

## ***Certificate of Analysis***

### **Nunatta Environmental Services Inc.**

P.O. Box 267  
Iqaluit, NU X0A 0H0  
Attn: Jim Wilson

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

Client PO:  
Project: Black Tank  
Custody: 11331

Report Date: 17-Sep-2013  
Order Date: 11-Sep-2013

**Order #: 1337190**

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

| <b>Paracel ID</b> | <b>Client ID</b> |
|-------------------|------------------|
| 1337190-01        | Black Tank       |

Approved By:



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

**Certificate of Analysis**

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**Analysis Summary Table**

| Analysis                    | Method Reference/Description       | Extraction Date | Analysis Date |
|-----------------------------|------------------------------------|-----------------|---------------|
| Alkalinity, total to pH 4.5 | EPA 310.1 - Titration to pH 4.5    | 16-Sep-13       | 16-Sep-13     |
| Ammonia, as N               | EPA 351.2 - Auto Colour            | 13-Sep-13       | 17-Sep-13     |
| Anions                      | EPA 300.1 - IC                     | 12-Sep-13       | 12-Sep-13     |
| BTEX by P&T GC-MS           | EPA 624 - P&T GC-MS                | 13-Sep-13       | 15-Sep-13     |
| Conductivity                | EPA 9050A- probe @25 °C            | 16-Sep-13       | 16-Sep-13     |
| Hardness                    | Hardness as CaCO <sub>3</sub>      | 16-Sep-13       | 16-Sep-13     |
| Mercury                     | EPA 245.1 - Cold Vapour AA         | 16-Sep-13       | 16-Sep-13     |
| Metals, ICP-MS              | EPA 200.8 - ICP-MS                 | 12-Sep-13       | 12-Sep-13     |
| Oil & Grease, total         | SM5520B - Gravimetric              | 13-Sep-13       | 16-Sep-13     |
| pH                          | EPA 150.1 - pH probe @25 °C        | 16-Sep-13       | 16-Sep-13     |
| PHC F1                      | CWS Tier 1 - P&T GC-FID            | 13-Sep-13       | 15-Sep-13     |
| PHC F2 - F4                 | CWS Tier 1 - GC-FID, extraction    | 12-Sep-13       | 13-Sep-13     |
| Phenolics                   | EPA 420.2 - Auto Colour, 4AAP      | 12-Sep-13       | 12-Sep-13     |
| Phosphorus, total           | EPA 365.4 - Auto Colour, digestion | 13-Sep-13       | 13-Sep-13     |
| Solids, total suspended     | SM 2540D - gravimetric             | 13-Sep-13       | 13-Sep-13     |

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|  |                     |            |   |   |   |
|--|---------------------|------------|---|---|---|
|  | <b>Client ID:</b>   | Black Tank | - | - | - |
|  | <b>Sample Date:</b> | 09-Sep-13  | - | - | - |
|  | <b>Sample ID:</b>   | 1337190-01 | - | - | - |
|  | <b>MDL/Units</b>    | Water      | - | - | - |

**General Inorganics**

|                        |              |       |   |   |   |
|------------------------|--------------|-------|---|---|---|
| Alkalinity, total      | 5 mg/L       | 436   | - | - | - |
| Ammonia as N           | 0.01 mg/L    | 16.4  | - | - | - |
| Conductivity           | 5 uS/cm      | 1320  | - | - | - |
| Hardness               | 1.0 mg/L     | 481   | - | - | - |
| pH                     | 0.1 pH Units | 7.7   | - | - | - |
| Phenolics              | 0.001 mg/L   | 0.009 | - | - | - |
| Phosphorus, total      | 0.01 mg/L    | 0.23  | - | - | - |
| Total Suspended Solids | 2 mg/L       | 18    | - | - | - |

**Anions**

|              |           |      |   |   |   |
|--------------|-----------|------|---|---|---|
| Chloride     | 1 mg/L    | 127  | - | - | - |
| Nitrate as N | 0.1 mg/L  | 0.6  | - | - | - |
| Nitrite as N | 0.05 mg/L | 0.11 | - | - | - |
| Sulphate     | 1 mg/L    | 24   | - | - | - |

**Metals**

|            |          |        |   |   |   |
|------------|----------|--------|---|---|---|
| Mercury    | 0.1 ug/L | <0.1   | - | - | - |
| Aluminum   | 1 ug/L   | 6      | - | - | - |
| Antimony   | 0.5 ug/L | 2.9    | - | - | - |
| Arsenic    | 1 ug/L   | 3      | - | - | - |
| Barium     | 1 ug/L   | 53     | - | - | - |
| Beryllium  | 0.5 ug/L | <0.5   | - | - | - |
| Boron      | 10 ug/L  | 322    | - | - | - |
| Cadmium    | 0.1 ug/L | <0.1   | - | - | - |
| Calcium    | 100 ug/L | 154000 | - | - | - |
| Chromium   | 1 ug/L   | 10     | - | - | - |
| Cobalt     | 0.5 ug/L | 2.1    | - | - | - |
| Copper     | 0.5 ug/L | 1.9    | - | - | - |
| Iron       | 100 ug/L | 3000   | - | - | - |
| Lead       | 0.1 ug/L | 0.3    | - | - | - |
| Magnesium  | 200 ug/L | 23200  | - | - | - |
| Manganese  | 5 ug/L   | 2680   | - | - | - |
| Molybdenum | 0.5 ug/L | 5.9    | - | - | - |
| Nickel     | 1 ug/L   | 8      | - | - | - |
| Potassium  | 100 ug/L | <100   | - | - | - |

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|           | Client ID:<br>Sample Date:<br>Sample ID: | Black Tank<br>09-Sep-13<br>1337190-01<br>Water | - | - | - |
|-----------|------------------------------------------|------------------------------------------------|---|---|---|
|           | MDL/Units                                |                                                | - | - | - |
| Selenium  | 1 ug/L                                   | 3                                              | - | - | - |
| Silicon   | 10 ug/L                                  | 5180                                           | - | - | - |
| Silver    | 0.1 ug/L                                 | 0.1                                            | - | - | - |
| Sodium    | 200 ug/L                                 | 16500                                          | - | - | - |
| Strontium | 10 ug/L                                  | 365                                            | - | - | - |
| Thallium  | 0.1 ug/L                                 | <0.1                                           | - | - | - |
| Tin       | 5 ug/L                                   | <5                                             | - | - | - |
| Titanium  | 5 ug/L                                   | <5                                             | - | - | - |
| Tungsten  | 10 ug/L                                  | <10                                            | - | - | - |
| Uranium   | 0.1 ug/L                                 | 1.7                                            | - | - | - |
| Vanadium  | 0.5 ug/L                                 | 20.4                                           | - | - | - |
| Zinc      | 5 ug/L                                   | <5                                             | - | - | - |

**Volatiles**

|                |           |       |   |   |   |
|----------------|-----------|-------|---|---|---|
| Benzene        | 0.5 ug/L  | <0.5  | - | - | - |
| Ethylbenzene   | 0.5 ug/L  | <0.5  | - | - | - |
| Toluene        | 0.5 ug/L  | <0.5  | - | - | - |
| m,p-Xylenes    | 0.5 ug/L  | <0.5  | - | - | - |
| o-Xylene       | 0.5 ug/L  | <0.5  | - | - | - |
| Xylenes, total | 0.5 ug/L  | <0.5  | - | - | - |
| Toluene-d8     | Surrogate | 92.3% | - | - | - |

**Hydrocarbons**

|                     |          |      |   |   |   |
|---------------------|----------|------|---|---|---|
| F1 PHCs (C6-C10)    | 25 ug/L  | <25  | - | - | - |
| F2 PHCs (C10-C16)   | 100 ug/L | <100 | - | - | - |
| F3 PHCs (C16-C34)   | 100 ug/L | <100 | - | - | - |
| F4 PHCs (C34-C50)   | 100 ug/L | <100 | - | - | - |
| F1 + F2 PHCs        | 125 ug/L | <125 | - | - | - |
| F3 + F4 PHCs        | 200 ug/L | <200 | - | - | - |
| Oil & Grease, total | 0.5 mg/L | 11.8 | - | - | - |

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**Method Quality Control: Blank**

| Analyte                   | Result | Reporting Limit | Units | Source Result | %REC | %REC Limit | RPD | RPD Limit | Notes |
|---------------------------|--------|-----------------|-------|---------------|------|------------|-----|-----------|-------|
| <b>Anions</b>             |        |                 |       |               |      |            |     |           |       |
| Chloride                  | ND     | 1               | mg/L  |               |      |            |     |           |       |
| Nitrate as N              | ND     | 0.1             | mg/L  |               |      |            |     |           |       |
| Nitrite as N              | ND     | 0.05            | mg/L  |               |      |            |     |           |       |
| Sulphate                  | ND     | 1               | mg/L  |               |      |            |     |           |       |
| <b>General Inorganics</b> |        |                 |       |               |      |            |     |           |       |
| Alkalinity, total         | ND     | 5               | mg/L  |               |      |            |     |           |       |
| Ammonia as N              | ND     | 0.01            | mg/L  |               |      |            |     |           |       |
| Conductivity              | ND     | 5               | uS/cm |               |      |            |     |           |       |
| Phenolics                 | ND     | 0.001           | mg/L  |               |      |            |     |           |       |
| Phosphorus, total         | ND     | 0.01            | mg/L  |               |      |            |     |           |       |
| Total Suspended Solids    | ND     | 2               | mg/L  |               |      |            |     |           |       |
| <b>Hydrocarbons</b>       |        |                 |       |               |      |            |     |           |       |
| F1 PHCs (C6-C10)          | ND     | 25              | ug/L  |               |      |            |     |           |       |
| F2 PHCs (C10-C16)         | ND     | 100             | ug/L  |               |      |            |     |           |       |
| F3 PHCs (C16-C34)         | ND     | 100             | ug/L  |               |      |            |     |           |       |
| F4 PHCs (C34-C50)         | ND     | 100             | ug/L  |               |      |            |     |           |       |
| Oil & Grease, total       | ND     | 0.5             | mg/L  |               |      |            |     |           |       |
| <b>Metals</b>             |        |                 |       |               |      |            |     |           |       |
| Mercury                   | ND     | 0.1             | ug/L  |               |      |            |     |           |       |
| Aluminum                  | ND     | 1               | ug/L  |               |      |            |     |           |       |
| Antimony                  | ND     | 0.5             | ug/L  |               |      |            |     |           |       |
| Arsenic                   | ND     | 1               | ug/L  |               |      |            |     |           |       |
| Barium                    | ND     | 1               | ug/L  |               |      |            |     |           |       |
| Beryllium                 | ND     | 0.5             | ug/L  |               |      |            |     |           |       |
| Boron                     | ND     | 10              | ug/L  |               |      |            |     |           |       |
| Cadmium                   | ND     | 0.1             | ug/L  |               |      |            |     |           |       |
| Calcium                   | ND     | 100             | ug/L  |               |      |            |     |           |       |
| Chromium                  | ND     | 1               | ug/L  |               |      |            |     |           |       |
| Cobalt                    | ND     | 0.5             | ug/L  |               |      |            |     |           |       |
| Copper                    | ND     | 0.5             | ug/L  |               |      |            |     |           |       |
| Iron                      | ND     | 100             | ug/L  |               |      |            |     |           |       |
| Lead                      | ND     | 0.1             | ug/L  |               |      |            |     |           |       |
| Magnesium                 | ND     | 200             | ug/L  |               |      |            |     |           |       |
| Manganese                 | ND     | 5               | ug/L  |               |      |            |     |           |       |
| Molybdenum                | ND     | 0.5             | ug/L  |               |      |            |     |           |       |
| Nickel                    | ND     | 1               | ug/L  |               |      |            |     |           |       |
| Potassium                 | ND     | 100             | ug/L  |               |      |            |     |           |       |
| Selenium                  | ND     | 1               | ug/L  |               |      |            |     |           |       |
| Silicon                   | ND     | 10              | ug/L  |               |      |            |     |           |       |
| Silver                    | ND     | 0.1             | ug/L  |               |      |            |     |           |       |
| Sodium                    | ND     | 200             | ug/L  |               |      |            |     |           |       |
| Strontium                 | ND     | 10              | ug/L  |               |      |            |     |           |       |
| Thallium                  | ND     | 0.1             | ug/L  |               |      |            |     |           |       |
| Tin                       | ND     | 5               | ug/L  |               |      |            |     |           |       |
| Titanium                  | ND     | 5               | ug/L  |               |      |            |     |           |       |
| Tungsten                  | ND     | 10              | ug/L  |               |      |            |     |           |       |
| Uranium                   | ND     | 0.1             | ug/L  |               |      |            |     |           |       |
| Vanadium                  | ND     | 0.5             | ug/L  |               |      |            |     |           |       |
| Zinc                      | ND     | 5               | ug/L  |               |      |            |     |           |       |
| <b>Volatiles</b>          |        |                 |       |               |      |            |     |           |       |
| Benzene                   | ND     | 0.5             | ug/L  |               |      |            |     |           |       |
| Ethylbenzene              | ND     | 0.5             | ug/L  |               |      |            |     |           |       |
| Toluene                   | ND     | 0.5             | ug/L  |               |      |            |     |           |       |
| m,p-Xylenes               | ND     | 0.5             | ug/L  |               |      |            |     |           |       |
| o-Xylene                  | ND     | 0.5             | ug/L  |               |      |            |     |           |       |

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**Certificate of Analysis**

Client: **Nunatta Environmental Services Inc.**

Report Date: 17-Sep-2013

Client PO:

Project Description: Black Tank

Order Date: 11-Sep-2013

**Method Quality Control: Blank**

| Analyte               | Result | Reporting Limit | Units | Source Result | %REC | %REC Limit | RPD | RPD Limit | Notes |
|-----------------------|--------|-----------------|-------|---------------|------|------------|-----|-----------|-------|
| Xylenes, total        | ND     | 0.5             | ug/L  |               |      |            |     |           |       |
| Surrogate: Toluene-d8 | 31.8   |                 | ug/L  |               | 99.4 | 50-140     |     |           |       |

**Certificate of Analysis**

Client: **Nunatta Environmental Services Inc.**

Report Date: 17-Sep-2013

Client PO:

Project Description: Black Tank

Order Date: 11-Sep-2013

**Method Quality Control: Duplicate**

| Analyte                   | Result | Reporting Limit | Units    | Source Result | %REC | %REC Limit | RPD  | RPD Limit | Notes |
|---------------------------|--------|-----------------|----------|---------------|------|------------|------|-----------|-------|
| <b>Anions</b>             |        |                 |          |               |      |            |      |           |       |
| Chloride                  | 5720   | 25              | mg/L     | 5730          |      |            | 0.2  | 10        |       |
| Nitrate as N              | 3.68   | 2.5             | mg/L     | 3.77          |      |            | 2.6  | 20        |       |
| Nitrite as N              | ND     | 1.25            | mg/L     | ND            |      |            |      | 20        | GEN09 |
| Sulphate                  | 249    | 25              | mg/L     | 250           |      |            | 0.0  | 10        |       |
| <b>General Inorganics</b> |        |                 |          |               |      |            |      |           |       |
| Alkalinity, total         | 439    | 5               | mg/L     | 436           |      |            | 0.6  | 14        |       |
| Ammonia as N              | 0.067  | 0.01            | mg/L     | 0.056         |      |            | 17.9 | 8         | QR-05 |
| Conductivity              | 1270   | 5               | uS/cm    | 1320          |      |            | 3.6  | 11        |       |
| pH                        | 7.7    | 0.1             | pH Units | 7.7           |      |            | 0.3  | 10        |       |
| Phenolics                 | ND     | 0.001           | mg/L     | ND            |      |            |      | 10        |       |
| Phosphorus, total         | ND     | 0.01            | mg/L     | ND            |      |            |      | 10        |       |
| Total Suspended Solids    | ND     | 2               | mg/L     | 17600         |      |            | 0.0  | 10        |       |
| <b>Hydrocarbons</b>       |        |                 |          |               |      |            |      |           |       |
| F1 PHCs (C6-C10)          | ND     | 25              | ug/L     | ND            |      |            |      | 30        |       |
| <b>Metals</b>             |        |                 |          |               |      |            |      |           |       |
| Mercury                   | ND     | 0.1             | ug/L     | ND            |      |            | 0.0  | 20        |       |
| Aluminum                  | 40.3   | 1               | ug/L     | 38.2          |      |            | 5.5  | 20        |       |
| Antimony                  | 2.40   | 0.5             | ug/L     | 1.56          |      |            | 42.8 | 20        | QR-01 |
| Arsenic                   | 1.4    | 1               | ug/L     | 1.4           |      |            | 0.2  | 20        |       |
| Barium                    | 20.9   | 1               | ug/L     | 21.1          |      |            | 0.9  | 20        |       |
| Beryllium                 | ND     | 0.5             | ug/L     | ND            |      |            | 0.0  | 20        |       |
| Boron                     | 30     | 10              | ug/L     | 39            |      |            | 23.9 | 20        | QR-01 |
| Cadmium                   | ND     | 0.1             | ug/L     | ND            |      |            | 0.0  | 20        |       |
| Calcium                   | 56600  | 100             | ug/L     | 55400         |      |            | 2.2  | 20        |       |
| Chromium                  | 16.0   | 1               | ug/L     | 17.2          |      |            | 7.4  | 20        |       |
| Cobalt                    | ND     | 0.5             | ug/L     | ND            |      |            | 0.0  | 20        |       |
| Copper                    | 2.07   | 0.5             | ug/L     | 2.01          |      |            | 3.3  | 20        |       |
| Iron                      | ND     | 100             | ug/L     | ND            |      |            | 0.0  | 20        |       |
| Lead                      | ND     | 0.1             | ug/L     | ND            |      |            | 0.0  | 20        |       |
| Magnesium                 | 10000  | 200             | ug/L     | 9400          |      |            | 6.5  | 20        |       |
| Manganese                 | ND     | 5               | ug/L     | ND            |      |            | 0.0  | 20        |       |
| Molybdenum                | 1.37   | 0.5             | ug/L     | 1.30          |      |            | 5.8  | 20        |       |
| Nickel                    | 2.0    | 1               | ug/L     | 2.0           |      |            | 0.6  | 20        |       |
| Potassium                 | 1950   | 100             | ug/L     | 1920          |      |            | 1.5  | 20        |       |
| Selenium                  | 2.9    | 1               | ug/L     | 2.8           |      |            | 2.3  | 20        |       |
| Silicon                   | 1200   | 10              | ug/L     | 1150          |      |            | 4.0  | 20        |       |
| Silver                    | ND     | 0.1             | ug/L     | ND            |      |            | 0.0  | 20        |       |
| Sodium                    | 19700  | 200             | ug/L     | 18800         |      |            | 4.8  | 20        |       |
| Strontium                 | 172    | 10              | ug/L     | 174           |      |            | 1.1  | 20        |       |
| Thallium                  | ND     | 0.1             | ug/L     | ND            |      |            | 0.0  | 20        |       |
| Tin                       | ND     | 5               | ug/L     | ND            |      |            | 0.0  | 20        |       |
| Titanium                  | ND     | 5               | ug/L     | ND            |      |            | 0.0  | 20        |       |
| Tungsten                  | ND     | 10              | ug/L     | ND            |      |            | 0.0  | 20        |       |
| Uranium                   | ND     | 0.1             | ug/L     | ND            |      |            | 0.0  | 20        |       |
| Vanadium                  | 4.53   | 0.5             | ug/L     | 4.85          |      |            | 6.9  | 20        |       |
| Zinc                      | 6      | 5               | ug/L     | 6             |      |            | 4.0  | 20        |       |
| <b>Volatiles</b>          |        |                 |          |               |      |            |      |           |       |
| Benzene                   | ND     | 0.5             | ug/L     | ND            |      |            |      | 30        |       |
| Ethylbenzene              | ND     | 0.5             | ug/L     | ND            |      |            |      | 30        |       |
| Toluene                   | ND     | 0.5             | ug/L     | ND            |      |            |      | 30        |       |
| m,p-Xylenes               | ND     | 0.5             | ug/L     | ND            |      |            |      | 30        |       |
| o-Xylene                  | ND     | 0.5             | ug/L     | ND            |      |            |      | 30        |       |
| Surrogate: Toluene-d8     | 31.1   |                 | ug/L     | ND            | 97.2 | 50-140     |      |           |       |

**Certificate of Analysis**

Client: **Nunatta Environmental Services Inc.**

Report Date: 17-Sep-2013

Client PO:

Project Description: Black Tank

Order Date: 11-Sep-2013

**Method Quality Control: Spike**

| Analyte                   | Result | Reporting Limit | Units | Source Result | %REC | %REC Limit | RPD | RPD Limit | Notes |
|---------------------------|--------|-----------------|-------|---------------|------|------------|-----|-----------|-------|
| <b>Anions</b>             |        |                 |       |               |      |            |     |           |       |
| Chloride                  | 25.5   |                 | mg/L  | 16.2          | 93.0 | 78-112     |     |           |       |
| Nitrate as N              | 1.08   |                 | mg/L  | 0.10          | 97.5 | 81-112     |     |           |       |
| Nitrite as N              | 0.926  |                 | mg/L  | ND            | 92.6 | 76-117     |     |           |       |
| Sulphate                  | 31.6   |                 | mg/L  | 22.0          | 95.8 | 75-111     |     |           |       |
| <b>General Inorganics</b> |        |                 |       |               |      |            |     |           |       |
| Ammonia as N              | 0.271  | 0.01            | mg/L  | 0.056         | 86.1 | 81-124     |     |           |       |
| Phenolics                 | 0.027  | 0.001           | mg/L  | ND            | 108  | 69-132     |     |           |       |
| Phosphorus, total         | 0.428  | 0.01            | mg/L  | ND            | 85.7 | 80-120     |     |           |       |
| Total Suspended Solids    | 23.0   | 2               | mg/L  | ND            | 115  | 75-125     |     |           |       |
| <b>Hydrocarbons</b>       |        |                 |       |               |      |            |     |           |       |
| F1 PHCs (C6-C10)          | 1720   | 25              | ug/L  | ND            | 86.0 | 68-117     |     |           |       |
| F2 PHCs (C10-C16)         | 1690   | 100             | ug/L  | ND            | 93.8 | 60-140     |     |           |       |
| F3 PHCs (C16-C34)         | 3530   | 100             | ug/L  | ND            | 94.9 | 60-140     |     |           |       |
| F4 PHCs (C34-C50)         | 2250   | 100             | ug/L  | ND            | 90.8 | 60-140     |     |           |       |
| Oil & Grease, total       | 20.2   | 0.5             | mg/L  | ND            | 101  | 70-108     |     |           |       |
| <b>Metals</b>             |        |                 |       |               |      |            |     |           |       |
| Mercury                   | 3.12   | 0.1             | ug/L  | ND            | 104  | 78-137     |     |           |       |
| Aluminum                  | 99.1   |                 | ug/L  | 38.2          | 122  | 80-120     |     |           | QM-07 |
| Antimony                  | 50.5   |                 | ug/L  | 1.56          | 97.9 | 80-120     |     |           |       |
| Arsenic                   | 59.7   |                 | ug/L  | 1.4           | 117  | 80-120     |     |           |       |
| Barium                    | 68.9   |                 | ug/L  | 21.1          | 95.7 | 80-120     |     |           |       |
| Beryllium                 | 55.0   |                 | ug/L  | 0.04          | 110  | 80-120     |     |           |       |
| Boron                     | 79     |                 | ug/L  | 39            | 81.5 | 80-120     |     |           |       |
| Cadmium                   | 48.0   |                 | ug/L  | ND            | 96.1 | 80-120     |     |           |       |
| Calcium                   | 915    |                 | ug/L  | ND            | 91.5 | 80-120     |     |           |       |
| Chromium                  | 67.7   |                 | ug/L  | 17.2          | 101  | 80-120     |     |           |       |
| Cobalt                    | 53.0   |                 | ug/L  | 0.05          | 106  | 80-120     |     |           |       |
| Copper                    | 54.0   |                 | ug/L  | 2.01          | 104  | 80-120     |     |           |       |
| Iron                      | 1010   |                 | ug/L  | 22            | 99.1 | 80-120     |     |           |       |
| Lead                      | 47.5   |                 | ug/L  | ND            | 95.0 | 80-120     |     |           |       |
| Magnesium                 | 9720   |                 | ug/L  | 9400          | 31.2 | 80-120     |     |           | QM-07 |
| Manganese                 | 55.0   |                 | ug/L  | 1.6           | 107  | 80-120     |     |           |       |
| Molybdenum                | 50.3   |                 | ug/L  | 1.30          | 98.0 | 80-120     |     |           |       |
| Nickel                    | 55.0   |                 | ug/L  | 2.0           | 106  | 80-120     |     |           |       |
| Potassium                 | 2890   |                 | ug/L  | 1920          | 97.1 | 80-120     |     |           |       |
| Selenium                  | 62.4   |                 | ug/L  | 2.8           | 119  | 80-120     |     |           |       |
| Silicon                   | 45.6   |                 | ug/L  | ND            | 91.2 | 80-120     |     |           |       |
| Silver                    | 46.5   |                 | ug/L  | 0.04          | 92.9 | 80-120     |     |           |       |
| Sodium                    | 1120   |                 | ug/L  | ND            | 112  | 80-120     |     |           |       |
| Strontium                 | 218    |                 | ug/L  | 174           | 88.0 | 80-120     |     |           |       |
| Thallium                  | 46.2   |                 | ug/L  | ND            | 92.5 | 80-120     |     |           |       |
| Tin                       | 48.4   |                 | ug/L  | 0.4           | 96.1 | 80-120     |     |           |       |
| Titanium                  | 53.9   |                 | ug/L  | 0.1           | 108  | 80-120     |     |           |       |
| Tungsten                  | 47.9   |                 | ug/L  | 0.4           | 94.9 | 80-120     |     |           |       |
| Uranium                   | 46.9   |                 | ug/L  | 0.02          | 93.8 | 80-120     |     |           |       |
| Vanadium                  | 58.8   |                 | ug/L  | 4.85          | 108  | 80-120     |     |           |       |
| Zinc                      | 55     |                 | ug/L  | 6             | 99.1 | 80-120     |     |           |       |

**Volatiles**

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**NIAGARA FALLS**  
 5415 Morning Glory Cr.  
 Niagara Falls, ON L2J 0A3

**SARNIA**  
 123 Christina St. N.  
 Sarnia, ON N7T 5T7

**Certificate of Analysis**

Client: **Nunatta Environmental Services Inc.**

Report Date: 17-Sep-2013

Client PO:

Project Description: Black Tank

Order Date: 11-Sep-2013

**Method Quality Control: Spike**

| Analyte               | Result | Reporting Limit | Units | Source Result | %REC | %REC Limit | RPD | RPD Limit | Notes |
|-----------------------|--------|-----------------|-------|---------------|------|------------|-----|-----------|-------|
| Benzene               | 30.9   | 0.5             | ug/L  | ND            | 77.3 | 50-140     |     |           |       |
| Ethylbenzene          | 33.6   | 0.5             | ug/L  | ND            | 84.0 | 50-140     |     |           |       |
| Toluene               | 37.0   | 0.5             | ug/L  | ND            | 92.6 | 50-140     |     |           |       |
| m,p-Xylenes           | 75.5   | 0.5             | ug/L  | ND            | 94.3 | 50-140     |     |           |       |
| o-Xylene              | 33.0   | 0.5             | ug/L  | ND            | 82.4 | 50-140     |     |           |       |
| Surrogate: Toluene-d8 | 26.4   |                 | ug/L  |               | 82.5 | 50-140     |     |           |       |

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Report Date: 17-Sep-2013

Client PO:

Project Description: Black Tank

Order Date: 11-Sep-2013

**Qualifier Notes:****QC Qualifiers :**

- GEN09 : Elevated detection limits due to the nature of the sample matrix.
- QM-07 : The spike recovery was outside acceptance limits for the MS and/or MSD. The batch was accepted based on other acceptable QC.
- QR-01 : Duplicate RPD is high, however, the sample result is less than 10x the MDL.
- QR-05 : Duplicate RPDs higher than normally accepted. Remaining batch QA/QC was acceptable. May be sample effect.

**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.

**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: <b>NUNATTA ENVIRONMENTAL</b>    | Project Reference: <b>Black tank</b>        | TAT: <input checked="" type="checkbox"/> Regular <input type="checkbox"/> 3 Day |
| Contact Name: <b>JIM WILSON</b>              | Quote #: <b>Discharge water</b>             | <input type="checkbox"/> 2 Day <input type="checkbox"/> 1 Day                   |
| Address: <b>Box 267, IQALUIT, NU X0A 0H0</b> | PO #                                        | Date Required:                                                                  |
| Telephone: <b>867-979-1488</b>               | Email Address: <b>nunatta.northwest@net</b> |                                                                                 |

Criteria: ☐ O. Reg. 153/04 (As Amended) Table ☐ RSC Filing ☐ O. Reg. 558/00 ☐ PWQO ☐ CEME ☐ 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

| Parcel Order Number:    |            | Matrix | Air Volume | # of Containers | Sample Taken |      | Required Analyses     |  |  |  |  |  |  |  |  |  |
|-------------------------|------------|--------|------------|-----------------|--------------|------|-----------------------|--|--|--|--|--|--|--|--|--|
| Sample ID/Location Name |            |        |            |                 | Date         | Time |                       |  |  |  |  |  |  |  |  |  |
| 1                       |            |        |            |                 | Sept 9       | 3:30 |                       |  |  |  |  |  |  |  |  |  |
| 2                       | Black tank |        | 0          | 10              | "            | "    |                       |  |  |  |  |  |  |  |  |  |
| 3                       |            |        |            |                 | "            | "    | 1 bottle broken - PAH |  |  |  |  |  |  |  |  |  |
| 4                       |            |        |            |                 | "            | "    |                       |  |  |  |  |  |  |  |  |  |
| 5                       |            |        |            |                 | "            | "    |                       |  |  |  |  |  |  |  |  |  |
| 6                       |            |        |            |                 | "            | "    |                       |  |  |  |  |  |  |  |  |  |
| 7                       |            |        |            |                 | "            | "    |                       |  |  |  |  |  |  |  |  |  |
| 8                       |            |        |            |                 | "            | "    |                       |  |  |  |  |  |  |  |  |  |
| 9                       |            |        |            |                 | "            | "    |                       |  |  |  |  |  |  |  |  |  |
| 10                      |            |        |            |                 | "            | "    |                       |  |  |  |  |  |  |  |  |  |

Comments: \* Analyses on attached sheet. Analyze for o/g out of remaining 1L AG bottle - PAHs will be submitted at later date per Jim. - mjc (Sept 12/13)

Method of Delivery:

First Air

|                                            |                                              |                                      |                                    |
|--------------------------------------------|----------------------------------------------|--------------------------------------|------------------------------------|
| Relinquished By (Sign): <i>[Signature]</i> | Received by Driver/Depot: <i>[Signature]</i> | Received at Lab: <b>SUNEPORN</b>     | Verified By: <i>[Signature]</i>    |
| Relinquished By (Print): <b>JIM WILSON</b> | Date/Time: <b>11/09/13 9:41 AM</b>           | Date/Time: <b>SEP 11, 2013 10:00</b> | Date/Time: <b>Sept 12/13 10:55</b> |
| Date/Time: <b>Sept 9/13</b>                | Temperature: <b>99</b> °C                    | Temperature: <b>99</b> °C            | pH Verified By: <i>[Signature]</i> |

# 1337190

~~1337190~~

~~1332228~~

pH  
Conductivity  
Total Suspended Solids  
Total Alkalinity  
Ammonia Nitrogen  
Nitrate - Nitrite  
Oil and Grease (visual)  
Sulphate  
Calcium  
Chloride  
Magnesium  
Sodium  
Potassium  
Total Phenols  
Total Cadmium  
Total Hardness  
Total Chromium  
Total Lead  
Total Nickel  
Total Copper  
Total Phosphorous  
Total Manganese  
Total Iron  
Total Mercury  
Total Arsenic  
Total Zinc  
Total Aluminum  
Total Cobalt  
x Total Petroleum Hydrocarbons (TPH) (PHCS F<sub>1</sub>-F<sub>4</sub>)  
- Polycyclic Aromatic Hydrocarbons (PAH)  
Benzene, Toluene, Ethylbenzene, Xylene (BTEX)

→ bottle received  
broken. Sample will  
be resubmitted.