

Certificate of Analysis

Nunatta Environmental Services Inc.

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Attn: Jim Wilson

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Client PO:
Project: Land Farm Soil
Custody: 11332

Report Date: 20-Sep-2013
Order Date: 16-Sep-2013

Order #: 1338096

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

Paracel ID	Client ID
1338096-01	Cell #3 Front
1338096-02	Cell #3 Middle
1338096-03	Cell #3 Back
1338096-04	Cell #4 Front
1338096-05	Cell #4 Middle
1338096-06	Cell #4 Back

Approved By:



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

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Certificate of Analysis

Client: **Nunatta Environmental Services Inc.**

Report Date: 20-Sep-2013

Client PO:

Project Description: Land Farm Soil

Order Date: 16-Sep-2013

Analysis Summary Table

Analysis	Method Reference/Description	Extraction Date	Analysis Date
Anions	EPA 300.1 - IC, water extraction	19-Sep-13	19-Sep-13
BTEX by P&T GC-MS	EPA 8260 - P&T GC-MS	18-Sep-13	19-Sep-13
Mercury	EPA 7471A - CVAA, digestion	19-Sep-13	19-Sep-13
Metals, ICP-MS	EPA 6020 - Digestion - ICP-MS	20-Sep-13	20-Sep-13
Nitrogen as N, total	Calculation	19-Sep-13	20-Sep-13
PAHs by GC-MS	EPA 8270 - GC-MS, extraction	17-Sep-13	19-Sep-13
PCBs, total	SW846 8082A - GC-ECD	17-Sep-13	19-Sep-13
PHC F1	CWS Tier 1 - P&T GC-FID	18-Sep-13	19-Sep-13
PHC F2 - F4	CWS Tier 1 - GC-FID, extraction	18-Sep-13	19-Sep-13
Phosphorus, total	EPA 365.4 - Auto Colour, digestion	19-Sep-13	19-Sep-13
Solids, %	Gravimetric, calculation	18-Sep-13	18-Sep-13
Standard Plate Count	based on SM 9215C	17-Sep-13	17-Sep-13
TKN	based on EPA351.2 - Auto Colour, digestion	19-Sep-13	20-Sep-13

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Project Description: Land Farm Soil

Client ID:	Cell #3 Front	Cell #3 Middle	Cell #3 Back	Cell #4 Front
Sample Date:	15-Sep-13	15-Sep-13	15-Sep-13	15-Sep-13
Sample ID:	1338096-01	1338096-02	1338096-03	1338096-04
MDL/Units	Soil	Soil	Soil	Soil

Physical Characteristics

% Solids	0.1 % by Wt.	92.0	92.4	91.9	92.9
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Microbiological Parameters

Standard Plate Count	1000 CFU/g	41000	3000	18000	92000
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General Inorganics

Nitrogen, Total	21 ug/g	-	537	500	651
Nitrogen, Total	41 ug/g	822	-	-	-
Phosphorus, total	1.00 ug/g dry	1010	779	579	842
Total Kjeldahl Nitrogen	10 ug/g dry	806	512	481	606

Anions

Nitrate as N	1 ug/g dry	16	25	19	45
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Metals

Antimony	1 ug/g dry	7	3	2	1
Arsenic	1 ug/g dry	1	<1	<1	<1
Barium	1 ug/g dry	37	32	33	35
Beryllium	0.5 ug/g dry	<0.5	<0.5	<0.5	<0.5
Boron	5.0 ug/g dry	<5.0	<5.0	<5.0	<5.0
Cadmium	0.5 ug/g dry	<0.5	<0.5	<0.5	<0.5
Chromium	5 ug/g dry	26	23	21	21
Cobalt	1 ug/g dry	6	5	5	6
Copper	5 ug/g dry	13	11	11	13
Iron	200 ug/g dry	29100	27200	24600	25300
Lead	1 ug/g dry	21	12	13	7
Mercury	0.1 ug/g dry	-	-	-	<0.1
Molybdenum	1 ug/g dry	2	1	<1	<1
Nickel	5 ug/g dry	9	8	8	9
Potassium	200 ug/g dry	949	679	721	949
Selenium	1 ug/g dry	1	<1	1	<1
Silver	0.3 ug/g dry	<0.3	<0.3	<0.3	<0.3
Thallium	1 ug/g dry	<1	<1	<1	<1
Tin	5 ug/g dry	<5	<5	<5	<5
Uranium	1 ug/g dry	1	<1	<1	<1
Vanadium	10 ug/g dry	57	50	45	48
Zinc	20 ug/g dry	50	44	40	34

Volatiles

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	Client ID: Sample Date: Sample ID:	Cell #3 Front 15-Sep-13 1338096-01 Soil	Cell #3 Middle 15-Sep-13 1338096-02 Soil	Cell #3 Back 15-Sep-13 1338096-03 Soil	Cell #4 Front 15-Sep-13 1338096-04 Soil
	MDL/Units				
Benzene	0.02 ug/g dry	<0.02	0.04	<0.02	<0.02
Ethylbenzene	0.05 ug/g dry	<0.05	<0.05	<0.05	<0.05
Toluene	0.05 ug/g dry	<0.05	0.52	<0.05	<0.05
m,p-Xylenes	0.05 ug/g dry	<0.05	<0.05	<0.05	<0.05
o-Xylene	0.05 ug/g dry	<0.05	<0.05	<0.05	<0.05
Xylenes, total	0.05 ug/g dry	<0.05	0.07	<0.05	0.06
Toluene-d8	Surrogate	106%	105%	101%	101%

Hydrocarbons

F1 PHCs (C6-C10)	7 ug/g dry	<7	<7	<7	<7
F2 PHCs (C10-C16)	4 ug/g dry	223	159	137	687
F3 PHCs (C16-C34)	8 ug/g dry	285	240	293	323
F4 PHCs (C34-C50)	6 ug/g dry	30	30	42	26

Semi-Volatiles

Acenaphthene	0.02 ug/g dry	0.02	<0.02	<0.02	<0.02
Acenaphthylene	0.02 ug/g dry	<0.02	<0.02	<0.02	<0.02
Anthracene	0.02 ug/g dry	0.04	<0.02	<0.02	<0.02
Benzo [a] anthracene	0.02 ug/g dry	0.05	0.03	0.02	<0.02
Benzo [a] pyrene	0.02 ug/g dry	0.04	0.03	0.02	<0.02
Benzo [b] fluoranthene	0.02 ug/g dry	0.05	0.03	0.03	0.03
Benzo [g,h,i] perylene	0.02 ug/g dry	0.02	<0.02	<0.02	<0.02
Benzo [k] fluoranthene	0.02 ug/g dry	0.03	<0.02	<0.02	<0.02
Biphenyl	0.02 ug/g dry	<0.02	<0.02	<0.02	0.02
Chrysene	0.02 ug/g dry	0.06	0.03	<0.02	0.02
Dibenzo [a,h] anthracene	0.02 ug/g dry	<0.02	<0.02	<0.02	<0.02
Fluoranthene	0.02 ug/g dry	0.12	0.05	0.03	0.04
Fluorene	0.02 ug/g dry	0.03	<0.02	<0.02	0.02
Indeno [1,2,3-cd] pyrene	0.02 ug/g dry	0.02	<0.02	<0.02	<0.02
1-Methylnaphthalene	0.02 ug/g dry	0.03	0.03	0.03	0.08
2-Methylnaphthalene	0.02 ug/g dry	0.03	0.04	0.03	0.06
Methylnaphthalene (1&2)	0.04 ug/g dry	0.06	0.06	0.06	0.14
Naphthalene	0.01 ug/g dry	0.03	0.03	<0.01	0.03
Phenanthrene	0.02 ug/g dry	0.13	0.04	0.02	<0.02
Pyrene	0.02 ug/g dry	0.13	<0.02	0.04	0.05
Quinoline	0.10 ug/g dry	<0.10	<0.10	<0.10	<0.10
2-Fluorobiphenyl	Surrogate	67.8%	64.5%	68.5%	64.0%

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Project Description: Land Farm Soil

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	Client ID:	Cell #3 Front	Cell #3 Middle	Cell #3 Back	Cell #4 Front
	Sample Date:	15-Sep-13	15-Sep-13	15-Sep-13	15-Sep-13
	Sample ID:	1338096-01	1338096-02	1338096-03	1338096-04
	MDL/Units	Soil	Soil	Soil	Soil
Terphenyl-d14	Surrogate	75.0%	75.6%	79.7%	71.2%

PCBs

PCBs, total	0.05 ug/g dry	-	-	-	<0.05
Decachlorobiphenyl	Surrogate	-	-	-	114%

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	Client ID:	Cell #4 Middle	Cell #4 Back	-	-
	Sample Date:	15-Sep-13	15-Sep-13	-	-
	Sample ID:	1338096-05	1338096-06	-	-
	MDL/Units	Soil	Soil	-	-

Physical Characteristics

% Solids	0.1 % by Wt.	93.4	91.8	-	-
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Microbiological Parameters

Standard Plate Count	1000 CFU/g	230000 [1]	265000 [1]	-	-
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General Inorganics

Nitrogen, Total	21 ug/g	619	634	-	-
Phosphorus, total	1.00 ug/g dry	780	984	-	-
Total Kjeldahl Nitrogen	10 ug/g dry	599	615	-	-

Anions

Nitrate as N	1 ug/g dry	20	19	-	-
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Metals

Antimony	1 ug/g dry	<1	<1	-	-
Arsenic	1 ug/g dry	<1	<1	-	-
Barium	1 ug/g dry	34	36	-	-
Beryllium	0.5 ug/g dry	<0.5	<0.5	-	-
Boron	5.0 ug/g dry	<5.0	<5.0	-	-
Cadmium	0.5 ug/g dry	<0.5	<0.5	-	-
Chromium	5 ug/g dry	19	23	-	-
Cobalt	1 ug/g dry	5	6	-	-
Copper	5 ug/g dry	14	14	-	-
Iron	200 ug/g dry	24300	26600	-	-
Lead	1 ug/g dry	6	7	-	-
Mercury	0.1 ug/g dry	<0.1	<0.1	-	-
Molybdenum	1 ug/g dry	<1	<1	-	-
Nickel	5 ug/g dry	8	8	-	-
Potassium	200 ug/g dry	715	743	-	-
Selenium	1 ug/g dry	<1	<1	-	-
Silver	0.3 ug/g dry	<0.3	<0.3	-	-
Thallium	1 ug/g dry	<1	<1	-	-
Tin	5 ug/g dry	<5	<5	-	-
Uranium	1 ug/g dry	<1	<1	-	-
Vanadium	10 ug/g dry	44	52	-	-
Zinc	20 ug/g dry	39	39	-	-

Volatiles

Benzene	0.02 ug/g dry	<0.02	<0.02	-	-
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	Client ID: Sample Date: Sample ID:	Cell #4 Middle 15-Sep-13 1338096-05 Soil	Cell #4 Back 15-Sep-13 1338096-06 Soil	-	-
	MDL/Units				
Ethylbenzene	0.05 ug/g dry	<0.05	<0.05	-	-
Toluene	0.05 ug/g dry	<0.05	<0.05	-	-
m,p-Xylenes	0.05 ug/g dry	<0.05	0.13	-	-
o-Xylene	0.05 ug/g dry	<0.05	0.13	-	-
Xylenes, total	0.05 ug/g dry	0.07	0.26	-	-
Toluene-d8	Surrogate	102%	101%	-	-

Hydrocarbons

F1 PHCs (C6-C10)	7 ug/g dry	36	21	-	-
F2 PHCs (C10-C16)	4 ug/g dry	308	599	-	-
F3 PHCs (C16-C34)	8 ug/g dry	165	181	-	-
F4 PHCs (C34-C50)	6 ug/g dry	11	14	-	-

Semi-Volatiles

Acenaphthene	0.02 ug/g dry	<0.02	<0.02	-	-
Acenaphthylene	0.02 ug/g dry	<0.02	0.03	-	-
Anthracene	0.02 ug/g dry	<0.02	<0.02	-	-
Benzo [a] anthracene	0.02 ug/g dry	0.10	0.06	-	-
Benzo [a] pyrene	0.02 ug/g dry	0.10	0.04	-	-
Benzo [b] fluoranthene	0.02 ug/g dry	0.16	0.07	-	-
Benzo [g,h,i] perylene	0.02 ug/g dry	0.06	0.02	-	-
Benzo [k] fluoranthene	0.02 ug/g dry	0.09	0.05	-	-
Biphenyl	0.02 ug/g dry	0.03	0.13	-	-
Chrysene	0.02 ug/g dry	0.17	0.09	-	-
Dibenzo [a,h] anthracene	0.02 ug/g dry	<0.02	<0.02	-	-
Fluoranthene	0.02 ug/g dry	0.26	0.15	-	-
Fluorene	0.02 ug/g dry	0.02	0.05	-	-
Indeno [1,2,3-cd] pyrene	0.02 ug/g dry	0.06	0.03	-	-
1-Methylnaphthalene	0.02 ug/g dry	0.08	0.28	-	-
2-Methylnaphthalene	0.02 ug/g dry	0.05	0.13	-	-
Methylnaphthalene (1&2)	0.04 ug/g dry	0.14	0.42	-	-
Naphthalene	0.01 ug/g dry	<0.01	<0.01	-	-
Phenanthrene	0.02 ug/g dry	0.04	0.03	-	-
Pyrene	0.02 ug/g dry	0.25	0.14	-	-
Quinoline	0.10 ug/g dry	<0.10	<0.10	-	-
2-Fluorobiphenyl	Surrogate	71.6%	84.2%	-	-

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	Client ID:	Cell #4 Middle	Cell #4 Back	-	-
	Sample Date:	15-Sep-13	15-Sep-13	-	-
	Sample ID:	1338096-05	1338096-06	-	-
	MDL/Units	Soil	Soil	-	-
Terphenyl-d14	Surrogate	81.5%	78.2%	-	-

PCBs

PCBs, total	0.05 ug/g dry	<0.05	<0.05	-	-
Decachlorobiphenyl	Surrogate	97.5%	72.7%	-	-

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Order Date: 16-Sep-2013

Method Quality Control: Blank

Analyte	Result	Reporting Limit	Units	Source Result	%REC	%REC Limit	RPD	RPD Limit	Notes
Anions									
Nitrate as N	ND	1	ug/g						
General Inorganics									
Phosphorus, total	ND	1.00	ug/g						
Total Kjeldahl Nitrogen	ND	10	ug/g						
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						
Metals									
Antimony	ND	1	ug/g						
Arsenic	ND	1	ug/g						
Barium	ND	1	ug/g						
Beryllium	ND	0.5	ug/g						
Boron	ND	5.0	ug/g						
Cadmium	ND	0.5	ug/g						
Chromium	ND	5	ug/g						
Cobalt	ND	1	ug/g						
Copper	ND	5	ug/g						
Iron	ND	200	ug/g						
Lead	ND	1	ug/g						
Mercury	ND	0.1	ug/g						
Molybdenum	ND	1	ug/g						
Nickel	ND	5	ug/g						
Potassium	ND	200	ug/g						
Selenium	ND	1	ug/g						
Silver	ND	0.3	ug/g						
Thallium	ND	1	ug/g						
Tin	ND	5	ug/g						
Uranium	ND	1	ug/g						
Vanadium	ND	10	ug/g						
Zinc	ND	20	ug/g						
Microbiological Parameters									
Standard Plate Count	ND	1000	CFU/g						
PCBs									
PCBs, total	ND	0.05	ug/g						
Surrogate: Decachlorobiphenyl	0.0813		ug/g		81.3	60-140			
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	8.34		ug/g		104	50-140			

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Order Date: 16-Sep-2013

Method Quality Control: Duplicate

Analyte	Result	Reporting Limit	Units	Source Result	%REC	%REC Limit	RPD	RPD Limit	Notes
Anions									
Nitrate as N	15.5	1	ug/g dry	16.0			3.4	20	
General Inorganics									
Phosphorus, total	1030	10.0	ug/g dry	1010			1.6	10	
Total Kjeldahl Nitrogen	756	40	ug/g dry	806			6.3	10	
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	ND				30	
F4 PHCs (C34-C50)	ND	6	ug/g dry	ND				30	
Metals									
Antimony	6.7	1	ug/g dry	6.9			2.7	30	
Arsenic	1.2	1	ug/g dry	1.1			5.9	30	
Barium	36.1	1	ug/g dry	36.8			1.8	30	
Beryllium	ND	0.5	ug/g dry	ND			0.0	30	
Boron	ND	5.0	ug/g dry	ND			0.0	30	
Cadmium	ND	0.5	ug/g dry	ND			0.0	30	
Chromium	23.7	5	ug/g dry	26.1			9.3	30	
Cobalt	5.1	1	ug/g dry	5.5			7.9	30	
Copper	12.5	5	ug/g dry	13.5			7.3	30	
Iron	25900	200	ug/g dry	29100			11.4	30	
Lead	20.3	1	ug/g dry	21.1			3.7	30	
Mercury	0.487	0.1	ug/g dry	0.441			10.0	35	
Molybdenum	1.7	1	ug/g dry	1.6			8.1	30	
Nickel	8.1	5	ug/g dry	8.5			4.8	30	
Potassium	835	200	ug/g dry	949			12.8	30	
Selenium	1.1	1	ug/g dry	1.5			25.3	30	
Silver	0.31	0.3	ug/g dry	ND			0.0	30	
Thallium	ND	1	ug/g dry	ND			0.0	30	
Tin	ND	5	ug/g dry	ND			0.0	30	
Uranium	1.2	1	ug/g dry	1.2			1.2	30	
Vanadium	51.5	10	ug/g dry	56.6			9.4	30	
Zinc	48.5	20	ug/g dry	50.3			3.6	30	
Microbiological Parameters									
Standard Plate Count	41000	1000	CFU/g	41000			0.0	200	
PCBs									
PCBs, total	ND	0.05	ug/g dry	ND				40	
Surrogate: Decachlorobiphenyl	0.102		ug/g dry	ND	95.2	60-140			
Physical Characteristics									
% Solids	49.4	0.1	% by Wt.	57.6			15.4	25	
Semi-Volatiles									
Acenaphthene	ND	0.02	ug/g dry	0.023			0.0	40	
Acenaphthylene	ND	0.02	ug/g dry	ND			0.0	40	
Anthracene	ND	0.02	ug/g dry	0.039			0.0	40	
Benzo [a] anthracene	ND	0.02	ug/g dry	0.052			0.0	40	
Benzo [a] pyrene	0.024	0.02	ug/g dry	0.043			58.4	40	QR-01
Benzo [b] fluoranthene	0.032	0.02	ug/g dry	0.051			47.1	40	QR-01
Benzo [g,h,i] perylene	ND	0.02	ug/g dry	0.020			0.0	40	
Benzo [k] fluoranthene	ND	0.02	ug/g dry	0.031			0.0	40	
Biphenyl	ND	0.02	ug/g dry	ND				40	
Chrysene	0.022	0.02	ug/g dry	0.060			93.1	40	QR-01
Dibenzo [a,h] anthracene	ND	0.02	ug/g dry	ND			0.0	40	
Fluoranthene	0.021	0.02	ug/g dry	0.116			139.0	40	QR-01

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Analyte	Result	Reporting Limit	Units	Source Result	%REC	%REC Limit	RPD	RPD Limit	Notes
Fluorene	ND	0.02	ug/g dry	0.026			0.0	40	
Indeno [1,2,3-cd] pyrene	ND	0.02	ug/g dry	0.020			0.0	40	
1-Methylnaphthalene	0.031	0.02	ug/g dry	0.026			17.4	40	
2-Methylnaphthalene	0.029	0.02	ug/g dry	0.034			17.2	40	
Naphthalene	0.023	0.01	ug/g dry	0.032			32.8	40	
Phenanthrene	ND	0.02	ug/g dry	0.133			0.0	40	
Pyrene	0.061	0.02	ug/g dry	0.132			74.2	40	QR-01
Quinoline	ND	0.10	ug/g dry	ND				40	
Surrogate: 2-Fluorobiphenyl	1.08		ug/g dry	ND	74.6	50-140			
Surrogate: Terphenyl-d14	1.23		ug/g dry	ND	84.8	50-140			
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	7.89		ug/g dry	ND	106	50-140			

Certificate of Analysis

Client: **Nunatta Environmental Services Inc.**

Report Date: 20-Sep-2013

Client PO:

Project Description: Land Farm Soil

Order Date: 16-Sep-2013

Method Quality Control: Spike

Analyte	Result	Reporting Limit	Units	Source Result	%REC	%REC Limit	RPD	RPD Limit	Notes
Anions									
Nitrate as N	2.57		mg/L	1.60	96.8	83-109			
General Inorganics									
Phosphorus, total	64.1	1.00	ug/g	ND	103	57-139			
Total Kjeldahl Nitrogen	255	10	ug/g	ND	102	79-130			
Hydrocarbons									
F1 PHCs (C6-C10)	198	7	ug/g	ND	99.2	80-120			
F2 PHCs (C10-C16)	114	4	ug/g	ND	97.9	60-140			
F3 PHCs (C16-C34)	240	8	ug/g	ND	99.9	60-140			
F4 PHCs (C34-C50)	141	6	ug/g	ND	87.8	60-140			
Metals									
Antimony	44.8		ug/L	2.8	84.2	70-130			
Arsenic	43.8		ug/L	0.4	86.6	70-130			
Barium	68.5		ug/L	14.7	108	70-130			
Beryllium	43.0		ug/L	0.06	85.9	70-130			
Boron	45.4		ug/L	1.8	87.1	70-130			
Cadmium	44.4		ug/L	0.06	88.6	70-130			
Chromium	54.6		ug/L	10.4	88.3	70-130			
Cobalt	45.2		ug/L	2.2	86.0	70-130			
Copper	49.4		ug/L	5.4	88.1	70-130			
Iron	869		ug/L	ND	86.9	70-130			
Lead	61.3		ug/L	8.4	106	70-130			
Mercury	1.75	0.1	ug/g	0.441	87.3	72-128			
Molybdenum	44.2		ug/L	0.6	87.1	70-130			
Nickel	46.4		ug/L	3.4	86.0	70-130			
Potassium	1330		ug/L	380	94.8	70-130			
Selenium	44.4		ug/L	0.6	87.7	70-130			
Silver	39.7		ug/L	0.07	79.2	70-130			
Thallium	54.3		ug/L	0.06	108	70-130			
Tin	44.8		ug/L	0.9	87.7	70-130			
Uranium	53.0		ug/L	0.5	105	70-130			
Vanadium	65.7		ug/L	22.6	86.2	70-130			
Zinc	61.8		ug/L	20.1	83.4	70-130			
PCBs									
PCBs, total	0.480	0.05	ug/g	ND	112	60-140			
Surrogate: Decachlorobiphenyl	0.101		ug/g		93.8	60-140			
Semi-Volatiles									
Acenaphthene	0.165	0.02	ug/g	0.023	78.5	50-140			
Acenaphthylene	0.171	0.02	ug/g	ND	94.5	50-140			
Anthracene	0.171	0.02	ug/g	0.039	72.5	50-140			
Benzo [a] anthracene	0.186	0.02	ug/g	0.052	73.9	50-140			
Benzo [a] pyrene	0.160	0.02	ug/g	0.043	64.5	50-140			
Benzo [b] fluoranthene	0.140	0.02	ug/g	0.051	49.3	50-140			
Benzo [g,h,i] perylene	0.118	0.02	ug/g	0.020	54.1	50-140			QM-06
Benzo [k] fluoranthene	0.199	0.02	ug/g	0.031	93.0	50-140			
Biphenyl	0.154	0.02	ug/g	ND	85.2	50-140			
Chrysene	0.204	0.02	ug/g	0.060	79.9	50-140			
Dibenzo [a,h] anthracene	0.116	0.02	ug/g	ND	64.0	50-140			

Certificate of Analysis

Client: **Nunatta Environmental Services Inc.**

Report Date: 20-Sep-2013

Client PO:

Project Description: Land Farm Soil

Order Date: 16-Sep-2013

Method Quality Control: Spike

Analyte	Result	Reporting Limit	Units	Source Result	%REC	%REC Limit	RPD	RPD Limit	Notes
Fluoranthene	0.197	0.02	ug/g	0.116	44.7	50-140			QM-06
Fluorene	0.162	0.02	ug/g	0.026	75.1	50-140			
Indeno [1,2,3-cd] pyrene	0.132	0.02	ug/g	0.020	61.4	50-140			QM-06
1-Methylnaphthalene	0.180	0.02	ug/g	0.026	85.4	50-140			
2-Methylnaphthalene	0.200	0.02	ug/g	0.034	91.7	50-140			
Naphthalene	0.194	0.01	ug/g	0.032	89.5	50-140			
Phenanthrene	0.182	0.02	ug/g	0.133	27.0	50-140			
Pyrene	0.241	0.02	ug/g	0.132	59.9	50-140			
Quinoline	ND	0.10	ug/g	ND		50-140			
Volatiles									
Benzene	4.29	0.02	ug/g	ND	107	60-130			
Ethylbenzene	4.34	0.05	ug/g	ND	109	60-130			
Toluene	4.05	0.05	ug/g	ND	101	60-130			
m,p-Xylenes	8.65	0.05	ug/g	ND	108	60-130			
o-Xylene	3.94	0.05	ug/g	ND	98.6	60-130			

Certificate of Analysis

Client: **Nunatta Environmental Services Inc.**

Client PO:

Project Description: Land Farm Soil

Report Date: 20-Sep-2013

Order Date: 16-Sep-2013

Qualifier Notes:

Sample Qualifiers :

1 : Estimated value - colony counts were very high and may not be a reliable representation of content.

QC Qualifiers :

QM-06 : Due to noted non-homogeneity of the QC sample matrix, the spike recoveries were out side the accepted range. Batch data accepted based on other QC.

QR-01 : Duplicate RPD is high, however, the sample result is less than 10x the MDL.

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.

Client Name: NUVATTA ENVIRONMENTAL SERVICES	Project Reference: Land Farm Soil/water	TAT: ☒ Regular ☐ 3 Day
Contact Name: JIM WILSON	Quote #	☐ 12 Day ☐ 1 Day
Address: Box 267, IQALUIT, NU X0A 0H0	PO #	Date Required:
Telephone: 867-979-1488	Email Address: nupatta@northwestel.net	

Criteria: ☐ O. Reg. 153/04 (As Amended) Table ☐ RSC Filing ☐ O. Reg. 558/00 ☐ PWQO ☐ CCME ☐ SUB (Storm) ☐ SUB (Sanitary) Municipality: ☐ Other:

Matrix Type: S (Soil/Sed.) GW (Ground Water) SW (Surface Water) SS (Storm/Sanitary Sewer) P (Paint) A (Air) O (Other)

Required Analyses

Paracel Order Number:		Matrix	Air Volume	# of Containers	Sample Taken		FI - Fe	BT S	T T Al DUCOW SM	N P K	P A H	M e t a l s	P B	M e r c u r y	P b C B			
Sample ID/Location Name					Date	Time												
1	BLACK TANK	S	0	1	Sept 15	11:30	X	X			X	mg						
2	CELL # 3 FRONT	S	0	1	↓	↓	X	X	X	X	X	X					- 120ml	
3	CELL # 3 MIDDLE	S	0	1			X	X	X	X	X	X						
4	CELL # 3 BACK	S	0	1			X	X	X	X	X	X						
5	CELL # 4 FRONT	S	0	1			X	X	X	X	X	X	X	X	X			
6	CELL # 4 MIDDLE	S	0	1			X	X	X	X	X	X	X	X	X	X		
7	CELL # 4 BACK	S	0	1			X	X	X	X	X	X	X	X	X	X		
8																		
9																		
10																		

Comments: * Same soil parameters as: NO 1323088.

* Analyze Black Tank sample for PAHs (extra bottle for samples submitted on NO: 1337190)

Method of Delivery:

First Air

Relinquished By (Sign): <i>Jim Wilson</i>	Received by Driver/Depot: <i>DELOUSE</i>	Received at Lab: <i>SUNEOPORN</i>	Verified By: <i>MC</i>
Relinquished By (Print): <i>Jim Wilson</i>	Date/Time: <i>17/09/13 10:04 AM</i>	Date/Time: <i>SEP 17 2013 10:40</i>	Date/Time: <i>Sept 17/13 11:39</i>
Date/Time: <i>Sept 15 2013</i>	Temperature: <i>1°C</i>	Temperature: <i>9.6°C</i>	pH Verified: <i>N/A</i>