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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(O/Ref.: CD2656) (Y/Ref.: DLCMON (QIKIQ12)

DEFENCE CONSTRUCTION CANADA

January 2014

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Defence Construction Canada

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

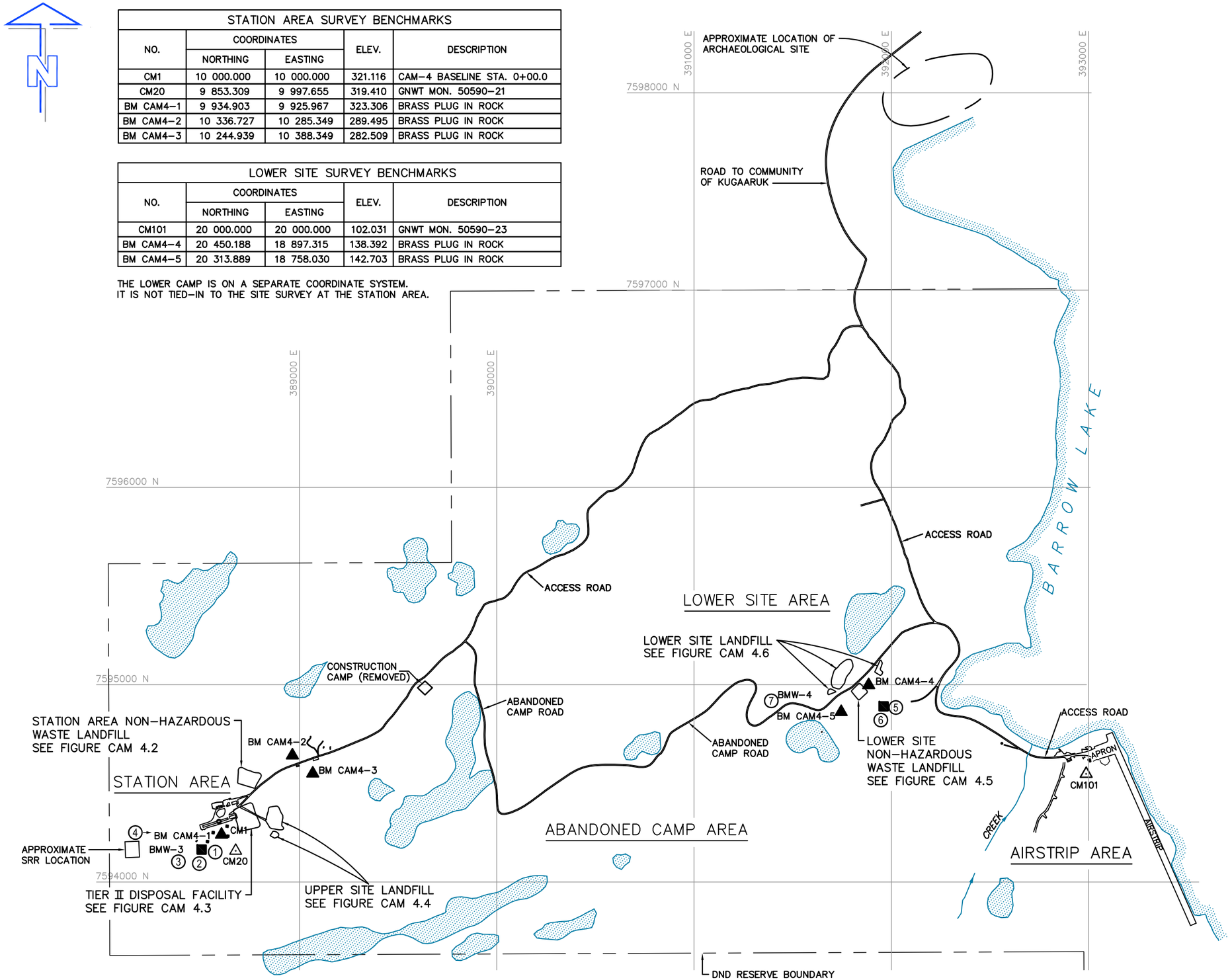
- Visual inspection checklist
- Visual inspection drawing mark-up
- A selection of visual inspection photos
- Thermal monitoring inspection reports (where applicable)
- Summary of 2013 soil analytical data (where applicable)
- Summary of 2013 groundwater analytical data (where applicable)
- Monitoring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

STATION AREA SURVEY BENCHMARKS				
NO.	COORDINATES		ELEV.	DESCRIPTION
	NORTHING	EASTING		
CM1	10 000.000	10 000.000	321.116	CAM–4 BASELINE STA. 0+00.0
CM20	9 853.309	9 997.655	319.410	GNWT MON. 50590–21
BM CAM4–1	9 934.903	9 925.967	323.306	BRASS PLUG IN ROCK
BM CAM4–2	10 336.727	10 285.349	289.495	BRASS PLUG IN ROCK
BM CAM4–3	10 244.939	10 388.349	282.509	BRASS PLUG IN ROCK

LOWER SITE SURVEY BENCHMARKS				
NO.	COORDINATES		ELEV.	DESCRIPTION
	NORTHING	EASTING		
CM101	20 000.000	20 000.000	102.031	GNWT MON. 50590–23
BM CAM4–4	20 450.188	18 897.315	138.392	BRASS PLUG IN ROCK
BM CAM4–5	20 313.889	18 758.030	142.703	BRASS PLUG IN ROCK

THE LOWER CAMP IS ON A SEPARATE COORDINATE SYSTEM.
IT IS NOT TIED–IN TO THE SITE SURVEY AT THE STATION AREA.



LEGEND

- CM1 — SURVEY CONTROL MONUMENT
- BM–2 — PERMANENT BENCHMARK LOCATION
- SOIL SAMPLE LOCATION
- BACKGROUND MONITORING WELL PHOTO VIEWPOINT

0 200m 400m 600m 800m 1000m

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

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.
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Quebec, (Quebec) CANADA G1P 2J7
Phone : 418-653-4422 www.biogenie-env.com

MEASUREMENT UNIT	SCALE:	DATE (month–year):
Meter	1 : 20,000	JANUARY 2014
DRAWN BY: P. LÉGARÉ	VERIFIED BY: B. MACKAY	APPROVED BY: A. LECLAIR P. Eng.
PROJECT NO: CD2656_300_303	DRAWING NO: CD2656_300_303-CAM-4_1	PAGE LS

FIGURE CAM-4.1

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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 – http://www.ccme.ca/pdfs/cat_eng.pdf).
- 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).
- 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 hand-held 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 2nd, 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 2nd and 3rd, 2013
DATE OF PREVIOUS INSPECTION: August 22nd, 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	Occasional	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		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 side 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	5.00–10.00	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

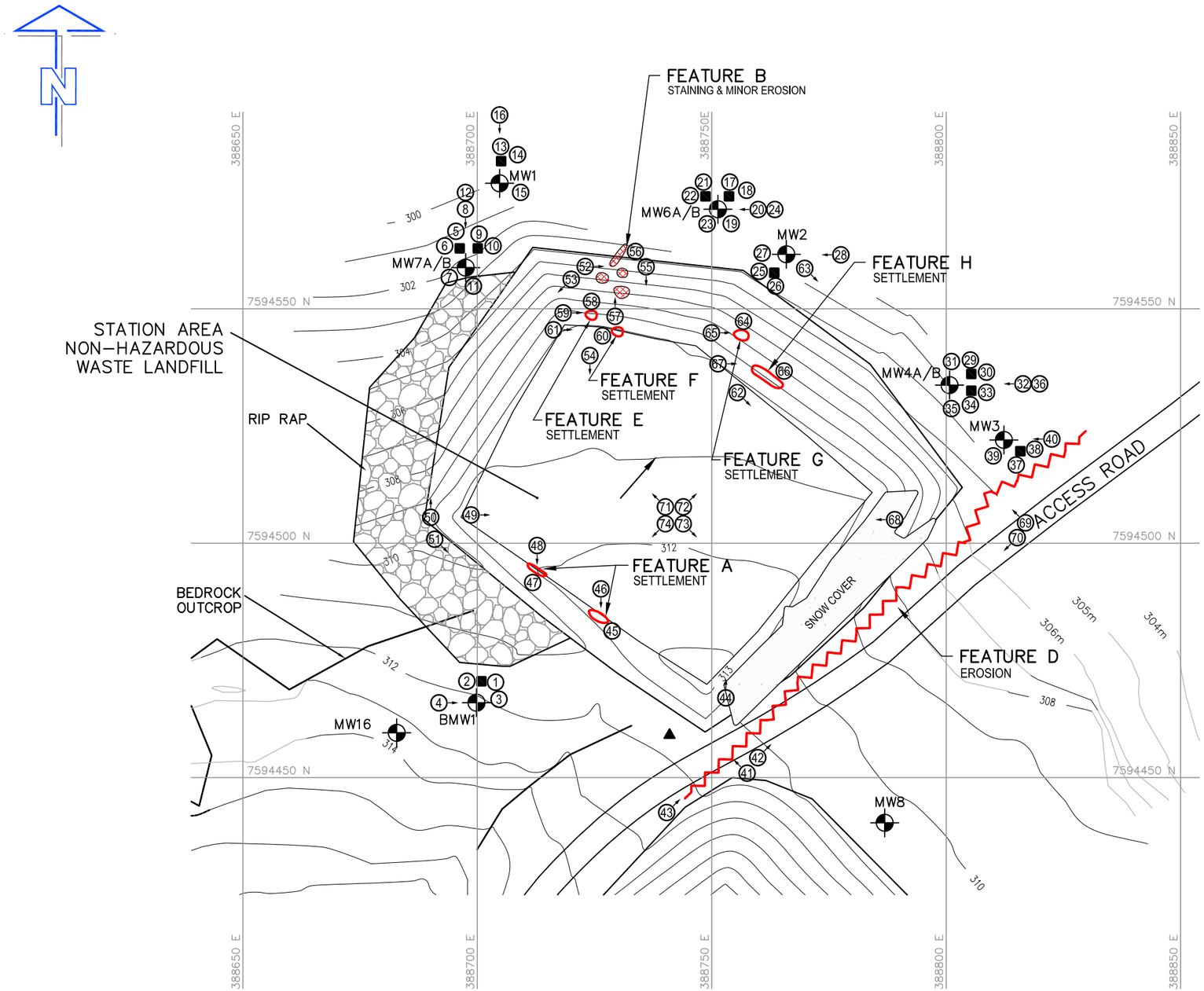
Feature	Severity Rating	Extent
Settlement	Acceptable	Occasional
Erosion	Not observed	None
Frost Action	Not observed	None
Staining	Acceptable	Occasional
Vegetation Stress	Not observed	None
Seepage/Ponded Water	Not Observed	None
Debris Exposure	Not observed	None
Overall Landfill Performance	**Acceptable**	

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)

0 10m 20m 30m 40m 50m

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

Construction de Défense Canada
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COLLECTION OF LANDFILL MONITORING DATA

CAM-4, PELLY BAY, NUNAVUT

STATION AREA NON-HAZARDOUS WASTE LANDFILL

SITE REMEDIATION SOLUTIONS

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

FIGURE CAM-4.2

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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

Photo	Filename	Size (MB)	Date	Vantage Point		Focal Length	Caption
				Easting	Northing		
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	2013-C4-SA-6	9.02	02/09/2013	388706	7594555	16mm	MW-7B - Close-up of closed soil test pit.
7	2013-C4-SA-7	5.66	02/09/2013	388703	7594556	16mm	MW-7B - Close-up of monitoring well.
8	2013-C4-SA-8	6.81	02/09/2013	388702	7594557	16mm	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	2013-C4-SA-21	8.99	02/09/2013	388761	7594569	15mm	MW-6B - Close-up of open soil test pit.
22	2013-C4-SA-22	8.66	02/09/2013	388761	7594569	15mm	MW-6B - Close-up of closed soil test pit.
23	2013-C4-SA-23	5.36	02/09/2013	388760	7594568	15mm	MW-6B - Close-up of monitoring well.
24	2013-C4-SA-24	6.40	02/09/2013	388761	7594571	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	2013-C4-SA-36	6.93	02/09/2013	388805	7594526	15mm	MW-4B - View W - of monitoring well.
37	2013-C4-SA-37	8.67	02/09/2013	388819	7594512	15mm	MW-3 - Close-up of open soil test pit.
38	2013-C4-SA-38	8.61	02/09/2013	388819	7594512	15mm	MW-3 - Close-up of closed 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	7.22	02/09/2013	388818	7594513	15mm	MW-3 - View W - of monitoring well.
41	2013-C4-SA-41	4.35	02/09/2013	388756	7594453	15mm	View NW - of the southeast side slope of the landfill from the bottom of the south corner.
42	2013-C4-SA-42	6.46	02/09/2013	388756	7594453	10mm	View NE - of the southwest side slope of the 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.
44	2013-C4-SA-44	7.33	02/09/2013	388753	7594467	10mm	View N - of the landfill surface taken from the top of the south corner.
45	2013-C4-SA-45	8.58	02/09/2013	388733	7594478	10mm	Feature A - Close-up of 1 of 2 depressions on the southwest slope of the landfill (south depression).
46	2013-C4-SA-46	6.94	02/09/2013	388732	7594479	10mm	Feature A - View S - of 1 of 2 depressions on the southwest slope of the landfill (south depression).
47	2013-C4-SA-47	8.62	02/09/2013	388718	7594490	10mm	Feature A - Close-up of 2 of 2 depressions on the southwest slope of the landfill (north depression).
48	2013-C4-SA-48	8.06	02/09/2013	388718	7594490	10mm	Feature A - View S - of 2 of 2 depressions on the southwest slope of the landfill (north depression).
49	2013-C4-SA-49	6.91	02/09/2013	388700	7594502	10mm	View E - of the landfill surface from the top of the west corner.
50	2013-C4-SA-50	7.17	02/09/2013	388690	7594503	10mm	View N - of the northwest landfill toe taken from the bottom of the west corner.

Photo	Filename	Size (MB)	Date	Vantage Point		Focal Length	Caption
				Easting	Northing		
51	2013-C4-SA-51	7.11	02/09/2013	388690	7594503	10mm	View SE - of the southwest landfill toe taken 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.
54	2013-C4-SA-54	6.50	02/09/2013	388724	7594540	10mm	View S - of the landfill surface taken from the top of the north corner.
55	2013-C4-SA-55	8.03	02/09/2013	388736	7594560	10mm	Feature B - View S - of rust coloured staining on the northeast side slope.
56	2013-C4-SA-56	8.02	02/09/2013	388736	7594560	22mm	Feature B - Close-up - of rust coloured staining 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 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.
60	2013-C4-SA-60	8.62	02/09/2013	388734	7594542	12mm	Feature F - Close-up of a minor area of settlement on the northeast side slope.
61	2013-C4-SA-61	8.69	02/09/2013	388732	7594542	12mm	Feature F - View E - of a minor area of settlement on the northeast side slope.
62	2013-C4-SA-62	8.55	02/09/2013	388754	7594534	10mm	View SE - of the landfill surface taken from the 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 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 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.
66	2013-C4-SA-66	8.54	02/09/2013	388763	7594532	10mm	Feature H - Close-up of an area of settlement on the northeast side slope.
67	2013-C4-SA-67	8.48	02/09/2013	388761	7594532	10mm	Feature H - View E - of an area of settlement on the northeast side slope.
68	2013-C4-SA-68	7.23	02/09/2013	388789	7594505	10mm	View W - of landfill surface from the top of the 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 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.
72	2013-C4-SA-72	8.37	02/09/2013	388742	7594506	10mm	View NE - of the landfill surface from the middle of the landfill surface.
73	2013-C4-SA-73	7.44	02/09/2013	388742	7594506	10mm	View SE - of the landfill surface from the middle of the landfill surface.
74	2013-C4-SA-74	7.16	02/09/2013	388742	7594506	10mm	View SW - of the landfill surface from the middle of the landfill surface.

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

Sample #	Location	Depth [cm]	Cu [mg/kg]	Ni [mg/kg]	Co [mg/kg]	Cd [mg/kg]	Pb [mg/kg]	Zn [mg/kg]	Cr [mg/kg]	As [mg/kg]	Hg [mg/kg]	PCBs [mg/kg]	F1 C_6-C_{10}	F2 C_{10}-C_{16}	F3 C_{16}-C_{34}	TPH C_6-C_{34}
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		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		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		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		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		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		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		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		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		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		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

Sample #	Location	Cu [mg/L]	Ni [mg/L]	Co [mg/L]	Cd [mg/L]	Pb [mg/L]	Zn [mg/L]	Cr [mg/L]	As [mg/L]	Hg [mg/L]	PCBs [mg/L]	F1 C_6-C_{10}	F2 C_{10}-C_{16}	F3 C_{16}-C_{34}	TPH C_6-C_{34}
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	Insufficient water													
2013-C4-MW-6A	MW-6A	Insufficient 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.

Monitoring Well Sampling 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 Non-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) = (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)	Y	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 =	6.68		
Final Conductivity (uS/cm) =	540		
Final Temperature (°C) =	0.1		

Monitoring Well Sampling Record: MW-1			
Site Name:	CAM-4	Pelly Bay	Nunavut
Date of Sampling Event:	Sept. 2, 2013	Time:	11:45 AM
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)	450		
Length screened section (cm) =	203		
Depth to top of screen (cm) = (from ground surface)	150		
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)	385	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		

Monitoring Well Sampling 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 Non-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) = (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)	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)	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		

Monitoring Well Sampling Record: MW-3			
Site Name:	CAM-4	Pelly Bay	Nunavut
Date of Sampling Event:	Sept. 2, 2013	Time:	10:00 AM
Names of Samplers:	Brandon MacKay	Jamie Jones Ihakkaq	
Landfill Name:	Station Area Non-Hazardous Waste Landfill		
Monitoring Well ID:	MW-3		
Sample Number:	2013-C4-MW-3 Sampled for TPH only		
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) = (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)	Y	Purging/Sampling Equipment:	Waterra Tubing
Volume Purged Water =	4000 mL		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		

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) = (from ground surface)	400		
Length screened section (cm) =	138		
Depth to top of screen (cm) = (from ground surface)	258		
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)	426	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		

Monitoring Well Sampling 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) = (from ground surface)	280		
Length screened section (cm) =	228		
Depth to top of screen (cm) = (from ground surface)	48		
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)	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) =	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		

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) = (from ground surface)	427		
Length screened section (cm) =	226		
Depth to top of screen (cm) = (from ground surface)	50		
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)	505	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		

Monitoring Well Sampling Record: MW-6B			
Site Name:	CAM-4	Pelly Bay	Nunavut
Date of Sampling Event:	Sept. 2, 2013	Time:	1:45 PM
Names of Samplers:	Brandon MacKay	Jamie Jones Ihakkaq	
Landfill Name:	Station Area Non-Hazardous Waste Landfill		
Monitoring Well ID:	MW-6B		
Sample Number:	2013-C4-MW-6B		
Condition of Well:	Good		
Measured Data			
Well pipe height above ground (cm) =	65		
Diameter of well (cm) =	5	Interior diameter	
Depth of well installation (cm) = (from ground surface)	427		
Length screened section (cm) =	226		
Depth to top of screen (cm) = (from ground surface)	50		
Depth to water surface (cm) = (from top of pipe)	102	Measurement method: (meter, tape, etc.)	Interface Meter
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) =	110		
Static volume of water in well (mL) =	2161 mL		
Free product thickness (mm) =	0	Measurement method: (meter, paste, etc.)	Interface Meter
Purging: (Y/N)	Y	Purging/Sampling Equipment:	Waterra Tubing
Volume Purged Water =	3500 mL		Foot Valve
Decontamination required: (Y/N)	N - Dedicated		
Number washers:	N/A		
Number rinces:	N/A		
Final pH =	6.66		
Final Conductivity (uS/cm) =	510		
Final Temperature (°C) =	0.1		

Monitoring Well Sampling 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 Non-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) = (from ground surface)	457		
Length screened section (cm) =	100		
Depth to top of screen (cm) = (from ground surface)	345		
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)	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		

Monitoring Well Sampling 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 Non-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) = (from ground surface)	274		
Length screened section (cm) =	195		
Depth to top of screen (cm) = (from ground surface)	71		
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)	182	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		

4 TIER II SOIL DISPOSAL FACILITY

4.1 SUMMARY

The 2013 monitoring of the Tier II Disposal Facility was conducted on September 2nd, 3rd and 4th, 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 4th, 2013
DATE OF PREVIOUS INSPECTION: August 21st and 22nd, 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	Occasional	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		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		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

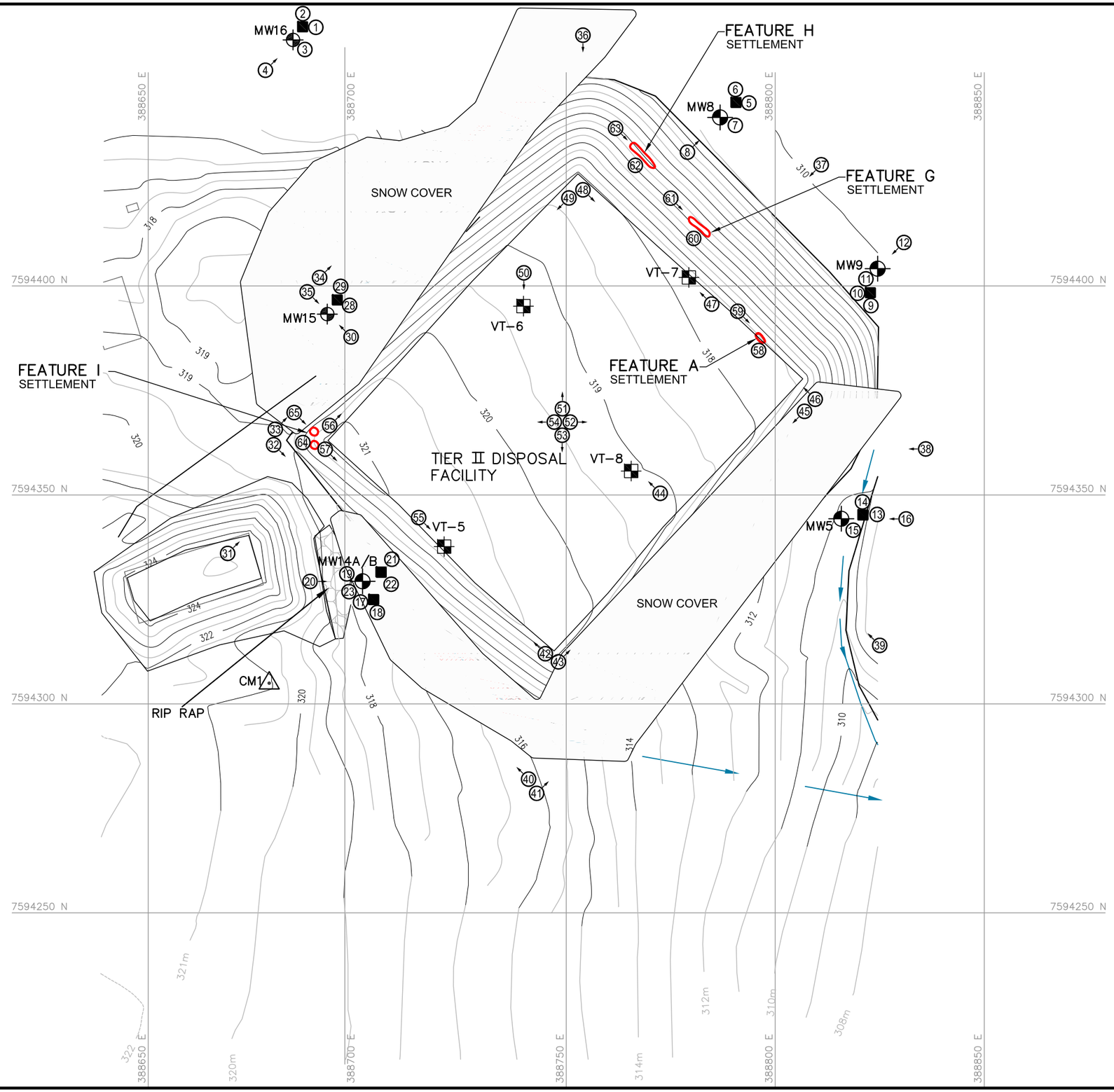
The Preliminary Stability Assessment for Tier II Disposal Facility has been completed as per the TOR and is included as Table XI hereafter.

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.



LEGEND

- CM1 — SURVEY CONTROL MONUMENT
- SOIL SAMPLE LOCATION
- MONITORING WELL LOCATION
- VERTICAL THERMISTOR LOCATION
- PHOTOGRAPH LOCATION
- MINOR SETTLEMENT (NTS)

0 10m 20m 30m 40m 50m

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

Construction de Défense Canada
Defence Construction Canada

COLLECTION OF LANDFILL MONITORING DATA

CAM-4, PELLY BAY, NUNAVUT

TIER II DISPOSAL FACILITY

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

MEASUREMENT UNIT	SCALE:	DATE (month-year):
Meter	1 : 1,000	JANUARY 2014
DRAWN BY: P. LÉGARÉ	VERIFIED BY: B. MACKAY	APPROVED BY: A. LECLAIR P. Eng.
PROJECT NO: CD2656_300_303	DRAWING NO: CD2656_300_303-CAM-4_3	PAGE PL

FIGURE CAM-4.3

G:\CD2656\CAM-4\2013\FINAL\CD2656_300_303-CAM-4_3.dwg, PL, 2014-01-30 4:25:59 PM

4.5 THERMISTOR ANNUAL MAINTENANCE REPORTS

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

Thermal Monitoring
Ground Temperature Annual Maintenance Report

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

Thermistor Information

Site Name:	**CAM-4**		Thermistor Location		**Tier II Disposal Facility**		
Thermistor Number:	**VT-5**		Inclination		**Vertical**		
Install Date:	**13-Aug-06**		First Date Event		**18-Aug-13**	Last Date Event	**31-Aug-13**
Coordinates and Elevation		N	**10033.5**	E	**10043.8**	Elev	**319.18**
Length of Cable (m)	**6.2**	Cable Lead Above Ground (m)		**1.2**	Nodal Points	**10**	
Datalogger Serial #	**108038**				Cable Serial Number		**1622**

Thermistor Inspection

	Good	Needs Maintenance
Casing	☑	☐
Cover	☑	☐
Data Logger	☑	☐
Cable	☑	☐
Beads	☑	☐

Battery Installation Date: **22-Aug-10**

Battery Levels: Main **11.34 V** Aux **12.17**

Manual Ground Temperature Readings

Bead	ohms	Temp. (ºC)
1	**16.464**	**-0.1277**
2	**14.998**	**1.7004**
3	**16.404**	**-0.0565**
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**

Bead	ohms	Temp. (ºC)
9	**20.89**	**-4.7028**
10	**21.76**	**-5.4739**

Observations and Proposed Maintenance

Reset clock: 3:05:11 behind

Thermal Monitoring
Ground Temperature Annual Maintenance Report

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

Thermistor Information

Site Name:	**CAM-4**		Thermistor Location		**Tier II Disposal Facility**		
Thermistor Number:	**VT-6**		Inclination		**Vertical**		
Install Date:	**13-Aug-06**		First Date Event		**N/A**	Last Date Event	**N/A**
Coordinates and Elevation		N	**10090**	E	**10060.8**	Elev	**319.18**
Length of Cable (m)	**6.2**	Cable Lead Above Ground (m)	**1.2**	Nodal Points	**10**		
Datalogger Serial #	**108038**			Cable Serial Number			**1622**

Thermistor Inspection

	Good	Needs Maintenance
Casing	☑	☐
Cover	☑	☐
Data Logger	☐	☑ **Removed for repair**
Cable	☑	☐
Beads	☑	☐

Battery Installation Date: **31-Aug-13**

Battery Levels: Main _____ Aux _____

Manual Ground Temperature Readings

Bead	ohms	Temp. (ºC)	Bead	ohms	Temp. (ºC)
1	**14.673**	**2.1329**	9	**21.15**	**-4.9369**
2	**16.024**	**0.4012**	10	**21.35**	**-5.1149**
3	**16.362**	**-0.0065**			
4	**16.379**	**-0.0268**			
5	**16.984**	**-0.7327**			
6	**17.995**	**-1.8516**			
7	**19.215**	**-3.1116**			
8	**20.16**	**-4.0275**			

Observations and Proposed Maintenance

Error caused by dead battery for extended time period, datalogger removed for repair, no data to retrieve.

Thermal Monitoring
Ground Temperature Annual Maintenance Report

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

Thermistor Information

Site Name:	**CAM-4**		Thermistor Location		**Tier II Disposal Facility**		
Thermistor Number:	**VT-7**		Inclination		**Vertical**		
Install Date:	**13-Aug-06**		First Date Event		**18-Aug-13**	Last Date Event	**31-Aug-13**
Coordinates and Elevation	N	**10097.1**	E	**10100.4**	Elev	**319.18**	
Length of Cable (m)	**6.2**	Cable Lead Above Ground (m)	**1.2**	Nodal Points	**10**		
Datalogger Serial #	**108038**			Cable Serial Number		**1622**	

Thermistor Inspection

	Good	Needs Maintenance
Casing	☑	☐
Cover	☑	☐
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. (ºC)
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**

Bead	ohms	Temp. (ºC)
9	**22.66**	**-6.2361**
10	**23.46**	**-6.8858**

Observations and Proposed Maintenance

Reset clock: 2:54:27 behind

Thermal Monitoring
Ground Temperature Annual Maintenance Report

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

Thermistor Information

Site Name:	**CAM-4**		Thermistor Location		**Tier II Disposal Facility**		
Thermistor Number:	**VT-8**		Inclination		**Vertical**		
Install Date:	**13-Aug-06**		First Date Event		**N/A**	Last Date Event	**N/A**
Coordinates and Elevation		N	**10050.8**	E	**10086.6**	Elev	**319.18**
Length of Cable (m)	**6.2**	Cable Lead Above Ground (m)	**1.1**	Nodal Points	**10**		
Datalogger Serial #	**108038**			Cable Serial Number			**1622**

Thermistor Inspection

	Good	Needs Maintenance
Casing	☑	☐
Cover	☑	☐
Data Logger	☐	☑ **Removed for repair**
Cable	☑	☐
Beads	☑	☐

Battery Installation Date: **31-Aug-13**

Battery Levels: Main _____ Aux _____

Manual Ground Temperature Readings

Bead	ohms	Temp. (ºC)	Bead	ohms	Temp. (ºC)
1	**14.001**	**3.0623**	9	**21.43**	**-5.1855**
2	**16.527**	**0.2021**	10	**22.28**	**-5.9185**
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**			

Observations and Proposed Maintenance

Error caused by dead battery for extended time period, datalogger removed for repair, no data to retrieve.

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	Vantage Point		Focal Length	Caption
				Easting	Northing		
1	2013-C4-TII-1	8.64	02/09/2013	388688	7594464	10mm	MW-16 - Close-up of open soil test pit.
2	2013-C4-TII-2	8.56	02/09/2013	388688	7594464	10mm	MW-16 - Close-up of closed soil test pit.
3	2013-C4-TII-3	6.88	02/09/2013	388686	7594460	10mm	MW-16 - Close-up of monitoring well.
4	2013-C4-TII-4	6.87	02/09/2013	388681	7594459	10mm	MW-16 - View NE - of monitoring well.
5	2013-C4-TII-5	6.45	02/09/2013	388788	7594437	10mm	MW-8 - Close-up of open soil test pit.
6	2013-C4-TII-6	5.31	02/09/2013	388787	7594434	10mm	MW-8 - Close-up of closed soil test pit.
7	2013-C4-TII-7	7.37	02/09/2013	388790	7594434	24mm	MW-8 - Close-up of monitoring well.
8	2013-C4-TII-8	8.23	02/09/2013	388790	7594434	24mm	MW-8 - View NE - of monitoring well.
9	2013-C4-TII-9	8.15	03/09/2013	388823	7594396	17mm	MW-9 - Close-up of open soil test pit.
10	2013-C4-TII-10	8.29	03/09/2013	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 monitoring well.
12	2013-C4-TII-12	5.33	03/09/2013	388813	7594336	17mm	MW-9 - View SW - of monitoring well.
13	2013-C4-TII-13	5.70	03/09/2013	388813	7594335	24mm	MW-5 - Close-up of open soil test pit.
14	2013-C4-TII-14	6.43	03/09/2013	388813	7594335	24mm	MW-5 - Close-up of closed soil test pit.
15	2013-C4-TII-15	5.33	03/09/2013	388814	7594335	12mm	MW-5 - Close-up of monitoring well.
16	2013-C4-TII-16	5.26	03/09/2013	388792	7594297	10mm	MW-5 - View W - of monitoring well.
17	2013-C4-TII-17	7.98	03/09/2013	388698	7594323	12mm	MW-14A - Close-up of open soil test pit.
18	2013-C4-TII-18	8.55	03/09/2013	388698	7594323	12mm	MW-14A - Close-up of closed soil test pit.
19	2013-C4-TII-19	5.15	03/09/2013	388696	7594322	12mm	MW-14A - Close-up of monitoring well.
20	2013-C4-TII-20	6.00	03/09/2013	388689	7594322	10mm	MW-14A/B - View E - of monitoring wells.
21	2013-C4-TII-21	6.29	03/09/2013	388698	7594322	22mm	MW-14B - Close-up of open soil test pit.
22	2013-C4-TII-22	6.64	03/09/2013	388698	7594322	22mm	MW-14B - Close-up of closed soil test pit.
23	2013-C4-TII-23	3.50	03/09/2013	388698	7594322	22mm	MW-14B - Close-up of monitoring well.
28	2013-C4-TII-28	5.13	03/09/2013	388692	7594389	12mm	MW-15 - Close-up of open soil test pit.
29	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 visible due to snow drift.
31	2013-C4-TII-31	6.58	04/09/2013	388669	7594336	10mm	View NE - of Tier II Disposal Facility from neighbouring mound.
32	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.
33	2013-C4-TII-33	6.15	04/09/2013	388680	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 S - of the north corner of the landfill from the bottom of the corner.
37	2013-C4-TII-37	6.90	04/09/2013	388811	7594429	10mm	View SW - of the northwest side slope of the 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	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 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 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.
50	2013-C4-TII-50	6.82	04/09/2013	388737	7594391	10mm	VT-6 - View S - of the thermistor.

Photo	Filename	Size (MB)	Date	Vantage Point		Focal Length	Caption
				Easting	Northing		
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 [cm]	Cu [mg/kg]	Ni [mg/kg]	Co [mg/kg]	Cd [mg/kg]	Pb [mg/kg]	Zn [mg/kg]	Cr [mg/kg]	As [mg/kg]	Hg [mg/kg]	PCBs [mg/kg]	F1 C_6-C_{10}	F2 <10	F3 C_{16}-C_{34}	TPH C_6-C_{34}
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		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		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		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		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		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		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		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

Sample #	Location	Cu [mg/L]	Ni [mg/L]	Co [mg/L]	Cd [mg/L]	Pb [mg/L]	Zn [mg/L]	Cr [mg/L]	As [mg/L]	Hg [mg/L]	PCBs [mg/L]	F1 C_6-C_{10}	F2 C_{10}-C_{16}	F3 C_{16}-C_{34}	TPH C_6-C_{34}
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	<0.0000020	<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	<0.0000020	<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	<0.0000020	<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.

Monitoring Well Sampling Record: MW-5			
Site Name:	CAM-4	Pelly Bay	Nunavut
Date of Sampling Event:	Sept. 3, 2013	Time:	1:11 PM
Names of Samplers:	Brandon MacKay	Jamie Jones Ihakkaq	
Landfill Name:	Tier II Disposal Facility		
Monitoring Well ID:	MW-5		
Sample Number:	N/A – Dry		
Condition of Well:	Good		
Measured Data			
Well pipe height above ground (cm) =	92		
Diameter of well (cm) =	5	Interior diameter	
Depth of well installation (cm) = (from ground surface)	360		
Length screened section (cm) =	203		
Depth to top of screen (cm) = (from ground surface)	60		
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)	280	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		

Monitoring Well Sampling Record: MW-8			
Site Name:	CAM-4	Pelly Bay	Nunavut
Date of Sampling Event:	Sept. 2, 2013	Time:	7:20 PM
Names of Samplers:	Brandon MacKay	Jamie Jones Ihakkaq	
Landfill Name:	Tier II Disposal Facility		
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)	408		
Length screened section (cm) =	201		
Depth to top of screen (cm) = (from ground surface)	97		
Depth to water surface (cm) = (from top of pipe)	124	Measurement method: (meter, tape, etc.)	Interface Meter
Static water level (cm) = (below ground surface)	31		
Measured well refusal depth (cm) = (i.e. depth to frozen ground)	254	Evidence of sludge or siltation:	No
Thickness of water column (cm) =	130		
Static volume of water in well (mL) =	2554		
Free product thickness (mm) =	0	Measurement method: (meter, paste, etc.)	Interface Meter
Purging: (Y/N)	Y	Purging/Sampling Equipment:	Waterra Tubing
Volume Purged Water =	4000 mL		Foot Valve
Decontamination required: (Y/N)	N - Dedicated		
Number washers:	N/A		
Number rinces:	N/A		
Final pH =	7.56		
Final Conductivity (uS/cm) =	75		
Final Temperature (°C) =	0.3		

Monitoring Well Sampling 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 Ihakkaq	
Landfill Name:	Tier 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) = (from ground surface)	332		
Length screened section (cm) =	201		
Depth to top of screen (cm) = (from ground surface)	40		
Depth to water surface (cm) = (from top of pipe)	81	Measurement method: (meter, tape, etc.)	Interface Meter
Static water level (cm) = (below ground surface)	61		
Measured well refusal depth (cm) = (i.e. depth to frozen ground)	182	Evidence of sludge or siltation:	No
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)	Y	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 =	7.49		
Final Conductivity (uS/cm) =	75		
Final Temperature (°C) =	0.2		

Monitoring Well Sampling 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) = (from ground surface)	466		
Length screened section (cm) =	203		
Depth to top of screen (cm) = (from ground surface)	167		
Depth to water surface (cm) = (from top of pipe)	104	Measurement method: (meter, tape, etc.)	Interface Meter
Static water level (cm) = (below ground surface)	54		
Measured well refusal depth (cm) = (i.e. depth to frozen ground)	214	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)	Y	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 =	7.12		
Final Conductivity (uS/cm) =	102		
Final Temperature (°C) =	0.3		

Monitoring Well Sampling 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) = (from ground surface)	362		
Length screened section (cm) =	200		
Depth to top of screen (cm) = (from ground surface)	50		
Depth to water surface (cm) = (from top of pipe)	94	Measurement method: (meter, tape, etc.)	Interface Meter
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)	Y	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 =	7.55		
Final Conductivity (uS/cm) =	51		
Final Temperature (°C) =	0.2		

Monitoring Well Sampling 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 buried 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) = (from ground surface)	325		
Length screened section (cm) =	197		
Depth to top of screen (cm) = (from ground surface)	33		
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		

Monitoring Well Sampling 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) = (from ground surface)	unknown		
Length screened section (cm) =	unknown		
Depth to top of screen (cm) = (from ground surface)	unknown		
Depth to water surface (cm) = (from top of pipe)	130	Measurement method: (meter, tape, etc.)	Interface Meter
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)	Y	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 3rd, 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 3rd, 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 3rd, 2013
DATE OF PREVIOUS INSPECTION: August 21st and 22nd, 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	Occasional	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		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		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

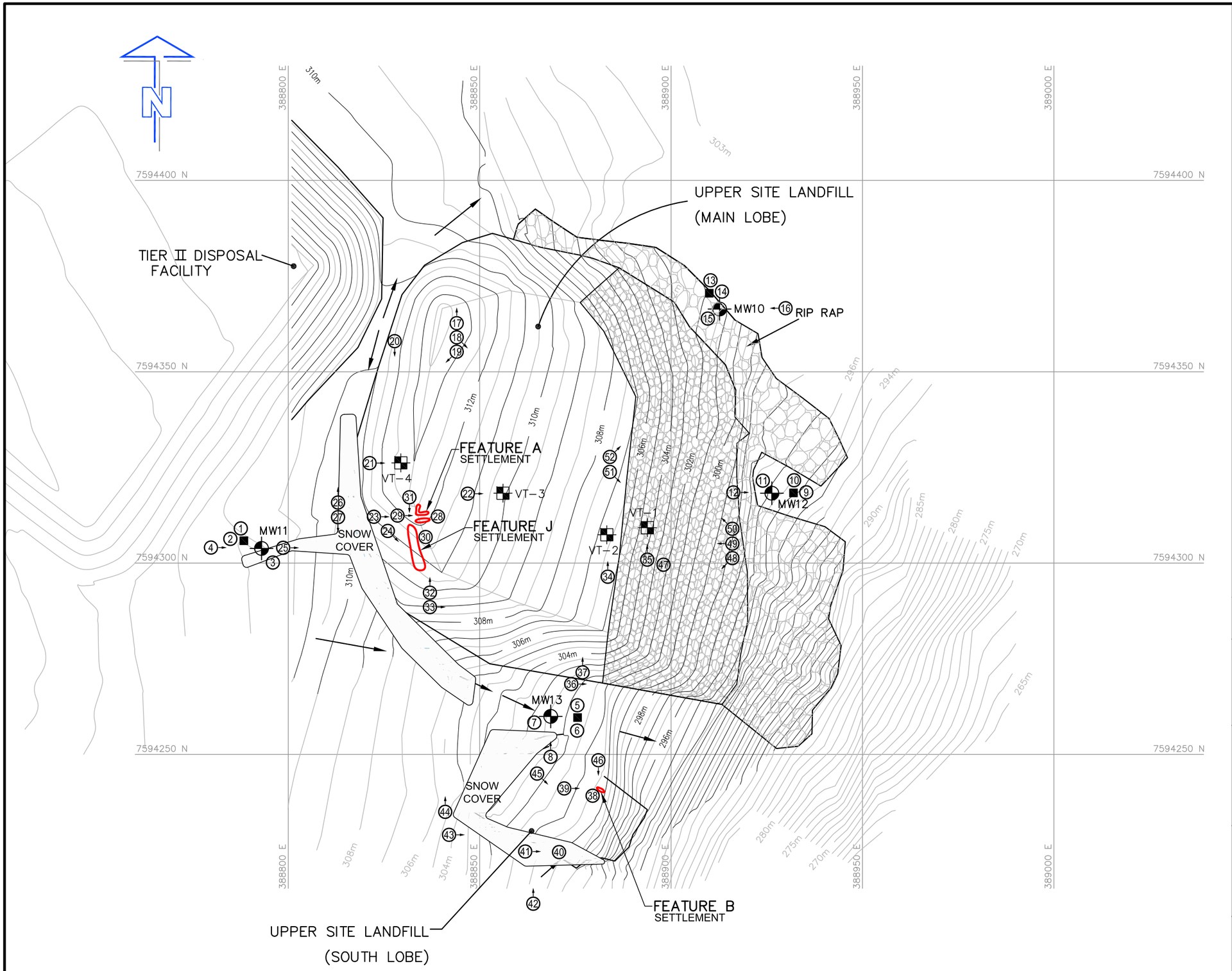
The Preliminary Stability Assessment for the Upper Site Landfill has been completed as per the TOR and is included as Table XVI hereafter.

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.



LEGEND

- SOIL SAMPLE LOCATION
- MONITORING WELL LOCATION
- VERTICAL THERMISTOR LOCATION
- PHOTOGRAPH LOCATION
- SETTLEMENT (NTS)

0 10m 20m 30m 40m 50m

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

Construction de Défense Canada
Defence Construction Canada

COLLECTION OF LANDFILL MONITORING DATA

CAM-4, PELLY BAY, NUNAVUT

UPPER 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

MEASUREMENT UNIT	SCALE:	DATE (month-year):
Meter	1 : 1,000	JANUARY 2014
DRAWN BY: P. LÉGARÉ	VERIFIED BY: B. MACKAY	APPROVED BY: A. LECLAIR P. Eng.
PROJECT NO: CD2656_300_303	DRAWING NO: CD2656_300_303-CAM-4_4	PAGE PL

FIGURE CAM-4.4

G:\CD2656\CAM-4\2013\FINAL\CD2656_300_303-CAM-4_4.dwg, PL, 2014-01-30 4:24:25 PM

5.5 THERMISTOR ANNUAL MAINTENANCE REPORTS

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

Thermal Monitoring
Ground Temperature Annual Maintenance Report

Contractor Name:	**Biogénie/Sila Remediation Inc.**	Inspection Date:	**August 31, 2013**
Prepared By:	**Brandon MacKay**		

Thermistor Information

Site Name:	**CAM-4**		Thermistor Location		**Upper Site Landfill**		
Thermistor Number:	**VT-3**		Inclination		**Vertical**		
Install Date:	**26-Sep-06**		First Date Event		**27-Aug-07** Last Date Event		**28-Aug-09**
Coordinates and Elevation		N	**1013.3**	E	**10177.1**	Elev	**312.8**
Length of Cable (m)	**6.2**	Cable Lead Above Ground (m)	**1.1**		Nodal Points	**10**	
Datalogger Serial #	**207046**				Cable Serial Number		**1619**

Code CAM-4VT-3

Thermistor Inspection

	Good	Needs Maintenance
Casing	☑	☐
Cover	☑	☐
Data Logger	☐	☑ **Datalogger removed for repair**
Cable	☑	☐
Beads	☑	☐

Battery Installation Date **31-Aug-13**

Battery Levels Main **11.34 V** Aux **12.65 V**

Manual Ground Temperature Readings

Bead	ohms	Temp. (ºC)
1	**14.465**	**2.4154**
2	**16.505**	**-0.1762**
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**

Bead	ohms	Temp. (ºC)
9	**20.62**	**-4.4561**
10	**21.81**	**-5.5171**

Observations and Proposed Maintenance

Reset clock: 41517 days -22:06:18

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

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 Location	**Upper Site Landfill**			
Thermistor Number:	**VT-2**		Inclination	**Vertical**			
Install Date:	**28-Sep-06**		First Date Event	**18-Aug-11**	Last Date Event		**31-Aug-13**
Coordinates and Elevation	N	**10002.4**	E	**10204.2**	Elev		**306.7**
Length of Cable (m)	**6.2**	Cable Lead Above Ground (m)	**1.1**	Nodal Points	**10**		
Datalogger Serial #	**207046**			Cable Serial Number			**1617**

Code CAM-4VT-2

Thermistor Inspection

	Good	Needs Maintenance
Casing	☑	☐
Cover	☑	☐
Data Logger	☑	☐
Cable	☑	☐
Beads	☑	☐ **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. (ºC)
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. (ºC)
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 change datalogger is funtioning properly.

Thermal Monitoring
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 Location		**Upper Site Landfill**		
Thermistor Number:	**VT-4**		Inclination		**Vertical**		
Install Date:	**26-Sep-06**		First Date Event		**18-Aug-11** Last Date Event		**31-Aug-13**
Coordinates and Elevation		N	**10021.2**	E	**10150.4**	Elev	**312.8**
Length of Cable (m)	**6.2**		Cable Lead Above Ground (m)	**1.2**	Nodal Points	**10**	
Datalogger Serial #	**207046**				Cable Serial Number		**1619**

Code CAM-4VT-4

Thermistor Inspection

	Good	Needs Maintenance
Casing	☑	☐
Cover	☑	☐
Data Logger	☑	☐
Cable	☑	☐
Beads	☑	☐

Battery Installation Date: **22-Aug-10**

Battery Levels: Main **11.34 V** Aux **13.5 V**

Manual Ground Temperature Readings

Bead	ohms	Temp. (ºC)
1	**14.736**	**2.0482**
2	**16.769**	**-0.4851**
3	**16.355**	**0.0018**
4	**16.418**	**-0.0732**
5	**16.526**	**-0.2010**
6	**17.370**	**-1.1685**
7	**18.231**	**-2.1026**
8	**19.501**	**-3.3940**

Bead	ohms	Temp. (ºC)
9	**20.34**	**-4.1965**
10	**20.52**	**-4.3639**

Observations and Proposed Maintenance

Reset clock: 3:03:37 behind

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

Photo	Filename	Size (MB)	Date	Vantage Point		Focal Length	Caption
				Easting	Northing		
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	22mm	MW-13 - Close-up of monitoring well.
8	2013-C4-US-8	5.88	03/09/2013	388859	7594248	13mm	MW-13 - View N - of monitoring well.
9	2013-C4-US-9	5.32	03/09/2013	388925	7594307	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 closed soil test pit.
11	2013-C4-US-11	4.97	03/09/2013	388925	7594307	10mm	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	Size (MB)	Date	Vantage Point		Focal Length	Caption
				Easting	Northing		
42	2013-C4-US-42	7.33	03/09/2013	388864	7594211	10mm	View N - of the landfill surface from the 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 southwest corner of the south lobe.
44	2013-C4-US-44	6.03	03/09/2013	388841	7594235	10mm	View N - of the landfill surface from the 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 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 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 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 northeast corner.
52	2013-C4-US-52	6.50	03/09/2013	388884	7594326	10mm	View NE - of the landfill surface from the top 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

Sample #	Location	Depth [cm]	Cu [mg/kg]	Ni [mg/kg]	Co [mg/kg]	Cd [mg/kg]	Pb [mg/kg]	Zn [mg/kg]	Cr [mg/kg]	As [mg/kg]	Hg [mg/kg]	PCBs [mg/kg]	F1 C_6-C_{10}	F2 C_{10}-C_{16}	F3 C_{16}-C_{34}	TPH C_6-C_{34}
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		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		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		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		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

Sample #	Location	Cu [mg/L]	Ni [mg/L]	Co [mg/L]	Cd [mg/L]	Pb [mg/L]	Zn [mg/L]	Cr [mg/L]	As [mg/L]	Hg [mg/L]	PCBs [mg/L]	F1 C_6-C_{10}	F2 C_{10}-C_{16}	F3 C_{16}-C_{34}	TPH C_6-C_{34}
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.

Monitoring Well Sampling Record: MW-10			
Site Name:	CAM-4	Pelly Bay	Nunavut
Date of Sampling Event:	Sept 3, 2013	Time:	5:18 PM
Names of Samplers:	Brandon MacKay	Jamie Jones Ihakkaq	
Landfill Name:	Upper Site Landfill		
Monitoring Well ID:	MW-10		
Sample Number:	N/A – Dry		
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) = (from ground surface)	337		
Length screened section (cm) =	203		
Depth to top of screen (cm) = (from ground surface)	38		
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)	239	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		

Monitoring Well Sampling 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:	Upper 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) = (from ground surface)	685		
Length screened section (cm) =	203		
Depth to top of screen (cm) = (from ground surface)	86		
Depth to water surface (cm) = (from top of pipe)	166	Measurement method: (meter, tape, etc.)	Interface Meter
Static water level (cm) = (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)	Y	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		

Monitoring Well Sampling 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 Ihakkaq	
Landfill Name:	Upper Site Landfill		
Monitoring Well ID:	MW-12		
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) = (from ground surface)	267		
Length screened section (cm) =	203		
Depth to top of screen (cm) = (from ground surface)	68		
Depth to water surface (cm) = (from top of pipe)	112	Measurement method: (meter, tape, etc.)	Interface Meter
Static water level (cm) = (below ground surface)	46		
Measured well refusal depth (cm) = (i.e. depth to frozen ground)	212	Evidence of sludge or siltation:	No
Thickness of water column (cm) =	100		
Static volume of water in well (mL) =	1964		
Free product thickness (mm) =	0	Measurement method: (meter, paste, etc.)	Interface Meter
Purging: (Y/N)	Y	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		

Monitoring Well Sampling 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:	Upper 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) = (from ground surface)	318		
Length screened section (cm) =	190		
Depth to top of screen (cm) = (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		
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 4th, 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 4th, 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 4th, 2013
DATE OF PREVIOUS INSPECTION: August 22nd, 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	Occasional	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		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

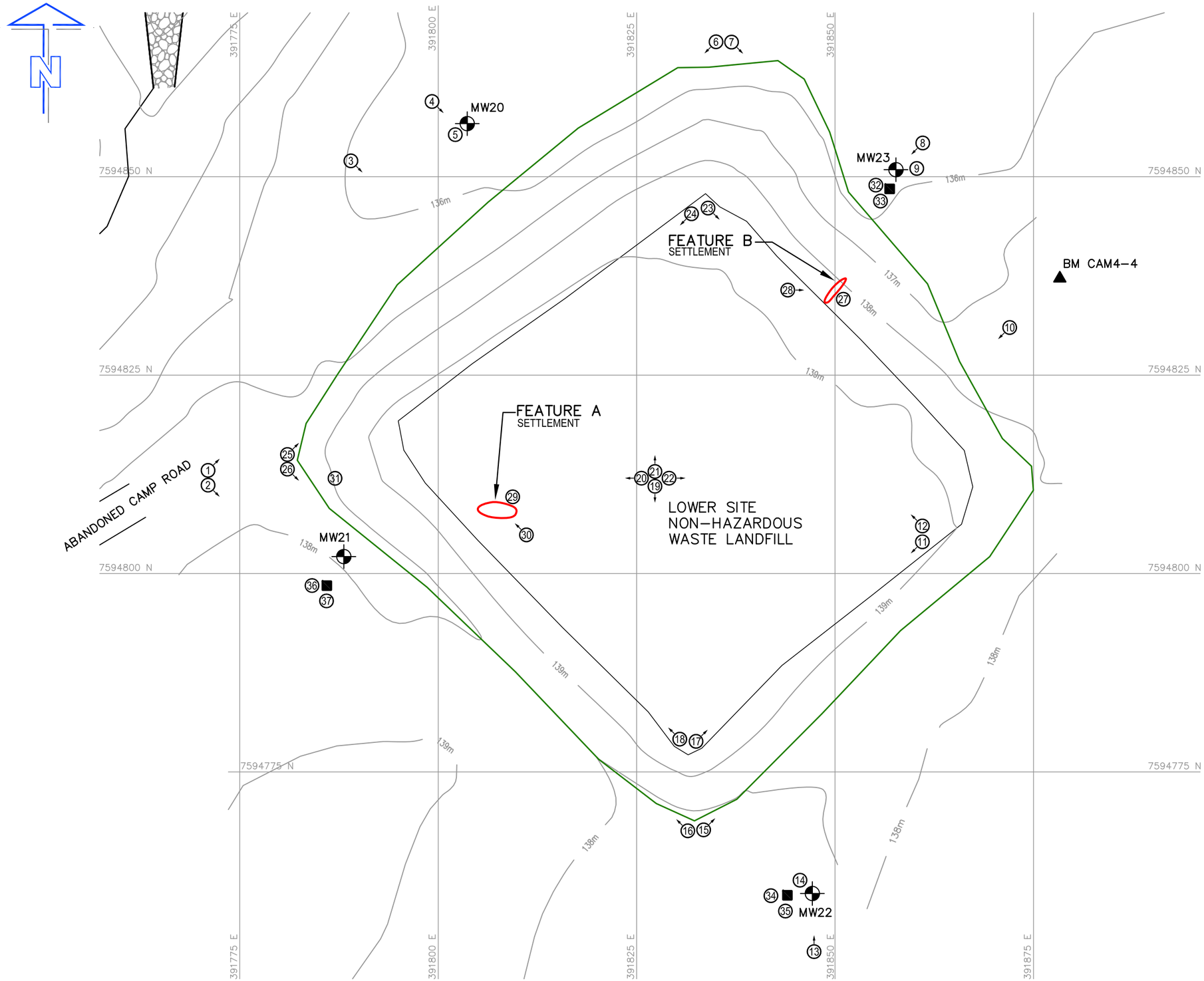
The Preliminary Stability Assessment for the Lower Site Non-Hazardous Waste Landfill has been completed as per the TOR and is included as Table XXI hereafter.

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

- BM-1 ▲ PERMANENT BENCHMARK
- ■ SOIL SAMPLE LOCATION
- ⊕ MONITORING WELL LOCATION
- ① PHOTOGRAPH LOCATION
- ⬭ SETTLEMENT (NTS)

0 5m 10m 15m 20m 25m

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

Construction de Défense Canada
Defence Construction Canada

COLLECTION OF LANDFILL MONITORING DATA

CAM-4, PELLY BAY, NUNAVUT

LOWER SITE NON-HAZARDOUS WASTE 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

MEASUREMENT UNIT	SCALE:	DATE (month-year):
Meter	1 : 500	JANUARY 2014
DRAWN BY: P. LÉGARÉ	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

G:\CD2656\CAM-4\2013\FINAL\CD2656_300_303-CAM-4_5.dwg, PL, 2014-01-23 3:51:12 PM

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

Photo	Filename	Size (MB)	Date	Vantage Point		Focal Length	Caption
				Easting	Northing		
1	2013-C4-LN-1	5.53	04/09/2013	391771	7594813	22mm	View NE - of the northwest landfill toe from the 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 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 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 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 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.
16	2013-C4-LN-16	5.11	04/09/2013	391821	7594763	15mm	View NW - of the southwest toe of the landfill 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 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 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.
20	2013-C4-LN-20	7.86	04/09/2013	391826	7594811	10mm	View W - of the landfill surface from the centre of 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 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.
23	2013-C4-LN-23	6.82	04/09/2013	391826	7594848	10mm	View SE - of the landfill surface from the top of the north corner.
24	2013-C4-LN-24	7.06	04/09/2013	391826	7594848	10mm	View SW - of the landfill surface from the top of 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 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.
27	2013-C4-LN-27	8.58	04/09/2013	391841	7594831	12mm	Feature B - Close-up of linear depressions on the northeast side slope.
28	2013-C4-LN-28	7.31	04/09/2013	391838	7594832	10mm	Feature B - View E - of linear depressions on 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 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

Sample #	Location	Depth [cm]	Cu [mg/kg]	Ni [mg/kg]	Co [mg/kg]	Cd [mg/kg]	Pb [mg/kg]	Zn [mg/kg]	Cr [mg/kg]	As [mg/kg]	Hg [mg/kg]	PCBs [mg/kg]	F1 C_6-C_{10}	F2 C_{10}-C_{16}	F3 C_{16}-C_{34}	TPH C_6-C_{34}
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		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		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		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

Sample #	Location	Cu [mg/L]	Ni [mg/L]	Co [mg/L]	Cd [mg/L]	Pb [mg/L]	Zn [mg/L]	Cr [mg/L]	As [mg/L]	Hg [mg/L]	PCBs [mg/L]	F1 C_6-C_{10}	F2 C_{10}-C_{16}	F3 C_{16}-C_{34}	TPH C_6-C_{34}
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.

Monitoring Well Sampling 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 Non-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) = (from ground surface)	N/A		
Length screened section (cm) =	N/A		
Depth to top of screen (cm) = (from ground surface)	N/A		
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/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		

Monitoring Well Sampling Record: MW-22			
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 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)	unknown		
Length screened section (cm) =	unknown		
Depth to top of screen (cm) = (from ground surface)	unknown		
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		

Monitoring Well Sampling 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 Non-Hazardous Waste Landfill		
Monitoring Well ID:	MW-23		
Sample Number:	2013-C4-MW-23 + Exova 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) = (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)	Y	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 =	6.99		
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 4th, 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 4th, 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 4th, 2013
DATE OF PREVIOUS INSPECTION: August 22nd, 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	Occasional	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	10.00–15.00	0.30	0.10–0.20		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	10.00–15.00	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	5.00–15.00	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	Minor 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

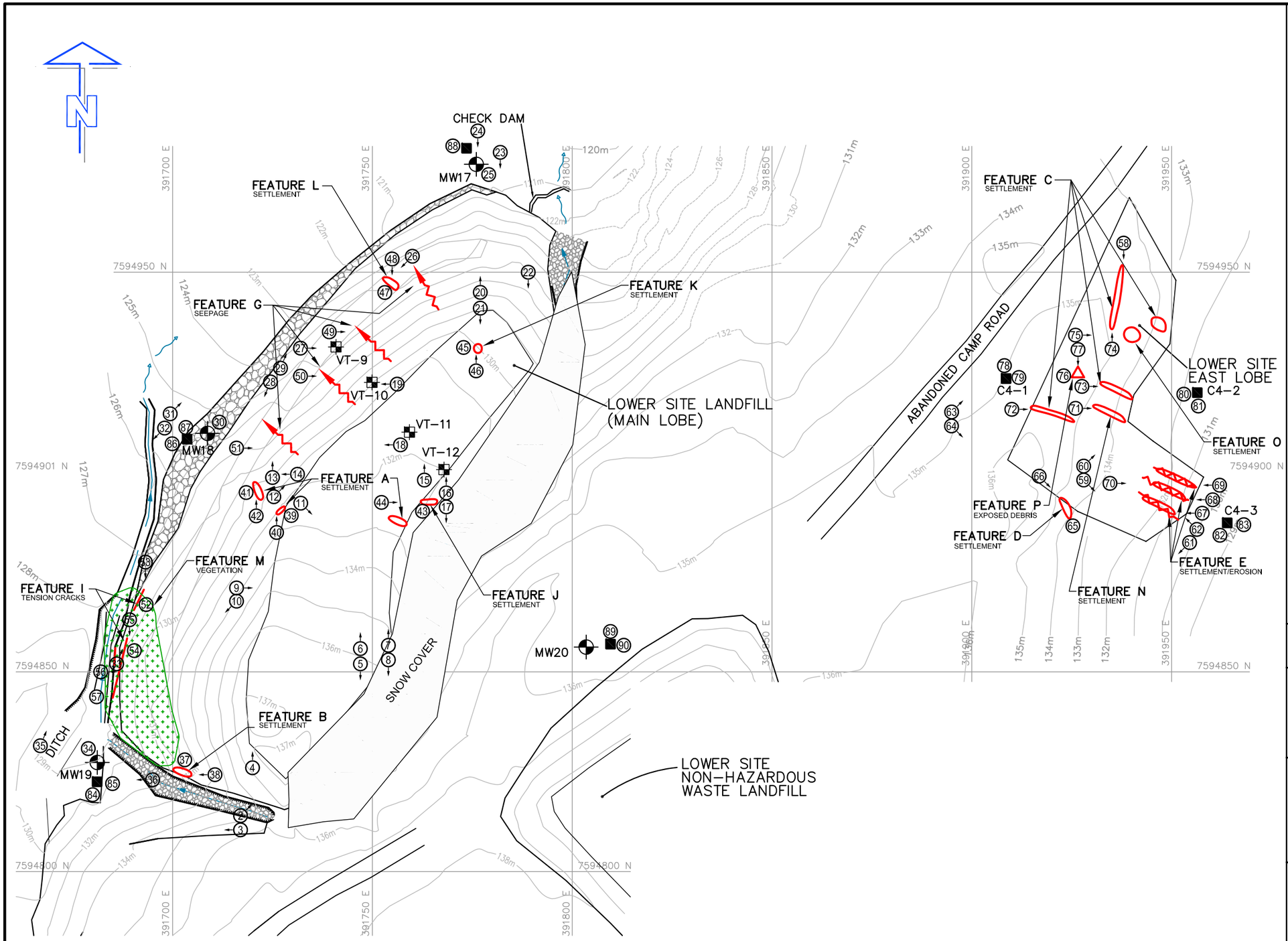
The Preliminary Stability Assessment for the Lower Site Landfill has been completed as per the TOR and is included as Table XXVI hereafter.

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	**Acceptable**	

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
- PHOTOGRAPH LOCATION
- SETTLEMENT (NTS)
- EROSION (NTS)
- SEEPAGE (NTS)
- TENSION CRACK (NTS)
- EXPOSED DEBRIS
- VEGETATION

0 10m 20m 30m 40m 50m

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

Construction de Défense Canada
Defence Construction Canada

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

MEASUREMENT UNIT	SCALE:	DATE (month-year):
Meter	1 : 1,000	JANUARY 2014
DRAWN BY: P. LÉGARÉ	VERIFIED BY: B. MACKAY	APPROVED BY: A. LECLAIR P. Eng.
PROJECT NO: CD2656_300_303	DRAWING NO: CD2656_300_303-CAM-4_6	PAGE PL

FIGURE CAM-4.6

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7.5 THERMISTOR ANNUAL MAINTENANCE REPORTS

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

Thermal Monitoring
Ground Temperature Annual Maintenance Report

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

Thermistor Information

Site Name:	**CAM-4**		Thermistor Location		**Lower Site Landfill**		
Thermistor Number:	**VT-9**		Inclination		**Vertical**		
Install Date:	**29-Sep-06**		First Date Event		**18-Aug-11**	Last Date Event	**03-Sep-13**
Coordinates and Elevation		N	**20544.8**	E	**18760.1**	Elev	**131.966**
Length of Cable (m)	**6.7**		Cable Lead Above Ground (m)	**1.4**	Nodal Points		
Datalogger Serial #	**2020150**				Cable Serial Number		**1626**

Code CAM-4VT-9

Thermistor Inspection

	Good	Needs Maintenance
Casing	☑	☐
Cover	☑	☐
Data Logger	☑	☐
Cable	☑	☐
Beads	☑	☑ **Beads 1, 3 and 6 are offline.**

Battery Installation Date **03-Sep-13**

Battery Levels Main **11.34 V** Aux **13.5 V**

Manual Ground Temperature Readings

Bead	ohms	Temp. (ºC)
	OL	N/A
	15.140	1.5148
	OL	N/A
	16.026	0.3987
	16.343	0.0161
	OL	N/A
	17.998	-1.8548
	19.049	-2.9455

Bead	ohms	Temp. (ºC)
	20.02	-3.8949
	20.90	-4.7118

Observations and Proposed Maintenance

Reset clock: 3:04:20 behind

Thermal Monitoring
Ground Temperature Annual Maintenance Report

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

Thermistor Information

Site Name:	**CAM-4**		Thermistor Location	**Lower Site Landfill**			
Thermistor Number:	**VT-10**		Inclination	**Vertical**			
Install Date:	**29-Sep-06**		First Date Event	**N/A**	Last Date Event	**N/A**	
Coordinates and Elevation		N	**20505.9**	E	**18769.1**	Elev	**129.924**
Length of Cable (m)	**6.2**		Cable Lead Above Ground (m)	**1.2**	Nodal Points	**10**	
Datalogger Serial #	**108060**				Cable Serial Number		**1625**

Thermistor Inspection

	Good	Needs Maintenance
Casing	☑	☐
Cover	☑	☐
Data Logger	☐	☑ **Removed for repair**
Cable	☑	☐
Beads	☑	☐

Battery Installation Date: **03-Sep-13**

Battery Levels: Main _____ Aux _____

Manual Ground Temperature Readings

Bead	ohms	Temp. (ºC)
1	**15.641**	**0.8750**
2	**16.257**	**0.1191**
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**

Bead	ohms	Temp. (ºC)
9	**20.12**	**-3.9897**
10	**20.71**	**-4.5388**

Observations and Proposed Maintenance

Error caused by dead battery for extended time period, datalogger removed for repair, no data to retrieve.

Thermal Monitoring
Ground Temperature Annual Maintenance Report

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

Thermistor Information

Site Name:	**CAM-4**		Thermistor Location	**Lower Site Landfill**			
Thermistor Number:	**VT-11**		Inclination	**Vertical**			
Install Date:	**29-Sep-06**		First Date Event	**18-Aug-11**	Last Date Event		**03-Sep-13**
Coordinates and Elevation		N	**20523.5**	E	**18778.4**	Elev	**131.86**
Length of Cable (m)	**6.2**	Cable Lead Above Ground (m)	**1.1**	Nodal Points	**10**		
Datalogger Serial #	**111070**			Cable Serial Number			**1621**

Thermistor Inspection

	Good	Needs Maintenance
Casing	☑	☐
Cover	☑	☐
Data Logger	☑	☐
Cable	☑	☐
Beads	☑	☐
Battery Installation Date	**03-Sep-13**	
Battery Levels	Main **11.34 V**	Aux **13.75 V**

Manual Ground Temperature Readings

Bead	ohms	Temp. (ºC)
1	**15.475**	**1.0844**
2	**16.237**	**0.1431**
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**

Bead	ohms	Temp. (ºC)
9	**19.682**	**-3.5704**
10	**18.630**	**-2.5189**

Observations and Proposed Maintenance

Reset clock: 3:01:05 behind

Thermal Monitoring
Ground Temperature Annual Maintenance Report

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

Thermistor Information

Site Name:	**CAM-4**		Thermistor Location		**Lower Site Landfill**		
Thermistor Number:	**VT-12**		Inclination		**Vertical**		
Install Date:	**29-Sep-06**		First Date Event		**18-Aug-11**	Last Date Event	**03-Sep-13**
Coordinates and Elevation		N	**20514.1**	E	**18787.1**	Elev	**131.966**
Length of Cable (m)	**6.7**		Cable Lead Above Ground (m)	**1.2**	Nodal Points	**11**	
Datalogger Serial #	**2020150**				Cable Serial Number		**1626**

Thermistor Inspection

	Good	Needs Maintenance
Casing	☑	☐
Cover	☑	☐
Data Logger	☑	☐
Cable	☑	☐
Beads	☑	☑ **Bead 6 is offline.**

Battery Installation Date: **03-Sep-13**

Battery Levels: Main **11.34 V** Aux **12.77 V**

Manual Ground Temperature Readings

Bead	ohms	Temp. (ºC)
1	**15.463**	**1.0996**
2	**16.060**	**0.3573**
3	**15.497**	**1.0565**
4	**15.504**	**1.0476**
5	**15.995**	**0.4366**
6	**OL**	**N/A**
7	**17.514**	**-1.3283**
8	**18.243**	**-2.1153**

Bead	ohms	Temp. (ºC)
9	**19.533**	**-3.4253**
10	**20.54**	**-4.3824**
11	**20.53**	**-4.3731**

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	Vantage Point		Focal Length	Caption
				Easting	Northing		
Main Lobe							
1	2013-C4-LS-1	6.01	04/09/2013	391427	7594783	24mm	View SE - of the Lower Site Landfill from the access road.
2	2013-C4-LS-2	4.17	04/09/2013	391717	7594814	20mm	View NE - of the east landfill toe from the bottom southeast corner of the landfill.
3	2013-C4-LS-3	7.01	04/09/2013	391717	7594814	20mm	View W - of the south landfill toe from the 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 from the top southeast corner.
5	2013-C4-LS-5	6.20	04/09/2013	391747	7594852	10mm	View S - of the landfill surface from the top of the southeast side slope.
6	2013-C4-LS-6	6.42	04/09/2013	391747	7594852	10mm	View N - of the landfill surface from the top of the southeast side slope.
7	2013-C4-LS-7	4.03	04/09/2013	391754	7594853	10mm	View N - of the southeast toe of the landfill.
8	2013-C4-LS-8	3.52	04/09/2013	391754	7594853	10mm	View S - of the southeast toe of the landfill.
9	2013-C4-LS-9	7.18	04/09/2013	391716	7594871	10mm	View E - of the southwest slope of the landfill.
10	2013-C4-LS-10	8.57	04/09/2013	391716	7594871	10mm	View SW - of the landfill surface.
11	2013-C4-LS-11	6.71	04/09/2013	391725	7594895	10mm	View SE - of the central landfill surface.
12	2013-C4-LS-12	7.14	04/09/2013	391725	7594895	10mm	View NE - of the central landfill surface.
13	2013-C4-LS-13	8.12	04/09/2013	391725	7594895	10mm	View N - of the west slope of the landfill.
14	2013-C4-LS-14	8.96	04/09/2013	391725	7594895	10mm	View W - of the west slope of the landfill.
15	2013-C4-LS-15	7.58	04/09/2013	391763	7594898	10mm	VT-12 - View N - of the thermistor.
16	2013-C4-LS-16	3.75	04/09/2013	391768	7594893	10mm	View N - of the east toe of the landfill.
17	2013-C4-LS-17	3.30	04/09/2013	391768	7594893	10mm	View S - of the east toe of the landfill.
18	2013-C4-LS-18	8.66	04/09/2013	391757	7594908	10mm	VT-11 - View W - of the thermistor.
19	2013-C4-LS-19	8.65	04/09/2013	391750	7594922	10mm	VT-10 - View W - of the thermistor.
20	2013-C4-LS-20	8.23	04/09/2013	391777	7594941	10mm	View N - of the north slope of the landfill.
21	2013-C4-LS-21	6.86	04/09/2013	391777	7594941	10mm	View S - of the northern landfill surface.
22	2013-C4-LS-22	3.76	04/09/2013	391789	7594950	10mm	View S - of the east toe of the landfill.
23	2013-C4-LS-23	5.40	04/09/2013	391782	7594980	10mm	View S - of the north toe of the landfill.
24	2013-C4-LS-24	6.22	04/09/2013	391772	7594978	10mm	MW-17 - View S - of the monitoring well.
25	2013-C4-LS-25	7.35	04/09/2013	391771	7594975	14mm	MW-17 - Close-up of the mintoring well.
26	2013-C4-LS-26	5.92	04/09/2013	391760	7594954	14mm	View SW - of the northwest side slope of the 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 slope of the landfill.
29	2013-C4-LS-29	6.43	04/09/2013	391727	7594926	14mm	View NNE - of the west side slope of the landfill.
30	2013-C4-LS-30	5.79	04/09/2013	391701	7594910	14mm	MW-18 - Close-up of the monitoring well.
31	2013-C4-LS-31	5.55	04/09/2013	391698	7594911	10mm	View NE - of the west landfill toe from MW-18.
32	2013-C4-LS-32	5.38	04/09/2013	391698	7594911	10mm	View SE - of the west landfill toe from MW-18.
33	2013-C4-LS-33	7.23	04/09/2013	391686	7594852	10mm	View NNE - of the west side slope of the landfill.
34	2013-C4-LS-34	5.19	04/09/2013	391668	7594827	18mm	MW-19 - Close-up of the monitoring well.
35	2013-C4-LS-35	6.39	04/09/2013	391666	7594827	10mm	MW-19 - View NNE - of the monitoring well.
36	2013-C4-LS-36	6.79	04/09/2013	391695	7594823	10mm	View W - of the south landfill toe.
37	2013-C4-LS-37	8.53	04/09/2013	391710	7594830	12mm	Feature B - Close-up - minor depressions on the south landfill surface.
38	2013-C4-LS-38	8.40	04/09/2013	391710	7594831	10mm	Feature B - View W - minor depressions on the south landfill surface.
39	2013-C4-LS-39	8.65	04/09/2013	391724	7594894	17mm	Feature A - Close-up - of minor depressions on the central landfill surface.
40	2013-C4-LS-40	7.84	04/09/2013	391723	7594890	10mm	Feature A - View N - of minor depressions on the central landfill surface.
41	2013-C4-LS-41	8.84	04/09/2013	391719	7594896	11mm	Feature A - Close-up of minor depressions on the central landfill surface.
42	2013-C4-LS-42	7.61	04/09/2013	391720	7594896	10mm	Feature A - View N - of minor depressions on the central landfill surface.
43	2013-C4-LS-43	8.70	04/09/2013	391761	7594898	18mm	Feature J - Close-up of minor depressions on the landfill surface.
44	2013-C4-LS-44	7.08	04/09/2013	391759	7594898	10mm	Feature J - View E- of minor depressions on the landfill surface.
45	2013-C4-LS-45	8.51	04/09/2013	391767	7594919	24mm	Feature K - Close-up of minor depressions on the landfill surface.
46	2013-C4-LS-46	7.70	04/09/2013	391766	7594917	12mm	Feature - K - View N- of minor depressions on the landfill surface.
47	2013-C4-LS-47	8.29	04/09/2013	391747	7594945	24mm	Feature L - Close-up- of minor depressions on the west side slope of the landfill.
48	2013-C4-LS-48	7.29	04/09/2013	391748	7594947	10mm	Feature - L - View S- of minor depressions on the west side slope of the landfill.
49	2013-C4-LS-49	6.28	04/09/2013	391739	7594932	10mm	Feature G - View E - of an area of seepage on 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 seepage on the west landfill side slope.

Photo	Filename	Size (MB)	Date	Vantage Point		Focal Length	Caption
				Easting	Northing		
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							
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 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.
68	2013-C4-LS-68	9.00	04/09/2013	391940	7594885	10mm	Feature E - View W - of 2 of 3 linear 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.
Main 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

Sample #	Location	Depth [cm]	Cu [mg/kg]	Ni [mg/kg]	Co [mg/kg]	Cd [mg/kg]	Pb [mg/kg]	Zn [mg/kg]	Cr [mg/kg]	As [mg/kg]	Hg [mg/kg]	PCBs [mg/kg]	F1 C_6-C_{10}	F2 C_{10}-C_{16}	F3 C_{16}-C_{34}	TPH C_6-C_{34}
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		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		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		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		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		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		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		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

Sample #	Location	Cu [mg/L]	Ni [mg/L]	Co [mg/L]	Cd [mg/L]	Pb [mg/L]	Zn [mg/L]	Cr [mg/L]	As [mg/L]	Hg [mg/L]	PCBs [mg/L]	F1 C_6-C_{10}	F2 C_{10}-C_{16}	F3 C_{16}-C_{34}	TPH C_6-C_{34}
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.

Monitoring Well Sampling 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:	Lower 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) = (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		
Free product thickness (mm) =	0	Measurement method: (meter, paste, etc.)	Interface Meter
Purging: (Y/N)	Y	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 =	6.80		
Final Conductivity (uS/cm) =	520		
Final Temperature (°C) =	1.0		

Monitoring Well Sampling 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:	Lower 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) = (from ground surface)	380		
Length screened section (cm) =	203		
Depth to top of screen (cm) = (from ground surface)	81		
Depth to water surface (cm) = (from top of pipe)	81	Measurement method: (meter, tape, etc.)	Interface Meter
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		
Free product thickness (mm) =	0	Measurement method: (meter, paste, etc.)	Interface Meter
Purging: (Y/N)	Y	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		

Monitoring Well Sampling 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:	Lower Site Landfill		
Monitoring Well ID:	MW-19		
Sample Number:	2013-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) = (from ground surface)	363		
Length screened section (cm) =	203		
Depth to top of screen (cm) = (from ground surface)	84		
Depth to water surface (cm) = (from top of pipe)	75	Measurement method: (meter, tape, etc.)	Interface Meter
Static water level (cm) = (below ground surface)	4		
Measured well refusal depth (cm) = (i.e. depth to frozen ground)	202	Evidence of sludge or siltation:	No
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)	Y	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		

Monitoring Well Sampling 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:	Lower 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) = (from ground surface)	343		
Length screened section (cm) =	205		
Depth to top of screen (cm) = (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		
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	Vantage Point		Focal Length	Caption
				Easting	Northing		
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

Sample #	Location	Depth [cm]	Cu [mg/kg]	Ni [mg/kg]	Co [mg/kg]	Cd [mg/kg]	Pb [mg/kg]	Zn [mg/kg]	Cr [mg/kg]	As [mg/kg]	Hg [mg/kg]	PCBs [mg/kg]	F1 C_6-C_{10}	F2 C_{10}-C_{16}	F3 C_{16}-C_{34}	TPH C_6-C_{34}
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		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		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

Sample #	Location	Cu [mg/L]	Ni [mg/L]	Co [mg/L]	Cd [mg/L]	Pb [mg/L]	Zn [mg/L]	Cr [mg/L]	As [mg/L]	Hg [mg/L]	PCBs [mg/L]	F1 C_6-C_{10}	F2 C_{10}-C_{16}	F3 C_{16}-C_{34}	TPH C_6-C_{34}
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
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.

Monitoring Well Sampling Record: BMW-3			
Site Name:	CAM-4	Pelly Bay	Nunavut
Date of Sampling Event:	Sept. 3, 2013	Time:	3:45 PM
Names of Samplers:	Brandon MacKay	Jamie Jones Ihakkaq	
Landfill Name:	Site 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) = (from ground surface)	345		
Length screened section (cm) =	203		
Depth to top of screen (cm) = (from ground surface)	46		
Depth to water surface (cm) = (from top of pipe)	96	Measurement method: (meter, tape, etc.)	Interface Meter
Static water level (cm) = (below ground surface)	19		
Measured well refusal depth (cm) = (i.e. depth to frozen ground)	221	Evidence of sludge or siltation:	No
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)	Y	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 =	6.58		
Final Conductivity (uS/cm) =	550		
Final Temperature (°C) =	0.2		

Monitoring Well Sampling 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:	Site 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) = (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		
Free product thickness (mm) =	0	Measurement method: (meter, paste, etc.)	Interface Meter
Purging: (Y/N)	Y	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 =	7.79		
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.

APPENDIX B

Field Notes

9

Approx. to NHWL - Soil Sampling
- September 2nd
- 60 km/h wind from West
- -1°C

MW-3 10:45 ~~1:30pm~~

ID	2013-CH-MW-3-A	10-15cm	1	
	" -B	40cm	2	

- Soil organic + fines some clay

	Pic		GPS	
open	262	(37)	711	
closed	263	(38)	"	
MW-3	264	(39)	712	
→W	265	(40)	713	

MW-4A ~~9:15-9:30~~

ID	2013-CH-MW-4A-A	10	3	9:30am
	" -B	40	4	

- Sand

open	254	(29)	704	
closed	255	(30)	"	
MW-4A	256	(31)	705	
→W	257	(32)	~~706~~ 707	

MW-4B 9:45am 5

ID	2013-CH-MW-4B-A	10	- Sand	
	" -B	40	some gravel	6

open	258	(33)	709	
closed	259	(34)	"	
MW-4B	260	(35)	709	
→W	261	(36)	710	

MW-2 10:00 am

2013 - C4 - MW-2-A Sand + Gravel 7

" -B 6

open	250	(25)	701
closed	251	(26)	"
MW-2	252	(27)	702
→ W	253	(28)	703

open
closed
MW-7A
→ S

MW-6A

2013 - C4 - MW-6A-A Sand + Gravel 9

" -B + Matrix Duplicate on A 10

open	242	(17)	695
closed	243	(18)	"
MW-6A	244	(19)	696
→ W	245	(20)	697

open
closed
MW-7B
→ S

MW-6B

2013 - C4 - MW-6B-A Sand + Gravel 11

" -B + extra Dup on B 12

open	246	(21)	699
closed	247	(22)	"
MW-6B	248	(23)	698
→ W	249	(24)	700

open
closed
BMW-1
→ E

MW-1

13

2013 - C4 - MW-1-A + ESG - Bag 14

" -B

open	238	(13)	692
closed	239	(14)	"
MW-1	240	(15)	693
→ S	241	(16)	694

MW-7A

2013-C4-MW-7A-A

" -B

open	234	(9)	685
closed	235	(10)	"
MW-7A	236	(11)	690
-7S	237	(12)	691

MW-7B

2013-C4-MW-7B-A

" -B

open	230	(5)	686
closed	231	(6)	"
MW-7B	232	(7)	687
-7S	233	(8)	688

BMW-1

2013-C4-BMW-1-A

" -B

open	226	(1)	683
closed	227	(2)	"
BMW-1	228	(3)	684
-7E	229	(4)	685

15:40

3, 4, 7, 8, 11, 12, 15, 16, 19, 20, 23, 24, 27, 28
31, 32, 35, 36, 39, 40
Visual Inspection of WHUL

- No ponded water visibly

Pic
266 - NE (41) 714
267 -> NW (42)
rel 6/7
Feature ID
- still not in subset of TC
-> 268 -> NE (43) 715

Pic
269/~~267~~ N (44) 716

Feature A - south Rim
270 - close-up (45) 717
271 - S 46 718
2m x .4 x .2

North depression 1 x .2 x .05
272 - close-up (47) 719
273 -> S (48) 720
3m x 1 x .15

27, 28

274 → E ~~48~~ 49 CB 721
ict 13

275 → N . 16 ~~49~~ 50 722
276 → E - 14 51

277 - E 52 723 x marks
278 - S 53 2 spot

279 - S - 21 54 724

Feature B
- rust staining
- no seepage/damp

Fiz
280 - S 55 725
281 - close-up 56 "
282 - N 57 726

New obs ① Feature E
- settlement
.20 x .20 x .05
283 - close-up 58 727
284 - E 59 728

New obs ② Feature F
.75 x .2 x .1
285 - close 60 729
286 - F 61 730

287 top - (62) 731

286 -28 (63) 732

New obs (3) Feature G

.5 x .4 x .1

289 close (64) 733

290 →E (65) 734

New obs (4) Feature H

291 -close (66) 735

292 →E (67) 736

2.5 x .2 x .1

293 net 3 (68) 737
→ W

294 →NW (69) 738

295 - SW (70)

296 NW (71) 735

297 NE (72)

298 SE (73)

299 SW (74)

open
closed
MW-16
→ NE

Tier II

soil sampling

MW-16

2013 - CH - MW-16 - A 21

" -B 22

open	300	740	①
closed	301	"	②
MW-16	302	741	③
→ NE	303	742	④

MW-8

304	743	⑤	7 +
305	"	⑥	8
306	744	⑦	6
301	745	⑧	5

September 3rd.

- 1°C

- Blowing snow
- 40 - 60 km/h wind
- landfills are being covered by snow
- upper layer of soil is frozen

MW-9 10:11

2013 CH-MW-9-A

"

open	308	747	(9)	sand
closed	309	"	(10)	+
MW-9	310	748	(11)	gravel
SW	311	749	(12)	

MW-10

MW-5 11:07

- well frozen shut

2013-CH-MW-5-A

" -B + ESG on B

Sand + gravel

open	312	750	(13)	
closed	313	"	(14)	
MW-5	314	751	(15)	
SW	315	752	(16)	

MW-11 Upgrade Landfill

2013-CH-MW-11-A

"

open	316	753	(1)	
closed	317	"	(2)	
MW-11	318	754	(3)	
SE	~~318~~ 319	755	(4)	

10:11

MW 14A

2013-04-MW-14A-A

" -13

open	~~320~~	756	17	
closed	~~321~~	"	18	
MW-14A	~~322~~	~~757~~	19	
→ F	~~323~~	~~758~~ 760	20	

96

22

Send + grad

MW-14B

2013-04-MW-14B-A

" -13

11:07

open	~~324~~	~~759~~ 758	~~21~~	21
closed	~~325~~	"	~~22~~	22
MW-14B	~~326~~	~~760~~ 759	~~23~~	23
→ F	323	~~758~~ 760		

Send → grad

~~MW-15~~ BMW-3

2013-BMW-~~15~~ J-A

" -13

open	~~327~~	761	24	1
closed	328	"	25	2
MW-15	~~329~~	762	26	3
→ F	330	763	27	4

Uppersite landfill

MW-15 2,04

2013- C4-MW-15-A

"

open	~~330~~ 331	(28)	764	
closed	~~331~~ 332	(29)		
well	~~332~~ 333	(30)		

No well buried in snow

open closed MW-10 W

Uppersite landfill

MW-13

2013- C4- MW- 13-A + matrix [illegible]

" -13

open	334	(31)	765	(5)
closed	335	"	~~766~~ "	(6)
well	336	"	766	(7)
-7N	337	"	767 "	(8)

MW 12

2013- C4-MW-12-A

" + ES6 on A

open	338	"	768	(9)
closed	339	"	"	(10)
well	340	"	769	(11)
-7 [illegible]	341	(30)	770	(12)

-OH

MV-10

2013- C4- MV-10- A

" -13 + Star

open	343	3	771	(13)
closed	344	2	"	(14)
MV-10	345	4	772	(15)
FW	346	4	773	(6)

on A

Visual Inspection of
Upper site landfill
September 3
15:19
- -5°C
- Blowing snow
- 60km/hr wind from NE

Pic	GPS		
347 → N	→ 775	17	
ref 6			
348/349 → SE	11	18, 19	
ref 7			
	776		
350 → S		20	
ref 8			
351 → E	777	21	
UT-4			
354/353 → E	~~778~~ 779		~~22~~ 23/24
UT-3	778		
352 → E			22

356
357
358
359
360
361

~~355~~ 355 780 25
refill

356 336 → N 781 26
357 337 → S 27

Feature D fall of snow

Feature A
2x Depression
1m x .2 x .05

358 338 close 782 28
359 339 → 15 783 29

New ob Feature J
10m x.4 x.05

360 340 - close 784 30
361 341 - S 785 31

362/63 786 32/33
rec 16

~~22~~23
23/24

364 → N 787 34
VT-2

22

365 - N 788 35
VT-1

366/367 789 36/37

ret 241

Feature B

2m + 0.15 + 0.40

368	close	790	38
369	→ N	791	39

Feature C

– covered in SW

370	close	792	40
371	→ W	793	41

Feature G

– no longer present

Feature E and I covered in SW

Pic

SE corner S Lake

372 794 42

SW corner 795

373 43

Feature E + I

374 796 44

37

NW corner
375 — 45

NE corner
376 — 46

Feature F
- no longer visible
377 — 47

378/ 79/ 80
E slope — 48/49/50

3 sq
381 / 382 — 51/52

ref 2/3

42

3

4

Visual Inspection of Tier II
September 11th
- 60km/h wind from W
- -5°C
- snow
- No ponding water
Features B, C, D, E, F
not visible due to snow cover

Pic		GPS		
397 -> NE.		1	43	31
- from mound ref 31				
Pic	W corner			
398 -> SE		2	~~48~~ 45	32
399 -> NE			45	33
400 -> SE		3	46	34
401 -> SW			47	35
- NW side of landfill				
402 -> S		4	48	36
- N corner of landfill				
403 - SW		5	49	37
- NE corner of landfill				
404		6	50	38
- E side of landfill				

405 - NW
- SE side of landfill

406 → NW
407 → NE
- S corner

408 → NW
409 → NE
- Top S corner

410 → NW
- UT-8

411 - SW
412 - NW
- Top E corner

413 - NW
- UT-7

414 - SE
415 - SW
- Top north corner

416 - S
UT-6

7	51	~~37~~
8	52	40
	53	41
9	54	42
	55	43
10	56	44
11	57	45
	58	46
12	59	47
13	60	48
	61	49
14	62	50

corner

43	31
44	32
45	33
46	34
47	35
48	36
49	37
50	38

417 → N 15 63 51
418 → E 64 52
419 → S 65 53
420 → W 66 54
- landfill surface from centre

421 16 67 55
→ SE
VT -S

422 → NE 17 68 56
421 - SE 69 57
- Top W corner

Feature A
15 x .2 x .1
425 close 18 70 58
426 SE 19 71 59

New ob ① Feature G
.60 x .4 x .1
~~426~~ 427 close 20 72 60
428 → SE 21 73 61

New ob ② Feature H
1 x .2 x .05
429 close 22 74 62
430 → SE 23 75 63

63 51
64 52
65 53
66 54
...ture
67 55
68 56
69 57
70 58
71 59
...ture G
72 60
73 61
...ture H
74 62
75 63

New obs (3) Feature I

431	Close	24	76	64
432	NE	25	77	65

2x circular depression
,2 dia x .1

Lower site.

433 26
= Picture of NHW and Lowesite landfill from access road

Visual inspection of
Lowesite MHWL
-1°C 30 km/h wind SW

Pic	GPS	
434 → NE	27	①
435 - SE		②
- Bottom W corner		
436	28	③
- NW side of landfill		
437 → SE	29	④
438 - close-up	30	⑤
- MW20		
439 → SW	31	⑥
440 - SE		⑦
- N corner bottom		
441 - SW	32	⑧
442 - close-up	33	⑨
443 - SW	34	⑩
- NE side of LF		
444 - SW	35	⑪
445 - NW		⑫
- top E corner		

446 → N
447 - close-up
- MW-22

448 → NE
449 → NW
- S corner bottom

450 - NE
451 - NW
- S corner top

452 - S
453 - W
454 - N
455 - E
- from center

456 - SE
457 - SW
- N top

458 - NE
459 - SE

36 (13)
37 (14)

38 (15)
(16)

39 (17)
(18)

40 (19)
(20)
(21)
(22)

41 (23)
(24)

42 (25)
(26)

Feature B
1m x 0.2 x 0.05
460 close-up 43 (27)
461 → E 44 (28)
- decreased in size

Feature A
462 close-up 45 (29)
463 NW 46 (30)
- 2m x 0.3 x 0.05

NW obs
464 close 47 (31)
- close up of vegetation
- sparse vegetation on all sides of landfill
- forward

- 4th disturbance on landfill surface
- may contribute to decrease in size of landfill features

Lower site Landfill visual Inspection
Main Lake

-1 30km/h ✓ ✓

~~465~~	465	NE	48	48	(2)
	466	U	47		(3)
467	-N	49		49	(4)
468	→S	52		50	(5)
469	→N	53			(6)
470	→N	21		51	(7)
471	→S	22			(8)
472	→E	50		52	(9)
473	-SW	51			(10)
474	SE	25''		53	(11)
475	NE				(12)
~~476~~					
476	N	26		53	(13)
477	W				(14)
478	-N			54	(15)
UT-	12				
479	N	19		55	(16)
480	S	20			(17)

481 - W
VT - 11

482 W
VT - 10

483 → N 12
484 → S 13

485 → S 11

486 - S 9

487 - S 17W
488 - close
- MW17

489 - SW 10

490 → E
VT - 9

491 - SSW 17
492 - NNE 16

493 close MW 18
494 - NE 33
495 - SE "

56 (18)

57 (19)

58 (20)
(21)

59 (22)

60 (23)

61 (24)
62 (25)

63 (26)

64 (27)

65 (28)
(29)

66 (30)
67 (31)
" (32)

^ F

496 - NNE (34) 68 (33)

497 NW 19 close 69 (34)

498 NNE 70 (35)

499 →W 44 71 (36)

Feature B

2 → .2 → .05

500 close 72 (37)

501 → W 73 (38)

Feature A (1)

.4 → .2 × .05

502 close 74 (39)

503 → W 75 (40)

Feature A (2)

2 × .4 × .01

504 close 76 (41)

505 W 77 (42)

Feature 4 3

~~[illegible]~~

New obs Feature J

.6 × .4 × .05

1 × .3 × .03

506 78 (43)

507 79 (44)

New obs (2) Feature K

.4 d × .05

Sort Close 80 (45)

Sort → N 81 (46)

New obs 4 Feature L

.5 × .3 × .1

S40 close 82 (47)

S11 → S 83 (48)

Feature G

89

S12 → E 85 (49)

2 × Arms

4 × 3

3 < 2

- Frozen on top but water flows underneath ice

4 × 2 86/87

S13 pic on 87 (50)

5 × 2.5 88 ish

S14 (51)

Feature I

3m × 0.04 × 0.03

S15 close 90 (52)

S16 south 91 (53)

Feature I

517	clear	92	(54)
518	Sand	93	(55)

- .3 x .3 x 7m

trash can

15m S of previous area

Feature F not observed

New obs Thick vegetation Feature M

519	close	94	(56)
520	S	95	(57)

Fireweed + Arctic grasses

15, 18, 19, 24, 25, 27, 34, 35

(5') (46) (47) (48) (49) (50) (51) (52) (53)

Lower slb East Lake
Visual inspection
-70C 20km/h wind

S21 - S 69 96 (58)

S22 - SE 64 97 (59)
S23 NE 63 (60)

S24 SW 98 (61)
S25 NW (62)

S26 NE 54 99 (63)
S27 SE (64)

Feature D
2m x .6 x .15
S28 close 100 (65)
S29 → SE 101 (66)

Feature Esa
- same dimension
15 x .4 x .2
S30 W 102 ~~103~~ (67)
S31 W ~~104~~ 103 (68)
S32 W ~~105~~ 104 (69)
S33 E 105 (70)

Feature C

New

534

535

536

537

106

107

108

109

Feature N (71) (72) (73) (74)

open closed

New obs 1m +1m × 0.05

538

110

Feature O (75)

New obs

539 metal pipe

540

111

Feature P (76) (77)

open closed

open closed

Feature
N (71)
(72)
(73)
(74)
Feature O
(75)

Feature P (76)
(77)

Soil sampling east lobe

CH-1
2013- CH- 1 - A + Exown P-r
" - B + Marran Pm
open ~~SH~~ SH41 (78) 112 2:00
closed ~~SH~~ 42 (79)
CH-2
2013- CH- 2 - A
- B + ESC
open ~~SH~~ 43 (80) 113 2:15
closed ~~SH~~ 44 (81)
CH-3
2013- CH- 3 - A
- B
open ~~SH~~ 45 (82) 114 2:30
closed ~~SH~~ 46 (83)

Thermistor Inspector

open
clos
BM4

open
clos

BM - 4 2:38

150	- Depth to water	0.17 mS
238	- Depth to bottom	1.9 °C
66	- well stick-up	7.79 pH

Soil
2013 - CH-BMW-4-A
" -13 + matrix Dup

open	548		115
closed	549		"
BM4	547		116

MW-19 + matrix Dup

75	Depth to water		6.79 pH
202	Depth to bottom		0.78 mS
71	well stick-up		0.2 °C

Soil
2013-CH-MW-19-A 15:33
"
-13

open	550	(84)	117
closed	551	(85)	

GPS ✡

MW-18 7,29

81 water 174 ms

167 bottle 0,2

75 stickup

Soil

2013-C4-MW-18-A

-B

open 552 (46) 119 open

closed 553 (47) closed

MW17

2m 6,80

2,42 0,52 ms

~~78~~ 80° 0,1

Soil

2013-C4-MW-~~19~~ -A

-B open

~~open~~ 554 (45) 120 closed

closed ~~555~~ (48)

open

closed

MW-20 17:51

76

- 2.64 insufficient water

- 2.55

Soil

2013-CH-MW-20-A + matrix

-B

open S61 89 124

closed S62 90

MW-21

- 2.47 insufficient water

- 2.40

- 73

Soil

2013-CH-MW-21-A NHWL

-B + trip. Blk

open S59 36 123

closed S60 37

MW-22

242 insufficient water

235

Soil

2013-CH-MW-22-A + ESG

-B NHWL

open S57 34 122

closed S58 35

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 [cm]	Cu [mg/kg]	Ni [mg/kg]	Co [mg/kg]	Cd [mg/kg]	Pb [mg/kg]	Zn [mg/kg]	Cr [mg/kg]	As [mg/kg]	Hg [mg/kg]	PCBs [mg/kg]	F1 C_6-C_{10}	F2 C_{10}-C_{16}	F3 C_{16}-C_{34}	TPH C_6-C_{34}
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			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			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			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			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			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%	-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			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 [cm]	Cu [mg/kg]	Ni [mg/kg]	Co [mg/kg]	Cd [mg/kg]	Pb [mg/kg]	Zn [mg/kg]	Cr [mg/kg]	As [mg/kg]	Hg [mg/kg]	PCBs [mg/kg]	F1 C_6-C_{10}	F2 C_{10}-C_{16}	F3 C_{16}-C_{34}	TPH C_6-C_{34}
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			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			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			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			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			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			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

Sample #	Location	Cu [mg/L]	Ni [mg/L]	Co [mg/L]	Cd [mg/L]	Pb [mg/L]	Zn [mg/L]	Cr [mg/L]	As [mg/L]	Hg [mg/L]	PCBs [mg/L]	F1	F2	F3	TPH
												C_6-C_{10}	C_{10}-C_{16}	C_{16}-C_{34}	C_8-C_{34}
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

Maxxam

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

Analyses	Quantity	Date Extracted	Date Analyzed	Laboratory Method	Analytical Method
Boron (Hot Water Soluble) (1)	51	2013/09/13	2013/09/13	AB SOP-00042	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 AB SOP-00036	CCME PHC-CWS
CCME Hydrocarbons (F2-F4 in soil) (1)	37	2013/09/10	2013/09/12	AB SOP-00040 AB SOP-00036	CCME PHC-CWS
CCME Hydrocarbons (F2-F4 in soil) (1)	30	2013/09/10	2013/09/13	AB SOP-00040 AB SOP-00036	CCME PHC-CWS
CCME Hydrocarbons (F4G in soil) (1)	1	2013/09/10	2013/09/13	AB SOP-00040 AB SOP-00036	CCME PHC-CWS
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

* 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

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

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Maxxam has procedures in place to guard against improper use of the electronic signature and have the required "signatories", as per section 5.10.2 of ISO/IEC 17025:2005(E), signing the reports. For Service Group specific validation please refer to the Validation Signature Page.

Maxxam Job #: B380795
Report Date: 2013/09/16

BIOGENIE INC.

RESULTS OF CHEMICAL ANALYSES OF SOIL

Maxxam ID		HL1233		HL1234		HL1235		
Sampling Date		2013/09/02 15:40		2013/09/02 15:42		2013/09/02 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								
Moisture	%	9.7	7160104	15	7160104	9.6	0.30	7160104

RDL = Reportable Detection Limit

Maxxam ID		HL1236	HL1237	HL1238	HL1238		
Sampling Date		2013/09/02 13:15	2013/09/02 10:00	2013/09/02 10:00	2013/09/02 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 Lab-Dup**	**RDL**	**QC Batch**
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							
Moisture	%	11	13	12		0.30	7160104

RDL = Reportable Detection Limit

Maxxam ID		HL1239			HL1240	HL1240		
Sampling Date		2013/09/02 10:45			2013/09/02 10:45	2013/09/02 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 Lab-Dup**	**RDL**	**QC Batch**
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.

Maxxam Job #: B380795
Report Date: 2013/09/16

BIOGENIE INC.

RESULTS OF CHEMICAL ANALYSES OF SOIL

Maxxam ID		HL1241		HL1242	HL1251		
Sampling Date		2013/09/02 09:30		2013/09/02 09:30	2013/09/02 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 09:45			2013/09/02 11:00		2013/09/02 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.

Maxxam ID		HL1255		HL1256		HL1257		
Sampling Date		2013/09/02 11:15		2013/09/02 11:15		2013/09/02 11:45		
COC Number		407774-02-01		407774-02-01		407774-02-01		
	UNITS	**2013-C4-MW-6B-A**	**QC Batch**	**2013-C4-MW-6B-B**	**QC Batch**	**2013-C4-MW-7A-A**	**RDL**	**QC Batch**
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

Maxxam Job #: B380795
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BIOGENIE INC.

RESULTS OF CHEMICAL ANALYSES OF SOIL

Maxxam ID		HL1258		HL1259	HL1260	HL1269		
Sampling Date		2013/09/02 11:45		2013/09/02 12:00	2013/09/02 12:00	2013/09/03 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 13:11		2013/09/02 17:50		2013/09/02 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

RDL = Reportable Detection Limit

Maxxam ID		HL1273	HL1273		HL1274	HL1275		
Sampling Date		2013/09/03 12:45	2013/09/03 12:45		2013/09/03 12:45	2013/09/03 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 Lab-Dup**	**QC Batch**	**2013-C4-MW-9-B**	**2013-C4-MW-14A-A**	**RDL**	**QC Batch**
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

RDL = Reportable Detection Limit

Maxxam Job #: B380795
Report Date: 2013/09/16

BIOGENIE INC.

RESULTS OF CHEMICAL ANALYSES OF SOIL

Maxxam ID		HL1276	HL1277	HL1278	HL1301		
Sampling Date		2013/09/03 14:40	2013/09/03 14:50	2013/09/03 14:50	2013/09/03 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

RDL = Reportable Detection Limit

Maxxam ID		HL1302	HL1302	HL1303	HL1304		
Sampling Date		2013/09/03 16:08	2013/09/03 16:08	2013/09/03 16:30	2013/09/03 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 Lab-Dup**	**2013-C4-MW-16-A**	**2013-C4-MW-16-B**	**RDL**	**QC Batch**
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

RDL = Reportable Detection Limit

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

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Maxxam ID		HL1307		HL1308		HL1309		
Sampling Date		2013/09/03 13:36		2013/09/03 13:36		2013/09/03 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 16:58		2013/09/03 16:33		2013/09/03 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 19:41	2013/09/04 19:41	2013/09/04 19:41		2013/09/04 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 Lab-Dup**	**RDL**	**2013-C4-MW-22-A**	**RDL**	**QC Batch**
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.

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

Maxxam ID		HL1331			HL1332		HL1354		
Sampling Date		2013/09/04 18:02			2013/09/04 18:02		2013/09/04 18:15		
COC Number		407774-05-01			407774-05-01		407774-06-01		
	UNITS	**2013-C4-MW-17-A**	**RDL**	**QC Batch**	**2013-C4-MW-17-B**	**RDL**	**2013-C4-MW-18-A**	**RDL**	**QC Batch**
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 18:15			2013/09/04 17:33	2013/09/04 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.

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Maxxam ID		HL1358		HL1359	HL1359		
Sampling Date		2013/09/04 19:53		2013/09/04 19:53	2013/09/04 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 Lab-Dup**	**RDL**	**QC Batch**
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

RDL = Reportable Detection Limit

Maxxam ID		HL1360		HL1361	HL1362		
Sampling Date		2013/09/04 16:14		2013/09/04 16:14	2013/09/04 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 16:20	2013/09/04 16:20			2013/09/04 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.

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Maxxam ID		HL1399			HL1400		
Sampling Date		2013/09/04 16:29			2013/09/04 16:29		
COC Number		407774-07-01			407774-07-01		
	UNITS	**2013-C4-3-A Lab-Dup**	**RDL**	**QC Batch**	**2013-C4-3-B**	**RDL**	**QC Batch**
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 15:46			2013/09/03 15:46		2013/09/04 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 16:54	2013/09/04 16:54			2013/09/02 10:00		
COC Number		407774-07-01	407774-07-01			407774-07-01		
	UNITS	**2013-C4-BMW-4-B**	**2013-C4-BMW-4-B Lab-Dup**	**RDL**	**QC Batch**	**2013-C4-MW-2-A-D**	**RDL**	**QC Batch**
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								
Moisture	%	12		0.30	7159375	21	0.30	7159375

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.

Maxxam

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

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

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

PETROLEUM HYDROCARBONS (CCME)

Maxxam ID		HL1233	HL1234	HL1235	HL1236		
Sampling Date		2013/09/02 15:40	2013/09/02 15:42	2013/09/02 13:15	2013/09/02 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

RDL = Reportable Detection Limit

Maxxam ID		HL1237	HL1238	HL1238	HL1239		
Sampling Date		2013/09/02 10:00	2013/09/02 10:00	2013/09/02 10:00	2013/09/02 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 Lab-Dup**	**2013-C4-MW-3-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	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 (%)							
O-TERPHENYL (sur.)	%	99	102	103	100		7159273

RDL = Reportable Detection Limit

PETROLEUM HYDROCARBONS (CCME)

Maxxam ID		HL1240	HL1241	HL1242	HL1251		
Sampling Date		2013/09/02 10:45	2013/09/02 09:30	2013/09/02 09:30	2013/09/02 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

RDL = Reportable Detection Limit

Maxxam ID		HL1252	HL1253	HL1254	HL1255		
Sampling Date		2013/09/02 09:45	2013/09/02 11:00	2013/09/02 11:00	2013/09/02 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**
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

RDL = Reportable Detection Limit

PETROLEUM HYDROCARBONS (CCME)

Maxxam ID		HL1256	HL1257	HL1258	HL1259		
Sampling Date		2013/09/02 11:15	2013/09/02 11:45	2013/09/02 11:45	2013/09/02 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

RDL = Reportable Detection Limit

Maxxam ID		HL1260		HL1269	HL1270		
Sampling Date		2013/09/02 12:00		2013/09/03 13:11	2013/09/03 13:11		
COC Number		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**
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

RDL = Reportable Detection Limit

PETROLEUM HYDROCARBONS (CCME)

Maxxam ID		HL1270	HL1271	HL1272	HL1273		
Sampling Date		2013/09/03 13:11	2013/09/02 17:50	2013/09/02 17:50	2013/09/03 12:45		
COC Number		407774-03-01	407774-03-01	407774-03-01	407774-03-01		
	UNITS	**2013-C4-MW-5-B Lab-Dup**	**2013-C4-MW-8-A**	**2013-C4-MW-8-B**	**2013-C4-MW-9-A**	**RDL**	**QC Batch**
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

RDL = Reportable Detection Limit

Maxxam ID		HL1274	HL1275	HL1276		
Sampling Date		2013/09/03 12:45	2013/09/03 14:40	2013/09/03 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**
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

RDL = Reportable Detection Limit

PETROLEUM HYDROCARBONS (CCME)

Maxxam ID		HL1277	HL1278	HL1301	HL1302		
Sampling Date		2013/09/03 14:50	2013/09/03 14:50	2013/09/03 16:08	2013/09/03 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

RDL = Reportable Detection Limit

Maxxam ID		HL1303	HL1304	HL1305	HL1306		
Sampling Date		2013/09/03 16:30	2013/09/03 16:30	2013/09/03 17:18	2013/09/03 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

RDL = Reportable Detection Limit

PETROLEUM HYDROCARBONS (CCME)

Maxxam ID		HL1307	HL1308	HL1309	HL1310		
Sampling Date		2013/09/03 13:36	2013/09/03 13:36	2013/09/03 16:58	2013/09/03 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	mg/kg	No	Yes	Yes	Yes		7159279
F4G-SG (Heavy Hydrocarbons-Grav.)	mg/kg	7400				500	7159282
Surrogate Recovery (%)							
O-TERPHENYL (sur.)	%	95	101	103	104		7159279

RDL = Reportable Detection Limit

Maxxam ID		HL1322	HL1323	HL1324	HL1324		
Sampling Date		2013/09/03 16:33	2013/09/03 16:33	2013/09/04 19:41	2013/09/04 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 Lab-Dup**	**RDL**	**QC Batch**
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 (%)							
O-TERPHENYL (sur.)	%	118	114	104	110		7159283

RDL = Reportable Detection Limit

PETROLEUM HYDROCARBONS (CCME)

Maxxam ID		HL1325	HL1326	HL1327	HL1328		
Sampling Date		2013/09/04 19:41	2013/09/04 19:27	2013/09/04 19:27	2013/09/04 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

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

RDL = Reportable Detection Limit

PETROLEUM HYDROCARBONS (CCME)

Maxxam ID		HL1355	HL1356	HL1357	HL1358		
Sampling Date		2013/09/04 18:15	2013/09/04 17:33	2013/09/04 17:33	2013/09/04 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
Surrogate Recovery (%)							
O-TERPHENYL (sur.)	%	102	109	111	104		7159283

RDL = Reportable Detection Limit

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

RDL = Reportable Detection Limit

PETROLEUM HYDROCARBONS (CCME)

Maxxam ID		HL1363		HL1399	HL1400		
Sampling Date		2013/09/04 16:20		2013/09/04 16:29	2013/09/04 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
Surrogate Recovery (%)							
O-TERPHENYL (sur.)	%	96	7159283	90	79		7159292

RDL = Reportable Detection Limit

Maxxam ID		HL1401	HL1402	HL1403	HL1404		
Sampling Date		2013/09/03 15:46	2013/09/03 15:46	2013/09/04 16:54	2013/09/04 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**
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

RDL = Reportable Detection Limit

PETROLEUM HYDROCARBONS (CCME)

Maxxam ID		HL1405	HL1406	HL1407		
Sampling Date		2013/09/02 10:00	2013/09/03 16:30	2013/09/04 19:53		
COC Number		407774-07-01	407774-07-01	407774-07-01		
	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	<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.)	%	87	84	86		7159292

RDL = Reportable Detection Limit

Maxxam ID		HL1408	HL1432	HL1433		
Sampling Date		2013/09/03 16:33	2013/09/04 16:14	2013/09/04 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

RDL = Reportable Detection Limit

POLYCHLORINATED BIPHENYLS BY GC-ECD (SOIL)

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

RDL = Reportable Detection Limit

POLYCHLORINATED BIPHENYLS BY GC-ECD (SOIL)

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

RDL = Reportable Detection Limit

POLYCHLORINATED BIPHENYLS BY GC-ECD (SOIL)

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

RDL = Reportable Detection Limit

POLYCHLORINATED BIPHENYLS BY GC-ECD (SOIL)

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

RDL = Reportable Detection Limit

POLYCHLORINATED BIPHENYLS BY GC-ECD (SOIL)

Maxxam ID		HL1254	HL1255		HL1256		
Sampling Date		2013/09/02 11:00	2013/09/02 11:15		2013/09/02 11:15		
COC Number		407774-02-01	407774-02-01		407774-02-01		
	UNITS	**2013-C4-MW-6A-B**	**2013-C4-MW-6B-A**	**QC Batch**	**2013-C4-MW-6B-B**	**RDL**	**QC Batch**
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

RDL = Reportable Detection Limit

POLYCHLORINATED BIPHENYLS BY GC-ECD (SOIL)

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

RDL = Reportable Detection Limit

Maxxam Job #: B380795
Report Date: 2013/09/16

BIOGENIE INC.

POLYCHLORINATED BIPHENYLS BY GC-ECD (SOIL)

Maxxam ID		HL1260	HL1269	HL1269	HL1270		
Sampling Date		2013/09/02 12:00	2013/09/03 13:11	2013/09/03 13:11	2013/09/03 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 Lab-Dup**	**2013-C4-MW-5-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.)	%	96	97	93	92		7162925

RDL = Reportable Detection Limit

Maxxam Job #: B380795
Report Date: 2013/09/16

BIOGENIE INC.

POLYCHLORINATED BIPHENYLS BY GC-ECD (SOIL)

Maxxam ID		HL1271	HL1272	HL1273	HL1274		
Sampling Date		2013/09/02 17:50	2013/09/02 17:50	2013/09/03 12:45	2013/09/03 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

RDL = Reportable Detection Limit

POLYCHLORINATED BIPHENYLS BY GC-ECD (SOIL)

Maxxam ID		HL1275	HL1276	HL1277	HL1278		
Sampling Date		2013/09/03 14:40	2013/09/03 14:40	2013/09/03 14:50	2013/09/03 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

RDL = Reportable Detection Limit

POLYCHLORINATED BIPHENYLS BY GC-ECD (SOIL)

Maxxam ID		HL1301	HL1302	HL1303	HL1304		
Sampling Date		2013/09/03 16:08	2013/09/03 16:08	2013/09/03 16:30	2013/09/03 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

RDL = Reportable Detection Limit

POLYCHLORINATED BIPHENYLS BY GC-ECD (SOIL)

Maxxam ID		HL1305	HL1306		HL1307		
Sampling Date		2013/09/03 17:18	2013/09/03 17:18		2013/09/03 13:36		
COC Number		407774-04-01	407774-04-01		407774-04-01		
	UNITS	**2013-C4-MW-10-A**	**2013-C4-MW-10-B**	**RDL**	**2013-C4-MW-11-A**	**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	<0.020 (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.

POLYCHLORINATED BIPHENYLS BY GC-ECD (SOIL)

Maxxam ID		HL1308	HL1309	HL1310	HL1322		
Sampling Date		2013/09/03 13:36	2013/09/03 16:58	2013/09/03 16:58	2013/09/03 16:33		
COC Number		407774-04-01	407774-04-01	407774-04-01	407774-05-01		
	UNITS	**2013-C4-MW-11-B**	**2013-C4-MW-12-A**	**2013-C4-MW-12-B**	**2013-C4-MW-13-A**	**RDL**	**QC Batch**
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

RDL = Reportable Detection Limit

POLYCHLORINATED BIPHENYLS BY GC-ECD (SOIL)

Maxxam ID		HL1323	HL1324	HL1325	HL1326		
Sampling Date		2013/09/03 16:33	2013/09/04 19:41	2013/09/04 19:41	2013/09/04 19:27		
COC Number		407774-05-01	407774-05-01	407774-05-01	407774-05-01		
	UNITS	**2013-C4-MW-13-B**	**2013-C4-MW-21-A**	**2013-C4-MW-21-B**	**2013-C4-MW-22-A**	**RDL**	**QC Batch**
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

RDL = Reportable Detection Limit

POLYCHLORINATED BIPHENYLS BY GC-ECD (SOIL)

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

RDL = Reportable Detection Limit

Maxxam Job #: B380795
Report Date: 2013/09/16

BIOGENIE INC.

POLYCHLORINATED BIPHENYLS BY GC-ECD (SOIL)

Maxxam ID		HL1331	HL1332	HL1354	HL1355		
Sampling Date		2013/09/04 18:02	2013/09/04 18:02	2013/09/04 18:15	2013/09/04 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

RDL = Reportable Detection Limit

POLYCHLORINATED BIPHENYLS BY GC-ECD (SOIL)

Maxxam ID		HL1356	HL1357	HL1358	HL1359		
Sampling Date		2013/09/04 17:33	2013/09/04 17:33	2013/09/04 19:53	2013/09/04 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

RDL = Reportable Detection Limit

POLYCHLORINATED BIPHENYLS BY GC-ECD (SOIL)

Maxxam ID		HL1360	HL1361	HL1362	HL1362		
Sampling Date		2013/09/04 16:14	2013/09/04 16:14	2013/09/04 16:20	2013/09/04 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 Lab-Dup**	**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.)	%	98	111	100	119		7165529

RDL = Reportable Detection Limit

POLYCHLORINATED BIPHENYLS BY GC-ECD (SOIL)

Maxxam ID		HL1363	HL1399	HL1400		
Sampling Date		2013/09/04 16:20	2013/09/04 16:29	2013/09/04 16:29		
COC Number		407774-06-01	407774-07-01	407774-07-01		
	UNITS	**2013-C4-2-B**	**2013-C4-3-A**	**2013-C4-3-B**	**RDL**	**QC Batch**
Polychlorinated Biphenyls						
Aroclor 1016	mg/kg	<0.010	<0.010	<0.010	0.010	7165529
Aroclor 1221	mg/kg	<0.010	<0.010	<0.010	0.010	7165529
Aroclor 1232	mg/kg	<0.010	<0.010	<0.010	0.010	7165529
Aroclor 1242	mg/kg	<0.010	<0.010	<0.010	0.010	7165529
Aroclor 1248	mg/kg	<0.010	<0.010	<0.010	0.010	7165529
Aroclor 1254	mg/kg	<0.010	<0.010	<0.010	0.010	7165529
Aroclor 1260	mg/kg	<0.010	<0.010	<0.010	0.010	7165529
Aroclor 1262	mg/kg	<0.010	<0.010	<0.010	0.010	7165529
Aroclor 1268	mg/kg	<0.010	<0.010	<0.010	0.010	7165529
Total Aroclors	mg/kg	<0.010	<0.010	<0.010	0.010	7165529
Surrogate Recovery (%)						
NONACHLOROBIPHENYL (sur.)	%	100	84	88		7165529

RDL = Reportable Detection Limit

POLYCHLORINATED BIPHENYLS BY GC-ECD (SOIL)

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

RDL = Reportable Detection Limit

POLYCHLORINATED BIPHENYLS BY GC-ECD (SOIL)

Maxxam ID		HL1403	HL1404	HL1405	HL1406		
Sampling Date		2013/09/04 16:54	2013/09/04 16:54	2013/09/02 10:00	2013/09/03 16:30		
COC Number		407774-07-01	407774-07-01	407774-07-01	407774-07-01		
	UNITS	**2013-C4-BMW-4-A**	**2013-C4-BMW-4-B**	**2013-C4-MW-2-A-D**	**2013-C4-MW-16-A-D**	**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.)	%	57	89	111	110		7165529

RDL = Reportable Detection Limit

POLYCHLORINATED BIPHENYLS BY GC-ECD (SOIL)

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

RDL = Reportable Detection Limit

POLYCHLORINATED BIPHENYLS BY GC-ECD (SOIL)

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

RDL = Reportable Detection Limit

ELEMENTS BY ATOMIC SPECTROSCOPY (SOIL)

Maxxam ID		HL1233	HL1234		HL1235	HL1236		
Sampling Date		2013/09/02 15:40	2013/09/02 15:42		2013/09/02 13:15	2013/09/02 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**	**QC Batch**	**2013-C4-MW-1-A**	**2013-C4-MW-1-B**	**RDL**	**QC Batch**
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 (Tl)	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

RDL = Reportable Detection Limit

ELEMENTS BY ATOMIC SPECTROSCOPY (SOIL)

Maxxam ID		HL1237	HL1238	HL1239	HL1240		
Sampling Date		2013/09/02 10:00	2013/09/02 10:00	2013/09/02 10:45	2013/09/02 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 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 (Tl)	mg/kg	<0.30	<0.30	0.31	<0.30	0.30	7163983
Total Tin (Sn)	mg/kg	<1.0	<1.0	1.5	1.1	1.0	7163983
Total Uranium (U)	mg/kg	1.4	1.4	3.6	2.2	1.0	7163983
Total Vanadium (V)	mg/kg	28	28	46	34	1.0	7163983
Total Zinc (Zn)	mg/kg	35	33	76	49	10	7163983

RDL = Reportable Detection Limit

ELEMENTS BY ATOMIC SPECTROSCOPY (SOIL)

Maxxam ID		HL1241	HL1242	HL1251	HL1252		
Sampling Date		2013/09/02 09:30	2013/09/02 09:30	2013/09/02 09:45	2013/09/02 09:45		
COC Number		407774-01-01	407774-01-01	407774-02-01	407774-02-01		
	UNITS	**2013-C4-MW-4A-A**	**2013-C4-MW-4A-B**	**2013-C4-MW-4B-A**	**2013-C4-MW-4B-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	<1.0	<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 (Tl)	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

RDL = Reportable Detection Limit

ELEMENTS BY ATOMIC SPECTROSCOPY (SOIL)

Maxxam ID		HL1253	HL1253	HL1254	HL1255		
Sampling Date		2013/09/02 11:00	2013/09/02 11:00	2013/09/02 11:00	2013/09/02 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 Lab-Dup**	**2013-C4-MW-6A-B**	**2013-C4-MW-6B-A**	**RDL**	**QC Batch**
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 (Tl)	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

RDL = Reportable Detection Limit

ELEMENTS BY ATOMIC SPECTROSCOPY (SOIL)

Maxxam ID		HL1256	HL1257	HL1258	HL1259		
Sampling Date		2013/09/02 11:15	2013/09/02 11:45	2013/09/02 11:45	2013/09/02 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**
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 (Tl)	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

RDL = Reportable Detection Limit

Maxxam

Maxxam Job #: B380795
Report Date: 2013/09/16

BIOGENIE INC.

ELEMENTS BY ATOMIC SPECTROSCOPY (SOIL)

Maxxam ID		HL1260	HL1269		HL1270	HL1271		
Sampling Date		2013/09/02 12:00	2013/09/03 13:11		2013/09/03 13:11	2013/09/02 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 (Tl)	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
Total Zinc (Zn)	mg/kg	36	63	7165356	38	44	10	7165233

RDL = Reportable Detection Limit

ELEMENTS BY ATOMIC SPECTROSCOPY (SOIL)

Maxxam ID		HL1272	HL1273	HL1274	HL1275		
Sampling Date		2013/09/02 17:50	2013/09/03 12:45	2013/09/03 12:45	2013/09/03 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 (Tl)	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

RDL = Reportable Detection Limit

Maxxam Job #: B380795
Report Date: 2013/09/16

BIOGENIE INC.

ELEMENTS BY ATOMIC SPECTROSCOPY (SOIL)

Maxxam ID		HL1276	HL1277	HL1278	HL1301		
Sampling Date		2013/09/03 14:40	2013/09/03 14:50	2013/09/03 14:50	2013/09/03 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							
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 (Tl)	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

RDL = Reportable Detection Limit

ELEMENTS BY ATOMIC SPECTROSCOPY (SOIL)

Maxxam ID		HL1302	HL1303	HL1304	HL1305		
Sampling Date		2013/09/03 16:08	2013/09/03 16:30	2013/09/03 16:30	2013/09/03 17:18		
COC Number		407774-04-01	407774-04-01	407774-04-01	407774-04-01		
	UNITS	**2013-C4-MW-15-B**	**2013-C4-MW-16-A**	**2013-C4-MW-16-B**	**2013-C4-MW-10-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	2.6	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 (Tl)	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

RDL = Reportable Detection Limit

ELEMENTS BY ATOMIC SPECTROSCOPY (SOIL)

Maxxam ID		HL1306		HL1307	HL1307	HL1308		
Sampling Date		2013/09/03 17:18		2013/09/03 13:36	2013/09/03 13:36	2013/09/03 13:36		
COC Number		407774-04-01		407774-04-01	407774-04-01	407774-04-01		
	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**
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 (Tl)	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

RDL = Reportable Detection Limit

ELEMENTS BY ATOMIC SPECTROSCOPY (SOIL)

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

RDL = Reportable Detection Limit

ELEMENTS BY ATOMIC SPECTROSCOPY (SOIL)

Maxxam ID		HL1324	HL1325		HL1326		
Sampling Date		2013/09/04 19:41	2013/09/04 19:41		2013/09/04 19:27		
COC Number		407774-05-01	407774-05-01		407774-05-01		
	UNITS	**2013-C4-MW-21-A**	**2013-C4-MW-21-B**	**RDL**	**2013-C4-MW-22-A**	**RDL**	**QC Batch**
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 (Tl)	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)

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

RDL = Reportable Detection Limit

ELEMENTS BY ATOMIC SPECTROSCOPY (SOIL)

Maxxam ID		HL1332		HL1354	HL1355		HL1356		
Sampling Date		2013/09/04 18:02		2013/09/04 18:15	2013/09/04 18:15		2013/09/04 17:33		
COC Number		407774-05-01		407774-06-01	407774-06-01		407774-06-01		
	UNITS	**2013-C4-MW-17-B**	**RDL**	**2013-C4-MW-18-A**	**2013-C4-MW-18-B**	**RDL**	**2013-C4-MW-19-A**	**RDL**	**QC Batch**
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 (Tl)	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

RDL = Reportable Detection Limit

ELEMENTS BY ATOMIC SPECTROSCOPY (SOIL)

Maxxam ID		HL1357		HL1358	HL1359	HL1360		
Sampling Date		2013/09/04 17:33		2013/09/04 19:53	2013/09/04 19:53	2013/09/04 16:14		
COC Number		407774-06-01		407774-06-01	407774-06-01	407774-06-01		
	UNITS	**2013-C4-MW-19-B**	**QC Batch**	**2013-C4-MW-20-A**	**2013-C4-MW-20-B**	**2013-C4-1-A**	**RDL**	**QC Batch**
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 (Tl)	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

RDL = Reportable Detection Limit

ELEMENTS BY ATOMIC SPECTROSCOPY (SOIL)

Maxxam ID		HL1361	HL1362	HL1363		HL1399		
Sampling Date		2013/09/04 16:14	2013/09/04 16:20	2013/09/04 16:20		2013/09/04 16:29		
COC Number		407774-06-01	407774-06-01	407774-06-01		407774-07-01		
	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 (Tl)	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
Total Zinc (Zn)	mg/kg	40	27	25	7165356	64	10	7164368

RDL = Reportable Detection Limit

ELEMENTS BY ATOMIC SPECTROSCOPY (SOIL)

Maxxam ID		HL1400	HL1401		HL1402	HL1403		
Sampling Date		2013/09/04 16:29	2013/09/03 15:46		2013/09/03 15:46	2013/09/04 16:54		
COC Number		407774-07-01	407774-07-01		407774-07-01	407774-07-01		
	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**
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 (Tl)	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

RDL = Reportable Detection Limit

ELEMENTS BY ATOMIC SPECTROSCOPY (SOIL)

Maxxam ID		HL1404	HL1404	HL1405		HL1406		
Sampling Date		2013/09/04 16:54	2013/09/04 16:54	2013/09/02 10:00		2013/09/03 16:30		
COC Number		407774-07-01	407774-07-01	407774-07-01		407774-07-01		
	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**
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 (Tl)	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

RDL = Reportable Detection Limit

ELEMENTS BY ATOMIC SPECTROSCOPY (SOIL)

Maxxam ID		HL1407	HL1408	HL1432	HL1433		
Sampling Date		2013/09/04 19:53	2013/09/03 16:33	2013/09/04 16:14	2013/09/04 16:54		
COC Number		407774-07-01	407774-07-01	407774-08-01	407774-08-01		
	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**
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 (Tl)	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

RDL = Reportable Detection Limit

VOLATILE ORGANICS BY GC-MS (SOIL)

Maxxam ID		HL1233	HL1234	HL1235	HL1236		
Sampling Date		2013/09/02 15:40	2013/09/02 15:42	2013/09/02 13:15	2013/09/02 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**
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

RDL = Reportable Detection Limit

VOLATILE ORGANICS BY GC-MS (SOIL)

Maxxam ID		HL1237	HL1238	HL1239	HL1240		
Sampling Date		2013/09/02 10:00	2013/09/02 10:00	2013/09/02 10:45	2013/09/02 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**
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

RDL = Reportable Detection Limit

Maxxam Job #: B380795
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BIOGENIE INC.

VOLATILE ORGANICS BY GC-MS (SOIL)

Maxxam ID		HL1240	HL1241	HL1242	HL1251		
Sampling Date		2013/09/02 10:45	2013/09/02 09:30	2013/09/02 09:30	2013/09/02 09:45		
COC Number		407774-01-01	407774-01-01	407774-01-01	407774-02-01		
	UNITS	**2013-C4-MW-3-B Lab-Dup**	**2013-C4-MW-4A-A**	**2013-C4-MW-4A-B**	**2013-C4-MW-4B-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.)	%	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

RDL = Reportable Detection Limit

Maxxam Job #: B380795
Report Date: 2013/09/16

BIOGENIE INC.

VOLATILE ORGANICS BY GC-MS (SOIL)

Maxxam ID		HL1252	HL1253	HL1254	HL1255		
Sampling Date		2013/09/02 09:45	2013/09/02 11:00	2013/09/02 11:00	2013/09/02 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

RDL = Reportable Detection Limit

Maxxam Job #: B380795
Report Date: 2013/09/16

BIOGENIE INC.

VOLATILE ORGANICS BY GC-MS (SOIL)

Maxxam ID		HL1256	HL1257	HL1258	HL1259		
Sampling Date		2013/09/02 11:15	2013/09/02 11:45	2013/09/02 11:45	2013/09/02 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**
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

RDL = Reportable Detection Limit

VOLATILE ORGANICS BY GC-MS (SOIL)

Maxxam ID		HL1260		HL1269	HL1270		
Sampling Date		2013/09/02 12:00		2013/09/03 13:11	2013/09/03 13:11		
COC Number		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**
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)

Maxxam ID		HL1271	HL1272	HL1273	HL1274		
Sampling Date		2013/09/02 17:50	2013/09/02 17:50	2013/09/03 12:45	2013/09/03 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**
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

RDL = Reportable Detection Limit

VOLATILE ORGANICS BY GC-MS (SOIL)

Maxxam ID		HL1275	HL1276	HL1277		
Sampling Date		2013/09/03 14:40	2013/09/03 14:40	2013/09/03 14:50		
COC Number		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**	**RDL**	**QC Batch**
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

RDL = Reportable Detection Limit

Maxxam Job #: B380795
Report Date: 2013/09/16

BIOGENIE INC.

VOLATILE ORGANICS BY GC-MS (SOIL)

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

RDL = Reportable Detection Limit

Maxxam Job #: B380795
Report Date: 2013/09/16

BIOGENIE INC.

VOLATILE ORGANICS BY GC-MS (SOIL)

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

RDL = Reportable Detection Limit

VOLATILE ORGANICS BY GC-MS (SOIL)

Maxxam ID		HL1307	HL1308		HL1309		
Sampling Date		2013/09/03 13:36	2013/09/03 13:36		2013/09/03 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

RDL = Reportable Detection Limit

VOLATILE ORGANICS BY GC-MS (SOIL)

Maxxam ID		HL1310	HL1322	HL1323	HL1323		
Sampling Date		2013/09/03 16:58	2013/09/03 16:33	2013/09/03 16:33	2013/09/03 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 Lab-Dup**	**RDL**	**QC Batch**
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

RDL = Reportable Detection Limit

VOLATILE ORGANICS BY GC-MS (SOIL)

Maxxam ID		HL1324	HL1325	HL1326	HL1327		
Sampling Date		2013/09/04 19:41	2013/09/04 19:41	2013/09/04 19:27	2013/09/04 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-22-A**	**2013-C4-MW-22-B**	**RDL**	**QC Batch**
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

RDL = Reportable Detection Limit

VOLATILE ORGANICS BY GC-MS (SOIL)

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

RDL = Reportable Detection Limit

Maxxam Job #: B380795
Report Date: 2013/09/16

BIOGENIE INC.

VOLATILE ORGANICS BY GC-MS (SOIL)

Maxxam ID		HL1332	HL1354	HL1355	HL1356		
Sampling Date		2013/09/04 18:02	2013/09/04 18:15	2013/09/04 18:15	2013/09/04 17:33		
COC Number		407774-05-01	407774-06-01	407774-06-01	407774-06-01		
	UNITS	**2013-C4-MW-17-B**	**2013-C4-MW-18-A**	**2013-C4-MW-18-B**	**2013-C4-MW-19-A**	**RDL**	**QC Batch**
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

RDL = Reportable Detection Limit

Maxxam Job #: B380795
Report Date: 2013/09/16

BIOGENIE INC.

VOLATILE ORGANICS BY GC-MS (SOIL)

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

RDL = Reportable Detection Limit

VOLATILE ORGANICS BY GC-MS (SOIL)

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

RDL = Reportable Detection Limit

VOLATILE ORGANICS BY GC-MS (SOIL)

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

RDL = Reportable Detection Limit

Maxxam Job #: B380795
Report Date: 2013/09/16

BIOGENIE INC.

VOLATILE ORGANICS BY GC-MS (SOIL)

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		
	UNITS	**2013-C4-BMW-3-B**	**2013-C4-BMW-4-A**	**2013-C4-BMW-4-B**	**2013-C4-MW-2-A-D**	**RDL**	**QC 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

RDL = Reportable Detection Limit

VOLATILE ORGANICS BY GC-MS (SOIL)

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

RDL = Reportable Detection Limit

VOLATILE ORGANICS BY GC-MS (SOIL)

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

RDL = Reportable Detection Limit

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.

BIOGENIE INC.
Attention: Alexandre Leclair
Client Project #:
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Quality Assurance Report

Maxxam Job Number: EYKB380795

QA/QC Batch Num	Init	QC Type	Parameter	Date Analyzed yyyy/mm/dd	Value	Recovery	UNITS	QC Limits
7156832	MZ	Matrix Spike						
		[HL1240-01]	1,4-Difluorobenzene (sur.)	2013/09/10		95	%	60 - 140
			4-BROMOFLUOROBENZENE (sur.)	2013/09/10		102	%	60 - 140
			D10-ETHYLBENZENE (sur.)	2013/09/10		106	%	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		114	%	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
			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		103	%	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
			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		mg/kg	
			Toluene	2013/09/10	<0.020		mg/kg	
			Ethylbenzene	2013/09/10	<0.010		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	<0.020		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
			Toluene	2013/09/10	NC		%	50
			Ethylbenzene	2013/09/10	NC		%	50
			Xylenes (Total)	2013/09/10	NC		%	50
			m & p-Xylene	2013/09/10	NC		%	50
			o-Xylene	2013/09/10	NC		%	50
			F1 (C6-C10) - BTEX	2013/09/10	NC		%	50
			(C6-C10)	2013/09/10	NC		%	50
7159273	GB0	Matrix Spike						
		[HL1238-01]	O-TERPHENYL (sur.)	2013/09/12		91	%	50 - 130
			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
			F2 (C10-C16 Hydrocarbons)	2013/09/12		104	%	70 - 130
			F3 (C16-C34 Hydrocarbons)	2013/09/12		98	%	70 - 130
			F4 (C34-C50 Hydrocarbons)	2013/09/12		113	%	70 - 130
		Method Blank	O-TERPHENYL (sur.)	2013/09/12		99	%	50 - 130
			F2 (C10-C16 Hydrocarbons)	2013/09/12	<10		mg/kg	
			F3 (C16-C34 Hydrocarbons)	2013/09/12	<50		mg/kg	
			F4 (C34-C50 Hydrocarbons)	2013/09/12	<50		mg/kg	
		RPD [HL1238-01]	F2 (C10-C16 Hydrocarbons)	2013/09/12	NC		%	50

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QA/QC Batch Num	Init	QC Type	Parameter	Date Analyzed yyyy/mm/dd	Value	Recovery	UNITS	QC Limits
7159273	GB0	RPD [HL1238-01]	F3 (C16-C34 Hydrocarbons)	2013/09/12	NC		%	50
			F4 (C34-C50 Hydrocarbons)	2013/09/12	NC		%	50
7159279	JW0	Matrix Spike [HL1270-01]	O-TERPHENYL (sur.)	2013/09/12		92	%	50 - 130
			F2 (C10-C16 Hydrocarbons)	2013/09/12		101	%	50 - 130
			F3 (C16-C34 Hydrocarbons)	2013/09/12		104	%	50 - 130
			F4 (C34-C50 Hydrocarbons)	2013/09/12		106	%	50 - 130
		Spiked Blank	O-TERPHENYL (sur.)	2013/09/12		96	%	50 - 130
			F2 (C10-C16 Hydrocarbons)	2013/09/12		101	%	70 - 130
			F3 (C16-C34 Hydrocarbons)	2013/09/12		97	%	70 - 130
			F4 (C34-C50 Hydrocarbons)	2013/09/12		119	%	70 - 130
		Method Blank	O-TERPHENYL (sur.)	2013/09/12		108	%	50 - 130
			F2 (C10-C16 Hydrocarbons)	2013/09/12	<10		mg/kg	
			F3 (C16-C34 Hydrocarbons)	2013/09/12	<50		mg/kg	
			F4 (C34-C50 Hydrocarbons)	2013/09/12	<50		mg/kg	
		RPD [HL1270-01]	F2 (C10-C16 Hydrocarbons)	2013/09/12	NC		%	50
			F3 (C16-C34 Hydrocarbons)	2013/09/12	NC		%	50
			F4 (C34-C50 Hydrocarbons)	2013/09/12	NC		%	50
7159282	YC4	Spiked Blank	F4G-SG (Heavy Hydrocarbons-Grav.)	2013/09/13		86	%	70 - 130
		Method Blank	F4G-SG (Heavy Hydrocarbons-Grav.)	2013/09/13	<500		mg/kg	
7159283	JW0	Matrix Spike [HL1324-01]	O-TERPHENYL (sur.)	2013/09/13		99	%	50 - 130
			F2 (C10-C16 Hydrocarbons)	2013/09/13		111	%	50 - 130
			F3 (C16-C34 Hydrocarbons)	2013/09/13		NC	%	50 - 130
			F4 (C34-C50 Hydrocarbons)	2013/09/13		NC	%	50 - 130
		Spiked Blank	O-TERPHENYL (sur.)	2013/09/13		99	%	50 - 130
			F2 (C10-C16 Hydrocarbons)	2013/09/13		106	%	70 - 130
			F3 (C16-C34 Hydrocarbons)	2013/09/13		110	%	70 - 130
			F4 (C34-C50 Hydrocarbons)	2013/09/13		109	%	70 - 130
		Method Blank	O-TERPHENYL (sur.)	2013/09/13		116	%	50 - 130
			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 [HL1324-01]	F2 (C10-C16 Hydrocarbons)	2013/09/13	NC		%	50
			F3 (C16-C34 Hydrocarbons)	2013/09/13	NC		%	50
			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		72	%	50 - 130
			F3 (C16-C34 Hydrocarbons)	2013/09/11		77	%	50 - 130
			F4 (C34-C50 Hydrocarbons)	2013/09/11		91	%	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
		Method Blank	O-TERPHENYL (sur.)	2013/09/11		94	%	50 - 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	
		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
7159375	KSA	Method Blank	Moisture	2013/09/11	<0.30		%	
		RPD	Moisture	2013/09/11	4.1		%	20
7159497	KSA	Method Blank	Moisture	2013/09/11	<0.30		%	
		RPD [HL1325-01]	Moisture	2013/09/11	15.1		%	20

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7159497	KSA	RPD [HL1359-01]	Moisture	2013/09/11	4.1		%	20
7159567	KSA	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-DICHLOROETHANE (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		%	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		%	
		RPD [HL1302-01]	Moisture	2013/09/11	2.1		%	20
7159941	WZ0	Matrix Spike [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

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QA/QC Batch Num	Init	QC Type	Parameter	Date Analyzed yyyy/mm/dd	Value	Recovery	UNITS	QC Limits
7159941	WZ0	Matrix Spike						
		[HL1306-01]	(C6-C10)	2013/09/11		88	%	60 - 140
		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
		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	
		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	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
		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-DICHLOROETHANE (sur.)	2013/09/11		96	%	60 - 140
			Benzene	2013/09/11		84	%	60 - 140
			Toluene	2013/09/11		81	%	60 - 140
			Ethylbenzene	2013/09/11		88	%	60 - 140
			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

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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		%	50
7159964	MZ	Matrix Spike	1,4-Difluorobenzene (sur.)	2013/09/11		98	%	60 - 140
			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
			(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
			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

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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 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
			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
7162942	JC7	Matrix Spike						
		[HL1233-01]	NONACHLOROBIPHENYL (sur.)	2013/09/14		92	%	30 - 130
			Aroclor 1260	2013/09/14		74	%	30 - 130
		Spiked Blank	NONACHLOROBIPHENYL (sur.)	2013/09/14		74	%	30 - 130
			Aroclor 1260	2013/09/14		60	%	30 - 130
		Method Blank	NONACHLOROBIPHENYL (sur.)	2013/09/14		74	%	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 1268	2013/09/14	<0.010		mg/kg	
			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
			Aroclor 1248	2013/09/14	NC		%	50
			Aroclor 1254	2013/09/14	NC		%	50

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7162942	JC7	RPD [HL1233-01]	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
7163983	TDB	Matrix Spike	Total Antimony (Sb)	2013/09/12		81	%	75 - 125
			Total Arsenic (As)	2013/09/12		83	%	75 - 125
			Total Barium (Ba)	2013/09/12		NC	%	75 - 125
			Total Beryllium (Be)	2013/09/12		89	%	75 - 125
			Total Cadmium (Cd)	2013/09/12		85	%	75 - 125
			Total Chromium (Cr)	2013/09/12		78	%	75 - 125
			Total Cobalt (Co)	2013/09/12		80	%	75 - 125
			Total Copper (Cu)	2013/09/12		80	%	75 - 125
			Total Lead (Pb)	2013/09/12		83	%	75 - 125
			Total Mercury (Hg)	2013/09/12		86	%	75 - 125
			Total Molybdenum (Mo)	2013/09/12		87	%	75 - 125
			Total Nickel (Ni)	2013/09/12		NC	%	75 - 125
			Total Selenium (Se)	2013/09/12		86	%	75 - 125
			Total Silver (Ag)	2013/09/12		87	%	75 - 125
			Total Thallium (Tl)	2013/09/12		83	%	75 - 125
			Total Tin (Sn)	2013/09/12		87	%	75 - 125
			Total Uranium (U)	2013/09/12		81	%	75 - 125
			Total Vanadium (V)	2013/09/12		NC	%	75 - 125
			Total Zinc (Zn)	2013/09/12		NC	%	75 - 125
		QC Standard	Total Arsenic (As)	2013/09/12		114	%	50 - 150
			Total Barium (Ba)	2013/09/12		100	%	69 - 131
			Total Chromium (Cr)	2013/09/12		91	%	41 - 159
			Total Cobalt (Co)	2013/09/12		97	%	75 - 125
			Total Copper (Cu)	2013/09/12		99	%	73 - 127
			Total Lead (Pb)	2013/09/12		96	%	54 - 146
			Total Nickel (Ni)	2013/09/12		110	%	61 - 139
			Total Vanadium (V)	2013/09/12		108	%	50 - 150
			Total Zinc (Zn)	2013/09/12		105	%	72 - 128
		Spiked Blank	Total Antimony (Sb)	2013/09/12		102	%	75 - 125
			Total Arsenic (As)	2013/09/12		99	%	75 - 125
			Total Barium (Ba)	2013/09/12		99	%	75 - 125
			Total Beryllium (Be)	2013/09/12		98	%	75 - 125
			Total Cadmium (Cd)	2013/09/12		98	%	75 - 125
			Total Chromium (Cr)	2013/09/12		97	%	75 - 125
			Total Cobalt (Co)	2013/09/12		97	%	75 - 125
			Total Copper (Cu)	2013/09/12		98	%	75 - 125
			Total Lead (Pb)	2013/09/12		99	%	75 - 125
			Total Mercury (Hg)	2013/09/12		102	%	75 - 125
			Total Molybdenum (Mo)	2013/09/12		99	%	75 - 125
			Total Nickel (Ni)	2013/09/12		98	%	75 - 125
			Total Selenium (Se)	2013/09/12		104	%	75 - 125
			Total Silver (Ag)	2013/09/12		99	%	75 - 125
			Total Thallium (Tl)	2013/09/12		98	%	75 - 125
			Total Tin (Sn)	2013/09/12		98	%	75 - 125
			Total Uranium (U)	2013/09/12		99	%	75 - 125
			Total Vanadium (V)	2013/09/12		98	%	75 - 125
			Total Zinc (Zn)	2013/09/12		100	%	75 - 125
		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 Beryllium (Be)	2013/09/12	<0.40		mg/kg	

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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 (Tl)	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 (Tl)	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 [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 (Tl)	2013/09/13		99	%	75 - 125
			Total Tin (Sn)	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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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 (Tl)	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 (Tl)	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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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 (Tl)	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		91	%	75 - 125
			Total Arsenic (As)	2013/09/13		104	%	75 - 125
			Total Barium (Ba)	2013/09/13		NC	%	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 (Tl)	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
			Total Mercury (Hg)	2013/09/13		99	%	75 - 125
			Total Molybdenum (Mo)	2013/09/13		96	%	75 - 125
			Total Nickel (Ni)	2013/09/13		96	%	75 - 125
			Total Selenium (Se)	2013/09/13		98	%	75 - 125
			Total Silver (Ag)	2013/09/13		96	%	75 - 125
			Total Thallium (Tl)	2013/09/13		95	%	75 - 125
			Total Tin (Sn)	2013/09/13		92	%	75 - 125
			Total Uranium (U)	2013/09/13		95	%	75 - 125

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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 (Tl)	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 (Tl)	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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7165356	TDB	Matrix Spike						
		[HL1404-02]	Total Thallium (Tl)	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
			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	%	75 - 125
			Total Cobalt (Co)	2013/09/13		101	%	75 - 125
			Total Copper (Cu)	2013/09/13		100	%	75 - 125
			Total Lead (Pb)	2013/09/13		99	%	75 - 125
			Total Mercury (Hg)	2013/09/13		101	%	75 - 125
			Total Molybdenum (Mo)	2013/09/13		100	%	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
			Total Thallium (Tl)	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 Selenium (Se)	2013/09/13	<0.50		mg/kg	
			Total Silver (Ag)	2013/09/13	<1.0		mg/kg	
			Total Thallium (Tl)	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 [HL1404-02]	Total Antimony (Sb)	2013/09/14	NC		%	35
			Total Arsenic (As)	2013/09/14	NC		%	35

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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 (Tl)	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
			Aroclor 1260	2013/09/15		91	%	30 - 130
		Method Blank	NONACHLOROBIPHENYL (sur.)	2013/09/15		110	%	30 - 130
			Aroclor 1016	2013/09/15	<0.010		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 1262	2013/09/15	NC		%	50
			Aroclor 1268	2013/09/15	NC		%	50
			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	

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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 (Tl)	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

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7165567	HC7	Spiked Blank	Total Selenium (Se)	2013/09/13		107	%	75 - 125
			Total Silver (Ag)	2013/09/13		106	%	75 - 125
			Total Thallium (Tl)	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 (Tl)	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 (Tl)	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	

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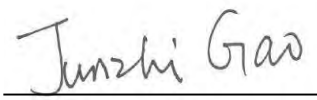
7166152	STI	RPD	Soluble (Hot water) Boron (B)	2013/09/13	NC		%	35
7166263	STI	Matrix Spike	Soluble (Hot water) Boron (B)	2013/09/13		97	%	75 - 125
		Spiked Blank	Soluble (Hot water) Boron (B)	2013/09/13		88	%	75 - 125
		Method Blank	Soluble (Hot water) Boron (B)	2013/09/13	<0.10		mg/kg	
		RPD	Soluble (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 [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		mg/kg	
		RPD [HL1363-02]	Hex. Chromium (Cr 6+)	2013/09/13	NC		%	35
7169107	DK9	Matrix Spike [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		mg/kg	
		RPD [HL1238-02]	Hex. Chromium (Cr 6+)	2013/09/14	NC		%	35
7169324	DK9	Matrix Spike	Hex. Chromium (Cr 6+)	2013/09/14		96	%	75 - 125
		Spiked Blank	Hex. Chromium (Cr 6+)	2013/09/14		96	%	75 - 125
		Method Blank	Hex. Chromium (Cr 6+)	2013/09/14	<0.15		mg/kg	
		RPD	Hex. Chromium (Cr 6+)	2013/09/14	NC		%	35
7171156	DK9	Matrix Spike	Hex. Chromium (Cr 6+)	2013/09/16		NC	%	75 - 125
		Spiked Blank	Hex. Chromium (Cr 6+)	2013/09/16		94	%	75 - 125
		Method Blank	Hex. Chromium (Cr 6+)	2013/09/16	<0.15		mg/kg	
		RPD	Hex. Chromium (Cr 6+)	2013/09/16	NC		%	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.

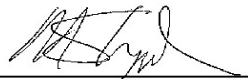
Validation Signature Page

Maxxam Job #: B380795

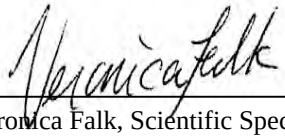
The analytical data and all QC contained in this report were reviewed and validated by the following individual(s).



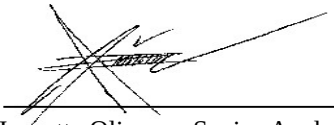
Janet Gao, Senior Analyst, Organics Department



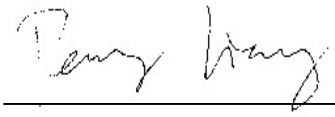
Michael Sheppard, Organics Supervisor



Veronica Falk, Scientific Specialist



Jeanette Olivares, Senior Analyst



Peng Liang, Analyst II

Validation Signature Page

Maxxam Job #: B380795

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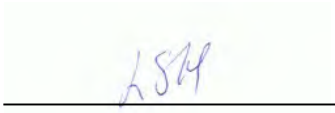

Luba Shymushovska, Senior Analyst, Organic Department

==========

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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CHAIN OF CUSTODY RECORD

INVOICE INFORMATION:		REPORT INFORMATION (if differs from invoice):		PROJECT INFORMATION:		Laboratory Use Only:	
Company Name:	#4495 BIOGENIE INC.	Company Name:		Quotation #:		MAXXAM JOB #:	BOTTLE ORDER #:
Contact Name:	Alexandre Leclair	Contact Name:		P.O. #:		B380795	407774
Address:	4495, boul. Wilfrid-Hamel bureau 200	Address:		Project #:		CHAIN OF CUSTODY #:	PROJECT MANAGER:
	QUEBEC PQ G1P 2J7			Project Name:		C#407774-01-01	James Ehizojie
Phone:	(450)961-3535 x6128 Fax: (450)961-0220	Phone:	Fax:	Site #:			
Email:	aleclair@biogenie-env.com	Email:		Sampled By:			

REGULATORY CRITERIA:
- ☐ ATI
- ☐ CCME
- ☐ OTHER

SPECIAL INSTRUCTIONS

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

ANALYSIS REQUESTED (Please be specific):

TURNAROUND TIME (TAT) REQUIRED:

PLEASE PROVIDE ADVANCE NOTICE FOR RUSH PROJECTS

Regular (Standard) TAT: ☒
(will be applied if Rush TAT is not specified):
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Please note: Standard TAT for certain tests are > 5 days - contact your Project Manager for details

Job Specific Rush TAT (if applies to entire submission) ☐
Date Required: _____
Rush Confirmation Number: _____ *(call lab for #)*

	Sample Barcode Label	Sample (Location) Identification	Date Sampled	Time Sampled	Matrix	Metals Field Filtered ? (Y / N)	AT1 BTEX and F1-F4 in Soil	Regulated Metals (CCME/AT1) - Soils	PCBs in soil	# of Bottles	Comments
1		2013-C4-BMW-1-A	13/09/02	15:40	SOIL		X	X	X	2	
2		2013-C4-BMW-1-B	"	15:42	SOIL		X	X	X	"	
3		2013-C4-MW-1-A	13/09/02	13:15	SOIL		X	X	X	"	
4		2013-C4-MW-1-B	"	"	SOIL		X	X	X	"	
5		2013-C4-MW-2-A	13/09/02	10:00	SOIL		X	X	X	"	
6		2013-C4-MW-2-B	"	"	SOIL		X	X	X	"	
7		2013-C4-MW-3-A	13/09/02	10:45	SOIL		X	X	X	"	
8		2013-C4-MW-3-B	"	"	SOIL		X	X	X	"	
9		2013-C4-MW-4A-A	13/09/02	9:30	SOIL		X	X	X	"	
10		2013-C4-MW-4A-B	"	"	SOIL		X	X	X	"	

9-Sep-13 10:30
~~James Ehizojie~~ 464
B380795
SDG INS-0001

*RELINQUISHED BY: (Signature/Print)	Date: (YY/MM/DD)	Time:	RECEIVED BY: (Signature/Print)	Date: (YY/MM/DD)	Time:	# Jars Used and Not Submitted
Brandon MacKay	13/09/05	10:45	JOSHKINGSBURY	2013/09/09	10:55	

Laboratory Use Only		
Time Sensitive	Temperature (°C) on Receipt	Custody Seal Intact on Cooler?
☐		☐ Yes ☐ No

* 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

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Company Name:	#4495 BIOGENIE INC.	Company Name:		Quotation #:		MAXXAM JOB #:	BOTTLE ORDER #:
Contact Name:	Alexandre Leclair	Contact Name:		P.O. #:		380795	407774
Address:	4495, boul. Wilfrid-Hamel bureau 200	Address:		Project #:		CHAIN OF CUSTODY #:	PROJECT MANAGER:
	QUEBEC PQ G1P 2J7			Project Name:		C#407774-02-01	James Ehizojie
Phone:	(450)961-3535 x6128 Fax: (450)961-0220	Phone:	Fax:	Site #:			
Email:	aleclair@biogenie-env.com	Email:		Sampled By:			

REGULATORY CRITERIA:
- ☐ ATI
- ☐ CCME
- ☐ OTHER

SPECIAL INSTRUCTIONS

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Job Specific Rush TAT (if applies to entire submission) ☐
Date Required: _____
Rush Confirmation Number: _____ *(call lab for #)*

	Sample Barcode Label	Sample (Location) Identification	Date Sampled	Time Sampled	Matrix	Metals Field Filtered ? (Y / N)	AT1 BTEX and F1-F4 in Soil	Regulated Metals (CCME/AT1) - Soils	PCBs in soil							# of Bottles	Comments
1		2013-C4-MW-4B-A	13/09/02	9:45	SOIL		X	X	X							2	
2		2013-C4-MW-4B-B	"	"	SOIL		X	X	X							"	
3		2013-C4-MW-6A-A	13/09/02	11:00	SOIL		X	X	X							"	
4		2013-C4-MW-6A-B	"	"	SOIL		X	X	X							"	
5		2013-C4-MW-6B-A	"	11:15	SOIL		X	X	X							"	
6		2013-C4-MW-6B-B	"	"	SOIL		X	X	X							"	
7		2013-C4-MW-7A-A	13/09/02	11:45	SOIL		X	X	X							"	
8		2013-C4-MW-7A-B	"	"	SOIL		X	X	X							"	
9		2013-C4-MW-7B-A	13/09/02	12:00	SOIL		X	X	X							"	
10		2013-C4-MW-7B-B	"	"	SOIL		X	X	X							"	

*RELINQUISHED BY: (Signature/Print)	Date: (YY/MM/DD)	Time:	RECEIVED BY: (Signature/Print)	Date: (YY/MM/DD)	Time:	# Jars Used and Not Submitted	Laboratory Use Only: Time Sensitive	Temperature (°C) on Receipt	Custody Seal Intact on Cooler?
Brandon Mutty	13/09/05	10:45	JOSH KINGSBURY	2013/09/09	10:55		☐		☐ Yes ☐ No

* 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.
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Company Name:	#4495 BIOGENIE INC.	Company Name:		Quotation #:		MAXXAM JOB #:	BOTTLE ORDER #:
Contact Name:	Alexandre Leclair	Contact Name:		P.O. #:		580795	407774
Address:	4495, boul. Wilfrid-Hamel bureau 200	Address:		Project #:		CHAIN OF CUSTODY #:	PROJECT MANAGER:
	QUEBEC PQ G1P 2J7			Project Name:		C#407774-03-01	James Ehizojie
Phone:	(450)961-3535 x6128 Fax: (450)961-0220	Phone:	Fax:	Site #:			
Email:	aleclair@biogenie-env.com	Email:		Sampled By:			

REGULATORY CRITERIA:
- ☐ ATI
- ☐ CCME
- ☐ OTHER

SPECIAL INSTRUCTIONS

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Date Required: _____
Rush Confirmation Number: _____ *(call lab for #)*

	Sample Barcode Label	Sample (Location) Identification	Date Sampled	Time Sampled	Matrix	Metals Field Filtered ? (Y / N)	AT1 BTEX and F1-F4 in Soil	Regulated Metals (CCME/AT1) - Soils	PCBs in soil	# of Bottles	Comments
1		2013-C4-MW-5-A	13/09/03	13:11	SOIL		X	X	X	2	
2		2013-C4-MW-5-B	"	"	SOIL		X	X	X	"	
3		2013-C4-MW-8-A	13/09/02	17:50	SOIL		X	X	X	"	
4		2013-C4-MW-8-B	"	"	SOIL		X	X	X	"	
5		2013-C4-MW-9-A	13/09/03	12:45	SOIL		X	X	X	"	
6		2013-C4-MW-9-B	"	"	SOIL		X	X	X	"	
7		2013-C4-MW-14A-A	13/09/03	14:40	SOIL		X	X	X	"	
8		2013-C4-MW-14A-B	"	"	SOIL		X	X	X	"	
9		2013-C4-MW-14B-A	13:09/03	14:50	SOIL		X	X	X	"	
10		2013-C4-MW-14B-B	"	"	SOIL		X	X	X	"	

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Brandon MacKay	13/09/05	10:45	Josit Kingsbury	2013/09/09	10:55		☐		☐ Yes ☐ No

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Company Name:	#4495 BIOGENIE INC.	Company Name:		Quotation #:		MAXXAM JOB #:	BOTTLE ORDER #:
Contact Name:	Alexandre Leclair	Contact Name:		P.O. #:		380795	407774
Address:	4495, boul. Wilfrid-Hamel bureau 200	Address:		Project #:		CHAIN OF CUSTODY #:	PROJECT MANAGER:
	QUEBEC PQ G1P 2J7			Project Name:		C#407774-04-01	James Ehizojie
Phone:	(450)961-3535 x6128 Fax: (450)961-0220	Phone:	Fax:	Site #:			
Email:	aleclair@biogenie-env.com	Email:		Sampled By:			

REGULATORY CRITERIA:
- ☐ ATI
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	Sample Barcode Label	Sample (Location) Identification	Date Sampled	Time Sampled	Matrix	Metals Field Filtered ? (Y / N)	AT1 BTEX and F1-F4 in Soil	Regulated Metals (CCME/AT1) - Soils	PCBs in soil							# of Bottles	Comments
1		2013-C4-MW-15-A	13/09/03	16:08	SOIL		X	X	X							2	
2		2013-C4-MW-15-B	"	"	SOIL		X	X	X							"	
3		2013-C4-MW-16-A	13/09/03	16:30	SOIL		X	X	X							"	
4		2013-C4-MW-16-B	"	"	SOIL		X	X	X							"	
5		2013-C4-MW-10-A	13/09/03	17:18	SOIL		X	X	X							4	
6		2013-C4-MW-10-B	"	"	SOIL		X	X	X							"	
7		2013-C4-MW-11-A	13/09/03	13:36	SOIL		X	X	X							"	
8		2013-C4-MW-11-B	"	"	SOIL		X	X	X							"	
9		2013-C4-MW-12-A	13/09/03	16:58	SOIL		X	X	X							"	
10		2013-C4-MW-12-B	"	"	SOIL		X	X	X							"	

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Brandon MacKay	13/09/05	10:45	JOSH KINGSBURY	2013/09/09	10:55	

Laboratory Use Only		
Time Sensitive ☐	Temperature (°C) on Receipt	Custody Seal Intact on Cooler? ☐ Yes ☐ No

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Company Name:	#4495 BIOGENIE INC.	Company Name:		Quotation #:		MAXXAM JOB #:	BOTTLE ORDER #:
Contact Name:	Alexandre Leclair	Contact Name:		P.O. #:		380795	407774
Address:	4495, boul. Wilfrid-Hamel bureau 200	Address:		Project #:		CHAIN OF CUSTODY #:	PROJECT MANAGER:
	QUEBEC PQ G1P 2J7			Project Name:		C#407774-05-01	James Ehizojie
Phone:	(450)961-3535 x6128 Fax: (450)961-0220	Phone:	Fax:	Site #:			
Email:	aleclair@biogenie-env.com	Email:		Sampled By:			

REGULATORY CRITERIA:
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1		2013-C4-MW-13-A	13/09/03	16:33	SOIL		X	X	X							2	
2		2013-C4-MW-13-B	"	"	SOIL		X	X	X							"	
3		2013-C4-MW-21-A	13/09/04	19:41	SOIL		X	X	X							"	
4		2013-C4-MW-21-B	"	"	SOIL		X	X	X							"	
5		2013-C4-MW-22-A	13/09/04	19:27	SOIL		X	X	X							"	
6		2013-C4-MW-22-B	"	"	SOIL		X	X	X							"	
7		2013-C4-MW-23-A	13/09/04	18:50	SOIL		X	X	X							"	
8		2013-C4-MW-23-B	"	"	SOIL		X	X	X							"	
9		2013-C4-MW-17-A	13/09/04	18:02	SOIL		X	X	X							"	
10		2013-C4-MW-17-B	"	"	SOIL		X	X	X							"	

*RELINQUISHED BY: (Signature/Print)	Date: (YY/MM/DD)	Time:	RECEIVED BY: (Signature/Print)	Date: (YY/MM/DD)	Time:	# Jars Used and Not Submitted	Laboratory Use Only: Time Sensitive	Temperature (°C) on Receipt	Custody Seal Intact on Cooler?
[illegible] / Brandon MacKay	13/09/05	10:45	Josit Kinsbury	2013/09/05	10:55		☐		☐ Yes ☐ No

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Company Name:	#4495 BIOGENIE INC.	Company Name:		Quotation #:		MAXXAM JOB #:	BOTTLE ORDER #:
Contact Name:	Alexandre Leclair	Contact Name:		P.O. #:		390795	407774
Address:	4495, boul. Wilfrid-Hamel bureau 200	Address:		Project #:		CHAIN OF CUSTODY #:	PROJECT MANAGER:
	QUEBEC PQ G1P 2J7			Project Name:		C#407774-06-01	James Ehizojie
Phone:	(450)961-3535 x6128 Fax: (450)961-0220	Phone:	Fax:	Site #:			
Email:	aleclair@biogenie-env.com	Email:		Sampled By:			

REGULATORY CRITERIA:

- ☐ ATI
- ☐ CCME
- ☐ OTHER

SPECIAL INSTRUCTIONS

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

	Sample Barcode Label	Sample (Location) Identification	Date Sampled	Time Sampled	Matrix	Metals Field Filtered ? (Y / N)	AT1 BTEX and F1-F4 in Soil	Regulated Metals (CCME/AT1) - Soils	PCBs in soil	# of Bottles	Comments
1		2013-C4-MW-18-A	13/09/04	18:15	SOIL		X	X	X	2	
2		2013-C4-MW-18-B	"	"	SOIL		X	X	X	"	
3		2013-C4-MW-19-A	13/09/04	17:33	SOIL		X	X	X	"	
4		2013-C4-MW-19-B	"	"	SOIL		X	X	X	"	
5		2013-C4-MW-20-A	13/09/04	19:53	SOIL		X	X	X	"	
6		2013-C4-MW-20-B	"	"	SOIL		X	X	X	"	
7		2013-C4-1-A	13/09/04	16:14	SOIL		X	X	X	"	
8		2013-C4-1-B	"	"	SOIL		X	X	X	"	
9		2013-C4-2-A	13/09/04	16:20	SOIL		X	X	X	"	
10		2013-C4-2-B	"	"	SOIL		X	X	X	"	

ANALYSIS REQUESTED (Please be specific):

TURNAROUND TIME (TAT) REQUIRED:

PLEASE PROVIDE ADVANCE NOTICE FOR RUSH PROJECTS

Regular (Standard) TAT: ☒

(will be applied if Rush TAT is not specified):
Standard TAT = 5-7 Working days for most tests.
Please note: Standard TAT for certain tests are > 5 days - contact your Project Manager for details

Job Specific Rush TAT (if applies to entire submission) ☐

Date Required: _____

Rush Confirmation Number: _____ *(call lab for #)*

*RELINQUISHED BY: (Signature/Print)	Date: (YY/MM/DD)	Time:	RECEIVED BY: (Signature/Print)	Date: (YY/MM/DD)	Time:	# Jars Used and Not Submitted	Laboratory Use Only: Time Sensitive	Temperature (°C) on Receipt	Custody Seal Intact on Cooler?
Brandon MacKay	13/09/05	10:45	JOSH KINOSBUG	2013/09/09	10:55		☐		☐ Yes ☐ No

* 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

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Maxxam

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

CHAIN OF CUSTODY RECORD

INVOICE INFORMATION:		REPORT INFORMATION (if differs from invoice):		PROJECT INFORMATION:		Laboratory Use Only:	
Company Name:	#4495 BIOGENIE INC.	Company Name:		Quotation #:		MAXXAM JOB #:	BOTTLE ORDER #:
Contact Name:	Alexandre Leclair	Contact Name:		P.O. #:		390795	407774
Address:	4495, boul. Wilfrid-Hamel bureau 200	Address:		Project #:		CHAIN OF CUSTODY #:	PROJECT MANAGER:
	QUEBEC PQ G1P 2J7			Project Name:		C#407774-07-01	James Ehizojie
Phone:	(450)961-3535 x6128 Fax: (450)961-0220	Phone:	Fax:	Site #:			
Email:	aleclair@biogenie-env.com	Email:		Sampled By:			

REGULATORY CRITERIA:

- ☐ ATI
- ☐ CCME
- ☐ OTHER

SPECIAL INSTRUCTIONS

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

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TURNAROUND TIME (TAT) REQUIRED:

PLEASE PROVIDE ADVANCE NOTICE FOR RUSH PROJECTS

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(will be applied if Rush TAT is not specified):
Standard TAT = 5-7 Working days for most tests.
Please note: Standard TAT for certain tests are > 5 days - contact your Project Manager for details

Job Specific Rush TAT (if applies to entire submission) ☐
Date Required: _____
Rush Confirmation Number: _____ *(call lab for #)*

	Sample Barcode Label	Sample (Location) Identification	Date Sampled	Time Sampled	Matrix	Metals Field Filtered ? (Y / N)	AT1 BTEX and F1-F4 in Soil	Regulated Metals (CCME/AT1) - Soils	PCBs in soil							# of Bottles	Comments
1		2013-C4-3-A	13/09/04	16:29	SOIL		X	X	X							2	
2		2013-C4-3-B	"	"	SOIL		X	X	X							"	
3		2013-C4-BMW-3-A	13/09/03	15:46	SOIL		X	X	X							"	
4		2013-C4-BMW-3-B	"	"	SOIL		X	X	X							"	
5		2013-C4-BMW-4-A	13/09/04	16:54	SOIL		X	X	X							"	
6		2013-C4-BMW-4-B	"	"	SOIL		X	X	X							"	
7		2013-C4-MW-2-A-D	13/09/04	~~16:20~~ 10:00	SOIL		X	X	X							"	
8		2013-C4-MW-16-A-D	13/09/03	16:30	SOIL		X	X	X							"	
9		2013-C4-MW-20-B-D	13/09/04	19:53	SOIL		X	X	X							"	
10		2013-C4-MW-13-A-D	13/09/03	16:33	SOIL		X	X	X							"	

*RELINQUISHED BY: (Signature/Print)	Date: (YY/MM/DD)	Time:	RECEIVED BY: (Signature/Print)	Date: (YY/MM/DD)	Time:	# Jars Used and Not Submitted	Laboratory Use Only: Time Sensitive	Temperature (°C) on Receipt	Custody Seal Intact on Cooler?
Brandon MacKay	13/09/05	10:45	JOSH KINGSBURY	2013/09/04	10:55		☐		☐ Yes ☐ No

* 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

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Maxxam Analytics International Corporation o/a Maxxam Analytics

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

CHAIN OF CUSTODY RECORD

INVOICE INFORMATION:		REPORT INFORMATION (if differs from invoice):		PROJECT INFORMATION:		Laboratory Use Only:	
Company Name:	#4495 BIOGENIE INC.	Company Name:		Quotation #:		MAXXAM JOB #:	BOTTLE ORDER #:
Contact Name:	Alexandre Leclair	Contact Name:		P.O. #:		380795	407774
Address:	4495, boul. Wilfrid-Hamel bureau 200	Address:		Project #:		CHAIN OF CUSTODY #:	PROJECT MANAGER:
	QUEBEC PQ G1P 2J7			Project Name:		C#407774-08-01	James Ehizojie
Phone:	(450)961-3535 x6128 Fax: (450)961-0220	Phone:	Fax:	Site #:			
Email:	aleclair@biogenie-env.com	Email:		Sampled By:			

REGULATORY CRITERIA:

- ☐ ATI
- ☐ CCME
- ☐ OTHER

SPECIAL INSTRUCTIONS

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

ANALYSIS REQUESTED (Please be specific):

TURNAROUND TIME (TAT) REQUIRED:

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Regular (Standard) TAT: ☒
(will be applied if Rush TAT is not specified):
Standard TAT = 5-7 Working days for most tests.
Please note: Standard TAT for certain tests are > 5 days - contact your Project Manager for details

Job Specific Rush TAT (if applies to entire submission) ☐
Date Required: _____
Rush Confirmation Number: _____ *(call lab for #)*

	Sample Barcode Label	Sample (Location) Identification	Date Sampled	Time Sampled	Matrix	Metals Field Filtered ? (Y / N)	AT1 BTEX and F1-F4 in Soil	Regulated Metals (CCME/AT1) - Soils	PCBs in soil	# of Bottles	Comments
1		2013-CH-1-B-D	13/09/04	16:14	SOIL		X	X	X	2	
2		2013-CH-BMW-4-B-D	11	16:54	SOIL		X	X	X	11	
3		[illegible]	[illegible]	[illegible]	SOIL		X	X	X	[illegible]	
4		[illegible]	11	[illegible]	SOIL		X	X	X		
5					SOIL		X	X	X		
6					SOIL		X	X	X		
7					SOIL		X	X	X		
8					SOIL		X	X	X		
9					SOIL		X	X	X		
10					SOIL		X	X	X		

*RELINQUISHED BY: (Signature/Print)	Date: (YY/MM/DD)	Time:	RECEIVED BY: (Signature/Print)	Date: (YY/MM/DD)	Time:	# Jars Used and Not Submitted	Laboratory Use Only: Time Sensitive	Temperature (°C) on Receipt	Custody Seal Intact on Cooler?
[illegible] Brandon MacKay	13/09/05	10:45	JOSHKINGSBURY	2013/09/09	10:55		☐		☐ Yes ☐ No

* 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

Maxxam

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

Analyses	Quantity	Date Extracted	Date 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 AB SOP-00036	CCME PHC-CWS

Sample Matrix: Water
Samples Received: 15

Analyses	Quantity	Date Extracted	Date 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 AB SOP-00037	EPA3510C/CCME PHCCWS
CCME Hydrocarbons (F2-F4 in water) (1)	9	2013/09/12	2013/09/13	AB SOP-00040 AB SOP-00037	EPA3510C/CCME PHCCWS
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

* 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

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.

Total cover pages: 2

PETROLEUM HYDROCARBONS (CCME)

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

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

RDL = Reportable Detection Limit

Maxxam Job #: B380512
Report Date: 2013/09/13

BIOGENIE INC.

RESULTS OF CHEMICAL ANALYSES OF WATER

Maxxam ID		HK9343	HK9345	HK9382	HK9383		
Sampling Date		2013/09/02 15:41	2013/09/02	2013/09/02 17:45	2013/09/03 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 Limit

Maxxam ID		HK9384	HK9385	HK9386	HK9387		
Sampling Date		2013/09/03 14:40	2013/09/03 14:50	2013/09/02 16:30	2013/09/03 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

Maxxam ID		HK9388	HK9389	HK9390	HK9391		
Sampling Date		2013/09/03 16:58	2013/09/04 18:50	2013/09/04 18:02	2013/09/04 18:15		
COC Number		407811-02-01	407811-03-01	407811-03-01	407811-03-01		
	UNITS	**2013-C4-MW-12**	**2013-C4-MW-23**	**2013-C4-MW-17**	**2013-C4-MW-18**	**RDL**	**QC Batch**
Low Level Elements							
Dissolved Cadmium (Cd)	ug/L	0.19	0.69	0.12	0.11	0.0050	7152713

RDL = Reportable Detection Limit

Maxxam ID		HK9392	HK9393	HK9394		
Sampling Date		2013/09/04 17:33	2013/09/03 15:45	2013/09/04 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**
Low Level Elements						
Dissolved Cadmium (Cd)	ug/L	0.40	<0.0050	0.15	0.0050	7152713

RDL = Reportable Detection Limit

PETROLEUM HYDROCARBONS (CCME)

Maxxam ID		HK9343		HK9345	HK9382	HK9383		
Sampling Date		2013/09/02 15:41		2013/09/02	2013/09/02 17:45	2013/09/03 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**
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 14:40	2013/09/03 14:50	2013/09/02 16:30	2013/09/03 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

RDL = Reportable Detection Limit

Maxxam

Maxxam Job #: B380512
Report Date: 2013/09/13

BIOGENIE INC.

PETROLEUM HYDROCARBONS (CCME)

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

Maxxam ID		HK9392	HK9393	HK9394		
Sampling Date		2013/09/04 17:33	2013/09/03 15:45	2013/09/04 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**
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

RDL = Reportable Detection Limit

POLYCHLORINATED BIPHENYLS BY GC-ECD (WATER)

Maxxam ID		HK9343	HK9345	HK9382	HK9383		
Sampling Date		2013/09/02 15:41	2013/09/02	2013/09/02 17:45	2013/09/03 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

RDL = Reportable Detection Limit

POLYCHLORINATED BIPHENYLS BY GC-ECD (WATER)

Maxxam ID		HK9384	HK9385	HK9386	HK9387		
Sampling Date		2013/09/03 14:40	2013/09/03 14:50	2013/09/02 16:30	2013/09/03 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**
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

RDL = Reportable Detection Limit

POLYCHLORINATED BIPHENYLS BY GC-ECD (WATER)

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

RDL = Reportable Detection Limit

POLYCHLORINATED BIPHENYLS BY GC-ECD (WATER)

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

RDL = Reportable Detection Limit

POLYCHLORINATED BIPHENYLS BY GC-ECD (WATER)

Maxxam ID		HK9393		HK9394		
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

RDL = Reportable Detection Limit

ELEMENTS BY ATOMIC SPECTROSCOPY (WATER)

Maxxam ID		HK9343		HK9345	HK9382	HK9383		
Sampling Date		2013/09/02 15:41		2013/09/02	2013/09/02 17:45	2013/09/03 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**
Elements								
Dissolved Aluminum (Al)	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 (Tl)	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.

Maxxam

Maxxam Job #: B380512
Report Date: 2013/09/13

BIOGENIE INC.

ELEMENTS BY ATOMIC SPECTROSCOPY (WATER)

Maxxam ID		HK9384	HK9385	HK9386	HK9387		
Sampling Date		2013/09/03 14:40	2013/09/03 14:50	2013/09/02 16:30	2013/09/03 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**
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 (Tl)	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

RDL = Reportable Detection Limit

ELEMENTS BY ATOMIC SPECTROSCOPY (WATER)

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

RDL = Reportable Detection Limit

ELEMENTS BY ATOMIC SPECTROSCOPY (WATER)

Maxxam ID		HK9392	HK9393	HK9394		
Sampling Date		2013/09/04 17:33	2013/09/03 15:45	2013/09/04 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**
Elements						
Dissolved Aluminum (Al)	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 (Tl)	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

RDL = Reportable Detection Limit

VOLATILE ORGANICS BY GC-MS (WATER)

Maxxam ID		HK9343		HK9345	HK9382	HK9383		
Sampling Date		2013/09/02 15:41		2013/09/02	2013/09/02 17:45	2013/09/03 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
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

RDL = Reportable Detection Limit

VOLATILE ORGANICS BY GC-MS (WATER)

Maxxam ID		HK9384	HK9385	HK9386	HK9387		
Sampling Date		2013/09/03 14:40	2013/09/03 14:50	2013/09/02 16:30	2013/09/03 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**
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

RDL = Reportable Detection Limit

VOLATILE ORGANICS BY GC-MS (WATER)

Maxxam ID		HK9388	HK9389	HK9390	HK9391		
Sampling Date		2013/09/03 16:58	2013/09/04 18:50	2013/09/04 18:02	2013/09/04 18:15		
COC Number		407811-02-01	407811-03-01	407811-03-01	407811-03-01		
	UNITS	**2013-C4-MW-12**	**2013-C4-MW-23**	**2013-C4-MW-17**	**2013-C4-MW-18**	**RDL**	**QC Batch**
Volatiles							
Benzene	ug/L	<0.40	<0.40	<0.40	<0.40	0.40	7153478
Toluene	ug/L	<0.40	<0.40	<0.40	<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	<0.80	<0.80	0.80	7153478
o-Xylene	ug/L	<0.40	<0.40	<0.40	<0.40	0.40	7153478
Xylenes (Total)	ug/L	<0.80	<0.80	<0.80	<0.80	0.80	7153478
F1 (C6-C10) - BTEX	ug/L	<100	<100	<100	<100	100	7153478
(C6-C10)	ug/L	<100	<100	<100	<100	100	7153478
Surrogate Recovery (%)							
1,4-Difluorobenzene (sur.)	%	116	118	122	122		7153478
4-BROMOFLUOROBENZENE (sur.)	%	93	96	98	93		7153478
D4-1,2-DICHLOROETHANE (sur.)	%	87	90	91	88		7153478

RDL = Reportable Detection Limit

VOLATILE ORGANICS BY GC-MS (WATER)

Maxxam ID		HK9392	HK9393	HK9394		
Sampling Date		2013/09/04 17:33	2013/09/03 15:45	2013/09/04 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**
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

RDL = Reportable Detection Limit

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.

BIOGENIE INC.
Attention: Alexandre Leclair
Client Project #:
P.O. #:
Site Location:

Quality Assurance Report

Maxxam Job Number: EYKB380512

QA/QC Batch Num	Init	QC Type	Parameter	Date Analyzed 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
			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.)	2013/09/11		124	%	70 - 130
			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
			Toluene	2013/09/11		80	%	70 - 130

BIOGENIE INC.
Attention: Alexandre Leclair
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P.O. #:
Site Location:

Quality Assurance Report (Continued)

Maxxam Job Number: EYKB380512

QA/QC Batch Num	Init	QC Type	Parameter	Date Analyzed 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
			(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		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 (Al)	2013/09/12		114	%	80 - 120
			Dissolved Antimony (Sb)	2013/09/12		82	%	80 - 120

BIOGENIE INC.
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Quality Assurance Report (Continued)

Maxxam Job Number: EYKB380512

QA/QC Batch Num	Init	QC Type	Parameter	Date Analyzed 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 (Tl)	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 (Al)	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 (Tl)	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 (Al)	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 (Tl)	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 (Al)	2013/09/12	NC		%	20
			Dissolved Antimony (Sb)	2013/09/12	NC		%	20
			Dissolved Arsenic (As)	2013/09/12	NC		%	20

BIOGENIE INC.
Attention: Alexandre Leclair
Client Project #:
P.O. #:
Site Location:

Quality Assurance Report (Continued)

Maxxam Job Number: EYKB380512

QA/QC Batch Num	Init	QC Type	Parameter	Date Analyzed 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 (Tl)	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
			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

BIOGENIE INC.
Attention: Alexandre Leclair
Client Project #:
P.O. #:
Site Location:

Quality Assurance Report (Continued)

Maxxam Job Number: EYKB380512

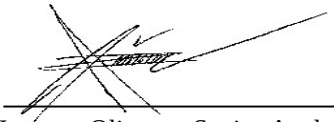
QA/QC Batch Num	Init	QC Type	Parameter	Date Analyzed yyyy/mm/dd	Value	Recovery	UNITS	QC Limits
7165954	NK3	RPD	F4 (C34-C50 Hydrocarbons)	2013/09/13	NC		%	50
7166753	STI	Matrix Spike	Dissolved Barium (Ba)	2013/09/13		91	%	80 - 120
			Dissolved Boron (B)	2013/09/13		97	%	80 - 120
			Dissolved Calcium (Ca)	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 Calcium (Ca)	2013/09/13	NC		%	20
			Dissolved Iron (Fe)	2013/09/13	NC		%	20
			Dissolved Magnesium (Mg)	2013/09/13	NC		%	20
			Dissolved Manganese (Mn)	2013/09/13	NC		%	20
			Dissolved Potassium (K)	2013/09/13	NC		%	20
			Dissolved Sodium (Na)	2013/09/13	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.

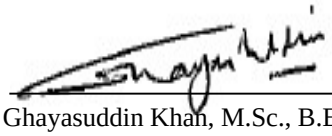
Validation Signature Page

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

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Maxxam has procedures in place to guard against improper use of the electronic signature and have the required "signatories", as per section 5.10.2 of ISO/IEC 17025:2005(E), signing the reports. For Service Group specific validation please refer to the Validation Signature Page.

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

CHAIN OF CUSTODY RECORD

9 x 236

INVOICE INFORMATION:		REPORT INFORMATION (if differs from invoice):		PROJECT INFORMATION:		Laboratory Use Only:	
Company Name:	#4495 BIOGENIE INC.	Company Name:		Quotation #:		MAXXAM JOB #:	BOTTLE ORDER #:
Contact Name:	Alexandre Leclair	Contact Name:		P.O. #:		B380512	407811
Address:	4495, boul. Wilfrid-Hamel bureau 200	Address:		Project #:		CHAIN OF CUSTODY #:	PROJECT MANAGER:
	QUEBEC PQ G1P 2J7			Project Name:		C#407811-01-01	James Ehizojie
Phone:	(450)961-3535 x6128 Fax: (450)961-0220	Phone:	Fax:	Site #:			
Email:	aleclair@biogenie-env.com	Email:		Sampled By:			

REGULATORY CRITERIA:
- ☐ ATI
- ☐ CCME
- ☐ OTHER

SPECIAL INSTRUCTIONS

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

ANALYSIS REQUESTED (Please be specific):

RECEIVED IN YELLOWKNIFE
2013 -09- 06
0900
see ACTR
Temp: 1.1

TURNAROUND TIME (TAT) REQUIRED:

PLEASE PROVIDE ADVANCE NOTICE FOR RUSH PROJECTS

Regular (Standard) TAT: ☐
(will be applied if Rush TAT is not specified):
Standard TAT = 5-7 Working days for most tests.
Please note: Standard TAT for certain tests are > 5 days - contact your Project Manager for details

Job Specific Rush TAT (if applies to entire submission) ☐
Date Required: _____
Rush Confirmation Number: _____ *(call lab for #)*

	Sample Barcode Label	Sample (Location) Identification	Date Sampled	Time Sampled	Matrix	Metals Field Filtered ? (Y / N)	Regulated Metals - Dissolved	PCB in water	BTEX F1-F4 in Water	Low level Hg Diss	# of Bottles	Comments
1		2013-C4-BMW-1	13/09/03	15:41	GW		X	X	X	X	9	
2		2013-C4-MW-1			GW		X	X	X	X		Not sampled
3		2013-C4-MW-2			GW		X	X	X	X		Not Sampled
4		2013-C4-MW-3	13/09/02	10:45	GW		X	X	(X)	X	3	Insufficient water for complete sample
5		2013-C4-MW-4A			GW		X	X				Not sampled
6		2013-C4-MW-4B			GW		X	X				Not Sampled
7		2013-C4-MW-6A			GW		X	X				Not sampled
8		2013-C4-MW-6B	13/09/02		GW		X	X	X	X	9	
9		2013-C4-MW-7A			GW		X	X	X	X		Not sampled
10		2013-C4-MW-7B			GW		X	X	X	X		Not Sampled

6-Sep-13 09:00
James Ehizojie
B380512
FL5 INS-0087

*RELINQUISHED BY: (Signature/Print)	Date: (YY/MM/DD)	Time:	RECEIVED BY: (Signature/Print)	Date: (YY/MM/DD)	Time:	# Jars Used and Not Submitted
Brandon MacKay	13/09/05	12:10	CHERYL JENSEN	13/09/07	1620	

Laboratory Use Only

Time Sensitive	Temperature (°C) on Receipt	Custody Seal Intact on Cooler?
☐	See ACTR	☒ Yes ☐ No

* 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

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

CHAIN OF CUSTODY RECORD

INVOICE INFORMATION:		REPORT INFORMATION (if differs from invoice):		PROJECT INFORMATION:		Laboratory Use Only:	
Company Name:	#4495 BIOGENIE INC.	Company Name:		Quotation #:		MAXXAM JOB #:	BOTTLE ORDER #:
Contact Name:	Alexandre Leclair	Contact Name:		P.O. #:		B380512	407811
Address:	4495, boul. Wilfrid-Hamel bureau 200	Address:		Project #:		CHAIN OF CUSTODY #:	PROJECT MANAGER:
	QUEBEC PQ G1P 2J7			Project Name:		C#407811-02-01	James Ehizojie
Phone:	(450)961-3535 x6128 Fax: (450)961-0220	Phone:	Fax:	Site #:			
Email:	aleclair@biogenie-env.com	Email:		Sampled By:			

REGULATORY CRITERIA:
- ☐ ATI
- ☐ CCME
- ☐ OTHER

SPECIAL INSTRUCTIONS

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

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Please note: Standard TAT for certain tests are > 5 days - contact your Project Manager for details

Job Specific Rush TAT (if applies to entire submission) ☐
Date Required: _____
Rush Confirmation Number: _____ *(call lab for #)*

	Sample Barcode Label	Sample (Location) Identification	Date Sampled	Time Sampled	Matrix	Metals Field Filtered ? (Y / N)	Regulated Metals - Dissolved	PCB in water	BTEX F1-F4 in Water	Low level Hg Diss	# of Bottles	Comments
1		~~2013-C4-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 YELLOWKNIFE By: 0900 2013 -09- 06
3		2013-C4-MW-9	13/09/03	12:45	GW		X	X	X	X	11	
4		2013-C4-MW-14A	13/09/03	14:40	GW		X	X	X	X	11	See ACTR
5		2013-C4-MW-14B	13/09/03	14:50	GW		X	X	X	X	11	Temp: 1.1
6		~~2013-C4-MW-15~~			GW		X	X	X	X		Not sampled
7		2013-C4-MW-16	13/09/02	16:30	GW		X	X	X	X	11	
8		~~2013-C4-MW-10~~			GW		X	X	X	X		Not sampled
9		2013-C4-MW-11	13/09/03	13:36	GW		X	X	X	X	11	
10		2013-C4-MW-12	13/09/03	16:58	GW		X	X	X	X	11	

*RELINQUISHED BY: (Signature/Print)	Date: (YY/MM/DD)	Time:	RECEIVED BY: (Signature/Print)	Date: (YY/MM/DD)	Time:	# Jars Used and Not Submitted	Laboratory Use Only: Time Sensitive	Temperature (°C) on Receipt	Custody Seal Intact on Cooler?
Brenda Mackay	13/09/05	12:20	CHERYL JENSEN	13/09/07	1620		☐	See ACTR	☒ Yes ☐ No

* 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

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

CHAIN OF CUSTODY RECORD

INVOICE INFORMATION:		REPORT INFORMATION (if differs from invoice):		PROJECT INFORMATION:		Laboratory Use Only:	
Company Name:	#4495 BIOGENIE INC.	Company Name:		Quotation #:		MAXXAM JOB #:	BOTTLE ORDER #:
Contact Name:	Alexandre Leclair	Contact Name:		P.O. #:		B380512	407811
Address:	4495, boul. Wilfrid-Hamel bureau 200	Address:		Project #:		CHAIN OF CUSTODY #:	PROJECT MANAGER:
	QUEBEC PQ G1P 2J7			Project Name:		C#407811-03-01	James Ehizojie
Phone:	(450)961-3535 x6128 Fax: (450)961-0220	Phone:	Fax:	Site #:			
Email:	aleclair@biogenie-env.com	Email:		Sampled By:			

REGULATORY CRITERIA:
- ☐ ATI
- ☐ CCME
- ☐ OTHER

SPECIAL INSTRUCTIONS

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

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Standard TAT = 5-7 Working days for most tests.
Please note: Standard TAT for certain tests are > 5 days - contact your Project Manager for details

Job Specific Rush TAT (if applies to entire submission) ☐
Date Required: _____
Rush Confirmation Number: _____ *(call lab for #)*

	Sample Barcode Label	Sample (Location) Identification	Date Sampled	Time Sampled	Matrix	Metals Field Filtered ? (Y / N)	Regulated Metals - Dissolved	PCB in water	BTEX F1-F4 in Water	Low level Hg Diss	# of Bottles	Comments
1		2013-C4-MW-13			GW		X	X	X	X		Not Sampled
2		2013-C4-MW-21			GW		X	X	X	X		"
3		2013-C4-MW-22			GW		X	X	X	X		"
4		2013-C4-MW-23	13/09/04	18:50	GW		X	X	X	X	9	RECEIVED IN YELLOWKNIFE By: 0900
5		2013-C4-MW-17	13/09/04	18:02	GW		X	X	X	X	11	2013 -09- 06
6		2013-C4-MW-18	13/09/04	18:15	GW		X	X	X	X	11	See ACTR
7		2013-C4-MW-19	13/09/04	17:33	GW		X	X	X	X	11	Temp: 1 1
8		2013-C4-MW-20			GW		X	X	X	X		Not Sampled
9		2013-C4-BMW-3	13/09/03	15:45	GW		X	X	X	X	9	
10		2013-C4-BMW-4	13/09/04	14:38	GW		X	X	X	X	11	

*RELINQUISHED BY: (Signature/Print)	Date: (YY/MM/DD)	Time:	RECEIVED BY: (Signature/Print)	Date: (YY/MM/DD)	Time:	# Jars Used and Not Submitted
1-75 Brandon MacKay	13/09/05	12:30	CHERYL JENSEN	13/09/07	1620	

Laboratory Use Only		
Time Sensitive	Temperature (°C) on Receipt	Custody Seal Intact on Cooler?
☐	See ACTR	☒ Yes ☐ No

* 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

EXOVA OTTAWA

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

Dear Brandon MacKay:

Please find attached the analytical results for your samples. If you have any questions regarding this report, please do not hesitate to call (613-727-5692).

Report Comments:

APPROVAL: _____

Lorna Wilson
Laboratory Supervisor, Inorganics

APPROVAL: _____

Charlie (Long) Qu
Laboratory Supervisor, Organics

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

Group	Analyte	MRL	Units	Guideline	Lab I.D. / Sample Matrix / Sample Type / Sampling Date / Sample I.D. 1058751 / Surfacewater / 2013-09-04 / 2013-C4-MW-23
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
	Co	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.

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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 208523 **Analysis Date** 2013-09-22 **Method** P 8081A			
Polychlorinated Biphenyls (PCBs)	<0.1 ug/L	78	50-120
Run No 257961 **Analysis Date** 2013-09-20 **Method** EPA 200.8			
As	<0.02 mg/L	102	70-130
Cd	<0.008 mg/L	101	70-130
Co	<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** M SM3112B-3500B			
Hg Total	<0.0001 mg/L		
Run No 258069 **Analysis Date** 2013-09-19 **Method** O CCME Reg 153			
F1 (C6-C10)	<100 ug/L	102	80-120

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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 **Method** O CCME Reg 153			
F2 (C10-C16)	<100 ug/L	60	50-120
F3 (C16-C34)	<200 ug/L	60	50-120

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Report Number: 1320567
Date Submitted: 2013-09-18
Date Reported: 2013-09-25
Project:
COC #: 777010

Sample Comment Summary

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

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EXOVA OTTAWA

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
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 hesitate to call (613-727-5692).

Report Comments:

APPROVAL: _____

Lorna Wilson
Laboratory Supervisor, Inorganics

APPROVAL: _____

Charlie (Long) Qu
Laboratory Supervisor, Organics

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
Project:
COC #: 777010

Group	Analyte	MRL	Units	Guideline	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
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
	Co	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

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Certificate of Analysis

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1140 Levis
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Report Number: 1320574
Date Submitted: 2013-09-18
Date Reported: 2013-09-25
Project:
COC #: 777010

Group	Analyte	MRL	Units	Guideline	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
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

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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
Project:
COC #: 777010

QC Summary

Analyte	Blank	QC % Rec	QC Limits
Run No 208523 **Analysis Date** 2013-09-24 **Method** SW846 8081A/8082A			
Polychlorinated Biphenyls (PCBs)	<0.02 ug/g	75	50-120
Run No 257962 **Analysis Date** 2013-09-20 **Method** EPA 200.8			
As	<1 ug/g	96	70-130
Cd	<0.5 ug/g	87	70-130
Co	<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** 2013-09-24 **Method** M SM3112B-3500B			
Hg	<0.1 ug/g	100	70-130
Run No 258154 **Analysis Date** 2013-09-24 **Method** CCME			
F2 (C10-C16)	<10 ug/g	81	50-120

Guideline = *** = Guideline Exceedence**
** = Analysis completed at Mississauga, Ontario.
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MRL = Method Reporting Limit, AO = Aesthetic Objective, OG = Operational Guideline, MAC = Maximum Acceptable Concentration, IMAC = Interim Maximum Acceptable Concentration, STD = Standard, PWQO = Provincial Water Quality Guideline, IPWQO = Interim Provincial Water Quality Objective, TDR = Typical Desired Range

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Report Number: 1320574
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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 **Method** CCME			
F1 (C6-C10)	<10 ug/g	106	80-120

Guideline = *** = Guideline Exceedence**
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Quote 130498

DEMANDE D'ANALYSE

7/JUN

EXOVA

1320567

Compagnie	Biogenie		
Demandeur	Brandon MacKay		
Adresse	1140 rue Lewis		
Ville	Terrebonne	Code Postal	J6W 5S6
Bon de commande		Prélevé par	
Adresse courriel	bmackay@biogenie-env.com		
Téléphone	450 961 3535	Télécopieur	

Délai d'analyse: ☒ normal ☐ 72hrs ☐ 48hrs ☐ 24hrs ☐ autre

Nom du projet:

Type: A= absorbant, S=sol, EP=eau potable, ES=eau souterraine, EA=eau de surface, EU=eau usée, L=lixiviat, SE=sédiment, B=boue, H=huile, F=frottis, C=charbon

Identification des échantillons	Nb Cont	Type	Date de prélèvement
2013-C4-MW-23	6	ES	13/09/04
2013-C4-1-A	2	S	"
2013-C4-MW-6B-B	2	S	13/07/02
2013-C4-MW-8-A	2	S	13/09/03
2013-C4-MW-10-A	2	S	"
2013-C4-MW-21-B	2	S	13/09/04
2013-C4-MW-23-B	2	S	13/09/04

H&G totales (Gravimétrique)	H&G minérales (Gravimétrique)	Hyd. Pét. C_{10}-C_{50}	HMA	HHT (HAC)	BTEX	HAP	Phénols CG-SM ☐ colo	BPC Aroclor ☒ Congénères ☐	Métaux (Cd, Cr, Cu, Ni, Pb, Zn)	Métaux (spécifier)*	Mercure	pH	Phosphore total	NH_3	NTK	DBO_5 ☐ DCO ☐ MES ☐	Coliformes totaux ☐ fécaux	Streptocoques fécaux	CUM Règ 87 Art 10 ☐ Art 11 ☐	Autres (spécifier)			
																					TPH comF F2-F3	TPH C6-C34		
																						1		
																						1055781		

Certificat: Français ☐ Anglais ☒

Lieu de prélèvement	Remarques particulières	Analyse de METAUX dans l'eau:
	Water samples not field acidified	☒ TOTAUX ☐ SOLUBLE déjà filtré sur le TERRAIN ☐ SOLUBLE à filtrer par EXOVA

Dans le but d'améliorer notre service, il serait appréciable de fournir toutes informations pertinents aux analyses. Ceci évitera des problèmes analytiques potentiels ou des délais d'analyses supplémentaires

* = **Spécification des métaux à analyser**
Arsenic, cadmium, chromium, cobalt, lead, nickel, zinc, mercury

Numéro	Déssaisi:	Reçu:	Date:
9- 020664 Séquentiel		Brandon MacKay	
	Déssaisi:	Reçu:	Date: 13/09/04 1355

13°