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Certificate of Analysis

Nunatta Environmental Services Inc.
P.O. Box 267
Iqaluit, NU X0A 0H0
Attn: Jason Taylor

Phone: (867) 979-1488
Fax: (867) 979-1478

Client PO:
Project: Soils Within LTF Cells
Custody: 61087

Report Date: 8-Dec-2010
Order Date: 26-Nov-2010
Order #: 1049097

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

Paracel ID	Client ID
1049097-01	Cell 3 North Floor
1049097-02	Cell 3 North Top
1049097-03	Cell 3 South Floor
1049097-04	Cell 3 South Top
1049097-05	Cell 2
1049097-06	Cell 1
1049097-07	Cell 1 HM
1049097-08	Cell 1 B

Approved By: Mark Foto

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

Certificate of Analysis

Report Date: 08-Dec-2010

Client: **Nunatta Environmental Services Inc.**

Order Date:26-Nov-2010

Client PO: Project Description: Soils Within LTF Cells

Analysis Summary Table

Analysis	Method Reference/Description	Extraction Date	Analysis Date
Anions	EPA 300.1 - IC, water extraction	1-Dec-10	1-Dec-10
Boron, available	MOE (HWE), EPA 200.8 - ICP-MS	1-Dec-10	2-Dec-10
Chromium, hexavalent	MOE E3056 - Extraction, colourimetric	30-Nov-10	2-Dec-10
Mercury	EPA 7471A - CVAA, digestion	2-Dec-10	2-Dec-10
Metals	EPA 6020 - Digestion - ICP-MS	1-Dec-10	1-Dec-10
Nitrogen as N, total	Calculation	1-Dec-10	1-Dec-10
PAHs by GC-MS, standard scan	EPA 8270 - GC-MS, extraction	1-Dec-10	2-Dec-10
PCBs, total	SW846 8082A - GC-ECD	1-Dec-10	1-Dec-10
Phosphorus, total	EPA 365.4 - Auto Colour, digestion	1-Dec-10	2-Dec-10
Solids, %	Gravimetric, calculation	2-Dec-10	2-Dec-10
Standard Plate Count - Soil	based on SM 9215C	1-Dec-10	1-Dec-10
Total Kjeldahl Nitrogen	based on EPA351.2 - Auto Colour, digestion	1-Dec-10	1-Dec-10
TPH (C10-C50)	based on E3398/EPA3546 - GC-FID, extraction	1-Dec-10	2-Dec-10

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Order #: 1049097

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Report Date: 08-Dec-2010

Client: **Nunatta Environmental Services Inc.**

Order Date:26-Nov-2010

Client PO:

Project Description: Soils Within LTF Cells

	Client ID:	Cell 3 North Floor	Cell 3 North Top	Cell 3 South Floor	Cell 3 South Top
	Sample Date:	24-Nov-10	24-Nov-10	24-Nov-10	24-Nov-10
	Sample ID:	1049097-01	1049097-02	1049097-03	1049097-04
	MDL/Units	Soil	Soil	Soil	Soil
Physical Characteristics					
% Solids	0.1 % by Wt.	90.7	90.3	91.2	90.7
Microbiological Parameters in Water					
Standard Plate Count	1000 CFU/g	8000	8000	9000	1000
General Inorganics					
Nitrogen, Total	21 ug/g	410	523	567	472
Phosphorus, total	1.00 ug/g dry	866	1050	1280	950
Total Kjeldahl Nitrogen	10 ug/g dry	410	523	567	472
Anions					
Nitrate as N	1 ug/g dry	<1	<1	<1	<1
Metals					
Potassium	200 ug/g dry	581	594	509	498
Hydrocarbons					
TPH (C10-C50)	10 ug/g dry	650	727	611	644

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Report Date: 08-Dec-2010

Client: **Nunatta Environmental Services Inc.**

Order Date:26-Nov-2010

Client PO:

Project Description: Soils Within LTF Cells

	Client ID:	Cell 2	Cell 1	Cell 1 HM	Cell 1 B
	Sample Date:	24-Nov-10	24-Nov-10	24-Nov-10	24-Nov-10
	Sample ID:	1049097-05	1049097-06	1049097-07	1049097-08
	MDL/Units	Soil	Soil	Soil	Soil
Physical Characteristics					
% Solids	0.1 % by Wt.	92.6	92.6	92.0	89.8
Microbiological Parameters in Water					
Standard Plate Count	1000 CFU/g	12000	17000	-	50000
General Inorganics					
Nitrogen, Total	21 ug/g	639	343	-	681
Phosphorus, total	1.00 ug/g dry	1230	864	-	980
Total Kjeldahl Nitrogen	10 ug/g dry	639	343	-	681
Anions					
Nitrate as N	1 ug/g dry	<1	<1	-	<1
Metals					
Antimony	1 ug/g dry	-	-	<1	<1
Arsenic	1 ug/g dry	-	-	<1	<1
Barium	10 ug/g dry	-	-	34	30
Beryllium	0.5 ug/g dry	-	-	<0.5	<0.5
Boron, available	0.5 ug/g dry	-	-	<0.5	<0.5
Cadmium	0.5 ug/g dry	-	-	<0.5	<0.5
Chromium	5 ug/g dry	-	-	25	18
Chromium (VI)	0.4 ug/g dry	-	-	<0.4	<0.4
Cobalt	1 ug/g dry	-	-	6	5
Copper	5 ug/g dry	-	-	10	10
Iron	200 ug/g dry	-	-	25000	17800
Lead	1 ug/g dry	-	-	10	14
Mercury	0.1 ug/g dry	-	-	<0.1	<0.1
Molybdenum	1 ug/g dry	-	-	<1	<1
Nickel	5 ug/g dry	-	-	8	7
Potassium	200 ug/g dry	478	519	-	468
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	-	-	57	38
Zinc	20 ug/g dry	-	-	47	49
Hydrocarbons					

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Order Date:26-Nov-2010

Client PO:

Project Description: Soils Within LTF Cells

	Client ID:	Cell 2	Cell 1	Cell 1 HM	Cell 1 B
	Sample Date:	24-Nov-10	24-Nov-10	24-Nov-10	24-Nov-10
	Sample ID:	1049097-05	1049097-06	1049097-07	1049097-08
	MDL/Units	Soil	Soil	Soil	Soil
TPH (C10-C50)	10 ug/g dry	1310	1600	958	806
Semi-Volatiles					
Acenaphthene	0.02 ug/g dry	-	-	<0.02	<0.02
Acenaphthylene	0.02 ug/g dry	-	-	<0.02	<0.02
Anthracene	0.02 ug/g dry	-	-	<0.02	<0.02
Benzo [a] anthracene	0.02 ug/g dry	-	-	<0.02	0.05
Benzo [a] pyrene	0.02 ug/g dry	-	-	<0.02	0.04
Benzo [b] fluoranthene	0.02 ug/g dry	-	-	<0.02	0.05
Benzo [g,h,i] perylene	0.02 ug/g dry	-	-	<0.02	0.03
Benzo [k] fluoranthene	0.02 ug/g dry	-	-	<0.02	0.02
Biphenyl	0.02 ug/g dry	-	-	0.14	0.07
Chrysene	0.02 ug/g dry	-	-	<0.02	0.06
Dibenzo [a,h] anthracene	0.02 ug/g dry	-	-	<0.02	<0.02
Fluoranthene	0.02 ug/g dry	-	-	<0.02	0.13
Fluorene	0.02 ug/g dry	-	-	<0.02	0.04
Indeno [1,2,3-cd] pyrene	0.02 ug/g dry	-	-	<0.02	0.03
1-Methylnaphthalene	0.02 ug/g dry	-	-	<0.02	0.05
2-Methylnaphthalene	0.02 ug/g dry	-	-	<0.02	0.03
Methylnaphthalene (1&2)	0.04 ug/g dry	-	-	<0.04	0.08
Naphthalene	0.02 ug/g dry	-	-	<0.02	0.03
Phenanthrene	0.02 ug/g dry	-	-	<0.02	<0.02
Pyrene	0.02 ug/g dry	-	-	<0.02	0.11
2-Fluorobiphenyl	Surrogate	-	-	101%	101%
Terphenyl-d14	Surrogate	-	-	63.1%	63.4%
PCBs					
PCBs, total	0.05 ug/g dry	-	-	<0.05	<0.05
Decachlorobiphenyl	Surrogate	-	-	82.3%	96.2%

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									
TPH (C10-C50)	ND	10	ug/g						
Metals									
Antimony	ND	1	ug/g						
Arsenic	ND	1	ug/g						
Barium	ND	10	ug/g						
Beryllium	ND	0.5	ug/g						
Boron, available	ND	0.5	ug/g						
Cadmium	ND	0.5	ug/g						
Chromium (VI)	ND	0.4	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 in Water									
Standard Plate Count	ND	1000	CFU/g						
PCBs									
PCBs, total	ND	0.05	ug/g						
Surrogate: Decachlorobiphenyl	*0.0880*		*ug/g*		*88.0*	*43-142*			
Semi-Volatiles									
Acenaphthene	ND	0.02	ug/g						
Acenaphthylene	ND	0.02	ug/g						
Anthracene	ND	0.02	ug/g						
Benzo [a] anthracene	ND	0.02	ug/g						
Benzo [a] pyrene	ND	0.02	ug/g						
Benzo [b] fluoranthene	ND	0.02	ug/g						
Benzo [g,h,i] perylene	ND	0.02	ug/g						
Benzo [k] fluoranthene	ND	0.02	ug/g						
Biphenyl	ND	0.02	ug/g						
Chrysene	ND	0.02	ug/g						
Dibenzo [a,h] anthracene	ND	0.02	ug/g						
Fluoranthene	ND	0.02	ug/g						
Fluorene	ND	0.02	ug/g						
Indeno [1,2,3-cd] pyrene	ND	0.02	ug/g						
1-Methylnaphthalene	ND	0.02	ug/g						
2-Methylnaphthalene	ND	0.02	ug/g						
Methylnaphthalene (1&2)	ND	0.04	ug/g						
Naphthalene	ND	0.02	ug/g						

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Client: **Nunatta Environmental Services Inc.**

Order Date:26-Nov-2010

Client PO:

Project Description: Soils Within LTF Cells

Method Quality Control: Blank

Analyte	Result	Reporting Limit	Units	Source Result	%REC	%REC Limit	RPD	RPD Limit	Notes
Phenanthrene	ND	0.02	ug/g						
Pyrene	ND	0.02	ug/g						
Surrogate: 2-Fluorobiphenyl	*1.12*	*0.01*	*ug/g*		*83.9*	*32-156*			
Surrogate: Terphenyl-d14	*0.962*	*0.01*	*ug/g*		*72.2*	*39-146*			

Certificate of Analysis
Report Date: 08-Dec-2010
Client: **Nunatta Environmental Services Inc.**
Order Date:26-Nov-2010
Client PO: Project Description: Soils Within LTF Cells

Method Quality Control: Duplicate

Analyte	Result	Reporting Limit	Units	Source Result	%REC	%REC Limit	RPD	RPD Limit	Notes
Anions									
Nitrate as N	1.56	1	ug/g dry	1.84			16.7	20	
General Inorganics									
Phosphorus, total	1380	20.0	ug/g dry	1400			1.1	10	
Total Kjeldahl Nitrogen	98	10	ug/g dry	91			7.8	10	
Hydrocarbons									
TPH (C10-C50)	782	10	ug/g dry	806			3.1	50	
Metals									
Antimony	ND	1	ug/g dry	ND				26	
Arsenic	1.7	1	ug/g dry	1.6			4.1	35	
Barium	91.6	10	ug/g dry	94.3			2.9	34	
Beryllium	ND	0.5	ug/g dry	ND				25	
Boron, available	ND	0.5	ug/g dry	ND				35	
Cadmium	ND	0.5	ug/g dry	ND				33	
Chromium (VI)	ND	0.4	ug/g dry	ND				35	
Chromium	23.2	5	ug/g dry	24.3			4.4	32	
Cobalt	5.7	1	ug/g dry	5.9			3.4	32	
Copper	15.9	5	ug/g dry	15.8			0.5	32	
Iron	19700	200	ug/g dry	20700			4.9	32	
Lead	8.7	1	ug/g dry	9.1			5.5	44	
Mercury	ND	0.1	ug/g dry	ND				35	
Molybdenum	1.5	1	ug/g dry	1.5			3.9	29	
Nickel	13.5	5	ug/g dry	14.0			3.7	29	
Potassium	1970	200	ug/g dry	1930			1.9	28	
Selenium	ND	1	ug/g dry	ND				28	
Silver	ND	0.3	ug/g dry	ND				28	
Thallium	ND	1	ug/g dry	ND				27	
Tin	ND	5	ug/g dry	ND				27	
Uranium	ND	1	ug/g dry	ND				27	
Vanadium	41.3	10	ug/g dry	42.6			3.0	27	
Zinc	66.5	20	ug/g dry	70.3			5.4	27	
Microbiological Parameters in Water									
Standard Plate Count	1000	1000	CFU/g	8000			156.0	200	
PCBs									
PCBs, total	ND	0.05	ug/g dry	ND				35	
Surrogate: Decachlorobiphenyl	*0.106*		*ug/g dry*	*ND*	*84.8*	*43-142*			
Physical Characteristics									
% Solids	87.1	0.1	% by Wt.	89.1			2.2	25	
Semi-Volatiles									
Acenaphthene	ND	0.02	ug/g dry	ND				50	
Acenaphthylene	ND	0.02	ug/g dry	ND				50	
Anthracene	ND	0.02	ug/g dry	ND				50	
Benzo [a] anthracene	ND	0.02	ug/g dry	ND				50	
Benzo [a] pyrene	ND	0.02	ug/g dry	ND				50	
Benzo [b] fluoranthene	ND	0.02	ug/g dry	ND				50	
Benzo [g,h,i] perylene	ND	0.02	ug/g dry	ND				50	
Benzo [k] fluoranthene	ND	0.02	ug/g dry	ND				50	
Biphenyl	ND	0.02	ug/g dry	ND				50	
Chrysene	ND	0.02	ug/g dry	ND				50	
Dibenzo [a,h] anthracene	ND	0.02	ug/g dry	ND				50	
Fluoranthene	ND	0.02	ug/g dry	ND				50	
Fluorene	0.027	0.02	ug/g dry	0.026			5.9	50	
Indeno [1,2,3-cd] pyrene	ND	0.02	ug/g dry	ND				50	
1-Methylnaphthalene	0.163	0.02	ug/g dry	0.176			7.7	50	

Method Quality Control: Duplicate

Analyte	Result	Reporting Limit	Units	Source Result	%REC	%REC Limit	RPD	RPD Limit	Notes
2-Methylnaphthalene	0.264	0.02	ug/g dry	0.286			8.0	50	
Naphthalene	0.156	0.02	ug/g dry	0.175			11.4	50	
Phenanthrene	0.064	0.02	ug/g dry	0.065			2.4	50	
Pyrene	0.033	0.02	ug/g dry	0.033			0.4	50	
Surrogate: 2-Fluorobiphenyl	*1.66*	*0.01*	*ug/g dry*	*ND*	*95.2*	*32-156*			
Surrogate: Terphenyl-d14	*1.30*	*0.01*	*ug/g dry*	*ND*	*74.6*	*39-146*			

Method Quality Control: Spike

Analyte	Result	Reporting Limit	Units	Source Result	%REC	%REC Limit	RPD	RPD Limit	Notes
Anions									
Nitrate as N	9.05	1	ug/g	ND	90.2	83-109			
General Inorganics									
Phosphorus, total	52.4	1.00	ug/g	ND	83.8	57-139			
Total Kjeldahl Nitrogen	265	10	ug/g	ND	106	79-130			
Hydrocarbons									
TPH (C10-C50)	352	10	ug/g	ND	88.0	48.8-123.1			
Metals									
Antimony	44.2		ug/L	ND	88.5	80-120			
Arsenic	47.3		ug/L	ND	94.6	80-120			
Barium	52.5		ug/L	ND	105	80-120			
Beryllium	45.0		ug/L	ND	90.0	80-120			
Boron, available	4.81	0.5	ug/g	ND	96.1	70-122			
Cadmium	43.2		ug/L	ND	86.4	80-120			
Chromium (VI)	4.9	0.4	ug/g	ND	98.5	89-123			
Chromium	43.2		ug/L	ND	86.3	80-120			
Cobalt	44.3		ug/L	ND	88.7	80-120			
Copper	43.7		ug/L	ND	87.5	80-120			
Iron	871		ug/L	ND	87.1	80-120			
Lead	47.9		ug/L	ND	95.8	80-120			
Mercury	1.60	0.1	ug/g	ND	107	72-128			
Molybdenum	40.7		ug/L	ND	81.5	80-120			
Nickel	42.7		ug/L	ND	85.5	80-120			
Potassium	915		ug/L	ND	91.5	80-120			
Selenium	49.9		ug/L	ND	99.8	80-120			
Silver	47.6		ug/L	ND	95.3	80-120			
Thallium	53.0		ug/L	ND	106	80-120			
Uranium	62.8		ug/L	0.3	125	70-131			
Vanadium	41.7		ug/L	ND	83.3	80-120			
Zinc	50.9		ug/L	ND	102	80-120			
PCBs									
PCBs, total	0.382	0.05	ug/g	ND	95.5	58-147			
Surrogate: Decachlorobiphenyl	*0.0817*		*ug/g*		*81.7*	*43-142*			
Semi-Volatiles									
Acenaphthene	0.134	0.02	ug/g	ND	80.5	31-121			
Acenaphthylene	0.140	0.02	ug/g	ND	83.8	26-124			
Anthracene	0.170	0.02	ug/g	ND	102	29-128			
Benzo [a] anthracene	0.178	0.02	ug/g	ND	107	29-129			
Benzo [a] pyrene	0.180	0.02	ug/g	ND	108	29-111			
Benzo [b] fluoranthene	0.153	0.02	ug/g	ND	91.7	26-111			
Benzo [g,h,i] perylene	0.169	0.02	ug/g	ND	101	23-128			
Benzo [k] fluoranthene	0.158	0.02	ug/g	ND	94.9	23-135			
Biphenyl	0.124	0.02	ug/g	ND	74.3	31-107			
Chrysene	0.177	0.02	ug/g	ND	106	28-136			
Dibenzo [a,h] anthracene	0.147	0.02	ug/g	ND	88.1	20-131			
Fluoranthene	0.197	0.02	ug/g	ND	118	24-131			
Fluorene	0.157	0.02	ug/g	ND	94.1	28-123			
Indeno [1,2,3-cd] pyrene	0.152	0.02	ug/g	ND	91.2	20-128			
1-Methylnaphthalene	0.164	0.02	ug/g	ND	98.4	24-127			
2-Methylnaphthalene	0.126	0.02	ug/g	ND	75.4	21-127			
Naphthalene	0.112	0.02	ug/g	ND	67.2	29-118			
Phenanthrene	0.174	0.02	ug/g	ND	104	34-108			

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Client: **Nunatta Environmental Services Inc.**

Order Date:26-Nov-2010

Client PO:

Project Description: Soils Within LTF Cells

Method Quality Control: Spike

Analyte	Result	Reporting Limit	Units	Source Result	%REC	%REC Limit	RPD	RPD Limit	Notes
Pyrene	0.203	0.02	ug/g	ND	122	29-131			
Surrogate: 2-Fluorobiphenyl	*1.40*	0.01	*ug/g*		*105*	*32-156*			
Surrogate: Terphenyl-d14	*1.05*	0.01	*ug/g*		*78.7*	*39-146*			

Sample and QC Qualifiers Notes

None

Sample Data Revisions

None

Work Order Revisions/Comments:

None

Other Report Notes:

n/a: not applicable
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.

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Chain of Custody Record

№ 61087

Pg. __ of __

Company Name: Nunatta Env. Services
Contact Name: Jason Taylor
Address: P.O Box 267, Iqaluit, NU, X0A 0H0
Tel: (867) 979-1488 Cell: (867) 222-4420
Email: nunatta@northwestel.net

Project Ref: Soils within LTF Cells
PO#
Quote # ☐Not Quoted
Preservative to be added by Paracel? ☐Yes ☐No

Date Required:
Turn Around Time: [ ] 1-day [ ] 2-day [ ] Regular
Regulatory/Guideline Requirements

Matrix Types: S–Soil/Sed GW–Ground Water SW–Surface Water SS–Storm/Sanitary Sewer A-Air O-Other RDW-Regulated Drinking Water

	Sample Information					Analysis Required													
Paracel Order # 1049097	Sample Identification	Matrix	Air Volume	# Containers	Date Sampled dd/mm/yy	TPH (C10-C50)	F2 - F4	TMC Type	Nitrogen	Phosphorus	Potassium	HM	Mercury	PCB	PAH				Hazardous? (Y/N)
1	cell 3 north Floor	S		1	24/11/10	X	X	X	X	X	X								N
2	cell 3 north Top	S		1		X	X	X	X	X	X								N
3	cell 3 south Floor	S		1		X	X	X	X	X	X								N
4	cell 3 south Top	S		1		X	X	X	X	X	X								N
5	cell 2	S		1		X	X	X	X	X	X								N
6	cell 1	S		1		X	X	X	X	X	X								N
7	cell 1 HM	S		1		X	X					X	X	X	X				N
8	cell 1 B	S		1	24/11/10	X	X	X	X	X	X	X	X	X	X				N
9																			
10																			

Comments: Regular turn around time / TMC Type meaning the total Micro-organism count and type / samples were frozen Just do total micro count for now, per Jim. JC

Relinquished By: Jason Taylor	Received at Depot:	Received at Lab:	Verified By:
Date: 26/11/10 Time:	Date: Time:	Date: Nov. 29/10 Time: 10:40a	Date: Nov. 30/10 Time: 3:19p

Please refer to the back page for Locations and Sample Preservation, Container and Hold Time Requirements. Purolator

WHITE - Lab Copy, PINK - Client Copy