Stantec Architecture Ltd.
5021 - 49th Street, PO Box 1680, Yellowknife NT X1A 2N4

March 10, 2015
File: 144901145

Attention: Mohammed Ansari
P.O. Box 490, Projects/O&M Building
Rankin Inlet, Nunavut X0C 0G0

Dear Mr. Ansari,

Reference: Chesterfield Inlet Fuel Facility – Landfarm Final Report

Stantec was contracted by Community and Government Services (CGS) to review and design the new fuel facility in Chesterfield Inlet, Nunavut. Based upon a 3rd party Phase III Environmental Site Assessment, it was understood that approximately 65 cu.m of hydrocarbon contaminated material was present within the existing site. This material would require removal and treatment in a landfarm, which was not available in the community at that time.

The original landfarm design was 22 x 22 meters in size and able to accommodate 170 cu.m of contaminated material. Through consultation with the Hamlet and CGS, it was agreed upon to place the landfarm within the Hamlet's solid waste site. The landfarm was constructed by Inukshuk Construction, as part of the Fuel Facility Construction Contract, with a 60 mil HDPE impervious membrane over & underlain with sand and topped with fine gravel. The site is enclosed by a fence with a vehicle and pedestrian gates. Inukshuk completed the construction of the landfarm in the fall of 2012, prior to work beginning at the fuel facility. The construction was inspected by Stantec and appeared to follow the design and standard practice.

Once the fuel facility construction began in May 2013, contaminated material began to be hauled to the landfarm. It became apparent that the actual volume of contaminated material far exceeded the original estimates, and the capacity of the landfarm. Contaminated material was hauled to the landfarm between June 25th and July 15th, 2013. Additional field testing was completed to confirm the extents of the remaining contaminated material. This was determined to be approximately 530 cu.m.

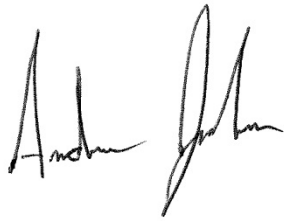
The volume of material removed from the site exceeded the landfarm's storage capacity. Stantec was requested by CGS to design an extension to the existing landfarm to accommodate this additional material. During this period, plastic sheets were placed over the contaminated material by the contractor to reduce the risk of contaminated material leaving the site during rain events. On behalf of CGS, Stantec submitted a water licence amendment application on August 2, 2013. Approval from the Nunavut Water Board was received November 3, 2013.

Inukshuk constructed the extension in the fall of 2013 and balanced the excess contaminated material between them.

Reference: Chesterfield Inlet Fuel Facility – Landfarm Final Report

Regards,

STANTEC ARCHITECTURE LTD.

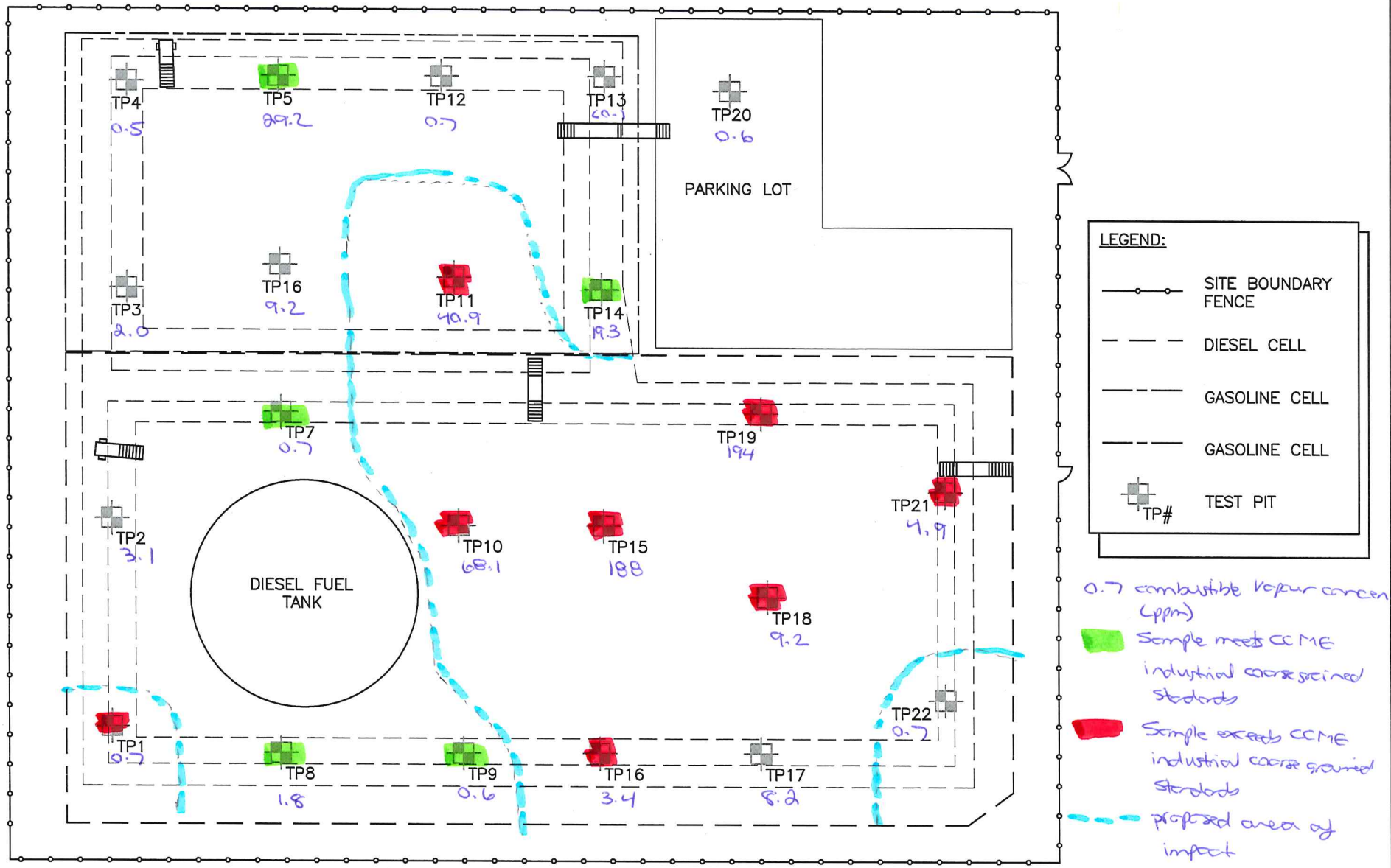


Andrew F. Johnson, P.Eng.
Associate, Civil Engineer
Andrew.Johnson@stantec.com

Attachment: Soil sampling results (Concentric, July 2013)
Chesterfield Fuel Storage Facility Record Drawings, stamped

c. Walter Orr, Stantec

ja c:\users\afjohnson\desktop\chester\2015 03 09 let_chester final report.docx



CONCENTRIC
ASSOCIATES INTERNATIONAL INCORPORATED

OTTAWA LONDON IQALUIT
SASKATOON WINNIPEG

CLIENT NAME:
MOSHER ENGINEERING LTD.

PROJECT ADDRESS:
TANK FARM, CHESTERFIELD INLET, NUNUVUT

PROJECT NAME:
SOIL SAMPLING PROGRAM

DRAWING TITLE:
TEST PIT LOCATIONS

DESIGN: AJ
DRAWN: STM
DATE: JULY / 2013
FILE No: 13-5021-E

SHEET No.
FIG-3

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Certificate of Analysis

Concentric Associates International Inc. (London)

700 Richmond St. Suite 307
London, ON N6A 5C7
Attn: Andrea Johnson

Phone: (519) 452-7700
Fax: (519) 319-6246

Client PO:
Project:
Custody:

Report Date: 8-Jul-2013
Order Date: 2-Jul-2013
Order #: 1327022

This Certificate of Analysis contains analytical data applicable to the following samples as submitted:

Paracel ID	Client ID
1327022-01	TFS5
1327022-02	TFS10
1327022-03	TFS14
1327022-04	TFS20
1327022-05	QA/QC#1
1327022-06	CSS1
1327022-07	CSS3
1327022-08	CSS4
1327022-09	CSS6
1327022-10	PLS2

Approved By:

Mark Foto, M.Sc. For Dale Robertson, BSc
Laboratory Director

Certificate of Analysis

Report Date: 08-Jul-2013
Order Date:2-Jul-2013

Client: **Concentric Associates International Inc. (London)**
Client PO: Project Description:

Analysis Summary Table

Analysis	Method Reference/Description	Extraction Date	Analysis Date
BTEX by P&T GC-MS	EPA 8260 - P&T GC-MS	3-Jul-13	6-Jul-13
BTEX by P&T GC-MS, low level	EPA 8260 - P&T GC-MS, low level	3-Jul-13	8-Jul-13
PHC F1	CWS Tier 1 - P&T GC-FID	3-Jul-13	6-Jul-13
PHC F2 - F4	CWS Tier 1 - GC-FID, extraction	3-Jul-13	3-Jul-13
Solids, %	Gravimetric, calculation	4-Jul-13	4-Jul-13

PARACEL LABORATORIES LTD.

Order #: 1327022

Certificate of Analysis

Report Date: 08-Jul-2013
Order Date:2-Jul-2013

Client: **Concentric Associates International Inc. (London)**
Client PO: Project Description:

	Client ID:	TFS5	TFS10	TFS14	TFS20
	Sample Date:	28-Jun-13	28-Jun-13	28-Jun-13	28-Jun-13
	Sample ID:	1327022-01	1327022-02	1327022-03	1327022-04
	MDL/Units	Soil	Soil	Soil	Soil
Physical Characteristics					
% Solids	0.1 % by Wt.	94.8	92.7	94.1	95.2
Volatiles					
Benzene	0.02 ug/g dry	<0.02 [1]	<0.02 [1]	<0.02 [1]	<0.02 [1]
Ethylbenzene	0.05 ug/g dry	<0.05 [1]	5.76 [1]	0.06 [1]	0.09 [1]
Toluene	0.05 ug/g dry	<0.05 [1]	2.02 [1]	0.05 [1]	<0.05 [1]
m,p-Xylenes	0.05 ug/g dry	0.05 [1]	24.2 [1]	0.35 [1]	0.32 [1]
o-Xylene	0.05 ug/g dry	<0.05 [1]	13.9 [1]	0.18 [1]	0.15 [1]
Xylenes, total	0.05 ug/g dry	0.08 [1]	38.1 [1]	0.53 [1]	0.46 [1]
Toluene-d8	Surrogate	110% [1]	98.3% [1]	109% [1]	107% [1]
Hydrocarbons					
F1 PHCs (C6-C10)	7 ug/g dry	10 [1]	624 [1]	41 [1]	14 [1]
F2 PHCs (C10-C16)	4 ug/g dry	172	135	39	238
F3 PHCs (C16-C34)	8 ug/g dry	74	<8	37	111
F4 PHCs (C34-C50)	6 ug/g dry	<6	<6	<6	<6

Certificate of Analysis

Report Date: 08-Jul-2013
Order Date:2-Jul-2013

Client: **Concentric Associates International Inc. (London)**
Client PO: Project Description:

	Client ID:	QA/QC#1	CSS1	CSS3	CSS4
	Sample Date:	28-Jun-13	29-Jun-13	29-Jun-13	29-Jun-13
	Sample ID:	1327022-05	1327022-06	1327022-07	1327022-08
	MDL/Units	Soil	Soil	Soil	Soil
Physical Characteristics					
% Solids	0.1 % by Wt.	95.1	95.0	96.9	93.4
Volatiles					
Benzene	0.02 ug/g dry	<0.02 [1]	-	-	-
Ethylbenzene	0.05 ug/g dry	<0.05 [1]	-	-	-
Toluene	0.05 ug/g dry	<0.05 [1]	-	-	-
m,p-Xylenes	0.05 ug/g dry	<0.05 [1]	-	-	-
o-Xylene	0.05 ug/g dry	<0.05 [1]	-	-	-
Xylenes, total	0.05 ug/g dry	0.07 [1]	-	-	-
Toluene-d8	Surrogate	105% [1]	-	-	-
Benzene	0.002 ug/g dry	-	<0.002	<0.002	<0.002
Ethylbenzene	0.002 ug/g dry	-	<0.002	<0.002	<0.002
Toluene	0.002 ug/g dry	-	<0.002	<0.002	<0.002
m,p-Xylenes	0.002 ug/g dry	-	<0.002	<0.002	<0.002
o-Xylene	0.002 ug/g dry	-	<0.002	<0.002	<0.002
Xylenes, total	0.002 ug/g dry	-	<0.002	<0.002	<0.002
Toluene-d8	Surrogate	-	102%	91.5%	90.8%
Hydrocarbons					
F1 PHCs (C6-C10)	7 ug/g dry	9 [1]	<7	<7	<7
F2 PHCs (C10-C16)	4 ug/g dry	120	<4	<4	<4
F3 PHCs (C16-C34)	8 ug/g dry	75	<8	<8	<8
F4 PHCs (C34-C50)	6 ug/g dry	<6	<6	<6	<6

Certificate of Analysis

Report Date: 08-Jul-2013
Order Date:2-Jul-2013

Client: **Concentric Associates International Inc. (London)**
Client PO: Project Description:

	Client ID:	CSS6	PLS2	-	-
	Sample Date:	29-Jun-13	28-Jun-13	-	-
	Sample ID:	1327022-09	1327022-10	-	-
	MDL/Units	Soil	Soil	-	-
Physical Characteristics					
% Solids	0.1 % by Wt.	95.7	95.5	-	-
Volatiles					
Benzene	0.02 ug/g dry	-	<0.20 [2]	-	-
Ethylbenzene	0.05 ug/g dry	-	70.3 [2]	-	-
Toluene	0.05 ug/g dry	-	45.6 [2]	-	-
m,p-Xylenes	0.05 ug/g dry	-	125 [2]	-	-
o-Xylene	0.05 ug/g dry	-	71.5 [2]	-	-
Xylenes, total	0.05 ug/g dry	-	196 [2]	-	-
Toluene-d8	Surrogate	-	108% [2]	-	-
Benzene	0.002 ug/g dry	<0.002	-	-	-
Ethylbenzene	0.002 ug/g dry	<0.002	-	-	-
Toluene	0.002 ug/g dry	<0.002	-	-	-
m,p-Xylenes	0.002 ug/g dry	<0.002	-	-	-
o-Xylene	0.002 ug/g dry	<0.002	-	-	-
Xylenes, total	0.002 ug/g dry	<0.002	-	-	-
Toluene-d8	Surrogate	101%	-	-	-
Hydrocarbons					
F1 PHCs (C6-C10)	7 ug/g dry	<7	128 [2]	-	-
F2 PHCs (C10-C16)	4 ug/g dry	<4	889	-	-
F3 PHCs (C16-C34)	8 ug/g dry	<8	220	-	-
F4 PHCs (C34-C50)	6 ug/g dry	<6	<6	-	-

Certificate of Analysis

Report Date: 08-Jul-2013
Order Date:2-Jul-2013

Client: **Concentric Associates International Inc. (London)**
Client PO: Project Description:

Method Quality Control: Blank

Analyte	Result	Reporting Limit	Units	Source Result	%REC	%REC Limit	RPD	RPD Limit	Notes
Hydrocarbons									
F1 PHCs (C6-C10)	ND	7	ug/g						
F2 PHCs (C10-C16)	ND	4	ug/g						
F3 PHCs (C16-C34)	ND	8	ug/g						
F4 PHCs (C34-C50)	ND	6	ug/g						
Volatiles									
Benzene	ND	0.02	ug/g						
Ethylbenzene	ND	0.05	ug/g						
Toluene	ND	0.05	ug/g						
m,p-Xylenes	ND	0.05	ug/g						
o-Xylene	ND	0.05	ug/g						
Xylenes, total	ND	0.05	ug/g						
Surrogate: Toluene-d8	*3.80*		*ug/g*		*119*	*50-140*			
Benzene	ND	0.002	ug/g						
Ethylbenzene	ND	0.002	ug/g						
Toluene	ND	0.002	ug/g						
m,p-Xylenes	ND	0.002	ug/g						
o-Xylene	ND	0.002	ug/g						
Xylenes, total	ND	0.002	ug/g						
Surrogate: Toluene-d8	*0.135*		*ug/g*		*99.4*	*76-118*			

Certificate of Analysis

Report Date: 08-Jul-2013
Order Date:2-Jul-2013

Client: **Concentric Associates International Inc. (London)**
Client PO: Project Description:

Method Quality Control: Duplicate

Analyte	Result	Reporting Limit	Units	Source Result	%REC	%REC Limit	RPD	RPD Limit	Notes
Hydrocarbons									
F1 PHCs (C6-C10)	ND	7	ug/g dry	ND				40	
F2 PHCs (C10-C16)	ND	4	ug/g dry	ND				30	
F3 PHCs (C16-C34)	ND	8	ug/g dry	45			0.0	30	
F4 PHCs (C34-C50)	ND	6	ug/g dry	ND				30	
Physical Characteristics									
% Solids	74.2	0.1	% by Wt.	74.1			0.1	25	
Volatiles									
Benzene	ND	0.02	ug/g dry	ND				50	
Ethylbenzene	ND	0.05	ug/g dry	ND				50	
Toluene	ND	0.05	ug/g dry	ND				50	
m,p-Xylenes	ND	0.05	ug/g dry	ND				50	
o-Xylene	ND	0.05	ug/g dry	ND				50	
Surrogate: Toluene-d8	*2.93*		*ug/g dry*	*ND*	*116*	*50-140*			

Certificate of Analysis

Report Date: 08-Jul-2013
Order Date:2-Jul-2013

Client: **Concentric Associates International Inc. (London)**
Client PO: Project Description:

Method Quality Control: Spike

Analyte	Result	Reporting Limit	Units	Source Result	%REC	%REC Limit	RPD	RPD Limit	Notes
Hydrocarbons									
F1 PHCs (C6-C10)	99	7	ug/g	ND	99.0	80-120			
F2 PHCs (C10-C16)	111	4	ug/g	ND	87.3	60-140			
F3 PHCs (C16-C34)	260	8	ug/g	45	82.1	60-140			
F4 PHCs (C34-C50)	176	6	ug/g	ND	101	60-140			
Volatiles									
Benzene	0.694	0.02	ug/g	ND	74.3	60-130			
Ethylbenzene	2.38	0.05	ug/g	ND	107	60-130			
Toluene	12.2	0.05	ug/g	ND	113	60-130			
m,p-Xylenes	8.31	0.05	ug/g	ND	123	60-130			
o-Xylene	3.57	0.05	ug/g	ND	132	60-130			
Surrogate: Toluene-d8	*3.47*		*ug/g*		*108*	*50-140*			
Benzene	0.0659	0.002	ug/g	ND	96.9	55-141			
Ethylbenzene	0.0663	0.002	ug/g	ND	97.5	61-139			
Toluene	0.0582	0.002	ug/g	ND	85.6	54-136			
m,p-Xylenes	0.137	0.002	ug/g	ND	101	61-139			
o-Xylene	0.0699	0.002	ug/g	ND	103	60-142			

Certificate of Analysis

Report Date: 08-Jul-2013
Order Date:2-Jul-2013

Client: **Concentric Associates International Inc. (London)**
Client PO: Project Description:

Qualifier Notes:

Sample Qualifiers :

1 : Not able to complete VOC-low level analysis due to elevated hydrocarbon background. VOC-high level analysis completed in its place.

2 : Not able to complete VOC-low level analysis due to high target analyte. VOC-high level analysis completed in its place.

Sample Data Revisions

None

Work Order Revisions / Comments:

None

Other Report Notes:

n/a: not applicable
ND: Not Detected
MDL: Method Detection Limit
Source Result: Data used as source for matrix and duplicate samples
%REC: Percent recovery.
RPD: Relative percent difference.

Soil results are reported on a dry weight basis when the units are denoted with 'dry'.
Where %Solids is reported, moisture loss includes the loss of volatile hydrocarbons.

CCME PHC additional information:

- The method for the analysis of PHCs complies with the Reference Method for the CWS PHC and is validated for use in the laboratory. All prescribed quality criteria identified in the method has been met.
- F1 range corrected for BTEX.
- F2 to F3 ranges corrected for appropriate PAHs where available.
- The gravimetric heavy hydrocarbons (F4G) are not to be added to C6 to C50 hydrocarbons.
- In the case where F4 and F4G are both reported, the greater of the two results is to be used for comparison to CWS PHC criteria.

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Certificate of Analysis

Concentric Associates International Inc. (London)

700 Richmond St. Suite 307
London, ON N6A 5C7
Attn: Andrea Johnson

Phone: (519) 452-7700
Fax: (519) 319-6246

Client PO:
Project:
Custody:

Report Date: 2-Jul-2013
Order Date: 2-Jul-2013
Order #: 1327021

This Certificate of Analysis contains analytical data applicable to the following samples as submitted:

Paracel ID	Client ID
1327021-01	LFS15
1327021-02	LFS20
1327021-03	LFS24

Approved By: 

Mark Foto, M.Sc. For Dale Robertson, BSc
Laboratory Director

Certificate of Analysis

Report Date: 02-Jul-2013
Order Date:2-Jul-2013

Client: **Concentric Associates International Inc. (London)**
Client PO: Project Description:

Analysis Summary Table

Analysis	Method Reference/Description	Extraction Date	Analysis Date
BTEX by P&T GC-MS	EPA 8260 - P&T GC-MS	2-Jul-13	2-Jul-13
PHC F1	CWS Tier 1 - P&T GC-FID	2-Jul-13	2-Jul-13
PHC F2 - F4	CWS Tier 1 - GC-FID, extraction	2-Jul-13	2-Jul-13
Solids, %	Gravimetric, calculation	2-Jul-13	2-Jul-13

Certificate of Analysis

Report Date: 02-Jul-2013
Order Date:2-Jul-2013

Client: **Concentric Associates International Inc. (London)**
Client PO: Project Description:

	Client ID:	LFS15	LFS20	LFS24	-
	Sample Date:	28-Jun-13	28-Jun-13	28-Jun-13	-
	Sample ID:	1327021-01	1327021-02	1327021-03	-
	MDL/Units	Soil	Soil	Soil	-
Physical Characteristics					
% Solids	0.1 % by Wt.	92.5	95.0	93.7	-
Volatiles					
Benzene	0.02 ug/g dry	<0.02 [1]	<0.02 [1]	<0.02 [1]	-
Ethylbenzene	0.05 ug/g dry	<0.05 [1]	<0.05 [1]	0.30 [1]	-
Toluene	0.05 ug/g dry	0.23 [1]	<0.05 [1]	0.51 [1]	-
m,p-Xylenes	0.05 ug/g dry	0.06 [1]	<0.05 [1]	0.52 [1]	-
o-Xylene	0.05 ug/g dry	0.13 [1]	0.06 [1]	0.41 [1]	-
Xylenes, total	0.05 ug/g dry	0.19 [1]	0.09 [1]	0.94 [1]	-
Toluene-d8	Surrogate	119% [1]	127% [1]	109% [1]	-
Hydrocarbons					
F1 PHCs (C6-C10)	7 ug/g dry	27	16	14	-
F2 PHCs (C10-C16)	4 ug/g dry	710	313	661	-
F3 PHCs (C16-C34)	8 ug/g dry	163	92	181	-
F4 PHCs (C34-C50)	6 ug/g dry	<6	<6	<6	-

Certificate of Analysis

Report Date: 02-Jul-2013
Order Date:2-Jul-2013

Client: **Concentric Associates International Inc. (London)**
Client PO: Project Description:

Method Quality Control: Blank

Analyte	Result	Reporting Limit	Units	Source Result	%REC	%REC Limit	RPD	RPD Limit	Notes
Hydrocarbons									
F1 PHCs (C6-C10)	ND	7	ug/g						
F2 PHCs (C10-C16)	ND	4	ug/g						
F3 PHCs (C16-C34)	ND	8	ug/g						
F4 PHCs (C34-C50)	ND	6	ug/g						
Volatiles									
Benzene	ND	0.02	ug/g						
Ethylbenzene	ND	0.05	ug/g						
Toluene	ND	0.05	ug/g						
m,p-Xylenes	ND	0.05	ug/g						
o-Xylene	ND	0.05	ug/g						
Xylenes, total	ND	0.05	ug/g						
Surrogate: Toluene-d8	*3.86*		*ug/g*		*121*	*50-140*			

Certificate of Analysis

Report Date: 02-Jul-2013
Order Date:2-Jul-2013

Client: **Concentric Associates International Inc. (London)**
Client PO: Project Description:

Method Quality Control: Duplicate

Analyte	Result	Reporting Limit	Units	Source Result	%REC	%REC Limit	RPD	RPD Limit	Notes
Hydrocarbons									
F1 PHCs (C6-C10)	ND	7	ug/g wet	ND				40	
Physical Characteristics									
% Solids	95.2	0.1	% by Wt.	92.5			2.8	25	
Volatiles									
Benzene	ND	0.02	ug/g wet	ND				50	
Ethylbenzene	ND	0.05	ug/g wet	ND				50	
Toluene	ND	0.05	ug/g wet	ND				50	
m,p-Xylenes	ND	0.05	ug/g wet	ND				50	
o-Xylene	ND	0.05	ug/g wet	ND				50	
Surrogate: Toluene-d8	*2.18*		*ug/g wet*	*ND*	*116*	*50-140*			

Certificate of Analysis

Report Date: 02-Jul-2013
Order Date:2-Jul-2013

Client: **Concentric Associates International Inc. (London)**
Client PO: Project Description:

Method Quality Control: Spike

Analyte	Result	Reporting Limit	Units	Source Result	%REC	%REC Limit	RPD	RPD Limit	Notes
Hydrocarbons									
F1 PHCs (C6-C10)	184	7	ug/g	ND	92.1	80-120			
F2 PHCs (C10-C16)	78	4	ug/g	ND	86.3	80-120			
F3 PHCs (C16-C34)	157	8	ug/g	ND	84.3	80-120			
F4 PHCs (C34-C50)	101	6	ug/g	ND	81.4	80-120			
Volatiles									
Benzene	4.20	0.02	ug/g	ND	105	60-130			
Ethylbenzene	4.33	0.05	ug/g	ND	108	60-130			
Toluene	4.37	0.05	ug/g	ND	109	60-130			
m,p-Xylenes	8.53	0.05	ug/g	ND	107	60-130			
o-Xylene	4.48	0.05	ug/g	ND	112	60-130			
Surrogate: Toluene-d8	*3.09*		*ug/g*		*96.6*	*50-140*			

Certificate of Analysis

Report Date: 02-Jul-2013
Order Date:2-Jul-2013

Client: **Concentric Associates International Inc. (London)**
Client PO: Project Description:

Qualifier Notes:

Sample Qualifiers :

1 : Not able to complete VOC-low level analysis due to elevated hydrocarbon background. VOC-high level analysis completed in its place.

Sample Data Revisions

None

Work Order Revisions / Comments:

None

Other Report Notes:

n/a: not applicable
ND: Not Detected
MDL: Method Detection Limit
Source Result: Data used as source for matrix and duplicate samples
%REC: Percent recovery.
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Soil results are reported on a dry weight basis when the units are denoted with 'dry'.
Where %Solids is reported, moisture loss includes the loss of volatile hydrocarbons.

CCME PHC additional information:

- The method for the analysis of PHCs complies with the Reference Method for the CWS PHC and is validated for use in the laboratory. All prescribed quality criteria identified in the method has been met.
- F1 range corrected for BTEX.
- F2 to F3 ranges corrected for appropriate PAHs where available.
- The gravimetric heavy hydrocarbons (F4G) are not to be added to C6 to C50 hydrocarbons.
- In the case where F4 and F4G are both reported, the greater of the two results is to be used for comparison to CWS PHC criteria.