APPENDIX E.8
DECOMMISSIONING MILNE INLET FUEL BLADDER FARM

APPENDIX E.8.1
MILNE INLET INTERIM BLADDER DECOMMISSIONING REPORT

Baffinland

Technical Memorandum

To: Jim Millard

From: Andrew Vermeer

cc:

Date: March 22, 2014

Re: Milne Port - Interim Fuel Bladder Facility Decommissioning

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1.0 - Introduction

The bulk fuel bladder facility (fuel bladder facility) at Milne Port was constructed in late 2007 to store a combined 8.25 million litres of Jet-A and P-50 (diesel) for future Baffinland mineral exploration activities. The facility consisted of 74 114,000 L fuel bladders in a lined containment facility, including a lined refueling station.

In July, 2011 a new 5 million litre capacity bulk fuel tank facility (bulk fuel tank facility) at Milne Port was constructed, consisting of a single 5 million litre steel tank and a refueling station in a lined containment facility. In May of 2013, the capacity of the bulk fuel tank facility was expanded to 34 million litres of P-50 diesel and 2.25 million litres of Jet-A to support the Project development as outlined in the approved NIRB Project Certificate No. 005.

With the interim expansion[1] of the bulk fuel tank facility at Milne Port complete in September 2013, the fuel bladder facility at Milne Port was no longer needed and therefore was decommissioned starting in late August, 2013.[2] Decommissioning of the fuel bladder facility involved following the objectives outlined in Baffinland's approved Abandonment and Reclamation Plan. Tier 1 criteria for the remediation of petroleum hydrocarbon contaminated fine-grained soil for commercial and industrial land use (Tier 1 guidelines), outlined in the Government of Nunavut's *Environmental Guideline for Contaminated Site Remediation* (GN, 2009), was used to determine the remediation objectives for the soil underneath the fuel bladder facility at Milne Port.

2.0 - Scope of Work

The decommissioning of the fuel bladder facility at Milne Port involved four (4) phases:

1) Removal and disposal of the fuel bladders, piping and refueling infrastructure.

[1] The capacity of bulk fuel tank facility at Milne Port will be expanded again during the summer of 2014 by constructing one additional 12 million litre tank for P-50 diesel fuel storage.

[2] The fuel bladder facility at Milne Port was slowly decommissioned over its lifespan by limiting the amount of bladders that were used to store fuel. During each open water season, an oily water separator was used to treat the contaminated water from the spring melt that had become entrained in the berm. Oily water emulsions that were difficult to treat and excess oily water were stored in unused fuel bladders until August, 2013 when all oily water, with the exception of one bladder, was backhauled on the 2013 sealift.

2) Removal of the geosynthetic liner and the excavation of contaminated soil within the lined containment berm and refueling station.
3) Further assessment and excavation of the soil underneath the facility where there was indication of petroleum hydrocarbon contamination exceeding referenced Tier 1 petroleum hydrocarbon criteria. The walls and floor of the excavated areas were sampled to confirm whether additional excavation would be required in the future.
4) The stockpiling of contaminated soils and discarded liner within a lined area located at the north end of the facility which was covered with geosynthetic liner to minimize meteoric water infiltration and contaminated runoff.

3.0 Field Program

Starting in late August, 2013, 73 fuel bladders and all unsalvageable flexible fuel hoses were drained and backhauled in lined sea containers during the 2013 sealift for proper disposal at a licensed facility. Fuel pumps and steel piping used at the fuel bladder facility were removed and are currently being stored at Milne Port.

Following the removal of the fuel bladder facility infrastructure, all contaminated water within the containment berm that could not be treated onsite was consolidated into an empty fuel bladder located at the north end of the containment berm. Starting at the south end of the facility, excavators removed the contaminated soil and geosynthetic liner from the lined refueling station and two thirds of the containment berm. During the excavation process, the liner condition was observed to be intact with no observable tears or breaches. All removed contaminated soil and geosynthetic liner were transferred to the remaining one third of the containment berm located at the north end of the facility. A containment berm wall stretching east to west was constructed to separate the remaining one third of the containment berm from the recently exposed underlying soil.

Once the soil underneath the geosynthetic liner was exposed, the freshly exposed soils were assessed for petroleum hydrocarbon contamination by visual and olfactory inspection and the systematic advancement of test pits throughout the area. The soils were classified mainly as fine to medium grained sands with some gravel and little silt. Contaminated areas that were identified during the inspection and as determined from test pits were excavated until petroleum hydrocarbon (PH) contamination could no longer be detected by visual or olfactory assessment. All excavated materials from the contaminated areas were transported to the remaining one third of the containment berm (north end). To confirm that contaminated areas had been substantially excavated, composite soil samples of the walls and floor of each excavated contaminated areas were collected. Six (6) PH contaminated areas were identified within the footprint of the removed containment berm and one (1) PH contaminated area was identified within the footprint of the lined refueling station.

In addition to the collecting soil samples from the excavation limits of each contaminated area, test pits were dug and allowed to fill with water after each contaminated area was excavated in order to collect water samples and gauge the level of residual and free phase petroleum hydrocarbons. A single test pit was dug for each contaminated area except for contaminated area no. 5 in which two test pits were dug to account for the contaminated area's larger size. Overall, eight (8) test pits were excavated and sampled within the PH contaminated areas.

If substantial volumes of hydrocarbons had leaked through the geosynthetic liner during the lifespan of the fuel bladder facility, the hydrocarbons would have likely migrated to and settled at the soil-permafrost interface. Therefore, to determine the depth and extent of the fuel contamination underneath the fuel bladder facility at Milne Port the exposed soil was partitioned into 15 m x 15 m (225 m^2) grid sections and assessed for petroleum hydrocarbon contamination by excavating a test pit in the center of each grid section. Test pits were excavated to the depth of the permafrost and soil was sampled at several depths within the test pit to create a composite depth soil sample for each section. Overall, 29 test pits were excavated and sampled (see Figure E.8-1).

To prevent snow melt from mixing with the contaminated soil and liner in the spring, the remaining one third of the containment berm that included stockpiled contained soils, discarded liner material and the single remaining bladder with stored oily water was covered and sealed with geosynthetic liner for the winter. The total volume of stockpiled contaminated soil is estimated to be 8795 m^3 (see Figure E.8-2).

4.0 - Sampling Methodology

Soil and water sample analyses were conducted by an accredited lab in Nepean, ON operated by Exova Canada Corp (Exova lab).

4.1 – Soil Samples

For each test pit, soil was collected at several depths from each wall so as to provide a representative depth composited soil sample. Similarly, soil samples were taken from the excavation walls and floor of each contaminated area following remediation efforts. All soil samples were collected in 250 mL glass jars using a spade and nitrile gloves. To avoid cross contamination, the spade was rinsed with potable water between samples and a new pair of nitrile gloves were worn for each soil sample that was collected.

4.2 – Water Samples

Water samples were collected from test pits of identified contaminated areas following excavation efforts. Water samples were collected from the standing water in each test pit and tested internally for total oil and grease (TOG). Water samples that exceeded a TOG concentration of 15 ppm[3] were sent to the Exova lab for external testing. All water samples were collected in new 500 mL plastic bottles using a clean pair of nitrile gloves for each sample so as to minimize the potential for cross contamination during sampling.

5.0 – Analytical Results

The laboratory results for the composite soil samples collected from the test pits and excavation limits of identified PH contaminated areas were compared to the Tier 1 guidelines for commercial/industrial land use, as outlined in Table 1.

Of the soil samples collected from the test pits, none of the samples exceeded any of the Tier 1 guidelines for commercial/industrial land use. However, when PH results for the test pit soil samples were compared to the most conservative land use Tier 1 guidelines, agriculture/parkland, the soil sample from test pit MP-BF-C6 marginally exceeded the PH F2 guideline of 150 mg/kg with a F2 concentration of 210 mg/kg.

Soil samples from the excavation limits of identified contaminated areas that exceeded the PH F2 guideline for all land use types included: MP-BF-S7, MP-BF-S8, MP-BF-S10, MP-BF-CA5A and MP-CA5. These samples were collected from either contaminated area no. 5 or the containment berm sump area (see Figure E.8-3).

Soil samples from the excavation limits of identified contaminated areas with PH levels below the Tier 1 guidelines for commercial/industrial land use but above the agricultural/parkland land use Tier 1 guidelines for PH F1 or F2 included MP-BF-REFUEL-2, MP-BF-S3 and MP-BF-S5.

[3] All water discharges into the receiving environment must not exceed 15 ppm TOG according to Baffinland's Type A Water License No. 2AM-MRY1325 (NWB, 2013).

Of the water samples taken from the contaminated area test pits, only the samples collected at the sump (MP-BF-STP1) and the first test pit of contaminated area 5 (MP-BF-CA5TP1) tested above the 15 ppm threshold for total oil and grease (TOG). When the water samples were tested externally by the Exova lab, MP- BF-STP1 and MP-BF-CA5TP1 showed TOG concentrations of 31 and 33 ppm, respectively.

6.0 - Conclusions and Recommendations

The low PH concentrations seen in the soil samples of the test pits and excavation limits of most of the identified PH contaminated areas suggests that the fuel contamination of the soil underneath the fuel bladder facility at Milne Port was localized and was most likely due to slow, pinhole type leaks in the liner system. Of the seven (7) PH contaminated areas that were identified and excavated during the decommissioning of the facility, only the containment berm sump area and contaminated area no. 5 registered residual PH levels above the Tier 1 guidelines for fine-grained soil in a commercial/industrial setting.

Out of all the PH contaminated areas that were excavated, the sump area of the containment berm registered the highest concentrations of residual PH contamination. The soil underneath the sump area of the containment berm was the most prone to potential PH contamination due to the longer term oily water residing at this location during each open water season. Both the refueling area and containment berm sump area required substantial excavation and removal of soil to the depth of permafrost in some areas.

Finally, the low TOG concentrations seen in the water samples collected from contaminated area test pits confirm that remediation excavations were successful in reducing PH contamination below Tier 1 guidelines for five (5) of the seven (7) PH contaminated areas. The excavated contaminated areas and test pits that registered a residual PH concentration greater than the Tier 1 guidelines for fine-grained soil for commercial/industrial land use will be reassessed and excavated/stockpiled further as required during the 2014 open water season.

The area under the northern third of the containment berm, currently the site of the stockpiled contaminated soil and liner material still requires liner removal and assessment using techniques similar to those undertaken during 2013. The stockpiled contaminated soils will be resampled and transported to the planned landfarm treatment facility at Milne Port, slated for construction during the spring of 2014.

7.0 - References

NWB (Nunavut Water Board), 2013. Baffinland Iron Mines Corp. – Class A Water License No: 2AM-MRY1325. Issued by the Nunavut Water Board, 2013.

GN (Government of Nunavut), 2009. Environmental Guideline for Contaminated Site Remediation. Prepared by the Department of Environment of the Government of Nunavut, March 2009.

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Appendices

Appendix A - Figures (Maps)

Appendix B – Tables

Appendix C - Photos

Appendix A – Figures (Maps)

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XREF FILE(S): Contours-2.5m_Interval-Milne_to_Mine_Site-02-Oct_16_2008; QMR2 QMR1 - BOUNDARY LIMIT AND MINING LIMIT; MILNE SITE LAYOUT IMAGE FILE(S): Baffinland logo-big corp Progress Print Feedback

LEGEND:

- EXCAVATION LIMITS FOR CONTAMINATED AREAS
- NEW BERM WALL
- TEST PIT SOIL SAMPLES WITH PH LEVELS BELOW TIER 1 GUIDELINES FOR ALL LAND USE TYPES
- TEST PIT SOIL SAMPLES WITH PH LEVELS BELOW TIER 1 GUIDELINES FOR AGRICULTURAL/PARKLAND LAND USE
- CONTAMINATED AREA TEST PIT WATER SAMPLE LOCATIONS

NOTES:

1. COORDINATE GRID IS UTM NAD83 ZONE 17N.
2. PLAN/SECTION BASED ON INFORMATION PROVIDED BY HATCH, DATED (JAN 31,2014).
3. SURVEY COORDINATES FOR THE EXCAVATION LIMITS AND THE NEW BERM WALL COLLECTED BY MARG CALEY FROM NAMPCY SOLUTIONS LTD. (SEPT 18, 2013). COORDINATES FOR THE SAMPLE AND TEST PIT LOCATIONS WERE COLLECTED BY ANDREW VERMEER FROM BIM USING A HANDHELD GPS (2013).

SCALE A 5 2.5 0 5 10 15 20 25 m

REV	DATE	DESCRIPTION	DESIGNED	DRAWN	CHK'D	APP'D
0	25MAR'14	ISSUED WITH 2013 QIA AND NWB ANNUAL REPORT	AV	AS	AV	JM

Baffinland Iron Mines Corporation

MARY RIVER PROJECT

MILNE PORT
FUEL BLADDER FACILITY
TEST PITS SAMPLING MAP

Knight Piésold CONSULTING

P/A NO. NB102-181/34

REF NO. 4

FIGURE E.8-1

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XREF FILE(S): Contours-2.5m_Interval-Milne_to_Mine_Site-02-Oct_16_2008; QMR2 QMR1 - BOUNDARY LIMIT AND MINING LIMIT; MILNE SITE LAYOUT; MILNE-CONTAMINATED SOIL IMAGE FILE(S): Baffinland logo-big corp Progress Print Feedback

503 250 E

503 300 E

7 976 100 N

7 976 050 N

7 976 000 N

7 975 950 N

9.0

9.0

SCALE B

VOLUME OF CONTAMINATED
SOIL OCTOBER 3, 2013 - 8795 m³

NEW BERM WALL

SCALE A 5 2.5 0 5 10 15 20 25 m

SCALE B 60 30 0 100 200 300 m

LEGEND:

- EXCAVATION LIMITS FOR CONTAMINATED AREAS
- NEW BERM WALL
- CONTAMINATED STOCKPILE EXTENTS

NOTES:

1. COORDINATE GRID IS UTM NAD83 ZONE 17N.
2. PLAN/SECTION BASED ON INFORMATION PROVIDED BY HATCH, DATED (JAN 31,2014).
3. SURVEY COORDINATES FOR THE EXCAVATION LIMITS AND THE NEW BERM WALL COLLECTED BY MARG CALEY FROM NAMPCY SOLUTIONS LTD. (SEPT 18, 2013).
4. CONTAMINATED STOCKPILE VOLUME AND BOUNDARY PROVIDED BY MONTEITH & SUTHERLAND LIMITED, MARCH 21, 2014. VOLUME CALCULATED BY MEASURING VOLUME OF THE SOIL PILE FROM TOE OF SLOPE AND UP.

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Baffinland Iron Mines Corporation

MARY RIVER PROJECT

MILNE PORT
FUEL BLADDER FACILITY
CONTAMINATED STOCKPILE AREA

Knight Piésold CONSULTING

P/A NO. NB102-181/34

REF NO. 4

FIGURE E.8-2

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XREF FILE(S): Contours-2.5m_Interval-Milne_to_Mine_Site-02-Oct_16_2008; QMR2 QMR1 - BOUNDARY LIMIT AND MINING LIMIT; MILNE SITE LAYOUT IMAGE FILE(S): Baffinland logo-big corp Progress Print Feedback

503 300 E

503 350 E

7 975 950 N

7 975 900 N

7 975 850 N

7 975 800 N

N

NEW BERM WALL

MP-BF-CA5

MP-BF-S

MP-BF-REFUEL

MP-BF-CA4

MP-BF-CA3

MP-BF-CA2

MP-BF-CA1

LEGEND:

- EXCAVATION LIMITS FOR CONTAMINATED AREAS
- NEW BERM WALL
- SOIL SAMPLES WITH PH LEVELS BELOW TIER 1 GUIDELINES FOR ALL LAND USE TYPES
- SOIL SAMPLES WITH PH LEVELS ABOVE TIER 1 GUIDELINES FOR COMMERCIAL/INDUSTRIAL LAND USE
- SOIL SAMPLES WITH PH LEVELS ABOVE TIER 1 GUIDELINES FOR AGRICULTURE/PARKLAND LAND USE

NOTES:

1. COORDINATE GRID IS UTM NAD83 ZONE 17N.
2. PLAN/SECTION BASED ON INFORMATION PROVIDED BY HATCH, DATED (JAN 31,2014).
3. SURVEY COORDINATES FOR THE EXCAVATION LIMITS AND THE NEW BERM WALL COLLECTED BY MARG CALEY FROM NAMPCY SOLUTIONS LTD. (SEPT 18, 2013). COORDINATES FOR THE SAMPLE AND TEST PIT LOCATIONS WERE COLLECTED BY ANDREW VERMEER FROM BIM USING A HANDHELD GPS (2013).

SCALE A 5 2.5 0 5 10 15 20 25 m

REV	DATE	DESCRIPTION	DESIGNED	DRAWN	CHK'D	APP'D
0	25MAR'14	ISSUED WITH 2013 QIA AND NWB ANNUAL REPORT	AV	AS	AV	JM

Baffinland Iron Mines Corporation

MARY RIVER PROJECT

MILNE PORT
FUEL BLADDER FACILITY
CONTAMINATED AREAS SOIL SAMPLING MAP

Knight Piésold CONSULTING

P/A NO. NB102-181/34

REF NO. 4

FIGURE E.8-3

REV 0

Appendix B – Analytical Results

Table 1 - Tier 1 Remediation Criteria (mg/kg) for Petroleum Hydrocarbons in Surface Soil

Land Use	Soil Texture	Fraction 1 (C6-C10)	Fraction 2 (>C10-C16)	Fraction 3 (>C16-C34)	Fraction 4 (>C34)
Agricultural/Wildland	Fine-grained soil	210 (170[a])	150	1300	5600
	Coarse-grained soil	30[b]	150	300	2800
Residential/Parkland	Fine-grained soil	210 (170[a])	150	1300	5600
	Coarse-grained soil	30[b]	150	300	2800
Commercial	Fine-grained soil	320 (170[a])	260 (230[a])	2500	6600
	Coarse-grained soil	320 (240[a])	260	1700	3300
Industrial	Fine-grained soil	320 (170[a])	260 (230[a])	2500	6600
	Coarse-grained soil	320 (240[a])	260	1700	3300

a - Where applicable, for protection against contaminated groundwater discharge to an adjacent surface water body or for protection of notable groundwater

b - Assumes contamination near residence

Table 2 - Soil Sample Results for Test Pits (Row 1 -3)

Parameter Group	Analyte	MRL	Units	Sample ID	**MP-BF-W1	MP-BF-C1	MP-BF-E1	MP-BF-W2	MP-BF-C2	MP-BF-E2	MP-BF-W3	MP-BF-C3	MP-BF-E3
				Date and Time	N/A	13/09/2013 13:35	13/09/2013 13:30	Sept 13, 2013 16:15	Sept 13, 2013 16:10	Sept 13, 2013 16:05	Sept 13, 2013 16:30	Sept 13, 2013 16:25	Sept 13, 2013 16:20
				*Tier 1 PHC Guidelines	-								
General Chemistry	Moisture	0.1	%	-	-	6.3	6.9	7.9	6.4	39.7	5.9	8	8.1
Hydrocarbons	F1 (C6-C10)	10	µg/g	320	-	<10	<10	<10	<10	<10	<10	<10	<10
	F1-BTEX (C6-C10)	10	µg/g	320	-	<10	<10	<10	<10	<10	<10	<10	<10
	F2 (C10-C16)	10	µg/g	260	-	<10	<10	<10	<10	<10	<10	<10	<10
	F3 (C16-C34)	20	µg/g	2500	-	<20	<20	<20	<20	<20	<20	<20	<20
	F4 (C34-C50)	20	µg/g	6600	-	<20	<20	<20	<20	<20	<20	<20	<20
Metals	Pb	1	µg/g	-	-	3	3	2	2	4	3	3	3
Oil and Grease	Total Oil & Grease	100	µg/g	-	-	<100	180	<100	<100	200	170	110	<100
VOCs	Benzene	0.02	µg/g	-	-	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02
	Ethylbenzene	0.05	µg/g	-	-	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
	m/p-xylene	0.05	µg/g	-	-	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
	o-xylene	0.05	µg/g	-	-	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
	Toluene	0.2	µg/g	-	-	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20
	Toluene-d8	0	%	-	-	91	87	92	90	90	98	90	99

*Tier 1 remediation guidelines for petroleum hydrocarbon contaminated fine-grained soil for commerical/industrial land use.

**Section W1 was not sampled because the section had already been covered by material for the new berm wall when the test pit samples were taken. Section W1 will be assessed when the remaining one third of the containment berm is decommissioned and remediated.

Table 3 - Soil Sample Results for Test Pits (Row 4 -6)

Parameter Group	Analyte	MRL	Units	Sample ID / Date and Time / *Tier 1 PHC Guidelines	MP-BF-W4	MP-BF-C4	MP-BF-E4	MP-BF-W5	MP-BF-C5	MP-BF-E5	MP-BF-W6	MP-BF-C6	MP-BF-E6
				Date and Time	Sept 13, 2013 16:45	Sept 13, 2013 16:40	Sept 13, 2013 16:35	Sept 13, 2013 17:00	Sept 13, 2013 16:55	Sept 13, 2013 16:50	Sept 14, 2013 13:05	Sept 14, 2013 13:10	Sept 14, 2013 13:15
General Chemistry	Moisture	0.1	%	-	6.2	7.3	8.9	15.7	4.6	6.3	13.3	12.9	10.9
Hydrocarbons	F1 (C6-C10)	10	µg/g	320	<10	<10	<10	<10	<10	<10	<10	<10	<10
	F1-BTEX (C6-C10)	10	µg/g	320	<10	<10	<10	<10	<10	<10	<10	<10	<10
	F2 (C10-C16)	10	µg/g	260	50	<10	<10	20	<10	<10	<10	**210**	<10
	F3 (C16-C34)	20	µg/g	2500	<20	<20	<20	<20	<20	<20	<20	70	<20
	F4 (C34-C50)	20	µg/g	6600	<20	<20	<20	<20	<20	<20	<20	<20	<20
Metals	Pb	1	µg/g	-	3	2	3	2	2	3	1	2	2
Oil and Grease	Total Oil & Grease	100	µg/g	-	<100	<100	<100	<100	<100	<100	220	220	<100
VOCs	Benzene	0.02	µg/g	-	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02
	Ethylbenzene	0.05	µg/g	-	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
	m/p-xylene	0.05	µg/g	-	<0.05	<0.05	<0.05	0.1	<0.05	<0.05	<0.05	<0.05	<0.05
	o-xylene	0.05	µg/g	-	<0.05	<0.05	<0.05	0.05	<0.05	<0.05	<0.05	<0.05	<0.05
	Toluene	0.2	µg/g	-	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20
	Toluene-d8	0	%	-	97	93	98	95	96	99	87	87	96

*Tier 1 remediation guidelines for petroleum hydrocarbon contaminated fine-grained soil for commerical/industrial land use.

Exceedance of Tier 1 remediation guidelines for petroleum hydrocarbon contaminated fine-grained soil for agricultural/parkland land use.

Table 4 - Soil Sample Results for Test Pits (Row 7 -9)

Parameter Group	Analyte	MRL	Units	Sample ID	MP-BF-W7	MP-BF-C7	MP-BF-E7	MP-BF-W8	MP-BF-C8	MP-BF-E8	MP-BF-W9	MP-BF-C9	MP-BF-E9
				Date and Time	Sept 14, 2013 13:20	Sept 14, 2013 13:25	Sept 14, 2013 13:30	Sept 14, 2013 13:35	Sept 14, 2013 13:40	Sept 14, 2013 13:45	Sept 14, 2013 13:50	Sept 14, 2013 13:55	Sept 14, 2013 14:00
				*Tier 1 PHC Guidelines									
General Chemistry	Moisture	0.1	%	-	7.5	6.7	11.3	9.4	11.2	17	9	12.9	13.5
Hydrocarbons	F1 (C6-C10)	10	µg/g	320	<10	<10	<10	<10	<10	<10	<10	<10	<10
	F1-BTEX (C6-C10)	10	µg/g	320	<10	<10	<10	<10	<10	<10	<10	<10	<10
	F2 (C10-C16)	10	µg/g	260	<10	<10	<10	<10	<10	<10	<10	<10	<10
	F3 (C16-C34)	20	µg/g	2500	<20	<20	<20	<20	40	<20	<20	<20	<20
	F4 (C34-C50)	20	µg/g	6600	<20	<20	<20	<20	<20	<20	<20	<20	<20
Metals	Pb	1	µg/g	-	2	2	2	2	2	2	2	2	2
Oil and Grease	Total Oil & Grease	100	µg/g	-	<100	<100	<100	280	250	250	<100	<100	140
VOCs	Benzene	0.02	µg/g	-	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02
	Ethylbenzene	0.05	µg/g	-	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
	m/p-xylene	0.05	µg/g	-	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
	o-xylene	0.05	µg/g	-	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
	Toluene	0.2	µg/g	-	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20
	Toluene-d8	0	%	-	88	86	91	88	87	86	95	90	90

*Tier 1 remediation guidelines for petroleum hydrocarbon contaminated fine-grained soil for commerical/industrial land use.

Table 5 - Soil Sample Results for Test Pits (Row 10) and Excavation Limits of Refueling Area

Parameter Group	Analyte	MRL	Units	Sample ID	MP-BF-W10	MP-BF-C10	MP-BF-E10	MP-BF-REFUEL-1	MP-BF-REFUEL-2	MP-BF-REFUEL-3	MP-BF-REFUEL-4	MP-BF-REFUEL-5	MP-BF-JETA
				Date and Time	Sept 14, 2013 14:05	Sept 14, 2013 14:10	Sept 14, 2013 14:15	Sept 11, 2013 11:30	Sept 11, 2013 11:35	Sept 15, 2013 16:00	Sept 15, 2013 16:10	Sept 15, 2013 16:05	Sept 11, 2013 13:00
				*Tier 1 PHC Guidelines									
General Chemistry	Moisture	0.1	%	-	10.4	9.8	13.6	5.5	27.8	44.5	6.5	6.1	3.4
Hydrocarbons	F1 (C6-C10)	10	µg/g	320	<10	<10	<10	<10	<10	<10	<10	<10	<10
	F1-BTEX (C6-C10)	10	µg/g	320	<10	<10	<10	<10	<10	<10	<10	<10	<10
	F2 (C10-C16)	10	µg/g	260	<10	<10	<10	<10	**250**	20	<10	140	20
	F3 (C16-C34)	20	µg/g	2500	<20	<20	<20	<20	30	<20	<20	50	<20
	F4 (C34-C50)	20	µg/g	6600	<20	<20	50	<20	<20	<20	<20	<20	<20
Metals	Pb	1	µg/g	-	4	2	2	2	2	2	2	2	2
Oil and Grease	Total Oil & Grease	100	µg/g	-	100	<100	<100	<100	<100	240	<100	160	<100
VOCs	Benzene	0.02	µg/g	-	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02
	Ethylbenzene	0.05	µg/g	-	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
	m/p-xylene	0.05	µg/g	-	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
	o-xylene	0.05	µg/g	-	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
	Toluene	0.2	µg/g	-	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20
	Toluene-d8	0	%	-	97	101	87	101	86	88	86	89	85

*Tier 1 remediation guidelines for petroleum hydrocarbon contaminated fine-grained soil for commerical/industrial land use.

Exceedance of Tier 1 remediation guidelines for petroleum hydrocarbon contaminated fine-grained soil for agricultural/parkland land use.

Table 6 - Soil Sample Results for Excavation Limits of Containment Berm Sump Area

Parameter Group	Analyte	MRL	Units	Sample ID	MP-BF-S1	MP-BF-S2	MP-BF-S3	MP-BF-S4	MP-BF-S5	MP-BF-S6	MP-BF-S7	MP-BF-S8	MP-BF-S9	MP-BF-S10	MP-BF-S11	MP-BF-S12
				Date and Time	Sept 15, 2013 13:10	Sept 15, 2013 13:10	Sept 15, 2013 13:10	Sept 15, 2013 13:10	Sept 15, 2013 13:10	Sept 15, 2013 13:10	Sept 15, 2013 13:10	Sept 15, 2013 13:10	Sept 15, 2013 13:10	Sept 15, 2013 13:10	Sept 15, 2013 13:10	Sept 15, 2013 13:10
				*Tier 1 PHC Guidelines												
General Chemistry	Moisture	0.1	%	-	6.2	7.5	8.8	12.8	12.9	8.9	5.1	10.6	7.6	12.6	8.1	6.5
Hydrocarbons	F1 (C6-C10)	10	µg/g	320	<10	<10	20	30	70	<10	**287**	<10	14.2	71	<10	<10
	F1-BTEX (C6-C10)	10	µg/g	320	<10	<10	20	30	70	<10	**277.3**	<10	14.2	70	<10	<10
	F2 (C10-C16)	10	µg/g	260	<10	20	**160**	80	**200**	20	**3700**	**420**	80	**960**	50	30
	F3 (C16-C34)	20	µg/g	2500	<20	<20	60	20	40	<20	560	130	40	220	<20	<20
	F4 (C34-C50)	20	µg/g	6600	<20	<20	<20	<20	<20	<20	30	<20	<20	<20	<20	<20
Metals	Pb	1	µg/g	-	3	2	4	2	2	2	4	2	3	4	2	2
Oil and Grease	Total Oil & Grease	100	µg/g	-	<100	<100	100	200	100	120	600	420	360	890	<100	240
VOCs	Benzene	0.02	µg/g	-	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02
	Ethylbenzene	0.05	µg/g	-	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
	m/p-xylene	0.05	µg/g	-	<0.05	<0.05	<0.05	0.25	0.94	<0.05	5.14	<0.05	<0.05	0.26	<0.05	<0.05
	o-xylene	0.05	µg/g	-	<0.05	<0.05	<0.05	0.16	0.59	<0.05	4.55	<0.05	<0.05	0.92	<0.05	<0.05
	Toluene	0.2	µg/g	-	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20
	Toluene-d8	0	%	-	96	95	100	103	99	88	99	98	98	106	100	101

*Tier 1 remediation guidelines for petroleum hydrocarbon contaminated fine-grained soil for commerical/industrial land use.

Exceedance of Tier 1 remediation guidelines for petroleum hydrocarbon contaminated fine-grained soil for commerical/industrial land use.
Exceedance of Tier 1 remediation guidelines for petroleum hydrocarbon contaminated fine-grained soil for agricultural/parkland land use.

Table 7 - Soil Sample Results for Excavation Limits of Contaminated Areas 1 and 2

				Sample ID	MP-BF-CA1A	MP-BF-CA1B	MP-BF-CA1C	MP-BF-CA1D	MP-BF-CA1E	MP-BF-CA2A	MP-BF-CA2B	MP-BF-CA2C	MP-BF-CA2D	MP-BF-CA2E
				Date and Time	Sept 16, 2013 11:05	Sept 16, 2013 11:10	Sept 16, 2013 11:15	Sept 16, 2013 11:20	Sept 16, 2013 11:25	Sept 16, 2013 11:30	Sept 16, 2013 11:35	Sept 16, 2013 11:40	Sept 16, 2013 11:45	Sept 16, 2013 11:50
Parameter Group	**Analyte**	**MRL**	**Units**	***Tier 1 PHC Guidelines**										
General Chemistry	Moisture	0.1	%	-	5.6	4.8	2.5	4.7	5.9	9.8	11.5	3.8	5.8	7.4
Hydrocarbons	F1 (C6-C10)	10	µg/g	320	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10
	F1-BTEX (C6-C10)	10	µg/g	320	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10
	F2 (C10-C16)	10	µg/g	260	40	<10	10	20	<10	<10	10	<10	<10	<10
	F3 (C16-C34)	20	µg/g	2500	20	<20	<20	40	<20	<20	<20	<20	<20	20
	F4 (C34-C50)	20	µg/g	6600	<20	<20	<20	30	<20	<20	<20	<20	<20	<20
Metals	Pb	1	µg/g	-	2	3	4	7	3	3	3	3	4	3
Oil and Grease	Total Oil & Grease	100	µg/g	-	200	400	190	200	200	200	100	100	<100	160
VOCs	Benzene	0.02	µg/g	-	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02
	Ethylbenzene	0.05	µg/g	-	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
	m/p-xylene	0.05	µg/g	-	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
	o-xylene	0.05	µg/g	-	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
	Toluene	0.2	µg/g	-	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20
	Toluene-d8	0	%	-	95	92	93	98	96	95	95	93	95	96

*Tier 1 remediation guidelines for petroleum hydrocarbon contaminated fine-grained soil for commerical/industrial land use.

Table 8 - Soil Sample Results for Excavation Limits of Contaminated Areas 3 and 4

				Sample ID	MP-BF-CA3A	MP-BF-CA3B	MP-BF-CA3C	MP-BF-CA3D	MP-BF-CA3E	MP-BF-CA4A	MP-BF-CA4B	MP-BF-CA4C	MP-BF-CA4D	MP-BF-CA4E
				Date and Time	Sept 16, 2013 11:55	Sept 16, 2013 12:00	Sept 16, 2013 12:35	Sept 16, 2013 12:40	Sept 16, 2013 12:45	Sept 16, 2013 12:50	Sept 16, 2013 12:55	Sept 16, 2013 13:00	Sept 16, 2013 13:05	Sept 16, 2013 13:10
Parameter Group	**Analyte**	**MRL**	**Units**	***Tier 1 PHC Guidelines**										
General Chemistry	Moisture	0.1	%	-	5.2	7.5	6.1	4.5	5.3	3.7	4.4	4.3	4.9	4.1
Hydrocarbons	F1 (C6-C10)	10	µg/g	320	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10
	F1-BTEX (C6-C10)	10	µg/g	320	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10
	F2 (C10-C16)	10	µg/g	260	<10	80	<10	<10	50	<10	140	<10	<10	<10
	F3 (C16-C34)	20	µg/g	2500	<20	80	<20	<20	40	<20	150	<20	30	<20
	F4 (C34-C50)	20	µg/g	6600	<20	<20	<20	<20	<20	30	<20	<20	<20	<20
Metals	Pb	1	µg/g	-	3	3	4	5	2	3	4	4	3	4
Oil and Grease	Total Oil & Grease	100	µg/g	-	<100	<100	260	200	100	<100	300	<100	<100	100
VOCs	Benzene	0.02	µg/g	-	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02
	Ethylbenzene	0.05	µg/g	-	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
	m/p-xylene	0.05	µg/g	-	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
	o-xylene	0.05	µg/g	-	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
	Toluene	0.2	µg/g	-	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20
	Toluene-d8	0	%	-	93	97	97	96	96	94	99	86	101	99

*Tier 1 remediation guidelines for petroleum hydrocarbon contaminated fine-grained soil for commerical/industrial land use.

Table 9 - Soil Sample Results for Excavation Limits of Contaminated Area 5

Parameter Group	Analyte	MRL	Units	Sample ID	MP-BF-CA5A	MP-BF-CA5B	MP-BF-CA5C	MP-BF-CA5D	MP-BF-CA5E	MP-BF-CA5F	MP-BF-CA5G	MP-BF-CA5H
				Date and Time	Sept 16, 2013 13:15	Sept 16, 2013 13:20	Sept 16, 2013 13:25	Sept 16, 2013 13:30	Sept 16, 2013 13:35	Sept 16, 2013 13:40	Sept 16, 2013 13:45	Sept 16, 2013 13:50
				*Tier 1 PHC Guidelines								
General Chemistry	Moisture	0.1	%	-	7.1	9.1	6.5	8.7	4.5	3	4.1	7.5
Hydrocarbons	F1 (C6-C10)	10	µg/g	320	<10	<10	<10	<10	<10	22.4	<10	<10
	F1-BTEX (C6-C10)	10	µg/g	320	<10	<10	<10	<10	<10	22.4	<10	<10
	F2 (C10-C16)	10	µg/g	260	**290**	20	<10	<10	<10	**800**	10	<10
	F3 (C16-C34)	20	µg/g	2500	50	50	<20	<20	30	250	50	30
	F4 (C34-C50)	20	µg/g	6600	<20	<20	<20	<20	<20	<20	40	20
Metals	Pb	1	µg/g	-	3	3	3	4	6	3	3	3
Oil and Grease	Total Oil & Grease	100	µg/g	-	100	300	<100	320	300	500	170	210
VOCs	Benzene	0.02	µg/g	-	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02
	Ethylbenzene	0.05	µg/g	-	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
	m/p-xylene	0.05	µg/g	-	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
	o-xylene	0.05	µg/g	-	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
	Toluene	0.2	µg/g	-	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20
	Toluene-d8	0	%	-	98	98	102	91	99	98	101	104

*Tier 1 remediation guidelines for petroleum hydrocarbon contaminated fine-grained soil for commerical/industrial land use.

Exceedance of Tier 1 remediation guidelines for petroleum hydrocarbon contaminated fine-grained soil for commerical/industrial land use.

Table 10 - Water Sample Results for Excavated Contaminated Area Test Pits that exceeded 15 ppm TOG

				Sample ID	MP-BF-CA5TP1	MP-BF-STP1
				Date and Time	Sept 18, 2013 13:30	Sept 18, 2013 13:45
Laboratory	**Parameter Group**	**Analyte**	**MRL**	**Units**		
BIM Internal	Oil and Grease	Total Oil & Grease	1	mg/L	27	37
Exova	Oil and Grease	Total Oil & Grease	1	µg/L	33	31
	VOCs	Benzene	0.5	µg/L	3.2	7.3
		Ethylbenzene	0.5	µg/L	3.4	<0.5
		Toluene	0.5	µg/L	4.8	3.4
		Toluene-d8	0	%	103	113

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Photo 8 – Final Excavation of the Refueling Area

Photo 9 – Test Pits

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APPENDIX E.8.2
LANDFARM BIOREMEDIATION REPORT

Prepared for:

EBA Engineering
A Tetra Tech Company
Environment Practice
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Final Report

Laboratory Biotreatability Study to Evaluate Biodegradation of Petroleum Hydrocarbons

Milne Inlet, Nunavut

Prepared by:

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SiREM Ref: TL0307B

17 July 2012

siremlab.com

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LIST OF ABBREVIATIONS

CCME	Canadian Council of Ministers of Environment
°C	degrees Celsius
DI	deionized
DAP	diammonium phosphate
EBA	EBA Engineering
g	grams
mg/kg	milligram per kilogram
mL	milliliter
mL/g	milliliter per gram
NH_3	ammonia
%	percent
PHC	petroleum hydrocarbons
SiREM	SiREM Laboratory
WHC	water holding capacity

1. INTRODUCTION

EBA Engineering (EBA) retained SiREM Laboratories (SiREM) to perform a laboratory biotreatability study to evaluate the potential for *in situ* degradation of petroleum hydrocarbons (PHC) in soil from a site in Baffinland, Canada (the Site). As discussed in SiREM's proposal, Si-1434, the purpose of the study was to evaluate the natural and enhanced aerobic degradation processes for PHC using soil from one Site location.

The study design included aerobic active and aerobic tilling controls and two different treatments to evaluate the degradation of PHC at low temperature (10 degrees Celsius (°C)). The treatments evaluated included 1) a tilling and nutrient amended treatment, and 2) a tilling and waste sludge amended treatment. The controls and treatments are summarized in Table 1 shown below, with further details on the amendments provided in Table 2.

Table 1: Summary of Microcosm Controls and Treatments

	Treatment/Control	Description	Number of Microcosm Replicates
1	Aerobic Active Control	Un-amended	2
2	Aerobic Tilling Control	Un-amended + Tilling	2
3	Aerobic Nutrient Amended Tilling Treatment	Amended with nitrogen and phosphorus + Tilling	2
4	Aerobic Waste Sludge Amended Tilling Treatment	Amended with waste sludge + Tilling	2
		Number of Microcosms	**8**

Soil was collected from the Site on December 5, 2011 by EBA and was received by SiREM on December 6, 2011 and stored at 4 °C until required for testing. The waste sludge used in this study was also provided to SiREM by EBA. The initial set up and baseline analysis of the sludge consumed the majority of the sludge; therefore a second shipment of waste sludge was required for the actual weekly amendments. The second batch of sludge was received by SiREM on February 28, 2012. The chain of custody documentation related to these samples is provided in Appendix A.

The remainder of this report is divided into two sections. Section 2 presents the experimental materials and methods and Section 3 presents the results of the biotreatability study.

2. MATERIALS AND METHODS

The following sections summarize the methods for microcosm construction and incubation (Section 2.1); and microcosm sampling and analysis (Section 2.2).

2.1 Microcosm Construction and Incubation

Two controls and two treatments were evaluated in this study (Table 1). Forty microcosms were constructed to allow for sacrificial sampling of duplicate microcosms for each sampling event. Table 2 summarizes the details of microcosm construction and amendments for the treatment and control microcosms. Microcosms were incubated for 139 days in an incubator at 10°C. On December 21, 2011 sub-samples of the material were collected for baseline PHC, total kjehldahl nitrogen (TKN), nitrite, nitrate, phosphorus, pH, Canadian Council of Ministers of Environment (CCME) and major metals, and salinity package analysis to verify the material as received was representative of Site PHC concentrations (Tables 3A-3D). The waste sludge provided by EBA was also sub-sampled for sewage chemistry analysis (Tables 3E and 3F). The remainder of the soil material and waste sludge was stored in a cold room at 4 ^{O}C until microcosm construction.

On January 10, 2012 (Day 0), the material was removed from the cold room and was transferred to a laboratory fume hood. The soil was combined and mixed by hand to improve reproducibility between microcosm replicates. The homogenized soil was sub-divided into clean plastic bags for preparation of the treatment and control microcosms. For each of the two treatments 2,800 grams (g) of soil was required and for each of the two controls 3,000 g of soil was required to have sufficient material for the required replicates. After amendments were added to the soil, it was mixed well and dispensed in 200 g amounts into 250 milliliter (mL) glass wide-mouth bottles. The bottles were plugged with sterile foam bungs in order to allow oxygen transfer into the bottles and the bottles were stored in an incubator at 10^{O}C.

In order to provide sufficient moisture for biodegradation deionized (DI) water was added to the bulk soil. Typically the target dosage amount in these studies is up to 50 percent (%) of the water holding capacity (WHC) without creating fee standing water. The WHC was determined to be 0.45 milliliters per gram (mL/g) (Appendix B) and given the amount of moisture in the material it was determined that 25 mL of DI water was required per 200 g of soil to reach 50% of the WHC (Appendix C). However, it was observed that beyond 25% of the WHC the soil became saturated (observed presence of free standing liquid). Therefore a volume of 12.5 mL of DI water per 200 g of soil was used. The DI water was added to the bulk homogenized soil prior to constructing the microcosms. A volume of 187.5 mL of DI water was added to the bulk soil (3,000 g) to reach 25% of the WHC for the control microcosms.

For the nutrient amended tilling treatment, nitrogen and phosphorus were evaluated as the nutrient source. Typical nutrient loading rates are based on a carbon:nitrogen:phosphorous ratio of 100:10:1. The baseline soil PHC concentrations were used to determine the approximate amount of carbon present in the soil. The amount of nitrogen required to achieve the ratio of 100:10:1 was calculated to be 221 milligram per kilogram (mg/kg) (Appendix C). Diammonium phosphate (DAP) was used to provide both nitrogen and phosphorus. A weight of

2.9 g of DAP was added to 175 mL of DI water. This solution was added to the bulk homogenized soil (2,800 g) designated for the nutrient amended tilling treatment to reach both the target nutrient concentration and 25% of the WHC.

For the tilling waste sludge amended treatment; water was not added to bring up the WHC because the waste sludge acted as the water source. A volume of 12.5 mL of waste sludge per 200g soil was used to provide both moisture and nutrients. A volume of 175 mL waste sludge was added to the bulk homogenized soil (2,800 g) to reach 25% of the WHC. Based on baseline analysis of the waste sludge and the volume of waste sludge added, the concentration of TKN in the soil was 25 mg/Kg after waste sludge amendment (Appendix C).

All treatment and control microcosms were weighed after the addition of soil and amendments to record a baseline weight at Time zero. The tilling treatment bottles were stirred and weighed once a week for the duration of the study. When a decrease in weight of greater than 10 % was observed, DI water or waste sludge as appropriate was added to the corresponding treatment or control bottles. Note that DI water was added to the waste sludge treatment for the first six weeks until fresh waste sludge was received on February 28, 2012. This was done to increase the weight back to the original weight and maintain the bottles at their original moisture content (25% WHC). The intrinsic control microcosms were only stirred when re-amended with DI water to replace any lost moisture. All other controls and treatments were stirred once a week to represent tilling.

2.2 Microcosm Sampling and Analysis

2.2.1 Baseline Analysis and Waste Sludge Chemistry Analysis

Analysis of the target PHC (F2-F4 Hydrocarbons) was conducted by an external laboratory, Maxxam Analytics Inc. (Mississauga, ON). On December 21, 2011, a sub-sample of the bulk homogenized soil was collected in two 250 mL (nominal volume) glass wide-mouth bottles. The samples were placed on ice packs in a cooler and submitted to Maxxam Analytics for PHC (F2-F4 Hydrocarbons), salinity package, CCME Metals, pH, TKN, nitrate, and nitrite analysis (Tables 3A-D). On Day 0 a subsample of the waste sludge used in the initial dosing of the waste sludge treatment microcosms was sent to Maxxam Analytics Inc. for sewage chemistry analysis (Tables 3E-F).

2.2.2 Petroleum Hydrocarbon, pH and Moisture Content Analysis

On Days 0, 28, 84, and 139, sacrificial bottles from both sets of control microcosms were sampled for PHC, pH (with the exception of Day 0 for the aerobic active control) and moisture content analysis. For both treatments, sacrificial microcosms were sampled on Days 0, 14, 28, 57, 84, 112, and 139 for PHC, pH (with the exception of Day 14) and moisture content analysis. At each sampling event the sacrificial bottles were shipped in a cooler with ice packs and couriered overnight to Maxxam Analytics Inc.

2.2.3 Nitrogen, TKN and phosphorus, analysis

Analysis of nitrogen (nitrate, nitrite, nitrate + nitrite), TKN, and phosphorous was also conducted by Maxxam Analytics Inc.

On Days 0, 28, 57, 84, 112 and 139 microcosms from both treatments were sacrificed and sampled for nitrogen (nitrate, nitrite, nitrate + nitrite), TKN and phosphorus analysis. The aerobic active control sacrificial microcosms were sampled for nitrogen (nitrate, nitrite, nitrate +nitrite), TKN and phosphorus analysis on Days 28 and 139. The aerobic tilling control sacrificial microcosms were sampled for nitrogen (nitrate, nitrite, nitrate +nitrite), TKN and phosphorus analysis on Days 0, 28 and 139. At each sampling event, sacrificial bottles were placed in a cooler with ice packs and couriered overnight to Maxxam Analytics Inc.

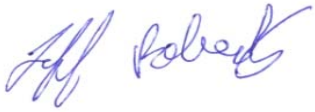
3. RESULTS

Table 4 provides PHC (F2-F4), pH, moisture content, nitrogen (nitrate, nitrite, nitrate +nitrite), TKN and phosphorous results from the control and treatment microcosms over the incubation period of the study. Table 5 provides a summary of the % PHC removal for each control and treatment. Figures 1 through 4 present trends in the concentrations of PHC concentrations in the control and treatment microcosms over the incubation period of the study.

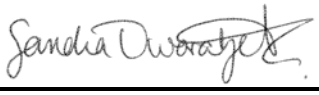
Refer to Appendix B for the baseline WHC and moisture content results, Appendix C for amendment calculations and Appendix D for the Maxxam Analytics Inc. analytical reports.

Report Prepared by:  **Date:** 25 June 2012

Ximena Druar, Laboratory Technician

Report Reviewed by:  **Date:** 26 June 2012

Jeff Roberts, Laboratory Manager

Report Reviewed by:  **Date:** 26 June 2012

Sandra Dworatzek, Senior Manager

TABLES

TABLE 2: SUMMARY OF MICROCOSM CONTROLS, TREATMENTS AND AMENDMENTS
Milne Inlet, Nunavut

Microcosm Name	Number of Bottles	Description
Aerobic Active Control	6	No amendments added. Amended with DI water throughout the duration of the study to maintain the % moisture (25% WHC) present at the beginning of the study. Soil was only mixed when DI water was added to maintain % moisture.
Aerobic Tilling Control	6	No amendments added. Amended with DI water throughout the duration of the study to maintain the % moisture (25% WHC) present at the beginning of the study. Soil was mixed weekly to represent tilling.
Aerobic Tilling and Nutrient Amended Treatment	14	Amended with 213 mg DAP/200 g soil to a target concentration of 226 mg/kg as Nitrogen on Day 0. Amended with DI water throughout the duration of the study to maintain the % moisture (25% WHC).
Aerobic Tilling and Waste Sludge Amended Treatment	14	Amended with 12.5 mL of waste sludge /200 g soil giving a TKN concentration in soil of 25 mg/Kg. Treatment microcosms were amended with waste sludge throughout the duration of the study to maintain the % moisture (25% WHC) present at the beginning of the study*.

Notes: * From week 1 to week 6 the moisture amendment of this treatment was done with DI water as there was not enough waste sludge left over after the initial bottle set up. On February 28, 2012 SiREM received a new batch of waste sludge from the client and from that date until the end of the study all moisture amendments were made with the waste sludge.

DAP – diammonium phosphate
DI - deionized
g – gram
mg – milligram
mg/kg – milligram per kilogram
mL - milliliter
TKN – Total Kjehldahl Nitrogen
WHC – water holding capacity
% - percent

TABLE 3A:SUMMARY OF BASELINE SOIL INORGANIC RESULTS

Milne Inlet, Nunavut

SiREM

Inorganics	Units	Replicate		Average
		Replicate 1	Replicate 2	
Moisture	%	12	12	**12**
Available (CaCl2) pH	pH	7.51	7.42	**7.45**
Total Kjeldahl Nitrogen	ug/g	228	283	**265**
Nitrite (N)	ug/g	0.1 U	0.1 U	**NA**
Nitrate (N)	ug/g	0.4 U	0.4 U	**NA**
Nitrate + Nitrite	ug/g	0.6 U	0.6 U	**NA**

Notes:

% - percent

µg/g - micrograms/gram

U - the compound was analyzed for but not detected, the assoiciated value is the detection limit

Table 3B: SUMMARY OF BASELINE SOIL CCME METALS RESULTS SiREM

Milne Inlet, Nunavut

Metals	Units	Replicate		Average
		Replicate 1	Replicate 2	
Acid Extractable Sulphur (S)	ug/g	170	150	**157**
Acid Extractable Aluminum (Al)	ug/g	3200	3300	**3267**
Acid Extractable Antimony (Sb)	ug/g	0.040 U	0.040 U	**NA**
Acid Extractable Arsenic (As)	ug/g	0.93 J	0.92 J	**NA**
Acid Extractable Barium (Ba)	ug/g	9.2	9.0	**9.1**
Acid Extractable Beryllium (Be)	ug/g	0.28	0.30	**0.29**
Acid Extractable Bismuth (Bi) (1)	ug/g	<1.0	<1.0	**NA**
Acid Extractable Boron (B)	ug/g	6.3	6.4	**6.4**
Acid Extractable Cadmium (Cd)	ug/g	0.020 U	0.023 J	**NA**
Acid Extractable Calcium (Ca)	ug/g	17000	18000	**17667**
Acid Extractable Chromium (Cr)	ug/g	8.1	8.5	**8.4**
Acid Extractable Cobalt (Co)	ug/g	2.6	2.6	**2.6**
Acid Extractable Copper (Cu)	ug/g	5.3	5.5	**5.4**
Acid Extractable Iron (Fe)	ug/g	7400	7400	**7400**
Acid Extractable Lead (Pb)	ug/g	4.4	4.4	**4.4**
Acid Extractable Magnesium (Mg)	ug/g	10000	11000	**10667**
Acid Extractable Manganese (Mn)	ug/g	120	120	**120**
Acid Extractable Molybdenum (Mo)	ug/g	0.13 J	0.16 J	**NA**
Acid Extractable Nickel (Ni)	ug/g	4.9	5.2	**5.1**
Acid Extractable Phosphorus (P)	ug/g	200	230	**220**
Acid Extractable Potassium (K)	ug/g	540	560	**553**
Acid Extractable Selenium (Se)	ug/g	0.23 J	0.29 J	**NA**
Acid Extractable Silver (Ag)	ug/g	0.040 U	0.040 U	**NA**
Acid Extractable Sodium (Na)	ug/g	160	150	**153**
Acid Extractable Strontium (Sr)	ug/g	9.3	9.7	**10**
Acid Extractable Thallium (Tl)	ug/g	0.083	0.079	**0.080**
Acid Extractable Tin (Sn) (1)	ug/g	<5.0	<5.0	**NA**
Acid Extractable Uranium (U)	ug/g	0.68	0.73	**0.71**
Acid Extractable Vanadium (V)	ug/g	11	11	**11**
Acid Extractable Zinc (Zn)	ug/g	15	14	**14**
Acid Extractable Mercury (Hg) (1)	ug/g	<0.050	<0.050	**NA**

Notes:

µg/g - micrograms/gram

g - gram

U - the compound was analyzed for but not detected, the assoiciated value is the detection limit

J - The reported value was obtained from a reading that was less than the quantitation limit but greater than or equal to the method detection limit

< - compound not detected, the associated value is the detection limit

NA - not applicable

TABLE 3C: SUMMARY OF BASELINE SOIL PETROLEUM HYDROCARBONS RESULTS

Milne Inlet, Nunavut

SiREM

F2-F4 Hydrocarbons	Units	Replicate		Average
		Replicate 1	Replicate 2	
F2 (C10-C16 Hydrocarbons)	ug/g	1700	2000	**1850**
F3 (C16-C34 Hydrocarbons)	ug/g	790	860	**825**
F4 (C34-C50 Hydrocarbons)	ug/g	2.0 U	2.0 U	**NA**
Reached Baseline at C50	ug/g	Yes	Yes	**NA**

Notes:

% - percent

µg/g - micrograms/gram

U - the compound was analyzed for but not detected, the assoiciated value is the detection limit

NA - not applicable

TABLE 3D: SUMMARY OF BASELINE SOIL SALINITY RESULTS SiREM

Milne Inlet, Nunavut

Parameters	Units	Replicate		Average
		Replicate 1	Replicate 2	
Calculated Parameters				
Anion Sum	meq/L	11	9.9	**10**
Cation Sum	meq/L	15	16	**16**
Ion Balance	meq/L	1.4	1.6	**1.5**
Soluble Parameters				
Soluble Chloride (Cl)	mg/L	360	330	**345**
Soluble Conductivity	dS/m	1.5	1.4	**1.5**
Soluble (CaCl2) pH	NA	7.26	7.18	**7.22**
Sodium Adsorption Ratio	NA	2.9	2.8	**2.9**
Soluble Calcium (Ca)	mg/L	100	110	**105**
Soluble Magnesium (Mg)	mg/L	42	46	**44**
Soluble Sodium (Na)	mg/L	140	140	**140**
Soluble Potassium (K)	mg/L	7.8	14	**11**
Saturation %	%	27	26	**27**
Soluble Sulphate (SO4)	mg/L	24	30	**27**

Notes:

mg/L - milligrams per liter

meq/L - milliequivalents per liter

dS/m - deciSiemens per metre

% - percent

ha - hectare

NA - not applicable

< - compound not detected, the associated value is the detected limit

TABLE 3E: SUMMARY OF BASELINE WASTE SLUDGE INORGANIC RESULTS

SiREM

Milne Inlet, Nunavut

Inorganics	Units	Waste Sludge
Conductivity	umho/cm	2100
Total Kjeldahl Nitrogen (TKN)	mg/L	400
pH	pH	7.14
Nitrite (N)	mg/L	0.003 J
Nitrate (N)	mg/L	0.02 U
Nitrate + Nitrite	mg/L	0.02 U

Notes:

mg/L - milligrams per liter

umho/cm - micromho per centimeter

U - the compound was analyzed for but not detected, the assoiciated value is the detection limit

J - The reported value was obtained from a reading that was less than the quantitation limit but greater than or equal to the method detection limit

TABLE 3F:SUMMARY OF BASELINE WASTE SLUDGE METALS RESULS

Milne Inlet, Nunavut

Metals	Units	Waste Sludge
Total Aluminum (Al)	µg/L	850000
Total Antimony (Sb)	µg/L	54
Total Arsenic (As)	µg/L	17
Total Barium (Ba)	µg/L	560
Total Beryllium (Be)	µg/L	5.0 U
Total Bismuth (Bi)	µg/L	81
Total Boron (B)	µg/L	100 U
Total Cadmium (Cd)	µg/L	22
Total Calcium (Ca)	µg/L	140000
Total Chromium (Cr)	µg/L	180
Total Cobalt (Co)	µg/L	15
Total Copper (Cu)	µg/L	1400
Total Iron (Fe)	µg/L	61000
Total Lead (Pb)	µg/L	120
Total Lithium (Li)	µg/L	50 U
Total Magnesium (Mg)	µg/L	42000
Total Manganese (Mn)	µg/L	1000
Total Molybdenum (Mo)	µg/L	51
Total Nickel (Ni)	µg/L	200
Total Phosphorus (P))	µg/L	290000
Total Potassium (K)	µg/L	34000
Total Silicon (Si)	µg/L	15000
Total Selenium (Se)	µg/L	49
Total Silver (Ag)	µg/L	7.2
Total Sodium (Na)	µg/L	420000
Total Strontium (Sr)	µg/L	370
Total Tellurium (Te)	µg/L	10 U
Total Thallium (Tl)	µg/L	0.50 U
Total Tin (Sn)	µg/L	70
Total Titanium (Ti)	µg/L	290
Total Tungsten (W)	µg/L	12
Total Uranium (U)	µg/L	18
Total Vanadium (V)	µg/L	33
Total Zinc (Zn)	µg/L	23000
Total Zirconium (Zr)	µg/L	50
Total Cesium (Cs)	µg/L	1.3 J
Total Rubidium (Rb)	µg/L	49

Notes:

µg/L - micrograms per liter

U - the compound was analyzed for but not detected, the assoiciated value is the detection limit

J - The reported value was obtained from a reading that was less than the quantitation limit but greater than or equal to the method detection limit

TABLE 4: SUMMARY OF MICROCOSM TPH, NITROGEN, PHOSPHORUS, pH and % MOISTURE RESULTS
Milne Inlet, Nunavut

Treatment	Date	Day	Treatment Replicate	bottle #	F2 (C10-C16) µg/g	F3 (C16-C34) µg/g	F4 (C34-C50) µg/g	Nitrite (N) µg/g	Nitrate (N) µg/g	Nitrate + Nitrite µg/g	TKN µg/g	Phosphorus µg/g	pH S.U.	Moisture %
Aerobic Active Control	10-Jan-12	0	AAC -1	1	770	340	<2.0	--	--	--	--	--	--	15
			AAC-2	2	820	370	<2.0	--	--	--	--	--	--	12
			Average		**795**	**355**	**ND**	**--**	**--**	**--**	**--**	**--**	**--**	**14**
	7-Feb-12	28	AAC -1	1	680	370	<2.0	<0.10	<0.40	<0.60	242	260	7.68	6.5
			AAC-2	2	840	430	<2.0	0.20J	<0.40	<0.60	281	320	7.63	5.8
			Average		**760**	**400**	**ND**	**0.21**	**ND**	**ND**	**262**	**290**	**7.66**	**6.2**
	3-Apr-12	84	AAC -1	1	310	250	<2.0	--	--	--	--	--	7.54	6.9
			AAC-2	2	310	240	<2.0	--	--	--	--	--	7.60	5.0
			Average		**310**	**245**	**ND**	**--**	**--**	**--**	**--**	**--**	**7.57**	**6.0**
	28-May-12	139	AAC -1	1	110	180	<2.0	0.20J	<0.40	<0.60	205	180	7.42	11
			AAC-2	2	110	180	<2.0	0.10J	<0.40	<0.60	220	210	7.45	12
			Average		**110**	**180**	**ND**	**0.15**	**ND**	**ND**	**213**	**195**	**7.44**	**12**
Aerobic Tilling Control	10-Jan-12	0	Tilling Control- 1	3	770	340	<2.0	0.20J	<0.40	<0.60	232	240	7.34	14
			Tilling Control- 2	4	820	370	<2.0	0.20J	<0.40	<0.60	191	280	7.36	14
			Average		**795**	**355**	**ND**	**0.20**	**ND**	**ND**	**212**	**260**	**7.35**	**14**
	7-Feb-12	28	Tilling Control- 1	3	400	310	<2.0	0.20J	<0.40	<0.60	292	180	7.70	12
			Tilling Control- 2	4	410	360	<2.0	0.20J	<0.40	<0.60	247	220	7.60	12
			Average		**405**	**335**	**ND**	**0.20**	**ND**	**ND**	**270**	**200**	**7.65**	**12**
	3-Apr-12	84	Tilling Control- 1	3	150	140	<2.0	--	--	--	--	--	7.54	14
			Tilling Control- 2	4	180	200	<2.0	--	--	--	--	--	7.81	9.2
			Average		**165**	**170**	**ND**	**--**	**--**	**--**	**--**	**--**	**7.68**	**12**
	28-May-12	139	Tilling Control- 1	3	69	120	<2.0	0.20J	<0.40	<0.60	184	200	7.49	12
			Tilling Control- 2	4	24	90	<2.0	0.10J	<0.40	<0.60	306	210	7.50	1.1
			Average		**47**	**105**	**ND**	**0.15**	**ND**	**ND**	**245**	**205**	**7.50**	**6.6**
Aerobic Tilling and Nutrient Amended Treatment	10-Jan-12	0	Tilling + Nutrient Treatment -1	5	770	340	<2.0	<0.1	<0.40	<0.60	344	880	6.95	14
			Tilling + Nutrient Treatment -2	6	820	370	<2.0	<0.1	<0.40	<0.60	599	750	6.95	14
			Average		**795**	**355**	**ND**	**ND**	**ND**	**ND**	**472**	**815**	**6.95**	**14**
	24-Jan-12	14	Tilling + Nutrient Treatment -1	5	560	280	<2.0	--	--	--	--	--	--	12
			Tilling + Nutrient Treatment -2	6	560	290	<2.0	--	--	--	--	--	--	11
			Average		**560**	**285**	**ND**	**--**	**--**	**--**	**--**	**--**	**--**	**12**
	7-Feb-12	28	Tilling + Nutrient Treatment -1	5	300	240	<2.0	<0.1	<0.40	<0.60	470	910	7.26	10
			Tilling + Nutrient Treatment -2	6	280	280	<2.0	<0.1	<0.40	<0.60	485	770	7.29	2.4
			Average		**290**	**260**	**ND**	**ND**	**ND**	**ND**	**478**	**840**	**7.28**	**6.2**
	7-Mar-12	57	Tilling + Nutrient Treatment -1	5	200	180	<2.0	<0.1	<0.40	<0.60	463	590	7.21	2.3
			Tilling + Nutrient Treatment -2	6	230	170	<2.0	<0.1	<0.40	<0.60	404	710	7.19	5.4
			Average		**215**	**175**	**ND**	**ND**	**ND**	**ND**	**434**	**650**	**7.20**	**3.9**
	3-Apr-12	84	Tilling + Nutrient Treatment -1	5	83	150	<2.0	<0.1	<0.40	<0.60	504	760	7.24	12
			Tilling + Nutrient Treatment -2	6	65	110	<2.0	<0.1	<0.40	<0.60	395	890	7.27	11
			Average		**74**	**130**	**ND**	**ND**	**ND**	**ND**	**450**	**825**	**7.26**	**12**
	1-May-12	112	Tilling + Nutrient Treatment -1	5	57	110	<2.0	<0.1	<0.40	<0.60	319	780	7.21	13
			Tilling + Nutrient Treatment -2	6	84	110	<2.0	<0.1	<0.40	<0.60	326	770	7.32	10
			Average		**71**	**110**	**ND**	**ND**	**ND**	**ND**	**323**	**775**	**7.27**	**12**
	28-May-12	139	Tilling + Nutrient Treatment -1	5	45	73	<2.0	<0.1	<0.40	<0.60	302	790	7.15	11
			Tilling + Nutrient Treatment -2	6	48	100	<2.0	<0.1	<0.40	<0.60	342	820	6.72	7.7
			Average		**47**	**87**	**ND**	**ND**	**ND**	**ND**	**322**	**805**	**6.94**	**9.4**
Aerobic Tilling and Waste Sludge Amended Treatment	10-Jan-12	0	Tilling + Waste Sludge -1	7	770	340	<2.0	<0.1	<0.40	<0.60	218	220	7.31	12
			Tilling + Waste Sludge- 2	8	820	370	<2.0	<0.1	<0.40	<0.60	213	230	7.26	13
			Average		**795**	**355**	**ND**	**ND**	**ND**	**ND**	**216**	**225**	**7.29**	**13**
	24-Jan-12	14	Tilling + Waste Sludge -1	7	570	320	<2.0	--	--	--	--	--	--	10
			Tilling + Waste Sludge- 2	8	480	380	<2.0	--	--	--	--	--	--	1.2
			Average		**525**	**350**	**ND**	**--**	**--**	**--**	**--**	**--**	**--**	**5.6**
	7-Feb-12	28	Tilling + Waste Sludge -1	7	460	370	<2.0	<0.1	<0.40	<0.60	256	150	7.57	4.8
			Tilling + Waste Sludge- 2	8	340	240	<2.0	<0.1	<0.40	<0.60	216	320	7.45	13
			Average		**400**	**305**	**ND**	**ND**	**ND**	**ND**	**236**	**235**	**7.51**	**8.9**
	7-Mar-12	57	Tilling + Waste Sludge -1	7	180	160	<2.0	0.60	<0.40	<0.60	341	720	7.20	15
			Tilling + Waste Sludge- 2	8	130	210	<2.0	0.60	<0.40	<0.60	451	570	7.24	15
			Average		**155**	**185**	**ND**	**0.60**	**ND**	**0.80**	**396**	**645**	**7.22**	**15**
	3-Apr-12	84	Tilling + Waste Sludge -1	7	120	180	<2.0	0.3J	13	13	313	490	7.36	7.4
			Tilling + Waste Sludge- 2	8	80	170	<2.0	0.3J	22	22	418	410	7.39	6.9
			Average		**100**	**175**	**ND**	**0.30**	**18**	**18**	**366**	**450**	**7.38**	**7.2**
	1-May-12	112	Tilling + Waste Sludge -1	7	100	240	15	<0.1	18	18	590	1600	7.39	16
			Tilling + Waste Sludge- 2	8	120	200	11	<0.1	35	35	494	1000	7.28	11
			Average		**110**	**220**	**13**	**ND**	**27**	**27**	**542**	**1300**	**7.34**	**14**
	28-May-12	139	Tilling + Waste Sludge -1	7	54	210	28	0.3J	25	25	699	1800	7.12	11
			Tilling + Waste Sludge- 2	8	36	170	26	0.3J	91	91	485	1600	7.06	5.7
			Average		**45**	**190**	**27**	**0.30**	**58**	**58**	**592**	**1700**	**7.09**	**8.4**

Notes:
AAC - aerobic active control
J - The reported value was obtained from a reading that was less than the quantitation limit but greater than or equal to the method detection limit
µg/g - micrograms per gram
µg/kg - micrograms per kilogram
ND - not detected
N - nitrogen
TKN - Total Kjeldahl Nitrogen
% - percent
-- - not available/not applicable
< - compound not detected, the associated value is the detected limit
S.U. - standard units

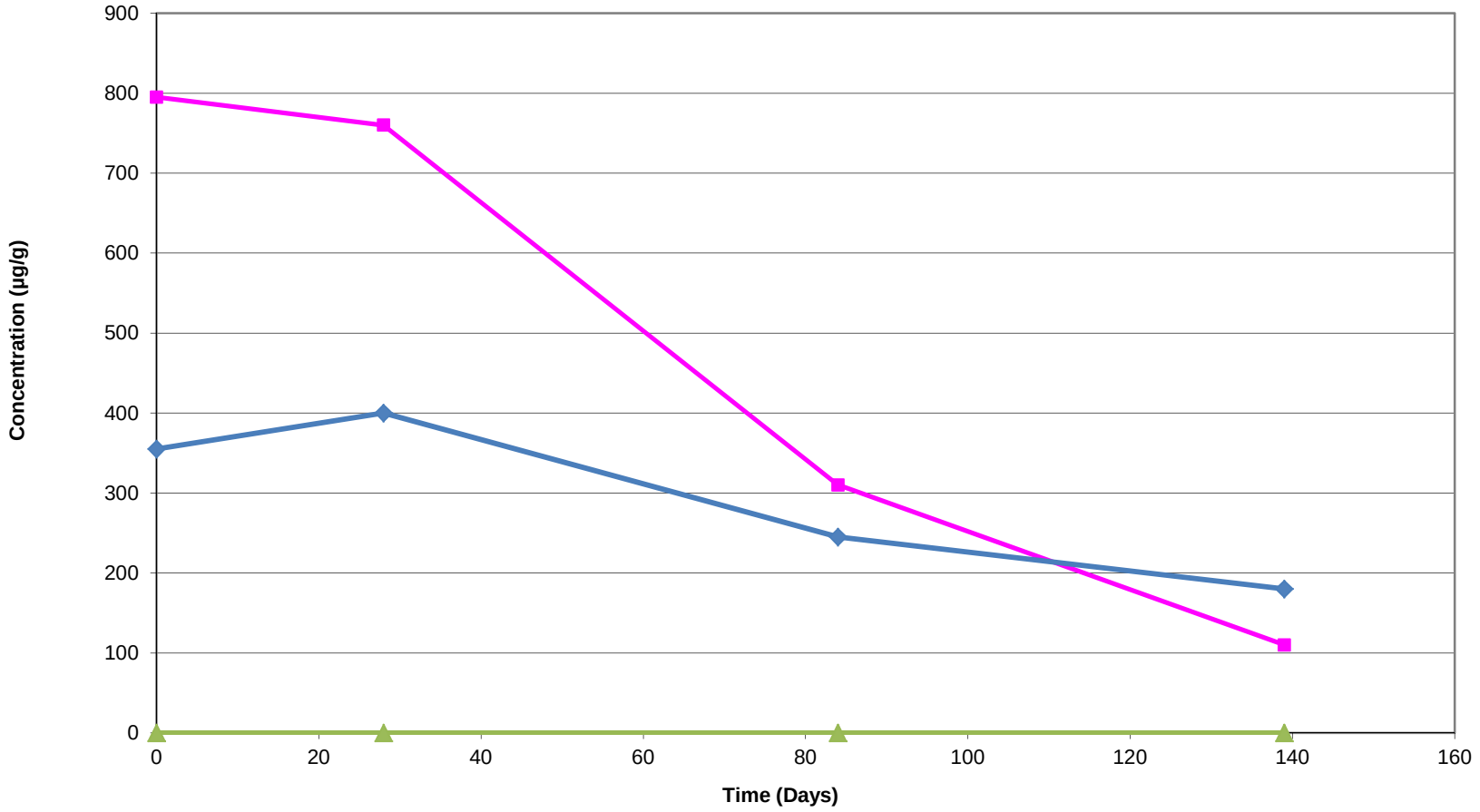
TABLE 5: PERCENT REMOVAL OF PETROLEUM HYDROCARBONS IN MICROCOSMS SiREM

Milne Inlet, Nunavut

Treatment	F2 (C10-C16)			F3 (C16-C34)			F4 (C34-C50)		
	% Removal	Initial [ ] (µg/g)	Final [ ] (µg/g)	**% Removal**	Initial [ ] (µg/g)	Final [ ] (µg/g)	**% Removal**	Initial [ ] (µg/g)	Final [ ] (µg/g)
Aerobic Active Control	86	795	110	49	355	180	NA	0	0
Aerobic Tilling Control	94	795	47	70	355	105	NA	0	0
Aerobic Nutrient Amended Tilling Treatment	94	795	47	75	355	87	NA	0	0
Aerobic Waste Sludge Amended Tilling Treatment	94	795	45	46	355	190	NA	0	27

Notes: % removal = {(initial concentration - final concentration)/initial concentration} * 100
% - percent
[ ] - concentration
µg/g - microgram per gram
NA - not applicable

FIGURES



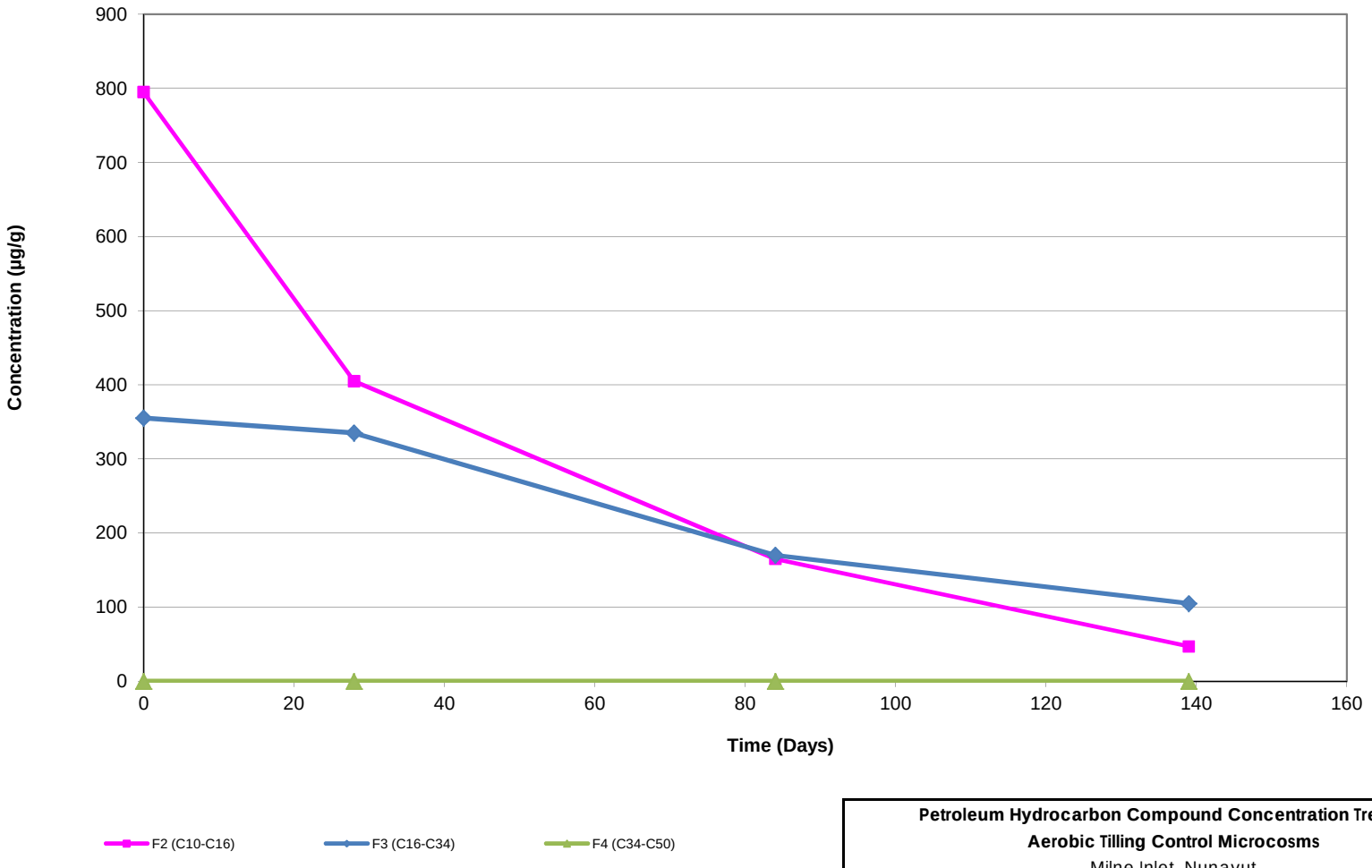
Petroleum Hydrocarbon Compound Concentration Trends in Aerobic Active Control Microcosms

Milne Inlet, Nunavut

SiREM

July 2012

Figure: **1**



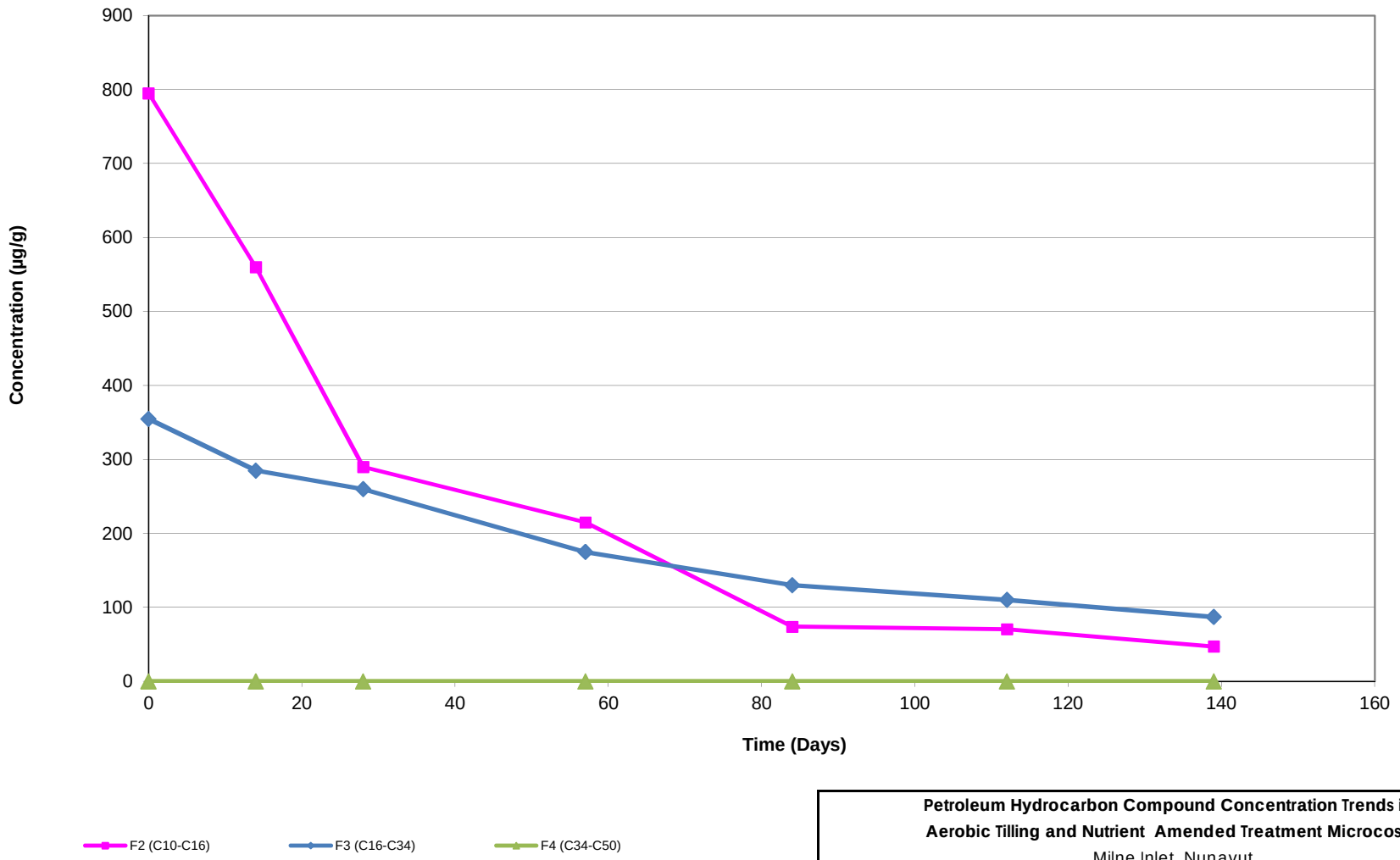
Petroleum Hydrocarbon Compound Concentration Trends in Aerobic Tilling Control Microcosms

Milne Inlet, Nunavut

SiREM

July 2012

Figure: **2**



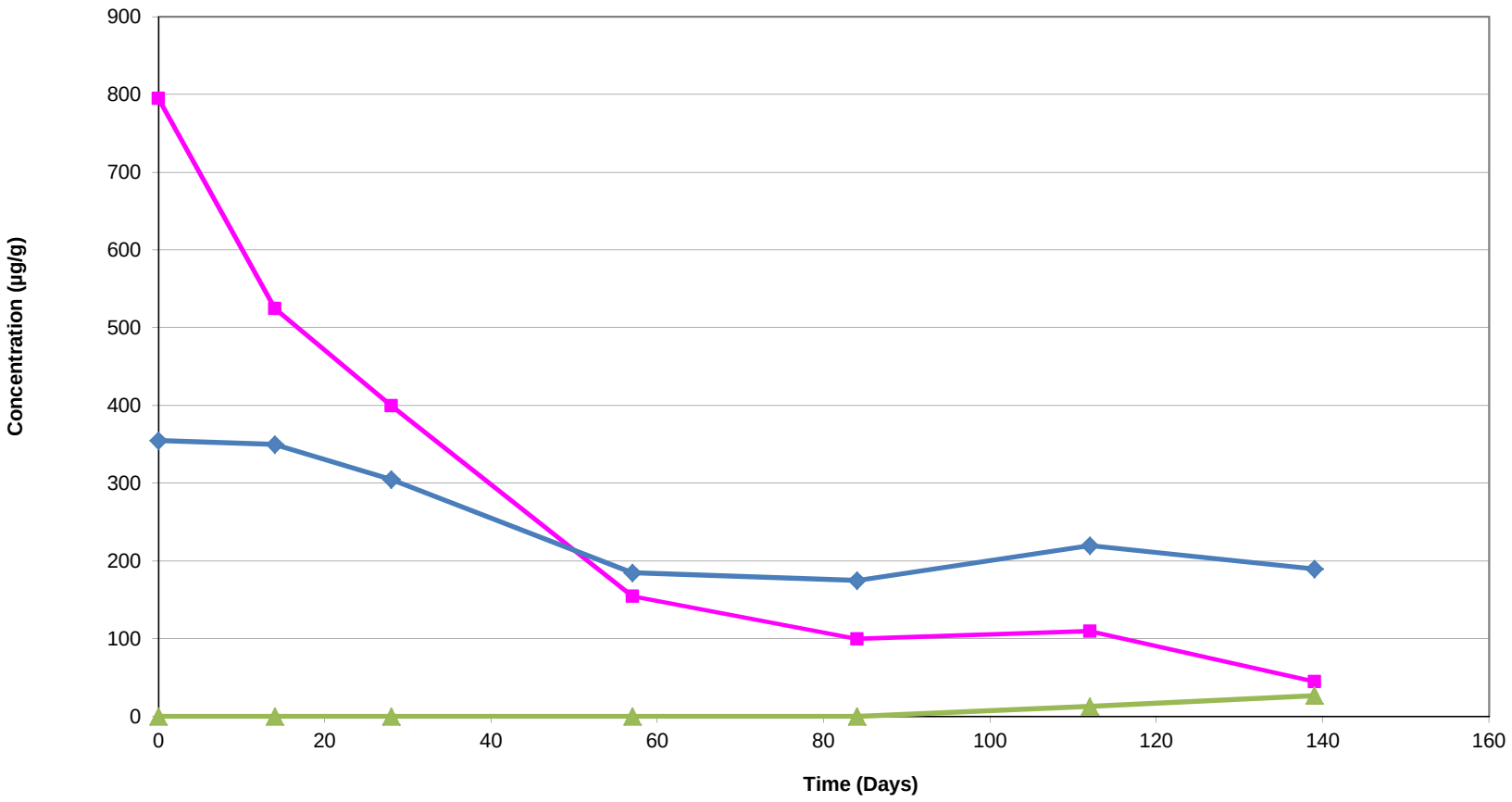
Petroleum Hydrocarbon Compound Concentration Trends in Aerobic Tilling and Nutrient Amended Treatment Microcosms

Milne Inlet, Nunavut

SiREM

July 2012

Figure: **3**



Petroleum Hydrocarbon Compound Concentration Trends in Aerobic Tilling and Waste Sludge Amended Treatment Microcosms

Milne Inlet, Nunavut

SiREM

July 2012

Figure: **4**

APPENDIX A: Chain of Custody Documentation

Maxxam

Calgary: 4000 19st St. NE, T2E 6P8. Ph: (403) 291-3077, Fax: (403) 735-2240, Toll free: (800) 386-7247
Edmonton: 9331 - 48 Street, T6B 2R4. Ph: (780) 577-7100, Fax: (780) 450-4187, Toll free: (877) 465-8889
www.maxxamanalytics.com

Chain of Custody

A050100

Page: 1 of 1

	Invoice To: C/O Report Address ☐	Report To: Same as Invoice ☐	Report Distribution (E-Mail):
Company:	EBA ENGINEERING		dfelske@eba.ca bhorne@eba.ca
Contact:	14940-123 AVE		
Address:	EDMONTON AB		
	Prov: T5V 1B4 PC:	Prov: PC:	
Contact #s:	Ph: 780-451-2121 Cell:	Ph: Cell:	

REGULATORY GUIDELINES:
☐ AT1
☐ CCME
☐ Regulated Drinking Water
☐ Other:

All samples are held for 60 calendar days after sample receipt, unless specified otherwise.

PO #: E14101092
Project # / Name:
Site Location:
Quote #:
Sampled By:

SERVICE REQUESTED: ☐ **RUSH** (Contact lab to reserve) **Date Required:** ☑ REGULAR (5 to 7 Days)

See reverse for package specifics

	Sample ID	Depth (unit)	Matrix GW / SW Soil	Date/Time Sampled YY/MM/DD 24:00	SOIL: BTEX F1-F4	SOIL: Sieve (75 micron)	SOIL: Regulated Metals (CCME / AT1)	SOIL: Salinity 4	SOIL: Assessment ICP Metals	SOIL: Basic Class II Landfill	WATER: ☐BTEX F1 ☐VOCs	WATER: ☐BTEX F1-F2 ☐BTEX F1-F4	WATER: ☐ Routine Water ☐ Turb ☐ F	WATER: ☐ TOC ☐ DOC	WATER: Regulated Metals (CCME / AT1) Total	WATER: Regulated Metals (CCME / AT1) Dissolved	WATER: Mercury ☐ Total ☐ Dissolved	Other Analysis: NUTRIENTS (KJELDAL), NO2, NO3	Other Analysis: CCME METALS	Other Analysis: MAJOR METALS	Other Analysis: SALINITY PACKAGE #1	HOLD - Do not Analyze	# of Containers Submitted
1	JET 1 BAG8 BAG54 } COMPOSITE SAMPLE																	X	X	X	X		
2																							
3																							
4																							
5																							
6	- See Figure 1 for F2/F3 results																						
7	- spill is diesel fuel and JetA																						
8																							
9																							
10																							
11	—																						
12																							

SEE QUOTE 51-1434-100411

Please indicate Filtered, Preserved or Both (F, P, F/P) → F/P

Relinquished By (Signature/Print): D FELSKE	Date (YY/MM/DD): DEC 5 2011	Time (24:00): 1:00
Relinquished By (Signature/Print):	Date (YY/MM/DD):	Time (24:00):

Special Instructions:

# of Jars Used & Not Submitted

LAB USE ONLY

Received By:	Date:	Time:	Maxxam Job #:		
			Custody Seal	Temperature	Ice
Lab Comments:			NO	3°C	YES

Maxxam Analytics International Corporation o/a Maxxam Analytics

APPENDIX B:
Summary of Percent Moisture and Water Holding Capacity Results

APPENDIX B: SUMMARY OF BASELINE MOISTURE CONTENT AND SOIL WATER HOLDING CAPACITY

Minle Inlet, Nunavut

Moisture Content:

Sample	Dish Weight (g)	Dish + Wet Sample (g)	Dish + Sample Dried @ 100 °C 16hr (g)	% Dry Matter	% Moisture	average
1	0.95	14.30	12.95	90%	10%	
2	0.95	14.30	12.90	90%	10%	
3	1.00	14.55	13.20	90%	10%	10%

Water Holding Capacity:

Sample	Sample Weight (g)	Buret Reading Start (mL)	Buret Reading Finish (mL)	Total Water Used (mL)	Total Water Holding Capacity (mL/g)	Percent Water Holding Capacity per gram (%)	Average Water Holding Capacity (mL/g)
1	10.00	3.00	7.80	4.80	0.48	48%	
2	10.00	8.00	12.30	4.30	0.43	43%	
3	10.00	12.30	16.70	4.40	0.44	44%	0.45

Notes:

% - percent

° C - degrees Celsius

g - gram

hr - hour

mL - milliliter

mL/g - milliliter per gram

APPENDIX C:
Summary of Nutrient and Moisture Amendment Calculations for Treatment Microcosms

APPENDIX C: SUMMARY OF NUTRIENT AND MOISTURE AMENDMENT CALCULATIONS FOR TREATMENT MICROCOSMS

Minle Inlet, Nunavut

How much water needs to be added to the soil?

% Moisture = 10.19% (calculated)

water holding capacity (WHC) = 0.45 ml/g (calculated)

For 200 g of soil (each treatment microcosm contains 200 g of soil), based on the % percent moisture:

(200 g) * (10.19%)
= 20.4 g of water in 200 g of soil

WHC of 200 g of soil
0.45 ml/g * 200 g soil
= 90 ml of water, but we want to use 50% WHC (as per proposal)
=90/2 = 45 mL
45 ml -20.4 ml = 24.6 ml of water/treatment

Therefore need to add 24.6mL of water or sludge per bottle to reach 50% of the WHC. However, upon microcosms setup it was observed that only 12.5mL of sludge or DI water could be added per bottle without having free water accumulate in the soil.

How much TKN is present in 12.5 mL of Waste Sludge?

Baseline TKN = 400 mg/L (value from sludge baseline analysis)
400 mg/1000 mL= x/12.5 mL
x=5.0 mg TKN/12.5 mL of sludge or 5.0 mg/200 g of soil = 25 mg/Kg

How much Carbon present in F2 and F3 Hydorcarbons?

Assumption that 85% C by mass
Soil Baseline F2 [ ] 1800 mg/Kg
Therefore 1800 mg/Kg *0.85= 1530 mg/Kg as C

Soil Baseline F3 [ ] 800 mg/Kg
Therefore 800 mg/Kg * 0.85 = 683 mg/Kg as C

Therefore total C present in soil is 1530 mg/Kg + 683 mg/Kg=2213 mg/Kg

We want a C:N:P ratio of 100:10:1
Therefore 2210:221:22

APPENDIX C: SUMMARY OF NUTRIENT AND MOISTURE AMENDMENT CALCULATIONS FOR TREATMENT MICROCOSMS

Minle Inlet, Nunavut

N Calculation

want 221 mg/Kg N

221mg/14mg/mmol (M.W of N)
= 15.8 N
Used Diammonium Phosphate $(NH_4)_2HPO_4$
2 N in each mole of DAP
therefore 15.8/2= 7.89 mmol of DAP needed

7.89 mmol * 132 mg/mmol (M.W of DAP)
= 1042 mg DAP/Kg
= 209 mg DAP/200 g soil

Need to set up 14 bottles with 200 g soil in each
200 g * 14 = 2800 g soil in total
therefore 209 mg DAP * 14 = 2926 mg or 2.9 g of DAP
50% WHC is 25 mL but beyond 12.5 mL of DI water it was observed to saturate the soil
12.5 mL DI *14 = 175 mL of DI water
Dissolve 2.9 g of DAP in 175 mL of DI and add to 2800 g homoginized soil

P Calculation

How much P was added in the 209 mg of DAP?
7.89 mmol of DAP * 31 mg/mmol (MW of P)
= 246 mg of P added.

Therefore, in 209 mg of DAP added to each bottle there was 221 mg/kg of N and 246 mg/kg of P added

APPENDIX D: Maxxam Analytical Reports

Your Project #: EBA #2
Your C.O.C. #: 2111

Attention: Ximena Druar
SiREM - Site Recovery & Management
130 Research Lane
Suite 2
Guelph, ON
CANADA N1G 5G3

Report Date: 2012/01/06

CERTIFICATE OF ANALYSIS

MAXXAM JOB #: B1K2045
Received: 2011/12/22, 10:30

Sample Matrix: Soil
Samples Received: 2

Analyses	Quantity	Date Extracted	Date Analyzed	Laboratory Method	Method Reference
Petroleum Hydrocarbons F2-F4 in Soil	2	2011/12/29	2011/12/29	CAM SOP-00316	CCME CWS
Total Metals Analysis by ICP	2	2011/12/29	2011/12/30	CAM SOP-00408	EPA 6010
Acid Extr. Metals (aqua regia) by ICPMS	2	2011/12/29	2012/01/03	CAM SOP-00447	EPA 6020
Moisture	2	N/A	2011/12/28	CAM SOP-00445	McKeague 2nd ed 1978
Nitrate (NO3) and Nitrite (NO2) in Soil	2	N/A	2012/01/04	CAM SOP-00440	SM 4500 NO3I/NO2B
pH CaCl2 EXTRACT	2	2011/12/29	2011/12/29	CAM SOP-00413	SM 4500 H
Salinity in Soil (SAL4)	2	N/A	N/A		
Total Kjeldahl Nitrogen - Soil	2	2011/12/29	2011/12/30	CAM SOP-00454	EPA 351.2 Rev 2

Remarks:

Maxxam Analytics has performed all analytical testing herein in accordance with ISO 17025 and the Protocol for Analytical Methods Used in the Assessment of Properties under Part XV.1 of the Environmental Protection Act. All methodologies comply with this document and are validated for use in the laboratory. The methods and techniques employed in this analysis conform to the performance criteria (detection limits, accuracy and precision) as outlined in the Protocol for Analytical Methods Used in the Assessment of Properties under Part XV.1 of the Environmental Protection Act. Reporting results to two significant figures at the RDL is to permit statistical evaluation and is not intended to be an indication of analytical precision.

The CWS PHC methods employed by Maxxam conform to all prescribed elements of the reference method and performance based elements have been validated. All modifications have been validated and proven equivalent following the 'Alberta Environment Draft Addenda to the CWS-PHC, Appendix 6, Validation of Alternate Methods'. Documentation is available upon request. Maxxam has made the following improvements to the CWS-PHC reference benchmark method: (i) Headspace for F1; and, (ii) Mechanical extraction for F2-F4. Note: F4G cannot be added to the C6 to C50 hydrocarbons. The extraction date for samples field preserved with methanol for F1 and Volatile Organic Compounds is considered to be the date sampled.

Maxxam Analytics is accredited by SCC (Lab ID 97) for all specific parameters as required by Ontario Regulation 153/04. Maxxam Analytics is limited in liability to the actual cost of analysis unless otherwise agreed in writing. There is no other warranty expressed or implied. Samples will be retained at Maxxam Analytics for three weeks from receipt of data or as

Your Project #: EBA #2
Your C.O.C. #: 2111

Attention: Ximena Druar
SiREM - Site Recovery & Management
130 Research Lane
Suite 2
Guelph, ON
CANADA N1G 5G3

Report Date: 2012/01/06

CERTIFICATE OF ANALYSIS

per contract.

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

(1) This test was performed by Bedford to Calgary Subcontract

Encryption Key

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

JOLANTA GORALCZYK, Project Manager
Email: JGoralczyk@maxxam.ca
Phone# (905) 817-5700

==========

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

Total cover pages: 2

Maxxam Job #: B1K2045
Report Date: 2012/01/06

SiREM - Site Recovery & Management
Client Project #: EBA #2

RESULTS OF ANALYSES OF SOIL

Maxxam ID		MB5541	MB5542		
Sampling Date		2011/12/21 14:40	2011/12/21 14:40		
COC Number		2111	2111		
	Units	**S-2049-122111-1**	**S-2049-122111-2**	**RDL**	**QC Batch**
Inorganics					
Moisture	%	12	12	1	2724662
Available (CaCl2) pH	pH	7.51	7.42		2725092
Total Kjeldahl Nitrogen	ug/g	228	283	10	2725809
Nitrite (N)	ug/g	0.1 U	0.1 U	0.5	2728246
Nitrate (N)	ug/g	0.4 U	0.4 U	2	2728246
Nitrate + Nitrite	ug/g	0.6 U	0.6 U	3	2728246
Subcontracted Analysis					
Subcontract Parameter	N/A	TBA	TBA	TBA	2729302

TBA = Result to follow
RDL = Reportable Detection Limit
QC Batch = Quality Control Batch

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

Maxxam Job #: B1K2045
Report Date: 2012/01/06

SiREM - Site Recovery & Management
Client Project #: EBA #2

ELEMENTS BY ATOMIC SPECTROSCOPY (SOIL)

Maxxam ID		MB5541	MB5542		
Sampling Date		2011/12/21 14:40	2011/12/21 14:40		
COC Number		2111	2111		
	Units	**S-2049-122111-1**	**S-2049-122111-2**	**RDL**	**QC Batch**
Metals					
Acid Extractable Sulphur (S)	ug/g	170	150	50	2725477
Acid Extractable Aluminum (Al)	ug/g	3200	3300	50	2725472
Acid Extractable Antimony (Sb)	ug/g	0.040 U	0.040 U	0.20	2725472
Acid Extractable Arsenic (As)	ug/g	0.93 J	0.92 J	1.0	2725472
Acid Extractable Barium (Ba)	ug/g	9.2	9.0	0.50	2725472
Acid Extractable Beryllium (Be)	ug/g	0.28	0.30	0.20	2725472
Acid Extractable Bismuth (Bi) (1)	ug/g	<1.0	<1.0	1.0	2725472
Acid Extractable Boron (B)	ug/g	6.3	6.4	5.0	2725472
Acid Extractable Cadmium (Cd)	ug/g	0.020 U	0.023 J	0.10	2725472
Acid Extractable Calcium (Ca)	ug/g	17000	18000	50	2725472
Acid Extractable Chromium (Cr)	ug/g	8.1	8.5	1.0	2725472
Acid Extractable Cobalt (Co)	ug/g	2.6	2.6	0.10	2725472
Acid Extractable Copper (Cu)	ug/g	5.3	5.5	0.50	2725472
Acid Extractable Iron (Fe)	ug/g	7400	7400	50	2725472
Acid Extractable Lead (Pb)	ug/g	4.4	4.4	1.0	2725472
Acid Extractable Magnesium (Mg)	ug/g	10000	11000	50	2725472
Acid Extractable Manganese (Mn)	ug/g	120	120	1.0	2725472
Acid Extractable Molybdenum (Mo)	ug/g	0.13 J	0.16 J	0.50	2725472
Acid Extractable Nickel (Ni)	ug/g	4.9	5.2	0.50	2725472
Acid Extractable Phosphorus (P)	ug/g	200	230	50	2725472
Acid Extractable Potassium (K)	ug/g	540	560	200	2725472
Acid Extractable Selenium (Se)	ug/g	0.23 J	0.29 J	0.50	2725472
Acid Extractable Silver (Ag)	ug/g	0.040 U	0.040 U	0.20	2725472
Acid Extractable Sodium (Na)	ug/g	160	150	100	2725472
Acid Extractable Strontium (Sr)	ug/g	9.3	9.7	1.0	2725472
Acid Extractable Thallium (Tl)	ug/g	0.083	0.079	0.050	2725472
Acid Extractable Tin (Sn) (1)	ug/g	<5.0	<5.0	5.0	2725472
Acid Extractable Uranium (U)	ug/g	0.68	0.73	0.050	2725472
Acid Extractable Vanadium (V)	ug/g	11	11	5.0	2725472
Acid Extractable Zinc (Zn)	ug/g	15	14	5.0	2725472
Acid Extractable Mercury (Hg) (1)	ug/g	<0.050	<0.050	0.050	2725472

RDL = Reportable Detection Limit
QC Batch = Quality Control Batch
(1) UJ Flags are not applicable

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

Maxxam Job #: B1K2045
Report Date: 2012/01/06

SiREM - Site Recovery & Management
Client Project #: EBA #2

PETROLEUM HYDROCARBONS (CCME)

Maxxam ID		MB5541	MB5541	MB5542		
Sampling Date		2011/12/21 14:40	2011/12/21 14:40	2011/12/21 14:40		
COC Number		2111	2111	2111		
	Units	**S-2049-122111-1**	**S-2049-122111-1 Lab-Dup**	**S-2049-122111-2**	**RDL**	**QC Batch**
F2-F4 Hydrocarbons						
F2 (C10-C16 Hydrocarbons)	ug/g	1700	1700	2000	10	2725051
F3 (C16-C34 Hydrocarbons)	ug/g	790	750	860	10	2725051
F4 (C34-C50 Hydrocarbons)	ug/g	2.0 U	2.0 U	2.0 U	10	2725051
Reached Baseline at C50	ug/g	Yes	Yes	Yes		2725051
Surrogate Recovery (%)						
o-Terphenyl	%	129	129	126		2725051

RDL = Reportable Detection Limit
QC Batch = Quality Control Batch

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Maxxam Job #: B1K2045
Report Date: 2012/01/06

SiREM - Site Recovery & Management
Client Project #: EBA #2

Test Summary

Maxxam ID MB5541 **Collected** 2011/12/21
Sample ID S-2049-122111-1 **Shipped**
Matrix Soil **Received** 2011/12/22

Test Description	Instrumentation	Batch	Extracted	Analyzed	Analyst
Petroleum Hydrocarbons F2-F4 in Soil	GC/FID	2725051	2011/12/29	2011/12/29	BARBARA WOWK
Total Metals Analysis by ICP	ICP	2725477	2011/12/29	2011/12/30	SUBAN KANAPATHIPPLLAI
Acid Extr. Metals (aqua regia) by ICPMS	ICP/MS	2725472	2011/12/29	2012/01/03	KEVIN COMERFORD
Moisture	BAL	2724662	N/A	2011/12/28	VALENTINA KAFTANI
Nitrate (NO3) and Nitrite (NO2) in Soil	LACH	2728246	N/A	2012/01/04	BAVANI KAILAYA
pH CaCl2 EXTRACT		2725092	2011/12/29	2011/12/29	XUANHONG QIU
Salinity in Soil (SAL4)		2729302	2012/01/05	2012/01/05	MARLENE BASDEO
Total Kjeldahl Nitrogen - Soil	AC	2725809	2011/12/29	2011/12/30	CHANDRA NANDLAL

Maxxam ID MB5541 Dup **Collected** 2011/12/21
Sample ID S-2049-122111-1 **Shipped**
Matrix Soil **Received** 2011/12/22

Test Description	Instrumentation	Batch	Extracted	Analyzed	Analyst
Petroleum Hydrocarbons F2-F4 in Soil	GC/FID	2725051	2011/12/29	2011/12/29	BARBARA WOWK

Maxxam ID MB5542 **Collected** 2011/12/21
Sample ID S-2049-122111-2 **Shipped**
Matrix Soil **Received** 2011/12/22

Test Description	Instrumentation	Batch	Extracted	Analyzed	Analyst
Petroleum Hydrocarbons F2-F4 in Soil	GC/FID	2725051	2011/12/29	2011/12/29	BARBARA WOWK
Total Metals Analysis by ICP	ICP	2725477	2011/12/29	2011/12/30	SUBAN KANAPATHIPPLLAI
Acid Extr. Metals (aqua regia) by ICPMS	ICP/MS	2725472	2011/12/29	2012/01/03	KEVIN COMERFORD
Moisture	BAL	2724662	N/A	2011/12/28	VALENTINA KAFTANI
Nitrate (NO3) and Nitrite (NO2) in Soil	LACH	2728246	N/A	2012/01/04	BAVANI KAILAYA
pH CaCl2 EXTRACT		2725092	2011/12/29	2011/12/29	XUANHONG QIU
Salinity in Soil (SAL4)		2729302	2012/01/05	2012/01/05	MARLENE BASDEO
Total Kjeldahl Nitrogen - Soil	AC	2725809	2011/12/29	2011/12/30	CHANDRA NANDLAL

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Maxxam Job #: B1K2045
Report Date: 2012/01/06

SiREM - Site Recovery & Management
Client Project #: EBA #2

GENERAL COMMENTS

Results relate only to the items tested.

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

SiREM - Site Recovery & Management
Attention: Ximena Druar
Client Project #: EBA #2
P.O. #:
Site Location:

Quality Assurance Report

Maxxam Job Number: MB1K2045

QA/QC Batch Num	Init	QC Type	Parameter	Date Analyzed yyyy/mm/dd	Value	Recovery	Units	QC Limits
2724662	PHM	RPD	Moisture	2011/12/28	NC		%	20
2725051	BWW	Matrix Spike						
		[MB5541-01]	o-Terphenyl	2011/12/29		120	%	50 - 130
			F2 (C10-C16 Hydrocarbons)	2011/12/29		NC	%	50 - 130
			F3 (C16-C34 Hydrocarbons)	2011/12/29		120	%	50 - 130
			F4 (C34-C50 Hydrocarbons)	2011/12/29		118	%	50 - 130
		Spiked Blank	o-Terphenyl	2011/12/29		105	%	50 - 130
			F2 (C10-C16 Hydrocarbons)	2011/12/29		95	%	70 - 130
			F3 (C16-C34 Hydrocarbons)	2011/12/29		113	%	70 - 130
			F4 (C34-C50 Hydrocarbons)	2011/12/29		104	%	70 - 130
		Method Blank	o-Terphenyl	2011/12/29		106	%	50 - 130
			F2 (C10-C16 Hydrocarbons)	2011/12/29	2.0 U, MDL=2.0		ug/g	
			F3 (C16-C34 Hydrocarbons)	2011/12/29	2.0 U, MDL=2.0		ug/g	
			F4 (C34-C50 Hydrocarbons)	2011/12/29	2.0 U, MDL=2.0		ug/g	
		RPD [MB5541-01]	F2 (C10-C16 Hydrocarbons)	2011/12/29	0.6		%	30
			F3 (C16-C34 Hydrocarbons)	2011/12/29	4.5		%	30
			F4 (C34-C50 Hydrocarbons)	2011/12/29	NC		%	30
2725472	KCO	Matrix Spike	Acid Extractable Aluminum (Al)	2011/12/29		NC	%	75 - 125
			Acid Extractable Antimony (Sb)	2011/12/29		108	%	75 - 125
			Acid Extractable Arsenic (As)	2011/12/29		99	%	75 - 125
			Acid Extractable Barium (Ba)	2011/12/29		NC (1)	%	75 - 125
			Acid Extractable Beryllium (Be)	2011/12/29		96	%	75 - 125
			Acid Extractable Bismuth (Bi)	2011/12/29		99	%	75 - 125
			Acid Extractable Boron (B)	2011/12/29		92	%	75 - 125
			Acid Extractable Cadmium (Cd)	2011/12/29		106	%	75 - 125
			Acid Extractable Calcium (Ca)	2011/12/29		NC	%	75 - 125
			Acid Extractable Chromium (Cr)	2011/12/29		97	%	75 - 125
			Acid Extractable Cobalt (Co)	2011/12/29		98	%	75 - 125
			Acid Extractable Copper (Cu)	2011/12/29		94	%	75 - 125
			Acid Extractable Iron (Fe)	2011/12/29		NC	%	75 - 125
			Acid Extractable Lead (Pb)	2011/12/29		100	%	75 - 125
			Acid Extractable Manganese (Mn)	2011/12/29		NC	%	75 - 125
			Acid Extractable Molybdenum (Mo)	2011/12/29		109	%	75 - 125
			Acid Extractable Nickel (Ni)	2011/12/29		95	%	75 - 125
			Acid Extractable Phosphorus (P)	2011/12/29		NC	%	75 - 125
			Acid Extractable Potassium (K)	2011/12/29		NC	%	75 - 125
			Acid Extractable Selenium (Se)	2011/12/29		101	%	75 - 125
			Acid Extractable Silver (Ag)	2011/12/29		102	%	75 - 125
			Acid Extractable Sodium (Na)	2011/12/29		97	%	75 - 125
			Acid Extractable Strontium (Sr)	2011/12/29		NC	%	75 - 125
			Acid Extractable Thallium (Tl)	2011/12/29		100	%	75 - 125
			Acid Extractable Tin (Sn)	2011/12/29		109	%	75 - 125
			Acid Extractable Uranium (U)	2011/12/29		102	%	75 - 125
			Acid Extractable Vanadium (V)	2011/12/29		100	%	75 - 125
			Acid Extractable Zinc (Zn)	2011/12/29		NC (1)	%	75 - 125
			Acid Extractable Mercury (Hg)	2011/12/29		98	%	75 - 125
		Spiked Blank	Acid Extractable Aluminum (Al)	2011/12/29		103	%	75 - 125
			Acid Extractable Antimony (Sb)	2011/12/29		110	%	75 - 125
			Acid Extractable Arsenic (As)	2011/12/29		103	%	75 - 125
			Acid Extractable Barium (Ba)	2011/12/29		103	%	75 - 125
			Acid Extractable Beryllium (Be)	2011/12/29		102	%	75 - 125
			Acid Extractable Bismuth (Bi)	2011/12/29		106	%	75 - 125
			Acid Extractable Boron (B)	2011/12/29		102	%	75 - 125
			Acid Extractable Cadmium (Cd)	2011/12/29		108	%	75 - 125
			Acid Extractable Calcium (Ca)	2011/12/29		106	%	75 - 125

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SiREM - Site Recovery & Management
Attention: Ximena Druar
Client Project #: EBA #2
P.O. #:
Site Location:

Quality Assurance Report (Continued)

Maxxam Job Number: MB1K2045

QA/QC Batch Num	Init	QC Type	Parameter	Date Analyzed yyyy/mm/dd	Value	Recovery	Units	QC Limits
2725472	KCO	Spiked Blank	Acid Extractable Chromium (Cr)	2011/12/29		104	%	75 - 125
			Acid Extractable Cobalt (Co)	2011/12/29		105	%	75 - 125
			Acid Extractable Copper (Cu)	2011/12/29		104	%	75 - 125
			Acid Extractable Iron (Fe)	2011/12/29		115	%	75 - 125
			Acid Extractable Lead (Pb)	2011/12/29		107	%	75 - 125
			Acid Extractable Magnesium (Mg)	2011/12/29		112	%	75 - 125
			Acid Extractable Manganese (Mn)	2011/12/29		105	%	75 - 125
			Acid Extractable Molybdenum (Mo)	2011/12/29		107	%	75 - 125
			Acid Extractable Nickel (Ni)	2011/12/29		105	%	75 - 125
			Acid Extractable Phosphorus (P)	2011/12/29		114	%	75 - 125
			Acid Extractable Potassium (K)	2011/12/29		100	%	75 - 125
			Acid Extractable Selenium (Se)	2011/12/29		103	%	75 - 125
			Acid Extractable Silver (Ag)	2011/12/29		106	%	75 - 125
			Acid Extractable Sodium (Na)	2011/12/29		106	%	75 - 125
			Acid Extractable Strontium (Sr)	2011/12/29		105	%	75 - 125
			Acid Extractable Thallium (Tl)	2011/12/29		109	%	75 - 125
			Acid Extractable Tin (Sn)	2011/12/29		106	%	75 - 125
			Acid Extractable Uranium (U)	2011/12/29		106	%	75 - 125
			Acid Extractable Vanadium (V)	2011/12/29		103	%	75 - 125
			Acid Extractable Zinc (Zn)	2011/12/29		107	%	75 - 125
			Acid Extractable Mercury (Hg)	2011/12/29		102	%	75 - 125
		Method Blank	Acid Extractable Aluminum (Al)	2011/12/29	10 U, MDL=10		ug/g	
			Acid Extractable Antimony (Sb)	2011/12/29	0.040 U, MDL=0.040		ug/g	
			Acid Extractable Arsenic (As)	2011/12/29	0.20 U, MDL=0.20		ug/g	
			Acid Extractable Barium (Ba)	2011/12/29	0.10 U, MDL=0.10		ug/g	
			Acid Extractable Beryllium (Be)	2011/12/29	0.040 U, MDL=0.040		ug/g	
			Acid Extractable Bismuth (Bi)	2011/12/29	<1.0		ug/g	
			Acid Extractable Boron (B)	2011/12/29	<5.0		ug/g	
			Acid Extractable Cadmium (Cd)	2011/12/29	0.020 U, MDL=0.020		ug/g	
			Acid Extractable Calcium (Ca)	2011/12/29	10 U, MDL=10		ug/g	
			Acid Extractable Chromium (Cr)	2011/12/29	0.20 U, MDL=0.20		ug/g	
			Acid Extractable Cobalt (Co)	2011/12/29	0.020 U, MDL=0.020		ug/g	
			Acid Extractable Copper (Cu)	2011/12/29	0.10 U, MDL=0.10		ug/g	
			Acid Extractable Iron (Fe)	2011/12/29	10 U, MDL=10		ug/g	
			Acid Extractable Lead (Pb)	2011/12/29	0.20 U, MDL=0.20		ug/g	
			Acid Extractable Magnesium (Mg)	2011/12/29	10 U, MDL=10		ug/g	
			Acid Extractable Manganese (Mn)	2011/12/29	0.20 U, MDL=0.20		ug/g	
			Acid Extractable Molybdenum (Mo)	2011/12/29	0.10 U, MDL=0.10		ug/g	
			Acid Extractable Nickel (Ni)	2011/12/29	0.39 J, MDL=0.10		ug/g	
			Acid Extractable Phosphorus (P)	2011/12/29	10 U, MDL=10		ug/g	
			Acid Extractable Potassium (K)	2011/12/29	40 U, MDL=40		ug/g	
			Acid Extractable Selenium (Se)	2011/12/29	0.10 U, MDL=0.10		ug/g	
			Acid Extractable Silver (Ag)	2011/12/29	0.040 U, MDL=0.040		ug/g	
			Acid Extractable Sodium (Na)	2011/12/29	20 U, MDL=20		ug/g	
			Acid Extractable Strontium (Sr)	2011/12/29	0.20 U, MDL=0.20		ug/g	
			Acid Extractable Thallium (Tl)	2011/12/29	0.010 U, MDL=0.010		ug/g	
			Acid Extractable Tin (Sn)	2011/12/29	<5.0		ug/g	
			Acid Extractable Uranium (U)	2011/12/29	<0.050		ug/g	
			Acid Extractable Vanadium (V)	2011/12/29	1.0 U, MDL=1.0		ug/g	
			Acid Extractable Zinc (Zn)	2011/12/29	1.0 U, MDL=1.0		ug/g	
			Acid Extractable Mercury (Hg)	2011/12/29	<0.050		ug/g	
		RPD	Acid Extractable Antimony (Sb)	2011/12/29	NC		%	30
			Acid Extractable Arsenic (As)	2011/12/29	NC		%	30
			Acid Extractable Barium (Ba)	2011/12/29	5.3		%	30
			Acid Extractable Beryllium (Be)	2011/12/29	NC		%	30

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SiREM - Site Recovery & Management
Attention: Ximena Druar
Client Project #: EBA #2
P.O. #:
Site Location:

Quality Assurance Report (Continued)

Maxxam Job Number: MB1K2045

QA/QC Batch Num	Init	QC Type	Parameter	Date Analyzed yyyy/mm/dd	Value	Recovery	Units	QC Limits
2725472	KCO	RPD	Acid Extractable Boron (B)	2011/12/29	NC		%	30
			Acid Extractable Cadmium (Cd)	2011/12/29	NC		%	30
			Acid Extractable Chromium (Cr)	2011/12/29	8.6		%	30
			Acid Extractable Cobalt (Co)	2011/12/29	5.9		%	30
			Acid Extractable Copper (Cu)	2011/12/29	0.2		%	30
			Acid Extractable Lead (Pb)	2011/12/29	NC		%	30
			Acid Extractable Molybdenum (Mo)	2011/12/29	NC		%	30
			Acid Extractable Nickel (Ni)	2011/12/29	2.8		%	30
			Acid Extractable Selenium (Se)	2011/12/29	NC		%	30
			Acid Extractable Silver (Ag)	2011/12/29	NC		%	30
			Acid Extractable Thallium (Tl)	2011/12/29	NC		%	30
			Acid Extractable Uranium (U)	2011/12/29	1.9		%	30
			Acid Extractable Vanadium (V)	2011/12/29	NC		%	30
			Acid Extractable Zinc (Zn)	2011/12/29	2.0		%	30
2725477	SUK	Matrix Spike	Acid Extractable Sulphur (S)	2011/12/30		99	%	75 - 125
		QC Standard	Acid Extractable Sulphur (S)	2011/12/30		102	%	75 - 125
		Method Blank	Acid Extractable Sulphur (S)	2011/12/30	<50		ug/g	
2725809	C_N	Matrix Spike	Total Kjeldahl Nitrogen	2011/12/30		NC	%	75 - 125
		QC Standard	Total Kjeldahl Nitrogen	2011/12/30		123	%	75 - 125
		Method Blank	Total Kjeldahl Nitrogen	2011/12/30	3 U, MDL=3		ug/g	
		RPD	Total Kjeldahl Nitrogen	2011/12/30	1.4		%	40
2728246	BAV	Matrix Spike	Nitrite (N)	2012/01/04		85	%	75 - 125
			Nitrate (N)	2012/01/04		109	%	80 - 120
		Spiked Blank	Nitrite (N)	2012/01/04		96	%	75 - 125
			Nitrate (N)	2012/01/04		101	%	85 - 115
		Method Blank	Nitrite (N)	2012/01/04	0.1 U, MDL=0.1		ug/g	
			Nitrate (N)	2012/01/04	0.4 U, MDL=0.4		ug/g	
			Nitrate + Nitrite	2012/01/04	0.6 U, MDL=0.6		ug/g	
		RPD	Nitrite (N)	2012/01/04	NC		%	25
			Nitrate (N)	2012/01/04	NC		%	25
			Nitrate + Nitrite	2012/01/04	NC		%	25

Duplicate: Paired analysis of a separate portion of the same sample. Used to evaluate the variance in the measurement.
Matrix Spike: A sample to which a known amount of the analyte of interest has been added. Used to evaluate sample matrix interference.
QC Standard: A blank matrix to which a known amount of the analyte has been added. Used to evaluate analyte recovery.
Spiked Blank: A blank matrix to which a known amount of the analyte has been added. Used to evaluate analyte recovery.
Method Blank: A blank matrix containing all reagents used in the analytical procedure. Used to identify laboratory contamination.
Surrogate: A pure or isotopically labeled compound whose behavior mirrors the analytes of interest. Used to evaluate extraction efficiency.
NC (Matrix Spike): The recovery in the matrix spike was not calculated. The relative difference between the concentration in the parent sample and the spiked amount was not sufficiently significant to permit a reliable recovery calculation.
NC (RPD): The RPD was not calculated. The level of analyte detected in the parent sample and its duplicate was not sufficiently significant to permit a reliable calculation.
(1) The recovery in the matrix spike was not calculated (NC). Spiked concentration was less than 2x that native to the sample.

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Validation Signature Page

Maxxam Job #: B1K2045

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

CRISTINA CARRIERE, Scientific Services

EWA PRANJIC, M.Sc., C.Chem, Scientific Specialist

MAMDOUH SALIB, Analyst, Hydrocarbons

==========

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Your Project #: MB1K2045
Site Location: EBA #2

Attention: SUB CONTRACTOR
MAXXAM ANALYTICS
CAMPOBELLO
6740 CAMPOBELLO ROAD
MISSISSAUGA, ON
CANADA L5N 2L8

Report Date: 2012/01/04

CERTIFICATE OF ANALYSIS

MAXXAM JOB #: B1C4573
Received: 2011/12/29, 8:20

Sample Matrix: Soil
Samples Received: 2

Analyses	Quantity	Date Extracted	Date Analyzed	Laboratory Method	Analytical Method
Chloride (Soluble)	2	2011/12/30	2011/12/30	AB SOP-00026	SM 4110-B
Conductivity @25C (Soluble)	2	2011/12/30	2011/12/30	AB SOP-00004	SSMA 15.3
Ion Balance	2	N/A	2011/12/30	AB WI-00065	SM 1030E
Sum of Cations, Anions	2	N/A	2011/12/30	AB WI-00065	SM 1030E
pH @25C (1:2 Calcium Chloride Extract)	2	2012/01/04	2012/01/04	AB SOP-00006	SSMA 16.3
Sodium Adsorption Ratio	2	N/A	2011/12/30	AB WI-00065	SSMA 15.4.4
Ca,Mg,Na,K,SO4 (Soluble)	2	2011/12/30	2011/12/30	AB SOP-00042	EPA 200.7
Soluble Paste	2	2011/12/30	2011/12/30	AB SOP-00033	SSMA 15.2
Theoretical Gypsum Requirement (1)	2	N/A	2011/12/30	CAL WI-00087	CJSS 79:449-455

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

(1) Units for TGR have changed from tons/acre to tonnes/ha

Encryption Key

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

Candace Fahey, Project Manager
Email: CFahey@maxxam.ca
Phone# (403) 291-3077

==========

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Total cover pages: 1

Maxxam Job #: B1C4573
Report Date: 2012/01/04

MAXXAM ANALYTICS
Client Project #: MB1K2045
Site Location: EBA #2

SOIL SALINITY 4 (SOIL)

Maxxam ID		CL1758	CL1759		
Sampling Date		2011/12/21	2011/12/21		
	Units	**S-2049-122111-1 (MB5541-01R)**	**S-2049-122111-2 (MB5542-01R)**	**RDL**	**QC Batch**
Calculated Parameters					
Anion Sum	meq/L	11	9.9	N/A	5483465
Cation Sum	meq/L	15	16	N/A	5483465
Ion Balance	N/A	1.4	1.6	0.010	5483464
Soluble Parameters					
Soluble Chloride (Cl)	mg/L	360	330	5.0	5486871
Soluble Conductivity	dS/m	1.5	1.4	0.020	5486694
Soluble (CaCl2) pH	N/A	7.26	7.18	N/A	5491817
Sodium Adsorption Ratio	N/A	2.9	2.8	0.10	5483466
Soluble Calcium (Ca)	mg/L	100	110	1.5	5487225
Soluble Magnesium (Mg)	mg/L	42	46	1.0	5487225
Soluble Sodium (Na)	mg/L	140	140	2.5	5487225
Soluble Potassium (K)	mg/L	7.8	14	1.3	5487225
Saturation %	%	27	26	N/A	5486144
Soluble Sulphate (SO4)	mg/L	24	30	5.0	5487225
Theoretical Gypsum Requirement	tonnes/ha	<0.10	<0.10	0.10	5483467

RDL = Reportable Detection Limit

Maxxam Job #: B1C4573
Report Date: 2012/01/04

MAXXAM ANALYTICS
Client Project #: MB1K2045
Site Location: EBA #2

Package 1	3.7°C

Each temperature is the average of up to three cooler temperatures taken at receipt

General Comments

Results relate only to the items tested.

MAXXAM ANALYTICS
Attention: SUB CONTRACTOR
Client Project #: MB1K2045
P.O. #:
Site Location: EBA #2

Quality Assurance Report

Maxxam Job Number: CB1C4573

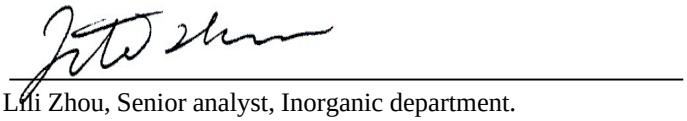
QA/QC Batch Num	Init	QC Type	Parameter	Date Analyzed yyyy/mm/dd	Value	Recovery	Units	QC Limits
5486144	FZ	QC Standard	Saturation %	2011/12/30		101	%	93 - 107
		RPD	Saturation %	2011/12/30	0.7		%	12
5486694	FM0	QC Standard	Soluble Conductivity	2011/12/30		96	%	87 - 113
		Spiked Blank	Soluble Conductivity	2011/12/30		100	%	94 - 105
		Method Blank	Soluble Conductivity	2011/12/30	<0.020		dS/m	
		RPD	Soluble Conductivity	2011/12/30	5.6		%	35
5486871	RR6	Matrix Spike	Soluble Chloride (Cl)	2011/12/30		NC	%	75 - 125
		QC Standard	Soluble Chloride (Cl)	2011/12/30		99	%	75 - 125
		Spiked Blank	Soluble Chloride (Cl)	2011/12/30		95	%	80 - 120
		Method Blank	Soluble Chloride (Cl)	2011/12/30	<5.0		mg/L	
		RPD	Soluble Chloride (Cl)	2011/12/30	2.6		%	35
5487225	PK0	Matrix Spike	Soluble Calcium (Ca)	2011/12/30		112	%	75 - 125
			Soluble Magnesium (Mg)	2011/12/30		108	%	75 - 125
			Soluble Sodium (Na)	2011/12/30		99	%	75 - 125
			Soluble Potassium (K)	2011/12/30		108	%	75 - 125
		QC Standard	Soluble Calcium (Ca)	2011/12/30		94	%	76 - 120
			Soluble Magnesium (Mg)	2011/12/30		90	%	80 - 120
			Soluble Sodium (Na)	2011/12/30		92	%	77 - 123
			Soluble Potassium (K)	2011/12/30		116	%	75 - 125
			Soluble Sulphate (SO4)	2011/12/30		93	%	81 - 119
		Spiked Blank	Soluble Calcium (Ca)	2011/12/30		102	%	80 - 120
			Soluble Magnesium (Mg)	2011/12/30		105	%	80 - 120
			Soluble Sodium (Na)	2011/12/30		96	%	80 - 120
			Soluble Potassium (K)	2011/12/30		103	%	80 - 120
		Method Blank	Soluble Calcium (Ca)	2011/12/30	<1.5		mg/L	
			Soluble Magnesium (Mg)	2011/12/30	<1.0		mg/L	
			Soluble Sodium (Na)	2011/12/30	<2.5		mg/L	
			Soluble Potassium (K)	2011/12/30	<1.3		mg/L	
			Soluble Sulphate (SO4)	2011/12/30	<5.0		mg/L	
		RPD	Soluble Calcium (Ca)	2011/12/30	1.6		%	35
			Soluble Magnesium (Mg)	2011/12/30	1.8		%	35
			Soluble Sodium (Na)	2011/12/30	0.1		%	35
			Soluble Potassium (K)	2011/12/30	2.6		%	35
			Soluble Sulphate (SO4)	2011/12/30	8.9		%	35
5491817	SLO	QC Standard	Soluble (CaCl2) pH	2012/01/04		97	%	95 - 105
		Spiked Blank	Soluble (CaCl2) pH	2012/01/04		100	%	99 - 102
		RPD	Soluble (CaCl2) pH	2012/01/04	1.1		%	5

Duplicate: Paired analysis of a separate portion of the same sample. Used to evaluate the variance in the measurement.
Matrix Spike: A sample to which a known amount of the analyte of interest has been added. Used to evaluate sample matrix interference.
QC Standard: A blank matrix to which a known amount of the analyte has been added. Used to evaluate analyte recovery.
Spiked Blank: A blank matrix to which a known amount of the analyte has been added. Used to evaluate analyte recovery.
Method Blank: A blank matrix containing all reagents used in the analytical procedure. Used to identify laboratory contamination.
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.

Validation Signature Page

Maxxam Job #: B1C4573

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



Lili Zhou, Senior analyst, Inorganic department.

==========

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Your Project #: EBA #2
Your C.O.C. #: 2115

Attention: Ximena Druar
SiREM - Site Recovery & Management
130 Research Lane
Suite 2
Guelph, ON
CANADA N1G 5G3

Report Date: 2012/01/18

CERTIFICATE OF ANALYSIS

MAXXAM JOB #: B204400
Received: 2012/01/11, 10:44

Sample Matrix: Soil
Samples Received: 8

Analyses	Quantity	Date Extracted	Date Analyzed	Laboratory Method	Method Reference
Petroleum Hydrocarbons F2-F4 in Soil	2	2012/01/16	2012/01/16	CAM SOP-00316	CCME CWS
Total Metals Analysis by ICP	6	2012/01/16	2012/01/16	CAM SOP-00408	EPA 6010
Moisture	8	N/A	2012/01/14	CAM SOP-00445	R.Carter,1993
Nitrate (NO3) and Nitrite (NO2) in Soil	6	N/A	2012/01/17	CAM SOP-00440	SM 4500 NO3I/NO2B
pH CaCl2 EXTRACT	6	2012/01/16	2012/01/16	CAM SOP-00413	SM 4500 H
Total Kjeldahl Nitrogen - Soil	6	2012/01/16	2012/01/16	CAM SOP-00454	EPA 351.2 Rev 2

Sample Matrix: Water
Samples Received: 1

Analyses	Quantity	Date Extracted	Date Analyzed	Laboratory Method	Method Reference
Conductivity	1	N/A	2012/01/13	CAM SOP-00448	SM 2510
Total Metals Analysis by ICPMS	1	N/A	2012/01/16	CAM SOP-00447	EPA 6020
Nitrate (NO3) and Nitrite (NO2) in Water	1	N/A	2012/01/13	CAM SOP-00440	SM 4500 NO3I/NO2B
pH	1	N/A	2012/01/13	CAM SOP-00448	SM 4500H
Total Kjeldahl Nitrogen in Water	1	2012/01/16	2012/01/16	CAM SOP-00454	EPA 351.2 Rev 2

Remarks:

Maxxam Analytics has performed all analytical testing herein in accordance with ISO 17025 and the Protocol for Analytical Methods Used in the Assessment of Properties under Part XV.1 of the Environmental Protection Act. All methodologies comply with this document and are validated for use in the laboratory. The methods and techniques employed in this analysis conform to the performance criteria (detection limits, accuracy and precision) as outlined in the Protocol for Analytical Methods Used in the Assessment of Properties under Part XV.1 of the Environmental Protection Act. Reporting results to two significant figures at the RDL is to permit statistical evaluation and is not intended to be an indication of analytical precision.

The CWS PHC methods employed by Maxxam conform to all prescribed elements of the reference method and performance based elements have been validated. All modifications have been validated and proven equivalent following the 'Alberta Environment Draft Addenda to the CWS-PHC, Appendix 6, Validation of Alternate Methods'. Documentation is

Your Project #: EBA #2
Your C.O.C. #: 2115

Attention: Ximena Druar
SiREM - Site Recovery & Management
130 Research Lane
Suite 2
Guelph, ON
CANADA N1G 5G3

Report Date: 2012/01/18

CERTIFICATE OF ANALYSIS

available upon request. Maxxam has made the following improvements to the CWS-PHC reference benchmark method: (i) Headspace for F1; and, (ii) Mechanical extraction for F2-F4. Note: F4G cannot be added to the C6 to C50 hydrocarbons. The extraction date for samples field preserved with methanol for F1 and Volatile Organic Compounds is considered to be the date sampled.

Maxxam Analytics is accredited by SCC (Lab ID 97) for all specific parameters as required by Ontario Regulation 153/04. Maxxam Analytics is limited in liability to the actual cost of analysis unless otherwise agreed in writing. There is no other warranty expressed or implied. Samples will be retained at Maxxam Analytics for three weeks from receipt of data or as per contract.

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

(1) Values for calculated parameters may not appear to add up due to rounding of raw data and significant figures.

Encryption Key

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

JOLANTA GORALCZYK, Project Manager
Email: JGoralczyk@maxxam.ca
Phone# (905) 817-5700

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Total cover pages: 2

Maxxam Job #: B204400
Report Date: 2012/01/18

SiREM - Site Recovery & Management
Client Project #: EBA #2

Sampler Initials: RS

RESULTS OF ANALYSES OF SOIL

Maxxam ID		ME9935	ME9936		ME9937	ME9938	ME9938		
Sampling Date		2012/01/10	2012/01/10		2012/01/10	2012/01/10	2012/01/10		
COC Number		2115	2115		2115	2115	2115		
	Units	**EBA2-100112-1**	**EBA2-100112-2**	**QC Batch**	**EBA2-100112-3**	**EBA2-100112-4**	**EBA2-100112-4 Lab-Dup**	**RDL**	**QC Batch**
Inorganics									
Moisture	%	15	12	2737017	14	14		1	2736989
Available (CaCl2) pH	pH				7.34	7.36			2737320
Total Kjeldahl Nitrogen	ug/g				232	191		10	2737267
Nitrite (N)	ug/g				0.2 J	0.2 J	0.3 J	0.5	2737377
Nitrate (N)	ug/g				0.4 U	0.4 U	0.4 U	2	2737377
Nitrate + Nitrite	ug/g				0.6 U	0.6 U	0.6 U	3	2737377

RDL = Reportable Detection Limit
QC Batch = Quality Control Batch

Maxxam ID		ME9939		ME9940		ME9941	ME9941	ME9942		
Sampling Date		2012/01/10		2012/01/10		2012/01/10	2012/01/10	2012/01/10		
COC Number		2115		2115		2115	2115	2115		
	Units	**EBA2-100112-5**	**RDL**	**EBA2-100112-6**	**RDL**	**EBA2-100112-7**	**EBA2-100112-7 Lab-Dup**	**EBA2-100112-8**	**RDL**	**QC Batch**
Inorganics										
Moisture	%	14	1	14	1	12		13	1	2736989
Available (CaCl2) pH	pH	6.95		6.95		7.31	7.26	7.19		2737320
Total Kjeldahl Nitrogen	ug/g	344	10	599	50	218		213	10	2737267
Nitrite (N)	ug/g	0.1 U	0.5	0.1 U	0.5	0.2 J		0.2 J	0.5	2737377
Nitrate (N)	ug/g	0.4 U	2	0.4 U	2	0.4 U		0.4 U	2	2737377
Nitrate + Nitrite	ug/g	0.6 U	3	0.6 U	3	0.6 U		0.6 U	3	2737377

RDL = Reportable Detection Limit
QC Batch = Quality Control Batch

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Maxxam Job #: B204400
Report Date: 2012/01/18

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Client Project #: EBA #2

Sampler Initials: RS

ELEMENTS BY ATOMIC SPECTROSCOPY (SOIL)

Maxxam ID		ME9937	ME9938	ME9939	ME9940	ME9941		
Sampling Date		2012/01/10	2012/01/10	2012/01/10	2012/01/10	2012/01/10		
COC Number		2115	2115	2115	2115	2115		
	Units	**EBA2-100112-3**	**EBA2-100112-4**	**EBA2-100112-5**	**EBA2-100112-6**	**EBA2-100112-7**	**RDL**	**QC Batch**
Metals								
Acid Extractable Phosphorus (P)	ug/g	240	280	880	750	220	20	2737751

RDL = Reportable Detection Limit
QC Batch = Quality Control Batch

Maxxam ID		ME9942		
Sampling Date		2012/01/10		
COC Number		2115		
	Units	**EBA2-100112-8**	**RDL**	**QC Batch**
Metals				
Acid Extractable Phosphorus (P)	ug/g	230	20	2737751

RDL = Reportable Detection Limit
QC Batch = Quality Control Batch

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PETROLEUM HYDROCARBONS (CCME)

Maxxam ID		ME9935	ME9936		
Sampling Date		2012/01/10	2012/01/10		
COC Number		2115	2115		
	Units	**EBA2-100112-1**	**EBA2-100112-2**	**RDL**	**QC Batch**
F2-F4 Hydrocarbons					
F2 (C10-C16 Hydrocarbons)	ug/g	770	820	10	2737303
F3 (C16-C34 Hydrocarbons)	ug/g	340	370	10	2737303
F4 (C34-C50 Hydrocarbons)	ug/g	2.0 U	2.0 U	10	2737303
Reached Baseline at C50	ug/g	Yes	Yes		2737303
Surrogate Recovery (%)					
o-Terphenyl	%	91	95		2737303

RDL = Reportable Detection Limit
QC Batch = Quality Control Batch

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Sampler Initials: RS

RESULTS OF ANALYSES OF WATER

Maxxam ID		ME9943		
Sampling Date		2012/01/10		
COC Number		2115		
	Units	**S-2436**	**RDL**	**QC Batch**
Inorganics				
Conductivity	umho/cm	2100	1	2735481
Total Kjeldahl Nitrogen (TKN)	mg/L	400	10	2737318
pH	pH	7.14		2735482
Nitrite (N)	mg/L	0.003 J	0.01	2735897
Nitrate (N)	mg/L	0.02 U	0.1	2735897
Nitrate + Nitrite	mg/L	0.02 U	0.1	2735897

RDL = Reportable Detection Limit
QC Batch = Quality Control Batch

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Client Project #: EBA #2

Sampler Initials: RS

ELEMENTS BY ATOMIC SPECTROSCOPY (WATER)

Maxxam ID		ME9943		
Sampling Date		2012/01/10		
COC Number		2115		
	Units	**S-2436**	**RDL**	**QC Batch**
Metals				
Total Aluminum (Al)	ug/L	850000	50	2737322
Total Antimony (Sb)	ug/L	54	5.0	2737322
Total Arsenic (As)	ug/L	17	10	2737322
Total Barium (Ba)	ug/L	560	20	2737322
Total Beryllium (Be)	ug/L	5.0 U	5.0	2737322
Total Bismuth (Bi)	ug/L	81	10	2737322
Total Boron (B)	ug/L	100 U	100	2737322
Total Cadmium (Cd)	ug/L	22	1.0	2737322
Total Calcium (Ca)	ug/L	140000	2000	2737322
Total Chromium (Cr)	ug/L	180	50	2737322
Total Cobalt (Co)	ug/L	15	5.0	2737322
Total Copper (Cu)	ug/L	1400	10	2737322
Total Iron (Fe)	ug/L	61000	1000	2737322
Total Lead (Pb)	ug/L	120	5.0	2737322
Total Lithium (Li)	ug/L	50 U	50	2737322
Total Magnesium (Mg)	ug/L	42000	500	2737322
Total Manganese (Mn)	ug/L	1000	20	2737322
Total Molybdenum (Mo)	ug/L	51	5.0	2737322
Total Nickel (Ni)	ug/L	200	10	2737322
Total Phosphorus (P)	ug/L	290000	10000	2737322
Total Potassium (K)	ug/L	34000	2000	2737322
Total Silicon (Si)	ug/L	15000	500	2737322
Total Selenium (Se)	ug/L	49	20	2737322
Total Silver (Ag)	ug/L	7.2	1.0	2737322
Total Sodium (Na)	ug/L	420000	1000	2737322
Total Strontium (Sr)	ug/L	370	10	2737322
Total Tellurium (Te)	ug/L	10 U	10	2737322
Total Thallium (Tl)	ug/L	0.50 U	0.50	2737322
Total Tin (Sn)	ug/L	70	10	2737322
Total Titanium (Ti)	ug/L	290	100	2737322
Total Tungsten (W)	ug/L	12	10	2737322
Total Uranium (U)	ug/L	18	1.0	2737322

RDL = Reportable Detection Limit
QC Batch = Quality Control Batch

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ELEMENTS BY ATOMIC SPECTROSCOPY (WATER)

Maxxam ID		ME9943		
Sampling Date		2012/01/10		
COC Number		2115		
	Units	**S-2436**	**RDL**	**QC Batch**
Total Vanadium (V)	ug/L	33	5.0	2737322
Total Zinc (Zn)	ug/L	23000	50	2737322
Total Zirconium (Zr)	ug/L	50	10	2737322
Total Cesium (Cs)	ug/L	1.3 J	2.0	2737322
Total Rubidium (Rb)	ug/L	49	2.0	2737322

RDL = Reportable Detection Limit
QC Batch = Quality Control Batch

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Maxxam Job #: B204400
Report Date: 2012/01/18

SiREM - Site Recovery & Management
Client Project #: EBA #2

Sampler Initials: RS

Test Summary

Maxxam ID ME9935 **Collected** 2012/01/10
Sample ID EBA2-100112-1 **Shipped**
Matrix Soil **Received** 2012/01/11

Test Description	Instrumentation	Batch	Extracted	Analyzed	Analyst
Petroleum Hydrocarbons F2-F4 in Soil	GC/FID	2737303	2012/01/16	2012/01/16	ZHIYUE (FRANK) ZHU
Moisture	BAL	2737017	N/A	2012/01/14	LAKHVIR KALER

Maxxam ID ME9936 **Collected** 2012/01/10
Sample ID EBA2-100112-2 **Shipped**
Matrix Soil **Received** 2012/01/11

Test Description	Instrumentation	Batch	Extracted	Analyzed	Analyst
Petroleum Hydrocarbons F2-F4 in Soil	GC/FID	2737303	2012/01/16	2012/01/16	ZHIYUE (FRANK) ZHU
Moisture	BAL	2737017	N/A	2012/01/14	LAKHVIR KALER

Maxxam ID ME9937 **Collected** 2012/01/10
Sample ID EBA2-100112-3 **Shipped**
Matrix Soil **Received** 2012/01/11

Test Description	Instrumentation	Batch	Extracted	Analyzed	Analyst
Total Metals Analysis by ICP	ICP	2737751	2012/01/16	2012/01/16	SUBAN KANAPATHIPPLLAI
Moisture	BAL	2736989	N/A	2012/01/14	LAKHVIR KALER
Nitrate (NO3) and Nitrite (NO2) in Soil	LACH	2737377	N/A	2012/01/17	BAVANI KAILAYA
pH CaCl2 EXTRACT		2737320	2012/01/16	2012/01/16	YOGESH PATEL
Total Kjeldahl Nitrogen - Soil	AC	2737267	2012/01/16	2012/01/16	CHANDRA NANDLAL

Maxxam ID ME9938 **Collected** 2012/01/10
Sample ID EBA2-100112-4 **Shipped**
Matrix Soil **Received** 2012/01/11

Test Description	Instrumentation	Batch	Extracted	Analyzed	Analyst
Total Metals Analysis by ICP	ICP	2737751	2012/01/16	2012/01/16	SUBAN KANAPATHIPPLLAI
Moisture	BAL	2736989	N/A	2012/01/14	LAKHVIR KALER
Nitrate (NO3) and Nitrite (NO2) in Soil	LACH	2737377	N/A	2012/01/17	BAVANI KAILAYA
pH CaCl2 EXTRACT		2737320	2012/01/16	2012/01/16	YOGESH PATEL
Total Kjeldahl Nitrogen - Soil	AC	2737267	2012/01/16	2012/01/16	CHANDRA NANDLAL

Maxxam ID ME9938 Dup **Collected** 2012/01/10
Sample ID EBA2-100112-4 **Shipped**
Matrix Soil **Received** 2012/01/11

Test Description	Instrumentation	Batch	Extracted	Analyzed	Analyst
Nitrate (NO3) and Nitrite (NO2) in Soil	LACH	2737377	N/A	2012/01/17	BAVANI KAILAYA

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Maxxam Job #: B204400
Report Date: 2012/01/18

SiREM - Site Recovery & Management
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Sampler Initials: RS

Test Summary

Maxxam ID ME9939 **Collected** 2012/01/10
Sample ID EBA2-100112-5 **Shipped**
Matrix Soil **Received** 2012/01/11

Test Description	Instrumentation	Batch	Extracted	Analyzed	Analyst
Total Metals Analysis by ICP	ICP	2737751	2012/01/16	2012/01/16	SUBAN KANAPATHIPPLLAI
Moisture	BAL	2736989	N/A	2012/01/14	LAKHVIR KALER
Nitrate (NO3) and Nitrite (NO2) in Soil	LACH	2737377	N/A	2012/01/17	BAVANI KAILAYA
pH CaCl2 EXTRACT		2737320	2012/01/16	2012/01/16	YOGESH PATEL
Total Kjeldahl Nitrogen - Soil	AC	2737267	2012/01/16	2012/01/16	CHANDRA NANDLAL

Maxxam ID ME9940 **Collected** 2012/01/10
Sample ID EBA2-100112-6 **Shipped**
Matrix Soil **Received** 2012/01/11

Test Description	Instrumentation	Batch	Extracted	Analyzed	Analyst
Total Metals Analysis by ICP	ICP	2737751	2012/01/16	2012/01/16	SUBAN KANAPATHIPPLLAI
Moisture	BAL	2736989	N/A	2012/01/14	LAKHVIR KALER
Nitrate (NO3) and Nitrite (NO2) in Soil	LACH	2737377	N/A	2012/01/17	BAVANI KAILAYA
pH CaCl2 EXTRACT		2737320	2012/01/16	2012/01/16	YOGESH PATEL
Total Kjeldahl Nitrogen - Soil	AC	2737267	2012/01/16	2012/01/16	CHANDRA NANDLAL

Maxxam ID ME9941 **Collected** 2012/01/10
Sample ID EBA2-100112-7 **Shipped**
Matrix Soil **Received** 2012/01/11

Test Description	Instrumentation	Batch	Extracted	Analyzed	Analyst
Total Metals Analysis by ICP	ICP	2737751	2012/01/16	2012/01/16	SUBAN KANAPATHIPPLLAI
Moisture	BAL	2736989	N/A	2012/01/14	LAKHVIR KALER
Nitrate (NO3) and Nitrite (NO2) in Soil	LACH	2737377	N/A	2012/01/17	BAVANI KAILAYA
pH CaCl2 EXTRACT		2737320	2012/01/16	2012/01/16	YOGESH PATEL
Total Kjeldahl Nitrogen - Soil	AC	2737267	2012/01/16	2012/01/16	CHANDRA NANDLAL

Maxxam ID ME9941 Dup **Collected** 2012/01/10
Sample ID EBA2-100112-7 **Shipped**
Matrix Soil **Received** 2012/01/11

Test Description	Instrumentation	Batch	Extracted	Analyzed	Analyst
pH CaCl2 EXTRACT		2737320	2012/01/16	2012/01/16	YOGESH PATEL

Maxxam ID ME9942 **Collected** 2012/01/10
Sample ID EBA2-100112-8 **Shipped**
Matrix Soil **Received** 2012/01/11

Test Description	Instrumentation	Batch	Extracted	Analyzed	Analyst
Total Metals Analysis by ICP	ICP	2737751	2012/01/16	2012/01/16	SUBAN KANAPATHIPPLLAI
Moisture	BAL	2736989	N/A	2012/01/14	LAKHVIR KALER
Nitrate (NO3) and Nitrite (NO2) in Soil	LACH	2737377	N/A	2012/01/17	BAVANI KAILAYA
pH CaCl2 EXTRACT		2737320	2012/01/16	2012/01/16	YOGESH PATEL
Total Kjeldahl Nitrogen - Soil	AC	2737267	2012/01/16	2012/01/16	CHANDRA NANDLAL

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Maxxam Job #: B204400
Report Date: 2012/01/18

SiREM - Site Recovery & Management
Client Project #: EBA #2

Sampler Initials: RS

Test Summary

Maxxam ID ME9943
Sample ID S-2436
Matrix Water

Collected 2012/01/10
Shipped
Received 2012/01/11

Test Description	Instrumentation	Batch	Extracted	Analyzed	Analyst
Conductivity	COND	2735481	N/A	2012/01/13	YOGESH PATEL
Total Metals Analysis by ICPMS	ICP/MS	2737322	N/A	2012/01/16	JOHN BOWMAN
Nitrate (NO3) and Nitrite (NO2) in Water	LACH	2735897	N/A	2012/01/13	BAVANI KAILAYA
pH	PH	2735482	N/A	2012/01/13	YOGESH PATEL
Total Kjeldahl Nitrogen in Water	AC	2737318	2012/01/16	2012/01/16	CHANDRA NANDLAL

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SiREM - Site Recovery & Management
Client Project #: EBA #2

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GENERAL COMMENTS

Results relate only to the items tested.

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SiREM - Site Recovery & Management
Attention: Ximena Druar
Client Project #: EBA #2
P.O. #:
Site Location:

Quality Assurance Report

Maxxam Job Number: MB204400

QA/QC Batch Num	Init	QC Type	Parameter	Date Analyzed yyyy/mm/dd	Value	Recovery	Units	QC Limits
2735481	YPA	QC Standard	Conductivity	2012/01/13		101	%	85 - 115
		Method Blank	Conductivity	2012/01/13	0.4 J, MDL=0.2		umho/cm	
		RPD	Conductivity	2012/01/13	0.06		%	25
2735897	BAV	Matrix Spike	Nitrite (N)	2012/01/13		104	%	80 - 120
			Nitrate (N)	2012/01/13		103	%	80 - 120
		Spiked Blank	Nitrite (N)	2012/01/13		106	%	85 - 115
			Nitrate (N)	2012/01/13		98	%	85 - 115
		Method Blank	Nitrite (N)	2012/01/13	0.002 U, MDL=0.002		mg/L	
			Nitrate (N)	2012/01/13	0.02 U, MDL=0.02		mg/L	
		RPD	Nitrite (N)	2012/01/13	NC		%	25
			Nitrate (N)	2012/01/13	NC		%	25
2736989	LKA	RPD	Moisture	2012/01/14	3.0		%	20
2737017	LKA	RPD	Moisture	2012/01/14	2.2		%	20
2737267	C_N	Matrix Spike	Total Kjeldahl Nitrogen	2012/01/16		105	%	75 - 125
		QC Standard	Total Kjeldahl Nitrogen	2012/01/16		90	%	75 - 125
		Method Blank	Total Kjeldahl Nitrogen	2012/01/16	3 U, MDL=3		ug/g	
		RPD	Total Kjeldahl Nitrogen	2012/01/16	10.1		%	40
2737303	ZZ	Matrix Spike	o-Terphenyl	2012/01/16		86	%	50 - 130
			F2 (C10-C16 Hydrocarbons)	2012/01/16		94	%	50 - 130
			F3 (C16-C34 Hydrocarbons)	2012/01/16		99	%	50 - 130
			F4 (C34-C50 Hydrocarbons)	2012/01/16		94	%	50 - 130
		Spiked Blank	o-Terphenyl	2012/01/16		88	%	50 - 130
			F2 (C10-C16 Hydrocarbons)	2012/01/16		96	%	70 - 130
			F3 (C16-C34 Hydrocarbons)	2012/01/16		100	%	70 - 130
			F4 (C34-C50 Hydrocarbons)	2012/01/16		96	%	70 - 130
		Method Blank	o-Terphenyl	2012/01/16		92	%	50 - 130
			F2 (C10-C16 Hydrocarbons)	2012/01/16	2.0 U, MDL=2.0		ug/g	
			F3 (C16-C34 Hydrocarbons)	2012/01/16	2.0 U, MDL=2.0		ug/g	
			F4 (C34-C50 Hydrocarbons)	2012/01/16	2.0 U, MDL=2.0		ug/g	
		RPD	F2 (C10-C16 Hydrocarbons)	2012/01/16	NC		%	30
			F3 (C16-C34 Hydrocarbons)	2012/01/16	NC		%	30
			F4 (C34-C50 Hydrocarbons)	2012/01/16	NC		%	30
2737318	C_N	Matrix Spike	Total Kjeldahl Nitrogen (TKN)	2012/01/16		NC	%	80 - 120
		QC Standard	Total Kjeldahl Nitrogen (TKN)	2012/01/16		88	%	85 - 115
		Spiked Blank	Total Kjeldahl Nitrogen (TKN)	2012/01/16		94	%	85 - 115
		Method Blank	Total Kjeldahl Nitrogen (TKN)	2012/01/16	0.05 J, MDL=0.02		mg/L	
		RPD	Total Kjeldahl Nitrogen (TKN)	2012/01/16	4.7		%	20
2737322	JBW	Matrix Spike	Total Aluminum (Al)	2012/01/16		109	%	80 - 120
			Total Antimony (Sb)	2012/01/16		111	%	80 - 120
			Total Arsenic (As)	2012/01/16		103	%	80 - 120
			Total Barium (Ba)	2012/01/16		102	%	80 - 120
			Total Beryllium (Be)	2012/01/16		105	%	80 - 120
			Total Bismuth (Bi)	2012/01/16		103	%	80 - 120
			Total Boron (B)	2012/01/16		111	%	80 - 120
			Total Cadmium (Cd)	2012/01/16		106	%	80 - 120
			Total Calcium (Ca)	2012/01/16		NC	%	80 - 120
			Total Chromium (Cr)	2012/01/16		103	%	80 - 120
			Total Cobalt (Co)	2012/01/16		104	%	80 - 120
			Total Copper (Cu)	2012/01/16		100	%	80 - 120
			Total Iron (Fe)	2012/01/16		105	%	80 - 120
			Total Lead (Pb)	2012/01/16		101	%	80 - 120
			Total Lithium (Li)	2012/01/16		107	%	80 - 120
			Total Magnesium (Mg)	2012/01/16		109	%	80 - 120
			Total Manganese (Mn)	2012/01/16		105	%	80 - 120
			Total Molybdenum (Mo)	2012/01/16		108	%	80 - 120

SiREM - Site Recovery & Management
Attention: Ximena Druar
Client Project #: EBA #2
P.O. #:
Site Location:

Quality Assurance Report (Continued)

Maxxam Job Number: MB204400

QA/QC Batch Num	Init	QC Type	Parameter	Date Analyzed yyyy/mm/dd	Value	Recovery	Units	QC Limits
2737322	JBW	Matrix Spike	Total Nickel (Ni)	2012/01/16		100	%	80 - 120
			Total Phosphorus (P)	2012/01/16		112	%	80 - 120
			Total Potassium (K)	2012/01/16		106	%	80 - 120
			Total Silicon (Si)	2012/01/16		105	%	80 - 120
			Total Selenium (Se)	2012/01/16		105	%	80 - 120
			Total Silver (Ag)	2012/01/16		101	%	80 - 120
			Total Sodium (Na)	2012/01/16		112	%	80 - 120
			Total Strontium (Sr)	2012/01/16		107	%	80 - 120
			Total Tellurium (Te)	2012/01/16		104	%	80 - 120
			Total Thallium (Tl)	2012/01/16		101	%	80 - 120
			Total Tin (Sn)	2012/01/16		110	%	80 - 120
			Total Titanium (Ti)	2012/01/16		104	%	80 - 120
			Total Tungsten (W)	2012/01/16		104	%	80 - 120
			Total Uranium (U)	2012/01/16		101	%	80 - 120
			Total Vanadium (V)	2012/01/16		104	%	80 - 120
			Total Zinc (Zn)	2012/01/16		104	%	80 - 120
			Total Zirconium (Zr)	2012/01/16		112	%	80 - 120
			Total Cesium (Cs)	2012/01/16		98	%	80 - 120
			Total Rubidium (Rb)	2012/01/16		103	%	80 - 120
		Spiked Blank	Total Aluminum (Al)	2012/01/16		114	%	80 - 120
			Total Antimony (Sb)	2012/01/16		113	%	80 - 120
			Total Arsenic (As)	2012/01/16		106	%	80 - 120
			Total Barium (Ba)	2012/01/16		105	%	80 - 120
			Total Beryllium (Be)	2012/01/16		107	%	80 - 120
			Total Bismuth (Bi)	2012/01/16		105	%	80 - 120
			Total Boron (B)	2012/01/16		112	%	80 - 120
			Total Cadmium (Cd)	2012/01/16		109	%	80 - 120
			Total Calcium (Ca)	2012/01/16		110	%	80 - 120
			Total Chromium (Cr)	2012/01/16		108	%	80 - 120
			Total Cobalt (Co)	2012/01/16		108	%	80 - 120
			Total Copper (Cu)	2012/01/16		104	%	80 - 120
			Total Iron (Fe)	2012/01/16		110	%	80 - 120
			Total Lead (Pb)	2012/01/16		105	%	80 - 120
			Total Lithium (Li)	2012/01/16		108	%	80 - 120
			Total Magnesium (Mg)	2012/01/16		114	%	80 - 120
			Total Manganese (Mn)	2012/01/16		109	%	80 - 120
			Total Molybdenum (Mo)	2012/01/16		110	%	80 - 120
			Total Nickel (Ni)	2012/01/16		104	%	80 - 120
			Total Phosphorus (P)	2012/01/16		113	%	80 - 120
			Total Potassium (K)	2012/01/16		111	%	80 - 120
			Total Silicon (Si)	2012/01/16		110	%	80 - 120
			Total Selenium (Se)	2012/01/16		112	%	80 - 120
			Total Silver (Ag)	2012/01/16		105	%	80 - 120
			Total Sodium (Na)	2012/01/16		117	%	80 - 120
			Total Strontium (Sr)	2012/01/16		111	%	80 - 120
			Total Tellurium (Te)	2012/01/16		106	%	80 - 120
			Total Thallium (Tl)	2012/01/16		104	%	80 - 120
			Total Tin (Sn)	2012/01/16		111	%	80 - 120
			Total Titanium (Ti)	2012/01/16		111	%	80 - 120
			Total Tungsten (W)	2012/01/16		107	%	80 - 120
			Total Uranium (U)	2012/01/16		105	%	80 - 120
			Total Vanadium (V)	2012/01/16		108	%	80 - 120
			Total Zinc (Zn)	2012/01/16		108	%	80 - 120
			Total Zirconium (Zr)	2012/01/16		114	%	80 - 120
			Total Cesium (Cs)	2012/01/16		100	%	80 - 120

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SiREM - Site Recovery & Management
Attention: Ximena Druar
Client Project #: EBA #2
P.O. #:
Site Location:

Quality Assurance Report (Continued)

Maxxam Job Number: MB204400

QA/QC Batch Num	Init	QC Type	Parameter	Date Analyzed yyyy/mm/dd	Value	Recovery	Units	QC Limits
2737322	JBW	Spiked Blank	Total Rubidium (Rb)	2012/01/16		106	%	80 - 120
		Method Blank	Total Aluminum (Al)	2012/01/16	9.3, MDL=5.0		ug/L	
			Total Antimony (Sb)	2012/01/16	0.50 U, MDL=0.50		ug/L	
			Total Arsenic (As)	2012/01/16	1.0 U, MDL=1.0		ug/L	
			Total Barium (Ba)	2012/01/16	2.0 U, MDL=2.0		ug/L	
			Total Beryllium (Be)	2012/01/16	0.50 U, MDL=0.50		ug/L	
			Total Bismuth (Bi)	2012/01/16	1.0 U, MDL=1.0		ug/L	
			Total Boron (B)	2012/01/16	10 U, MDL=10		ug/L	
			Total Cadmium (Cd)	2012/01/16	0.10 U, MDL=0.10		ug/L	
			Total Calcium (Ca)	2012/01/16	200 U, MDL=200		ug/L	
			Total Chromium (Cr)	2012/01/16	5.0 U, MDL=5.0		ug/L	
			Total Cobalt (Co)	2012/01/16	0.50 U, MDL=0.50		ug/L	
			Total Copper (Cu)	2012/01/16	1.0 U, MDL=1.0		ug/L	
			Total Iron (Fe)	2012/01/16	50 U, MDL=50		ug/L	
			Total Lead (Pb)	2012/01/16	0.50 U, MDL=0.50		ug/L	
			Total Lithium (Li)	2012/01/16	5.0 U, MDL=5.0		ug/L	
			Total Magnesium (Mg)	2012/01/16	50 U, MDL=50		ug/L	
			Total Manganese (Mn)	2012/01/16	2.0 U, MDL=2.0		ug/L	
			Total Molybdenum (Mo)	2012/01/16	0.50 U, MDL=0.50		ug/L	
			Total Nickel (Ni)	2012/01/16	1.0 U, MDL=1.0		ug/L	
			Total Phosphorus (P)	2012/01/16	50 U, MDL=50		ug/L	
			Total Potassium (K)	2012/01/16	200 U, MDL=200		ug/L	
			Total Silicon (Si)	2012/01/16	50 U, MDL=50		ug/L	
			Total Selenium (Se)	2012/01/16	2.0 U, MDL=2.0		ug/L	
			Total Silver (Ag)	2012/01/16	0.10 U, MDL=0.10		ug/L	
			Total Sodium (Na)	2012/01/16	100 U, MDL=100		ug/L	
			Total Strontium (Sr)	2012/01/16	1.0 U, MDL=1.0		ug/L	
			Total Tellurium (Te)	2012/01/16	1.0 U, MDL=1.0		ug/L	
			Total Thallium (Tl)	2012/01/16	0.050 U, MDL=0.050		ug/L	
			Total Tin (Sn)	2012/01/16	1.0 U, MDL=1.0		ug/L	
			Total Titanium (Ti)	2012/01/16	5.0 U, MDL=5.0		ug/L	
			Total Tungsten (W)	2012/01/16	1.0 U, MDL=1.0		ug/L	
			Total Uranium (U)	2012/01/16	0.10 U, MDL=0.10		ug/L	
			Total Vanadium (V)	2012/01/16	0.50 U, MDL=0.50		ug/L	
			Total Zinc (Zn)	2012/01/16	5.2, MDL=5.0		ug/L	
			Total Zirconium (Zr)	2012/01/16	1.0 U, MDL=1.0		ug/L	
			Total Cesium (Cs)	2012/01/16	0.040 U, MDL=0.040		ug/L	
			Total Rubidium (Rb)	2012/01/16	0.040 U, MDL=0.040		ug/L	
		RPD	Total Aluminum (Al)	2012/01/16	2.7		%	20
			Total Antimony (Sb)	2012/01/16	NC		%	20
			Total Arsenic (As)	2012/01/16	NC		%	20
			Total Barium (Ba)	2012/01/16	NC		%	20
			Total Beryllium (Be)	2012/01/16	NC		%	20
			Total Bismuth (Bi)	2012/01/16	NC		%	20
			Total Boron (B)	2012/01/16	NC		%	20
			Total Cadmium (Cd)	2012/01/16	NC		%	20
			Total Calcium (Ca)	2012/01/16	3.5		%	20
			Total Chromium (Cr)	2012/01/16	NC		%	20
			Total Cobalt (Co)	2012/01/16	NC		%	20
			Total Copper (Cu)	2012/01/16	NC		%	20
			Total Iron (Fe)	2012/01/16	NC		%	20
			Total Lead (Pb)	2012/01/16	NC		%	20
			Total Lithium (Li)	2012/01/16	NC		%	20
			Total Magnesium (Mg)	2012/01/16	2.5		%	20
			Total Manganese (Mn)	2012/01/16	1.6		%	20

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SiREM - Site Recovery & Management
Attention: Ximena Druar
Client Project #: EBA #2
P.O. #:
Site Location:

Quality Assurance Report (Continued)

Maxxam Job Number: MB204400

QA/QC Batch Num	Init	QC Type	Parameter	Date Analyzed yyyy/mm/dd	Value	Recovery	Units	QC Limits
2737322	JBW	RPD	Total Molybdenum (Mo)	2012/01/16	NC		%	20
			Total Nickel (Ni)	2012/01/16	NC		%	20
			Total Potassium (K)	2012/01/16	5.5		%	20
			Total Silicon (Si)	2012/01/16	3.9		%	20
			Total Selenium (Se)	2012/01/16	NC		%	20
			Total Silver (Ag)	2012/01/16	NC		%	20
			Total Sodium (Na)	2012/01/16	3.2		%	20
			Total Strontium (Sr)	2012/01/16	4.4		%	20
			Total Tellurium (Te)	2012/01/16	NC		%	20
			Total Thallium (Tl)	2012/01/16	NC		%	20
			Total Tin (Sn)	2012/01/16	NC		%	20
			Total Titanium (Ti)	2012/01/16	NC		%	20
			Total Tungsten (W)	2012/01/16	NC		%	20
			Total Uranium (U)	2012/01/16	NC		%	20
			Total Vanadium (V)	2012/01/16	NC		%	20
			Total Zinc (Zn)	2012/01/16	4.1		%	20
			Total Zirconium (Zr)	2012/01/16	NC		%	20
2737377	BAV	Matrix Spike [ME9938-01]	Nitrite (N)	2012/01/17		102	%	75 - 125
			Nitrate (N)	2012/01/17		107	%	80 - 120
		Spiked Blank	Nitrite (N)	2012/01/17		98	%	75 - 125
			Nitrate (N)	2012/01/17		104	%	85 - 115
		Method Blank	Nitrite (N)	2012/01/17	0.1 U, MDL=0.1		ug/g	
			Nitrate (N)	2012/01/17	0.4 U, MDL=0.4		ug/g	
			Nitrate + Nitrite	2012/01/17	0.6 U, MDL=0.6		ug/g	
		RPD [ME9938-01]	Nitrite (N)	2012/01/17	NC		%	25
			Nitrate (N)	2012/01/17	NC		%	25
			Nitrate + Nitrite	2012/01/17	NC		%	25
2737751	SUK	Matrix Spike	Acid Extractable Phosphorus (P)	2012/01/16		NC	%	75 - 125
		QC Standard	Acid Extractable Phosphorus (P)	2012/01/16		101	%	75 - 125
		Method Blank	Acid Extractable Phosphorus (P)	2012/01/16	<20		ug/g	

Duplicate: Paired analysis of a separate portion of the same sample. Used to evaluate the variance in the measurement.
Matrix Spike: A sample to which a known amount of the analyte of interest has been added. Used to evaluate sample matrix interference.
QC Standard: A blank matrix to which a known amount of the analyte has been added. Used to evaluate analyte recovery.
Spiked Blank: A blank matrix to which a known amount of the analyte has been added. Used to evaluate analyte recovery.
Method Blank: A blank matrix containing all reagents used in the analytical procedure. Used to identify laboratory contamination.
Surrogate: A pure or isotopically labeled compound whose behavior mirrors the analytes of interest. Used to evaluate extraction efficiency.
NC (Matrix Spike): The recovery in the matrix spike was not calculated. The relative difference between the concentration in the parent sample and the spiked amount was not sufficiently significant to permit a reliable recovery calculation.
NC (RPD): The RPD was not calculated. The level of analyte detected in the parent sample and its duplicate was not sufficiently significant to permit a reliable calculation.

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Validation Signature Page

Maxxam Job #: B204400

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

CRISTINA CARRIERE, Scientific Services

EWA PRANJIC, M.Sc., C.Chem, Scientific Specialist

MEDHAT RISKALLAH, Manager, Hydrocarbon Department

==========

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Your Project #: EBA #2
Your C.O.C. #: 2115

Attention: Ximena Druar
SiREM - Site Recovery & Management
130 Research Lane
Suite 2
Guelph, ON
CANADA N1G 5G3

Report Date: 2012/01/18

CERTIFICATE OF ANALYSIS

MAXXAM JOB #: B204400
Received: 2012/01/11, 10:44

Sample Matrix: Soil
Samples Received: 8

Analyses	Quantity	Date Extracted	Date Analyzed	Laboratory Method	Method Reference
Petroleum Hydrocarbons F2-F4 in Soil	2	2012/01/16	2012/01/16	CAM SOP-00316	CCME CWS
Total Metals Analysis by ICP	6	2012/01/16	2012/01/16	CAM SOP-00408	EPA 6010
Moisture	8	N/A	2012/01/14	CAM SOP-00445	R.Carter,1993
Nitrate (NO3) and Nitrite (NO2) in Soil	6	N/A	2012/01/17	CAM SOP-00440	SM 4500 NO3I/NO2B
pH CaCl2 EXTRACT	6	2012/01/16	2012/01/16	CAM SOP-00413	SM 4500 H
Total Kjeldahl Nitrogen - Soil	6	2012/01/16	2012/01/16	CAM SOP-00454	EPA 351.2 Rev 2

Sample Matrix: Water
Samples Received: 1

Analyses	Quantity	Date Extracted	Date Analyzed	Laboratory Method	Method Reference
Conductivity	1	N/A	2012/01/13	CAM SOP-00448	SM 2510
Total Metals Analysis by ICPMS	1	N/A	2012/01/16	CAM SOP-00447	EPA 6020
Nitrate (NO3) and Nitrite (NO2) in Water	1	N/A	2012/01/13	CAM SOP-00440	SM 4500 NO3I/NO2B
pH	1	N/A	2012/01/13	CAM SOP-00448	SM 4500H
Total Kjeldahl Nitrogen in Water	1	2012/01/16	2012/01/16	CAM SOP-00454	EPA 351.2 Rev 2

Remarks:

Maxxam Analytics has performed all analytical testing herein in accordance with ISO 17025 and the Protocol for Analytical Methods Used in the Assessment of Properties under Part XV.1 of the Environmental Protection Act. All methodologies comply with this document and are validated for use in the laboratory. The methods and techniques employed in this analysis conform to the performance criteria (detection limits, accuracy and precision) as outlined in the Protocol for Analytical Methods Used in the Assessment of Properties under Part XV.1 of the Environmental Protection Act. Reporting results to two significant figures at the RDL is to permit statistical evaluation and is not intended to be an indication of analytical precision.

The CWS PHC methods employed by Maxxam conform to all prescribed elements of the reference method and performance based elements have been validated. All modifications have been validated and proven equivalent following the 'Alberta Environment Draft Addenda to the CWS-PHC, Appendix 6, Validation of Alternate Methods'. Documentation is

Your Project #: EBA #2
Your C.O.C. #: 2115

Attention: Ximena Druar
SiREM - Site Recovery & Management
130 Research Lane
Suite 2
Guelph, ON
CANADA N1G 5G3

Report Date: 2012/01/18

CERTIFICATE OF ANALYSIS

available upon request. Maxxam has made the following improvements to the CWS-PHC reference benchmark method: (i) Headspace for F1; and, (ii) Mechanical extraction for F2-F4. Note: F4G cannot be added to the C6 to C50 hydrocarbons. The extraction date for samples field preserved with methanol for F1 and Volatile Organic Compounds is considered to be the date sampled.

Maxxam Analytics is accredited by SCC (Lab ID 97) for all specific parameters as required by Ontario Regulation 153/04. Maxxam Analytics is limited in liability to the actual cost of analysis unless otherwise agreed in writing. There is no other warranty expressed or implied. Samples will be retained at Maxxam Analytics for three weeks from receipt of data or as per contract.

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

(1) Values for calculated parameters may not appear to add up due to rounding of raw data and significant figures.

Encryption Key

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

JOLANTA GORALCZYK, Project Manager
Email: JGoralczyk@maxxam.ca
Phone# (905) 817-5700

==========

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Total cover pages: 2

Maxxam Job #: B204400
Report Date: 2012/01/18

SiREM - Site Recovery & Management
Client Project #: EBA #2

Sampler Initials: RS

RESULTS OF ANALYSES OF SOIL

Maxxam ID		ME9935	ME9936		ME9937	ME9938	ME9938		
Sampling Date		2012/01/10	2012/01/10		2012/01/10	2012/01/10	2012/01/10		
COC Number		2115	2115		2115	2115	2115		
	Units	**EBA2-100112-1**	**EBA2-100112-2**	**QC Batch**	**EBA2-100112-3**	**EBA2-100112-4**	**EBA2-100112-4 Lab-Dup**	**RDL**	**QC Batch**
Inorganics									
Moisture	%	15	12	2737017	14	14		1	2736989
Available (CaCl2) pH	pH				7.34	7.36			2737320
Total Kjeldahl Nitrogen	ug/g				232	191		10	2737267
Nitrite (N)	ug/g				0.2 J	0.2 J	0.3 J	0.5	2737377
Nitrate (N)	ug/g				0.4 U	0.4 U	0.4 U	2	2737377
Nitrate + Nitrite	ug/g				0.6 U	0.6 U	0.6 U	3	2737377

RDL = Reportable Detection Limit
QC Batch = Quality Control Batch

Maxxam ID		ME9939		ME9940		ME9941	ME9941	ME9942		
Sampling Date		2012/01/10		2012/01/10		2012/01/10	2012/01/10	2012/01/10		
COC Number		2115		2115		2115	2115	2115		
	Units	**EBA2-100112-5**	**RDL**	**EBA2-100112-6**	**RDL**	**EBA2-100112-7**	**EBA2-100112-7 Lab-Dup**	**EBA2-100112-8**	**RDL**	**QC Batch**
Inorganics										
Moisture	%	14	1	14	1	12		13	1	2736989
Available (CaCl2) pH	pH	6.95		6.95		7.31	7.26	7.19		2737320
Total Kjeldahl Nitrogen	ug/g	344	10	599	50	218		213	10	2737267
Nitrite (N)	ug/g	0.1 U	0.5	0.1 U	0.5	0.2 J		0.2 J	0.5	2737377
Nitrate (N)	ug/g	0.4 U	2	0.4 U	2	0.4 U		0.4 U	2	2737377
Nitrate + Nitrite	ug/g	0.6 U	3	0.6 U	3	0.6 U		0.6 U	3	2737377

RDL = Reportable Detection Limit
QC Batch = Quality Control Batch

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Maxxam Job #: B204400
Report Date: 2012/01/18

SiREM - Site Recovery & Management
Client Project #: EBA #2

Sampler Initials: RS

ELEMENTS BY ATOMIC SPECTROSCOPY (SOIL)

Maxxam ID		ME9937	ME9938	ME9939	ME9940	ME9941		
Sampling Date		2012/01/10	2012/01/10	2012/01/10	2012/01/10	2012/01/10		
COC Number		2115	2115	2115	2115	2115		
	Units	**EBA2-100112-3**	**EBA2-100112-4**	**EBA2-100112-5**	**EBA2-100112-6**	**EBA2-100112-7**	**RDL**	**QC Batch**
Metals								
Acid Extractable Phosphorus (P)	ug/g	240	280	880	750	220	20	2737751

RDL = Reportable Detection Limit
QC Batch = Quality Control Batch

Maxxam ID		ME9942		
Sampling Date		2012/01/10		
COC Number		2115		
	Units	**EBA2-100112-8**	**RDL**	**QC Batch**
Metals				
Acid Extractable Phosphorus (P)	ug/g	230	20	2737751

RDL = Reportable Detection Limit
QC Batch = Quality Control Batch

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Maxxam Job #: B204400
Report Date: 2012/01/18

SiREM - Site Recovery & Management
Client Project #: EBA #2

Sampler Initials: RS

PETROLEUM HYDROCARBONS (CCME)

Maxxam ID		ME9935	ME9936		
Sampling Date		2012/01/10	2012/01/10		
COC Number		2115	2115		
	Units	**EBA2-100112-1**	**EBA2-100112-2**	**RDL**	**QC Batch**
F2-F4 Hydrocarbons					
F2 (C10-C16 Hydrocarbons)	ug/g	770	820	10	2737303
F3 (C16-C34 Hydrocarbons)	ug/g	340	370	10	2737303
F4 (C34-C50 Hydrocarbons)	ug/g	2.0 U	2.0 U	10	2737303
Reached Baseline at C50	ug/g	Yes	Yes		2737303
Surrogate Recovery (%)					
o-Terphenyl	%	91	95		2737303

RDL = Reportable Detection Limit
QC Batch = Quality Control Batch

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Maxxam Job #: B204400
Report Date: 2012/01/18

SiREM - Site Recovery & Management
Client Project #: EBA #2

Sampler Initials: RS

RESULTS OF ANALYSES OF WATER

Maxxam ID		ME9943		
Sampling Date		2012/01/10		
COC Number		2115		
	Units	**S-2436**	**RDL**	**QC Batch**
Inorganics				
Conductivity	umho/cm	2100	1	2735481
Total Kjeldahl Nitrogen (TKN)	mg/L	400	10	2737318
pH	pH	7.14		2735482
Nitrite (N)	mg/L	0.003 J	0.01	2735897
Nitrate (N)	mg/L	0.02 U	0.1	2735897
Nitrate + Nitrite	mg/L	0.02 U	0.1	2735897

RDL = Reportable Detection Limit
QC Batch = Quality Control Batch

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Report Date: 2012/01/18

SiREM - Site Recovery & Management
Client Project #: EBA #2

Sampler Initials: RS

ELEMENTS BY ATOMIC SPECTROSCOPY (WATER)

Maxxam ID		ME9943		
Sampling Date		2012/01/10		
COC Number		2115		
	Units	**S-2436**	**RDL**	**QC Batch**
Metals				
Total Aluminum (Al)	ug/L	850000	50	2737322
Total Antimony (Sb)	ug/L	54	5.0	2737322
Total Arsenic (As)	ug/L	17	10	2737322
Total Barium (Ba)	ug/L	560	20	2737322
Total Beryllium (Be)	ug/L	5.0 U	5.0	2737322
Total Bismuth (Bi)	ug/L	81	10	2737322
Total Boron (B)	ug/L	100 U	100	2737322
Total Cadmium (Cd)	ug/L	22	1.0	2737322
Total Calcium (Ca)	ug/L	140000	2000	2737322
Total Chromium (Cr)	ug/L	180	50	2737322
Total Cobalt (Co)	ug/L	15	5.0	2737322
Total Copper (Cu)	ug/L	1400	10	2737322
Total Iron (Fe)	ug/L	61000	1000	2737322
Total Lead (Pb)	ug/L	120	5.0	2737322
Total Lithium (Li)	ug/L	50 U	50	2737322
Total Magnesium (Mg)	ug/L	42000	500	2737322
Total Manganese (Mn)	ug/L	1000	20	2737322
Total Molybdenum (Mo)	ug/L	51	5.0	2737322
Total Nickel (Ni)	ug/L	200	10	2737322
Total Phosphorus (P)	ug/L	290000	10000	2737322
Total Potassium (K)	ug/L	34000	2000	2737322
Total Silicon (Si)	ug/L	15000	500	2737322
Total Selenium (Se)	ug/L	49	20	2737322
Total Silver (Ag)	ug/L	7.2	1.0	2737322
Total Sodium (Na)	ug/L	420000	1000	2737322
Total Strontium (Sr)	ug/L	370	10	2737322
Total Tellurium (Te)	ug/L	10 U	10	2737322
Total Thallium (Tl)	ug/L	0.50 U	0.50	2737322
Total Tin (Sn)	ug/L	70	10	2737322
Total Titanium (Ti)	ug/L	290	100	2737322
Total Tungsten (W)	ug/L	12	10	2737322
Total Uranium (U)	ug/L	18	1.0	2737322

RDL = Reportable Detection Limit
QC Batch = Quality Control Batch

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Maxxam Job #: B204400
Report Date: 2012/01/18

SiREM - Site Recovery & Management
Client Project #: EBA #2

Sampler Initials: RS

ELEMENTS BY ATOMIC SPECTROSCOPY (WATER)

Maxxam ID		ME9943		
Sampling Date		2012/01/10		
COC Number		2115		
	Units	**S-2436**	**RDL**	**QC Batch**
Total Vanadium (V)	ug/L	33	5.0	2737322
Total Zinc (Zn)	ug/L	23000	50	2737322
Total Zirconium (Zr)	ug/L	50	10	2737322
Total Cesium (Cs)	ug/L	1.3 J	2.0	2737322
Total Rubidium (Rb)	ug/L	49	2.0	2737322

RDL = Reportable Detection Limit
QC Batch = Quality Control Batch

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Test Summary

Maxxam ID ME9935 **Collected** 2012/01/10
Sample ID EBA2-100112-1 **Shipped**
Matrix Soil **Received** 2012/01/11

Test Description	Instrumentation	Batch	Extracted	Analyzed	Analyst
Petroleum Hydrocarbons F2-F4 in Soil	GC/FID	2737303	2012/01/16	2012/01/16	ZHIYUE (FRANK) ZHU
Moisture	BAL	2737017	N/A	2012/01/14	LAKHVIR KALER

Maxxam ID ME9936 **Collected** 2012/01/10
Sample ID EBA2-100112-2 **Shipped**
Matrix Soil **Received** 2012/01/11

Test Description	Instrumentation	Batch	Extracted	Analyzed	Analyst
Petroleum Hydrocarbons F2-F4 in Soil	GC/FID	2737303	2012/01/16	2012/01/16	ZHIYUE (FRANK) ZHU
Moisture	BAL	2737017	N/A	2012/01/14	LAKHVIR KALER

Maxxam ID ME9937 **Collected** 2012/01/10
Sample ID EBA2-100112-3 **Shipped**
Matrix Soil **Received** 2012/01/11

Test Description	Instrumentation	Batch	Extracted	Analyzed	Analyst
Total Metals Analysis by ICP	ICP	2737751	2012/01/16	2012/01/16	SUBAN KANAPATHIPPLLAI
Moisture	BAL	2736989	N/A	2012/01/14	LAKHVIR KALER
Nitrate (NO3) and Nitrite (NO2) in Soil	LACH	2737377	N/A	2012/01/17	BAVANI KAILAYA
pH CaCl2 EXTRACT		2737320	2012/01/16	2012/01/16	YOGESH PATEL
Total Kjeldahl Nitrogen - Soil	AC	2737267	2012/01/16	2012/01/16	CHANDRA NANDLAL

Maxxam ID ME9938 **Collected** 2012/01/10
Sample ID EBA2-100112-4 **Shipped**
Matrix Soil **Received** 2012/01/11

Test Description	Instrumentation	Batch	Extracted	Analyzed	Analyst
Total Metals Analysis by ICP	ICP	2737751	2012/01/16	2012/01/16	SUBAN KANAPATHIPPLLAI
Moisture	BAL	2736989	N/A	2012/01/14	LAKHVIR KALER
Nitrate (NO3) and Nitrite (NO2) in Soil	LACH	2737377	N/A	2012/01/17	BAVANI KAILAYA
pH CaCl2 EXTRACT		2737320	2012/01/16	2012/01/16	YOGESH PATEL
Total Kjeldahl Nitrogen - Soil	AC	2737267	2012/01/16	2012/01/16	CHANDRA NANDLAL

Maxxam ID ME9938 Dup **Collected** 2012/01/10
Sample ID EBA2-100112-4 **Shipped**
Matrix Soil **Received** 2012/01/11

Test Description	Instrumentation	Batch	Extracted	Analyzed	Analyst
Nitrate (NO3) and Nitrite (NO2) in Soil	LACH	2737377	N/A	2012/01/17	BAVANI KAILAYA

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Sampler Initials: RS

Test Summary

Maxxam ID ME9939 **Collected** 2012/01/10
Sample ID EBA2-100112-5 **Shipped**
Matrix Soil **Received** 2012/01/11

Test Description	Instrumentation	Batch	Extracted	Analyzed	Analyst
Total Metals Analysis by ICP	ICP	2737751	2012/01/16	2012/01/16	SUBAN KANAPATHIPPLLAI
Moisture	BAL	2736989	N/A	2012/01/14	LAKHVIR KALER
Nitrate (NO3) and Nitrite (NO2) in Soil	LACH	2737377	N/A	2012/01/17	BAVANI KAILAYA
pH CaCl2 EXTRACT		2737320	2012/01/16	2012/01/16	YOGESH PATEL
Total Kjeldahl Nitrogen - Soil	AC	2737267	2012/01/16	2012/01/16	CHANDRA NANDLAL

Maxxam ID ME9940 **Collected** 2012/01/10
Sample ID EBA2-100112-6 **Shipped**
Matrix Soil **Received** 2012/01/11

Test Description	Instrumentation	Batch	Extracted	Analyzed	Analyst
Total Metals Analysis by ICP	ICP	2737751	2012/01/16	2012/01/16	SUBAN KANAPATHIPPLLAI
Moisture	BAL	2736989	N/A	2012/01/14	LAKHVIR KALER
Nitrate (NO3) and Nitrite (NO2) in Soil	LACH	2737377	N/A	2012/01/17	BAVANI KAILAYA
pH CaCl2 EXTRACT		2737320	2012/01/16	2012/01/16	YOGESH PATEL
Total Kjeldahl Nitrogen - Soil	AC	2737267	2012/01/16	2012/01/16	CHANDRA NANDLAL

Maxxam ID ME9941 **Collected** 2012/01/10
Sample ID EBA2-100112-7 **Shipped**
Matrix Soil **Received** 2012/01/11

Test Description	Instrumentation	Batch	Extracted	Analyzed	Analyst
Total Metals Analysis by ICP	ICP	2737751	2012/01/16	2012/01/16	SUBAN KANAPATHIPPLLAI
Moisture	BAL	2736989	N/A	2012/01/14	LAKHVIR KALER
Nitrate (NO3) and Nitrite (NO2) in Soil	LACH	2737377	N/A	2012/01/17	BAVANI KAILAYA
pH CaCl2 EXTRACT		2737320	2012/01/16	2012/01/16	YOGESH PATEL
Total Kjeldahl Nitrogen - Soil	AC	2737267	2012/01/16	2012/01/16	CHANDRA NANDLAL

Maxxam ID ME9941 Dup **Collected** 2012/01/10
Sample ID EBA2-100112-7 **Shipped**
Matrix Soil **Received** 2012/01/11

Test Description	Instrumentation	Batch	Extracted	Analyzed	Analyst
pH CaCl2 EXTRACT		2737320	2012/01/16	2012/01/16	YOGESH PATEL

Maxxam ID ME9942 **Collected** 2012/01/10
Sample ID EBA2-100112-8 **Shipped**
Matrix Soil **Received** 2012/01/11

Test Description	Instrumentation	Batch	Extracted	Analyzed	Analyst
Total Metals Analysis by ICP	ICP	2737751	2012/01/16	2012/01/16	SUBAN KANAPATHIPPLLAI
Moisture	BAL	2736989	N/A	2012/01/14	LAKHVIR KALER
Nitrate (NO3) and Nitrite (NO2) in Soil	LACH	2737377	N/A	2012/01/17	BAVANI KAILAYA
pH CaCl2 EXTRACT		2737320	2012/01/16	2012/01/16	YOGESH PATEL
Total Kjeldahl Nitrogen - Soil	AC	2737267	2012/01/16	2012/01/16	CHANDRA NANDLAL

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Maxxam Job #: B204400
Report Date: 2012/01/18

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Test Summary

Maxxam ID ME9943
Sample ID S-2436
Matrix Water

Collected 2012/01/10
Shipped
Received 2012/01/11

Test Description	Instrumentation	Batch	Extracted	Analyzed	Analyst
Conductivity	COND	2735481	N/A	2012/01/13	YOGESH PATEL
Total Metals Analysis by ICPMS	ICP/MS	2737322	N/A	2012/01/16	JOHN BOWMAN
Nitrate (NO3) and Nitrite (NO2) in Water	LACH	2735897	N/A	2012/01/13	BAVANI KAILAYA
pH	PH	2735482	N/A	2012/01/13	YOGESH PATEL
Total Kjeldahl Nitrogen in Water	AC	2737318	2012/01/16	2012/01/16	CHANDRA NANDLAL

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GENERAL COMMENTS

Results relate only to the items tested.

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SiREM - Site Recovery & Management
Attention: Ximena Druar
Client Project #: EBA #2
P.O. #:
Site Location:

Quality Assurance Report

Maxxam Job Number: MB204400

QA/QC Batch Num	Init	QC Type	Parameter	Date Analyzed yyyy/mm/dd	Value	Recovery	Units	QC Limits
2735481	YPA	QC Standard	Conductivity	2012/01/13		101	%	85 - 115
		Method Blank	Conductivity	2012/01/13	0.4 J, MDL=0.2		umho/cm	
		RPD	Conductivity	2012/01/13	0.06		%	25
2735897	BAV	Matrix Spike	Nitrite (N)	2012/01/13		104	%	80 - 120
			Nitrate (N)	2012/01/13		103	%	80 - 120
		Spiked Blank	Nitrite (N)	2012/01/13		106	%	85 - 115
			Nitrate (N)	2012/01/13		98	%	85 - 115
		Method Blank	Nitrite (N)	2012/01/13	0.002 U, MDL=0.002		mg/L	
			Nitrate (N)	2012/01/13	0.02 U, MDL=0.02		mg/L	
		RPD	Nitrite (N)	2012/01/13	NC		%	25
			Nitrate (N)	2012/01/13	NC		%	25
2736989	LKA	RPD	Moisture	2012/01/14	3.0		%	20
2737017	LKA	RPD	Moisture	2012/01/14	2.2		%	20
2737267	C_N	Matrix Spike	Total Kjeldahl Nitrogen	2012/01/16		105	%	75 - 125
		QC Standard	Total Kjeldahl Nitrogen	2012/01/16		90	%	75 - 125
		Method Blank	Total Kjeldahl Nitrogen	2012/01/16	3 U, MDL=3		ug/g	
		RPD	Total Kjeldahl Nitrogen	2012/01/16	10.1		%	40
2737303	ZZ	Matrix Spike	o-Terphenyl	2012/01/16		86	%	50 - 130
			F2 (C10-C16 Hydrocarbons)	2012/01/16		94	%	50 - 130
			F3 (C16-C34 Hydrocarbons)	2012/01/16		99	%	50 - 130
			F4 (C34-C50 Hydrocarbons)	2012/01/16		94	%	50 - 130
		Spiked Blank	o-Terphenyl	2012/01/16		88	%	50 - 130
			F2 (C10-C16 Hydrocarbons)	2012/01/16		96	%	70 - 130
			F3 (C16-C34 Hydrocarbons)	2012/01/16		100	%	70 - 130
			F4 (C34-C50 Hydrocarbons)	2012/01/16		96	%	70 - 130
		Method Blank	o-Terphenyl	2012/01/16		92	%	50 - 130
			F2 (C10-C16 Hydrocarbons)	2012/01/16	2.0 U, MDL=2.0		ug/g	
			F3 (C16-C34 Hydrocarbons)	2012/01/16	2.0 U, MDL=2.0		ug/g	
			F4 (C34-C50 Hydrocarbons)	2012/01/16	2.0 U, MDL=2.0		ug/g	
		RPD	F2 (C10-C16 Hydrocarbons)	2012/01/16	NC		%	30
			F3 (C16-C34 Hydrocarbons)	2012/01/16	NC		%	30
			F4 (C34-C50 Hydrocarbons)	2012/01/16	NC		%	30
2737318	C_N	Matrix Spike	Total Kjeldahl Nitrogen (TKN)	2012/01/16		NC	%	80 - 120
		QC Standard	Total Kjeldahl Nitrogen (TKN)	2012/01/16		88	%	85 - 115
		Spiked Blank	Total Kjeldahl Nitrogen (TKN)	2012/01/16		94	%	85 - 115
		Method Blank	Total Kjeldahl Nitrogen (TKN)	2012/01/16	0.05 J, MDL=0.02		mg/L	
		RPD	Total Kjeldahl Nitrogen (TKN)	2012/01/16	4.7		%	20
2737322	JBW	Matrix Spike	Total Aluminum (Al)	2012/01/16		109	%	80 - 120
			Total Antimony (Sb)	2012/01/16		111	%	80 - 120
			Total Arsenic (As)	2012/01/16		103	%	80 - 120
			Total Barium (Ba)	2012/01/16		102	%	80 - 120
			Total Beryllium (Be)	2012/01/16		105	%	80 - 120
			Total Bismuth (Bi)	2012/01/16		103	%	80 - 120
			Total Boron (B)	2012/01/16		111	%	80 - 120
			Total Cadmium (Cd)	2012/01/16		106	%	80 - 120
			Total Calcium (Ca)	2012/01/16		NC	%	80 - 120
			Total Chromium (Cr)	2012/01/16		103	%	80 - 120
			Total Cobalt (Co)	2012/01/16		104	%	80 - 120
			Total Copper (Cu)	2012/01/16		100	%	80 - 120
			Total Iron (Fe)	2012/01/16		105	%	80 - 120
			Total Lead (Pb)	2012/01/16		101	%	80 - 120
			Total Lithium (Li)	2012/01/16		107	%	80 - 120
			Total Magnesium (Mg)	2012/01/16		109	%	80 - 120
			Total Manganese (Mn)	2012/01/16		105	%	80 - 120
			Total Molybdenum (Mo)	2012/01/16		108	%	80 - 120

SiREM - Site Recovery & Management
Attention: Ximena Druar
Client Project #: EBA #2
P.O. #:
Site Location:

Quality Assurance Report (Continued)

Maxxam Job Number: MB204400

QA/QC Batch Num	Init	QC Type	Parameter	Date Analyzed yyyy/mm/dd	Value	Recovery	Units	QC Limits
2737322	JBW	Matrix Spike	Total Nickel (Ni)	2012/01/16		100	%	80 - 120
			Total Phosphorus (P)	2012/01/16		112	%	80 - 120
			Total Potassium (K)	2012/01/16		106	%	80 - 120
			Total Silicon (Si)	2012/01/16		105	%	80 - 120
			Total Selenium (Se)	2012/01/16		105	%	80 - 120
			Total Silver (Ag)	2012/01/16		101	%	80 - 120
			Total Sodium (Na)	2012/01/16		112	%	80 - 120
			Total Strontium (Sr)	2012/01/16		107	%	80 - 120
			Total Tellurium (Te)	2012/01/16		104	%	80 - 120
			Total Thallium (Tl)	2012/01/16		101	%	80 - 120
			Total Tin (Sn)	2012/01/16		110	%	80 - 120
			Total Titanium (Ti)	2012/01/16		104	%	80 - 120
			Total Tungsten (W)	2012/01/16		104	%	80 - 120
			Total Uranium (U)	2012/01/16		101	%	80 - 120
			Total Vanadium (V)	2012/01/16		104	%	80 - 120
			Total Zinc (Zn)	2012/01/16		104	%	80 - 120
			Total Zirconium (Zr)	2012/01/16		112	%	80 - 120
			Total Cesium (Cs)	2012/01/16		98	%	80 - 120
			Total Rubidium (Rb)	2012/01/16		103	%	80 - 120
		Spiked Blank	Total Aluminum (Al)	2012/01/16		114	%	80 - 120
			Total Antimony (Sb)	2012/01/16		113	%	80 - 120
			Total Arsenic (As)	2012/01/16		106	%	80 - 120
			Total Barium (Ba)	2012/01/16		105	%	80 - 120
			Total Beryllium (Be)	2012/01/16		107	%	80 - 120
			Total Bismuth (Bi)	2012/01/16		105	%	80 - 120
			Total Boron (B)	2012/01/16		112	%	80 - 120
			Total Cadmium (Cd)	2012/01/16		109	%	80 - 120
			Total Calcium (Ca)	2012/01/16		110	%	80 - 120
			Total Chromium (Cr)	2012/01/16		108	%	80 - 120
			Total Cobalt (Co)	2012/01/16		108	%	80 - 120
			Total Copper (Cu)	2012/01/16		104	%	80 - 120
			Total Iron (Fe)	2012/01/16		110	%	80 - 120
			Total Lead (Pb)	2012/01/16		105	%	80 - 120
			Total Lithium (Li)	2012/01/16		108	%	80 - 120
			Total Magnesium (Mg)	2012/01/16		114	%	80 - 120
			Total Manganese (Mn)	2012/01/16		109	%	80 - 120
			Total Molybdenum (Mo)	2012/01/16		110	%	80 - 120
			Total Nickel (Ni)	2012/01/16		104	%	80 - 120
			Total Phosphorus (P)	2012/01/16		113	%	80 - 120
			Total Potassium (K)	2012/01/16		111	%	80 - 120
			Total Silicon (Si)	2012/01/16		110	%	80 - 120
			Total Selenium (Se)	2012/01/16		112	%	80 - 120
			Total Silver (Ag)	2012/01/16		105	%	80 - 120
			Total Sodium (Na)	2012/01/16		117	%	80 - 120
			Total Strontium (Sr)	2012/01/16		111	%	80 - 120
			Total Tellurium (Te)	2012/01/16		106	%	80 - 120
			Total Thallium (Tl)	2012/01/16		104	%	80 - 120
			Total Tin (Sn)	2012/01/16		111	%	80 - 120
			Total Titanium (Ti)	2012/01/16		111	%	80 - 120
			Total Tungsten (W)	2012/01/16		107	%	80 - 120
			Total Uranium (U)	2012/01/16		105	%	80 - 120
			Total Vanadium (V)	2012/01/16		108	%	80 - 120
			Total Zinc (Zn)	2012/01/16		108	%	80 - 120
			Total Zirconium (Zr)	2012/01/16		114	%	80 - 120
			Total Cesium (Cs)	2012/01/16		100	%	80 - 120

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Attention: Ximena Druar
Client Project #: EBA #2
P.O. #:
Site Location:

Quality Assurance Report (Continued)

Maxxam Job Number: MB204400

QA/QC Batch Num	Init	QC Type	Parameter	Date Analyzed yyyy/mm/dd	Value	Recovery	Units	QC Limits
2737322	JBW	Spiked Blank	Total Rubidium (Rb)	2012/01/16		106	%	80 - 120
		Method Blank	Total Aluminum (Al)	2012/01/16	9.3, MDL=5.0		ug/L	
			Total Antimony (Sb)	2012/01/16	0.50 U, MDL=0.50		ug/L	
			Total Arsenic (As)	2012/01/16	1.0 U, MDL=1.0		ug/L	
			Total Barium (Ba)	2012/01/16	2.0 U, MDL=2.0		ug/L	
			Total Beryllium (Be)	2012/01/16	0.50 U, MDL=0.50		ug/L	
			Total Bismuth (Bi)	2012/01/16	1.0 U, MDL=1.0		ug/L	
			Total Boron (B)	2012/01/16	10 U, MDL=10		ug/L	
			Total Cadmium (Cd)	2012/01/16	0.10 U, MDL=0.10		ug/L	
			Total Calcium (Ca)	2012/01/16	200 U, MDL=200		ug/L	
			Total Chromium (Cr)	2012/01/16	5.0 U, MDL=5.0		ug/L	
			Total Cobalt (Co)	2012/01/16	0.50 U, MDL=0.50		ug/L	
			Total Copper (Cu)	2012/01/16	1.0 U, MDL=1.0		ug/L	
			Total Iron (Fe)	2012/01/16	50 U, MDL=50		ug/L	
			Total Lead (Pb)	2012/01/16	0.50 U, MDL=0.50		ug/L	
			Total Lithium (Li)	2012/01/16	5.0 U, MDL=5.0		ug/L	
			Total Magnesium (Mg)	2012/01/16	50 U, MDL=50		ug/L	
			Total Manganese (Mn)	2012/01/16	2.0 U, MDL=2.0		ug/L	
			Total Molybdenum (Mo)	2012/01/16	0.50 U, MDL=0.50		ug/L	
			Total Nickel (Ni)	2012/01/16	1.0 U, MDL=1.0		ug/L	
			Total Phosphorus (P)	2012/01/16	50 U, MDL=50		ug/L	
			Total Potassium (K)	2012/01/16	200 U, MDL=200		ug/L	
			Total Silicon (Si)	2012/01/16	50 U, MDL=50		ug/L	
			Total Selenium (Se)	2012/01/16	2.0 U, MDL=2.0		ug/L	
			Total Silver (Ag)	2012/01/16	0.10 U, MDL=0.10		ug/L	
			Total Sodium (Na)	2012/01/16	100 U, MDL=100		ug/L	
			Total Strontium (Sr)	2012/01/16	1.0 U, MDL=1.0		ug/L	
			Total Tellurium (Te)	2012/01/16	1.0 U, MDL=1.0		ug/L	
			Total Thallium (Tl)	2012/01/16	0.050 U, MDL=0.050		ug/L	
			Total Tin (Sn)	2012/01/16	1.0 U, MDL=1.0		ug/L	
			Total Titanium (Ti)	2012/01/16	5.0 U, MDL=5.0		ug/L	
			Total Tungsten (W)	2012/01/16	1.0 U, MDL=1.0		ug/L	
			Total Uranium (U)	2012/01/16	0.10 U, MDL=0.10		ug/L	
			Total Vanadium (V)	2012/01/16	0.50 U, MDL=0.50		ug/L	
			Total Zinc (Zn)	2012/01/16	5.2, MDL=5.0		ug/L	
			Total Zirconium (Zr)	2012/01/16	1.0 U, MDL=1.0		ug/L	
			Total Cesium (Cs)	2012/01/16	0.040 U, MDL=0.040		ug/L	
			Total Rubidium (Rb)	2012/01/16	0.040 U, MDL=0.040		ug/L	
		RPD	Total Aluminum (Al)	2012/01/16	2.7		%	20
			Total Antimony (Sb)	2012/01/16	NC		%	20
			Total Arsenic (As)	2012/01/16	NC		%	20
			Total Barium (Ba)	2012/01/16	NC		%	20
			Total Beryllium (Be)	2012/01/16	NC		%	20
			Total Bismuth (Bi)	2012/01/16	NC		%	20
			Total Boron (B)	2012/01/16	NC		%	20
			Total Cadmium (Cd)	2012/01/16	NC		%	20
			Total Calcium (Ca)	2012/01/16	3.5		%	20
			Total Chromium (Cr)	2012/01/16	NC		%	20
			Total Cobalt (Co)	2012/01/16	NC		%	20
			Total Copper (Cu)	2012/01/16	NC		%	20
			Total Iron (Fe)	2012/01/16	NC		%	20
			Total Lead (Pb)	2012/01/16	NC		%	20
			Total Lithium (Li)	2012/01/16	NC		%	20
			Total Magnesium (Mg)	2012/01/16	2.5		%	20
			Total Manganese (Mn)	2012/01/16	1.6		%	20

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SiREM - Site Recovery & Management
Attention: Ximena Druar
Client Project #: EBA #2
P.O. #:
Site Location:

Quality Assurance Report (Continued)

Maxxam Job Number: MB204400

QA/QC Batch Num	Init	QC Type	Parameter	Date Analyzed yyyy/mm/dd	Value	Recovery	Units	QC Limits
2737322	JBW	RPD	Total Molybdenum (Mo)	2012/01/16	NC		%	20
			Total Nickel (Ni)	2012/01/16	NC		%	20
			Total Potassium (K)	2012/01/16	5.5		%	20
			Total Silicon (Si)	2012/01/16	3.9		%	20
			Total Selenium (Se)	2012/01/16	NC		%	20
			Total Silver (Ag)	2012/01/16	NC		%	20
			Total Sodium (Na)	2012/01/16	3.2		%	20
			Total Strontium (Sr)	2012/01/16	4.4		%	20
			Total Tellurium (Te)	2012/01/16	NC		%	20
			Total Thallium (Tl)	2012/01/16	NC		%	20
			Total Tin (Sn)	2012/01/16	NC		%	20
			Total Titanium (Ti)	2012/01/16	NC		%	20
			Total Tungsten (W)	2012/01/16	NC		%	20
			Total Uranium (U)	2012/01/16	NC		%	20
			Total Vanadium (V)	2012/01/16	NC		%	20
			Total Zinc (Zn)	2012/01/16	4.1		%	20
			Total Zirconium (Zr)	2012/01/16	NC		%	20
2737377	BAV	Matrix Spike [ME9938-01]	Nitrite (N)	2012/01/17		102	%	75 - 125
			Nitrate (N)	2012/01/17		107	%	80 - 120
		Spiked Blank	Nitrite (N)	2012/01/17		98	%	75 - 125
			Nitrate (N)	2012/01/17		104	%	85 - 115
		Method Blank	Nitrite (N)	2012/01/17	0.1 U, MDL=0.1		ug/g	
			Nitrate (N)	2012/01/17	0.4 U, MDL=0.4		ug/g	
			Nitrate + Nitrite	2012/01/17	0.6 U, MDL=0.6		ug/g	
		RPD [ME9938-01]	Nitrite (N)	2012/01/17	NC		%	25
			Nitrate (N)	2012/01/17	NC		%	25
			Nitrate + Nitrite	2012/01/17	NC		%	25
2737751	SUK	Matrix Spike	Acid Extractable Phosphorus (P)	2012/01/16		NC	%	75 - 125
		QC Standard	Acid Extractable Phosphorus (P)	2012/01/16		101	%	75 - 125
		Method Blank	Acid Extractable Phosphorus (P)	2012/01/16	<20		ug/g	

Duplicate: Paired analysis of a separate portion of the same sample. Used to evaluate the variance in the measurement.
Matrix Spike: A sample to which a known amount of the analyte of interest has been added. Used to evaluate sample matrix interference.
QC Standard: A blank matrix to which a known amount of the analyte has been added. Used to evaluate analyte recovery.
Spiked Blank: A blank matrix to which a known amount of the analyte has been added. Used to evaluate analyte recovery.
Method Blank: A blank matrix containing all reagents used in the analytical procedure. Used to identify laboratory contamination.
Surrogate: A pure or isotopically labeled compound whose behavior mirrors the analytes of interest. Used to evaluate extraction efficiency.
NC (Matrix Spike): The recovery in the matrix spike was not calculated. The relative difference between the concentration in the parent sample and the spiked amount was not sufficiently significant to permit a reliable recovery calculation.
NC (RPD): The RPD was not calculated. The level of analyte detected in the parent sample and its duplicate was not sufficiently significant to permit a reliable calculation.

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Validation Signature Page

Maxxam Job #: B204400

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

CRISTINA CARRIERE, Scientific Services

EWA PRANJIC, M.Sc., C.Chem, Scientific Specialist

MEDHAT RISKALLAH, Manager, Hydrocarbon Department

==========

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Your Project #: EBA
Your C.O.C. #: na

Attention: Ximena Druar
SiREM - Site Recovery & Management
130 Research Lane
Suite 2
Guelph, ON
CANADA N1G 5G3

Report Date: 2012/01/31

CERTIFICATE OF ANALYSIS

MAXXAM JOB #: B211501
Received: 2012/01/25, 09:30

Sample Matrix: Soil
Samples Received: 4

Analyses	Quantity	Date Extracted	Date Analyzed	Laboratory Method	Method Reference
Petroleum Hydrocarbons F2-F4 in Soil	4	2012/01/30	2012/01/30	CAM SOP-00316	CCME CWS
Moisture	4	N/A	2012/01/28	CAM SOP-00445	R.Carter,1993

Remarks:

Maxxam Analytics has performed all analytical testing herein in accordance with ISO 17025 and the Protocol for Analytical Methods Used in the Assessment of Properties under Part XV.1 of the Environmental Protection Act. All methodologies comply with this document and are validated for use in the laboratory. The methods and techniques employed in this analysis conform to the performance criteria (detection limits, accuracy and precision) as outlined in the Protocol for Analytical Methods Used in the Assessment of Properties under Part XV.1 of the Environmental Protection Act. Reporting results to two significant figures at the RDL is to permit statistical evaluation and is not intended to be an indication of analytical precision.

The CWS PHC methods employed by Maxxam conform to all prescribed elements of the reference method and performance based elements have been validated. All modifications have been validated and proven equivalent following the 'Alberta Environment Draft Addenda to the CWS-PHC, Appendix 6, Validation of Alternate Methods'. Documentation is available upon request. Maxxam has made the following improvements to the CWS-PHC reference benchmark method: (i) Headspace for F1; and, (ii) Mechanical extraction for F2-F4. Note: F4G cannot be added to the C6 to C50 hydrocarbons. The extraction date for samples field preserved with methanol for F1 and Volatile Organic Compounds is considered to be the date sampled.

Maxxam Analytics is accredited by SCC (Lab ID 97) for all specific parameters as required by Ontario Regulation 153/04. Maxxam Analytics is limited in liability to the actual cost of analysis unless otherwise agreed in writing. There is no other warranty expressed or implied. Samples will be retained at Maxxam Analytics for three weeks from receipt of data or as per contract.

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

../2

Your Project #: EBA
Your C.O.C. #: na

Attention: Ximena Druar
SiREM - Site Recovery & Management
130 Research Lane
Suite 2
Guelph, ON
CANADA N1G 5G3

Report Date: 2012/01/31

CERTIFICATE OF ANALYSIS

Encryption Key

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

JOLANTA GORALCZYK, Project Manager
Email: JGoralczyk@maxxam.ca
Phone# (905) 817-5700

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Total cover pages: 2

Maxxam Job #: B211501
Report Date: 2012/01/31

SiREM - Site Recovery & Management
Client Project #: EBA

Sampler Initials: RS

RESULTS OF ANALYSES OF SOIL

Maxxam ID		MI5238	MI5238	MI5239	MI5240	MI5241		
Sampling Date		2012/01/24 11:30	2012/01/24 11:30	2012/01/24 11:30	2012/01/24 11:30	2012/01/24 11:30		
COC Number		na	na	na	na	na		
	Units	**EBA-240112-5A**	**EBA-240112-5A Lab-Dup**	**EBA-240112-6A**	**EBA-240112-7A**	**EBA-240112-8A**	**RDL**	**QC Batch**
Inorganics								
Moisture	%	12	12	11	10	1.2	1.0	2749469

RDL = Reportable Detection Limit
QC Batch = Quality Control Batch

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Maxxam Job #: B211501
Report Date: 2012/01/31

SiREM - Site Recovery & Management
Client Project #: EBA

Sampler Initials: RS

PETROLEUM HYDROCARBONS (CCME)

Maxxam ID		MI5238	MI5239	MI5240	MI5241		
Sampling Date		2012/01/24 11:30	2012/01/24 11:30	2012/01/24 11:30	2012/01/24 11:30		
COC Number		na	na	na	na		
	Units	**EBA-240112-5A**	**EBA-240112-6A**	**EBA-240112-7A**	**EBA-240112-8A**	**RDL**	**QC Batch**
F2-F4 Hydrocarbons							
F2 (C10-C16 Hydrocarbons)	ug/g	560	560	570	480	10	2749849
F3 (C16-C34 Hydrocarbons)	ug/g	290	280	320	380	10	2749849
F4 (C34-C50 Hydrocarbons)	ug/g	2.0 U	2.0 U	2.0 U	2.0 U	10	2749849
Reached Baseline at C50	ug/g	Yes	Yes	Yes	Yes		2749849
Surrogate Recovery (%)							
o-Terphenyl	%	88	94	89	95		2749849

RDL = Reportable Detection Limit
QC Batch = Quality Control Batch

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Maxxam Job #: B211501
Report Date: 2012/01/31

SiREM - Site Recovery & Management
Client Project #: EBA

Sampler Initials: RS

Test Summary

Maxxam ID MI5238 **Collected** 2012/01/24
Sample ID EBA-240112-5A **Shipped**
Matrix Soil **Received** 2012/01/25

Test Description	Instrumentation	Batch	Extracted	Analyzed	Analyst
Petroleum Hydrocarbons F2-F4 in Soil	GC/FID	2749849	2012/01/30	2012/01/30	ZHIYUE (FRANK) ZHU
Moisture	BAL	2749469	N/A	2012/01/28	MIN YANG

Maxxam ID MI5238 Dup **Collected** 2012/01/24
Sample ID EBA-240112-5A **Shipped**
Matrix Soil **Received** 2012/01/25

Test Description	Instrumentation	Batch	Extracted	Analyzed	Analyst
Moisture	BAL	2749469	N/A	2012/01/28	MIN YANG

Maxxam ID MI5239 **Collected** 2012/01/24
Sample ID EBA-240112-6A **Shipped**
Matrix Soil **Received** 2012/01/25

Test Description	Instrumentation	Batch	Extracted	Analyzed	Analyst
Petroleum Hydrocarbons F2-F4 in Soil	GC/FID	2749849	2012/01/30	2012/01/30	ZHIYUE (FRANK) ZHU
Moisture	BAL	2749469	N/A	2012/01/28	MIN YANG

Maxxam ID MI5240 **Collected** 2012/01/24
Sample ID EBA-240112-7A **Shipped**
Matrix Soil **Received** 2012/01/25

Test Description	Instrumentation	Batch	Extracted	Analyzed	Analyst
Petroleum Hydrocarbons F2-F4 in Soil	GC/FID	2749849	2012/01/30	2012/01/30	ZHIYUE (FRANK) ZHU
Moisture	BAL	2749469	N/A	2012/01/28	MIN YANG

Maxxam ID MI5241 **Collected** 2012/01/24
Sample ID EBA-240112-8A **Shipped**
Matrix Soil **Received** 2012/01/25

Test Description	Instrumentation	Batch	Extracted	Analyzed	Analyst
Petroleum Hydrocarbons F2-F4 in Soil	GC/FID	2749849	2012/01/30	2012/01/30	ZHIYUE (FRANK) ZHU
Moisture	BAL	2749469	N/A	2012/01/28	MIN YANG

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Maxxam Job #: B211501
Report Date: 2012/01/31

SiREM - Site Recovery & Management
Client Project #: EBA

Sampler Initials: RS

GENERAL COMMENTS

Results relate only to the items tested.

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

SiREM - Site Recovery & Management
Attention: Ximena Druar
Client Project #: EBA
P.O. #:
Site Location:

Quality Assurance Report

Maxxam Job Number: MB211501

QA/QC Batch Num	Init	QC Type	Parameter	Date Analyzed yyyy/mm/dd	Value	Recovery	Units	QC Limits
2749469	LKA	RPD [MI5238-01]	Moisture	2012/01/28	0.8		%	20
2749849	ZZ	Matrix Spike	o-Terphenyl	2012/01/30		88	%	50 - 130
			F2 (C10-C16 Hydrocarbons)	2012/01/30		97	%	50 - 130
			F3 (C16-C34 Hydrocarbons)	2012/01/30		101	%	50 - 130
			F4 (C34-C50 Hydrocarbons)	2012/01/30		96	%	50 - 130
		Spiked Blank	o-Terphenyl	2012/01/30		85	%	50 - 130
			F2 (C10-C16 Hydrocarbons)	2012/01/30		96	%	70 - 130
			F3 (C16-C34 Hydrocarbons)	2012/01/30		102	%	70 - 130
			F4 (C34-C50 Hydrocarbons)	2012/01/30		96	%	70 - 130
		Method Blank	o-Terphenyl	2012/01/30		91	%	50 - 130
			F2 (C10-C16 Hydrocarbons)	2012/01/30	2.0 U, MDL=2.0		ug/g	
			F3 (C16-C34 Hydrocarbons)	2012/01/30	2.6 J, MDL=2.0		ug/g	
			F4 (C34-C50 Hydrocarbons)	2012/01/30	2.0 U, MDL=2.0		ug/g	
		RPD	F2 (C10-C16 Hydrocarbons)	2012/01/30	NC		%	30
			F3 (C16-C34 Hydrocarbons)	2012/01/30	NC		%	30
			F4 (C34-C50 Hydrocarbons)	2012/01/30	NC		%	30

Duplicate: Paired analysis of a separate portion of the same sample. Used to evaluate the variance in the measurement.
Matrix Spike: A sample to which a known amount of the analyte of interest has been added. Used to evaluate sample matrix interference.
Spiked Blank: A blank matrix to which a known amount of the analyte has been added. Used to evaluate analyte recovery.
Method Blank: A blank matrix containing all reagents used in the analytical procedure. Used to identify laboratory contamination.
Surrogate: A pure or isotopically labeled compound whose behavior mirrors the analytes of interest. Used to evaluate extraction efficiency.
NC (RPD): The RPD was not calculated. The level of analyte detected in the parent sample and its duplicate was not sufficiently significant to permit a reliable calculation.

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Validation Signature Page

Maxxam Job #: B211501

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

CRISTINA CARRIERE, Scientific Services

MEDHAT RISKALLAH, Manager, Hydrocarbon Department

==========

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Your Project #: EBA #2
Your C.O.C. #: 2157

Attention: Ximena Druar
SiREM - Site Recovery & Management
130 Research Lane
Suite 2
Guelph, ON
CANADA N1G 5G3

Report Date: 2012/02/22

CERTIFICATE OF ANALYSIS

MAXXAM JOB #: B220254
Received: 2012/02/10, 10:45

Sample Matrix: Soil
Samples Received: 8

Analyses	Quantity	Date Extracted	Date Analyzed	Laboratory Method	Method Reference
Petroleum Hydrocarbons F2-F4 in Soil	7	2012/02/15	2012/02/16	CAM SOP-00316	CCME CWS
Petroleum Hydrocarbons F2-F4 in Soil	1	2012/02/15	2012/02/17	CAM SOP-00316	CCME CWS
Total Metals Analysis by ICP	8	2012/02/16	2012/02/16	CAM SOP-00408	SW-846 6010C
Moisture	8	N/A	2012/02/16	CAM SOP-00445	R.Carter,1993
Nitrate (NO3) and Nitrite (NO2) in Soil	8	N/A	2012/02/16	CAM SOP-00440	SM 4500 NO3I/NO2B
pH CaCl2 EXTRACT	8	2012/02/17	2012/02/17	CAM SOP-00413	SM 4500H+ B

Remarks:

Maxxam Analytics has performed all analytical testing herein in accordance with ISO 17025 and the Protocol for Analytical Methods Used in the Assessment of Properties under Part XV.1 of the Environmental Protection Act. All methodologies comply with this document and are validated for use in the laboratory. The methods and techniques employed in this analysis conform to the performance criteria (detection limits, accuracy and precision) as outlined in the Protocol for Analytical Methods Used in the Assessment of Properties under Part XV.1 of the Environmental Protection Act. Reporting results to two significant figures at the RDL is to permit statistical evaluation and is not intended to be an indication of analytical precision.

The CWS PHC methods employed by Maxxam conform to all prescribed elements of the reference method and performance based elements have been validated. All modifications have been validated and proven equivalent following the 'Alberta Environment Draft Addenda to the CWS-PHC, Appendix 6, Validation of Alternate Methods'. Documentation is available upon request. Maxxam has made the following improvements to the CWS-PHC reference benchmark method: (i) Headspace for F1; and, (ii) Mechanical extraction for F2-F4. Note: F4G cannot be added to the C6 to C50 hydrocarbons. The extraction date for samples field preserved with methanol for F1 and Volatile Organic Compounds is considered to be the date sampled.

Maxxam Analytics is accredited by SCC (Lab ID 97) for all specific parameters as required by Ontario Regulation 153/04. Maxxam Analytics is limited in liability to the actual cost of analysis unless otherwise agreed in writing. There is no other warranty expressed or implied. Samples will be retained at Maxxam Analytics for three weeks from receipt of data or as per contract.

../2

Maxxam Analytics - Partial/Rush Results

Your Project #: EBA #2
Your C.O.C. #: 2157

Attention: Ximena Druar
SiREM - Site Recovery & Management
130 Research Lane
Suite 2
Guelph, ON
CANADA N1G 5G3

Report Date: 2012/02/22

CERTIFICATE OF ANALYSIS

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

Encryption Key

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

JOLANTA GORALCZYK, Project Manager
Email: JGoralczyk@maxxam.ca
Phone# (905) 817-5700

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Total cover pages: 2

Maxxam Analytics - Partial/Rush Results

Maxxam Job #: B220254
Report Date: 2012/02/22

SiREM - Site Recovery & Management
Client Project #: EBA #2

Maxxam Analytics - Partial/Rush Results

RESULTS OF ANALYSES OF SOIL

Maxxam ID		MM7924		MM7925	MM7926	MM7926		
Sampling Date		2012/02/07 02:45		2012/02/07 02:45	2012/02/07 02:45	2012/02/07 02:45		
COC Number		2157		2157	2157	2157		
	Units	**EBA2-070212-1B**	**QC Batch**	**EBA2-070212-2B**	**EBA2-070212-3B**	**EBA2-070212-3B Lab-Dup**	**RDL**	**QC Batch**
Inorganics								
Moisture	%	6.5	2766107	5.8	12		1.0	2766060
Available (CaCl2) pH	pH	7.68	2767255	7.63	7.70	7.75		2767255
Nitrite (N)	ug/g	0.1 U	2766049	0.2 J	0.2 J	0.2 J	0.5	2766049
Nitrate (N)	ug/g	0.4 U	2766049	0.4 U	0.4 U	0.4 U	2	2766049
Nitrate + Nitrite	ug/g	0.6 U	2766049	0.6 U	0.6 U	0.6 U	3	2766049

RDL = Reportable Detection Limit
QC Batch = Quality Control Batch

Maxxam ID		MM7927		MM7928	MM7929	MM7930		
Sampling Date		2012/02/07 02:45		2012/02/07 02:45	2012/02/07 02:45	2012/02/07 02:45		
COC Number		2157		2157	2157	2157		
	Units	**EBA2-070212-4B**	**QC Batch**	**EBA2-070212-5B**	**EBA2-070212-6B**	**EBA2-070212-7B**	**RDL**	**QC Batch**
Inorganics								
Moisture	%	12	2766060	10	2.4	4.8	1.0	2766107
Available (CaCl2) pH	pH	7.60	2767255	7.26	7.29	7.57		2767255
Nitrite (N)	ug/g	0.1 U	2766049	0.1 U	0.1 U	0.1 U	0.5	2766049
Nitrate (N)	ug/g	0.4 U	2766049	0.4 U	0.4 U	0.4 U	2	2766049
Nitrate + Nitrite	ug/g	0.6 U	2766049	0.6 U	0.6 U	0.6 U	3	2766049

RDL = Reportable Detection Limit
QC Batch = Quality Control Batch

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

Maxxam Job #: B220254
Report Date: 2012/02/22

SiREM - Site Recovery & Management
Client Project #: EBA #2

Maxxam Analytics - Partial/Rush Results

RESULTS OF ANALYSES OF SOIL

Maxxam ID		MM7931		
Sampling Date		2012/02/07 02:45		
COC Number		2157		
	Units	**EBA2-070212-8B**	**RDL**	**QC Batch**
Inorganics				
Moisture	%	13	1.0	2766107
Available (CaCl2) pH	pH	7.45		2767255
Nitrite (N)	ug/g	0.1 U	0.5	2766049
Nitrate (N)	ug/g	0.4 U	2	2766049
Nitrate + Nitrite	ug/g	0.6 U	3	2766049

RDL = Reportable Detection Limit
QC Batch = Quality Control Batch

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Maxxam Job #: B220254
Report Date: 2012/02/22

SiREM - Site Recovery & Management
Client Project #: EBA #2

Maxxam Analytics - Partial/Rush Results

ELEMENTS BY ATOMIC SPECTROSCOPY (SOIL)

Maxxam ID		MM7924	MM7925	MM7926	MM7927		
Sampling Date		2012/02/07 02:45	2012/02/07 02:45	2012/02/07 02:45	2012/02/07 02:45		
COC Number		2157	2157	2157	2157		
	Units	**EBA2-070212-1B**	**EBA2-070212-2B**	**EBA2-070212-3B**	**EBA2-070212-4B**	**RDL**	**QC Batch**
Metals							
Acid Extractable Phosphorus (P)	ug/g	260	320	180	220	20	2766162

RDL = Reportable Detection Limit
QC Batch = Quality Control Batch

Maxxam ID		MM7928	MM7929	MM7930	MM7931		
Sampling Date		2012/02/07 02:45	2012/02/07 02:45	2012/02/07 02:45	2012/02/07 02:45		
COC Number		2157	2157	2157	2157		
	Units	**EBA2-070212-5B**	**EBA2-070212-6B**	**EBA2-070212-7B**	**EBA2-070212-8B**	**RDL**	**QC Batch**
Metals							
Acid Extractable Phosphorus (P)	ug/g	910	770	150	320	20	2766162

RDL = Reportable Detection Limit
QC Batch = Quality Control Batch

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Client Project #: EBA #2

Maxxam Analytics - Partial/Rush Results

PETROLEUM HYDROCARBONS (CCME)

Maxxam ID		MM7924	MM7925	MM7926	MM7927		
Sampling Date		2012/02/07 02:45	2012/02/07 02:45	2012/02/07 02:45	2012/02/07 02:45		
COC Number		2157	2157	2157	2157		
	Units	**EBA2-070212-1B**	**EBA2-070212-2B**	**EBA2-070212-3B**	**EBA2-070212-4B**	**RDL**	**QC Batch**
F2-F4 Hydrocarbons							
F2 (C10-C16 Hydrocarbons)	ug/g	680	840	400	410	10	2765120
F3 (C16-C34 Hydrocarbons)	ug/g	370	430	310	360	10	2765120
F4 (C34-C50 Hydrocarbons)	ug/g	2.0 U	2.0 U	2.0 U	10	10	2765120
Reached Baseline at C50	ug/g	Yes	Yes	Yes	Yes		2765120
Surrogate Recovery (%)							
o-Terphenyl	%	117	113	111	113		2765120

RDL = Reportable Detection Limit
QC Batch = Quality Control Batch

Maxxam ID		MM7928	MM7929	MM7930	MM7931		
Sampling Date		2012/02/07 02:45	2012/02/07 02:45	2012/02/07 02:45	2012/02/07 02:45		
COC Number		2157	2157	2157	2157		
	Units	**EBA2-070212-5B**	**EBA2-070212-6B**	**EBA2-070212-7B**	**EBA2-070212-8B**	**RDL**	**QC Batch**
F2-F4 Hydrocarbons							
F2 (C10-C16 Hydrocarbons)	ug/g	300	280	460	340	10	2765120
F3 (C16-C34 Hydrocarbons)	ug/g	240	280	370	240	10	2765120
F4 (C34-C50 Hydrocarbons)	ug/g	2.0 U	2.0 U	2.0 U	2.0 U	10	2765120
Reached Baseline at C50	ug/g	Yes	Yes	Yes	Yes		2765120
Surrogate Recovery (%)							
o-Terphenyl	%	110	117	112	89		2765120

RDL = Reportable Detection Limit
QC Batch = Quality Control Batch

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Maxxam Job #: B220254
Report Date: 2012/02/22

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Maxxam Analytics - Partial/Rush Results

Test Summary

Maxxam ID MM7924 **Collected** 2012/02/07
Sample ID EBA2-070212-1B **Shipped**
Matrix Soil **Received** 2012/02/10

Test Description	Instrumentation	Batch	Extracted	Analyzed	Analyst
Petroleum Hydrocarbons F2-F4 in Soil	GC/FID	2765120	2012/02/15	2012/02/16	JOLANTA KAWZOWICZ
Total Metals Analysis by ICP	ICP	2766162	2012/02/16	2012/02/16	SUBAN KANAPATHIPPLLAI
Moisture	BAL	2766107	N/A	2012/02/16	LAKHVIR KALER
Nitrate (NO3) and Nitrite (NO2) in Soil	LACH	2766049	N/A	2012/02/16	BAVANI KAILAYA
pH CaCl2 EXTRACT		2767255	2012/02/17	2012/02/17	XUANHONG QIU

Maxxam ID MM7925 **Collected** 2012/02/07
Sample ID EBA2-070212-2B **Shipped**
Matrix Soil **Received** 2012/02/10

Test Description	Instrumentation	Batch	Extracted	Analyzed	Analyst
Petroleum Hydrocarbons F2-F4 in Soil	GC/FID	2765120	2012/02/15	2012/02/16	JOLANTA KAWZOWICZ
Total Metals Analysis by ICP	ICP	2766162	2012/02/16	2012/02/16	SUBAN KANAPATHIPPLLAI
Moisture	BAL	2766060	N/A	2012/02/16	ANITA CHEEMA
Nitrate (NO3) and Nitrite (NO2) in Soil	LACH	2766049	N/A	2012/02/16	BAVANI KAILAYA
pH CaCl2 EXTRACT		2767255	2012/02/17	2012/02/17	XUANHONG QIU

Maxxam ID MM7926 **Collected** 2012/02/07
Sample ID EBA2-070212-3B **Shipped**
Matrix Soil **Received** 2012/02/10

Test Description	Instrumentation	Batch	Extracted	Analyzed	Analyst
Petroleum Hydrocarbons F2-F4 in Soil	GC/FID	2765120	2012/02/15	2012/02/16	JOLANTA KAWZOWICZ
Total Metals Analysis by ICP	ICP	2766162	2012/02/16	2012/02/16	SUBAN KANAPATHIPPLLAI
Moisture	BAL	2766060	N/A	2012/02/16	ANITA CHEEMA
Nitrate (NO3) and Nitrite (NO2) in Soil	LACH	2766049	N/A	2012/02/16	BAVANI KAILAYA
pH CaCl2 EXTRACT		2767255	2012/02/17	2012/02/17	XUANHONG QIU

Maxxam ID MM7926 Dup **Collected** 2012/02/07
Sample ID EBA2-070212-3B **Shipped**
Matrix Soil **Received** 2012/02/10

Test Description	Instrumentation	Batch	Extracted	Analyzed	Analyst
Nitrate (NO3) and Nitrite (NO2) in Soil	LACH	2766049	N/A	2012/02/16	BAVANI KAILAYA
pH CaCl2 EXTRACT		2767255	2012/02/17	2012/02/17	XUANHONG QIU

Maxxam ID MM7927 **Collected** 2012/02/07
Sample ID EBA2-070212-4B **Shipped**
Matrix Soil **Received** 2012/02/10

Test Description	Instrumentation	Batch	Extracted	Analyzed	Analyst
Petroleum Hydrocarbons F2-F4 in Soil	GC/FID	2765120	2012/02/15	2012/02/16	JOLANTA KAWZOWICZ
Total Metals Analysis by ICP	ICP	2766162	2012/02/16	2012/02/16	SUBAN KANAPATHIPPLLAI
Moisture	BAL	2766060	N/A	2012/02/16	ANITA CHEEMA
Nitrate (NO3) and Nitrite (NO2) in Soil	LACH	2766049	N/A	2012/02/16	BAVANI KAILAYA
pH CaCl2 EXTRACT		2767255	2012/02/17	2012/02/17	XUANHONG QIU

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Maxxam Job #: B220254
Report Date: 2012/02/22

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Client Project #: EBA #2

Maxxam Analytics - Partial/Rush Results

Test Summary

Maxxam ID MM7928 **Collected** 2012/02/07
Sample ID EBA2-070212-5B **Shipped**
Matrix Soil **Received** 2012/02/10

Test Description	Instrumentation	Batch	Extracted	Analyzed	Analyst
Petroleum Hydrocarbons F2-F4 in Soil	GC/FID	2765120	2012/02/15	2012/02/16	JOLANTA KAWZOWICZ
Total Metals Analysis by ICP	ICP	2766162	2012/02/16	2012/02/16	SUBAN KANAPATHIPPLLAI
Moisture	BAL	2766107	N/A	2012/02/16	LAKHVIR KALER
Nitrate (NO3) and Nitrite (NO2) in Soil	LACH	2766049	N/A	2012/02/16	BAVANI KAILAYA
pH CaCl2 EXTRACT		2767255	2012/02/17	2012/02/17	XUANHONG QIU

Maxxam ID MM7929 **Collected** 2012/02/07
Sample ID EBA2-070212-6B **Shipped**
Matrix Soil **Received** 2012/02/10

Test Description	Instrumentation	Batch	Extracted	Analyzed	Analyst
Petroleum Hydrocarbons F2-F4 in Soil	GC/FID	2765120	2012/02/15	2012/02/16	JOLANTA KAWZOWICZ
Total Metals Analysis by ICP	ICP	2766162	2012/02/16	2012/02/16	SUBAN KANAPATHIPPLLAI
Moisture	BAL	2766107	N/A	2012/02/16	LAKHVIR KALER
Nitrate (NO3) and Nitrite (NO2) in Soil	LACH	2766049	N/A	2012/02/16	BAVANI KAILAYA
pH CaCl2 EXTRACT		2767255	2012/02/17	2012/02/17	XUANHONG QIU

Maxxam ID MM7930 **Collected** 2012/02/07
Sample ID EBA2-070212-7B **Shipped**
Matrix Soil **Received** 2012/02/10

Test Description	Instrumentation	Batch	Extracted	Analyzed	Analyst
Petroleum Hydrocarbons F2-F4 in Soil	GC/FID	2765120	2012/02/15	2012/02/16	JOLANTA KAWZOWICZ
Total Metals Analysis by ICP	ICP	2766162	2012/02/16	2012/02/16	SUBAN KANAPATHIPPLLAI
Moisture	BAL	2766107	N/A	2012/02/16	LAKHVIR KALER
Nitrate (NO3) and Nitrite (NO2) in Soil	LACH	2766049	N/A	2012/02/16	BAVANI KAILAYA
pH CaCl2 EXTRACT		2767255	2012/02/17	2012/02/17	XUANHONG QIU

Maxxam ID MM7931 **Collected** 2012/02/07
Sample ID EBA2-070212-8B **Shipped**
Matrix Soil **Received** 2012/02/10

Test Description	Instrumentation	Batch	Extracted	Analyzed	Analyst
Petroleum Hydrocarbons F2-F4 in Soil	GC/FID	2765120	2012/02/15	2012/02/17	JOLANTA KAWZOWICZ
Total Metals Analysis by ICP	ICP	2766162	2012/02/16	2012/02/16	SUBAN KANAPATHIPPLLAI
Moisture	BAL	2766107	N/A	2012/02/16	LAKHVIR KALER
Nitrate (NO3) and Nitrite (NO2) in Soil	LACH	2766049	N/A	2012/02/16	BAVANI KAILAYA
pH CaCl2 EXTRACT		2767255	2012/02/17	2012/02/17	XUANHONG QIU

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Maxxam Job #: B220254
Report Date: 2012/02/22

SiREM - Site Recovery & Management
Client Project #: EBA #2

Maxxam Analytics - Partial/Rush Results

GENERAL COMMENTS

Results relate only to the items tested.

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Attention: Ximena Druar
Client Project #: EBA #2
P.O. #:
Site Location:

Quality Assurance Report

Maxxam Job Number: MB220254

QA/QC Batch Num	Init	QC Type	Parameter	Date Analyzed yyyy/mm/dd	Value	Recovery	Units	QC Limits
2765120	JKA	Matrix Spike	o-Terphenyl	2012/02/16		105	%	50 - 130
			F2 (C10-C16 Hydrocarbons)	2012/02/16		101	%	50 - 130
			F3 (C16-C34 Hydrocarbons)	2012/02/16		104	%	50 - 130
			F4 (C34-C50 Hydrocarbons)	2012/02/16		99	%	50 - 130
		Spiked Blank	o-Terphenyl	2012/02/16		104	%	50 - 130
			F2 (C10-C16 Hydrocarbons)	2012/02/16		100	%	70 - 130
			F3 (C16-C34 Hydrocarbons)	2012/02/16		106	%	70 - 130
			F4 (C34-C50 Hydrocarbons)	2012/02/16		105	%	70 - 130
		Method Blank	o-Terphenyl	2012/02/16		111	%	50 - 130
			F2 (C10-C16 Hydrocarbons)	2012/02/16	2.0 U, MDL=2.0		ug/g	
			F3 (C16-C34 Hydrocarbons)	2012/02/16	2.0 U, MDL=2.0		ug/g	
			F4 (C34-C50 Hydrocarbons)	2012/02/16	2.0 U, MDL=2.0		ug/g	
		RPD	F2 (C10-C16 Hydrocarbons)	2012/02/16	NC		%	30
			F3 (C16-C34 Hydrocarbons)	2012/02/16	NC		%	30
			F4 (C34-C50 Hydrocarbons)	2012/02/16	NC		%	30
2766049	BAV	Matrix Spike						
		[MM7926-01]	Nitrite (N)	2012/02/16		102	%	75 - 125
			Nitrate (N)	2012/02/16		106	%	75 - 125
		Spiked Blank	Nitrite (N)	2012/02/16		99	%	75 - 125
			Nitrate (N)	2012/02/16		102	%	75 - 125
			Nitrate + Nitrite	2012/02/16		101	%	75 - 125
		Method Blank	Nitrite (N)	2012/02/16	0.1 U, MDL=0.1		ug/g	
			Nitrate (N)	2012/02/16	0.4 U, MDL=0.4		ug/g	
			Nitrate + Nitrite	2012/02/16	0.6 U, MDL=0.6		ug/g	
		RPD [MM7926-01]	Nitrite (N)	2012/02/16	NC		%	25
			Nitrate (N)	2012/02/16	NC		%	25
			Nitrate + Nitrite	2012/02/16	NC		%	25
2766060	PHM	RPD	Moisture	2012/02/16	5.5		%	20
2766107	PHM	RPD	Moisture	2012/02/16	8.2		%	20
2766162	SUK	Matrix Spike	Acid Extractable Phosphorus (P)	2012/02/16		99	%	75 - 125
		Spiked Blank	Acid Extractable Phosphorus (P)	2012/02/16		96	%	80 - 120
		Method Blank	Acid Extractable Phosphorus (P)	2012/02/16	<20		ug/g	

Duplicate: Paired analysis of a separate portion of the same sample. Used to evaluate the variance in the measurement.
Matrix Spike: A sample to which a known amount of the analyte of interest has been added. Used to evaluate sample matrix interference.
Spiked Blank: A blank matrix to which a known amount of the analyte has been added. Used to evaluate analyte recovery.
Method Blank: A blank matrix containing all reagents used in the analytical procedure. Used to identify laboratory contamination.
Surrogate: A pure or isotopically labeled compound whose behavior mirrors the analytes of interest. Used to evaluate extraction efficiency.
NC (RPD): The RPD was not calculated. The level of analyte detected in the parent sample and its duplicate was not sufficiently significant to permit a reliable calculation.

Maxxam Analytics - Partial/Rush Results

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Validation Signature Page

Maxxam Job #: B220254

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

CRISTINA CARRIERE, Scientific Services

MEDHAT RISKALLAH, Manager, Hydrocarbon Department

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Maxxam Analytics - Partial/Rush Results

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Your Project #: EBA #2
Your C.O.C. #: 2157

Attention: Ximena Druar
SiREM - Site Recovery & Management
130 Research Lane
Suite 2
Guelph, ON
CANADA N1G 5G3

Report Date: 2012/02/24

CERTIFICATE OF ANALYSIS

MAXXAM JOB #: B220254
Received: 2012/02/10, 10:45

Sample Matrix: Soil
Samples Received: 8

Analyses	Quantity	Date Extracted	Date Analyzed	Laboratory Method	Method Reference
Petroleum Hydrocarbons F2-F4 in Soil	7	2012/02/15	2012/02/16	CAM SOP-00316	CCME CWS
Petroleum Hydrocarbons F2-F4 in Soil	1	2012/02/15	2012/02/17	CAM SOP-00316	CCME CWS
Total Metals Analysis by ICP	8	2012/02/16	2012/02/16	CAM SOP-00408	SW-846 6010C
Moisture	8	N/A	2012/02/16	CAM SOP-00445	R.Carter,1993
Nitrate (NO3) and Nitrite (NO2) in Soil	8	N/A	2012/02/16	CAM SOP-00440	SM 4500 NO3I/NO2B
pH CaCl2 EXTRACT	8	2012/02/17	2012/02/17	CAM SOP-00413	SM 4500H+ B
Total Kjeldahl Nitrogen - Soil	8	2012/02/24	2012/02/24	CAM SOP-00454	EPA 351.2 Rev 2

Remarks:

Maxxam Analytics has performed all analytical testing herein in accordance with ISO 17025 and the Protocol for Analytical Methods Used in the Assessment of Properties under Part XV.1 of the Environmental Protection Act. All methodologies comply with this document and are validated for use in the laboratory. The methods and techniques employed in this analysis conform to the performance criteria (detection limits, accuracy and precision) as outlined in the Protocol for Analytical Methods Used in the Assessment of Properties under Part XV.1 of the Environmental Protection Act. Reporting results to two significant figures at the RDL is to permit statistical evaluation and is not intended to be an indication of analytical precision.

The CWS PHC methods employed by Maxxam conform to all prescribed elements of the reference method and performance based elements have been validated. All modifications have been validated and proven equivalent following the 'Alberta Environment Draft Addenda to the CWS-PHC, Appendix 6, Validation of Alternate Methods'. Documentation is available upon request. Maxxam has made the following improvements to the CWS-PHC reference benchmark method: (i) Headspace for F1; and, (ii) Mechanical extraction for F2-F4. Note: F4G cannot be added to the C6 to C50 hydrocarbons. The extraction date for samples field preserved with methanol for F1 and Volatile Organic Compounds is considered to be the date sampled.

Maxxam Analytics is accredited by SCC (Lab ID 97) for all specific parameters as required by Ontario Regulation 153/04. Maxxam Analytics is limited in liability to the actual cost of analysis unless otherwise agreed in writing. There is no other warranty expressed or implied. Samples will be retained at Maxxam Analytics for three weeks from receipt of data or as per contract.

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Your Project #: EBA #2
Your C.O.C. #: 2157

Attention: Ximena Druar
SiREM - Site Recovery & Management
130 Research Lane
Suite 2
Guelph, ON
CANADA N1G 5G3

Report Date: 2012/02/24

CERTIFICATE OF ANALYSIS

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

Encryption Key

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

JOLANTA GORALCZYK, Project Manager
Email: JGoralczyk@maxxam.ca
Phone# (905) 817-5700

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Total cover pages: 2

Maxxam Job #: B220254
Report Date: 2012/02/24

SiREM - Site Recovery & Management
Client Project #: EBA #2

RESULTS OF ANALYSES OF SOIL

Maxxam ID		MM7924	MM7924		MM7925	MM7926		
Sampling Date		2012/02/07 02:45	2012/02/07 02:45		2012/02/07 02:45	2012/02/07 02:45		
COC Number		2157	2157		2157	2157		
	Units	**EBA2-070212-1B**	**EBA2-070212-1B Lab-Dup**	**QC Batch**	**EBA2-070212-2B**	**EBA2-070212-3B**	**RDL**	**QC Batch**
Inorganics								
Moisture	%	6.5		2766107	5.8	12	1.0	2766060
Available (CaCl2) pH	pH	7.68		2767255	7.63	7.70		2767255
Total Kjeldahl Nitrogen	ug/g	242	242	2772583	281	292	10	2772583
Nitrite (N)	ug/g	0.1 U		2766049	0.2 J	0.2 J	0.5	2766049
Nitrate (N)	ug/g	0.4 U		2766049	0.4 U	0.4 U	2	2766049
Nitrate + Nitrite	ug/g	0.6 U		2766049	0.6 U	0.6 U	3	2766049

RDL = Reportable Detection Limit
QC Batch = Quality Control Batch

Maxxam ID		MM7926	MM7927		MM7928	MM7929		
Sampling Date		2012/02/07 02:45	2012/02/07 02:45		2012/02/07 02:45	2012/02/07 02:45		
COC Number		2157	2157		2157	2157		
	Units	**EBA2-070212-3B Lab-Dup**	**EBA2-070212-4B**	**QC Batch**	**EBA2-070212-5B**	**EBA2-070212-6B**	**RDL**	**QC Batch**
Inorganics								
Moisture	%		12	2766060	10	2.4	1.0	2766107
Available (CaCl2) pH	pH	7.75	7.60	2767255	7.26	7.29		2767255
Total Kjeldahl Nitrogen	ug/g		247	2772583	470	485	10	2772583
Nitrite (N)	ug/g	0.2 J	0.1 U	2766049	0.1 U	0.1 U	0.5	2766049
Nitrate (N)	ug/g	0.4 U	0.4 U	2766049	0.4 U	0.4 U	2	2766049
Nitrate + Nitrite	ug/g	0.6 U	0.6 U	2766049	0.6 U	0.6 U	3	2766049

RDL = Reportable Detection Limit
QC Batch = Quality Control Batch

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Maxxam Job #: B220254
Report Date: 2012/02/24

SiREM - Site Recovery & Management
Client Project #: EBA #2

RESULTS OF ANALYSES OF SOIL

Maxxam ID		MM7930	MM7931		
Sampling Date		2012/02/07 02:45	2012/02/07 02:45		
COC Number		2157	2157		
	Units	**EBA2-070212-7B**	**EBA2-070212-8B**	**RDL**	**QC Batch**
Inorganics					
Moisture	%	4.8	13	1.0	2766107
Available (CaCl2) pH	pH	7.57	7.45		2767255
Total Kjeldahl Nitrogen	ug/g	256	216	10	2772583
Nitrite (N)	ug/g	0.1 U	0.1 U	0.5	2766049
Nitrate (N)	ug/g	0.4 U	0.4 U	2	2766049
Nitrate + Nitrite	ug/g	0.6 U	0.6 U	3	2766049

RDL = Reportable Detection Limit
QC Batch = Quality Control Batch

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Maxxam Job #: B220254
Report Date: 2012/02/24

SiREM - Site Recovery & Management
Client Project #: EBA #2

ELEMENTS BY ATOMIC SPECTROSCOPY (SOIL)

Maxxam ID		MM7924	MM7925	MM7926	MM7927		
Sampling Date		2012/02/07 02:45	2012/02/07 02:45	2012/02/07 02:45	2012/02/07 02:45		
COC Number		2157	2157	2157	2157		
	Units	**EBA2-070212-1B**	**EBA2-070212-2B**	**EBA2-070212-3B**	**EBA2-070212-4B**	**RDL**	**QC Batch**
Metals							
Acid Extractable Phosphorus (P)	ug/g	260	320	180	220	20	2766162

RDL = Reportable Detection Limit
QC Batch = Quality Control Batch

Maxxam ID		MM7928	MM7929	MM7930	MM7931		
Sampling Date		2012/02/07 02:45	2012/02/07 02:45	2012/02/07 02:45	2012/02/07 02:45		
COC Number		2157	2157	2157	2157		
	Units	**EBA2-070212-5B**	**EBA2-070212-6B**	**EBA2-070212-7B**	**EBA2-070212-8B**	**RDL**	**QC Batch**
Metals							
Acid Extractable Phosphorus (P)	ug/g	910	770	150	320	20	2766162

RDL = Reportable Detection Limit
QC Batch = Quality Control Batch

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Maxxam Job #: B220254
Report Date: 2012/02/24

SiREM - Site Recovery & Management
Client Project #: EBA #2

PETROLEUM HYDROCARBONS (CCME)

Maxxam ID		MM7924	MM7925	MM7926	MM7927		
Sampling Date		2012/02/07 02:45	2012/02/07 02:45	2012/02/07 02:45	2012/02/07 02:45		
COC Number		2157	2157	2157	2157		
	Units	**EBA2-070212-1B**	**EBA2-070212-2B**	**EBA2-070212-3B**	**EBA2-070212-4B**	**RDL**	**QC Batch**
F2-F4 Hydrocarbons							
F2 (C10-C16 Hydrocarbons)	ug/g	680	840	400	410	10	2765120
F3 (C16-C34 Hydrocarbons)	ug/g	370	430	310	360	10	2765120
F4 (C34-C50 Hydrocarbons)	ug/g	2.0 U	2.0 U	2.0 U	10	10	2765120
Reached Baseline at C50	ug/g	Yes	Yes	Yes	Yes		2765120
Surrogate Recovery (%)							
o-Terphenyl	%	117	113	111	113		2765120

RDL = Reportable Detection Limit
QC Batch = Quality Control Batch

Maxxam ID		MM7928	MM7929	MM7930	MM7931		
Sampling Date		2012/02/07 02:45	2012/02/07 02:45	2012/02/07 02:45	2012/02/07 02:45		
COC Number		2157	2157	2157	2157		
	Units	**EBA2-070212-5B**	**EBA2-070212-6B**	**EBA2-070212-7B**	**EBA2-070212-8B**	**RDL**	**QC Batch**
F2-F4 Hydrocarbons							
F2 (C10-C16 Hydrocarbons)	ug/g	300	280	460	340	10	2765120
F3 (C16-C34 Hydrocarbons)	ug/g	240	280	370	240	10	2765120
F4 (C34-C50 Hydrocarbons)	ug/g	2.0 U	2.0 U	2.0 U	2.0 U	10	2765120
Reached Baseline at C50	ug/g	Yes	Yes	Yes	Yes		2765120
Surrogate Recovery (%)							
o-Terphenyl	%	110	117	112	89		2765120

RDL = Reportable Detection Limit
QC Batch = Quality Control Batch

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Maxxam Job #: B220254
Report Date: 2012/02/24

SiREM - Site Recovery & Management
Client Project #: EBA #2

Test Summary

Maxxam ID MM7924 **Collected** 2012/02/07
Sample ID EBA2-070212-1B **Shipped**
Matrix Soil **Received** 2012/02/10

Test Description	Instrumentation	Batch	Extracted	Analyzed	Analyst
Petroleum Hydrocarbons F2-F4 in Soil	GC/FID	2765120	2012/02/15	2012/02/16	JOLANTA KAWZOWICZ
Total Metals Analysis by ICP	ICP	2766162	2012/02/16	2012/02/16	SUBAN KANAPATHIPPLLAI
Moisture	BAL	2766107	N/A	2012/02/16	LAKHVIR KALER
Nitrate (NO3) and Nitrite (NO2) in Soil	LACH	2766049	N/A	2012/02/16	BAVANI KAILAYA
pH CaCl2 EXTRACT		2767255	2012/02/17	2012/02/17	XUANHONG QIU
Total Kjeldahl Nitrogen - Soil	AC	2772583	2012/02/24	2012/02/24	CHANDRA NANDLAL

Maxxam ID MM7924 Dup **Collected** 2012/02/07
Sample ID EBA2-070212-1B **Shipped**
Matrix Soil **Received** 2012/02/10

Test Description	Instrumentation	Batch	Extracted	Analyzed	Analyst
Total Kjeldahl Nitrogen - Soil	AC	2772583	2012/02/24	2012/02/24	CHANDRA NANDLAL

Maxxam ID MM7925 **Collected** 2012/02/07
Sample ID EBA2-070212-2B **Shipped**
Matrix Soil **Received** 2012/02/10

Test Description	Instrumentation	Batch	Extracted	Analyzed	Analyst
Petroleum Hydrocarbons F2-F4 in Soil	GC/FID	2765120	2012/02/15	2012/02/16	JOLANTA KAWZOWICZ
Total Metals Analysis by ICP	ICP	2766162	2012/02/16	2012/02/16	SUBAN KANAPATHIPPLLAI
Moisture	BAL	2766060	N/A	2012/02/16	ANITA CHEEMA
Nitrate (NO3) and Nitrite (NO2) in Soil	LACH	2766049	N/A	2012/02/16	BAVANI KAILAYA
pH CaCl2 EXTRACT		2767255	2012/02/17	2012/02/17	XUANHONG QIU
Total Kjeldahl Nitrogen - Soil	AC	2772583	2012/02/24	2012/02/24	CHANDRA NANDLAL

Maxxam ID MM7926 **Collected** 2012/02/07
Sample ID EBA2-070212-3B **Shipped**
Matrix Soil **Received** 2012/02/10

Test Description	Instrumentation	Batch	Extracted	Analyzed	Analyst
Petroleum Hydrocarbons F2-F4 in Soil	GC/FID	2765120	2012/02/15	2012/02/16	JOLANTA KAWZOWICZ
Total Metals Analysis by ICP	ICP	2766162	2012/02/16	2012/02/16	SUBAN KANAPATHIPPLLAI
Moisture	BAL	2766060	N/A	2012/02/16	ANITA CHEEMA
Nitrate (NO3) and Nitrite (NO2) in Soil	LACH	2766049	N/A	2012/02/16	BAVANI KAILAYA
pH CaCl2 EXTRACT		2767255	2012/02/17	2012/02/17	XUANHONG QIU
Total Kjeldahl Nitrogen - Soil	AC	2772583	2012/02/24	2012/02/24	CHANDRA NANDLAL

Maxxam ID MM7926 Dup **Collected** 2012/02/07
Sample ID EBA2-070212-3B **Shipped**
Matrix Soil **Received** 2012/02/10

Test Description	Instrumentation	Batch	Extracted	Analyzed	Analyst
Nitrate (NO3) and Nitrite (NO2) in Soil	LACH	2766049	N/A	2012/02/16	BAVANI KAILAYA
pH CaCl2 EXTRACT		2767255	2012/02/17	2012/02/17	XUANHONG QIU

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Maxxam Job #: B220254
Report Date: 2012/02/24

SiREM - Site Recovery & Management
Client Project #: EBA #2

Test Summary

Maxxam ID MM7927 **Collected** 2012/02/07
Sample ID EBA2-070212-4B **Shipped**
Matrix Soil **Received** 2012/02/10

Test Description	Instrumentation	Batch	Extracted	Analyzed	Analyst
Petroleum Hydrocarbons F2-F4 in Soil	GC/FID	2765120	2012/02/15	2012/02/16	JOLANTA KAWZOWICZ
Total Metals Analysis by ICP	ICP	2766162	2012/02/16	2012/02/16	SUBAN KANAPATHIPPLLAI
Moisture	BAL	2766060	N/A	2012/02/16	ANITA CHEEMA
Nitrate (NO3) and Nitrite (NO2) in Soil	LACH	2766049	N/A	2012/02/16	BAVANI KAILAYA
pH CaCl2 EXTRACT		2767255	2012/02/17	2012/02/17	XUANHONG QIU
Total Kjeldahl Nitrogen - Soil	AC	2772583	2012/02/24	2012/02/24	CHANDRA NANDLAL

Maxxam ID MM7928 **Collected** 2012/02/07
Sample ID EBA2-070212-5B **Shipped**
Matrix Soil **Received** 2012/02/10

Test Description	Instrumentation	Batch	Extracted	Analyzed	Analyst
Petroleum Hydrocarbons F2-F4 in Soil	GC/FID	2765120	2012/02/15	2012/02/16	JOLANTA KAWZOWICZ
Total Metals Analysis by ICP	ICP	2766162	2012/02/16	2012/02/16	SUBAN KANAPATHIPPLLAI
Moisture	BAL	2766107	N/A	2012/02/16	LAKHVIR KALER
Nitrate (NO3) and Nitrite (NO2) in Soil	LACH	2766049	N/A	2012/02/16	BAVANI KAILAYA
pH CaCl2 EXTRACT		2767255	2012/02/17	2012/02/17	XUANHONG QIU
Total Kjeldahl Nitrogen - Soil	AC	2772583	2012/02/24	2012/02/24	CHANDRA NANDLAL

Maxxam ID MM7929 **Collected** 2012/02/07
Sample ID EBA2-070212-6B **Shipped**
Matrix Soil **Received** 2012/02/10

Test Description	Instrumentation	Batch	Extracted	Analyzed	Analyst
Petroleum Hydrocarbons F2-F4 in Soil	GC/FID	2765120	2012/02/15	2012/02/16	JOLANTA KAWZOWICZ
Total Metals Analysis by ICP	ICP	2766162	2012/02/16	2012/02/16	SUBAN KANAPATHIPPLLAI
Moisture	BAL	2766107	N/A	2012/02/16	LAKHVIR KALER
Nitrate (NO3) and Nitrite (NO2) in Soil	LACH	2766049	N/A	2012/02/16	BAVANI KAILAYA
pH CaCl2 EXTRACT		2767255	2012/02/17	2012/02/17	XUANHONG QIU
Total Kjeldahl Nitrogen - Soil	AC	2772583	2012/02/24	2012/02/24	CHANDRA NANDLAL

Maxxam ID MM7930 **Collected** 2012/02/07
Sample ID EBA2-070212-7B **Shipped**
Matrix Soil **Received** 2012/02/10

Test Description	Instrumentation	Batch	Extracted	Analyzed	Analyst
Petroleum Hydrocarbons F2-F4 in Soil	GC/FID	2765120	2012/02/15	2012/02/16	JOLANTA KAWZOWICZ
Total Metals Analysis by ICP	ICP	2766162	2012/02/16	2012/02/16	SUBAN KANAPATHIPPLLAI
Moisture	BAL	2766107	N/A	2012/02/16	LAKHVIR KALER
Nitrate (NO3) and Nitrite (NO2) in Soil	LACH	2766049	N/A	2012/02/16	BAVANI KAILAYA
pH CaCl2 EXTRACT		2767255	2012/02/17	2012/02/17	XUANHONG QIU
Total Kjeldahl Nitrogen - Soil	AC	2772583	2012/02/24	2012/02/24	CHANDRA NANDLAL

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Maxxam Job #: B220254
Report Date: 2012/02/24

SiREM - Site Recovery & Management
Client Project #: EBA #2

Test Summary

Maxxam ID MM7931
Sample ID EBA2-070212-8B
Matrix Soil

Collected 2012/02/07
Shipped
Received 2012/02/10

Test Description	Instrumentation	Batch	Extracted	Analyzed	Analyst
Petroleum Hydrocarbons F2-F4 in Soil	GC/FID	2765120	2012/02/15	2012/02/17	JOLANTA KAWZOWICZ
Total Metals Analysis by ICP	ICP	2766162	2012/02/16	2012/02/16	SUBAN KANAPATHIPPLLAI
Moisture	BAL	2766107	N/A	2012/02/16	LAKHVIR KALER
Nitrate (NO3) and Nitrite (NO2) in Soil	LACH	2766049	N/A	2012/02/16	BAVANI KAILAYA
pH CaCl2 EXTRACT		2767255	2012/02/17	2012/02/17	XUANHONG QIU
Total Kjeldahl Nitrogen - Soil	AC	2772583	2012/02/24	2012/02/24	CHANDRA NANDLAL

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Maxxam Job #: B220254
Report Date: 2012/02/24

SiREM - Site Recovery & Management
Client Project #: EBA #2

GENERAL COMMENTS

Results relate only to the items tested.

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SiREM - Site Recovery & Management
Attention: Ximena Druar
Client Project #: EBA #2
P.O. #:
Site Location:

Quality Assurance Report

Maxxam Job Number: MB220254

QA/QC Batch Num	Init	QC Type	Parameter	Date Analyzed yyyy/mm/dd	Value	Recovery	Units	QC Limits
2765120	JKA	Matrix Spike	o-Terphenyl	2012/02/16		105	%	50 - 130
			F2 (C10-C16 Hydrocarbons)	2012/02/16		101	%	50 - 130
			F3 (C16-C34 Hydrocarbons)	2012/02/16		104	%	50 - 130
			F4 (C34-C50 Hydrocarbons)	2012/02/16		99	%	50 - 130
		Spiked Blank	o-Terphenyl	2012/02/16		104	%	50 - 130
			F2 (C10-C16 Hydrocarbons)	2012/02/16		100	%	70 - 130
			F3 (C16-C34 Hydrocarbons)	2012/02/16		106	%	70 - 130
			F4 (C34-C50 Hydrocarbons)	2012/02/16		105	%	70 - 130
		Method Blank	o-Terphenyl	2012/02/16		111	%	50 - 130
			F2 (C10-C16 Hydrocarbons)	2012/02/16	2.0 U, MDL=2.0		ug/g	
			F3 (C16-C34 Hydrocarbons)	2012/02/16	2.0 U, MDL=2.0		ug/g	
			F4 (C34-C50 Hydrocarbons)	2012/02/16	2.0 U, MDL=2.0		ug/g	
		RPD	F2 (C10-C16 Hydrocarbons)	2012/02/16	NC		%	30
			F3 (C16-C34 Hydrocarbons)	2012/02/16	NC		%	30
			F4 (C34-C50 Hydrocarbons)	2012/02/16	NC		%	30
2766049	BAV	Matrix Spike						
		[MM7926-01]	Nitrite (N)	2012/02/16		102	%	75 - 125
			Nitrate (N)	2012/02/16		106	%	75 - 125
		Spiked Blank	Nitrite (N)	2012/02/16		99	%	75 - 125
			Nitrate (N)	2012/02/16		102	%	75 - 125
			Nitrate + Nitrite	2012/02/16		101	%	75 - 125
		Method Blank	Nitrite (N)	2012/02/16	0.1 U, MDL=0.1		ug/g	
			Nitrate (N)	2012/02/16	0.4 U, MDL=0.4		ug/g	
			Nitrate + Nitrite	2012/02/16	0.6 U, MDL=0.6		ug/g	
		RPD [MM7926-01]	Nitrite (N)	2012/02/16	NC		%	25
			Nitrate (N)	2012/02/16	NC		%	25
			Nitrate + Nitrite	2012/02/16	NC		%	25
2766060	PHM	RPD	Moisture	2012/02/16	5.5		%	20
2766107	PHM	RPD	Moisture	2012/02/16	8.2		%	20
2766162	SUK	Matrix Spike	Acid Extractable Phosphorus (P)	2012/02/16		99	%	75 - 125
		Spiked Blank	Acid Extractable Phosphorus (P)	2012/02/16		96	%	80 - 120
		Method Blank	Acid Extractable Phosphorus (P)	2012/02/16	<20		ug/g	
2772583	C_N	Matrix Spike						
		[MM7924-01]	Total Kjeldahl Nitrogen	2012/02/24		93	%	75 - 125
		QC Standard	Total Kjeldahl Nitrogen	2012/02/24		94	%	75 - 125
		Method Blank	Total Kjeldahl Nitrogen	2012/02/24	3 U, MDL=3		ug/g	
		RPD [MM7924-01]	Total Kjeldahl Nitrogen	2012/02/24	0.2		%	40

Duplicate: Paired analysis of a separate portion of the same sample. Used to evaluate the variance in the measurement.
Matrix Spike: A sample to which a known amount of the analyte of interest has been added. Used to evaluate sample matrix interference.
QC Standard: A blank matrix to which a known amount of the analyte has been added. Used to evaluate analyte recovery.
Spiked Blank: A blank matrix to which a known amount of the analyte has been added. Used to evaluate analyte recovery.
Method Blank: A blank matrix containing all reagents used in the analytical procedure. Used to identify laboratory contamination.
Surrogate: A pure or isotopically labeled compound whose behavior mirrors the analytes of interest. Used to evaluate extraction efficiency.
NC (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.

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Validation Signature Page

Maxxam Job #: B220254

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

CRISTINA CARRIERE, Scientific Services

MEDHAT RISKALLAH, Manager, Hydrocarbon Department

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Your Project #: EBA#2
Your C.O.C. #: na

Attention: Ximena Druar
SiREM - Site Recovery & Management
130 Research Lane
Suite 2
Guelph, ON
CANADA N1G 5G3

Report Date: 2012/03/15

CERTIFICATE OF ANALYSIS

MAXXAM JOB #: B233267
Received: 2012/03/08, 10:39

Sample Matrix: Soil
Samples Received: 4

Analyses	Quantity	Date Extracted	Date Analyzed	Laboratory Method	Method Reference
Petroleum Hydrocarbons F2-F4 in Soil	4	2012/03/13	2012/03/14	CAM SOP-00316	CCME CWS
Total Metals Analysis by ICP	4	2012/03/14	2012/03/14	CAM SOP-00408	SW-846 6010C
Moisture	4	N/A	2012/03/13	CAM SOP-00445	R.Carter,1993
Nitrate (NO3) and Nitrite (NO2) in Soil	4	N/A	2012/03/14	CAM SOP-00440	SM 4500 NO3I/NO2B
pH CaCl2 EXTRACT	4	2012/03/14	2012/03/14	CAM SOP-00413	SM 4500H+ B
Total Kjeldahl Nitrogen - Soil	4	2012/03/13	2012/03/14	CAM SOP-00454	EPA 351.2 Rev 2

Remarks:

Maxxam Analytics has performed all analytical testing herein in accordance with ISO 17025 and the Protocol for Analytical Methods Used in the Assessment of Properties under Part XV.1 of the Environmental Protection Act. All methodologies comply with this document and are validated for use in the laboratory. The methods and techniques employed in this analysis conform to the performance criteria (detection limits, accuracy and precision) as outlined in the Protocol for Analytical Methods Used in the Assessment of Properties under Part XV.1 of the Environmental Protection Act. Reporting results to two significant figures at the RDL is to permit statistical evaluation and is not intended to be an indication of analytical precision.

The CWS PHC methods employed by Maxxam conform to all prescribed elements of the reference method and performance based elements have been validated. All modifications have been validated and proven equivalent following the 'Alberta Environment Draft Addenda to the CWS-PHC, Appendix 6, Validation of Alternate Methods'. Documentation is available upon request. Maxxam has made the following improvements to the CWS-PHC reference benchmark method: (i) Headspace for F1; and, (ii) Mechanical extraction for F2-F4. Note: F4G cannot be added to the C6 to C50 hydrocarbons. The extraction date for samples field preserved with methanol for F1 and Volatile Organic Compounds is considered to be the date sampled.

Maxxam Analytics is accredited by SCC (Lab ID 97) for all specific parameters as required by Ontario Regulation 153/04. Maxxam Analytics is limited in liability to the actual cost of analysis unless otherwise agreed in writing. There is no other warranty expressed or implied. Samples will be retained at Maxxam Analytics for three weeks from receipt of data or as per contract.

../2

Your Project #: EBA#2
Your C.O.C. #: na

Attention: Ximena Druar
SiREM - Site Recovery & Management
130 Research Lane
Suite 2
Guelph, ON
CANADA N1G 5G3

Report Date: 2012/03/15

CERTIFICATE OF ANALYSIS

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

Encryption Key

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

JOLANTA GORALCZYK, Project Manager
Email: JGoralczyk@maxxam.ca
Phone# (905) 817-5700

==========

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Total cover pages: 2

Maxxam Job #: B233267
Report Date: 2012/03/15

SiREM - Site Recovery & Management
Client Project #: EBA#2

RESULTS OF ANALYSES OF SOIL

Maxxam ID		MT2416	MT2416	MT2417	MT2418	MT2418		
Sampling Date		2012/03/07	2012/03/07	2012/03/07	2012/03/07	2012/03/07		
COC Number		na	na	na	na	na		
	Units	**EBA2-070312-5C**	**EBA2-070312-5C Lab-Dup**	**EBA2-070312-6C**	**EBA2-070312-7C**	**EBA2-070312-7C Lab-Dup**	**RDL**	**QC Batch**
Inorganics								
Moisture	%	2.3	2.1	5.4	15		1.0	2788613
Available (CaCl2) pH	pH	7.21		7.19	7.20			2789040
Total Kjeldahl Nitrogen	ug/g	463		404	341	363	10	2788627
Nitrite (N)	ug/g	0.1 U		0.1 U	0.6		0.5	2789128
Nitrate (N)	ug/g	0.4 U		0.4 U	0.4 U		2	2789128
Nitrate + Nitrite	ug/g	0.6 U		0.6 U	0.8 J		3	2789128

RDL = Reportable Detection Limit
QC Batch = Quality Control Batch

Maxxam ID		MT2419		
Sampling Date		2012/03/07		
COC Number		na		
	Units	**EBA2-070312-8C**	**RDL**	**QC Batch**
Inorganics				
Moisture	%	15	1.0	2788613
Available (CaCl2) pH	pH	7.24		2789040
Total Kjeldahl Nitrogen	ug/g	451	10	2788627
Nitrite (N)	ug/g	0.6	0.5	2789128
Nitrate (N)	ug/g	0.4 U	2	2789128
Nitrate + Nitrite	ug/g	0.8 J	3	2789128

RDL = Reportable Detection Limit
QC Batch = Quality Control Batch

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Maxxam Job #: B233267
Report Date: 2012/03/15

SiREM - Site Recovery & Management
Client Project #: EBA#2

ELEMENTS BY ATOMIC SPECTROSCOPY (SOIL)

Maxxam ID		MT2416	MT2417	MT2418	MT2419		
Sampling Date		2012/03/07	2012/03/07	2012/03/07	2012/03/07		
COC Number		na	na	na	na		
	Units	**EBA2-070312-5C**	**EBA2-070312-6C**	**EBA2-070312-7C**	**EBA2-070312-8C**	**RDL**	**QC Batch**
Metals							
Acid Extractable Phosphorus (P)	ug/g	590	710	720	570	20	2789053

RDL = Reportable Detection Limit
QC Batch = Quality Control Batch

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Maxxam Job #: B233267
Report Date: 2012/03/15

SiREM - Site Recovery & Management
Client Project #: EBA#2

PETROLEUM HYDROCARBONS (CCME)

Maxxam ID		MT2416	MT2417	MT2418	MT2419		
Sampling Date		2012/03/07	2012/03/07	2012/03/07	2012/03/07		
COC Number		na	na	na	na		
	Units	**EBA2-070312-5C**	**EBA2-070312-6C**	**EBA2-070312-7C**	**EBA2-070312-8C**	**RDL**	**QC Batch**
F2-F4 Hydrocarbons							
F2 (C10-C16 Hydrocarbons)	ug/g	200	230	180	130	10	2787907
F3 (C16-C34 Hydrocarbons)	ug/g	180	170	160	210	10	2787907
F4 (C34-C50 Hydrocarbons)	ug/g	2.0 U	2.0 U	2.0 U	2.0 U	10	2787907
Reached Baseline at C50	ug/g	Yes	Yes	Yes	Yes		2787907
Surrogate Recovery (%)							
o-Terphenyl	%	114	117	110	112		2787907

RDL = Reportable Detection Limit
QC Batch = Quality Control Batch

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Maxxam Job #: B233267
Report Date: 2012/03/15

SiREM - Site Recovery & Management
Client Project #: EBA#2

Test Summary

Maxxam ID MT2416 **Collected** 2012/03/07
Sample ID EBA2-070312-5C **Shipped**
Matrix Soil **Received** 2012/03/08

Test Description	Instrumentation	Batch	Extracted	Analyzed	Analyst
Petroleum Hydrocarbons F2-F4 in Soil	GC/FID	2787907	2012/03/13	2012/03/14	BARBARA WOWK
Total Metals Analysis by ICP	ICP	2789053	2012/03/14	2012/03/14	SUBAN KANAPATHIPPLLAI
Moisture	BAL	2788613	N/A	2012/03/13	PHILIP MAST
Nitrate (NO3) and Nitrite (NO2) in Soil	LACH	2789128	N/A	2012/03/14	BAVANI KAILAYA
pH CaCl2 EXTRACT		2789040	2012/03/14	2012/03/14	XUANHONG QIU
Total Kjeldahl Nitrogen - Soil	AC	2788627	2012/03/13	2012/03/14	CHANDRA NANDLAL

Maxxam ID MT2416 Dup **Collected** 2012/03/07
Sample ID EBA2-070312-5C **Shipped**
Matrix Soil **Received** 2012/03/08

Test Description	Instrumentation	Batch	Extracted	Analyzed	Analyst
Moisture	BAL	2788613	N/A	2012/03/13	PHILIP MAST

Maxxam ID MT2417 **Collected** 2012/03/07
Sample ID EBA2-070312-6C **Shipped**
Matrix Soil **Received** 2012/03/08

Test Description	Instrumentation	Batch	Extracted	Analyzed	Analyst
Petroleum Hydrocarbons F2-F4 in Soil	GC/FID	2787907	2012/03/13	2012/03/14	BARBARA WOWK
Total Metals Analysis by ICP	ICP	2789053	2012/03/14	2012/03/14	SUBAN KANAPATHIPPLLAI
Moisture	BAL	2788613	N/A	2012/03/13	PHILIP MAST
Nitrate (NO3) and Nitrite (NO2) in Soil	LACH	2789128	N/A	2012/03/14	BAVANI KAILAYA
pH CaCl2 EXTRACT		2789040	2012/03/14	2012/03/14	XUANHONG QIU
Total Kjeldahl Nitrogen - Soil	AC	2788627	2012/03/13	2012/03/14	CHANDRA NANDLAL

Maxxam ID MT2418 **Collected** 2012/03/07
Sample ID EBA2-070312-7C **Shipped**
Matrix Soil **Received** 2012/03/08

Test Description	Instrumentation	Batch	Extracted	Analyzed	Analyst
Petroleum Hydrocarbons F2-F4 in Soil	GC/FID	2787907	2012/03/13	2012/03/14	BARBARA WOWK
Total Metals Analysis by ICP	ICP	2789053	2012/03/14	2012/03/14	SUBAN KANAPATHIPPLLAI
Moisture	BAL	2788613	N/A	2012/03/13	PHILIP MAST
Nitrate (NO3) and Nitrite (NO2) in Soil	LACH	2789128	N/A	2012/03/14	BAVANI KAILAYA
pH CaCl2 EXTRACT		2789040	2012/03/14	2012/03/14	XUANHONG QIU
Total Kjeldahl Nitrogen - Soil	AC	2788627	2012/03/13	2012/03/14	CHANDRA NANDLAL

Maxxam ID MT2418 Dup **Collected** 2012/03/07
Sample ID EBA2-070312-7C **Shipped**
Matrix Soil **Received** 2012/03/08

Test Description	Instrumentation	Batch	Extracted	Analyzed	Analyst
Total Kjeldahl Nitrogen - Soil	AC	2788627	2012/03/13	2012/03/14	CHANDRA NANDLAL

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Maxxam Job #: B233267
Report Date: 2012/03/15

SiREM - Site Recovery & Management
Client Project #: EBA#2

Test Summary

Maxxam ID MT2419
Sample ID EBA2-070312-8C
Matrix Soil

Collected 2012/03/07
Shipped
Received 2012/03/08

Test Description	Instrumentation	Batch	Extracted	Analyzed	Analyst
Petroleum Hydrocarbons F2-F4 in Soil	GC/FID	2787907	2012/03/13	2012/03/14	BARBARA WOWK
Total Metals Analysis by ICP	ICP	2789053	2012/03/14	2012/03/14	SUBAN KANAPATHIPPLLAI
Moisture	BAL	2788613	N/A	2012/03/13	PHILIP MAST
Nitrate (NO3) and Nitrite (NO2) in Soil	LACH	2789128	N/A	2012/03/14	BAVANI KAILAYA
pH CaCl2 EXTRACT		2789040	2012/03/14	2012/03/14	XUANHONG QIU
Total Kjeldahl Nitrogen - Soil	AC	2788627	2012/03/13	2012/03/14	CHANDRA NANDLAL

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Maxxam Job #: B233267
Report Date: 2012/03/15

SiREM - Site Recovery & Management
Client Project #: EBA#2

GENERAL COMMENTS

Results relate only to the items tested.

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SiREM - Site Recovery & Management
Attention: Ximena Druar
Client Project #: EBA#2
P.O. #:
Site Location:

Quality Assurance Report

Maxxam Job Number: MB233267

QA/QC Batch Num	Init	QC Type	Parameter	Date Analyzed yyyy/mm/dd	Value	Recovery	Units	QC Limits
2787907	BWW	Matrix Spike	o-Terphenyl	2012/03/14		95	%	50 - 130
			F2 (C10-C16 Hydrocarbons)	2012/03/14		85	%	50 - 130
			F3 (C16-C34 Hydrocarbons)	2012/03/14		91	%	50 - 130
			F4 (C34-C50 Hydrocarbons)	2012/03/14		93	%	50 - 130
		Spiked Blank	o-Terphenyl	2012/03/13		108	%	50 - 130
			F2 (C10-C16 Hydrocarbons)	2012/03/13		95	%	70 - 130
			F3 (C16-C34 Hydrocarbons)	2012/03/13		105	%	70 - 130
			F4 (C34-C50 Hydrocarbons)	2012/03/13		104	%	70 - 130
		Method Blank	o-Terphenyl	2012/03/13		124	%	50 - 130
			F2 (C10-C16 Hydrocarbons)	2012/03/13	2.0 U, MDL=2.0		ug/g	
			F3 (C16-C34 Hydrocarbons)	2012/03/13	2.0 U, MDL=2.0		ug/g	
			F4 (C34-C50 Hydrocarbons)	2012/03/13	2.0 U, MDL=2.0		ug/g	
		RPD	F2 (C10-C16 Hydrocarbons)	2012/03/14	NC		%	30
			F3 (C16-C34 Hydrocarbons)	2012/03/14	NC		%	30
			F4 (C34-C50 Hydrocarbons)	2012/03/14	NC		%	30
2788613	DEE	RPD [MT2416-01]	Moisture	2012/03/13	NC		%	20
2788627	C_N	Matrix Spike [MT2418-01]	Total Kjeldahl Nitrogen	2012/03/14		NC	%	75 - 125
		QC Standard	Total Kjeldahl Nitrogen	2012/03/14		89	%	75 - 125
		Method Blank	Total Kjeldahl Nitrogen	2012/03/14	3 U, MDL=3		ug/g	
		RPD [MT2418-01]	Total Kjeldahl Nitrogen	2012/03/14	6.3		%	40
2789053	SUK	Spiked Blank	Acid Extractable Phosphorus (P)	2012/03/14		119	%	80 - 120
		Method Blank	Acid Extractable Phosphorus (P)	2012/03/14	<20		ug/g	
2789128	BAV	Matrix Spike	Nitrite (N)	2012/03/14		128 (1)	%	75 - 125
			Nitrate (N)	2012/03/14		96	%	75 - 125
		Spiked Blank	Nitrite (N)	2012/03/14		99	%	75 - 125
			Nitrate (N)	2012/03/14		102	%	75 - 125
			Nitrate + Nitrite	2012/03/14		102	%	75 - 125
		Method Blank	Nitrite (N)	2012/03/14	0.1 U, MDL=0.1		ug/g	
			Nitrate (N)	2012/03/14	0.4 U, MDL=0.4		ug/g	
			Nitrate + Nitrite	2012/03/14	0.6 U, MDL=0.6		ug/g	
		RPD	Nitrite (N)	2012/03/14	NC		%	25
			Nitrate (N)	2012/03/14	NC		%	25
			Nitrate + Nitrite	2012/03/14	NC		%	25

Duplicate: Paired analysis of a separate portion of the same sample. Used to evaluate the variance in the measurement.
Matrix Spike: A sample to which a known amount of the analyte of interest has been added. Used to evaluate sample matrix interference.
QC Standard: A blank matrix to which a known amount of the analyte has been added. Used to evaluate analyte recovery.
Spiked Blank: A blank matrix to which a known amount of the analyte has been added. Used to evaluate analyte recovery.
Method Blank: A blank matrix containing all reagents used in the analytical procedure. Used to identify laboratory contamination.
Surrogate: A pure or isotopically labeled compound whose behavior mirrors the analytes of interest. Used to evaluate extraction efficiency.
NC (Matrix Spike): The recovery in the matrix spike was not calculated. The relative difference between the concentration in the parent sample and the spiked amount was not sufficiently significant to permit a reliable recovery calculation.
NC (RPD): The RPD was not calculated. The level of analyte detected in the parent sample and its duplicate was not sufficiently significant to permit a reliable calculation.
(1) Recovery or RPD for this parameter is outside control limits. The overall quality control for this analysis meets acceptability criteria.

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Validation Signature Page

Maxxam Job #: B233267

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

CRISTINA CARRIERE, Scientific Services

MAMDOUH SALIB, Analyst, Hydrocarbons

==========

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Your Project #: EBA #2
Your C.O.C. #: 2203

Attention: TWYLA GILBERT
SiREM - Site Recovery & Management
130 Research Lane
Suite 2
Guelph, ON
CANADA N1G 5G3

Report Date: 2012/04/12

CERTIFICATE OF ANALYSIS

MAXXAM JOB #: B247079
Received: 2012/04/04, 10:05

Sample Matrix: Soil
Samples Received: 8

Analyses	Quantity	Date Extracted	Date Analyzed	Laboratory Method	Method Reference
Petroleum Hydrocarbons F2-F4 in Soil	4	2012/04/07	2012/04/07	CAM SOP-00316	CCME CWS
Petroleum Hydrocarbons F2-F4 in Soil	2	2012/04/07	2012/04/08	CAM SOP-00316	CCME CWS
Petroleum Hydrocarbons F2-F4 in Soil	2	2012/04/10	2012/04/11	CAM SOP-00316	CCME CWS
Total Metals Analysis by ICP	4	2012/04/11	2012/04/11	CAM SOP-00408	SW-846 6010C
Moisture	1	N/A	2012/04/09	CAM SOP-00445	R.Carter,1993
Moisture	7	N/A	2012/04/10	CAM SOP-00445	R.Carter,1993
Nitrate (NO3) and Nitrite (NO2) in Soil	4	N/A	2012/04/11	CAM SOP-00440	SM 4500 NO3I/NO2B
pH CaCl2 EXTRACT	8	2012/04/10	2012/04/10	CAM SOP-00413	SM 4500H+ B
Total Kjeldahl Nitrogen - Soil	2	2012/04/09	2012/04/10	CAM SOP-00454	EPA 351.2 Rev 2
Total Kjeldahl Nitrogen - Soil	2	2012/04/12	2012/04/12	CAM SOP-00454	EPA 351.2 Rev 2

Remarks:

Maxxam Analytics has performed all analytical testing herein in accordance with ISO 17025 and the Protocol for Analytical Methods Used in the Assessment of Properties under Part XV.1 of the Environmental Protection Act. All methodologies comply with this document and are validated for use in the laboratory. The methods and techniques employed in this analysis conform to the performance criteria (detection limits, accuracy and precision) as outlined in the Protocol for Analytical Methods Used in the Assessment of Properties under Part XV.1 of the Environmental Protection Act. Reporting results to two significant figures at the RDL is to permit statistical evaluation and is not intended to be an indication of analytical precision.

The CWS PHC methods employed by Maxxam conform to all prescribed elements of the reference method and performance based elements have been validated. All modifications have been validated and proven equivalent following the 'Alberta Environment Draft Addenda to the CWS-PHC, Appendix 6, Validation of Alternate Methods'. Documentation is available upon request. Maxxam has made the following improvements to the CWS-PHC reference benchmark method: (i) Headspace for F1; and, (ii) Mechanical extraction for F2-F4. Note: F4G cannot be added to the C6 to C50 hydrocarbons. The extraction date for samples field preserved with methanol for F1 and Volatile Organic Compounds is considered to be the date sampled.

Maxxam Analytics is accredited by SCC (Lab ID 97) for all specific parameters as required by Ontario Regulation 153/04. Maxxam Analytics is limited in liability to the actual cost of analysis unless otherwise agreed in writing. There is no other

Your Project #: EBA #2
Your C.O.C. #: 2203

Attention: TWYLA GILBERT
SiREM - Site Recovery & Management
130 Research Lane
Suite 2
Guelph, ON
CANADA N1G 5G3

Report Date: 2012/04/12

CERTIFICATE OF ANALYSIS

warranty expressed or implied. Samples will be retained at Maxxam Analytics for three weeks from receipt of data or as per contract.

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

Encryption Key

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

JOLANTA GORALCZYK, Project Manager
Email: JGoralczyk@maxxam.ca
Phone# (905) 817-5700

==========

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Total cover pages: 2

Maxxam Job #: B247079
Report Date: 2012/04/12

SiREM - Site Recovery & Management
Client Project #: EBA #2

RESULTS OF ANALYSES OF SOIL

Maxxam ID		MZ9451		MZ9452	MZ9452	MZ9453		
Sampling Date		2012/04/03 13:30		2012/04/03 13:30	2012/04/03 13:30	2012/04/03 13:30		
COC Number		2203		2203	2203	2203		
	Units	**EBA2-030412-1D**	**QC Batch**	**EBA2-030412-2D**	**EBA2-030412-2D Lab-Dup**	**EBA2-030412-3D**	**RDL**	**QC Batch**
Inorganics								
Moisture	%	6.9	2814474	5.0		14	1.0	2814474
Available (CaCl2) pH	pH	7.54	2814286	7.60	7.57	7.54		2814548

RDL = Reportable Detection Limit
QC Batch = Quality Control Batch

Maxxam ID		MZ9454	MZ9454		MZ9455	MZ9455		
Sampling Date		2012/04/03 13:30	2012/04/03 13:30		2012/04/03 13:30	2012/04/03 13:30		
COC Number		2203	2203		2203	2203		
	Units	**EBA2-030412-4D**	**EBA2-030412-4D Lab-Dup**	**QC Batch**	**EBA2-030412-5D**	**EBA2-030412-5D Lab-Dup**	**RDL**	**QC Batch**
Inorganics								
Moisture	%	9.2	8.6	2813180	12		1.0	2814474
Available (CaCl2) pH	pH	7.81		2814548	7.24			2814548
Total Kjeldahl Nitrogen	ug/g				504		10	2813829
Nitrite (N)	ug/g				0.1 U	0.1 U	0.5	2815586
Nitrate (N)	ug/g				0.4 U	0.4 U	2	2815586
Nitrate + Nitrite	ug/g				0.6 U	0.6 U	3	2815586

RDL = Reportable Detection Limit
QC Batch = Quality Control Batch

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Maxxam Job #: B247079
Report Date: 2012/04/12

SiREM - Site Recovery & Management
Client Project #: EBA #2

RESULTS OF ANALYSES OF SOIL

Maxxam ID		MZ9456		MZ9457	MZ9458		
Sampling Date		2012/04/03 13:30		2012/04/03 13:30	2012/04/03 13:30		
COC Number		2203		2203	2203		
	Units	**EBA2-030412-6D**	**QC Batch**	**EBA2-030412-7D**	**EBA2-030412-8D**	**RDL**	**QC Batch**
Inorganics							
Moisture	%	11	2814474	7.4	6.9	1.0	2815181
Available (CaCl2) pH	pH	7.27	2814548	7.36	7.39		2814286
Total Kjeldahl Nitrogen	ug/g	395	2813829	313	418	10	2816677
Nitrite (N)	ug/g	0.1 U	2815586	0.3 J	0.3 J	0.5	2815586
Nitrate (N)	ug/g	0.4 U	2815586	13	22	2	2815586
Nitrate + Nitrite	ug/g	0.6 U	2815586	13	22	3	2815586

RDL = Reportable Detection Limit
QC Batch = Quality Control Batch

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Maxxam Job #: B247079
Report Date: 2012/04/12

SiREM - Site Recovery & Management
Client Project #: EBA #2

ELEMENTS BY ATOMIC SPECTROSCOPY (SOIL)

Maxxam ID		MZ9455	MZ9456	MZ9457	MZ9458		
Sampling Date		2012/04/03 13:30	2012/04/03 13:30	2012/04/03 13:30	2012/04/03 13:30		
COC Number		2203	2203	2203	2203		
	Units	**EBA2-030412-5D**	**EBA2-030412-6D**	**EBA2-030412-7D**	**EBA2-030412-8D**	**RDL**	**QC Batch**
Metals							
Acid Extractable Phosphorus (P)	ug/g	760	890	490	410	20	2815444

RDL = Reportable Detection Limit
QC Batch = Quality Control Batch

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Maxxam Job #: B247079
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SiREM - Site Recovery & Management
Client Project #: EBA #2

PETROLEUM HYDROCARBONS (CCME)

Maxxam ID		MZ9451	MZ9452	MZ9453	MZ9454		
Sampling Date		2012/04/03 13:30	2012/04/03 13:30	2012/04/03 13:30	2012/04/03 13:30		
COC Number		2203	2203	2203	2203		
	Units	**EBA2-030412-1D**	**EBA2-030412-2D**	**EBA2-030412-3D**	**EBA2-030412-4D**	**RDL**	**QC Batch**
F2-F4 Hydrocarbons							
F2 (C10-C16 Hydrocarbons)	ug/g	310	310	150	180	10	2812697
F3 (C16-C34 Hydrocarbons)	ug/g	250	240	140	200	10	2812697
F4 (C34-C50 Hydrocarbons)	ug/g	2.0 U	2.0 U	2.0 U	2.0 U	10	2812697
Reached Baseline at C50	ug/g	Yes	Yes	Yes	Yes		2812697
Surrogate Recovery (%)							
o-Terphenyl	%	94	92	95	94		2812697

RDL = Reportable Detection Limit
QC Batch = Quality Control Batch

Maxxam ID		MZ9454	MZ9455	MZ9456		MZ9457		
Sampling Date		2012/04/03 13:30	2012/04/03 13:30	2012/04/03 13:30		2012/04/03 13:30		
COC Number		2203	2203	2203		2203		
	Units	**EBA2-030412-4D Lab-Dup**	**EBA2-030412-5D**	**EBA2-030412-6D**	**QC Batch**	**EBA2-030412-7D**	**RDL**	**QC Batch**
F2-F4 Hydrocarbons								
F2 (C10-C16 Hydrocarbons)	ug/g	170	83	65	2812697	120	10	2815236
F3 (C16-C34 Hydrocarbons)	ug/g	200	150	110	2812697	180	10	2815236
F4 (C34-C50 Hydrocarbons)	ug/g	2.0 U	2.0 U	2.0 U	2812697	2.0 U	10	2815236
Reached Baseline at C50	ug/g	Yes	Yes	Yes	2812697	Yes		2815236
Surrogate Recovery (%)								
o-Terphenyl	%	97	93	93	2812697	94		2815236

RDL = Reportable Detection Limit
QC Batch = Quality Control Batch

Maxxam Job #: B247079
Report Date: 2012/04/12

SiREM - Site Recovery & Management
Client Project #: EBA #2

PETROLEUM HYDROCARBONS (CCME)

Maxxam ID		MZ9458		
Sampling Date		2012/04/03 13:30		
COC Number		2203		
	Units	**EBA2-030412-8D**	**RDL**	**QC Batch**
F2-F4 Hydrocarbons				
F2 (C10-C16 Hydrocarbons)	ug/g	80	10	2815236
F3 (C16-C34 Hydrocarbons)	ug/g	170	10	2815236
F4 (C34-C50 Hydrocarbons)	ug/g	2.0 U	10	2815236
Reached Baseline at C50	ug/g	Yes		2815236
Surrogate Recovery (%)				
o-Terphenyl	%	93		2815236

RDL = Reportable Detection Limit
QC Batch = Quality Control Batch

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Maxxam Job #: B247079
Report Date: 2012/04/12

SiREM - Site Recovery & Management
Client Project #: EBA #2

Test Summary

Maxxam ID MZ9451 **Collected** 2012/04/03
Sample ID EBA2-030412-1D **Shipped**
Matrix Soil **Received** 2012/04/04

Test Description	Instrumentation	Batch	Extracted	Analyzed	Analyst
Petroleum Hydrocarbons F2-F4 in Soil	GC/FID	2812697	2012/04/07	2012/04/07	NICOLETA CIUBLEA
Moisture	BAL	2814474	N/A	2012/04/10	MIN YANG
pH CaCl2 EXTRACT		2814286	2012/04/10	2012/04/10	XUANHONG QIU

Maxxam ID MZ9452 **Collected** 2012/04/03
Sample ID EBA2-030412-2D **Shipped**
Matrix Soil **Received** 2012/04/04

Test Description	Instrumentation	Batch	Extracted	Analyzed	Analyst
Petroleum Hydrocarbons F2-F4 in Soil	GC/FID	2812697	2012/04/07	2012/04/07	NICOLETA CIUBLEA
Moisture	BAL	2814474	N/A	2012/04/10	MIN YANG
pH CaCl2 EXTRACT		2814548	2012/04/10	2012/04/10	XUANHONG QIU

Maxxam ID MZ9452 Dup **Collected** 2012/04/03
Sample ID EBA2-030412-2D **Shipped**
Matrix Soil **Received** 2012/04/04

Test Description	Instrumentation	Batch	Extracted	Analyzed	Analyst
pH CaCl2 EXTRACT		2814548	2012/04/10	2012/04/10	XUANHONG QIU

Maxxam ID MZ9453 **Collected** 2012/04/03
Sample ID EBA2-030412-3D **Shipped**
Matrix Soil **Received** 2012/04/04

Test Description	Instrumentation	Batch	Extracted	Analyzed	Analyst
Petroleum Hydrocarbons F2-F4 in Soil	GC/FID	2812697	2012/04/07	2012/04/07	NICOLETA CIUBLEA
Moisture	BAL	2814474	N/A	2012/04/10	MIN YANG
pH CaCl2 EXTRACT		2814548	2012/04/10	2012/04/10	XUANHONG QIU

Maxxam ID MZ9454 **Collected** 2012/04/03
Sample ID EBA2-030412-4D **Shipped**
Matrix Soil **Received** 2012/04/04

Test Description	Instrumentation	Batch	Extracted	Analyzed	Analyst
Petroleum Hydrocarbons F2-F4 in Soil	GC/FID	2812697	2012/04/07	2012/04/07	NICOLETA CIUBLEA
Moisture	BAL	2813180	N/A	2012/04/09	MIN YANG
pH CaCl2 EXTRACT		2814548	2012/04/10	2012/04/10	XUANHONG QIU

Maxxam ID MZ9454 Dup **Collected** 2012/04/03
Sample ID EBA2-030412-4D **Shipped**
Matrix Soil **Received** 2012/04/04

Test Description	Instrumentation	Batch	Extracted	Analyzed	Analyst
Petroleum Hydrocarbons F2-F4 in Soil	GC/FID	2812697	2012/04/07	2012/04/07	NICOLETA CIUBLEA
Moisture	BAL	2813180	N/A	2012/04/09	MIN YANG

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Maxxam Job #: B247079
Report Date: 2012/04/12

SiREM - Site Recovery & Management
Client Project #: EBA #2

Test Summary

Maxxam ID MZ9455 **Collected** 2012/04/03
Sample ID EBA2-030412-5D **Shipped**
Matrix Soil **Received** 2012/04/04

Test Description	Instrumentation	Batch	Extracted	Analyzed	Analyst
Petroleum Hydrocarbons F2-F4 in Soil	GC/FID	2812697	2012/04/07	2012/04/08	NICOLETA CIUBLEA
Total Metals Analysis by ICP	ICP	2815444	2012/04/11	2012/04/11	SUBAN KANAPATHIPPLLAI
Moisture	BAL	2814474	N/A	2012/04/10	MIN YANG
Nitrate (NO3) and Nitrite (NO2) in Soil	LACH	2815586	N/A	2012/04/11	CHANDRA NANDLAL
pH CaCl2 EXTRACT		2814548	2012/04/10	2012/04/10	XUANHONG QIU
Total Kjeldahl Nitrogen - Soil	AC	2813829	2012/04/09	2012/04/10	CHANDRA NANDLAL

Maxxam ID MZ9455 Dup **Collected** 2012/04/03
Sample ID EBA2-030412-5D **Shipped**
Matrix Soil **Received** 2012/04/04

Test Description	Instrumentation	Batch	Extracted	Analyzed	Analyst
Nitrate (NO3) and Nitrite (NO2) in Soil	LACH	2815586	N/A	2012/04/11	CHANDRA NANDLAL

Maxxam ID MZ9456 **Collected** 2012/04/03
Sample ID EBA2-030412-6D **Shipped**
Matrix Soil **Received** 2012/04/04

Test Description	Instrumentation	Batch	Extracted	Analyzed	Analyst
Petroleum Hydrocarbons F2-F4 in Soil	GC/FID	2812697	2012/04/07	2012/04/08	NICOLETA CIUBLEA
Total Metals Analysis by ICP	ICP	2815444	2012/04/11	2012/04/11	SUBAN KANAPATHIPPLLAI
Moisture	BAL	2814474	N/A	2012/04/10	MIN YANG
Nitrate (NO3) and Nitrite (NO2) in Soil	LACH	2815586	N/A	2012/04/11	CHANDRA NANDLAL
pH CaCl2 EXTRACT		2814548	2012/04/10	2012/04/10	XUANHONG QIU
Total Kjeldahl Nitrogen - Soil	AC	2813829	2012/04/09	2012/04/10	CHANDRA NANDLAL

Maxxam ID MZ9457 **Collected** 2012/04/03
Sample ID EBA2-030412-7D **Shipped**
Matrix Soil **Received** 2012/04/04

Test Description	Instrumentation	Batch	Extracted	Analyzed	Analyst
Petroleum Hydrocarbons F2-F4 in Soil	GC/FID	2815236	2012/04/10	2012/04/11	RAVINDER GAIDHU
Total Metals Analysis by ICP	ICP	2815444	2012/04/11	2012/04/11	SUBAN KANAPATHIPPLLAI
Moisture	BAL	2815181	N/A	2012/04/10	PHILIP MAST
Nitrate (NO3) and Nitrite (NO2) in Soil	LACH	2815586	N/A	2012/04/11	CHANDRA NANDLAL
pH CaCl2 EXTRACT		2814286	2012/04/10	2012/04/10	XUANHONG QIU
Total Kjeldahl Nitrogen - Soil	AC	2816677	2012/04/12	2012/04/12	CHANDRA NANDLAL

Maxxam ID MZ9458 **Collected** 2012/04/03
Sample ID EBA2-030412-8D **Shipped**
Matrix Soil **Received** 2012/04/04

Test Description	Instrumentation	Batch	Extracted	Analyzed	Analyst
Petroleum Hydrocarbons F2-F4 in Soil	GC/FID	2815236	2012/04/10	2012/04/11	RAVINDER GAIDHU
Total Metals Analysis by ICP	ICP	2815444	2012/04/11	2012/04/11	SUBAN KANAPATHIPPLLAI
Moisture	BAL	2815181	N/A	2012/04/10	PHILIP MAST
Nitrate (NO3) and Nitrite (NO2) in Soil	LACH	2815586	N/A	2012/04/11	CHANDRA NANDLAL
pH CaCl2 EXTRACT		2814286	2012/04/10	2012/04/10	XUANHONG QIU
Total Kjeldahl Nitrogen - Soil	AC	2816677	2012/04/12	2012/04/12	CHANDRA NANDLAL

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Maxxam Job #: B247079
Report Date: 2012/04/12

SiREM - Site Recovery & Management
Client Project #: EBA #2

GENERAL COMMENTS

Results relate only to the items tested.

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SiREM - Site Recovery & Management
Attention: TWYLA GILBERT
Client Project #: EBA #2
P.O. #:
Site Location:

Quality Assurance Report

Maxxam Job Number: MB247079

QA/QC Batch Num	Init	QC Type	Parameter	Date Analyzed yyyy/mm/dd	Value	Recovery	Units	QC Limits
2812697	NCI	Matrix Spike						
		[MZ9454-01]	o-Terphenyl	2012/04/07		90	%	50 - 130
			F2 (C10-C16 Hydrocarbons)	2012/04/07		NC	%	50 - 130
			F3 (C16-C34 Hydrocarbons)	2012/04/07		89	%	50 - 130
			F4 (C34-C50 Hydrocarbons)	2012/04/07		91	%	50 - 130
		Spiked Blank	o-Terphenyl	2012/04/07		90	%	50 - 130
			F2 (C10-C16 Hydrocarbons)	2012/04/07		89	%	70 - 130
			F3 (C16-C34 Hydrocarbons)	2012/04/07		89	%	70 - 130
			F4 (C34-C50 Hydrocarbons)	2012/04/07		91	%	70 - 130
		Method Blank	o-Terphenyl	2012/04/07		87	%	50 - 130
			F2 (C10-C16 Hydrocarbons)	2012/04/07	2.0 U, MDL=2.0		ug/g	
			F3 (C16-C34 Hydrocarbons)	2012/04/07	2.4 J, MDL=2.0		ug/g	
			F4 (C34-C50 Hydrocarbons)	2012/04/07	2.0 U, MDL=2.0		ug/g	
		RPD [MZ9454-01]	F2 (C10-C16 Hydrocarbons)	2012/04/07	4.3		%	30
			F3 (C16-C34 Hydrocarbons)	2012/04/07	3.9		%	30
			F4 (C34-C50 Hydrocarbons)	2012/04/07	NC		%	30
2813180	MYG	RPD [MZ9454-01]	Moisture	2012/04/09	6.7		%	20
2813829	C_N	Matrix Spike	Total Kjeldahl Nitrogen	2012/04/10		89	%	75 - 125
		QC Standard	Total Kjeldahl Nitrogen	2012/04/10		112	%	75 - 125
		Method Blank	Total Kjeldahl Nitrogen	2012/04/10	3 U, MDL=3		ug/g	
		RPD	Total Kjeldahl Nitrogen	2012/04/10	0.4		%	40
2814474	PHM	RPD	Moisture	2012/04/10	12.4		%	20
2815181	PHM	RPD	Moisture	2012/04/10	6.4		%	20
2815236	RGA	Matrix Spike	o-Terphenyl	2012/04/11		88	%	50 - 130
			F2 (C10-C16 Hydrocarbons)	2012/04/11		94	%	50 - 130
			F3 (C16-C34 Hydrocarbons)	2012/04/11		101	%	50 - 130
			F4 (C34-C50 Hydrocarbons)	2012/04/11		98	%	50 - 130
		Spiked Blank	o-Terphenyl	2012/04/11		87	%	50 - 130
			F2 (C10-C16 Hydrocarbons)	2012/04/11		93	%	70 - 130
			F3 (C16-C34 Hydrocarbons)	2012/04/11		98	%	70 - 130
			F4 (C34-C50 Hydrocarbons)	2012/04/11		95	%	70 - 130
		Method Blank	o-Terphenyl	2012/04/11		92	%	50 - 130
			F2 (C10-C16 Hydrocarbons)	2012/04/11	2.0 U, MDL=2.0		ug/g	
			F3 (C16-C34 Hydrocarbons)	2012/04/11	3.2 J, MDL=2.0		ug/g	
			F4 (C34-C50 Hydrocarbons)	2012/04/11	2.0 U, MDL=2.0		ug/g	
		RPD	F2 (C10-C16 Hydrocarbons)	2012/04/11	NC		%	30
			F3 (C16-C34 Hydrocarbons)	2012/04/11	11.7		%	30
			F4 (C34-C50 Hydrocarbons)	2012/04/11	NC		%	30
2815444	SUK	Matrix Spike	Acid Extractable Phosphorus (P)	2012/04/11		89	%	75 - 125
		Spiked Blank	Acid Extractable Phosphorus (P)	2012/04/11		100	%	80 - 120
		Method Blank	Acid Extractable Phosphorus (P)	2012/04/11	<20		ug/g	
2815586	C_N	Matrix Spike						
		[MZ9455-01]	Nitrite (N)	2012/04/11		100	%	75 - 125
			Nitrate (N)	2012/04/11		101	%	75 - 125
			Nitrate + Nitrite	2012/04/11		101	%	75 - 125
		Spiked Blank	Nitrite (N)	2012/04/11		98	%	75 - 125
			Nitrate (N)	2012/04/11		100	%	75 - 125
			Nitrate + Nitrite	2012/04/11		99	%	75 - 125
		Method Blank	Nitrite (N)	2012/04/11	0.1 U, MDL=0.1		ug/g	
			Nitrate (N)	2012/04/11	0.4 U, MDL=0.4		ug/g	
			Nitrate + Nitrite	2012/04/11	0.6 U, MDL=0.6		ug/g	
		RPD [MZ9455-01]	Nitrite (N)	2012/04/11	NC		%	25
			Nitrate (N)	2012/04/11	NC		%	25
			Nitrate + Nitrite	2012/04/11	NC		%	25
2816677	C_N	Matrix Spike	Total Kjeldahl Nitrogen	2012/04/05		110	%	75 - 125

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SiREM - Site Recovery & Management
Attention: TWYLA GILBERT
Client Project #: EBA #2
P.O. #:
Site Location:

Quality Assurance Report (Continued)

Maxxam Job Number: MB247079

QA/QC Batch Num	Init	QC Type	Parameter	Date Analyzed yyyy/mm/dd	Value	Recovery	Units	QC Limits
2816677	C_N	QC Standard	Total Kjeldahl Nitrogen	2012/04/12		107	%	75 - 125
		Method Blank	Total Kjeldahl Nitrogen	2012/04/12	3 U, MDL=3		ug/g	
		RPD	Total Kjeldahl Nitrogen	2012/04/12	16.5		%	40

Duplicate: Paired analysis of a separate portion of the same sample. Used to evaluate the variance in the measurement.
Matrix Spike: A sample to which a known amount of the analyte of interest has been added. Used to evaluate sample matrix interference.
QC Standard: A blank matrix to which a known amount of the analyte has been added. Used to evaluate analyte recovery.
Spiked Blank: A blank matrix to which a known amount of the analyte has been added. Used to evaluate analyte recovery.
Method Blank: A blank matrix containing all reagents used in the analytical procedure. Used to identify laboratory contamination.
Surrogate: A pure or isotopically labeled compound whose behavior mirrors the analytes of interest. Used to evaluate extraction efficiency.
NC (Matrix Spike): The recovery in the matrix spike was not calculated. The relative difference between the concentration in the parent sample and the spiked amount was not sufficiently significant to permit a reliable recovery calculation.
NC (RPD): The RPD was not calculated. The level of analyte detected in the parent sample and its duplicate was not sufficiently significant to permit a reliable calculation.

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Validation Signature Page

Maxxam Job #: B247079

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

CRISTINA CARRIERE, Scientific Services

MEDHAT RISKALLAH, Manager, Hydrocarbon Department

SUZANA POPOVIC, Supervisor, Hydrocarbons

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Your Project #: EBA #2
Your C.O.C. #: 2240

Attention: Ximena Druar
SiREM - Site Recovery & Management
130 Research Lane
Suite 2
Guelph, ON
CANADA N1G 5G3

Report Date: 2012/05/11

CERTIFICATE OF ANALYSIS

MAXXAM JOB #: B262266
Received: 2012/05/02, 10:30

Sample Matrix: Soil
Samples Received: 4

Analyses	Quantity	Date Extracted	Date Analyzed	Laboratory Method	Method Reference
Petroleum Hydrocarbons F2-F4 in Soil	4	2012/05/07	2012/05/08	CAM SOP-00316	CCME CWS
Total Metals Analysis by ICP	4	2012/05/08	2012/05/08	CAM SOP-00408	SW-846 6010C
Moisture	4	N/A	2012/05/07	CAM SOP-00445	R.Carter,1993
Nitrate (NO3) and Nitrite (NO2) in Soil	4	N/A	2012/05/08	CAM SOP-00440	SM 4500 NO3I/NO2B
pH CaCl2 EXTRACT	4	2012/05/08	2012/05/08	CAM SOP-00413	SM 4500H+ B
Total Kjeldahl Nitrogen - Soil	4	2012/05/08	2012/05/11	CAM SOP-00454	EPA 351.2 Rev 2

Remarks:

Maxxam Analytics has performed all analytical testing herein in accordance with ISO 17025 and the Protocol for Analytical Methods Used in the Assessment of Properties under Part XV.1 of the Environmental Protection Act. All methodologies comply with this document and are validated for use in the laboratory. The methods and techniques employed in this analysis conform to the performance criteria (detection limits, accuracy and precision) as outlined in the Protocol for Analytical Methods Used in the Assessment of Properties under Part XV.1 of the Environmental Protection Act. Reporting results to two significant figures at the RDL is to permit statistical evaluation and is not intended to be an indication of analytical precision.

The CWS PHC methods employed by Maxxam conform to all prescribed elements of the reference method and performance based elements have been validated. All modifications have been validated and proven equivalent following the 'Alberta Environment Draft Addenda to the CWS-PHC, Appendix 6, Validation of Alternate Methods'. Documentation is available upon request. Maxxam has made the following improvements to the CWS-PHC reference benchmark method: (i) Headspace for F1; and, (ii) Mechanical extraction for F2-F4. Note: F4G cannot be added to the C6 to C50 hydrocarbons. The extraction date for samples field preserved with methanol for F1 and Volatile Organic Compounds is considered to be the date sampled.

Maxxam Analytics is accredited by SCC (Lab ID 97) for all specific parameters as required by Ontario Regulation 153/04. Maxxam Analytics is limited in liability to the actual cost of analysis unless otherwise agreed in writing. There is no other warranty expressed or implied. Samples will be retained at Maxxam Analytics for three weeks from receipt of data or as per contract.

../2

Your Project #: EBA #2
Your C.O.C. #: 2240

Attention: Ximena Druar
SiREM - Site Recovery & Management
130 Research Lane
Suite 2
Guelph, ON
CANADA N1G 5G3

Report Date: 2012/05/11

CERTIFICATE OF ANALYSIS

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

Encryption Key

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

JOLANTA GORALCZYK, Project Manager
Email: JGoralczyk@maxxam.ca
Phone# (905) 817-5700

==========

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Total cover pages: 2

Maxxam Job #: B262266
Report Date: 2012/05/11

SiREM - Site Recovery & Management
Client Project #: EBA #2

RESULTS OF ANALYSES OF SOIL

Maxxam ID		NH6913	NH6913	NH6914		NH6915		
Sampling Date		2012/05/01 15:00	2012/05/01 15:00	2012/05/01 15:00		2012/05/01 15:00		
COC Number		2240	2240	2240		2240		
	Units	**EBA2-010512-5E**	**EBA2-010512-5E Lab-Dup**	**EBA2-010512-6E**	**RDL**	**EBA2-010512-7E**	**RDL**	**QC Batch**
Inorganics								
Moisture	%	13		10	1.0	16	1.0	2841308
Available (CaCl2) pH	pH	7.21	7.22	7.32		7.39		2841946
Total Kjeldahl Nitrogen	ug/g	319		326	10	590	20	2842361
Nitrite (N)	ug/g	0.1 U		0.1 U	0.5	0.1 U	0.5	2842088
Nitrate (N)	ug/g	0.4 U		0.4 U	2	18	2	2842088
Nitrate + Nitrite	ug/g	0.6 U		0.6 U	3	18	3	2842088

RDL = Reportable Detection Limit
QC Batch = Quality Control Batch

Maxxam ID		NH6916	NH6916		
Sampling Date		2012/05/01 15:00	2012/05/01 15:00		
COC Number		2240	2240		
	Units	**EBA2-010512-8E**	**EBA2-010512-8E Lab-Dup**	**RDL**	**QC Batch**
Inorganics					
Moisture	%	11		1.0	2841308
Available (CaCl2) pH	pH	7.28			2841946
Total Kjeldahl Nitrogen	ug/g	494		10	2842361
Nitrite (N)	ug/g	0.1 U	0.1 U	0.5	2842088
Nitrate (N)	ug/g	35	36	2	2842088
Nitrate + Nitrite	ug/g	35	36	3	2842088

RDL = Reportable Detection Limit
QC Batch = Quality Control Batch

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Maxxam Job #: B262266
Report Date: 2012/05/11

SiREM - Site Recovery & Management
Client Project #: EBA #2

ELEMENTS BY ATOMIC SPECTROSCOPY (SOIL)

Maxxam ID		NH6913	NH6914	NH6915	NH6916		
Sampling Date		2012/05/01 15:00	2012/05/01 15:00	2012/05/01 15:00	2012/05/01 15:00		
COC Number		2240	2240	2240	2240		
	Units	**EBA2-010512-5E**	**EBA2-010512-6E**	**EBA2-010512-7E**	**EBA2-010512-8E**	**RDL**	**QC Batch**
Metals							
Acid Extractable Phosphorus (P)	ug/g	780	770	1600	1000	20	2842003

RDL = Reportable Detection Limit
QC Batch = Quality Control Batch

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Maxxam Job #: B262266
Report Date: 2012/05/11

SiREM - Site Recovery & Management
Client Project #: EBA #2

PETROLEUM HYDROCARBONS (CCME)

Maxxam ID		NH6913	NH6914	NH6915	NH6916		
Sampling Date		2012/05/01 15:00	2012/05/01 15:00	2012/05/01 15:00	2012/05/01 15:00		
COC Number		2240	2240	2240	2240		
	Units	**EBA2-010512-5E**	**EBA2-010512-6E**	**EBA2-010512-7E**	**EBA2-010512-8E**	**RDL**	**QC Batch**
F2-F4 Hydrocarbons							
F2 (C10-C16 Hydrocarbons)	ug/g	57	84	100	120	10	2840945
F3 (C16-C34 Hydrocarbons)	ug/g	110	110	240	200	10	2840945
F4 (C34-C50 Hydrocarbons)	ug/g	2.0 U	2.0 U	15	11	10	2840945
Reached Baseline at C50	ug/g	Yes	Yes	Yes	Yes		2840945
Surrogate Recovery (%)							
o-Terphenyl	%	109	108	109	112		2840945

RDL = Reportable Detection Limit
QC Batch = Quality Control Batch

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Maxxam Job #: B262266
Report Date: 2012/05/11

SiREM - Site Recovery & Management
Client Project #: EBA #2

Test Summary

Maxxam ID NH6913 **Collected** 2012/05/01
Sample ID EBA2-010512-5E **Shipped**
Matrix Soil **Received** 2012/05/02

Test Description	Instrumentation	Batch	Extracted	Analyzed	Analyst
Petroleum Hydrocarbons F2-F4 in Soil	GC/FID	2840945	2012/05/07	2012/05/08	BILJANA LAZOVIC
Total Metals Analysis by ICP	ICP	2842003	2012/05/08	2012/05/08	SUBAN KANAPATHIPPLLAI
Moisture	BAL	2841308	N/A	2012/05/07	VALENTINA KAFTANI
Nitrate (NO3) and Nitrite (NO2) in Soil	LACH	2842088	N/A	2012/05/08	CHRIS LI
pH CaCl2 EXTRACT		2841946	2012/05/08	2012/05/08	XUANHONG QIU
Total Kjeldahl Nitrogen - Soil	AC	2842361	2012/05/08	2012/05/11	CHANDRA NANDLAL

Maxxam ID NH6913 Dup **Collected** 2012/05/01
Sample ID EBA2-010512-5E **Shipped**
Matrix Soil **Received** 2012/05/02

Test Description	Instrumentation	Batch	Extracted	Analyzed	Analyst
pH CaCl2 EXTRACT		2841946	2012/05/08	2012/05/08	XUANHONG QIU

Maxxam ID NH6914 **Collected** 2012/05/01
Sample ID EBA2-010512-6E **Shipped**
Matrix Soil **Received** 2012/05/02

Test Description	Instrumentation	Batch	Extracted	Analyzed	Analyst
Petroleum Hydrocarbons F2-F4 in Soil	GC/FID	2840945	2012/05/07	2012/05/08	BILJANA LAZOVIC
Total Metals Analysis by ICP	ICP	2842003	2012/05/08	2012/05/08	SUBAN KANAPATHIPPLLAI
Moisture	BAL	2841308	N/A	2012/05/07	VALENTINA KAFTANI
Nitrate (NO3) and Nitrite (NO2) in Soil	LACH	2842088	N/A	2012/05/08	CHRIS LI
pH CaCl2 EXTRACT		2841946	2012/05/08	2012/05/08	XUANHONG QIU
Total Kjeldahl Nitrogen - Soil	AC	2842361	2012/05/08	2012/05/11	CHANDRA NANDLAL

Maxxam ID NH6915 **Collected** 2012/05/01
Sample ID EBA2-010512-7E **Shipped**
Matrix Soil **Received** 2012/05/02

Test Description	Instrumentation	Batch	Extracted	Analyzed	Analyst
Petroleum Hydrocarbons F2-F4 in Soil	GC/FID	2840945	2012/05/07	2012/05/08	BILJANA LAZOVIC
Total Metals Analysis by ICP	ICP	2842003	2012/05/08	2012/05/08	SUBAN KANAPATHIPPLLAI
Moisture	BAL	2841308	N/A	2012/05/07	VALENTINA KAFTANI
Nitrate (NO3) and Nitrite (NO2) in Soil	LACH	2842088	N/A	2012/05/08	CHRIS LI
pH CaCl2 EXTRACT		2841946	2012/05/08	2012/05/08	XUANHONG QIU
Total Kjeldahl Nitrogen - Soil	AC	2842361	2012/05/08	2012/05/11	CHANDRA NANDLAL

Maxxam ID NH6916 **Collected** 2012/05/01
Sample ID EBA2-010512-8E **Shipped**
Matrix Soil **Received** 2012/05/02

Test Description	Instrumentation	Batch	Extracted	Analyzed	Analyst
Petroleum Hydrocarbons F2-F4 in Soil	GC/FID	2840945	2012/05/07	2012/05/08	BILJANA LAZOVIC
Total Metals Analysis by ICP	ICP	2842003	2012/05/08	2012/05/08	SUBAN KANAPATHIPPLLAI
Moisture	BAL	2841308	N/A	2012/05/07	VALENTINA KAFTANI
Nitrate (NO3) and Nitrite (NO2) in Soil	LACH	2842088	N/A	2012/05/08	CHRIS LI
pH CaCl2 EXTRACT		2841946	2012/05/08	2012/05/08	XUANHONG QIU
Total Kjeldahl Nitrogen - Soil	AC	2842361	2012/05/08	2012/05/11	CHANDRA NANDLAL

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Maxxam Job #: B262266
Report Date: 2012/05/11

SiREM - Site Recovery & Management
Client Project #: EBA #2

Test Summary

Maxxam ID NH6916 Dup
Sample ID EBA2-010512-8E
Matrix Soil

Collected 2012/05/01
Shipped
Received 2012/05/02

Test Description	Instrumentation	Batch	Extracted	Analyzed	Analyst
Nitrate (NO3) and Nitrite (NO2) in Soil	LACH	2842088	N/A	2012/05/08	CHRIS LI

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Maxxam Job #: B262266
Report Date: 2012/05/11

SiREM - Site Recovery & Management
Client Project #: EBA #2

GENERAL COMMENTS

Results relate only to the items tested.

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SiREM - Site Recovery & Management
Attention: Ximena Druar
Client Project #: EBA #2
P.O. #:
Site Location:

Quality Assurance Report

Maxxam Job Number: MB262266

QA/QC Batch Num	Init	QC Type	Parameter	Date Analyzed yyyy/mm/dd	Value	Recovery	Units	QC Limits
2840945	BLZ	Matrix Spike	o-Terphenyl	2012/05/08		100	%	50 - 130
			F2 (C10-C16 Hydrocarbons)	2012/05/08		89	%	50 - 130
			F3 (C16-C34 Hydrocarbons)	2012/05/08		111	%	50 - 130
			F4 (C34-C50 Hydrocarbons)	2012/05/08		100	%	50 - 130
		Spiked Blank	o-Terphenyl	2012/05/08		102	%	50 - 130
			F2 (C10-C16 Hydrocarbons)	2012/05/08		88	%	70 - 130
			F3 (C16-C34 Hydrocarbons)	2012/05/08		113	%	70 - 130
			F4 (C34-C50 Hydrocarbons)	2012/05/08		99	%	70 - 130
		Method Blank	o-Terphenyl	2012/05/08		100	%	50 - 130
			F2 (C10-C16 Hydrocarbons)	2012/05/08	2.0 U, MDL=2.0		ug/g	
			F3 (C16-C34 Hydrocarbons)	2012/05/08	2.2 J, MDL=2.0		ug/g	
			F4 (C34-C50 Hydrocarbons)	2012/05/08	2.0 U, MDL=2.0		ug/g	
		RPD	F2 (C10-C16 Hydrocarbons)	2012/05/08	NC		%	30
			F3 (C16-C34 Hydrocarbons)	2012/05/08	NC		%	30
			F4 (C34-C50 Hydrocarbons)	2012/05/08	NC		%	30
2841308	LKA	RPD	Moisture	2012/05/07	0.8		%	20
2842003	SUK	Matrix Spike	Acid Extractable Phosphorus (P)	2012/05/08		NC	%	75 - 125
		Spiked Blank	Acid Extractable Phosphorus (P)	2012/05/08		109	%	80 - 120
		Method Blank	Acid Extractable Phosphorus (P)	2012/05/08	<20		ug/g	
2842088	C_H	Matrix Spike						
		[NH6916-01]	Nitrite (N)	2012/05/08		99	%	75 - 125
			Nitrate (N)	2012/05/08		99	%	75 - 125
			Nitrate + Nitrite	2012/05/08		99	%	75 - 125
		Spiked Blank	Nitrite (N)	2012/05/08		98	%	75 - 125
			Nitrate (N)	2012/05/08		103	%	75 - 125
			Nitrate + Nitrite	2012/05/08		102	%	75 - 125
		Method Blank	Nitrite (N)	2012/05/08	0.1 U, MDL=0.1		ug/g	
			Nitrate (N)	2012/05/08	0.4 U, MDL=0.4		ug/g	
			Nitrate + Nitrite	2012/05/08	0.6 U, MDL=0.6		ug/g	
		RPD [NH6916-01]	Nitrite (N)	2012/05/08	NC		%	25
			Nitrate (N)	2012/05/08	2.6		%	25
			Nitrate + Nitrite	2012/05/08	2.5		%	25
2842361	C_N	Matrix Spike	Total Kjeldahl Nitrogen	2012/05/11		NC	%	75 - 125
		QC Standard	Total Kjeldahl Nitrogen	2012/05/11		96	%	75 - 125
		Method Blank	Total Kjeldahl Nitrogen	2012/05/11	3 U, MDL=3		ug/g	
		RPD	Total Kjeldahl Nitrogen	2012/05/11	15.4		%	40

Duplicate: Paired analysis of a separate portion of the same sample. Used to evaluate the variance in the measurement.
Matrix Spike: A sample to which a known amount of the analyte of interest has been added. Used to evaluate sample matrix interference.
QC Standard: A blank matrix to which a known amount of the analyte has been added. Used to evaluate analyte recovery.
Spiked Blank: A blank matrix to which a known amount of the analyte has been added. Used to evaluate analyte recovery.
Method Blank: A blank matrix containing all reagents used in the analytical procedure. Used to identify laboratory contamination.
Surrogate: A pure or isotopically labeled compound whose behavior mirrors the analytes of interest. Used to evaluate extraction efficiency.
NC (Matrix Spike): The recovery in the matrix spike was not calculated. The relative difference between the concentration in the parent sample and the spiked amount was not sufficiently significant to permit a reliable recovery calculation.
NC (RPD): The RPD was not calculated. The level of analyte detected in the parent sample and its duplicate was not sufficiently significant to permit a reliable calculation.

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Validation Signature Page

Maxxam Job #: B262266

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

CRISTINA CARRIERE, Scientific Services

MEDHAT RISKALLAH, Manager, Hydrocarbon Department

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Your Project #: EBA #2
Your C.O.C. #: 2223

Attention: Ximena Druar
SiREM - Site Recovery & Management
130 Research Lane
Suite 2
Guelph, ON
CANADA N1G 5G3

Report Date: 2012/06/07

CERTIFICATE OF ANALYSIS

MAXXAM JOB #: B278662
Received: 2012/05/30, 10:50

Sample Matrix: Soil
Samples Received: 8

Analyses	Quantity	Date Extracted	Date Analyzed	Laboratory Method	Method Reference
Petroleum Hydrocarbons F2-F4 in Soil	8	2012/06/02	2012/06/05	CAM SOP-00316	CCME CWS
Total Metals Analysis by ICP	8	2012/06/04	2012/06/05	CAM SOP-00408	SW-846 6010C
Moisture	8	N/A	2012/06/02	CAM SOP-00445	R.Carter,1993
Nitrate (NO3) and Nitrite (NO2) in Soil	8	N/A	2012/06/06	CAM SOP-00440	SM 4500 NO3I/NO2B
pH CaCl2 EXTRACT	8	2012/06/04	2012/06/04	CAM SOP-00413	SM 4500H+ B
Total Kjeldahl Nitrogen - Soil	8	2012/06/04	2012/06/06	CAM SOP-00454	EPA 351.2 Rev 2

Remarks:

Maxxam Analytics has performed all analytical testing herein in accordance with ISO 17025 and the Protocol for Analytical Methods Used in the Assessment of Properties under Part XV.1 of the Environmental Protection Act. All methodologies comply with this document and are validated for use in the laboratory. The methods and techniques employed in this analysis conform to the performance criteria (detection limits, accuracy and precision) as outlined in the Protocol for Analytical Methods Used in the Assessment of Properties under Part XV.1 of the Environmental Protection Act. Reporting results to two significant figures at the RDL is to permit statistical evaluation and is not intended to be an indication of analytical precision.

The CWS PHC methods employed by Maxxam conform to all prescribed elements of the reference method and performance based elements have been validated. All modifications have been validated and proven equivalent following the 'Alberta Environment Draft Addenda to the CWS-PHC, Appendix 6, Validation of Alternate Methods'. Documentation is available upon request. Maxxam has made the following improvements to the CWS-PHC reference benchmark method: (i) Headspace for F1; and, (ii) Mechanical extraction for F2-F4. Note: F4G cannot be added to the C6 to C50 hydrocarbons. The extraction date for samples field preserved with methanol for F1 and Volatile Organic Compounds is considered to be the date sampled.

Maxxam Analytics is accredited by SCC (Lab ID 97) for all specific parameters as required by Ontario Regulation 153/04. Maxxam Analytics is limited in liability to the actual cost of analysis unless otherwise agreed in writing. There is no other warranty expressed or implied. Samples will be retained at Maxxam Analytics for three weeks from receipt of data or as per contract.

../2

Your Project #: EBA #2
Your C.O.C. #: 2223

Attention: Ximena Druar
SiREM - Site Recovery & Management
130 Research Lane
Suite 2
Guelph, ON
CANADA N1G 5G3

Report Date: 2012/06/07

CERTIFICATE OF ANALYSIS

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

Encryption Key

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

JOLANTA GORALCZYK, Project Manager
Email: JGoralczyk@maxxam.ca
Phone# (905) 817-5700

==========

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Total cover pages: 2

Maxxam Job #: B278662
Report Date: 2012/06/07

SiREM - Site Recovery & Management
Client Project #: EBA #2

RESULTS OF ANALYSES OF SOIL

Maxxam ID		NP8761	NP8762	NP8763	NP8764	NP8765		
Sampling Date		2012/05/28 13:50	2012/05/28 13:50	2012/05/28 13:50	2012/05/28 13:50	2012/05/28 13:50		
COC Number		2223	2223	2223	2223	2223		
	Units	**EBA2-280512-1F**	**EBA2-280512-2F**	**EBA2-280512-3F**	**EBA2-280512-4F**	**EBA2-280512-5F**	**RDL**	**QC Batch**
Inorganics								
Moisture	%	12	11	12	1.1	11	1.0	2868600
Available (CaCl2) pH	pH	7.42	7.45	7.49	7.50	7.15		2869067
Total Kjeldahl Nitrogen	ug/g	205	220	184	306	302	10	2870196
Nitrite (N)	ug/g	0.2 J	0.1 J	0.2 J	0.1 J	0.1 U	0.5	2870364
Nitrate (N)	ug/g	0.4 U	0.4 U	0.4 U	0.4 U	0.4 U	2	2870364
Nitrate + Nitrite	ug/g	0.6 U	0.6 U	0.6 U	0.6 U	0.6 U	3	2870364

RDL = Reportable Detection Limit
QC Batch = Quality Control Batch

Maxxam ID		NP8766		NP8767	NP8768		
Sampling Date		2012/05/28 13:50		2012/05/28 13:50	2012/05/28 13:50		
COC Number		2223		2223	2223		
	Units	**EBA2-280512-6F**	**RDL**	**EBA2-280512-7F**	**EBA2-280512-8F**	**RDL**	**QC Batch**
Inorganics							
Moisture	%	7.7	1.0	11	5.7	1.0	2868600
Available (CaCl2) pH	pH	6.72		7.12	7.06		2869067
Total Kjeldahl Nitrogen	ug/g	342	10	699	485	100	2870196
Nitrite (N)	ug/g	0.1 U	0.5	0.3 J	0.3 J	0.5	2870364
Nitrate (N)	ug/g	0.4 U	2	25	91	2	2870364
Nitrate + Nitrite	ug/g	0.6 U	3	25	91	3	2870364

RDL = Reportable Detection Limit
QC Batch = Quality Control Batch

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Maxxam Job #: B278662
Report Date: 2012/06/07

SiREM - Site Recovery & Management
Client Project #: EBA #2

ELEMENTS BY ATOMIC SPECTROSCOPY (SOIL)

Maxxam ID		NP8761	NP8762	NP8763	NP8763		
Sampling Date		2012/05/28 13:50	2012/05/28 13:50	2012/05/28 13:50	2012/05/28 13:50		
COC Number		2223	2223	2223	2223		
	Units	**EBA2-280512-1F**	**EBA2-280512-2F**	**EBA2-280512-3F**	**EBA2-280512-3F Lab-Dup**	**RDL**	**QC Batch**
Metals							
Acid Extractable Phosphorus (P)	ug/g	180	210	200	210	20	2869687

RDL = Reportable Detection Limit
QC Batch = Quality Control Batch

Maxxam ID		NP8764	NP8765	NP8766	NP8767		
Sampling Date		2012/05/28 13:50	2012/05/28 13:50	2012/05/28 13:50	2012/05/28 13:50		
COC Number		2223	2223	2223	2223		
	Units	**EBA2-280512-4F**	**EBA2-280512-5F**	**EBA2-280512-6F**	**EBA2-280512-7F**	**RDL**	**QC Batch**
Metals							
Acid Extractable Phosphorus (P)	ug/g	210	790	820	1800	20	2869687

RDL = Reportable Detection Limit
QC Batch = Quality Control Batch

Maxxam ID		NP8768		
Sampling Date		2012/05/28 13:50		
COC Number		2223		
	Units	**EBA2-280512-8F**	**RDL**	**QC Batch**
Metals				
Acid Extractable Phosphorus (P)	ug/g	1600	20	2869687

RDL = Reportable Detection Limit
QC Batch = Quality Control Batch

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Maxxam Job #: B278662
Report Date: 2012/06/07

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Client Project #: EBA #2

PETROLEUM HYDROCARBONS (CCME)

Maxxam ID		NP8761	NP8761	NP8762	NP8763		
Sampling Date		2012/05/28 13:50	2012/05/28 13:50	2012/05/28 13:50	2012/05/28 13:50		
COC Number		2223	2223	2223	2223		
	Units	**EBA2-280512-1F**	**EBA2-280512-1F Lab-Dup**	**EBA2-280512-2F**	**EBA2-280512-3F**	**RDL**	**QC Batch**
F2-F4 Hydrocarbons							
F2 (C10-C16 Hydrocarbons)	ug/g	110	96	110	69	10	2868425
F3 (C16-C34 Hydrocarbons)	ug/g	180	150	180	120	10	2868425
F4 (C34-C50 Hydrocarbons)	ug/g	2.0 U	2.0 U	2.0 U	2.0 U	10	2868425
Reached Baseline at C50	ug/g	Yes	Yes	Yes	Yes		2868425
Surrogate Recovery (%)							
o-Terphenyl	%	92	93	94	92		2868425

RDL = Reportable Detection Limit
QC Batch = Quality Control Batch

Maxxam ID		NP8764	NP8765	NP8766	NP8767		
Sampling Date		2012/05/28 13:50	2012/05/28 13:50	2012/05/28 13:50	2012/05/28 13:50		
COC Number		2223	2223	2223	2223		
	Units	**EBA2-280512-4F**	**EBA2-280512-5F**	**EBA2-280512-6F**	**EBA2-280512-7F**	**RDL**	**QC Batch**
F2-F4 Hydrocarbons							
F2 (C10-C16 Hydrocarbons)	ug/g	24	45	48	54	10	2868425
F3 (C16-C34 Hydrocarbons)	ug/g	90	73	100	210	10	2868425
F4 (C34-C50 Hydrocarbons)	ug/g	2.0 U	2.0 U	2.0 U	28	10	2868425
Reached Baseline at C50	ug/g	Yes	Yes	Yes	Yes		2868425
Surrogate Recovery (%)							
o-Terphenyl	%	90	91	90	89		2868425

RDL = Reportable Detection Limit
QC Batch = Quality Control Batch

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Maxxam Job #: B278662
Report Date: 2012/06/07

SiREM - Site Recovery & Management
Client Project #: EBA #2

PETROLEUM HYDROCARBONS (CCME)

Maxxam ID		NP8768		
Sampling Date		2012/05/28 13:50		
COC Number		2223		
	Units	**EBA2-280512-8F**	**RDL**	**QC Batch**
F2-F4 Hydrocarbons				
F2 (C10-C16 Hydrocarbons)	ug/g	36	10	2868425
F3 (C16-C34 Hydrocarbons)	ug/g	170	10	2868425
F4 (C34-C50 Hydrocarbons)	ug/g	26	10	2868425
Reached Baseline at C50	ug/g	Yes		2868425
Surrogate Recovery (%)				
o-Terphenyl	%	89		2868425

RDL = Reportable Detection Limit
QC Batch = Quality Control Batch

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Maxxam Job #: B278662
Report Date: 2012/06/07

SiREM - Site Recovery & Management
Client Project #: EBA #2

Test Summary

Maxxam ID NP8761 **Collected** 2012/05/28
Sample ID EBA2-280512-1F **Shipped**
Matrix Soil **Received** 2012/05/30

Test Description	Instrumentation	Batch	Extracted	Analyzed	Analyst
Petroleum Hydrocarbons F2-F4 in Soil	GC/FID	2868425	2012/06/02	2012/06/05	(KENT) MAOLIN LI
Total Metals Analysis by ICP	ICP	2869687	2012/06/04	2012/06/05	SUBAN KANAPATHIPPLLAI
Moisture	BAL	2868600	N/A	2012/06/02	VALENTINA KAFTANI
Nitrate (NO3) and Nitrite (NO2) in Soil	LACH	2870364	N/A	2012/06/06	CHRIS LI
pH CaCl2 EXTRACT		2869067	2012/06/04	2012/06/04	XUANHONG QIU
Total Kjeldahl Nitrogen - Soil	AC	2870196	2012/06/04	2012/06/06	CHANDRA NANDLAL

Maxxam ID NP8761 Dup **Collected** 2012/05/28
Sample ID EBA2-280512-1F **Shipped**
Matrix Soil **Received** 2012/05/30

Test Description	Instrumentation	Batch	Extracted	Analyzed	Analyst
Petroleum Hydrocarbons F2-F4 in Soil	GC/FID	2868425	2012/06/02	2012/06/05	(KENT) MAOLIN LI

Maxxam ID NP8762 **Collected** 2012/05/28
Sample ID EBA2-280512-2F **Shipped**
Matrix Soil **Received** 2012/05/30

Test Description	Instrumentation	Batch	Extracted	Analyzed	Analyst
Petroleum Hydrocarbons F2-F4 in Soil	GC/FID	2868425	2012/06/02	2012/06/05	(KENT) MAOLIN LI
Total Metals Analysis by ICP	ICP	2869687	2012/06/04	2012/06/05	SUBAN KANAPATHIPPLLAI
Moisture	BAL	2868600	N/A	2012/06/02	VALENTINA KAFTANI
Nitrate (NO3) and Nitrite (NO2) in Soil	LACH	2870364	N/A	2012/06/06	CHRIS LI
pH CaCl2 EXTRACT		2869067	2012/06/04	2012/06/04	XUANHONG QIU
Total Kjeldahl Nitrogen - Soil	AC	2870196	2012/06/04	2012/06/06	CHANDRA NANDLAL

Maxxam ID NP8763 **Collected** 2012/05/28
Sample ID EBA2-280512-3F **Shipped**
Matrix Soil **Received** 2012/05/30

Test Description	Instrumentation	Batch	Extracted	Analyzed	Analyst
Petroleum Hydrocarbons F2-F4 in Soil	GC/FID	2868425	2012/06/02	2012/06/05	(KENT) MAOLIN LI
Total Metals Analysis by ICP	ICP	2869687	2012/06/04	2012/06/05	SUBAN KANAPATHIPPLLAI
Moisture	BAL	2868600	N/A	2012/06/02	VALENTINA KAFTANI
Nitrate (NO3) and Nitrite (NO2) in Soil	LACH	2870364	N/A	2012/06/06	CHRIS LI
pH CaCl2 EXTRACT		2869067	2012/06/04	2012/06/04	XUANHONG QIU
Total Kjeldahl Nitrogen - Soil	AC	2870196	2012/06/04	2012/06/06	CHANDRA NANDLAL

Maxxam ID NP8763 Dup **Collected** 2012/05/28
Sample ID EBA2-280512-3F **Shipped**
Matrix Soil **Received** 2012/05/30

Test Description	Instrumentation	Batch	Extracted	Analyzed	Analyst
Total Metals Analysis by ICP	ICP	2869687	2012/06/04	2012/06/05	SUBAN KANAPATHIPPLLAI

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Maxxam Job #: B278662
Report Date: 2012/06/07

SiREM - Site Recovery & Management
Client Project #: EBA #2

Test Summary

Maxxam ID NP8764 **Collected** 2012/05/28
Sample ID EBA2-280512-4F **Shipped**
Matrix Soil **Received** 2012/05/30

Test Description	Instrumentation	Batch	Extracted	Analyzed	Analyst
Petroleum Hydrocarbons F2-F4 in Soil	GC/FID	2868425	2012/06/02	2012/06/05	(KENT) MAOLIN LI
Total Metals Analysis by ICP	ICP	2869687	2012/06/04	2012/06/05	SUBAN KANAPATHIPPLLAI
Moisture	BAL	2868600	N/A	2012/06/02	VALENTINA KAFTANI
Nitrate (NO3) and Nitrite (NO2) in Soil	LACH	2870364	N/A	2012/06/06	CHRIS LI
pH CaCl2 EXTRACT		2869067	2012/06/04	2012/06/04	XUANHONG QIU
Total Kjeldahl Nitrogen - Soil	AC	2870196	2012/06/04	2012/06/06	CHANDRA NANDLAL

Maxxam ID NP8765 **Collected** 2012/05/28
Sample ID EBA2-280512-5F **Shipped**
Matrix Soil **Received** 2012/05/30

Test Description	Instrumentation	Batch	Extracted	Analyzed	Analyst
Petroleum Hydrocarbons F2-F4 in Soil	GC/FID	2868425	2012/06/02	2012/06/05	(KENT) MAOLIN LI
Total Metals Analysis by ICP	ICP	2869687	2012/06/04	2012/06/05	SUBAN KANAPATHIPPLLAI
Moisture	BAL	2868600	N/A	2012/06/02	VALENTINA KAFTANI
Nitrate (NO3) and Nitrite (NO2) in Soil	LACH	2870364	N/A	2012/06/06	CHRIS LI
pH CaCl2 EXTRACT		2869067	2012/06/04	2012/06/04	XUANHONG QIU
Total Kjeldahl Nitrogen - Soil	AC	2870196	2012/06/04	2012/06/06	CHANDRA NANDLAL

Maxxam ID NP8766 **Collected** 2012/05/28
Sample ID EBA2-280512-6F **Shipped**
Matrix Soil **Received** 2012/05/30

Test Description	Instrumentation	Batch	Extracted	Analyzed	Analyst
Petroleum Hydrocarbons F2-F4 in Soil	GC/FID	2868425	2012/06/02	2012/06/05	(KENT) MAOLIN LI
Total Metals Analysis by ICP	ICP	2869687	2012/06/04	2012/06/05	SUBAN KANAPATHIPPLLAI
Moisture	BAL	2868600	N/A	2012/06/02	VALENTINA KAFTANI
Nitrate (NO3) and Nitrite (NO2) in Soil	LACH	2870364	N/A	2012/06/06	CHRIS LI
pH CaCl2 EXTRACT		2869067	2012/06/04	2012/06/04	XUANHONG QIU
Total Kjeldahl Nitrogen - Soil	AC	2870196	2012/06/04	2012/06/06	CHANDRA NANDLAL

Maxxam ID NP8767 **Collected** 2012/05/28
Sample ID EBA2-280512-7F **Shipped**
Matrix Soil **Received** 2012/05/30

Test Description	Instrumentation	Batch	Extracted	Analyzed	Analyst
Petroleum Hydrocarbons F2-F4 in Soil	GC/FID	2868425	2012/06/02	2012/06/05	(KENT) MAOLIN LI
Total Metals Analysis by ICP	ICP	2869687	2012/06/04	2012/06/05	SUBAN KANAPATHIPPLLAI
Moisture	BAL	2868600	N/A	2012/06/02	VALENTINA KAFTANI
Nitrate (NO3) and Nitrite (NO2) in Soil	LACH	2870364	N/A	2012/06/06	CHRIS LI
pH CaCl2 EXTRACT		2869067	2012/06/04	2012/06/04	XUANHONG QIU
Total Kjeldahl Nitrogen - Soil	AC	2870196	2012/06/04	2012/06/06	CHANDRA NANDLAL

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Maxxam Job #: B278662
Report Date: 2012/06/07

SiREM - Site Recovery & Management
Client Project #: EBA #2

Test Summary

Maxxam ID NP8768
Sample ID EBA2-280512-8F
Matrix Soil

Collected 2012/05/28
Shipped
Received 2012/05/30

Test Description	Instrumentation	Batch	Extracted	Analyzed	Analyst
Petroleum Hydrocarbons F2-F4 in Soil	GC/FID	2868425	2012/06/02	2012/06/05	(KENT) MAOLIN LI
Total Metals Analysis by ICP	ICP	2869687	2012/06/04	2012/06/05	SUBAN KANAPATHIPPLLAI
Moisture	BAL	2868600	N/A	2012/06/02	VALENTINA KAFTANI
Nitrate (NO3) and Nitrite (NO2) in Soil	LACH	2870364	N/A	2012/06/06	CHRIS LI
pH CaCl2 EXTRACT		2869067	2012/06/04	2012/06/04	XUANHONG QIU
Total Kjeldahl Nitrogen - Soil	AC	2870196	2012/06/04	2012/06/06	CHANDRA NANDLAL

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SiREM - Site Recovery & Management
Client Project #: EBA #2

GENERAL COMMENTS

Results relate only to the items tested.

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SiREM - Site Recovery & Management
Attention: Ximena Druar
Client Project #: EBA #2
P.O. #:
Site Location:

Quality Assurance Report

Maxxam Job Number: MB278662

QA/QC Batch Num	Init	QC Type	Parameter	Date Analyzed yyyy/mm/dd	Value	Recovery	Units	QC Limits
2868425	KLI	Matrix Spike						
		[NP8761-01]	o-Terphenyl	2012/06/05		87	%	50 - 130
			F2 (C10-C16 Hydrocarbons)	2012/06/05		NC	%	50 - 130
			F3 (C16-C34 Hydrocarbons)	2012/06/05		104	%	50 - 130
			F4 (C34-C50 Hydrocarbons)	2012/06/05		100	%	50 - 130
		Spiked Blank	o-Terphenyl	2012/06/05		84	%	50 - 130
			F2 (C10-C16 Hydrocarbons)	2012/06/05		102	%	70 - 130
			F3 (C16-C34 Hydrocarbons)	2012/06/05		106	%	70 - 130
			F4 (C34-C50 Hydrocarbons)	2012/06/05		100	%	70 - 130
		Method Blank	o-Terphenyl	2012/06/05		94	%	50 - 130
			F2 (C10-C16 Hydrocarbons)	2012/06/05	2.0 U, MDL=2.0		ug/g	
			F3 (C16-C34 Hydrocarbons)	2012/06/05	3.1 J, MDL=2.0		ug/g	
			F4 (C34-C50 Hydrocarbons)	2012/06/05	2.0 U, MDL=2.0		ug/g	
		RPD [NP8761-01]	F2 (C10-C16 Hydrocarbons)	2012/06/05	17.5		%	30
			F3 (C16-C34 Hydrocarbons)	2012/06/05	16.5		%	30
			F4 (C34-C50 Hydrocarbons)	2012/06/05	NC		%	30
2868600	PHM	RPD	Moisture	2012/06/02	2.3		%	20
2869687	SUK	Matrix Spike						
		[NP8763-01]	Acid Extractable Phosphorus (P)	2012/06/05		NC	%	75 - 125
		Spiked Blank	Acid Extractable Phosphorus (P)	2012/06/05		96	%	80 - 120
		Method Blank	Acid Extractable Phosphorus (P)	2012/06/05	<20		ug/g	
		RPD [NP8763-01]	Acid Extractable Phosphorus (P)	2012/06/05	8.1		%	30
2870196	C_N	Matrix Spike	Total Kjeldahl Nitrogen	2012/06/06		NC	%	75 - 125
		QC Standard	Total Kjeldahl Nitrogen	2012/06/06		82	%	75 - 125
		Method Blank	Total Kjeldahl Nitrogen	2012/06/06	3 U, MDL=3		ug/g	
		RPD	Total Kjeldahl Nitrogen	2012/06/06	3.8		%	40
2870364	C_H	Matrix Spike	Nitrite (N)	2012/06/06		99	%	75 - 125
			Nitrate (N)	2012/06/06		101	%	75 - 125
			Nitrate + Nitrite	2012/06/06		100	%	75 - 125
		Spiked Blank	Nitrite (N)	2012/06/06		100	%	75 - 125
			Nitrate (N)	2012/06/06		100	%	75 - 125
			Nitrate + Nitrite	2012/06/06		100	%	75 - 125
		Method Blank	Nitrite (N)	2012/06/06	0.1 U, MDL=0.1		ug/g	
			Nitrate (N)	2012/06/06	0.4 U, MDL=0.4		ug/g	
			Nitrate + Nitrite	2012/06/06	0.6 U, MDL=0.6		ug/g	
		RPD	Nitrite (N)	2012/06/06	NC		%	25
			Nitrate (N)	2012/06/06	NC		%	25
			Nitrate + Nitrite	2012/06/06	NC		%	25

Duplicate: Paired analysis of a separate portion of the same sample. Used to evaluate the variance in the measurement.
Matrix Spike: A sample to which a known amount of the analyte of interest has been added. Used to evaluate sample matrix interference.
QC Standard: A blank matrix to which a known amount of the analyte has been added. Used to evaluate analyte recovery.
Spiked Blank: A blank matrix to which a known amount of the analyte has been added. Used to evaluate analyte recovery.
Method Blank: A blank matrix containing all reagents used in the analytical procedure. Used to identify laboratory contamination.
Surrogate: A pure or isotopically labeled compound whose behavior mirrors the analytes of interest. Used to evaluate extraction efficiency.
NC (Matrix Spike): The recovery in the matrix spike was not calculated. The relative difference between the concentration in the parent sample and the spiked amount was not sufficiently significant to permit a reliable recovery calculation.
NC (RPD): The RPD was not calculated. The level of analyte detected in the parent sample and its duplicate was not sufficiently significant to permit a reliable calculation.

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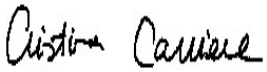
Validation Signature Page

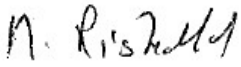
Maxxam Job #: B278662

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

BRAD NEWMAN, Scientific Specialist



CRISTINA CARRIERE, Scientific Services



MEDHAT RISKALLAH, Manager, Hydrocarbon 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.

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