# THE COLLECTION OF LANDFILL MONITORING DATA AT THE FORMER CAM-4 DEW LINE SITE

Pelly Bay, Nunavut

FINAL REPORT – 2013

(O/Ref.: CD2656) (Y/Ref.: DLCMON (KITIK)

**DEFENCE CONSTRUCTION CANADA** 

January 2014



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#### **DEFENCE CONSTRUCTION CANADA**

January 2014

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#### 1

#### 1 OUTLINE

#### 1.1 OBJECTIVE AND SCOPE OF WORK

The objective of the Defence Construction Canada (DCC) Landfill Monitoring Program is to collect sufficient information to assess the performance of landfills at former Distance Early Warning (DEW) Line Sites that have been remediated, from a geotechnical and environmental perspective. DCC has specified the requirements for the Landfill Monitoring Program in the document: Terms of Reference (TOR) – Services for the Collection of Landfill Monitoring Data at PIN-3 (Lady Franklin Point), CAM-M (Cambridge Bay), CAM-2 (Gladman Point), CAM-3 (Shepherd Bay), CAM-4 (Pelly Bay) DEW Line Sites Nunavut Territory Kitikmeot Region DCC Project #: DLCMON(KITIK), March 20, 2012. This report contains a summary of the findings from the 2013 inspection of the CAM-4 Pelly Bay site.

During the 2013 monitoring program, a visual inspection was completed at all landfill sites to identify erosional features. Soil and groundwater sampling, as well as thermal monitoring, were conducted as indicated below. Table I summarizes the monitoring requirements of the 2013 season. No deviations from the TOR were experienced while completing the 2013 monitoring.

Table I. 2013 Monitoring Requirements for CAM-4 Landfills

Landfill	Visual Inspection	Soil Sampling	Groundwater Sampling	Thermal Monitoring
Station Area Non- Hazardous Waste Landfill	✓	✓	✓	
Tier II Disposal Facility	$\checkmark$	✓	✓	✓
Upper Site Landfill	✓	<b>✓</b>	✓	✓
Lower Site Non- Hazardous Waste Landfill	✓	✓	✓	<b>√</b>
Lower Site Landfill	✓	✓	✓	✓

#### 1.2 FIELD PROGRAM STAFF AND TIMING

The 2013 on-site field program at CAM-4 Pelly Bay took place from August 31 to September 5, 2013. Biogénie sub-contracted Sila Remediation Inc. (Sila) from Igloolik, Nunavut to perform the field work. The Sila field program was executed by Mr. Brandon MacKay with the assistance of two local representatives.

The team was made up of the following individuals:

- Brandon MacKay, Site Technician
- Jamie Jones Ihakkag, Field Assistant
- Athol Ihakkaq, Wildlife Monitor

#### 1.3 2013 WEATHER CONDITIONS

Weather conditions at CAM-4 Pelly Bay were seasonably slightly less than average, with temperatures ranging from -2 to -7°C with medium to high winds and snow fall, snow cover in the area was greater than anticipated. A detailed breakdown of the weather conditions during the visual inspection of each landfill is detailed in Table II below.

Table II. 2013 Weather Conditions by Landfill

Date/ Time	Landfill	Weather Conditions
September 2 <sup>nd</sup> , 2013/5:40 pm	Station Area Non-Hazardous Waste Landfill	-2°C, overcast, 46 - 55 km/h winds from the west.
September 4 <sup>th</sup> , 2013/12:00 pm	Tier II Disposal Facility	-5°C, overcast, 35 km/h winds from the west, blowing snow.
September 3 <sup>rd</sup> , 2013/3:19 pm	Upper Site Landfill	-5°C, overcast, 30 km/h winds from the west, blowing snow.
September 4 <sup>th</sup> , 2013/1:31 pm	Lower Site Non-Hazardous Waste Landfill	-7°C, partly cloudy, 20 km/h winds from the west.
September 4 <sup>th</sup> , 2013/1:59 pm	Lower Site Landfill	-7°C, partly cloudy, 20 km/h winds from the west.

#### 1.4 REPORT FORMAT

This report describes the work carried out in September 2013 at five landfill sites at CAM-4. Results from soil and groundwater sampling, thermal monitoring and visual inspection of the sites are also presented in the formats described in the TOR (Reference A). An electronic version of the report and its component tables, figures and data files are included in an Addendum DVD-ROM, which is appended to this report.

The report is organized with a separate section for each of the landfill areas. Each section contains all relevant information for that landfill area for the 2013 Landfill Monitoring Program. The following information is provided in each landfill section:

- Visual inspection checklist
- Visual inspection drawing mark-up
- A selection of visual inspection photos
- Thermal monitoring inspection reports (where applicable)
- Summary of 2013 soil analytical data (where applicable)
- Summary of 2013 groundwater analytical data (where applicable)
- Monitoring well development/sampling reports (where applicable)

The full resolution photos are included in electronic format in the Addendum DVD-ROM to this report. Certificates of Analysis, QA/QC analytical results and field notes are attached in the Appendices.

# LEGEND

△<sup>CM1</sup> SURVEY CONTROL MONUMENT

BM-2

PERMANENT BENCHMARK LOCATION

SOIL SAMPLE LOCATION

1)-

BACKGROUND MONITORING WELL PHOTO VIEWPOINT



A	A FINAL		P.L.	B.M.	A.L.
NO.	VERSION	DATE	PAR	VERIF.	APPR



Construction de Défense Canada **Defence Construction Canada** 

# COLLECTION OF LANDFILL MONITORING DATA

CAM-4, PELLY BAY, NUNAVUT

**OVERALL SITE PLAN** 

# SITE REMEDIATION SOLUTIONS

Biogenie, a division of EnGlobe Corp. Quebec, (Quebec) CANADA G1P 2J7 Phone 418-653-4422 www.biogenie-env.com

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NT UNIT	SCALE: 1 : 20,000	DATE (month-year): JANUARY 2014
ARÉ	VERIFIED BY: <b>B. MACKAY</b>	APPROVED BY:  A. LECLAIR P. Er
): 300_303	DRAWING NO: CD2656_300_303-CAM-4_1	PAGE

FIGURE CAM-4.1

#### 2 METHODOLOGY

#### 2.1 VISUAL INSPECTION

Data and information collected during the visual inspection of the CAM-4 landfills are included in the visual inspection data sheets. These data sheets include such inspection data as the location of settlement, erosion, frost action, sloughing and cracking, animal burrows, vegetation cover and stress, staining, seepage points, exposed debris, and any other features of note.

Each feature was identified with an alphabetical tag to be used consistently each year in an effort to track changes in conditions for each specific feature.

Digital photos were taken to illustrate the current state of the landfills as well as features of interest. Annotated sketches/diagrams are included in the report for each landfill.

The photos were taken with a Nikon D5100 16.2 megapixel (MP) digital camera. Full resolution digital jpg copies are available on the DVD-ROM appended with this report. The photo log, including the local coordinates from where the photo was taken, orientation (relative to map north), feature of note and picture numbers are included with each landfill report.

### 2.2 SOIL SAMPLING

The soil sampling methodology conformed to guidance provided in the following Canadian Council of Ministers of the Environment (CCME) documents:

- CCME Guidance Document on the Management of Contaminated Sites in Canada, April 1997, CCME PN 1279. (CCME catalogue – <a href="http://www.ccme.ca/pdfs/cat\_eng.pdf">http://www.ccme.ca/pdfs/cat\_eng.pdf</a>).
- CCME EPC-NCS62E Guidance Manual on Sampling, Analysis, and Data Management for Contaminated Sites – Volume I: Main Report, Dec. 93 (CCME catalogue - <a href="http://www.ccme.ca/pdfs/cat\_eng.pdf">http://www.ccme.ca/pdfs/cat\_eng.pdf</a>).
- CCME EPC-NCS66E Guidance Manual on Sampling, Analysis, and Data Management for Contaminated Sites – Volume II: Analytical Method Summaries, Dec. 93 (CCME catalogue – http://www.ccme.ca/pdfs/cat\_eng.pdf).
- Reference method for the Determination of Petroleum Hydrocarbons in Soil Tier I Method, 2001.

 CCME Subsurface Assessment Handbook for Contaminated Sites, March 1994, EPC-NCSRP-48E (CCME catalogue – "http://www.ccme.ca/pdfs/cat\_eng.pdf").

For the 2013 monitoring event, 33 soil sampling stations were visited. A surface (0–15 cm depth) and subsurface sample (40–50 cm depth below surface) were taken at each sampling station.

As specified in the TOR (Reference A), the following soil sampling procedures were adhered to:

- Where required, the soil samples were collected from locations between a two to four metre radius of the monitoring wells;
- Blind field duplicates (10%) were collected for quality assurance and quality control purposes;
- Duplicate samples (10%) were also taken and sent to a second laboratory for quality control purposes
- An additional 10% of soil samples taken were sent to the owner's representative (ESG OPS CENTRE) in Kingston for archiving as specified by DCC.

The soil samples were analyzed for requested parameters: Total Petroleum Hydrocarbons (TPH) (F1-F3), total metals and Polychlorinated Biphenyls (PCBs) as specified by DCC. Table III below summarizes the soil sampling at CAM-4 during the August, 2013 field program.

Table III. Summary of Soil Sampling at CAM-4, September 2013

Landfill Site	Soil Sample Locations
Station Area Non-Hazardous Waste Landfill	BMW-1, MW-1, MW-2, MW-3, MW-4A, MW-4B, MW-6A, MW-6B, MW-7A and MW-7B
Tier II Disposal Facility	MW-5, MW-8, MW-9, MW-14A, MW-14B, MW-15 and MW-16
Upper Site Landfill	MW-10, MW-11, MW-12 and MW-13
Lower Site Non-Hazardous Waste Landfill	MW-21, MW-22 and MW-23
Lower Site Landfill	MW-17, MW-18, MW-19, MW-20, C4-1, C4-2 and C4-3
Site Background	BMW-3 and BMW-4

#### Notes

Soil samples annotated as "MW" were collected as per the TOR (Reference A) between 2-4 metres from monitoring wells. All soil samples were collected from two depths (0-15 cm and 40-50 cm). For 2013 sampling, total number of soil samples = 84 samples (66 samples + 12 QA/QC (Intra + Inter-laboratory comparison) +6 for Owner's Representative (ESG Archives).

#### 2.3 GROUNDWATER SAMPLING

The groundwater sampling methodology conformed to guidance provided in the following Canadian Council of Ministers of the Environment (CCME) documents:

- CCME EPC-NCS62E Guidance Manual on Sampling, Analysis and Data Management for Contaminated Sites – Volume I: Main Report, Dec. 93 (CCME catalogue – http://www.ccme.ca/pdfs/cat\_eng.pdf).
- CCME EPC-NCS66E Guidance Manual on Sampling, Analysis and Data Management for Contaminated Sites – Volume II: Analytical Method Summaries, Dec. 93 (CCME catalogue – "http://www.ccme.ca/pdfs/cat\_eng.pdf").

Wells were purged as specified and measurements of in situ temperature, conductivity and pH were taken. Sampling took place when these parameters were stabilized. Turbidity readings were also collected at each station. The samples were not acidified and were not filtered (as directed in the TOR).

The 2013 field program included sampling at 30 monitoring wells at CAM-4; a summary of the groundwater sampling undertaken at CAM-4 is summarized in Table IV.

Monitoring Well Development and Sampling Record forms are included in appropriate sections in this report.

Table IV. Summary of Groundwater Sampling at CAM-4, August 2013

Landfill Site	Groundwater Sample Locations
Station Area Non-Hazardous Waste Landfill	BMW-1, MW-1, MW-2, MW-3, MW-4A, MW-4B, MW-6A, MW-6B, MW-7A and MW-7B
Tier II Disposal Facility	MW-5, MW-8, MW-9, MW-14A, MW-14B, MW-15and MW-16
Upper Site Landfill	MW-10, MW-11, MW-12 and MW-13
Lower Site Non-Hazardous Waste Landfill	MW-21, MW-22 and MW-23
Lower Site Landfill	MW-17, MW-18, MW-19 and MW-20
Site Background	BMW-3 and BMW-4

#### Notes:

All monitoring wells were inspected and found to be in good condition with no significant concerns identified. For 2013 sampling, total number of water samples = 17 samples (15 monitoring well samples (wells with sufficient water) + 2 QA/QC (intra and inter-laboratory duplicates).

#### 2.4 THERMAL MONITORING

The 2013 thermal monitoring program at CAM-4 consisted of an inspection of the thermistors and data loggers, the downloading of all datasets, replacement of batteries and the manual reading of thermistors. Specific detailed information regarding temperature data can be found in the Thermistor Annual Maintenance Reports contained within the Tier II Disposal Facility, Upper Site Landfill and Lower Site Landfill sections of this report.

#### 2.5 FIELD NOTES AND DATA

Field notes from the 2013 Landfill Monitoring Program, including soil and water sampling, are included in Appendix B for reference. Notes were written in field books, previously prepared logs or entered directly into a field computer. The notes were scanned to an Adobe PDF document for future reference and back up. Locations of all observations and features for the visual inspection were recorded using Garmin GPSmap 60CSx handheld GPS, which included a combination of continuous tracks and discrete waypoints. Datasets collected from the individual vertical thermistors were downloaded directly to a field laptop computer.

#### 2.6 QUALITY CONTROL

Sila implemented standard sample collection techniques to decrease the likelihood of compromising collected samples. The methods used for sample collection are summarized in Sections 2.4 and 2.5 of this report. The following measures were taken to minimize sample cross-contamination:

- All samples were placed directly into the appropriate laboratory supplied containers (for the particular analysis).
- Soil samples were collected with the use of decontaminated sampling equipment and/or nitrile gloves that were used only once.
- Water samples were collected through the use of dedicated Waterra foot valves and tubing.

Chain of Custody (COC) forms were completed by the Field Technician after sample collection. The samples were refrigerated prior to off-site shipment in chilled coolers by

First Air Cargo directly to Maxxam in Edmonton, Exova in Ottawa, and ESG in Kingston where they were checked in by laboratory representatives.

#### 2.7 QA/QC PROCEDURES

Sila used standard QA/QC procedures as specified in the TOR and CCME Guidance Documents for this project. The following is a summary of the analytical QA/QC samples collected:

- 10% Blind Duplicate Samples of soil and water were sent to Maxxam. Results
  can be found in Appendix C. With the exception of the duplicate water sample
  which was lost during transport.
- 10% Inter-laboratory Duplicate Samples were sent to Exova (to determine if variation in procedures may cause significant difference in analytical results).
- 10% Archival Samples of soil to ESG.

#### 2.8 PROJECT REFERENCES

The following references are specifically relevant to the 2013 Landfill Monitoring activities:

- A. Invitation to Tender Contractor Services for the Collection of Landfill Monitoring Data: PIN-3 (Lady Franklin Point), CAM-M (Cambridge Bay), CAM-2 (Gladman Point), CAM-3 (Shepherd Bay), CAM-4 (Pelly Bay) – DEW Line Sites Nunavut Territory Kitikmeot Region. DCC Project #: DLCMON (KITIK), March 20, 2012.
- B. Terms of Reference Services for the Collection of Landfill Monitoring Data: PIN-3 (Lady Franklin Point), CAM-M (Cambridge Bay), CAM-2 (Gladman Point), CAM-3 (Shepherd Bay), CAM-4 (Pelly Bay) – DEW Line Sites Nunavut Territory Kitikmeot Region. DCC Project #: DLCMON (KITIK), March 20, 2012.
- C. Contractor Services for the Collection of Landfill Monitoring Data: PIN-3 (Lady Franklin Point), CAM-M (Cambridge Bay), CAM-2 (Gladman Point), CAM-3 (Shepherd Bay), CAM-4 (Pelly Bay) DEW Line Sites Nunavut Territory Kitikmeot Region. DCC Project #: DLCMON (KITIK), Technical Proposal May 2012.
- D. Post-Field Progress Report, Kitikmeot DEW Line Sites 2013, September, 2013.

#### 3 STATION AREA NON-HAZARDOUS WASTE LANDFILL

#### 3.1 SUMMARY

The visual inspection of the Station Area Non-Hazardous Waste Landfill was completed on September 2<sup>nd</sup>, 2013. As per the terms of reference (TOR) soil and groundwater samples were collected during the 2013 investigation.

As of 2013, no erosion features with "significant" or "unacceptable" severity ratings were identified in the Preliminary Stability Assessment of the Station Area Non-Hazardous Waste Landfill. During the 2013 investigation, a minor increase in areas of settlement were observed on the northeast landfill surface and side slope. An area of seepage identified as Feature C during previous investigations was not observed in 2013.

TPH was detected in 7 soil samples taken at the Station Area Non-Hazardous Waste Landfill including the surface sample of BMW-1 (56 mg/kg), the surface and depth samples of MW-3 (500 and 142 mg/kg respectively), the surface sample of MW-4A (88 mg/kg), the depth sample of MW-4B (59 mg/kg), the surface sample of MW-6A (170 mg/kg) and the surface sample of MW-6B (92 mg/kg). No PCBs or relatively high metal concentrations were detected during this investigation.

Two wells, BMW-1 and MW-6B, located at the Station Area Non-Hazardous Waste Landfill had sufficient water to sample for all parameters. No PCBs or relatively high metal concentration were detected at either site. TPH was detected at each location, at a concentration of 1069 mg/L at BMW-1 and 11 mg/L at MW-6B. A third well MW-3 contained no water but rather 600 mm of free phase, a sample was taken of the free phase and tested for the TPH, the detected concentration was 1,106,000 mg/L. As high concentrations of hydrocarbon were detected at both up and down gradient wells the Station Area Non-Hazardous Waste Landfill does not appear to be the source.

At this time, the overall performance of the landfill is rated as acceptable. A visual inspection report, including supporting photos and drawings, is presented in the following pages.

#### 3.2 VISUAL INSPECTION REPORT

The Visual Inspection Checklist/Report is included in Table V of this report and has been completed as per the TOR. Please refer to Figure CAM-4.2 for a sketch of the Lower Site Landfill – South detailing the location of photographs and erosional features.

### Table V. Visual Inspection Checklist / Report – Station Area Non-Hazardous Waste Landfill

# DEW LINE CLEANUP: POST-CONSTRUCTION – LANDFILL MONITORING VISUAL INSPECTION CHECKLIST INSPECTION REPORT – PAGE 1 of 2

**SITE NAME**: CAM-4 Pelly Bay

LANDFILL DESIGNATION: Station Area Non-Hazardous Waste Landfill

DATE OF INSPECTION: September 2<sup>nd</sup> and 3<sup>rd</sup>, 2013

**DATE OF PREVIOUS INSPECTION**: August 22<sup>nd</sup>, 2010

**INSPECTED BY:** B. MacKay

REPORT PREPARED BY: B. MacKay

**MONITORING EVENT NUMBER: 6** 

The inspector/reporter represents to the best of his/her knowledge that the following statements and observations are true and correct and to the best of the preparer's actual knowledge, no material facts have been suppressed or misstated.

Checklist Item	Present (Yes/No)	Location	Length (m)	Width (m)	Depth (m)	Extent	Description	Photographic Record	Severity Rating	Additional Comments	
Settlement	Yes	FEATURE A See Figure CAM-4.2	1.00-2.00	0.40-1.00	0.2		Minor depressions.	45, 46, 47 and 48	Acceptable	Minor linear depressions running parallel to the top of southwest slope. Decreased in size since 2010.	
		FEATURE E See Figure CAM-4.2	0.2	0.2	0.05		Minor depressions.	58 and 59	Acceptable	New Observation: Minor circular area of settlement on the northeast side slope.	
		FEATURE F See Figure CAM-4.2	0.75	0.2	0.05	Occasional	Minor depressions.	60 and 61	Acceptable	New Observation: Minor area of settlement at the crest of the northeast side slope.	
		FEATURE G See Figure CAM-4.2	0.5	0.4	0.1		Minor depressions.	64 and 65	Acceptable	New Observation: Minor area of settlement at the crest of the northeast side slope.	
		FEATURE H See Figure CAM-4.2	2.5	0.2	0.1		Minor depressions.	66 and 67	Acceptable	New Observation: Minor area of linear settlement at the crest of the northeast sid slope.	
Erosion	No	N/A	N/A	N/A	N/A	N/A	N/A	N/A	Not Observed	N/A	
Frost Action	No	N/A	N/A	N/A	N/A	N/A	N/A	N/A	Not Observed	N/A	
Animal Burrows	No	N/A	N/A	N/A	N/A	N/A	N/A	N/A	Not Observed	N/A	
Vegetation	No	N/A	N/A	N/A	N/A	N/A	N/A	N/A	Not Observed	N/A	
Staining	Yes	FEATURE B See Figure CAM-4.2	5.00–10.0 0	4.00-5.00	N/A	Isolated (<1%)	Discontinuous areas of rust-coloured staining.	55, 56 and 57	Acceptable	Areas of staining on the northeast side slope, no seepage observed during the 2013 investigation.	
Vegetation Stress	No	N/A	N/A	N/A	N/A	N/A	N/A	N/A	Not Observed	N/A	
Seepage Points	No	N/A	N/A	N/A	N/A	N/A	N/A	N/A	Not Observed	N/A	
Debris Exposed	No	N/A	N/A	N/A	N/A	N/A	N/A	N/A	Not Observed	N/A	
Presence/Condition of Monitoring Instruments	Yes	See Figure CAM-4.2	N/A	N/A	N/A	None	BMW-1, MW-1, -2, -3, 4A/B, -6A/B and -7A/B.	3, 4, 7, 8, 11, 12, 15, 16, 19, 20, 23, 24, 27, 28, 31, 32, 35, 36, 39 and 40	N/A	Monitoring wells appear in good condition with the exception of flaking paint.	
Other Features of Note:	Yes	FEATURE D See Figure CAM-4.2	100.00	1.00–1.50	0.05-0.20	N/A	Erosion chanel along south side of landfill.	43	Acceptable	Erosion not in contact with landfill. Size of feature remains consistent with 2010 observations.	
Additional Photos	Yes	See Figure CAM-4.2	N/A	N/A	N/A	N/A	General Photographic Record.	N/A	N/A	General photos for documentation, no features of note.	

#### 3.3 PRELIMINARY STABILITY ASSESSMENT

The Preliminary Stability Assessment for Station Area Non-Hazardous Waste Landfill has been completed as per the TOR and is included as Table VI hereafter.

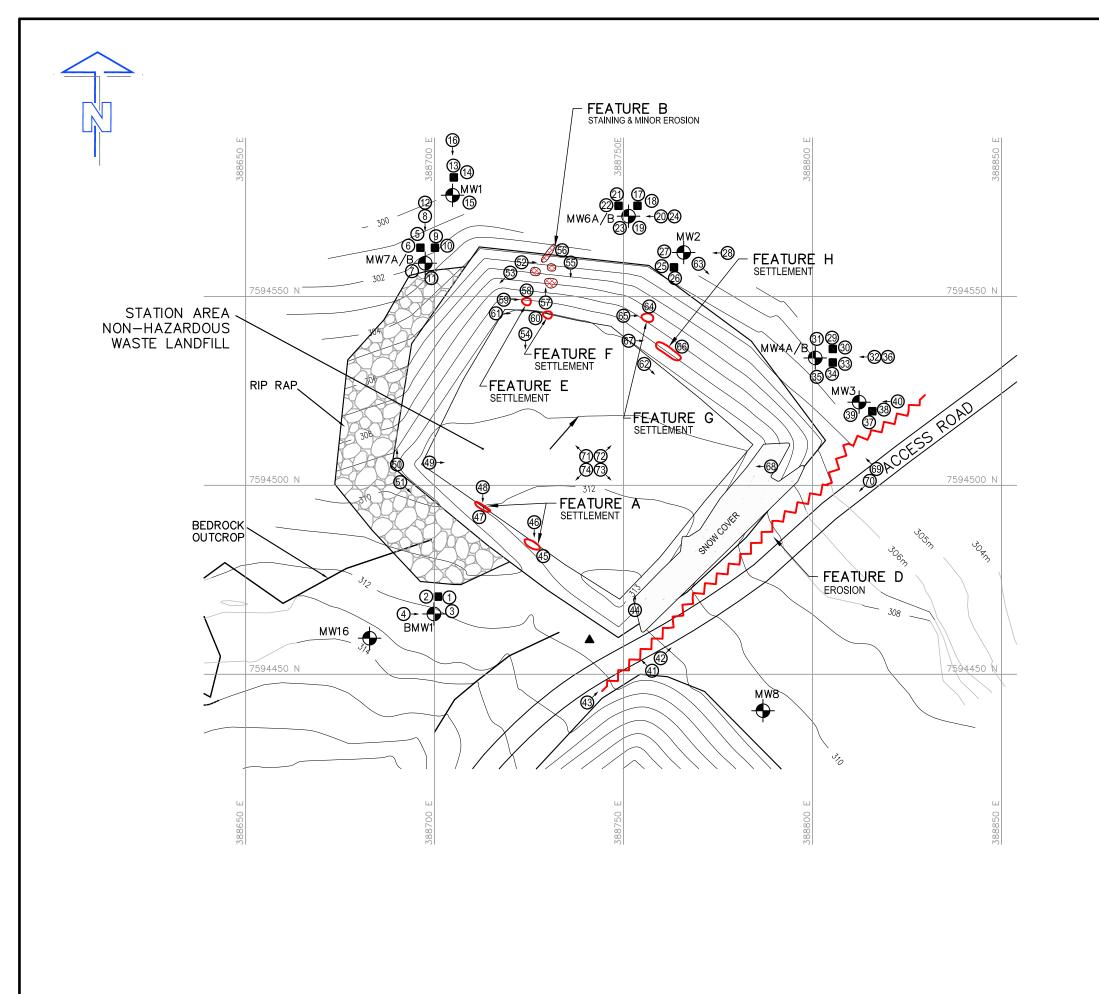
Table VI. Preliminary Stability Assessment – Station Area Non-Hazardous Waste Landfill

Feature	Severity Rating	Extent		
Settlement	Acceptable	Occasional		
Erosion	Not observed	None		
Frost Action	Not observed	None		
Staining	Acceptable	Occasional		
Vegetation Stress	Not observed	None		
Seepage/Ponded Water	Not Observed	None		
Debris Exposure	Not observed	None		
Overall Landfill Performance	Acceptable			

Performance/ Severity Rating	Description
Acceptable	Noted features are of little consequence. The landfill is performing as designed. Minor deviations in environmental or physical performance may be observed, such as isolated areas of erosion, settlement.
Marginal	Physical/environmental performance appears to be deteriorating with time. Observations may include an increase in size or number of features of note, such as differential settlement, erosion or cracking. No significant impact on landfill stability to-date, but potential for failure is assessed as low or moderate.
Significant	Significant or potentially significant changes affecting landfill stability, such as significant changes in slope geometry, significant erosion or differential settlement; scarp development. The potential for failure is assessed as imminent.
Unacceptable	Stability of landfill is compromised to the extent that ability to contain waste materials is compromised. Examples may include:  • Debris exposed in erosion channels or areas of differential settlement  • Liner exposed  • Slope failure
Extent	Description
Isolated	Singular feature.
Occasional	Features of note occurring at irregular intervals/locations.
Numerous	Many features of note, impacting less than 50% of the surface area of the landfill.
Extensive	Impacting greater than 50% of the surface area of the landfill.

#### 3.4 LOCATION PLAN

The Location Plan for the Station Area Non-Hazardous Waste Landfill has been completed as per the TOR and is included in the following page as Figure CAM-4.2 Station Area Non-Hazardous Waste Landfill.



# LEGEND

MONITORING WELL LOCATION

SOIL SAMPLE LOCATION

PHOTOGRAPH LOCATION



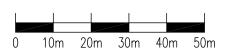
SETTLEMENT (NTS)



EROSION (NTS)



STAINING (NTS)



A	FINAL	14-01-23	P.L.	B.M.	A.L.
NO.	VERSION	DATE	PAR	VERIF.	APPR.



# COLLECTION OF LANDFILL MONITORING DATA

CAM-4, PELLY BAY, NUNAVUT

STATION AREA NON-HAZARDOUS WASTE LANDFILL

#### SITE REMEDIATION SOLUTIONS

Biogenie, a division of EnGlobe Corp. 4495 Wiffrid-Hamel btvd, Suite 200 Quebec, (Quebec) CANADA G1P 2J7 Phone: 418-653-4422 www.biogenie-env.com

MEASUREMENT UNIT  Meter	SCALE: 1: 1,000	DATE (month-year):  JANUARY 2014
drawn by: <b>P. LÉGARÉ</b>	VERIFIED BY: <b>B. MACKAY</b>	APPROVED BY:  A. LECLAIR P. Eng.
PROJECT NO: CD2656_300_303	DRAWING NO: CD2656_300_303-CAM-4_2	PAGE PL

#### 3.5 PHOTOGRAPHIC RECORDS

The Photographic Record for Station Area Non-Hazardous Waste Landfill has been completed as per the TOR and is included as Table VII hereafter. Full-sized photographs are contained in the Addendum DVD-ROM.

Table VII. Landfill Visual Inspection Photo Log – Station Area Non-Hazardous Waste Landfill

Bhoto	Filonomo	Cizo (MD)	Doto	Vantag	e Point	Focal	Contion
Photo	Filename	Size (MB)	Date	Easting	Northing	Length	Caption
1	2013-C4-SA-1	8.62	02/09/2013	388702	7594463	16mm	BMW-01 - Close-up of open soil test pit.
2	2013-C4-SA-2	8.64	02/09/2013	388702	7594463	16mm	BMW-01 - Close-up of closed soil test pit.
3	2013-C4-SA-3	5.88	02/09/2013	388704	7594460	16mm	BMW-01 - Close-up of monitoring well.
4	2013-C4-SA-4	7.21	02/09/2013	388703	7594459	16mm	BMW-01 - View E - of monitoring well.
5	2013-C4-SA-5	7.58	02/09/2013	388706	7594555	16mm	MW-7B - Close-up of open soil test pit.
6 7	2013-C4-SA-6	9.02 5.66	02/09/2013	388706 388703	7594555	16mm 16mm	MW-7B - Close-up of closed soil test pit.
8	2013-C4-SA-7 2013-C4-SA-8	6.81	02/09/2013	388702	7594556 7594557	16mm	MW-7B - Close-up of monitoring well.  MW-7B - View S - of monitoring well.
9	2013-C4-SA-9	8.59	02/09/2013	388702	7594557	16mm	MW-7A - Close-up - of open soil test pit.
10	2013-C4-SA-10	8.91	02/09/2013	388702	7594557	16mm	MW-7A - Close-up of closed soil test pit.
11	2013-C4-SA-11	5.77	02/09/2013	388702	7594556	16mm	MW-7A - Close-up of monitoring well.
12	2013-C4-SA-12	6.70	02/09/2013	388702	7594560	16mm	MW-7A - View S - of monitoring well.
13	2013-C4-SA-13	8.83	02/09/2013	388709	7594575	16mm	MW-1 - Close-up of open soil test pit.
14	2013-C4-SA-14	8.68	02/09/2013	388709	7594575	16mm	MW-1 - Close-up of closed soil test pit.
15	2013-C4-SA-15	7.05	02/09/2013	388709	7594574	16mm	MW-1 - Close-up of monitoring well.
16	2013-C4-SA-16	8.17	02/09/2013	388711	7594574	15mm	MW-1 - View S - of monitoring well.
17	2013-C4-SA-17	8.56	02/09/2013	388758	7594567	15mm	MW-6A - Close-up of open soil test pit.
18	2013-C4-SA-18	9.14	02/09/2013	388758	7594567	15mm	MW-6A - Close-up of closed soil test pit.
19	2013-C4-SA-19	8.46	02/09/2013	388757	7594569	15mm	MW-6A - Close-up of monitoring well.
20	2013-C4-SA-20	6.40	02/09/2013	388760	7594570	15mm	MW-6A - View W - of monitoring well.
21 22	2013-C4-SA-21 2013-C4-SA-22	8.99 8.66	02/09/2013	388761	7594569 7594569	15mm	MW-6B - Close-up of open soil test pit.  MW-6B - Close-up of closed soil test pit.
23	2013-C4-SA-22 2013-C4-SA-23	5.36	02/09/2013	388761 388760	7594568	15mm 15mm	MW-6B - Close-up of closed soil test pit.  MW-6B - Close-up of monitoring well.
24	2013-C4-SA-24	6.40	02/09/2013	388761	7594500	15mm	MW-6B - View W - of monitoring well.
25	2013-C4-SA-25	7.55	02/09/2013	388772	7594555	15mm	MW-2 - Close-up of open soil test pit.
26	2013-C4-SA-26	8.51	02/09/2013	388772	7594555	15mm	MW-2 - Close-up of closed soil test pit.
27	2013-C4-SA-27	6.07	02/09/2013	388771	7594558	15mm	MW-2 - Close-up of monitoring well.
28	2013-C4-SA-28	7.65	02/09/2013	388774	7594559	15mm	MW-2 - View W - of monitoring well.
29	2013-C4-SA-29	8.42	02/09/2013	388809	7594530	15mm	MW-4A - Close-up of open soil test pit.
30	2013-C4-SA-30	8.59	02/09/2013	388809	7594530	15mm	MW-4A - Close-up of closed soil test pit.
31	2013-C4-SA-31	5.75	02/09/2013	388807	7594527	15mm	MW-4A - Close-up of monitoring well.
32	2013-C4-SA-32	6.66	02/09/2013	388809	7594525	15mm	MW-4A - View W - of monitoring well.
33	2013-C4-SA-33	8.64	02/09/2013	388805	7594524	15mm	MW-4B - Close-up of open soil test pit.
34	2013-C4-SA-34	7.21	02/09/2013	388805	7594524	15mm	MW-4B - Close-up of closed soil test pit.
35	2013-C4-SA-35	5.45	02/09/2013	388804	7594525	15mm	MW-4B - Close-up of monitoring well.
36 37	2013-C4-SA-36 2013-C4-SA-37	6.93 8.67	02/09/2013	388805 388819	7594526 7594512	15mm 15mm	MW-4B - View W - of monitoring well.  MW-3 - Close-up of open soil test pit.
38	2013-C4-SA-37 2013-C4-SA-38	8.61	02/09/2013	388819	7594512	15mm	MW-3 - Close-up of open soil test pit.
39	2013-C4-SA-39	7.19	02/09/2013	388817	7594512	15mm	MW-3 - Close-up of monitoring well.
40	2013-C4-SA-40	7.10	02/09/2013	388818	7594513	15mm	MW-3 - View W - of monitoring well.
							View NW - of the southeast side slope of the
41	2013-C4-SA-41	4.35	02/09/2013	388756	7594453	15mm	landfill from the bottom of the south corner.
42	2042 C4 C4 42	C 4C	02/00/2012	200750	7504450	100000	View NE - of the southwest side slope of the
42	2013-C4-SA-42	6.46	02/09/2013	388756	7594453	10mm	landfill from the bottom of the south corner.
43	2013-C4-SA-43	6.82	02/09/2013	388757	7594452	10mm	Feature D - View NE - of ersoion channel, which
							remains not in contact with the landfill.
			00/00/				View N - of the landfill surface taken from the
44	2013-C4-SA-44	7.33	02/09/2013	388753	7594467	10mm	top of the south corner.
							Feature A - Close-up of 1 of 2 depressions on
45	2013-C4-SA-45	8.58	02/09/2013	388733	7594478	10mm	the southwest slope of the landfill (south
							depression).
							Feature A - View S - of 1 of 2 depressions on
46	2013-C4-SA-46	6.94	02/09/2013	388732	7594479	10mm	the southwest slope of the landfill (south
							depression).
							Feature A - Close-up of 2 of 2 depressions on
47	2013-C4-SA-47	8.62	02/09/2013	388718	7594490	10mm	the southwest slope of the landfill (north
							depression).
40	0040 04 04 45	0.00	00/00/0045	000740	7504400	40:	Feature A - View S - of 2 of 2 depressions on
48	2013-C4-SA-48	8.06	02/09/2013	388718	7594490	10mm	the southwest slope of the landfill (north
							depression).  View E - of the landfill surface from the top of
49	2013-C4-SA-49	6.91	02/09/2013	388700	7594502	10mm	the west corner.
	_						View N - of the northwest landfill toe taken from
50	2013-C4-SA-50	7.17	02/09/2013	388690	7594503	10mm	the bottom of the west corner.
		1					and postorii or the woot confor.

		a: ##D		Vantag	e Point	Focal	2 "
Photo	Filename	Size (MB)	Date	Easting	Northing	Length	Caption
51	2013-C4-SA-51	7.11	02/09/2013	388690	7594503	10mm	View SE - of the southwest landfill toe taken
- 01	2010 04 0/( 01	7.11	02/03/2010	000000	700-000	10111111	from the bottom of the west corner.
52	2013-C4-SA-52	6.49	02/09/2013	388723	7594559	10mm	View E - of the northeast landfill toe from the
							bottom of the north corner.
53	2013-C4-SA-53	6.57	02/09/2013	388723	7594559	10mm	View SW - of the northwest landfill toe from the
							bottom of the north corner.  View S - of the landfill surface taken from the
54	2013-C4-SA-54	6.50	02/09/2013	388724	7594540	10mm	top of the north corner.
							Feature B - View S - of rust coloured staining on
55	2013-C4-SA-55	8.03	02/09/2013	388736	7594560	10mm	the northeast side slope.
	0040 04 04 50	0.00	00/00/0040	200720	7504500	00	Feature B - Close-up - of rust coloured staining
56	2013-C4-SA-56	8.02	02/09/2013	388736	7594560	22mm	on the northeast side slope.
57	2013-C4-SA-57	8.86	02/09/2013	388734	7594552	12mm	Feature B - View N - of rust coloured staining on
- 01	2010 04 0/1 0/	0.00	02/03/2010	000704	7004002	12111111	the northeast side slope.
58	2013-C4-SA-58	8.11	02/09/2013	388733	7594547	12mm	Feature E - Close-up of a minor area of
		****					settlement on the northeast side slope.
59	2013-C4-SA-59	8.82	02/09/2013	388733	7594548	12mm	Feature E - View E - of a minor area of
							settlement on the northeast side slope.  Feature F - Close-up of a minor area of
60	2013-C4-SA-60	8.62	02/09/2013	388734	7594542	12mm	settlement on the northeast side slope.
							Feature F - View E - of a minor area of
61	2013-C4-SA-61	8.69	02/09/2013	388732	7594542	12mm	settlement on the northeast side slope.
							View SE - of the landfill surface taken from the
62	2013-C4-SA-62	8.55	02/09/2013	388754	7594534	10mm	top of northeast side slope.
63	2013-C4-SA-63	5.53	02/09/2013	388775	7594564	10mm	View SE - of the northeast side slope of the
03	2013-04-3A-03	5.55	02/09/2013	300773	7594504	10111111	landfill, taken from MW-2.
64	2013-C4-SA-64	8.57	02/09/2013	388765	7594538	10mm	Feature G - Close-up of an area of settlement on
	2010 01 07 01	0.01	02/00/2010	000.00	100.000		the northeast side slope.
65	2013-C4-SA-65	8.91	02/09/2013	388761	7594539	10mm	Feature G - View E - of an area of settlement on
							the northeast side slope.  Feature H - Close-up of an area of settlement on
66	2013-C4-SA-66	8.54	02/09/2013	388763	7594532	10mm	the northeast side slope.
							Feature H - View E - of an area of settlement on
67	2013-C4-SA-67	8.48	02/09/2013	388761	7594532	10mm	the northeast side slope.
	0040 04 04 00	7.00	00/00/0040	200700	7504505	40	View W - of landfill surface from the top of the
68	2013-C4-SA-68	7.23	02/09/2013	388789	7594505	10mm	east corner of the lobe.
69	2013-C4-SA-69	6.83	02/09/2013	388820	7594504	10mm	View NW - of the northeast landfill toe from the
09	2013-C4-3A-09	0.03	02/09/2013	300020	7334304	10111111	bottom of the east corner.
70	2013-C4-SA-70	6.52	02/09/2013	388820	7594504	10mm	View SW - of the northwest landfill toe from the
							bottom of the east corner.
71	2013-C4-SA-71	7.67	02/09/2013	388742	7594506	10mm	View NW - of the landfill surface from the middle
							of the landfill surface.  View NE - of the landfill surface from the middle
72	2013-C4-SA-72	8.37	02/09/2013	388742	7594506	10mm	of the landfill surface.
							View SE - of the landfill surface from the middle
73	2013-C4-SA-73	7.44	02/09/2013	388742	7594506	10mm	of the landfill surface.
<del></del>							View SW - of the landfill surface from the middle
74	2013-C4-SA-74	7.16	02/09/2013	388742	7594506	10mm	of the landfill surface.
		L			L		

#### 3.6 SELECTED PHOTOGRAPHS



Photo 1: 2013-C4-SA-41 – Feature H – View NW of the southeast side slope of the landfill from the bottom of the south corner.



Photo 2: 2013-C4-LS-67 – Feature H – View E of an area of settlement on the northeast side slope. New observation.

#### 3.7 SOIL SAMPLE ANALYTICAL DATA

The soil chemical analysis results for the 2013 Station-Area Non-Hazardous Waste Landfill samples are presented in Table VIII hereafter. Certificates of analysis and results of field duplicates collected as part of the QA/QC program are presented in Appendix C at the end of this report.

Table VIII. Station Area Non-Hazardous Waste Landfill Summary Table for Soil Analytical Data

Comple #	Lagation	Depth	Cu	Ni	Co	Cd	Pb	Zn	Cr	As	Hg	PCBs	F1	F2	F3	TPH
Sample #	Location	[cm]	[mg/kg]	C <sub>6</sub> -C <sub>10</sub>	C <sub>10</sub> -C <sub>16</sub>	C <sub>16</sub> -C <sub>34</sub>	C <sub>6</sub> -C <sub>34</sub>									
2013-C4-BMW-1-A	BMW-1	0 - 15	8.2	9.6	5.9	<0.10	5.9	37	17	1.8	< 0.050	<0.010	<12	<10	56	56
2013-C4-BMW-1-B	DIVIVV-1	40 - 50	8.0	12	5.9	<0.10	5.7	35	22	1.8	<0.050	<0.010	<12	<10	<50	<10
2013-C4-MW-1-A	MW-1	0 - 15	<5.0	8.2	4.0	<0.10	3.5	20	12	<1.0	<0.050	<0.010	<12	<10	<50	<10
2013-C4-MW-1-B	10100-1	40 - 50	7.0	12	5.0	<0.10	4.3	30	17	1.1	<0.050	<0.010	<12	<10	<50	<10
2013-C4-MW-2-A/ MW-2-A-D	MW-2	0 - 15	8.2	9.6	5.8	<0.10	5.1	35	17	1.3	<0.050	<0.010	<12	<10	<50	<10
2013-C4-MW-2-B	10100-2	40 - 50	8.1	9.4	5.5	<0.10	5.4	33	16	1.4	<0.050	<0.010	<12	<10	<50	<10
2013-C4-MW-3-A	MW-3	0 - 15	20	17	9.6	0.24	21	76	29	2.9	<0.050	<0.010	<12	<10	500	500
2013-C4-MW-3-B	10100-5	40 - 50	15	15	7.3	<0.10	10	49	26	2.2	<0.050	<0.010	<12	<10	120	142
2013-C4-MW-4A-A	MW-4A	0 - 15	<5.0	6.9	3.7	<0.10	3.7	22	13	<1.0	<0.050	<0.010	<12	<10	88	88
2013-C4-MW-4A-B	10100-474	40 - 50	<5.0	6.0	3.4	<0.10	3.8	20	11	<1.0	<0.050	<0.010	<12	<10	<50	<10
2013-C4-MW-4B-A	MW-4B	0 - 15	5.7	6.9	3.7	<0.10	4.4	22	12	<1.0	<0.050	<0.010	<12	<10	<50	<10
2013-C4-MW-4B-B	10100-40	40 - 50	5.1	6.7	3.6	<0.10	3.9	23	12	<1.0	<0.050	<0.010	<12	<10	59	59
2013-C4-MW-6A-A	MW-6A	0 - 15	7.4	8.0	4.7	<0.10	4.9	27	16	1.1	<0.050	<0.010	<12	<10	170	170
2013-C4-MW-6A-B	IVIVV-OA	40 - 50	5.8	8.5	4.4	<0.10	4.3	26	17	1.0	<0.050	<0.010	<12	<10	<50	<10
2013-C4-MW-6B-A	MW-6B	0 - 15	6.6	11	4.5	<0.10	4.0	35	16	<1.0	<0.050	<0.010	<12	<10	92	92
2013-C4-MW-6B-B	IVIVV-OD	40 - 50	<5.0	8.0	4.0	<0.10	3.6	21	15	<1.0	<0.050	<0.010	<12	<10	<50	<10
2013-C4-MW-7A-A	MW-7A	0 - 15	12	14	6.2	<0.10	6.8	51	20	1.2	<0.050	<0.010	<12	<10	<50	<10
2013-C4-MW-7A-B	IVIVV-/A	40 - 50	11	15	7.9	<0.10	6.7	44	28	1.7	<0.050	<0.010	<12	<10	<50	<10
2013-C4-MW-7B-A	MW-7B	0 - 15	9.8	11	7.6	<0.10	5.8	44	19	1.9	<0.050	<0.010	<12	<10	<50	<10
2013-C4-MW-7B-B	IVIVV-7D	40 - 50	9.5	9.2	6.4	<0.10	5.4	36	16	1.7	<0.050	<0.010	<12	<10	<50	<10

#### 3.8 GROUNDWATER SAMPLE ANALYTICAL DATA

The groundwater chemical analysis results and evaluation for the analytical data for the 2013 Station Area Non-Hazardous Waste Landfill samples are presented in Table IX hereafter. Certificates of analysis and results for groundwater samples collected as part of the QA/QC program are presented in Appendix C, at the end of this report.

Table IX. Station Area Non-Hazardous Waste Landfill Summary Table for Groundwater Analytical Data

Comple #	Location	Cu	Ni	Co	Cd	Pb	Zn	Cr	As	Hg	PCBs	F1	F2	F3	TPH
Sample #	Location	[mg/L]	[mg/L]	[mg/L]	[mg/L]	[mg/L]	[mg/L]	[mg/L]	[mg/L]	[mg/L]	[mg/L]	C <sub>6</sub> -C <sub>10</sub>	C <sub>10</sub> -C <sub>16</sub>	C <sub>16</sub> -C <sub>34</sub>	C <sub>6</sub> -C <sub>34</sub>
2013-C4-BMW-1	BMW-1	0.0017	0.015	0.0076	0.000099	<0.00020	0.20	<0.0010	0.00055	<0.0000020	<0.000050	190	810	69	1,069
2013-C4-MW-1	MW-1		Insufficient water												
2013-C4-MW-2	MW-2		Insufficient water												
2013-C4-MW-3	MW-3		Insufficient water   260,000   790,000   56,000   1,106,000												
2013-C4-MW-4A	MW-4A		Insufficient water												
2013-C4-MW-4B	MW-4B							Insufficien	t water						
2013-C4-MW-6A	MW-6A							Insufficien	t water						
2013-C4-MW-6B	MW-6B	0.0021	0.0019	<0.00030	0.0011	<0.00020	0.096	<0.0010	0.00039	< 0.0000020	<0.000050	<0.10	11	<0.20	11
2013-C4-MW-7A	MW-7A		Insufficient water												
2013-C4-MW-7B	MW-7B		Insufficient water												

#### 3.9 Monitoring Well Sampling / Inspection Logs

The monitoring well sampling logs for BMW-1, MW-1, MW-2, MW-3, MW-4A, MW-4B, MW-6A, MW-6B, MW-7A and MW-7B are presented in this section.

Monitor	ing Well Samplin	g Record: BMW-1	
Site Name:	CAM-4	Pelly Bay	Nunavut
Date of Sampling Event:	Sept. 2, 2013	Time:	3:41 PM
Names of Samplers:	Brandon MacKay	Jamie Jones Ihakkaq	
Landfill Name:	Station Area N	on-Hazardous Waste Landfill	
Monitoring Well ID:	BMW-1		
Sample Number:	2013-C4-BMW-1		
Condition of Well:	Good		
Measured Data			
Well pipe height above ground (cm) =	74		
Diameter of well (cm) =	5	Interior diameter	
Depth of well installation (cm) =	446		
(from ground surface)	446		
Length screened section (cm) =	203		
Depth to top of screen (cm) = (from ground surface)	147		
Depth to water surface (cm) = (from top of pipe)	164	Measurement method: (meter, tape, etc.)	Interface Meter
Static water level (cm) = (below ground surface)	90		
Measured well refusal depth (cm) = (i.e. depth to frozen ground)	266	Evidence of sludge or siltation:	No
Thickness of water column (cm) =	102		
Static volume of water in well (mL) =	2004		
Free product thickness (mm) =	15	Measurement method: (meter, paste, etc.)	Interface Meter
Purging: (Y/N)	Υ	Purging/Sampling Equipment:	Waterra Tubing
Volume Purged Water =	3000 mL	- 0	Foot Valve
Decontamination required: (Y/N)	N - Dedicated		
Number washers:	N/A		
Number washers.  Number rinces:	N/A		
Number mices.	IV/A		
Final pH =	6.68		
Final Conductivity (uS/cm) =	540		
Final Temperature (°C) =	0.1		

Site Name: CAM-4 Pelly Bay Nunavut  Date of Sampling Event: Sept. 2, 2013  Names of Samplers: Brandon MacKay Jamie Jones Ihakkaq  Landfill Name: Station Area Non-Hazardous Waste Landfill  Monitoring Well ID: MW-1  Sample Number: N/A - Dry  Condition of Well: Good  Measured Data  Well pipe height above ground (cm) = 58  Diameter of well (cm) = 5 Interior diameter  Depth of well installation (cm) = (from ground surface)  Length screened section (cm) = 203  Depth to top of screen (cm) = (from ground surface)  If from ground surface)  Depth to water surface (cm) = (from top of pipe)  Static water level (cm) = (below ground surface)  Measured well refusal depth (cm) = (si.e. depth to frozen ground)  Thickness of water column (cm) = N/A  Static volume of water in well (mL) = N/A  Purging: (Y/N) N Purging/Sampling Equipment: Waterra Tubing Poot Valve  Percontamination required: (Y/N) N - Dedicated  Number washers: N/A  Number rinces: N/A  Final Conductivity (uS/cm) = N/A  Final Temperature (*C) = N/A	Monito	ring Well Samplir	ng Record: MW-1	
Names of Samplers: Landfill Name: Station Area Non-Hazardous Waste Landfill Monitoring Well ID: MW-1 Sample Number: N/A Dry Condition of Well: Good  Measured Data Well pipe height above ground (cm) = 58 Diameter of well (cm) = 5 Interior diameter  (from ground surface)  Depth of well installation (cm) = (from ground surface)  Length screened section (cm) = 203  Depth to top of screen (cm) = (from ground surface)  (from top of pipe)  Static water level (cm) = (heliow ground surface)  Measured well refusal depth (cm) = (heliow ground surface)  Measured well refusal depth (cm) = (heliow ground surface)  Thickness of water column (cm) = N/A Static volume of water in well (mt) = N/A  Free product thickness (mm) = 0  Purging: (Y/N) Volume Purged Water = N/A Decontamination required: (Y/N) N Dedicated Number vashers: N/A Number rinces: N/A Final pH = N/A Final Conductivity (uS/cm) = N/A	Site Name:	CAM-4	Pelly Bay	Nunavut
Landfill Name: Monitoring Well ID: MW-1 Sample Number: N/A - Dry Condition of Well: Good    Measured Data   Monitoring Well (m) = Good	Date of Sampling Event:	Sept. 2, 2013	Time:	11:45 AM
Monitoring Well ID: Sample Number: Condition of Well: Good  Measured Data Well pipe height above ground (cm) = Diameter of well (cm) = (from ground surface) Length screened section (cm) = (from ground surface)  Depth to top of screen (cm) = (from ground surface)  Depth to water surface (cm) = (from top of pipe) Static water level (cm) = (below ground surface)  Measured well refusal depth (cm) = (i.e. depth to frozen ground)  Thickness of water column (cm) = Static volume of water in well (mL) = N/A  Purging: (Y/N) Volume Purged Water = Decontamination required: (Y/N) Number washers: N/A Number rinces: N/A  Final DH = N/A  Final Conductivity (uS/cm) =  Sas Interior diameter  A50  Interior diameter  A50  Measurement method: (meter, tape, etc.) Interface Meter  A50  Measurement method: (meter, paste, etc.)  Purging/Sampling Equipment: Waterra Tubing Foot Valve  Foot Valve  N/A  N/A  Final DH = N/A  Final Conductivity (uS/cm) = N/A	Names of Samplers:	Brandon MacKay	Jamie Jones Ihakkaq	
Sample Number: Condition of Well: Condition of Well	Landfill Name:	Station Area N	on-Hazardous Waste Landfill	
Measured Data	Monitoring Well ID:	MW-1		
Measured Data         Well pipe height above ground (cm) = Diameter of well (cm) = Diameter of well (cm) = (from ground surface)       5 Interior diameter         Depth of well installation (cm) = (from ground surface)       450         Length screened section (cm) = (from ground surface)       203         Depth to top of screen (cm) = (from ground surface)       150         Depth to water surface (cm) = (from top of pipe)       N/A         Static water level (cm) = (below ground surface)       N/A         Measured well refusal depth (cm) = (i.e. depth to frozen ground)       385         Evidence of sludge or siltation: No         Thickness of water column (cm) = Static volume of water in well (mL) = N/A         Free product thickness (mm) = Purging: (Y/N) N/A       Measurement method: (meter, paste, etc.)         Purging: (Y/N) N Purging/Sampling Equipment: Watera Tubing Poot Valve         Volume Purged Water = N/A N Poedicated       N/A Poedicated         Number washers: N/A Number rinces: N/A	Sample Number:	N/A – Dry		
Well pipe height above ground (cm) = Diameter of well (cm) = Depth of well installation (cm) = (from ground surface)  Length screened section (cm) = 203  Depth to top of screen (cm) = (from ground surface)  Depth to water surface (cm) = (from top of pipe)  Static water level (cm) = (below ground surface)  Measured well refusal depth (cm) = (i.e. depth to frozen ground)  Thickness of water column (cm) = N/A  Static volume of water in well (mL) = N/A  Purging: (Y/N) N Purging/Sampling Equipment: Waterra Tubing Volume Purged Water = N/A  Number washers: N/A  Number rinces: N/A  Final DH = N/A  Final Conductivity (uS/cm) = N/A  Final Conductivity (uS/cm) = N/A  Interior diameter  Interior diameter  Interior diameter  Interior diameter  A50  Interior diameter  A50  Interior diameter  450  Interior diameter  Interior diameter  450  Interior diameter  450  Interior diameter  150  Interior diameter  Interior diamete	Condition of Well:	Good		
Well pipe height above ground (cm) = Diameter of well (cm) = Depth of well installation (cm) = (from ground surface)  Length screened section (cm) = 203  Depth to top of screen (cm) = (from ground surface)  Depth to water surface (cm) = (from top of pipe)  Static water level (cm) = (below ground surface)  Measured well refusal depth (cm) = (i.e. depth to frozen ground)  Thickness of water column (cm) = N/A  Static volume of water in well (mL) = N/A  Purging: (Y/N) N Purging/Sampling Equipment: Waterra Tubing Volume Purged Water = N/A  Number washers: N/A  Number rinces: N/A  Final DH = N/A  Final Conductivity (uS/cm) = N/A  Final Conductivity (uS/cm) = N/A  Interior diameter  Interior diameter  Interior diameter  Interior diameter  A50  Interior diameter  A50  Interior diameter  450  Interior diameter  Interior diameter  450  Interior diameter  450  Interior diameter  150  Interior diameter  Interior diamete				
Diameter of well (cm) = 5	Measured Data			
Depth of well installation (cm) = (from ground surface)  Length screened section (cm) = 203  Depth to top of screen (cm) = (from ground surface)  Depth to water surface (cm) = (from top of pipe)  Static water level (cm) = (below ground surface)  Measured well refusal depth (cm) = (i.e. depth to frozen ground)  Thickness of water column (cm) = N/A  Static volume of water in well (mL) = N/A  Free product thickness (mm) = 0  Purging: (Y/N) N Purging/Sampling Equipment: Waterra Tubing Volume Purged Water = N/A  Number rinces: N/A  Final pH = N/A  Final Conductivity (uS/cm) = N/A  Final Conductivity (uS/cm) = N/A  Pagos  Popth to top of screen (cm) = 150  Measurement method: (meter, paste, etc.)  Measurement method: (meter, paste, etc.)  Measurement method: (meter, paste, etc.)  N/A  Purging/Sampling Equipment: Waterra Tubing Foot Valve	Well pipe height above ground (cm) =	58		
Length screened section (cm) =   203     203       203	Diameter of well (cm) =	5	Interior diameter	
Length screened section (cm) = 203  Depth to top of screen (cm) = (from ground surface)  Depth to water surface (cm) = (from top of pipe)  Static water level (cm) = (below ground surface)  Measured well refusal depth (cm) = (i.e. depth to frozen ground)  Thickness of water column (cm) = N/A  Static volume of water in well (mL) = N/A  Free product thickness (mm) = 0  Purging: (Y/N) N Purging/Sampling Equipment: Watera Tubing Poot Valve  Decontamination required: (Y/N) N-Dedicated Number washers: N/A  Number rinces: N/A  Final pH = N/A  Final Conductivity (uS/cm) = N/A	Depth of well installation (cm) =	450		
Depth to top of screen (cm) = (from ground surface)  Depth to water surface (cm) = (from top of pipe)  Static water level (cm) = (below ground surface)  Measured well refusal depth (cm) = (i.e. depth to frozen ground)  Thickness of water column (cm) = N/A  Static volume of water in well (mL) = N/A  Free product thickness (mm) = 0  Measurement method: (meter, paste, etc.)  Measurement method: (meter, paste, etc.)  Purging: (Y/N) N Purging/Sampling Equipment: Waterra Tubing  Volume Purged Water = N/A  Number washers: N/A  Number rinces: N/A  Final pH = N/A  Final Conductivity (uS/cm) = N/A	(from ground surface)	450		
Depth to water surface (cm) = (from top of pipe)   N/A   Measurement method: (meter, tape, etc.)	Length screened section (cm) =	203		
Depth to water surface (cm) = (from top of pipe)  Static water level (cm) = (below ground surface)  Measured well refusal depth (cm) = (i.e. depth to frozen ground)  Thickness of water column (cm) = N/A  Static volume of water in well (mL) = N/A  Free product thickness (mm) = 0  Measurement method: (meter, paste, etc.)  Purging: (Y/N) N Purging/Sampling Equipment: Waterra Tubing Volume Purged Water = N/A  Pecontamination required: (Y/N) N - Dedicated  Number washers: N/A  Number rinces: N/A  Final pH = N/A  Final Conductivity (uS/cm) = N/A	1	150		
(from top of pipe)  Static water level (cm) = (below ground surface)  Measured well refusal depth (cm) = (i.e. depth to frozen ground)  Thickness of water column (cm) = N/A  Static volume of water in well (mL) = N/A  Free product thickness (mm) = 0  Purging: (Y/N) N Purging/Sampling Equipment: Waterra Tubing Volume Purged Water = N/A  Decontamination required: (Y/N) N - Dedicated  Number washers: N/A  Number rinces: N/A  Final pH = N/A  Final Conductivity (uS/cm) = N/A	(from ground surface)			
(from top of pipe)  Static water level (cm) = (below ground surface)  Measured well refusal depth (cm) = (i.e. depth to frozen ground)  Thickness of water column (cm) = N/A  Static volume of water in well (mL) = N/A  Free product thickness (mm) = 0  Purging: (Y/N) N Purging/Sampling Equipment: Waterra Tubing Volume Purged Water = N/A  Decontamination required: (Y/N) N - Dedicated  Number washers: N/A  Number rinces: N/A  Final pH = N/A  Final Conductivity (uS/cm) = N/A	Depth to water surface (cm) =		Measurement method:	
Static water level (cm) = (below ground surface)  Measured well refusal depth (cm) = (i.e. depth to frozen ground)  Thickness of water column (cm) = N/A  Static volume of water in well (mL) = N/A  Free product thickness (mm) = 0  Purging: (Y/N) N Purging/Sampling Equipment: Waterra Tubing Volume Purged Water = N/A  Decontamination required: (Y/N) N - Dedicated  Number washers: N/A  Number rinces: N/A  Final pH = N/A  Final Conductivity (uS/cm) = N/A		N/A	(meter, tape, etc.)	Interface Meter
(below ground surface)       N/A       N/A         Measured well refusal depth (cm) = (i.e. depth to frozen ground)       385       Evidence of sludge or siltation: No         Thickness of water column (cm) = Static volume of water in well (mL) = N/A       N/A         Free product thickness (mm) = Purging: (Y/N) N Purging/Sampling Equipment: Waterra Tubing Volume Purged Water = N/A Pecontamination required: (Y/N) N Dedicated Number washers: N/A Number rinces: N/A Number rinces: N/A Final PH = N/A Final Conductivity (uS/cm) = N/A       N/A N/A N/A N/A N/A N/A N/A N/A N/A N/A			, , , , ,	
Measured well refusal depth (cm) = (i.e. depth to frozen ground)  Thickness of water column (cm) = N/A  Static volume of water in well (mL) = N/A  Free product thickness (mm) = 0  Purging: (Y/N) N Purging/Sampling Equipment: Waterra Tubing Volume Purged Water = N/A  Decontamination required: (Y/N) N - Dedicated  Number washers: N/A  Number rinces: N/A  Final pH = N/A  Final Conductivity (uS/cm) = N/A  Final Conductivity (uS/cm) = N/A		N/A		
(i.e. depth to frozen ground)  Thickness of water column (cm) = N/A  Static volume of water in well (mL) = N/A  Free product thickness (mm) = 0  Measurement method: (meter, paste, etc.)  Purging: (Y/N) N Purging/Sampling Equipment: Waterra Tubing Volume Purged Water = N/A Foot Valve  Decontamination required: (Y/N) N - Dedicated  Number washers: N/A  Number rinces: N/A  Final pH = N/A  Final Conductivity (uS/cm) = N/A				
Thickness of water column (cm) = N/A  Static volume of water in well (mL) = N/A  Free product thickness (mm) = 0  Measurement method: (meter, paste, etc.)  Purging: (Y/N) N Purging/Sampling Equipment: Waterra Tubing Volume Purged Water = N/A Foot Valve  Decontamination required: (Y/N) N - Dedicated  Number washers: N/A  Number rinces: N/A  Final pH = N/A  Final Conductivity (uS/cm) = N/A		385	Evidence of sludge or siltation:	No
Static volume of water in well (mL) = N/A  Free product thickness (mm) = 0  Measurement method: (meter, paste, etc.)  Purging: (Y/N) N Purging/Sampling Equipment: Waterra Tubing Volume Purged Water = N/A Foot Valve  Decontamination required: (Y/N) N - Dedicated Number washers: N/A  Number rinces: N/A  Final pH = N/A  Final Conductivity (uS/cm) = N/A	(i.e. deptil to frozen ground)			
Static volume of water in well (mL) = N/A  Free product thickness (mm) = 0  Measurement method: (meter, paste, etc.)  Purging: (Y/N) N Purging/Sampling Equipment: Waterra Tubing Volume Purged Water = N/A Foot Valve  Decontamination required: (Y/N) N - Dedicated Number washers: N/A  Number rinces: N/A  Final pH = N/A  Final Conductivity (uS/cm) = N/A	Thickness of water column (cm) =	N/A		
Free product thickness (mm) = 0 Measurement method: (meter, paste, etc.)  Purging: (Y/N) N Purging/Sampling Equipment: Waterra Tubing Volume Purged Water = N/A Foot Valve  Decontamination required: (Y/N) N - Dedicated Number washers: N/A Number rinces: N/A  Final pH = N/A  Final Conductivity (uS/cm) = N/A	` '	•		
Purging: (Y/N) N Purging/Sampling Equipment: Waterra Tubing Volume Purged Water = N/A Foot Valve  Decontamination required: (Y/N) N - Dedicated Number washers: N/A Number rinces: N/A  Final pH = N/A  Final Conductivity (uS/cm) = N/A	tation to an in the contract in the contract (in 2)	,		
Volume Purged Water = N/A Foot Valve  Decontamination required: (Y/N) N - Dedicated  Number washers: N/A  Number rinces: N/A  Final pH = N/A  Final Conductivity (uS/cm) = N/A	Free product thickness (mm) =	0		Interface Meter
Decontamination required: (Y/N) N - Dedicated  Number washers: N/A  Number rinces: N/A  Final pH = N/A  Final Conductivity (uS/cm) = N/A	Purging: (Y/N)	N	Purging/Sampling Equipment:	Waterra Tubing
Decontamination required: (Y/N) N - Dedicated  Number washers: N/A  Number rinces: N/A  Final pH = N/A  Final Conductivity (uS/cm) = N/A	Volume Purged Water =	N/A		Foot Valve
Number washers:         N/A           Number rinces:         N/A           Final pH =         N/A           Final Conductivity (uS/cm) =         N/A				
Number rinces:         N/A           Final pH =         N/A           Final Conductivity (uS/cm) =         N/A	Number washers:	N/A		
Final pH = N/A  Final Conductivity (uS/cm) = N/A				
Final Conductivity (uS/cm) = N/A		•		
Final Conductivity (uS/cm) = N/A	Final pH =	N/A		
	Final Temperature (°C) =	N/A		

Monito	ring Well Samplii	ng Record: MW-2	
Site Name:	CAM-4	Pelly Bay	Nunavut
Date of Sampling Event:	Sept. 2, 2013	Time:	11:00 AM
Names of Samplers:	Brandon MacKay	Jamie Jones Ihakkaq	
Landfill Name:	Station Area N	on-Hazardous Waste Landfill	
Monitoring Well ID:	MW-2		
Sample Number:	N/A – Dry		
Condition of Well:	Good		
Measured Data			
Well pipe height above ground (cm) =	60		
Diameter of well (cm) =	5	Interior diameter	
Depth of well installation (cm) =	450		
(from ground surface)	450		
Length screened section (cm) =	200		
Depth to top of screen (cm) =	1=0		
(from ground surface)	150		
Depth to water surface (cm) =		Measurement method:	Interface Meter
(from top of pipe)	N/A	(meter, tape, etc.)	miterrace wieter
Static water level (cm) =			
(below ground surface)	N/A		
Measured well refusal depth (cm) =			
(i.e. depth to frozen ground)	205	Evidence of sludge or siltation:	No
(			
Thickness of water column (cm) =	N/A		
Static volume of water in well (mL) =	N/A		
	•		
Free product thickness (mm) =	0	Measurement method: (meter, paste, etc.)	Interface Meter
Purging: (Y/N)	N	Purging/Sampling Equipment:	Waterra Tubing
Volume Purged Water =	N/A		Foot Valve
Decontamination required: (Y/N)	N - Dedicated		
Number washers:	N/A		
Number rinces:	N/A		
Final pH =	N/A		
Final Conductivity (uS/cm) =	N/A		
Final Temperature (°C) =	N/A		

Site Name:  Date of Sampling Event:  Names of Samplers:	CAM-4 Sept. 2, 2013	Pelly Bay	NI
· ·	Sont 2 2012	,,	Nunavut
Names of Samplers:	3ept. 2, 2013	Time:	10:00 AM
	Brandon MacKay	Jamie Jones Ihakkaq	
Landfill Name:			
Monitoring Well ID:	MW-3		
Sample Number: 2	<u> </u>		
Condition of Well:	Good		
Measured Data			
Well pipe height above ground (cm) =	76		
Diameter of well (cm) =	5	Interior diameter	
Depth of well installation (cm) =	450		
(from ground surface)	450		
Length screened section (cm) =	200		
Depth to top of screen (cm) = (from ground surface)	150		
Depth to water surface (cm) = (from top of pipe)	456	Measurement method: (meter, tape, etc.)	Interface Meter
Static water level (cm) = (below ground surface)	380		
Measured well refusal depth (cm) = (i.e. depth to frozen ground)	516	Evidence of sludge or siltation:	No
Thickness of water column (cm) =	60		
Static volume of water in well (mL) =	1179		
Free product thickness (mm) =	600	Measurement method: (meter, paste, etc.)	Interface Meter
Purging: (Y/N)	Υ	Purging/Sampling Equipment:	Waterra Tubing
Volume Purged Water =	4000 mL	<u> </u>	Foot Valve
Decontamination required: (Y/N)	N - Dedicated		
Number washers:	N/A		
Number vasiers:	N/A		
Number mices.	14/ 🗥		
Final pH =	N/A		
Final Conductivity (uS/cm) =	N/A		
Final Conductivity (us/cin/ =	N/A		

Monitoring Well Sampling Record: MW-4A				
Site Name:	CAM-4	Pelly Bay	Nunavut	
Date of Sampling Event:	Sept. 2, 2013	Time:	12:00 PM	
Names of Samplers:	Brandon MacKay	Jamie Jones Ihakkaq		
Landfill Name:	Station Area Non-Hazardous Waste Landfill			
Monitoring Well ID:	MW-4A			
Sample Number:	N/A – Dry			
Condition of Well:	Good			
Measured Data				
Well pipe height above ground (cm) =	52			
Diameter of well (cm) =	5	Interior diameter		
Depth of well installation (cm) =	400			
(from ground surface)	400			
Length screened section (cm) =	138			
Depth to top of screen (cm) =				
(from ground surface)	258			
Depth to water surface (cm) =		Measurement method:	Interface Meter	
(from top of pipe)	N/A	(meter, tape, etc.)	miteriace wieter	
Static water level (cm) =				
(below ground surface)	N/A			
Measured well refusal depth (cm) =	***	Evidence of sludge or siltation:	No	
(i.e. depth to frozen ground)	426			
Thickness of water column (cm) =	N/A			
Static volume of water in well (mL) =	N/A			
Free product thickness (mm) =	0	Measurement method: (meter, paste, etc.)	Interface Meter	
Purging: (Y/N)	N	Purging/Sampling Equipment:	Waterra Tubing	
Volume Purged Water =	N/A		Foot Valve	
Decontamination required: (Y/N)	N - Dedicated			
Number washers:	N/A			
Number rinces:	N/A			
Final pH =	N/A			
Final Conductivity (uS/cm) =	N/A			
Final Temperature (°C) =	N/A			

Monitor	ing Well Samplin	g Record: MW-4B	
Site Name:	CAM-4	Pelly Bay	Nunavut
Date of Sampling Event:	Sept. 2, 2013	Time:	12:22 PM
Names of Samplers:	Brandon MacKay	Jamie Jones Ihakkaq	
Landfill Name:	Station Area Non-Hazardous Waste Landfill		
Monitoring Well ID:	MW-4B		
Sample Number:	N/A – Dry		
Condition of Well:	Good		
Measured Data			
Well pipe height above ground (cm) =	55		
Diameter of well (cm) =	5	Interior diameter	
Depth of well installation (cm) =	200		
(from ground surface)	280		
Length screened section (cm) =	228		
Depth to top of screen (cm) =			
(from ground surface)	48		
(			
Depth to water surface (cm) =		Measurement method:	Interface Meter
(from top of pipe)	N/A	(meter, tape, etc.)	interrace wieter
Static water level (cm) =			
(below ground surface)	N/A		
Measured well refusal depth (cm) =			
(i.e. depth to frozen ground)	205	Evidence of sludge or siltation:	No
(ner departs nozenground)			
Thickness of water column (cm) =	N/A		
Static volume of water in well (mL) =	N/A		
	,		
Free product thickness (mm) =	N/A	Measurement method: (meter, paste, etc.)	Interface Meter
Purging: (Y/N)	N	Purging/Sampling Equipment:	Waterra Tubing
Volume Purged Water =	N/A	. a.b.i.b/ sampling Equipment.	Foot Valve
Decontamination required: (Y/N)	N - Dedicated		1000 vaive
Number washers:	N/A		
Number washers.  Number rinces:	N/A		
Number finces:	IN/A		
Final pH =	N/A		
Final Conductivity (uS/cm) =	N/A		
Final Conductivity (us/cin) =  Final Temperature (°C) =			
riliai Telliperature ( C) =	N/A		

Monitoring Well Sampling Record: MW-6A				
Site Name:	CAM-4	Pelly Bay	Nunavut	
Date of Sampling Event:	Sept. 2, 2013	Time:	1:30 PM	
Names of Samplers:	Brandon MacKay	Jamie Jones Ihakkaq		
Landfill Name:	Station Area Non-Hazardous Waste Landfill			
Monitoring Well ID:	MW-6A			
Sample Number:	N/A – Dry			
Condition of Well:	Good			
Measured Data				
Well pipe height above ground (cm) =	52			
Diameter of well (cm) =	5	Interior diameter		
Depth of well installation (cm) =	427			
(from ground surface)	427			
Length screened section (cm) =	226			
Depth to top of screen (cm) =				
(from ground surface)	50			
Depth to water surface (cm) =	N/A	Measurement method:	Interface Mete	
(from top of pipe)	14/71	(meter, tape, etc.)		
Static water level (cm) =	N/A			
(below ground surface)	N/A			
Measured well refusal depth (cm) =		Evidence of sludge or siltation:	No	
(i.e. depth to frozen ground)	505			
, , ,				
Thickness of water column (cm) =	N/A			
Static volume of water in well (mL) =	N/A			
, ,	,			
Free product thickness (mm) =	N/A	Measurement method: (meter, paste, etc.)	Interface Meter	
Purging: (Y/N)	N	Purging/Sampling Equipment:	Waterra Tubing	
Volume Purged Water =	N/A		Foot Valve	
Decontamination required: (Y/N)	N - Dedicated			
Number washers:	N/A			
Number rinces:	N/A			
	·			
Final pH =	N/A			
Final Conductivity (uS/cm) =	N/A			
Final Temperature (°C) =	N/A			

Static water level (cm) = (below ground surface)   37	Monitor	ing Well Samplin	g Record: MW-6B	
Names of Samplers: Landfill Name: Station Area Non-Hazardous Waste Landfill Monitoring Well ID: MW-6B Sample Number: Condition of Well:  Measured Data Well pipe height above ground (cm) =	Site Name:	CAM-4	Pelly Bay	Nunavut
Landfill Name:   Station Area Non-Hazardous Waste Landfill	Date of Sampling Event:	Sept. 2, 2013	Time:	1:45 PM
Monitoring Well ID: Sample Number: 2013-C4-MW-6B  Condition of Well: Good  Measured Data Well pipe height above ground (cm) = Diameter of well (cm) = (from ground surface)  Length screened section (cm) = (from ground surface)  Depth to top of screen (cm) = (from top of pipe)  Static water level (cm) = (below ground surface)  Measured Data  Well pipe height above ground (cm) = 5 Interior diameter  427  427  Measurement method: (meter, tape, etc.)  Interface Me  Evidence of sludge or siltation: No  Measurement method: (meter, tape, etc.)  Free product thickness (mm) =  0  Measurement method: (meter, tape, etc.)  Measurement method: (meter, tape, etc.)  No  Measurement method: (meter, tape, etc.)	Names of Samplers:	Brandon MacKay	Jamie Jones Ihakkaq	
Sample Number: Condition of Well: Good  Measured Data  Well pipe height above ground (cm) = 65	Landfill Name:	Station Area N	on-Hazardous Waste Landfill	
Measured Data	Monitoring Well ID:	MW-6B		
Measured Data         Well pipe height above ground (cm) =       65         Diameter of well (cm) =       5         Depth of well installation (cm) =       427         (from ground surface)       427         Length screened section (cm) =       226         Depth to top of screen (cm) =       50         (from ground surface)       50         Depth to water surface (cm) =       102         (from top of pipe)       37         Static water level (cm) =       37         (below ground surface)       37         Measured well refusal depth (cm) =       212         (i.e. depth to frozen ground)       212         Evidence of sludge or siltation:       No         Thickness of water column (cm) =       110         Static volume of water in well (mL) =       2161 mL         Free product thickness (mm) =       0         Measurement method: (meter, paste, etc.)       Interface Me	Sample Number:	2013-C4-MW-6B		
Well pipe height above ground (cm) =       65         Diameter of well (cm) =       5         Depth of well installation (cm) =       427         (from ground surface)       427         Length screened section (cm) =       226         Depth to top of screen (cm) =       50         (from ground surface)       102         Measurement method:       (meter, tape, etc.)         Static water level (cm) =       37         (below ground surface)       37         Measured well refusal depth (cm) =       212         (i.e. depth to frozen ground)       212         Evidence of sludge or siltation:       No         Thickness of water column (cm) =       110         Static volume of water in well (mL) =       2161 mL         Measurement method: (meter, paste, etc.)       Interface Me	Condition of Well:	Good		
Well pipe height above ground (cm) =       65         Diameter of well (cm) =       5         Depth of well installation (cm) =       427         (from ground surface)       427         Length screened section (cm) =       226         Depth to top of screen (cm) =       50         (from ground surface)       102         Measurement method:       (meter, tape, etc.)         Static water level (cm) =       37         (below ground surface)       37         Measured well refusal depth (cm) =       212         (i.e. depth to frozen ground)       212         Evidence of sludge or siltation:       No         Thickness of water column (cm) =       110         Static volume of water in well (mL) =       2161 mL         Measurement method: (meter, paste, etc.)       Interface Me				
Diameter of well (cm) = 5 Interior diameter  Depth of well installation (cm) = (from ground surface)  Length screened section (cm) = 226  Depth to top of screen (cm) = (from ground surface)  Depth to water surface (cm) = (from top of pipe)  Static water level (cm) = (below ground surface)  Measurement method: (meter, tape, etc.)  Measured well refusal depth (cm) = (i.e. depth to frozen ground)  Thickness of water column (cm) = 110  Static volume of water in well (mL) = 2161 mL  Free product thickness (mm) = 0  Measurement method: (meter, paste, etc.)  Measurement method: (meter, paste, etc.)  Measurement method: (meter, paste, etc.)	Measured Data			
Depth of well installation (cm) = (from ground surface)  Length screened section (cm) = 226  Depth to top of screen (cm) = (from ground surface)  Depth to water surface (cm) = (from top of pipe)  Static water level (cm) = (below ground surface)  Measured well refusal depth (cm) = (i.e. depth to frozen ground)  Thickness of water column (cm) = 110  Static volume of water in well (mL) = 2161 mL  Free product thickness (mm) = 0  Measurement method: (meter, tape, etc.)  No  Measurement method: (meter, paste, etc.)  Measurement method: (meter, paste, etc.)	Well pipe height above ground (cm) =	65		
Length screened section (cm) =   226	Diameter of well (cm) =	5	Interior diameter	
Length screened section (cm) = 226	Depth of well installation (cm) =	427		
Length screened section (cm) = 226  Depth to top of screen (cm) = (from ground surface)  Depth to water surface (cm) = (from top of pipe)  Static water level (cm) = (below ground surface)  Measured well refusal depth (cm) = (i.e. depth to frozen ground)  Thickness of water column (cm) = 110  Static volume of water in well (mL) = 2161 mL  Free product thickness (mm) = 0  Measurement method: (meter, paste, etc.)  Measurement method: (meter, paste, etc.)	(from ground surface)	427		
Depth to water surface (cm) = (from top of pipe)   102   Measurement method: (meter, tape, etc.)   Interface Me   Static water level (cm) = (below ground surface)   37     Evidence of sludge or siltation: No     Thickness of water column (cm) = 110   Static volume of water in well (mL) = 2161 mL   Tree product thickness (mm) = 0   Measurement method: (meter, paste, etc.)   Interface Me		226		
(from top of pipe)     102     (meter, tape, etc.)     Interface Me       Static water level (cm) = (below ground surface)     37       Measured well refusal depth (cm) = (i.e. depth to frozen ground)     212     Evidence of sludge or siltation: No       Thickness of water column (cm) = Static volume of water in well (mL) = 2161 mL     2161 mL       Free product thickness (mm) = 0     Measurement method: (meter, paste, etc.)     Interface Me		50		
(below ground surface)  Measured well refusal depth (cm) = (i.e. depth to frozen ground)  Thickness of water column (cm) = 110  Static volume of water in well (mL) = 2161 mL  Free product thickness (mm) = 0  Measurement method: (meter, paste, etc.)  Interface Me	(from top of pipe)	102		Interface Meter
(i.e. depth to frozen ground)  Thickness of water column (cm) = 110  Static volume of water in well (mL) = 2161 mL  Free product thickness (mm) = 0  Measurement method: (meter, paste, etc.)	* *	37		
Static volume of water in well (mL) = 2161 mL  Free product thickness (mm) = 0 Measurement method: (meter, paste, etc.) Interface Me		212	Evidence of sludge or siltation:	No
Free product thickness (mm) = 0 Measurement method: (meter, paste, etc.) Interface Me	Thickness of water column (cm) =	110		
Free product thickness (mm) = 0 paste, etc.)	Static volume of water in well (mL) =	2161 mL		
Purging: (Y/N) Y Purging/Sampling Equipment: Waterra Tub	Free product thickness (mm) =	0		Interface Meter
	Purging: (Y/N)	Υ	Purging/Sampling Equipment:	Waterra Tubing
		3500 mL		Foot Valve
Decontamination required: (Y/N) N - Dedicated		N - Dedicated		
Number washers: N/A				
Number rinces: N/A				
.,,		/		
Final pH = 6.66	Final nH -	6 66		
Final Conductivity (uS/cm) = 510	·			
Final Temperature (°C) = 0.1	• • •			

Monitor	ing Well Samplin	g Record: MW-7A		
Site Name:	CAM-4	Pelly Bay	Nunavut	
Date of Sampling Event:	Sept. 2, 2013	Time:	2:15 PM	
Names of Samplers:	Brandon MacKay	Jamie Jones Ihakkaq		
Landfill Name:	Station Area N	on-Hazardous Waste Landfill		
Monitoring Well ID:	MW-7A			
Sample Number:	N/A – Dry			
Condition of Well:	Good			
Measured Data				
Well pipe height above ground (cm) =	49			
Diameter of well (cm) =	5	Interior diameter		
Depth of well installation (cm) =	457			
(from ground surface)	457			
Length screened section (cm) =	100			
Depth to top of screen (cm) =	345			
(from ground surface)				
Depth to water surface (cm) =	N1 / A	Measurement method:		
(from top of pipe)	N/A	(meter, tape, etc.)	Interface Meter	
Static water level (cm) =				
(below ground surface)	N/A			
Measured well refusal depth (cm) =				
(i.e. depth to frozen ground)	395	Evidence of sludge or siltation:	No	
Thickness of water column (cm) =	N/A			
Static volume of water in well (mL) =	N/A			
Free product thickness (mm) =	0	Measurement method: (meter, paste, etc.)	Interface Meter	
Purging: (Y/N)	N	Purging/Sampling Equipment:	Waterra Tubing	
Volume Purged Water =	N/A		Foot Valve	
Decontamination required: (Y/N)	N - Dedicated			
Number washers:	N/A			
Number rinces:	N/A			
	•			
Final pH =	N/A			
Final Conductivity (uS/cm) =	N/A			
Final Temperature (°C) =	N/A			

Monitor	ing Well Samplin	g Record: MW-7B	
Site Name:	CAM-4	Pelly Bay	Nunavut
Date of Sampling Event:	Sept. 2, 2013	Time:	2:50 PM
Names of Samplers:	Brandon MacKay	Jamie Jones Ihakkaq	
Landfill Name:	Station Area N	on-Hazardous Waste Landfill	
Monitoring Well ID:	MW-7B		
Sample Number:	N/A – Dry		
Condition of Well:	Good		
Measured Data			
Well pipe height above ground (cm) =	72		
Diameter of well (cm) =	5	Interior diameter	
Depth of well installation (cm) =	274		
(from ground surface)			
Length screened section (cm) =	195		
Depth to top of screen (cm) =	71		
(from ground surface)	/1		
Depth to water surface (cm) =		Measurement method:	Interface Meter
(from top of pipe)	N/A	(meter, tape, etc.)	
Static water level (cm) =			
(below ground surface)	N/A		
Measured well refusal depth (cm) =	182	Evidence of sludge or siltation:	No
(i.e. depth to frozen ground)	102	Evidence of studge of stitution.	NO
Thickness of water column (cm) =	N/A		
Static volume of water in well (mL) =	N/A		
Free product thickness (mm) =	0	Measurement method: (meter, paste, etc.)	Interface Meter
Purging: (Y/N)	N	Purging/Sampling Equipment:	Waterra Tubing
Volume Purged Water =	N/A		Foot Valve
Decontamination required: (Y/N)	N - Dedicated		
Number washers:	N/A		
Number rinces:	N/A		
Final pH =	N/A		
Final Conductivity (uS/cm) =	N/A		
Final Temperature (°C) =			

#### 4 TIER II SOIL DISPOSAL FACILITY

#### 4.1 SUMMARY

The 2013 monitoring of the Tier II Disposal Facility was conducted on September 2<sup>nd</sup>, 3<sup>rd</sup> and 4<sup>th</sup>, 2013, and consisted of a visual inspection to identify areas of erosion. As per the TOR soil and groundwater samples as well as thermal monitoring was conducted during the investigation.

As of the 2013 monitoring event, no features were identified with "significant" or "unacceptable". Occasional areas of settlement were observed on the landfill side slopes. Ponding observed during previous investigation was not observed during 2013. At the time of the investigation the southeast side slope, a portion of the northwest side slope and areas surrounding the toe of the landfill on all side was covered in snow. This snow cover obscured several previously identified features such as Features, B, C, D and F, the majority of which were not in contact with the landfill but rather observed adjacent to or along the landfill toe.

TPH was detected in five soil samples taken at the Tier II Disposal facility, one of which was in excess of 2,500 mg/kg. TPH was detected in the depth sample of MW-8 (71 mg/kg), the surface and depth samples of MW-14A (76 and 64 mg/kg respectively), the surface sample of MW-14B (54 mg/kg) and the depth sample of MW-16 (3,150 mg/kg). PCBs were detected at one location, the depth sample of MW-14A at 0.023 mg/kg. Relatively high concentrations of chromium were detected at three locations; the depth sample of MW-5 (130 mg/kg), the surface sample of MW-14A (93 mg/kg) and the depth sample of MW-14B (150 mg/kg).

Groundwater samples were collected at all monitoring wells with the exception of two; MW-5 and MW-15. MW-5 lacked sufficient water, while MW-15 was buried beneath several feet of snow and inaccessible. No PCBs or relatively high metal concentration were detected at any of the wells. TPH was detected in two of the samples, at a concentration of 47.2 mg/L at MW-8 and 38.8 mg/L at MW-16.

Two of the four dataloggers installed at the Tier II Disposal Facility were removed for repairs in the south. VT-6 and VT-8 require repair due to an error caused by their

batteries being dead for an extending length of time. All other dataloggers and manual readings indicated the thermistors were functioning properly. Batteries were changed in all of the thermistors.

Based on the results of the Preliminary Stability Assessment, the Tier II Disposal Facility has an acceptable severity rating.

#### 4.2 VISUAL INSPECTION REPORT

The Visual Inspection Checklist/Report has been completed as per the TOR and is included as Table X of this report. Please refer to Figure CAM-4.3 for a sketch of the Tier II Disposal Facility detailing the location of photographs and erosional features.

#### Table X. Visual Inspection Checklist / Report – Tier II Disposal Facility

# DEW LINE CLEANUP: POST-CONSTRUCTION – LANDFILL MONITORING VISUAL INSPECTION CHECKLIST INSPECTION REPORT – PAGE 1 of 2

**SITE NAME**: CAM-4 Pelly Bay

LANDFILL DESIGNATION: Tier II Disposal Facility

**DATE OF INSPECTION**: September 4<sup>th</sup>, 2013

**DATE OF PREVIOUS INSPECTION**: August 21<sup>st</sup> and 22<sup>nd</sup>, 2010

**INSPECTED BY:** B. MacKay

**REPORT PREPARED BY:** B. MacKay

**MONITORING EVENT:** 6

The inspector/reporter represents to the best of his/her knowledge that the following statements and observations are true and correct and to the best of the preparer's actual knowledge, no material facts have been suppressed or misstated.

Checklist Item	Present (Yes/No)	Location	Length (m)	Width (m)	Depth (m)	Extent	Description	Photographic Record	Severity Rating	Additional Comments						
Settlement	Yes	FEATURE A See Figure CAM-4.3	1.00	0.20	0.05		Minor depressions.	58 and 59	Acceptable	Minor linear depressions on mid-slope. Decreased in size since 2010.						
		FEATURE G See Figure CAM-4.3	0.60	0.40	0.10	0	Minor depressions.	60 and 61	Acceptable	New Observation: Minor linear depressions on the northeast side slope.						
		FEATURE H See Figure CAM-4.3	1.00	0.20	0.05					Occasional 0.05			Minor depressions.	62 and 63	Acceptable	New Observation: Minor linear depressions on the northeast side slope.
		FEATURE I See Figure CAM-4.3	0.20	0.20	0.10		2 x Minor depressions.	64 and 65	Acceptable	New Observation: Two minor circular depressions on the west corner side slope.						
Erosion	Yes	FEATURE B See Figure CAM-4.3	40.00	1.00-3.00	0.05–0.10	N/A	Minor erosion along southwest toe.	N/A	Unknown	Not in contact with landfill cover. Feature not observed due to snow cover.						
		FEATURE C See Figure CAM-4.3	20.00	1.00	0.02-0.03	N/A	Minor erosion along northwest toe.	N/A	Unknown	Not in contact with landfill cover. Feature not observed due to snow cover.						
Frost Action	No	N/A	N/A	N/A	N/A	N/A	N/A	N/A	Not Observed	N/A						
Animal Burrows	No	N/A	N/A	N/A	N/A	N/A	N/A	N/A	Not Observed	N/A						
Vegetation	No	N/A	N/A	N/A	N/A	N/A	N/A	N/A	Not Observed	N/A						
Staining	Yes	FEATURE D See Figure CAM-4.3	1.00-1.50	0.30-0.40	Unknown	Isolated	Minor staining along seepage path.	N/A	Unknown	Minor rust-coloured staining associated with seepage point along northwest toe of facility. Feature not observed due to snow cover.						
Vegetation Stress	No	N/A	N/A	N/A	N/A	N/A	N/A	N/A	Not Observed	N/A						
Seepage Points	Yes	FEATURE F See Figure CAM-4.3	0.50-1.00	0.20	N/A	Isolated	Minor seepage along toe of slope.	N/A	Unknown	Localized seepage. Feature not observed due to snow cover.						
Debris Exposed	No	N/A	N/A	N/A	N/A	N/A	N/A	N/A	Not Observed	N/A						
Presence/Condition of Monitoring Instruments	Yes	See Figure CAM-4.3 and Photographic Record	N/A	N/A	N/A	None	MW-5, 8, 9, 14A/B, 15 VT-5 ,6, 7, 8.	3, 4, 7, 8, 11, 12, 15, 16, 19, 20, 23, 30, 44, 47, 50 and 55	N/A	All monitoring wells and thermistors in good condition with the exception of VT-6 and VT-8 which were removed for repairs.						
Other Features of Note:	No	N/A	N/A	N/A	N/A	N/A	N/A	N/A	Not Observed	N/A						
Additional Photos	Yes	See Figure CAM-4.3 and Photographic Record	N/A	N/A	N/A	N/A	General Photographic Record.	N/A	N/A	General photos for documentation, no features of note.						

#### 4.3 PRELIMINARY STABILITY ASSESSMENT

The Preliminary Stability Assessment for Tier II Disposal Facility has been completed as per the TOR and is included as Table XI hereafter.

Table XI. Preliminary Stability Assessment – Tier II Disposal Facility

Feature	Severity Rating	Extent	
Settlement	Acceptable	Occasional	
Erosion	Not observed	None (visible)	
Frost Action	Not observed	None	
Staining	Not observed	None (visible)	
Vegetation Stress	Not observed	None	
Seepage/Ponded Water	Not observed	None	
Debris Exposure	Not observed	None	
Overall Landfill Performance	Acceptable		

#### 4.4 LOCATION PLAN

The Location Plan for the Tier II Disposal Facility has been completed as per the TOR and is included in the following page as Figure CAM-4.3 Pelly Bay – Tier II Disposal Facility.

#### 4.5 THERMISTOR ANNUAL MAINTENANCE REPORTS

The thermistor inspection reports VT-5 to VT-8 are presented in this section.

	Ground	i emperatui	e Alliluai	Walli	enance.	Kepoi	·	
Contractor Name:	Biogenie/Sila	Remediation	Inc.	Insp	ection Date	:	August-3	1-13
Prepared By:	Brandon Mac							
Thermistor Informa		Theoreeist	!		T' !! D'		- 1114	
Site Name: Thermistor Numbe	CAM-4	Inclination	or Location		Tier II Disp Vertical	osai Fa	cility	
Install Date:	13-Aug-06				18-Aug-13	l act Da	to Event	31-Aug-13
Coordinates and E		N 10033.5		E	10043.8		Elev	319.18
Length of Cable (m		Cable Lead Ab			Nodal Poin		10	010.10
Datalogger Serial #				,	Cable Seria			1622
Thermistor Inspe	<u>ction</u>							
		Good	_	Need	ds Maintena	nce		
Casing		<b>~</b>						
Cover		⊽						
Data Log	ıger	▽						
Cable		<u> </u>						
Beads		⊽						
		_						
Battery Ir	Battery Installation Date		10					
Battery L	evels	Main	11.34 V			Aux	12.17	
Manual Ground T	omporaturo Po	adings						
Bead	ohms	Temp. (ºC)	1		Bead	ohms	Te	mp. (ºC)
1	16.464	-0.1277	1		9	20.89		4.7028
2	14.998	1.7004	1		10	21.76		5.4739
3	16.404	-0.0565	1					
4	16.293	0.0759						
5	17.102	-0.8671						
6	18.351	-2.2289	]					
7	19.195	-3.0917	]					
8	19.919	-3.7986						
Observations and	d Proposed Mai	ntenance						
	ock: 3:05:11 behir							
1.0001010		· · <del>- ·</del>						

Contractor Name:	Biogenie/Sil	a Remediation I	nc.	Insp	ection Date	: .	August-31-13	
Prepared By:	Brandon Ma	сКау						
Thermistor Informa	ation							
Site Name:	CAM-4 Thermistor Location				Tier II Disp	oosal Faci	lity	
Thermistor Numbe	er: <b>VT-6</b>	Inclination	า		Vertical			
Install Date:	13-Aug-0	6 First Date	e Event		N/A	Last Date	Event <b>N/A</b>	
Coordinates and E		N 10090		Е	10060.8		Elev	319.1
Length of Cable (m		2 Cable Lead Abo	ove Ground (m)	1.2	Nodal Poin		10	
Datalogger Serial #	<sup>‡</sup> 10803	8			Cable Seria	al Number		162
Thermistor Inspe	<u>ction</u>	Good	-	Nee	ds Maintena	ance		
Casing		<b>▽</b>						
Cover		<b>V</b>						
Data Log	gger					for repair		
Cable		~						
Beads		<b>~</b>						
Battery In	nstallation Date	31-Aug-1	3					
Battery L	evels	Main	Main		Aux			
Manual Ground T	emperature Re	eadings	ī		Г			
Bead	ohms	Temp. (⁰C)			Bead	ohms	Temp. (	ºC)
1	14.673	2.1329			9	21.15	-4.936	9
2	16.024	0.4012			10	21.35	-5.114	9
3	16.362	-0.0065						
4	16.379	-0.0268						
5	16.984	-0.7327	]					
			1		1			

#### Observa

17.995

19.215

20.16

-1.8516

-3.1116

-4.0275

6

7

8

ĉ	ations and Proposed Maintenance
	Error caused by dead battery for extended time period, datalogger removed for repair, no data to retrieve.

Length of Cable (m) 6.2 Cable Lead Above Ground (m) 1.2 Nodal Points 10	Contractor Name:	Biogenie/Sila	a Remediation I	nc.	Inspec	ction Date	:	August-3	1-13
Thermistor Number: VT-7	Prepared By:	Brandon Mad	cKay		•				
Thermistor Number: VT-7									
Thermistor Number:   VT-7			<u> </u>	1 0					
Install Date:   13-Aug-06   First Date Event   18-Aug-13   Last Date Event   31-Aug-06   Coordinates and Elevation   N   10097.1   E   10100.4   Elev   31							osal Fac	ility	
Coordinates and Elevation							Lact Date	a Event	21_Aug-
Length of Cable (m)         6.2   Cable Lead Above Ground (m)         1.2   Nodal Points         10           Cable Serial Mumber           Thermistor Inspection           Good									31-Aug- 319.
Cable   Serial Number									010.
Casing				( )					16
Casing									
Casing Cover  Data Logger  Cable  Beads  Battery Installation Date  Battery Levels  Main  11.34 V  Aux  13.5 V  Manual Ground Temperature Readings  Bead ohms Temp. (°C)  1 16.276 0.0963  2 16.480 -0.1466  3 16.971 -0.7178  4 18.010 -1.8677  5 18.978 -2.8740  6 19.967 -3.8444  7 20.75 -4.5753  8 21.73 -5.4479  Deservations and Proposed Maintenance	Thermistor Inspecti	<u>on</u>	0 1						
Cover			<u>Good</u>	_		Maintena	ince		
Data Logger       ✓         Cable       ✓         Beads       ✓         Battery Installation Date       31-Aug-13         Battery Levels       Main       11.34 V         Aux       13.5 V         Manual Ground Temperature Readings       Bead ohms Temp. (°C)         1       16.276       0.0963         2       16.480       -0.1466         3       16.971       -0.7178         4       18.010       -1.8677         5       18.978       -2.8740         6       19.967       -3.8444         7       20.75       -4.5753         8       21.73       -5.4479	Casing		<b>▽</b>						
Data Logger       ✓         Cable       ✓         Beads       ✓         Battery Installation Date       31-Aug-13         Battery Levels       Main       11.34 V         Aux       13.5 V         Manual Ground Temperature Readings       Bead ohms Temp. (°C)         1       16.276       0.0963         2       16.480       -0.1466         3       16.971       -0.7178         4       18.010       -1.8677         5       18.978       -2.8740         6       19.967       -3.8444         7       20.75       -4.5753         8       21.73       -5.4479	Cover		✓						
Cable         Beads       ✓         Battery Installation Date       31-Aug-13         Battery Levels       Main       11.34 V       Aux       13.5 V         Manual Ground Temperature Readings         Bead       ohms       Temp. (°C)         1       16.276       0.0963         2       16.480       -0.1466         3       16.971       -0.7178         4       18.010       -1.8677         5       18.978       -2.8740         6       19.967       -3.8444         7       20.75       -4.5753         8       21.73       -5.4479     Dbservations and Proposed Maintenance									
Beads  Battery Installation Date  Battery Levels  Main  11.34 V  Aux  13.5 V   Manual Ground Temperature Readings  Bead ohms Temp. (°C)  1 16.276 0.0963  2 16.480 -0.1466  3 16.971 -0.7178  4 18.010 -1.8677  5 18.978 -2.8740  6 19.967 -3.8444  7 20.75 -4.5753  8 21.73 -5.4479   Descryptions and Proposed Maintenance	Data Logge	er ·	<u>~</u>		<u> </u>				
Battery Installation Date  Battery Levels  Main  11.34 V  Aux  13.5 V  Manual Ground Temperature Readings  Bead ohms Temp. (°C)  1 16.276 0.0963 2 16.480 -0.1466 3 16.971 -0.7178 4 18.010 -1.8677 5 18.978 -2.8740 6 19.967 -3.8444 7 20.75 -4.5753 8 21.73 -5.4479  Descriptions and Proposed Maintenance	Cable		<b>▽</b>						
Battery Levels   Main   11.34 V	Beads		<b>~</b>						
Battery Levels   Main   11.34 V	Battery Inst	allation Date	31-Aug-1	3					
Bead   Ohms   Temp. (°C)   Bead   Ohms   Temp. (°C)   9   22.66   -6.2361   -6.8858									
Bead         ohms         Temp. (°C)           1         16.276         0.0963         9         22.66         -6.2361           2         16.480         -0.1466         10         23.46         -6.8858           3         16.971         -0.7178         -0.717	Battery Lev	els	Main	11.34 V			_Aux	13.5 V	
Bead         ohms         Temp. (°C)           1         16.276         0.0963           2         16.480         -0.1466           3         16.971         -0.7178           4         18.010         -1.8677           5         18.978         -2.8740           6         19.967         -3.8444           7         20.75         -4.5753           8         21.73         -5.4479									
1     16.276     0.0963     9     22.66     -6.2361       2     16.480     -0.1466     10     23.46     -6.8858       3     16.971     -0.7178       4     18.010     -1.8677       5     18.978     -2.8740       6     19.967     -3.8444       7     20.75     -4.5753       8     21.73     -5.4479    Observations and Proposed Maintenance	Manual Ground Ter	nperature Re	adings						
1     16.276     0.0963       2     16.480     -0.1466       3     16.971     -0.7178       4     18.010     -1.8677       5     18.978     -2.8740       6     19.967     -3.8444       7     20.75     -4.5753       8     21.73     -5.4479   Observations and Proposed Maintenance		ohms	Town (0C)			Read		_	np. (°C)
2 16.480 -0.1466 3 16.971 -0.7178 4 18.010 -1.8677 5 18.978 -2.8740 6 19.967 -3.8444 7 20.75 -4.5753 8 21.73 -5.4479   Observations and Proposed Maintenance	Bead	0111110	remp. (%)			DCaa	onms	Ter	
3 16.971 -0.7178 4 18.010 -1.8677 5 18.978 -2.8740 6 19.967 -3.8444 7 20.75 -4.5753 8 21.73 -5.4479   Observations and Proposed Maintenance									
4 18.010 -1.8677 5 18.978 -2.8740 6 19.967 -3.8444 7 20.75 -4.5753 8 21.73 -5.4479  Observations and Proposed Maintenance	1	16.276	0.0963			9	22.66	-6	i.2361
5 18.978 -2.8740 6 19.967 -3.8444 7 20.75 -4.5753 8 21.73 -5.4479  Observations and Proposed Maintenance	1 2	16.276 16.480	0.0963 -0.1466		_	9	22.66	-6	i.2361
6 19.967 -3.8444 7 20.75 -4.5753 8 21.73 -5.4479  Observations and Proposed Maintenance	1 2 3	16.276 16.480 16.971	0.0963 -0.1466 -0.7178	  -  -	-  -  -	9	22.66	-6	i.2361
7 20.75 -4.5753 8 21.73 -5.4479  Observations and Proposed Maintenance	1 2 3 4	16.276 16.480 16.971 18.010	0.0963 -0.1466 -0.7178 -1.8677		-  -  -  -	9	22.66	-6	i.2361
8 21.73 -5.4479  Observations and Proposed Maintenance	1 2 3 4	16.276 16.480 16.971 18.010	0.0963 -0.1466 -0.7178 -1.8677		-  -  -  -	9	22.66	-6	i.2361
Observations and Proposed Maintenance	1 2 3 4 5	16.276 16.480 16.971 18.010 18.978	0.0963 -0.1466 -0.7178 -1.8677 -2.8740		-  -  -  -  -	9	22.66	-6	i.2361
	1 2 3 4 5 6	16.276 16.480 16.971 18.010 18.978 19.967	0.0963 -0.1466 -0.7178 -1.8677 -2.8740 -3.8444		-	9	22.66	-6	i.2361
	1 2 3 4 5 6 7	16.276 16.480 16.971 18.010 18.978 19.967 20.75	0.0963 -0.1466 -0.7178 -1.8677 -2.8740 -3.8444 -4.5753		-	9	22.66	-6	i.2361
Reset clock: 2:54:27 behind	1 2 3 4 5 6 7 8	16.276 16.480 16.971 18.010 18.978 19.967 20.75 21.73	0.0963 -0.1466 -0.7178 -1.8677 -2.8740 -3.8444 -4.5753 -5.4479		-	9	22.66	-6	i.2361
	1 2 3 4 5 6 7 8 Observations and F	16.276 16.480 16.971 18.010 18.978 19.967 20.75 21.73	0.0963 -0.1466 -0.7178 -1.8677 -2.8740 -3.8444 -4.5753 -5.4479 intenance		-	9	22.66	-6	i.2361
	1 2 3 4 5 6 7 8 Observations and F	16.276 16.480 16.971 18.010 18.978 19.967 20.75 21.73	0.0963 -0.1466 -0.7178 -1.8677 -2.8740 -3.8444 -4.5753 -5.4479 intenance			9	22.66	-6	i.2361
	1 2 3 4 5 6 7 8 Dbservations and F	16.276 16.480 16.971 18.010 18.978 19.967 20.75 21.73	0.0963 -0.1466 -0.7178 -1.8677 -2.8740 -3.8444 -4.5753 -5.4479 intenance			9	22.66	-6	i.2361
	1 2 3 4 5 6 7 8 Dbservations and F	16.276 16.480 16.971 18.010 18.978 19.967 20.75 21.73	0.0963 -0.1466 -0.7178 -1.8677 -2.8740 -3.8444 -4.5753 -5.4479 intenance			9	22.66	-6	i.2361
	1 2 3 4 5 6 7 8 Dbservations and F	16.276 16.480 16.971 18.010 18.978 19.967 20.75 21.73	0.0963 -0.1466 -0.7178 -1.8677 -2.8740 -3.8444 -4.5753 -5.4479 intenance			9	22.66	-6	5.2361

Contractor Name:	Biogenie/Sila	Remediation I	nc.	Insp	ection Date:		August-31-13	
Prepared By:	Brandon Mac	ndon MacKay						
		•						
Thermistor Informat								
Site Name:	CAM-4		or Location		Tier II Disp	osal Faci	lity	
Thermistor Number:	-	Inclination			Vertical		- · N/4	
Install Date: Coordinates and Ele	13-Aug-06	First Date N <b>10050.8</b>		E	N/A 10086.6	Last Date	Event N/A Elev	210.1
Length of Cable (m)		Cable Lead Abo			Nodal Points		10	319.1
Datalogger Serial #	108038	Cable Lead Abo	ove Ground (III)	1.1	Cable Serial		10	162
Datalogger Ochai #	100030				Oabic Ochai	Number		102
Thermistor Inspec	tion							
		Good	_	Nee	ds Maintenar	nce		
Casing		~						
Casing		<u> </u>		_				
Cover		<b>▽</b>		Ш.				
Data Logo	ıer			<b>V</b>	Removed for	or repair		
	, -			п.				
Cable		<b>▽</b>		ш.				
Beads		~						
Battery Ins	stallation Date	31-Aug-1	3					
Battery Le	vels	Main				Aux		
Dationy Lo		TVC				, lan		
Manual Ground Te	mperature Rea	adings	-					
Bead	ohms	Temp. (⁰C)			Bead	ohms	Temp. (	°C)
1	14.001	3.0623			9	21.43	-5.185	-
2	16.527	0.2021			10	22.28	-5.918	5
3	16.281	0.0903						
4	16.358	-0.0018						
5	16.733	-0.4433						
6	18.04	-1.8997						
7	19.50							
		-3.3930						
8	20.54	-4.3824	l					
Observations and	Proposed Mair	ntenance						
	upuuu man				atalogger re			

#### 4.6 PHOTOGRAPHIC RECORDS

The Photographic Record for the Tier II Disposal Facility has been completed as per the TOR and is included in the following pages as Table XII. Full-sized photographs are contained in the Addendum DVD-ROM.

### Table XII. Landfill Visual Inspection Photo Log - Tier II Disposal Facility

	Photo	Filename	Size (MB)	Date	Vantag	e Point	Focal	Caption
2 2013-C4-TIN-2 8.56 02/09/2013 398698 7594464 10mm MV-16 - Close-up of closed soil test pit. 3 2013-C4-TIN-4 6.87 02/09/2013 398698 7594464 10mm MV-16 - Close-up of monitoring well. 4 2013-C4-TIN-6 6.87 02/09/2013 398698 7594434 10mm MV-16 - Close-up of closed soil test pit. 5 2013-C4-TIN-6 5.31 02/09/2013 398798 7594434 10mm MV-8 - Close-up of closed soil test pit. 7 2013-C4-TIN-6 5.31 02/09/2013 398798 7594434 10mm MV-8 - Close-up of closed soil test pit. 8 2013-C4-TIN-8 8.23 02/09/2013 398799 7594434 10mm MV-8 - Close-up of closed soil test pit. 9 2013-C4-TIN-9 8.29 03/09/2013 398799 7594434 10mm MV-8 - Close-up of closed soil test pit. 10 2013-C4-TIN-10 8.29 03/09/2013 398829 7594434 10mm MV-8 - Close-up of closed soil test pit. 11 2013-C4-TIN-11 5.33 03/09/2013 398829 7594396 17mm MV-9 - Close-up of closed soil test pit. 12 2013-C4-TIN-12 5.33 03/09/2013 398813 7594335 17994336 17mm MV-9 - Close-up of closed soil test pit. 12 2013-C4-TIN-13 5.70 03/09/2013 398813 7594335 17994335 17994 1799 1799 1799 1799 1799 1799 179			` ,			)		·
3 2013-C4-TII-3 6.88 02/09/2013 388688 7594460 10mm MW-16 - View NF - Olose-up of monitoring well. 5 2013-C4-TII-4 6.87 02/09/2013 388681 7594437 10mm MW-8 - Close-up of copen soil test pit. 6 2013-C4-TII-6 5.10 02/09/2013 388787 7594437 10mm MW-8 - Close-up of closed soil test pit. 7 2013-C4-TII-6 7.77 02/09/2013 388787 7594434 10mm MW-8 - Close-up of closed soil test pit. 8 2013-C4-TII-8 8.15 02/09/2013 388790 7594434 12mm MW-8 - Close-up of closed soil test pit. 9 2013-C4-TII-10 8.20 02/09/2013 388823 7594396 17mm MW-9 - Close-up of closed soil test pit. 10 2013-C4-TII-10 8.20 02/09/2013 388823 7594396 17mm MW-9 - Close-up of closed soil test pit. 11 2013-C4-TII-11 5.13 03/09/2013 388824 7594398 17mm MW-9 - Close-up of closed soil test pit. 12 2013-C4-TII-12 5.13 03/09/2013 388813 75943335 17mm MW-9 - Close-up of closed soil test pit. 13 2013-C4-TII-14 6.13 03/09/2013 388813 75943335 17mm MW-9 - Close-up of closed soil test pit. 14 2013-C4-TII-14 5.33 03/09/2013 388693 75943335 17mm MW-9 - Close-up of closed soil test pit. 15 2013-C4-TII-15 5.33 03/09/2013 388693 75943335 17mm MW-9 - Close-up of closed soil test pit. 16 2013-C4-TII-16 5.33 03/09/2013 388693 7594322 17mm MW-9 - Close-up of closed soil test pit. 17 2013-C4-TII-17 7.98 03/09/2013 386693 7594322 17mm MW-9 - Close-up of closed soil test pit. 18 2013-C4-TII-18 5.15 03/09/2013 386693 7594322 17mm MW-1-14 - Close-up of closed soil test pit. 19 2013-C4-TII-26 6.20 03/09/2013 386693 7594322 17mm MW-1-14 - Close-up of closed soil test pit. 20 2013-C4-TII-27 5.60 03/09/2013 386693 7594322 17mm MW-1-14 - Close-up of closed soil test pit. 21 2013-C4-TII-28 5.13 03/09/2013 386693 7594322 17mm MW-1-14 - Close-up of closed soil test pit. 22 2013-C4-TII-29 5.22 03/09/2013 386693 7594322 17mm MW-1-14 - Close-up of closed soil test pit. 23 2013-C4-TII-29 5.22 03/09/2013 386693 7594322 17mm MW-1-14 - Close-up of closed soil test pit. 24 2013-C4-TII-29 6.00 03/09/2013 388693 7594382 17mm MW-1-14 - Close-up of closed soil test pit. 25 2013-C4-TII-29 5.41 04/09/201								
4 2013-C4-TIH-4 6.87 02/09/2013 388681 7594459 10mm MW-16-view NE- of monitoring well. 5 2013-C4-TIH-6 5.31 02/09/2013 388787 7594434 710mm MW-8- Close-up of closed soil test pit. 7 2013-C4-TIH-6 5.31 02/09/2013 388797 7594434 24mm MW-8- Close-up of closed soil test pit. 8 2013-C4-TIH-8 8.23 02/09/2013 388790 7594434 24mm MW-8- Close-up of closed soil test pit. 9 2013-C4-TIH-9 8.29 03/09/2013 388790 7594434 24mm MW-8- Close-up of closed soil test pit. 10 2013-C4-TIH-10 8.29 03/09/2013 388823 7594396 17mm MW-9- Close-up of closed soil test pit. 11 2013-C4-TIH-11 5.33 03/09/2013 388823 7594396 17mm MW-9- Close-up of closed soil test pit. 11 2013-C4-TIH-12 5.33 03/09/2013 388813 7594335 24mm MW-9- Close-up of closed soil test pit. 12 2013-C4-TIH-13 5.70 03/09/2013 388813 7594335 24mm MW-9- Close-up of closed soil test pit. 14 2013-C4-TIH-14 6.43 03/09/2013 388813 7594335 24mm MW-9- Close-up of closed soil test pit. 15 2013-C4-TIH-15 5.20 03/09/2013 388813 7594335 24mm MW-9- Close-up of closed soil test pit. 16 2013-C4-TIH-16 5.26 03/09/2013 388893 7594335 24mm MW-9- Close-up of closed soil test pit. 17 2013-C4-TIH-17 7.93 03/09/2013 388893 7594323 12mm MW-9- Close-up of closed soil test pit. 18 2013-C4-TIH-18 8.55 03/09/2013 388699 7594323 12mm MW-1-4- Close-up of closed soil test pit. 19 2013-C4-TIH-19 5.15 03/09/2013 386899 7594322 12mm MW-1-4- Close-up of fornoticing well. 20 2013-C4-TIH-26 5.20 03/09/2013 386899 7594322 12mm MW-1-4- Close-up of fornoticing well. 21 2013-C4-TIH-26 5.20 03/09/2013 386899 7594322 12mm MW-1-4- Close-up of fornoticing well. 22 2013-C4-TIH-26 5.20 03/09/2013 386899 7594322 12mm MW-1-4- Close-up of fornoticing well. 23 2013-C4-TIH-26 5.20 03/09/2013 386899 7594322 12mm MW-1-4- Close-up of fornoticing well. 24 2013-C4-TIH-26 5.20 03/09/2013 386899 7594322 12mm MW-1-4- Close-up of fornoticing well. 25 2013-C4-TIH-26 5.20 03/09/2013 386899 7594322 12mm MW-1-4- Close-up of fornoticing well. 26 2013-C4-TIH-26 5.20 03/09/2013 386899 7594322 12mm MW-1-4- Close-up of fornoticing well. 27 201								
5 2013-C4-THI-6 6.45 02/09/2013 388787 7594437 10mm MW-8 - Close-up of open soll test pit.  7 2013-C4-THI-6 7.37 02/09/2013 388790 7594434 24mm MW-8 - Close-up of closed soll test pit.  8 2013-C4-THI-8 8.15 02/09/2013 388790 7594434 24mm MW-8 - Close-up of closed soll test pit.  9 2013-C4-THI-9 8.15 02/09/2013 388790 7594434 24mm MW-8 - Close-up of closed soll test pit.  10 2013-C4-THI-10 8.15 02/09/2013 388823 7594369 17mm MW-8 - Close-up of open soll test pit.  11 2013-C4-THI-11 5.13 02/09/2013 388823 7594369 17mm MW-9 - Close-up of closed soll test pit.  11 2013-C4-THI-12 5.13 02/09/2013 388823 7594369 17mm MW-9 - Close-up of closed soll test pit.  11 2013-C4-THI-13 5.70 02/09/2013 388813 7594338 17mm MW-9 - Close-up of closed soll test pit.  12 2013-C4-THI-14 5.13 02/09/2013 388813 7594335 17mm MW-9 - Close-up of closed soll test pit.  13 2013-C4-THI-15 5.33 02/09/2013 388813 7594335 17mm MW-9 - Close-up of closed soll test pit.  14 2013-C4-THI-15 5.33 02/09/2013 388813 7594335 17mm MW-9 - Close-up of closed soll test pit.  15 2013-C4-THI-16 5.33 02/09/2013 388893 7594323 12mm MW-5 - Close-up of monitoring well.  16 2013-C4-THI-16 7.98 02/09/2013 388699 7594323 12mm MW-5 - Close-up of closed soll test pit.  17 2013-C4-THI-19 5.15 02/09/2013 388699 7594322 12mm MW-14- Close-up of closed soll test pit.  18 2013-C4-THI-19 5.15 02/09/2013 388699 7594322 12mm MW-14- Close-up of closed soll test pit.  20 2013-C4-THI-19 5.15 02/09/2013 388699 7594322 12mm MW-14- Close-up of closed soll test pit.  21 2013-C4-THI-29 6.16 02/09/2013 388699 7594322 12mm MW-14- Close-up of closed soll test pit.  22 2013-C4-THI-29 6.16 02/09/2013 388699 7594322 12mm MW-14- Close-up of closed soll test pit.  23 2013-C4-THI-30 6.60 02/09/2013 388699 7594322 12mm MW-14- Close-up of closed soll test pit.  24 2013-C4-THI-30 6.60 02/09/2013 388699 7594322 12mm MW-14- Close-up of closed soll test pit.  25 2013-C4-THI-30 6.60 02/09/2013 388699 7594322 12mm MW-14- Close-up of closed soll test pit.  26 2013-C4-THI-30 6.60 02/09/2013 388699 759432								
6 2013-C4-TH-6 5.31 (2009/2013) 388787 7594430 10mm MW-9 - Close-up of closed soil test ptr. 7 2013-C4-TH-8 12.37 (2009/2013) 388790 7594430 24mm MW-9 - Close-up of monitoring well. 8 2013-C4-TH-8 18.23 (2009/2013) 388790 7594430 24mm MW-9 - Close-up of monitoring well. 9 2013-C4-TH-9 8.19 (3009/2013) 388823 7594396 17mm MW-9 - View NE - of monitoring well. 11 2013-C4-TH-10 8.29 (3009/2013) 388823 7594396 17mm MW-9 - Close-up of open soil test ptr. 11 2013-C4-TH-11 6.13 (3009/2013) 388823 7594396 17mm MW-9 - Close-up of closed soil test ptr. 11 2013-C4-TH-11 6.13 (3009/2013) 388813 7594398 17mm MW-9 - Close-up of monitoring well. 11 2013-C4-TH-14 6.43 (3009/2013) 388813 7594335 24mm MW-9 - Close-up of monitoring well. 11 2013-C4-TH-14 6.43 (3009/2013) 388813 7594335 24mm MW-9 - Close-up of monitoring well. 11 2013-C4-TH-14 6.43 (3009/2013) 388813 7594335 24mm MW-9 - Close-up of pen soil test ptr. 12 2013-C4-TH-14 6.43 (3009/2013) 388813 7594335 24mm MW-9 - Close-up of pen soil test ptr. 13 2013-C4-TH-14 6.43 (3009/2013) 388813 7594335 24mm MW-9 - Close-up of pen soil test ptr. 14 2013-C4-TH-14 6.52 (3009/2013) 388891 7594323 12mm MW-9 - Close-up of pen soil test ptr. 14 2013-C4-TH-14 6.52 (3009/2013) 388898 7594323 12mm MW-9 - Close-up of pen soil test ptr. 14 2013-C4-TH-14 6.55 (3009/2013) 388898 7594322 12mm MW-14 - Close-up of closed soil test ptr. 14 2013-C4-TH-12 6.00 (3009/2013) 388898 7594322 12mm MW-14 - Close-up of closed soil test ptr. 14 2013-C4-TH-12 6.00 (3009/2013) 388898 7594322 12mm MW-14 - Close-up of closed soil test ptr. 14 2013-C4-TH-12 6.00 (3009/2013) 388898 7594322 12mm MW-14 - Close-up of closed soil test ptr. 14 2013-C4-TH-12 6.00 (3009/2013) 388898 7594322 12mm MW-14 - Close-up of closed soil test ptr. 14 2013-C4-TH-12 6.00 (3009/2013) 388898 7594322 12mm MW-14 - Close-up of closed soil test ptr. 14 2013-C4-TH-13 6.50 (3009/2013) 388898 7594322 12mm MW-14 - Close-up of closed soil test ptr. 14 2013-C4-TH-13 6.50 (3009/2013) 388898 7594322 12mm MW-14 - Close-up of closed soil test ptr.								
7 2013-C4-TH-17 7.37 (2009/2013 38870 7594434 24mm MW-3 - Close-up of monitoring well. 8 2013-C4-TH-18 8.15 (3009/2013 388823 7594343 24mm MW-3 - Close-up of open soil test pit. 10 2013-C4-TH-10 8.15 (3009/2013 388823 7594396 17mm MW-9 - Close-up of open soil test pit. 11 2013-C4-TH-11 6.13 (3009/2013 388824 7594396 17mm MW-9 - Close-up of open soil test pit. 11 2013-C4-TH-12 6.13 (3009/2013 388824 7594396 17mm MW-9 - Close-up of open soil test pit. 11 2013-C4-TH-13 6.70 (3009/2013 388813 7594396 17mm MW-9 - Close-up of open soil test pit. 11 2013-C4-TH-13 6.70 (3009/2013 388813 7594396 17mm MW-9 - Close-up of open soil test pit. 11 2013-C4-TH-14 6.13 (3009/2013 388813 7594336 17mm MW-9 - Close-up of open soil test pit. 11 2013-C4-TH-14 6.03 (3009/2013 388814 7594336 17mm MW-9 - Close-up of open soil test pit. 11 2013-C4-TH-14 6.03 (3009/2013 388814 7594336 12mm MW-9 - Close-up of open soil test pit. 12 2013-C4-TH-16 6.15 (3009/2013 388814 7594335 42mm MW-9 - Close-up of open soil test pit. 13 2013-C4-TH-16 6.15 (3009/2013 388868 7594323 12mm MW-14 - Close-up of open soil test pit. 14 2013-C4-TH-18 6.15 (3009/2013 388680 7594322 12mm MW-14 - Close-up of open soil test pit. 15 2013-C4-TH-19 6.15 (3009/2013 388680 7594322 12mm MW-14 - Close-up of open soil test pit. 16 2013-C4-TH-19 6.15 (3009/2013 388680 7594322 12mm MW-14 - Close-up of open soil test pit. 17 2013-C4-TH-19 6.15 (3009/2013 388680 7594322 12mm MW-14 - Close-up of open soil test pit. 18 2013-C4-TH-19 6.15 (3009/2013 388680 7594322 12mm MW-14 - Close-up of open soil test pit. 20 2013-C4-TH-20 6.04 (3009/2013 388680 7594322 12mm MW-14 - Close-up of open soil test pit. 21 2013-C4-TH-20 6.04 (3009/2013 388680 7594322 12mm MW-14 - Close-up of open soil test pit. 22 2013-C4-TH-20 6.04 (3009/2013 388680 7594322 12mm MW-14 - Close-up of open soil test pit. 23 2013-C4-TH-20 6.04 (3009/2013 388680 7594322 12mm MW-14 - Close-up of open soil test pit. 24 2013-C4-TH-30 6.06 (4009/2013 388680 7594362 10mm MW-14 - Close-up of open soil test pit. 25 2013-C4-TH-30								
8 2013-C4-Til-8 8.23 (2092/2013 388790 7594434) 24mm MW-9 - View NE - of monitoring well. 9 2013-C4-Til-10 8.29 (3092/2013 388823 7594396) 17mm MW-9 - Close-up of open soil test pit. 10 2013-C4-Til-11 5.33 (3092/2013 388824) 7594398 17mm MW-9 - Close-up of open soil test pit. 11 2013-C4-Til-12 5.33 (3092/2013 388813 7594398 17mm MW-9 - Close-up of open soil test pit. 12 2013-C4-Til-12 5.33 (3092/2013 388813 7594398 17mm MW-9 - Close-up of open soil test pit. 13 2013-C4-Til-13 5.20 (3092/2013 388813 7594398 17mm MW-9 - Close-up of open soil test pit. 14 2013-C4-Til-14 5.43 (3092/2013 388813 7594393 17mm MW-9 - View SW - of monitoring well. 15 2013-C4-Til-15 5.26 (3092/2013 388813 7594335 17mm MW-9 - Close-up of open soil test pit. 16 2013-C4-Til-16 5.26 (3092/2013 38887) 7594335 17mm MW-9 - Close-up of open soil test pit. 17 2013-C4-Til-17 798 (3092/2013 388810 7594322 17mm MW-9 - Close-up of open soil test pit. 18 2013-C4-Til-19 6.56 (3092/2013 388868) 7594322 17mm MW-9 - Close-up of open soil test pit. 20 2013-C4-Til-20 6.00 (3092/2013 388688 7594322 17mm MW-14A-D - Close-up of open soil test pit. 20 2013-C4-Til-20 6.64 (3092/2013 388688 7594322 17mm MW-14A-D - Close-up of open soil test pit. 20 2013-C4-Til-20 6.59 (3092/2013 388688 7594322 17mm MW-14A-D - Close-up of open soil test pit. 20 2013-C4-Til-20 5.20 (3092/2013 388688 7594322 17mm MW-14A-D - Close-up of open soil test pit. 20 2013-C4-Til-20 5.20 (3092/2013 388688 7594322 17mm MW-14A-D - Close-up of obsed soil test pit. 20 2013-C4-Til-20 5.20 (3092/2013 388688 7594322 17mm MW-14A-D - Close-up of obsed soil test pit. 20 2013-C4-Til-20 5.20 (3092/2013 388688 7594322 17mm MW-14A-D - Close-up of obsed soil test pit. 20 2013-C4-Til-20 5.20 (3092/2013 388688 7594322 17mm MW-14B-D - Close-up of obsed soil test pit. 20 2013-C4-Til-30 5.40 (3092/2013 388688 7594322 17mm MW-14B-D - Close-up of obsed soil test pit. 20 2013-C4-Til-30 5.00 (3092/2013 388688 7594322 17mm MW-14B-D - Close-up of obsed soil test pit. 20 2013-C4-Til-30 5.00 (3092/2013 388688 7594322 17								
9 2013-C4-TH-10 8.15 0309/2013 388823 7594396 17mm MW-9 - Close-up of open soil test pit. 10 2013-C4-TH-11 5.13 0309/2013 388824 7594396 17mm MW-9 - Close-up of closed soil test pit. 11 2013-C4-TH-11 5.13 0309/2013 388824 7594396 17mm MW-9 - Close-up of closed soil test pit. 11 2013-C4-TH-13 6.70 0309/2013 388813 7594336 17mm MW-9 - Close-up of closed soil test pit. 11 2013-C4-TH-13 6.70 0309/2013 388813 7594336 17mm MW-9 - Close-up of closed soil test pit. 11 2013-C4-TH-14 6.70 0309/2013 388813 7594336 17mm MW-9 - Close-up of open soil test pit. 11 2013-C4-TH-15 5.33 0309/2013 388814 7594335 24mm MW-9 - Close-up of open soil test pit. 11 2013-C4-TH-16 5.26 0309/2013 388814 7594335 24mm MW-9 - Close-up of open soil test pit. 11 2013-C4-TH-17 7.98 0309/2013 388888 7594325 12mm MW-14A - Close-up of open soil test pit. 11 2013-C4-TH-18 6.55 0309/2013 388888 7594322 12mm MW-14A - Close-up of open soil test pit. 11 2013-C4-TH-19 5.15 0309/2013 388888 7594322 12mm MW-14A - Close-up of open soil test pit. 11 2013-C4-TH-19 5.15 0309/2013 388688 7594322 12mm MW-14A - Close-up of open soil test pit. 11 2013-C4-TH-16 6.29 0309/2013 388688 7594322 12mm MW-14A - Close-up of open soil test pit. 11 2013-C4-TH-16 6.29 0309/2013 388688 7594322 12mm MW-14A - Close-up of open soil test pit. 11 2013-C4-TH-12 6.29 0309/2013 388688 7594322 12mm MW-14A - Close-up of open soil test pit. 11 2013-C4-TH-12 6.29 0309/2013 388688 7594322 12mm MW-14A - Close-up of open soil test pit. 11 2013-C4-TH-12 6.29 0309/2013 388688 7594322 12mm MW-14A - Close-up of open soil test pit. 11 2013-C4-TH-13 6.58 0309/2013 388688 7594322 12mm MW-14A - Close-up of open soil test pit. 11 2013-C4-TH-13 6.59 0309/2013 388688 7594322 12mm MW-14B - Close-up of open soil test pit. 11 2013-C4-TH-13 6.59 0309/2013 388688 7594322 12mm MW-14B - Close-up of open soil test pit. 11 2013-C4-TH-13 6.59 0309/2013 388688 7594382 12mm MW-14B - Close-up of open soil test pit. 11 2013-C4-TH-13 6.59 0309/2013 388688 7594382 12mm MW-14B - Close-up of open soil test pit. 11 2013-C								
10   2013-C4-TIH-10   8.29   0309/2013   338823   7594398   17mm   MV-9 - Close-up of closed soil test pit.	9							
12   2013-C4-Th -12   5.33   03/09/2013   388813   7594336   17mm   MW-9 - View SW - of monitoring well.     13   2013-C4-Th -14   6.43   03/09/2013   388813   7594335   24mm   MW-5 - Close-up of pose lost lest pit.     15   2013-C4-Th -16   5.28   03/09/2013   388813   7594335   24mm   MW-5 - Close-up of posed lost pit.     16   2013-C4-Th -16   5.28   03/09/2013   388813   7594335   24mm   MW-5 - Close-up of posed lost pit.     17   2013-C4-Th -17   7.98   03/09/2013   388688   7594322   12mm   MW-6 - Close-up of open soil test pit.     18   2013-C4-Th -18   5.55   03/09/2013   388688   7594322   12mm   MW-14A - Close-up of open soil test pit.     19   2013-C4-Th -19   5.15   03/09/2013   388688   7594322   12mm   MW-14A - Close-up of posed lost pit.     19   2013-C4-Th -20   5.29   03/09/2013   388688   7594322   12mm   MW-14A - Close-up of posed lost pit.     10   2013-C4-Th -21   6.29   03/09/2013   388688   7594322   22mm   MW-14B - Close-up of open soil test pit.     12   2013-C4-Th -22   3.50   03/09/2013   388688   7594322   22mm   MW-14B - Close-up of open soil test pit.     13   2013-C4-Th -23   3.50   03/09/2013   388689   7594322   22mm   MW-14B - Close-up of open soil test pit.     28   2013-C4-Th -25   5.22   03/09/2013   388698   7594322   22mm   MW-14B - Close-up of open soil test pit.     29   2013-C4-Th -31   5.58   04/09/2013   388692   7594389   12mm   MW-15 - Close-up of open soil test pit.     30   2013-C4-Th -32   7.13   04/09/2013   388692   7594389   12mm   MW-15 - Close-up of closed soil test pit.     31   2013-C4-Th -33   6.15   04/09/2013   388692   7594389   10mm   MW-15 - Willow	10	2013-C4-TII-10	8.29	03/09/2013	388823	7594396	17mm	MW-9 - Close-up of closed soil test pit.
13   2013-C4-TH-14   6.4   30/90/2013   388813   7594335   24mm   MW-5 - Close-up of open soil test pit.								
14								
15   2013-C4-TIII-15   5.33   03/09/2013   388967   7594297   7594297   7594297   70mm   MW-5 - Close-up of ponitoring well.								
16								
17								
18								ū
19								
2013-C4-TII-20   6.00   03/09/2013   388699   7594322   22mm   MW-14B - Close-up of open soil test pit.								
222   2013-C4-TII-22   6.64   03/09/2013   388698   7594322   22mm   MW-148 - Close-up of closed soil test pit.	20	2013-C4-TII-20	6.00	03/09/2013	388689	7594322	10mm	
23	21	2013-C4-TII-21	6.29	03/09/2013	388698	7594322	22mm	MW-14B - Close-up of open soil test pit.
288   2013-C4-TII-28   5.13   03/09/2013   388692   7594389   12mm   MW-15 - Close-up of open soil test pit.								
298   2013-C4-TII-29   5.22   03/09/2013   388692   7594389   12mm   MW-15 - Close-up of closed soil test pit.								·
30   2013-C4-TII-30   3.46   03/09/2013   388692   7594389   10mm   MW-15 - View NW - of monitoring well - not wishle due to snow drift.								
30   2013-C4-TII-30   3-40   3093/2013   388669   7594336   10mm   View NE - of Tre II Disposal Facility from neighbouring mound.   10mm   View SE - of the southwest landfill toe from the bottom of the west corner.   10mm   View SE - of the southwest landfill toe from the bottom of the west corner.   10mm   View SE - of the southwest landfill toe from the bottom of the west corner.   10mm   View NE - of Tre of the northwest landfill toe from the bottom of the west corner.   10mm   View NE - of the northwest landfill toe from the bottom of the west corner.   10mm   View NE - of the northwest landfill toe from the bottom of the west corner.   10mm   10	29	2013-C4-11I-29	5.22	03/09/2013	388692	7594389	12mm	
31   2013-C4-TII-31   6.58   04/09/2013   388669   7594362   10mm   View NE - of Tier II Disposal Facility from neighbouring mount.]   32   2013-C4-TII-32   7.13   04/09/2013   388680   7594362   10mm   View NE - of the southwest landfill toe from the bottom of the west corner.     33   2013-C4-TII-33   6.15   04/09/2013   388691   7594362   10mm   View NE - of the northwest landfill toe from the bottom of the west corner.     34   2013-C4-TII-34   4.55   04/09/2013   388691   7594402   10mm   View NE - of the northwest side slope of the landfill.     35   2013-C4-TII-35   4.17   04/09/2013   388691   7594402   10mm   View SE - of the northwest side slope of the landfill.     36   2013-C4-TII-36   4.66   04/09/2013   388754   7594460   10mm   View SE - of the northwest side slope of the landfill.     37   2013-C4-TII-37   6.90   04/09/2013   388811   7594429   10mm   View SF - of the north corner of the landfill from the bottom of the corner.     38   2013-C4-TII-38   4.83   04/09/2013   388836   7594361   10mm   View NW - of the east corner of the landfill from the bottom of the corner.     39   2013-C4-TII-49   4.55   04/09/2013   388741   7594282   10mm   View NW - of the southwest toe of the landfill from the bottom of the corner.     40   2013-C4-TII-41   4.71   04/09/2013   388741   7594282   10mm   View NW - of the southcorner.     41   2013-C4-TII-42   7.03   04/09/2013   388745   7594312   10mm   View NW - of the landfill surface from the top of the south corner.     42   2013-C4-TII-43   6.72   04/09/2013   388745   7594312   10mm   View NW - of the landfill surface from the top of the south corner.     44   2013-C4-TII-45   6.48   04/09/2013   388768   7594370   10mm   View NW - of the landfill surface from the top of the south corner.     45   2013-C4-TII-46   6.60   04/09/2013   388768   7594370   10mm   View NW - of the landfill surface from the top of the east corner.     46   2013-C4-TII-48   6.11   04/09/2013   388764   7594423   10mm   View NW - of the landfill surface from the top of the ea	30	2013-C4-TII-30	3.46	03/09/2013	388692	7594389	10mm	
31   2013-C4-TII-31   6.58   04/09/2013   388680   7594362   10mm   neighbouring mound.   Neighbouring mound								
2013-C4-TII-32   7.13   04/09/2013   388680   7594362   10mm   View SE - of the southwest landfill toe from the bottom of the west corner.	31	2013-C4-TII-31	6.58	04/09/2013	388669	7594336	10mm	' '
32   2013-C4-Til-32   7.13   04/09/2013   388680   7594362   10mm   bottom of the west corner.	00	0040 O4 TH 00	7.40	0.4/00/0040	000000	7504000	40	
2013-C4-TII-33   6.15   04/09/2013   388690   7594402   10mm   bottom of the west corner.	32	2013-04-111-32	7.13	04/09/2013	388680	7594362	10mm	
34   2013-C4-TII-34   4.55   04/09/2013   388691   7594402   10mm   View SE - of the northwest side slope of the landfill.	33	2013-C4-TII-33	6 15	04/09/2013	388680	7594362	10mm	View NE - of the northwest landfill toe from the
34   2013-C4-TII-34   4.55   04/09/2013   388691   7594402   10mm   landfill.     36   2013-C4-TII-36   4.66   04/09/2013   388754   7594460   10mm   View S - of the northwest side slope of the landfill.     37   2013-C4-TII-37   6.90   04/09/2013   388811   7594429   10mm   View S - of the northwest side slope of the landfill from the bottom of the corner.     38   2013-C4-TII-38   4.83   04/09/2013   388836   7594361   10mm   View W - of the east corner of the landfill from the bottom of the corner.     39   2013-C4-TII-39   5.41   04/09/2013   388825   7594314   10mm   View W - of the east corner of the landfill from the bottom of the corner.     40   2013-C4-TII-40   4.55   04/09/2013   388741   7594282   10mm   View NW - of the southwest toe of the landfill from the bottom of the south corner.     41   2013-C4-TII-41   4.71   04/09/2013   388741   7594282   10mm   View NW - of the southwest toe of the landfill from the bottom of the south corner.     42   2013-C4-TII-42   7.03   04/09/2013   388745   7594312   10mm   View NW - of the landfill surface from the top of the south corner.     43   2013-C4-TII-43   6.72   04/09/2013   388768   7594312   10mm   View NW - of the landfill surface from the top of the south corner.     44   2013-C4-TII-45   6.48   04/09/2013   388768   7594370   10mm   View NW - of the landfill surface from the top of the east corner.     45   2013-C4-TII-46   6.60   04/09/2013   388769   7594370   10mm   View SW - of the landfill surface from the top of the east corner.     46   2013-C4-TII-46   6.60   04/09/2013   388764   7594397   10mm   View SW - of the landfill surface from the top of the east corner.     47   2013-C4-TII-48   6.11   04/09/2013   388764   7594423   10mm   View SW - of the landfill surface from the top of the north corner.     48   2013-C4-TII-48   6.11   04/09/2013   388754   7594423   10mm   View SW - of the landfill surface from the top of the north corner.	- 00	2010 01 111 00	0.10	0 1/ 00/ 20 10	000000	7001002	10111111	
35   2013-C4-TII-35   4.17   04/09/2013   388691   7594402   10mm   View SE - of the northwest side slope of the landfill.	34	2013-C4-TII-34	4.55	04/09/2013	388691	7594402	10mm	•
36   2013-C4-TII-35   4.66   04/09/2013   388754   7594460   10mm   10								
36   2013-C4-TII-36   4.66   04/09/2013   388754   7594460   10mm   View S - of the north corner of the landfill from the bottom of the corner.	35	2013-C4-TII-35	4.17	04/09/2013	388691	7594402	10mm	•
2013-C4-TII-36								
37   2013-C4-TII-37   6.90   04/09/2013   388811   7594429   10mm   landfill.     38   2013-C4-TII-38   4.83   04/09/2013   388836   7594361   10mm   View W - of the east corner of the landfill from the bottom of the corner.     39   2013-C4-TII-39   5.41   04/09/2013   388825   7594314   10mm   View NW - of the southeast side slope of the landfill.     40   2013-C4-TII-40   4.55   04/09/2013   388741   7594282   10mm   View NW - of the southwest toe of the landfill from the bottom of the south corner.     41   2013-C4-TII-41   4.71   04/09/2013   388745   7594382   10mm   View NE - of the southeast toe of the landfill from the bottom of the south corner.     42   2013-C4-TII-42   7.03   04/09/2013   388745   7594312   10mm   View NW - of the landfill surface from the top of the south corner.     43   2013-C4-TII-43   6.72   04/09/2013   388745   7594312   10mm   View NE - of the landfill surface from the top of the south corner.     44   2013-C4-TII-44   7.73   04/09/2013   388768   7594351   10mm   VT-8 - View NW - of the themistor.     45   2013-C4-TII-45   6.48   04/09/2013   388807   7594370   10mm   VT-8 - View NW - of the landfill surface from the top of the east corner.     46   2013-C4-TII-46   6.60   04/09/2013   388807   7594370   10mm   VT-8 - View NW - of the landfill surface from the top of the east corner.     47   2013-C4-TII-47   7.76   04/09/2013   388768   7594397   10mm   VT-7 - View NW - of the landfill surface from the top of the east corner.     48   2013-C4-TII-48   6.11   04/09/2013   388754   7594423   10mm   VT-7 - View NW - of the landfill surface from the top of the north corner.     49   2013-C4-TII-49   6.02   04/09/2013   388754   7594423   10mm   View SW - of the landfill surface from the top of the north corner.	36	2013-C4-TII-36	4.66	04/09/2013	388754	7594460	10mm	
Second Process   Seco	27	2042 C4 TIL 27	0.00	04/00/0040	200044	7504400	40	View SW - of the northwest side slope of the
38   2013-C4-III-38   4.83   04/09/2013   38886   7594361   10mm   the bottom of the comer.	31	2013-04-111-37	0.90	04/09/2013	300011	7594429	1011111	
39   2013-C4-TII-49   5.41   04/09/2013   388825   7594314   10mm   View NW - of the southwest side slope of the landfill from the bottom of the south corner.	38	2013-C4-TII-38	4 83	04/09/2013	388836	7594361	10mm	
2013-C4-TII-40   4.55   04/09/2013   388741   7594282   10mm   landfill.   View NW - of the southwest toe of the landfill from the bottom of the south corner.   View NE - of the southeast toe of the landfill from the bottom of the south corner.   View NW - of the landfill surface from the top of the south corner.   View NE - of the south corner.   View NW - of the landfill surface from the top of the south corner.   View NW - of the landfill surface from the top of the south corner.   View NW - of the landfill surface from the top of the south corner.   View NW - of the landfill surface from the top of the south corner.   View NE - of the landfill surface from the top of the south corner.   View NE - of the landfill surface from the top of the south corner.   View NW - of the landfill surface from the top of the south corner.   View NW - of the landfill surface from the top of the south corner.   View NW - of the landfill surface from the top of the east corner.   View NW - of the landfill surface from the top of the east corner.   View NW - of the landfill surface from the top of the east corner.   View NW - of the landfill surface from the top of the east corner.   View NW - of the landfill surface from the top of the east corner.   View NW - of the landfill surface from the top of the east corner.   View NE - of the landfill surface from the top of the east corner.   View NW - of the landfill surface from the top of the east corner.   View NE - of the landfill surface from the top of the north corner.   View SE - of the landfill surface from the top of the north corner.   View SW - of the landfill surface from the top of the north corner.   View SW - of the landfill surface from the top of the north corner.   View SW - of the landfill surface from the top of the north corner.   View SW - of the landfill surface from the top of the north corner.   View SW - of the landfill surface from the top of the north corner.   View SW - of the landfill surface from the top of the north corner.   View SW - of the landf		2010 01 111 00		0 1/ 00/ 20 10		700 100 1		
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41         2013-C4-TII-41         4.71         04/09/2013         388741         7594282         10mm         View NE - of the southeast toe of the landfill from the bottom of the south corner.           42         2013-C4-TII-42         7.03         04/09/2013         388745         7594312         10mm         View NW - of the landfill surface from the top of the south corner.           43         2013-C4-TII-43         6.72         04/09/2013         388745         7594312         10mm         View NE - of the landfill surface from the top of the south corner.           44         2013-C4-TII-44         7.73         04/09/2013         388768         7594351         10mm         VT-8 - View NW - of the landfill surface from the top of the east corner.           45         2013-C4-TII-45         6.48         04/09/2013         388807         7594370         10mm         View SW - of the landfill surface from the top of the east corner.           46         2013-C4-TII-46         6.60         04/09/2013         388780         7594370         10mm         View NW - of the landfill surface from the top of the east corner.           47         2013-C4-TII-48         6.11         04/09/2013         388754         7594397         10mm         View SW - of the landfill surface from the top of the north corner.           49         2013-C4-TII-49         6.02	40	2013-C4-TII-40	4.55	04/09/2013	388741	7594282	10mm	
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42         2013-C4-TII-42         7.03         04/09/2013         388745         7594312         10mm         View NW - of the landfill surface from the top of the south corner.           43         2013-C4-TII-43         6.72         04/09/2013         388745         7594312         10mm         View NE - of the landfill surface from the top of the south corner.           44         2013-C4-TII-44         7.73         04/09/2013         388768         7594351         10mm         VT-8 - View NW - of the landfill surface from the top of the south corner.           45         2013-C4-TII-45         6.48         04/09/2013         388807         7594370         10mm         View SW - of the landfill surface from the top of the east corner.           46         2013-C4-TII-46         6.60         04/09/2013         388780         7594370         10mm         View NW - of the landfill surface from the top of the east corner.           47         2013-C4-TII-47         7.76         04/09/2013         388780         7594397         10mm         VT-7 - View NW- of the thermistor.           48         2013-C4-TII-48         6.11         04/09/2013         388754         7594423         10mm         View SE - of the landfill surface from the top of the north corner.           49         2013-C4-TII-49         6.02         04/09/2013         388754 <td>41</td> <td>2013-C4-TII-41</td> <td>4.71</td> <td>04/09/2013</td> <td>388741</td> <td>7594282</td> <td>10mm</td> <td></td>	41	2013-C4-TII-41	4.71	04/09/2013	388741	7594282	10mm	
43   2013-C4-TII-43   6.72   04/09/2013   388745   7594312   10mm   View NE - of the landfill surface from the top of the east corner.     44   2013-C4-TII-44   7.73   04/09/2013   388768   7594351   10mm   VT-8 - View NW - of the thermistor.     45   2013-C4-TII-45   6.48   04/09/2013   388807   7594370   10mm   View SW - of the landfill surface from the top of the east corner.     46   2013-C4-TII-46   6.60   04/09/2013   388807   7594370   10mm   View NW - of the landfill surface from the top of the east corner.     47   2013-C4-TII-47   7.76   04/09/2013   388780   7594397   10mm   VT-7 - View NW - of the thermistor.     48   2013-C4-TII-48   6.11   04/09/2013   388754   7594423   10mm   View SW - of the landfill surface from the top of the north corner.     49   2013-C4-TII-49   6.02   04/09/2013   388754   7594423   10mm   View SW - of the landfill surface from the top of the north corner.     49   2013-C4-TII-49   6.02   04/09/2013   388754   7594423   10mm   View SW - of the landfill surface from the top of the north corner.     40   2013-C4-TII-49   6.02   04/09/2013   388754   7594423   10mm   View SW - of the landfill surface from the top of the north corner.	12	2013-C4 TII 42	7.02	04/00/2012	300745	750/212	10mm	
43 2013-C4-TII-43 6.72 04/09/2013 388768 7594351 10mm the south corner.  44 2013-C4-TII-44 7.73 04/09/2013 388768 7594351 10mm VT-8 - View NW - of the thermistor.  45 2013-C4-TII-45 6.48 04/09/2013 388807 7594370 10mm View SW - of the landfill surface from the top of the east corner.  46 2013-C4-TII-46 6.60 04/09/2013 388807 7594370 10mm View NW - of the landfill surface from the top of the east corner.  47 2013-C4-TII-47 7.76 04/09/2013 388780 7594397 10mm VT-7 - View NW - of the thermistor.  48 2013-C4-TII-48 6.11 04/09/2013 388754 7594423 10mm VT-7 - View SE - of the landfill surface from the top of the north corner.  49 2013-C4-TII-49 6.02 04/09/2013 388754 7594423 10mm View SW - of the landfill surface from the top of the north corner.	42	2013-04-111-42	7.03	04/09/2013	300743	7594512	1011111	
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45         2013-C4-TII-45         6.48         04/09/2013         388807         7594370         10mm         View SW - of the landfill surface from the top of the east corner.           46         2013-C4-TII-46         6.60         04/09/2013         388807         7594370         10mm         View NW - of the landfill surface from the top of the east corner.           47         2013-C4-TII-47         7.76         04/09/2013         388780         7594397         10mm         VT-7 - View NW- of the thermistor.           48         2013-C4-TII-48         6.11         04/09/2013         388754         7594423         10mm         View SE - of the landfill surface from the top of the north corner.           49         2013-C4-TII-49         6.02         04/09/2013         388754         7594423         10mm         View SW - of the landfill surface from the top of the north corner.								
46 2013-C4-TII-45 6.48 04/09/2013 38880/ 7594370 10mm the east corner.  46 2013-C4-TII-46 6.60 04/09/2013 388807 7594370 10mm View NW - of the landfill surface from the top of the east corner.  47 2013-C4-TII-47 7.76 04/09/2013 388780 7594397 10mm VT-7 - View NW - of the landfill surface from the top of the east corner.  48 2013-C4-TII-48 6.11 04/09/2013 388754 7594423 10mm View SE - of the landfill surface from the top of the north corner.  49 2013-C4-TII-49 6.02 04/09/2013 388754 7594423 10mm View SW - of the landfill surface from the top of the north corner.	44	2013-C4-TII-44	7.73	04/09/2013	388768	7594351	10mm	
46         2013-C4-TII-46         6.60         04/09/2013         388807         7594370         10mm         View NW - of the landfill surface from the top of the east corner.           47         2013-C4-TII-47         7.76         04/09/2013         388780         7594397         10mm         VT-7 - View NW- of the thermistor.           48         2013-C4-TII-48         6.11         04/09/2013         388754         7594423         10mm         View SE - of the landfill surface from the top of the north corner.           49         2013-C4-TII-49         6.02         04/09/2013         388754         7594423         10mm         View SW - of the landfill surface from the top of the north corner.	45	2013-C4-TII-45	6.48	04/09/2013	388807	7594370	10mm	•
10mm   the east corner.   10mm   the east corner.   10mm   VT-7 - View NW- of the thermistor.   10mm   VI-7 - View NW- of the thermistor.   10mm   VI-7 - View NW- of the landfill surface from the top of the north corner.   10mm   VI-7 - View NW- of the landfill surface from the top of the north corner.   10mm   VI-7 - View NW- of the landfill surface from the top of the north corner.   10mm   VI-7 - View NW- of the landfill surface from the top of the north corner.   10mm   VI-7 - View NW- of the landfill surface from the top of the north corner.   10mm   VI-7 - View NW- of the landfill surface from the top of the north corner.   10mm   VI-7 - View NW- of the landfill surface from the top of the north corner.   VII-7 - VIEW NW- of the landfill surface from the top of the north corner.   VIEW NW- of the landfill surface from the top of the north corner.   VIEW NW- of the landfill surface from the top of the north corner.   VIEW NW- of the landfill surface from the top of the north corner.   VIEW NW- of the landfill surface from the top of the north corner.   VIEW NW- of the landfill surface from the top of the north corner.   VIEW NW- of the landfill surface from the top of the north corner.   VIEW NW- of the landfill surface from the top of the north corner.   VIEW NW- of the landfill surface from the top of the north corner.   VIEW NW- of the landfill surface from the top of the north corner.   VIEW NW- of the landfill surface from the top of the north corner.   VIEW NW- of the landfill surface from the top of the north corner.   VIEW NW- of the landfill surface from the top of the north corner.   VIEW NW- of the landfill surface from the top of the north corner.   VIEW NW- of the landfill surface from the top of the north corner.   VIEW NW- of the landfill surface from the top of the north corner.   VIEW NW- of the landfill surface from the top of the north corner.   VIEW NW- of the landfill surface from the top of the north corner.   VIEW NW- of the landfill surface from the top of the north corner.   VIEW								View NW - of the landfill surface from the top of
47         2013-C4-TII-47         7.76         04/09/2013         388780         7594397         10mm         VT-7 - View NW- of the thermistor.           48         2013-C4-TII-48         6.11         04/09/2013         388754         7594423         10mm         View SE - of the landfill surface from the top of the north corner.           49         2013-C4-TII-49         6.02         04/09/2013         388754         7594423         10mm         View SW - of the landfill surface from the top of the north corner.	46	2013-C4-TII-46	6.60	04/09/2013	388807	7594370	10mm	
48 2013-C4-TII-48 6.11 04/09/2013 388754 7594423 10mm View SE - of the landfill surface from the top of the north corner.  49 2013-C4-TII-49 6.02 04/09/2013 388754 7594423 10mm View SW - of the landfill surface from the top of the north corner.	47	2013-C4-TII-47	7.76	04/09/2013	388780	7594397	10mm	
48 2013-C4-III-48 6.11 04/09/2013 388754 7594423 10mm the north corner.  49 2013-C4-TII-49 6.02 04/09/2013 388754 7594423 10mm View SW - of the landfill surface from the top of the north corner.								
49 2013-C4-11-49 6.02 04/09/2013 388754 7594423 10mm the north corner.	48	2013-C4-111-48	6.11	04/09/2013	388/54	7594423	TUMM	•
the north corner.	40	2013-C4-TIL-40	6.02	04/09/2012	388754	7594423	10mm	View SW - of the landfill surface from the top of
50   2013-C4-TII-50   6.82   04/09/2013   388737   7594391   10mm   VT-6 - View S - of the thermistor.	73	2010 04-111-49	0.02	O-1 001 ZU 13	555754	1004420	10/11111	the north corner.
	50	2013-C4-TII-50	6.82	04/09/2013	388737	7594391	10mm	VT-6 - View S - of the thermistor.

DI	F11	0' (152)	D-4-	Vantag	je Point	Focal	O. william
Photo	Filename	Size (MB)	Date	Easting	Northing	Length	Caption
51	2013-C4-TII-51	7.23	04/09/2013	388749	7594365	10mm	View N - of landfill surface from the centre of the landfill.
52	2013-C4-TII-52	7.07	04/09/2013	388749	7594365	10mm	View E - of landfill surface from the centre of the landfill.
53	2013-C4-TII-53	6.96	04/09/2013	388749	7594365	10mm	View S - of landfill surface from the centre of the landfill.
54	2013-C4-TII-54	6.93	04/09/2013	388749	7594365	10mm	View W - of landfill surface from the centre of the landfill.
55	2013-C4-TII-55	6.87	04/09/2013	388714	7594338	10mm	VT-5 - View SE - of the thermistor.
56	2013-C4-TII-56	6.60	04/09/2013	388690	7594363	10mm	View NE - from the top of the west corner.
57	2013-C4-TII-57	6.11	04/09/2013	388690	7594363	10mm	View NE - from the top of the west corner.
58	2013-C4-TII-58	7.87	04/09/2013	388796	7594399	20mm	Feature A - Close-up - of minor depressions on the northeast side slope.
59	2013-C4-TII-59	7.43	04/09/2013	388795	7594400	10mm	Feature A - View SE - of minor depressions on the northeast side slope.
60	2013-C4-TII-60	6.58	04/09/2013	388776	7594420	22mm	Feature G - Close-up - of minor depressions on the northeast side slope.
61	2013-C4-TII-61	7.72	04/09/2013	388775	7594421	10mm	Feature G - View SE - of minor depression on the northeast side slope.
62	2013-C4-TII-62	8.76	04/09/2013	388775	7594427	11mm	Feature H - Close-up - of minor depressions on the northeast side slope.
63	2013-C4-TII-63	7.97	04/09/2013	388773	7594428	10mm	Feature H - View SE - of minor depressions on the northeast side slope.
64	2013-C4-TII-64	8.47	04/09/2013	388686	7594364	12mm	Feature I - Close-up - of 2 minor depressions on the east side slope.
65	2013-C4-TII-65	7.10	04/09/2013	388684	7594363	10mm	Feature I - View SE - of 2 minor depressions on the east side slope.

#### 4.7 SELECTED PHOTOGRAPHS



Photo 3: 2013-C4-TII-30 MW-15 – View NW of monitoring well not visible due to snow drift.



Photo 4: 2013-C4-TII-31 – General overview of Tier II Disposal Facility.



Photo 5: 2013-C4-TII-39 – View NW of the southeast side slope of the landfill, covered in snow.



Photo 6: 2013-C4-TII-63 – Feature H – View SE of minor depressions on the northeast side slope. New observation.

#### 4.8 SOIL SAMPLE ANALYTICAL DATA

The soil chemical analysis results for the 2013 Tier II Disposal Facility samples are presented in Table XIII hereafter. Certificates of analysis and results of field duplicates collected as part of the QA/QC program are presented in Appendix C at the end of this report.

Table XIII. Tier II Disposal Facility Summary Table for Soil Analytical Data

Sample #	Location	Depth	Cu	Ni	Co	Cd	Pb	Zn	Cr	As	Hg	PCBs	F1	F2	F3	TPH
Sample #	Location	[cm]	[mg/kg]	C <sub>6</sub> -C <sub>10</sub>	<10	C <sub>16</sub> -C <sub>34</sub>	C <sub>6</sub> -C <sub>34</sub>									
2013-C4-MW-5-A	MW-5	0 - 15	31	15	6.4	<0.10	6.9	63	17	1.9	<0.050	<0.010	<12	<10	<50	<10
2013-C4-MW-5-B	G-AAINI	40 - 50	9.2	65	7.5	<0.10	4.1	38	130	1.3	<0.050	<0.010	<12	<10	<50	<10
2013-C4-MW-8-A	MW-8	0 - 15	15	10	6.6	<0.10	7.5	44	19	2.1	<0.050	<0.010	<12	<10	<50	<10
2013-C4-MW-8-B	IVIVV-O	40 - 50	11	9.5	8.0	<0.10	8.0	49	17	2.2	< 0.050	<0.010	<12	<10	71	71
2013-C4-MW-9-A	MW-9	0 - 15	13	9.4	6.4	<0.10	6.0	36	18	1.9	< 0.050	<0.010	<12	<10	<50	<10
2013-C4-MW-9-B	10100-3	40 - 50	10	8.7	5.8	<0.10	6.3	34	16	1.9	< 0.050	<0.010	<12	<10	<50	<10
2013-C4-MW-14A-A	MW-14A	0 - 15	12	44	8.5	<0.10	8.5	47	93	3.3	< 0.050	<0.010	<12	<10	76	76
2013-C4-MW-14A-B	IVIVV - I <del>T</del> /A	40 - 50	10	14	6.9	<0.10	8.0	38	27	2.8	< 0.050	0.023	<12	<10	64	64
2013-C4-MW-14B-A	MW-14B	0 - 15	13	15	7.5	<0.10	12	46	27	3.4	< 0.050	<0.010	<12	<10	54	54
2013-C4-MW-14B-B	IVIVV-14D	40 - 50	11	71	8.5	<0.10	6.0	41	150	2.8	< 0.050	<0.010	<12	<10	<50	<10
2013-C4-MW-15-A	MW-15	0 - 15	7.5	6.2	6.0	<0.10	4.3	41	11	2.2	< 0.050	<0.010	<12	<10	<50	<10
2013-C4-MW-15-B	1 10100-15	40 - 50	7.5	6.7	6.6	<0.10	3.9	48	11	2.6	< 0.050	<0.010	<12	<10	<50	<10
2013-C4-MW-16-A/ MW-16-A-D	MW-16	0 - 15	14	34	8.4	<0.10	8.4	48	66	2.2	< 0.050	<0.010	<12	<10	<50	<10
2013-C4-MW-16-B	10100-10	40 - 50	7.0	11	5.5	<0.10	4.8	27	20	1.3	<0.050	<0.010	<12	2,700	460	3,160

#### 4.9 GROUNDWATER SAMPLE ANALYTICAL DATA

The groundwater chemical analysis results and evaluation for the analytical data of the 2013 Tier II Disposal Facility samples are presented in Table XIV hereafter. Certificates of analysis and results for groundwater samples collected as part of the QA/QC program are presented in Appendix C, at the end of this report.

### Table XIV. Tier II Disposal Facility Summary Table for Groundwater Analytical Data

Comple #	Location	Cu	Ni	Co	Cd	Pb	Zn	Cr	As	Hg	PCBs	F1	F2	F3	TPH
Sample # L	Location	[mg/L]	[mg/L]	[mg/L]	[mg/L]	[mg/L]	[mg/L]	[mg/L]	[mg/L]	[mg/L]	[mg/L]	C <sub>6</sub> -C <sub>10</sub>	C <sub>10</sub> -C <sub>16</sub>	C <sub>16</sub> -C <sub>34</sub>	C <sub>6</sub> -C <sub>34</sub>
2013-C4-MW-5	MW-5		Insufficient water												
2013-C4-MW-8	MW-8	0.0015	0.015	0.0012	0.000091	0.00088	<0.0030	<0.0010	0.0017	<0.0000020	<0.000050	1.4	36	9.8	47.2
2013-C4-MW-9	MW-9	0.0013	0.0026	<0.00030	0.000033	<0.00020	< 0.0030	0.0019	0.00062	<0.000020	<0.000050	<0.10	<0.20	<0.20	<0.10
2013-C4-MW-14A	MW-14A	0.0072	0.0064	<0.00030	0.00072	<0.00020	1.3	<0.0010	0.00028	<0.000020	<0.000050	<0.10	<0.20	<0.20	<0.10
2013-C4-MW-14B	MW-14B	0.028	0.024	0.00044	0.00022	<0.00020	0.0058	<0.0010	0.00038	<0.000020	<0.000050	<0.10	<0.20	<0.20	<0.10
2013-C4-MW-15	MW-15		Monitoring well obstructed by snow drift												
2013-C4-MW-16	MW-16	0.00073	0.043	0.0031	0.000078	< 0.00020	0.086	<0.0010	0.0015	< 0.0000020	<0.000050	2.8	36	<0.20	38.8

#### 4.10 Monitoring Well Sampling / Inspection Logs

The monitoring well sampling logs for MW-5, MW-8, MW-9, MW-14A, MW-14B, MW-15 and MW-16 are presented in this section.

ring Well Samplir	ng Record: MW-5	
		Nunavut
		1:11 PM
MW-5	,	
N/A – Dry		
Good		
92		
5	Interior diameter	
360		
203		
60		
60		
N/A	Measurement method:	Interface Meter
N/A	(,,	
280	Evidence of sludge or siltation:	No
N/A		
.47.		
N/A	Measurement method: (meter, paste, etc.)	Interface Meter
N	Purging/Sampling Equipment:	Waterra Tubing
	2.7 6 6/ Camping Equipment	Foot Valve
14/17		
N/A		
N/A		
	CAM-4 Sept. 3, 2013 Brandon MacKay Tier MW-5 N/A – Dry Good  92 5 360 203 60 N/A	Sept. 3, 2013  Brandon MacKay  Tier II Disposal Facility  MW-5  N/A - Dry  Good  92  5 Interior diameter  360  203  60  N/A  Measurement method: (meter, tape, etc.)  N/A  N/A  N/A  N-A  N-D  N/A  N-D  N/A  N-D  N/A  N-D  N/A  N/A  N/A  N/A  N/A  N/A  N/A  N/

Site Name: Date of Sampling Event: Date of Sampling Event: Sept. 2, 2013 Time: 7:20 PM  Names of Samplers: Brandon MacKay Jamie Jones Ihakkaq Tier II Disposal Facility Monitoring Well ID: MW-8 Sample Number: Condition of Well: Good  Measured Data Well pipe height above ground (cm) = Olameter of well (cm) = Olameter o	Monito	ring Well Samplir	ng Record: MW-8		
Names of Samplers: Brandon MacKay Jamie Jones Ihakkaq Landfill Name: Tier II Disposal Facility  Monitoring Well ID: MW-8 Sample Number: 2013-C4-IMW-8 Condition of Well: Good  Measured Data Well pipe height above ground (cm) = 93 Diameter of well (cm) = 5 Interior diameter  Depth of well installation (cm) = (from ground surface)  Length screened section (cm) = 201  Depth to top of screen (cm) = (from ground surface)  Depth to water surface (cm) = (from top of pipe)  Static water level (cm) = (below ground surface)  Measured well refusal depth (cm) = (i.e. depth to frozen ground)  Thickness of water column (cm) = 130	Site Name:	CAM-4	Pelly Bay	Nunavut	
Landfill Name: Monitoring Well ID: MW-8 Sample Number: 2013-C4-MW-8 Condition of Well: Good  Measured Data Well pipe height above ground (cm) = 93 Diameter of well (cm) = 5 Interior diameter  Depth of well installation (cm) = (from ground surface)  Length screened section (cm) = 201  Depth to top of screen (cm) = (from ground surface)  Depth to water surface (cm) = (from top of pipe)  Static water level (cm) = (below ground surface)  Measured well refusal depth (cm) = (i.e. depth to frozen ground)  Thickness of water column (cm) = 130	Date of Sampling Event:	Sept. 2, 2013	Time:	7:20 PM	
Monitoring Well ID: Sample Number: Condition of Well: Good  Measured Data Well pipe height above ground (cm) = 93 Diameter of well (cm) = 5 Interior diameter  Depth of well installation (cm) = (from ground surface)  Length screened section (cm) = (from ground surface)  Depth to top of screen (cm) = (from ground surface)  Depth to water surface (cm) = (from top of pipe)  Static water level (cm) = (below ground surface)  Measured well refusal depth (cm) = (i.e. depth to frozen ground)  Thickness of water column (cm) = 130	Names of Samplers:	Brandon MacKay	Jamie Jones Ihakkaq		
Sample Number: 2013-C4-MW-8 Condition of Well: Good  Measured Data Well pipe height above ground (cm) = 93 Diameter of well (cm) = 5 Interior diameter  Depth of well installation (cm) = (from ground surface)  Length screened section (cm) = 201  Depth to top of screen (cm) = (from ground surface)  Opeth to water surface (cm) = (from top of pipe)  Static water level (cm) = (below ground surface)  Measured well refusal depth (cm) = (i.e. depth to frozen ground)  Thickness of water column (cm) = 130	Landfill Name:	Tier	II Disposal Facility		
Condition of Well:   Good	Monitoring Well ID:	MW-8			
Measured Data         Well pipe height above ground (cm) =       93         Diameter of well (cm) =       5         Depth of well installation (cm) =       408         (from ground surface)       201         Length screened section (cm) =       201         Depth to top of screen (cm) =       97         (from ground surface)       97         Depth to water surface (cm) =       124         (from top of pipe)       (meter, tape, etc.)         Static water level (cm) =       31         (below ground surface)       31         Measured well refusal depth (cm) =       254         (i.e. depth to frozen ground)       Evidence of sludge or siltation:         No	Sample Number:	2013-C4-MW-8			
Well pipe height above ground (cm) = 93  Diameter of well (cm) = 5  Depth of well installation (cm) = (from ground surface)  Length screened section (cm) = 201  Depth to top of screen (cm) = (from ground surface)  Depth to water surface (cm) = (from top of pipe)  Static water level (cm) = (below ground surface)  Measured well refusal depth (cm) = (i.e. depth to frozen ground)  Thickness of water column (cm) = 130	Condition of Well:	Good			
Well pipe height above ground (cm) = 93  Diameter of well (cm) = 5  Depth of well installation (cm) = (from ground surface)  Length screened section (cm) = 201  Depth to top of screen (cm) = (from ground surface)  Depth to water surface (cm) = (from top of pipe)  Static water level (cm) = (below ground surface)  Measured well refusal depth (cm) = (i.e. depth to frozen ground)  Thickness of water column (cm) = 130					
Diameter of well (cm) = 5					
Depth of well installation (cm) = (from ground surface)  Length screened section (cm) = 201  Depth to top of screen (cm) = (from ground surface)  Depth to water surface (cm) = (from top of pipe)  Static water level (cm) = (below ground surface)  Measured well refusal depth (cm) = (i.e. depth to frozen ground)  Thickness of water column (cm) = 130					
Length screened section (cm) =   201	, ,	5	Interior diameter		
Length screened section (cm) =   201	Depth of well installation (cm) =	408			
Depth to top of screen (cm) = (from ground surface)  Depth to water surface (cm) = (from top of pipe)  Static water level (cm) = (below ground surface)  Measured well refusal depth (cm) = (i.e. depth to frozen ground)  Thickness of water column (cm) = 130  97  Measurement method: (meter, tape, etc.)  Interface Meter (surface)  Static water level (cm) = 254  Evidence of sludge or siltation: No	(from ground surface)	400			
Depth to water surface (cm) =   124   Measurement method: (from top of pipe)   124   (meter, tape, etc.)   Interface Metalon	Length screened section (cm) =	201			
Depth to water surface (cm) = (from top of pipe)   124   (meter, tape, etc.)   Interface Meta (static water level (cm) = (below ground surface)   254   Evidence of sludge or siltation: No   No   Thickness of water column (cm) = 130   130	Depth to top of screen (cm) =	07			
(from top of pipe)     124     (meter, tape, etc.)     Interface Meter       Static water level (cm) = (below ground surface)     31     Evidence of sludge or siltation:     No       Measured well refusal depth (cm) = (i.e. depth to frozen ground)     254     Evidence of sludge or siltation:     No       Thickness of water column (cm) = 130     130	(from ground surface)	97			
(from top of pipe)     124     (meter, tape, etc.)     Interface Meter       Static water level (cm) = (below ground surface)     31     Evidence of sludge or siltation:     No       Measured well refusal depth (cm) = (i.e. depth to frozen ground)     254     Evidence of sludge or siltation:     No       Thickness of water column (cm) = 130     130					
Static water level (cm) = (below ground surface)  Measured well refusal depth (cm) = (i.e. depth to frozen ground)  Thickness of water column (cm) = 130	•	124		Interface Meter	
(below ground surface)  Measured well refusal depth (cm) = (i.e. depth to frozen ground)  Thickness of water column (cm) = 130  String (below ground surface)  254  Evidence of sludge or siltation: No			(meter, tape, etc.)		
Measured well refusal depth (cm) = (i.e. depth to frozen ground)  Thickness of water column (cm) = 130  Evidence of sludge or siltation: No	• •	31			
(i.e. depth to frozen ground)  Thickness of water column (cm) = 130					
Thickness of water column (cm) = 130		254	Evidence of sludge or siltation:	Nο	
	(i.e. depth to frozen ground)	25 .	Evidence of studge of stitutions	140	
` '	Thickness of water column (cm) =	130			
State volume of water in wen (int.)	, ,				
	Static volume of water in wen (int) -	2334			
Free product thickness (mm) = 0 Measurement method: (meter, paste, etc.) Interface Meters	Free product thickness (mm) =	0		Interface Meter	
Purging: (Y/N) Y Purging/Sampling Equipment: Waterra Tubir	Purging: (Y/N)	Υ	Purging/Sampling Equipment:	Waterra Tubing	
Volume Purged Water = 4000 mL Foot Valve		4000 mL		Foot Valve	
Decontamination required: (Y/N) N - Dedicated		N - Dedicated			
Number washers: N/A					
Number rinces: N/A					
		•			
Final pH = 7.56	Final pH =	7.56			
Final Conductivity (uS/cm) = 75					
Final Temperature (°C) = 0.3					

Monito	ring Well Samplir	ng Record: MW-9		
Site Name:	CAM-4	Pelly Bay	Nunavut	
Date of Sampling Event:	Sept. 3, 2013	Time:	12:46 PM	
Names of Samplers:	Brandon MacKay	Jamie Jones Ihakkag	121101111	
Landfill Name:		II Disposal Facility		
Monitoring Well ID:	MW-9			
Sample Number:	2013-C4-MW-9			
Condition of Well:	Good			
Measured Data				
Well pipe height above ground (cm) =	20			
Diameter of well (cm) =	5	Interior diameter		
Depth of well installation (cm) =	332			
(from ground surface)	332			
Length screened section (cm) =	201			
Depth to top of screen (cm) =	40			
(from ground surface)	40			
Depth to water surface (cm) =	81	Measurement method:	Interface Meter	
(from top of pipe)		(meter, tape, etc.)		
Static water level (cm) =	61			
(below ground surface)				
Measured well refusal depth (cm) =	182	Evidence of sludge or siltation:	No	
(i.e. depth to frozen ground)	102	Evidence of studge of stitution.	NO	
	404			
Thickness of water column (cm) =	101			
Static volume of water in well (mL) =	1984			
Free product thickness (mm) =	0	Measurement method: (meter, paste, etc.)	Interface Meter	
Purging: (Y/N)	Υ	Purging/Sampling Equipment:	Waterra Tubing	
Volume Purged Water =	2000 mL	5 5, 2 2 p 6 - 4 s p 6	Foot Valve	
Decontamination required: (Y/N)	N - Dedicated			
Number washers:	N/A			
Number rinces:	N/A			
zer inices.	14//			
Final pH =	7.49			
Final Conductivity (uS/cm) =	75			
Final Temperature (°C) =	0.2			

Monitor	ing Well Sampling	g Record: MW-14A		
Site Name:	CAM-4	Pelly Bay	Nunavut	
Date of Sampling Event:	Sept. 3, 2013	Time:	2:40 PM	
Names of Samplers:	Brandon MacKay	Jamie Jones Ihakkaq		
Landfill Name:	Tier	II Disposal Facility		
Monitoring Well ID:	MW-14A			
Sample Number:	2013-C4-MW14A			
Condition of Well:	Good			
Measured Data				
Well pipe height above ground (cm) =	50			
Diameter of well (cm) =	5	Interior diameter		
Depth of well installation (cm) =	466			
(from ground surface)	400			
Length screened section (cm) =	203			
Depth to top of screen (cm) =	167			
(from ground surface)	167			
Depth to water surface (cm) =	104	Measurement method:	Interface Meter	
(from top of pipe)		(meter, tape, etc.)		
Static water level (cm) =	54			
(below ground surface)				
Measured well refusal depth (cm) =	214	Tuidones of sludge or siltetion.	No	
(i.e. depth to frozen ground)	214	Evidence of sludge or siltation:	INO	
Thickness of water column (cm) =	110			
Static volume of water in well (mL) =	2161			
Free product thickness (mm) =	0	Measurement method: (meter, paste, etc.)	Interface Meter	
Purging: (Y/N)	Υ	Purging/Sampling Equipment:	Waterra Tubing	
Volume Purged Water =	2000 mL	2 0 .0, 2 - 1 6	Foot Valve	
Decontamination required: (Y/N)	N - Dedicated			
Number washers:	N/A			
Number rinces:	N/A			
Number finces.	N/A			
Final pH =	7.12			
Final Conductivity (uS/cm) =	102			
Final Temperature (°C) =				
riliai Telliperature ( C) =	0.3			

Monitori	ing Well Sampling	g Record: MW-14B	
Site Name:	CAM-4	Pelly Bay	Nunavut
Date of Sampling Event:	Sept. 3, 2013	, , Time:	2:55 PM
Names of Samplers:	Brandon MacKay	Jamie Jones Ihakkaq	
Landfill Name:	Tier	II Disposal Facility	
Monitoring Well ID:	MW-14B		
Sample Number:	2013-C4-MW-14B		
Condition of Well:	Good		
Measured Data			
Well pipe height above ground (cm) =	56		
Diameter of well (cm) =	5	Interior diameter	
Depth of well installation (cm) =	362		
(from ground surface)	302		
Length screened section (cm) =	200		
Depth to top of screen (cm) =	F0		
(from ground surface)	50		
Depth to water surface (cm) =	94	Measurement method:	Interface Meter
(from top of pipe)	<b>.</b>	(meter, tape, etc.)	
Static water level (cm) = (below ground surface)	38		
Measured well refusal depth (cm) = (i.e. depth to frozen ground)	215	Evidence of sludge or siltation:	No
Thickness of water column (cm) =	121		
Static volume of water in well (mL) =	2376		
Free product thickness (mm) =	0	Measurement method: (meter, paste, etc.)	Interface Meter
Purging: (Y/N)	Υ	Purging/Sampling Equipment:	Waterra Tubing
Volume Purged Water =	2000 mL	0 0, 2 2 <sub>1</sub> 8 – 4 2	Foot Valve
Decontamination required: (Y/N)	N - Dedicated		
Number washers:	N/A		
Number rinces:	N/A		
e. illies.	,,,		
Final pH =	7.55		
Final Conductivity (uS/cm) =	51		
Final Temperature (°C) =	0.2		

Monitor	ring Well Samplin	g Record: MW-15	
Site Name:	CAM-4	Pelly Bay	Nunavut
Date of Sampling Event:	Sept. 3, 2013	Time:	4:08 PM
Names of Samplers:	Brandon MacKay	Jamie Jones Ihakkaq	
Landfill Name:	Tier	II Disposal Facility	
Monitoring Well ID:	MW-15		
Sample Number:	N/A – Well is burie	ed in snow	
Condition of Well:	Unknown		
Measured Data			
Well pipe height above ground (cm) =	N/A		
Diameter of well (cm) =	N/A	Interior diameter	
Depth of well installation (cm) =	225		
(from ground surface)	325		
Length screened section (cm) =	197		
Depth to top of screen (cm) =	33		
(from ground surface)			
Depth to water surface (cm) = (from top of pipe)	N/A	Measurement method: (meter, tape, etc.)	Interface Meter
Static water level (cm) = (below ground surface)	N/A		
Measured well refusal depth (cm) = (i.e. depth to frozen ground)	N/A	Evidence of sludge or siltation:	No
Thickness of water column (cm) =	N/A		
Static volume of water in well (mL) =	N/A		
Free product thickness (mm) =	N/A	Measurement method: (meter, paste, etc.)	Interface Meter
Purging: (Y/N)	N	Purging/Sampling Equipment:	Waterra Tubing
Volume Purged Water =	N/A		Foot Valve
Decontamination required: (Y/N)	N - Dedicated		
Number washers:	N/A		
Number rinces:	N/A		
	,		
Final pH =	N/A		
Final Conductivity (uS/cm) =	N/A		
Final Temperature (°C) =	N/A		

Monito	ring Well Samplin	g Record: MW-16		
Site Name:	CAM-4	Pelly Bay	Nunavut	
Date of Sampling Event:	Sept. 2, 2013	Time:	6:40 PM	
Names of Samplers:	Brandon MacKay	Jamie Jones Ihakkaq		
Landfill Name:	Tier	II Disposal Facility		
Monitoring Well ID:	MW-16			
Sample Number:	2013-C4-MW-16			
Condition of Well:	Good			
Measured Data				
Well pipe height above ground (cm) =	55			
Diameter of well (cm) =	5	Interior diameter		
Depth of well installation (cm) =	unknown			
(from ground surface)	GIII(IIOWII			
Length screened section (cm) =	unknown			
Depth to top of screen (cm) =	nlen on			
(from ground surface)	unknown			
Depth to water surface (cm) =	130	Measurement method:	Interface Meter	
(from top of pipe)		(meter, tape, etc.)		
Static water level (cm) = (below ground surface)	75			
Measured well refusal depth (cm) =				
(i.e. depth to frozen ground)	220	Evidence of sludge or siltation:	No	
, , ,				
Thickness of water column (cm) =	110			
Static volume of water in well (mL) =	2161			
Free product thickness (mm) =	0	Measurement method: (meter, paste, etc.)	Interface Meter	
Purging: (Y/N)	Υ	Purging/Sampling Equipment:	Waterra Tubing	
Volume Purged Water =	1000 mL		Foot Valve	
Decontamination required: (Y/N)	N - Dedicated			
Number washers:	N/A			
Number rinces:	N/A			
Final pH =	6.67			
Final Conductivity (uS/cm) =	71			
Final Temperature (°C) =	0			

#### 5 UPPER SITE LANDFILL

#### 5.1 SUMMARY

The 2013 monitoring of the Upper Site Landfill conducted on September 3<sup>rd</sup>, 2013 consisted of a visual inspection to identify areas of erosion, soil and groundwater sampling as well as thermal monitoring.

During the 2013 visual inspection, relatively little change was observed at the Upper Site Landfill, with the addition of one area of settlement on the landfill surface. However, several features were not observed due to snow cover, several of which were not in contact with the landfill lobes, or those associated with the South Lobe of the landfill.

TPH was detected in two soil samples, the surface and depth samples of MW-11 at concentrations of 5,232 and 1,000 mg/kg respectively. No PCBs or relatively high metal concentrations were detected in any of the soil samples.

Groundwater samples were taken at two of the four monitoring wells; MW-11 and MW-12. No PCBs, relatively high metal concentrations or TPH were detected in any of the samples.

One of the three dataloggers installed at the Upper Site Landfill was removed for repairs in the south. VT-3 requires repair due to an error caused by their batteries being dead for an extending length of time. All other dataloggers and manual readings indicated the thermistors were functioning properly however; no datalogger was present at VT-1. Batteries were changed in all of the thermistors.

Based on observations made during the 2013 monitoring program, the Upper Site Landfill has an acceptable performance rating.

#### 5.2 VISUAL INSPECTION REPORT

The visual inspection of the Upper Site Landfill was conducted on September 3<sup>rd</sup>, 2013. The Visual Inspection Checklist/Report has been completed as per the TOR and is included as Table XV of this report. Please refer to Figure CAM-4.4 for a sketch of the Upper Site Landfill detailing the location of photographs and erosional features.

#### Table XV. Visual Inspection Checklist / Report - Upper Site Landfill

DEW LINE CLEANUP: POST-CONSTRUCTION – LANDFILL MONITORING
VISUAL INSPECTION CHECKLIST
INSPECTION REPORT – PAGE 1 of 2

**SITE NAME**: CAM-4 Pelly Bay

LANDFILL DESIGNATION: Upper Site Landfill

DATE OF INSPECTION: September 3<sup>rd</sup>, 2013

**DATE OF PREVIOUS INSPECTION**: August 21<sup>st</sup> and 22<sup>nd</sup>, 2010

**INSPECTED BY:** B. MacKay

REPORT PREPARED BY: B. MacKay

**MONITORING EVENT: 6** 

The inspector/reporter represents to the best of his/her knowledge that the following statements and observations are true and correct and to the best of the preparer's actual knowledge, no material facts have been suppressed or misstated.

Checklist Item	Present (Yes/No)	Location	Length (m)	Width (m)	Depth (m)	Extent	Description	Photographic Record	Severity Rating	Additional Comments
Settlement	Yes	FEATURE A See Figure CAM-4.4	1.00	0.20	0.05-0.10		Minor linear depressions.	28 and 29	Acceptable	Two parallel depressions perpendicular to crest of the main lobe. No change in size since 2010.
		FEATURE B See Figure CAM-4.4	2.00	1.15	0.10	Occasional	Minor depressions along southeast crest.	38 and 39	Acceptable	Minor area of settlement on the south lobe of the landfill. Decreased in size since 2010.
		FEATURE C See Figure CAM-4.4	3.00	0.30	0.10-0.15	Coodolollar	Minor depressions along south end of cover.	40 and 41	Unknown	Irregular linear depressions, covered in snow at the time of inspection.
		FEATURE J See Figure CAM-4.4	10.00	0.40	0.05		Linear Depressions.	30 and 31	Acceptable	New Observation: Linear area of settlement extending from the southwest landfill surface to the side slope.
		FEATURE I See Figure CAM-4.4	5.00	2.00	0.10-0.30	Isolated	Localized settlement.	N/A	Acceptable	Not in direct contact with landfill. Settlement of fines between cobbles and boulders resulting from drainage through area. Covered in snow at the time of inspection.
Erosion	Yes	FEATURE D See Figure CAM-4.4	50.00	0.30-1.00	0.02-0.05	N/A	Minor surficial erosion.	N/A	Unknown	Minor erosion along drainage feature extending along southwest toe. Not in contact with landfill cover. Covered in snow at the time of inspection.
		FEATURE E See Figure CAM-4.4	25.00	0.5	0.02-0.05	N/A	Minor surficial erosion.	N/A	Unknown	Minor erosion along drainage feature extending along north side of lobe. Not in contact with landfill cover. Covered in snow at the time of inspection.
Frost Action	No	N/A	N/A	N/A	N/A	N/A	N/A	N/A	Not Observed	N/A
Animal Burrows	No	N/A	N/A	N/A	N/A	N/A	N/A	N/A	Not Observed	N/A
Vegetation	No	N/A	N/A	N/A	N/A	N/A	N/A	N/A	Not Observed	N/A
Staining	No	N/A	N/A	N/A	N/A	N/A	N/A	N/A	Not Observed	N/A
Vegetation Stress	No	N/A	N/A	N/A	N/A	N/A	N/A	N/A	Not Observed	N/A
Seepage Points	No	N/A	N/A	N/A	N/A	N/A	N/A	N/A	Not Observed	N/A
Debris Exposed	Yes	FEATURE F See Figure CAM-4.4	1.5	0.20	Unknown	Isolated	Exposed piece of cable.	N/A	Acceptable	Partially exposed piece of insulated cable in Type 1 cover on side slope. Not observed at the time of inspection potentially covered in snow.
		FEATURE G See Figure CAM-4.4	0.30	0.20	Unknown	Isolated	Cloth debris.	N/A	Acceptable	Partially buried cloth debris in landfill cover. Not observed at the time of inspection potentially covered in snow.
Presence/Condition of Monitoring Instruments	Yes	See Figure CAM-4.4 and Photographic Record	N/A	N/A	N/A	None	MW-10, 11, 12, 13 VT-1, 2, 3, 4.	3, 4, 7, 8, 11, 12, 15, 16, 21, 22, 34 and 35	N/A	All monitoring wells and thermistors in good condition. With the exception of VT-3 which has been removed for repairs.
Other Features of Note:	No	N/A	N/A	N/A	N/A	N/A	N/A	N/A	Not Observed	N/A
Additional Photos	Yes	See Figure CAM-4.4 and Photographic Record	N/A	N/A	N/A	N/A	General Photographic Record.	N/A	N/A	General photos for documentation, no features of note.

#### 5.3 PRELIMINARY STABILITY ASSESSMENT

The Preliminary Stability Assessment for the Upper Site Landfill has been completed as per the TOR and is included as Table XVI hereafter.

Table XVI. Preliminary Stability Assessment – Upper Site Landfill

Feature	Severity Rating	Extent			
Settlement	Acceptable	Occasional			
Erosion	Not observed	None (visible)			
Frost Action	Not observed	None			
Staining	Not observed	None			
Vegetation Stress	Not observed	None			
Seepage/Ponded Water	Not Observed	None			
Debris Exposure	Not Observed	None (visible)			
Overall Landfill Performance	Acceptable				

#### 5.4 LOCATION PLAN

The Location Plan for the Upper Site Landfill has been completed as per the TOR and is included in the following page as Figure CAM-4.4 Pelly Bay – Upper Site Landfill.

G:\CD2656\CAM-4\2013\FINAL\CD2656\_300\_303-CAM-4\_4.dwg, PL, 2014-01-30 4:24:2!

## LEGEND

### 5.5 THERMISTOR ANNUAL MAINTENANCE REPORTS

The thermistor inspection reports VT-2 to VT-4 are presented in this section.

Reset clock: 41517 days -22:06:18

Several errors – bad recording rate, sensors on, status light red

# Thermal Monitoring Ground Temperature Annual Maintenance Report

Contract	tor Name: Biogénie/Sila Remediation Inc.		nc.	Inspection Date:			August 31, 2013		
Prepared	d By:	Brandon Mac	Kay						
	tor Informati		<b>I</b> =: *						
Site Nam	_	CAM-4		or Location		Upper Site	Landfill		
-	tor Number:		Inclination			Vertical	Francis Control	00.1	
Install Da		26-Sep-06		e Event	_	27-Aug-07	Last Date	Event Elev	28-Aug-09
	ates and Ele of Cable (m)		N 1013.3	ove Ground (m)	1 1	10177.1 Nodal Point	312.8		
	ger Serial #	207046		io Esau Abovo Orbana (III)		Cable Seria		10	1619
Code	CAM-4VT-3	207040				- abio 00110			1018
	-								
Thermis	stor Inspect	tion							
			Good	-	Nee	eds Maintena	nce		
	Casing		V						
	Cover		▽			_			
					✓	Detel			
	Data Logg	er				Datalogger	removed	tor repair	
	Cable		<b>V</b>						
	Beads		V						
	Battery Ins	tallation Date	31-Aug-1	3					
	Battery Lev	vels	Main	11.34 V		Aux <u>12.65 V</u>			
<u>Manual</u>	Ground Te	mperature Rea	adings	1					
	Bead	ohms	Temp. (ºC)			Bead	ohms	Ten	np. (ºC)
	1	14.465	2.4154	]		9	20.62	4	.4561
	2	16.505	-0.1762	]		10	21.81	-5.	.5171
	3	16.370	-0.0161	]					
	4	16.369	-0.0149	]					
	5	16.781	-0.4990	]					
	6	17.701	-1.5336	]					
	7	18.634	-2.5231	]					
	8	19.695	-3.5830	]					
				_					
<u>Observa</u>	ations and l	Proposed Mair	<u>ntenance</u>						

Sensors were set to be powered continuously which may have caused batteries to die prematurely.

#### **Ground Temperature Annual Maintenance Report**

Contractor Name:	Biogénie/Sila Remediation Inc.	Inspection Date:	August-31-13
Prepared By:	Brandon MacKay		

#### Thermistor Information

Site Name:	CAM-4	Thermistor Locat	tion	Upper Site La	andfill	
Thermistor Number:	VT-2	Inclination		Vertical		
Install Date:	28-Sep-06	First Date Event		<b>18-Aug-11</b> La	st Date Event	31-Aug-13
Coordinates and Elev	vation	N 10002.4	Е	10204.2	Elev	306.7
Length of Cable (m)	6.2	Cable Lead Above Gro	und (m) 1.1	Nodal Points	10	
Datalogger Serial #	207046			Cable Serial N	umber	1617

Code CAM-4VT-2

#### **Thermistor Inspection**

	Good		Needs Mai	intenance		
Casing	V					
Cover	V					
Data Logger	V					
Cable	V					
Beads	<b>V</b>		Bead	2 is offline		
Battery Installation Date	26-Aug-	07				
Battery Levels	Main	11.34 V		Aux	13.5 V	

#### **Manual Ground Temperature Readings**

Bead	ohms	Temp. (°C)
1	14.967	1.7412
2	OL	N/A
3	16.345	0.0138
4	16.342	0.0173
5	16.476	-0.1419
6	17.423	-1.2275
7	18.361	-2.2394
8	19.451	-3.3450

Bead	ohms	Temp. (°C)
9	20.33	-4.1872
10	21.66	-5.3870

#### **Observations and Proposed Maintenance**

Error caused by dead datalogger battery, no data stored to download. With battery cl	hange
datalogger is funtioning properly.	

Contracto	or Name:	Biogénie/Sila	Remediation I	nc.	Insp	ection Date	e:	August-	31-13
Prepared	Ву:	Brandon Mack	Kay						
Thermisto	or Informati	on							
Site Nam		CAM-4	Thermisto	or Location		Upper Sit	e Landfill		
Thermisto	or Number:	VT-4	Inclination	1		Vertical			
Install Da	te:	26-Sep-06	First Date	e Event		18-Aug-1	1 Last Date	Event	31-Aug-13
Coordinat	tes and Ele	vation	N <b>10021.2</b>		Е	10150.4		Elev	312.8
	Cable (m)		Cable Lead Abo	ove Ground (m)	1.2	Nodal Poir		10	)
Datalogge	er Serial #	207046				Cable Seri	al Number		1619
Code	CAM-4VT-4								
Thermist	tor Inspect	tion							
			Good	<u>-</u>	Nee	ds Mainten	ance		
	Casing								
	Cover		<b>~</b>						
	Data Logg	er	<b>~</b>						
	Cable		V						
	Beads		V						
	Battery Ins	tallation Date	22-Aug-1	0					
	Battery Lev	vels	Main	11.34 V			Aux	13.5 V	ı
	,						_		
Manual (	Ground To	mperature Rea	dinge						
Wandar			*						(00)
	Bead	ohms	Temp. (°C)			Bead	ohms	<u> </u>	Γemp. (ºC)
	1	14.736	2.0482			9	20.34		-4.1965
	2	16.769	-0.4851			10	20.52		-4.3639
	3	16.355	-0.0732						
	5	16.526	-0.2010						
	6	17.370	-1.1685						
	7	18.231	-2.1026						
	8	19.501	-3.3940						
ļ									
<u>Observa</u>	tions and	Proposed Main	tenance_						
	Reset cloc	k: 3:03:37 behin	d						

#### 5.6 PHOTOGRAPHIC RECORDS

The Photographic Record for the Upper Site Landfill has been completed as per the TOR and is included in the following pages as Table XVII. Full-sized photographs are contained in the Addendum DVD-ROM.

Table XVII. Landfill Visual Inspection Photo Log – Upper Site Landfill

Dhata	Filonom.	Cine (MD)	Dete	Vantage Point Foca			Continu				
Photo	Filename	Size (MB)	Date	Easting	Northing	Length	Caption				
1	2013-C4-US-1	8.33	03/09/2013	388790	7594296	24mm	MW-11 - Close-up of open soil test pit.				
2	2013-C4-US-2	8.60	03/09/2013	388790	7594296	24mm	MW-11 - Close-up of closed soil test pit.				
3	2013-C4-US-3	6.45	03/09/2013	388788	7594296	24mm	MW-11 - Close-up of monitoring well.				
4	2013-C4-US-4	7.76	03/09/2013	388699	7594322	10mm	MW-11 - View E - of monitoring well.				
5	2013-C4-US-5	8.43	03/09/2013	388860	7594249	22mm	MW-13 - Close-up of open soil test pit.				
6	2013-C4-US-6	8.56	03/09/2013	388860	7594249	22mm	MW-13 - Close-up of closed soil test pit.				
7	2013-C4-US-7	4.40	03/09/2013	388860	7594249 7594248	22mm	MW-13 - Close-up of monitoring well.  MW-13 - View N - of monitoring well.				
8 9	2013-C4-US-8 2013-C4-US-9	5.88 5.32	03/09/2013	388859 388925	7594246	13mm 20mm	MW-12 - Close-up of open soil test pit.				
10	2013-C4-US-10	5.70	03/09/2013	388925	7594307	10mm	MW-12 - Close-up of open soil test pit.  MW-12 - Close-up of closed soil test pit.				
11	2013-C4-US-11	4.97	03/09/2013	388925	7594307	10mm	MW-12 - Close-up of closed soil test pit.  MW-12 - Close-up of monitoring well.				
12	2013-C4-US-12	6.32	03/09/2013	388925	7594307	10mm	MW-12 - View E - of monitoring well.				
13	2013-C4-US-13	8.86	03/09/2013	388922	7594306	24mm	MW-10 - Close-up of open soil test pit.				
14	2013-C4-US-14	8.70	03/09/2013	388922	7594306	24mm	MW-10 - Close-up of closed soil test pit.				
15	2013-C4-US-15	5.38	03/09/2013	388910	7594357	24mm	MW-10 - Close-up of monitoring well.				
16	2013-C4-US-16	6.20	03/09/2013	388910	7594357	10mm	MW-10 - View W - of monitoring well.				
17	2013-C4-US-17	6.65	03/09/2013	388844	7594359	10mm	View N - of landfill side slope from the top of the northwest corner.				
18	2013-C4-US-18	7.09	03/09/2013	388844	7594359	10mm	View SE - of landfill surface from the top of the northwest corner.				
19	2013-C4-US-19	6.67	03/09/2013	388844	7594359	10mm	View SW - of landfill surface from the top of the northwest corner.				
20	2013-C4-US-20	5.83	03/09/2013	388825	7594358	10mm	View S - of the west landfill toe.				
21	2013-C4-US-21	6.62	03/09/2013	388826	7594320	10mm	VT-4 - View E - of the thermistor.				
22	2013-C4-US-22	8.01	03/09/2013	388849	7594312	24mm	VT-3 - View E - of the thermistor.				
23	2013-C4-US-23	6.84	03/09/2013	388826	7594312	10mm	View E - of the landfill surface from the top of the west side slope.				
24	2013-C4-US-24	6.53	03/09/2013	388826	7594312	10mm	View SE - of the landfill surface from the top of the west side slope.				
25	2013-C4-US-25	5.66	03/09/2013	388794	7594304	10mm	View E - of the west side slope of the landfill.				
26	2013-C4-US-26	5.75	03/09/2013	388813	7594312	10mm	Feature D - View N - feature is obscurred by snow.				
27	2013-C4-US-27	6.74	03/09/2013	388813	7594312	10mm	Feature D - View S - feature is obscurred by snow.				
28	2013-C4-US-28	8.46	03/09/2013	388830	7594302	20mm	Feature A - Close-up of depressions on the west landfill surface.				
29	2013-C4-US-29	8.76	03/09/2013	388828	7594302	10mm	Feature A - View E - of depressions on the west landfill surface.				
30	2013-C4-US-30	8.86	03/09/2013	388829	7594296	16mm	Feature J - Close-up - of a linear depression on the west landfill surface.				
31	2013-C4-US-31	8.57	03/09/2013	388828	7594300	10mm	Feature J - View S - of a linear depression on the west landfill surface.				
32	2013-C4-US-32	6.97	03/09/2013	388837	7594289	10mm	View N - of thelandfill sruface from the southwest corner of the landfill.				
33	2013-C4-US-33	6.95	03/09/2013	388837	7594289	10mm	View E - of the landfill sruface from the southwest corner of the landfill.				
34	2013-C4-US-34	8.02	03/09/2013	388880	7594295	11mm	VT-2 - View N - of the thermistor.				
35	2013-C4-US-35	5.54	03/09/2013	388888	7594294	11mm	VT-1 - View N - of the thermistor.				
36	2013-C4-US-36	7.28	03/09/2013	388874	7594270	11mm	View E - of landfill surface from the top of the southeast corner.				
37	2013-C4-US-37	7.33	03/09/2013	388874	7594270	11mm	View N - of landfill surface from the top of the southeast corner.				
38	2013-C4-US-38	8.82	03/09/2013	388874	7594227	11mm	Feature B - Close-up of minor depressions on the south lobe of the landfill.				
39	2013-C4-US-39	8.83	03/09/2013	388874	7594225	10mm	Feature B - View W - of minor depressions on the south lobe of the landfill.				
40	2013-C4-US-40	8.24	03/09/2013	388859	7594217	15mm	Feature C - Close-up of depressions covered in snow on south lobe of the landfill.				
41	2013-C4-US-41	6.69	03/09/2013	388859	7594217	10mm	Feature C - View W - of depressions covered in snow on south lobe of the landfill.				

Photo	Filename	Cina (MD)	Doto	Vantag	e Point	Focal	Continu
Photo	riiename	Size (MB)	Date	Easting	Northing	Length	Caption
42	2013-C4-US-42	7.33	03/09/2013	388864	7594211	10mm	View N - of the landfill surface from the
72	2013-04-00-42	7.55	03/03/2013	7001211		1011111	southeast corner of the south lobe.
43	2013-C4-US-43	5.48	03/09/2013	388842	7594229	10mm	View E - of the landfill surface from the
40	2010 04 00 40	0.40	00/03/2010	000042	7004220	1011111	southwest corner of the south lobe.
							View N - of the landfill surface from the
44	2013-C4-US-44	6.03	03/09/2013	388841	7594235	10mm	southwest corner of the south lobe. Feature E is
							obscurred by snow.
45	2013-C4-US-45	6.50	03/09/2013	388865	7594245	10mm	View SE - of the landfill surface from the
40	2010 04 00 40	0.00	00/03/2010	000000	7004240	1011111	northwest corner of the south lobe.
46	2013-C4-US-46	5.84	03/09/2013	388881	7594255	10mm	View S - of the landfill surface from the
40	2010 04 00 40	0.04	00/03/2010	000001	7004200	1011111	northeast corner of the south lobe.
47	2013-C4-US-47	5.80	03/09/2013	388894	7594301	10mm	Feature N - Close-up - exposed debris, not
	2010 01 00 11	0.00	00/00/2010	000001	700 100 1	10111111	observed.
48	2013-C4-US-48	5.37	03/09/2013	388916	7594305	10mm	View SW- of east side slope of the landfill.
49	2013-C4-US-49	5.54	03/09/2013	388916	7594305	10mm	View W- of east side slope of the landfill.
50	2013-C4-US-50	5.21	03/09/2013	388916	7594305	10mm	View NW- of east side slope of the landfill.
51	2013-C4-US-51	6.85	03/09/2013	388884	7594326	10mm	View SE - of the landfill surface from the top
- 01	2010 04 00 01	0.00	00/03/2010	000004	7004020	1011111	northeast corner.
52	2013-C4-US-52	6.50	03/09/2013	388884	7594326	10mm	View NE - of the landfill surface from the top
32	2010 04-00-02	0.50	00/00/2010	555504	7004020	10/11111	northeast corner.

#### 5.7 SELECTED PHOTOGRAPHS



Photo 7: 2013-C4-US-23 – View E of the landfill surface from the top of the west side slope.



Photo 8: 2013-C4-US-31 – Feature J – View S of a linear depression on the west landfill surface. New observation.

#### 5.8 SOIL SAMPLE ANALYTICAL DATA

The soil chemical analysis results and evaluation of the analytical data for the 2013 Upper Site Landfill samples are presented in Table XVIII hereafter. Certificates of analysis and results of field duplicates collected as part of the QA/QC program are presented in Appendix C at the end of this report.

Table XVIII. Summary Table for Upper Site Landfill Soil Analytical Data

Comple #	Lasation	Depth	Cu	Ni	Co	Cd	Pb	Zn	Cr	As	Hg	PCBs	F1	F2	F3	TPH
Sample #	Location	[cm]	[mg/kg]	C <sub>6</sub> -C <sub>10</sub>	C <sub>10</sub> -C <sub>16</sub>	C <sub>16</sub> -C <sub>34</sub>	C <sub>6</sub> -C <sub>34</sub>									
2013-C4-MW-10-A	MW-10	0 - 15	9.5	11	5.8	<0.10	6.9	39	22	1.5	<0.050	<0.010	<12	<10	<50	<10
2013-C4-MW-10-B	10100-10	40 - 50	6.9	11	4.9	<0.10	4.5	26	19	1.2	< 0.050	<0.010	<12	<10	<50	<10
2013-C4-MW-11-A	MW-11	0 - 15	30	15	8.3	<0.10	9.6	60	28	2.3	< 0.050	<0.010	<12	32	5,200	5,232
2013-C4-MW-11-B	10100-11	40 - 50	22	21	9.6	<0.10	10	65	39	3.0	<0.050	<0.010	<12	10	1,000	1,010
2013-C4-MW-12-A	MW-12	0 - 15	10	11	5.9	0.18	15	53	21	1.4	< 0.050	<0.010	<12	<10	<50	<10
2013-C4-MW-12-B	10100-12	40 - 50	7.7	9.6	4.9	<0.10	5.0	31	19	1.3	< 0.050	<0.010	<12	<10	<50	<10
2013-C4-MW-13-A/ MW-13-A-D	MW-13	0 - 15	9.3	36	6.2	<0.10	5.5	35	79	1.8	< 0.050	<0.010	<12	<10	<50	<10
2013-C4-MW-13-B	10100-13	40 - 50	8.0	8.4	5.4	<0.10	5.6	34	16	1.7	< 0.050	<0.010	<12	<10	<50	<10

#### 5.9 GROUNDWATER SAMPLE ANALYTICAL DATA

The groundwater chemical analysis results and evaluation for the analytical data for the 2013 Upper Site Landfill samples are presented in Table XIX hereafter. Certificates of analysis and results for groundwater samples collected as part of the QA/QC program are presented in Appendix C, at the end of this report.

Table XIX. Upper Site Landfill Summary Table for Groundwater Analytical Data

Comple#	Location	Cu	Ni	Co	Cd	Pb	Zn	Cr	As	Hg	PCBs	F1	F2	F3	TPH
Sample #	Location	[mg/L]	[mg/L]	[mg/L]	[mg/L]	[mg/L]	[mg/L]	[mg/L]	[mg/L]	[mg/L]	[mg/L]	C <sub>6</sub> -C <sub>10</sub>	C <sub>10</sub> -C <sub>16</sub>	C <sub>16</sub> -C <sub>34</sub>	C <sub>6</sub> -C <sub>34</sub>
2013-C4-MW-10	MW-10		Insufficient water												
2013-C4-MW-11	MW-11	0.0022	0.0022	<0.00030	0.000069	<0.00020	<0.0030	<0.0010	0.00022	<0.0000020	<0.000050	<0.10	<0.20	<0.20	<0.10
2013-C4-MW-12	MW-12	0.0017	0.0014	0.00037	0.00019	<0.00020	0.093	<0.0010	<0.00020	< 0.0000020	<0.000050	<0.10	<0.20	<0.20	<0.10
2013-C4-MW-13	MW-13		Insufficient water												

#### 5.10 MONITORING WELL SAMPLING / INSPECTION LOGS

The monitoring well sampling logs for MW-10, MW11, MW-12 and MW-13 are presented in this section.

		Γ
		Nunavut
		5:18 PM
	pper Site Landfill	
Good		
70		
	Interior diameter	
3	Interior diameter	
337		
203		
20		
38		
N/A	Measurement method:	Interface Meter
	(meter, tape, etc.)	
N/A		
220		No
239	Evidence of sludge or slitation:	No
N/A		
N/A		
0	Measurement method: (meter, paste, etc.)	Interface Meter
N	Purging/Sampling Equipment:	Waterra Tubing
N/A		Foot Valve
,		
N/A		
N/A		
	CAM-4 Sept 3, 2013 Brandon MacKay  Up MW-10 N/A – Dry Good  70 5 337 203 38 N/A N/A N/A  N – Dedicated N/A	Sept 3, 2013 Brandon MacKay Upper Site Landfill MW-10 N/A - Dry Good  70 5 Interior diameter 337 203 38  N/A Measurement method: (meter, tape, etc.) N/A N/A N - Dedicated N/A

Monitor	ring Well Samplin	g Record: MW-11		
Site Name:	CAM-4	Pelly Bay	Nunavut	
Date of Sampling Event:	Sept. 3, 2013	Time:	1:36 PM	
Names of Samplers:	Brandon MacKay	Jamie Jones Ihakkaq		
Landfill Name:	Up	pper Site Landfill		
Monitoring Well ID:	MW-11			
Sample Number:	2013-C4-MW-11			
Condition of Well:	Good			
Measured Data				
Well pipe height above ground (cm) =	56			
Diameter of well (cm) =	5	Interior diameter		
Depth of well installation (cm) =	685			
(from ground surface)	063			
Length screened section (cm) =	203			
Depth to top of screen (cm) =				
(from ground surface)	86			
· -				
Depth to water surface (cm) =	166	Measurement method:	Interface Meter	
(from top of pipe)		(meter, tape, etc.)	THE THE WEET	
Static water level (cm) =	110			
(below ground surface)	110			
Measured well refusal depth (cm) =				
(i.e. depth to frozen ground)	307	Evidence of sludge or siltation:	No	
, ,				
Thickness of water column (cm) =	141			
Static volume of water in well (mL) =	2770			
Free product thickness (mm) =	0	Measurement method: (meter, paste, etc.)	Interface Meter	
Purging: (Y/N)	Υ	Purging/Sampling Equipment:	Waterra Tubing	
Volume Purged Water =	3000 mL		Foot Valve	
Decontamination required: (Y/N)	N - Dedicated			
Number washers:	N/A			
Number rinces:	N/A			
Final pH =	7.50			
Final Conductivity (uS/cm) =	760			
Final Temperature (°C) =	0.1			

Monitor	ing Well Samplin	g Record: MW-12	
Site Name:	CAM-4	Pelly Bay	Nunavut
Date of Sampling Event:	Sept. 3, 2013	Time:	4:58 PM
Names of Samplers:	Brandon MacKay	Jamie Jones Ihakkag	
Landfill Name:		pper Site Landfill	
Monitoring Well ID:	MW-12	ĺ	
Sample Number:	2013-C4-MW-12		
Condition of Well:	Good		
Measured Data			
Well pipe height above ground (cm) =	66		
Diameter of well (cm) =	5	Interior diameter	
Depth of well installation (cm) =	267		
(from ground surface)			
Length screened section (cm) =	203		
Depth to top of screen (cm) =	CO		
(from ground surface)	68		
5 11 1 1 1 1 1			
Depth to water surface (cm) =	112	Measurement method:	Interface Meter
(from top of pipe)		(meter, tape, etc.)	
Static water level (cm) =	46		
(below ground surface)			
Measured well refusal depth (cm) =	212	Evidence of sludge or siltation:	No
(i.e. depth to frozen ground)			
Thickness of water column (cm) =	100		
Static volume of water in well (mL) =	1964		
		Measurement method: (meter,	_
Free product thickness (mm) =	0	paste, etc.)	Interface Meter
Purging: (Y/N)	Υ	Purging/Sampling Equipment:	Waterra Tubing
Volume Purged Water =	2000 mL		Foot Valve
Decontamination required: (Y/N)	N - Dedicated		
Number washers:	N/A		
Number rinces:	N/A		
Final pH =	6.61		
Final Conductivity (uS/cm) =	260		
Final Temperature (°C) =	2.4		

Monitor	ring Well Samplin	g Record: MW-13	
Site Name:	CAM-4	Pelly Bay	Nunavut
Date of Sampling Event:	Sept. 3, 2013	Time:	4:33 PM
Names of Samplers:	Brandon MacKay	Jamie Jones Ihakkaq	
Landfill Name:	Uŗ	per Site Landfill	
Monitoring Well ID:	MW-13		
Sample Number:	Dry		
Condition of Well:	Good		
Measured Data			
Well pipe height above ground (cm) =	64		
Diameter of well (cm) =	5	Interior diameter	
Depth of well installation (cm) =	318		
(from ground surface)			
Length screened section (cm) =	190		
Depth to top of screen (cm) =	20		
(from ground surface)	20		
Depth to water surface (cm) = (from top of pipe)	N/A	Measurement method: (meter, tape, etc.)	Interface Meter
Static water level (cm) =  (below ground surface)	N/A	(meter, tape, etc.)	
Measured well refusal depth (cm) = (i.e. depth to frozen ground)	232	Evidence of sludge or siltation:	No
Thickness of water column (cm) =	N/A		
Static volume of water in well (mL) =	N/A		
Free product thickness (mm) =	N/A	Measurement method: (meter, paste, etc.)	Interface Meter
Purging: (Y/N)	N	Purging/Sampling Equipment:	Waterra Tubing
Volume Purged Water =	N/A		Foot Valve
Decontamination required: (Y/N)	N/A		
Number washers:	N/A		
Number rinces:	N/A		
	,		
Final pH =	N/A		
Final Conductivity (uS/cm) =	N/A		
Final Temperature (°C) =	N/A		

#### 6 LOWER SITE NON-HAZARDOUS WASTE LANDFILL

#### 6.1 SUMMARY

The 2013 monitoring of the Lower Site Non-Hazardous Waste Landfill conducted on September 4<sup>th</sup>, 2013 consisted of a visual inspection to identify areas of erosion as well as soil and groundwater samples.

No new erosional features were identified during the 2013 visual inspection of the Lower Site Non-Hazardous Waste Landfill. Previously identified minor areas of settlement remain stable.

TPH was detected in two soil samples, the surface and depth samples of MW-21 at concentrations of 234 and 150 mg/kg respectively. No PCBs or relatively high metal concentrations were detected at the Lower Site Non-Hazardous Waste Landfill.

One monitoring well contained sufficient water for sampling MW-23. No PCBs, relatively high metal concentrations or TPH were detected in any of the samples.

Based on observations made during the 2013 monitoring program, the Lower Site Non-Hazardous Waste Landfill has an acceptable performance rating.

#### 6.2 VISUAL INSPECTION REPORT

The visual inspection of the Lower Site Non-Hazardous Waste Landfill was conducted on September 4<sup>th</sup>, 2013. The Visual Inspection Checklist/Report has been completed as per the TOR and is included as Table XX of this report. Please refer to Figure CAM-4.5 for a sketch of the Lower Site Non-Hazardous Waste Landfill detailing the location of photographs and erosional features.

#### Table XX. Visual Inspection Checklist / Report – Lower Site Non-Hazardous Waste Landfill

# DEW LINE CLEANUP: POST-CONSTRUCTION – LANDFILL MONITORING VISUAL INSPECTION CHECKLIST INSPECTION REPORT – PAGE 1 of 2

**SITE NAME**: CAM-4 Pelly Bay

LANDFILL DESIGNATION: Lower Site Non-Hazardous Waste Landfill

DATE OF INSPECTION: September 4<sup>th</sup>, 2013

**DATE OF PREVIOUS INSPECTION**: August 22<sup>nd</sup>, 2010

**INSPECTED BY:** B. MacKay

REPORT PREPARED BY: B. MacKay

**MONITORING EVENT NUMBER: 6** 

The inspector/reporter represents to the best of his/her knowledge that the following statements and observations are true and correct and to the best of the preparer's actual knowledge, no material facts have been suppressed or misstated.

Checklist Item	Present (Yes/No)	Location	Length (m)	Width (m)	Depth (m)	Extent	Description	Photographic Record	Severity Rating	Additional Comments
Settlement	Yes	FEATURE A See Figure CAM-4.5	2.00	0.30	0.05	0	Minor depressions.	29 and 30	Acceptable	Minor depressions on west cover area, decreased in size since 2010.
		FEATURE B See Figure CAM-4.5	1.00	0.20	0.05	Occasional	Minor depressions.	27 and 28	Acceptable	Linear depressions on northeast side slope, decreased in size since 2010.
Erosion	No	N/A	N/A	N/A	N/A	N/A	N/A	N/A	Not Observed	N/A
Frost Action	No	N/A	N/A	N/A	N/A	N/A	N/A	N/A	Not Observed	N/A
Animal Burrows	No	N/A	N/A	N/A	N/A	N/A	N/A	N/A	Not Observed	N/A
Vegetation	No	N/A	N/A	N/A	N/A	N/A	N/A	N/A	Not Observed	N/A
Staining	No	N/A	N/A	N/A	N/A	N/A	N/A	N/A	Not Observed	N/A
Vegetation Stress	No	N/A	N/A	N/A	N/A	N/A	N/A	N/A	Not Observed	N/A
Seepage Points	No	N/A	N/A	N/A	N/A	N/A	N/A	N/A	Not Observed	N/A
Debris Exposed	No	N/A	N/A	N/A	N/A	N/A	N/A	N/A	Not Observed	N/A
Presence/Condition of Monitoring Instruments	Yes	See Figure CAM-4.5 and Photographic Record	N/A	N/A	N/A	None	MW-21, 22, 23.	4, 5, 8, 9, 13 and 14	N/A	All monitoring wells in good condition.
Other Features of Note:	No	N/A	N/A	N/A	N/A	N/A	N/A	N/A	Not Observed	N/A
Additional Photos	Yes	See Figure CAM-4.5 and Photographic Record	N/A	N/A	N/A	N/A	General Photographic Record.	N/A	N/A	General photos for documentation, no features of note.

#### 6.3 PRELIMINARY STABILITY ASSESSMENT

The Preliminary Stability Assessment for the Lower Site Non-Hazardous Waste Landfill has been completed as per the TOR and is included as Table XXI hereafter.

Table XXI. Preliminary Stability Assessment – Lower Site Non-Hazardous Waste Landfill

Feature	Severity Rating	Extent		
Settlement	Acceptable	Occasional		
Erosion	Not observed	None		
Frost Action	Not observed	None		
Staining	Not observed	None		
Vegetation Stress	Not observed	None		
Seepage/Ponded Water	Not observed	None		
Debris Exposure	Not observed	None		
Overall Landfill Performance	Acceptable			

#### 6.4 LOCATION PLAN

The Location Plan for the Lower Site Non-Hazardous Waste Landfill has been completed as per the TOR and is included in the following page as Figure CAM-4.5 Pelly Bay – Lower Site Non-Hazardous Waste Landfill.

### LEGEND

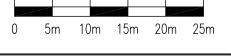
PERMANENT BENCHMARK

SOIL SAMPLE LOCATION

MONITORING WELL LOCATION

PHOTOGRAPH LOCATION

SETTLEMENT (NTS)





14-01-23 P.L. B.M.



### MONITORING DATA

CAM-4, PELLY BAY, NUNAVUT

LOWER SITE NON-HAZARDOUS WASTE LANDFILL

MEASUREMENT UNIT	SCALE:	DATE (month-year):
Meter	1 : 500	JANUARY 2014
drawn by: <b>P. LÉGARÉ</b>	VERIFIED BY:  B. MACKAY	APPROVED BY:  A. LECLAIR P. Eng.
PROJECT NO: CD2656 300 303	DRAWING NO: CD2656 300 303-CAM-4 5	PAGE PL

FIGURE CAM-4.5

#### 6.5 PHOTOGRAPHIC RECORDS

The Photographic Record for the Lower Site Non-Hazardous Waste Landfill has been completed as per the TOR and is included in the following pages as Table XXII. Full-sized photographs are contained in the Addendum DVD-ROM.

Table XXII. Landfill Visual Inspection Photo Log – Lower Site Non-Hazardous Waste Landfill

	T	Vantage Point Focal					
Photo	Filename	Size (MB)	Date		Northing	Focal Length	Caption
				Easting	J		View NE - of the northwest landfill toe from the
1	2013-C4-LN-1	5.53	04/09/2013	391771	7594813	22mm	bottom of the west corner.
2	2013-C4-LN-2	6.69	04/09/2013	391771	7594813	22mm	View SE - of the southwest landfill toe from the
	2010 01 2112	0.00	0 1/ 00/ 20 10	001111	7001010		bottom of the west corner.
3	2013-C4-LN-3	4.66	04/09/2013	391789	7594852	10mm	View SE - of the northwest side slope of the landfill.
4	2013-C4-LN-4	6.19	04/09/2013	391797	7594858	10mm	MW-20 - View SE - of the monitoring well.
5	2013-C4-LN-5	6.29	04/09/2013	391798	7594855	14mm	MW-20 - Close-up - of the monitoring well.
6	2013-C4-LN-6	6.00	04/09/2013	391835	7594867	24mm	View SW - of the northwest landfill toe from the
	2010 01 2110	0.00	0 1/ 00/ 20 10				bottom of the north corner.
7	2013-C4-LN-7	5.12	04/09/2013	391835	7594867	24mm	View SE - of the northeast landfill toe from the bottom of the north corner.
8	2013-C4-LN-8	7.04	04/09/2013	391852	7594847	11mm	MW-23 - View SW - of the monitoring well.
9	2013-C4-LN-9	6.81	04/09/2013	391850	7594846	24mm	MW-23 - Close-up of the monitoring well.
10	2013-C4-LN-10	6.90	04/09/2013	391872	7594831	10mm	View SW - of the northeast side of the landfill.
11	2013-C4-LN-11	6.51	04/09/2013	391861	7594804	10mm	View SW - of the landfill surface from the top of
'''	2013-04-211-11	0.51	04/03/2013	391001	7334004	10111111	the east corner.
12	2013-C4-LN-12	7.18	04/09/2013	391861	7594804	10mm	View NW - of the landfill surface from the top of
40	0040 04 1 1 1 40	0.05	0.1/00/0010	004004	750 1750	40	the east corner.
13	2013-C4-LN-13	6.25	04/09/2013	391834	7594752	10mm	MW-22 - View N - of the monitoring well.
14	2013-C4-LN-14	6.27	04/09/2013	391834	7594755	15mm	MW-22 - Close-up of the monitoring well.
15	2013-C4-LN-15	4.00	04/09/2013	391821	7594763	15mm	View NE - of the southeast toe of the landfill
							from the bottom of the south corner.  View NW - of the southwest toe of the landfill
16	2013-C4-LN-16	5.11	04/09/2013	391821	7594763	15mm	from the bottom of the south corner.
17	2013-C4-LN-17	6.67	04/09/2013	391824	7594779	10mm	View NE - of the landfill surface from the top of
17	2013-C4-LN-17	0.07	04/09/2013	391824	7594779	TOMM	the south corner.
18	2013-C4-LN-18	7.33	04/09/2013	391824	7594779	10mm	View NW - of the landfill surface from the top of
			- 11 001 - 010				the south corner.
19	2013-C4-LN-19	7.41	04/09/2013	391826	7594811	10mm	View S - of the landfill surface from the centre of the landfill.
							View W - of the landfill surface from the centre of
20	2013-C4-LN-20	7.86	04/09/2013	391826	7594811	10mm	the landfill.
21	2013-C4-LN-21	6.97	04/09/2013	391826	7594811	10mm	View N - of the landfill surface from the centre of
21	2013-04-LIN-21	0.97	04/09/2013	391020	7594611	10111111	the landfill.
22	2013-C4-LN-22	6.65	04/09/2013	391826	7594811	10mm	View E - of the landfill surface from the centre of
							the landfill.  View SE - of the landfill surface from the top of
23	2013-C4-LN-23	6.82	04/09/2013	391826	7594848	10mm	the north corner.
	0040 04 1 1 1 04	7.00	0.1/00/0010	001000	7504040	40	View SW - of the landfill surface from the top of
24	2013-C4-LN-24	7.06	04/09/2013	391826	7594848	10mm	the north corner.
25	2013-C4-LN-25	6.86	04/09/2013	391781	7594815	10mm	View NE - of the landfill surface from the top of
	2010 01 211 20	0.00	0 1/ 00/ 20 10	001101	7001010	1011111	the west corner.
26	2013-C4-LN-26	6.78	04/09/2013	391781	7594815	10mm	View SE - of the landfill surface from the top of
							the west corner.  Feature B - Close-up of linear depressions on
27	2013-C4-LN-27	8.58	04/09/2013	391841	7594831	12mm	the northeast side slope.
	0040 04   N 00	7.04	04/00/0040	004000	7504000	40	Feature B - View E - of linear depressions on
28	2013-C4-LN-28	7.31	04/09/2013	391838	7594832	10mm	the northeast side slope.
29	2013-C4-LN-29	8.87	04/09/2013	391801	7594798	11mm	Feature A - Close-up - of depressions on the
	2010 01 21120	0.07	0 1/ 00/ 20 10				west landfill surface.
30	2013-C4-LN-30	7.78	04/09/2013	391801	7594796	10mm	Feature A - View NW - of depression on the west landfill surface.
31	2013-C4-LN-31	7.68	04/09/2013	391787	7594812	24mm	Close-up of vegetation on the landfill surface.
32	2013-C4-LN-32	8.00	04/09/2013	391854	7594849	24mm	MW-23 - Close-up of open soil test pit.
33	2013-C4-LN-33	8.59	04/09/2013	391854	7594849	20mm	MW-23 - Close-up of closed soil test pit.
34	2013-C4-LN-34	8.50	04/09/2013	391835	7594757	20mm	MW-22 - Close-up of open soil test pit.
35	2013-C4-LN-35	8.64	04/09/2013	391835	7594757	24mm	MW-22 - Close-up of closed soil test pit.
36	2013-C4-LN-36	8.53	04/09/2013	391777	7594798	24mm	MW-21 - Close-up of open soil test pit.
37	2013-C4-LN-37	7.32	04/09/2013	391777	7594798	24mm	MW-21 - Close-up of closed soil test pit.

#### 6.6 SELECTED PHOTOGRAPHS



Photo 9: 2013-C4-LN-25 – View NE of the landfill surface from the top of the west corner.



Photo 10: 2013-C4-LN-30 – Feature A – View NW of depression on the west landfill surface.

#### 6.7 SOIL SAMPLE ANALYTICAL DATA

The soil chemical analysis results for the 2013 Lower Site Non-Hazardous Waste Landfill samples are presented in Table XXIII hereafter. Certificates of analysis and results of field duplicates collected as part of the QA/QC program are presented in Appendix C at the end of this report.

Table XXIII. Lower Site Non-Hazardous Waste Landfill Summary Table for Soil Analytical Data

										- J			, , , , ,			
Comple #	Location	Depth	Cu	Ni	Co	Cd	Pb	Zn	Cr	As	Hg	PCBs	F1	F2	F3	TPH
Sample #	Location	[cm]	[mg/kg]	C <sub>6</sub> -C <sub>10</sub>	C <sub>10</sub> -C <sub>16</sub>	C <sub>16</sub> -C <sub>34</sub>	C <sub>6</sub> -C <sub>34</sub>									
2013-C4-MW-21-A	MW-21	0 - 15	11	11	5.2	0.16	56	120	26	2.3	< 0.050	<0.010	<12	14	220	234
2013-C4-MW-21-B	10100-21	40 - 50	9.0	9.2	4.4	<0.10	28	68	19	2.2	< 0.050	<0.010	<12	<10	150	150
2013-C4-MW-22-A	MW-22	0 - 15	10	14	6.8	<0.10	8.8	45	18	1.4	<0.050	<0.010	<12	<10	<50	<10
2013-C4-MW-22-B	10100-22	40 - 50	<5.0	6.7	4.5	<0.10	5.1	25	11	<1.0	0.052	<0.010	<12	<10	<50	<10
2013-C4-MW-23-A	MW-23	0 - 15	9.7	11	5.3	<0.10	8.8	34	18	1.6	< 0.050	<0.010	<12	<10	<50	<10
2013-C4-MW-23-B	10100-23	40 - 50	9.9	10	5.3	<0.10	12	36	18	1.8	< 0.050	<0.010	<12	<10	<50	<10

#### 6.8 GROUNDWATER SAMPLE ANALYTICAL DATA

The groundwater chemical analysis results for the 2013 Lower Site Non-Hazardous Waste Landfill samples are presented in Table XXIV hereafter. Certificates of analysis and results for groundwater samples collected as part of the QA/QC program are presented in Appendix C, at the end of this report.

Table XXIV. Lower Site Non-Hazardous Waste Landfill Summary Table for Groundwater Analytical Data

													<i>J</i>		
Comple #	Location	Cu	Ni	Co	Cd	Pb	Zn	Cr	As	Hg	PCBs	F1	F2	F3	TPH
Sample #	Location	[mg/L]	[mg/L]	[mg/L]	[mg/L]	[mg/L]	[mg/L]	[mg/L]	[mg/L]	[mg/L]	[mg/L]	C <sub>6</sub> -C <sub>10</sub>	C <sub>10</sub> -C <sub>16</sub>	C <sub>16</sub> -C <sub>34</sub>	C <sub>6</sub> -C <sub>34</sub>
2013-C4-MW-21	MW-21		Insufficient water												
2013-C4-MW-22	MW-22		Insufficient water												
2013-C4-MW-23	MW-23	0.0040	0.0034	< 0.00030	0.00069	< 0.00020	0.26	< 0.0010	< 0.00020	< 0.000002	< 0.000050	<0.10	<0.20	<0.20	< 0.10

#### 6.9 MONITORING WELL SAMPLING / INSPECTION LOGS

The monitoring well sampling logs for MW-21 to MW-23 are presented in this section.

Monitor	ing Well Samplin	g Record: MW-21	
Site Name:	CAM-4	Pelly Bay	Nunavut
Date of Sampling Event:	Sept. 4, 2013	, , Time:	7:27 PM
Names of Samplers:	Brandon MacKay	Jamie Jones Ihakkaq	
Landfill Name:	Lower Site No	on-Hazardous Waste Landfill	
Monitoring Well ID:	MW-21		
Sample Number:	N/A – Dry		
Condition of Well:	Good		
Measured Data			
Well pipe height above ground (cm) =	73		
Diameter of well (cm) =	5	Interior diameter	
Depth of well installation (cm) =	N/A		
(from ground surface)	N/A		
Length screened section (cm) =	N/A		
Depth to top of screen (cm) =	N1 / A		
(from ground surface)	N/A		
Depth to water surface (cm) =	N/A	Measurement method:	Interface Meter
(from top of pipe)		(meter, tape, etc.)	
Static water level (cm) =	N/A		
(below ground surface)			
Measured well refusal depth (cm) =	N/A	Evidence of sludge or siltation:	No
(i.e. depth to frozen ground)	·	Ů	
Thickness of water column (cm) =	N/A		
Static volume of water in well (mL) =	N/A		
Free product thickness (mm) =	N/A	Measurement method: (meter, paste, etc.)	Interface Meter
Purging: (Y/N)	N/A	Purging/Sampling Equipment:	Waterra Tubing
Volume Purged Water =	N/A		Foot Valve
Decontamination required: (Y/N)	N - Dedicated		
Number washers:	N/A		
Number rinces:	N/A		
	•		
Final pH =	N/A		
Final Conductivity (uS/cm) =	N/A		
Final Temperature (°C) =	N/A		

Date of Sampling Event:  Names of Samplers:  Brandon MacKay  Landfill Name:  Lower Site Non-Hazardous Waste Landfill  Monitoring Well ID:  MW-22  Sample Number:  Condition of Well:  Good  Measured Data  Vell pipe height above ground (cm) = 5  Diameter of well (cm) = 5  Depth of well installation (cm) = (from ground surface)  Length screened section (cm) = unknown  Depth to top of screen (cm) = (from ground surface)  Depth to water surface (cm) = (from top of pipe)  Static water level (cm) = (below ground surface)  Measured well refusal depth (cm) =   Measured	Monito	oring Well Sampli	ng Record: MW-22	
Date of Sampling Event:  Names of Samplers:  Brandon MacKay  Landfill Name:  Lower Site Non-Hazardous Waste Landfill  Monitoring Well ID:  Monitoring Well Index Monitoring Well Index Measurement Method: (meter, tape, etc.)	Site Name:	CAM-4	Pelly Bay	Nunavut
Names of Samplers:  Landfill Name:  Lower Site Non-Hazardous Waste Landfill  Monitoring Well ID:  MW-22  Sample Number:  N/A - Dry  Condition of Well:  Good  Measured Data  Vell pipe height above ground (cm) = 75  Diameter of well (cm) = 5 Interior diameter  Depth of well installation (cm) = (from ground surface)  Length screened section (cm) = unknown  Depth to top of screen (cm) = (from ground surface)  Depth to water surface (cm) = (from top of pipe)  Static water level (cm) = (below ground surface)  Measured well refusal depth (cm) = M/A  Measured well refusal depth (cm) = M/A  Measured well refusal depth (cm) = M/A	Date of Sampling Event:	Sept. 4, 2013		7:11 PM
Monitoring Well ID: MW-22  Sample Number: N/A – Dry  Condition of Well: Good  Measured Data  Vell pipe height above ground (cm) = 75  Diameter of well (cm) = 5 Interior diameter  Depth of well installation (cm) = unknown  (from ground surface)  Length screened section (cm) = unknown  Depth to top of screen (cm) = (from ground surface)  Interior diameter  Unknown  Unknown  Measurement method: (meter, tape, etc.)  Static water level (cm) = (below ground surface)  Measured well refusal depth (cm) = M/A  Measured well refusal depth (cm) = M/A	1	•	Jamie Jones Ihakkaq	
Sample Number: N/A – Dry Condition of Well: Good  Measured Data Vell pipe height above ground (cm) = 75  Diameter of well (cm) = 5 Interior diameter  Depth of well installation (cm) = (from ground surface)  Length screened section (cm) = unknown  Depth to top of screen (cm) = (from ground surface)  Unknown  Depth to water surface (cm) = (from top of pipe)  Static water level (cm) = (below ground surface)  Measured well refusal depth (cm) = N/A  Measured well refusal depth (cm) = N/A				
Condition of Well:    Measured Data	Monitoring Well ID:	MW-22		
Condition of Well:   Good	Sample Number:	N/A – Dry		
Vell pipe height above ground (cm) = 75  Diameter of well (cm) = 5 Interior diameter  Depth of well installation (cm) = (from ground surface)  Length screened section (cm) = unknown  Depth to top of screen (cm) = (from ground surface)  Unknown  Depth to water surface (cm) = (from top of pipe)  Static water level (cm) = (below ground surface)  Measured well refusal depth (cm) = N/A  Measured well refusal depth (cm) = 100 Measurement method: (meter, tape, etc.)		•		
Vell pipe height above ground (cm) = 75  Diameter of well (cm) = 5 Interior diameter  Depth of well installation (cm) = (from ground surface)  Length screened section (cm) = unknown  Depth to top of screen (cm) = (from ground surface)  Unknown  Depth to water surface (cm) = (from top of pipe)  Static water level (cm) = (below ground surface)  Measured well refusal depth (cm) = N/A  Measured well refusal depth (cm) = 100 Measurement method: (meter, tape, etc.)				
Diameter of well (cm) = 5 Interior diameter  Depth of well installation (cm) = (from ground surface)  Length screened section (cm) = unknown  Depth to top of screen (cm) = (from ground surface)  Depth to water surface (cm) = (from top of pipe)  Static water level (cm) = (below ground surface)  Measured well refusal depth (cm) = (Massured well refusal d	Measured Data			
Depth of well installation (cm) = (from ground surface)  Length screened section (cm) = unknown  Depth to top of screen (cm) = (from ground surface)  Depth to water surface (cm) = (from top of pipe)  Static water level (cm) = (below ground surface)  Measured well refusal depth (cm) = (Massured well refusal depth (cm)	Il pipe height above ground (cm) =	75		
(from ground surface)  Length screened section (cm) = unknown  Depth to top of screen (cm) = (from ground surface)  Depth to water surface (cm) = (from top of pipe)  Static water level (cm) = (below ground surface)  Measured well refusal depth (cm) = (microscopic surface)  Unknown  Unknown  Measurement method: (meter, tape, etc.)  N/A  Measured well refusal depth (cm) = (meter) surface)	Diameter of well (cm) =	5	Interior diameter	
(from ground surface)  Length screened section (cm) = unknown  Depth to top of screen (cm) = (from ground surface)  Depth to water surface (cm) = (from top of pipe)  Static water level (cm) = (below ground surface)  Measured well refusal depth (cm) = (Mathematical	Depth of well installation (cm) =			
Length screened section (cm) = unknown  Depth to top of screen (cm) = (from ground surface)  Depth to water surface (cm) = (from top of pipe)  Static water level (cm) = (below ground surface)  Measured well refusal depth (cm) = (material depth (cm) = (	(from ground surface)	unknown		
(from ground surface)  Depth to water surface (cm) =		unknown		
Depth to water surface (cm) =	Depth to top of screen (cm) =			
Depth to water surface (cm) = N/A Measurement method: (from top of pipe)  Static water level (cm) = (below ground surface)  Measured well refusal depth (cm) =		unknown		
(from top of pipe)  Static water level (cm) = (below ground surface)  Measured well refusal depth (cm) =	(			
Static water level (cm) = (below ground surface)  N/A  Measured well refusal depth (cm) =	Depth to water surface (cm) =	NI/A	Measurement method:	Interface Meter
(below ground surface)  N/A  Measured well refusal depth (cm) =	(from top of pipe)	N/A	(meter, tape, etc.)	interrace wieter
(below ground surface)  Measured well refusal depth (cm) =	Static water level (cm) =	NI / A		
Measured well refusal depth (cm) =	(below ground surface)	N/A		
	leasured well refusal depth (cm) =			
(i.e. depth to frozen ground) N/A Evidence of sludge or siltation: No		N/A	Evidence of sludge or siltation:	No
(mar so par so mar)	(			
Thickness of water column (cm) = N/A	Thickness of water column (cm) =	N/A		
Static volume of water in well (mL) = N/A	atic volume of water in well (mL) =	N/A		
	,	,		
Free product thickness (mm) = N/A Measurement method: (meter, paste, etc.) Interface N	Free product thickness (mm) =	N/A		Interface Meter
Purging: (Y/N) N Purging/Sampling Equipment: Waterra Tu	Purging: (Y/N)	N	Purging/Sampling Equipment:	Waterra Tubing
Volume Purged Water = N/A Foot Val	Volume Purged Water =	N/A		Foot Valve
Decontamination required: (Y/N) N - Dedicated	Decontamination required: (Y/N)	N - Dedicated		
Number washers: N/A	Number washers:	N/A		
Number rinces: N/A	Number rinces:	N/A		
Final pH = N/A	Final pH =	N/A		
Final Conductivity (uS/cm) = N/A	· ·			
Final Temperature (°C) = N/A				

Monito	ring Well Samplin	g Record: MW-23	
Site Name:	CAM-4	Pelly Bay	Nunavut
Date of Sampling Event:	Sept. 4, 2013	Time:	7:11 PM
Names of Samplers:	Brandon MacKay	Jamie Jones Ihakkaq	
Landfill Name:	Lower Site No	on-Hazardous Waste Landfill	
Monitoring Well ID:	MW-23		
Sample Number:	2013-C4-MW-23 + E	xova Duplicate	
Condition of Well:	Good		
Measured Data			
Well pipe height above ground (cm) =	30		
Diameter of well (cm) =	5	Interior diameter	
Depth of well installation (cm) =	224		
(from ground surface)	334		
Length screened section (cm) =	203		
Depth to top of screen (cm) = (from ground surface)	78		
Depth to water surface (cm) = (from top of pipe)	99	Measurement method: (meter, tape, etc.)	Interface Meter
Static water level (cm) = (below ground surface)	69		
Measured well refusal depth (cm) = (i.e. depth to frozen ground)	235	Evidence of sludge or siltation:	No
Thickness of water column (cm) =	136		
Static volume of water in well (mL) =	2671		
Free product thickness (mm) =	0	Measurement method: (meter, paste, etc.)	Interface Meter
Purging: (Y/N)	Υ	Purging/Sampling Equipment:	Waterra Tubing
Volume Purged Water =	3000 mL	<u> </u>	Foot Valve
Decontamination required: (Y/N)	N - Dedicated		
Number washers:	N/A		
Number vasiers.	N/A		
Number finces:	IN/A		
Final pH =	6.99		
Final Conductivity (uS/cm) =	710		
Final Temperature (°C) =	0.1		

#### 7 LOWER SITE LANDFILL

#### 7.1 SUMMARY

The 2013 monitoring of the Lower Site Landfill conducted on September 4<sup>th</sup>, 2013 consisted of a visual inspection to identify areas of erosion conducted and as per the TOR, soil and groundwater samples were taken as well as thermal monitoring.

As of 2013, no erosion features with "significant" or "unacceptable" severity ratings were identified in the Preliminary Stability Assessment of the Lower Site Landfill. During the 2013 investigation a minor increase in areas of settlement were observed on the landfill surface and side slopes as well vegetation has begun to grown on the southwest side slope of the main lobe. Feature F, seepage was not observed in 2013 nor was Feature H, a small piece of metal debris.

TPH was detected at low concentrations in three soil samples taken at the Lower Site Landfill including the surface sample of MW-17 (60 mg/kg), the surface sample of C4-1 (58 mg/kg) and the depth sample of C4-3 (71 mg/kg). No PCBs or relatively high metal concentrations were detected in the samples from either monitoring well.

All monitoring wells were sampled with the exception of MW-20 which lacked sufficient water. No PCBs, relatively high metal concentrations or TPH were detected in any of the samples.

All dataloggers and thermistors were observed to be functioning properly with the exception of VT-10. The thermistor string is still functioning properly. VT-10 was removed from site and shipped to the manufacturer for repair.

#### 7.2 VISUAL INSPECTION REPORT

The visual inspection of the Lower Site Landfill was conducted on September 4<sup>th</sup>, 2013. The Visual Inspection Checklist/Report has been completed as per the TOR and is included as Table XXV of this report. Please refer to Figure CAM-4.6 for a sketch of the Lower Site Landfill detailing the location of photographs and erosional features.

#### Table XXV. Visual Inspection Checklist / Report – Lower Site Landfill

# DEW LINE CLEANUP: POST-CONSTRUCTION – LANDFILL MONITORING VISUAL INSPECTION CHECKLIST INSPECTION REPORT – PAGE 1 of 2

**SITE NAME**: CAM-4 Pelly Bay

LANDFILL DESIGNATION: Lower Site Landfill

**DATE OF INSPECTION**: September 4<sup>th</sup>, 2013

**DATE OF PREVIOUS INSPECTION**: August 22<sup>nd</sup>, 2012

**INSPECTED BY**: B. MacKay

**REPORT PREPARED BY:** B. MacKay

**MONITORING EVENT NUMBER: 6** 

The inspector/reporter represents to the best of his/her knowledge that the following statements and observations are true and correct and to the best of the preparer's actual knowledge, no material facts have been suppressed or misstated.

Checklist Item	Present (Yes/No)	Location	Length (m)	Width (m)	Depth (m)	Extent	Description	Photographic Record	Severity Rating	Additional Comments
Settlement	Yes	FEATURE A See Figure CAM-4.6	0.50-2.00	0.20-0.40	0.05–0.15		Minor depressions.	39, 40, 41, and 42	Acceptable	Linear settlement features located along the east and west crests of the Main lobe of the landfill side slopes. Increased slightly in width since 2010.
		FEATURE B See Figure CAM-4.6	2.00	0.40	0.15		Minor depressions.	37 and 38	Acceptable	Settlement located on the south side slope of the Main lobe. Decreased in size since 2010.
		FEATURE C See Figure CAM-4.6	3.00-15.00	0.30-1.50	0.10-0.20		Minor depressions.	72, 73 and 74	Acceptable	Linear and circular areas of settlement located on the surface of the East lobe. Little to no change in dimension since the 2010 investigation.
		FEATURE D See Figure CAM-4.6	2.00	0.60	0.15		Settlement of fines.	65 and 66	Acceptable	Settlement of fines between boulder fill on side slope of the East lobe, increased slightly in since 2010.
		FEATURE E See Figure CAM-4.6	10.00–15.0 0	0.30	0.10-0.20	Occasional	Minor settlement features.	67, 68, 69 and 70	Acceptable	Linear settlement features extending perpendicular to east slope of the East Lobe. Minor erosion noted. Little to no change from 2010.
		FEATURE J See Figure CAM-4.6	0.60-1.00	0.30-0.40	0.03-0.05		2 Areas of minor settlement.	43 and 44	Acceptable	New Observation: 2 minor areas of settlement observed along the east crest of the main lobe.
		FEATURE K See Figure CAM-4.6	0.40	0.40	0.05		Minor circular area of settlement.	45 and 46	Acceptable	New Observation: Circular area of settlement located on the northern surface of the main lobe.
		FEATURE L See Figure CAM-4.6	0.50	0.30	0.10		Minor area of settlement.	47 and 48	Acceptable	New Observation: Linear area of settlement located on the surface of the "step" on the northwest side slope of the main lobe.
		FEATURE N See Figure CAM-4.6	10.00	0.3	0.10		Minor area of settlement.	71	Acceptable	New Observation: Linear area of settlement located on the surface extending from the toe of the east lobe.
		FEATURE O See Figure CAM-4.6	1.00	1.00	0.05		Minor area of settlement.	75	Acceptable	New Observation: Circular area of settlement located on the northern surface of the east lobe.
Erosion	Yes	FEATURE E See Figure CAM-4.6	10.00–15.0 0	0.30	0.05 - 0.20	Isolated	Minor erosion (washing of fines).	67, 68, 69 and 70	Acceptable	Shallow linear features extending perpendicular to east slope of the East Lobe. Deeper erosion noted along toe. Deposition of fines along south toe. Size remains consistent with 2010 observations.
Frost Action	No	N/A	N/A	N/A	N/A	N/A	N/A	N/A	Not Observed	N/A
Animal Burrows	No	N/A	N/A	N/A	N/A	N/A	N/A	N/A	Not Observed	N/A
Vegetation	No	FEATURE M See Figure CAM-4.6	50.00	5.00–15.0 0	N/A	Occasional	Vegetation.	56 and 57	Acceptable	New Observation: Area of thick vegetation growing on the southwest side slope of the Main lobe composed primarily of dwarf fireweed and arctic grasses.
Staining	Yes	N/A	N/A	N/A	N/A	N/A	N/A	N/A	Not Observed	N/A
Vegetation Stress	No	N/A	N/A	N/A	N/A	N/A	N/A	N/A	Not Observed	N/A
Seepage		FEATURE G See Figure CAM-4.6	5.00-8.00	3.00-5.00	N/A	Occasional	Minor seepage on side slope.	49, 50 and 51	Acceptable	Mnor seepage at 4 areas on the lower half of the west slope of the Main lobe. Running water observed during time of investigation from areas. Size remains consistent with 2010 observations.
Debris Exposed	Yes	FEATURE P See Figure CAM-4.6	0.3	0.05	0.05	Isolated	Metal pipe.	76 and 77	Acceptable	New Observation: Piece of metal pipe on the west landfill surface of the East lobe.
Presence/Condition of Monitoring Instruments	Yes	See Figure CAM-4.6 and Photographic Record	N/A	N/A	N/A	None	MW-17, 18, 19, 20 VT-9, 10, 11, 12.	15, 18, 19, 24, 25, 27, 34 and 35	N/A	All monitoring wells and thermistors in good condition. With the exception of VT-10 which was removed for repairs.
Other Features of Note:	Yes	FEATURE I See Figure CAM-4.6	3.00-7.00	0.03-0.04	up to 0.07	Isolated	Discontinuous tension crack .	52, 53, 54 and 55	Acceptable	Crack extending along southwest toe area of the Main lobe with visible slumping. No longer continuous, but rather two smaller sections.
Additional Photos	Yes	See Figure CAM-4.4 and Photographic Record	N/A	N/A	N/A	N/A	General Photographic Record.	N/A	N/A	General photos for documentation, no features of note.

#### 7.3 PRELIMINARY STABILITY ASSESSMENT

The Preliminary Stability Assessment for the Lower Site Landfill has been completed as per the TOR and is included as Table XXVI hereafter.

Table XXVI. Preliminary Stability Assessment – Lower Site Landfill

Feature	Severity Rating	Extent
Settlement	Acceptable	Occasional
Erosion	Acceptable	Isolated
Frost Action	Not observed	None
Staining	Acceptable	Isolated
Vegetation Stress	Not observed	None
Seepage/Ponded Water	Acceptable	Isolated
Debris Exposure	Acceptable	Isolated
Overall Landfill Performance	Acc	eptable

#### 7.4 LOCATION PLAN

The Location Plan for the Lower Site Landfill has been completed as per the TOR and is included in the following page as Figure CAM-4.6 Pelly Bay – Lower Site Landfill.

#### LEGEND

SOIL SAMPLE LOCATION

MONITORING WELL LOCATION

VERTICAL THERMISTOR LOCATION

1)-PHOTOGRAPH LOCATION

SETTLEMENT (NTS)

EROSION (NTS)

SEEPAGE (NTS)

TENSION CRACK (NTS)

EXPOSED DEBRIS

VEGETATION



A	FINAL	14-01-30	P.L.	B.M.	A.L.
NO.	VERSION	DATE	PAR	VERIF.	APPR



#### COLLECTION OF LANDFILL MONITORING DATA

CAM-4, PELLY BAY, NUNAVUT

LOWER SITE LANDFILL

#### SITE REMEDIATION SOLUTIONS

Biogenie, a division of EnGlobe Corp. 4495 Wilfrid-Hamel blvd, Suite 200 Quebec, (Quebec) CANADA G1P 2J7
Phone : 418-653-4422 www.biogenie-env.com

Meter	1 : 1,000	JANUARY 2014
rawn by: <b>P. LÉGARÉ</b>	VERIFIED BY:  B. MACKAY	APPROVED BY:  A. LECLAIR P. Eng.
ROJECT NO: CD2656_300_303	DRAWING NO: CD2656_300_303-CAM-4_6	PAGE PL

FIGURE CAM-4.6

Biogénie

#### 7.5 THERMISTOR ANNUAL MAINTENANCE REPORTS

The thermistor inspection reports V-9 to VT-12 are presented in this section.

	Biogenie/Sila	a Remediation	Inc.	Insp	ection Date:	Septe	ember-03-13
Prepared By:	Brandon Mad	Кау					
		•					
Thermistor Informat Site Name:	CAM-4	Thormist	or Location		Lower Site La	andfill	
Thermistor Number	_	Inclination			Vertical	anum	
nstall Date:	29-Sep-06				18-Aug-11 La	ast Date E	vent 03-Sep
Coordinates and Ele		N <b>20544.</b> 8	}	Е	18760.1		lev <b>131.</b>
ength of Cable (m)		Cable Lead Ab	ove Ground (r	m) <b>1.4</b>	Nodal Points		
Datalogger Serial #	2020150	)			Cable Serial N	Number	1
Code CAM-4VT-9							
Thermistor Inspec	tion						
		Good	_	Nee	ds Maintenanc	е	
Casing		~					
Cover		✓					
		_					
Data Logo	jer	~					
Cable		~					
Cabio		<del></del>					
Beads		7		<b>~</b>	Beads 1, 3 ar	nd 6 are o	ffline.
Beads	stallation Date	_	13	✓	Beads 1, 3 ar	nd 6 are of	ffline.
Beads Battery Ins		03-Sep-1		✓			
Beads		_	13 11.34 V	7			ffline. 3.5 V
Beads Battery Ins Battery Le	vels	03-Sep-1		<b>V</b>			
Beads Battery In: Battery Le	vels emperature Re	03-Sep-1 Main eadings		<b>V</b>	_A	ux <u>13</u>	3.5 V
Beads Battery Ins Battery Le	emperature Re	03-Sep-1 Main eadings Temp. (°C)		<b>V</b>	Aı	ux <u>13</u>	3.5 V Temp. (°C)
Beads Battery In: Battery Le	vels emperature Re	03-Sep-1 Main eadings		V	_A	ux <u>13</u>	3.5 V
Beads Battery In: Battery Le	emperature Re	03-Sep-1 Main eadings Temp. (°C)		<b>▽</b>	_A	ux <u>13</u>	3.5 V Temp. (°C)
Beads Battery In: Battery Le	emperature Re ohms	03-Sep-1 Main  addings  Temp. (°C)		<b>7</b>	_A	ohms 20.02	3.5 V Temp. (°C) -3.8949
Beads Battery In: Battery Le	emperature Re ohms OL 15.140	03-Sep-1 Main  eadings  Temp. (°C)  N/A  1.5148		<b>V</b>	_A	ohms 20.02	3.5 V Temp. (°C) -3.8949
Beads Battery In: Battery Le	emperature Re ohms OL 15.140 OL 16.026	03-Sep-1 Main  radings Temp. (°C)  N/A  1.5148  N/A			_A	ohms 20.02	3.5 V Temp. (°C) -3.8949
Beads Battery In: Battery Le	ohms OL 15.140 OL 16.026 16.343	03-Sep-1 Main  radings Temp. (°C) N/A 1.5148 N/A 0.3987 0.0161			_A	ohms 20.02	3.5 V Temp. (°C) -3.8949
Beads Battery In: Battery Le	emperature Re ohms OL 15.140 OL 16.026	03-Sep-1 Main  radings  Temp. (°C)  N/A  1.5148  N/A  0.3987  0.0161  N/A			_A	ohms 20.02	3.5 V Temp. (°C) -3.8949
Beads Battery In: Battery Le	ohms OL 15.140 OL 16.026 16.343 OL	03-Sep-1 Main  radings Temp. (°C) N/A 1.5148 N/A 0.3987 0.0161			_A	ohms 20.02	3.5 V Temp. (°C) -3.8949

Contractor Name:	Biogenie/Sila	Remediation Inc	. Ins	pection Date	: Sept	tember-03-1	13
Prepared By:	Brandon Mac	Kay					
Thermistor Informati Site Name:	CAM-4	Thermistor	Location	Lower Site	Landfill		
Thermistor Number:		Inclination	Location	Vertical	Lanunn		
Install Date:	29-Sep-06		vent	N/A	Last Date E	vent N/A	
Coordinates and Ele		N <b>20505.9</b>	Е	18769.1			129.924
Length of Cable (m)		Cable Lead Abov	e Ground (m) 1.:	Nodal Point		10	
Datalogger Serial #	108060			Cable Seria	al Number		1625
Thermistor Inspec	tion						
Thermistor mapee	<u></u>	Good	Ne	eds Maintena	ance		
Casing		✓					
Cover		<u> </u>					
Data Logg	er		<b>V</b>	Removed	for repair		
Cable		<b>▽</b>					
Beads		✓					
Battery Ins	stallation Date	03-Sep-13					
Battery Le	vels	Main _			_Aux		
Manual Ground Te	mperature Rea	adings					
Bead	ohms	Temp. (°C)		Bead	ohms	Temp. (	°C)
1	15.641	0.8750		9	20.12		
2	16.257	0.1191		10	20.71	-3.989 -4.538	
3	16.110	0.2965					
4	16.033	0.3902					
5	16.449	-0.1099					
6	17.081	-0.8432					
7	17.914	-1.7646					
8	18.715	-2.6063					
Observations and							1
Error cau retrieve.	sed by dead ba	attery for extend	ed time period,	datalogger r	removed foi	r repair, no	data to

Prepared By:	Brandon Mad	Remediation						03-13
тератей Бу.	Diandon Mad	лау						
hermistor Informat	ion							
Site Name:	CAM-4	Thermist	or Location	I	Lower Site	Landfill		
hermistor Number		Inclination			Vertical			
nstall Date:	29-Sep-06					Last Date		03-Sep-
Coordinates and Ele		N 20523.5		E	18778.4		Elev	131.
ength of Cable (m) Datalogger Serial #	111070	Cable Lead Ab	ove Ground (I		Nodal Point Cable Seria		10	16
Datalogger Serial #	111070	<u> </u>			Jable Selle	ai Nullibei		10
hermistor Inspec	tion							
		Good	_	Need	ls Maintena	nce		
Casing		✓						
•		_						
Cover		~		ш_				
Data Logo	ger	<b>&gt;</b>						
Cable		✓						
Beads		<u> </u>						
	stellation Data		10					
battery in	stallation Date	03-Sep-1	13					
Battery Le	evels	Main	11.34 V			Aux	13.75 V	
Manual Ground Te	emperature Re	adings						
Bead	ohms	Temp. (°C)	]	ſ	Bead	ohms	Tem	p. (ºC)
1	15.475	1.0844	]	Ī	9	19.682	-3.	5704
2	16.237	0.1431	]	Ī	10	18.630	-2.	5189
3	15.752	0.7363						
4	15.826	0.6445	]					
5	16.266	0.1083	]					
6	16.916	-0.6547						
7	18.023	-1.8816						
8	18.988	-2.8840						
<u> </u>			-	<u></u>				

Contractor Name:	Biogenie/Sila Remediation Inc.	Inspection Date:	September-03-13
Prepared By:	Brandon MacKay		

#### Thermistor Information

Site Name:	CAM-4		Thermistor Lo	cation		Lower Site I	_andfill	
Thermistor Number:	VT-12		Inclination			Vertical		
Install Date:	29-Sep-06		First Date Eve	nt		18-Aug-11 L	ast Date Event	03-Sep-13
Coordinates and Ele	vation	N	20514.1		Е	18787.1	Elev	131.966
Length of Cable (m)	6.7	Cabl	e Lead Above G	Fround (m)	1.2	Nodal Points	11	
Datalogger Serial #	2020150					Cable Serial	Number	1626

#### **Thermistor Inspection**

	Good		Nee	ds Maintenance		
Casing	<b>V</b>					
Cover	<b>V</b>					
Data Logger	<b>V</b>					
Cable	<b>V</b>					
Beads	<b>V</b>		V	Bead 6 is offline.		
Battery Installation Date	03-Sep	-13				
Battery Levels	Main	11.34 V		Aux	12.77 V	

#### **Manual Ground Temperature Readings**

ohms	Temp. (⁰C)
15.463	1.0996
16.060	0.3573
15.497	1.0565
15.504	1.0476
15.995	0.4366
OL	N/A
17.514	-1.3283
18.243	-2.1153
	15.463 16.060 15.497 15.504 15.995 OL 17.514

Bead	ohms	Temp. (⁰C)
9	19.533	-3.4253
10	20.54	-4.3824
11	20.53	-4.3731
4		

#### **Observations and Proposed Maintenance**

Reset clock: 3:05:09 behind		

# 7.6 PHOTOGRAPHIC RECORDS

The Photographic Record for the Lower Site Landfill has been completed as per the TOR and is included in the following pages as Table XXVII. Full-sized photographs are contained in the Addendum DVD-ROM.

# Table XXVII. Landfill Visual Inspection Photo Log – Lower Site Landfill

Photo   Filename   Size (MB)   Date   Casting   Northing   Caption   Castion   Northing   Main Lobe	
1	
2 2013-C4-LS-1 6.01 04/09/2013 391747 7594814 20mm View N = of the east landfill to southeast corner of the landfill.  3 2013-C4-LS-3 7.01 04/09/2013 39177 7594814 20mm View W = of the south landfill to bottom southeast corner of the landfill.  4 2013-C4-LS-4 7.17 04/09/2013 391720 7594826 10mm View N = of the landfill surface in southeast corner of the landfill surface in landfill surface. In landfill surface	1011 7 11
2 2013-C4-LS-3 7.01 04/09/2013 391717 7594814 20mm southeast corner of the landfill to bottom southeast landfill to bo	
2013-C4-LS-3	
Southeast Scorner.	landfill.
6 2013-C4-LS-6 6.42 04/09/2013 391747 7594852 10mm southeast side slope.  7 2013-C4-LS-7 4.03 04/09/2013 391754 7594852 10mm View N - of the landfill surface fine southeast state of the southeast state of 9 2013-C4-LS-9 7.18 04/09/2013 391754 7594853 10mm View N - of the southeast toe of 9 2013-C4-LS-9 7.18 04/09/2013 391767 7594851 10mm View E - of the southeast toe of 10 2013-C4-LS-10 8.57 04/09/2013 391767 7594871 10mm View E - of the southeast toe of 11 2013-C4-LS-11 6.71 04/09/2013 391725 7594895 10mm View SE - of the central landfill surface 11 2013-C4-LS-13 8.12 04/09/2013 391725 7594895 10mm View NE - of the central landfill surface 11 2013-C4-LS-14 8.96 04/09/2013 391725 7594895 10mm View W - of the west slope of the 12 2013-C4-LS-14 8.96 04/09/2013 391725 7594895 10mm View W - of the west slope of the 15 2013-C4-LS-13 8.96 04/09/2013 391768 7594895 10mm View W - of the west slope of the 15 2013-C4-LS-14 8.96 04/09/2013 391768 7594895 10mm View W - of the west slope of the 15 2013-C4-LS-16 3.75 04/09/2013 391768 7594893 10mm View N - of the east toe of the 16 2013-C4-LS-19 8.66 04/09/2013 391768 7594893 10mm View N - of the east toe of the 16 2013-C4-LS-19 8.65 04/09/2013 391750 7594922 10mm View N - of the tensmit 19 2013-C4-LS-19 8.65 04/09/2013 391770 7594941 10mm View N - of the east toe of the 16 2013-C4-LS-22 3.76 04/09/2013 391777 7594941 10mm View N - of the northern landfill sufface 2 2013-C4-LS-22 3.76 04/09/2013 391770 7594941 10mm View S - of the northern landfill sufface 2 2013-C4-LS-24 6.22 04/09/2013 391770 7594980 10mm View S - of the northern landfill sufface 2 2013-C4-LS-24 6.22 04/09/2013 391770 7594981 10mm View S - of the northern landfill sufface 3 2013-C4-LS-25 5.78 04/09/2013 391770 7594980 10mm View S - of the northern landfill sufface 3 2013-C4-LS-30 5.79 04/09/2013 391790 7594981 10mm View S - of the west side slope. 2 2013-C4-LS-30 5.79 04/09/2013 391790 7594981 10mm View N - of the west side slope. 2 2013-C4-LS-30 5.79 04/09/2013 391790 7594981 10mm View N - of the west si	rom the top
6         2013-C4-LS-7         6.32         04/09/2013         391754         7594852         10mm         southeast side slope.           7         2013-C4-LS-7         4.03         04/09/2013         391754         7594853         10mm         View N - of the southeast toe of           9         2013-C4-LS-9         7.18         04/09/2013         391764         7594857         10mm         View E - of the southeast toe of           10         2013-C4-LS-19         8.57         04/09/2013         391716         7594871         10mm         View E - of the southeast toe of           11         2013-C4-LS-11         6.71         04/09/2013         391725         7594895         10mm         View E - of the central landfill standfill	rom the top of the
7         2013-C4-LS-7         4.03         04/09/2013         391754         7594853         10mm         View N - of the southeast toe of 9 2013-C4-LS-8         3.52 04/09/2013         391754         7594853         10mm         View S - of the southeast toe of 9 2013-C4-LS-10         8.57 04/09/2013         391716         7594871         10mm         View S - of the southeast toe of 10 2013-C4-LS-10         8.57 04/09/2013         391716         7594871         10mm         View S - of the southeast toe of 10 2013-C4-LS-10         8.57 04/09/2013         391725         7594895         10mm         View S - of the southwest slope of 10 2013-C4-LS-12         7.14 04/09/2013         391725         7594895         10mm         View W - of the central landfill surface           13         2013-C4-LS-13         8.12 04/09/2013         391725         7594895         10mm         View W - of the west slope of the 10 2013-C4-LS-13         8.12 04/09/2013         391725         7594995         10mm         View W - of the west slope of the 10 2013-C4-LS-13         8.86 04/09/2013         391763         75948995         10mm         View W - of the west slope of the 10 2013-C4-LS-13         8.86 04/09/2013         391768         75949993         10mm         View S - of the east toe of the 10 2013-C4-LS-13         8.86 04/09/2013         391757         7594922         10mm         View S - of the east toe of the 10 2013-C4-LS-13         8.65 04/09/2	rom the top of the
9	f the landfill.
10   2013-C4-LS-10   8.57   04/09/2013   391725   7594895   10mm   View SL - of the landfill surface   12   2013-C4-LS-12   7.14   04/09/2013   391725   7594895   10mm   View SL - of the central landfill   13   2013-C4-LS-13   8.12   04/09/2013   391725   7594895   10mm   View NE - of the central landfill   13   2013-C4-LS-14   8.96   04/09/2013   391725   7594895   10mm   View NL - of the west slope of the   14   2013-C4-LS-14   8.96   04/09/2013   391725   7594895   10mm   View NL - of the west slope of the   15   2013-C4-LS-15   7.58   04/09/2013   391785   7594895   10mm   View NL - of the west slope of the   15   2013-C4-LS-16   3.75   04/09/2013   391786   7594893   10mm   View NL - of the east toe of the lest   17   2013-C4-LS-16   3.75   04/09/2013   391786   7594893   10mm   View NL - of the east toe of the lest   18   2013-C4-LS-18   8.66   04/09/2013   391787   7594908   10mm   View NL - of the east toe of the lest   18   2013-C4-LS-18   8.66   04/09/2013   391787   7594908   10mm   View NL - of the east toe of the lest   2013-C4-LS-26   8.23   04/09/2013   391777   7594908   10mm   View NL - of the hermist   19   2013-C4-LS-26   8.23   04/09/2013   391777   7594941   10mm   View NL - of the hermist   20   2013-C4-LS-22   3.76   04/09/2013   391787   7594941   10mm   View NL - of the hermist   22   2013-C4-LS-23   5.40   04/09/2013   391787   7594950   10mm   View NL - of the north slope of the   22   2013-C4-LS-24   6.22   04/09/2013   391787   7594978   10mm   View NL - of the north toe of the lest   23   2013-C4-LS-26   5.92   04/09/2013   391771   7594978   10mm   MW-17 - View SL - of the month toe of the lest   25   2013-C4-LS-26   5.92   04/09/2013   391771   7594978   10mm   MW-17 - View SL - of the month   10mm   10	f the landfill.
11	e of the landfill.
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22         2013-C4-LS-22         3.76         04/09/2013         391789         7594950         10mm         View S - of the east toe of the law S - of the north toe of the law S - of the law S	
23         2013-C4-LS-23         5.40         04/09/2013         391782         7594980         10mm         View S - of the north toe of the lead o	
24         2013-C4-LS-24         6.22         04/09/2013         391772         7594978         10mm         MW-17 - View S - of the monitor           25         2013-C4-LS-25         7.35         04/09/2013         391771         7594975         14mm         MW-17 - Close-up of the mintor           26         2013-C4-LS-26         5.92         04/09/2013         391760         7594954         14mm         Wiew SW - of the northwest side landfill.           27         2013-C4-LS-27         8.01         04/09/2013         391727         7594926         14mm         VT-9 - View E - of the thermistor           28         2013-C4-LS-28         5.78         04/09/2013         391727         7594926         14mm         View SSW - of the west side slo           30         2013-C4-LS-30         5.79         04/09/2013         391701         7594926         14mm         View NNE - of the west side slo           31         2013-C4-LS-30         5.79         04/09/2013         391701         7594910         14mm         MW-18 - Close-up of the monito           32         2013-C4-LS-31         5.55         04/09/2013         391698         7594911         10mm         View NE - of the west landfill to           33         2013-C4-LS-32         5.38         04/09/2013	
25         2013-C4-LS-25         7.35         04/09/2013         391771         7594975         14mm         MW-17 - Close-up of the mintori           26         2013-C4-LS-26         5.92         04/09/2013         391760         7594954         14mm         View SW - of the northwest side landfill.           27         2013-C4-LS-27         8.01         04/09/2013         391732         7594931         14mm         VT-9 - View E - of the thermistor.           28         2013-C4-LS-28         5.78         04/09/2013         391727         7594926         14mm         View SSW - of the west side slo landfill.           29         2013-C4-LS-29         6.43         04/09/2013         391727         7594926         14mm         View NBE - of the west side slo landfill.           30         2013-C4-LS-30         5.79         04/09/2013         391608         7594910         14mm         MW-18 - Close-up of the monito           31         2013-C4-LS-31         5.55         04/09/2013         391698         7594911         10mm         View NE - of the west landfill toe           32         2013-C4-LS-32         5.38         04/09/2013         391698         7594911         10mm         View NE - of the west landfill toe           34         2013-C4-LS-33         7.23	
26	
2013-C4-LS-26   5.92	
28         2013-C4-LS-28         5.78         04/09/2013         391727         7594926         14mm         View SSW - of the west side slo landfill.           29         2013-C4-LS-29         6.43         04/09/2013         391727         7594926         14mm         View NNE - of the west side slo	
28	
30   2013-C4-LS-30   5.79   04/09/2013   391701   7594910   14mm   MW-18 - Close-up of the monitor of the control of the central landfill surface.	·
31   2013-C4-LS-31   5.55   04/09/2013   391698   7594911   10mm   View NE - of the west landfill tool	
32         2013-C4-LS-32         5.38         04/09/2013         391698         7594911         10mm         View SE - of the west landfill too           33         2013-C4-LS-33         7.23         04/09/2013         391686         7594827         10mm         View NNE - of the west side slo           34         2013-C4-LS-34         5.19         04/09/2013         391668         7594827         18mm         MW-19 - Close-up of the monito           35         2013-C4-LS-35         6.39         04/09/2013         391696         7594827         10mm         MW-19 - View NNE - of the monito           36         2013-C4-LS-36         6.79         04/09/2013         391695         7594823         10mm         View W - of the south landfill too           37         2013-C4-LS-37         8.53         04/09/2013         391710         7594830         12mm         Feature B - Close-up - minor dep           38         2013-C4-LS-38         8.40         04/09/2013         391710         7594831         10mm         Feature B - View W - minor dep           39         2013-C4-LS-39         8.65         04/09/2013         391724         7594894         17mm         Feature A - Close-up - of minor dep           40         2013-C4-LS-40         7.84         04/09/2013	
33         2013-C4-LS-33         7.23         04/09/2013         391686         7594852         10mm         View NNE - of the west side slo           34         2013-C4-LS-34         5.19         04/09/2013         391686         7594827         18mm         MW-19 - Close-up of the monito           35         2013-C4-LS-35         6.39         04/09/2013         391695         7594827         10mm         MW-19 - View NNE - of the monito           36         2013-C4-LS-36         6.79         04/09/2013         391695         7594823         10mm         View W - of the south landfill to           37         2013-C4-LS-37         8.53         04/09/2013         391710         7594830         12mm         Feature B - Close-up - minor dep south landfill surface.           38         2013-C4-LS-38         8.40         04/09/2013         391710         7594891         10mm         Feature B - View W - minor dep south landfill surface.           40         2013-C4-LS-39         8.65         04/09/2013         391724         7594894         17mm         Feature A - Close-up - of minor dep south landfill surface.           41         2013-C4-LS-40         7.84         04/09/2013         391723         7594896         10mm         Feature A - View N - of minor dep south landfill surface. <td< td=""><td></td></td<>	
34         2013-C4-LS-34         5.19         04/09/2013         391668         7594827         18mm         MW-19 - Close-up of the monito           35         2013-C4-LS-35         6.39         04/09/2013         391666         7594827         10mm         MW-19 - View NNE - of the monito           36         2013-C4-LS-36         6.79         04/09/2013         391695         7594823         10mm         View W - of the south landfill to           37         2013-C4-LS-37         8.53         04/09/2013         391710         7594830         12mm         Feature B - Close-up - minor dep south landfill surface.           38         2013-C4-LS-38         8.40         04/09/2013         391710         7594831         10mm         Feature B - View W - minor dep south landfill surface.           40         2013-C4-LS-39         8.65         04/09/2013         391724         7594894         17mm         Feature A - Close-up - of minor dep south landfill surface.           41         2013-C4-LS-40         7.84         04/09/2013         391723         7594890         10mm         Feature A - View N - of minor dep south landfill surface.           42         2013-C4-LS-41         8.84         04/09/2013         391719         7594896         11mm         Feature A - Close-up of minor dep south landfill surface.	
35   2013-C4-LS-35   6.39   04/09/2013   391666   7594827   10mm   MW-19 - View NNE - of the more of the more of the south landfill tools of the south landfill surface.	
36   2013-C4-LS-36   6.79   04/09/2013   391695   7594823   10mm   View W - of the south landfill tool south landfill surface.   Feature B - Close-up - minor deploy south landfill surface.   Feature B - View W - minor deploy south landfill surface.   Feature B - View W - minor deploy south landfill surface.   Feature B - View W - minor deploy south landfill surface.   Feature B - Close-up - of minor deploy south landfill surface.   Feature A - Close-up - of minor deploy south landfill surface.   Feature A - Close-up - of minor deploy south landfill surface.   Feature A - View N - of minor deplo	
37   2013-C4-LS-37   8.53   04/09/2013   391710   7594830   12mm   Feature B - Close-up - minor dep south landfill surface.   38   2013-C4-LS-38   8.40   04/09/2013   391710   7594831   10mm   Feature B - View W - minor dep south landfill surface.   Feature A - Close-up - of minor dep south landfill surface.   Feature A - Close-up - of minor dep south landfill surface.   Feature A - Close-up - of minor dep south landfill surface.   Feature A - Close-up - of minor dep south landfill surface.   Feature A - View N - of minor dep south landfill surface.   Teature A - View N - of minor dep south landfi	
38   2013-C4-LS-38   8.40   04/09/2013   391710   7594831   10mm   Feature B - View W - minor dep south landfill surface.   39   2013-C4-LS-39   8.65   04/09/2013   391724   7594894   17mm   Feature A - Close-up - of minor of the central landfill surface.   40   2013-C4-LS-40   7.84   04/09/2013   391723   7594890   10mm   Feature A - View N - of minor of the central landfill surface.   41   2013-C4-LS-41   8.84   04/09/2013   391719   7594896   11mm   Feature A - Close-up of minor deposition of the central landfill surface.   Feature A - View N - of minor deposition of the central landfill surface.   Feature A - View N - of minor deposition of the central landfill surface.   Feature A - View N - of minor deposition of the central landfill surface.   Feature A - View N - of minor deposition of the central landfill surface.   10mm   10m	
39   2013-C4-LS-39   8.65   04/09/2013   391724   7594894   17mm   Feature A - Close-up - of minor the central landfill surface.   Feature A - View N - of minor of the central landfill surface.   Feature A - Close-up - of minor of the central landfill surface.   Feature A - Close-up - of minor of the central landfill surface.   Feature A - Close-up - of minor of the central landfill surface.   Feature A - Close-up - of minor of the central landfill surface.   Feature A - Close-up - of minor of the central landfill surface.   Feature A - View N - of minor of the central landfill surface.   Feature A - View N - of minor of the central landfill surface.   Feature A - View N - of minor of the central landfill surface.   Feature A - View N - of minor of the central landfill surface.   Feature A - View N - of minor of the central landfill surface.   Feature A - View N - of minor of the central landfill surface.   Feature A - View N - of minor of the central landfill surface.   Feature A - View N - of minor of the central landfill surface.   Feature A - View N - of minor of the central landfill surface.   Feature A - View N - of minor of the central landfill surface.   Feature A - View N - of minor of the central landfill surface.   Feature A - View N - of minor of the central landfill surface.   Feature A - View N - of minor of the central landfill surface.   Feature A - View N - of minor of the central landfill surface.   Feature A - View N - of minor of the central landfill surface.   Feature A - View N - of minor of the central landfill surface.   Feature A - View N - of minor of the central landfill surface.   Feature A - View N - of minor of the central landfill surface.   Feature A - View N - of minor of the central landfill surface.   Feature A - View N - of minor of the central landfill surface.   Feature A - View N - of minor of the central landfill surface.   Feature A - View N - of minor of the central landfill surface.   Feature A - View N - of minor of the central landfill surface.   Feature A - View N	pressions on the
40   2013-C4-LS-40   7.84   04/09/2013   391723   7594890   10mm   Feature A - View N - of minor dothe central landfill surface.	depressions on
40 2013-C4-LS-40 7.84 04/09/2013 391723 7594896 10fill the central landfill surface.  41 2013-C4-LS-41 8.84 04/09/2013 391719 7594896 11mm Feature A - Close-up of minor de the central landfill surface.  42 2013-C4-LS-42 7.61 04/09/2013 391720 7594896 10mm Feature A - View N - of minor de the central landfill surface.	denressions on
41 2013-C4-LS-41 8.84 04/09/2013 391719 7594896 11mm the central landfill surface.  42 2013-C4-LS-42 7.61 04/09/2013 391720 7594896 10mm Feature A - View N - of minor d the central landfill surface.	•
42 2013-C4-LS-42 7.61 04/09/2013 391720 7594896 10mm the central landfill surface.	•
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43 2013-C4-LS-43 8.70 04/09/2013 391761 7594898 18mm Feature J - Close-up of minor de the landfill surface.	
44 2013-C4-LS-44 7.08 04/09/2013 391759 7594898 10mm Feature J - View E- of minor deplandfill surface.	
45 2013-C4-LS-45 8.51 04/09/2013 391767 7594919 24mm Feature K - Close-up of minor de the landfill surface.	·
46 2013-C4-LS-46 7.70 04/09/2013 391766 7594917 12mm Feature - K - View N- of minor d the landfill surface.	
47 2013-C4-LS-47 8.29 04/09/2013 391747 7594945 24mm Feature L - Close-up- of minor d the west side slope of the landfil	
48 2013-C4-LS-48 7.29 04/09/2013 391748 7594947 10mm Feature - L - View S- of minor de the west side slope of the landfil	fill.
49 2013-C4-LS-49 6.28 04/09/2013 391739 7594932 10mm Feature G - View E - of an area the west landfill side slope.	. •
50 2013-C4-LS-50 7.83 04/09/2013 391732 7594924 10mm Feature G - View E- of an area of the west landfill side slope.	of seepage on

Photo	Filename	Size (MB)	Date	Vantag Easting	e Point Northing	Focal Length	Caption
51	2013-C4-LS-51	7.06	04/09/2013	391716	7594906	10mm	Feature G - View E- of an area of seepage on the west landfill side slope.
52	2013-C4-LS-52	8.45	04/09/2013	391689	7594876	22mm	Feature I - Close-up of tension crack on the southwest landfill toe.
53	2013-C4-LS-53	8.22	04/09/2013	391690	7594877	10mm	Feature I - View S - of tension crack on the southwest landfill toe.
54	2013-C4-LS-54	7.68	04/09/2013	391679	7594865	24mm	Feature I - Close-up - of tension crack on the southwest landfill toe.
55	2013-C4-LS-55	7.40	04/09/2013	391680	7594866	10mm	Feature I - View S - of tension crack on the southwest landfill toe.
56	2013-C4-LS-56	8.50	04/09/2013	391682	7594850	18mm	Feature M - Close-up of vegatation growing on the southwest side slope of the lanfill.
57	2013-C4-LS-57	7.45	04/09/2013	391684	7594853	10mm	Feature M - View S- of vegatation growing on the southwest side slope of the landfill.
					East Lobe		Southwest side slope of the faridilli.
58	2013-C4-LS-58	6.98	04/09/2013	391938	7594953	10mm	View S - of landfill surface from the north corner.
59	2013-C4-LS-59	7.21	04/09/2013	391928	7594898	10mm	View SE - of southeast landfill toe.
60	2013-C4-LS-60	6.50	04/09/2013	391928	7594898	10mm	View NE - of northeast landfill toe.
61	2013-C4-LS-61	4.62	04/09/2013	391952	7594885	10mm	View SW - of southeast landfill toe.
62	2013-C4-LS-62	5.34	04/09/2013	391952	7594885	10mm	View NW - of landfill toe.
63	2013-C4-LS-63	6.95	04/09/2013	391894	7594913	10mm	View NE - of landfill surface from the west
63	2013-C4-LS-63	6.95	04/09/2013	391894	7594913	TOMM	corner.
64	2013-C4-LS-64	6.91	04/09/2013	391894	7594913	10mm	View SE - of landfill surface from the west corner.
65	2013-C4-LS-65	7.85	04/09/2013	391909	7594890	19mm	Feature D - Close-up of linear depressions on the south toe of the landfill.
66	2013-C4-LS-66	8.49	04/09/2013	391906	7594890	11mm	Feature D - View SE - of linear depressions on the south toe of the landfill.
67	2013-C4-LS-67	9.04	04/09/2013	391940	7594882	10mm	Feature E - View W - of 1 of 3 linear depressions/erosion channels on the east
							landfill surface. Feature E - View W - of 2 of 3 linear
68	2013-C4-LS-68	9.00	04/09/2013	391940	7594885	10mm	depressions/erosion channels on the east landfill surface.
69	2013-C4-LS-69	7.59	04/09/2013	391942	7594889	10mm	Feature E - View W - 3 of 3 linear depressions/erosion channels on the east landfill surface.
70	2013-C4-LS-70	8.14	04/09/2013	391931	7594897	10mm	Feature E - View E - 3 of 3 linear depressions/erosion channels on the east landfill surface.
71	2013-C4-LS-71	8.93	04/09/2013	391924	7594908	10mm	Feature N - View E - of linear settlement on the landfill surface.
72	2013-C4-LS-72	8.98	04/09/2013	391903	7594911	10mm	Feature C - View E - 1 of 3 areas of settlement on the landfill surface.
73	2013-C4-LS-73	8.61	04/09/2013	391920	7594914	10mm	Feature C - View E - 2 of 3 areas of settlement on the landfill surface.
74	2013-C4-LS-74	8.99	04/09/2013	391920	7594924	10mm	Feature C - View N - 3 of 3 areas of settlement on the landfill surface.
75	2013-C4-LS-75	8.76	04/09/2013	391923	7594924	13mm	Feature O - View E - of a circular area of settlement on the north landfill surface.
76	2013-C4-LS-76	8.68	04/09/2013	391914	7594927	24mm	Feature P - Close-up of metal pipe.
77	2013-C4-LS-77	6.12	04/09/2013	391914	7594927	14mm	Feature P - View S - of metal pipe.
78	2013-C4-LS-78	8.50	04/09/2013	391916	7594927	22mm	C4-1 - Open test pit.
79	2013-C4-LS-79	8.55	04/09/2013	391916	7594927	22mm	C4-1 - Closed test pit.
80	2013-C4-LS-80	6.71	04/09/2013	391902	7594921	24mm	C4-2 - Open test pit.
81	2013-C4-LS-81	6.12	04/09/2013	391902	7594921	24mm	C4-2 - Closed test pit.
82	2013-C4-LS-82	8.54	04/09/2013	391936	7594904	24mm	C4-3 - Open test pit.
83	2013-C4-LS-83	8.59	04/09/2013	391936	7594904	24mm	C4-3 - Closed test pit.
					lain Lobe		
84	2013-C4-LS-84	9.15	04/09/2013	391647	7594759	20mm	MW-19 - Open test pit.
85	2013-C4-LS-85	9.20	04/09/2013	391647	7594759	20mm	MW-19 - Closed test pit.
86	2013-C4-LS-86	8.82	04/09/2013	391704	7594915	20mm	MW-18 - Open test pit.
87	2013-C4-LS-87	8.96	04/09/2013	391704	7594915	20mm	MW-18 - Closed test pit.
88	2013-C4-LS-88	8.69	04/09/2013	391775	7594978	20mm	MW-17 - Closed test pit.
89	2013-C4-LS-89	7.76	04/09/2013	391795	7594858	24mm	MW-20 - Open test pit.
90	2013-C4-LS-90	7.89	04/09/2013	391795	7594858	24mm	MW-20 - Closed test pit.

# 7.7 SELECTED PHOTOGRAPHS



Photo 11: 2013-C4-LS-23 – View S of the north toe of the landfill.



Photo 12: 2013-C4-LS-31 – View NE of the west landfill toe from MW-18.



Photo 13: 2013-C4-LS-51 – Feature G – View E of an area of seepage on the west landfill side slope.



Photo 14: 2013-C4-TII-63 – Feature H – Feature M – View S of vegetation growing on the southwest side slope of the landfill. New observation.

# 7.8 SOIL SAMPLE ANALYTICAL DATA

The soil chemical analysis results for the 2013 Lower Site Landfill samples are presented in Table XXVIII hereafter. Certificates of analysis and results of field duplicates collected as part of the QA/QC program are presented in Appendix C at the end of this report.

Table XXVIII. Lower Site Landfill Summary Table for Soil Analytical Data

							• • • • • • • • • • • • • • • • • • • •		<b></b>							
Sample #	Location	Depth	Cu	Ni	Co	Cd	Pb	Zn	Cr	As	Hg	PCBs	F1	F2	F3	TPH
Sample #	Location	[cm]	[mg/kg]	[mg/kg]	[mg/kg]	[mg/kg]	[mg/kg]	[mg/kg]	[mg/kg]	[mg/kg]	[mg/kg]	[mg/kg]	C <sub>6</sub> -C <sub>10</sub>	C <sub>10</sub> -C <sub>16</sub>	C <sub>16</sub> -C <sub>34</sub>	C <sub>6</sub> -C <sub>34</sub>
2013-C4-MW-17-A	MW-17	0 - 15	9.8	10	5.3	<0.10	7.1	35	19	1.6	<0.050	<0.010	<12	<10	60	60
2013-C4-MW-17-B	10100-17	40 - 50	10	11	5.1	<0.10	7.0	32	18	1.6	< 0.050	<0.010	<12	<10	<50	<10
2013-C4-MW-18-A	MW-18	0 - 15	34	17	9.1	<0.10	19	64	35	2.6	0.11	<0.010	<12	<10	<50	<10
2013-C4-MW-18-B	10100-10	40 - 50	13	13	7.2	<0.10	12	59	26	3.1	0.10	<0.010	<12	<10	<50	<10
2013-C4-MW-19-A	MW-19	0 - 15	6.7	7.1	3.3	<0.10	5.4	25	14	1.1	< 0.050	<0.010	<12	<10	<50	<10
2013-C4-MW-19-B	10100-13	40 - 50	6.7	8.0	3.8	<0.10	5.8	32	15	2.2	< 0.050	<0.010	<12	<10	<50	<10
2013-C4-MW-20-A	MW-20	0 - 15	12	11	5.9	<0.10	8.7	39	18	2.0	< 0.050	<0.010	<12	<10	<50	<10
2013-C4-MW-20-B/MW-20-B-D	10100-20	40 - 50	14.4	9.5	4.8	<0.10	8.1	34	16	1.7	<0.050	<0.010	<12	<10	<50	<10
2013-C4-1-A	C4-1	0 - 15	24	19	9.8	0.13	36	110	36	4.6	< 0.050	<0.010	<12	<10	58	58
2013-C4-1-B/1-B-D	04-1	40 - 50	13.5	8.8	4.9	<0.10	13	39	15	1.2	<0.050	<0.010	<12	<10	<50	<10
2013-C4-2-A	C4-2	0 - 15	9.4	8.3	4.6	<0.10	5.6	27	14	8.9	< 0.050	<0.010	<12	<10	<50	<10
2013-C4-2-B	04-2	40 - 50	8.0	8.2	3.9	<0.10	6.2	25	13	2.8	<0.050	<0.010	<12	<10	<50	<10
2013-C4-3-A	C4-3	0 - 15	16	15	7.6	<0.10	12	64	40	6.5	0.079	<0.010	<12	<10	<50	<10
2013-C4-3-B	04-3	40 - 50	24	20	10	<0.10	15	79	56	7.4	0.062	<0.010	<12	<10	71	71

# 7.9 GROUNDWATER SAMPLE ANALYTICAL DATA

The groundwater chemical analysis results for the 2013 Lower Site Landfill samples are presented in Table XXIX hereafter. Certificates of analysis and results for groundwater samples collected as part of the QA/QC program are presented in Appendix C, at the end of this report.

Table XXIX. Lower Site Landfill Summary Table for Groundwater Analytical Data

Comple #	Lagation	Cu	Ni	Co	Cd	Pb	Zn	Cr	As	Hg	PCBs	F1	F2	F3	TPH
Sample #	Location	[mg/L]	[mg/L]	[mg/L]	[mg/L]	[mg/L]	[mg/L]	[mg/L]	[mg/L]	[mg/L]	[mg/L]	C <sub>6</sub> -C <sub>10</sub>	C <sub>10</sub> -C <sub>16</sub>	C <sub>16</sub> -C <sub>34</sub>	C <sub>6</sub> -C <sub>34</sub>
2013-C4-MW-17	MW-17	0.0068	0.0064	0.0019	0.00012	0.00020	<0.0030	<0.0010	0.00060	0.0000068	<0.000050	<0.10	<0.20	<0.20	<0.10
2013-C4-MW-18	MW-18	0.0016	0.0012	<0.00030	0.00011	<0.00020	<0.0030	<0.0010	<0.00020	< 0.0000020	<0.000050	<0.10	<0.20	<0.20	<0.10
2013-C4-MW-19	MW-19	0.0029	0.0049	0.0015	0.00040	< 0.00020	< 0.0030	<0.0010	0.00040	< 0.0000020	<0.000050	<0.10	<0.20	<0.20	<0.10
2013-C4-MW-20	MW-20		Insufficient water												

# 7.10 MONITORING WELL SAMPLING / INSPECTION LOGS

The monitoring well sampling logs for MW-17 to MW-20 are presented in this section.

Monitor	ing Well Samplin	g Record: MW-17	
Site Name:	CAM-4	Pelly Bay	Nunavut
Date of Sampling Event:	Sept. 4, 2013	Time:	6:15 PM
Names of Samplers:	Brandon MacKay	Jamie Jones Ihakkaq	
Landfill Name:		wer Site Landfill	
Monitoring Well ID:	MW-17		
Sample Number:	2013-C4-MW-17		
Condition of Well:	Good		
Measured Data			
Well pipe height above ground (cm) =	70		
Diameter of well (cm) =	5	Interior diameter	
Depth of well installation (cm) =	202		
(from ground surface)	382		
Length screened section (cm) =	203		
Depth to top of screen (cm) = (from ground surface)	83		
Depth to water surface (cm) = (from top of pipe)	200	Measurement method: (meter, tape, etc.)	Interface Meter
Static water level (cm) = (below ground surface)	130		
Measured well refusal depth (cm) = (i.e. depth to frozen ground)	242	Evidence of sludge or siltation:	No
Thickness of water column (cm) =	42		
Static volume of water in well (mL) =	2554		
Static volume of water in wen (int.) -	2334		
Free product thickness (mm) =	0	Measurement method: (meter, paste, etc.)	Interface Meter
Purging: (Y/N)	Υ	Purging/Sampling Equipment:	Waterra Tuhing
Volume Purged Water =	3000 mL	. a.g.n.g/ Jamping Equipment.	Foot Valve
Decontamination required: (Y/N)	N - Dedicated		1000 valve
Number washers:	N/A		
Number washers. Number rinces:			
Number finces:	N/A		
Fine Latt	6.00		
Final Canductivity (vS/cm)	6.80		
Final Conductivity (uS/cm) =	520		
Final Temperature (°C) =	1.0		

Monitor	ring Well Samplin	g Record: MW-18	
Site Name:	CAM-4	Pelly Bay	Nunavut
Date of Sampling Event:	Sept. 4, 2013	, , Time:	5:52 PM
Names of Samplers:	Brandon MacKay	Jamie Jones Ihakkaq	
Landfill Name:	Lo	wer Site Landfill	
Monitoring Well ID:	MW-18		
Sample Number:	2013-C4-MW-18		
Condition of Well:	Good		
Measured Data			
Well pipe height above ground (cm) =	75		
Diameter of well (cm) =	5	Interior diameter	
Depth of well installation (cm) =	380		
(from ground surface)	380		
Length screened section (cm) =	203		
Depth to top of screen (cm) =	0.1		
(from ground surface)	81		
Depth to water surface (cm) =	81	Measurement method:	Interface Meter
(from top of pipe)		(meter, tape, etc.)	
Static water level (cm) = (below ground surface)	6		
Measured well refusal depth (cm) = (i.e. depth to frozen ground)	167	Evidence of sludge or siltation:	No
Thickness of water column (cm) =	86		
Static volume of water in well (mL) =	1689		
Static volume of water in well (IIIL) =	1009		
Free product thickness (mm) =	0	Measurement method: (meter, paste, etc.)	Interface Meter
Purging: (Y/N)	Υ	Purging/Sampling Equipment:	Waterra Tubing
Volume Purged Water =	2000 mL		Foot Valve
Decontamination required: (Y/N)	N - Dedicated		
Number washers:	N/A		
Number rinces:	N/A		
	/.		
Final pH =	7.29		
Final Conductivity (uS/cm) =	740		
Final Temperature (°C) =	0.2		

Monitor	ing Well Samplin	g Record: MW-19	
Site Name:	CAM-4	Pelly Bay	Nunavut
Date of Sampling Event:	Sept. 4, 2013	Time:	5:33 PM
Names of Samplers:	Brandon MacKay	Jamie Jones Ihakkaq	
Landfill Name:	Lo	wer Site Landfill	
Monitoring Well ID:	MW-19		
Sample Number:	20	013-C4-MW-19, 2013-C4-MW-19D	
Condition of Well:	Good		
Measured Data			
Well pipe height above ground (cm) =	71		
Diameter of well (cm) =	5	Interior diameter	
Depth of well installation (cm) =	363		
(from ground surface)	303		
Length screened section (cm) =	203		
Depth to top of screen (cm) =	0.4		
(from ground surface)	84		
Depth to water surface (cm) =	75	Measurement method:	Interface Meter
(from top of pipe)		(meter, tape, etc.)	
Static water level (cm) =	4		
(below ground surface)			
Measured well refusal depth (cm) =	202	Evidence of sludge or siltation:	No
(i.e. depth to frozen ground)			
Thickness of water column (cm) =	127		
Static volume of water in well (mL) =	2495		
()			
Free product thickness (mm) =	0	Measurement method: (meter, paste, etc.)	Interface Meter
Purging: (Y/N)	Υ	Purging/Sampling Equipment:	Waterra Tubing
Volume Purged Water =	3000 mL		Foot Valve
Decontamination required: (Y/N)	N - Dedicated		
Number washers:	N/A		
Number rinces:	N/A		
	,		
Final pH =	6.79		
Final Conductivity (uS/cm) =	780		
Final Temperature (°C) =	0.2		

Monitor	ing Well Samplin	g Record: MW-20	
Site Name:	CAM-4	Pelly Bay	Nunavut
Date of Sampling Event:	Sept. 4, 2013	Time:	5:51 PM
Names of Samplers:	Brandon MacKay	Jamie Jones Ihakkaq	
Landfill Name:	Lo	wer Site Landfill	
Monitoring Well ID:	MW-20		
Sample Number:	N/A – Dry		
Condition of Well:	Good		
Measured Data			
Well pipe height above ground (cm) =	76		
Diameter of well (cm) =	5	Interior diameter	
Depth of well installation (cm) =	343		
(from ground surface)	545		
Length screened section (cm) =	205		
Depth to top of screen (cm) =	20		
(from ground surface)	30		
Depth to water surface (cm) =  (from top of pipe)	N/A	Measurement method: (meter, tape, etc.)	Interface Meter
Static water level (cm) = (below ground surface)	N/A	(meter, tape, etc.)	
Measured well refusal depth (cm) = (i.e. depth to frozen ground)	N/A	Evidence of sludge or siltation:	No
Thickness of water column (cm) =	N/A		
Static volume of water in well (mL) =	N/A		
Free product thickness (mm) =	N/A	Measurement method: (meter, paste, etc.)	Interface Meter
Purging: (Y/N)	N/A	Purging/Sampling Equipment:	Waterra Tubing
Volume Purged Water =	N/A		Foot Valve
Decontamination required: (Y/N)	N - Dedicated		
Number washers:	N/A		
Number rinces:	N/A		
	,		
Final pH =	N/A		
Final Conductivity (uS/cm) =	N/A		
Final Temperature (°C) =	N/A		

# 8 SITE BACKGROUND

# 8.1 SUMMARY

The 2013 monitoring of the Site Background consisted of soil and groundwater sampling at two monitoring well locations; BMW-3 and BMW-4.

No TPH, PCBs or relatively high metal concentrations were detected in any of the soil or groundwater samples.

# 8.2 PHOTOGRAPHIC RECORDS

The Photographic Record for the Site Background has been completed as per the TOR and is included in the following pages as Table XXX. Full-sized photographs are contained in the Addendum DVD-ROM.

# Table XXX. Landfill Visual Inspection Photo Log – Site Background

Photo	Filename	Size (MB)	Date	Vantag	e Point	Focal	Caption
FIIOLO	Filelialile	Size (IVID)	Date	Easting	Northing	Length	Caption
1	2013-C4-B-1	7.14	03/09/2013	388477	7594206	22mm	BMW-03 - Close-up of open soil test pit.
2	2013-C4-B-2	8.04	03/09/2013	388477	7594206	22mm	BMW-03 - Close-up of closed soil test pit.
3	2013-C4-B-3	5.00	03/09/2013	388477	7594207	22mm	BMW-03 - Close-up of monitoring well.
4	2013-C4-B-4	6.43	03/09/2013	388479	7594208	13mm	BMW-03 - View E - of monitoring well.
5	2013-C4-B-5	6.33	04/09/2013	391955	7594879	18mm	BMW-04 - Close-up of open soil test pit.
6	2013-C4-B-6	8.50	04/09/2013	391955	7594879	24mm	BMW-04 - Close-up of closed soil test pit.
7	2013-C4-B-7	8.83	04/09/2013	391647	7594760	24mm	BMW-04 - Close-up of monitoring well.

# 8.3 SELECTED PHOTOGRAPHS



Photo 15: 2013-C4-B-3 – BMW-03 – Close-up of monitoring well.



Photo 16: 2013-C4-B-4 – BMW-03 – View E of monitoring well.

# 8.4 SOIL SAMPLE ANALYTICAL DATA

The soil chemical analysis results for the 2013 Site Background samples are presented in Table XXXI hereafter. Certificates of analysis and results of field duplicates collected as part of the QA/QC program are presented in Appendix C at the end of this report.

Table XXXI. Site Background Summary Table for Soil Analytical Data

Comple #	Location	Depth	Cu	Ni	Co	Cd	Pb	Zn	Cr	As	Hg	PCBs	F1	F2	F3	TPH
Sample #	Location	[cm]	[mg/kg]	C <sub>6</sub> -C <sub>10</sub>	C <sub>10</sub> -C <sub>16</sub>	C <sub>16</sub> -C <sub>34</sub>	C <sub>6</sub> -C <sub>34</sub>									
2013-C4-BMW-3-A	BMW-3	0 - 15	9.5	14	7.2	<0.10	6.6	35	27	2.2	< 0.050	<0.010	<12	<10	<50	<10
2013-C4-BMW-3-B	DIVIVV-3	40 - 50	6.6	10	5.0	<0.10	4.7	27	22	1.7	< 0.050	<0.010	<12	<10	<50	<10
2013-C4-BMW-4-A	BMW-4	0 - 15	7.1	6.0	3.6	<0.10	4.0	23	11	<1.0	< 0.050	<0.010	<12	<10	<50	<10
2013-C4-BMW-4-B/BMW-4-B-D	DIVIVV-4	40 - 50	7.7	7.5	3.8	<0.10	5.5	22	14	1.4	< 0.050	<0.010	<12	<10	<50	<10

# 8.5 GROUNDWATER SAMPLE ANALYTICAL DATA

The groundwater chemical analysis results for the 2013 Site Background samples are presented in Table XXXII hereafter. Certificates of analysis and results for groundwater samples collected as part of the QA/QC program are presented in Appendix C, at the end of this report.

Table XXXII. Site Background Summary Table for Groundwater Analytical Data

	Comple #	Lagation	Cu	Ni	Co	Cd	Pb	Zn	Cr	As	Hg	PCBs	F1	F2	F3	TPH
	Sample #	Location	[mg/L]	[mg/L]	[mg/L]	[mg/L]	[mg/L]	[mg/L]	[mg/L]	[mg/L]	[mg/L]	[mg/L]	C <sub>6</sub> -C <sub>10</sub>	C <sub>10</sub> -C <sub>16</sub>	C <sub>16</sub> -C <sub>34</sub>	C <sub>6</sub> -C <sub>34</sub>
İ	2013-C4-BMW-3	BMW-3	<0.00020	<0.00050	<0.00030	<0.00000.50	<0.00020	<0.0030	<0.0010	0.00020	<0.000002	<0.000050	<0.10	<0.20	<0.20	<0.10
ı	2013-C4-BMW-4	BMW-4	0.0013	< 0.00050	< 0.00030	0.00015	< 0.00020	< 0.0030	<0.0010	<0.00020	< 0.000002	< 0.000050	<0.10	<0.20	<0.20	< 0.10

# 8.6 Monitoring Well Sampling / Inspection Logs

The monitoring well sampling logs for BMW-3 to BMW-4 are presented in this section.

	CAM-4		
		Pelly Bay	Nunavut
	Sept. 3, 2013	Time:	3:45 PM
Names of Samplers: Bra	andon MacKay	Jamie Jones Ihakkaq	
Landfill Name:		te Background	
Monitoring Well ID:	BMW-3		
Sample Number:			
Condition of Well:	Good		
Measured Data			
Well pipe height above ground (cm) =	77		
Diameter of well (cm) =	5	Interior diameter	
Depth of well installation (cm) =	345		
(from ground surface)	343		
Length screened section (cm) =	203		
Depth to top of screen (cm) =	4.0		
(from ground surface)	46		
Depth to water surface (cm) =  (from top of pipe)	96	Measurement method:	Interface Meter
Static water level (cm) =		(meter, tape, etc.)	
	19		
(below ground surface)			
Measured well refusal depth (cm) =	221	Evidence of sludge or siltation:	No
(i.e. depth to frozen ground)			-
Thickness of water column (cm) =	125		
Static volume of water in well (mL) =	2455		
Free product thickness (mm) =	0	Measurement method: (meter, paste, etc.)	Interface Meter
Purging: (Y/N)	Υ	Purging/Sampling Equipment:	Waterra Tubing
Volume Purged Water =	3000 mL		Foot Valve
	N - Dedicated		
Number washers:	N/A		
Number rinces:	N/A		
1 11 1001	,		
Final pH =	6.58		
Final Conductivity (uS/cm) =	550		
Final Temperature (°C) =	0.2		

Monitor	ing Well Samplin	g Record: BMW-4	
Site Name:	CAM-4	Pelly Bay	Nunavut
Date of Sampling Event:	Sept. 4, 2013	Time:	2:38 PM
Names of Samplers:	Brandon MacKay	Jamie Jones Ihakkaq	
Landfill Name:	S	ite Background	
Monitoring Well ID:	BMW-4		
Sample Number:	2013-C4-BMW-4		
Condition of Well:	Good		
Measured Data			
Well pipe height above ground (cm) =	66		
Diameter of well (cm) =	5	Interior diameter	
Depth of well installation (cm) =	1		
(from ground surface)	unknown		
Length screened section (cm) =	200 assumed		
Depth to top of screen (cm) = (from ground surface)	50 assumed		
Depth to water surface (cm) = (from top of pipe)	150	Measurement method: (meter, tape, etc.)	Interface Meter
Static water level (cm) = (below ground surface)	84		
Measured well refusal depth (cm) = (i.e. depth to frozen ground)	238	Evidence of sludge or siltation:	No
Thickness of water column (cm) =	88		
Static volume of water in well (mL) =	1729		
Static volume of water in well (IIIL) –	1729		
Free product thickness (mm) =	0	Measurement method: (meter, paste, etc.)	Interface Meter
Purging: (Y/N)	Y	Purging/Sampling Equipment:	Waterra Tuhing
Volume Purged Water =	2000 mL	- 9	Foot Valve
Decontamination required: (Y/N)	N - Dedicated		
Number washers:	N/A		
Number washers.  Number rinces:	N/A		
ivallibel filices.	IV/ A		
Final pH =	7.79		
Final Conductivity (uS/cm) =	170		
Final Temperature (°C) =	1.9		

# **APPENDIX A**

Range of the Report and Limitation of Responsibilities



# SCOPE OF THE REPORT AND LIMITATION OF LIABILITY

# A – Recipient and Use

This report ("Report") was prepared by Biogenie, a division of EnGlobe Corp., ("Biogenie") at the request and for the sole benefit of the Client ("Client"), and is intended to be used exclusively by the Client.

#### B -Site Conditions

Any description of the target site ("Site"), soil and/or groundwater included in the Report is only provided as an indication to the Client, and unless otherwise specifically mentioned in the Report such description shall not at any time and under any circumstances be used for purposes other than to gain a better understanding of the Site and to fulfil the requirements of the mandate assigned to Biogenie by the Client ("Mandate").

All information, including but not limiting the comprehensiveness of the data, charts, descriptions, drawings, tables, analysis results, compilations, and any conclusion and recommendation included in the Report, shall arise from the direct observation of the Site during a specific period, namely the fulfilment of the Mandate, and from the interpretation of such information and data available during the same period.

The content of the Report shall not apply in any way or to any part of the Site or to any parameter, material or analysis excluded from the Mandate.

Biogenie shall not be held responsible for the presence of any substance or material of a different nature, or of a similar nature but with different concentrations, as those indicated in the Report, and this in any part or parts of the Site excluded from the Mandate.

The content of the Report, including its conclusions and recommendations, shall not apply to any period preceding or following the Mandate. The physiochemical conditions of the Site, and the type and degree of contamination identified on the Site, may vary within a given period depending on a number of factors, especially the current activities taking place on the Site and/or on lands adjacent to the Site.

A review of the Report and/or changes in the parameters, conclusions and/or recommendations may prove to be necessary in the event of a change in the Site conditions or the discovery of pertinent information subsequent to the production of the Report.

# C - Legislation, Regulations, Guidelines and Policies

The interpretation of the data and observations concerning the Site, as well as the conclusions and recommendations resulting from these, shall take into account the laws, regulations, standards, policies and/or guidelines applicable to the Project and that are in effect at the time of the fulfilment of the Mandate. In the event no current law, regulation, policy, guideline or standard applies to the project, Biogenie shall take into account proven environmental and professional rules and practices when drawing up the Report.

Any change in the legislation, regulations, standards, policies and/or guidelines applicable to the project may result in the need to review the Report and/or modify its parameters, conclusions and/or recommendations.

# D – Use of Report

The Report is intended for the exclusive use of the Client and shall only be used for the purpose it was meant for.

The content of the Report and its conclusions and recommendations only apply to the Site and may not, at any time and under any circumstances, apply to any land adjacent to the Site or to any other land located in the vicinity of the Site.

Any reproduction in any form whatsoever and any distribution or use of the Report, in whole or in part, by a person other that the Client, is strictly forbidden without the prior written consent of Biogenie. Biogenie makes no declaration and pledges no responsibility towards any person other than the Client with regard to the content of the Report and the conclusions and recommendations expressed therein.

Biogenie is in no way responsible for any loss, fine or penalty, or for any expense, damage or other prejudice of any type whatsoever, sustained by a person other than the Client as a result of the unauthorized use of the Report.

No provision of the Report shall be construed as or considered to be a legal opinion of Biogenie's.

S:\MO\Range&Limit.doc/2013-10-29

**APPENDIX B** 

**Field Notes** 

	J				
	Appes, te 1	VAUL	- So: 1	Samplin	S
	- 60 Km/h	Und	from U.	157	
	MW-3			10245	12000
10	2013. C4- MU-3			_	
	- 30: Ovyenic		46cm		
	Pic		GPS 711	,	
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MW-3	264	(4 D)	712		
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10	2013 - CH - ML		40	4	1/00 ang
	- 5and	69	704	1	
open	254	ණි ණ	11		
MW-4A	255 256 257	(3) (8)	105 306 707		
- <b>ラ</b> ン	27'	(52)	70.01		
	MU- 4B	11.2 A	10	9:	.45mg
C(I	2013 - 64 - 10	-4B -A -B	10 , 40,	Some	HSam 5
open	258	(3)	709		
nu-913	259	34) 39	709		-
371)	26\	(36)	766		

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	2013- C4-MU-Z-A Soud + Gran / 7	
	·· -B	
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closed	2-51 (26).	o per
MW-2	252 (2). 702	
-7 W	253 (28) 703	MW-7
	•	75
	MU-6A	
	2013 - CH - MU-CA A = / ( )	
	-17 M - 0 1 1 1	
open	242 (9) 695 Deployer on A 18	
closed		oben
MW-64		close
-7 W	201/	12-71
, ~	245 (20) 697	-75
	MW-613	
	2613 - C4 - MW - GB - A Soul + Grand	
	1 -13 + exam Da 17	
مدوه	246 ED 699	
cland	246 (D) 699 247 (2) 11	op-n
MW-63	248 (3) 648	clusted
コル	249 04 700	BMU-1
		7 =
	MW-1	
	2013 - C4- MU-1-A + ESG - By 14	
	-13	
ann		
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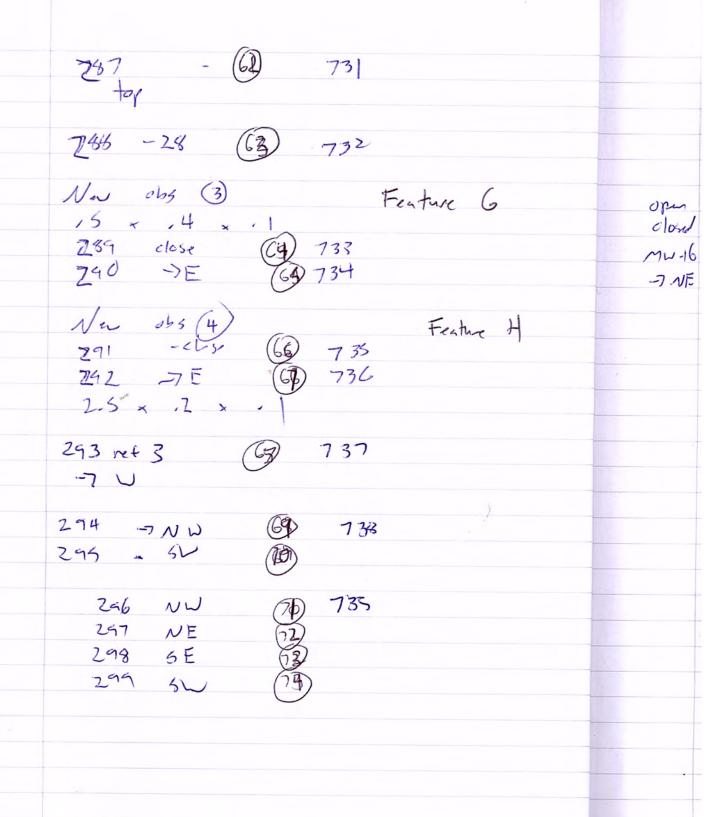
AND -7A 15  7  2013 - C4 - MV-21 - A 16  8  0 pten 124				
7 2013-C4-MV-21-A  8  0 often 234 © 655  closed 235 © "  MW-7A 236 (1) Cey  -5 237 © G1  MW-7B  231 © G1  MW-7B  232 © G5  closed 231 © "  -3  -3  -3  -3  -3  -3  -3  -3  -3  -				
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- 40-60 km/h wi-d

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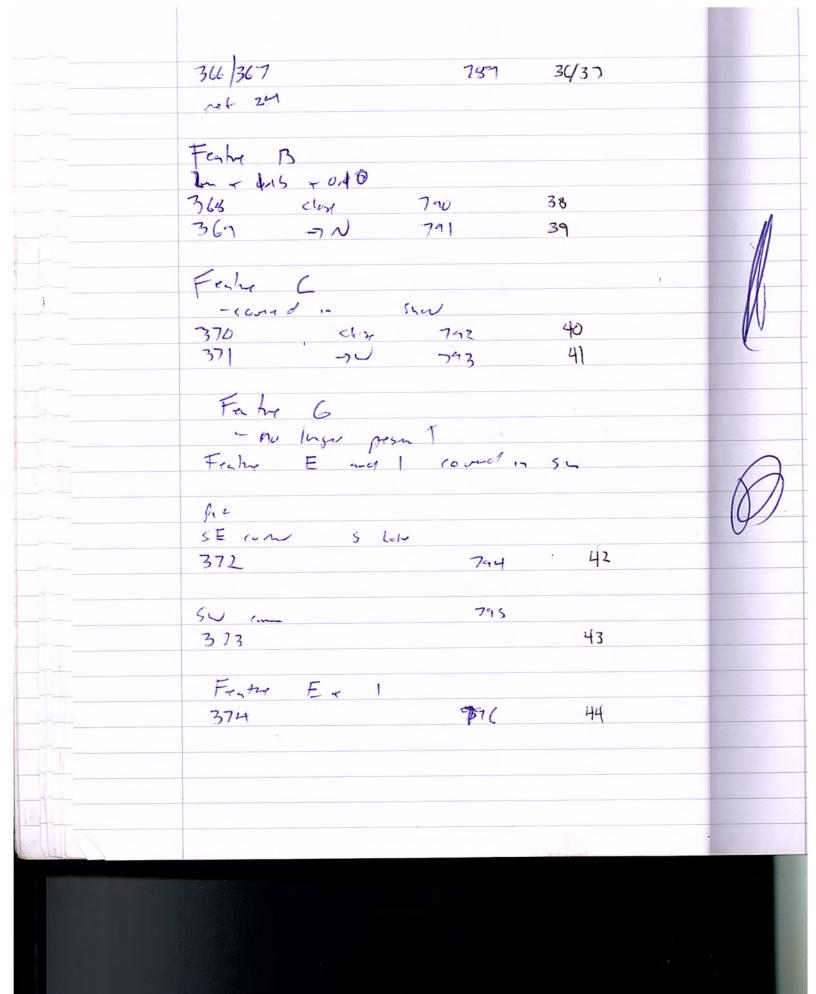
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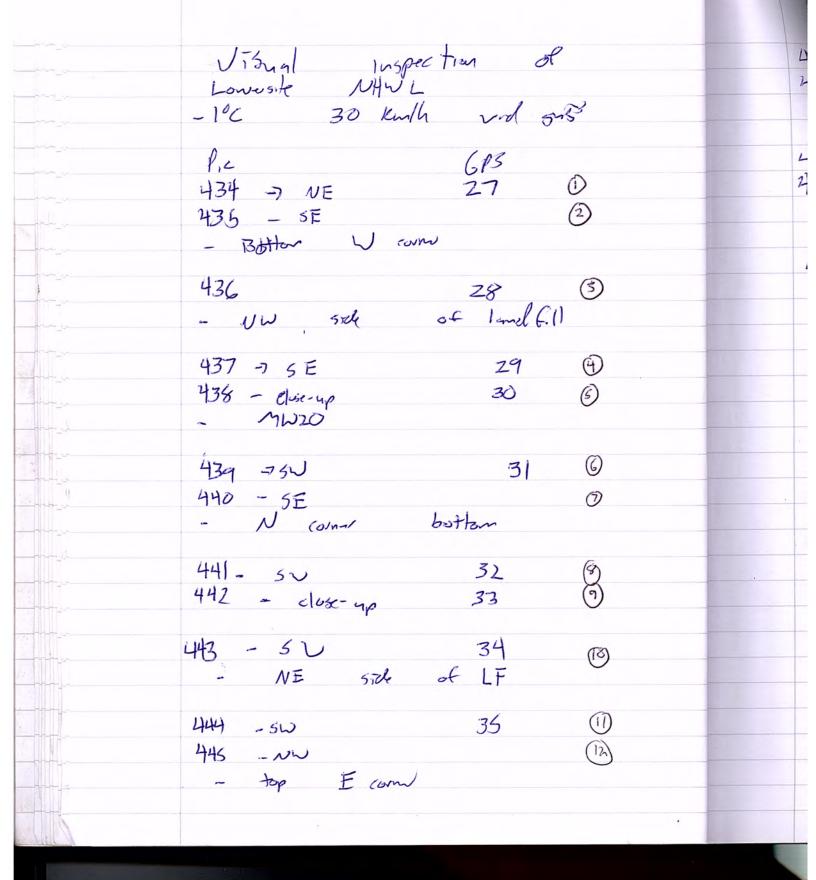
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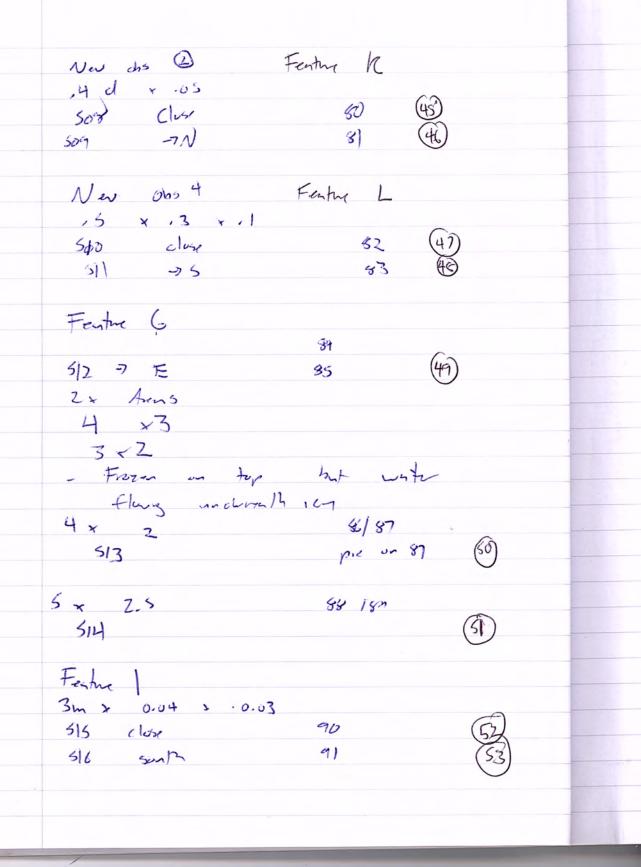
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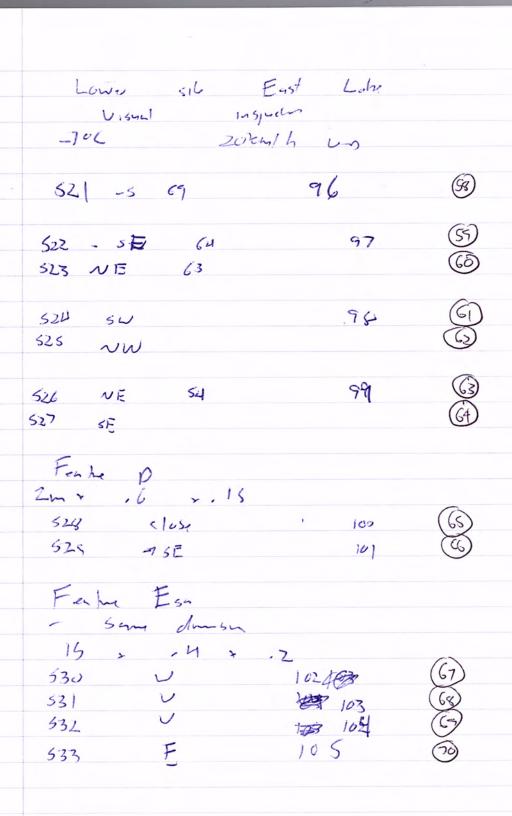
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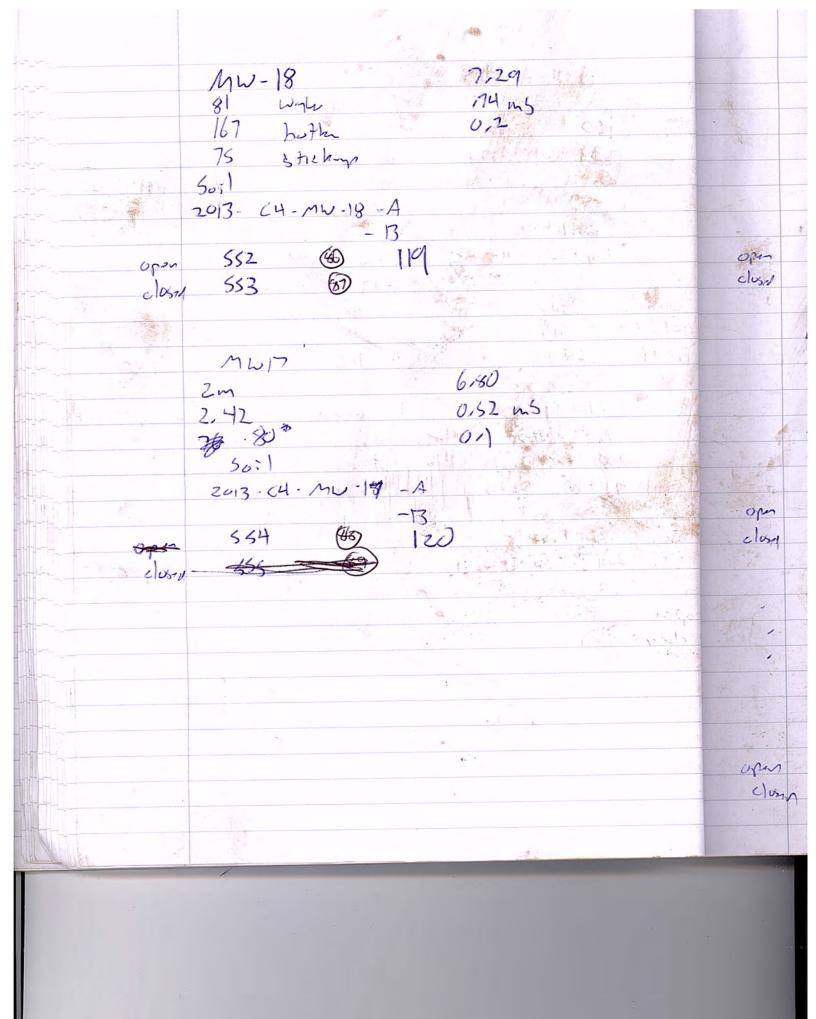


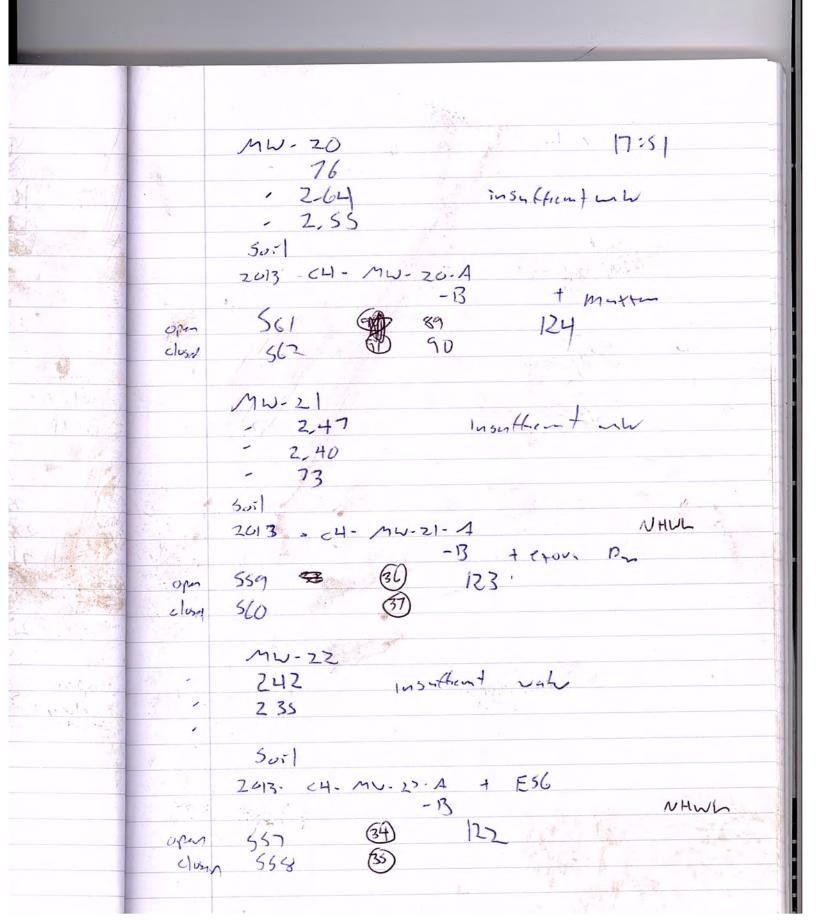
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Themiston Inspector

BM - 4 2:38 150 - Dopth to walk 0,17 m5 238 - Dipt to both 1,9°C 66 - Well stick-4p 7,79 pH Suil 2013 - CH- BMU-4-A -13 + marran Du 548 open 11.5 549 547 116 MW-19 + maxxam Dar 75 Drph to unw 6.79 pH 2,02 Puph to both 0-78 mg 71 veil strk-up 0.2 °C Sorl 15:33 2013. CH-MW-19-A . ... -13 550 open 117 closed 55) GPS \$





# **APPENDIX C**

Maxxam and Exova QA/QC Reports and Certificates of Analysis

#### 1 QUALITY ASSURANCE / QUALITY CONTROL

The Quality Assurance/Quality Control (QA/QC) program was implemented to monitor the quality of the analytical results. The main objective of this QA/QC program is to insure that sampling data and analysis results are complete, precise, exact, representative and comparable. The review consisted of evaluating sample collection/handling methodology, general laboratory comments, field (blind) duplicate samples, and inter-laboratory duplicate samples. Samples collected during the monitoring program were submitted to laboratories accredited by the Canadian Association for Environmental Analytical Laboratories (CAEAL).

All samples were collected following strict Biogénie/Sila sampling procedures. Samples were uniquely labelled and control was maintained through use of chain of custody forms. All samples were collected in laboratory supplied containers and preserved in insulated coolers. Appropriate QA/QC procedures were adhered to at all times.

Blind duplicate samples were submitted to Maxxam for intra-laboratory analysis, with additional duplicate samples were sent to Exova for inter-laboratory comparison purposes.

The relative percent difference (RPD) is used to evaluate the sample result variability. Average RPD values of less than 40% for soil samples and 30% for groundwater samples are considered an indication of acceptable duplicate sample variability. For groundwater samples, an RPD of greater than 30% may reflect difference in sample turbidity or variance in the sample procedures. Individual RPD values greater than 50% are not considered to reflect acceptable variability. RPD values are not used to evaluate those compounds that are present at concentrations less than five times the method detection limit (MDL).

### 1.1 SOIL SAMPLES

In case of soil samples, six blind duplicate samples were submitted for intra and inter laboratory- comparisons.

Review of the results of the blind duplicates submitted to the Maxxam Laboratory indicated little differences in the detected concentrations of the various parameters with a few notable exceptions (Table 1). RPD values were outside the acceptable range for five instances, for nickel (66.67%) and chromium (69.00%) in the MW-16 surface sample, copper (56.00%) in the MW-20 depth sample and nickel (615%) as well as chromium (723%) in the MW-13 surface sample. Calculated RPD within the acceptable limits ranged from 0.00 - 35.21%. Variations in the few RPD values outside of the acceptable range may be attributed to the relative low concentration of the target values in the original samples and the sample matrix which was composed primarily of crushed volcanic rock with little fines at several of the sample locations.

Review of the inter-laboratory laboratory results RPD values outside of the acceptable ranges for 15 out of the 84 analyses highlighted in yellow in Table II. An additional set of results were outside of the acceptable range but below 5 times MDL and therefore not considered (highlighted in blue). Once again, variations in the few RPD values outside of the acceptable range may be attributed to the relative low concentration of the target values in the original samples and the sample matrix which was composed primarily of crushed volcanic rock with little fines at several of the sample locations.

Table I: Comparison of Intra-Laboratory Results

Sample #	Location	Depth	Cu	Ni [mg/kg]	Co	Cd [mg/kg]	Pb	Zn	Cr	As [mg/kg]	Hg	PCBs	F1	F2	F3	TPH
Gampie #	Location	[cm]	[mg/kg]	ra [mg/kg]	[mg/kg]	ou [mg/kg]	[mg/kg]	[mg/kg]	[mg/kg]	/ to [mg/kg]	[mg/kg]	[mg/kg]	C <sub>6</sub> -C <sub>10</sub>	C <sub>10</sub> -C <sub>16</sub>	C <sub>16</sub> -C <sub>34</sub>	C <sub>6</sub> -C <sub>34</sub>
2013-C4-MW-2-A	MW2	0-15	8.4	9.9	5.8	<0.10	5.3	35	17	1.3	<0.050	<0.010	<12	<10	<50	<10
2013-C4-MW-2-A-D	IVIVVZ	0-13	7.9	9.2	5.8	<0.10	4.8	35	17	1.3	< 0.050	<0.010	<12	<10	<50	<10
RPD			-5.95%	-7.07%	0.00%	N/A	-9.43%	0.00%	0.00%	0.00%	N/A	N/A	N/A	N/A	N/A	N/A
2013-C4-MW-16-A	MW16	0-15	13	51	13	<0.10	7.1	43	100	2.0	< 0.050	<0.010	<12	<10	<50	<10
2013-C4-MW-16-A-D	10100 10	0-13	14	17	8.9	<0.10	9.6	52	31	2.4	< 0.050	<0.010	<12	<10	<50	<10
RPD			7.69%	-66.67%	-31.54%	N/A	35.21%	20.93%	-69.00%	20.00%	N/A	N/A	N/A	N/A	N/A	N/A
2013-C4-MW-20-B	MW20	0-15	20	11	5.6	<0.10	9.0	39	17	1.9	<0.050	<0.010	<12	<10	<50	<10
2013-C4-MW-20-B-D	1010020	0-13	8.8	8.0	4.0	<0.10	7.1	28	14	1.4	< 0.050	<0.010	<12	<10	<50	<10
RPD			-56.00%	-27.27%	-28.57%	N/A	-21.11%	-28.21%	-17.65%	-26.32%	N/A	N/A	N/A	N/A	N/A	N/A
2013-C4-MW-13-A	MW13	0-15	9.7	8.8	5.7	<0.10	5.6	34	17	1.7	<0.050	<0.010	<12	<10	<50	<10
2013-C4-MW-13-A-D	10100 13	0-13	8.9	63	6.6	<0.10	5.4	36	140	1.9	< 0.050	<0.010	<12	<10	<50	<10
RPD			-8.25%	615.91%	15.79%	N/A	-3.57%	5.88%	723.53%	11.76%	N/A	N/A	N/A	N/A	N/A	N/A
2013-C4-1-B	C4-1	40-50	14	8.5	4.6	<0.10	13	40	14	1.9	<0.050	<0.010	<12	<10	<50	<10
2013-C4-1-B-D	04-1	40-30	13	9.1	5.1	<0.10	13	38	16	1.8	<0.051	<0.010	<12	<10	<50	<10
RPD			-7.14%	7.06%	10.87%	N/A	0.00%	<i>-</i> 5.00%	14.29%	-5.26%	N/A	N/A	N/A	N/A	N/A	N/A
2013-C4-BMW-4-B	BMW4	40-50	7.7	6.9	3.7	<0.10	5.5	21	12	1.4	<0.050	<0.010	<12	<10	<50	<10
2013-C4-BMW-4-B-D	DIVIVV4	40-50	7.7	8.0	3.8	<0.10	5.4	22	16	1.3	<0.050	<0.010	<12	<10	<50	<10
RPD			0.00%	15.94%	2.70%	N/A	-1.82%	4.76%	33.33%	-7.14%	N/A	N/A	N/A	N/A	N/A	N/A

Table II: Comparison of Inter-Laboratory Results

Sample #	Location	Depth	Cu	Ni [mg/kg]	Co	Cd [mg/kg]	Pb	Zn	Cr	As [mg/kg]	Hg	PCBs	F1	F2	F3	TPH
Sample #	Location	[cm]	[mg/kg]	ivi [ilig/kg]	[mg/kg]	Cu [ilig/kg]	[mg/kg]	[mg/kg]	[mg/kg]	As [IIIg/kg]	[mg/kg]	[mg/kg]	C <sub>6</sub> -C <sub>10</sub>	C <sub>10</sub> -C <sub>16</sub>	C <sub>16</sub> -C <sub>34</sub>	C <sub>6</sub> -C <sub>34</sub>
2013-C4-1-A	C4-1	0-15	24	19	9.8	0.13	36	110	36	4.6	<0.050	<0.010	<12	<10	58	58
2013-C4-1-A	04-1	0-13	23	27	9	<0.5	30.000	101	46	4	< 0.0001	< 0.00002	<10	<10	40	40
RPD			-4.17%	42.11%	-8.16%	N/A	-16.67%	-8.18%	27.78%	-13.04%	N/A	N/A	N/A	N/A	-31.03%	-31.03%
2013-C4-MW-6B-B	MW6B	40-50	<5.0	8.0	4.0	<0.10	3.6	21	15	<1.0	<0.050	<0.010	<12	<10	<50	<10
2013-C4-MW-6B-B	IVIVVOD	40-30	5	16	4	<0.5	4	25	29	<0.001	< 0.0001	<0.00002	<10	<10	<20	<10
RPD			N/A	100.00%	0.00%	N/A	11.11%	19.05%	93.33%	N/A	N/A	N/A	N/A	N/A	N/A	N/A
2013-C4-MW-8-A	MW8	0-15	15	10	6.6	<0.10	7.5	44	19	2.1	<0.050	<0.010	<12	<10	<50	<72
2013-C4-MW-8-A	IVIVVO	0-13	14	46	8	< 0.5	9	58	90	2	< 0.0001	< 0.00002	<10	<10	30	30
RPD			-6.67%	360.00%	21.21%	N/A	20.00%	31.82%	373.68%	-4.76%	N/A	N/A	N/A	N/A	N/A	N/A
2013-C4-MW-10-A	MW10	0-15	9.5	11	5.8	<0.10	6.9	39	22	1.5	<0.050	<0.010	<12	<10	<50	<72
2013-C4-MW-10-A	10100 10	0-13	10	22	6	< 0.5	7	43	42	1	<0.0001	< 0.00002	<10	<10	120	120
RPD			5.26%	100.00%	3.45%	N/A	1.45%	10.26%	90.91%	-33.33%	N/A	N/A	N/A	N/A	N/A	N/A
2013-C4-MW-21-B	MW21	40-50	9.0	9.2	4.4	<0.10	28	68	19	2.2	<0.050	<0.010	<12	<10	150	150
2013-C4-MW-21-B	IVIVVZI	40-30	13	52	7	<0.5	46	115	108	3	< 0.0001	< 0.00002	<10	<10	<20	<40
RPD			44.44%	465.22%	59.09%	N/A	64.29%	69.12%	468.42%	36.36%	N/A	N/A	N/A	N/A	N/A	N/A
2013-C4-MW-23-B	MW23	40-50	9.9	10	5.3	<0.10	12	36	18	1.8	<0.050	<0.010	<12	<10	<50	<72
2013-C4-MW-23-B	IVIVVZS	40-50	10	26	5	<0.5	9	36	50	1	<0.0001	<0.00002	<0.010	<10	<20	<40
RPD			1.01%	160.00%	-5.66%	N/A	-25.00%	0.00%	177.78%	-44.44%	N/A	N/A	N/A	N/A	N/A	N/A

Maxxam Exova

### 1.2 GROUNDWATER SAMPLES

In case of water samples, one blind duplicate sample was submitted for intra and inter laboratory- comparisons. The Maxxam duplicate was lost during transport.

A review of the Exova results indicates minor differences in detected concentration when compared to the Maxxam results; variation in detected concentrations which may be contributed to the turbidity of the sample. Calculated RPD values (where detected concentrations are five times the MDL) are all within acceptable ranges with the exception of Zinc with an RPD value of (176%) highlighted in yellow below.

. In general, the reliability of groundwater analytical results is considered as good.

# Table III: Comparison of Inter-Laboratory Results

Cample #	1 +	O [/  ]	N: [/  1	0- [/1]	0-1 [/1 ]	Db [/1]	7 [/1]	O= [/  1	A = [/1 ]	Hg	DCD - [//.1	F1	F2	F3	TPH
Sample #	Location	Cu [mg/L]	Ni [mg/L]	Co [mg/L]	Ca [mg/L]	Pb [mg/L]	Zn [mg/L]	Cr [mg/L]	As [mg/L]	[mg/L]	PCBs [mg/L]	C <sub>6</sub> -C <sub>10</sub>	C <sub>10</sub> -C <sub>16</sub>	C <sub>16</sub> -C <sub>34</sub>	C <sub>8</sub> -C <sub>34</sub>
2013-C4-MW-23		0.0040	0.0034	< 0.00030	0.69	<0.00020	0.26	<0.0010	<0.00020	<0,0020	< 0.00005	<0.1	<0.1	<0.2	<0.1
2013-C4-MW-23		0.02	0.04	<0.01	<0.008	<0.01	0.72	0.05	<0.02	<0.0001	<0.00002	<0.1	<0.1	<0.2	<0.1
RPD		400.00%	1076.47%	N/A	N/A	N/A	176.92%	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A



**Attention: Alexandre Leclair** 

BIOGENIE INC. 4495, boul. Wilfrid-Hamel bureau 200 QUEBEC, PQ CANADA G1P 2J7

Your C.O.C. #: 407774-01-01, 407774-02-01, 407774-03-01, 407774-04-01, 407774-05-01, 407774-06-01, 407774-07-01, 407774-08-01

Report Date: 2013/09/16

## **CERTIFICATE OF ANALYSIS**

MAXXAM JOB #: B380795 Received: 2013/09/06, 9:00

Sample Matrix: Soil # Samples Received: 72

		Date	Date	
Analyses	Quantity	Extracted	Analyzed Laboratory Method	Analytical Method
Boron (Hot Water Soluble) (1)	51	2013/09/13		EPA 200.7
Boron (Hot Water Soluble) (1)	21	2013/09/13	2013/09/14 AB SOP-00042	EPA 200.7
BTEX/F1 by HS GC/MS (MeOH extract) (1)	16	2013/09/09	2013/09/10 AB SOP-00039	CCME, EPA 8260C
BTEX/F1 by HS GC/MS (MeOH extract) (1)	8	2013/09/09	2013/09/11 AB SOP-00039	CCME, EPA 8260C
BTEX/F1 by HS GC/MS (MeOH extract) (1)	48	2013/09/10	2013/09/11 AB SOP-00039	CCME, EPA 8260C
Hexavalent Chromium (1)	40	2013/09/13	2013/09/13 CAL SOP-00056	SM 3500-Cr B
Hexavalent Chromium (1)	2	2013/09/13	2013/09/14 CAL SOP-00056	SM 3500-Cr B
Hexavalent Chromium (1)	30	2013/09/14	2013/09/14 CAL SOP-00056	SM 3500-Cr B
CCME Hydrocarbons (F2-F4 in soil) (1)	5	2013/09/10	2013/09/11 AB SOP-00040	CCME PHC-CWS
			AB SOP-00036	
CCME Hydrocarbons (F2-F4 in soil) (1)	37	2013/09/10	2013/09/12 AB SOP-00040	CCME PHC-CWS
			AB SOP-00036	
CCME Hydrocarbons (F2-F4 in soil) (1)	30	2013/09/10	2013/09/13 AB SOP-00040	CCME PHC-CWS
			AB SOP-00036	
CCME Hydrocarbons (F4G in soil) (1)	1	2013/09/10	2013/09/13 AB SOP-00040	CCME PHC-CWS
			AB SOP-00036	
Elements by ICPMS - Soils (1)	10	2013/09/12	2013/09/12 AB SOP-00043	EPA 200.8
Elements by ICPMS - Soils (1)	20	2013/09/12	2013/09/13 AB SOP-00043	EPA 200.8
Elements by ICPMS - Soils (1)	32	2013/09/13	2013/09/13 AB SOP-00043	EPA 200.8
Elements by ICPMS - Soils (1)	10	2013/09/13	2013/09/14 AB SOP-00043	EPA 200.8
Moisture (1)	71	N/A	2013/09/11 AB SOP-00002	CCME PHC-CWS
Moisture (1)	1	N/A	2013/09/13 AB SOP-00002	CCME PHC-CWS
Polychlorinated Biphenyls (1)	32	2013/09/12	2013/09/14 CAL SOP-00149	EPA 3550C, EPA 8082A
Polychlorinated Biphenyls (1)	16	2013/09/13	2013/09/14 CAL SOP-00149	EPA 3550C, EPA 8082A
Polychlorinated Biphenyls (1)	24	2013/09/13	2013/09/15 CAL SOP-00149	EPA 3550C, EPA 8082A

<sup>\*</sup> RPDs calculated using raw data. The rounding of final results may result in the apparent difference.

(1) This test was performed by Maxxam Calgary Environmental



**Attention: Alexandre Leclair** 

BIOGENIE INC. 4495, boul. Wilfrid-Hamel bureau 200 QUEBEC, PQ **CANADA** G1P 2J7

Your C.O.C. #: 407774-01-01, 407774-02-01, 407774-03-01, 407774-04-01, 407774-05-01, 407774-06-01, 407774-07-01, 407774-08-01

Report Date: 2013/09/16

# CERTIFICATE OF ANALYSIS -2-

### **Encryption Key**

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

Anna Gordon, Project Manager Email: AGordon@maxxam.ca Phone# (780) 577-7100

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.

7160104

9.6

0.30 7160104



**RESULTS OF CHEMICAL ANALYSES OF SOIL** 

-								
Maxxam ID		HL1233		HL1234		HL1235		
Sampling Date		2013/09/02		2013/09/02		2013/09/02		
		15:40		15:42		13:15		
COC Number		407774-01-01		407774-01-01		407774-01-01		
	UNITS	2013-C4-BWM-1-A	QC Batch	2013-C4-BWM-1-B	QC Batch	2013-C4-MW-1-A	RDL	QC Batch
Elements								
Soluble (Hot water) Boron (B)	mg/kg	0.93	7166080	0.23	7166434	<0.10	0.10	7166263
Hex. Chromium (Cr 6+)	mg/kg	<0.15	7169107	<0.15	7169107	<0.15	0.15	7169107
Physical Properties								

15

7160104

9.7

RDL = Reportable Detection Limit

Moisture

Maxxam ID		HL1236	HL1237	HL1238	HL1238		
Sampling Date		2013/09/02	2013/09/02	2013/09/02	2013/09/02		
		13:15	10:00	10:00	10:00		
COC Number		407774-01-01	407774-01-01	407774-01-01	407774-01-01		
	UNITS	2013-C4-MW-1-B	2013-C4-MW-2-A	2013-C4-MW-2-B	2013-C4-MW-2-B	RDL	QC Batch
					Lab-Dup		
Elements							
Soluble (Hot water) Boron (B)	mg/kg	<0.10	<0.10	<0.10		0.10	7166263
Hex. Chromium (Cr 6+)	mg/kg	<0.15	<0.15	<0.15	<0.15	0.15	7169107
Physical Properties							
		11	13	12		0.30	7160104

Maxxam ID		HL1239			HL1240	HL1240		
Sampling Date		2013/09/02			2013/09/02	2013/09/02		
		10:45			10:45	10:45		
COC Number		407774-01-01			407774-01-01	407774-01-01		
	UNITS	2013-C4-MW-3-A	RDL	QC Batch	2013-C4-MW-3-B	2013-C4-MW-3-B	RDL	QC Batch
						Lab-Dup		
Elements								
Soluble (Hot water) Boron (B)	mg/kg	0.22	0.10	7166263	0.11		0.10	7166263
Hex. Chromium (Cr 6+)	mg/kg	<0.15	0.15	7169107	<0.30 (1)		0.30	7168645
Physical Properties								
Moisture	%	30	0.30	7160104	25	21	0.30	7160075

RDL = Reportable Detection Limit
(1) Detection limits raised due to matrix interference.



Report Date: 2013/09/16

### **RESULTS OF CHEMICAL ANALYSES OF SOIL**

Maxxam ID		HL1241		HL1242	HL1251		
Sampling Date		2013/09/02		2013/09/02	2013/09/02		
		09:30		09:30	09:45		
COC Number		407774-01-01		407774-01-01	407774-02-01		
	UNITS	2013-C4-MW-4A-A	RDL	2013-C4-MW-4A-B	2013-C4-MW-4B-A	RDL	QC Batch

Elements							
Soluble (Hot water) Boron (B)	mg/kg	<0.10	0.10	<0.10	<0.10	0.10	7166263
Hex. Chromium (Cr 6+)	mg/kg	<0.75 (1)	0.75	<0.15	<0.15	0.15	7168645
Physical Properties							
Moisture	%	16	0.30	12	12	0.30	7160104

RDL = Reportable Detection Limit
(1) Detection limits raised due to matrix interference.

Maxxam ID		HL1252			HL1253		HL1254		
Sampling Date		2013/09/02			2013/09/02		2013/09/02		
		09:45			11:00		11:00		
COC Number		407774-02-01			407774-02-01		407774-02-01		
	UNITS	2013-C4-MW-4B-B	RDL	QC Batch	2013-C4-MW-6A-A	RDL	2013-C4-MW-6A-B	RDL	QC Batch

Elements									
Soluble (Hot water) Boron (B)	mg/kg	<0.10	0.10	7166263	<0.10	0.10	<0.10	0.10	7166263
Hex. Chromium (Cr 6+)	mg/kg	<0.30 (1)	0.30	7168645	<0.75 (1)	0.75	<0.30 (1)	0.30	7168645
Physical Properties									
Moisture	%	11	0.30	7166081	16	0.30	12	0.30	7160104

RDL = Reportable Detection Limit

(1) Detection limits raised due to matrix interference.

CCO (Vallibe)	LIMITS		OC Batch	2013-C4-MW-6B-B	OC Batch		BDI	QC Batch
COC Number		407774-02-01		407774-02-01		407774-02-01		
		11:15		11:15		11:45		
Sampling Date		2013/09/02		2013/09/02		2013/09/02		
Maxxam ID		HL1255		HL1256		HL1257		

Elements								
Soluble (Hot water) Boron (B)	mg/kg	<0.10	7166263	0.12	7166434	0.76	0.10	7166434
Hex. Chromium (Cr 6+)	mg/kg	<0.15	7168645	<0.15	7168710	<0.15	0.15	7168645
Physical Properties								
Moisture	%	19	7160075	13	7160075	13	0.30	7160075

RDL = Reportable Detection Limit



Report Date: 2013/09/16

## **RESULTS OF CHEMICAL ANALYSES OF SOIL**

Maxxam ID		HL1258		HL1259	HL1260	HL1269		
Sampling Date		2013/09/02		2013/09/02	2013/09/02	2013/09/03		
		11:45		12:00	12:00	13:11		
COC Number		407774-02-01		407774-02-01	407774-02-01	407774-03-01		
	UNITS	2013-C4-MW-7A-B	RDL	2013-C4-MW-7B-A	2013-C4-MW-7B-B	2013-C4-MW-5-A	RDL	QC Batch

Elements								
Soluble (Hot water) Boron (B)	mg/kg	0.42	0.10	0.31	0.32	<0.10	0.10	7166434
Hex. Chromium (Cr 6+)	mg/kg	<0.30 (1)	0.30	<0.15	<0.15	<0.15	0.15	7168645
Physical Properties								
Moisture	%	9.3	0.30	11	11	11	0.30	7160075

RDL = Reportable Detection Limit (1) Detection limits raised due to matrix interference.

Maxxam ID		HL1270		HL1271		HL1272		
Sampling Date		2013/09/03		2013/09/02		2013/09/02		
		13:11		17:50		17:50		
COC Number		407774-03-01		407774-03-01		407774-03-01		
	UNITS	2013-C4-MW-5-B	QC Batch	2013-C4-MW-8-A	QC Batch	2013-C4-MW-8-B	RDL	QC Batch
Elements								
Soluble (Hot water) Boron (B)	mg/kg	0.23	7166152	<0.10	7166152	<0.10	0.10	7166152
Hex. Chromium (Cr 6+)	mg/kg	<0.15	7168645	<0.15	7168645	<0.15	0.15	7168645
Physical Properties								
Moisture	%	8.9	7159497	11	7160075	12	0.30	7160104

Maxxam ID		HL1273	HL1273		HL1274	HL1275		
Sampling Date		2013/09/03	2013/09/03		2013/09/03	2013/09/03		
-		12:45	12:45		12:45	14:40		
COC Number		407774-03-01	407774-03-01		407774-03-01	407774-03-01		
	UNITS	2013-C4-MW-9-A	2013-C4-MW-9-A	QC Batch	2013-C4-MW-9-B	2013-C4-MW-14A-A	RDL	QC Batch
			Lab-Dup					
Elements								
Soluble (Hot water) Boron (B)	mg/kg	0.20	0.19	7166445	<0.10	0.14	0.10	7166152
Hex. Chromium (Cr 6+)	mg/kg	<0.15		7168645	<0.15	<0.15	0.15	7168645
Physical Properties								
Moisture	%	14		7160075	11	13	0.30	7159497



Maxxam ID		HL1276	HL1277	HL1278	HL1301		
Sampling Date		2013/09/03	2013/09/03	2013/09/03	2013/09/03		
		14:40	14:50	14:50	16:08		
COC Number		407774-03-01	407774-03-01	407774-03-01	407774-04-01		
	UNITS	2013-C4-MW-14A-B	2013-C4-MW-14B-A	2013-C4-MW-14B-B	2013-C4-MW-15-A	RDL	QC Batch
Elements							
Soluble (Hot water) Boron (B)	mg/kg	0.35	0.43	0.19	0.53	0.10	7166445
Hex. Chromium (Cr 6+)	mg/kg	<0.15	<0.15	<0.15	<0.15	0.15	7168710
Physical Properties							
Moisture	%	17	15	13	8.5	0.30	7159940

Maxxam ID		HL1302	HL1302	HL1303	HL1304		
Sampling Date		2013/09/03	2013/09/03	2013/09/03	2013/09/03		
		16:08	16:08	16:30	16:30		
COC Number		407774-04-01	407774-04-01	407774-04-01	407774-04-01		
	UNITS	2013-C4-MW-15-B	2013-C4-MW-15-B	2013-C4-MW-16-A	2013-C4-MW-16-B	RDL	QC Batch
			Lab-Dup				
Elements							
Soluble (Hot water) Boron (B)	mg/kg	0.56		0.36	0.12	0.10	7166445
Hex. Chromium (Cr 6+)	mg/kg	<0.15		<0.15	<0.15	0.15	7168710
Physical Properties							
Moisture	%	9.5	9.3	11	9.9	0.30	7159940

Maxxam ID		HL1305	HL1305			HL1306		
Sampling Date		2013/09/03	2013/09/03			2013/09/03		
		17:18	17:18			17:18		
COC Number		407774-04-01	407774-04-01			407774-04-01		
	UNITS	2013-C4-MW-10-A	2013-C4-MW-10-A	RDL	QC Batch	2013-C4-MW-10-B	RDL	QC Batch
			Lab-Dup					
Elements								
Soluble (Hot water) Boron (B)	mg/kg	0.12		0.10	7166445	<0.10	0.10	7166445
Hex. Chromium (Cr 6+)	mg/kg	<1.5 (1)		1.5	7171156	<0.75 (1)	0.75	7169107
Physical Properties								
Moisture	%	11	11	0.30	7159567	11	0.30	7159567

RDL = Reportable Detection Limit
( 1 ) Detection limits raised due to matrix interference.



Report Date: 2013/09/16

### **RESULTS OF CHEMICAL ANALYSES OF SOIL**

Maxxam ID		HL1307		HL1308		HL1309		
Sampling Date		2013/09/03		2013/09/03		2013/09/03		
		13:36		13:36		16:58		
COC Number		407774-04-01		407774-04-01		407774-04-01		
	UNITS	2013-C4-MW-11-A	RDL	2013-C4-MW-11-B	RDL	2013-C4-MW-12-A	RDL	QC Batch

Elements								
Soluble (Hot water) Boron (B)	mg/kg	<0.10	0.10	<0.10	0.10	<0.10	0.10	7166445
Hex. Chromium (Cr 6+)	mg/kg	<0.15	0.15	<0.75 (1)	0.75	<0.30 (1)	0.30	7169107
Physical Properties								
Moisture	%	19	0.30	13	0.30	19	0.30	7159567

RDL = Reportable Detection Limit
(1) Detection limits raised due to matrix interference.

Maxxam ID		HL1310		HL1322		HL1323		
Sampling Date		2013/09/03		2013/09/03		2013/09/03		
		16:58		16:33		16:33		
COC Number		407774-04-01		407774-05-01		407774-05-01		
	UNITS	2013-C4-MW-12-B	RDL	2013-C4-MW-13-A	QC Batch	2013-C4-MW-13-B	RDL	QC Batch

Elements								
Soluble (Hot water) Boron (B)	mg/kg	<0.10	0.10	<0.10	7166445	<0.10	0.10	7166445
Hex. Chromium (Cr 6+)	mg/kg	<0.30 (1)	0.30	<0.15	7169107	<0.15	0.15	7169324
Physical Properties								
Moisture	%	12	0.30	12	7159567	9.5	0.30	7159497

RDL = Reportable Detection Limit

(1) Detection limits raised due to matrix interference.

Maxxam ID		HL1324	HL1325	HL1325		HL1326		
Sampling Date		2013/09/04	2013/09/04	2013/09/04		2013/09/04		
		19:41	19:41	19:41		19:27		
COC Number		407774-05-01	407774-05-01	407774-05-01		407774-05-01		
	UNITS	2013-C4-MW-21-A	2013-C4-MW-21-B	2013-C4-MW-21-B	RDL	2013-C4-MW-22-A	RDL	QC Batch
				Lab-Dup				
Elements								
Soluble (Hot water) Boron (B)	mg/kg	<0.10	<0.10		0.10	<0.10	0.10	7166445
Hex. Chromium (Cr 6+)	mg/kg	<0.75 (1)	<0.75 (1)		0.75	<0.15	0.15	7169324
Physical Properties								
Moisture	%	6.9	11	9.8	0.30	8.7	0.30	7159497

RDL = Reportable Detection Limit

(1) Detection limits raised due to matrix interference.



	UNITS	2013-C4-MW-22-B	2013-C4-MW-23-A	2013-C4-MW-23-B	RDL	QC Batch
COC Number		407774-05-01	407774-05-01	407774-05-01		
		19:27	18:50	18:50		
Sampling Date		2013/09/04	2013/09/04	2013/09/04		
Maxxam ID		HL1327	HL1328	HL1330		

Elements						
Soluble (Hot water) Boron (B)	mg/kg	0.63	0.63	0.58	0.10	7166080
Hex. Chromium (Cr 6+)	mg/kg	<0.15	<0.15	<0.15	0.15	7169324
Physical Properties						
Moisture	%	3.3	6.5	6.7	0.30	7159497

RDL = Reportable Detection Limit

COC Number	UNITS		RDI	OC Batch		RDI	2013-C4-MW-18-A	RDI	QC Batch
COC Number		407774-05-01			407774-05-01		407774-06-01		
		18:02			18:02		18:15		
Sampling Date		2013/09/04			2013/09/04		2013/09/04		
Maxxam ID		HL1331			HL1332		HL1354		

Elements									
Soluble (Hot water) Boron (B)	mg/kg	0.46	0.10	7166080	0.37	0.10	1.2	0.37	7166080
Hex. Chromium (Cr 6+)	mg/kg	<0.75 (1)	0.75	7169107	<0.30 (1)	0.30	<7.5 (1)	7.5	7169107
Physical Properties									
Moisture	%	17	0.30	7159497	8.9	0.30	21	0.30	7159940

RDL = Reportable Detection Limit

(1) Detection limits raised due to matrix interference.

Maxxam ID		HL1355			HL1356	HL1357		
Sampling Date		2013/09/04			2013/09/04	2013/09/04		
		18:15			17:33	17:33		
COC Number		407774-06-01			407774-06-01	407774-06-01		
	UNITS	2013-C4-MW-18-B	RDL	QC Batch	2013-C4-MW-19-A	2013-C4-MW-19-B	RDL	QC Batch

Elements								
Soluble (Hot water) Boron (B)	mg/kg	0.32	0.10	7166080	0.18	0.15	0.10	7166080
Hex. Chromium (Cr 6+)	mg/kg	<3.0 (1)	3.0	7169107	<0.15	<0.15	0.15	7169107
Physical Properties								
Moisture	%	28	0.30	7159497	12	12	0.30	7159940

RDL = Reportable Detection Limit

(1) Detection limits raised due to matrix interference.

Maxxam ID		HL1358		HL1359	HL1359		
Sampling Date		2013/09/04		2013/09/04	2013/09/04		
		19:53		19:53	19:53		
COC Number		407774-06-01		407774-06-01	407774-06-01		
	UNITS	2013-C4-MW-20-A	QC Batch	2013-C4-MW-20-B	2013-C4-MW-20-B	RDL	QC Batch
					Lab-Dup		
Elements							
Soluble (Hot water) Boron (B)	mg/kg	0.28	7166080	0.17		0.10	7166434
Hex. Chromium (Cr 6+)	mg/kg	<0.15	7169107	<0.15		0.15	7168710
Physical Properties							
Moisture	%	12	7159940	10	9.6	0.30	7159497

Maxxam ID		HL1360		HL1361	HL1362		
Sampling Date		2013/09/04		2013/09/04	2013/09/04		
		16:14		16:14	16:20		
COC Number		407774-06-01		407774-06-01	407774-06-01		
	UNITS	2013-C4-1-A	RDL	2013-C4-1-B	2013-C4-2-A	RDL	QC Batch
Elements							
Soluble (Hot water) Boron (B)	mg/kg	0.15	0.10	<0.10	<0.10	0.10	7166434
Hex. Chromium (Cr 6+)	mg/kg	<0.30 (1)	0.30	<0.15	<0.15	0.15	7168710
Physical Properties							
Moisture	%	7.8	0.30	1.6	7.8	0.30	7159940

RDL = Reportable Detection Limit

(1) Detection limits raised due to matrix interference.

Maxxam ID		HL1363	HL1363			HL1399		
Sampling Date		2013/09/04	2013/09/04			2013/09/04		
		16:20	16:20			16:29		
COC Number		407774-06-01	407774-06-01			407774-07-01		
	UNITS	2013-C4-2-B	2013-C4-2-B Lab-Dup	RDL	QC Batch	2013-C4-3-A	RDL	QC Batch
Elements								
Soluble (Hot water) Boron (B)	mg/kg	<0.10		0.10	7166434	<0.10	0.10	7166080
Hex. Chromium (Cr 6+)	mg/kg	<0.75 (1)	<0.75	0.75	7168710	<7.5 (2)	7.5	7168710
Physical Properties								
Moisture	%	9.0		0.30	7159497	40	0.30	7159940

RDL = Reportable Detection Limit
(1) Detection limits raised due to matrix interference.

Matrix Spike recovery non calculable due to matrix interference. Original sample diluted to remove interference.

(2) Detection limits raised due to matrix interference.



	UNITS	2013-C4-3-A Lab-Dup	RDL	QC Batch	2013-C4-3-B	RDL	QC Batch
COC Number		407774-07-01			407774-07-01		
		16:29			16:29		
Sampling Date		2013/09/04			2013/09/04		
Maxxam ID		HL1399			HL1400		

Elements							
Soluble (Hot water) Boron (B)	mg/kg	0.24	0.10	7166080	<0.21	0.21	7166263
Hex. Chromium (Cr 6+)	mg/kg		7.5	7168710	<7.5 (1)	7.5	7168710
Physical Properties							
Moisture	%		0.30	7159940	38	0.30	7159940

RDL = Reportable Detection Limit

(1) Detection limits raised due to matrix interference.

Maxxam ID		HL1401			HL1402		HL1403		
Sampling Date		2013/09/03			2013/09/03		2013/09/04		
		15:46			15:46		16:54		
COC Number		407774-07-01			407774-07-01		407774-07-01		
	UNITS	2013-C4-BMW-3-A	RDL	QC Batch	2013-C4-BMW-3-B	RDL	2013-C4-BMW-4-A	RDL	QC Batch

Elements									
Soluble (Hot water) Boron (B)	mg/kg	<0.10	0.10	7166263	0.11	0.10	0.11	0.10	7166080
Hex. Chromium (Cr 6+)	mg/kg	<0.30 (1)	0.30	7168710	<0.15	0.15	<0.75 (1)	0.75	7168710
Physical Properties									
Moisture	%	9.0	0.30	7159375	9.7	0.30	15	0.30	7159375

RDL = Reportable Detection Limit

(1) Detection limits raised due to matrix interference.

Maxxam ID		HL1404	HL1404			HL1405		
Sampling Date		2013/09/04	2013/09/04			2013/09/02		
		16:54	16:54			10:00		
COC Number		407774-07-01	407774-07-01			407774-07-01		
	UNITS	2013-C4-BMW-4-B	2013-C4-BMW-4-B	RDL	QC Batch	2013-C4-MW-2-A-D	RDL	QC Batch
			Lab-Dup					
Elements								
Soluble (Hot water) Boron (B)	mg/kg	<0.10	<0.10	0.10	7166434	0.17	0.10	7166080
Hex. Chromium (Cr 6+)	mg/kg	<0.75 (1)	<0.75	0.75	7168645	<0.15	0.15	7168710
Physical Properties								

7159375

0.30

7159375

RDL = Reportable Detection Limit

Moisture

Matrix Spike recovery non calculable due to matrix interference. Original sample diluted to remove interference.

<sup>(1)</sup> Detection limits raised due to matrix interference.



**RESULTS OF CHEMICAL ANALYSES OF SOIL** 

	UNITS	2013-C4-MW-16-A-D	QC Batch	2013-C4-MW-20-B-D	2013-C4-MW-13-A-D	RDL	QC Batch
COC Number		407774-07-01		407774-07-01	407774-07-01		
		16:30		19:53	16:33		
Sampling Date		2013/09/03		2013/09/04	2013/09/03		
Maxxam ID		HL1406		HL1407	HL1408		

Elements							
Soluble (Hot water) Boron (B)	mg/kg	0.55	7166080	0.22	0.17	0.10	7166080
Hex. Chromium (Cr 6+)	mg/kg	<0.15	7168710	<0.15	<0.15	0.15	7169324
Physical Properties							
Moisture	%	8.4	7159375	15	11	0.30	7159497

RDL = Reportable Detection Limit

	UNITS	2013-C4-1-B-D	RDL	2013-C4-BMW-4-B-D	RDL	QC Batch
COC Number		407774-08-01		407774-08-01		
		16:14		16:54		
Sampling Date		2013/09/04		2013/09/04		
Maxxam ID		HL1432		HL1433		

Elements						
Soluble (Hot water) Boron (B)	mg/kg	<0.10	0.10	<0.10	0.10	7166080
Hex. Chromium (Cr 6+)	mg/kg	<0.15	0.15	<0.75 (1)	0.75	7169324
Physical Properties						
Moisture	%	3.6	0.30	10	0.30	7159497

<sup>(1)</sup> Detection limits raised due to matrix interference.



Maxxam ID		HL1233	HL1234	HL1235	HL1236		
Sampling Date		2013/09/02	2013/09/02	2013/09/02	2013/09/02		
		15:40	15:42	13:15	13:15		
COC Number		407774-01-01	407774-01-01	407774-01-01	407774-01-01		
	UNITS	2013-C4-BWM-1-A	2013-C4-BWM-1-B	2013-C4-MW-1-A	2013-C4-MW-1-B	RDL	QC Batch
Ext. Pet. Hydrocarbon							
F2 (C10-C16 Hydrocarbons)	mg/kg	<10	<10	<10	<10	10	7159273
F3 (C16-C34 Hydrocarbons)	mg/kg	56	<50	<50	<50	50	7159273
F4 (C34-C50 Hydrocarbons)	mg/kg	<50	<50	<50	<50	50	7159273
Reached Baseline at C50	mg/kg	Yes	Yes	Yes	Yes		7159273
Surrogate Recovery (%)							
O-TERPHENYL (sur.)	%	93	96	102	98		7159273

Maxxam ID		HL1237	HL1238	HL1238	HL1239		
Sampling Date		2013/09/02	2013/09/02	2013/09/02	2013/09/02		
		10:00	10:00	10:00	10:45		
COC Number		407774-01-01	407774-01-01	407774-01-01	407774-01-01		
	UNITS	2013-C4-MW-2-A	2013-C4-MW-2-B	2013-C4-MW-2-B	2013-C4-MW-3-A	RDL	QC Batch
				Lab-Dup			
Ext. Pet. Hydrocarbon							
F2 (C10-C16 Hydrocarbons)	mg/kg	<10	<10	<10	<10	10	7159273
F3 (C16-C34 Hydrocarbons)	mg/kg	<50	<50	<50	500	50	7159273
F4 (C34-C50 Hydrocarbons)	mg/kg	<50	<50	<50	110	50	7159273
Reached Baseline at C50	mg/kg	Yes	Yes	Yes	Yes		7159273
Surrogate Recovery (%)							
						<del></del>	i



Maxxam ID		HL1240	HL1241	HL1242	HL1251		
Sampling Date		2013/09/02	2013/09/02	2013/09/02	2013/09/02		
		10:45	09:30	09:30	09:45		
COC Number		407774-01-01	407774-01-01	407774-01-01	407774-02-01		
	UNITS	2013-C4-MW-3-B	2013-C4-MW-4A-A	2013-C4-MW-4A-B	2013-C4-MW-4B-A	RDL	QC Batch
						,	
Ext. Pet. Hydrocarbon							
F2 (C10-C16 Hydrocarbons)	mg/kg	<10	<10	<10	<10	10	7159273
F3 (C16-C34 Hydrocarbons)	mg/kg	120	88	<50	<50	50	7159273
F4 (C34-C50 Hydrocarbons)	mg/kg	<50	<50	<50	<50	50	7159273
Reached Baseline at C50	mg/kg	Yes	Yes	Yes	Yes		7159273
Surrogate Recovery (%)							
O-TERPHENYL (sur.)	%	98	104	95	96		7159273

COC Number	UNITS	407774-02-01 2013-C4-MW-4R-R	407774-02-01 2013-C4-MW-6Δ-Δ	407774-02-01 2013-C4-MW-6A-B	407774-02-01 2013-C4-MW-6Β-Δ	RDI	QC Batch
COC Number		407774 00 04	407774 00 04	407774 00 04	407774 00 04		
		09:45	11:00	11:00	11:15		
Sampling Date		2013/09/02	2013/09/02	2013/09/02	2013/09/02		
Maxxam ID		HL1252	HL1253	HL1254	HL1255		

Ext. Pet. Hydrocarbon							
F2 (C10-C16 Hydrocarbons)	mg/kg	<10	<10	<10	<10	10	7159273
F3 (C16-C34 Hydrocarbons)	mg/kg	59	170	<50	92	50	7159273
F4 (C34-C50 Hydrocarbons)	mg/kg	<50	140	<50	59	50	7159273
Reached Baseline at C50	mg/kg	Yes	Yes	Yes	Yes		7159273
Surrogate Recovery (%)							
O-TERPHENYL (sur.)	%	97	93	102	101		7159273



Maxxam ID		HL1256	HL1257	HL1258	HL1259		
Sampling Date		2013/09/02	2013/09/02	2013/09/02	2013/09/02		
		11:15	11:45	11:45	12:00		
COC Number		407774-02-01	407774-02-01	407774-02-01	407774-02-01		
	UNITS	2013-C4-MW-6B-B	2013-C4-MW-7A-A	2013-C4-MW-7A-B	2013-C4-MW-7B-A	RDL	QC Batch
Ext. Pet. Hydrocarbon							
F2 (C10-C16 Hydrocarbons)	mg/kg	<10	<10	<10	<10	10	7159273
F3 (C16-C34 Hydrocarbons)	mg/kg	<50	<50	<50	<50	50	7159273
F4 (C34-C50 Hydrocarbons)	mg/kg	<50	<50	<50	<50	50	7159273
Reached Baseline at C50	mg/kg	Yes	Yes	Yes	Yes		7159273
Surrogate Recovery (%)							
O-TERPHENYL (sur.)	%	101	95	87	89		7159273

	HL1260		HL1269	HL1270		
	2013/09/02		2013/09/03	2013/09/03		
	12:00		13:11	13:11		
	407774-02-01		407774-03-01	407774-03-01		
UNITS	2013-C4-MW-7B-B	QC Batch	2013-C4-MW-5-A	2013-C4-MW-5-B	RDL	QC Batch
	UNITS	2013/09/02 12:00 407774-02-01	2013/09/02 12:00 407774-02-01	2013/09/02 2013/09/03 12:00 13:11 407774-02-01 407774-03-01	2013/09/02     2013/09/03     2013/09/03       12:00     13:11     13:11       407774-02-01     407774-03-01     407774-03-01	2013/09/02 2013/09/03 2013/09/03 12:00 13:11 13:11

Ext. Pet. Hydrocarbon							
F2 (C10-C16 Hydrocarbons)	mg/kg	<10	7159273	<10	<10	10	7159279
F3 (C16-C34 Hydrocarbons)	mg/kg	<50	7159273	<50	<50	50	7159279
F4 (C34-C50 Hydrocarbons)	mg/kg	<50	7159273	<50	<50	50	7159279
Reached Baseline at C50	mg/kg	Yes	7159273	Yes	Yes		7159279
Surrogate Recovery (%)							
O-TERPHENYL (sur.)	%	93	7159273	108	119		7159279



Maxxam ID		HL1270	HL1271	HL1272	HL1273		
Sampling Date		2013/09/03	2013/09/02	2013/09/02	2013/09/03		
		13:11	17:50	17:50	12:45		
COC Number		407774-03-01	407774-03-01	407774-03-01	407774-03-01		
	UNITS	2013-C4-MW-5-B	2013-C4-MW-8-A	2013-C4-MW-8-B	2013-C4-MW-9-A	RDL	QC Batch
		Lab-Dup					
Ext. Pet. Hydrocarbon							
F2 (C10-C16 Hydrocarbons)	mg/kg	<10	<10	<10	<10	10	7159279
F3 (C16-C34 Hydrocarbons)	mg/kg	<50	<50	71	<50	50	7159279
F4 (C34-C50 Hydrocarbons)	mg/kg	<50	<50	<50	<50	50	7159279
Reached Baseline at C50	mg/kg	Yes	Yes	Yes	Yes		7159279
Surrogate Recovery (%)							
O-TERPHENYL (sur.)	%	108	103	112	105		7159279

Maxxam ID		HL1274	HL1275	HL1276		
Sampling Date		2013/09/03	2013/09/03	2013/09/03		
		12:45	14:40	14:40		
COC Number		407774-03-01	407774-03-01	407774-03-01		
	UNITS	2013-C4-MW-9-B	2013-C4-MW-14A-A	2013-C4-MW-14A-B	RDL	QC Batch
		1				
Ext. Pet. Hydrocarbon						
F2 (C10-C16 Hydrocarbons)	mg/kg	<10	<10	<10	10	7159279
F3 (C16-C34 Hydrocarbons)	mg/kg	<50	76	64	50	7159279
F4 (C34-C50 Hydrocarbons)	mg/kg	<50	<50	<50	50	7159279
Reached Baseline at C50	mg/kg	Yes	Yes	Yes		7159279
Surrogate Recovery (%)						
O-TERPHENYL (sur.)	%	110	119	103		7159279



# PETROLEUM HYDROCARBONS (CCME)

Maxxam ID		HL1277	HL1278	HL1301	HL1302		
Sampling Date		2013/09/03	2013/09/03	2013/09/03	2013/09/03		
		14:50	14:50	16:08	16:08		
COC Number		407774-03-01	407774-03-01	407774-04-01	407774-04-01		
	UNITS	2013-C4-MW-14B-A	2013-C4-MW-14B-B	2013-C4-MW-15-A	2013-C4-MW-15-B	RDL	QC Batch
Ext. Pet. Hydrocarbon							
F2 (C10-C16 Hydrocarbons)	mg/kg	<10	<10	<10	<10	10	7159279
F3 (C16-C34 Hydrocarbons)	mg/kg	54	<50	<50	<50	50	7159279
F4 (C34-C50 Hydrocarbons)	mg/kg	<50	<50	<50	<50	50	7159279
Reached Baseline at C50	mg/kg	Yes	Yes	Yes	Yes		7159279
Surrogate Recovery (%)							
O-TERPHENYL (sur.)	%	105	108	101	102		7159279

Maxxam ID		HL1303	HL1304	HL1305	HL1306		
Sampling Date		2013/09/03	2013/09/03	2013/09/03	2013/09/03		
		16:30	16:30	17:18	17:18		
COC Number		407774-04-01	407774-04-01	407774-04-01	407774-04-01		
	UNITS	2013-C4-MW-16-A	2013-C4-MW-16-B	2013-C4-MW-10-A	2013-C4-MW-10-B	RDL	QC Batch

Ext. Pet. Hydrocarbon							
F2 (C10-C16 Hydrocarbons)	mg/kg	<10	2700	<10	<10	10	7159279
F3 (C16-C34 Hydrocarbons)	mg/kg	<50	460	<50	<50	50	7159279
F4 (C34-C50 Hydrocarbons)	mg/kg	<50	<50	<50	<50	50	7159279
Reached Baseline at C50	mg/kg	Yes	Yes	Yes	Yes		7159279
Surrogate Recovery (%)							
O-TERPHENYL (sur.)	%	110	103	106	107		7159279

500

104

7159282

7159279



PETROLEUM HYDROCARBONS (CCME)

Maxxam ID		HL1307	HL1308	HL1309	HL1310		
Sampling Date		2013/09/03	2013/09/03	2013/09/03	2013/09/03		
		13:36	13:36	16:58	16:58		
COC Number		407774-04-01	407774-04-01	407774-04-01	407774-04-01		
	UNITS	2013-C4-MW-11-A	2013-C4-MW-11-B	2013-C4-MW-12-A	2013-C4-MW-12-B	RDL	QC Batch
Ext. Pet. Hydrocarbon							
F2 (C10-C16 Hydrocarbons)	mg/kg	32	10	<10	<10	10	7159279
F3 (C16-C34 Hydrocarbons)	mg/kg	5200	1000	<50	<50	50	7159279
F4 (C34-C50 Hydrocarbons)	mg/kg	1300	230	<50	<50	50	7159279
Reached Baseline at C50	ma/ka	No	Yes	Yes	Yes		7159279

101

RDL = Reportable Detection Limit

Surrogate Recovery (%)
O-TERPHENYL (sur.)

F4G-SG (Heavy Hydrocarbons-Grav.)

mg/kg

%

7400

95

Maxxam ID		HL1322	HL1323	HL1324	HL1324		
Sampling Date		2013/09/03	2013/09/03	2013/09/04	2013/09/04		
		16:33	16:33	19:41	19:41		
COC Number		407774-05-01	407774-05-01	407774-05-01	407774-05-01		
	UNITS	2013-C4-MW-13-A	2013-C4-MW-13-B	2013-C4-MW-21-A	2013-C4-MW-21-A	RDL	QC Batch
					Lab-Dup		
Ext. Pet. Hydrocarbon							
F2 (C10-C16 Hydrocarbons)	mg/kg	<10	<10	14	14	10	7159283
F3 (C16-C34 Hydrocarbons)	mg/kg	<50	<50	220	230	50	7159283
F4 (C34-C50 Hydrocarbons)	mg/kg	<50	<50	300	320	50	7159283
Reached Baseline at C50	mg/kg	Yes	Yes	Yes	Yes		7159283
Surrogate Recovery (%)							
	%	118	114	104	110	1	7159283



Maxxam ID		HL1325	HL1326	HL1327	HL1328		
Sampling Date		2013/09/04	2013/09/04	2013/09/04	2013/09/04		
		19:41	19:27	19:27	18:50		
COC Number		407774-05-01	407774-05-01	407774-05-01	407774-05-01		
	UNITS	2013-C4-MW-21-B	2013-C4-MW-22-A	2013-C4-MW-22-B	2013-C4-MW-23-A	RDL	QC Batch
Ext. Pet. Hydrocarbon							
F2 (C10-C16 Hydrocarbons)	mg/kg	<10	<10	<10	<10	10	7159283
F3 (C16-C34 Hydrocarbons)	mg/kg	150	<50	<50	<50	50	7159283
F4 (C34-C50 Hydrocarbons)	mg/kg	200	<50	<50	<50	50	7159283
Reached Baseline at C50	mg/kg	Yes	Yes	Yes	Yes		7159283
Surrogate Recovery (%)							
O-TERPHENYL (sur.)	%	111	107	108	115		7159283

RDL =	Reportable	Detection	Limit
1			

COC Number	UNITS	407774-05-01 2013-C4-MW-23-B	407774-05-01 2013-C4-MW-17-Δ	407774-05-01 2013-C4-MW-17-B	407774-06-01 2013-C4-MW-18-Δ	RDI	OC Batch
COC Number		407774 05 04	407774 05 04	407774 05 04	407774 00 04		
		18:50	18:02	18:02	18:15		
Sampling Date		2013/09/04	2013/09/04	2013/09/04	2013/09/04		
Maxxam ID		HL1330	HL1331	HL1332	HL1354		

Ext. Pet. Hydrocarbon							
F2 (C10-C16 Hydrocarbons)	mg/kg	<10	<10	<10	<10	10	7159283
F3 (C16-C34 Hydrocarbons)	mg/kg	<50	60	<50	<50	50	7159283
F4 (C34-C50 Hydrocarbons)	mg/kg	<50	<50	<50	<50	50	7159283
Reached Baseline at C50	mg/kg	Yes	Yes	Yes	Yes		7159283
Surrogate Recovery (%)							
O-TERPHENYL (sur.)	%	124	99	102	112		7159283

7159283

104



Report Date: 2013/09/16

#### PETROLEUM HYDROCARBONS (CCME)

Maxxam ID		HL1355	HL1356	HL1357	HL1358		
Sampling Date		2013/09/04	2013/09/04	2013/09/04	2013/09/04		
		18:15	17:33	17:33	19:53		
COC Number		407774-06-01	407774-06-01	407774-06-01	407774-06-01		
	UNITS	2013-C4-MW-18-B	2013-C4-MW-19-A	2013-C4-MW-19-B	2013-C4-MW-20-A	RDL	QC Batch
Ext. Pet. Hydrocarbon							
F2 (C10-C16 Hydrocarbons)	mg/kg	<10	<10	<10	<10	10	7159283
F3 (C16-C34 Hydrocarbons)	mg/kg	<50	<50	<50	<50	50	7159283
F4 (C34-C50 Hydrocarbons)	mg/kg	<50	<50	<50	<50	50	7159283
Reached Baseline at C50	mg/kg	Yes	Yes	Yes	Yes		7159283

RDL = Reportable Detection Limit

Surrogate Recovery (%)

O-TERPHENYL (sur.)

	UNITS	2013-C4-MW-20-B	2013-C4-1-A	2013-C4-1-B	2013-C4-2-A	RDL	QC Batch
COC Number		407774-06-01	407774-06-01	407774-06-01	407774-06-01		
		19:53	16:14	16:14	16:20		
Sampling Date		2013/09/04	2013/09/04	2013/09/04	2013/09/04		
Maxxam ID		HL1359	HL1360	HL1361	HL1362		

109

102

%

Ext. Pet. Hydrocarbon							
F2 (C10-C16 Hydrocarbons)	mg/kg	<10	<10	<10	<10	10	7159283
F3 (C16-C34 Hydrocarbons)	mg/kg	<50	58	<50	<50	50	7159283
F4 (C34-C50 Hydrocarbons)	mg/kg	<50	<50	<50	<50	50	7159283
Reached Baseline at C50	mg/kg	Yes	Yes	Yes	Yes		7159283
Surrogate Recovery (%)							
O-TERPHENYL (sur.)	%	102	101	102	99		7159283

79



PETROLEUM HYDROCARBONS (CCME)

Maxxam ID		HL1363		HL1399	HL1400		
Sampling Date		2013/09/04		2013/09/04	2013/09/04		
		16:20		16:29	16:29		
COC Number		407774-06-01		407774-07-01	407774-07-01		
	UNITS	2013-C4-2-B	QC Batch	2013-C4-3-A	2013-C4-3-B	RDL	QC Batch
Ext. Pet. Hydrocarbon							
F2 (C10-C16 Hydrocarbons)	mg/kg	<10	7159283	<10	<10	10	7159292
F3 (C16-C34 Hydrocarbons)	mg/kg	<50	7159283	<50	71	50	7159292
F4 (C34-C50 Hydrocarbons)	mg/kg	<50	7159283	<50	<50	50	7159292
Reached Baseline at C50	mg/kg	Yes	7159283	Yes	Yes		7159292

RDL = Reportable Detection Limit

Surrogate Recovery (%)

O-TERPHENYL (sur.)

Maxxam ID		HL1401	HL1402	HL1403	HL1404		
Sampling Date		2013/09/03	2013/09/03	2013/09/04	2013/09/04		
		15:46	15:46	16:54	16:54		
COC Number		407774-07-01	407774-07-01	407774-07-01	407774-07-01		
	UNITS	2013-C4-BMW-3-A	2013-C4-BMW-3-B	2013-C4-BMW-4-A	2013-C4-BMW-4-B	RDL	QC Batch

7159283

90

96

%

Ext. Pet. Hydrocarbon							
F2 (C10-C16 Hydrocarbons)	mg/kg	<10	<10	<10	<10	10	7159292
F3 (C16-C34 Hydrocarbons)	mg/kg	<50	<50	<50	<50	50	7159292
F4 (C34-C50 Hydrocarbons)	mg/kg	<50	<50	<50	<50	50	7159292
Reached Baseline at C50	mg/kg	Yes	Yes	Yes	Yes		7159292
Surrogate Recovery (%)							
O-TERPHENYL (sur.)	%	77	85	92	84		7159292

<50

Yes

86

7159292

7159292

7159292



PETROLEUM HYDROCARBONS (CCME)

Maxxam ID		HL1405	HL1406	HL1407		
Sampling Date		2013/09/02	2013/09/03	2013/09/04		
		10:00	16:30	19:53		
COC Number		407774-07-01	407774-07-01	407774-07-01		
		0040 04 1554 0 4 5	0040 04 BUN 40 A D	0040 O4 MUM 00 D D		000-1-1
	UNITS	2013-C4-MW-2-A-D	2013-C4-MW-16-A-D	2013-C4-MW-20-B-D	RDL	QC Batch
	UNITS	2013-C4-MW-2-A-D	2013-C4-MW-16-A-D	2013-C4-MW-20-B-D	RDL	QC Batch
Ext. Pet. Hydrocarbon	UNITS	2013-C4-MW-2-A-D	2013-C4-MW-16-A-D	2013-C4-MW-20-B-D	RDL	QC Batch
Ext. Pet. Hydrocarbon F2 (C10-C16 Hydrocarbons)	mg/kg	<b>&lt;10</b>	<10	<10	10	7159292

<50

Yes

84

<50

Yes

87

mg/kg

mg/kg

%

IRDI	- Renor	tahla 🗅	)ataction	I imit

F4 (C34-C50 Hydrocarbons)

Reached Baseline at C50

Surrogate Recovery (%)
O-TERPHENYL (sur.)

Maxxam ID		HL1408	HL1432	HL1433		
Sampling Date		2013/09/03	2013/09/04	2013/09/04		
		16:33	16:14	16:54		
COC Number		407774-07-01	407774-08-01	407774-08-01		
	UNITS	2013-C4-MW-13-A-D	2013-C4-1-B-D	2013-C4-BMW-4-B-D	RDL	QC Batch

Ext. Pet. Hydrocarbon						
F2 (C10-C16 Hydrocarbons)	mg/kg	<10	<10	<10	10	7159292
F3 (C16-C34 Hydrocarbons)	mg/kg	<50	<50	<50	50	7159292
F4 (C34-C50 Hydrocarbons)	mg/kg	<50	<50	<50	50	7159292
Reached Baseline at C50	mg/kg	Yes	Yes	Yes		7159292
Surrogate Recovery (%)						
O-TERPHENYL (sur.)	%	82	82	92		7159292



			Lab-Dup			
	UNITS	2013-C4-BWM-1-A	2013-C4-BWM-1-A	2013-C4-BWM-1-B	RDL	QC Batch
COC Number		407774-01-01	407774-01-01	407774-01-01		
		15:40	15:40	15:42		
Sampling Date		2013/09/02	2013/09/02	2013/09/02		
Maxxam ID		HL1233	HL1233	HL1234		

Polychlorinated Biphenyls						
Aroclor 1016	mg/kg	<0.010	<0.010	<0.010	0.010	7162942
Aroclor 1221	mg/kg	<0.010	<0.010	<0.010	0.010	7162942
Aroclor 1232	mg/kg	<0.010	<0.010	<0.010	0.010	7162942
Aroclor 1242	mg/kg	<0.010	<0.010	<0.010	0.010	7162942
Aroclor 1248	mg/kg	<0.010	<0.010	<0.010	0.010	7162942
Aroclor 1254	mg/kg	<0.010	<0.010	<0.010	0.010	7162942
Aroclor 1260	mg/kg	<0.010	<0.010	<0.010	0.010	7162942
Aroclor 1262	mg/kg	<0.010	<0.010	<0.010	0.010	7162942
Aroclor 1268	mg/kg	<0.010	<0.010	<0.010	0.010	7162942
Total Aroclors	mg/kg	<0.010	<0.010	<0.010	0.010	7162942
Surrogate Recovery (%)						
NONACHLOROBIPHENYL (sur.)	%	81	103	93		7162942



	LINITS	2013-C4-MW-1-A	OC Batch	2013-C4-MW-1-B	QC Batch	2013-C4-MW-2-A	RDI	QC Batch
COC Number		407774-01-01		407774-01-01		407774-01-01		
		13:15		13:15		10:00		
Sampling Date		2013/09/02		2013/09/02		2013/09/02		
Maxxam ID		HL1235		HL1236		HL1237		

Polychlorinated Biphenyls								
Aroclor 1016	mg/kg	<0.010	7165509	<0.010	7162942	<0.010	0.010	7165509
Aroclor 1221	mg/kg	<0.010	7165509	<0.010	7162942	<0.010	0.010	7165509
Aroclor 1232	mg/kg	<0.010	7165509	<0.010	7162942	<0.010	0.010	7165509
Aroclor 1242	mg/kg	<0.010	7165509	<0.010	7162942	<0.010	0.010	7165509
Aroclor 1248	mg/kg	<0.010	7165509	<0.010	7162942	<0.010	0.010	7165509
Aroclor 1254	mg/kg	<0.010	7165509	<0.010	7162942	<0.010	0.010	7165509
Aroclor 1260	mg/kg	<0.010	7165509	<0.010	7162942	<0.010	0.010	7165509
Aroclor 1262	mg/kg	<0.010	7165509	<0.010	7162942	<0.010	0.010	7165509
Aroclor 1268	mg/kg	<0.010	7165509	<0.010	7162942	<0.010	0.010	7165509
Total Aroclors	mg/kg	<0.010	7165509	<0.010	7162942	<0.010	0.010	7165509
Surrogate Recovery (%)								
NONACHLOROBIPHENYL (sur.)	%	113	7165509	88	7162942	104		7165509



	PTIMIT	2013-C4-MW-2-B	2013-C4-MW-3-A	2013-C4-MW-3-B	2013-C4-MW-4A-A	BDI	OC Batch
COC Number		407774-01-01	407774-01-01	407774-01-01	407774-01-01		
		10:00	10:45	10:45	09:30		
Sampling Date		2013/09/02	2013/09/02	2013/09/02	2013/09/02		
Maxxam ID		HL1238	HL1239	HL1240	HL1241		

Polychlorinated Biphenyls							
Aroclor 1016	mg/kg	<0.010	<0.010	<0.010	<0.010	0.010	7165509
Aroclor 1221	mg/kg	<0.010	<0.010	<0.010	<0.010	0.010	7165509
Aroclor 1232	mg/kg	<0.010	<0.010	<0.010	<0.010	0.010	7165509
Aroclor 1242	mg/kg	<0.010	<0.010	<0.010	<0.010	0.010	7165509
Aroclor 1248	mg/kg	<0.010	<0.010	<0.010	<0.010	0.010	7165509
Aroclor 1254	mg/kg	<0.010	0.026	<0.010	<0.010	0.010	7165509
Aroclor 1260	mg/kg	<0.010	<0.010	<0.010	<0.010	0.010	7165509
Aroclor 1262	mg/kg	<0.010	<0.010	<0.010	<0.010	0.010	7165509
Aroclor 1268	mg/kg	<0.010	<0.010	<0.010	<0.010	0.010	7165509
Total Aroclors	mg/kg	<0.010	0.026	<0.010	<0.010	0.010	7165509
Surrogate Recovery (%)							
NONACHLOROBIPHENYL (sur.)	%	105	105	100	82		7165509



## POLYCHLORINATED BIPHENYLS BY GC-ECD (SOIL)

	UNITS	2013-C4-MW-4A-B	2013-C4-MW-4B-A	2013-C4-MW-4B-B	2013-C4-MW-6A-A	RDL	QC Batch
COC Number		407774-01-01	407774-02-01	407774-02-01	407774-02-01		
		09:30	09:45	09:45	11:00		
Sampling Date		2013/09/02	2013/09/02	2013/09/02	2013/09/02		
Maxxam ID		HL1242	HL1251	HL1252	HL1253		

Polychlorinated Biphenyls							
Aroclor 1016	mg/kg	<0.010	<0.010	<0.010	<0.010	0.010	7165509
Aroclor 1221	mg/kg	<0.010	<0.010	<0.010	<0.010	0.010	7165509
Aroclor 1232	mg/kg	<0.010	<0.010	<0.010	<0.010	0.010	7165509
Aroclor 1242	mg/kg	<0.010	<0.010	<0.010	<0.010	0.010	7165509
Aroclor 1248	mg/kg	<0.010	<0.010	<0.010	<0.010	0.010	7165509
Aroclor 1254	mg/kg	<0.010	<0.010	<0.010	<0.010	0.010	7165509
Aroclor 1260	mg/kg	<0.010	<0.010	<0.010	<0.010	0.010	7165509
Aroclor 1262	mg/kg	<0.010	<0.010	<0.010	<0.010	0.010	7165509
Aroclor 1268	mg/kg	<0.010	<0.010	<0.010	<0.010	0.010	7165509
Total Aroclors	mg/kg	<0.010	<0.010	<0.010	<0.010	0.010	7165509
Surrogate Recovery (%)							
NONACHLOROBIPHENYL (sur.)	%	108	106	103	93		7165509



	11:00	11:15	11:15	
Sampling Date	2013/09/02	2013/09/02	2013/09/02	
Maxxam ID Sampling Date	HL1254 2013/09/02	HL1255 2013/09/02	HL1256 2013/09/02	

Polychlorinated Biphenyls							
Aroclor 1016	mg/kg	<0.010	<0.010	7165509	<0.010	0.010	7162942
Aroclor 1221	mg/kg	<0.010	<0.010	7165509	<0.010	0.010	7162942
Aroclor 1232	mg/kg	<0.010	<0.010	7165509	<0.010	0.010	7162942
Aroclor 1242	mg/kg	<0.010	<0.010	7165509	<0.010	0.010	7162942
Aroclor 1248	mg/kg	<0.010	<0.010	7165509	<0.010	0.010	7162942
Aroclor 1254	mg/kg	<0.010	<0.010	7165509	<0.010	0.010	7162942
Aroclor 1260	mg/kg	<0.010	<0.010	7165509	<0.010	0.010	7162942
Aroclor 1262	mg/kg	<0.010	<0.010	7165509	<0.010	0.010	7162942
Aroclor 1268	mg/kg	<0.010	<0.010	7165509	<0.010	0.010	7162942
Total Aroclors	mg/kg	<0.010	<0.010	7165509	<0.010	0.010	7162942
Surrogate Recovery (%)							
NONACHLOROBIPHENYL (sur.)	%	95	108	7165509	92		7162942



## POLYCHLORINATED BIPHENYLS BY GC-ECD (SOIL)

	UNITS	2013-C4-MW-7A-A	QC Batch	2013-C4-MW-7A-B	2013-C4-MW-7B-A	RDL	QC Batch
COC Number		407774-02-01		407774-02-01	407774-02-01		
		11:45		11:45	12:00		
Sampling Date		2013/09/02		2013/09/02	2013/09/02		
Maxxam ID		HL1257		HL1258	HL1259		

Polychlorinated Biphenyls							
Aroclor 1016	mg/kg	<0.010	7162942	<0.010	<0.010	0.010	7162925
Aroclor 1221	mg/kg	<0.010	7162942	<0.010	<0.010	0.010	7162925
Aroclor 1232	mg/kg	<0.010	7162942	<0.010	<0.010	0.010	7162925
Aroclor 1242	mg/kg	<0.010	7162942	<0.010	<0.010	0.010	7162925
Aroclor 1248	mg/kg	<0.010	7162942	<0.010	<0.010	0.010	7162925
Aroclor 1254	mg/kg	<0.010	7162942	<0.010	<0.010	0.010	7162925
Aroclor 1260	mg/kg	<0.010	7162942	<0.010	<0.010	0.010	7162925
Aroclor 1262	mg/kg	<0.010	7162942	<0.010	<0.010	0.010	7162925
Aroclor 1268	mg/kg	<0.010	7162942	<0.010	<0.010	0.010	7162925
Total Aroclors	mg/kg	<0.010	7162942	<0.010	<0.010	0.010	7162925
Surrogate Recovery (%)							
NONACHLOROBIPHENYL (sur.)	%	85	7162942	101	93		7162925



## POLYCHLORINATED BIPHENYLS BY GC-ECD (SOIL)

Maxxam ID		HL1260	HL1269	HL1269	HL1270		
Sampling Date		2013/09/02	2013/09/03	2013/09/03	2013/09/03		
· -		12:00	13:11	13:11	13:11		
COC Number		407774-02-01	407774-03-01	407774-03-01	407774-03-01		
	UNITS	2013-C4-MW-7B-B	2013-C4-MW-5-A	2013-C4-MW-5-A	2013-C4-MW-5-B	RDL	QC Batch
				Lab-Dup			
					1		
Polychlorinated Biphenyls							
Aroclor 1016	mg/kg	<0.010	<0.010	<0.010	<0.010	0.010	7162925
Aroclor 1221	mg/kg	<0.010	<0.010	<0.010	<0.010	0.010	7162925
Aroclor 1232	mg/kg	<0.010	<0.010	<0.010	<0.010	0.010	7162925
Aroclor 1242	mg/kg	<0.010	<0.010	<0.010	<0.010	0.010	7162925
Aroclor 1248	mg/kg	<0.010	<0.010	<0.010	<0.010	0.010	7162925
Aroclor 1254	mg/kg	<0.010	<0.010	<0.010	<0.010	0.010	7162925
Aroclor 1260	mg/kg	<0.010	<0.010	<0.010	<0.010	0.010	7162925
Aroclor 1262	mg/kg	<0.010	<0.010	<0.010	<0.010	0.010	7162925
Aroclor 1268	mg/kg	<0.010	<0.010	<0.010	<0.010	0.010	7162925
Total Aroclors	mg/kg	<0.010	<0.010	<0.010	<0.010	0.010	7162925
Surrogate Recovery (%)							
NONACHLOROBIPHENYL (sur.)	%	96	97	93	92		7162925



## POLYCHLORINATED BIPHENYLS BY GC-ECD (SOIL)

Maxxam ID		HL1271	HL1272	HL1273	HL1274		
Sampling Date		2013/09/02	2013/09/02	2013/09/03	2013/09/03		
		17:50	17:50	12:45	12:45		
COC Number		407774-03-01	407774-03-01	407774-03-01	407774-03-01		
	UNITS	2013-C4-MW-8-A	2013-C4-MW-8-B	2013-C4-MW-9-A	2013-C4-MW-9-B	RDL	QC Batch

Polychlorinated Biphenyls							
Aroclor 1016	mg/kg	<0.010	<0.010	<0.010	<0.010	0.010	7162925
Aroclor 1221	mg/kg	<0.010	<0.010	<0.010	<0.010	0.010	7162925
Aroclor 1232	mg/kg	<0.010	<0.010	<0.010	<0.010	0.010	7162925
Aroclor 1242	mg/kg	<0.010	<0.010	<0.010	<0.010	0.010	7162925
Aroclor 1248	mg/kg	<0.010	<0.010	<0.010	<0.010	0.010	7162925
Aroclor 1254	mg/kg	<0.010	<0.010	<0.010	<0.010	0.010	7162925
Aroclor 1260	mg/kg	<0.010	<0.010	<0.010	<0.010	0.010	7162925
Aroclor 1262	mg/kg	<0.010	<0.010	<0.010	<0.010	0.010	7162925
Aroclor 1268	mg/kg	<0.010	<0.010	<0.010	<0.010	0.010	7162925
Total Aroclors	mg/kg	<0.010	<0.010	<0.010	<0.010	0.010	7162925
Surrogate Recovery (%)							
NONACHLOROBIPHENYL (sur.)	%	94	101	98	97		7162925



Maxxam ID		HL1275	HL1276	HL1277	HL1278		
Sampling Date		2013/09/03	2013/09/03	2013/09/03	2013/09/03		
		14:40	14:40	14:50	14:50		
COC Number		407774-03-01	407774-03-01	407774-03-01	407774-03-01		
	UNITS	2013-C4-MW-14A-A	2013-C4-MW-14A-B	2013-C4-MW-14B-A	2013-C4-MW-14B-B	RDL	QC Batch

Polychlorinated Biphenyls							
Aroclor 1016	mg/kg	<0.010	<0.010	<0.010	<0.010	0.010	7162925
Aroclor 1221	mg/kg	<0.010	<0.010	<0.010	<0.010	0.010	7162925
Aroclor 1232	mg/kg	<0.010	<0.010	<0.010	<0.010	0.010	7162925
Aroclor 1242	mg/kg	<0.010	<0.010	<0.010	<0.010	0.010	7162925
Aroclor 1248	mg/kg	<0.010	<0.010	<0.010	<0.010	0.010	7162925
Aroclor 1254	mg/kg	<0.010	0.023	<0.010	<0.010	0.010	7162925
Aroclor 1260	mg/kg	<0.010	<0.010	<0.010	<0.010	0.010	7162925
Aroclor 1262	mg/kg	<0.010	<0.010	<0.010	<0.010	0.010	7162925
Aroclor 1268	mg/kg	<0.010	<0.010	<0.010	<0.010	0.010	7162925
Total Aroclors	mg/kg	<0.010	0.023	<0.010	<0.010	0.010	7162925
Surrogate Recovery (%)							
NONACHLOROBIPHENYL (sur.)	%	93	96	93	92		7162925



Maxxam ID		HL1301	HL1302	HL1303	HL1304		
Sampling Date		2013/09/03	2013/09/03	2013/09/03	2013/09/03		
		16:08	16:08	16:30	16:30		
COC Number		407774-04-01	407774-04-01	407774-04-01	407774-04-01		
	UNITS	2013-C4-MW-15-A	2013-C4-MW-15-B	2013-C4-MW-16-A	2013-C4-MW-16-B	RDL	QC Batch

Polychlorinated Biphenyls							
Aroclor 1016	mg/kg	<0.010	<0.010	<0.010	<0.010	0.010	7162925
Aroclor 1221	mg/kg	<0.010	<0.010	<0.010	<0.010	0.010	7162925
Aroclor 1232	mg/kg	<0.010	<0.010	<0.010	<0.010	0.010	7162925
Aroclor 1242	mg/kg	<0.010	<0.010	<0.010	<0.010	0.010	7162925
Aroclor 1248	mg/kg	<0.010	<0.010	<0.010	<0.010	0.010	7162925
Aroclor 1254	mg/kg	<0.010	<0.010	<0.010	<0.010	0.010	7162925
Aroclor 1260	mg/kg	<0.010	<0.010	<0.010	<0.010	0.010	7162925
Aroclor 1262	mg/kg	<0.010	<0.010	<0.010	<0.010	0.010	7162925
Aroclor 1268	mg/kg	<0.010	<0.010	<0.010	<0.010	0.010	7162925
Total Aroclors	mg/kg	<0.010	<0.010	<0.010	<0.010	0.010	7162925
Surrogate Recovery (%)							
NONACHLOROBIPHENYL (sur.)	%	92	91	90	87		7162925



## POLYCHLORINATED BIPHENYLS BY GC-ECD (SOIL)

	UNITS	2013-C4-MW-10-A	2013-C4-MW-10-B	RDL	2013-C4-MW-11-A	RDL	QC Batch
COC Number		407774-04-01	407774-04-01		407774-04-01		
		17:18	17:18		13:36		
Sampling Date		2013/09/03	2013/09/03		2013/09/03		
Maxxam ID		HL1305	HL1306		HL1307		

Polychlorinated Biphenyls							
Aroclor 1016	mg/kg	<0.010	<0.010	0.010	<0.010	0.010	7162925
Aroclor 1221	mg/kg	<0.010	<0.010	0.010	<0.010	0.010	7162925
Aroclor 1232	mg/kg	<0.010	<0.010	0.010	<0.010	0.010	7162925
Aroclor 1242	mg/kg	<0.010	<0.010	0.010	<0.010	0.010	7162925
Aroclor 1248	mg/kg	<0.010	<0.010	0.010	<0.010	0.010	7162925
Aroclor 1254	mg/kg	<0.010	<0.010	0.010	<0.010	0.010	7162925
Aroclor 1260	mg/kg	<0.010	<0.010	0.010	<0.020 (1)	0.020	7162925
Aroclor 1262	mg/kg	<0.010	<0.010	0.010	<0.010	0.010	7162925
Aroclor 1268	mg/kg	<0.010	<0.010	0.010	<0.010	0.010	7162925
Total Aroclors	mg/kg	<0.010	<0.010	0.010	<0.010	0.010	7162925
Surrogate Recovery (%)							
NONACHLOROBIPHENYL (sur.)	%	89	100		89		7162925

RDL = Reportable Detection Limit
(1) Detection limits raised due to matrix interference.



	PATINIT	2013-C4-MW-11-R	2013-C4-MW-12-A	2013-C4-MW-12-R	2013-C4-MW-13-A	BDI	OC Batch
COC Number		407774-04-01	407774-04-01	407774-04-01	407774-05-01		
		13:36	16:58	16:58	16:33		
Sampling Date		2013/09/03	2013/09/03	2013/09/03	2013/09/03		
Maxxam ID		HL1308	HL1309	HL1310	HL1322		

Polychlorinated Biphenyls							
Aroclor 1016	mg/kg	<0.010	<0.010	<0.010	<0.010	0.010	7162942
Aroclor 1221	mg/kg	<0.010	<0.010	<0.010	<0.010	0.010	7162942
Aroclor 1232	mg/kg	<0.010	<0.010	<0.010	<0.010	0.010	7162942
Aroclor 1242	mg/kg	<0.010	<0.010	<0.010	<0.010	0.010	7162942
Aroclor 1248	mg/kg	<0.010	<0.010	<0.010	<0.010	0.010	7162942
Aroclor 1254	mg/kg	<0.010	<0.010	<0.010	<0.010	0.010	7162942
Aroclor 1260	mg/kg	<0.010	<0.010	<0.010	<0.010	0.010	7162942
Aroclor 1262	mg/kg	<0.010	<0.010	<0.010	<0.010	0.010	7162942
Aroclor 1268	mg/kg	<0.010	<0.010	<0.010	<0.010	0.010	7162942
Total Aroclors	mg/kg	<0.010	<0.010	<0.010	<0.010	0.010	7162942
Surrogate Recovery (%)		-					
NONACHLOROBIPHENYL (sur.)	%	79	92	99	93		7162942



	PATINIT	2013-C4-MW-13-R	2013-C4-MW-21-A	2013-C4-MW-21-R	2013-C4-MW-22-A	BUI	OC Batch
COC Number		407774-05-01	407774-05-01	407774-05-01	407774-05-01		
		16:33	19:41	19:41	19:27		
Sampling Date		2013/09/03	2013/09/04	2013/09/04	2013/09/04		
Maxxam ID		HL1323	HL1324	HL1325	HL1326		

Polychlorinated Biphenyls							
Aroclor 1016	mg/kg	<0.010	<0.010	<0.010	<0.010	0.010	7165509
Aroclor 1221	mg/kg	<0.010	<0.010	<0.010	<0.010	0.010	7165509
Aroclor 1232	mg/kg	<0.010	<0.010	<0.010	<0.010	0.010	7165509
Aroclor 1242	mg/kg	<0.010	<0.010	<0.010	<0.010	0.010	7165509
Aroclor 1248	mg/kg	<0.010	<0.010	<0.010	<0.010	0.010	7165509
Aroclor 1254	mg/kg	<0.010	<0.010	<0.010	<0.010	0.010	7165509
Aroclor 1260	mg/kg	<0.010	<0.010	<0.010	<0.010	0.010	7165509
Aroclor 1262	mg/kg	<0.010	<0.010	<0.010	<0.010	0.010	7165509
Aroclor 1268	mg/kg	<0.010	<0.010	<0.010	<0.010	0.010	7165509
Total Aroclors	mg/kg	<0.010	<0.010	<0.010	<0.010	0.010	7165509
Surrogate Recovery (%)							
NONACHLOROBIPHENYL (sur.)	%	98	107	112	103		7165509



COC Number	 407774-05-01	407774-05-01 2013-C4-MW-23-A	407774-05-01	RDL	QC Batch
	19:27	18:50	18:50		
Sampling Date	2013/09/04	2013/09/04	2013/09/04		
Maxxam ID	HL1327	HL1328	HL1330		

Polychlorinated Biphenyls						
Aroclor 1016	mg/kg	<0.010	<0.010	<0.010	0.010	7165509
Aroclor 1221	mg/kg	<0.010	<0.010	<0.010	0.010	7165509
Aroclor 1232	mg/kg	<0.010	<0.010	<0.010	0.010	7165509
Aroclor 1242	mg/kg	<0.010	<0.010	<0.010	0.010	7165509
Aroclor 1248	mg/kg	<0.010	<0.010	<0.010	0.010	7165509
Aroclor 1254	mg/kg	<0.010	<0.010	<0.010	0.010	7165509
Aroclor 1260	mg/kg	<0.010	<0.010	<0.010	0.010	7165509
Aroclor 1262	mg/kg	<0.010	<0.010	<0.010	0.010	7165509
Aroclor 1268	mg/kg	<0.010	<0.010	<0.010	0.010	7165509
Total Aroclors	mg/kg	<0.010	<0.010	<0.010	0.010	7165509
Surrogate Recovery (%)						
NONACHLOROBIPHENYL (sur.)	%	112	109	100		7165509



## POLYCHLORINATED BIPHENYLS BY GC-ECD (SOIL)

Maxxam ID		HL1331	HL1332	HL1354	HL1355		
Sampling Date		2013/09/04	2013/09/04	2013/09/04	2013/09/04		
		18:02	18:02	18:15	18:15		
COC Number		407774-05-01	407774-05-01	407774-06-01	407774-06-01		
	UNITS	2013-C4-MW-17-A	2013-C4-MW-17-B	2013-C4-MW-18-A	2013-C4-MW-18-B	RDL	QC Batch

Polychlorinated Biphenyls							
Aroclor 1016	mg/kg	<0.010	<0.010	<0.010	<0.010	0.010	7165529
Aroclor 1221	mg/kg	<0.010	<0.010	<0.010	<0.010	0.010	7165529
Aroclor 1232	mg/kg	<0.010	<0.010	<0.010	<0.010	0.010	7165529
Aroclor 1242	mg/kg	<0.010	<0.010	<0.010	<0.010	0.010	7165529
Aroclor 1248	mg/kg	<0.010	<0.010	<0.010	<0.010	0.010	7165529
Aroclor 1254	mg/kg	<0.010	<0.010	<0.010	<0.010	0.010	7165529
Aroclor 1260	mg/kg	<0.010	<0.010	<0.010	<0.010	0.010	7165529
Aroclor 1262	mg/kg	<0.010	<0.010	<0.010	<0.010	0.010	7165529
Aroclor 1268	mg/kg	<0.010	<0.010	<0.010	<0.010	0.010	7165529
Total Aroclors	mg/kg	<0.010	<0.010	<0.010	<0.010	0.010	7165529
Surrogate Recovery (%)							
NONACHLOROBIPHENYL (sur.)	%	95	113	111	102		7165529



Maxxam ID		HL1356	HL1357	HL1358	HL1359		
Sampling Date		2013/09/04	2013/09/04	2013/09/04	2013/09/04		
		17:33	17:33	19:53	19:53		
COC Number		407774-06-01	407774-06-01	407774-06-01	407774-06-01		
	UNITS	2013-C4-MW-19-A	2013-C4-MW-19-B	2013-C4-MW-20-A	2013-C4-MW-20-B	RDL	QC Batch

Polychlorinated Biphenyls							
Aroclor 1016	mg/kg	<0.010	<0.010	<0.010	<0.010	0.010	7165529
Aroclor 1221	mg/kg	<0.010	<0.010	<0.010	<0.010	0.010	7165529
Aroclor 1232	mg/kg	<0.010	<0.010	<0.010	<0.010	0.010	7165529
Aroclor 1242	mg/kg	<0.010	<0.010	<0.010	<0.010	0.010	7165529
Aroclor 1248	mg/kg	<0.010	<0.010	<0.010	<0.010	0.010	7165529
Aroclor 1254	mg/kg	<0.010	<0.010	<0.010	<0.010	0.010	7165529
Aroclor 1260	mg/kg	<0.010	<0.010	<0.010	<0.010	0.010	7165529
Aroclor 1262	mg/kg	<0.010	<0.010	<0.010	<0.010	0.010	7165529
Aroclor 1268	mg/kg	<0.010	<0.010	<0.010	<0.010	0.010	7165529
Total Aroclors	mg/kg	<0.010	<0.010	<0.010	<0.010	0.010	7165529
Surrogate Recovery (%)							
NONACHLOROBIPHENYL (sur.)	%	105	105	112	110		7165529



## POLYCHLORINATED BIPHENYLS BY GC-ECD (SOIL)

Maxxam ID		HL1360	HL1361	HL1362	HL1362		
Sampling Date		2013/09/04	2013/09/04	2013/09/04	2013/09/04		
		16:14	16:14	16:20	16:20		
COC Number		407774-06-01	407774-06-01	407774-06-01	407774-06-01		
	UNITS	2013-C4-1-A	2013-C4-1-B	2013-C4-2-A	2013-C4-2-A	RDL	QC Batch
					Lab-Dup		
Polychlorinated Biphenyls							
Aroclor 1016	mg/kg	<0.010	<0.010	<0.010	<0.010	0.010	7165529
Aroclor 1221	mg/kg	<0.010	<0.010	<0.010	<0.010	0.010	7165529
Aroclor 1232	mg/kg	<0.010	<0.010	<0.010	<0.010	0.010	7165529
Aroclor 1242	mg/kg	<0.010	<0.010	<0.010	<0.010	0.010	7165529
Aroclor 1248	mg/kg	<0.010	<0.010	<0.010	<0.010	0.010	7165529
Aroclor 1254	mg/kg	<0.010	<0.010	<0.010	<0.010	0.010	7165529
Aroclor 1260	mg/kg	<0.010	<0.010	<0.010	<0.010	0.010	7165529
Aroclor 1262	mg/kg	<0.010	<0.010	<0.010	<0.010	0.010	7165529
Aroclor 1268	mg/kg	<0.010	<0.010	<0.010	<0.010	0.010	7165529
Total Aroclors	mg/kg	<0.010	<0.010	<0.010	<0.010	0.010	7165529

111

100

119

7165529

RDL = Reportable Detection Limit

NONACHLOROBIPHENYL (sur.)

%

98

Surrogate Recovery (%)



	UNITS	2013-C4-2-B	2013-C4-3-A	2013-C4-3-B	RDL	QC Batch
COC Number		407774-06-01	407774-07-01	407774-07-01		
		16:20	16:29	16:29		
Sampling Date		2013/09/04	2013/09/04	2013/09/04		
Maxxam ID		HL1363	HL1399	HL1400		

mg/kg	<0.010	<0.010	<0.010	0.010	7165529
mg/kg	<0.010	<0.010	<0.010	0.010	7165529
mg/kg	<0.010	<0.010	<0.010	0.010	7165529
mg/kg	<0.010	<0.010	<0.010	0.010	7165529
mg/kg	<0.010	<0.010	<0.010	0.010	7165529
mg/kg	<0.010	<0.010	<0.010	0.010	7165529
mg/kg	<0.010	<0.010	<0.010	0.010	7165529
mg/kg	<0.010	<0.010	<0.010	0.010	7165529
mg/kg	<0.010	<0.010	<0.010	0.010	7165529
mg/kg	<0.010	<0.010	<0.010	0.010	7165529
%	100	84	88		7165529
	mg/kg mg/kg mg/kg mg/kg mg/kg mg/kg mg/kg mg/kg mg/kg	mg/kg <0.010	mg/kg         <0.010	mg/kg         <0.010         <0.010         <0.010           mg/kg         <0.010	mg/kg         <0.010         <0.010         0.010           mg/kg         <0.010



## POLYCHLORINATED BIPHENYLS BY GC-ECD (SOIL)

			Lab-Dup				
	UNITS	2013-C4-BMW-3-A	2013-C4-BMW-3-A	QC Batch	2013-C4-BMW-3-B	RDL	QC Batch
COC Number		407774-07-01	407774-07-01		407774-07-01		
		15:46	15:46		15:46		
Sampling Date		2013/09/03	2013/09/03		2013/09/03		
Maxxam ID		HL1401	HL1401		HL1402		

Polychlorinated Biphenyls							
Aroclor 1016	mg/kg	<0.010	<0.010	7165509	<0.010	0.010	7165529
Aroclor 1221	mg/kg	<0.010	<0.010	7165509	<0.010	0.010	7165529
Aroclor 1232	mg/kg	<0.010	<0.010	7165509	<0.010	0.010	7165529
Aroclor 1242	mg/kg	<0.010	<0.010	7165509	<0.010	0.010	7165529
Aroclor 1248	mg/kg	<0.010	<0.010	7165509	<0.010	0.010	7165529
Aroclor 1254	mg/kg	<0.010	<0.010	7165509	<0.010	0.010	7165529
Aroclor 1260	mg/kg	<0.010	<0.010	7165509	<0.010	0.010	7165529
Aroclor 1262	mg/kg	<0.010	<0.010	7165509	<0.010	0.010	7165529
Aroclor 1268	mg/kg	<0.010	<0.010	7165509	<0.010	0.010	7165529
Total Aroclors	mg/kg	<0.010	<0.010	7165509	<0.010	0.010	7165529
Surrogate Recovery (%)							
NONACHLOROBIPHENYL (sur.)	%	94	125	7165509	96		7165529



	LIMITS	2013-C4-RMW-4-A	2012-C4-RMW-4-R	2013-C4-MW-2-A-D	2013-C4-MW-16-A-D	DUI	OC Batch
COC Number		407774-07-01	407774-07-01	407774-07-01	407774-07-01		
		16:54	16:54	10:00	16:30		
Sampling Date		2013/09/04	2013/09/04	2013/09/02	2013/09/03		
Maxxam ID		HL1403	HL1404	HL1405	HL1406		

Polychlorinated Biphenyls							
Aroclor 1016	mg/kg	<0.010	<0.010	<0.010	<0.010	0.010	7165529
Aroclor 1221	mg/kg	<0.010	<0.010	<0.010	<0.010	0.010	7165529
Aroclor 1232	mg/kg	<0.010	<0.010	<0.010	<0.010	0.010	7165529
Aroclor 1242	mg/kg	<0.010	<0.010	<0.010	<0.010	0.010	7165529
Aroclor 1248	mg/kg	<0.010	<0.010	<0.010	<0.010	0.010	7165529
Aroclor 1254	mg/kg	<0.010	<0.010	<0.010	<0.010	0.010	7165529
Aroclor 1260	mg/kg	<0.010	<0.010	<0.010	<0.010	0.010	7165529
Aroclor 1262	mg/kg	<0.010	<0.010	<0.010	<0.010	0.010	7165529
Aroclor 1268	mg/kg	<0.010	<0.010	<0.010	<0.010	0.010	7165529
Total Aroclors	mg/kg	<0.010	<0.010	<0.010	<0.010	0.010	7165529
Surrogate Recovery (%)							
NONACHLOROBIPHENYL (sur.)	%	57	89	111	110		7165529



COC Number	LIMITO	2013-C4-MW-20-B-D	OC Botob		2013-C4-1-R-D	BDI	OC Batch
COC Number		407774-07-01		407774-07-01	407774-08-01		
		19:53		16:33	16:14		
Sampling Date		2013/09/04		2013/09/03	2013/09/04		
Maxxam ID		HL1407		HL1408	HL1432		

Polychlorinated Biphenyls							
Aroclor 1016	mg/kg	<0.010	7165529	<0.010	<0.010	0.010	7162942
Aroclor 1221	mg/kg	<0.010	7165529	<0.010	<0.010	0.010	7162942
Aroclor 1232	mg/kg	<0.010	7165529	<0.010	<0.010	0.010	7162942
Aroclor 1242	mg/kg	<0.010	7165529	<0.010	<0.010	0.010	7162942
Aroclor 1248	mg/kg	<0.010	7165529	<0.010	<0.010	0.010	7162942
Aroclor 1254	mg/kg	<0.010	7165529	<0.010	<0.010	0.010	7162942
Aroclor 1260	mg/kg	<0.010	7165529	<0.010	<0.010	0.010	7162942
Aroclor 1262	mg/kg	<0.010	7165529	<0.010	<0.010	0.010	7162942
Aroclor 1268	mg/kg	<0.010	7165529	<0.010	<0.010	0.010	7162942
Total Aroclors	mg/kg	<0.010	7165529	<0.010	<0.010	0.010	7162942
Surrogate Recovery (%)							
NONACHLOROBIPHENYL (sur.)	%	108	7165529	84	86		7162942



	UNITS	2013-C4-BMW-4-B-D	RDL	QC Batch
COC Number		407774-08-01		
		16:54		
Sampling Date		2013/09/04		
Maxxam ID		HL1433		

Polychlorinated Biphenyls				
Aroclor 1016	mg/kg	<0.010	0.010	7162942
Aroclor 1221	mg/kg	<0.010	0.010	7162942
Aroclor 1232	mg/kg	<0.010	0.010	7162942
Aroclor 1242	mg/kg	<0.010	0.010	7162942
Aroclor 1248	mg/kg	<0.010	0.010	7162942
Aroclor 1254	mg/kg	<0.010	0.010	7162942
Aroclor 1260	mg/kg	<0.010	0.010	7162942
Aroclor 1262	mg/kg	<0.010	0.010	7162942
Aroclor 1268	mg/kg	<0.010	0.010	7162942
Total Aroclors	mg/kg	<0.010	0.010	7162942
Surrogate Recovery (%)				
NONACHLOROBIPHENYL (sur.)	%	101		7162942



# **ELEMENTS BY ATOMIC SPECTROSCOPY (SOIL)**

	UNITS	2013-C4-BWM-1-A	2013-C4-BWM-1-B	QC Batch	2013-C4-MW-1-A	2013-C4-MW-1-B	RDL	QC Batch
COC Number		407774-01-01	407774-01-01		407774-01-01	407774-01-01		
		15:40	15:42		13:15	13:15		
Sampling Date		2013/09/02	2013/09/02		2013/09/02	2013/09/02		
Maxxam ID		HL1233	HL1234		HL1235	HL1236		

Elements								
Total Antimony (Sb)	mg/kg	<1.0	<1.0	7165356	<1.0	<1.0	1.0	7163983
Total Arsenic (As)	mg/kg	1.8	1.8	7165356	<1.0	1.1	1.0	7163983
Total Barium (Ba)	mg/kg	68	52	7165356	31	41	10	7163983
Total Beryllium (Be)	mg/kg	0.54	<0.40	7165356	<0.40	<0.40	0.40	7163983
Total Cadmium (Cd)	mg/kg	<0.10	<0.10	7165356	<0.10	<0.10	0.10	7163983
Total Chromium (Cr)	mg/kg	17	22	7165356	12	17	1.0	7163983
Total Cobalt (Co)	mg/kg	5.9	5.9	7165356	4.0	5.0	1.0	7163983
Total Copper (Cu)	mg/kg	8.2	8.0	7165356	<5.0	7.0	5.0	7163983
Total Lead (Pb)	mg/kg	5.9	5.7	7165356	3.5	4.3	1.0	7163983
Total Mercury (Hg)	mg/kg	<0.050	<0.050	7165356	<0.050	<0.050	0.050	7163983
Total Molybdenum (Mo)	mg/kg	<0.40	0.89	7165356	<0.40	<0.40	0.40	7163983
Total Nickel (Ni)	mg/kg	9.6	12	7165356	8.2	12	1.0	7163983
Total Selenium (Se)	mg/kg	<0.50	<0.50	7165356	<0.50	<0.50	0.50	7163983
Total Silver (Ag)	mg/kg	<1.0	<1.0	7165356	<1.0	<1.0	1.0	7163983
Total Thallium (TI)	mg/kg	<0.30	<0.30	7165356	<0.30	<0.30	0.30	7163983
Total Tin (Sn)	mg/kg	<1.0	<1.0	7165356	<1.0	<1.0	1.0	7163983
Total Uranium (U)	mg/kg	1.3	1.3	7165356	1.1	1.2	1.0	7163983
Total Vanadium (V)	mg/kg	29	29	7165356	17	21	1.0	7163983
Total Zinc (Zn)	mg/kg	37	35	7165356	20	30	10	7163983



#### **ELEMENTS BY ATOMIC SPECTROSCOPY (SOIL)**

Maxxam ID		HL1237	HL1238	HL1239	HL1240		
Sampling Date		2013/09/02	2013/09/02	2013/09/02	2013/09/02		
		10:00	10:00	10:45	10:45		
COC Number		407774-01-01	407774-01-01	407774-01-01	407774-01-01		
	UNITS	2013-C4-MW-2-A	2013-C4-MW-2-B	2013-C4-MW-3-A	2013-C4-MW-3-B	RDL	QC Batch
Elements							
Total Antimony (Sb)	mg/kg	<1.0	<1.0	<1.0	<1.0	1.0	7163983
Total Arsenic (As)	mg/kg	1.3	1.4	2.9	2.2	1.0	7163983

Total Arsenic (As)	mg/kg	1.3	1.4	2.9	2.2	1.0	7163983
Total Barium (Ba)	mg/kg	66	51	110	79	10	7163983
Total Beryllium (Be)	mg/kg	<0.40	<0.40	0.79	0.49	0.40	7163983
Total Cadmium (Cd)	mg/kg	<0.10	<0.10	0.24	<0.10	0.10	7163983
Total Chromium (Cr)	mg/kg	17	16	29	26	1.0	7163983
Total Cobalt (Co)	mg/kg	5.8	5.5	9.6	7.3	1.0	7163983
Total Copper (Cu)	mg/kg	8.4	8.1	20	15	5.0	7163983
Total Lead (Pb)	mg/kg	5.3	5.4	21	10	1.0	7163983
Total Mercury (Hg)	mg/kg	<0.050	<0.050	<0.050	<0.050	0.050	7163983
Total Molybdenum (Mo)	mg/kg	0.57	0.45	0.94	0.67	0.40	7163983
Total Nickel (Ni)	mg/kg	9.9	9.4	17	15	1.0	7163983
Total Selenium (Se)	mg/kg	<0.50	<0.50	<0.50	<0.50	0.50	7163983
Total Silver (Ag)	mg/kg	<1.0	<1.0	<1.0	<1.0	1.0	7163983
Total Thallium (TI)	mg/kg	<0.30	<0.30	0.31	<0.30	0.30	7163983

<1.0

1.4

28

33

1.5

3.6

46

76

1.1

2.2

34

49

1.0

1.0

1.0

10

7163983

7163983

7163983

7163983

RDL = Reportable Detection Limit

mg/kg

mg/kg

mg/kg

mg/kg

<1.0

1.4

28

35

Total Tin (Sn)

Total Zinc (Zn)

Total Uranium (U)

Total Vanadium (V)



# **ELEMENTS BY ATOMIC SPECTROSCOPY (SOIL)**

	UNITS	2013-C4-MW-4A-A	2013-C4-MW-4A-B	2013-C4-MW-4B-A	2013-C4-MW-4B-B	RDL	QC Batch
COC Number		407774-01-01	407774-01-01	407774-02-01	407774-02-01		
		09:30	09:30	09:45	09:45		
Sampling Date		2013/09/02	2013/09/02	2013/09/02	2013/09/02		
Maxxam ID		HL1241	HL1242	HL1251	HL1252		

Elements							
Total Antimony (Sb)	mg/kg	<1.0	<1.0	<1.0	<1.0	1.0	7163983
Total Arsenic (As)	mg/kg	<1.0	<1.0	<1.0	<1.0	1.0	7163983
Total Barium (Ba)	mg/kg	29	29	34	32	10	7163983
Total Beryllium (Be)	mg/kg	<0.40	<0.40	<0.40	<0.40	0.40	7163983
Total Cadmium (Cd)	mg/kg	<0.10	<0.10	<0.10	<0.10	0.10	7163983
Total Chromium (Cr)	mg/kg	13	11	12	12	1.0	7163983
Total Cobalt (Co)	mg/kg	3.7	3.4	3.7	3.6	1.0	7163983
Total Copper (Cu)	mg/kg	<5.0	<5.0	5.7	5.1	5.0	7163983
Total Lead (Pb)	mg/kg	3.7	3.8	4.4	3.9	1.0	7163983
Total Mercury (Hg)	mg/kg	<0.050	<0.050	<0.050	<0.050	0.050	7163983
Total Molybdenum (Mo)	mg/kg	<0.40	<0.40	<0.40	<0.40	0.40	7163983
Total Nickel (Ni)	mg/kg	6.9	6.0	6.9	6.7	1.0	7163983
Total Selenium (Se)	mg/kg	<0.50	<0.50	<0.50	<0.50	0.50	7163983
Total Silver (Ag)	mg/kg	<1.0	<1.0	<1.0	<1.0	1.0	7163983
Total Thallium (TI)	mg/kg	<0.30	<0.30	<0.30	<0.30	0.30	7163983
Total Tin (Sn)	mg/kg	<1.0	<1.0	<1.0	<1.0	1.0	7163983
Total Uranium (U)	mg/kg	<1.0	<1.0	<1.0	<1.0	1.0	7163983
Total Vanadium (V)	mg/kg	18	16	18	18	1.0	7163983
Total Zinc (Zn)	mg/kg	22	20	22	23	10	7163983



Maxxam ID		HL1253	HL1253	HL1254	HL1255		
Sampling Date		2013/09/02	2013/09/02	2013/09/02	2013/09/02		
		11:00	11:00	11:00	11:15		
COC Number		407774-02-01	407774-02-01	407774-02-01	407774-02-01		
	UNITS	2013-C4-MW-6A-A	2013-C4-MW-6A-A	2013-C4-MW-6A-B	2013-C4-MW-6B-A	RDL	QC Batch
			Lab-Dup				
Elements							
Total Antimony (Sb)	mg/kg	<1.0	<1.0	<1.0	<1.0	1.0	7164368
Total Arsenic (As)	mg/kg	1.1	1.1	1.0	<1.0	1.0	7164368
Total Barium (Ba)	mg/kg	44	45	42	44	10	7164368
Total Beryllium (Be)	mg/kg	<0.40	<0.40	<0.40	<0.40	0.40	7164368
Total Cadmium (Cd)	mg/kg	<0.10	<0.10	<0.10	<0.10	0.10	7164368
Total Chromium (Cr)	mg/kg	16	18	17	16	1.0	7164368
Total Cobalt (Co)	mg/kg	4.7	5.0	4.4	4.5	1.0	7164368
Total Copper (Cu)	mg/kg	7.4	7.7	5.8	6.6	5.0	7164368
Total Lead (Pb)	mg/kg	4.9	4.9	4.3	4.0	1.0	7164368
Total Mercury (Hg)	mg/kg	<0.050	<0.050	<0.050	<0.050	0.050	7164368
Total Molybdenum (Mo)	mg/kg	0.68	<0.40	<0.40	<0.40	0.40	7164368
Total Nickel (Ni)	mg/kg	8.0	9.1	8.5	11	1.0	7164368
Total Selenium (Se)	mg/kg	<0.50	<0.50	<0.50	<0.50	0.50	7164368
Total Silver (Ag)	mg/kg	<1.0	<1.0	<1.0	<1.0	1.0	7164368
Total Thallium (TI)	mg/kg	<0.30	<0.30	<0.30	<0.30	0.30	7164368
Total Tin (Sn)	mg/kg	<1.0	<1.0	<1.0	<1.0	1.0	7164368
Total Uranium (U)	mg/kg	1.6	1.7	1.2	1.4	1.0	7164368
Total Vanadium (V)	mg/kg	23	23	23	25	1.0	7164368
Total Zinc (Zn)	mg/kg	27	29	26	35	10	7164368
		·		<u> </u>	· ·		



	UNITS	2013-C4-MW-6B-B	2013-C4-MW-7A-A	2013-C4-MW-7A-B	2013-C4-MW-7B-A	RDL	QC Batch
COC Number		407774-02-01	407774-02-01	407774-02-01	407774-02-01		
		11:15	11:45	11:45	12:00		
Sampling Date		2013/09/02	2013/09/02	2013/09/02	2013/09/02		
Maxxam ID		HL1256	HL1257	HL1258	HL1259		

Elements							
Total Antimony (Sb)	mg/kg	<1.0	<1.0	<1.0	<1.0	1.0	7165356
Total Arsenic (As)	mg/kg	<1.0	1.2	1.7	1.9	1.0	7165356
Total Barium (Ba)	mg/kg	32	75	85	63	10	7165356
Total Beryllium (Be)	mg/kg	<0.40	<0.40	0.43	0.65	0.40	7165356
Total Cadmium (Cd)	mg/kg	<0.10	<0.10	<0.10	<0.10	0.10	7165356
Total Chromium (Cr)	mg/kg	15	20	28	19	1.0	7165356
Total Cobalt (Co)	mg/kg	4.0	6.2	7.9	7.6	1.0	7165356
Total Copper (Cu)	mg/kg	<5.0	12	11	9.8	5.0	7165356
Total Lead (Pb)	mg/kg	3.6	6.8	6.7	5.8	1.0	7165356
Total Mercury (Hg)	mg/kg	<0.050	<0.050	<0.050	<0.050	0.050	7165356
Total Molybdenum (Mo)	mg/kg	<0.40	0.93	0.53	0.46	0.40	7165356
Total Nickel (Ni)	mg/kg	8.0	14	15	11	1.0	7165356
Total Selenium (Se)	mg/kg	<0.50	<0.50	<0.50	<0.50	0.50	7165356
Total Silver (Ag)	mg/kg	<1.0	<1.0	<1.0	<1.0	1.0	7165356
Total Thallium (TI)	mg/kg	<0.30	0.31	<0.30	<0.30	0.30	7165356
Total Tin (Sn)	mg/kg	<1.0	1.7	<1.0	<1.0	1.0	7165356
Total Uranium (U)	mg/kg	1.1	2.0	1.8	2.3	1.0	7165356
Total Vanadium (V)	mg/kg	20	32	35	39	1.0	7165356
Total Zinc (Zn)	mg/kg	21	51	44	44	10	7165356



Maxxam ID		HL1260	HL1269		HL1270	HL1271		
Sampling Date		2013/09/02	2013/09/03		2013/09/03	2013/09/02		
		12:00	13:11		13:11	17:50		
COC Number		407774-02-01	407774-03-01		407774-03-01	407774-03-01		
	UNITS	2013-C4-MW-7B-B	2013-C4-MW-5-A	QC Batch	2013-C4-MW-5-B	2013-C4-MW-8-A	RDL	QC Batch
Elements								
Total Antimony (Sb)	mg/kg	<1.0	<1.0	7165356	<1.0	<1.0	1.0	7165233
Total Arsenic (As)	mg/kg	1.7	1.9	7165356	1.3	2.1	1.0	7165233
Total Barium (Ba)	mg/kg	56	48	7165356	61	54	10	7165233
Total Beryllium (Be)	mg/kg	0.52	0.45	7165356	0.41	0.51	0.40	7165233
Total Cadmium (Cd)	mg/kg	<0.10	<0.10	7165356	<0.10	<0.10	0.10	7165233
Total Chromium (Cr)	mg/kg	16	17	7165356	130	19	1.0	7165233
Total Cobalt (Co)	mg/kg	6.4	6.4	7165356	7.5	6.6	1.0	7165233
Total Copper (Cu)	mg/kg	9.5	31	7165356	9.2	15	5.0	7165233
Total Lead (Pb)	mg/kg	5.4	6.9	7165356	4.1	7.5	1.0	7165233
Total Mercury (Hg)	mg/kg	<0.050	<0.050	7165356	<0.050	<0.050	0.050	7165233
Total Molybdenum (Mo)	mg/kg	0.46	0.43	7165356	2.2	0.54	0.40	7165233
Total Nickel (Ni)	mg/kg	9.2	15	7165356	65	10	1.0	7165233
Total Selenium (Se)	mg/kg	<0.50	<0.50	7165356	<0.50	<0.50	0.50	7165233
Total Silver (Ag)	mg/kg	<1.0	<1.0	7165356	<1.0	<1.0	1.0	7165233
Total Thallium (TI)	mg/kg	<0.30	<0.30	7165356	<0.30	<0.30	0.30	7165233
Total Tin (Sn)	mg/kg	<1.0	<1.0	7165356	<1.0	<1.0	1.0	7165233
Total Uranium (U)	mg/kg	1.8	2.2	7165356	1.8	2.3	1.0	7165233
Total Vanadium (V)	mg/kg	33	31	7165356	34	34	1.0	7165233

63

7165356

38

44

10

7165233

RDL = Reportable Detection Limit

mg/kg

36

Total Zinc (Zn)



## **ELEMENTS BY ATOMIC SPECTROSCOPY (SOIL)**

Maxxam ID		HL1272	HL1273	HL1274	HL1275		
Sampling Date		2013/09/02	2013/09/03	2013/09/03	2013/09/03		
		17:50	12:45	12:45	14:40		
COC Number		407774-03-01	407774-03-01	407774-03-01	407774-03-01		
	UNITS	2013-C4-MW-8-B	2013-C4-MW-9-A	2013-C4-MW-9-B	2013-C4-MW-14A-A	RDL	QC Batch

Elements							
Total Antimony (Sb)	mg/kg	<1.0	<1.0	<1.0	<1.0	1.0	7165233
Total Arsenic (As)	mg/kg	2.2	1.9	1.9	3.3	1.0	7165233
Total Barium (Ba)	mg/kg	79	140	100	83	10	7165233
Total Beryllium (Be)	mg/kg	1.1	0.56	0.52	0.48	0.40	7165233
Total Cadmium (Cd)	mg/kg	<0.10	<0.10	<0.10	<0.10	0.10	7165233
Total Chromium (Cr)	mg/kg	17	18	16	93	1.0	7165233
Total Cobalt (Co)	mg/kg	8.0	6.4	5.8	8.5	1.0	7165233
Total Copper (Cu)	mg/kg	11	13	10	12	5.0	7165233
Total Lead (Pb)	mg/kg	8.0	6.0	6.3	8.5	1.0	7165233
Total Mercury (Hg)	mg/kg	<0.050	<0.050	<0.050	<0.050	0.050	7165233
Total Molybdenum (Mo)	mg/kg	0.54	0.41	<0.40	1.4	0.40	7165233
Total Nickel (Ni)	mg/kg	9.5	9.4	8.7	44	1.0	7165233
Total Selenium (Se)	mg/kg	<0.50	<0.50	<0.50	<0.50	0.50	7165233
Total Silver (Ag)	mg/kg	<1.0	<1.0	<1.0	<1.0	1.0	7165233
Total Thallium (TI)	mg/kg	<0.30	<0.30	<0.30	0.33	0.30	7165233
Total Tin (Sn)	mg/kg	1.2	<1.0	<1.0	1.2	1.0	7165233
Total Uranium (U)	mg/kg	1.8	2.2	2.2	2.5	1.0	7165233
Total Vanadium (V)	mg/kg	40	32	30	41	1.0	7165233
Total Zinc (Zn)	mg/kg	49	36	34	47	10	7165233



	UNITS	2013-C4-MW-14A-B	2013-C4-MW-14B-A	2013-C4-MW-14B-B	2013-C4-MW-15-A	RDL	QC Batch
COC Number		407774-03-01	407774-03-01	407774-03-01	407774-04-01		
		14:40	14:50	14:50	16:08		
Sampling Date		2013/09/03	2013/09/03	2013/09/03	2013/09/03		
Maxxam ID		HL1276	HL1277	HL1278	HL1301		

Elements							
Total Antimony (Sb)	mg/kg	<1.0	<1.0	<1.0	<1.0	1.0	7165233
Total Arsenic (As)	mg/kg	2.8	3.4	2.8	2.2	1.0	7165233
Total Barium (Ba)	mg/kg	62	72	71	40	10	7165233
Total Beryllium (Be)	mg/kg	0.45	0.50	<0.40	0.88	0.40	7165233
Total Cadmium (Cd)	mg/kg	<0.10	<0.10	<0.10	<0.10	0.10	7165233
Total Chromium (Cr)	mg/kg	27	27	150	11	1.0	7165233
Total Cobalt (Co)	mg/kg	6.9	7.5	8.5	6.0	1.0	7165233
Total Copper (Cu)	mg/kg	10	13	11	7.5	5.0	7165233
Total Lead (Pb)	mg/kg	8.0	12	6.0	4.3	1.0	7165233
Total Mercury (Hg)	mg/kg	<0.050	<0.050	<0.050	<0.050	0.050	7165233
Total Molybdenum (Mo)	mg/kg	0.56	0.76	2.3	0.74	0.40	7165233
Total Nickel (Ni)	mg/kg	14	15	71	6.2	1.0	7165233
Total Selenium (Se)	mg/kg	<0.50	<0.50	<0.50	<0.50	0.50	7165233
Total Silver (Ag)	mg/kg	<1.0	<1.0	<1.0	<1.0	1.0	7165233
Total Thallium (TI)	mg/kg	<0.30	<0.30	<0.30	<0.30	0.30	7165233
Total Tin (Sn)	mg/kg	<1.0	1.0	1.1	<1.0	1.0	7165233
Total Uranium (U)	mg/kg	1.9	2.4	1.6	1.8	1.0	7165233
Total Vanadium (V)	mg/kg	33	35	35	25	1.0	7165233
Total Zinc (Zn)	mg/kg	38	46	41	41	10	7165233



## **ELEMENTS BY ATOMIC SPECTROSCOPY (SOIL)**

	UNITS	2013-C4-MW-15-B	2013-C4-MW-16-A	2013-C4-MW-16-B	2013-C4-MW-10-A	RDL	QC Batch
COC Number		407774-04-01	407774-04-01	407774-04-01	407774-04-01		
		16:08	16:30	16:30	17:18		
Sampling Date		2013/09/03	2013/09/03	2013/09/03	2013/09/03		
Maxxam ID		HL1302	HL1303	HL1304	HL1305		

Elements							
Total Antimony (Sb)	mg/kg	<1.0	<1.0	<1.0	<1.0	1.0	7165233
Total Arsenic (As)	mg/kg	2.6	2.0	1.3	1.5	1.0	7165233
Total Barium (Ba)	mg/kg	39	72	47	52	10	7165233
Total Beryllium (Be)	mg/kg	0.99	0.57	<0.40	<0.40	0.40	7165233
Total Cadmium (Cd)	mg/kg	<0.10	<0.10	<0.10	<0.10	0.10	7165233
Total Chromium (Cr)	mg/kg	11	100	20	22	1.0	7165233
Total Cobalt (Co)	mg/kg	6.6	7.8	5.5	5.8	1.0	7165233
Total Copper (Cu)	mg/kg	7.5	13	7.0	9.5	5.0	7165233
Total Lead (Pb)	mg/kg	3.9	7.1	4.8	6.9	1.0	7165233
Total Mercury (Hg)	mg/kg	<0.050	<0.050	<0.050	<0.050	0.050	7165233
Total Molybdenum (Mo)	mg/kg	0.75	1.7	0.47	0.61	0.40	7165233
Total Nickel (Ni)	mg/kg	6.7	51	11	11	1.0	7165233
Total Selenium (Se)	mg/kg	<0.50	<0.50	<0.50	<0.50	0.50	7165233
Total Silver (Ag)	mg/kg	<1.0	<1.0	<1.0	<1.0	1.0	7165233
Total Thallium (TI)	mg/kg	<0.30	<0.30	<0.30	<0.30	0.30	7165233
Total Tin (Sn)	mg/kg	1.1	<1.0	<1.0	<1.0	1.0	7165233
Total Uranium (U)	mg/kg	2.4	2.5	1.1	1.4	1.0	7165233
Total Vanadium (V)	mg/kg	27	35	25	29	1.0	7165233
Total Zinc (Zn)	mg/kg	48	43	27	39	10	7165233



Maxxam ID		HL1306		HL1307	HL1307	HL1308		
Sampling Date		2013/09/03		2013/09/03	2013/09/03	2013/09/03		
		17:18		13:36	13:36	13:36		
COC Number		407774-04-01	000 1	407774-04-01	407774-04-01	407774-04-01	<u> </u>	00.0 ( )
	UNITS	2013-C4-MW-10-B	QC Batch	2013-C4-MW-11-A	2013-C4-MW-11-A Lab-Dup	2013-C4-MW-11-B	RDL	QC Batch
					Lab-Dup			
Elements								
Total Antimony (Sb)	mg/kg	<1.0	7165233	<1.0	<1.0	<1.0	1.0	7165567
Total Arsenic (As)	mg/kg	1.2	7165233	2.3	2.4	3.0	1.0	7165567
Total Barium (Ba)	mg/kg	38	7165233	82	84	110	10	7165567
Total Beryllium (Be)	mg/kg	<0.40	7165233	0.56	0.58	0.58	0.40	7165567
Total Cadmium (Cd)	mg/kg	<0.10	7165233	<0.10	<0.10	<0.10	0.10	7165567
Total Chromium (Cr)	mg/kg	19	7165233	28	30	39	1.0	7165567
Total Cobalt (Co)	mg/kg	4.9	7165233	8.3	8.2	9.6	1.0	7165567
Total Copper (Cu)	mg/kg	6.9	7165233	30	29	22	5.0	7165567
Total Lead (Pb)	mg/kg	4.5	7165233	9.6	10	10	1.0	7165567
Total Mercury (Hg)	mg/kg	<0.050	7165233	<0.050	<0.050	<0.050	0.050	7165567
Total Molybdenum (Mo)	mg/kg	<0.40	7165233	0.69	0.59	0.80	0.40	7165567
Total Nickel (Ni)	mg/kg	11	7165233	15	17	21	1.0	7165567
Total Selenium (Se)	mg/kg	<0.50	7165233	<0.50	<0.50	<0.50	0.50	7165567
Total Silver (Ag)	mg/kg	<1.0	7165233	<1.0	<1.0	<1.0	1.0	7165567
Total Thallium (TI)	mg/kg	<0.30	7165233	<0.30	0.31	0.36	0.30	7165567
Total Tin (Sn)	mg/kg	<1.0	7165233	1.2	1.1	1.3	1.0	7165567
Total Uranium (U)	mg/kg	1.1	7165233	1.9	1.9	2.4	1.0	7165567
Total Vanadium (V)	mg/kg	24	7165233	38	37	48	1.0	7165567
Total Zinc (Zn)	mg/kg	26	7165233	60	60	65	10	7165567
		<u> </u>						



	UNITS	2013-C4-MW-12-A	2013-C4-MW-12-B	2013-C4-MW-13-A	2013-C4-MW-13-B	RDL	QC Batch
COC Number		407774-04-01	407774-04-01	407774-05-01	407774-05-01		
		16:58	16:58	16:33	16:33		
Sampling Date		2013/09/03	2013/09/03	2013/09/03	2013/09/03		
Maxxam ID		HL1309	HL1310	HL1322	HL1323		

Elements							
Total Antimony (Sb)	mg/kg	<1.0	<1.0	<1.0	<1.0	1.0	7165567
Total Arsenic (As)	mg/kg	1.4	1.3	1.7	1.7	1.0	7165567
Total Barium (Ba)	mg/kg	51	42	42	43	10	7165567
Total Beryllium (Be)	mg/kg	<0.40	<0.40	<0.40	0.44	0.40	7165567
Total Cadmium (Cd)	mg/kg	0.18	<0.10	<0.10	<0.10	0.10	7165567
Total Chromium (Cr)	mg/kg	21	19	17	16	1.0	7165567
Total Cobalt (Co)	mg/kg	5.9	4.9	5.7	5.4	1.0	7165567
Total Copper (Cu)	mg/kg	10	7.7	9.7	8.0	5.0	7165567
Total Lead (Pb)	mg/kg	15	5.0	5.6	5.6	1.0	7165567
Total Mercury (Hg)	mg/kg	<0.050	<0.050	<0.050	<0.050	0.050	7165567
Total Molybdenum (Mo)	mg/kg	0.51	<0.40	<0.40	<0.40	0.40	7165567
Total Nickel (Ni)	mg/kg	11	9.6	8.8	8.4	1.0	7165567
Total Selenium (Se)	mg/kg	<0.50	<0.50	<0.50	<0.50	0.50	7165567
Total Silver (Ag)	mg/kg	<1.0	<1.0	<1.0	<1.0	1.0	7165567
Total Thallium (TI)	mg/kg	<0.30	<0.30	<0.30	<0.30	0.30	7165567
Total Tin (Sn)	mg/kg	1.1	<1.0	<1.0	<1.0	1.0	7165567
Total Uranium (U)	mg/kg	1.6	1.2	1.6	1.6	1.0	7165567
Total Vanadium (V)	mg/kg	27	24	25	26	1.0	7165567
Total Zinc (Zn)	mg/kg	53	31	34	34	10	7165567



	PTIMIT	2013-C/-MW-21-A	2013-C4-MW-21-B	RDI	2013-C4-MW-22-A	RDI	QC Batch
COC Number		407774-05-01	407774-05-01		407774-05-01		
		19:41	19:41		19:27		
Sampling Date		2013/09/04	2013/09/04		2013/09/04		
Maxxam ID		HL1324	HL1325		HL1326		

Elements							
Total Antimony (Sb)	mg/kg	170 (1)	100 (1)	2.5	1.2	1.0	7165567
Total Arsenic (As)	mg/kg	2.3	2.2	1.0	1.4	1.0	7165567
Total Barium (Ba)	mg/kg	44	32	10	95	10	7165567
Total Beryllium (Be)	mg/kg	<0.40	<0.40	0.40	<0.40	0.40	7165567
Total Cadmium (Cd)	mg/kg	0.16	<0.10	0.10	<0.10	0.10	7165567
Total Chromium (Cr)	mg/kg	26	19	1.0	18	1.0	7165567
Total Cobalt (Co)	mg/kg	5.2	4.4	1.0	6.8	1.0	7165567
Total Copper (Cu)	mg/kg	11	9.0	5.0	10	5.0	7165567
Total Lead (Pb)	mg/kg	56	28	1.0	8.8	1.0	7165567
Total Mercury (Hg)	mg/kg	<0.050	<0.050	0.050	<0.050	0.050	7165567
Total Molybdenum (Mo)	mg/kg	<0.40	<0.40	0.40	0.80	0.40	7165567
Total Nickel (Ni)	mg/kg	11	9.2	1.0	14	1.0	7165567
Total Selenium (Se)	mg/kg	<0.50	<0.50	0.50	<0.50	0.50	7165567
Total Silver (Ag)	mg/kg	<1.0	<1.0	1.0	<1.0	1.0	7165567
Total Thallium (TI)	mg/kg	<0.30	<0.30	0.30	<0.30	0.30	7165567
Total Tin (Sn)	mg/kg	<1.0	<1.0	1.0	1.5	1.0	7165567
Total Uranium (U)	mg/kg	1.4	1.1	1.0	3.5	1.0	7165567
Total Vanadium (V)	mg/kg	26	22	1.0	36	1.0	7165567
Total Zinc (Zn)	mg/kg	120	68	10	45	10	7165567

RDL = Reportable Detection Limit (1) Detection limits raised due to dilution to bring analyte within the calibrated range.



## **ELEMENTS BY ATOMIC SPECTROSCOPY (SOIL)**

	UNITS	2013-C4-MW-22-B	2013-C4-MW-23-A	2013-C4-MW-23-B	2013-C4-MW-17-A	RDL	QC Batch
COC Number		407774-05-01	407774-05-01	407774-05-01	407774-05-01		
		19:27	18:50	18:50	18:02		
Sampling Date		2013/09/04	2013/09/04	2013/09/04	2013/09/04		
Maxxam ID		HL1327	HL1328	HL1330	HL1331		

Elements							
Total Antimony (Sb)	mg/kg	<1.0	<1.0	<1.0	<1.0	1.0	7164368
Total Arsenic (As)	mg/kg	<1.0	1.6	1.8	1.6	1.0	7164368
Total Barium (Ba)	mg/kg	31	38	38	41	10	7164368
Total Beryllium (Be)	mg/kg	<0.40	<0.40	<0.40	<0.40	0.40	7164368
Total Cadmium (Cd)	mg/kg	<0.10	<0.10	<0.10	<0.10	0.10	7164368
Total Chromium (Cr)	mg/kg	11	18	18	19	1.0	7164368
Total Cobalt (Co)	mg/kg	4.5	5.3	5.3	5.3	1.0	7164368
Total Copper (Cu)	mg/kg	<5.0	9.7	9.9	9.8	5.0	7164368
Total Lead (Pb)	mg/kg	5.1	8.8	12	7.1	1.0	7164368
Total Mercury (Hg)	mg/kg	0.052	<0.050	<0.050	<0.050	0.050	7164368
Total Molybdenum (Mo)	mg/kg	<0.40	<0.40	<0.40	0.66	0.40	7164368
Total Nickel (Ni)	mg/kg	6.7	11	10	10	1.0	7164368
Total Selenium (Se)	mg/kg	<0.50	<0.50	<0.50	<0.50	0.50	7164368
Total Silver (Ag)	mg/kg	<1.0	<1.0	<1.0	<1.0	1.0	7164368
Total Thallium (TI)	mg/kg	<0.30	<0.30	<0.30	<0.30	0.30	7164368
Total Tin (Sn)	mg/kg	<1.0	<1.0	<1.0	<1.0	1.0	7164368
Total Uranium (U)	mg/kg	<1.0	2.2	2.4	2.0	1.0	7164368
Total Vanadium (V)	mg/kg	20	27	27	26	1.0	7164368
Total Zinc (Zn)	mg/kg	25	34	36	35	10	7164368



	LIMITO	2013-C4-MW-17-B	DDI	2013-C4-MW-18-A	2012 C4 MW 10 D	RDI	2013-C4-MW-19-A	DDI	QC Batch
COC Number		407774-05-01		407774-06-01	407774-06-01		407774-06-01		
		18:02		18:15	18:15		17:33		
Sampling Date		2013/09/04		2013/09/04	2013/09/04		2013/09/04		
Maxxam ID		HL1332		HL1354	HL1355		HL1356		

Elements									
Total Antimony (Sb)	mg/kg	<1.0	1.0	<2.0	<2.0	2.0	<1.0	1.0	7164368
Total Arsenic (As)	mg/kg	1.6	1.0	2.6	3.1	2.0	1.1	1.0	7164368
Total Barium (Ba)	mg/kg	40	10	73	47	20	23	10	7164368
Total Beryllium (Be)	mg/kg	<0.40	0.40	<0.80	<0.80	0.80	<0.40	0.40	7164368
Total Cadmium (Cd)	mg/kg	<0.10	0.10	<0.20	<0.20	0.20	<0.10	0.10	7164368
Total Chromium (Cr)	mg/kg	18	1.0	35	26	2.0	14	1.0	7164368
Total Cobalt (Co)	mg/kg	5.1	1.0	9.1	7.2	2.0	3.3	1.0	7164368
Total Copper (Cu)	mg/kg	10	5.0	34	13	10	6.7	5.0	7164368
Total Lead (Pb)	mg/kg	7.0	1.0	19	12	2.0	5.4	1.0	7164368
Total Mercury (Hg)	mg/kg	<0.050	0.050	0.11	0.10	0.10	<0.050	0.050	7164368
Total Molybdenum (Mo)	mg/kg	0.59	0.40	2.1	1.8	0.80	0.48	0.40	7164368
Total Nickel (Ni)	mg/kg	11	1.0	17	13	2.0	7.1	1.0	7164368
Total Selenium (Se)	mg/kg	<0.50	0.50	<1.0	<1.0	1.0	<0.50	0.50	7164368
Total Silver (Ag)	mg/kg	<1.0	1.0	<2.0	<2.0	2.0	<1.0	1.0	7164368
Total Thallium (TI)	mg/kg	<0.30	0.30	<0.60	<0.60	0.60	<0.30	0.30	7164368
Total Tin (Sn)	mg/kg	<1.0	1.0	<2.0	<2.0	2.0	<1.0	1.0	7164368
Total Uranium (U)	mg/kg	2.1	1.0	17	4.0	2.0	1.2	1.0	7164368
Total Vanadium (V)	mg/kg	24	1.0	31	33	2.0	19	1.0	7164368
Total Zinc (Zn)	mg/kg	32	10	64	59	20	25	10	7164368



	PTIMIT	2013-C4-MW-19-R	OC Batch	2013-C4-MW-20-A	2013-C4-MW-20-B	2013-C4-1-Δ	BDI	OC Batch
COC Number		407774-06-01		407774-06-01	407774-06-01	407774-06-01		
		17:33		19:53	19:53	16:14		
Sampling Date		2013/09/04		2013/09/04	2013/09/04	2013/09/04		
Maxxam ID		HL1357		HL1358	HL1359	HL1360		

Elements								
Total Antimony (Sb)	mg/kg	<1.0	7164368	<1.0	<1.0	<1.0	1.0	7165356
Total Arsenic (As)	mg/kg	2.2	7164368	2.0	1.9	4.6	1.0	7165356
Total Barium (Ba)	mg/kg	27	7164368	48	43	80	10	7165356
Total Beryllium (Be)	mg/kg	<0.40	7164368	0.47	<0.40	0.69	0.40	7165356
Total Cadmium (Cd)	mg/kg	<0.10	7164368	<0.10	<0.10	0.13	0.10	7165356
Total Chromium (Cr)	mg/kg	15	7164368	18	17	36	1.0	7165356
Total Cobalt (Co)	mg/kg	3.8	7164368	5.9	5.6	9.8	1.0	7165356
Total Copper (Cu)	mg/kg	6.7	7164368	12	20	24	5.0	7165356
Total Lead (Pb)	mg/kg	5.8	7164368	8.7	9.0	36	1.0	7165356
Total Mercury (Hg)	mg/kg	<0.050	7164368	<0.050	<0.050	<0.050	0.050	7165356
Total Molybdenum (Mo)	mg/kg	<0.40	7164368	0.70	0.68	1.0	0.40	7165356
Total Nickel (Ni)	mg/kg	8.0	7164368	11	11	19	1.0	7165356
Total Selenium (Se)	mg/kg	<0.50	7164368	<0.50	<0.50	<0.50	0.50	7165356
Total Silver (Ag)	mg/kg	<1.0	7164368	<1.0	<1.0	<1.0	1.0	7165356
Total Thallium (TI)	mg/kg	<0.30	7164368	<0.30	<0.30	0.37	0.30	7165356
Total Tin (Sn)	mg/kg	<1.0	7164368	<1.0	<1.0	4.0	1.0	7165356
Total Uranium (U)	mg/kg	1.3	7164368	2.7	2.2	4.2	1.0	7165356
Total Vanadium (V)	mg/kg	22	7164368	29	28	47	1.0	7165356
Total Zinc (Zn)	mg/kg	32	7164368	39	39	110	10	7165356



Maxxam ID		HL1361	HL1362	HL1363		HL1399		
Sampling Date		2013/09/04	2013/09/04	2013/09/04		2013/09/04		
		16:14	16:20	16:20		16:29		
COC Number		407774-06-01	407774-06-01	407774-06-01		407774-07-01	<b></b>	
	UNITS	2013-C4-1-B	2013-C4-2-A	2013-C4-2-B	QC Batch	2013-C4-3-A	RDL	QC Batch
Elements								
Total Antimony (Sb)	mg/kg	<1.0	<1.0	<1.0	7165356	<1.0	1.0	7164368
Total Arsenic (As)	mg/kg	1.9	8.9	2.8	7165356	6.5	1.0	7164368
Total Barium (Ba)	mg/kg	24	31	21	7165356	37	10	7164368
Total Beryllium (Be)	mg/kg	<0.40	<0.40	<0.40	7165356	1.1	0.40	7164368
Total Cadmium (Cd)	mg/kg	<0.10	<0.10	<0.10	7165356	<0.10	0.10	7164368
Total Chromium (Cr)	mg/kg	14	14	13	7165356	40	1.0	7164368
Total Cobalt (Co)	mg/kg	4.6	4.6	3.9	7165356	7.6	1.0	7164368
Total Copper (Cu)	mg/kg	14	9.4	8.0	7165356	16	5.0	7164368
Total Lead (Pb)	mg/kg	13	5.6	6.2	7165356	12	1.0	7164368
Total Mercury (Hg)	mg/kg	<0.050	<0.050	<0.050	7165356	0.079	0.050	7164368
Total Molybdenum (Mo)	mg/kg	<0.40	<0.40	<0.40	7165356	3.0	0.40	7164368
Total Nickel (Ni)	mg/kg	8.5	8.3	8.2	7165356	15	1.0	7164368
Total Selenium (Se)	mg/kg	<0.50	<0.50	<0.50	7165356	1.1	0.50	7164368
Total Silver (Ag)	mg/kg	<1.0	<1.0	<1.0	7165356	<1.0	1.0	7164368
Total Thallium (TI)	mg/kg	<0.30	<0.30	<0.30	7165356	0.42	0.30	7164368
Total Tin (Sn)	mg/kg	1.3	<1.0	<1.0	7165356	2.5	1.0	7164368
Total Uranium (U)	mg/kg	1.8	2.4	1.1	7165356	16	1.0	7164368
Total Vanadium (V)	mg/kg	20	21	20	7165356	64	1.0	7164368

27

25

7165356

64

10

7164368

RDL = Reportable Detection Limit

mg/kg

40

Total Zinc (Zn)



	UNITS	2013-C4-3-B	2013-C4-BMW-3-A	QC Batch	2013-C4-BMW-3-B	2013-C4-BMW-4-A	RDL	QC Batch
COC Number		407774-07-01	407774-07-01		407774-07-01	407774-07-01		
		16:29	15:46		15:46	16:54		
Sampling Date		2013/09/04	2013/09/03		2013/09/03	2013/09/04		
Maxxam ID		HL1400	HL1401		HL1402	HL1403		

Elements								
Total Antimony (Sb)	mg/kg	<1.0	<1.0	7164368	<1.0	<1.0	1.0	7165356
Total Arsenic (As)	mg/kg	7.4	2.2	7164368	1.7	<1.0	1.0	7165356
Total Barium (Ba)	mg/kg	54	58	7164368	44	27	10	7165356
Total Beryllium (Be)	mg/kg	1.6	<0.40	7164368	<0.40	<0.40	0.40	7165356
Total Cadmium (Cd)	mg/kg	<0.10	<0.10	7164368	<0.10	<0.10	0.10	7165356
Total Chromium (Cr)	mg/kg	56	27	7164368	22	11	1.0	7165356
Total Cobalt (Co)	mg/kg	10	7.2	7164368	5.0	3.6	1.0	7165356
Total Copper (Cu)	mg/kg	24	9.5	7164368	6.6	7.1	5.0	7165356
Total Lead (Pb)	mg/kg	15	6.6	7164368	4.7	4.0	1.0	7165356
Total Mercury (Hg)	mg/kg	0.062	<0.050	7164368	<0.050	<0.050	0.050	7165356
Total Molybdenum (Mo)	mg/kg	3.0	0.47	7164368	<0.40	<0.40	0.40	7165356
Total Nickel (Ni)	mg/kg	20	14	7164368	10	6.0	1.0	7165356
Total Selenium (Se)	mg/kg	1.1	<0.50	7164368	<0.50	<0.50	0.50	7165356
Total Silver (Ag)	mg/kg	<1.0	<1.0	7164368	<1.0	<1.0	1.0	7165356
Total Thallium (TI)	mg/kg	0.45	<0.30	7164368	<0.30	<0.30	0.30	7165356
Total Tin (Sn)	mg/kg	3.0	<1.0	7164368	<1.0	<1.0	1.0	7165356
Total Uranium (U)	mg/kg	16	2.0	7164368	1.4	1.0	1.0	7165356
Total Vanadium (V)	mg/kg	86	33	7164368	25	17	1.0	7165356
Total Zinc (Zn)	mg/kg	79	35	7164368	27	23	10	7165356



Maxxam ID		HL1404	HL1404	HL1405		HL1406		
Sampling Date		2013/09/04	2013/09/04	2013/09/02		2013/09/03		
		16:54	16:54	10:00		16:30		
COC Number		407774-07-01	407774-07-01	407774-07-01	00011	407774-07-01		000.1
	UNITS	2013-C4-BMW-4-B	2013-C4-BMW-4-B Lab-Dup	2013-C4-MW-2-A-D	QC Batch	2013-C4-MW-16-A-D	RDL	QC Batch
			Lub Bup					I
Elements								
Total Antimony (Sb)	mg/kg	<1.0	<1.0	<1.0	7165356	<1.0	1.0	7164368
Total Arsenic (As)	mg/kg	1.4	1.3	1.3	7165356	2.4	1.0	7164368
Total Barium (Ba)	mg/kg	22	20	53	7165356	83	10	7164368
Total Beryllium (Be)	mg/kg	<0.40	<0.40	<0.40	7165356	0.65	0.40	7164368
Total Cadmium (Cd)	mg/kg	<0.10	<0.10	<0.10	7165356	<0.10	0.10	7164368
Total Chromium (Cr)	mg/kg	12	12	17	7165356	31	1.0	7164368
Total Cobalt (Co)	mg/kg	3.7	3.4	5.8	7165356	8.9	1.0	7164368
Total Copper (Cu)	mg/kg	7.7	7.4	7.9	7165356	14	5.0	7164368
Total Lead (Pb)	mg/kg	5.5	5.3	4.8	7165356	9.6	1.0	7164368
Total Mercury (Hg)	mg/kg	<0.050	<0.050	<0.050	7165356	<0.050	0.050	7164368
Total Molybdenum (Mo)	mg/kg	0.43	<0.40	<0.40	7165356	0.66	0.40	7164368
Total Nickel (Ni)	mg/kg	6.9	6.7	9.2	7165356	17	1.0	7164368
Total Selenium (Se)	mg/kg	<0.50	<0.50	<0.50	7165356	<0.50	0.50	7164368
Total Silver (Ag)	mg/kg	<1.0	<1.0	<1.0	7165356	<1.0	1.0	7164368
Total Thallium (TI)	mg/kg	<0.30	<0.30	<0.30	7165356	<0.30	0.30	7164368
Total Tin (Sn)	mg/kg	<1.0	<1.0	<1.0	7165356	<1.0	1.0	7164368
Total Uranium (U)	mg/kg	1.5	1.3	1.3	7165356	3.2	1.0	7164368
Total Vanadium (V)	mg/kg	17	18	29	7165356	40	1.0	7164368
Total Zinc (Zn)	mg/kg	21	21	35	7165356	52	10	7164368



	UNITS	2013-C4-MW-20-B-D	2013-C4-MW-13-A-D	2013-C4-1-B-D	2013-C4-BMW-4-B-D	RDL	QC Batch
COC Number		407774-07-01	407774-07-01	407774-08-01	407774-08-01		
		19:53	16:33	16:14	16:54		
Sampling Date		2013/09/04	2013/09/03	2013/09/04	2013/09/04		
Maxxam ID		HL1407	HL1408	HL1432	HL1433		

Elements							
Total Antimony (Sb)	mg/kg	<1.0	<1.0	<1.0	<1.0	1.0	7164368
Total Arsenic (As)	mg/kg	1.4	1.9	1.8	1.3	1.0	7164368
Total Barium (Ba)	mg/kg	31	45	28	26	10	7164368
Total Beryllium (Be)	mg/kg	<0.40	0.47	<0.40	<0.40	0.40	7164368
Total Cadmium (Cd)	mg/kg	<0.10	<0.10	<0.10	<0.10	0.10	7164368
Total Chromium (Cr)	mg/kg	14	140	16	16	1.0	7164368
Total Cobalt (Co)	mg/kg	4.0	6.6	5.1	3.8	1.0	7164368
Total Copper (Cu)	mg/kg	8.8	8.9	13	7.7	5.0	7164368
Total Lead (Pb)	mg/kg	7.1	5.4	13	5.4	1.0	7164368
Total Mercury (Hg)	mg/kg	<0.050	<0.050	<0.050	<0.050	0.050	7164368
Total Molybdenum (Mo)	mg/kg	0.41	2.0	<0.40	0.49	0.40	7164368
Total Nickel (Ni)	mg/kg	8.0	63	9.1	8.0	1.0	7164368
Total Selenium (Se)	mg/kg	<0.50	<0.50	<0.50	<0.50	0.50	7164368
Total Silver (Ag)	mg/kg	<1.0	<1.0	<1.0	<1.0	1.0	7164368
Total Thallium (TI)	mg/kg	<0.30	<0.30	<0.30	<0.30	0.30	7164368
Total Tin (Sn)	mg/kg	<1.0	1.2	<1.0	<1.0	1.0	7164368
Total Uranium (U)	mg/kg	1.9	1.6	1.9	1.3	1.0	7164368
Total Vanadium (V)	mg/kg	20	27	21	21	1.0	7164368
Total Zinc (Zn)	mg/kg	28	36	38	22	10	7164368



## **VOLATILE ORGANICS BY GC-MS (SOIL)**

	UNITS	2013-C4-BWM-1-A	2013-C4-BWM-1-B	2013-C4-MW-1-A	2013-C4-MW-1-B	RDL	QC Batch
COC Number		407774-01-01	407774-01-01	407774-01-01	407774-01-01		
		15:40	15:42	13:15	13:15		
Sampling Date		2013/09/02	2013/09/02	2013/09/02	2013/09/02		
Maxxam ID		HL1233	HL1234	HL1235	HL1236		

Volatiles							
Benzene	mg/kg	<0.0050	<0.0050	<0.0050	<0.0050	0.0050	7156832
Toluene	mg/kg	<0.020	<0.020	<0.020	<0.020	0.020	7156832
Ethylbenzene	mg/kg	<0.010	<0.010	<0.010	<0.010	0.010	7156832
Xylenes (Total)	mg/kg	<0.040	<0.040	<0.040	<0.040	0.040	7156832
m & p-Xylene	mg/kg	<0.040	<0.040	<0.040	<0.040	0.040	7156832
o-Xylene	mg/kg	<0.020	<0.020	<0.020	<0.020	0.020	7156832
F1 (C6-C10) - BTEX	mg/kg	<12	<12	<12	<12	12	7156832
(C6-C10)	mg/kg	<12	<12	<12	<12	12	7156832
Surrogate Recovery (%)							
1,4-Difluorobenzene (sur.)	%	94	97	98	96		7156832
4-BROMOFLUOROBENZENE (sur.)	%	98	98	97	98		7156832
D10-ETHYLBENZENE (sur.)	%	111	107	104	106		7156832
D4-1,2-DICHLOROETHANE (sur.)	%	96	100	105	100		7156832



	PATINIT	2013-C4-MW-2-A	2013-C4-MW-2-B	2013-C4-MW-3-A	2013-C4-MW-3-B	BDI	OC Batch
COC Number		407774-01-01	407774-01-01	407774-01-01	407774-01-01		
		10:00	10:00	10:45	10:45		
Sampling Date		2013/09/02	2013/09/02	2013/09/02	2013/09/02		
Maxxam ID		HL1237	HL1238	HL1239	HL1240		

Volatiles							
Benzene	mg/kg	<0.0050	<0.0050	<0.0050	<0.0050	0.0050	7156832
Toluene	mg/kg	<0.020	<0.020	<0.020	<0.020	0.020	7156832
Ethylbenzene	mg/kg	<0.010	<0.010	<0.010	<0.010	0.010	7156832
Xylenes (Total)	mg/kg	<0.040	<0.040	<0.040	<0.040	0.040	7156832
m & p-Xylene	mg/kg	<0.040	<0.040	<0.040	<0.040	0.040	7156832
o-Xylene	mg/kg	<0.020	<0.020	<0.020	<0.020	0.020	7156832
F1 (C6-C10) - BTEX	mg/kg	<12	<12	<12	<12	12	7156832
(C6-C10)	mg/kg	<12	<12	<12	<12	12	7156832
Surrogate Recovery (%)							
1,4-Difluorobenzene (sur.)	%	96	95	97	97		7156832
4-BROMOFLUOROBENZENE (sur.)	%	98	99	97	99		7156832
D10-ETHYLBENZENE (sur.)	%	103	104	98	101		7156832
D4-1,2-DICHLOROETHANE (sur.)	%	101	99	101	101		7156832



Maxxam ID		HL1240	HL1241	HL1242	HL1251		
Sampling Date		2013/09/02	2013/09/02	2013/09/02	2013/09/02		
		10:45	09:30	09:30	09:45		
COC Number		407774-01-01	407774-01-01	407774-01-01	407774-02-01		
	UNITS	2013-C4-MW-3-B	2013-C4-MW-4A-A	2013-C4-MW-4A-B	2013-C4-MW-4B-A	RDL	QC Batch
		Lab-Dup					
Volatiles							
Benzene	mg/kg	<0.0050	<0.0050	<0.0050	<0.0050	0.0050	7156832
Toluene	mg/kg	<0.020	<0.020	<0.020	<0.020	0.020	7156832
Ethylbenzene	mg/kg	<0.010	<0.010	<0.010	<0.010	0.010	7156832
Xylenes (Total)	mg/kg	<0.040	<0.040	<0.040	<0.040	0.040	7156832
m & p-Xylene	mg/kg	<0.040	<0.040	<0.040	<0.040	0.040	7156832
o-Xylene	mg/kg	<0.020	<0.020	<0.020	<0.020	0.020	7156832
F1 (C6-C10) - BTEX	mg/kg	<12	<12	<12	<12	12	7156832
(C6-C10)	mg/kg	<12	<12	<12	<12	12	7156832
Surrogate Recovery (%)							
1,4-Difluorobenzene (sur.)	%	97	96	97	94		7156832
4-BROMOFLUOROBENZENE (sur.)	%	98	99	97	97		7156832
D10-ETHYLBENZENE (sur.)	%	105	108	106	107		7156832
D4-1,2-DICHLOROETHANE (sur.)	%	98	101	102	101		7156832



## **VOLATILE ORGANICS BY GC-MS (SOIL)**

Maxxam ID		HL1252	HL1253	HL1254	HL1255		
Sampling Date		2013/09/02	2013/09/02	2013/09/02	2013/09/02		
		09:45	11:00	11:00	11:15		
COC Number		407774-02-01	407774-02-01	407774-02-01	407774-02-01		
	UNITS	2013-C4-MW-4B-B	2013-C4-MW-6A-A	2013-C4-MW-6A-B	2013-C4-MW-6B-A	RDL	QC Batch

Volatiles							
Benzene	mg/kg	<0.0050	<0.0050	<0.0050	<0.0050	0.0050	7156832
Toluene	mg/kg	<0.020	<0.020	<0.020	<0.020	0.020	7156832
Ethylbenzene	mg/kg	<0.010	<0.010	<0.010	<0.010	0.010	7156832
Xylenes (Total)	mg/kg	<0.040	<0.040	<0.040	<0.040	0.040	7156832
m & p-Xylene	mg/kg	<0.040	<0.040	<0.040	<0.040	0.040	7156832
o-Xylene	mg/kg	<0.020	<0.020	<0.020	<0.020	0.020	7156832
F1 (C6-C10) - BTEX	mg/kg	<12	<12	<12	<12	12	7156832
(C6-C10)	mg/kg	<12	<12	<12	<12	12	7156832
Surrogate Recovery (%)							
1,4-Difluorobenzene (sur.)	%	95	94	97	95		7156832
4-BROMOFLUOROBENZENE (sur.)	%	97	98	98	98		7156832
D10-ETHYLBENZENE (sur.)	%	106	104	108	106		7156832
D4-1,2-DICHLOROETHANE (sur.)	%	101	101	101	101		7156832



Maxxam ID		HL1256	HL1257	HL1258	HL1259		
Sampling Date		2013/09/02	2013/09/02	2013/09/02	2013/09/02		
		11:15	11:45	11:45	12:00		
COC Number		407774-02-01	407774-02-01	407774-02-01	407774-02-01		
	LIMITO	2012 C4 MW 6D D	2012 C4 MW 7A A	2012 C4 MW 74 D	2012 C4 MW 7D A	DDI	OC Potob

Volatiles							
Benzene	mg/kg	<0.0050	<0.0050	<0.0050	<0.0050	0.0050	7156832
Toluene	mg/kg	<0.020	<0.020	<0.020	<0.020	0.020	7156832
Ethylbenzene	mg/kg	<0.010	<0.010	<0.010	<0.010	0.010	7156832
Xylenes (Total)	mg/kg	<0.040	<0.040	<0.040	<0.040	0.040	7156832
m & p-Xylene	mg/kg	<0.040	<0.040	<0.040	<0.040	0.040	7156832
o-Xylene	mg/kg	<0.020	<0.020	<0.020	<0.020	0.020	7156832
F1 (C6-C10) - BTEX	mg/kg	<12	<12	<12	<12	12	7156832
(C6-C10)	mg/kg	<12	<12	<12	<12	12	7156832
Surrogate Recovery (%)							
1,4-Difluorobenzene (sur.)	%	98	93	95	93		7156832
4-BROMOFLUOROBENZENE (sur.)	%	96	99	96	97		7156832
D10-ETHYLBENZENE (sur.)	%	108	123	108	105		7156832
D4-1,2-DICHLOROETHANE (sur.)	%	105	96	97	100		7156832



	LIMITO	2013-C4-MW-7B-B	OC Botoh	2012 C4 MW E A	2012 C4 MW E D	RDI	QC Batch
COC Number		407774-02-01		407774-03-01	407774-03-01		
		12:00		13:11	13:11		
Sampling Date		2013/09/02		2013/09/03	2013/09/03		
Maxxam ID		HL1260		HL1269	HL1270		

Volatiles							
Benzene	mg/kg	<0.0050	7156832	<0.0050	<0.0050	0.0050	7159941
Toluene	mg/kg	<0.020	7156832	<0.020	<0.020	0.020	7159941
Ethylbenzene	mg/kg	<0.010	7156832	<0.010	<0.010	0.010	7159941
Xylenes (Total)	mg/kg	<0.040	7156832	<0.040	<0.040	0.040	7159941
m & p-Xylene	mg/kg	<0.040	7156832	<0.040	<0.040	0.040	7159941
o-Xylene	mg/kg	<0.020	7156832	<0.020	<0.020	0.020	7159941
F1 (C6-C10) - BTEX	mg/kg	<12	7156832	<12	<12	12	7159941
(C6-C10)	mg/kg	<12	7156832	<12	<12	12	7159941
Surrogate Recovery (%)							
1,4-Difluorobenzene (sur.)	%	81	7156832	97	97		7159941
4-BROMOFLUOROBENZENE (sur.)	%	104	7156832	95	96		7159941
D10-ETHYLBENZENE (sur.)	%	87	7156832	109	108		7159941
D4-1,2-DICHLOROETHANE (sur.)	%	159 (1)	7156832	86	87		7159941

RDL = Reportable Detection Limit
(1) Surrogate recovery exceeds acceptance criteria. However, since the results are non-detect, there is no impact on data quality.



## **VOLATILE ORGANICS BY GC-MS (SOIL)**

	UNITS	2013-C4-MW-8-A	2013-C4-MW-8-B	2013-C4-MW-9-A	2013-C4-MW-9-B	RDL	QC Batch
COC Number		407774-03-01	407774-03-01	407774-03-01	407774-03-01		
		17:50	17:50	12:45	12:45		
Sampling Date		2013/09/02	2013/09/02	2013/09/03	2013/09/03		
Maxxam ID		HL1271	HL1272	HL1273	HL1274		

Volatiles							
Benzene	mg/kg	<0.0050	<0.0050	<0.0050	<0.0050	0.0050	7159941
Toluene	mg/kg	<0.020	<0.020	<0.020	<0.020	0.020	7159941
Ethylbenzene	mg/kg	<0.010	<0.010	<0.010	<0.010	0.010	7159941
Xylenes (Total)	mg/kg	<0.040	<0.040	<0.040	<0.040	0.040	7159941
m & p-Xylene	mg/kg	<0.040	<0.040	<0.040	<0.040	0.040	7159941
o-Xylene	mg/kg	<0.020	<0.020	<0.020	<0.020	0.020	7159941
F1 (C6-C10) - BTEX	mg/kg	<12	<12	<12	<12	12	7159941
(C6-C10)	mg/kg	<12	<12	<12	<12	12	7159941
Surrogate Recovery (%)							
1,4-Difluorobenzene (sur.)	%	98	97	98	97		7159941
4-BROMOFLUOROBENZENE (sur.)	%	95	96	95	95		7159941
D10-ETHYLBENZENE (sur.)	%	109	108	107	110		7159941
D4-1,2-DICHLOROETHANE (sur.)	%	86	87	87	87		7159941



	LINITS	2013-C4-MW-14A-A	2013-C4-MW-14A-R	2013-C4-MW-14B-A	RDI	QC Batch
COC Number		407774-03-01	407774-03-01	407774-03-01		
		14:40	14:40	14:50		
Sampling Date		2013/09/03	2013/09/03	2013/09/03		
Maxxam ID		HL1275	HL1276	HL1277		

					_	
Volatiles						
Benzene	mg/kg	<0.0050	<0.0050	<0.0050	0.0050	7159941
Toluene	mg/kg	<0.020	<0.020	<0.020	0.020	7159941
Ethylbenzene	mg/kg	<0.010	<0.010	<0.010	0.010	7159941
Xylenes (Total)	mg/kg	<0.040	<0.040	<0.040	0.040	7159941
m & p-Xylene	mg/kg	<0.040	<0.040	<0.040	0.040	7159941
o-Xylene	mg/kg	<0.020	<0.020	<0.020	0.020	7159941
F1 (C6-C10) - BTEX	mg/kg	<12	<12	<12	12	7159941
(C6-C10)	mg/kg	<12	<12	<12	12	7159941
Surrogate Recovery (%)						
1,4-Difluorobenzene (sur.)	%	99	98	97		7159941
4-BROMOFLUOROBENZENE (sur.)	%	95	96	95		7159941
D10-ETHYLBENZENE (sur.)	%	109	102	104		7159941
D4-1,2-DICHLOROETHANE (sur.)	%	85	87	87		7159941
			•	•		



## **VOLATILE ORGANICS BY GC-MS (SOIL)**

	UNITS	2013-C4-MW-14B-B	2013-C4-MW-15-A	2013-C4-MW-15-B	2013-C4-MW-16-A	RDL	QC Batch
COC Number		407774-03-01	407774-04-01	407774-04-01	407774-04-01		
		14:50	16:08	16:08	16:30		
Sampling Date		2013/09/03	2013/09/03	2013/09/03	2013/09/03		
Maxxam ID		HL1278	HL1301	HL1302	HL1303		

Volatiles							
Benzene	mg/kg	<0.0050	<0.0050	<0.0050	<0.0050	0.0050	7159941
Toluene	mg/kg	<0.020	<0.020	<0.020	<0.020	0.020	7159941
Ethylbenzene	mg/kg	<0.010	<0.010	<0.010	<0.010	0.010	7159941
Xylenes (Total)	mg/kg	<0.040	<0.040	<0.040	<0.040	0.040	7159941
m & p-Xylene	mg/kg	<0.040	<0.040	<0.040	<0.040	0.040	7159941
o-Xylene	mg/kg	<0.020	<0.020	<0.020	<0.020	0.020	7159941
F1 (C6-C10) - BTEX	mg/kg	<12	<12	<12	<12	12	7159941
(C6-C10)	mg/kg	<12	<12	<12	<12	12	7159941
Surrogate Recovery (%)							
1,4-Difluorobenzene (sur.)	%	99	98	99	98		7159941
4-BROMOFLUOROBENZENE (sur.)	%	95	96	95	95		7159941
D10-ETHYLBENZENE (sur.)	%	107	107	106	104		7159941
D4-1,2-DICHLOROETHANE (sur.)	%	87	86	85	86		7159941



					Lab-Dup		
	UNITS	2013-C4-MW-16-B	2013-C4-MW-10-A	2013-C4-MW-10-B	2013-C4-MW-10-B	RDL	QC Batch
COC Number		407774-04-01	407774-04-01	407774-04-01	407774-04-01		
		16:30	17:18	17:18	17:18		
Sampling Date		2013/09/03	2013/09/03	2013/09/03	2013/09/03		
Maxxam ID		HL1304	HL1305	HL1306	HL1306		

Volatiles							
Benzene	mg/kg	<0.0050	<0.0050	<0.0050	<0.0050	0.0050	7159941
Toluene	mg/kg	<0.020	<0.020	<0.020	<0.020	0.020	7159941
Ethylbenzene	mg/kg	<0.010	<0.010	<0.010	<0.010	0.010	7159941
Xylenes (Total)	mg/kg	<0.040	<0.040	<0.040	<0.040	0.040	7159941
m & p-Xylene	mg/kg	<0.040	<0.040	<0.040	<0.040	0.040	7159941
o-Xylene	mg/kg	<0.020	<0.020	<0.020	<0.020	0.020	7159941
F1 (C6-C10) - BTEX	mg/kg	<12	<12	<12	<12	12	7159941
(C6-C10)	mg/kg	<12	<12	<12	<12	12	7159941
Surrogate Recovery (%)							
1,4-Difluorobenzene (sur.)	%	98	97	96	97		7159941
4-BROMOFLUOROBENZENE (sur.)	%	102	95	95	95		7159941
D10-ETHYLBENZENE (sur.)	%	103	108	109	109		7159941
D4-1,2-DICHLOROETHANE (sur.)	%	88	84	85	87		7159941



# **VOLATILE ORGANICS BY GC-MS (SOIL)**

Maxxam ID		HL1307	HL1308		HL1309		
Sampling Date		2013/09/03	2013/09/03		2013/09/03		
		13:36	13:36		16:58		
COC Number		407774-04-01	407774-04-01		407774-04-01		
	UNITS	2013-C4-MW-11-A	2013-C4-MW-11-B	QC Batch	2013-C4-MW-12-A	RDL	QC Batch

Volatiles							
Benzene	mg/kg	<0.0050	<0.0050	7159941	<0.0050	0.0050	7159954
Toluene	mg/kg	<0.020	<0.020	7159941	<0.020	0.020	7159954
Ethylbenzene	mg/kg	<0.010	<0.010	7159941	<0.010	0.010	7159954
Xylenes (Total)	mg/kg	<0.040	<0.040	7159941	<0.040	0.040	7159954
m & p-Xylene	mg/kg	<0.040	<0.040	7159941	<0.040	0.040	7159954
o-Xylene	mg/kg	<0.020	<0.020	7159941	<0.020	0.020	7159954
F1 (C6-C10) - BTEX	mg/kg	<12	<12	7159941	<12	12	7159954
(C6-C10)	mg/kg	<12	<12	7159941	<12	12	7159954
Surrogate Recovery (%)							
1,4-Difluorobenzene (sur.)	%	98	97	7159941	99		7159954
4-BROMOFLUOROBENZENE (sur.)	%	95	95	7159941	88		7159954
D10-ETHYLBENZENE (sur.)	%	106	107	7159941	89		7159954
D4-1,2-DICHLOROETHANE (sur.)	%	87	87	7159941	102		7159954



Maxxam ID		HL1310	HL1322	HL1323	HL1323		
Sampling Date		2013/09/03	2013/09/03	2013/09/03	2013/09/03		
		16:58	16:33	16:33	16:33		
COC Number		407774-04-01	407774-05-01	407774-05-01	407774-05-01		
	UNITS	2013-C4-MW-12-B	2013-C4-MW-13-A	2013-C4-MW-13-B	2013-C4-MW-13-B	RDL	QC Batch
					Lab-Dup		
Volatiles							
Benzene	mg/kg	<0.0050	<0.0050	<0.0050	<0.0050	0.0050	7159954
Toluene	mg/kg	<0.020	<0.020	<0.020	<0.020	0.020	7159954
Ethylbenzene	mg/kg	<0.010	<0.010	<0.010	<0.010	0.010	7159954
Xylenes (Total)	mg/kg	<0.040	<0.040	<0.040	<0.040	0.040	7159954
m & p-Xylene	mg/kg	<0.040	<0.040	<0.040	<0.040	0.040	7159954
o-Xylene	mg/kg	<0.020	<0.020	<0.020	<0.020	0.020	7159954
F1 (C6-C10) - BTEX	mg/kg	<12	<12	<12	<12	12	7159954
(C6-C10)	mg/kg	<12	<12	<12	<12	12	7159954
Surrogate Recovery (%)							
1,4-Difluorobenzene (sur.)	%	98	99	97	99		7159954
4-BROMOFLUOROBENZENE (sur.)	%	87	87	88	87		7159954
D10-ETHYLBENZENE (sur.)	%	89	88	90	89		7159954
D4-1.2-DICHLOROETHANE (sur.)	%	101	103	102	102		7159954



COC Number	LIMITO				2013-C/-MW-22-B	BUI	OC Batch
COC Number		407774-05-01	407774-05-01	407774-05-01	407774-05-01		
		19:41	19:41	19:27	19:27		
Sampling Date		2013/09/04	2013/09/04	2013/09/04	2013/09/04		
Maxxam ID		HL1324	HL1325	HL1326	HL1327		

Volatiles							
Benzene	mg/kg	<0.0050	<0.0050	<0.0050	<0.0050	0.0050	7159954
Toluene	mg/kg	<0.020	<0.020	<0.020	<0.020	0.020	7159954
Ethylbenzene	mg/kg	<0.010	<0.010	<0.010	<0.010	0.010	7159954
Xylenes (Total)	mg/kg	<0.040	<0.040	<0.040	<0.040	0.040	7159954
m & p-Xylene	mg/kg	<0.040	<0.040	<0.040	<0.040	0.040	7159954
o-Xylene	mg/kg	<0.020	<0.020	<0.020	<0.020	0.020	7159954
F1 (C6-C10) - BTEX	mg/kg	<12	<12	<12	<12	12	7159954
(C6-C10)	mg/kg	<12	<12	<12	<12	12	7159954
Surrogate Recovery (%)							
1,4-Difluorobenzene (sur.)	%	99	98	100	100		7159954
4-BROMOFLUOROBENZENE (sur.)	%	87	86	87	86		7159954
D10-ETHYLBENZENE (sur.)	%	91	87	89	89		7159954
D4-1,2-DICHLOROETHANE (sur.)	%	97	103	103	106		7159954



	UNITS	2013-C4-MW-23-A	2013-C4-MW-23-B	QC Batch	2013-C4-MW-17-A	RDL	QC Batch
COC Number		407774-05-01	407774-05-01		407774-05-01		
		18:50	18:50		18:02		
Sampling Date		2013/09/04	2013/09/04		2013/09/04		
Maxxam ID		HL1328	HL1330		HL1331		

Volatiles							
Benzene	mg/kg	<0.0050	<0.0050	7159954	<0.0050	0.0050	7159780
Toluene	mg/kg	<0.020	<0.020	7159954	<0.020	0.020	7159780
Ethylbenzene	mg/kg	<0.010	<0.010	7159954	<0.010	0.010	7159780
Xylenes (Total)	mg/kg	<0.040	<0.040	7159954	<0.040	0.040	7159780
m & p-Xylene	mg/kg	<0.040	<0.040	7159954	<0.040	0.040	7159780
o-Xylene	mg/kg	<0.020	<0.020	7159954	<0.020	0.020	7159780
F1 (C6-C10) - BTEX	mg/kg	<12	<12	7159954	<12	12	7159780
(C6-C10)	mg/kg	<12	<12	7159954	<12	12	7159780
Surrogate Recovery (%)							
1,4-Difluorobenzene (sur.)	%	102	104	7159954	99		7159780
4-BROMOFLUOROBENZENE (sur.)	%	83	83	7159954	99		7159780
D10-ETHYLBENZENE (sur.)	%	90	86	7159954	98		7159780
D4-1,2-DICHLOROETHANE (sur.)	%	106	109	7159954	96		7159780



Maxxam ID		HL1332	HL1354	HL1355	HL1356		
Sampling Date		2013/09/04	2013/09/04	2013/09/04	2013/09/04		
		18:02	18:15	18:15	17:33		
COC Number		407774-05-01	407774-06-01	407774-06-01	407774-06-01		
	LIMITO	2012 C4 MW 17 D	2012 C4 MM 19 A	2012 C4 MM 10 D	2012 C4 MW 10 A	חם	OC Botch

Volatiles							
Benzene	mg/kg	<0.0050	<0.0050	<0.0050	<0.0050	0.0050	7159954
Toluene	mg/kg	<0.020	<0.020	<0.020	<0.020	0.020	7159954
Ethylbenzene	mg/kg	<0.010	<0.010	<0.010	<0.010	0.010	7159954
Xylenes (Total)	mg/kg	<0.040	<0.040	<0.040	<0.040	0.040	7159954
m & p-Xylene	mg/kg	<0.040	<0.040	<0.040	<0.040	0.040	7159954
o-Xylene	mg/kg	<0.020	<0.020	<0.020	<0.020	0.020	7159954
F1 (C6-C10) - BTEX	mg/kg	<12	<12	<12	<12	12	7159954
(C6-C10)	mg/kg	<12	<12	<12	<12	12	7159954
Surrogate Recovery (%)							
1,4-Difluorobenzene (sur.)	%	100	98	97	99		7159954
4-BROMOFLUOROBENZENE (sur.)	%	87	86	86	85		7159954
D10-ETHYLBENZENE (sur.)	%	85	79	77	81		7159954
D4-1,2-DICHLOROETHANE (sur.)	%	105	107	106	105		7159954



	LINITS	2013-C4-MW-19-R	2013-C4-MW-20-A	2013-C4-MW-20-B	2013-C4-1-Δ	RDI	QC Batch
COC Number		407774-06-01	407774-06-01	407774-06-01	407774-06-01		
		17:33	19:53	19:53	16:14		
Sampling Date		2013/09/04	2013/09/04	2013/09/04	2013/09/04		
Maxxam ID		HL1357	HL1358	HL1359	HL1360		

Volatiles							
Benzene	mg/kg	<0.0050	<0.0050	<0.0050	<0.0050	0.0050	7159954
Toluene	mg/kg	<0.020	<0.020	<0.020	<0.020	0.020	7159954
Ethylbenzene	mg/kg	<0.010	<0.010	<0.010	<0.010	0.010	7159954
Xylenes (Total)	mg/kg	<0.040	<0.040	<0.040	<0.040	0.040	7159954
m & p-Xylene	mg/kg	<0.040	<0.040	<0.040	<0.040	0.040	7159954
o-Xylene	mg/kg	<0.020	<0.020	<0.020	<0.020	0.020	7159954
F1 (C6-C10) - BTEX	mg/kg	<12	<12	<12	<12	12	7159954
(C6-C10)	mg/kg	<12	<12	<12	<12	12	7159954
Surrogate Recovery (%)							
1,4-Difluorobenzene (sur.)	%	100	99	101	101		7159954
4-BROMOFLUOROBENZENE (sur.)	%	84	83	84	83		7159954
D10-ETHYLBENZENE (sur.)	%	82	82	82	74		7159954
D4-1,2-DICHLOROETHANE (sur.)	%	107	109	113	114		7159954



	UNITS	2013-C4-1-B	2013-C4-2-A	QC Batch	2013-C4-2-B	RDI	QC Batch
COC Number		407774-06-01	407774-06-01		407774-06-01		
		16:14	16:20		16:20		
Sampling Date		2013/09/04	2013/09/04		2013/09/04		
Maxxam ID		HL1361	HL1362		HL1363		

Volatiles							
Benzene	mg/kg	<0.0050	<0.0050	7159954	<0.0050	0.0050	7159780
Toluene	mg/kg	<0.020	<0.020	7159954	<0.020	0.020	7159780
Ethylbenzene	mg/kg	<0.010	<0.010	7159954	<0.010	0.010	7159780
Xylenes (Total)	mg/kg	<0.040	<0.040	7159954	<0.040	0.040	7159780
m & p-Xylene	mg/kg	<0.040	<0.040	7159954	<0.040	0.040	7159780
o-Xylene	mg/kg	<0.020	<0.020	7159954	<0.020	0.020	7159780
F1 (C6-C10) - BTEX	mg/kg	<12	<12	7159954	<12	12	7159780
(C6-C10)	mg/kg	<12	<12	7159954	<12	12	7159780
Surrogate Recovery (%)							
1,4-Difluorobenzene (sur.)	%	99	99	7159954	98		7159780
4-BROMOFLUOROBENZENE (sur.)	%	84	84	7159954	98		7159780
D10-ETHYLBENZENE (sur.)	%	83	82	7159954	100		7159780
D4-1,2-DICHLOROETHANE (sur.)	%	110	110	7159954	97		7159780



	UNITS	2013-C4-3-A	2013-C4-3-B	QC Batch	2013-C4-BMW-3-A	RDI	QC Batch
COC Number		407774-07-01	407774-07-01		407774-07-01		
		16:29	16:29		15:46		
Sampling Date		2013/09/04	2013/09/04		2013/09/03		
Maxxam ID		HL1399	HL1400		HL1401		

Volatiles							
Benzene	mg/kg	<0.0050	<0.0050	7159780	<0.0050	0.0050	7159964
Toluene	mg/kg	<0.020	<0.020	7159780	<0.020	0.020	7159964
Ethylbenzene	mg/kg	<0.010	<0.010	7159780	<0.010	0.010	7159964
Xylenes (Total)	mg/kg	<0.040	<0.040	7159780	<0.040	0.040	7159964
m & p-Xylene	mg/kg	<0.040	<0.040	7159780	<0.040	0.040	7159964
o-Xylene	mg/kg	<0.020	<0.020	7159780	<0.020	0.020	7159964
F1 (C6-C10) - BTEX	mg/kg	<12	<12	7159780	<12	12	7159964
(C6-C10)	mg/kg	<12	<12	7159780	<12	12	7159964
Surrogate Recovery (%)							
1,4-Difluorobenzene (sur.)	%	100	100	7159780	98		7159964
4-BROMOFLUOROBENZENE (sur.)	%	98	99	7159780	98		7159964
D10-ETHYLBENZENE (sur.)	%	87	88	7159780	94		7159964
D4-1,2-DICHLOROETHANE (sur.)	%	99	94	7159780	94		7159964



Maxxam ID		HL1402	HL1403	HL1404	HL1405		
Sampling Date		2013/09/03 15:46	2013/09/04 16:54	2013/09/04 16:54	2013/09/02 10:00		
COC Number		407774-07-01	407774-07-01	407774-07-01	407774-07-01		
	LINITS	2013-C4-RMW-3-R	2013-C4-RMW-4-A	2013-C4-RMW-4-R	2013-C4-MW-2-A-D	RDI	OC Batch

Volatiles							
Benzene	mg/kg	<0.0050	<0.0050	<0.0050	<0.0050	0.0050	7159964
Toluene	mg/kg	<0.020	<0.020	<0.020	<0.020	0.020	7159964
Ethylbenzene	mg/kg	<0.010	<0.010	<0.010	<0.010	0.010	7159964
Xylenes (Total)	mg/kg	<0.040	<0.040	<0.040	<0.040	0.040	7159964
m & p-Xylene	mg/kg	<0.040	<0.040	<0.040	<0.040	0.040	7159964
o-Xylene	mg/kg	<0.020	<0.020	<0.020	<0.020	0.020	7159964
F1 (C6-C10) - BTEX	mg/kg	<12	<12	<12	<12	12	7159964
(C6-C10)	mg/kg	<12	<12	<12	<12	12	7159964
Surrogate Recovery (%)							
1,4-Difluorobenzene (sur.)	%	98	102	100	99		7159964
4-BROMOFLUOROBENZENE (sur.)	%	97	96	99	98		7159964
D10-ETHYLBENZENE (sur.)	%	98	101	87	100		7159964
D4-1,2-DICHLOROETHANE (sur.)	%	97	96	98	97		7159964



	UNITS	2013-C4-MW-16-A-D	2013-C4-MW-20-B-D	2013-C4-MW-13-A-D	RDL	QC Batch
COC Number		407774-07-01	407774-07-01	407774-07-01		
		16:30	19:53	16:33		
Sampling Date		2013/09/03	2013/09/04	2013/09/03		
Maxxam ID		HL1406	HL1407	HL1408		

Volatiles						
Benzene	mg/kg	<0.0050	<0.0050	<0.0050	0.0050	7159964
Toluene	mg/kg	<0.020	<0.020	<0.020	0.020	7159964
Ethylbenzene	mg/kg	<0.010	<0.010	<0.010	0.010	7159964
Xylenes (Total)	mg/kg	<0.040	<0.040	<0.040	0.040	7159964
m & p-Xylene	mg/kg	<0.040	<0.040	<0.040	0.040	7159964
o-Xylene	mg/kg	<0.020	<0.020	<0.020	0.020	7159964
F1 (C6-C10) - BTEX	mg/kg	<12	<12	<12	12	7159964
(C6-C10)	mg/kg	<12	<12	<12	12	7159964
Surrogate Recovery (%)						
1,4-Difluorobenzene (sur.)	%	102	99	100		7159964
4-BROMOFLUOROBENZENE (sur.)	%	95	97	95		7159964
D10-ETHYLBENZENE (sur.)	%	98	102	104		7159964
D4-1,2-DICHLOROETHANE (sur.)	%	100	99	95		7159964



**VOLATILE ORGANICS BY GC-MS (SOIL)** 

	UNITS	2013-C4-1-B-D	2013-C4-BMW-4-B-D	RDI	QC Batch
COC Number		407774-08-01	407774-08-01		
		16:14	16:54		
Sampling Date		2013/09/04	2013/09/04		
Maxxam ID		HL1432	HL1433		

Volatiles					
Benzene	mg/kg	<0.0050	<0.0050	0.0050	7159964
Toluene	mg/kg	<0.020	<0.020	0.020	7159964
Ethylbenzene	mg/kg	<0.010	<0.010	0.010	7159964
Xylenes (Total)	mg/kg	<0.040	<0.040	0.040	7159964
m & p-Xylene	mg/kg	<0.040	<0.040	0.040	7159964
o-Xylene	mg/kg	<0.020	<0.020	0.020	7159964
F1 (C6-C10) - BTEX	mg/kg	<12	<12	12	7159964
(C6-C10)	mg/kg	<12	<12	12	7159964
Surrogate Recovery (%)					
1,4-Difluorobenzene (sur.)	%	98	98		7159964
4-BROMOFLUOROBENZENE (sur.)	%	97	97		7159964
D10-ETHYLBENZENE (sur.)	%	104	100		7159964
D4-1,2-DICHLOROETHANE (sur.)	%	102	96		7159964
	1	I			L



Report Date: 2013/09/16

#### **RESULTS OF CHEMICAL ANALYSES OF SOIL Comments**

Sample HL1354-02 Boron (Hot Water Soluble): Due to the sample matrix, sample required dilution. Detection limit was adjusted accordingly

Sample HL1400-02 Boron (Hot Water Soluble): Due to the sample matrix, sample required dilution. Detection limit was adjusted accordingly

#### **ELEMENTS BY ATOMIC SPECTROSCOPY (SOIL) Comments**

Sample HL1354-02 Elements by ICPMS - Soils: Due to the sample matrix, sample required dilution. Detection limit was adjusted accordingly

Sample HL1355-02 Elements by ICPMS - Soils: Due to the sample matrix, sample required dilution. Detection limit was adjusted accordingly

Results relate only to the items tested.



Attention: Alexandre Leclair

Client Project #:

P.O. #: Site Location:

# Quality Assurance Report Maxxam Job Number: EYKB380795

QA/QC			Date				
Batch	00.7	Danasatas	Analyzed	\	D	LINUTO	00 1 ()
Num Init	QC Type	Parameter	yyyy/mm/dd	Value	Recovery	UNITS	QC Limits
7156832 MZ	Matrix Spike [HL1240-01]	1.4 Diffuorabanzana (aur.)	2013/09/10		95	%	60 - 140
	[ПС1240-01]	1,4-Difluorobenzene (sur.) 4-BROMOFLUOROBENZENE (sur.)	2013/09/10		102	% %	60 - 140
		D10-ETHYLBENZENE (sur.)	2013/09/10		102	% %	60 - 130
		D4-1,2-DICHLOROETHANE (sur.)	2013/09/10		99	% %	60 - 140
		Benzene	2013/09/10		108	% %	60 - 140
		Toluene	2013/09/10		112	% %	60 - 140
		Ethylbenzene	2013/09/10		117	% %	60 - 140
		m & p-Xylene	2013/09/10		117	% %	60 - 140
		o-Xylene	2013/09/10		115	% %	60 - 140
		(C6-C10)	2013/09/10		80	%	60 - 140
	Spiked Blank	1,4-Difluorobenzene (sur.)	2013/09/10		93	%	60 - 140
	орікей Біалік	4-BROMOFLUOROBENZENE (sur.)	2013/09/10		93	%	60 - 140
		D10-ETHYLBENZENE (sur.)	2013/09/10		104	%	60 - 130
		D4-1,2-DICHLOROETHANE (sur.)	2013/09/10		94	%	60 - 140
		Benzene	2013/09/10		107	%	60 - 140
		Toluene	2013/09/10		107	%	60 - 140
		Ethylbenzene	2013/09/10		113	% %	60 - 140
		m & p-Xylene	2013/09/10		111	%	60 - 140
		o-Xylene	2013/09/10		110	%	60 - 140
		(C6-C10)	2013/09/10		76	%	60 - 140
	Method Blank	1,4-Difluorobenzene (sur.)	2013/09/10		97	% %	60 - 140
	Welliod Dialik	4-BROMOFLUOROBENZENE (sur.)	2013/09/10		98	%	60 - 140
		D10-ETHYLBENZENE (sur.)	2013/09/10		113	%	60 - 130
		D4-1,2-DICHLOROETHANE (sur.)	2013/09/10		99	% %	60 - 140
		Benzene	2013/09/10	<0.0050	99	mg/kg	00 - 140
		Toluene	2013/09/10	<0.000		mg/kg	
		Ethylbenzene	2013/09/10	<0.020		mg/kg	
		Xylenes (Total)	2013/09/10	<0.040		mg/kg	
		m & p-Xylene	2013/09/10	<0.040		mg/kg	
		o-Xylene	2013/09/10	<0.040		mg/kg	
		F1 (C6-C10) - BTEX	2013/09/10	<12		mg/kg	
		(C6-C10)	2013/09/10	<12		mg/kg	
	RPD [HL1240-01]	Benzene	2013/09/10	NC		%	50
	KFD [IIL1240-01]	Toluene	2013/09/10	NC NC		% %	50
		Ethylbenzene	2013/09/10	NC NC		% %	50
		Xylenes (Total)	2013/09/10	NC		%	50
		m & p-Xylene	2013/09/10	NC NC		% %	50
		o-Xylene	2013/09/10	NC NC		% %	50
		F1 (C6-C10) - BTEX	2013/09/10	NC		% %	50
		(C6-C10)	2013/09/10	NC NC		% %	50
7159273 GB0	Matrix Spike	(60-610)	2013/09/10	NC		/0	30
7 139273 GB0	[HL1238-01]	O-TERPHENYL (sur.)	2013/09/12		91	%	50 - 130
	[11230-01]	F2 (C10-C16 Hydrocarbons)	2013/09/12		107	% %	50 - 130
		F3 (C16-C34 Hydrocarbons)	2013/09/12		111	% %	50 - 130
		F4 (C34-C50 Hydrocarbons)	2013/09/12		108	% %	50 - 130
	Spiked Blank	O-TERPHENYL (sur.)	2013/09/12		94	% %	50 - 130
	Spikeu Bialik	F2 (C10-C16 Hydrocarbons)	2013/09/12		104	% %	70 - 130
		F3 (C16-C34 Hydrocarbons)	2013/09/12		98	% %	70 - 130 70 - 130
		F4 (C34-C50 Hydrocarbons)	2013/09/12		113	%	70 - 130 70 - 130
	Method Blank	O-TERPHENYL (sur.)	2013/09/12		99	% %	70 - 130 50 - 130
	IVICUIUU DIAIIK	,		-10	99		50 - 150
		F2 (C16 C34 Hydrocarbons)	2013/09/12	<10		mg/kg	
		F3 (C16-C34 Hydrocarbons)	2013/09/12	<50		mg/kg	
	DDD [LII 4000 041	F4 (C34-C50 Hydrocarbons) F2 (C10-C16 Hydrocarbons)	2013/09/12 2013/09/12	<50 NC		mg/kg %	50
	RPD [HL1238-01]	rz (CTO-CTO Hydrocarbons)	2013/09/12	INC		70	50



Attention: Alexandre Leclair

Client Project #:

P.O. #:

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## **Quality Assurance Report (Continued)**

Maxxam Job Number: EYKB380795

Fa (C16-C34 Hydrocarbons)	QA/QC			Date				
T159273 GB0   RPD [H1239-01]   F3 (C16-C34 Hydrocarbons)   2013/09/12   NC		00.7	5			5		001: "
T159279 JW						Recovery		
T159279 JWO   Martix Spike	7159273 GB0	RPD [HL1238-01]	,					
HIL1270-01  OTERPHENTL (sur.)	7450070 1140		F4 (C34-C50 Hydrocarbons)	2013/09/12	NC		%	50
F2 (C10-C16 Hydrocarbons)	7159279 JW0		O TERRUSA ( )	004040040			0.4	50 400
F3 (C16-C34 Hydrocarbons)		[HL1270-01]	` ,					
Fig.   Fig.   C34-C50 Hydrocarbons   2013/09/12   96			,					
Spiked Blank								
F2 (C10-C16 Hydrocarbons)								
Fig. C16-C34 Hydrocarbons   2013/09/12   197 % 70 - 137		Spiked Blank	` ,					
Method Blank			,					
Method Blank   O-TERPHENYL (sur.)   2013/09/12   < 10 mg/kg   F2 (C10-C16 Hydrocarbons)   2013/09/12   < 50 mg/kg								
Page								
F3 (C16-C34 Hydrocarbons)   2013/09/12   <50 mg/kg   F4 (C34-C50 Hydrocarbons)   2013/09/12   <50 mg/kg   F4 (C34-C50 Hydrocarbons)   2013/09/12   NC		Method Blank	` ,			108		50 - 130
F4 (C34-C50 Hydrocarbons)   2013/09/12   NC			,		<10			
RPD [HL1270-01]   F2 (C10-C16 Hydrocarbons)   2013/09/12   NC				2013/09/12	<50			
F3 (C16-C34 Hydrocarbons)			,	2013/09/12				
T159282 YC4   Spiked Blank		RPD [HL1270-01]		2013/09/12	NC			50
7159282 YC4         Spiked Blank Method Blank Metho					NC			50
Method Blank   F4G-SG (Heavy Hydrocarbons-Grav.)   2013/09/13   \$500   mg/kg				2013/09/12	NC		%	50
7159283 JWO   Matrix Spike   [HL1324-01]   O-TERPHENYL (sur.)   2013/09/13   99 % 50 -130   111 % 50 -130   130   111 % 50 -130   130   111 % 50 -130   130	7159282 YC4	Spiked Blank	,	2013/09/13		86	%	70 - 130
HL1324-01  F2 (C10-C16 Hydrocarbons)		Method Blank	F4G-SG (Heavy Hydrocarbons-Grav.)	2013/09/13	<500		mg/kg	
F2 (C10-C16 Hydrocarbons)	7159283 JW0	Matrix Spike						
F3 (C16-C34 Hydrocarbons)		[HL1324-01]	O-TERPHENYL (sur.)	2013/09/13		99		50 - 130
F4   C34-C50 Hydrocarbons   2013/09/13   99 % 50 - 130				2013/09/13		111	%	50 - 130
Spiked Blank   O-TERPHENYL (sur.)   2013/09/13   99 % 50 - 130				2013/09/13		NC	%	50 - 130
F2 (C10-C16 Hydrocarbons)			F4 (C34-C50 Hydrocarbons)	2013/09/13		NC	%	50 - 130
F3 (C16-C34 Hydrocarbons)		Spiked Blank	O-TERPHENYL (sur.)	2013/09/13		99	%	50 - 130
Method Blank			F2 (C10-C16 Hydrocarbons)	2013/09/13		106	%	70 - 130
Method Blank			F3 (C16-C34 Hydrocarbons)	2013/09/13		110	%	70 - 130
F2 (C10-C16 Hydrocarbons)   2013/09/13   <10   mg/kg   F3 (C16-C34 Hydrocarbons)   2013/09/13   <50   mg/kg   F3 (C16-C34 Hydrocarbons)   2013/09/13   <50   mg/kg   F4 (C34-C56 Hydrocarbons)   2013/09/13   <50   mg/kg   F4 (C34-C56 Hydrocarbons)   2013/09/13   <50   mg/kg   F4 (C34-C50 Hydrocarbons)   2013/09/13   NC   %   50   50   50   50   50   50   50			F4 (C34-C50 Hydrocarbons)	2013/09/13		109	%	70 - 130
RPD [HL1324-01] F2 (C10-C16 Hydrocarbons)		Method Blank	O-TERPHENYL (sur.)	2013/09/13		116	%	50 - 130
F4 (C34-C50 Hydrocarbons)   2013/09/13   <50   mg/kg			F2 (C10-C16 Hydrocarbons)	2013/09/13	<10		mg/kg	
RPD [HL1324-01]   F2 (C10-C16 Hydrocarbons)   2013/09/13   NC   %   50			F3 (C16-C34 Hydrocarbons)	2013/09/13	<50		mg/kg	
F3 (C16-C34 Hydrocarbons)			F4 (C34-C50 Hydrocarbons)	2013/09/13	<50		mg/kg	
F4 (C34-C50 Hydrocarbons) 2013/09/13 6.4 % 50 7159292 DO1 Matrix Spike O-TERPHENYL (sur.) 2013/09/11 88 % 50 - 130 F2 (C10-C16 Hydrocarbons) 2013/09/11 77 % 50 - 130 F3 (C16-C34 Hydrocarbons) 2013/09/11 91 % 50 - 130 F4 (C34-C50 Hydrocarbons) 2013/09/11 91 % 50 - 130 F2 (C10-C16 Hydrocarbons) 2013/09/11 91 % 50 - 130 F4 (C34-C50 Hydrocarbons) 2013/09/11 94 % 50 - 130 F2 (C10-C16 Hydrocarbons) 2013/09/11 79 % 70 - 130 F3 (C16-C34 Hydrocarbons) 2013/09/11 97 % 70 - 130 F4 (C34-C50 Hydrocarbons) 2013/09/11 97 % 70 - 130 F4 (C34-C50 Hydrocarbons) 2013/09/11 97 % 50 - 130 F2 (C10-C16 Hydrocarbons) 2013/09/11 97 % 50 - 130 F2 (C10-C16 Hydrocarbons) 2013/09/11 94 % 50 - 130 F2 (C10-C16 Hydrocarbons) 2013/09/11 <10 mg/kg F3 (C16-C34 Hydrocarbons) 2013/09/11 <10 mg/kg F4 (C34-C50 Hydrocarbons) 2013/09/11 <10 mg/kg F4 (C34-C50 Hydrocarbons) 2013/09/11 NC % 50 F3 (C16-C34 Hydrocarbons) 2013/09/11 NC % 50 F4 (C34-C50 Hy		RPD [HL1324-01]	F2 (C10-C16 Hydrocarbons)	2013/09/13	NC		%	50
7159292 DO1 Matrix Spike			F3 (C16-C34 Hydrocarbons)	2013/09/13	NC		%	50
F2 (C10-C16 Hydrocarbons) 2013/09/11 72 % 50 - 130 F3 (C16-C34 Hydrocarbons) 2013/09/11 77 % 50 - 130 F3 (C16-C34 Hydrocarbons) 2013/09/11 91 % 50 - 130 F4 (C34-C50 Hydrocarbons) 2013/09/11 94 % 50 - 130 F2 (C10-C16 Hydrocarbons) 2013/09/11 94 % 50 - 130 F3 (C16-C34 Hydrocarbons) 2013/09/11 97 % 70 - 130 F4 (C34-C50 Hydrocarbons) 2013/09/11 97 % 70 - 130 F4 (C34-C50 Hydrocarbons) 2013/09/11 97 % 70 - 130 F4 (C34-C50 Hydrocarbons) 2013/09/11 97 % 70 - 130 F2 (C10-C16 Hydrocarbons) 2013/09/11 97 % 50 - 130 F2 (C10-C16 Hydrocarbons) 2013/09/11 94 % 50 - 130 F2 (C10-C16 Hydrocarbons) 2013/09/11 94 % 50 - 130 F2 (C10-C16 Hydrocarbons) 2013/09/11 94 % 50 mg/kg F3 (C16-C34 Hydrocarbons) 2013/09/11 94 % 50 mg/kg F4 (C34-C50 Hydrocarbons) 2013/09/11 95 mg/kg F3 (C16-C34 Hydrocarbons) 2013/09/11 NC % 50 mg/kg F4 (C34-C50			F4 (C34-C50 Hydrocarbons)	2013/09/13	6.4		%	50
F3 (C16-C34 Hydrocarbons)   2013/09/11   77	7159292 DO1	Matrix Spike	O-TERPHENYL (sur.)	2013/09/11		88	%	50 - 130
Spiked Blank   Spiked Blank   O-TERPHENYL (sur.)   2013/09/11   94			F2 (C10-C16 Hydrocarbons)	2013/09/11		72	%	50 - 130
Spiked Blank   O-TERPHENYL (sur.)   2013/09/11   94 % 50 - 130     F2 (C10-C16 Hydrocarbons)   2013/09/11   79 % 70 - 130     F3 (C16-C34 Hydrocarbons)   2013/09/11   81 % 70 - 130     F4 (C34-C50 Hydrocarbons)   2013/09/11   97 % 70 - 130     F2 (C10-C16 Hydrocarbons)   2013/09/11   41 % 50     F2 (C10-C16 Hydrocarbons)   2013/09/11   4.1 % 2013/09/11     F2 (C10-C16 Hydrocarbons)   2013/09/11   4.1 % 2013/09/11     F3 (C16-C34 Hydrocarbons)   2013/09/11   50     F4 (C34-C50 Hydrocarbons)   2013/09/11   NC			F3 (C16-C34 Hydrocarbons)	2013/09/11		77	%	50 - 130
F2 (C10-C16 Hydrocarbons)   2013/09/11   79 % 70 - 130			F4 (C34-C50 Hydrocarbons)	2013/09/11		91	%	50 - 130
F3 (C16-C34 Hydrocarbons)   2013/09/11   81		Spiked Blank	O-TERPHENYL (sur.)	2013/09/11		94	%	50 - 130
F3 (C16-C34 Hydrocarbons)   2013/09/11   81		•	F2 (C10-C16 Hydrocarbons)	2013/09/11		79	%	70 - 130
Method Blank   O-TERPHENYL (sur.)   2013/09/11   97			F3 (C16-C34 Hydrocarbons)	2013/09/11		81		70 - 130
Method Blank         O-TERPHENYL (sur.)         2013/09/11         94         %         50 - 130           F2 (C10-C16 Hydrocarbons)         2013/09/11         <10				2013/09/11		97	%	70 - 130
F2 (C10-C16 Hydrocarbons)   2013/09/11   <10   mg/kg   F3 (C16-C34 Hydrocarbons)   2013/09/11   <50   mg/kg   F4 (C34-C50 Hydrocarbons)   2013/09/11   <50   mg/kg   F4 (C34-C50 Hydrocarbons)   2013/09/11   NC   %   50   F3 (C16-C34 Hydrocarbons)   2013/09/11   NC   %   50   F4 (C34-C50 Hydrocarbons)   2013/09/11   <0.30   %   7159375 KSA   Method Blank   Moisture   2013/09/11   4.1   %   20   7159497 KSA   Method Blank   Moisture   2013/09/11   <0.30   %   7159497 KSA   Method Blank   Moisture   7159497		Method Blank		2013/09/11			%	50 - 130
F3 (C16-C34 Hydrocarbons) 2013/09/11 <50 mg/kg F4 (C34-C50 Hydrocarbons) 2013/09/11 <50 mg/kg F4 (C34-C50 Hydrocarbons) 2013/09/11 NC % 50 F2 (C10-C16 Hydrocarbons) 2013/09/11 NC % 50 F3 (C16-C34 Hydrocarbons) 2013/09/11 NC % 50 F4 (C34-C50 Hydrocarbons) 2013/09/11 NC % 50 F4 (C34-C50 Hydrocarbons) 2013/09/11 NC % 50 F4 (C34-C50 Hydrocarbons) 2013/09/11 <0.30 % 7159375 KSA Method Blank RPD Moisture 2013/09/11 4.1 % 2013/09/11 4.1 % 2013/09/11 S0.30 %			F2 (C10-C16 Hydrocarbons)		<10		mg/kg	
F4 (C34-C50 Hydrocarbons) 2013/09/11 <50 mg/kg  RPD F2 (C10-C16 Hydrocarbons) 2013/09/11 NC % 50 F3 (C16-C34 Hydrocarbons) 2013/09/11 NC % 50 F4 (C34-C50 Hydrocarbons) 2013/09/11 NC % 50 F4 (C34-C50 Hydrocarbons) 2013/09/11 NC % 50 F4 (C34-C50 Hydrocarbons) 2013/09/11 <0.30 %  RPD Moisture 2013/09/11 4.1 % 20 F159497 KSA Method Blank Moisture 2013/09/11 <0.30 %			F3 (C16-C34 Hydrocarbons)	2013/09/11	<50			
RPD       F2 (C10-C16 Hydrocarbons)       2013/09/11       NC       %       50         F3 (C16-C34 Hydrocarbons)       2013/09/11       NC       %       50         7159375 KSA       Method Blank RPD       Moisture       2013/09/11       <0.30			,					
F3 (C16-C34 Hydrocarbons) 2013/09/11 NC % 50 F4 (C34-C50 Hydrocarbons) 2013/09/11 NC % 50 F4 (C34-C50 Hydrocarbons) 2013/09/11 NC % 50 F4 (C34-C50 Hydrocarbons) 2013/09/11 <0.30 % 7159375 KSA Method Blank RPD Moisture 2013/09/11 4.1 % 2013/09/11 T4.1 % 2013/09/11 F4.1 % 2013/09/11 % 2013/09/11 F4.1 % 2013/09/11 %		RPD						50
F4 (C34-C50 Hydrocarbons) 2013/09/11 NC % 50 7159375 KSA Method Blank RPD Moisture 2013/09/11 <.0.30 % 7159497 KSA Method Blank Moisture 2013/09/11 <.0.30 %			` ,					50
7159375 KSA         Method Blank RPD         Moisture         2013/09/11         <0.30								50
RPD Moisture 2013/09/11 4.1 % 2015/9497 KSA Method Blank Moisture 2013/09/11 <0.30 %	7159375 KSA	Method Blank	` ,					, ,
7159497 KSA Method Blank Moisture 2013/09/11 <0.30 %								20
	7159497 KSA							
								20
								-



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## **Quality Assurance Report (Continued)**

Maxxam Job Number: EYKB380795

QA/QC			Date				
Batch			Analyzed				
Num Init	QC Type	Parameter	yyyy/mm/dd	Value	Recovery	UNITS	QC Limits
7159497 KSA	RPD [HL1359-01]	Moisture	2013/09/11	4.1		%	20
	Method Blank	Moisture	2013/09/11	< 0.30		%	
	RPD [HL1305-01]	Moisture	2013/09/11	4.5		%	20
7159780 WZ0	Matrix Spike	1,4-Difluorobenzene (sur.)	2013/09/12		111	%	60 - 140
		4-BROMOFLUOROBENZENE (sur.)	2013/09/12		88	%	60 - 140
		D10-ETHYLBENZENE (sur.)	2013/09/12		71	%	60 - 130
		D4-1,2-DICHLOROETHANE (sur.)	2013/09/12		83	%	60 - 140
		Benzene	2013/09/12		85	%	60 - 140
		Toluene	2013/09/12		83	%	60 - 140
		Ethylbenzene	2013/09/12		90	%	60 - 140
		m & p-Xylene	2013/09/12		86	%	60 - 140
		o-Xylene	2013/09/12		88	%	60 - 140
		(C6-C10)	2013/09/12		116	%	60 - 140
	Spiked Blank	1,4-Difluorobenzene (sur.)	2013/09/11		105	%	60 - 140
	·	4-BROMOFLUOROBENZENE (sur.)	2013/09/11		91	%	60 - 140
		D10-ETHYLBENZENE (sur.)	2013/09/11		104	%	60 - 130
		D4-1,2-DICHLOROETHANÉ (sur.)	2013/09/11		94	%	60 - 140
		Benzene	2013/09/11		117	%	60 - 140
		Toluene	2013/09/11		106	%	60 - 140
		Ethylbenzene	2013/09/11		116	%	60 - 140
		m & p-Xylene	2013/09/11		116	%	60 - 140
		o-Xylene	2013/09/11		110	%	60 - 140
		(C6-C10)	2013/09/11		109	%	60 - 140
	Method Blank	1,4-Difluorobenzene (sur.)	2013/09/11		103	%	60 - 140
		4-BROMOFLUOROBENZENE (sur.)	2013/09/11		93	%	60 - 140
		D10-ETHYLBENZENE (sur.)	2013/09/11		104	%	60 - 130
		D4-1,2-DICHLOROETHANE (sur.)	2013/09/11		93	%	60 - 140
		Benzene	2013/09/11	< 0.0050		mg/kg	
		Toluene	2013/09/11	<0.020		mg/kg	
		Ethylbenzene	2013/09/11	< 0.010		mg/kg	
		Xylenes (Total)	2013/09/11	< 0.040		mg/kg	
		m & p-Xylene	2013/09/11	< 0.040		mg/kg	
		o-Xylene	2013/09/11	< 0.020		mg/kg	
		F1 (C6-C10) - BTEX	2013/09/11	<12		mg/kg	
		(C6-C10)	2013/09/11	<12		mg/kg	
	RPD	Benzene	2013/09/12	NC		g/\\g %	50
		Toluene	2013/09/12	NC		%	50
		Ethylbenzene	2013/09/12	NC		%	50
		Xylenes (Total)	2013/09/12	NC		%	50
		m & p-Xylene	2013/09/12	NC		%	50
		o-Xylene	2013/09/12	NC		%	50
		F1 (C6-C10) - BTEX	2013/09/12	NC		%	50
		(C6-C10)	2013/09/12	NC		%	50
7159940 KSA	Method Blank	Moisture	2013/09/11	<0.30		%	00
	RPD [HL1302-01]	Moisture	2013/09/11	2.1		%	20
	Matrix Spike		20.00011			, 5	
	[HL1306-01]	1,4-Difluorobenzene (sur.)	2013/09/11		101	%	60 - 140
		4-BROMOFLUOROBENZENE (sur.)	2013/09/11		100	%	60 - 140
		D10-ETHYLBENZENE (sur.)	2013/09/11		118	%	60 - 130
		D4-1,2-DICHLOROETHANE (sur.)	2013/09/11		95	%	60 - 140
		Benzene	2013/09/11		102	%	60 - 140
		Toluene	2013/09/11		105	%	60 - 140
		Ethylbenzene	2013/09/11		112	%	60 - 140
		m & p-Xylene	2013/09/11		109	%	60 - 140
		o-Xylene	2013/09/11		108	%	60 - 140
		<u> </u>					



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Client Project #:

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## Quality Assurance Report (Continued)

Maxxam Job Number: EYKB380795

	QC Type Matrix Spike	Parameter	Analyzed				
		Parameter	, , , , ,				
7159941 WZ0 N	Matrix Snika	i didilictoi	yyyy/mm/dd	Value	Recovery	UNITS	QC Limits
	Matrix Opike						
[	[HL1306-01]	(C6-C10)	2013/09/11		88	%	60 - 140
5	Spiked Blank	1,4-Difluorobenzene (sur.)	2013/09/11		95	%	60 - 140
		4-BROMOFLUOROBENZENE (sur.)	2013/09/11		94	%	60 - 140
		D10-ETHYLBENZENE (sur.)	2013/09/11		117	%	60 - 130
		D4-1,2-DICHLOROETHANE (sur.)	2013/09/11		90	%	60 - 140
		Benzene	2013/09/11		99	%	60 - 140
		Toluene	2013/09/11		102	%	60 - 140
		Ethylbenzene	2013/09/11		107	%	60 - 140
		m & p-Xylene	2013/09/11		107	%	60 - 140
		o-Xylene	2013/09/11		106	%	60 - 140
		(C6-C10)	2013/09/11		91	%	60 - 140
M	Method Blank	1,4-Difluorobenzene (sur.)	2013/09/11		99	%	60 - 140
		4-BROMOFLUOROBENZENE (sur.)	2013/09/11		95	%	60 - 140
		D10-ETHYLBENZENE (sur.)	2013/09/11		115	%	60 - 130
		D4-1,2-DICHLOROETHANE (sur.)	2013/09/11		87	%	60 - 140
		Benzene	2013/09/11	< 0.0050		mg/kg	
		Toluene	2013/09/11	< 0.020		mg/kg	
		Ethylbenzene	2013/09/11	< 0.010		mg/kg	
		Xylenes (Total)	2013/09/11	< 0.040		mg/kg	
		m & p-Xylene	2013/09/11	< 0.040		mg/kg	
		o-Xylene	2013/09/11	< 0.020		mg/kg	
		F1 (C6-C10) - BTEX	2013/09/11	<12		mg/kg	
		(C6-C10)	2013/09/11	<12		mg/kg	
F	RPD [HL1306-01]	Benzene	2013/09/11	NC		%	50
		Toluene	2013/09/11	NC		%	50
		Ethylbenzene	2013/09/11	NC		%	50
		Xylenes (Total)	2013/09/11	NC		%	50
		m & p-Xylene	2013/09/11	NC		%	50
		o-Xylene	2013/09/11	NC		%	50
		F1 (C6-C10) - BTEX	2013/09/11	NC		%	50
		(C6-C10)	2013/09/11	NC		%	50
7159954 WZ0 N	Matrix Spike						
[	[HL1323-01]	1,4-Difluorobenzene (sur.)	2013/09/11		99	%	60 - 140
		4-BROMOFLUOROBENZENE (sur.)	2013/09/11		99	%	60 - 140
		D10-ETHYLBENZENE (sur.)	2013/09/11		95	%	60 - 130
		D4-1,2-DICHLOROETHANE (sur.)	2013/09/11		94	%	60 - 140
		Benzene	2013/09/11		83	%	60 - 140
		Toluene	2013/09/11		77	%	60 - 140
		Ethylbenzene	2013/09/11		84	%	60 - 140
		m & p-Xylene	2013/09/11		88	%	60 - 140
		o-Xylene	2013/09/11		88	%	60 - 140
		(C6-C10)	2013/09/11		108	%	60 - 140
9	Spiked Blank	1,4-Difluorobenzene (sur.)	2013/09/11		97	%	60 - 140
		4-BROMOFLUOROBENZENE (sur.)	2013/09/11		98	%	60 - 140
		D10-ETHYLBENZENE (sur.)	2013/09/11		103	%	60 - 130
		D4-1,2-DICHLOROETHANÉ (sur.)	2013/09/11		96	%	60 - 140
		Benzene	2013/09/11		84	%	60 - 140
		Toluene	2013/09/11		81	%	60 - 140
1		Ethylbenzene	2013/09/11		88	%	60 - 140
1		m & p-Xylene	2013/09/11		93	%	60 - 140
		o-Xylene	2013/09/11		93	%	60 - 140
		(C6-C10)	2013/09/11		104	%	60 - 140
	Method Blank	1,4-Difluorobenzene (sur.)	2013/09/11		98	%	60 - 140
		4-BROMOFLUOROBENZENE (sur.)	2013/09/11		87	%	60 - 140



Attention: Alexandre Leclair

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## **Quality Assurance Report (Continued)**

Maxxam Job Number: EYKB380795

QA/QC			Date				
Batch			Analyzed				
Num Init	QC Type	Parameter	yyyy/mm/dd	Value	Recovery	UNITS	QC Limits
7159954 WZ0	Method Blank	D10-ETHYLBENZENE (sur.)	2013/09/11		98	%	60 - 130
		D4-1,2-DICHLOROETHANE (sur.)	2013/09/11		99	%	60 - 140
		Benzene	2013/09/11	< 0.0050		mg/kg	
		Toluene	2013/09/11	< 0.020		mg/kg	
		Ethylbenzene	2013/09/11	< 0.010		mg/kg	
		Xylenes (Total)	2013/09/11	< 0.040		mg/kg	
		m & p-Xylene	2013/09/11	< 0.040		mg/kg	
		o-Xylene	2013/09/11	< 0.020		mg/kg	
		F1 (C6-C10) - BTEX	2013/09/11	<12		mg/kg	
		(C6-C10)	2013/09/11	<12		mg/kg	
	RPD [HL1323-01]	Benzene	2013/09/11	NC		%	50
		Toluene	2013/09/11	NC		%	50
		Ethylbenzene	2013/09/11	NC		%	50
		Xylenes (Total)	2013/09/11	NC		%	50
		m & p-Xylene	2013/09/11	NC		%	50
		o-Xylene	2013/09/11	NC		%	50
		F1 (C6-C10) - BTEX	2013/09/11	NC		%	50
		(C6-C10)	2013/09/11	NC NC		%	50 50
7159964 MZ	Matrix Spike	1,4-Difluorobenzene (sur.)	2013/09/11	140	98	%	60 - 140
7 139904 IVIZ	Matrix Spike	4-BROMOFLUOROBENZENE (sur.)	2013/09/11		100	% %	60 - 140
		` ,					
		D10-ETHYLBENZENE (sur.)	2013/09/11		100	%	60 - 130
		D4-1,2-DICHLOROETHANE (sur.)	2013/09/11		100	%	60 - 140
		Benzene	2013/09/11		102	%	60 - 140
		Toluene	2013/09/11		106	%	60 - 140
		Ethylbenzene	2013/09/11		110	%	60 - 140
		m & p-Xylene	2013/09/11		107	%	60 - 140
		o-Xylene	2013/09/11		107	%	60 - 140
	0 " 1 " 1	(C6-C10)	2013/09/11		93	%	60 - 140
	Spiked Blank	1,4-Difluorobenzene (sur.)	2013/09/11		95	%	60 - 140
		4-BROMOFLUOROBENZENE (sur.)	2013/09/11		97	%	60 - 140
		D10-ETHYLBENZENE (sur.)	2013/09/11		107	%	60 - 130
		D4-1,2-DICHLOROETHANE (sur.)	2013/09/11		91	%	60 - 140
		Benzene	2013/09/11		104	%	60 - 140
		Toluene	2013/09/11		102	%	60 - 140
		Ethylbenzene	2013/09/11		115	%	60 - 140
		m & p-Xylene	2013/09/11		111	%	60 - 140
		o-Xylene	2013/09/11		111	%	60 - 140
		(C6-C10)	2013/09/11		108	%	60 - 140
	Method Blank	1,4-Difluorobenzene (sur.)	2013/09/11		101	%	60 - 140
		4-BROMOFLUOROBENZENE (sur.)	2013/09/11		97	%	60 - 140
		D10-ETHYLBENZENE (sur.)	2013/09/11		107	%	60 - 130
		D4-1,2-DICHLOROETHANE (sur.)	2013/09/11		97	%	60 - 140
		Benzene	2013/09/11	< 0.0050		mg/kg	
		Toluene	2013/09/11	< 0.020		mg/kg	
		Ethylbenzene	2013/09/11	< 0.010		mg/kg	
		Xylenes (Total)	2013/09/11	< 0.040		mg/kg	
		m & p-Xylene	2013/09/11	< 0.040		mg/kg	
		o-Xylene	2013/09/11	< 0.020		mg/kg	
		F1 (C6-C10) - BTEX	2013/09/11	<12		mg/kg	
		(C6-C10)	2013/09/11	<12		mg/kg	
	RPD	Benzene	2013/09/11	NC		//////////////////////////////////////	50
	5	Toluene	2013/09/11	NC		%	50
		Ethylbenzene	2013/09/11	NC		%	50
		Xylenes (Total)	2013/09/11	NC		% %	50
		m & p-Xylene	2013/09/11	NC NC		% %	50 50
		III & P-Aylelle	2013/03/11	INC		/0	30



Attention: Alexandre Leclair

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## **Quality Assurance Report (Continued)**

Maxxam Job Number: EYKB380795

QA/QC			Date				
Batch			Analyzed				
Num Init	QC Type	Parameter	yyyy/mm/dd	Value	Recovery	UNITS	QC Limits
7159964 MZ	RPD	o-Xylene	2013/09/11	NC		%	50
		F1 (C6-C10) - BTEX	2013/09/11	NC		%	50
		(C6-C10)	2013/09/11	NC		%	50
7160075 KSA	Method Blank	Moisture	2013/09/11	< 0.30		%	
	RPD [HL1240-01]	Moisture	2013/09/11	16.4		%	20
7160104 KSA	Method Blank	Moisture	2013/09/11	< 0.30		%	
	RPD	Moisture	2013/09/11	1.6		%	20
7162925 JC7	Matrix Spike						
	[HL1269-01]	NONACHLOROBIPHENYL (sur.)	2013/09/14		100	%	30 - 130
		Aroclor 1260	2013/09/14		78	%	30 - 130
	Spiked Blank	NONACHLOROBIPHENYL (sur.)	2013/09/14		98	%	30 - 130
	·	Aroclor 1260	2013/09/14		80	%	30 - 130
	Method Blank	NONACHLOROBIPHENYL (sur.)	2013/09/14		96	%	30 - 130
		Aroclor 1016	2013/09/14	< 0.010		mg/kg	
		Aroclor 1221	2013/09/14	< 0.010		mg/kg	
		Aroclor 1232	2013/09/14	< 0.010		mg/kg	
		Aroclor 1242	2013/09/14	< 0.010		mg/kg	
		Aroclor 1248	2013/09/14	< 0.010		mg/kg	
		Aroclor 1254	2013/09/14	< 0.010		mg/kg	
		Aroclor 1260	2013/09/14	< 0.010		mg/kg	
		Aroclor 1262	2013/09/14	<0.010		mg/kg	
		Aroclor 1262 Aroclor 1268	2013/09/14	<0.010		mg/kg	
		Total Aroclors	2013/09/14	<0.010		mg/kg	
	RPD [HL1269-01]	Aroclor 1016	2013/09/14	NC		//////////////////////////////////////	50
	N D [NL1209-01]	Aroclor 1221	2013/09/14	NC		%	50
		Aroclor 1232	2013/09/14	NC		%	50
		Aroclor 1232 Aroclor 1242	2013/09/14	NC		%	50
		Aroclor 1242 Aroclor 1248		NC NC		% %	50
		Aroclor 1254	2013/09/14 2013/09/14	NC NC		% %	50
		Aroclor 1260	2013/09/14	NC NC		% %	50
		Aroclor 1260 Aroclor 1262	2013/09/14	NC NC		% %	50
		Aroclor 1268	2013/09/14	NC NC		% %	50
				NC NC		%	50
7460040 107	Matrix Cailes	Total Aroclors	2013/09/14	NC		70	50
7162942 JC7	Matrix Spike	NONACHI ODODIDUENVI (aur.)	2012/00/11		00	0/	20 120
	[HL1233-01]	NONACHLOROBIPHENYL (sur.) Aroclor 1260	2013/09/14		92 74	% %	30 - 130 30 - 130
	Chilead Dlank	NONACHLOROBIPHENYL (sur.)	2013/09/14		74 74		
	Spiked Blank	` ,	2013/09/14			% %	30 - 130
	Mathad Dlad.	Aroclor 1260 NONACHLOROBIPHENYL (sur.)	2013/09/14		60	% %	30 - 130
	Method Blank	` ,	2013/09/14	-0.010	74		30 - 130
		Aroclor 1016 Aroclor 1221	2013/09/14	< 0.010		mg/kg	
			2013/09/14	<0.010		mg/kg	
		Aroclor 1232	2013/09/14	<0.010		mg/kg	
		Aroclor 1242	2013/09/14	<0.010		mg/kg	
		Aroclor 1248	2013/09/14	<0.010		mg/kg	
		Aroclor 1254	2013/09/14	<0.010		mg/kg	
		Aroclor 1260	2013/09/14	< 0.010		mg/kg	
		Aroclor 1262	2013/09/14	<0.010		mg/kg	
		Aroclor 1268	2013/09/14	<0.010		mg/kg	
	DDD !!!! 4000 0:5	Total Aroclors	2013/09/14	<0.010		mg/kg	
	RPD [HL1233-01]	Aroclor 1016	2013/09/14	NC		%	50
		Aroclor 1221	2013/09/14	NC		%	50
		Aroclor 1232	2013/09/14	NC		%	50
		Aroclor 1242	2013/09/14	NC		%	50
						0./	
		Aroclor 1248 Aroclor 1254	2013/09/14 2013/09/14	NC NC		% %	50 50



Attention: Alexandre Leclair

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## **Quality Assurance Report (Continued)**

T162942 JC7 RPD [HL1233-01]	QA/QC			Date				
T162942 UC7   RPD   HL1233-01   Anoclor 1260	Batch			Analyzed				
Ancolor 1262 2013/09/14 NC % Ancolor 1268 70104 Ancolors 2013/09/14 NC % Total Arcinory (Sb) 2013/09/12 81 % Total Arcinory (Sb) 2013/09/12 83 % Total Arcinory (Sb) 2013/09/12 83 % Total Baryllium (Ba) 2013/09/12 85 % Total Baryllium (Ba) 2013/09/12 85 % Total Baryllium (Ba) 2013/09/12 85 % Total Chromium (Cr) 2013/09/12 86 % Total Chromium (Cr) 2013/09/12 80 % Total Chromium (Cr) 2013/09/12 80 % Total Chromium (Cr) 2013/09/12 80 % Total Copper (Cu) 2013/09/12 80 % Total Copper (Cu) 2013/09/12 80 % Total Chromium (Cr) 2013/09/12 80 % Total Chromium (Cr) 2013/09/12 80 % Total Chromium (Cr) 2013/09/12 80 % Total Siver (Mg) 2013/09/12 86 % Total Siver (Mg) 2013/09/12 87 % Total Siver (Mg) 2013/09/12 87 % Total Siver (Mg) 2013/09/12 87 % Total Total India (Tr) 2013/09/12 87 % Total India (Tr) 2013/09/12 81 % Total India (Tr) 2013/09/12 81 % Total India (Tr) 2013/09/12 97 % Total India (Tr) 2013/09/12 97 % Total India (Tr) 2013/09/12 99 % Total India (Tr) 2	Num Init	QC Type	Parameter	yyyy/mm/dd	Value	Recovery	UNITS	QC Limits
Arcolor 1268	7162942 JC7	RPD [HL1233-01]	Aroclor 1260	2013/09/14	NC		%	50
Total Arcelors			Aroclor 1262	2013/09/14	NC		%	50
Total Antimorny (Sb)			Aroclor 1268	2013/09/14	NC		%	50
Total Arsenic (As) Total Sarium (Ba) 2013/09/12 RC 75			Total Aroclors	2013/09/14			%	50
Total Arsenic (As) Total Beryllium (Be) Total Servillum (Be) 2013/09/12 RC % Total Cardinum (Cd) Total Condition (Cd) Total Mercury (Hg) Total Mercury (Hg) Total Meybeenum (Mo) Total Mercury (Hg) Total Meybeenum (Mo) Total Nickel (Ni) Total Nickel (Ni) Total Silver (Ag) Total Silver (Ag) Total Silver (Ag) Total Total Meybeenum (Mo) Total Total Meybeenum (Mo) Total Total Total Meybeenum (Mo) Total Total Total Meybeenum (Mo) Total Silver (Ag) Total Total Total Meybeenum (Mo) Total Total Total Total Meybeenum (Mo) Total Uranium (U) Total Zinc (Zn) Total Condition (Cd) Total Condition	7163983 TDB	Matrix Spike	Total Antimony (Sb)	2013/09/12		81	%	75 - 125
Total Barium (Ba)			, ,					75 - 125
Total Beryllium (Be)			` ,			NC		75 - 125
Total Cadmium (Cd)			` ,					75 - 125
Total Chromium (Cr)								75 - 125
Total Cobalt (Co)								75 - 125
Total Copper (Cu)			` ,					75 - 125
Total Lead (Pb)			` ,					75 - 125
Total Mercury (Hg)								75 - 125
Total Molybdenum (Mo) 2013/09/12 NC								75 - 125
Total Nickel (Ni) 2013/09/12 NC % 7 total Selenium (Se) 2013/09/12 86 % 7 total Silver (Ag) 2013/09/12 87 % 7 7 total Silver (Ag) 2013/09/12 87 % 7 7 total Silver (Ag) 2013/09/12 87 % 7 7 total Thallium (TI) 2013/09/12 87 % 7 7 Total Uranium (U) 2013/09/12 87 % 7 7 Total Uranium (U) 2013/09/12 87 % 7 7 Total Uranium (U) 2013/09/12 81 % 7 7 Total Uranium (U) 2013/09/12 NC % 7 Total Zinc (Zn) 2013/09/12 NC % 7 Total Zinc (Zn) 2013/09/12 NC % 7 Total Barium (Ba) 2013/09/12 100 % 7 Total Barium (Ba) 2013/09/12 100 % 7 Total Chromium (Cr) 2013/09/12 91 % 7 Total Cobalt (Co) 2013/09/12 97 % 7 Total Copper (Cu) 2013/09/12 99 % 7 Total Nickel (Ni) 2013/09/12 99 % 7 Total Xincel (Ni) 2013/09/12 110 % 7 Total Xincel (Ni) 2013/09/12 110 % 7 Total Xincel (Ni) 2013/09/12 105 % 7 Total Xincel (Ni) 2013/09/12 105 % 7 Total Xincel (Ni) 2013/09/12 105 % 7 Total Xincel (As) 2013/09/12 105 % 7 Total Arsenic (As) 2013/09/12 105 % 7 Total Barium (Ba) 2013/09/12 105 % 7 Total Earlium (Ba) 2013/09/12 105 % 7 Total Cobalt (Co) 2013/09/12 105 % 7 Total Cob								75 - 125
Total Selenium (Se)								75 - 125
Total Silver (Ag) Total Thallium (TI) Total Thallium (TI) Total Tin (Sn) Total Uranium (U) Total Uranium (U) Total Uranium (U) Total Vanadium (V) Total Zinc (Zn)  QC Standard  Total Earium (Ba) Total Cobait (Co) Total Coper (Cu) Total Vanadium (V) Total Anadium (V) Total Silver (As) Total Silver (As) Total Sarium (Ba) Total Cobait (Co) Total Coper (Cu) Total Cobait (Co) Total Vanadium (V) Total Earium (Ba) Total Cobait (Co) Total Vanadium (V) Total Conyolitz Total Conyolity Total Conyolitz Total Conyolity T			` ,					75 - 125 75 - 125
Total Thallium (TI)								75 - 125 75 - 125
Total Tin (Sn)								
Total Vanadium (V)								75 - 125
Total Vanadium (V)						-		75 - 125
Total Zinc (Zn)			` ,					75 - 125
OCC Standard								75 - 125
Total Barium (Ba)		00.04						75 - 125
Total Chromium (Cr)		QC Standard						50 - 150
Total Cobalt (Co)			` ,					69 - 131
Total Copper (Cu) 2013/09/12 99 % Total Lead (Pb) 2013/09/12 96 % Total Nickel (Ni) 2013/09/12 110 % Total Vanadium (V) 2013/09/12 108 % Total Zinc (Zn) 2013/09/12 105 %  Spiked Blank Total Antimony (Sb) 2013/09/12 102 % Total Barium (Ba) 2013/09/12 99 % Total Barium (Ba) 2013/09/12 99 % Total Beryllium (Be) 2013/09/12 98 % Total Cadmium (Cd) 2013/09/12 98 % Total Copper (Cu) 2013/09/12 97 % Total Copper (Cu) 2013/09/12 97 % Total Lead (Pb) 2013/09/12 99 % Total Mercury (Hg) 2013/09/12 99 % Total Molybdenum (Mo) 2013/09/12 99 % Total Nickel (Ni) 2013/09/12 99 % Total Selenium (Se) 2013/09/12 99 % Total Total Silver (Ag) 2013/09/12 99 % Total Total Tin (Sn) 2013/09/12 99 % Total Total Tin (Sn) 2013/09/12 99 % Total Total Uranium (U) 2013/09/12 99 % Total Vanadium (V) 2013/09/12 4.1.0 mg/kg Total Barium (Ba) 2013/09/12 4.10 mg/kg			` ,					41 - 159
Total Lead (Pb)						-		75 - 125
Total Nickel (Ni)								73 - 127
Total Vanadium (V)			` ,					54 - 146
Total Zinc (Zn)   2013/09/12   105 %			` ,					61 - 139
Spiked Blank			` ,					50 - 150
Total Arsenic (As)			` ,					72 - 128
Total Barium (Ba) 2013/09/12 99 % Total Beryllium (Be) 2013/09/12 98 % Total Cadmium (Cd) 2013/09/12 98 % Total Chromium (Cr) 2013/09/12 97 % Total Cobalt (Co) 2013/09/12 97 % Total Copper (Cu) 2013/09/12 98 % Total Lead (Pb) 2013/09/12 99 % Total Molybdenum (Mo) 2013/09/12 99 % Total Molybdenum (Mo) 2013/09/12 99 % Total Nickel (Ni) 2013/09/12 99 % Total Selenium (Se) 2013/09/12 99 % Total Silver (Ag) 2013/09/12 99 % Total Thallium (TI) 2013/09/12 99 % Total Total Tin (Sn) 2013/09/12 99 % Total Total Tin (Sn) 2013/09/12 98 % Total Total Juranium (U) 2013/09/12 99 % Total Juranium (U) 2013/09/12 99 % Total Vanadium (V) 2013/09/12 99 % Total Vanadium (V) 2013/09/12 99 % Total Arsenic (As) 2013/09/12 <1.0 mg/kg Total Arsenic (As) 2013/09/12 <1.0 mg/kg Total Barium (Ba) 2013/09/12 <1.0 mg/kg		Spiked Blank	• • •					75 - 125
Total Beryllium (Be) 2013/09/12 98 % Total Cadmium (Cd) 2013/09/12 98 % Total Chromium (Cr) 2013/09/12 97 % Total Cobalt (Co) 2013/09/12 97 % Total Copper (Cu) 2013/09/12 98 % Total Lead (Pb) 2013/09/12 99 % Total Mercury (Hg) 2013/09/12 102 % Total Molybdenum (Mo) 2013/09/12 99 % Total Nickel (Ni) 2013/09/12 99 % Total Silver (Ag) 2013/09/12 104 % Total Silver (Ag) 2013/09/12 99 % Total Total Thallium (TI) 2013/09/12 99 % Total Total Total Total Uranium (U) 2013/09/12 98 % Total Uranium (U) 2013/09/12 98 % Total Zinc (Zn) 2013/09/12 99 % Method Blank Total Antimony (Sb) 2013/09/12 100 % Method Blank Total Antimony (Sb) 2013/09/12 <1.0 mg/kg Total Barium (Ba) 2013/09/12 <1.0 mg/kg			Total Arsenic (As)					75 - 125
Total Cadmium (Cd) 2013/09/12 98 % Total Chromium (Cr) 2013/09/12 97 % Total Cobalt (Co) 2013/09/12 97 % Total Copper (Cu) 2013/09/12 98 % Total Lead (Pb) 2013/09/12 99 % Total Mercury (Hg) 2013/09/12 102 % Total Molybdenum (Mo) 2013/09/12 99 % Total Nickel (Ni) 2013/09/12 99 % Total Selenium (Se) 2013/09/12 98 % Total Silver (Ag) 2013/09/12 104 % Total Thallium (TI) 2013/09/12 99 % Total Trallium (TI) 2013/09/12 99 % Total Trallium (TI) 2013/09/12 99 % Total Trallium (U) 2013/09/12 98 % Total Jranium (U) 2013/09/12 98 % Total Vanadium (V) 2013/09/12 98 % Total Vanadium (V) 2013/09/12 99 % Total Vanadium (V) 2013/09/12 98 % Total Arsenic (As) 2013/09/12 <1.0 mg/kg Total Arsenic (As) 2013/09/12 <1.0 mg/kg Total Barium (Ba) 2013/09/12 <1.0 mg/kg			` ,					75 - 125
Total Chromium (Cr)       2013/09/12       97       %         Total Cobalt (Co)       2013/09/12       97       %         Total Copper (Cu)       2013/09/12       98       %         Total Lead (Pb)       2013/09/12       99       %         Total Mercury (Hg)       2013/09/12       102       %         Total Molybdenum (Mo)       2013/09/12       99       %         Total Nickel (Ni)       2013/09/12       98       %         Total Selenium (Se)       2013/09/12       98       %         Total Silver (Ag)       2013/09/12       99       %         Total Thallium (Tl)       2013/09/12       98       %         Total Troil (Sn)       2013/09/12       98       %         Total Uranium (U)       2013/09/12       98       %         Total Vanadium (V)       2013/09/12       98       %         Total Zinc (Zn)       2013/09/12       98       %         Method Blank       Total Antimony (Sb)       2013/09/12       <1.0								75 - 125
Total Cobalt (Co) 2013/09/12 97 % Total Copper (Cu) 2013/09/12 98 % Total Lead (Pb) 2013/09/12 99 % Total Mercury (Hg) 2013/09/12 102 % Total Molybdenum (Mo) 2013/09/12 99 % Total Nickel (Ni) 2013/09/12 98 % Total Selenium (Se) 2013/09/12 98 % Total Silver (Ag) 2013/09/12 104 % Total Thallium (TI) 2013/09/12 99 % Total Total Tin (Sn) 2013/09/12 98 % Total Uranium (U) 2013/09/12 98 % Total Vanadium (V) 2013/09/12 99 % Method Blank Total Antimony (Sb) 2013/09/12 100 % Method Blank Total Antimony (Sb) 2013/09/12 <1.0 mg/kg Total Barium (Ba) 2013/09/12 <1.0 mg/kg			` ,	2013/09/12		98		75 - 125
Total Copper (Cu) 2013/09/12 98 % Total Lead (Pb) 2013/09/12 99 % Total Mercury (Hg) 2013/09/12 102 % Total Molybdenum (Mo) 2013/09/12 99 % Total Nickel (Ni) 2013/09/12 98 % Total Selenium (Se) 2013/09/12 99 % Total Silver (Ag) 2013/09/12 99 % Total Thallium (Tl) 2013/09/12 99 % Total Trotal Tin (Sn) 2013/09/12 98 % Total Uranium (U) 2013/09/12 99 % Total Vanadium (V) 2013/09/12 99 % Method Blank Total Antimony (Sb) 2013/09/12 100 % Method Blank Total Antimony (Sb) 2013/09/12 <1.0 mg/kg Total Barium (Ba) 2013/09/12 <1.0 mg/kg			Total Chromium (Cr)	2013/09/12		97		75 - 125
Total Lead (Pb) 2013/09/12 99 % Total Mercury (Hg) 2013/09/12 102 % Total Molybdenum (Mo) 2013/09/12 99 % Total Nickel (Ni) 2013/09/12 98 % Total Selenium (Se) 2013/09/12 104 % Total Silver (Ag) 2013/09/12 99 % Total Thallium (Tl) 2013/09/12 99 % Total Tin (Sn) 2013/09/12 98 % Total Uranium (U) 2013/09/12 98 % Total Vanadium (V) 2013/09/12 99 % Method Blank Total Antimony (Sb) 2013/09/12 100 % Method Blank Total Antimony (Sb) 2013/09/12 <1.0 mg/kg Total Barium (Ba) 2013/09/12 <1.0 mg/kg						97		75 - 125
Total Mercury (Hg) 2013/09/12 102 % Total Molybdenum (Mo) 2013/09/12 99 % Total Nickel (Ni) 2013/09/12 98 % Total Selenium (Se) 2013/09/12 104 % Total Silver (Ag) 2013/09/12 99 % Total Thallium (TI) 2013/09/12 98 % Total Tin (Sn) 2013/09/12 98 % Total Uranium (U) 2013/09/12 98 % Total Vanadium (V) 2013/09/12 99 % Method Blank Total Antimony (Sb) 2013/09/12 100 % Total Arsenic (As) 2013/09/12 <1.0 mg/kg Total Barium (Ba) 2013/09/12 <10 mg/kg			,					75 - 125
Total Molybdenum (Mo)       2013/09/12       99       %         Total Nickel (Ni)       2013/09/12       98       %         Total Selenium (Se)       2013/09/12       104       %         Total Silver (Ag)       2013/09/12       99       %         Total Thallium (TI)       2013/09/12       98       %         Total Tin (Sn)       2013/09/12       98       %         Total Uranium (U)       2013/09/12       99       %         Total Vanadium (V)       2013/09/12       98       %         Total Zinc (Zn)       2013/09/12       100       %         Method Blank       Total Antimony (Sb)       2013/09/12       <1.0						99		75 - 125
Total Nickel (Ni) 2013/09/12 98 % Total Selenium (Se) 2013/09/12 104 % Total Silver (Ag) 2013/09/12 99 % Total Thallium (TI) 2013/09/12 98 % Total Tin (Sn) 2013/09/12 98 % Total Uranium (U) 2013/09/12 99 % Total Vanadium (V) 2013/09/12 99 % Total Zinc (Zn) 2013/09/12 98 % Method Blank Total Antimony (Sb) 2013/09/12 100 % Total Arsenic (As) 2013/09/12 <1.0 mg/kg Total Barium (Ba) 2013/09/12 <10 mg/kg			Total Mercury (Hg)	2013/09/12		102	%	75 - 125
Total Selenium (Se)       2013/09/12       104       %         Total Silver (Ag)       2013/09/12       99       %         Total Thallium (TI)       2013/09/12       98       %         Total Tin (Sn)       2013/09/12       98       %         Total Uranium (U)       2013/09/12       99       %         Total Vanadium (V)       2013/09/12       98       %         Total Zinc (Zn)       2013/09/12       100       %         Method Blank       Total Antimony (Sb)       2013/09/12       <1.0			Total Molybdenum (Mo)	2013/09/12		99	%	75 - 125
Total Silver (Ag) 2013/09/12 99 % Total Thallium (TI) 2013/09/12 98 % Total Tin (Sn) 2013/09/12 98 % Total Uranium (U) 2013/09/12 99 % Total Vanadium (V) 2013/09/12 98 % Total Zinc (Zn) 2013/09/12 98 % Method Blank Total Antimony (Sb) 2013/09/12 <1.0 mg/kg Total Arsenic (As) 2013/09/12 <1.0 mg/kg Total Barium (Ba) 2013/09/12 <10 mg/kg			Total Nickel (Ni)	2013/09/12		98	%	75 - 125
Total Thallium (TI) 2013/09/12 98 %  Total Tin (Sn) 2013/09/12 98 %  Total Uranium (U) 2013/09/12 99 %  Total Vanadium (V) 2013/09/12 98 %  Total Zinc (Zn) 2013/09/12 100 %  Method Blank Total Antimony (Sb) 2013/09/12 <1.0 mg/kg  Total Arsenic (As) 2013/09/12 <1.0 mg/kg  Total Barium (Ba) 2013/09/12 <10 mg/kg			Total Selenium (Se)	2013/09/12		104	%	75 - 125
Total Thallium (TI) 2013/09/12 98 %  Total Tin (Sn) 2013/09/12 98 %  Total Uranium (U) 2013/09/12 99 %  Total Vanadium (V) 2013/09/12 98 %  Total Zinc (Zn) 2013/09/12 100 %  Method Blank Total Antimony (Sb) 2013/09/12 <1.0 mg/kg  Total Arsenic (As) 2013/09/12 <1.0 mg/kg  Total Barium (Ba) 2013/09/12 <10 mg/kg			Total Silver (Ag)	2013/09/12		99	%	75 - 125
Total Uranium (U) 2013/09/12 99 % Total Vanadium (V) 2013/09/12 98 % Total Zinc (Zn) 2013/09/12 100 %  Method Blank Total Antimony (Sb) 2013/09/12 <1.0 mg/kg Total Arsenic (As) 2013/09/12 <1.0 mg/kg Total Barium (Ba) 2013/09/12 <10 mg/kg			Total Thallium (TI)	2013/09/12		98	%	75 - 125
Total Uranium (U) 2013/09/12 99 % Total Vanadium (V) 2013/09/12 98 % Total Zinc (Zn) 2013/09/12 100 %  Method Blank Total Antimony (Sb) 2013/09/12 <1.0 mg/kg Total Arsenic (As) 2013/09/12 <1.0 mg/kg Total Barium (Ba) 2013/09/12 <10 mg/kg			Total Tin (Sn)	2013/09/12		98	%	75 - 125
Total Vanadium (V) 2013/09/12 98 % Total Zinc (Zn) 2013/09/12 100 %  Method Blank Total Antimony (Sb) 2013/09/12 <1.0 mg/kg Total Arsenic (As) 2013/09/12 <1.0 mg/kg Total Barium (Ba) 2013/09/12 <10 mg/kg				2013/09/12		99	%	75 - 125
Total Zinc (Zn) 2013/09/12 100 %  Method Blank Total Antimony (Sb) 2013/09/12 <1.0 mg/kg  Total Arsenic (As) 2013/09/12 <1.0 mg/kg  Total Barium (Ba) 2013/09/12 <10 mg/kg								75 - 125
Method Blank         Total Antimony (Sb)         2013/09/12         <1.0         mg/kg           Total Arsenic (As)         2013/09/12         <1.0			( )	2013/09/12				75 - 125
Total Arsenic (As) 2013/09/12 <1.0 mg/kg Total Barium (Ba) 2013/09/12 <10 mg/kg		Method Blank			<1.0			
Total Barium (Ba) 2013/09/12 <10 mg/kg								
			` ,					
Total Bervillum (Be) 2013/09/12 <0.40 mg/kg			Total Beryllium (Be)	2013/09/12	<0.40		mg/kg	
			(/				55	



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## **Quality Assurance Report (Continued)**

QA/QC			Date				
Batch			Analyzed				
Num Init	QC Type	Parameter	yyyy/mm/dd	Value	Recovery	UNITS	QC Limits
7163983 TDB	Method Blank	Total Cadmium (Cd)	2013/09/12	<0.10	-	mg/kg	
		Total Chromium (Cr)	2013/09/12	<1.0		mg/kg	
		Total Cobalt (Co)	2013/09/12	<1.0		mg/kg	
		Total Copper (Cu)	2013/09/12	< 5.0		mg/kg	
		Total Lead (Pb)	2013/09/12	<1.0		mg/kg	
		Total Mercury (Hg)	2013/09/12	< 0.050		mg/kg	
		Total Molybdenum (Mo)	2013/09/12	< 0.40		mg/kg	
		Total Nickel (Ni)	2013/09/12	<1.0		mg/kg	
		Total Selenium (Se)	2013/09/12	< 0.50		mg/kg	
		Total Silver (Ag)	2013/09/12	<1.0		mg/kg	
		Total Thallium (TI)	2013/09/12	< 0.30		mg/kg	
		Total Tin (Sn)	2013/09/12	<1.0		mg/kg	
		Total Uranium (U)	2013/09/12	<1.0		mg/kg	
		Total Vanadium (V)	2013/09/12	<1.0		mg/kg	
		Total Zinc (Zn)	2013/09/12	<10		mg/kg	
	RPD	Total Antimony (Sb)	2013/09/12	NC		%	35
		Total Arsenic (As)	2013/09/12	5.3		%	35
		Total Barium (Ba)	2013/09/12	2.8		%	35
		Total Beryllium (Be)	2013/09/12	NC		%	35
		Total Cadmium (Cd)	2013/09/12	NC		%	35
		Total Chromium (Cr)	2013/09/12	2.5		%	35
		Total Cobalt (Co)	2013/09/12	3.5		%	35
		Total Copper (Cu)	2013/09/12	NC		%	35
		Total Lead (Pb)	2013/09/12	1.4		%	35
		Total Mercury (Hg)	2013/09/12	NC		%	35
		Total Molybdenum (Mo)	2013/09/12	NC		%	35
		Total Nickel (Ni)	2013/09/12	2.1		%	35
		Total Selenium (Se)	2013/09/12	NC		%	35
		Total Silver (Ag)	2013/09/12	NC		%	35
		Total Thallium (TI)	2013/09/12	NC		%	35
		Total Tin (Sn)	2013/09/12	NC		%	35
		Total Uranium (U)	2013/09/12	NC		%	35
		Total Vanadium (V)	2013/09/12	3.5		%	35
		Total Zinc (Zn)	2013/09/12	4.5		%	35
7164368 TDB	Matrix Spike	10(41)	2010/00/12	1.0		70	00
	[HL1253-02]	Total Antimony (Sb)	2013/09/13		98	%	75 - 125
		Total Arsenic (As)	2013/09/13		98	%	75 - 125
		Total Barium (Ba)	2013/09/13		NC	%	75 - 125
		Total Beryllium (Be)	2013/09/13		100	%	75 - 125
		Total Cadmium (Cd)	2013/09/13		99	%	75 - 125
		Total Chromium (Cr)	2013/09/13		104	%	75 - 125
		Total Cobalt (Co)	2013/09/13		99	%	75 - 125
		Total Copper (Cu)	2013/09/13		97	%	75 - 125
		Total Lead (Pb)	2013/09/13		98	%	75 - 125
		Total Mercury (Hg)	2013/09/13		105	%	75 - 125
		Total Molybdenum (Mo)	2013/09/13		100	%	75 - 125
		Total Nickel (Ni)	2013/09/13		104	%	75 - 125
		Total Selenium (Se)	2013/09/13		99	%	75 - 125
		Total Silver (Ag)	2013/09/13		103	%	75 - 125
		Total Thallium (TI)	2013/09/13		99	%	75 - 125
		Total Trialian (Tr)	2013/09/13		102	%	75 - 125
		Total Uranium (U)	2013/09/13		90	%	75 - 125
		Total Vanadium (V)	2013/09/13		104	%	75 - 125
		Total Zinc (Zn)	2013/09/13		NC	%	75 - 125
	QC Standard	Total Arsenic (As)	2013/09/13		112	%	50 - 150
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QA/QC			Date				
Batch			Analyzed				
Num Init	QC Type	Parameter	yyyy/mm/dd	Value	Recovery	UNITS	QC Limits
7164368 TDB	QC Standard	Total Barium (Ba)	2013/09/13		112	%	69 - 131
		Total Chromium (Cr)	2013/09/13		115	%	41 - 159
		Total Cobalt (Co)	2013/09/13		107	%	75 - 125
		Total Copper (Cu)	2013/09/13		108	%	73 - 127
		Total Lead (Pb)	2013/09/13		105	%	54 - 146
		Total Nickel (Ni)	2013/09/13		115	%	61 - 139
		Total Vanadium (V)	2013/09/13		128	%	50 - 150
		Total Zinc (Zn)	2013/09/13		114	%	72 - 128
	Spiked Blank	Total Antimony (Sb)	2013/09/13		100	%	75 - 125
	·	Total Arsenic (As)	2013/09/13		99	%	75 - 125
		Total Barium (Ba)	2013/09/13		98	%	75 - 125
		Total Beryllium (Be)	2013/09/13		99	%	75 - 125
		Total Cadmium (Cd)	2013/09/13		100	%	75 - 125
		Total Chromium (Cr)	2013/09/13		99	%	75 - 125
		Total Cobalt (Co)	2013/09/13		100	%	75 - 125
		Total Copper (Cu)	2013/09/13		99	%	75 - 125
		Total Lead (Pb)	2013/09/13		100	%	75 - 125
		Total Mercury (Hg)	2013/09/13		105	%	75 - 125
		Total Molybdenum (Mo)	2013/09/13		100	%	75 - 125
		Total Nickel (Ni)	2013/09/13		100	%	75 - 125
		Total Selenium (Se)	2013/09/13		100	%	75 - 125
		Total Silver (Ag)	2013/09/13		103	%	75 - 125
		Total Thallium (TI)	2013/09/13		99	%	75 - 125
		Total Tin (Sn)	2013/09/13		101	%	75 - 125
		Total Uranium (U)	2013/09/13		101	%	75 - 125
		Total Vanadium (V)	2013/09/13		101	%	75 - 125
		Total Zinc (Zn)	2013/09/13		97	%	75 - 125
	Method Blank	Total Antimony (Sb)	2013/09/13	<1.0		mg/kg	
		Total Arsenic (As)	2013/09/13	<1.0		mg/kg	
		Total Barium (Ba)	2013/09/13	<10		mg/kg	
		Total Beryllium (Be)	2013/09/13	< 0.40		mg/kg	
		Total Cadmium (Cd)	2013/09/13	< 0.10		mg/kg	
		Total Chromium (Cr)	2013/09/13	<1.0		mg/kg	
		Total Cobalt (Co)	2013/09/13	<1.0		mg/kg	
		Total Copper (Cu)	2013/09/13	< 5.0		mg/kg	
		Total Lead (Pb)	2013/09/13	<1.0		mg/kg	
		Total Mercury (Hg)	2013/09/13	< 0.050		mg/kg	
		Total Molybdenum (Mo)	2013/09/13	< 0.40		mg/kg	
		Total Nickel (Ni)	2013/09/13	<1.0		mg/kg	
		Total Selenium (Se)	2013/09/13	< 0.50		mg/kg	
		Total Silver (Ag)	2013/09/13	<1.0		mg/kg	
		Total Thallium (TI)	2013/09/13	< 0.30		mg/kg	
		Total Tin (Sn)	2013/09/13	<1.0		mg/kg	
		Total Uranium (U)	2013/09/13	<1.0		mg/kg	
		Total Vanadium (V)	2013/09/13	<1.0		mg/kg	
		Total Zinc (Zn)	2013/09/13	<10		mg/kg	
	RPD [HL1253-02]	Total Antimony (Sb)	2013/09/13	NC		%	35
	•	Total Arsenic (As)	2013/09/13	NC		%	35
		Total Barium (Ba)	2013/09/13	NC		%	35
		Total Beryllium (Be)	2013/09/13	NC		%	35
		Total Cadmium (Cd)	2013/09/13	NC		%	35
		Total Chromium (Cr)	2013/09/13	11.7		%	35
		Total Cobalt (Co)	2013/09/13	NC		%	35
		Total Copper (Cu)	2013/09/13	NC		%	35
		Total Lead (Pb)	2013/09/13	NC		%	35
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QA/QC			Date				
Batch			Analyzed				
Num Init	QC Type	Parameter	yyyy/mm/dd	Value	Recovery	UNITS	QC Limits
7164368 TDB	RPD [HL1253-02]	Total Mercury (Hg)	2013/09/13	NC		%	35
	•	Total Molybdenum (Mo)	2013/09/13	NC		%	35
		Total Nickel (Ni)	2013/09/13	13.0		%	35
		Total Selenium (Se)	2013/09/13	NC		%	35
		Total Silver (Ag)	2013/09/13	NC		%	35
		Total Thallium (TI)	2013/09/13	NC		%	35
		Total Tin (Sn)	2013/09/13	NC		%	35
		Total Uranium (U)	2013/09/13	NC		%	35
		Total Vanadium (V)	2013/09/13	1.8		%	35
		Total Zinc (Zn)	2013/09/13	NC		%	35
7165233 TDB	Matrix Spike	Total Antimony (Sb)	2013/09/13	INC	91	%	75 - 125
7 103233 100	Matrix Opike	Total Arsenic (As)	2013/09/13		104	%	75 - 125 75 - 125
		Total Barium (Ba)	2013/09/13		NC	%	75 - 125 75 - 125
		Total Beryllium (Be)	2013/09/13		110	%	75 - 125
		Total Cadmium (Cd)	2013/09/13		104	%	75 - 125
		Total Chromium (Cr)	2013/09/13		NC	%	75 - 125
		Total Cobalt (Co)	2013/09/13		102	%	75 - 125
		Total Copper (Cu)	2013/09/13		NC	%	75 - 125
		Total Lead (Pb)	2013/09/13		103	%	75 - 125
		Total Mercury (Hg)	2013/09/13		111	%	75 - 125
		Total Molybdenum (Mo)	2013/09/13		105	%	75 - 125
		Total Nickel (Ni)	2013/09/13		NC	%	75 - 125
		Total Selenium (Se)	2013/09/13		102	%	75 - 125
		Total Silver (Ag)	2013/09/13		105	%	75 - 125
		Total Thallium (TI)	2013/09/13		100	%	75 - 125
		Total Tin (Sn)	2013/09/13		106	%	75 - 125
		Total Uranium (U)	2013/09/13		94	%	75 - 125
		Total Vanadium (V)	2013/09/13		NC	%	75 - 125
		Total Zinc (Zn)	2013/09/13		NC	%	75 - 125
	QC Standard	Total Arsenic (As)	2013/09/13		118	%	50 - 150
		Total Barium (Ba)	2013/09/13		106	%	69 - 131
		Total Chromium (Cr)	2013/09/13		104	%	41 - 159
		Total Cobalt (Co)	2013/09/13		103	%	75 - 125
		Total Copper (Cu)	2013/09/13		103	%	73 - 127
		Total Lead (Pb)	2013/09/13		100	%	54 - 146
		Total Nickel (Ni)	2013/09/13		112	%	61 - 139
		Total Vanadium (V)	2013/09/13		121	%	50 - 150
		Total Zinc (Zn)	2013/09/13		109	%	72 - 128
	Spiked Blank	Total Antimony (Sb)	2013/09/13		98	%	75 - 125
		Total Arsenic (As)	2013/09/13		95	%	75 - 125
		Total Barium (Ba)	2013/09/13		94	%	75 - 125
		Total Beryllium (Be)	2013/09/13		97	%	75 - 125
		Total Cadmium (Cd)	2013/09/13		94	%	75 - 125
		Total Chromium (Cr)	2013/09/13		95	%	75 - 125
		Total Cobalt (Co)	2013/09/13		95	%	75 - 125
		Total Copper (Cu)	2013/09/13		95	%	75 - 125
		Total Lead (Pb)	2013/09/13		98	%	75 - 125 75 - 125
		Total Mercury (Hg)	2013/09/13		99	%	75 - 125
		Total Molybdenum (Mo)	2013/09/13		96	%	75 - 125 75 - 125
		Total Nickel (Ni)	2013/09/13		96	% %	75 - 125 75 - 125
1		Total Selenium (Se)	2013/09/13		98	% %	75 - 125 75 - 125
1		Total Silver (Ag)			96 96	% %	75 - 125 75 - 125
1			2013/09/13				
1		Total Thallium (TI)	2013/09/13		95	%	75 - 125
		Total Uranium (U)	2013/09/13		92	%	75 - 125
		Total Uranium (U)	2013/09/13		95	%	75 - 125



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QA/QC			Date				
Batch			Analyzed				
Num Init	QC Type	Parameter	yyyy/mm/dd	Value	Recovery	UNITS	QC Limits
7165233 TDB	Spiked Blank	Total Vanadium (V)	2013/09/13		96	%	75 - 125
		Total Zinc (Zn)	2013/09/13		94	%	75 - 125
	Method Blank	Total Antimony (Sb)	2013/09/13	<1.0		mg/kg	
		Total Arsenic (As)	2013/09/13	<1.0		mg/kg	
		Total Barium (Ba)	2013/09/13	<10		mg/kg	
		Total Beryllium (Be)	2013/09/13	< 0.40		mg/kg	
		Total Cadmium (Cd)	2013/09/13	<0.10		mg/kg	
		Total Chromium (Cr)	2013/09/13	<1.0		mg/kg	
		Total Cobalt (Co)	2013/09/13	<1.0		mg/kg	
		Total Copper (Cu)	2013/09/13	<5.0		mg/kg	
		Total Lead (Pb)	2013/09/13	<1.0		mg/kg	
		Total Mercury (Hg)	2013/09/13	< 0.050		mg/kg	
		Total Molybdenum (Mo)	2013/09/13	< 0.40		mg/kg	
		Total Nickel (Ni)	2013/09/13	<1.0		mg/kg	
		Total Selenium (Se)	2013/09/13	< 0.50		mg/kg	
		Total Silver (Ag)	2013/09/13	<1.0		mg/kg	
		Total Thallium (TI)	2013/09/13	< 0.30		mg/kg	
		Total Tin (Sn)	2013/09/13	<1.0		mg/kg	
		Total Uranium (U)	2013/09/13	<1.0		mg/kg	
		Total Vanadium (V)	2013/09/13	<1.0		mg/kg	
		Total Zinc (Zn)	2013/09/13	<10		mg/kg	
	RPD	Total Antimony (Sb)	2013/09/13	NC		%	35
		Total Arsenic (As)	2013/09/13	2.2		%	35
		Total Barium (Ba)	2013/09/13	5.0		%	35
		Total Beryllium (Be)	2013/09/13	NC		%	35
		Total Cadmium (Cd)	2013/09/13	NC		%	35
		Total Chromium (Cr)	2013/09/13	8.8		%	35
		Total Cobalt (Co)	2013/09/13	4.4		%	35
		Total Copper (Cu)	2013/09/13	1.6		%	35
		Total Lead (Pb)	2013/09/13	3.4		%	35
		Total Mercury (Hg)	2013/09/13	NC		%	35
		Total Molybdenum (Mo)	2013/09/13	NC		%	35
		Total Nickel (Ni)	2013/09/13	3.7		%	35
		Total Selenium (Se)	2013/09/13	NC		%	35
		Total Silver (Ag)	2013/09/13	NC		%	35
		Total Thallium (TI)	2013/09/13	NC		%	35
		Total Tin (Sn)	2013/09/13	NC		%	35
		Total Uranium (U)	2013/09/13	NC		%	35
		Total Vanadium (V)	2013/09/13	13.9		%	35
		Total Zinc (Zn)	2013/09/13	5.4		%	35
7165356 TDB	Matrix Spike						
	[HL1404-02]	Total Antimony (Sb)	2013/09/14		107	%	75 - 125
		Total Arsenic (As)	2013/09/14		103	%	75 - 125
		Total Barium (Ba)	2013/09/14		113	%	75 - 125
		Total Beryllium (Be)	2013/09/14		107	%	75 - 125
		Total Cadmium (Cd)	2013/09/14		103	%	75 - 125
		Total Chromium (Cr)	2013/09/14		105	%	75 - 125
		Total Cobalt (Co)	2013/09/14		101	%	75 - 125
		Total Copper (Cu)	2013/09/14		106	%	75 - 125
		Total Lead (Pb)	2013/09/14		101	%	75 - 125
		Total Mercury (Hg)	2013/09/14		104	%	75 - 125
		Total Molybdenum (Mo)	2013/09/14		107	%	75 - 125
		Total Nickel (Ni)	2013/09/14		105	%	75 - 125
		Total Selenium (Se)	2013/09/14		107	%	75 - 125
		Total Silver (Ag)	2013/09/14		106	%	75 - 125



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Maxxam Job Number: EYKB380795

QA/QC			Date				1
Batch			Analyzed				
Num Init	QC Type	Parameter	yyyy/mm/dd	Value	Recovery	UNITS	QC Limits
7165356 TDB	Matrix Spike	. aramoto	<i>,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,</i>	7 4.40		00	Q 0
	[HL1404-02]	Total Thallium (TI)	2013/09/14		99	%	75 - 125
		Total Tin (Sn)	2013/09/14		106	%	75 - 125
		Total Uranium (U)	2013/09/14		93	%	75 - 125
		Total Vanadium (V)	2013/09/14		107	%	75 - 125
		Total Zinc (Zn)	2013/09/14		108	%	75 - 125
	QC Standard	Total Arsenic (As)	2013/09/13		131	%	50 - 150
		Total Barium (Ba)	2013/09/13		115	%	69 - 131
		Total Chromium (Cr)	2013/09/13		113	%	41 - 159
		Total Cobalt (Co)	2013/09/13		112	%	75 - 125
		Total Copper (Cu)	2013/09/13		112	%	73 - 127
		Total Lead (Pb)	2013/09/13		111	%	54 - 146
		Total Nickel (Ni)	2013/09/13		121	%	61 - 139
		Total Vanadium (V)	2013/09/13		133	%	50 - 150
	0 " 15" 1	Total Zinc (Zn)	2013/09/13		122	%	72 - 128
	Spiked Blank	Total Antimony (Sb)	2013/09/13		106	%	75 - 125
		Total Arsenic (As)	2013/09/13		100	%	75 - 125
		Total Barium (Ba)	2013/09/13		100	%	75 - 125
		Total Beryllium (Be)	2013/09/13		103	%	75 - 125
		Total Cadmium (Cd)	2013/09/13		99	%	75 - 125
		Total Chromium (Cr)	2013/09/13		100 101	% %	75 - 125 75 - 125
		Total Copper (Cu)	2013/09/13 2013/09/13		101	%	75 - 125 75 - 125
		Total Copper (Cu) Total Lead (Pb)	2013/09/13		99	% %	75 - 125 75 - 125
		Total Mercury (Hg)	2013/09/13		101	% %	75 - 125 75 - 125
		Total Molybdenum (Mo)	2013/09/13		100	%	75 - 125 75 - 125
		Total Nickel (Ni)	2013/09/13		102	%	75 - 125
		Total Selenium (Se)	2013/09/13		105	%	75 - 125
		Total Silver (Ag)	2013/09/13		101	%	75 - 125 75 - 125
		Total Thallium (TI)	2013/09/13		96	%	75 - 125
		Total Tin (Sn)	2013/09/13		100	%	75 - 125
		Total Uranium (U)	2013/09/13		100	%	75 - 125
		Total Vanadium (V)	2013/09/13		101	%	75 - 125
		Total Zinc (Zn)	2013/09/13		99	%	75 - 125
	Method Blank	Total Antimony (Sb)	2013/09/13	<1.0		mg/kg	
		Total Arsenic (As)	2013/09/13	<1.0		mg/kg	
		Total Barium (Ba)	2013/09/13	<10		mg/kg	
		Total Beryllium (Be)	2013/09/13	< 0.40		mg/kg	
		Total Cadmium (Cd)	2013/09/13	<0.10		mg/kg	
		Total Chromium (Cr)	2013/09/13	<1.0		mg/kg	
		Total Cobalt (Co)	2013/09/13	<1.0		mg/kg	
		Total Copper (Cu)	2013/09/13	<5.0		mg/kg	
		Total Lead (Pb)	2013/09/13	<1.0		mg/kg	
		Total Mercury (Hg)	2013/09/13	< 0.050		mg/kg	
		Total Molybdenum (Mo)	2013/09/13	<0.40		mg/kg	
		Total Nickel (Ni)	2013/09/13	<1.0		mg/kg	
		Total Silver (A.s.)	2013/09/13	< 0.50		mg/kg	
		Total Silver (Ag)	2013/09/13	<1.0		mg/kg	
		Total Thallium (TI)	2013/09/13	< 0.30		mg/kg	
		Total Tin (Sn) Total Uranium (U)	2013/09/13 2013/09/13	<1.0		mg/kg	
		Total Vanadium (V)		<1.0		mg/kg mg/kg	
		Total Variadium (V) Total Zinc (Zn)	2013/09/13 2013/09/13	<1.0 <10		mg/kg mg/kg	
	RPD [HL1404-02]	Total Antimony (Sb)	2013/09/13	NC		mg/kg %	35
	14 D [11L1404-02]	Total Artimony (35)	2013/09/14	NC		% %	35
			2310/00/11			, 5	50



Attention: Alexandre Leclair

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## **Quality Assurance Report (Continued)**

Maxxam Job Number: EYKB380795

QA/QC			Date				
Batch			Analyzed				
Num Init	QC Type	Parameter	yyyy/mm/dd	Value	Recovery	UNITS	QC Limits
7165356 TDB	RPD [HL1404-02]	Total Barium (Ba)	2013/09/14	NC		%	35
	[	Total Beryllium (Be)	2013/09/14	NC		%	35
		Total Cadmium (Cd)	2013/09/14	NC		%	35
		Total Chromium (Cr)	2013/09/14	0.3		%	35
		Total Cobalt (Co)	2013/09/14	NC		%	35
		` ,				%	
		Total Copper (Cu)	2013/09/14	NC			35
		Total Lead (Pb)	2013/09/14	3.7		%	35
		Total Mercury (Hg)	2013/09/14	NC		%	35
		Total Molybdenum (Mo)	2013/09/14	NC		%	35
		Total Nickel (Ni)	2013/09/14	4.1		%	35
		Total Selenium (Se)	2013/09/14	NC		%	35
		Total Silver (Ag)	2013/09/14	NC		%	35
		Total Thallium (TI)	2013/09/14	NC		%	35
		Total Tin (Sn)	2013/09/14	NC		%	35
		Total Uranium (U)	2013/09/14	NC		%	35
		Total Vanadium (V)	2013/09/14	1.8		%	35
		Total Zinc (Zn)	2013/09/14	NC		%	35
7165509 VM	Matrix Spike	,					
	[HL1401-01]	NONACHLOROBIPHENYL (sur.)	2013/09/15		111	%	30 - 130
	[	Aroclor 1260	2013/09/15		86	%	30 - 130
	Spiked Blank	NONACHLOROBIPHENYL (sur.)	2013/09/15		113	%	30 - 130
	Орікой Війтік	Aroclor 1260	2013/09/15		91	%	30 - 130
	Method Blank	NONACHLOROBIPHENYL (sur.)	2013/09/15		110	%	30 - 130
	Welliou Dialik	Aroclor 1016	2013/09/15	<0.010	110		30 - 130
						mg/kg	
		Aroclor 1221	2013/09/15	< 0.010		mg/kg	
		Aroclor 1232	2013/09/15	< 0.010		mg/kg	
		Aroclor 1242	2013/09/15	<0.010		mg/kg	
		Aroclor 1248	2013/09/15	<0.010		mg/kg	
		Aroclor 1254	2013/09/15	<0.010		mg/kg	
		Aroclor 1260	2013/09/15	< 0.010		mg/kg	
		Aroclor 1262	2013/09/15	< 0.010		mg/kg	
		Aroclor 1268	2013/09/15	< 0.010		mg/kg	
		Total Aroclors	2013/09/15	< 0.010		mg/kg	
	RPD [HL1401-01]	Aroclor 1016	2013/09/15	NC		%	50
		Aroclor 1221	2013/09/15	NC		%	50
		Aroclor 1232	2013/09/15	NC		%	50
		Aroclor 1242	2013/09/15	NC		%	50
		Aroclor 1248	2013/09/15	NC		%	50
		Aroclor 1254	2013/09/15	NC		%	50
		Aroclor 1260	2013/09/15	NC		%	50
		Aroclor 1260 Aroclor 1262	2013/09/15	NC		%	50
				NC NC		% %	
		Aroclor 1268	2013/09/15				50
7405500 \/D4	Market Oatha	Total Aroclors	2013/09/15	NC		%	50
7165529 VP4	Matrix Spike						
	[HL1362-01]	NONACHLOROBIPHENYL (sur.)	2013/09/14		109	%	30 - 130
		Aroclor 1260	2013/09/14		95	%	30 - 130
	Spiked Blank	NONACHLOROBIPHENYL (sur.)	2013/09/14		112	%	30 - 130
		Aroclor 1260	2013/09/14		104	%	30 - 130
	Method Blank	NONACHLOROBIPHENYL (sur.)	2013/09/14		116	%	30 - 130
		Aroclor 1016	2013/09/14	< 0.010		mg/kg	
		Aroclor 1221	2013/09/14	< 0.010		mg/kg	
		Aroclor 1232	2013/09/14	< 0.010		mg/kg	
		Aroclor 1242	2013/09/14	< 0.010		mg/kg	
		Aroclor 1248	2013/09/14	< 0.010		mg/kg	
		Aroclor 1254	2013/09/14	<0.010		mg/kg	



Attention: Alexandre Leclair

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## **Quality Assurance Report (Continued)**

Maxxam Job Number: EYKB380795

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Batch			Analyzed				
Num Init	QC Type	Parameter	yyyy/mm/dd	Value	Recovery	UNITS	QC Limits
7165529 VP4	Method Blank	Aroclor 1260	2013/09/14	<0.010		mg/kg	
		Aroclor 1262	2013/09/14	< 0.010		mg/kg	
		Aroclor 1268	2013/09/14	< 0.010		mg/kg	
		Total Aroclors	2013/09/14	< 0.010		mg/kg	
	RPD [HL1362-01]	Aroclor 1016	2013/09/14	NC		%	50
		Aroclor 1221	2013/09/14	NC		%	50
		Aroclor 1232	2013/09/14	NC		%	50
		Aroclor 1242	2013/09/14	NC		%	50
		Aroclor 1248	2013/09/14	NC		%	50
		Aroclor 1254	2013/09/14	NC		%	50
		Aroclor 1260	2013/09/14	NC		%	50
		Aroclor 1262	2013/09/14	NC		%	50
		Aroclor 1268	2013/09/14	NC		%	50
		Total Aroclors	2013/09/14	NC		%	50
7165567 HC7	Matrix Spike					, ,	
·	[HL1307-02]	Total Antimony (Sb)	2013/09/13		94	%	75 - 125
	-	Total Arsenic (As)	2013/09/13		97	%	75 - 125
		Total Barium (Ba)	2013/09/13		NC	%	75 - 125
		Total Beryllium (Be)	2013/09/13		99	%	75 - 125
		Total Cadmium (Cd)	2013/09/13		94	%	75 - 125
		Total Chromium (Cr)	2013/09/13		NC	%	75 - 125
		Total Cobalt (Co)	2013/09/13		95	%	75 - 125
		Total Copper (Cu)	2013/09/13		NC	%	75 - 125
		Total Lead (Pb)	2013/09/13		92	%	75 - 125
		Total Mercury (Hg)	2013/09/13		93	%	75 - 125
		Total Molybdenum (Mo)	2013/09/13		96	%	75 - 125
		Total Nickel (Ni)	2013/09/13		94	%	75 - 125
		Total Selenium (Se)	2013/09/13		97	%	75 - 125
		Total Silver (Ag)	2013/09/13		97	%	75 - 125
		Total Thallium (TI)	2013/09/13		92	%	75 - 125
		Total Tin (Sn)	2013/09/13		96	%	75 - 125
		Total Uranium (U)	2013/09/13		78	%	75 - 125
		Total Vanadium (V)	2013/09/13		NC	%	75 - 125
		Total Zinc (Zn)	2013/09/13		NC	%	75 - 125
	QC Standard	Total Arsenic (As)	2013/09/13		141	%	50 - 150
		Total Barium (Ba)	2013/09/13		129	%	69 - 131
		Total Chromium (Cr)	2013/09/13		129	%	41 - 159
		Total Cobalt (Co)	2013/09/13		111	%	75 - 125
		Total Copper (Cu)	2013/09/13		113	%	73 - 127
		Total Lead (Pb)	2013/09/13		123	%	54 - 146
		Total Nickel (Ni)	2013/09/13		135	%	61 - 139
		Total Vanadium (V)	2013/09/13		147	%	50 - 150
		Total Zinc (Zn)	2013/09/13		116	%	72 - 128
	Spiked Blank	Total Antimony (Sb)	2013/09/13		107	%	75 - 125
		Total Arsenic (As)	2013/09/13		105	%	75 - 125
		Total Barium (Ba)	2013/09/13		106	%	75 - 125
		Total Beryllium (Be)	2013/09/13		106	%	75 - 125
		Total Cadmium (Cd)	2013/09/13		103	%	75 - 125
		Total Chromium (Cr)	2013/09/13		106	%	75 - 125
		Total Cobalt (Co)	2013/09/13		106	%	75 - 125
		Total Copper (Cu)	2013/09/13		105	%	75 - 125
		Total Lead (Pb)	2013/09/13		107	%	75 - 125
		Total Mercury (Hg)	2013/09/13		105	%	75 - 125
		Total Molybdenum (Mo)	2013/09/13		105	%	75 - 125
		Total Nickel (Ni)	2013/09/13		105	%	75 - 125
		Total Nickel (Ni)	2013/09/13		105	%	



Attention: Alexandre Leclair

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## **Quality Assurance Report (Continued)**

QA/QC			Date				
Batch		_	Analyzed		_		
Num Init	QC Type	Parameter	yyyy/mm/dd	Value	Recovery	UNITS	QC Limits
7165567 HC7	Spiked Blank	Total Selenium (Se)	2013/09/13		107	%	75 - 125
		Total Silver (Ag)	2013/09/13		106	%	75 - 125
		Total Thallium (TI)	2013/09/13		106	%	75 - 125
		Total Tin (Sn)	2013/09/13		103	%	75 - 125
		Total Uranium (U)	2013/09/13		103	%	75 - 125
		Total Vanadium (V)	2013/09/13		108	%	75 - 125
		Total Zinc (Zn)	2013/09/13		106	%	75 - 125
	Method Blank	Total Antimony (Sb)	2013/09/13	<1.0		mg/kg	
		Total Arsenic (As)	2013/09/13	<1.0		mg/kg	
		Total Barium (Ba)	2013/09/13	<10		mg/kg	
		Total Beryllium (Be)	2013/09/13	< 0.40		mg/kg	
		Total Cadmium (Cd)	2013/09/13	<0.10		mg/kg	
		Total Chromium (Cr)	2013/09/13	<1.0		mg/kg	
		Total Cobalt (Co)	2013/09/13	<1.0		mg/kg	
		Total Copper (Cu)	2013/09/13	<5.0		mg/kg	
		Total Lead (Pb)	2013/09/13	<1.0		mg/kg	
		Total Mercury (Hg)	2013/09/13	< 0.050		mg/kg	
		Total Molybdenum (Mo)	2013/09/13	<0.40		mg/kg	
		Total Nickel (Ni)	2013/09/13	<1.0		mg/kg	
		Total Selenium (Se)	2013/09/13	< 0.50		mg/kg	
		Total Silver (Ag)	2013/09/13	<1.0		mg/kg	
		Total Thallium (TI)	2013/09/13	< 0.30		mg/kg	
		Total Tin (Sn)	2013/09/13	<1.0		mg/kg	
		Total Uranium (U)	2013/09/13	<1.0		mg/kg	
		Total Vanadium (V)	2013/09/13	<1.0		mg/kg	
		Total Zinc (Zn)	2013/09/13	<10		mg/kg	
	RPD [HL1307-02]	Total Antimony (Sb)	2013/09/14	NC		%	35
		Total Arsenic (As)	2013/09/14	NC		%	35
		Total Barium (Ba)	2013/09/14	2.5		%	35
		Total Beryllium (Be)	2013/09/14	NC		%	35
		Total Cadmium (Cd)	2013/09/14	NC		%	35
		Total Chromium (Cr)	2013/09/14	5.0		%	35
		Total Cobalt (Co)	2013/09/14	0.4		%	35
		Total Copper (Cu)	2013/09/14	5.3		%	35
		Total Lead (Pb)	2013/09/14	4.1		%	35
		Total Mercury (Hg)	2013/09/14	NC		%	35
		Total Molybdenum (Mo)	2013/09/14	NC		%	35
		Total Nickel (Ni)	2013/09/14	8.0		%	35
		Total Selenium (Se)	2013/09/14	NC		%	35
		Total Silver (Ag)	2013/09/14	NC		%	35
		Total Thallium (TI)	2013/09/14	NC		%	35
		Total Tin (Sn)	2013/09/14	NC		%	35
		Total Uranium (U)	2013/09/14	NC		%	35
		Total Vanadium (V)	2013/09/14	1.0		%	35
		Total Zinc (Zn)	2013/09/14	0.5		%	35
7166080 STI	Matrix Spike						
	[HL1399-02]	Soluble (Hot water) Boron (B)	2013/09/13		111	%	75 - 125
	Spiked Blank	Soluble (Hot water) Boron (B)	2013/09/13		109	%	75 - 125
	Method Blank	Soluble (Hot water) Boron (B)	2013/09/13	<0.10		mg/kg	
	RPD [HL1399-02]	Soluble (Hot water) Boron (B)	2013/09/14	NC		%	35
7166081 JA7	Method Blank	Moisture	2013/09/13	< 0.30		%	
	RPD	Moisture	2013/09/13	4.7		%	20
7166152 STI	Matrix Spike	Soluble (Hot water) Boron (B)	2013/09/13		96	%	75 - 125
	Spiked Blank	Soluble (Hot water) Boron (B)	2013/09/13		89	%	75 - 125
	Method Blank	Soluble (Hot water) Boron (B)	2013/09/13	< 0.10		mg/kg	



Attention: Alexandre Leclair

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#### Quality Assurance Report (Continued)

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QA/QC			Date				
Batch		_	Analyzed				
Num Init	QC Type	Parameter	yyyy/mm/dd	Value	Recovery	UNITS	QC Limits
7166152 STI	RPD	Soluble (Hot water) Boron (B)	2013/09/13	NC		%	35
7166263 STI	Matrix Spike	Soluble (Hot water) Boron (B)	2013/09/13		97	%	75 - 125
	Spiked Blank	Soluble (Hot water) Boron (B)	2013/09/13		88	%	75 - 125
	Method Blank	Soluble (Hot water) Boron (B)	2013/09/13	<0.10		mg/kg	
	RPD	Soluble (Hot water) Boron (B)	2013/09/13	NC		%	35
7166434 STI	Matrix Spike						
	[HL1404-02]	Soluble (Hot water) Boron (B)	2013/09/13		103	%	75 - 125
	Spiked Blank	Soluble (Hot water) Boron (B)	2013/09/13		100	%	75 - 125
	Method Blank	Soluble (Hot water) Boron (B)	2013/09/13	< 0.10		mg/kg	
	RPD [HL1404-02]	Soluble (Hot water) Boron (B)	2013/09/13	NC		%	35
7166445 STI	Matrix Spike	, , , ,					
	[HL1273-02]	Soluble (Hot water) Boron (B)	2013/09/13		98	%	75 - 125
	Spiked Blank	Soluble (Hot water) Boron (B)	2013/09/13		98	%	75 - 125
	Method Blank	Soluble (Hot water) Boron (B)	2013/09/13	< 0.10		mg/kg	
	RPD [HL1273-02]	Soluble (Hot water) Boron (B)	2013/09/13	NC		%	35
7168645 RW8	Matrix Spike	, , , , , , , , , , , , , , , , , , , ,					
	[HL1404-02]	Hex. Chromium (Cr 6+)	2013/09/13		NC	%	75 - 125
	Spiked Blank	Hex. Chromium (Cr 6+)	2013/09/13		92	%	75 - 125
	Method Blank	Hex. Chromium (Cr 6+)	2013/09/13	< 0.15	-	mg/kg	
	RPD [HL1404-02]	Hex. Chromium (Cr 6+)	2013/09/13	NC		%	35
7168710 RW8	Matrix Spike	Tion Cincinani (C. C.)	20.07007.0			,,	00
	[HL1363-02]	Hex. Chromium (Cr 6+)	2013/09/13		NC	%	75 - 125
	Spiked Blank	Hex. Chromium (Cr 6+)	2013/09/13		92	%	75 - 125
	Method Blank	Hex. Chromium (Cr 6+)	2013/09/13	<0.15	02	mg/kg	70 120
	RPD [HL1363-02]	Hex. Chromium (Cr 6+)	2013/09/13	NC		g/g %	35
7169107 DK9	Matrix Spike	riex. Ginemani (Gi Gi)	2010/00/10	110		70	00
7 TOO TOT BITO	[HL1238-02]	Hex. Chromium (Cr 6+)	2013/09/14		111	%	75 - 125
	Spiked Blank	Hex. Chromium (Cr 6+)	2013/09/14		92	%	75 - 125
	Method Blank	Hex. Chromium (Cr 6+)	2013/09/14	<0.15	02	mg/kg	70 120
	RPD [HL1238-02]	Hex. Chromium (Cr 6+)	2013/09/14	NC		//////////////////////////////////////	35
7169324 DK9	Matrix Spike	Hex. Chromium (Cr 6+)	2013/09/14	110	96	%	75 - 125
7 103324 DIG	Spiked Blank	Hex. Chromium (Cr 6+)	2013/09/14		96	%	75 - 125
	Method Blank	Hex. Chromium (Cr 6+)	2013/09/14	<0.15	90	mg/kg	75 - 125
	RPD	Hex. Chromium (Cr 6+)	2013/09/14	NC		%	35
7171156 DK9	Matrix Spike	Hex. Chromium (Cr 6+)	2013/09/14	INC	NC	% %	75 - 125
TITIOO DK9	Spiked Blank	Hex. Chromium (Cr 6+)	2013/09/16		94	% %	75 - 125 75 - 125
	Method Blank	Hex. Chromium (Cr 6+)	2013/09/16	<0.15	94		10 - 125
	RPD	Hex. Chromium (Cr 6+)		<0.15 NC		mg/kg %	35
	KFU	Hex. Chiomium (Cr 6+)	2013/09/16	NC		70	35

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 sample of known concentration prepared by an external agency under stringent conditions. Used as an independent check of method accuracy.

Spiked Blank: A blank matrix sample to which a known amount of the analyte, usually from a second source, has been added. Used to evaluate method accuracy.

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.



# Validation Signature Page

## Maxxam Job #: B380795

The analytical data and all QC contained in this report were reviewed	and validated by the following individual(s).
Junzhi Gras	
Janet Gao, Senior Analyst, Organics Department	
Mary	
Michael Sheppard, Organics Supervisor	
Meranicatelk	
Veronica Falk, Scientific Specialist	
Among .	
Jeanette Olivares, Senior Analyst	
Teny Way	
Peng Liang, Analyst II	



# **Validation Signature Page**

Maxxam Job #: B380795
The analytical data and all QC contained in this report were reviewed and validated by the following individual(s).
LSH
Luba Shymushovska, Senior Analyst, Organic 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.

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ontact Name:	Alexandre L		Contact N	ame:								-					340795	407774
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3/	VIFELS WOST DE N	EFT COOL ( + 10 C) FT NOW THAT OF SAME	INO ONTIE DELIVEI	1 10 10000101		Metals	AT1	SCIN	PCBs								(call	lab for #)
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		2013-C4-BMW-1-A	13/09/02	15:40	SOIL		Х	X	X							47	7	
			1-1/0-		3,515		1.10.20		1 19 5							ष		
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		2013-C4-BMW-1-B	1	13,12	SOIL		X	X	X									
			101	14.14	Toll											11		
		2013-C4-MW-1-A	13/09/02	13015	SOIL		X	X	X							,,		
		2013-C4-MW-1-B	11	11	SOIL		X	X	X							11		
		2013-C4-MW-2-A	13/09/02	10:00	SOIL		Х	X	X							11		
			17 7 5															
		2013-C4-MW-2-B	11	11	SOIL		X	X	X							1		
		2010-04-11111-2-15			OOIL		*	^	^									
			13/09/02	Labe					.,							11		
		2013-C4-MW-3-A	12/01/07	10:45	SOIL		X	X	X							,,	i i	
			11	11													0.50	12 10:30
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*REI	INQUISHED BY: (S			ime:				nature/Print	-		Date: (YY/MI	M/DD)	Tir		# Jars Used ar	d	Laboratory USE UI	
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, ,	0.01				TA 1/ 1/ 1/ 1/		10	Page	103 of	110	2101	1						Yes

	INV	DICE INFORMATION:		REPOR	T INFORMAT	TON (if	f differs fro	om invoice)	:				PROJECT	INFORMA	TION:			Laboratory Use	Only:
Company Name:	#4495 BI	OGENIE INC.	Company	Name:						Q	uotation #	t						MAXXAM JOB #:	BOTTLE ORDER #:
Contact Name:	Alexandre	Leclair	Contact N	lame:						P.	.0.#:	-					_ 2	80795	
ddress:	Section Control of	. Wilfrid-Hamel bureau 200	Address:	-	117		-				roject #:	9					)		407774
	The state of the state of	PQ G1P 2J7		-		-		-			roject Nar	ne:					0.000	CHAIN OF CUSTODY #:	PROJECT MANAGER:
Phone: Email:		3535 x6128 Fax: (450)961-0220 iogenie-env.com	Phone: Email:	-		-		Fax:			ite #: ampled By	_		_	_				James Ehizojie
REGULATORY		logerile-env.com		INSTRUCTIONS						ANALYSIS		_	sa ha snari	fic):				C#407774-02-01	DECLURED.
KEOOLATOKI	ONTENA.		OI LOIAL	INSTRUCTIONS						ANALISIS	REGOLO	ILD (I lea	Se be speci	lioj.			P	TURNAROUND TIME (TAT) I LEASE PROVIDE ADVANCE NOTICE FO	
ATI						~ Z	F1-F4 in Soil							1				andard) TAT:	
CCME						(Y/P	4 in											ed if Rush TAT is not specified):	$\boxtimes$
						C.	7-	Sig										T = 5-7 Working days for most tests.  Standard TAT for certain tests are > 5 d	
OTHER						Filtered	and F	etals									Manager for		
							EX a	d M	soil								Date Require		ssion)
SA	MPI ES MUST BE	KEPT COOL ( < 10°C ) FROM TIME OF SAMPLI	NG UNTIL DELIVER	Y TO MAXXAM		s Field	BTE	nlate //E//	2.						1			nation Number:	
			STATE OF STA	1250-1260		Metals	AT1	Regulated Metals (CCME/AT1) - Soils	PCBs							1	# of Bottles	(call la	b for #)
Sample B	arcode Label	Sample (Location) Identification	Date Sampled	Time Sampled	Matrix	_	4	IL C	Щ			-						Comment	S
1		2013-C4-MW-4B-A	13/09/62	9:45	SOIL		Х	X	Х								Z		
2		2013-C4-MW-4B-B	"	11	SOIL		Х	Х	Х					~			11		
3		2013-C4-MW-6A-A	13/09/01	11:00	SOIL		Х	Х	Х								11		
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5		2013-C4-MW-6B-B	"	11	SOIL		Х	Х	Х								W		
7		2013-C4-MW-7A-A	13/09/02	11:45	SOIL		Х	Х	Χ,								W	1	al .
В		2013-C4-MW-7A-B	11	1	SOIL		Х	Х	Х								W		
9		2013-C4-MW-7B-A	13/09/02	12:00	SOIL		Х	Х	Х								N		9
		2013-C4-MW-7B-B	12	n	SOIL		Х	×	X								1,1		100

\*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. \*\* ALL SAMPLES ARE HELD FOR 60 DAYS AFTER SAMPLE RECEIPT, FOR SPECIAL REQUESTS CONTACT YOUR PROJECT MANAGER

White: Maxxam Yellow: Client

Yes No

	,	9331 - 48th Street, Edmonton, Alberta	Canada T6B 2R4 Te	el:(780) 577-7100	Toll-free:800	-653-62	266 Fax:7	80-450-418	7 www.maxxa	am.ca								Page 3 of 7
	INV	OICE INFORMATION:		REPOR	TINFORMAT	ION (if	f differs fro	om invoice	):			PROJECT	INFORMAT	ION:			Laboratory Use	
Company Name:	#4495 BI	OGENIE INC.	Company	Name:						(	Quotation #:						MAXXAM JOB #:	BOTTLE ORDER #:
Contact Name:	Alexandre	Leclair	Contact Na	ame:						- 1	P.O. #:					- 2	550795	
Address:	4495, boul	I. Wilfrid-Hamel bureau 200	Address:	-	141						Project #:				-	-		407774
	QUEBEC	PQ G1P 2J7									Project Name:						CHAIN OF CUSTODY #:	PROJECT MANAGER:
Phone:	(450)961-3	3535 x6128 Fax: (450)961-0220	Phone:					Fax:			Site #:							James Ehizojie
Email:	aleclair@b	piogenie-env.com	Email:								Sampled By:						C#407774-03-01	
REGULATORY	CRITERIA:		SPECIAL	INSTRUCTIONS				-		ANALYSIS	REQUESTED (Plea	ase be spec	ific):				TURNAROUND TIME (TAT) F	
							Ξ										PLEASE PROVIDE ADVANCE NOTICE FO	OR RUSH PROJECTS
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CCME						(	4- i	N20									FAT = 5-7 Working days for most tests.	X
						¿ pa	7-	s								Please not	e: Standard TAT for certain tests are > 5 d	ays - contact your Project
OTHER						tere	DG F	etal			- 1   1 h					Manager fo	or details fic Rush TAT (if applies to entire submis	ecion)
	4					d Fi		ZF	soil								red:	salony
	r out a territory	Marie and the Control of the Control	es tablele la taxes es	A Committee of		Fiel	втех	atec E/A	.⊆									
SA	MPLES MUST BE	KEPT COOL ( < 10°C ) FROM TIME OF SAMPLI	ING UNTIL DELIVER	Y TO MAXXAM		Metals	, - m	Regulated Metals (CCME/AT1) - Soils	PCBs								rmation Number: (call la	b for #)
Sample Ba	arcode Label	Sample (Location) Identification	Date Sampled	Time Sampled	Matrix	Me	AT1	80	P							# of Bottles	Comment	S
		2013-C4-MW-5-A	13/09/03	13:11	SOIL		X	X	X							Z		
Y		2010 04 11117 071	1.2	10-11	COLL		75.											
2		2013-C4-MW-5-B	11	11	SOIL		X	X	X				-			11		
2		2013-04-1000-3-13	, ,		JOIL											1,		
3		2013-C4-MW-8-A	13/09/02	17:50	SOIL		X	X	X							1		
3		2010 01 1111 071	1105	11.20	0012			100								"		
4		2013-C4-MW-8-B	11	11	SOIL		Х	Х	x							11		8
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5		2013-C4-MW-9-A	13/09/03	12:45	SOIL		X	Х	X							1		
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6		2013-C4-MW-9-B	11	11	SOIL		X	X	X							11		
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7		2013-C4-MW-14A-A	13/69/03	14:40	SOIL		X	X	X							11		4
		1 - 1 - 1 - 1 - 1 - 1 - 1 - 1 - 1 - 1 -	1 1-3	*1110								-						
8		2013-C4-MW-14A-B	11	11	SOIL		X	X	X							11		
						-						-				71		
9		2013-C4-MW-14B-A	13:09/03	14:50	SOIL		X	Х	X							11		*
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10		2013-C4-MW-14B-B	II	11	SOIL		X	X	X							11		
4	I MOLIIOLEE E.	(Signature/Print) Date: (YY)	MAMIDD) -	l l	pro	ENTER	DV: (6:	anture iDei-s	1		Date: (YY/MM/DD)	1	Time:	# lare !	Jsed and		Laboratory Use Only	1 -
Ma - A	LINQUISHED BY:	( and )	1	ime:			7	nature/Print	-		,		11 2 100	100000	bmitted	Time Sen		Custody Seal Intact on
mi	191	Brandon Muckey 13/09,	105 10:	42 702	it Kince	191	in	Page	105 of 1	110	013/09/0	7 10	117	1401.30	minueu	Time Sen		Cooler?
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* IT IS THE DESDO	MSIBILITY OF TH	F RELINQUISHER TO ENSURE THE ACCURAC	CY OF THE CHAIN O	E CUSTODY REC	ORD AN INC	OMPI	ETE CHA	_		/	ANALYTICAL TAT I	DELAYS.						1 163

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Maxxam Analytics International Corporation o/a Maxxam Analytics

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Company Name:	The state of the s	DICE INFORMATION:  DGENIE INC.	Compony	10-	RT INFORMAT	ION (IT d	imers from in	ivoice):			Oustation #		PROJECT	INFORMA"	IION:			MAXXAM JOB #:	BOTTLE ORDER #:
Company Name: Contact Name: Address:	Alexandre		Company Contact N Address:								Quotation #: P.O. #: Project #:	-					- 3	80795	
Address.	The state of the state of	PQ G1P 2J7	Audicos.		10	-					Project Name	۵.						CHAIN OF CUSTODY #:	407774 PROJECT MANAGER:
Phone:	(450)961-3		20 Phone:	-			Fa	· ·			Site #:	_			-		1111111111	III III IIII IIII IIII IIII	
Email:	2 Page 1 1 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2	iogenie-env.com	Email:				10	Α,			Sampled By:	_					- 0.010000	C#407774-04-01	James Ehizojie
REGULATORY			SPECIAL	INSTRUCTIONS						ANALYS	S REQUEST	ED (Pleas	e be speci	fic):				TURNAROUND TIME (TAT)	REQUIRED:
							=										PLE#	ASE PROVIDE ADVANCE NOTICE F	Control of the Contro
CCME OTHER						1/X)2pa	and F1-F4 in Soil	71) - Soils									Standard TAT = Please note: St Manager for de	if Rush TAT is not specified): = 5-7 Working days for most tests. andard TAT for certain tests are > 5 o	
SA	MPLES MUST BE I	KEPT COOL ( < 10°C ) FROM TIME OF SAMPI	LING UNTIL DELIVER	Y TO MAXXAM		Field	BTEX	(CCME/AT1	3s in soil								Date Required: Rush Confirmati	on Number:	
Sample Ba	arcode Label	Sample (Location) Identification	Date Sampled	Time Sampled	Matrix	Metals	AT1	(00)	PCBs								# of Bottles	Comment	ab for #)
1		2013-C4-MW-15-A	13/09/03	16:08	SOIL			Х	X								2		
2		2013-C4-MW-15-B	71	"	SOIL		x	Х	Х					-			"		
3		2013-C4-MW-16-A	13/09/03	16:30	SOIL		Х	Х	Х								11		
4		2013-C4-MW-16-B	"	<i>W</i>	SOIL		X	х	×								11		8
5		2013-C4-MW-10-A	13/09/03	17:18	SOIL		X	х	х								Ч		
6		2013-C4-MW-10-B	1	1,	SOIL		Х	Х	Х								"	år.	:
7		2013-C4-MW-11-A	13/09/03	13:36	SOIL		Х	х	X								"	4	Y.
8		2013-C4-MW-11-B	11	11	SOIL		х	Х	X								11		
9		2013-C4-MW-12-A	13/09/03	16:58	SOIL		Х	Х	Х								11		
10		2013-C4-MW-12-B	"	11	SOIL		Χ ,	Х	Х								"	- In 16	<b>p</b> 1
*REI	INQUISHED BY: (		(/MM/DD) T	ime:	REC	EIVED B	Y: (Signature	e/Print)		,	Date: (YY/MI	M/DD)		Time:	# Jars U	sed and		Laboratory Use Only	
Mm?	75/1	3 mulay Mackey 13/09/	165 . 10	1245 305	It KING	530	Page	e 106	of 110	5	-013/	09/69	10	55	Not Sul	omitted	Time Sensitive	Temperature (°C) on Receipt	Custody Seal Intact on Cooler?

\* 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.

\*\* ALL SAMPLES ARE HELD FOR 60 DAYS AFTER SAMPLE RECEIPT, FOR SPECIAL REQUESTS CONTACT YOUR PROJECT MANAGER

White: Maxxam Yellow: Client

#### CHAIN OF CUSTODY RECORD

* *	INV	OICE INFORMATION:		REPOR	T INFORMAT	ION (if	differs from	n invoice)	:			PROJEC	T INFORMA	TION:			Laboratory Use	Only:
Company Name:	#4495 BI	IOGENIE INC.	Company	Name:						C	tuotation #:						MAXXAM JOB #:	BOTTLE ORDER #:
Contact Name:	Alexandre 4495, bou	Leclair I. Wilfrid-Hamel bureau 200	Contact N Address:	ame:							.O. #:					38	0795	407774
	100 mm ( page 100 mm)	PQ G1P 2J7									roject Name:					(	CHAIN OF CUSTODY #:	PROJECT MANAGER:
Phone:	(450)961-	3535 x6128 Fax: (450)961-022	O Phone:					Fax:		S	ite #:							James Ehizojie
Email:	aleclair@b	biogenie-env.com	Email:							s	ampled By:						C#407774-05-01	
REGULATORY	CRITERIA:		SPECIAL	INSTRUCTIONS						ANALYSIS	REQUESTED (P	lease be spe	cific):				TURNAROUND TIME (TAT)	REQUIRED:
							Soil								1	PLEAS	SE PROVIDE ADVANCE NOTICE FO	OR RUSH PROJECTS
CCME OTHER						Filtered ? ( Y / N )	and F1-F4 in S	Regulated Metals (CCME/AT1) - Soils							() S F	Standard TAT = : Please note: Star Manager for deta	Rush TAT is not specified): 5-7 Working days for most tests. ndard TAT for certain tests are > 5 d.	
SA	MPI ES MUST BE	KEPT COOL ( < 10°C ) FROM TIME OF SAMPL	ING LINTIL DELIVER	Y TO MAYYAM	12 F (1)	S Field F	BTEX	lated N	lios ui s						9	ate Required:	n Number	
						Metals	AT1 E	SCN	PCBs in						0		(call la	b for #)
Sample Ba	arcode Label	Sample (Location) Identification	Date Sampled	Time Sampled	Matrix	2	<	20	Δ.	+		+			-	# of Bottles	Comment	5
		2013-C4-MW-13-A	13/09/03	16:33	SOIL		Х	Χ	Х							2		<u> </u>
2		2013-C4-MW-13-B	11	11	SOIL		X	X	Х							"		
3		2013-C4-MW-21-A	13/09/64	19241	SOIL		Х	Х	х							"		
4		2013-C4-MW-21-B	W	//	SOIL		Х	X	Х							ll .	*	
5		2013-C4-MW-22-A	13/09/04	19:27	SOIL		Х	Х	Х						,	"		
3		2013-C4-MW-22-B	11	11	SOIL		X	X	Х						,	1		
7		2013-C4-MW-23-A	13/09/04	18:50	SOIL		X	X	X						,	1	- 4 <u>j</u>	ч
3		2013-C4-MW-23-B	//	N	SOIL		X	X	Х						1	1		
9		2013-C4-MW-17-A	13/09/04	18:02	SOIL		Х	X	Х						,	1		i j
0		2013-C4-MW-17-B	"	11	SOIL		Х	x,	Х						,	17		3 4 4
*REL	INQUISHED BY:	(Signature/Print) Date: (YY	/MM/DD) Ti	ime:	REC	EIVED I	BY: (Signa	ture/Print)		D	ate: (YY/MM/DD)		Time:	# Jars Us	ed and		Laboratory Use Only	
Thomas	7/ 1 2	andry Macky 13/09/			+KINU		m	_	1	20	13/09/09		55	Not Subr	SC18/4-77	Time Sensitive	Temperature (°C) on Receipt	Custody Seal Intact on Cooler?
	,						10	/Page	107 of	7510	7				- 11		7 6 4	Yes N

\* 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.

" ALL SAMPLES ARE HELD FOR 60 DAYS AFTER SAMPLE RECEIPT, FOR SPECIAL REQUESTS CONTACT YOUR PROJECT MANAGER

hite: 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.

10245

13/09/65

\*\* ALL SAMPLES ARE HELD FOR 60 DAYS AFTER SAMPLE RECEIPT, FOR SPECIAL REQUESTS CONTACT YOUR PROJECT MANAGER

Custody Seal Intact on

Cooler?

Not Submitted

Time Sensitive

Temperature (°C) on Receipt

Page 108 of 110

200		19	
M	a	XXa	m

REGULATORY CRITERIA:

Sample Barcode Label

Company Name:

Contact Name:

Address:

Phone:

Email:

☐ ATI CCME

OTHER

INVOICE INFORMATION:

4495, boul. Wilfrid-Hamel bureau 200

#4495 BIOGENIE INC.

QUEBEC PQ G1P 2J7

(450)961-3535 x6128

aleclair@biogenie-env.com

Alexandre Leclair

Maxxam Analytics International Corporation o/a Maxxam Analytics

Fax: (450)961-0220

SAMPLES MUST BE KEPT COOL (<10°C) FROM TIME OF SAMPLING UNTIL DELIVERY TO MAXXAM

Sample (Location) Identification

2013-C4-3-A

2013-C4-3-B

2013-C4-BMW-3-A

2013-C4-BMW-3-B

2013-C4-BMW-4-A

2013-C4-BMW-4-B

2013 - C4 - MW -2-A-D 13/09/02 -2013 - C4 - MW -16-A-D 13/09/03

9331 - 48th Street, Edmonton, Alberta Canada T6B 2R4. Tel:(780) 577-7100. Toll-free:800-653-6266. Fax:780-450-4187. www.maxxam.ca

Company Name:

Contact Name:

Address:

Phone:

Email:

13/09/64

13/09/03

13/09/04

11

11

SPECIAL INSTRUCTIONS

Time Sampled 16,29

11

15:46

11

SOIL

SOIL

SOIL

SOIL

SOIL

REPORT INFORMATION (if differs from invoice):

Fax:

Regulated Metals (CCME/AT1) - Soils

X

X

X

X

X

X

X

PCBs in soil

X

X

X

X

X

X

X

BTEX and F1-F4 in Soil

X

X

X

X

X

X

X

ta .	PROJECT INFORMATION:		Laboratory Use Only:							
Quotation #:	THOSE OF THE OWNER FOR		MAXXA	BOTTLE ORDER #:						
P.O. #:										
Project #:			3907	48	407774					
Project Name:			CHAIN OF	CUSTODY #:	PROJECT MANAGER:					
Site #:					James Ehizojie					
Sampled By:			C#40777		ouries Emzoje					
ALYSIS REQUESTED	(Please be specific):		TURNA	ROUND TIME (TAT)	REQUIRED:					
			Committee of the Commit	DE ADVANCE NOTICE F	NAME OF TAXABLE PARTY.					
		(wi Sta Ple	gular (Standard) TAT: I be applied if Rush TAT ndard TAT = 5-7 Workin, ase note: Standard TAT nager for details	g days for most tests.	days - contact your Project					
		Jol Date	Specific Rush TAT (if e Required:	applies to entire subm	ission)					
			h Confirmation Number:		ab for #)					
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	*RELINQUISHED BY: (	A	Date: (YY/M		ime:		RECEIVE	D BY: (Signa	ture/Print)		Date: (YY	/MM/DD)	Time:	# Jars Used and		Laboratory Use Only	4
		2013- C4 - MW_	13-4-0	13/69/63	16:	33	SOIL	Х	X	X					Ni .		,
		2013- 64- 14-2	0-B-D	13/09/64	19:	53	SOIL	X	Х	X					11		- 3
1																	

Page 109 of 110

\* 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.

\*\* ALL SAMPLES ARE HELD FOR 60 DAYS AFTER SAMPLE RECEIPT, FOR SPECIAL REQUESTS CONTACT YOUR PROJECT MANAGER

White: Maxxam Yellow, Clier

Yes No

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**Attention: Alexandre Leclair** 

BIOGENIE INC. 4495, boul. Wilfrid-Hamel bureau 200 QUEBEC, PQ CANADA G1P 2J7

Your C.O.C. #: 40781101, 407811-01-01, 407811-02-01, 407811-03-01

Report Date: 2013/09/13

#### **CERTIFICATE OF ANALYSIS**

MAXXAM JOB #: B380512 Received: 2013/09/06, 09:00

Sample Matrix: Soil # Samples Received: 1

		Date	Date		
Analyses	Quantity	Extracted	Analyzed	Laboratory Method	Analytical Method
BTEX/F1 by HS GC/MS (MeOH extract) (1)	1	2013/09/12	2013/09/13	AB SOP-00039	CCME, EPA 8260C
CCME Hydrocarbons (F2-F4 in soil) (1)	1	2013/09/13	2013/09/13	AB SOP-00040	CCME PHC-CWS
				AB SOP-00036	

Sample Matrix: Water # Samples Received: 15

		Date	Date	
Analyses	Quantity	Extracted	Analyzed Laboratory Method	Analytical Method
BTEX/F1 in Water by HS GC/MS (1)	5	N/A	2013/09/10 AB SOP-00039	CCME, EPA 8260C
BTEX/F1 in Water by HS GC/MS (1)	10	N/A	2013/09/11 AB SOP-00039	CCME, EPA 8260C
Cadmium - low level CCME - Dissolved (1)	15	N/A	2013/09/12 AB SOP-00043	EPA 200.8
CCME Hydrocarbons (F2-F4 in water) (1)	6	2013/09/12	2013/09/12 AB SOP-00040	EPA3510C/CCME PHCCWS
			AB SOP-00037	
CCME Hydrocarbons (F2-F4 in water) (1)	9	2013/09/12	2013/09/13 AB SOP-00040	EPA3510C/CCME PHCCWS
			AB SOP-00037	
Mercury - Low Level (Dissolved) Filtered (1)	13	2013/09/10	2013/09/10 CAL SOP-00007	EPA 1631
Mercury - Low Level (Dissolved) Filtered (1)	2	2013/09/11	2013/09/11 CAL SOP-00007	EPA 1631
Elements by ICP (Dissolved) Lab Filtered (1)	15	N/A	2013/09/13 AB SOP-00042	EPA 200.7
Elements by ICPMS - Dissolved - Filtered (1)	15	N/A	2013/09/12 AB SOP-00043	EPA 200.8
Polychlorinated Biphenyls (1)	10	2013/09/08	2013/09/11 CAL SOP-00149	EPA 3510C, EPA 8082A
Polychlorinated Biphenyls (1)	5	2013/09/11	2013/09/11 CAL SOP-00149	EPA 3510C, EPA 8082A

<sup>\*</sup> RPDs calculated using raw data. The rounding of final results may result in the apparent difference.

(1) This test was performed by Maxxam Calgary Environmental



**Attention: Alexandre Leclair** 

BIOGENIE INC. 4495, boul. Wilfrid-Hamel bureau 200 QUEBEC, PQ CANADA G1P 2J7

Your C.O.C. #: 40781101, 407811-01-01, 407811-02-01, 407811-03-01

Report Date: 2013/09/13

#### **CERTIFICATE OF ANALYSIS**

-2-

#### **Encryption Key**

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

Kayla Brassard, Project Manager Email: KBrassard@maxxam.ca Phone# (403) 735-2258

\_\_\_\_\_\_

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.



## PETROLEUM HYDROCARBONS (CCME)

	UNITS	2013-C4-MW-3	RDI	QC Batch
COC Number	, and the second	407811-01-01		
		10:45		
Sampling Date		2013/09/02		
Maxxam ID		HK9344		

Ext. Pet. Hydrocarbon				
F2 (C10-C16 Hydrocarbons)	mg/kg	790000 (1)	250	7165954
F3 (C16-C34 Hydrocarbons)	mg/kg	56000 (1)	1300	7165954
F4 (C34-C50 Hydrocarbons)	mg/kg	<1300 (1)	1300	7165954
Reached Baseline at C50	mg/kg	Yes		7165954

RDL = Reportable Detection Limit
( 1 ) Due to sample matris, sample required dilution ,detection limit was adjusted accordingly



# **VOLATILE ORGANICS BY GC-MS (SOIL)**

	UNITS	2013-C4-MW-3	RDL	QC Batch
COC Number		407811-01-01		
		10:45		
Sampling Date		2013/09/02		
Maxxam ID		HK9344		

Volatiles				
Benzene	mg/kg	25	2.5	7163707
Toluene	mg/kg	400	10	7163707
Ethylbenzene	mg/kg	470	5.0	7163707
Xylenes (Total)	mg/kg	3200	20	7163707
m & p-Xylene	mg/kg	2100	20	7163707
o-Xylene	mg/kg	1100	10	7163707
F1 (C6-C10) - BTEX	mg/kg	260000	6000	7163707
(C6-C10)	mg/kg	270000	6000	7163707
Surrogate Recovery (%)				
1,4-Difluorobenzene (sur.)	%	72		7163707
4-BROMOFLUOROBENZENE (sur.)	%	134		7163707
D4-1,2-DICHLOROETHANE (sur.)	%	67		7163707



Report Date: 2013/09/13

#### **RESULTS OF CHEMICAL ANALYSES OF WATER**

Maxxam ID		HK9343	HK9345	HK9382	HK9383		
Sampling Date		2013/09/02	2013/09/02	2013/09/02	2013/09/03		
		15:41		17:45	12:45		
COC Number		407811-01-01	407811-01-01	407811-02-01	407811-02-01		
	UNITS	2013-C4-BMW-1	2013-C4-MW-6B	2013-C4-MW-8	2013-C4-MW-9	RDL	QC Batch
Low Level Elements							
Dissolved Cadmium (Cd)	ug/L	0.099	1.1	0.091	0.033	0.0050	7152713
RDL = Reportable Detection	on Limit						

Maxxam ID		HK9384	HK9385	HK9386	HK9387						
Sampling Date		2013/09/03	2013/09/03	2013/09/02	2013/09/03						
		14:40	14:50	16:30	13:36						
COC Number		407811-02-01	407811-02-01	407811-02-01	407811-02-01						
	UNITS	2013-C4-MW-14A	2013-C4-MW-14B	2013-C4-MW-16	2013-C4-MW-11	RDL	QC Batch				
Low Level Elements											
Dissolved Cadmium (Cd)	ug/L	0.72	0.22	0.078	0.069	0.0050	7152713				
RDL = Reportable Detection Limit											

2013/09/03	2013/09/04	2013/09/04	2013/09/04		
40.50			2010/00/01	1	
16:58	18:50	18:02	18:15		
407811-02-01	407811-03-01	407811-03-01	407811-03-01		
S 2013-C4-MW-12	2013-C4-MW-23	2013-C4-MW-17	2013-C4-MW-18	RDL	QC Batch
	407811-02-01	407811-02-01 407811-03-01	407811-02-01 407811-03-01 407811-03-01	407811-02-01 407811-03-01 407811-03-01 407811-03-01	407811-02-01 407811-03-01 407811-03-01 407811-03-01

Maxxam ID		HK9392	HK9393	HK9394		I
Sampling Date		2013/09/04	2013/09/03	2013/09/04		
		17:33	15:45	14:38		
COC Number		407811-03-01	407811-03-01	407811-03-01		
	UNITS	2013-C4-MW-19	2013-C4-BMW-3	2013-C4-BMW-4	RDL	QC Batch
	UNITS	2013-C4-MW-19	2013-C4-BMW-3	2013-C4-BMW-4	RDL	QC Batch
Low Level Elements	UNITS	2013-C4-MW-19	2013-C4-BMW-3	2013-C4-BMW-4	RDL	QC Batch

RDL = Reportable Detection Limit

PETROLEUM HYDROCARBONS (CCME)

	LIMITO	2012 C4 DMW 4	וחם	2012 C4 MW 6D	2012 C4 MM 9	2012 C4 MW 0	וחם	OC Batab
COC Number		407811-01-01		407811-01-01	407811-02-01	407811-02-01		
		15:41			17:45	12:45		
Sampling Date		2013/09/02		2013/09/02	2013/09/02	2013/09/03		
Maxxam ID		HK9343		HK9345	HK9382	HK9383		

Ext. Pet. Hydrocarbon								
F2 (C10-C16 Hydrocarbons)	mg/L	810 (1)	0.20	11	36	<0.10	0.10	7152795
F3 (C16-C34 Hydrocarbons)	mg/L	69 (1)	0.40	<0.20	9.8	<0.20	0.20	7152795
F4 (C34-C50 Hydrocarbons)	mg/L	7.0 (1)	0.40	<0.20	1.6	<0.20	0.20	7152795
Reached Baseline at C50	mg/L	Yes		Yes	Yes	Yes		7152795
Surrogate Recovery (%)								
O-TERPHENYL (sur.)	%	113		93	110	95		7152795

RDL = Reportable Detection Limit
(1) Detection limits raised due to dilution to bring analyte within the calibrated range.

Maxxam ID		HK9384	HK9385	HK9386	HK9387		
Sampling Date		2013/09/03	2013/09/03	2013/09/02	2013/09/03		
		14:40	14:50	16:30	13:36		
COC Number		407811-02-01	407811-02-01	407811-02-01	407811-02-01		
	UNITS	2013-C4-MW-14A	2013-C4-MW-14B	2013-C4-MW-16	2013-C4-MW-11	RDL	QC Batch

Ext. Pet. Hydrocarbon							
F2 (C10-C16 Hydrocarbons)	mg/L	<0.10	<0.10	36	<0.10	0.10	7152795
F3 (C16-C34 Hydrocarbons)	mg/L	<0.20	<0.20	<0.20	<0.20	0.20	7152795
F4 (C34-C50 Hydrocarbons)	mg/L	<0.20	<0.20	<0.20	<0.20	0.20	7152795
Reached Baseline at C50	mg/L	Yes	Yes	Yes	Yes		7152795
Surrogate Recovery (%)							
O-TERPHENYL (sur.)	%	101	107	118	106		7152795



PETROLEUM HYDROCARBONS (CCME)

	UNITS	2013-C4-MW-12	2013-C4-MW-23	2013-C4-MW-17	2013-C4-MW-18	RDL	QC Batch
COC Number		407811-02-01	407811-03-01	407811-03-01	407811-03-01		
		16:58	18:50	18:02	18:15		
Sampling Date		2013/09/03	2013/09/04	2013/09/04	2013/09/04		
Maxxam ID		HK9388	HK9389	HK9390	HK9391		

Ext. Pet. Hydrocarbon							
F2 (C10-C16 Hydrocarbons)	mg/L	<0.10	<0.10	<0.10	<0.10	0.10	7152795
F3 (C16-C34 Hydrocarbons)	mg/L	<0.20	<0.20	<0.20	<0.20	0.20	7152795
F4 (C34-C50 Hydrocarbons)	mg/L	<0.20	<0.20	<0.20	<0.20	0.20	7152795
Reached Baseline at C50	mg/L	Yes	Yes	Yes	Yes		7152795
Surrogate Recovery (%)							
O-TERPHENYL (sur.)	%	106	105	103	96		7152795

RDL = Reportable Detection Limit

	UNITS	2013-C4-MW-19	2013-C4-BMW-3	2013-C4-BMW-4	RDL	QC Batch
COC Number		407811-03-01	407811-03-01	407811-03-01		
		17:33	15:45	14:38		
Sampling Date		2013/09/04	2013/09/03	2013/09/04		
Maxxam ID		HK9392	HK9393	HK9394		

Ext. Pet. Hydrocarbon						
F2 (C10-C16 Hydrocarbons)	mg/L	<0.10	<0.10	<0.10	0.10	7152795
F3 (C16-C34 Hydrocarbons)	mg/L	<0.20	<0.20	<0.20	0.20	7152795
F4 (C34-C50 Hydrocarbons)	mg/L	<0.20	<0.20	<0.20	0.20	7152795
Reached Baseline at C50	mg/L	Yes	Yes	Yes		7152795
Surrogate Recovery (%)						
O-TERPHENYL (sur.)	%	106	101	99		7152795



POLYCHLORINATED BIPHENYLS BY GC-ECD (WATER)

Maxxam ID		HK9343	HK9345	HK9382	HK9383		
Sampling Date		2013/09/02	2013/09/02	2013/09/02	2013/09/03		
		15:41		17:45	12:45		
COC Number		407811-01-01	407811-01-01	407811-02-01	407811-02-01		
	UNITS	2013-C4-BMW-1	2013-C4-MW-6B	2013-C4-MW-8	2013-C4-MW-9	RDL	QC Batch

Polychlorinated Biphenyls							
Aroclor 1016	mg/L	<0.000050	<0.000050	<0.000050	<0.000050	0.000050	7154204
Aroclor 1221	mg/L	<0.000050	<0.000050	<0.000050	<0.000050	0.000050	7154204
Aroclor 1232	mg/L	<0.000050	<0.000050	<0.000050	<0.000050	0.000050	7154204
Aroclor 1242	mg/L	<0.000050	<0.000050	<0.000050	<0.000050	0.000050	7154204
Aroclor 1248	mg/L	<0.000050	<0.000050	<0.000050	<0.000050	0.000050	7154204
Aroclor 1254	mg/L	<0.000050	<0.000050	<0.000050	<0.000050	0.000050	7154204
Aroclor 1260	mg/L	<0.000050	<0.000050	<0.000050	<0.000050	0.000050	7154204
Aroclor 1262	mg/L	<0.000050	<0.000050	<0.000050	<0.000050	0.000050	7154204
Aroclor 1268	mg/L	<0.000050	<0.000050	<0.000050	<0.000050	0.000050	7154204
Total Aroclors	mg/L	<0.000050	<0.000050	<0.000050	<0.000050	0.000050	7154204
Surrogate Recovery (%)							
NONACHLOROBIPHENYL (sur.)	%	74	74	76	86		7154204



Report Date: 2013/09/13

# POLYCHLORINATED BIPHENYLS BY GC-ECD (WATER)

	UNITS	2013-C4-MW-14A	2013-C4-MW-14B	2013-C4-MW-16	2013-C4-MW-11	RDL	QC Batch
COC Number		407811-02-01	407811-02-01	407811-02-01	407811-02-01		
		14:40	14:50	16:30	13:36		
Sampling Date		2013/09/03	2013/09/03	2013/09/02	2013/09/03		
Maxxam ID		HK9384	HK9385	HK9386	HK9387		

Polychlorinated Biphenyls							
Aroclor 1016	mg/L	<0.000050	<0.000050	<0.000050	<0.000050	0.000050	7154204
Aroclor 1221	mg/L	<0.000050	<0.000050	<0.000050	<0.000050	0.000050	7154204
Aroclor 1232	mg/L	<0.000050	<0.000050	<0.000050	<0.000050	0.000050	7154204
Aroclor 1242	mg/L	<0.000050	<0.000050	<0.000050	<0.000050	0.000050	7154204
Aroclor 1248	mg/L	<0.000050	<0.000050	<0.000050	<0.000050	0.000050	7154204
Aroclor 1254	mg/L	<0.000050	<0.000050	<0.000050	<0.000050	0.000050	7154204
Aroclor 1260	mg/L	<0.000050	<0.000050	<0.000050	<0.000050	0.000050	7154204
Aroclor 1262	mg/L	<0.000050	<0.000050	<0.000050	<0.000050	0.000050	7154204
Aroclor 1268	mg/L	<0.000050	<0.000050	<0.000050	<0.000050	0.000050	7154204
Total Aroclors	mg/L	<0.000050	<0.000050	<0.000050	<0.000050	0.000050	7154204
Surrogate Recovery (%)							
NONACHLOROBIPHENYL (sur.)	%	91	84	87	92		7154204



Report Date: 2013/09/13

# POLYCHLORINATED BIPHENYLS BY GC-ECD (WATER)

		l	Lab-Dup				
	UNITS	2013-C4-MW-12	2013-C4-MW-12	QC Batch	2013-C4-MW-23	RDL	QC Batch
COC Number		407811-02-01	407811-02-01		407811-03-01		
		16:58	16:58		18:50		
Sampling Date		2013/09/03	2013/09/03		2013/09/04		
Maxxam ID		HK9388	HK9388		HK9389		

Polychlorinated Biphenyls							
Aroclor 1016	mg/L	<0.000050	<0.000050	7154204	<0.000050	0.000050	7152826
Aroclor 1221	mg/L	<0.000050	<0.000050	7154204	<0.000050	0.000050	7152826
Aroclor 1232	mg/L	<0.000050	<0.000050	7154204	<0.000050	0.000050	7152826
Aroclor 1242	mg/L	<0.000050	<0.000050	7154204	<0.000050	0.000050	7152826
Aroclor 1248	mg/L	<0.000050	<0.000050	7154204	<0.000050	0.000050	7152826
Aroclor 1254	mg/L	<0.000050	<0.000050	7154204	<0.000050	0.000050	7152826
Aroclor 1260	mg/L	<0.000050	<0.000050	7154204	<0.000050	0.000050	7152826
Aroclor 1262	mg/L	<0.000050	<0.000050	7154204	<0.000050	0.000050	7152826
Aroclor 1268	mg/L	<0.000050	<0.000050	7154204	<0.000050	0.000050	7152826
Total Aroclors	mg/L	<0.000050	<0.000050	7154204	<0.000050	0.000050	7152826
Surrogate Recovery (%)							
NONACHLOROBIPHENYL (sur.)	%	87	91	7154204	95		7152826



# POLYCHLORINATED BIPHENYLS BY GC-ECD (WATER)

	UNITS	2013-C4-MW-17	2013-C4-MW-18	2013-C4-MW-19	RDL	QC Batch
COC Number		407811-03-01	407811-03-01	407811-03-01		
		18:02	18:15	17:33		
Sampling Date		2013/09/04	2013/09/04	2013/09/04		
Maxxam ID		HK9390	HK9391	HK9392		

Polychlorinated Biphenyls						
Aroclor 1016	mg/L	<0.000050	<0.000050	<0.000050	0.000050	7152826
Aroclor 1221	mg/L	<0.000050	<0.000050	<0.000050	0.000050	7152826
Aroclor 1232	mg/L	<0.000050	<0.000050	<0.000050	0.000050	7152826
Aroclor 1242	mg/L	<0.000050	<0.000050	<0.000050	0.000050	7152826
Aroclor 1248	mg/L	<0.000050	<0.000050	<0.000050	0.000050	7152826
Aroclor 1254	mg/L	<0.000050	<0.000050	<0.000050	0.000050	7152826
Aroclor 1260	mg/L	<0.000050	<0.000050	<0.000050	0.000050	7152826
Aroclor 1262	mg/L	<0.000050	<0.000050	<0.000050	0.000050	7152826
Aroclor 1268	mg/L	<0.000050	<0.000050	<0.000050	0.000050	7152826
Total Aroclors	mg/L	<0.000050	<0.000050	<0.000050	0.000050	7152826
Surrogate Recovery (%)						
NONACHLOROBIPHENYL (sur.)	%	99	95	92		7152826



# POLYCHLORINATED BIPHENYLS BY GC-ECD (WATER)

Sampling Date		2013/09/03 15:45		2013/09/04 14:38		
COC Number		407811-03-01		407811-03-01		
	UNITS	2013-C4-BMW-3	QC Batch	2013-C4-BMW-4	RDL	QC Batch

Polychlorinated Biphenyls						
Aroclor 1016	mg/L	<0.000050	7154204	<0.000050	0.000050	7152826
Aroclor 1221	mg/L	<0.000050	7154204	<0.000050	0.000050	7152826
Aroclor 1232	mg/L	<0.000050	7154204	<0.000050	0.000050	7152826
Aroclor 1242	mg/L	<0.000050	7154204	<0.000050	0.000050	7152826
Aroclor 1248	mg/L	<0.000050	7154204	<0.000050	0.000050	7152826
Aroclor 1254	mg/L	<0.000050	7154204	<0.000050	0.000050	7152826
Aroclor 1260	mg/L	<0.000050	7154204	<0.000050	0.000050	7152826
Aroclor 1262	mg/L	<0.000050	7154204	<0.000050	0.000050	7152826
Aroclor 1268	mg/L	<0.000050	7154204	<0.000050	0.000050	7152826
Total Aroclors	mg/L	<0.000050	7154204	<0.000050	0.000050	7152826
Surrogate Recovery (%)						
NONACHLOROBIPHENYL (sur.)	%	79	7154204	107		7152826



	UNITS	2013-C4-BMW-1	RDL	2013-C4-MW-6B	2013-C4-MW-8	2013-C4-MW-9	RDL	QC Batch
COC Number		407811-01-01		407811-01-01	407811-02-01	407811-02-01		
		15:41			17:45	12:45		
Sampling Date		2013/09/02		2013/09/02	2013/09/02	2013/09/03		
Maxxam ID		HK9343		HK9345	HK9382	HK9383		

Elements								
Dissolved Aluminum (AI)	mg/L	0.046	0.0030	0.022	0.013	0.019	0.0030	7156801
Dissolved Antimony (Sb)	mg/L	<0.00060	0.00060	<0.00060	<0.00060	0.0015	0.00060	7156801
Dissolved Arsenic (As)	mg/L	0.00055	0.00020	0.00039	0.0017	0.00062	0.00020	7156801
Dissolved Barium (Ba)	mg/L	0.075	0.050	0.060	0.026	0.027	0.010	7166753
Dissolved Beryllium (Be)	mg/L	<0.0010	0.0010	<0.0010	<0.0010	<0.0010	0.0010	7156801
Dissolved Boron (B)	mg/L	<0.10	0.10	0.073	0.051	0.13	0.020	7166753
Dissolved Calcium (Ca)	mg/L	73	1.5	38	130	130	0.30	7166753
Dissolved Chromium (Cr)	mg/L	<0.0010	0.0010	<0.0010	<0.0010	0.0019	0.0010	7156801
Dissolved Cobalt (Co)	mg/L	0.0076	0.00030	<0.00030	0.0012	<0.00030	0.00030	7156801
Dissolved Copper (Cu)	mg/L	0.0017	0.00020	0.0021	0.0015	0.0013	0.00020	7156801
Dissolved Iron (Fe)	mg/L	<0.30	0.30	<0.060	<0.060	<0.060	0.060	7166753
Dissolved Lead (Pb)	mg/L	<0.00020	0.00020	<0.00020	0.00088	<0.00020	0.00020	7156801
Dissolved Lithium (Li)	mg/L	<0.10	0.10	<0.020	0.090	<0.020	0.020	7166753
Dissolved Magnesium (Mg)	mg/L	13	1.0	19	110	23	0.20	7166753
Dissolved Manganese (Mn)	mg/L	1.6	0.020	0.014	0.74	0.044	0.0040	7166753
Dissolved Molybdenum (Mo)	mg/L	0.0016	0.00020	0.0029	0.0060	0.0075	0.00020	7156801
Dissolved Nickel (Ni)	mg/L	0.015	0.00050	0.0019	0.015	0.0026	0.00050	7156801
Dissolved Phosphorus (P)	mg/L	<0.50	0.50	<0.10	<0.10	<0.10	0.10	7166753
Dissolved Potassium (K)	mg/L	4.1	1.5	3.6	12	15	0.30	7166753
Dissolved Selenium (Se)	mg/L	0.00030	0.00020	<0.00020	0.0010	0.00046	0.00020	7156801
Dissolved Silicon (Si)	mg/L	5.0	0.50	1.2	4.6	3.1	0.10	7166753
Dissolved Silver (Ag)	mg/L	<0.00010	0.00010	<0.00010	<0.00010	<0.00010	0.00010	7156801
Dissolved Sodium (Na)	mg/L	19	2.5	44	67	210	0.50	7166753
Dissolved Strontium (Sr)	mg/L	0.23	0.10	0.18	0.64	0.28	0.020	7166753
Dissolved Sulphur (S)	mg/L	14	1.0	7.1	77	59	0.20	7166753
Dissolved Thallium (TI)	mg/L	<0.00020	0.00020	<0.00020	<0.00020	<0.00020	0.00020	7156801
Dissolved Tin (Sn)	mg/L	<0.0010	0.0010	<0.0010	<0.0010	<0.0010	0.0010	7156801
Dissolved Titanium (Ti)	mg/L	0.0022	0.0010	<0.0010	<0.0010	<0.0010	0.0010	7156801
Dissolved Uranium (U)	mg/L	0.022	0.00010	0.0082	0.32	0.0025	0.00010	7156801
Dissolved Vanadium (V)	mg/L	<0.0010	0.0010	<0.0010	0.0015	0.0013	0.0010	7156801
Dissolved Zinc (Zn)	mg/L	0.20	0.0030	0.096	<0.0030	<0.0030	0.0030	7156801
Low Level Elements								
Dissolved Mercury (Hg)	ug/L	<0.0060 (1)	0.0060	<0.0020	<0.0020	<0.0020	0.0020	7155922

RDL = Reportable Detection Limit
( 1 ) Detection limits raised due to matrix interference.



	UNITS	2013-C4-MW-14A	2013-C4-MW-14B	2013-C4-MW-16	2013-C4-MW-11	RDL	QC Batch
COC Number		407811-02-01	407811-02-01	407811-02-01	407811-02-01		
		14:40	14:50	16:30	13:36		
Sampling Date		2013/09/03	2013/09/03	2013/09/02	2013/09/03		
Maxxam ID		HK9384	HK9385	HK9386	HK9387		

Elements							
Dissolved Aluminum (Al)	mg/L	0.022	0.029	0.0065	0.0083	0.0030	7156801
Dissolved Antimony (Sb)	mg/L	<0.00060	<0.00060	<0.00060	<0.00060	0.00060	7156801
Dissolved Arsenic (As)	mg/L	0.00028	0.00038	0.0015	0.00022	0.00020	7156801
Dissolved Barium (Ba)	mg/L	0.080	0.046	0.036	0.060	0.010	7166753
Dissolved Beryllium (Be)	mg/L	<0.0010	<0.0010	<0.0010	<0.0010	0.0010	7156801
Dissolved Boron (B)	mg/L	0.027	0.045	0.080	0.063	0.020	7166753
Dissolved Calcium (Ca)	mg/L	91	25	58	100	0.30	7166753
Dissolved Chromium (Cr)	mg/L	<0.0010	<0.0010	<0.0010	<0.0010	0.0010	7156801
Dissolved Cobalt (Co)	mg/L	<0.00030	0.00044	0.0031	<0.00030	0.00030	7156801
Dissolved Copper (Cu)	mg/L	0.0072	0.028	0.00073	0.0022	0.00020	7156801
Dissolved Iron (Fe)	mg/L	<0.060	<0.060	1.1	<0.060	0.060	7166753
Dissolved Lead (Pb)	mg/L	<0.00020	<0.00020	<0.00020	<0.00020	0.00020	7156801
Dissolved Lithium (Li)	mg/L	0.041	0.037	<0.020	0.025	0.020	7166753
Dissolved Magnesium (Mg)	mg/L	22	34	20	30	0.20	7166753
Dissolved Manganese (Mn)	mg/L	0.014	0.11	0.79	0.19	0.0040	7166753
Dissolved Molybdenum (Mo)	mg/L	0.0016	0.0041	0.0053	0.0032	0.00020	7156801
Dissolved Nickel (Ni)	mg/L	0.0064	0.024	0.043	0.0022	0.00050	7156801
Dissolved Phosphorus (P)	mg/L	<0.10	<0.10	<0.10	<0.10	0.10	7166753
Dissolved Potassium (K)	mg/L	8.7	13	6.3	7.0	0.30	7166753
Dissolved Selenium (Se)	mg/L	<0.00020	<0.00020	0.00032	<0.00020	0.00020	7156801
Dissolved Silicon (Si)	mg/L	6.9	2.5	6.1	4.5	0.10	7166753
Dissolved Silver (Ag)	mg/L	<0.00010	<0.00010	<0.00010	<0.00010	0.00010	7156801
Dissolved Sodium (Na)	mg/L	73	34	58	15	0.50	7166753
Dissolved Strontium (Sr)	mg/L	0.31	0.14	0.18	0.40	0.020	7166753
Dissolved Sulphur (S)	mg/L	12	8.5	18	19	0.20	7166753
Dissolved Thallium (TI)	mg/L	<0.00020	<0.00020	<0.00020	<0.00020	0.00020	7156801
Dissolved Tin (Sn)	mg/L	<0.0010	<0.0010	<0.0010	<0.0010	0.0010	7156801
Dissolved Titanium (Ti)	mg/L	0.0012	<0.0010	<0.0010	<0.0010	0.0010	7156801
Dissolved Uranium (U)	mg/L	0.038	0.025	0.014	0.068	0.00010	7156801
Dissolved Vanadium (V)	mg/L	<0.0010	<0.0010	<0.0010	<0.0010	0.0010	7156801
Dissolved Zinc (Zn)	mg/L	1.3	0.0058	0.086	<0.0030	0.0030	7156801
Low Level Elements							
Dissolved Mercury (Hg)	ug/L	<0.0020	<0.0020	<0.0020	<0.0020	0.0020	7155922
	•	•	•	•	•	•	•



		ELEMENTS BY	/ ATOM	IC SPECTROS	COPY (WATER	)		
Maxxam ID	1	HK9388		HK9389	HK9390	HK9391		
Sampling Date		2013/09/03		2013/09/04	2013/09/04	2013/09/04		
COC Number		16:58 407811-02-01		18:50 407811-03-01	18:02 407811-03-01	18:15 407811-03-01		
OCC Number	UNITS	2013-C4-MW-12	RDL	2013-C4-MW-23	2013-C4-MW-17	2013-C4-MW-18	RDL	QC Batch
Elements				1				
Dissolved Aluminum (Al)	mg/L	0.050	0.0030	0.011	0.17	0.027	0.0030	7156801
Dissolved Antimony (Sb)	mg/L	0.0012	0.00060	0.00084	<0.00060	<0.00060	0.00060	7156801
Dissolved Arsenic (As)	mg/L	<0.00020	0.00020	<0.00020	0.00060	<0.00020	0.00020	7156801
Dissolved Barium (Ba)	mg/L	<0.050	0.050	0.019	0.038	0.026	0.010	7166753
Dissolved Beryllium (Be)	mg/L	<0.0010	0.0010	<0.0010	<0.0010	<0.0010	0.0010	7156801
Dissolved Boron (B)	mg/L	<0.10	0.10	0.090	0.17	0.038	0.020	7166753
Dissolved Calcium (Ca)	mg/L	25	1.5	100	23	28	0.30	7166753
Dissolved Chromium (Cr)	mg/L	<0.0010	0.0010	<0.0010	<0.0010	<0.0010	0.0010	7156801
Dissolved Cobalt (Co)	mg/L	0.00037	0.00030	<0.00030	0.0019	<0.00030	0.00030	7156801
Dissolved Copper (Cu)	mg/L	0.0017	0.00020	0.0040	0.0068	0.0016	0.00020	7156801
Dissolved Iron (Fe)	mg/L	<0.30	0.30	<0.060	0.083	<0.060	0.060	7166753
Dissolved Lead (Pb)	mg/L	<0.00020	0.00020	<0.00020	0.00020	<0.00020	0.00020	7156801
Dissolved Lithium (Li)	mg/L	<0.10	0.10	<0.020	<0.020	<0.020	0.020	7166753
Dissolved Magnesium (Mg)	mg/L	7.1	1.0	20	5.0	9.4	0.20	7166753
Dissolved Manganese (Mn)	mg/L	0.033	0.020	0.013	0.25	0.089	0.0040	7166753
Dissolved Molybdenum (Mo)	mg/L	0.0039	0.00020	0.0056	0.0020	0.00046	0.00020	7156801
Dissolved Nickel (Ni)	mg/L	0.0014	0.00050	0.0034	0.0064	0.0012	0.00050	7156801
Dissolved Phosphorus (P)	mg/L	<0.50	0.50	<0.10	<0.10	<0.10	0.10	7166753
Dissolved Potassium (K)	mg/L	2.4	1.5	11	2.9	2.6	0.30	7166753
Dissolved Selenium (Se)	mg/L	<0.00020	0.00020	<0.00020	0.00022	<0.00020	0.00020	7156801
Dissolved Silicon (Si)	mg/L	1.5	0.50	2.7	2.3	1.9	0.10	7166753
Dissolved Silver (Ag)	mg/L	<0.00010	0.00010	<0.00010	<0.00010	<0.00010	0.00010	7156801
Dissolved Sodium (Na)	mg/L	22	2.5	30	68	27	0.50	7166753
Dissolved Strontium (Sr)	mg/L	<0.10	0.10	0.30	0.059	0.087	0.020	7166753
Dissolved Sulphur (S)	mg/L	14	1.0	41	15	23	0.20	7166753
Dissolved Thallium (TI)	mg/L	<0.00020	0.00020	<0.00020	<0.00020	<0.00020	0.00020	7156801
Dissolved Tin (Sn)	mg/L	<0.0010	0.0010	<0.0010	<0.0010	<0.0010	0.0010	7156801
Dissolved Titanium (Ti)	mg/L	0.0011	0.0010	<0.0010	0.0020	<0.0010	0.0010	7156801
Dissolved Uranium (U)	mg/L	0.00090	0.00010	0.088	0.0054	0.00051	0.00010	7156801
Dissolved Vanadium (V)	mg/L	<0.0010	0.0010	<0.0010	<0.0010	<0.0010	0.0010	7156801
Dissolved Zinc (Zn)	mg/L	0.093	0.0030	0.26	<0.0030	<0.0030	0.0030	7156801
Low Level Elements								
Dissolved Mercury (Hg)	ug/L	<0.0020	0.0020	<0.0020	0.0068	<0.0020	0.0020	7155922



	UNITS	2013-C4-MW-19	2013-C4-BMW-3	2013-C4-BMW-4	RDL	QC Batch
COC Number		407811-03-01	407811-03-01	407811-03-01		
		17:33	15:45	14:38		
Sampling Date		2013/09/04	2013/09/03	2013/09/04		
Maxxam ID		HK9392	HK9393	HK9394		

Elements						
Dissolved Aluminum (AI)	mg/L	0.026	0.015	0.063	0.0030	7156801
Dissolved Antimony (Sb)	mg/L	<0.00060	0.00075	<0.00060	0.00060	7156801
Dissolved Arsenic (As)	mg/L	0.00040	0.00020	<0.00020	0.00020	7156801
Dissolved Barium (Ba)	mg/L	0.042	0.046	0.015	0.010	7166753
Dissolved Beryllium (Be)	mg/L	<0.0010	<0.0010	<0.0010	0.0010	7156801
Dissolved Boron (B)	mg/L	0.074	0.068	0.030	0.020	7166753
Dissolved Calcium (Ca)	mg/L	82	89	15	0.30	7166753
Dissolved Chromium (Cr)	mg/L	<0.0010	<0.0010	<0.0010	0.0010	7156801
Dissolved Cobalt (Co)	mg/L	0.0015	<0.00030	<0.00030	0.00030	7156801
Dissolved Copper (Cu)	mg/L	0.0029	<0.00020	0.0013	0.00020	7156801
Dissolved Iron (Fe)	mg/L	<0.060	<0.060	<0.060	0.060	7166753
Dissolved Lead (Pb)	mg/L	<0.00020	<0.00020	<0.00020	0.00020	7156801
Dissolved Lithium (Li)	mg/L	<0.020	<0.020	<0.020	0.020	7166753
Dissolved Magnesium (Mg)	mg/L	31	9.1	3.0	0.20	7166753
Dissolved Manganese (Mn)	mg/L	1.9	0.0072	<0.0040	0.0040	7166753
Dissolved Molybdenum (Mo)	mg/L	0.0013	0.0026	0.0064	0.00020	7156801
Dissolved Nickel (Ni)	mg/L	0.0049	<0.00050	<0.00050	0.00050	7156801
Dissolved Phosphorus (P)	mg/L	<0.10	<0.10	<0.10	0.10	7166753
Dissolved Potassium (K)	mg/L	5.3	6.3	2.2	0.30	7166753
Dissolved Selenium (Se)	mg/L	<0.00020	<0.00020	<0.00020	0.00020	7156801
Dissolved Silicon (Si)	mg/L	3.0	2.5	1.5	0.10	7166753
Dissolved Silver (Ag)	mg/L	<0.00010	<0.00010	<0.00010	0.00010	7156801
Dissolved Sodium (Na)	mg/L	58	53	20	0.50	7166753
Dissolved Strontium (Sr)	mg/L	0.24	0.31	0.044	0.020	7166753
Dissolved Sulphur (S)	mg/L	75	6.9	12	0.20	7166753
Dissolved Thallium (TI)	mg/L	<0.00020	<0.00020	<0.00020	0.00020	7156801
Dissolved Tin (Sn)	mg/L	<0.0010	<0.0010	<0.0010	0.0010	7156801
Dissolved Titanium (Ti)	mg/L	<0.0010	<0.0010	<0.0010	0.0010	7156801
Dissolved Uranium (U)	mg/L	0.044	0.0078	0.0016	0.00010	7156801
Dissolved Vanadium (V)	mg/L	<0.0010	<0.0010	<0.0010	0.0010	7156801
Dissolved Zinc (Zn)	mg/L	<0.0030	<0.0030	<0.0030	0.0030	7156801
Low Level Elements						
Dissolved Mercury (Hg)	ug/L	<0.0020	<0.0020	<0.0020	0.0020	7155922



Report Date: 2013/09/13

# **VOLATILE ORGANICS BY GC-MS (WATER)**

Maxxam ID		HK9343		HK9345	HK9382	HK9383		
Sampling Date		2013/09/02		2013/09/02	2013/09/02	2013/09/03		
		15:41			17:45	12:45		
COC Number		407811-01-01		407811-01-01	407811-02-01	407811-02-01		
	UNITS	2013-C4-BMW-1	RDL	2013-C4-MW-6B	2013-C4-MW-8	2013-C4-MW-9	RDL	QC Batch
Volatiles								
Benzene	ug/L	59	4.0	<0.40	43	<0.40	0.40	7153478

Volatiles								
Benzene	ug/L	59	4.0	<0.40	43	<0.40	0.40	7153478
Toluene	ug/L	570	4.0	0.69	86	1.0	0.40	7153478
Ethylbenzene	ug/L	580	4.0	<0.40	4.0	<0.40	0.40	7153478
m & p-Xylene	ug/L	2900	8.0	<0.80	480	1.3	0.80	7153478
o-Xylene	ug/L	1700	4.0	0.78	330	0.72	0.40	7153478
Xylenes (Total)	ug/L	4600	8.0	<0.80	810	2.1	0.80	7153478
F1 (C6-C10) - BTEX	ug/L	190000	1000	<100	1400	<100	100	7153478
(C6-C10)	ug/L	200000	1000	<100	2400	<100	100	7153478
Surrogate Recovery (%)								
1,4-Difluorobenzene (sur.)	%	102		106	104	106		7153478
4-BROMOFLUOROBENZENE (sur.)	%	119		93	107	106		7153478
D4-1,2-DICHLOROETHANE (sur.)	%	101		102	106	103		7153478
	•	•						•



VOLATILE ORGANICS BY GC-MS (WATER)

·	LIMITS	2013-C4-MW-14A	2013-C4-MW-14B	2013-C4-MW-16	2013-C4-MW-11	RDI	QC Batch
COC Number		407811-02-01	407811-02-01	407811-02-01	407811-02-01		
		14:40	14:50	16:30	13:36		
Sampling Date		2013/09/03	2013/09/03	2013/09/02	2013/09/03		
Maxxam ID		HK9384	HK9385	HK9386	HK9387		

Volatiles							
Benzene	ug/L	<0.40	<0.40	0.47	<0.40	0.40	7153478
Toluene	ug/L	0.55	0.42	3.0	<0.40	0.40	7153478
Ethylbenzene	ug/L	<0.40	<0.40	<0.40	<0.40	0.40	7153478
m & p-Xylene	ug/L	<0.80	<0.80	38	<0.80	0.80	7153478
o-Xylene	ug/L	0.43	<0.40	110	<0.40	0.40	7153478
Xylenes (Total)	ug/L	<0.80	<0.80	150	<0.80	0.80	7153478
F1 (C6-C10) - BTEX	ug/L	<100	<100	2800	<100	100	7153478
(C6-C10)	ug/L	<100	<100	2900	<100	100	7153478
Surrogate Recovery (%)							
1,4-Difluorobenzene (sur.)	%	108	106	104	121		7153478
4-BROMOFLUOROBENZENE (sur.)	%	105	102	106	96		7153478
D4-1,2-DICHLOROETHANE (sur.)	%	101	102	101	90		7153478



Report Date: 2013/09/13

# **VOLATILE ORGANICS BY GC-MS (WATER)**

	UNITS	2013-C4-MW-12	2013-C4-MW-23	2013-C4-MW-17	2013-C4-MW-18	RDL	QC Batch
COC Number		407811-02-01	407811-03-01	407811-03-01	407811-03-01		
		16:58	18:50	18:02	18:15		
Sampling Date		2013/09/03	2013/09/04	2013/09/04	2013/09/04		
Maxxam ID		HK9388	HK9389	HK9390	HK9391		

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# **VOLATILE ORGANICS BY GC-MS (WATER)**

COC Number	UNITS	2013-C4-MW-19	2013-C4-BMW-3		RDI	QC Batch
COC Number		407811-03-01	407811-03-01	407811-03-01		
		17:33	15:45	14:38		
Sampling Date		2013/09/04	2013/09/03	2013/09/04		
Maxxam ID		HK9392	HK9393	HK9394		

Volatiles						
Benzene	ug/L	<0.40	<0.40	<0.40	0.40	7153478
Toluene	ug/L	<0.40	<0.40	<0.40	0.40	7153478
Ethylbenzene	ug/L	<0.40	<0.40	<0.40	0.40	7153478
m & p-Xylene	ug/L	<0.80	<0.80	<0.80	0.80	7153478
o-Xylene	ug/L	<0.40	<0.40	<0.40	0.40	7153478
Xylenes (Total)	ug/L	<0.80	<0.80	<0.80	0.80	7153478
F1 (C6-C10) - BTEX	ug/L	<100	<100	<100	100	7153478
(C6-C10)	ug/L	<100	<100	<100	100	7153478
Surrogate Recovery (%)						
1,4-Difluorobenzene (sur.)	%	123	123	125		7153478
4-BROMOFLUOROBENZENE (sur.)	%	93	95	97		7153478
D4-1,2-DICHLOROETHANE (sur.)	%	89	89	90		7153478



#### **VOLATILE ORGANICS BY GC-MS (SOIL) Comments**

Sample HK9344-02 BTEX/F1 by HS GC/MS (MeOH extract): Due to sample matrix, sample required dilution, detection limit was adjusted accordingly.

#### **ELEMENTS BY ATOMIC SPECTROSCOPY (WATER) Comments**

Sample HK9343-01 Elements by ICP (Dissolved) Lab Filtered: Due to the sample matrix, sample required dilution. Detection limit was adjusted accordingly

Sample HK9388-01 Elements by ICP (Dissolved) Lab Filtered: Due to the sample matrix, sample required dilution. Detection limit was adjusted accordingly

#### **VOLATILE ORGANICS BY GC-MS (WATER) Comments**

Sample HK9343-05 BTEX/F1 in Water by HS GC/MS: Due to the sample matrix, sample required dilution. Detection limit was adjusted accordingly

Results relate only to the items tested.



Attention: Alexandre Leclair

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# Quality Assurance Report Maxxam Job Number: EYKB380512

QA/QC			Date				
Batch			Analyzed				
Num Init	QC Type	Parameter	yyyy/mm/dd	Value	Recovery	UNITS	QC Limits
7152795 JW0	Matrix Spike						
	[HK9345-04]	O-TERPHENYL (sur.)	2013/09/12		95	%	50 - 130
		F2 (C10-C16 Hydrocarbons)	2013/09/12		NC	%	50 - 130
		F3 (C16-C34 Hydrocarbons)	2013/09/12		75	%	50 - 130
		F4 (C34-C50 Hydrocarbons)	2013/09/12		85	%	50 - 130
	Spiked Blank	O-TERPHENYL (sur.)	2013/09/12		118	%	50 - 130
		F2 (C10-C16 Hydrocarbons)	2013/09/12		111	%	70 - 130
		F3 (C16-C34 Hydrocarbons)	2013/09/12		102	%	70 - 130
		F4 (C34-C50 Hydrocarbons)	2013/09/12		116	%	70 - 130
	Method Blank	O-TERPHENYL (sur.)	2013/09/12		108	%	50 - 130
		F2 (C10-C16 Hydrocarbons)	2013/09/12	< 0.10		mg/L	
		F3 (C16-C34 Hydrocarbons)	2013/09/12	< 0.20		mg/L	
		F4 (C34-C50 Hydrocarbons)	2013/09/12	< 0.20		mg/L	
	RPD	F2 (C10-C16 Hydrocarbons)	2013/09/12	NC		%	40
		F3 (C16-C34 Hydrocarbons)	2013/09/12	NC		%	40
		F4 (C34-C50 Hydrocarbons)	2013/09/12	NC		%	40
7152826 VP4	Matrix Spike	NONACHLOROBIPHENYL (sur.)	2013/09/11		65	%	30 - 130
		Aroclor 1260	2013/09/11		50	%	30 - 130
	Spiked Blank	NONACHLOROBIPHENYL (sur.)	2013/09/11		94	%	30 - 130
	·	Aroclor 1260	2013/09/11		74	%	30 - 130
	Method Blank	NONACHLOROBIPHENYL (sur.)	2013/09/11		100	%	30 - 130
		Aroclor 1016	2013/09/11	< 0.000050		mg/L	
		Aroclor 1221	2013/09/11	< 0.000050		mg/L	
		Aroclor 1232	2013/09/11	< 0.000050		mg/L	
		Aroclor 1242	2013/09/11	< 0.000050		mg/L	
		Aroclor 1248	2013/09/11	< 0.000050		mg/L	
		Aroclor 1254	2013/09/11	< 0.000050		mg/L	
		Aroclor 1260	2013/09/11	< 0.000050		mg/L	
		Aroclor 1262	2013/09/11	< 0.000050		mg/L	
		Aroclor 1268	2013/09/11	< 0.000050		mg/L	
		Total Aroclors	2013/09/11	< 0.000050		mg/L	
	RPD	Aroclor 1016	2013/09/11	NC		%	40
		Aroclor 1221	2013/09/11	NC		%	40
		Aroclor 1232	2013/09/11	NC		%	40
		Aroclor 1242	2013/09/11	NC		%	40
		Aroclor 1248	2013/09/11	NC		%	40
		Aroclor 1254	2013/09/11	NC		%	40
		Aroclor 1260	2013/09/11	NC		%	40
		Aroclor 1262	2013/09/11	NC		%	40
		Aroclor 1268	2013/09/11	NC		%	40
		Total Aroclors	2013/09/11	NC		%	40
7153478 WZ0	Matrix Spike	1,4-Difluorobenzene (sur.)	2013/09/10		107	%	70 - 130
	mann opino	4-BROMOFLUOROBENZENE (sur.)	2013/09/10		104	%	70 - 130
		D4-1,2-DICHLOROETHANE (sur.)	2013/09/10		104	%	70 - 130
		Benzene	2013/09/10		76	%	70 - 130
		Toluene	2013/09/10		79	%	70 - 130
		Ethylbenzene	2013/09/10		86	%	70 - 130
		m & p-Xylene	2013/09/10		86	%	70 - 130
		o-Xylene	2013/09/10		84	%	70 - 130
		(C6-C10)	2013/09/10		95	%	70 - 130
	Spiked Blank	1,4-Difluorobenzene (sur.)	2013/09/10		124	% %	70 - 130
	opinca biarin	4-BROMOFLUOROBENZENE (sur.)	2013/09/11		107	% %	70 - 130
		D4-1,2-DICHLOROETHANE (sur.)	2013/09/11		116	%	70 - 130
		Benzene	2013/09/11		88	% %	70 - 130 70 - 130
		Toluene	2013/09/11		80	% %	70 - 130 70 - 130
		I VIUCIIC	2013/03/11		00	/0	10 - 130

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#### **Quality Assurance Report (Continued)**

Maxxam Job Number: EYKB380512

QA/QC			Date				
Batch	00 T	Damanatan	Analyzed	Malara	D	LINUTO	00 1 3-23-
Num Init	QC Type	Parameter	yyyy/mm/dd	Value	Recovery	UNITS	QC Limits
7153478 WZ0	Spiked Blank	Ethylbenzene	2013/09/11		87	%	70 - 130
		m & p-Xylene	2013/09/11		85	%	70 - 130
		o-Xylene	2013/09/11		84	%	70 - 130
	Mathad Dlad.	(C6-C10)	2013/09/11		97	%	70 - 130
	Method Blank	1,4-Difluorobenzene (sur.)	2013/09/10		109	%	70 - 130
		4-BROMOFLUOROBENZENE (sur.)	2013/09/10		102	%	70 - 130
		D4-1,2-DICHLOROETHANE (sur.)	2013/09/10	0.40	108	%	70 - 130
		Benzene	2013/09/10	<0.40		ug/L	
		Toluene	2013/09/10	<0.40		ug/L	
		Ethylbenzene	2013/09/10	<0.40		ug/L	
		m & p-Xylene	2013/09/10	<0.80		ug/L	
		o-Xylene	2013/09/10	<0.40		ug/L	
		Xylenes (Total)	2013/09/10	<0.80		ug/L	
		F1 (C6-C10) - BTEX	2013/09/10	<100		ug/L	
		(C6-C10)	2013/09/10	<100		ug/L	
	RPD	Benzene	2013/09/10	NC		%	40
		Toluene	2013/09/10	NC		%	40
		Ethylbenzene	2013/09/10	NC		%	40
		m & p-Xylene	2013/09/10	NC		%	40
		o-Xylene	2013/09/10	NC		%	40
		Xylenes (Total)	2013/09/10	NC		%	40
		F1 (C6-C10) - BTEX	2013/09/10	NC		%	40
		(C6-C10)	2013/09/10	NC		%	40
7154204 VP4	Matrix Spike						
	[HK9345-03]	NONACHLOROBIPHENYL (sur.)	2013/09/11		69	%	30 - 130
		Aroclor 1260	2013/09/11		60	%	30 - 130
	Spiked Blank	NONACHLOROBIPHENYL (sur.)	2013/09/11		98	%	30 - 130
		Aroclor 1260	2013/09/11		87	%	30 - 130
	Method Blank	NONACHLOROBIPHENYL (sur.)	2013/09/11		90	%	30 - 130
		Aroclor 1016	2013/09/11	<0.000050		mg/L	
		Aroclor 1221	2013/09/11	<0.000050		mg/L	
		Aroclor 1232	2013/09/11	< 0.000050		mg/L	
		Aroclor 1242	2013/09/11	<0.000050		mg/L	
		Aroclor 1248	2013/09/11	<0.000050		mg/L	
		Aroclor 1254	2013/09/11	<0.000050		mg/L	
		Aroclor 1260	2013/09/11	<0.000050		mg/L	
		Aroclor 1262	2013/09/11	<0.000050		mg/L	
		Aroclor 1268	2013/09/11	<0.000050		mg/L	
		Total Aroclors	2013/09/11	<0.000050		mg/L	
	RPD [HK9388-03]	Aroclor 1016	2013/09/11	NC		%	40
		Aroclor 1221	2013/09/11	NC		%	40
		Aroclor 1232	2013/09/11	NC		%	40
		Aroclor 1242	2013/09/11	NC		%	40
		Aroclor 1248	2013/09/11	NC		%	40
		Aroclor 1254	2013/09/11	NC		%	40
		Aroclor 1260	2013/09/11	NC		%	40
		Aroclor 1262	2013/09/11	NC		%	40
		Aroclor 1268	2013/09/11	NC		%	40
		Total Aroclors	2013/09/11	NC		%	40
7155922 AM0	Matrix Spike	Dissolved Mercury (Hg)	2013/09/10		108	%	80 - 120
	Spiked Blank	Dissolved Mercury (Hg)	2013/09/10		89	%	80 - 120
	Method Blank	Dissolved Mercury (Hg)	2013/09/10	< 0.0020		ug/L	
	RPD	Dissolved Mercury (Hg)	2013/09/10	NC		%	20
7156801 TDB	Matrix Spike	Dissolved Aluminum (AI)	2013/09/12		114	%	80 - 120
		Dissolved Antimony (Sb)	2013/09/12		82	%	80 - 120



Attention: Alexandre Leclair

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#### **Quality Assurance Report (Continued)**

Maxxam Job Number: EYKB380512

QA/QC			Date			
Batch			Analyzed			
Num Init	QC Type	Parameter	yyyy/mm/dd	Value Recovery	UNITS	QC Limits
7156801 TDB	Matrix Spike	Dissolved Arsenic (As)	2013/09/12	96	%	80 - 120
		Dissolved Beryllium (Be)	2013/09/12	99	%	80 - 120
		Dissolved Chromium (Cr)	2013/09/12	97	%	80 - 120
		Dissolved Cobalt (Co)	2013/09/12	96	%	80 - 120
		Dissolved Copper (Cu)	2013/09/12	94	%	80 - 120
		Dissolved Lead (Pb)	2013/09/12	96	%	80 - 120
		Dissolved Molybdenum (Mo)	2013/09/12	100	%	80 - 120
		Dissolved Nickel (Ni)	2013/09/12	95	%	80 - 120
		Dissolved Selenium (Se)	2013/09/12	99	%	80 - 120
		Dissolved Silver (Ag)	2013/09/12	98	%	80 - 120
		Dissolved Thallium (TI)	2013/09/12	94	%	80 - 120
		Dissolved Tin (Sn)	2013/09/12	90	%	80 - 120
		Dissolved Titanium (Ti)	2013/09/12	100	%	80 - 120
		Dissolved Uranium (U)	2013/09/12	96	%	80 - 120
		Dissolved Vanadium (V)	2013/09/12	99	%	80 - 120
		Dissolved Zinc (Zn)	2013/09/12	NC	%	80 - 120
	Spiked Blank	Dissolved Aluminum (AI)	2013/09/12	98	%	80 - 120
		Dissolved Antimony (Sb)	2013/09/12	95	%	80 - 120
		Dissolved Arsenic (As)	2013/09/12	95	%	80 - 120
		Dissolved Beryllium (Be)	2013/09/12	115	%	80 - 120
		Dissolved Chromium (Cr)	2013/09/12	95	%	80 - 120
		Dissolved Cobalt (Co)	2013/09/12	95	%	80 - 120
		Dissolved Copper (Cu)	2013/09/12	92	%	80 - 120
		Dissolved Lead (Pb)	2013/09/12	97	%	80 - 120
		Dissolved Molybdenum (Mo)	2013/09/12	98	%	80 - 120
		Dissolved Nickel (Ni)	2013/09/12	94	%	80 - 120
		Dissolved Selenium (Se)	2013/09/12	97	%	80 - 120
		Dissolved Silver (Ag)	2013/09/12	98	%	80 - 120
		Dissolved Thallium (TI)	2013/09/12	95	%	80 - 120
		Dissolved Tin (Sn)	2013/09/12	100	%	80 - 120
		Dissolved Titanium (Ti)	2013/09/12	95	%	80 - 120
		Dissolved Uranium (U)	2013/09/12	95	%	80 - 120
		Dissolved Vanadium (V)	2013/09/12	101	%	80 - 120
		Dissolved Zinc (Zn)	2013/09/12	92	%	80 - 120
	Method Blank	Dissolved Aluminum (AI)	2013/09/12	0.0033, RDL=0.0030	mg/L	
		Dissolved Antimony (Sb)	2013/09/12	<0.00060	mg/L	
		Dissolved Arsenic (As)	2013/09/12	<0.00020	mg/L	
		Dissolved Beryllium (Be)	2013/09/12	<0.0010	mg/L	
		Dissolved Chromium (Cr)	2013/09/12	<0.0010	mg/L	
		Dissolved Cobalt (Co)	2013/09/12	<0.00030	mg/L	
		Dissolved Copper (Cu)	2013/09/12	0.00029, RDL=0.00020	mg/L	
		Dissolved Lead (Pb)	2013/09/12	<0.00020	mg/L	
		Dissolved Molybdenum (Mo)	2013/09/12	<0.00020	mg/L	
		Dissolved Nickel (Ni)	2013/09/12	<0.00050	mg/L	
		Dissolved Selenium (Se)	2013/09/12	<0.00020	mg/L	
		Dissolved Silver (Ag)	2013/09/12	<0.00010	mg/L	
		Dissolved Thallium (TI)	2013/09/12	<0.00020	mg/L	
		Dissolved Tin (Sn)	2013/09/12	<0.0010	mg/L	
		Dissolved Titanium (Ti)	2013/09/12	<0.0010	mg/L	
		Dissolved Uranium (U)	2013/09/12	<0.00010	mg/L	
		Dissolved Vanadium (V)	2013/09/12	<0.0010	mg/L	
		Dissolved Zinc (Zn)	2013/09/12	<0.0030	mg/L	
	RPD	Dissolved Aluminum (AI)	2013/09/12	NC	%	20
		Dissolved Antimony (Sb)	2013/09/12	NC	%	20
		Dissolved Arsenic (As)	2013/09/12	NC	%	20

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#### **Quality Assurance Report (Continued)**

Maxxam Job Number: EYKB380512

QA/QC			Date				
Batch			Analyzed				
Num Init	QC Type	Parameter	yyyy/mm/dd	Value	Recovery	UNITS	QC Limits
7156801 TDB	RPD	Dissolved Beryllium (Be)	2013/09/12	NC		%	20
		Dissolved Chromium (Cr)	2013/09/12	NC		%	20
		Dissolved Cobalt (Co)	2013/09/12	1.1		%	20
		Dissolved Copper (Cu)	2013/09/12	NC		%	20
		Dissolved Lead (Pb)	2013/09/12	NC		%	20
		Dissolved Molybdenum (Mo)	2013/09/12	0.7		%	20
		Dissolved Nickel (Ni)	2013/09/12	4.9		%	20
		Dissolved Selenium (Se)	2013/09/12	NC		%	20
		Dissolved Silver (Ag)	2013/09/12	NC		%	20
		Dissolved Thallium (TI)	2013/09/12	NC		%	20
		Dissolved Tin (Sn)	2013/09/12	NC		%	20
		Dissolved Titanium (Ti)	2013/09/12	NC		%	20
		Dissolved Uranium (U)	2013/09/12	5.2		%	20
		Dissolved Vanadium (V)	2013/09/12	NC		%	20
		Dissolved Zinc (Zn)	2013/09/12	1.8		%	20
7163707 RSU	Matrix Spike	1,4-Difluorobenzene (sur.)	2013/09/12		102	%	60 - 140
		4-BROMOFLUOROBENZENE (sur.)	2013/09/12		125	%	60 - 140
		D4-1,2-DICHLOROETHANE (sur.)	2013/09/12		79	%	60 - 140
		Benzene	2013/09/12		77	%	60 - 140
		Toluene	2013/09/12		89	%	60 - 140
		Ethylbenzene	2013/09/12		97	%	60 - 140
		m & p-Xylene	2013/09/12		98	%	60 - 140
		o-Xylene	2013/09/12		95	%	60 - 140
		(C6-C10)	2013/09/12		86	%	60 - 140
	Spiked Blank	1,4-Difluorobenzene (sur.)	2013/09/12		100	%	60 - 140
		4-BROMOFLUOROBENZENE (sur.)	2013/09/12		99	%	60 - 140
		D4-1,2-DICHLOROETHANE (sur.)	2013/09/12		95	%	60 - 140
		Benzene	2013/09/12		88	%	60 - 140
		Toluene	2013/09/12		94	%	60 - 140
		Ethylbenzene	2013/09/12		92	%	60 - 140
		m & p-Xylene	2013/09/12		96	%	60 - 140
		o-Xylene	2013/09/12		104	%	60 - 140
		(C6-C10)	2013/09/12		106	%	60 - 140
	Method Blank	1,4-Difluorobenzene (sur.)	2013/09/12		65	%	60 - 140
		4-BROMOFLUOROBENZENE (sur.)	2013/09/12		82	%	60 - 140
		D4-1,2-DICHLOROETHANE (sur.)	2013/09/12		103	%	60 - 140
		Benzene	2013/09/12	< 0.0050		mg/kg	
		Toluene	2013/09/12	< 0.020		mg/kg	
		Ethylbenzene	2013/09/12	< 0.010		mg/kg	
		Xylenes (Total)	2013/09/12	< 0.040		mg/kg	
		m & p-Xylene	2013/09/12	< 0.040		mg/kg	
		o-Xylene	2013/09/12	< 0.020		mg/kg	
		F1 (C6-C10) - BTEX	2013/09/12	<12		mg/kg	
		(C6-C10)	2013/09/12	<12		mg/kg	
7165954 NK3	Matrix Spike	F2 (C10-C16 Hydrocarbons)	2013/09/13		96	%	50 - 130
		F3 (C16-C34 Hydrocarbons)	2013/09/13		98	%	50 - 130
		F4 (C34-C50 Hydrocarbons)	2013/09/13		99	%	50 - 130
	Spiked Blank	F2 (C10-C16 Hydrocarbons)	2013/09/13		99	%	70 - 130
	1	F3 (C16-C34 Hydrocarbons)	2013/09/13		97	%	70 - 130
		F4 (C34-C50 Hydrocarbons)	2013/09/13		106	%	70 - 130
	Method Blank	F2 (C10-C16 Hydrocarbons)	2013/09/13	<10		mg/kg	
		F3 (C16-C34 Hydrocarbons)	2013/09/13	<50		mg/kg	
		F4 (C34-C50 Hydrocarbons)	2013/09/13	<50		mg/kg	
	RPD	F2 (C10-C16 Hydrocarbons)	2013/09/13	NC		%	50
	. =	F3 (C16-C34 Hydrocarbons)	2013/09/13	NC		%	50
		,					

Maxxam Analytics International Corporation o/a Maxxam Analytics Yellowknife: Unit 105 - 349 Old Airport Road X1A 3X6 Telephone (867) 445-2448



Attention: Alexandre Leclair

Client Project #:

P.O. #: Site Location:

#### Quality Assurance Report (Continued)

Maxxam Job Number: EYKB380512

QA/QC			Date				
Batch			Analyzed				
Num Init	QC Type	Parameter	yyyy/mm/dd	Value	Recovery	UNITS	QC Limits
7165954 NK3	RPD	F4 (C34-C50 Hydrocarbons)	2013/09/13	NC		%	50
7166753 STI	Matrix Spike	Dissolved Barium (Ba)	2013/09/13		91	%	80 - 120
		Dissolved Boron (B)	2013/09/13		97	%	80 - 120
		Dissolved Calcium (Ca)	2013/09/13		98	%	80 - 120
		Dissolved Iron (Fe)	2013/09/13		94	%	80 - 120
		Dissolved Lithium (Li)	2013/09/13		96	%	80 - 120
		Dissolved Magnesium (Mg)	2013/09/13		99	%	80 - 120
		Dissolved Manganese (Mn)	2013/09/13		96	%	80 - 120
		Dissolved Phosphorus (P)	2013/09/13		98	%	80 - 120
		Dissolved Potassium (K)	2013/09/13		100	%	80 - 120
		Dissolved Silicon (Si)	2013/09/13		99	%	80 - 120
		Dissolved Sodium (Na)	2013/09/13		97	%	80 - 120
		Dissolved Strontium (Sr)	2013/09/13		90	%	80 - 120
	Spiked Blank	Dissolved Barium (Ba)	2013/09/13		90	%	80 - 120
	•	Dissolved Boron (B)	2013/09/13		97	%	80 - 120
		Dissolved Calcium (Ca)	2013/09/13		97	%	80 - 120
		Dissolved Iron (Fe)	2013/09/13		93	%	80 - 120
		Dissolved Lithium (Li)	2013/09/13		96	%	80 - 120
		Dissolved Magnesium (Mg)	2013/09/13		98	%	80 - 120
		Dissolved Manganese (Mn)	2013/09/13		96	%	80 - 120
		Dissolved Phosphorus (P)	2013/09/13		97	%	80 - 120
		Dissolved Potassium (K)	2013/09/13		99	%	80 - 120
		Dissolved Silicon (Si)	2013/09/13		98	%	80 - 120
		Dissolved Sodium (Na)	2013/09/13		97	%	80 - 120
		Dissolved Strontium (Sr)	2013/09/13		89	%	80 - 120
	Method Blank	Dissolved Barium (Ba)	2013/09/13	< 0.010		mg/L	
		Dissolved Boron (B)	2013/09/13	< 0.020		mg/L	
		Dissolved Calcium (Ca)	2013/09/13	<0.30		mg/L	
		Dissolved Iron (Fe)	2013/09/13	< 0.060		mg/L	
		Dissolved Lithium (Li)	2013/09/13	< 0.020		mg/L	
		Dissolved Magnesium (Mg)	2013/09/13	<0.20		mg/L	
		Dissolved Manganese (Mn)	2013/09/13	< 0.0040		mg/L	
		Dissolved Phosphorus (P)	2013/09/13	<0.10		mg/L	
		Dissolved Potassium (K)	2013/09/13	<0.30		mg/L	
		Dissolved Silicon (Si)	2013/09/13	<0.10		mg/L	
		Dissolved Sodium (Na)	2013/09/13	<0.50		mg/L	
		Dissolved Strontium (Sr)	2013/09/13	< 0.020		mg/L	
		Dissolved Sulphur (S)	2013/09/13	<0.20		mg/L	
	RPD	Dissolved Calphair (C) Dissolved Calcium (Ca)	2013/09/13	NC		™g/L %	20
	5	Dissolved Calcium (Ca) Dissolved Iron (Fe)	2013/09/13	NC NC		%	20
		Dissolved Magnesium (Mg)	2013/09/13	NC		%	20
		Dissolved Magnesidin (Mg) Dissolved Manganese (Mn)	2013/09/13	NC		%	20
		Dissolved Manganese (Min) Dissolved Potassium (K)	2013/09/13	NC		% %	20
		Dissolved Folassium (K) Dissolved Sodium (Na)	2013/09/13	NC NC		% %	20

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 sample to which a known amount of the analyte, usually from a second source, has been added. Used to evaluate method accuracy.

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.



# Validation Signature Page

#### Maxxam Job #: B380512

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

Ghayasuddin Khan, M.Sc., B.Ed., P.Chem, Scientific Specialist

Luba Shymushovska, Senior Analyst, Organic 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.

Max	Zam	Maxxam Analytics International Corpo 9331 - 48th Street, Edmonton, Alberta			Toll-free:800	-653-6	266 Fax:7	80-450-418	7 www.ma	xam.ca			CHAIN O	F CUSTODY RE	CORD	9	* 236 Page 1 of
	INV	DICE INFORMATION:	Canada Toe and		RT INFORMAT							PROJECT	INFORMA	TION:		Laboratory Use	e Only:
Company Name:	#4495 BI	OGENIE INC.	Company	Name:							Quotation #:			-		MAXXAM JOB #:	BOTTLE ORDER #:
Contact Name:	Alexandre		Contact N	lame:							P.O.#:				B380512	407811	
Address:		. Wilfrid-Hamel bureau 200	Address:	_		-				-	Project #:		-				
		PQ G1P 2J7		-		_		-		_	Project Name:	-			111	CHAIN OF CUSTODY #:	PROJECT MANAGER:
Phone:	(450)961-3			-		-	-	Fax:		_	Site #: Sampled By:				_	C#407811-01-01	James Ehizojie
Email:		iogenie-env.com	Email:	INSTRUCTIONS		_				ΔΝΔΙ Υ	SIS REQUESTED (	Please he sne	rific):		T	TURNAROUND TIME (TAT	REQUIRED:
REGULATORY C	RITERIA:		SPECIAL	INSTRUCTIONS			T			AIACLI	IOI		YEL	LOWKNIFE		PLEASE PROVIDE ADVANCE NOTICE	
☐ ATI						Î	Dissolved					V	1//	VANINIE		(Standard) TAT:	
						1	isso				- 1	11	W	AND ON	1 de la constante de la consta	oplied if Rush TAT is not specified):	
CCME						2	1		Water	10		2012	00	0900	120000000000000000000000000000000000000	TAT = 5-7 Working days for most tests. te: Standard TAT for certain tests are > 5	6 days - contact your Project
OTHER						ered	Metals		3	Diss		2013	10 17872			for details	
				4		d Filt	Me	water	F1-F4 in	E E		<			Date Requ	cific Rush TAT (if applies to entire subn	nission)
				The second second	-	Fiel	Regulated	in w	工	Low level							
SAN	IPLES MUST BE	KEPT COOL ( < 10°C ) FROM TIME OF SAMPL	ING UNTIL DELIVER	RY TO MAXXAM	32.	Metals	gnl	PCB ii	втех	W E	Temp	o:		1	10.585 130.585	firmation Number: (call	(lab for #)
Sample Bar	code Label	Sample (Location) Identification	Date Sampled	Time Sampled	Matrix	ž	Ä.	P	B	Lo					# of Bottles	Comme	ents
		2013-C4-BMW-1	13/09/03	15:41	GW		X	X	X	X					9		
		2010 04 01/1/1			511		**	***							1		
		2013-C4-MW-1			CIAL		X	X	X	X			-		-	Not sanda	,*
2		2013-C4-WVV-1			GW		^	^	^	^						Not sample	d
		2242 24 1114 2							· V	V						111	_1
3		2013-C4-MW-2			GW		X	X	^	X						Not Sample	· a ·
		4 8 9 8 9 4 1 2 2 2 2	13/01/3	land.			.,		(5)						-	Insufficient worth	for complete
4		2013-C4-MW-3	13/04/03	10:45	GW		X	X	8	X					3	IN sofficient Compa	Samony
											6-Sep-	13 09:0	)			111	
5		2013-C4-MW-4A			GW	+	X	X		Jam	es Ehizojie					Not Same	oled
									+		and the second second second						
6		2013-C4-MW-4B			GW		X	X	-			AN		-		Not San	aled
						-			+		80512					7001 342	paol
7		2013-C4-MW-6A			GW		X	X	-	FL5	I	NS-008	7			Not sa	1. de
			17/201			-			-	1	1 1	Ţ	1			59	mpi
8		2013-C4-MW-6B	13/09/03		GW		X	X	X	X					9		
				-				-				-			1		
0		2013-C4-MW-7A			GW		X	X	<sub>±</sub> X	X						Net	Jack
,	-	2010 01 1111 171			- 500		-		1				-			1001 Samp	sucy
		2013-C4-MW-7B			GW		X	X	X	X						1/1	1
10		2010-04-10109-70			GIV		^	-	1	75					_	1001 Donne	U O
*REL	INQUISHED BY:			Time:	REC			nature/Prin			Date: (YY/MM/D		Time:	# Jars Used and		Laboratory Use O	Custody Seal Intact on
My	75 / Br	under Mackey 13/09/	05 12=	10	no fron	) (	HER	YLV	ENST	100 64 2	13/09/0	07/16	20	Not Submitted	Time Se	The state of the s	Cooler?
	, ,								Page 2							DEC 11617	Yes N
* IT IS THE RESPON	NSIBILITY OF TH	E RELINQUISHER TO ENSURE THE ACCURAGE	CY OF THE CHAIN				ETE CHA	IN OF CUS	TODY MAY	RESULTI	N ANALYTICAL TA	AT DELAYS.				*	White: Maxxam Yellow: C

Max	xam	Maxxam Analytics International Corpora 9331 - 48th Street, Edmonton, Alberta			Toll-free:800-	653-6	266 Fax:78	30-450-418	7 www.max	xam.ca			·	HAIN OF	CUSTODY REC	OND		Page 2 of 3
.,	INVO	ICE INFORMATION:			RT INFORMATI							PI	ROJECT	NFORMATI	ON:		Laboratory Use	Only:
Company Name:		OGENIE INC.	Company N	lame:							Quotation #:						MAXXAM JOB #:	BOTTLE ORDER #:
Contact Name:	Alexandre L	Control of the Contro	Contact Na Address:								P.O. #: Project #:						3380512	407811
Address:	QUEBEC P		Audiess.	-							Project Name	_					CHAIN OF CUSTODY #:	PROJECT MANAGER:
PN	(450)961-3	Annual State of the Control of the C	Phone:	-	-	-		Fax:			Site #:	_				11111		James Ehizojie
Phone:	The state of the s	ogenie-env.com	Email:	-				1 MAI	-		Sampled By:	-				_ """	C#407811-02-01	danies Enizojie
Email:		ogenie-env.com		NSTRUCTIONS				_		ΔΝΔΙΥ	SIS REQUESTE	D (Please	he speci	ic):		=	TURNAROUND TIME (TAT)	REQUIRED:
REGULATORY	CRITERIA:		SPECIALI	NSTRUCTIONS		-				ANALI	SIS NEGOLOTE	D (1 loade	be speed	10).		P	LEASE PROVIDE ADVANCE NOTICE FO	THE RESERVE OF THE PERSON NAMED IN
ATI CCME OTHER						sred ? ( Y / N )	Metals - Dissolved		F1-F4 in Water	Diss						Regular (St (will be appl Standard Tr Please note Manager fo	andard) TAT: ied if Rush TAT is not specified): AT = 5-7 Working days for most tests. : Standard TAT for certain tests are > 5 d details	lays - contact your Project
						Tile.	Me	ter	4	Hg							c Rush TAT (if applies to entire submi	ssion)
						ield	pe	water	7	le F	-					Date Requir	ed:	
SA	MPLES MUST BE K	EPT COOL ( < 10°C ) FROM TIME OF SAMPLIF	NG UNTIL DELIVERY	TO MAXXAM	3.	tals F	Regulated	i.		Low level						Rush Confin	mation Number:	ab for #)
Per Dark Sales				Two Consoled	Mateix	Meta	Seg	PCB	втех	NO.						# of Bottles	Comment	
Sample B	arcode Label	Sample (Location) Identification	Date Sampled	Time Sampled	Matrix	~	u.	ш.	ш	-		,				Dottles	Commen	
1		<del>2013-C</del> 4-MW-5			GW		X	X	X	X						_	Not sampled	
2		2013-C4-MW-8	13/09/02	17:45	GW		X	X	X	X						9	RECEIVED IN YE	LLOWKNIFE
3		2013-C4-MW-9	13/09/03	12:45	GW		X	X	X	÷X						11	2013 -09-	0900
4		2013-C4-MW-14A	13/09/03	14:40	GW		Х	X	Х	X						"		ACTR :
5		2013-C4-MW-14B	13/09/03	14:50	GW		X	X	X	X						11	Temp: /	. 1
6		2013-C4-MW-15			GW		X	X	X	Х							Not sampled	
7		2013-C4-MW-16	13/09/01	16:30	GW		Х	X	Х	Х						11		
8		2013-C4-MW-10			GW		X	X	X	×						_	Not sample	d
9		2013-C4-MW-11	13/09/03	13:36	GW		Х	Х	Х	Х						//		5
10		2013-C4-MW-12	13/09/03	16:58	GW		Х	X	X	X	1					//		
*RF	LINQUISHED BY: (S	Signature/Print) Date: (YY/I	MM/DD) Ti	me:	REC	EIVED	BY: (Sign	ature/Print	t)		Date: (YY/MN	M/DD)		Time:	# Jars Used and		Laboratory Use Onl	у,
Mr.	474	1 Branda Maky 13/05/0			000			YLJE		29 of 3	13/09	107	16	20	Not Submitted	Time Sens	Temperature (°C) on Receipt	Custody Seal Intact on Cooler?  Yes No
/	)	RELINQUISHER TO ENSURE THE ACCURAC	V OF THE CHAIN OF	E CLISTORY DE	COPD AN INC	OMP	ETE CHAI					TAT DE	AYS				Dec Bein	T res 1 No
		DAYS AFTER SAMPLE RECEIPT, FOR SPECIAL					LIL UNA	01 603	TAIN	RESULT	III DITALI HOAL	INI DEI	mn I U					White: Maxxam Yellow: Client

Page 3 of 3

	INV	9331 - 48th Street, Edmonton, Alberta Can OICE INFORMATION:			T INFORMAT							F	ROJECT	INFORMAT	ION:		Laboratory Use	Page 3 of 3
Company Name:	#4495 BI	OGENIE INC.	Company N	ame:							Quotation	#:					MAXXAM JOB #:	BOTTLE ORDER #:
Contact Name:	Alexandre	Leclair	Contact Nar	ne:							P.O. #:						h > 1 1 -	
Address:	4495, boul	. Wilfrid-Hamel bureau 200	Address:								Project #:						B380512	407811
	QUEBEC	PQ G1P 2J7									Project Na	me:					CHAIN OF CUSTODY #:	PROJECT MANAGER:
Phone:	(450)961-3	3535 x6128 Fax: (450)961-0220	Phone:					Fax:			Site #:							James Ehizojie
Email:	aleclair@b	piogenie-env.com	Email:	-							Sampled E	By:					C#407811-03-01	
REGULATORY	CRITERIA:		SPECIAL IN	NSTRUCTIONS						ANALY	SIS REQUES	TED (Pleas	e be spec	fic):			TURNAROUND TIME (TAT) F	REQUIRED:
							D										PLEASE PROVIDE ADVANCE NOTICE FO	
ATI CCME OTHER						Filtered ? ( Y / N )	Regulated Metals - Dissolved	ue.	F1-F4 in Water	g Diss						(will be Standa Please Manag	ar (Standard) TAT: a applied if Rush TAT is not specified): ard TAT = 5-7 Working days for most tests. a note: Standard TAT for certain tests are > 5 de eer for details becific Rush TAT (if applies to entire submis	
						eld F	D D	water	-F	BH H						1000	equired:	
c	AMDI ES MI IST DE	KEPT COOL ( < 10°C ) FROM TIME OF SAMPLING I	IINTII DELIVERY	TO MAYYAM		S Fie	late	Ë	F	Low level						10000	confirmation Number:	
		REF 1 GOOD ( = 10 G) TROW TIME OF SAME LING T	OIVIIE DELIVERI	TO MACONIN	25	Metals	egu	PCB	втех	NO.							(call lai	for #)
Sample B	Barcode Label	Sample (Location) Identification	Date Sampled	Time Sampled	Matrix	Σ	CC C	۵	B	Ľ		•				# of Bottle	S Comments	0
1		2013-C4-MW-13			GW		_X_	X	X	Х						_	Not Somple	1
2		2013-C4-MW-21			GW		X	X	X	×						_	*	9
3		2013-C4-MW-22	_		GW		X	X	X	X						_	RECEIVED IN Y	FLLOWINEE
4		2013-C4-MW-23	3/09/04	18:50	GW		X	Х	Х	X						9	By: 476	0900
5		2013-C4-MW-17	13/09/04	18:02	GW		X	Х	Х	Х						//	2013 -0	9
6		2013-C4-MW-18	13/09/04	18:15	GW		X	Х	Х	х						11		ACTR
7		2013-C4-MW-19	13/09/04	17:33	GW		X	Х	Х	X						1/	Temp: /	1
8		2013-C4-MW-20	_		GW		X	X	X	X							Not bample	0
9		2013-C4-BMW-3	13/09/03	15:45	GW		X	Х	Х	Х						9	1	
10		2013-C4-BMW-4	13/09/04	14:38	GW		X	Х	Х	X						11.	1	
mi	75	Signature/Print)  Date: (YY/MM/)  Date: (YY/MM/)  Date: (YY/MM/)  Date: (YY/MM/)  Date: (YY/MM/)	12:3	30 (0	no Pe	D	CHE		Page 3	30 of 3		7107	16	Time:	# Jars Used a	d Time	Laboratory Use Only Sensitive Temperature (*C) on Receipt  SAP ATR	Custody Seal Infact on Cooler? Yes No

# **Certificate of Analysis**



Laboratory Supervisor, Organics

Client: Biogenie S.R.D.C. Inc.

> 1140 Levis Terrebonne, QC J6W 5S6

PO#:

Attention: Mr. Brandon MacKay

Page 1 of 5 Invoice to: Biogenie S.R.D.C. Inc.

Report Number: 1320567 Date Submitted: Date Reported:

2013-09-18 2013-09-25

Project: COC #:

777010

Dear Brandon MacKay:			
Please find attached the analytical results for your samples.	If you have any questions regarding this report,	please do not h	nesitate to call (613-727-5692).
Report Comments:			
ADDDOVAL		ABBBOVAL	
APPROVAL:		APPROVAL:	
Lorna Wilson			Charlie (Long) Qu

Exova (Ottawa) is certified and accredited for specific parameters by:

Laboratory Supervisor, Inorganics

CALA, Canadian Association for Laboratory Accreditation (to ISO 17025), OMAFRA, Ontario Ministry of Agriculture, Food and Rural Affairs (for farm soils), Licensed by Ontario MOE for specific tests in drinking water.

Exova (Mississauga) is accredited for specific parameters by: SCC, Standards Council of Canada (to ISO 17025)

Please note: Field data, where presented on the report, has been provided by the client and is presented for informational purposes only.

# **Certificate of Analysis**



Client: Biogenie S.R.D.C. Inc.

1140 Levis Terrebonne, QC

J6W 5S6

Attention: Mr. Brandon MacKay

PO#:

Invoice to: Biogenie S.R.D.C. Inc.

Report Number: 1320567
Date Submitted: 2013-09-18
Date Reported: 2013-09-25

Date Reported: Project:

COC #:

777010

				Lab I.D. Sample Matrix Sample Type Sampling Date Sample I.D.	1058751 Surfacewater 2013-09-04 2013-C4-MW-23
Group	Analyte	MRL	Units	Guideline	
Hydrocarbons	F1 (C6-C10)	100	ug/L		<100
	F2 (C10-C16)	100	ug/L		<100
	F3 (C16-C34)	200	ug/L		<200
Mercury	Hg Total	0.0001	mg/L		<0.0001
Metals	As	0.02	mg/L		<0.02
	Cd	0.008	mg/L		<0.008
	Со	0.01	mg/L		<0.01
	Cr	0.05	mg/L		0.05
	Cu	0.01	mg/L		0.02
	Ni	0.01	mg/L		0.04
	Pb	0.01	mg/L		<0.01
	Zn	0.04	mg/L		0.72
PCBs	Polychlorinated Biphenyls (PCBs)	0.1	ug/L		<0.1

Guideline = \* = Guideline Exceedence

\*\* = Analysis completed at Mississauga, Ontario.

Results relate only to the parameters tested on the samples submitted.

Methods references and/or additional QA/QC information available on request.

# **Certificate of Analysis**



Client: Biogenie S.R.D.C. Inc.

1140 Levis Terrebonne, QC

J6W 5S6

Attention: Mr. Brandon MacKay

PO#:

Invoice to: Biogenie S.R.D.C. Inc.

Report Number: Date Submitted: Date Reported: 1320567 2013-09-18 2013-09-25

Project:

COC #: 777010

#### **QC Summary**

	Analyte				Blank		QC % Rec	QC Limits
Run No	208523	Analysis Date	2013-	09-22	Method	Р 8	8081A	
Polychlo	rinated Biphenyls	(PCBs)		<0	.1 ug/L		78	50-120
Run No	257961	Analysis Date	2013-	09-20	Method	EF	PA 200.8	
As				<0.	02 mg/L		102	70-130
Cd				<0.0	008 mg/L		101	70-130
Со				<0.	01 mg/L		103	70-130
Cr				<0.	05 mg/L		99	70-130
Cu				<0.	01 mg/L		100	70-130
Ni				<0.	01 mg/L		109	70-130
Pb				<0.	01 mg/L		104	70-130
Zn				<0.	04 mg/L		112	70-130
Run No	258017	Analysis Date	2013-	09-23	Method	М	SM3112B-3500B	
Hg Total				<0.0	001 mg/L			
Run No	258069	Analysis Date	2013-	09-19	Method	0	CCME Reg 153	
F1 (C6-C	(10)			<1	00 ug/L		102	80-120

#### Guideline =

\* = Guideline Exceedence

\*\* = Analysis completed at Mississauga, Ontario.

Results relate only to the parameters tested on the samples submitted.

Methods references and/or additional QA/QC information available on request.

# **Certificate of Analysis**



Client: Biogenie S.R.D.C. Inc.

> 1140 Levis Terrebonne, QC

J6W 5S6

Attention: Mr. Brandon MacKay

PO#:

Invoice to: Biogenie S.R.D.C. Inc. Report Number:

1320567 Date Submitted: 2013-09-18 Date Reported: 2013-09-25

Project:

COC #:

777010

#### **QC Summary**

Analyte		Blank	QC % Rec	QC Limits
Run No 258121	Analysis Date 2013-	09-24 <b>Method</b> O	CCME Reg 153	
F2 (C10-C16)		<100 ug/L	60	50-120
F3 (C16-C34)		<200 ug/L	60	50-120

Guideline = \* = Guideline Exceedence

\*\* = Analysis completed at Mississauga, Ontario. Results relate only to the parameters tested on the samples submitted. Methods references and/or additional QA/QC information available on request.

# **Certificate of Analysis**



Client: Biogenie S.R.D.C. Inc.

1140 Levis Terrebonne, QC

J6W 5S6

Attention: Mr. Brandon MacKay

PO#:

Invoice to: Biogenie S.R.D.C. Inc.

Report Number: Date Submitted:

1320567 2013-09-18 2013-09-25

Date Reported: Project:

COC #: 777010

#### Sample Comment Summary

Sample ID: 1058751 2013-C4-MW-23 Metals analysis performed on aqua-regia digest of sample material.

Guideline = \* = Guideline Exceedence

\*\* = Analysis completed at Mississauga, Ontario.

Results relate only to the parameters tested on the samples submitted.

Methods references and/or additional QA/QC information available on request.

# **Certificate of Analysis**



Laboratory Supervisor, Organics

Client: Biogenie S.R.D.C. Inc.

1140 Levis Terrebonne, QC J6W 5S6

Mr. Brandon MacKay

PO#:

Attention:

Invoice to: Biogenie S.R.D.C. Inc. Page 1 of 5

 Report Number:
 1320574

 Date Submitted:
 2013-09-18

 Date Reported:
 2013-09-25

Project:

COC #: 777010

Dear Brandon I	МасКау:			
Please find atta	sched the analytical results for your samples.	If you have any questions regarding this repor	t, please do not h	esitate to call (613-727-5692).
Report Comments	:			
APPROVAL:			APPROVAL:	
	Lorna Wilson			Charlie (Long) Qu

Exova (Ottawa) is certified and accredited for specific parameters by:

Laboratory Supervisor, Inorganics

CALA, Canadian Association for Laboratory Accreditation (to ISO 17025), OMAFRA, Ontario Ministry of Agriculture, Food and Rural Affairs (for farm soils), Licensed by Ontario MOE for specific tests in drinking water.

Exova (Mississauga) is accredited for specific parameters by: SCC, Standards Council of Canada (to ISO 17025)

Please note: Field data, where presented on the report, has been provided by the client and is presented for informational purposes only.

# **Certificate of Analysis**



Client: Biogenie S.R.D.C. Inc.

1140 Levis Terrebonne, QC

J6W 5S6

Attention: Mr. Brandon MacKay

PO#:

Invoice to: Biogenie S.R.D.C. Inc.

Report Number: 1320574

Date Submitted: 2013-09-18

Date Reported: 2013-09-25

Date Reported: Project:

COC #: 777010

				Lab I.D. Sample Matrix Sample Type Sampling Date Sample I.D.	1058762 Soil 2013-09-04 2013-C4-1-A	1058763 Soil 2013-09-04 2013-C4-MW-6B-B	1058764 Soil 2013-09-03 2013-C4-MW-8-A	1058765 Soil 2013-09-03 2013-C4-MW-10-A
Group	Analyte	MRL	Units	Guideline				
General Chemistry	Moisture	0.1	%		11.8	12.2	10.5	20.0
Hydrocarbons	F1 (C6-C10)	10	ug/g		<10	<10	<10	<10
	F2 (C10-C16)	10	ug/g		<10	<10	<10	<10
	F3 (C16-C34)	20	ug/g		40	<20	30	120
Mercury	Hg	0.1	ug/g		<0.1	<0.1	<0.1	<0.1
Metals	As	1	ug/g		4	<1	2	1
	Cd	0.5	ug/g		<0.5	<0.5	<0.5	<0.5
	Со	1	ug/g		9	4	8	6
	Cr	1	ug/g		46	29	90	42
	Cu	1	ug/g		23	5	14	10
	Ni	1	ug/g		27	16	46	22
	Pb	1	ug/g		30	4	9	7
	Zn	2	ug/g		101	25	58	43
PCBs	Polychlorinated Biphenyls (PCBs)	0.02	ug/g		<0.02	<0.02	<0.02	<0.02

Guideline =

\* = Guideline Exceedence

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# **Certificate of Analysis**



Client: Biogenie S.R.D.C. Inc.

1140 Levis Terrebonne, QC

J6W 5S6

Attention: Mr. Brandon MacKay

PO#:

Invoice to: Biogenie S.R.D.C. Inc.

Report Number: 1320574

Date Submitted: 2013-09-18

Date Reported: 2013-09-25

Date Reported: Project:

COC #: 777010

				Lab I.D. Sample Matrix Sample Type Sampling Date Sample I.D.	1058766 Soil 2013-09-04 2013-C4-MW-21-B	1058767 Soil 2013-09-04 2013-C4-MW-23-B
Group	Analyte	MRL	Units	Guideline		
General Chemistry	Moisture	0.1	%		5.7	5.6
Hydrocarbons	F1 (C6-C10)	10	ug/g		<10	<10
	F2 (C10-C16)	10	ug/g		<10	<10
	F3 (C16-C34)	20	ug/g		150	<20
Mercury	Hg	0.1	ug/g		<0.1	<0.1
Metals	As	1	ug/g		3	1
	Cd	0.5	ug/g		<0.5	<0.5
	Co	1	ug/g		7	5
	Cr	1	ug/g		108	50
	Cu	1	ug/g		13	10
	Ni	1	ug/g		52	26
	Pb	1	ug/g		46	9
	Zn	2	ug/g		115	36
PCBs	Polychlorinated Biphenyls (PCBs)	0.02	ug/g		<0.02	<0.02

Guideline =

\* = Guideline Exceedence

\*\* = Analysis completed at Mississauga, Ontario.

Results relate only to the parameters tested on the samples submitted. Methods references and/or additional QA/QC information available on request.

# **Certificate of Analysis**



Client: Biogenie S.R.D.C. Inc.

1140 Levis Terrebonne, QC

J6W 5S6

Attention: Mr. Brandon MacKay

PO#:

Invoice to: Biogenie S.R.D.C. Inc.

Report Number: Date Submitted: Date Reported: 1320574 2013-09-18 2013-09-25

Project:

COC #: 777010

#### **QC Summary**

	Analyte						QC % Rec	QC Limits
Run No	208523	Analysis Date	2013-0	09-24	Method	SV	V846 8081A/8082A	
Polychlo	rinated Biphenyls	(PCBs)			<0.02 ug/g		75	50-120
Run No	257962	Analysis Date	2013-0	09-20	Method	EP	A 200.8	
As					<1 ug/g		96	70-130
Cd					<0.5 ug/g		87	70-130
Со					<1 ug/g		95	70-130
Cr					<1 ug/g		93	70-130
Cu					<1 ug/g		92	70-130
Ni					<1 ug/g		104	70-130
Pb					<1 ug/g		94	70-130
Zn					<2 ug/g		101	70-130
Run No	258058	Analysis Date	2013-0	09-24	Method	М	SM3112B-3500B	
Hg					<0.1 ug/g		100	70-130
Run No	258154	Analysis Date	2013-0	09-24	Method	CC	CME	
F2 (C10-	C16)				<10 ug/g		81	50-120

#### Guideline =

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# **Certificate of Analysis**



Client: Biogenie S.R.D.C. Inc.

> 1140 Levis Terrebonne, QC

J6W 5S6

Attention: Mr. Brandon MacKay

PO#:

Invoice to: Biogenie S.R.D.C. Inc. Report Number:

1320574 Date Submitted: 2013-09-18 2013-09-25

Date Reported: Project:

COC #: 777010

#### **QC Summary**

Analyte	Blank	QC % Rec	QC Limits
F3 (C16-C34)	<20 ug/g	81	50-120
Moisture	<0.1 %	100	80-120
Run No 258175 Analysis Date 2013-	09-25 <b>Method</b> CC	CME	
F1 (C6-C10)	<10 ug/g	106	80-120

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Quole 130496

DEMANDE D'ANALYSE



Compagnie	Brandon MacKey					Délai d'analyse: 🗷 normal 🔲 72hrs 📋 48hrs 🗀 24hrs 🗀 autre																							
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