

# **APPENDIX A**

## **Soils Investigation Report**

Your Project #: 111212170.700  
NSD # 16300R

**Attention: DARREN KEAM**  
STANTEC CONSULTING LTD  
905 WAVERLY STREET  
WINNIPEG, MB  
CANADA R3T 5P4

Report Date: 2010/05/03

**CERTIFICATE OF ANALYSIS**

**MAXXAM JOB #: B027625**  
**Received: 2010/04/29, 13:20**

Sample Matrix: Soil  
# Samples Received: 3

Analyses	Quantity	Date		Laboratory Method	Analytical Method
		Extracted	Analyzed		
BTEX/F1 by HS GC/MS (MeOH extract)	1	2010/04/30	2010/05/03	CAL SOP-00190	EPA 8260C/CCME
CCME Hydrocarbons (F2-F4 in soil)	1	2010/04/30	2010/04/30	CAL SOP-00086 AB WI-00016	CCME PHC-CWS
CCME Hydrocarbons (F2-F4 in soil)	2	2010/04/30	2010/05/01	CAL SOP-00086 AB WI-00016	CCME PHC-CWS
CCME Hydrocarbons (F4G in soil)	3	2010/04/30	2010/05/03	CAL SOP-00086	CCME PHC-CWS
Moisture	3	N/A	2010/05/01	CAL SOP-00023	McKeague MSSMA 2.411

\* Results relate only to the items tested.

Encryption Key

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

JENNIFER RISPLER,  
Email: Jennifer.Rispler@MaxxamAnalytics.com  
Phone# (403) 735-2201 Ext:2201

=====  
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: 1

**RESULTS OF CHEMICAL ANALYSES OF SOIL**

Maxxam ID		T86543	T86547	T86548	T86548		
Sampling Date		2010/04/28	2010/04/28	2010/04/28	2010/04/28		
	Units	1T	2T	1M	1M Lab-Dup	RDL	QC Batch
<b>Physical Properties</b>							
Moisture	%	4.0	2.2	0.9	0.8	0.3	3925992

**PETROLEUM HYDROCARBONS (CCME)**

Maxxam ID		T86543	T86547	T86548	T86548		
Sampling Date		2010/04/28	2010/04/28	2010/04/28	2010/04/28		
	Units	1T	2T	1M	1M Lab-Dup	RDL	QC Batch
<b>Ext. Pet. Hydrocarbon</b>							
F2 (C10-C16 Hydrocarbons)	mg/kg	2300	1400	22	26	10	3924959
F3 (C16-C34 Hydrocarbons)	mg/kg	21000	13000	4100	4000	10	3924959
F4 (C34-C50 Hydrocarbons)	mg/kg	28000	17000	6500	7000	10	3924959
Reached Baseline at C50	mg/kg	NO	NO	NO	NO	N/A	3924959
<b>OIL &amp; GREASE</b>							
F4SG (Heavy Hydrocarbons-Grav.)	mg/kg	120000	70000	23000	26000	500	3924963
<b>Surrogate Recovery (%)</b>							
O-TERPHENYL (sur.)	%	31(1)	48(1)	91	92	N/A	3924959

N/A = Not Applicable

RDL = Reportable Detection Limit

(1) - Surrogate recovery below acceptance criteria due to matrix interference.

Maxxam Job #: B027625  
 Report Date: 2010/05/03

STANTEC CONSULTING LTD  
 Client Project #: 111212170.700

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

Maxxam ID		T86548		
Sampling Date		2010/04/28		
	<b>Units</b>	<b>1M</b>	<b>RDL</b>	<b>QC Batch</b>
<b>Volatiles</b>				
Benzene	mg/kg	<0.0050	0.0050	3923246
Toluene	mg/kg	<0.020	0.020	3923246
Ethylbenzene	mg/kg	0.011	0.010	3923246
Xylenes (Total)	mg/kg	<0.040	0.040	3923246
m & p-Xylene	mg/kg	<0.040	0.040	3923246
o-Xylene	mg/kg	<0.020	0.020	3923246
F1 (C6-C10) - BTEX	mg/kg	<12	12	3923246
(C6-C10)	mg/kg	<12	12	3923246
<b>Surrogate Recovery (%)</b>				
4-BROMOFLUOROBENZENE (sur.)	%	91	N/A	3923246
D10-ETHYLBENZENE (sur.)	%	84	N/A	3923246
D4-1,2-DICHLOROETHANE (sur.)	%	89	N/A	3923246
D8-TOLUENE (sur.)	%	102	N/A	3923246

N/A = Not Applicable  
 RDL = Reportable Detection Limit

Maxxam Job #: B027625  
Report Date: 2010/05/03

STANTEC CONSULTING LTD  
Client Project #: 111212170.700

Package 1	9.7°C
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Each temperature is the average of up to three cooler temperatures taken at receipt

**General Comments**

QUALITY ASSURANCE REPORT

QC Batch	Parameter	Date	Matrix Spike		Spiked Blank		Method Blank		RPD	
			% Recovery	QC Limits	% Recovery	QC Limits	Value	Units	Value (%)	QC Limits
3923246	4-BROMOFLUOROBENZENE (sur.)	2010/04/30	108	60 - 140	102	60 - 140	104	%		
3923246	D10-ETHYLBENZENE (sur.)	2010/04/30	106	30 - 130	88	30 - 130	122	%		
3923246	D4-1,2-DICHLOROETHANE (sur.)	2010/04/30	99	60 - 140	90	60 - 140	112	%		
3923246	D8-TOLUENE (sur.)	2010/04/30	87	60 - 140	104	60 - 140	80	%		
3923246	Benzene	2010/05/01	104	60 - 140	88	60 - 140	<0.0050	mg/kg	NC	50
3923246	Toluene	2010/05/01	103	60 - 140	87	60 - 140	<0.020	mg/kg	NC	50
3923246	Ethylbenzene	2010/05/01	107	60 - 140	87	60 - 140	<0.010	mg/kg	NC	50
3923246	m & p-Xylene	2010/05/01	108	60 - 140	89	60 - 140	<0.040	mg/kg	NC	50
3923246	o-Xylene	2010/05/01	108	60 - 140	87	60 - 140	<0.020	mg/kg	NC	50
3923246	(C6-C10)	2010/05/01	98	60 - 140	96	60 - 140	<12	mg/kg	NC	50
3923246	Xylenes (Total)	2010/05/01					<0.040	mg/kg	NC	50
3923246	F1 (C6-C10) - BTEX	2010/05/01					<12	mg/kg	NC	50
3924959	O-TERPHENYL (sur.)	2010/04/30	75	50 - 130	98	50 - 130	96	%		
3924959	F2 (C10-C16 Hydrocarbons)	2010/05/01	75	50 - 130	100	80 - 120	<10	mg/kg	NC	50
3924959	F3 (C16-C34 Hydrocarbons)	2010/05/01	NC	50 - 130	95	80 - 120	<10	mg/kg	3.1	50
3924959	F4 (C34-C50 Hydrocarbons)	2010/05/01	NC	50 - 130	100	80 - 120	<10	mg/kg	7.6	50
3924963	F4SG (Heavy Hydrocarbons-Grav.)	2010/05/03			105	80 - 120	<500	mg/kg	9.8	50
3925992	Moisture	2010/05/01							NC	20

N/A = Not Applicable

RPD = Relative Percent Difference

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 (Matrix Spike): The recovery in the matrix spike was not calculated. The relative difference between the concentration in the parent sample and the spiked amount was not sufficiently significant to permit a reliable recovery calculation.


NC (RPD): The RPD was not calculated. The level of analyte detected in the parent sample and its duplicate was not sufficiently significant to permit a reliable calculation.

Validation Signature Page

Maxxam Job #: B027625

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



LUBA SHYMUSHOVSKA, Senior Analyst, Organic Department



ORLA JORGENSEN, Organics Supervisor

=====  
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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NSD # 16300R

**Attention: DARREN KEAM**  
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905 WAVERLY STREET  
WINNIPEG, MB  
CANADA R3T 5P4

Report Date: 2010/05/03

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# Samples Received: 3

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		Extracted	Analyzed		
BTEX/F1 by HS GC/MS (MeOH extract)	1	2010/04/30	2010/05/03	CAL SOP-00190	EPA 8260C/CCME
CCME Hydrocarbons (F2-F4 in soil)	1	2010/04/30	2010/04/30	CAL SOP-00086 AB WI-00016	CCME PHC-CWS
CCME Hydrocarbons (F2-F4 in soil)	2	2010/04/30	2010/05/01	CAL SOP-00086 AB WI-00016	CCME PHC-CWS
CCME Hydrocarbons (F4G in soil)	3	2010/04/30	2010/05/03	CAL SOP-00086	CCME PHC-CWS
Moisture	3	N/A	2010/05/01	CAL SOP-00023	McKeague MSSMA 2.411

\* 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.

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Email: Jennifer.Rispler@MaxxamAnalytics.com  
Phone# (403) 735-2201 Ext:2201

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Total cover pages: 1



Maxxam Job #: B027625  
Report Date: 2010/05/03

STANTEC CONSULTING LTD  
Client Project #: 111212170.700

**AT1 BTEX AND F1-F4 IN SOIL (SOIL)**

Maxxam ID		T86548	T86548		
Sampling Date		2010/04/28	2010/04/28		
	<b>Units</b>	<b>1M</b>	<b>1M Lab-Dup</b>	<b>RDL</b>	<b>QC Batch</b>

<b>Physical Properties</b>					
Moisture	%	0.9	0.8	0.3	3925992
<b>Ext. Pet. Hydrocarbon</b>					
F2 (C10-C16 Hydrocarbons)	mg/kg	22	26	10	3924959
F3 (C16-C34 Hydrocarbons)	mg/kg	4100	4000	10	3924959
F4 (C34-C50 Hydrocarbons)	mg/kg	6500	7000	10	3924959
Reached Baseline at C50	mg/kg	No	No	N/A	3924959
<b>OIL &amp; GREASE</b>					
F4SG (Heavy Hydrocarbons-Grav.)	mg/kg	23000	26000	500	3924963
<b>Volatiles</b>					
Benzene	mg/kg	<0.0050	N/A	0.0050	3923246
Toluene	mg/kg	<0.020	N/A	0.020	3923246
Ethylbenzene	mg/kg	0.011	N/A	0.010	3923246
Xylenes (Total)	mg/kg	<0.040	N/A	0.040	3923246
m & p-Xylene	mg/kg	<0.040	N/A	0.040	3923246
o-Xylene	mg/kg	<0.020	N/A	0.020	3923246
F1 (C6-C10) - BTEX	mg/kg	<12	N/A	12	3923246
(C6-C10)	mg/kg	<12	N/A	12	3923246
<b>Surrogate Recovery (%)</b>					
4-BROMOFLUOROBENZENE (sur.)	%	91	N/A	N/A	3923246
D10-ETHYLBENZENE (sur.)	%	84	N/A	N/A	3923246
D4-1,2-DICHLOROETHANE (sur.)	%	89	N/A	N/A	3923246
D8-TOLUENE (sur.)	%	102	N/A	N/A	3923246
O-TERPHENYL (sur.)	%	91	92	N/A	3924959

N/A = Not Applicable  
RDL = Reportable Detection Limit  
Lab-Dup = Laboratory Initiated Duplicate

Maxxam Job #: B027625  
Report Date: 2010/05/03

STANTEC CONSULTING LTD  
Client Project #: 111212170.700

**AT1 F2-F4 (SOIL)**

Maxxam ID		T86543	T86547		
Sampling Date		2010/04/28	2010/04/28		
	<b>Units</b>	<b>1T</b>	<b>2T</b>	<b>RDL</b>	<b>QC Batch</b>

<b>Physical Properties</b>					
Moisture	%	4.0	2.2	0.3	3925992
<b>Ext. Pet. Hydrocarbon</b>					
F2 (C10-C16 Hydrocarbons)	mg/kg	2300	1400	10	3924959
F3 (C16-C34 Hydrocarbons)	mg/kg	21000	13000	10	3924959
F4 (C34-C50 Hydrocarbons)	mg/kg	28000	17000	10	3924959
Reached Baseline at C50	mg/kg	No	No	N/A	3924959
<b>OIL &amp; GREASE</b>					
F4SG (Heavy Hydrocarbons-Grav.)	mg/kg	120000	70000	500	3924963
<b>Surrogate Recovery (%)</b>					
O-TERPHENYL (sur.)	%	31 (1)	48 (1)	N/A	3924959

N/A = Not Applicable  
RDL = Reportable Detection Limit  
( 1 ) Surrogate recovery below acceptance criteria due to matrix interference.

Maxxam Job #: B027625  
Report Date: 2010/05/03

STANTEC CONSULTING LTD  
Client Project #: 111212170.700

Package 1	9.7°C
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Each temperature is the average of up to three cooler temperatures taken at receipt

**General Comments**

**Results relate only to the items tested.**

STANTEC CONSULTING LTD  
Attention: DARREN KEAM  
Client Project #: 111212170.700  
P.O. #:  
Site Reference:

Quality Assurance Report  
Maxxam Job Number: CB027625

QA/QC Batch	QC Type	Parameter	Date Analyzed yyyy/mm/dd	Value	Recovery	Units	QC Limits
3923246 PX	Matrix Spike	4-BROMOFLUOROBENZENE (sur.)	2010/05/01		108	%	60 - 140
		D10-ETHYLBENZENE (sur.)	2010/05/01		106	%	30 - 130
		D4-1,2-DICHLOROETHANE (sur.)	2010/05/01		99	%	60 - 140
		D8-TOLUENE (sur.)	2010/05/01		87	%	60 - 140
		Benzene	2010/05/01		104	%	60 - 140
		Toluene	2010/05/01		103	%	60 - 140
		Ethylbenzene	2010/05/01		107	%	60 - 140
		m & p-Xylene	2010/05/01		108	%	60 - 140
		o-Xylene	2010/05/01		108	%	60 - 140
		(C6-C10)	2010/05/01		98	%	60 - 140
	Spiked Blank	4-BROMOFLUOROBENZENE (sur.)	2010/05/03		102	%	60 - 140
		D10-ETHYLBENZENE (sur.)	2010/05/03		88	%	30 - 130
		D4-1,2-DICHLOROETHANE (sur.)	2010/05/03		90	%	60 - 140
		D8-TOLUENE (sur.)	2010/05/03		104	%	60 - 140
		Benzene	2010/05/03		88	%	60 - 140
		Toluene	2010/05/03		87	%	60 - 140
		Ethylbenzene	2010/05/03		87	%	60 - 140
		m & p-Xylene	2010/05/03		89	%	60 - 140
		o-Xylene	2010/05/03		87	%	60 - 140
		(C6-C10)	2010/05/03		96	%	60 - 140
	Method Blank	4-BROMOFLUOROBENZENE (sur.)	2010/04/30		104	%	60 - 140
		D10-ETHYLBENZENE (sur.)	2010/04/30		122	%	30 - 130
		D4-1,2-DICHLOROETHANE (sur.)	2010/04/30		112	%	60 - 140
		D8-TOLUENE (sur.)	2010/04/30		80	%	60 - 140
		Benzene	2010/04/30	<0.0050		mg/kg	
		Toluene	2010/04/30	<0.020		mg/kg	
		Ethylbenzene	2010/04/30	<0.010		mg/kg	
		Xylenes (Total)	2010/04/30	<0.040		mg/kg	
		m & p-Xylene	2010/04/30	<0.040		mg/kg	
		o-Xylene	2010/04/30	<0.020		mg/kg	
RPD	F1 (C6-C10) - BTEX (C6-C10)	2010/04/30	<12		mg/kg		
	Benzene	2010/05/01	NC		%	50	
	Toluene	2010/05/01	NC		%	50	
	Ethylbenzene	2010/05/01	NC		%	50	
	Xylenes (Total)	2010/05/01	NC		%	50	
	m & p-Xylene	2010/05/01	NC		%	50	
	o-Xylene	2010/05/01	NC		%	50	
	F1 (C6-C10) - BTEX (C6-C10)	2010/05/01	NC		%	50	
	Benzene	2010/05/01	NC		%	50	
	Toluene	2010/05/01	NC		%	50	
3924959 AM7	Matrix Spike [T86548-01]	O-TERPHENYL (sur.)	2010/05/01		75	%	50 - 130
		F2 (C10-C16 Hydrocarbons)	2010/05/01		75	%	50 - 130
		F3 (C16-C34 Hydrocarbons)	2010/05/01		NC	%	50 - 130
		F4 (C34-C50 Hydrocarbons)	2010/05/01		NC	%	50 - 130
	Spiked Blank	O-TERPHENYL (sur.)	2010/04/30		98	%	50 - 130
		F2 (C10-C16 Hydrocarbons)	2010/04/30		100	%	80 - 120
		F3 (C16-C34 Hydrocarbons)	2010/04/30		95	%	80 - 120
		F4 (C34-C50 Hydrocarbons)	2010/04/30		100	%	80 - 120
	Method Blank	O-TERPHENYL (sur.)	2010/04/30		96	%	50 - 130
		F2 (C10-C16 Hydrocarbons)	2010/04/30	<10		mg/kg	
F3 (C16-C34 Hydrocarbons)		2010/04/30	<10		mg/kg		
F4 (C34-C50 Hydrocarbons)		2010/04/30	<10		mg/kg		
RPD [T86548-01]	F2 (C10-C16 Hydrocarbons)	2010/05/01	NC		%	50	
	F3 (C16-C34 Hydrocarbons)	2010/05/01	3.1		%	50	

STANTEC CONSULTING LTD  
Attention: DARREN KEAM  
Client Project #: 111212170.700  
P.O. #:  
Site Reference:

Quality Assurance Report (Continued)

Maxxam Job Number: CB027625

QA/QC Batch	QC Type	Parameter	Date Analyzed yyyy/mm/dd	Value	Recovery	Units	QC Limits
3924959 AM7	RPD [T86548-01]	F4 (C34-C50 Hydrocarbons)	2010/05/01	7.6		%	50
3924963 HL	Spiked Blank	F4SG (Heavy Hydrocarbons-Grav.)	2010/05/03		105	%	80 - 120
	Method Blank	F4SG (Heavy Hydrocarbons-Grav.)	2010/05/03	<500		mg/kg	
	RPD [T86548-01]	F4SG (Heavy Hydrocarbons-Grav.)	2010/05/03	9.8		%	50
3925992 SJ0	RPD [T86548-01]	Moisture	2010/05/01	NC		%	20

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**Validation Signature Page**

**Maxxam Job #: B027625**

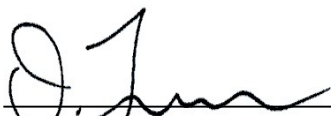
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The analytical data and all QC contained in this report were reviewed and validated by the following individual(s).



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LUBA SHYMUSHOVSKA, Senior Analyst, Organic Department



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ORLA JORGENSEN, Organics Supervisor

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