

## Analytical Report

Bill To: AC Environmental  
 Report To: AC Environmental  
 Unit 109  
 117 Pembina Road  
 Sherwood Park, AB, Canada  
 T8H 0J4  
 Attn: Kris Shepherd  
 Sampled By:  
 Company:

Project:  
 ID:  
 Name:  
 Location:  
 LSD:  
 P.O.:  
 Acct code:

Lot ID: **606892**  
 Control Number:  
 Date Received: Mar 12, 2008  
 Date Reported: Jun 9, 2008  
 Report Number: 1125820

**Reference Number** 606892-1  
**Sample Date**  
**Sample Location**  
**Sample Description** AC Aqua Polymer  
**Sample Matrix** Waste - industrial

Analyte	Units	Result	Nominal Detection Limit	Guideline Limit	Guideline Comments	
<b>Leachate Inorganic - TCLP</b>						
Antimony	TCLP Leachate	mg/L	<0.002	0.002	500	Acceptable
Arsenic	TCLP Leachate	mg/L	<0.002	0.002	5	Acceptable
Barium	TCLP Leachate	mg/L	<0.01	0.01	100	Acceptable
Beryllium	TCLP Leachate	mg/L	<0.001	0.001	5	Acceptable
Boron	TCLP Leachate	mg/L	<0.02	0.02	500	Acceptable
Cadmium	TCLP Leachate	mg/L	<0.0001	0.0001	1	Acceptable
Chromium	TCLP Leachate	mg/L	<0.005	0.005	5	Acceptable
Cobalt	TCLP Leachate	mg/L	<0.001	0.001	100	Acceptable
Copper	TCLP Leachate	mg/L	0.01	0.01	100	Acceptable
Iron	TCLP Leachate	mg/L	<0.1	0.1	1000	Acceptable
Lead	TCLP Leachate	mg/L	<0.001	0.001	5	Acceptable
Mercury	TCLP Leachate	mg/L	<0.0001	0.0001	0.2	Acceptable
Nickel	TCLP Leachate	mg/L	0.014	0.005	5	Acceptable
Selenium	TCLP Leachate	mg/L	<0.002	0.002	1	Acceptable
Silver	TCLP Leachate	mg/L	<0.001	0.001	5	Acceptable
Thallium	TCLP Leachate	mg/L	<0.0005	0.0005	5	Acceptable
Uranium	TCLP Leachate	mg/L	<0.005	0.005	2.0	Acceptable
Vanadium	TCLP Leachate	mg/L	0.002	0.001	100	Acceptable
Zinc	TCLP Leachate	mg/L	0.02	0.01	500	Acceptable
Zirconium	TCLP Leachate	mg/L	<0.01	0.01	500	Acceptable
pH	Initial		6.8			n/a
pH	Final		4.4			n/a
<b>Soil Acidity</b>						
pH	1:2 Soil:Water	pH	6.5		2-12.5	Acceptable
<b>Waste Characterization</b>						
Flash Point		°C	>75		61	Acceptable
Flash			No			n/a
<b>Mono-Aromatic Hydrocarbons - Leachate</b>						
Benzene		mg/L	<0.01	0.01	0.5	Acceptable
Ethylbenzene		mg/L	<0.01	0.01	0.5	Acceptable
Toluene		mg/L	<0.01	0.01	0.5	Acceptable
Total Xylenes (m,p,o)		mg/L	<0.02	0.02	0.5	Acceptable

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**Reference Number**      606892-2  
**Sample Date**  
**Sample Location**  
**Sample Description**      AC Carbon Polymer  
**Sample Matrix**              Waste - industrial

Analyte	Units	Result	Nominal Detection Limit	Guideline Limit	Guideline Comments	
<b>Leachate Inorganic - TCLP</b>						
Antimony	TCLP Leachate	mg/L	<0.002	0.002	500	Acceptable
Arsenic	TCLP Leachate	mg/L	<0.002	0.002	5	Acceptable
Barium	TCLP Leachate	mg/L	<0.01	0.01	100	Acceptable
Beryllium	TCLP Leachate	mg/L	<0.001	0.001	5	Acceptable
Boron	TCLP Leachate	mg/L	<0.02	0.02	500	Acceptable
Cadmium	TCLP Leachate	mg/L	<0.0001	0.0001	1	Acceptable
Chromium	TCLP Leachate	mg/L	0.013	0.005	5	Acceptable
Cobalt	TCLP Leachate	mg/L	<0.001	0.001	100	Acceptable
Copper	TCLP Leachate	mg/L	<0.01	0.01	100	Acceptable
Iron	TCLP Leachate	mg/L	<0.1	0.1	1000	Acceptable
Lead	TCLP Leachate	mg/L	0.001	0.001	5	Acceptable
Mercury	TCLP Leachate	mg/L	<0.0001	0.0001	0.2	Acceptable
Nickel	TCLP Leachate	mg/L	<0.005	0.005	5	Acceptable
Selenium	TCLP Leachate	mg/L	<0.002	0.002	1	Acceptable
Silver	TCLP Leachate	mg/L	<0.001	0.001	5	Acceptable
Thallium	TCLP Leachate	mg/L	<0.0005	0.0005	5	Acceptable
Uranium	TCLP Leachate	mg/L	<0.005	0.005	2.0	Acceptable
Vanadium	TCLP Leachate	mg/L	<0.001	0.001	100	Acceptable
Zinc	TCLP Leachate	mg/L	0.02	0.01	500	Acceptable
Zirconium	TCLP Leachate	mg/L	<0.01	0.01	500	Acceptable
pH	Initial		6.5			n/a
pH	Final		5.3			n/a
<b>Soil Acidity</b>						
pH	1:2 Soil:Water	pH	7.7		2-12.5	Acceptable
<b>Waste Characterization</b>						
Flash Point		°C	>75		61	Acceptable
Flash			No			n/a
<b>Mono-Aromatic Hydrocarbons - Leachate</b>						
Benzene		mg/L	<0.01	0.01	0.5	Acceptable
Ethylbenzene		mg/L	<0.01	0.01	0.5	Acceptable
Toluene		mg/L	<0.01	0.01	0.5	Acceptable
Total Xylenes (m,p,o)		mg/L	<0.02	0.02	0.5	Acceptable

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**Reference Number** 606892-3  
**Sample Date**  
**Sample Location**  
**Sample Description** AC Carbon  
**Sample Matrix** Waste - industrial

Analyte	Units	Result	Nominal Detection Limit	Guideline Limit	Guideline Comments	
<b>Leachate Inorganic - TCLP</b>						
Antimony	TCLP Leachate	mg/L	<0.002	0.002	500	Acceptable
Arsenic	TCLP Leachate	mg/L	<0.002	0.002	5	Acceptable
Barium	TCLP Leachate	mg/L	<0.01	0.01	100	Acceptable
Beryllium	TCLP Leachate	mg/L	<0.001	0.001	5	Acceptable
Boron	TCLP Leachate	mg/L	<0.02	0.02	500	Acceptable
Cadmium	TCLP Leachate	mg/L	<0.0001	0.0001	1	Acceptable
Chromium	TCLP Leachate	mg/L	0.009	0.005	5	Acceptable
Cobalt	TCLP Leachate	mg/L	<0.001	0.001	100	Acceptable
Copper	TCLP Leachate	mg/L	<0.01	0.01	100	Acceptable
Iron	TCLP Leachate	mg/L	<0.1	0.1	1000	Acceptable
Lead	TCLP Leachate	mg/L	<0.001	0.001	5	Acceptable
Mercury	TCLP Leachate	mg/L	<0.0001	0.0001	0.2	Acceptable
Nickel	TCLP Leachate	mg/L	0.006	0.005	5	Acceptable
Selenium	TCLP Leachate	mg/L	<0.002	0.002	1	Acceptable
Silver	TCLP Leachate	mg/L	<0.001	0.001	5	Acceptable
Thallium	TCLP Leachate	mg/L	<0.0005	0.0005	5	Acceptable
Uranium	TCLP Leachate	mg/L	<0.005	0.005	2.0	Acceptable
Vanadium	TCLP Leachate	mg/L	0.001	0.001	100	Acceptable
Zinc	TCLP Leachate	mg/L	0.01	0.01	500	Acceptable
Zirconium	TCLP Leachate	mg/L	<0.01	0.01	500	Acceptable
pH	Initial		6.0			n/a
pH	Final		5.2			n/a
<b>Soil Acidity</b>						
pH	1:2 Soil:Water	pH	6.1		2-12.5	Acceptable
<b>Waste Characterization</b>						
Flash Point		°C	>75		61	Acceptable
Flash			No			n/a
<b>Mono-Aromatic Hydrocarbons - Leachate</b>						
Benzene		mg/L	<0.01	0.01	0.5	Acceptable
Ethylbenzene		mg/L	<0.01	0.01	0.5	Acceptable
Toluene		mg/L	<0.01	0.01	0.5	Acceptable
Total Xylenes (m,p,o)		mg/L	<0.02	0.02	0.5	Acceptable



Approved by: Anthony Neumann, MSc  
 Laboratory Operations Manager

**Methodology and Notes**

Bill To: AC Environmental	Project:	Lot ID: <b>606892</b>
Report To: AC Environmental	ID:	Control Number:
Unit 109	Name:	Date Received: Mar 12, 2008
117 Pembina Road	Location:	Date Reported: Jun 9, 2008
Sherwood Park, AB, Canada	LSD:	Report Number: 1125820
T8H 0J4	P.O.:	
Attn: Kris Shepherd	Acct code:	
Sampled By:		
Company:		

**Method of Analysis**

Method Name	Reference	Method	Date Analysis Started	Location
Flashpoint (Closed cup)	ASTM	Flash Point by Pensky-Martens Closed Cup Tester - Procedure B, D 93-02b	19-Mar-08	BTG Edmonton
Leachate Inorganic (TCLP) ICP-MS	US EPA	* Toxicity Characteristic Leaching Procedure, SW-846, EPA 1311	14-Mar-08	BTG Edmonton
Leachate Inorganic (TCLP) ICP-MS	US EPA	* Toxicity Characteristic Leaching Procedure, SW-846, EPA 1311	17-Mar-08	BTG Edmonton
Leachate Organic (TCLP-BTEX)	US EPA	* Toxicity Characteristic Leaching Procedure, SW-846, EPA 1311	17-Mar-08	BTG Edmonton
pH and Conductivity in general soil 1:2	McKeague	* 1:2 Soil:Water Ratio, 4.12	12-Mar-08	BTG Edmonton

\* Bodycote method(s) based on reference method

**References**

ASTM	Annual Book of ASTM Standards
Guideline	Alberta Environmental Protection,
McKeague	Manual on Soil Sampling and Methods of Analysis
US EPA	US Environmental Protection Agency Test Methods

**Comments:**

- Leachable BTEX and TCLP Metals were run with a 100 times dilution on sample 1 as the sample absorbed the normal 20 parts water.
- F962 analysis was performed by a subcontract laboratory Hydroqual. See attached report
- Fish Bioassay analysis was performed by a subcontract laboratory. See attached Hydroqual report
- This report was re-issued to change the sample description as requested by Kris of AC Environmental on May 12th. Revised report 1118642 replace original report 1099576.
- This report was re-issued to change the sample description for samples 1 & 2 as requested by Kris of AC Environmental. Revised report 1125820 replaces original report 1118642.
- Samples 1 to 3 were received in a plastic bag which does not meet the sample requirements for flashpoint analysis as specified by the reference method.

Please direct any inquiries regarding this report to our Client Services group.

Results relate only to samples as submitted.

The test report shall not be reproduced except in full, without the written approval of the laboratory.

## Quality Control

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## Leachate Inorganic - TCLP

Blanks	Units	Measured	Mean	Lower Limit	Upper Limit	Passed QC
Antimony	mg/L	0.004	0.150	-0.114	0.414	yes
Arsenic	mg/L	<0.002	0.008	-0.181	0.197	yes
Barium	mg/L	<0.01	0.27	-0.72	1.27	yes
Beryllium	mg/L	<0.001	0.005	-0.055	0.065	yes
Boron	mg/L	<0.02	0.58	-1.67	2.82	yes
Cadmium	mg/L	<0.0001	0.0002	-0.0148	0.0152	yes
Chromium	mg/L	<0.005	0.266	-0.301	0.833	yes
Cobalt	mg/L	<0.001	0.003	-0.051	0.057	yes
Copper	mg/L	<0.01	0.28	-0.80	1.36	yes
Iron	mg/L	<0.1	0.4	-7.1	7.9	yes
Lead	mg/L	<0.001	0.026	-0.100	0.152	yes
Mercury	mg/L	<0.0001	0.0000	-0.0010	0.0010	yes
Nickel	mg/L	<0.005	0.224	-0.454	0.902	yes
Selenium	mg/L	<0.002	-0.047	-0.425	0.331	yes
Silver	mg/L	<0.001	0.005	-0.088	0.098	yes
Thallium	mg/L	<0.0005	0.0008	-0.0064	0.0080	yes
Uranium	mg/L	<0.005	0.000	-0.183	0.183	yes
Vanadium	mg/L	<0.001	0.010	-0.080	0.100	yes
Zinc	mg/L	<0.01	0.36	-1.35	2.07	yes
Zirconium	mg/L	<0.01	0.02	-0.36	0.40	yes

Material Used: Edmonton Method Blank

Date Acquired: March 19, 2008

Acquired By: To Thong

Control Sample	Units	Measured	Mean	Lower Limit	Upper Limit	Passed QC
Antimony	mg/L	0.039	0.041	0.035	0.047	yes
Arsenic	mg/L	0.040	0.040	0.034	0.046	yes
Barium	mg/L	0.19	0.20	0.18	0.22	yes
Beryllium	mg/L	0.021	0.020	0.017	0.022	yes
Boron	mg/L	0.39	0.40	0.35	0.45	yes
Cadmium	mg/L	0.0020	0.0020	0.0017	0.0023	yes
Chromium	mg/L	0.094	0.099	0.092	0.107	yes
Cobalt	mg/L	0.021	0.020	0.018	0.022	yes
Copper	mg/L	0.19	0.20	0.18	0.21	yes
Iron	mg/L	3.9	3.9	3.6	4.3	yes
Lead	mg/L	0.020	0.020	0.018	0.022	yes
Mercury	mg/L	0.0028	0.0030	0.0021	0.0039	yes
Nickel	mg/L	0.100	0.099	0.090	0.108	yes
Selenium	mg/L	0.039	0.040	0.034	0.046	yes
Silver	mg/L	0.021	0.021	0.019	0.023	yes
Thallium	mg/L	0.0103	0.0100	0.0090	0.0110	yes
Uranium	mg/L	0.099	0.098	0.086	0.110	yes
Vanadium	mg/L	0.018	0.019	0.017	0.021	yes

## Quality Control

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### Leachate Inorganic - TCLP - Continued

Control Sample	Units	Measured	Mean	Lower Limit	Upper Limit	Passed QC
Zinc	mg/L	0.20	0.20	0.18	0.22	yes
Zirconium	mg/L	0.20	0.20	0.18	0.22	yes
Material Used: Metals High						
Date Acquired: March 19, 2008						
Acquired By: To Thong						
Antimony	mg/L	0.002	0.002	0.000	0.004	yes
Arsenic	mg/L	0.002	0.002	-0.001	0.005	yes
Barium	mg/L	0.01	0.01	0.01	0.01	yes
Beryllium	mg/L	0.001	0.001	0.001	0.001	yes
Boron	mg/L	0.02	0.02	0.02	0.02	yes
Cadmium	mg/L	0.0001	0.0001	-0.0001	0.0003	yes
Chromium	mg/L	0.005	0.005	0.004	0.006	yes
Cobalt	mg/L	0.001	0.001	0.001	0.001	yes
Copper	mg/L	0.01	0.01	0.01	0.01	yes
Iron	mg/L	0.2	0.2	0.2	0.2	yes
Lead	mg/L	0.001	0.001	0.001	0.001	yes
Mercury	mg/L	0.0007	0.0008	0.0006	0.0010	yes
Nickel	mg/L	0.005	0.005	0.005	0.005	yes
Selenium	mg/L	0.002	0.002	0.002	0.002	yes
Silver	mg/L	0.001	0.001	0.001	0.001	yes
Thallium	mg/L	0.0005	0.0005	0.0004	0.0006	yes
Uranium	mg/L	0.005	0.005	0.004	0.006	yes
Vanadium	mg/L	0.001	0.001	0.001	0.001	yes
Zinc	mg/L	0.01	0.01	0.01	0.01	yes
Zirconium	mg/L	0.01	0.01	0.01	0.01	yes
Material Used: Metals Low						
Date Acquired: March 19, 2008						
Acquired By: To Thong						

### Soil Acidity

Blanks	Units	Measured	Mean	Lower Limit	Upper Limit	Passed QC
pH	pH	6.1	6.5	5.6	7.4	yes
Material Used: Edmonton Method Blank						
Date Acquired: March 12, 2008						
Acquired By: Hon Tang						
Replicates	Units	Replicate1	Replicate2	% RSD Criteria	Absolute Criteria	Passed QC
pH	pH	8.6	8.6	0.3	0.3	yes
Material Used: Edmonton Duplicate						
Date Acquired: March 12, 2008						
Acquired By: Hon Tang						

Control Sample	Units	Measured	Mean	Lower Limit	Upper Limit	Passed QC
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**Quality Control**

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 Company:

**Soil Acidity - Continued**

Control Sample	Units	Measured	Mean	Lower Limit	Upper Limit	Passed QC
pH	pH	6.3	6.4	6.1	6.7	yes
Material Used: 2007 Farmsoil Standard						
Date Acquired: March 12, 2008						
Acquired By: Hon Tang						

**Waste Characterization**

Control Sample	Units	Measured	Mean	Lower Limit	Upper Limit	Passed QC
Flash Point	°C	54	54	53	56	yes
Material Used: Flash Pt						
Date Acquired: March 19, 2008						
Acquired By: Eman Ismaeel						

**Mono-Aromatic Hydrocarbons - Leachate**

Blanks	Units	Measured	Mean	Lower Limit	Upper Limit	Passed QC
Benzene	mg/L	<0.01	0.00	-9.99	9.99	yes
Ethylbenzene	mg/L	<0.01	0.00	-9.99	9.99	yes
m,p-Xylene	mg/L	<0.01	0.00	-9.99	9.99	yes
o-Xylene	mg/L	<0.01	0.00	-9.99	9.99	yes
Toluene	mg/L	<0.01	0.00	-9.99	9.99	yes
Material Used: Method Blank - Organics						
Date Acquired: March 19, 2008						
Acquired By: To Thong						

Calibration Check	Units	Measured	Target	% Recovery	Criteria (%)	Passed QC
Benzene	ng	52.1	50.00	104.16	77.50 - 113.50	yes
Ethylbenzene	ng	53.1	50.00	106.20	80.40 - 110.40	yes
m,p-Xylene	ng	105.9	100.00	105.91	80.90 - 110.90	yes
o-Xylene	ng	52.6	50.00	105.30	81.30 - 111.30	yes
Toluene	ng	54.6	50.00	109.12	84.30 - 114.30	yes
Material Used: Calibration Check - Organics						
Date Acquired: March 17, 2008						
Acquired By: Alvin Kwan						