

Certificate of Analysis

Nunatta Environmental Services Inc.

P.O. Box 267
Iqaluit, NUNAVUT X0A 0H0
Attn: Seemee Peter

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

Client PO:
Project: 08-052

Report Date: 13-Nov-2008
Order Date: 7-Nov-2008

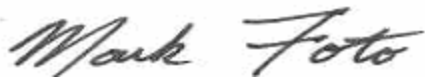
Custody: 47623

Revised Report **Order #: 0845175**

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

Paracel ID	Client ID
0845175-01	Cell3-08-1
0845175-02	Cell3-08-2
0845175-03	Cell3-08-3
0845175-04	MW08-1
0845175-05	MW08-3
0845175-06	MW08-4

Approved By:



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

Any use of these results implies your agreement that our total liability in connection with this work, however arising shall be limited to the amount paid by you for this work, and that our employees or agents shall not under circumstances be liable to you in connection with this work

Certificate of Analysis

Report Date: 13-Nov-2008

Order Date: 7-Nov-2008

Client: **Nunatta Environmental Services Inc.**

Client PO:

Project Description: 08-052

Analysis Summary Table

Analysis	Method Reference/Description	Extraction Date	Analysis Date
Boron, available	MOE (HWE), EPA 200.8 - ICP-MS	10-Nov-08	10-Nov-08
CCME PHC F1	CWS Tier 1 - P&T GC-FID	10-Nov-08	13-Nov-08
CCME PHC F2 - F4	CWS Tier 1 - GC-FID, extraction	10-Nov-08	13-Nov-08
Chromium, hexavalent	MOE E3056 - Extraction, colourimetric	12-Nov-08	12-Nov-08
Mercury	EPA 7471A - CVAA, digestion	11-Nov-08	11-Nov-08
Metals	EPA 6020 - Digestion - ICP-MS	10-Nov-08	11-Nov-08
Solids, %	Gravimetric, calculation	7-Nov-08	10-Nov-08

P: 1-800-749-1947
E: PARACEL@PARACELLABS.COM
WWW.PARACELLABS.COM

OTTAWA
300-2319 St. Laurent Blvd.
Ottawa, ON K1G 4J8
MISSISSAUGA
6646 Kilmat Rd, Unit #27
Mississauga, ON L5N 6J3

NIAGARA FALLS
5415 Manning Glary Crt.
Niagara Falls, ON L2J 0A3
SARNIA
123 Christina St. N.
Sarnia, ON N7T 6T7

Certificate of Analysis

Report Date: 13-Nov-2008

Order Date: 7-Nov-2008

Client: **Nunatta Environmental Services Inc.**

Client PO:

Project Description: 08-052

Client ID:	Cell3-08-1	Cell3-08-2	Cell3-08-3	MW08-1
Sample Date:	04-Nov-08	04-Nov-08	04-Nov-08	03-Nov-08
Sample ID:	0845175-01	0845175-02	0845175-03	0845175-04
MDL/Units	Soil	Soil	Soil	Soil

Physical Characteristics

% Solids	0.1 % by Wt.	92.2	90.4	90.7	97.2
----------	--------------	------	------	------	------

Metals

Antimony	1 ug/g dry	<1	<1	<1	<1
Arsenic	1 ug/g dry	1	2	<1	<1
Barium	10 ug/g dry	34	37	37	39
Beryllium	0.5 ug/g dry	<0.5	<0.5	<0.5	<0.5
Boron, available	0.5 ug/g dry	<0.5	<0.5	<0.5	<0.5
Cadmium	0.5 ug/g dry	<0.5	<0.5	<0.5	<0.5
Chromium	5 ug/g dry	24	26	25	39
Chromium (VI)	0.4 ug/g dry	<0.4	<0.4	<0.4	<0.4
Cobalt	5 ug/g dry	5	7	7	11
Copper	5 ug/g dry	14	21	22	26
Iron	200 ug/g dry	27300	23600	21600	41400
Lead	1 ug/g dry	26	19	5	7
Mercury	0.1 ug/g dry	0.2	0.2	<0.1	<0.1
Molybdenum	1 ug/g dry	<1	1	<1	1
Nickel	5 ug/g dry	8	10	10	15
Selenium	1 ug/g dry	<1	5	<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
Vanadium	10 ug/g dry	52	54	54	92
Zinc	20 ug/g dry	50	46	35	48

Hydrocarbons

F1 PHCs (C6-C10)	10 ug/g dry	<10	<10	<10	<10
F2 PHCs (C10-C16)	10 ug/g dry	1350	1340	2070	<10
F3 PHCs (C16-C34)	10 ug/g dry	1270	1320	1230	<10
F4 PHCs (C34-C50)	10 ug/g dry	134	97	20	<10

Certificate of Analysis

Report Date: 13-Nov-2008

Order Date: 7-Nov-2008

Client: **Nunatta Environmental Services Inc.**

Client PO:

Project Description: 08-052

	Client ID:	MW08-3	MW08-4	-	-
	Sample Date:	03-Nov-08	03-Nov-08	-	-
	Sample ID:	0845175-05	0845175-06	-	-
	MDL/Units	Soil	Soil	-	-

Physical Characteristics

% Solids	0.1 % by Wt.	93.2	93.4	-	-
----------	--------------	------	------	---	---

Metals

Antimony	1 ug/g dry	<1	<1	-	-
Arsenic	1 ug/g dry	1	<1	-	-
Barium	10 ug/g dry	21	28	-	-
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	27	29	-	-
Chromium (VI)	0.4 ug/g dry	<0.4	<0.4	-	-
Cobalt	5 ug/g dry	7	7	-	-
Copper	5 ug/g dry	18	17	-	-
Iron	200 ug/g dry	28000	28400	-	-
Lead	1 ug/g dry	3	5	-	-
Mercury	0.1 ug/g dry	<0.1	<0.1	-	-
Molybdenum	1 ug/g dry	<1	<1	-	-
Nickel	5 ug/g dry	10	11	-	-
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	-	-
Vanadium	10 ug/g dry	58	62	-	-
Zinc	20 ug/g dry	34	46	-	-

Hydrocarbons

F1 PHCs (C6-C10)	10 ug/g dry	<10	<10	-	-
F2 PHCs (C10-C16)	10 ug/g dry	<10	<10	-	-
F3 PHCs (C16-C34)	10 ug/g dry	<10	11	-	-
F4 PHCs (C34-C50)	10 ug/g dry	<10	<10	-	-

Certificate of Analysis

Report Date: 13-Nov-2008

Order Date: 7-Nov-2008

Client: **Nunatta Environmental Services Inc.**

Client PO:

Project Description: 08-052

Method Quality Control: Blank

Analyte	Result	Reporting Limit	Units	Source Result	%REC	%REC Limit	RPD	RPD Limit	Notes
Hydrocarbons									
F1 PHCs (C6-C10)	ND	10	ug/g						
F2 PHCs (C10-C16)	ND	10	ug/g						
F3 PHCs (C16-C34)	ND	10	ug/g						
F4 PHCs (C34-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	5	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						
Selenium	ND	1	ug/g						
Silver	ND	0.3	ug/g						
Thallium	ND	1	ug/g						
Tin	ND	5	ug/g						
Vanadium	ND	10	ug/g						
Zinc	ND	20	ug/g						

Certificate of Analysis

Report Date: 13-Nov-2008

Order Date: 7-Nov-2008

Client: **Nunatta Environmental Services Inc.**

Client PO:

Project Description: 08-052

Method Quality Control: Duplicate

Analyte	Result	Reporting Limit	Units	Source Result	%REC	%REC Limit	RPD	RPD Limit	Notes
Hydrocarbons									
F1 PHCs (C6-C10)	ND	10	ug/g dry	ND				32	
F2 PHCs (C10-C16)	ND	10	ug/g dry	ND				50	
F3 PHCs (C16-C34)	ND	10	ug/g dry	ND				50	
F4 PHCs (C34-C50)	ND	10	ug/g dry	ND				50	
Metals									
Antimony	2.0	1	ug/g dry	ND				26	QR-01
Arsenic	8.2	1	ug/g dry	8.9			9.1	35	
Barium	82.1	10	ug/g dry	84.5			2.9	34	
Beryllium	1.25	0.5	ug/g dry	1.25			0.0	25	
Boron, available	ND	0.5	ug/g dry	ND				35	
Cadmium	0.68	0.5	ug/g dry	ND				33	QR-01
Chromium (VI)	ND	0.4	ug/g dry	ND				35	
Chromium	25.5	5	ug/g dry	26.8			5.0	32	
Cobalt	39.7	5	ug/g dry	43.1			8.3	32	
Copper	56.8	5	ug/g dry	61.1			7.2	32	
Iron	31500	200	ug/g dry	34600			9.2	32	
Lead	23.7	1	ug/g dry	25.3			6.8	44	
Mercury	ND	0.1	ug/g dry	0.100			200.0	35	QR-01
Molybdenum	7.1	1	ug/g dry	6.8			4.5	29	
Nickel	113	5	ug/g dry	122			7.9	29	
Selenium	ND	1	ug/g dry	ND				28	
Silver	0.32	0.3	ug/g dry	ND				28	QR-01
Thallium	1.7	1	ug/g dry	1.7			2.5	27	
Tin	ND	5	ug/g dry	ND				27	
Vanadium	45.9	10	ug/g dry	47.7			3.9	27	
Zinc	73.3	20	ug/g dry	85.5			15.4	27	
Physical Characteristics									
% Solids	92.5	0.1	% by Wt.	92.4			0.1	25	

Certificate of Analysis

Report Date: 13-Nov-2008

Order Date: 7-Nov-2008

Client: **Nunatta Environmental Services Inc.**

Client PO:

Project Description: 08-052

Method Quality Control: Spike

Analyte	Result	Reporting Limit	Units	Source Result	%REC	%REC Limit	RPD	RPD Limit	Notes
Hydrocarbons									
F1 PHCs (C6-C10)	101	10	ug/g	ND	101	80-120			
F2 PHCs (C10-C16)	71	10	ug/g	ND	89.0	61-129			
F3 PHCs (C16-C34)	254	10	ug/g	ND	127	61-129			
F4 PHCs (C34-C50)	152	10	ug/g	ND	127	61-129			
Metals									
Antimony	61.7		ug/L	ND	123	80-120			QS-02
Arsenic	51.0		ug/L	ND	102	80-120			
Barium	46.3		ug/L	ND	92.5	80-120			
Beryllium	62.5		ug/L	ND	125	80-120			QS-02
Boron, available	4.24	0.5	ug/g	ND	84.8	70-122			
Cadmium	60.2		ug/L	ND	120	80-120			
Chromium (VI)	5.0	0.4	ug/g	ND	100	89-123			
Chromium	55.9		ug/L	ND	112	80-120			
Cobalt	54.0		ug/L	ND	108	80-120			
Copper	52.1		ug/L	ND	104	80-120			
Iron	1030		ug/L	ND	103	80-120			
Lead	47.4		ug/L	ND	94.8	80-120			
Mercury	1.74	0.1	ug/g	0.100	109	72-128			
Molybdenum	52.7		ug/L	ND	105	80-120			
Nickel	54.1		ug/L	ND	108	80-120			
Selenium	49.9		ug/L	ND	99.9	80-120			
Silver	59.4		ug/L	ND	119	80-120			
Thallium	50.2		ug/L	ND	100	80-120			
Tin	64.6		ug/L	ND	129	80-120			QS-02
Vanadium	56.2		ug/L	ND	112	80-120			
Zinc	48.4		ug/L	ND	96.7	80-120			

Certificate of Analysis

Report Date: 13-Nov-2008

Order Date: 7-Nov-2008

Client: **Nunatta Environmental Services Inc.**

Client PO:

Project Description: 08-052

Sample and QC Qualifiers Notes

- 1- QR-01 : Duplicate RPD is high, however, the sample result is less than 10x the MDL.
- 2- QS-02 : Spike level outside of control limits. Analysis batch accepted based on other QC included in the batch.

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.

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.

P: 1-800-749-1947
E: PARACEL@PARACELLABS.COM
WWW.PARACELLABS.COM

OTTAWA
300-2319 St. Laurent Blvd.
Ottawa, ON K1G 4J8
MISSISSAUGA
6646 Kipling Rd. Unit #27
Mississauga, ON L5N 6J3

NIAGARA FALLS
5415 Manning Glary Crt.
Niagara Falls, ON L2J 0A3
SARNIA
123 Christina St. N.
Sarnia, ON N7T 6T7



LABORATORIES LTD.

300-2319 St. Laurent Blvd.
Ottawa, ON K1G 4J8
p: (613) 731-9577
f: (613) 731-9064
e: paracel@paracellabs.com
www.paracellabs.com

Chain of Custody Record

No 47623

Pg. ____ of ____

Contact: Seemee Peters
Company: Nunatta Environmental Inc.
Address: P.O. Box 267 Igloolik, NU X6H 0H0
Bldg 1575 Federal PD
Tel: 867 979 1488 Fax: 867 979 1488

Project Ref: 08-052
PO #: _____
Quote #: _____ ☐ Not Quoted
Email: _____
Preservative to be added by Paracel? ☐ Yes ☐ No

Reporting Options
Electronic: ☒ signed PDF ☒ spreadsheet
Other: _____
Turn Around Time: ☐ 1-day ☐ 2-day ☒ Regular
Regulatory/Guideline Requirements
CCME CWS

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

Parcel Order #

0845175

Sample Identification

1	Cell 3-08-1	5	4	Nov 4	✓	✓	✓												
2	Cell 3-08-2	5	4	Nov 4	✓	✓	✓												
3	Cell 3-08-3	5	4	Nov 4	✓	✓	✓												
4	MW 08-1	5	3	Nov 3	✓	✓	✓												
5	MW 08-3	5	3	Nov 3	✓	✓	✓												
6	MW 08-4	5	2	Nov 4	✓	✓	✓												
7																			
8																			
9																			
10																			

Analysis Required

Comments:

Relinquished by: 881
Date: Nov 4/08 Time: 2:10 pm

Received by: N. Carey
Date: Nov 7 Time: 2:00

Verified by: N. Carey
Date: Nov 7 Time: 2:34