 3 m wide, was observed on the north side of the generator shed, near the United Rentals generator (refer to Photo 14, Appendix B). Strong petroleum hydrocarbon odours were noted within the general area of the spill. Surface staining was also observed on the south side of the generator shed along a shallow trench and on the south exterior wall of the shed (refer to Photo 15, Appendix B). According to the Park Manager, the shallow trench was excavated in the Fall of 2008 for the purpose of installing electrical cables to the groomer storage shed. The surface staining in the trench was reportedly identified at that time and the electrical cable installation was not completed. The Park Manager indicated that the surface staining on the south side of the shed may have been the result of past practices of handling and dumping of waste oil from the park generator in this area of the Site. AMEC observed some used oil filters on the ground surface near the trench which appeared to be consistent with these reported practices. Surface staining was also observed on the concrete floor of the generator shed and there were uncovered containers of oil stored inside the shed at the time of the Site inspection (refer to Photo 16, Appendix B).

# 4.0 IMPACTED SITE MANAGEMENT PROCESS

The ENVC published a guidance document in December 2004 for the management of all impacted sites in the Province of NL. This document, entitled "Guidance Document for the Management of Impacted Sites", was updated in September 2005 and replaced the Newfoundland Provincial Policy Document PPD-97-01 entitled, "Cleanup of Contaminated Sites Criteria", dated December 1997 and amended in March 1999. The purpose of the new document was to provide a standard Site Management Process to promote resolution of environmental contamination that may pose unacceptable risk to human health and the environment. This Site Management Process was intended to be applicable to both designated contaminated sites (under the Environmental Protection Act (EPA)) and non-designated contaminated sites, and to various types of contaminants in soil and groundwater.

The Site Management Process is comprised of four sequential steps consisting of 1) Initial Actions, 2) Site Assessment, 3) Remedial Action Planning, and 4) Remediation and Closure. Three key parties, as defined in the guidance document, are integrally involved in carrying out the management of impacted sites. These parties consist of the Province, the Site Professional and the Person Responsible (as determined by the Province). The guidance document provides a flexible technical approach system for managing impacted sites. Based on the specific conditions of the site, the environmental contamination, the affected parties and the intended land use, one of three technical approaches (designated as tiers) may be selected and followed to complete the Site Management Process and achieve site closure. A description of each tier is provided below:



- Tier I A Tier I approach consists of the application (if mandatory requirements are met) of standard cleanup criteria (i.e. Risk-Based Screening Levels (RBSLs)) published by the CCME and Atlantic PIRI Committee;
- Tier II A Tier II approach consists of the development and application of Site-Specific Target Levels (SSTLs). Accepted risk assessment models, protocols and assumptions are used to develop SSTLs; and,
- Tier III A Tier III approach is similar to the Tier II approach and consists of the development and application of SSTLs, with the exception that a Tier III approach utilizes other accepted risk assessment models and scientific approaches under conditions where the Tier II approach is not applicable.

A site may be considered for closure following the successful completion of a Remedial Action Plan (RAP) and achievement of compliance with the applicable cleanup criteria. Depending on the condition of the site following remediation, closure may be granted by the ENVC based on one of two options: Conditional Closure or Final Closure. An impacted site may be considered for Conditional Closure when the site has undergone remediation but may still require ongoing monitoring to help ensure that site conditions are at least stable and that the applicable cleanup criteria are met. Restrictions on future land use and ongoing application of site management controls and monitoring may be necessary with acknowledged Conditional Closure. Final Closure may be considered for an impacted site when remediation is complete and the applicable cleanup criteria are met. Final Closure can also be achieved following Conditional Closure if further monitoring of the site indicates that the site closure, a Record of Site Condition and a Closure Report must be submitted to the Province for regulatory review. The Site Management Process is not complete until Final Closure is approved and acknowledged by the Government Services Centre (GSC) or the Pollution Prevention Division (PPD) of the ENVC.

# 5.0 SELECTION OF APPLICABLE ENVIRONMENTAL QUALITY GUIDELINES

The Site is located within a provincial park and based on projected future site use activities will likely continue to be used as parkland. Site soils are considered to be coarse-grained and groundwater resources may potentially be used for human consumption due to the presence of a drinking water well within 80 m of the Site and, therefore, are considered to be potable.

### 6.0 FIELD PROGRAM

A representative of AMEC's St. John's office, was on-Site on May 22, 2009 to conduct the field program for the SRP. The field program included the supervision and documentation of the removal, transportation and off-Site disposal/treatment of petroleum hydrocarbon impacted soil and the collection of confirmatory soil samples from the boundaries of the remedial excavation on-Site (refer to Figure 2, Appendix A). Petroleum hydrocarbon impacted soils were excavated at the Site on May 22, 2009 using a 160L John Deere track-mounted excavator operated by



Fowler's Excavating Ltd (FEL). The impacted soils were transported from the Site using tandem-dump trucks to Newfoundland Soiltec Inc. (NSI) for treatment.

# 7.0 SOIL REMOVAL, TRANSPORTATION AND DISPOSAL

Impacted soil was excavated from the diesel generator spill area down to bedrock at depths ranging from approximately 1.4 m below ground surface (bgs) to 2.0 m bgs. Based on the soil disposal documentation provided to AMEC by FEL, 87.82 metric tonnes (i.e. six tandem-dump truck loads) of petroleum hydrocarbon impacted soil were transported from the Site to NSI for treatment and disposal (refer to Appendix C).

Field measurements of the excavation area were recorded on May 22, 2009 following completion of the excavation activities. The excavation area measured approximately 28 m<sup>2</sup> with an average depth of 1.6 m bgs, for an approximate excavated soil volume of 45 m<sup>3</sup> (i.e. approximately 90 metric tonnes) (refer to Photos 17 and 18, Appendix B). Upon completion of the SRP, the excavation was not backfilled with clean/imported fill, pending discussions with the EMI Project Manager and representatives of the GSC and the ENVC concerning the potential for further assessment and/or remediation at the Site. In the interim, wooden barricades and reflective snow fencing were installed around the boundaries of the excavation (refer to Photo 19, Appendix B).

#### 8.0 SOIL VAPOUR HEADSPACE SCREENING AND SOIL SAMPLING

During the removal of impacted soil from the spill area, preliminary soil samples were periodically collected from the limits of the excavation and transferred to 0.5 L Ziploc<sup>™</sup> freezer bags. These samples were used for preliminary field screening to assist with soil removal activities by identifying potential areas of petroleum hydrocarbon impacted soil along the excavation boundaries. The preliminary field screening consisted of measuring soil vapour headspace (SVH) concentrations of organic vapours in clear plastic bags 1/3 filled with soil collected from the excavation walls and floor. The SVH concentrations were measured with a hand-held photo ionization detector (PID) calibrated to a benzene referenced isobutylene standard. The headspace measurement was taken by inserting the tip of the sampling instrument into the bag without contacting the soil or the side of the bag.

Following the removal of approximately 90 metric tonnes of petroleum hydrocarbon impacted soil from the Site, soil samples were collected from the excavation area. A total of nine soil samples (BP-SS2 to BP-SS10) were collected from the upper and lower portion of the walls and from the floor of the remedial excavation. One soil sample (BP-SS1) was also collected from the shallow trench on the south side of the generator shed (refer to Photo 20, Appendix B). Duplicate soil samples for field screening were collected and transferred to 0.5 L Ziploc<sup>TM</sup> freezer bags. Prior to screening, the samples were warmed to room temperature for 30 minutes and then shaken to enhance volatilization. Soil descriptions and SVH readings for the samples are provided in Tables 1 and 2, Appendix D.



Hydrocarbon odours were noted on the soil samples collected from the west wall, east wall, south wall and floor of the excavation at depths ranging from of 0.5 m to 1.8 m bgs. A hydrocarbon odour was also noted on the soil sample collected from the trench on the south side of the generator shed. SVH screening results for soil samples collected at the Site ranged from 11.1 parts per million (ppm) (BP-SS4) to 628.8 ppm (BP-SS7). Free phase petroleum hydrocarbon product was not encountered at any of the sampling locations within the remedial excavation or trench. The soil sampling locations are provided in Figure 2, Appendix A.

## 9.0 DISCUSSIONS AND CONCLUSIONS

All stained soil in the area of the recent United Rentals diesel generator spill was excavated and removed from the Site during the SRP. Following completion of the SRP, discussions were carried out with the EMI Project Manager and representatives of the GSC and the ENVC at the request of the EMI Project Manager. Based on the reported approximate quantity of diesel oil that had spilled from the United Rentals generator, the preliminary Site inspection which revealed that there are other areas of pre-existing surface staining on-Site, and the SVH screening results, there was evidence of petroleum hydrocarbon impacts along the limits of the remedial excavation and on the south side of the generator shed which may have resulted from the historic handling, storage and use of petroleum hydrocarbons at the Site. It was agreed that any further assessment and/or remediation of these areas would be the responsibility of the owner of the property, the Parks and Natural Areas Division of the ENVC and not United Rentals. Therefore, any further explanation on the existing contamination on-Site would be the responsibility of the Parks and Natural Areas Division of the ENVC. As such, on behalf of EMI, closure of the United Rentals diesel generator spill and subsequent soil remediation is requested, on the basis that United Rentals will only be responsible for the delivery of 90 tonnes of replacement backfill to the site in future.

### 10.0 CLOSURE

This report was prepared for the exclusive use of Environmental Management Inc. The work performed in this report was carried out in accordance with our contract. The conclusions presented herein are based solely upon the scope of services and time and budgetary limitations described in our contract. The report has been prepared in accordance with generally accepted environmental study and/or engineering practices. No other warranties, either expressed or implied, are made as to the professional services provided under the terms of our contract and included in this report. 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 such third parties. AMEC Earth & Environmental 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 limitations of this work are attached.

I trust we have provided what you require. Should you have any concerns or questions please contact the undersigned.

Soil Remediation Program – Final Report United Rentals Diesel Generator Spill Butter Pot Provincial Park, TCH, NL July 9, 2009



Sincerely, AMEC Earth and Environmental, A Division of AMEC Americas Limited

Prepared by:

Joi Win

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Appendix AFiguresAppendix BSite PhotographsAppendix CSoil Disposal Documentation

- Appendix D Soil Sample Descriptions and Soil Vapour Headspace Readings
- Appendix E Limitations

Appendix A

Figures





Appendix B

Site Photographs



**Photo 1:** View of the east side of the water storage shed.



**Photo 3:** View of the west side of the groomer storage shed.



**Photo 5:** View of the 2,273 L diesel AST and the 2,000 lb (approx.) propane AST in background.



**Photo 7:** View of the concrete pad for the existing diesel AST and the concrete pad for the historic AST.



Photo 2: View of the north side of the workshop.



**Photo 4:** View of the north side of the generator shed.



Photo 6: View of the generator owned by the park.



Photo 8: View of the 909 L heating oil AST.



**Photo 9:** View of the stream along the west side of the highway on ramp.



**Photo 11:** View of the diesel generator spill area (photo source: Keith Brown).



**Photo 13:** View of location where impacted soil/ sawdust excavated from the diesel spill was burned.



**Photo 15:** View of the area of surface staining on the south side of the generator shed.



**Photo 10:** View of the pond located northeast of the park access road.



**Photo 12:** View of the diesel generator spill area and garbage bags containing impacted soil.



**Photo 14:** View of the location of the United Rentals diesel generator and the area of surface staining.



**Photo 16:** View of oil storage containers and staining on the concrete floor of the generator shed.



**Photo 17:** View of the soil conditions inside the remedial excavation.



**Photo 19:** View of the barricades and snow fencing around the remedial excavation.



**Photo 18:** View of the remedial excavation on the north side of the generator shed.



**Photo 20:** View of the soil sample location in the trench on the south side of the generator shed.

Appendix C

Soil Disposal Documentation

Newfoundland S 13763 Soiltec Inc. P.O. Box 29135, SS # 3 St. John's, NL A1A 5B5 Phone: (709) 364-7645 Fax: (709) 753-2741 Date Time . • Transpor anting Truck Licence Origin of Soil Contaminan Soil Owner Manager / Supervisor Gross Wt Tare Wt Net Wt. NSI Rep. Driver K. Kort

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# Newfoundland S 13765 Soiltec Inc. PO. Box 29135, SS # 3

St. John's, NL A1A 5B5 Phone: (709) 364-7645 Fax: (709) 753-2741

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Appendix D

Soil Sample Descriptions and Soil Vapour Headspace Readings

#### TABLE 1: SOIL SAMPLE DESCRIPTIONS - BUTTER POT PARK

Test Pit No.	Comments
BP-SS1	Brown sand and gravel, surface staining. Dry to moist.
BP-SS2	Dark brown, silty sand with organics, moist.
BP-SS3	Grey, silty sand and gravel, cobbles, dry to moist.
BP-SS4	Reddish brown, silty sand and gravel, moist.
BP-SS5	Grey, silty sand and gravel, cobbles, dry to moist.
BP-SS6	Black / brown, organics, rootmat / peat, moist.
BP-SS7	Grey, silty sand and gravel, cobbles, dry to moist.
BP-SS8	Black / brown, organics, rootmat / peat, moist.
BP-SS9	Grey, silty sand and gravel, cobbles, dry to moist.
BP-SS10	Grey, silty sand and gravel, cobbles, dry to moist.

Notes:

- 1) Probable bedrock @ ~ 1.5 m below ground surface.
- 2) Groundwater not encountered.
- 3) Track mounted 160L John Deere excavator.

				COMMENTS
SAMPLING LOCATION	SOIL SAMPLE ID	SAMPLE DEPTH (m bgs)	SVH READING (ppm)	(Petroleum Hydrocarbon Odour)
Trench	BP-SS1	0.2	250.0	Strong odour
West Wall	BP-SS2	0.5	32.0	Slight odour
	BP-SS3	1.2	420.2	Strong odour
North East Wall	BP-SS4	0.5	11.1	No odour
	BP-SS5	1.2	18.7	No odour
East Wall	BP-SS6	0.5	12.0	No odour
	BP-SS7	1.8	628.8	Strong odour
South Wall	BP-SS8	0.5	451.2	Strong odour
	BP-SS9	1.2	142.6	Moderate odour
Floor	BP-SS10	1.6	356.1	Strong odour

## TABLE 2: SOIL VAPOUR HEADSPACE READINGS - BUTTER POT PAR⊮

Notes: 1) m bgs: meters below ground surface 2) ppm: parts per million

Appendix E

Limitations



#### LIMITATIONS

- 1. The work performed in this report was carried out in accordance with the Standard Terms of Conditions made part of our contract. The conclusions presented herein are based solely upon the scope of services and time and budgetary limitations described in our contract.
- The report was prepared in accordance with generally accepted environmental study and/or engineering practices for the exclusive use of the client. No other warranties, either expressed or implied, are made as to the professional services provided under the terms of our contract and included in this report.
- 3. Third party information reviewed and used to develop the opinions and conclusions contained in this report is assumed to be complete and correct. This information was used in good faith and AMEC does not accept any responsibility for deficiencies, misinterpretation or incompleteness of the information contained in documents prepared by third parties.
- 4. The services performed and outlined in this report were based, in part, upon visual observations of the site and attendant structures. Our opinion cannot be extended to portions of the site which were unavailable for direct observation, reasonably beyond our control.
- 5. The objective of this report was to assess environmental conditions at the site, within the context of our contract and existing environmental regulations within the applicable jurisdiction. Evaluating compliance of past or future owners with applicable local, provincial and federal government laws and regulations was not included in our contract for services.
- 6. Our observations relating to the condition of environmental media at the site are described in this report. It should be noted that compounds or materials other than those described could be present in the site environment.
- 7. The findings and conclusions presented in this report are based exclusively on the field parameters measured at specific locations. It should be recognized that subsurface conditions between and beyond the field screening and sampling locations may vary. AMEC cannot expressly guarantee that subsurface conditions between and beyond the sample locations do not vary from the results determined at the sample locations. Notwithstanding these limitations, this report is believed to provide a reasonable representation of site conditions at the date of issue.
- 8. The contents of this report are based on the information collected during the soil remediation activities, our understanding of the actual site conditions, and our professional opinion according to the information available at the time of preparation of this report. This report gives a professional opinion and, by consequence, no guarantee is attached to the conclusions or expert advice depicted in this report. This report does not provide a legal opinion in regards to Regulations and applicable Laws.
- 9. Any use of this report by a third party and any decision made based on the information contained in this report by the third party is the sole responsibility of the third party. AMEC will not accept any responsibility for damages resulting from a decision or an action made by a third party based on the information contained in this report.