# ANNUAL REPORT
# FOR THE HAMLET OF CORAL HARBOUR

**YEAR BEING REPORTED: 2014**

The following information is compiled pursuant to the requirements of Part B, Item 1 of Water License No. **3BM-COR0813** issued to the Hamlet of Coral Harbour.

i)- iii) tabular summaries of all data generated under the "Monitoring Program"; monthly and annual quantities in cubic metres of freshwater obtained from all sources; monthly and annual quantities in cubic metres of each and all wastes discharged;

Attached are results for Monitoring station COR-1, as well as detailed chemical, physical and biological analysis required at COR-3, COR-4 and COR-6.

| Month Reported | Quantity of Water Obtained from all sources ($m^3$) | Quantity of Sewage Waste Discharged (Estimated, $m^3$) |
|---|---|---|
| **January** | 2,886.85400 | 2,886.85400 |
| **February** | 2,904.33400 | 2,904.33400 |
| **March** | 3,218.27700 | 3,218.27700 |
| **April** | 3,041.84890 | 3,041.84890 |
| **May** | 3,139.42060 | 3,139.42060 |
| **June** | 2,214.09430 | 2,214.09430 |
| **July** | 3,259.01870 | 3,259.01870 |
| **August** | 3,509.76220 | 3,509.76220 |
| **September** | 2,879.93010 | 2,879.93010 |
| **October** | 3,075.85820 | 3,075.85820 |
| **November** | 2,876.52890 | 2,876.52890 |
| **December** | 3,204.48700 | 3,204.48700 |
| **ANNUAL TOTAL** | 36,210.41390 | 36,210.41390 |

Note: No meter exists to measure the sewage discharge volume, therefore water consumption volume is considered as equal volume to the sewage discharge volume.

iv. a summary of modifications and/or major maintenance work carried out on the Water Supply and Waste Disposal Facilities, including all associated structures and facilities;

- A potable water screen was installed and the submersible pump was repaired at the Water Truck Fill Station December 12, 2014.
- Construction for the new Water Treatment Plant is scheduled to begin summer 2015 and be completed by the end of 2015.
- No modifications and/or major work was carried out at the Solid Waste Site or the Sewage Treatment Facilities in 2014.
- Pipes were repaired in September 2014 before reservoir was refilled for the winter.

v. a list of unauthorized discharges and summary of follow-up action taken;

- Spills:
  - 2014173, 2014-05-22, Public housing fuel tank unit #159, heating fuel, 30L

vi. a summary of any abandonment and restoration work completed during the year and an outline of any work anticipated for the next year;

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- No abandonment and restoration work took place in 2014.
- The existing Water Truck Fill Station will be demolished in 2015. The site will not be abandoned and restored because the new Water Treatment Plant will be constructed in the same location.

vii. a summary of any studies requested by the Board that relate to waste disposal, water use or reclamation, and a brief description of any future studies planned;

- exp Services submitted an Amendment Application on behalf of the Hamlet of Coral Harbour on February 20, 2014 for the new Water Treatment Plant.
- The NWB requested a resubmission with additional information and CGS submitted an Amendment/Renewal Application on behalf of the Hamlet on January 21, 2015 requesting a 10 year renewal and for the authorized water quantity to be increased to 45,000 cubic metres annually.
- Outstanding Annual Reports 2007, 2008 and 2009 were submitted on January 21, 2015.
- The project to *Locate Alternative Sources of Drinking Water for Each Nunavut Hamlet* prepared by Williams Engineering was submitted on January 21, 2015.
- “Issued for Tender” drawings of the new Water Truck Fill Station, signed and stamped by exp Services, were submitted on January 21, 2015.

viii. any other details on water use or waste disposal requested by the Board by November 1st of the year being reported; and

- Signage for the Monitoring Program Stations will be ordered over the winter for installation summer 2015. Pictures of the signage at Monitoring Program Stations will be included in the 2015 Annual Report.

ix. Updates or revisions to the approved Operation and Maintenance Plans.

- The *Operations and Maintenance Manual for Water, Sewage and Solid Waste Facilities at Coral Harbour, NU* was prepared by Nunami Stantec, 2010. This O&M Manual is currently being reviewed and updated. Changes/updates will be included in the 2015 Annual Report as an addendum.
- The O&M Manual for the new Water Treatment Plant will be submitted upon completion of construction.

**ADDITIONAL INFORMATION THAT THE LICENSEE DEEMS USEFUL:**

- Boil water advisory posted November 18th, 2014 and lifted end of December 2014.
- Notes regarding the 2014 sampling:
  - COR-3 was sampled from a pond on the downstream side of the sewage lagoon berms. The sample was not taken upstream of the lagoon berms due to safety concerns with getting the sample; the water levels in the lagoon are low and the berm wall quite steep.
  - COR-4 was sampled from one location within the wetlands area, instead of three locations as described by Monitoring Stations COR-4a, COR-4b, and COR-4c. It was requested that this monitoring requirement be modified in the new Licence.
  - COR-5 was deemed too far from the sewage lagoon in the 2010 AANDC Inspection to be the compliance point/final discharge point. As such, the Hamlet did not sample this station. The results from COR-4 were compared to the effluent quality limits set-out in the Licence.
  - Samples taken June 30, 2014 incorrectly labelled the sample location as COSR46. It was confirmed with the Hamlet that these samples were taken at COR-6, runoff from the solid waste site.
- All sampling required under the Monitoring Program and confirmed with the AANDC Inspector will be completed during the 2015 sampling season.

**FOLLOW-UP REGARDING INSPECTION/COMPLIANCE CONCERNS:**

- No AANDC Inspection took place in 2014.

- The Hamlet of Coral Harbour Compliance Plan was submitted to the NWB January 21, 2015, revised March 2, 2015.

**Appendix A: Hazardous Materials Spill Database, Coral Harbour 2014 – 1 page**
**Appendix B: COR-4 Effluent Quality Limits – 1 page**
**Appendix C: Monitoring Program Sampling Parameters Summary – 1 page**
**Appendix D: Certificates of Analysis, June 30, 2014 and August 26, 2014 – 18 pages**

# Appendix A: Hazardous Materials Spill Database, Coral Harbour 2014

# Hazardous Materials Spill Database

**Environment Division of ENR**
**Scotia 6, 5102-50th Avenue; Yellowknife, NT X1A 3S8**
**Phone: (867) 873-7654 Fax: (867) 873-0221**

**Sorted By: SpillNo for the year(s): 2014**

| Spill No. | Date | Ter | Region | Location | Site Description | Commodity | Quantity | Source | Agency |
|---|---|---|---|---|---|---|---|---|---|
| 2014173 | 2014-05-22 | NU | KEE | Coral Harbour | Public Housing fuel tank Unit# 159 | Heating Fuel | 30 L | PL | GN |

**Total Spills on this Report: 1**

*This report contains information regarding spills that were reported to the NWT 24-Hour Spill Line. The absence of information on any particular location in no way guarantees that contamination has not occurred at that location.*

**LEGEND**

**Region:**
BAF - Baffin
DEH - Deh Cho
INU - Inuvik
KEE - Keewatin
KIT - Kitikmeot
NSL - North Slave
SAH - Sahtu
SSL - South Slave

**Source:**
AIR - Aircraft
DRUM - Drum or Barrel
MV - Marine Vessel
NS - Natural Seepage
OTH - Other Transportation
PL - Pipe or Line
RT - Rail Train
SL - Sewage Lagoon
ST< - Storage Tank <4000 litres
ST> - Storage Tank >4000 litres
TP - Tailings Pond
TRU - Truck
UK - Unkown
WELL - Wet Wells, Flaring
Boom

**Agency:**
CCG - Canadian Coast Guard
EP - Environment Canada
GN - Government of Nunavut
GNWT - Government of Northwest Territories
ILA - Inuvialiut Land Administration
INAC - Indian and Northern Affairs Canada
NEB - National Energy Board

# Appendix B: COR-4 Effluent Quality Limits

**2014 Coral Harbour Monitoring Stations and Sampling Parameters Summary for Water License No. 3BM-COR0813**
**Part D, Item 3: COR-5* Effluent Quality Limits**

| Parameter | Maximum Average Concentration | COR-4 |
|---|---|---|
| | | 26-Aug-14 |
| $BOD_5$ | 30 mg/L | <6.0 mg/L |
| Total Suspended Solids | 30 mg/L | 5.0 mg/L |
| Fecal Coliforms | $1x10^4$ CFU/100 mL | 43 MPN/100 mL |
| Oil and Grease | no visible sheen | <2.0 mg/L |
| pH | between 6 and 9 | 8.29 |

* COR-5 was not sampled because of distance from sewage lagoon. COR-4, located within the Wetland Treatment Area, was the furthest point sampled from the sewage lagoon and results were compared to the effluent quality limits set in the Water Licence.

*The sample taken at COR-4 was below maximum average concentration for the effluent quality limits.*

# Appendix C: Monitoring Program Sampling Parameters Summary

**2014 Coral Harbour Monitoring Stations and Sampling Parameters Summary for Water License No. 3BM-COR0813**

| | | | COR-3 | | COR-4 | | COR-6 | | |
|---|---|---|---|---|---|---|---|---|---|
| **Parameters** | **Units** | **Detection Limit** | **26-Aug-14** | **CCME Guideline[1]** | **26-Aug-14** | **CCME Guideline[1]** | **30-Jun-14** | **26-Aug-14** | **CCME Guideline[1]** |
| $BOD_5$ | mg/L | 6.0 | 37.6 | n/g | <6.0 | n/g | 21.6 | <6.0 | n/g |
| Total Suspended Solids | mg/L | 5.0 | 49.0 | | 5.0 | | 27 | 15.0 | |
| Conductivity | umhos/cm | 20.0 | 949 | n/g | 608 | n/g | 517 | 912 | n/g |
| Oil and Grease | mg/L | 2.0 | 2.8 | n/g | <2.0 | n/g | <2.0 | <2.0 | n/g |
| Magnesium | mg/L | 0.1 | 5.94 | n/g | 5.77 | n/g | 8.98 | 16.7 | n/g |
| Sodium | mg/L | 0.05 | 40 | n/g | 69.1 | n/g | 39.8 | 56.8 | n/g |
| Chloride | mg/L | 0.5 | 62.3 | 120 | 42.4 | 120 | 46.9 | 65.1 | 120 |
| Total Hardness | mg/L | 0.3 | 179 | n/g | 141 | n/g | 160 | 335 | n/g |
| Ammonia Nitrogen | mg/L | 1.0 | 35.1 | 15.3 | 0.022 | 15.3 | 0.045 | 0.02 | 15.3 |
| Total Cadmium | mg/L | 0.00020 | 0.000033 | 0.00009 | 0.000018 | 0.00009 | <0.00020 | <0.000010 | 0.00009 |
| Total Cobalt | mg/L | 0.00050 | 0.00073 | n/g | 0.00061 | n/g | <0.00050 | 0.00028 | n/g |
| Total Chromium | mg/L | <0.0020 | <0.0010 | n/g | 0.0010 | n/g | <0.0020 | <0.0010 | n/g |
| Total Copper | mg/L | 0.0020 | 0.00428 | 0.00355 | 0.007 | 0.00355 | 0.0053 | 0.002 | 0.00355 |
| Total Aluminum | mg/L | 0.020 | <0.0050 | 0.1 | 0.0803 | 0.1 | 0.192 | 0.0734 | 0.1 |
| Total Mercury | mg/L | 0.000020 | <0.000020 | 0.000026 | <0.000020 | 0.000026 | | <0.000020 | 0.000026 |
| Fecal Coliforms | MPN/100 mL | 3 | 9300 | n/g | 43 | n/g | *overgrown* | 38 | n/g |
| pH | pH units | 0.10 | 7.5 | 6.5-9 | 8.29 | 6.5-9 | 8.23 | 8.11 | 6.5-9 |
| Nitrate-Nitrite | mg/L | 0.071 | <0.071 | n/g | 0.531 | n/g | <0.071 | <0.071 | n/g |
| Total Phenols | mg/L | 0.0010 | 0.0188 | 0.004 | <0.0010 | 0.004 | <0.0010 | <0.0010 | 0.004 |
| Calcium | mg/L | 0.20 | 62 | n/g | 47.2 | n/g | 49.2 | 107 | n/g |
| Potassium | mg/L | 0.10 | 7.61 | n/g | 27 | n/g | 10.2 | 15.8 | n/g |
| Sulphate | mg/L | 0.50 | 17.9 | n/g | 22.6 | n/g | 44.6 | 128 | n/g |
| Total Alkalinity | mg/L | 20.0 | 349 | n/g | 231 | n/g | 132 | 252 | n/g |
| Total Zinc | mg/L | 0.020 | 0.0022 | 0.003 | 0.0073 | 0.003 | <0.020 | 0.0037 | 0.003 |
| Total Iron | mg/L | 0.10 | <0.10 | 0.3 | 0.37 | 0.3 | 1.72 | 0.56 | 0.3 |
| Total Manganese | mg/L | 0.0010 | 0.00714 | n/g | 0.0598 | n/g | 0.121 | 0.0858 | n/g |
| Total Nickel | mg/L | 0.0020 | 0.0034 | 0.137 | 0.0035 | 0.137 | 0.0024 | 0.002 | 0.137 |
| Total Lead | mg/L | 0.0010 | <0.000090 | 0.00583 | 0.000285 | 0.00583 | 0.0013 | 0.000302 | 0.00583 |
| Total Arsenic | mg/L | 0.0010 | 0.00047 | 0.005 | 0.00101 | 0.005 | 0.0016 | 0.00098 | 0.005 |
| Total Organic Carbon | mg/L | 1.0 | 69.5 | n/g | 19.7 | n/g | 52.7 | 27.5 | n/g |
| F1 (C6-C10)[2] | mg/L | 0.10 | | | | | <0.10 | <0.10 | n/g |
| F2 (C10-C16)[2] | mg/L | 0.25 | | | | | | <0.25 | n/g |
| F3 (C16-C34)[2] | mg/L | 0.25 | | | | | | <0.25 | n/g |
| F4 (C34-C50)[2] | mg/L | 0.25 | | | | | | <0.25 | n/g |
| Total Hydrocarbons (C6-C50) | mg/L | 0.44 | | | | | | <0.44 | n/g |
| Benzene[2] | mg/L | 0.00050 | | | | | <0.00050 | <0.00050 | 0.37 |
| Toluene[2] | mg/L | 0.0010 | | | | | <0.0010 | <0.0010 | 0.002 |
| Ethylbenzene[2] | mg/L | 0.00050 | | | | | <0.00050 | <0.00050 | 0.09 |
| Xylene[2] | mg/L | 0.00150 | | | | | <0.00050 | <0.00050 | n/g |

**[1]Canadian Environmental Quality Guidelines - Water Quality Guidelines for the Protection of Aquatic Life**

**[2]Analysis required for COR-6 only**

**n/g - no guideline**

**Exceeds Guidelines for Protection of Aquatic Life**

**Sample Not Required**

# Appendix D: Certificates of Analysis, June 30, 2014 and August 26, 2014

Hamlet of Coral Harbour
ATTN: LEONIE PAMEOLIK
PO Box 30
Coral Harbour MB X0C 0C0

Date Received: 02-JUL-14
Report Date: 15-JUL-14 15:42 (MT)
Version: FINAL

Client Phone: 867-925-8970

# Certificate of Analysis

**Lab Work Order #: L1479409**

Project P.O. #: NOT SUBMITTED
Job Reference: CORAL HARBOUR MONITORING PROGRAM
C of C Numbers:
Legal Site Desc:

Judy Dalmaijer
Account Manager

# ALS ENVIRONMENTAL ANALYTICAL REPORT

| Sample Details/Parameters | Result | Qualifier* | D.L. | Units | Extracted | Analyzed | Batch |
|---|---|---|---|---|---|---|---|
| L1479409-1 COSR46 | | | | | | | |
| Sampled By: CLIENT on 30-JUN-14 @ 11:45 | | | | | | | |
| Matrix: Water | | | | | | | |
| **BTEX** | | | | | | | |
| **BTX plus F1 by GCMS** | | | | | | | |
| Benzene | <0.00050 | | 0.00050 | mg/L | | 09-JUL-14 | R2881979 |
| Toluene | <0.0010 | | 0.0010 | mg/L | | 09-JUL-14 | R2881979 |
| Ethyl benzene | <0.00050 | | 0.00050 | mg/L | | 09-JUL-14 | R2881979 |
| o-Xylene | <0.00050 | | 0.00050 | mg/L | | 09-JUL-14 | R2881979 |
| m+p-Xylenes | <0.00050 | | 0.00050 | mg/L | | 09-JUL-14 | R2881979 |
| F1 (C6-C10) | <0.10 | | 0.10 | mg/L | | 09-JUL-14 | R2881979 |
| Surrogate: 4-Bromofluorobenzene (SS) | 104.1 | | 70-130 | % | | 09-JUL-14 | R2881979 |
| **CCME Total Hydrocarbons** | | | | | | | |
| F1-BTEX | <0.10 | | 0.10 | mg/L | | 10-JUL-14 | |
| **Sum of Xylene Isomer Concentrations** | | | | | | | |
| Xylenes (Total) | <0.0015 | | 0.0015 | mg/L | | 10-JUL-14 | |
| **Miscellaneous Parameters** | | | | | | | |
| Ammonia, Total (as N) | 0.045 | | 0.010 | mg/L | | 04-JUL-14 | R2880267 |
| Biochemical Oxygen Demand | 21.6 | | 6.0 | mg/L | | 02-JUL-14 | R2879990 |
| E. Coli | OVERGROWN | | 1 | CFU/100mL | 05-JUL-14 | 05-JUL-14 | R2879275 |
| Oil and Grease, Total | <2.0 | | 2.0 | mg/L | 08-JUL-14 | 08-JUL-14 | R2881528 |
| Phenols (4AAP) | <0.0010 | | 0.0010 | mg/L | 09-JUL-14 | 09-JUL-14 | R2882538 |
| Phosphorus (P)-Total | 1.02 | | 0.010 | mg/L | | 03-JUL-14 | R2878579 |
| Total Kjeldahl Nitrogen | 9.3 | | 1.0 | mg/L | 09-JUL-14 | 09-JUL-14 | R2882119 |
| Total Organic Carbon | 52.7 | | 1.0 | mg/L | 10-JUL-14 | 10-JUL-14 | R2885002 |
| **ROU4W total** | | | | | | | |
| **Alkalinity** | | | | | | | |
| Alkalinity, Total (as CaCO3) | 132 | | 20 | mg/L | | 02-JUL-14 | R2877803 |
| Bicarbonate (HCO3) | 162 | | 24 | mg/L | | 02-JUL-14 | R2877803 |
| Carbonate (CO3) | <12 | | 12 | mg/L | | 02-JUL-14 | R2877803 |
| Hydroxide (OH) | <6.8 | | 6.8 | mg/L | | 02-JUL-14 | R2877803 |
| **Chloride by Ion Chromatography** | | | | | | | |
| Chloride | 46.9 | | 0.50 | mg/L | | 02-JUL-14 | R2877532 |
| **Conductivity** | | | | | | | |
| Conductivity | 517 | | 20 | umhos/cm | | 02-JUL-14 | R2877803 |
| **Fluoride by Ion Chromatography** | | | | | | | |
| Fluoride | <0.10 | | 0.10 | mg/L | | 02-JUL-14 | R2877532 |
| **Hardness Calculated** | | | | | | | |
| Hardness (as CaCO3) | 160 | | 0.30 | mg/L | | 15-JUL-14 | |
| **Nitrate as N by Ion Chromatography** | | | | | | | |
| Nitrate-N | <0.050 | | 0.050 | mg/L | | 02-JUL-14 | R2877532 |
| **Nitrate+Nitrite** | | | | | | | |
| Nitrate and Nitrite as N | <0.071 | | 0.071 | mg/L | | 03-JUL-14 | |
| **Nitrite as N by Ion Chromatography** | | | | | | | |
| Nitrite-N | <0.050 | | 0.050 | mg/L | | 02-JUL-14 | R2877532 |
| **Sulfate by Ion Chromatography** | | | | | | | |
| Sulfate | 44.6 | | 0.50 | mg/L | | 02-JUL-14 | R2877532 |
| **TDS calculated** | | | | | | | |
| TDS (Calculated) | 279 | | 5.0 | mg/L | | 15-JUL-14 | |
| **Total Metals by ICP-MS** | | | | | | | |
| Aluminum (Al)-Total | 0.192 | | 0.020 | mg/L | 14-JUL-14 | 14-JUL-14 | R2885895 |
| Antimony (Sb)-Total | 0.0013 | | 0.0010 | mg/L | 14-JUL-14 | 14-JUL-14 | R2885895 |
| Arsenic (As)-Total | 0.0016 | | 0.0010 | mg/L | 14-JUL-14 | 14-JUL-14 | R2885895 |
| Barium (Ba)-Total | 0.0215 | | 0.00050 | mg/L | 14-JUL-14 | 14-JUL-14 | R2885895 |
| Beryllium (Be)-Total | <0.0010 | | 0.0010 | mg/L | 14-JUL-14 | 14-JUL-14 | R2885895 |

* Refer to Referenced Information for Qualifiers (if any) and Methodology.

# ALS ENVIRONMENTAL ANALYTICAL REPORT

| Sample Details/Parameters | Result | Qualifier* | D.L. | Units | Extracted | Analyzed | Batch |
|---|---|---|---|---|---|---|---|
| L1479409-1 COSR46 | | | | | | | |
| Sampled By: CLIENT on 30-JUN-14 @ 11:45 | | | | | | | |
| Matrix: Water | | | | | | | |
| **Total Metals by ICP-MS** | | | | | | | |
| Bismuth (Bi)-Total | <0.00050 | | 0.00050 | mg/L | 14-JUL-14 | 14-JUL-14 | R2885895 |
| Boron (B)-Total | 0.241 | | 0.030 | mg/L | 14-JUL-14 | 14-JUL-14 | R2885895 |
| Cadmium (Cd)-Total | <0.00020 | | 0.00020 | mg/L | 14-JUL-14 | 14-JUL-14 | R2885895 |
| Calcium (Ca)-Total | 49.2 | | 0.20 | mg/L | 14-JUL-14 | 14-JUL-14 | R2885895 |
| Cesium (Cs)-Total | <0.00050 | | 0.00050 | mg/L | 14-JUL-14 | 14-JUL-14 | R2885895 |
| Chromium (Cr)-Total | <0.0020 | | 0.0020 | mg/L | 14-JUL-14 | 14-JUL-14 | R2885895 |
| Cobalt (Co)-Total | <0.00050 | | 0.00050 | mg/L | 14-JUL-14 | 14-JUL-14 | R2885895 |
| Copper (Cu)-Total | 0.0053 | | 0.0020 | mg/L | 14-JUL-14 | 14-JUL-14 | R2885895 |
| Iron (Fe)-Total | 1.72 | | 0.10 | mg/L | 14-JUL-14 | 14-JUL-14 | R2885895 |
| Lead (Pb)-Total | 0.0013 | | 0.0010 | mg/L | 14-JUL-14 | 14-JUL-14 | R2885895 |
| Lithium (Li)-Total | 0.0074 | | 0.0020 | mg/L | 14-JUL-14 | 14-JUL-14 | R2885895 |
| Magnesium (Mg)-Total | 8.98 | | 0.050 | mg/L | 14-JUL-14 | 14-JUL-14 | R2885895 |
| Manganese (Mn)-Total | 0.121 | | 0.0010 | mg/L | 14-JUL-14 | 14-JUL-14 | R2885895 |
| Molybdenum (Mo)-Total | <0.00050 | | 0.00050 | mg/L | 14-JUL-14 | 14-JUL-14 | R2885895 |
| Nickel (Ni)-Total | 0.0024 | | 0.0020 | mg/L | 14-JUL-14 | 14-JUL-14 | R2885895 |
| Phosphorus (P)-Total | 0.92 | | 0.50 | mg/L | 14-JUL-14 | 14-JUL-14 | R2885895 |
| Potassium (K)-Total | 10.2 | | 0.10 | mg/L | 14-JUL-14 | 14-JUL-14 | R2885895 |
| Rubidium (Rb)-Total | 0.00528 | | 0.00050 | mg/L | 14-JUL-14 | 14-JUL-14 | R2885895 |
| Selenium (Se)-Total | <0.0050 | | 0.0050 | mg/L | 14-JUL-14 | 14-JUL-14 | R2885895 |
| Silicon (Si)-Total | 2.59 | | 0.30 | mg/L | 14-JUL-14 | 14-JUL-14 | R2885895 |
| Silver (Ag)-Total | <0.0010 | | 0.0010 | mg/L | 14-JUL-14 | 14-JUL-14 | R2885895 |
| Sodium (Na)-Total | 39.8 | | 0.050 | mg/L | 14-JUL-14 | 14-JUL-14 | R2885895 |
| Strontium (Sr)-Total | 0.160 | | 0.00050 | mg/L | 14-JUL-14 | 14-JUL-14 | R2885895 |
| Tellurium (Te)-Total | <0.0010 | | 0.0010 | mg/L | 14-JUL-14 | 14-JUL-14 | R2885895 |
| Thallium (Tl)-Total | <0.0050 | | 0.0050 | mg/L | 14-JUL-14 | 14-JUL-14 | R2885895 |
| Thorium (Th)-Total | <0.0010 | | 0.0010 | mg/L | 14-JUL-14 | 14-JUL-14 | R2885895 |
| Tin (Sn)-Total | 0.00164 | | 0.00060 | mg/L | 14-JUL-14 | 14-JUL-14 | R2885895 |
| Titanium (Ti)-Total | 0.0031 | | 0.0010 | mg/L | 14-JUL-14 | 14-JUL-14 | R2885895 |
| Tungsten (W)-Total | <0.0020 | | 0.0020 | mg/L | 14-JUL-14 | 14-JUL-14 | R2885895 |
| Uranium (U)-Total | <0.00050 | | 0.00050 | mg/L | 14-JUL-14 | 14-JUL-14 | R2885895 |
| Vanadium (V)-Total | <0.0020 | | 0.0020 | mg/L | 14-JUL-14 | 14-JUL-14 | R2885895 |
| Zinc (Zn)-Total | <0.020 | | 0.020 | mg/L | 14-JUL-14 | 14-JUL-14 | R2885895 |
| Zirconium (Zr)-Total | <0.0010 | | 0.0010 | mg/L | 14-JUL-14 | 14-JUL-14 | R2885895 |
| **Turbidity** | | | | | | | |
| Turbidity | 27.0 | | 0.10 | NTU | | 02-JUL-14 | R2879399 |
| **pH** | | | | | | | |
| pH | 8.23 | | 0.10 | pH units | | 02-JUL-14 | R2877803 |

* Refer to Referenced Information for Qualifiers (if any) and Methodology.

# Reference Information

**Test Method References:**

| ALS Test Code | Matrix | Test Description | Method Reference** |
|---|---|---|---|
| ALK-TOT-WP | Water | Alkalinity | APHA 2320B |

Alkalinity of water is a measure of its acid neutralizing capacity. Alkalinity is imparted by bicarbonate, carbonate and hydroxide components of water. It is determined by titration with a standard solution of strong mineral acid to the successive HCO3- and H2CO3 endpoints indicated electrometrically.

| | | | |
|---|---|---|---|
| BOD-WP | Water | Biochemical Oxygen Demand (BOD) | APHA 5210 B |

The sample is incubated for 5 days at 20 degrees Celcius. Comparison of dissolved oxygen content at the beginning and end of incubation provides a measure of biochemical oxygen demand. If carbonaceous BOD is requested, TCMP is added to the sample to chemically inhibit nitrogenous oxygen demand. If soluble BOD is requested, the sample is filtered prior to analysis. Surface waters have a DL of 1 mg/L. Effluents are diluted according to their history and will have a sample DL of 6 mg/L or greater, depending on the dilutions used.

| | | | |
|---|---|---|---|
| BTEXS+F1-HSMS-WP | Water | BTX plus F1 by GCMS | EPA 8260C / EPA 5021A |

The water sample, with added reagents, is heated in a sealed vial to equilibrium. The headspace from the vial is transfered into a gas chromatograph. Target compound concentrations are measured using mass spectrometry detection.

| | | | |
|---|---|---|---|
| CL-IC-WP | Water | Chloride by Ion Chromatography | EPA 300.1 (Modified) |

Anions in aqueous matrices are analyzed using ion chromatography with conductivity and/or UV absorbance detectors.

| | | | |
|---|---|---|---|
| EC-MCOLIMF-WP | Water | Escherichia Coli mcoli blue MF | APHA 9222H |

This procedure is applicable to E. coli analysis for water samples. It is also used for Total Coliform analysis when only one 100 mL samples is submitted for both Total Coliforms and E. coli. If two sample bottles are submitted for these analyses, E. coli analysis is performed by this procedure, and Total Coliform analysis can be performed by A151.

A suitable sample volume is poured through a membrane filter and placed in a petri dish prepared with m-Coli Blue 24 broth. The inverted plates are incubated at 35C +/- 0.5C for 24hrs. Coliforms that are not E. coli turn red because they reduce TTC (2,3,5 triphenyltetrazolium chloride) in the medium. E. coli turn blue due to the reaction between the enzyme beta glucuronidase and BCIG (5-bromo-4 chloro-3 indolyl-beta-D-glucuronide) in the medium.

| | | | |
|---|---|---|---|
| EC-WP | Water | Conductivity | APHA 2510B |

Conductivity of an aqueous solution refers to its ability to carry an electric current. Conductance of a solution is measured between two spatially fixed and chemically inert electrodes.

| | | | |
|---|---|---|---|
| ETL-HARDNESS-TOT-WP | Water | Hardness Calculated | HARDNESS CALCULATED |
| ETL-SOLIDS-CALC-WP | Water | TDS calculated | CALCULATION |
| F-IC-WP | Water | Fluoride by Ion Chromatography | EPA 300.1 (Modified) |

Anions in aqueous matrices are analyzed using ion chromatography with conductivity and/or UV absorbance detectors.

| | | | |
|---|---|---|---|
| F1-F4-CALC-WP | Water | CCME Total Hydrocarbons | CCME CWS-PHC DEC-2000 - PUB# 1310-L |

Analytical methods used for analysis of CCME Petroleum Hydrocarbons have been validated and comply with the Reference Method for the CWS PHC.

In cases where results for both F4 and F4G are reported, the greater of the two results must be used in any application of the CWS PHC guidelines and the gravimetric heavy hydrocarbons cannot be added to the C6 to C50 hydrocarbons.
In samples where BTEX and F1 were analyzed , F1-BTEX represents a value where the sum of Benzene, Toluene, Ethylbenzene and total Xylenes has been subtracted from F1.

In samples where PAHs, F2 and F3 were analyzed, F2-Naphth represents the result where Naphthalene has been subtracted from F2. F3-PAH represents a result where the sum of Benzo(a)anthracene, Benzo(a)pyrene, Benzo(b)fluoranthene, Benzo(k)fluoranthene, Dibenzo(a,h)anthracene, Fluoranthene, Indeno(1,2,3-cd)pyrene, Phenanthrene, and Pyrene has been subtracted from F3.

Unless otherwise qualified, the following quality control criteria have been met for the F1 hydrocarbon range:
1. All extraction and analysis holding times were met.
2. Instrument performance showing response factors for C6 and C10 within 30% of the response factor for toluene.
3. Linearity of gasoline response within 15% throughout the calibration range.

Unless otherwise qualified, the following quality control criteria have been met for the F2-F4 hydrocarbon ranges:
1. All extraction and analysis holding times were met.
2. Instrument performance showing C10, C16 and C34 response factors within 10% of their average.
3. Instrument performance showing the C50 response factor within 30% of the average of the C10, C16 and C34 response factors.
4. Linearity of diesel or motor oil response within 15% throughout the calibration range.

| | | | |
|---|---|---|---|
| IONBALANCE-CALC-WP | Water | Ion Balance Calculation | APHA 1030E |
| MET-T-MS-WP | Water | Total Metals by ICP-MS | APHA 3030E/EPA 6020A-T |

This analysis involves preliminary sample treatment by hotblock acid digestion (APHA 3030E). Instrumental analysis is by inductively coupled plasma - mass spectrometry (EPA Method 6020A).

# Reference Information

**Test Method References:**

| ALS Test Code | Matrix | Test Description | Method Reference** |
|---|---|---|---|
| N-TOTKJ-WP | Water | Total Kjeldahl Nitrogen | Quickchem method 10-107-06-2-E Lachat |
| Samples are digested with a sulphuric acid solution, cooled, diluted with water, and analyzed for ammonia. Total Kjeldahl nitrogen is the sum of free-ammonia and organic nitrogen compounds which are converted to ammonium sulphate through this digestion process. Analysis is performed by Flow Injection Analysis (FIA). The pH of the digested sample is raised to a known, basic pH by neutralization with a concentrated buffer solution. This neutralization converts the ammonium cation to ammonia. The ammonia produced is heated with saliclyate and hypochlorite to produce blue colour which is proportional to the ammonia concentration. | | | |
| NH3-COL-WP | Water | Ammonia by colour | APHA 4500 NH3 F |
| Ammonia in water samples forms indophenol when reacted with hypochlorite and phenol. The intensity is amplified by the addition of sodium nitroprusside and measured colourmetrically. | | | |
| NO2+NO3-CALC-WP | Water | Nitrate+Nitrite | CALCULATION |
| NO2-IC-WP | Water | Nitrite as N by Ion Chromatography | EPA 300.1 (Modified) |
| Anions in aqueous matrices are analyzed using ion chromatography with conductivity and/or UV absorbance detectors. | | | |
| NO3-IC-WP | Water | Nitrate as N by Ion Chromatography | EPA 300.1 (Modified) |
| Anions in aqueous matrices are analyzed using ion chromatography with conductivity and/or UV absorbance detectors. | | | |
| OGG-TOT-WT | Water | Oil and Grease, Total | APHA 5520 B |
| Sample is extracted with hexane, extract is then evaporated and the residue is weighed to determine total oil and grease. | | | |
| P-T-COL-WP | Water | Phosphorus, Total | APHA 4500 P PHOSPHORUS |
| This analysis is carried out using procedures adapted from APHA Method 4500-P "Phosphorus". Total Phosphorus is determined colourimetrically after persulphate digestion of the sample. | | | |
| PH-WP | Water | pH | APHA 4500H |
| The pH of a sample is the determination of the activity of the hydrogen ions by potentiometric measurement using a standard hydrogen electrode and a reference electrode. | | | |
| PHENOLS-4AAP-WT | Water | Phenol (4AAP) | EPA 9066 |
| An automated method is used to distill the sample. The distillate is then buffered to pH 9.4 which reacts with 4AAP and potassium ferricyanide to form a red complex which is measured colorimetrically. | | | |
| SO4-IC-WP | Water | Sulfate by Ion Chromatography | EPA 300.1 (Modified) |
| Anions in aqueous matrices are analyzed using ion chromatography with conductivity and/or UV absorbance detectors. | | | |
| TOC-WT | Water | Total Organic Carbon | APHA 5310B |
| Sample is injected into a heated reaction chamber which is packed with an oxidative catalyst. The water is vaporized and the organic cabon is oxidized to carbon dioxide. The carbon dioxide is transported in a carrier gas and is measured by a non-dispersive infrared detector. | | | |
| TURBIDITY-WP | Water | Turbidity | APHA 2130B (modified) |
| Turbidity in aqueous matrices is determined by the nephelometric method. | | | |
| XYLENES-SUM-CALC-WP | Water | Sum of Xylene Isomer Concentrations | CALCULATED RESULT |
| Total xylenes represents the sum of o-xylene and m&p-xylene. | | | |

** ALS test methods may incorporate modifications from specified reference methods to improve performance.

*The last two letters of the above test code(s) indicate the laboratory that performed analytical analysis for that test. Refer to the list below:*

| Laboratory Definition Code | Laboratory Location |
|---|---|
| WP | ALS ENVIRONMENTAL - WINNIPEG, MANITOBA, CANADA |
| WT | ALS ENVIRONMENTAL - WATERLOO, ONTARIO, CANADA |

# Reference Information

**Test Method References:**

| ALS Test Code | Matrix | Test Description | Method Reference** |
|---|---|---|---|

**Chain of Custody Numbers:**

**GLOSSARY OF REPORT TERMS**

*Surrogates are compounds that are similar in behaviour to target analyte(s), but that do not normally occur in environmental samples. For applicable tests, surrogates are added to samples prior to analysis as a check on recovery. In reports that display the D.L. column, laboratory objectives for surrogates are listed there.*
*mg/kg - milligrams per kilogram based on dry weight of sample*
*mg/kg wwt - milligrams per kilogram based on wet weight of sample*
*mg/kg lwt - milligrams per kilogram based on lipid-adjusted weight*
*mg/L - unit of concentration based on volume, parts per million.*
*< - Less than.*
*D.L. - The reporting limit.*
*N/A - Result not available. Refer to qualifier code and definition for explanation.*

*Test results reported relate only to the samples as received by the laboratory.*
*UNLESS OTHERWISE STATED, ALL SAMPLES WERE RECEIVED IN ACCEPTABLE CONDITION.*
*Analytical results in unsigned test reports with the DRAFT watermark are subject to change, pending final QC review.*

ALS Environmental

L1479409-COFC

**Analytical Request Form**
ree: 1 800 668 9878
sglobal.com

COC # _____

L1479409

Page ___ of ___

| Report To | | | | Service Requested (Rush for routine analysis subject to availability) |
|---|---|---|---|---|
| Company: | Hamlet of Coral Harbour (W10622) | ☐ Standard ☐ Other | | ◉ Regular (Standard Turnaround Times - Business Days) |
| Contact: | Leonie Pameolik | ☑ PDF ☐ Excel ☐ Digital ☑ Fax | | ○ Priority (2-4 Business Days) - 50% Surcharge - Contact ALS to Confirm TAT |
| Address: | P.O. Box 30, Coral Harbour, NU X0C 0C0 | Email 1: munch@qiniq.com | | ○ Emergency (1-2 Bus. Days) - 100% Surcharge - Contact ALS to Confirm TAT |
| | | Email 2: mlusty@gov.nu.ca | | ○ Same Day or Weekend Emergency - Contact ALS to Confirm TAT |
| Phone: | (867) 925-8867 Fax: (867) 925-8233 | Email 3: | | **Analysis Request** |
| **Invoice To** | Same as Report ? ☑ Yes ☐ No | **Client / Project Information** | | Please indicate below Filtered, Preserved or both (F, P, F/P) |
| Hardcopy of Invoice with Report? | ☑ Yes ☐ No | Job #: | Coral Harbour Monitoring Program | |
| Company: | W10622 | PO / AFE: | | |
| Contact: | | LSD: | | |
| Address: | | | | |
| Phone: | Fax: | Quote #: | Q35355 | |
| Lab Work Order # (lab use only) | | **ALS Contact:** | Paul Nicolas | **Sampler:** |

| Sample # | Sample Identification (This description will appear on the report) | Date (dd-mmm-yy) | Time (hh:mm) | Sample Type | Routine | BOD | Nutrients | total metals | Fecal Coliforms | Oil + Grease | total Phenols | TOC | BTEX | | | | Number of Containers |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Cor-46 | | 30/06/14 | 1145 | wetland | X | X | X P | X P | X P | X P | X P | X | X | | | | |
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**Special Instructions / Regulations with water or land use (CCME-Freshwater Aquatic Life/BC CSR - Commercial/AB Tier 1 - Natural, etc) / Hazardous Details**

**Failure to complete all portions of this form may delay analysis. Please fill in this form LEGIBLY.**
**By the use of this form the user acknowledges and agrees with the Terms and Conditions as provided on a separate Excel tab.**
**Also provided on another Excel tab are the ALS location addresses, phone numbers and sample container / preservation / holding time table for common analyses.**

| SHIPMENT RELEASE (client use) | | | SHIPMENT RECEPTION (lab use only) | | | | SHIPMENT VERIFICATION (lab use only) | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| Released by: | Date (dd-mmm-yy) | Time (hh:mm) | Received by: PD | Date: 2/7/14 | Time: 9:45 | Temperature: 6 °C | Verified by: | Date: | Time: | Observations: Yes / No ? If Yes add SIF |

Hamlet of Coral Harbour
ATTN: LEONIE PAMEOLIK
PO Box 30
Coral Harbour MB X0C 0C0

Date Received: 27-AUG-14
Report Date: 09-SEP-14 13:49 (MT)
Version: FINAL

Client Phone: 867-925-8970

# Certificate of Analysis

**Lab Work Order #: L1508944**

Project P.O. #: NOT SUBMITTED
Job Reference: CORAL HARBOUR MONITORING PROGRAM
C of C Numbers:
Legal Site Desc:

Craig Riddell
Account Manager

# ALS ENVIRONMENTAL ANALYTICAL REPORT

| Sample Details/Parameters | Result | Qualifier* | D.L. | Units | Extracted | Analyzed | Batch |
|---|---|---|---|---|---|---|---|
| L1508944-1 COR-3 | | | | | | | |
| Sampled By: Casey P on 26-AUG-14 @ 11:10 | | | | | | | |
| Matrix: Wastewater | | | | | | | |
| **Nunavut WW Group 1** | | | | | | | |
| **Alkalinity** | | | | | | | |
| Alkalinity, Total (as CaCO3) | 349 | | 20 | mg/L | | 30-AUG-14 | R2936349 |
| Bicarbonate (HCO3) | 426 | | 24 | mg/L | | 30-AUG-14 | R2936349 |
| Carbonate (CO3) | <12 | | 12 | mg/L | | 30-AUG-14 | R2936349 |
| Hydroxide (OH) | <6.8 | | 6.8 | mg/L | | 30-AUG-14 | R2936349 |
| **Ammonia by colour** | | | | | | | |
| Ammonia, Total (as N) | 35.1 | DLA | 1.0 | mg/L | | 29-AUG-14 | R2934811 |
| **Biochemical Oxygen Demand (BOD)** | | | | | | | |
| Biochemical Oxygen Demand | 37.6 | | 6.0 | mg/L | | 28-AUG-14 | R2935188 |
| **Carbonaceous BOD** | | | | | | | |
| BOD Carbonaceous | 23.3 | | 6.0 | mg/L | | 28-AUG-14 | R2935188 |
| **Chloride by Ion Chromatography** | | | | | | | |
| Chloride | 62.3 | | 0.50 | mg/L | | 28-AUG-14 | R2934807 |
| **Conductivity** | | | | | | | |
| Conductivity | 949 | | 20 | umhos/cm | | 30-AUG-14 | R2936349 |
| **Fecal Coliform** | | | | | | | |
| Fecal Coliforms | 9300 | | 3 | MPN/100mL | | 31-AUG-14 | R2941142 |
| **Hardness Calculated** | | | | | | | |
| Hardness (as CaCO3) | 179 | | 0.30 | mg/L | | 02-SEP-14 | |
| **Mercury Total** | | | | | | | |
| Mercury (Hg)-Total | <0.000020 | | 0.000020 | mg/L | 29-AUG-14 | 29-AUG-14 | R2933322 |
| **Nitrate as N by Ion Chromatography** | | | | | | | |
| Nitrate-N | 0.051 | | 0.050 | mg/L | | 28-AUG-14 | R2934807 |
| **Nitrate+Nitrite** | | | | | | | |
| Nitrate and Nitrite as N | <0.071 | | 0.071 | mg/L | | 02-SEP-14 | |
| **Nitrite as N by Ion Chromatography** | | | | | | | |
| Nitrite-N | <0.050 | | 0.050 | mg/L | | 28-AUG-14 | R2934807 |
| **Oil and Grease, Total** | | | | | | | |
| Oil and Grease, Total | 2.8 | | 2.0 | mg/L | 03-SEP-14 | 03-SEP-14 | R2938657 |
| **Phenol (4AAP)** | | | | | | | |
| Phenols (4AAP) | 0.0188 | | 0.0010 | mg/L | 05-SEP-14 | 05-SEP-14 | R2940489 |
| **Phosphorus, Total** | | | | | | | |
| Phosphorus (P)-Total | 7.00 | DLA | 0.050 | mg/L | | 29-AUG-14 | R2934547 |
| **Sulfate by Ion Chromatography** | | | | | | | |
| Sulfate | 17.9 | | 0.50 | mg/L | | 28-AUG-14 | R2934807 |
| **Total Metals by ICP-MS** | | | | | | | |
| Aluminum (Al)-Total | <0.0050 | | 0.0050 | mg/L | 29-AUG-14 | 29-AUG-14 | R2934389 |
| Arsenic (As)-Total | 0.00047 | | 0.00020 | mg/L | 29-AUG-14 | 29-AUG-14 | R2934389 |
| Cadmium (Cd)-Total | 0.000033 | | 0.000010 | mg/L | 29-AUG-14 | 29-AUG-14 | R2934389 |
| Calcium (Ca)-Total | 62.0 | | 0.10 | mg/L | 29-AUG-14 | 29-AUG-14 | R2934389 |
| Chromium (Cr)-Total | <0.0010 | | 0.0010 | mg/L | 29-AUG-14 | 29-AUG-14 | R2934389 |
| Cobalt (Co)-Total | 0.00073 | | 0.00020 | mg/L | 29-AUG-14 | 29-AUG-14 | R2934389 |
| Copper (Cu)-Total | 0.00428 | | 0.00020 | mg/L | 29-AUG-14 | 29-AUG-14 | R2934389 |
| Iron (Fe)-Total | <0.10 | | 0.10 | mg/L | 29-AUG-14 | 29-AUG-14 | R2934389 |
| Lead (Pb)-Total | <0.000090 | | 0.000090 | mg/L | 29-AUG-14 | 29-AUG-14 | R2934389 |
| Magnesium (Mg)-Total | 5.94 | | 0.010 | mg/L | 29-AUG-14 | 29-AUG-14 | R2934389 |
| Manganese (Mn)-Total | 0.00714 | | 0.00030 | mg/L | 29-AUG-14 | 29-AUG-14 | R2934389 |
| Nickel (Ni)-Total | 0.0034 | | 0.0020 | mg/L | 29-AUG-14 | 29-AUG-14 | R2934389 |
| Potassium (K)-Total | 7.61 | | 0.020 | mg/L | 29-AUG-14 | 29-AUG-14 | R2934389 |
| Sodium (Na)-Total | 40.0 | | 0.030 | mg/L | 29-AUG-14 | 29-AUG-14 | R2934389 |
| Zinc (Zn)-Total | 0.0022 | | 0.0020 | mg/L | 29-AUG-14 | 29-AUG-14 | R2934389 |

* Refer to Referenced Information for Qualifiers (if any) and Methodology.

# ALS ENVIRONMENTAL ANALYTICAL REPORT

| Sample Details/Parameters | Result | Qualifier* | D.L. | Units | Extracted | Analyzed | Batch |
|---|---|---|---|---|---|---|---|
| L1508944-1 COR-3 | | | | | | | |
| Sampled By: Casey P on 26-AUG-14 @ 11:10 | | | | | | | |
| Matrix: Wastewater | | | | | | | |
| **Total Organic Carbon** | | | | | | | |
| Total Organic Carbon | 69.5 | | 1.0 | mg/L | | 30-AUG-14 | R2933649 |
| **Total Suspended Solids** | | | | | | | |
| Total Suspended Solids | 49.0 | | 5.0 | mg/L | | 28-AUG-14 | R2933078 |
| **pH** | | | | | | | |
| pH | 7.50 | | 0.10 | pH units | | 30-AUG-14 | R2936349 |
| L1508944-2 COR-4 | | | | | | | |
| Sampled By: Casey P on 26-AUG-14 @ 11:35 | | | | | | | |
| Matrix: Wastewater | | | | | | | |
| **Nunavut WW Group 1** | | | | | | | |
| **Alkalinity** | | | | | | | |
| Alkalinity, Total (as CaCO3) | 231 | | 20 | mg/L | | 30-AUG-14 | R2936349 |
| Bicarbonate (HCO3) | 282 | | 24 | mg/L | | 30-AUG-14 | R2936349 |
| Carbonate (CO3) | <12 | | 12 | mg/L | | 30-AUG-14 | R2936349 |
| Hydroxide (OH) | <6.8 | | 6.8 | mg/L | | 30-AUG-14 | R2936349 |
| **Ammonia by colour** | | | | | | | |
| Ammonia, Total (as N) | 0.022 | | 0.010 | mg/L | | 28-AUG-14 | R2932652 |
| **Biochemical Oxygen Demand (BOD)** | | | | | | | |
| Biochemical Oxygen Demand | <6.0 | | 6.0 | mg/L | | 28-AUG-14 | R2935188 |
| **Carbonaceous BOD** | | | | | | | |
| BOD Carbonaceous | <6.0 | | 6.0 | mg/L | | 28-AUG-14 | R2935188 |
| **Chloride by Ion Chromatography** | | | | | | | |
| Chloride | 42.4 | | 0.50 | mg/L | | 28-AUG-14 | R2934807 |
| **Conductivity** | | | | | | | |
| Conductivity | 608 | | 20 | umhos/cm | | 30-AUG-14 | R2936349 |
| **Fecal Coliform** | | | | | | | |
| Fecal Coliforms | 43 | | 3 | MPN/100mL | | 31-AUG-14 | R2941142 |
| **Hardness Calculated** | | | | | | | |
| Hardness (as CaCO3) | 141 | | 0.30 | mg/L | | 02-SEP-14 | |
| **Mercury Total** | | | | | | | |
| Mercury (Hg)-Total | <0.000020 | | 0.000020 | mg/L | 29-AUG-14 | 29-AUG-14 | R2933322 |
| **Nitrate as N by Ion Chromatography** | | | | | | | |
| Nitrate-N | 0.531 | | 0.050 | mg/L | | 28-AUG-14 | R2934807 |
| **Nitrate+Nitrite** | | | | | | | |
| Nitrate and Nitrite as N | 0.531 | | 0.071 | mg/L | | 02-SEP-14 | |
| **Nitrite as N by Ion Chromatography** | | | | | | | |
| Nitrite-N | <0.050 | | 0.050 | mg/L | | 28-AUG-14 | R2934807 |
| **Oil and Grease, Total** | | | | | | | |
| Oil and Grease, Total | <2.0 | | 2.0 | mg/L | 03-SEP-14 | 03-SEP-14 | R2938657 |
| **Phenol (4AAP)** | | | | | | | |
| Phenols (4AAP) | <0.0010 | | 0.0010 | mg/L | 05-SEP-14 | 05-SEP-14 | R2940489 |
| **Phosphorus, Total** | | | | | | | |
| Phosphorus (P)-Total | 0.091 | | 0.010 | mg/L | | 29-AUG-14 | R2934547 |
| **Sulfate by Ion Chromatography** | | | | | | | |
| Sulfate | 22.6 | | 0.50 | mg/L | | 28-AUG-14 | R2934807 |
| **Total Metals by ICP-MS** | | | | | | | |
| Aluminum (Al)-Total | 0.0803 | | 0.0050 | mg/L | 29-AUG-14 | 29-AUG-14 | R2934389 |
| Arsenic (As)-Total | 0.00101 | | 0.00020 | mg/L | 29-AUG-14 | 29-AUG-14 | R2934389 |
| Cadmium (Cd)-Total | 0.000018 | | 0.000010 | mg/L | 29-AUG-14 | 29-AUG-14 | R2934389 |
| Calcium (Ca)-Total | 47.2 | | 0.10 | mg/L | 29-AUG-14 | 29-AUG-14 | R2934389 |
| Chromium (Cr)-Total | <0.0010 | | 0.0010 | mg/L | 29-AUG-14 | 29-AUG-14 | R2934389 |
| Cobalt (Co)-Total | 0.00061 | | 0.00020 | mg/L | 29-AUG-14 | 29-AUG-14 | R2934389 |

* Refer to Referenced Information for Qualifiers (if any) and Methodology.

# ALS ENVIRONMENTAL ANALYTICAL REPORT

| Sample Details/Parameters | Result | Qualifier* | D.L. | Units | Extracted | Analyzed | Batch |
|---|---|---|---|---|---|---|---|
| L1508944-2 COR-4 | | | | | | | |
| Sampled By: Casey P on 26-AUG-14 @ 11:35 | | | | | | | |
| Matrix: Wastewater | | | | | | | |
| **Total Metals by ICP-MS** | | | | | | | |
| Copper (Cu)-Total | 0.00700 | | 0.00020 | mg/L | 29-AUG-14 | 29-AUG-14 | R2934389 |
| Iron (Fe)-Total | 0.37 | | 0.10 | mg/L | 29-AUG-14 | 29-AUG-14 | R2934389 |
| Lead (Pb)-Total | 0.000285 | | 0.000090 | mg/L | 29-AUG-14 | 29-AUG-14 | R2934389 |
| Magnesium (Mg)-Total | 5.77 | | 0.010 | mg/L | 29-AUG-14 | 29-AUG-14 | R2934389 |
| Manganese (Mn)-Total | 0.0598 | | 0.00030 | mg/L | 29-AUG-14 | 29-AUG-14 | R2934389 |
| Nickel (Ni)-Total | 0.0035 | | 0.0020 | mg/L | 29-AUG-14 | 29-AUG-14 | R2934389 |
| Potassium (K)-Total | 27.0 | | 0.020 | mg/L | 29-AUG-14 | 29-AUG-14 | R2934389 |
| Sodium (Na)-Total | 69.1 | | 0.030 | mg/L | 29-AUG-14 | 29-AUG-14 | R2934389 |
| Zinc (Zn)-Total | 0.0073 | | 0.0020 | mg/L | 29-AUG-14 | 29-AUG-14 | R2934389 |
| **Total Organic Carbon** | | | | | | | |
| Total Organic Carbon | 19.7 | | 1.0 | mg/L | | 30-AUG-14 | R2936029 |
| **Total Suspended Solids** | | | | | | | |
| Total Suspended Solids | 5.0 | | 5.0 | mg/L | | 28-AUG-14 | R2933078 |
| **pH** | | | | | | | |
| pH | 8.29 | | 0.10 | pH units | | 30-AUG-14 | R2936349 |
| L1508944-3 COR-6 | | | | | | | |
| Sampled By: Casey P on 26-AUG-14 @ 10:30 | | | | | | | |
| Matrix: Wastewater | | | | | | | |
| **BTEX plus F1-F4** | | | | | | | |
| **BTX plus F1 by GCMS** | | | | | | | |
| Benzene | <0.00050 | | 0.00050 | mg/L | | 29-AUG-14 | R2933240 |
| Toluene | <0.0010 | | 0.0010 | mg/L | | 29-AUG-14 | R2933240 |
| Ethyl benzene | <0.00050 | | 0.00050 | mg/L | | 29-AUG-14 | R2933240 |
| o-Xylene | <0.00050 | | 0.00050 | mg/L | | 29-AUG-14 | R2933240 |
| m+p-Xylenes | <0.00050 | | 0.00050 | mg/L | | 29-AUG-14 | R2933240 |
| F1 (C6-C10) | <0.10 | | 0.10 | mg/L | | 29-AUG-14 | R2933240 |
| Surrogate: 4-Bromofluorobenzene (SS) | 107.6 | | 70-130 | % | | 29-AUG-14 | R2933240 |
| **CCME Total Hydrocarbons** | | | | | | | |
| F1-BTEX | <0.10 | | 0.10 | mg/L | | 09-SEP-14 | |
| F2-Naphth | <0.25 | | 0.25 | mg/L | | 09-SEP-14 | |
| F3-PAH | <0.25 | | 0.25 | mg/L | | 09-SEP-14 | |
| Total Hydrocarbons (C6-C50) | <0.44 | | 0.44 | mg/L | | 09-SEP-14 | |
| **F2-F4 PHC method** | | | | | | | |
| F2 (C10-C16) | <0.25 | | 0.25 | mg/L | 29-AUG-14 | 29-AUG-14 | R2933670 |
| F3 (C16-C34) | <0.25 | | 0.25 | mg/L | 29-AUG-14 | 29-AUG-14 | R2933670 |
| F4 (C34-C50) | <0.25 | | 0.25 | mg/L | 29-AUG-14 | 29-AUG-14 | R2933670 |
| Surrogate: 2-Bromobenzotrifluoride | 94.2 | | 60-140 | % | 29-AUG-14 | 29-AUG-14 | R2933670 |
| **Sum of Xylene Isomer Concentrations** | | | | | | | |
| Xylenes (Total) | <0.0015 | | 0.0015 | mg/L | | 03-SEP-14 | |
| **Polyaromatic Hydrocarbons (PAHs)** | | | | | | | |
| 1-Methyl Naphthalene | <0.000020 | | 0.000020 | mg/L | 04-SEP-14 | 08-SEP-14 | R2941969 |
| 2-Methyl Naphthalene | <0.000020 | | 0.000020 | mg/L | 04-SEP-14 | 08-SEP-14 | R2941969 |
| Acenaphthene | <0.000020 | | 0.000020 | mg/L | 04-SEP-14 | 08-SEP-14 | R2941969 |
| Acenaphthylene | <0.000020 | | 0.000020 | mg/L | 04-SEP-14 | 08-SEP-14 | R2941969 |
| Anthracene | <0.000010 | | 0.000010 | mg/L | 04-SEP-14 | 08-SEP-14 | R2941969 |
| Acridine | <0.000020 | | 0.000020 | mg/L | 04-SEP-14 | 08-SEP-14 | R2941969 |
| Benzo(a)anthracene | <0.000010 | | 0.000010 | mg/L | 04-SEP-14 | 08-SEP-14 | R2941969 |
| Benzo(a)pyrene | <0.0000050 | | 0.0000050 | mg/L | 04-SEP-14 | 08-SEP-14 | R2941969 |
| Benzo(b&j)fluoranthene | <0.000010 | | 0.000010 | mg/L | 04-SEP-14 | 08-SEP-14 | R2941969 |
| Benzo(g,h,i)perylene | <0.000020 | | 0.000020 | mg/L | 04-SEP-14 | 08-SEP-14 | R2941969 |

* Refer to Referenced Information for Qualifiers (if any) and Methodology.

# ALS ENVIRONMENTAL ANALYTICAL REPORT

| Sample Details/Parameters | Result | Qualifier* | D.L. | Units | Extracted | Analyzed | Batch |
|---|---|---|---|---|---|---|---|
| L1508944-3 COR-6 | | | | | | | |
| Sampled By: Casey P on 26-AUG-14 @ 10:30 | | | | | | | |
| Matrix: Wastewater | | | | | | | |
| **Polyaromatic Hydrocarbons (PAHs)** | | | | | | | |
| Benzo(k)fluoranthene | <0.000010 | | 0.000010 | mg/L | 04-SEP-14 | 08-SEP-14 | R2941969 |
| Chrysene | <0.000020 | | 0.000020 | mg/L | 04-SEP-14 | 08-SEP-14 | R2941969 |
| Dibenzo(a,h)anthracene | <0.0000050 | | 0.0000050 | mg/L | 04-SEP-14 | 08-SEP-14 | R2941969 |
| Fluoranthene | <0.000020 | | 0.000020 | mg/L | 04-SEP-14 | 08-SEP-14 | R2941969 |
| Fluorene | <0.000020 | | 0.000020 | mg/L | 04-SEP-14 | 08-SEP-14 | R2941969 |
| Indeno(1,2,3-cd)pyrene | <0.000010 | | 0.000010 | mg/L | 04-SEP-14 | 08-SEP-14 | R2941969 |
| Naphthalene | <0.000050 | | 0.000050 | mg/L | 04-SEP-14 | 08-SEP-14 | R2941969 |
| Phenanthrene | <0.000050 | | 0.000050 | mg/L | 04-SEP-14 | 08-SEP-14 | R2941969 |
| Pyrene | <0.000010 | | 0.000010 | mg/L | 04-SEP-14 | 08-SEP-14 | R2941969 |
| Quinoline | <0.000020 | | 0.000020 | mg/L | 04-SEP-14 | 08-SEP-14 | R2941969 |
| B(a)P Total Potency Equivalent | <0.000030 | | 0.000030 | mg/L | 04-SEP-14 | 08-SEP-14 | R2941969 |
| Surrogate: Acenaphthene d10 | 79.6 | | 40-130 | % | 04-SEP-14 | 08-SEP-14 | R2941969 |
| Surrogate: Acridine d9 | 89.7 | | 40-130 | % | 04-SEP-14 | 08-SEP-14 | R2941969 |
| Surrogate: Chrysene d12 | 76.5 | | 40-130 | % | 04-SEP-14 | 08-SEP-14 | R2941969 |
| Surrogate: Naphthalene d8 | 68.5 | | 40-130 | % | 04-SEP-14 | 08-SEP-14 | R2941969 |
| Surrogate: Phenanthrene d10 | 84.1 | | 40-130 | % | 04-SEP-14 | 08-SEP-14 | R2941969 |
| **Nunavut WW Group 1** | | | | | | | |
| **Alkalinity** | | | | | | | |
| Alkalinity, Total (as CaCO3) | 252 | | 20 | mg/L | | 30-AUG-14 | R2936349 |
| Bicarbonate (HCO3) | 308 | | 24 | mg/L | | 30-AUG-14 | R2936349 |
| Carbonate (CO3) | <12 | | 12 | mg/L | | 30-AUG-14 | R2936349 |
| Hydroxide (OH) | <6.8 | | 6.8 | mg/L | | 30-AUG-14 | R2936349 |
| **Ammonia by colour** | | | | | | | |
| Ammonia, Total (as N) | 0.020 | | 0.010 | mg/L | | 28-AUG-14 | R2932652 |
| **Biochemical Oxygen Demand (BOD)** | | | | | | | |
| Biochemical Oxygen Demand | <6.0 | | 6.0 | mg/L | | 28-AUG-14 | R2935188 |
| **Carbonaceous BOD** | | | | | | | |
| BOD Carbonaceous | <6.0 | | 6.0 | mg/L | | 28-AUG-14 | R2935188 |
| **Chloride by Ion Chromatography** | | | | | | | |
| Chloride | 65.1 | | 0.50 | mg/L | | 28-AUG-14 | R2934807 |
| **Conductivity** | | | | | | | |
| Conductivity | 912 | | 20 | umhos/cm | | 30-AUG-14 | R2936349 |
| **Fecal Coliform** | | | | | | | |
| Fecal Coliforms | 38 | | 3 | MPN/100mL | | 31-AUG-14 | R2941142 |
| **Hardness Calculated** | | | | | | | |
| Hardness (as CaCO3) | 335 | | 0.30 | mg/L | | 02-SEP-14 | |
| **Mercury Total** | | | | | | | |
| Mercury (Hg)-Total | <0.000020 | | 0.000020 | mg/L | 29-AUG-14 | 29-AUG-14 | R2933322 |
| **Nitrate as N by Ion Chromatography** | | | | | | | |
| Nitrate-N | <0.050 | | 0.050 | mg/L | | 28-AUG-14 | R2934807 |
| **Nitrate+Nitrite** | | | | | | | |
| Nitrate and Nitrite as N | <0.071 | | 0.071 | mg/L | | 02-SEP-14 | |
| **Nitrite as N by Ion Chromatography** | | | | | | | |
| Nitrite-N | <0.050 | | 0.050 | mg/L | | 28-AUG-14 | R2934807 |
| **Oil and Grease, Total** | | | | | | | |
| Oil and Grease, Total | <2.0 | | 2.0 | mg/L | 03-SEP-14 | 03-SEP-14 | R2938657 |
| **Phenol (4AAP)** | | | | | | | |
| Phenols (4AAP) | <0.0010 | | 0.0010 | mg/L | 05-SEP-14 | 05-SEP-14 | R2940489 |
| **Phosphorus, Total** | | | | | | | |
| Phosphorus (P)-Total | 0.186 | | 0.010 | mg/L | | 29-AUG-14 | R2934547 |
| **Sulfate by Ion Chromatography** | | | | | | | |
| Sulfate | 128 | | 0.50 | mg/L | | 28-AUG-14 | R2934807 |

* Refer to Referenced Information for Qualifiers (if any) and Methodology.

# ALS ENVIRONMENTAL ANALYTICAL REPORT

| Sample Details/Parameters | Result | Qualifier* | D.L. | Units | Extracted | Analyzed | Batch |
|---|---|---|---|---|---|---|---|
| L1508944-3 COR-6 | | | | | | | |
| Sampled By: Casey P on 26-AUG-14 @ 10:30 | | | | | | | |
| Matrix: Wastewater | | | | | | | |
| **Total Metals by ICP-MS** | | | | | | | |
| Aluminum (Al)-Total | 0.0734 | | 0.0050 | mg/L | 29-AUG-14 | 29-AUG-14 | R2934389 |
| Arsenic (As)-Total | 0.00098 | | 0.00020 | mg/L | 29-AUG-14 | 29-AUG-14 | R2934389 |
| Cadmium (Cd)-Total | <0.000010 | | 0.000010 | mg/L | 29-AUG-14 | 29-AUG-14 | R2934389 |
| Calcium (Ca)-Total | 107 | | 0.10 | mg/L | 29-AUG-14 | 29-AUG-14 | R2934389 |
| Chromium (Cr)-Total | <0.0010 | | 0.0010 | mg/L | 29-AUG-14 | 29-AUG-14 | R2934389 |
| Cobalt (Co)-Total | 0.00028 | | 0.00020 | mg/L | 29-AUG-14 | 29-AUG-14 | R2934389 |
| Copper (Cu)-Total | 0.00200 | | 0.00020 | mg/L | 29-AUG-14 | 29-AUG-14 | R2934389 |
| Iron (Fe)-Total | 0.56 | | 0.10 | mg/L | 29-AUG-14 | 29-AUG-14 | R2934389 |
| Lead (Pb)-Total | 0.000302 | | 0.000090 | mg/L | 29-AUG-14 | 29-AUG-14 | R2934389 |
| Magnesium (Mg)-Total | 16.7 | | 0.010 | mg/L | 29-AUG-14 | 29-AUG-14 | R2934389 |
| Manganese (Mn)-Total | 0.0858 | | 0.00030 | mg/L | 29-AUG-14 | 29-AUG-14 | R2934389 |
| Nickel (Ni)-Total | 0.0020 | | 0.0020 | mg/L | 29-AUG-14 | 29-AUG-14 | R2934389 |
| Potassium (K)-Total | 15.8 | | 0.020 | mg/L | 29-AUG-14 | 29-AUG-14 | R2934389 |
| Sodium (Na)-Total | 56.8 | | 0.030 | mg/L | 29-AUG-14 | 29-AUG-14 | R2934389 |
| Zinc (Zn)-Total | 0.0037 | | 0.0020 | mg/L | 29-AUG-14 | 29-AUG-14 | R2934389 |
| **Total Organic Carbon** | | | | | | | |
| Total Organic Carbon | 27.5 | | 1.0 | mg/L | | 30-AUG-14 | R2936029 |
| **Total Suspended Solids** | | | | | | | |
| Total Suspended Solids | 15.0 | | 5.0 | mg/L | | 28-AUG-14 | R2933078 |
| **pH** | | | | | | | |
| pH | 8.11 | | 0.10 | pH units | | 30-AUG-14 | R2936349 |

* Refer to Referenced Information for Qualifiers (if any) and Methodology.

# Reference Information

**Sample Parameter Qualifier Key:**

| Qualifier | Description |
|---|---|
| DLA | Detection Limit adjusted for required dilution |
| MS-B | Matrix Spike recovery could not be accurately calculated due to high analyte background in sample. |

**Test Method References:**

| ALS Test Code | Matrix | Test Description | Method Reference** |
|---|---|---|---|
| ALK-TOT-WP | Water | Alkalinity | APHA 2320B |

Alkalinity of water is a measure of its acid neutralizing capacity. Alkalinity is imparted by bicarbonate, carbonate and hydroxide components of water. It is determined by titration with a standard solution of strong mineral acid to the successive HCO3- and H2CO3 endpoints indicated electrometrically.

| | | | |
|---|---|---|---|
| BOD-CBOD-WP | Water | Carbonaceous BOD | APHA 5210 B-5 day Incub.-O2 electrode |

A sample of water is incubated for 5 days at 20 degrees Celcius. Comparison of dissolved oxygen content at beginning and end of incubation provides a measure of Biochemical oxygen demand. If carbonaceous BOD is requested, TCMP is added to the sample to chemically inhibit nitrogenous oxygen demand. If soluble BOD is requested, the sample is filtered prior to analysis.

| | | | |
|---|---|---|---|
| BOD-WP | Water | Biochemical Oxygen Demand (BOD) | APHA 5210 B |

The sample is incubated for 5 days at 20 degrees Celcius. Comparison of dissolved oxygen content at the beginning and end of incubation provides a measure of biochemical oxygen demand. If carbonaceous BOD is requested, TCMP is added to the sample to chemically inhibit nitrogenous oxygen demand. If soluble BOD is requested, the sample is filtered prior to analysis. Surface waters have a DL of 1 mg/L. Effluents are diluted according to their history and will have a sample DL of 6 mg/L or greater, depending on the dilutions used.

| | | | |
|---|---|---|---|
| BTEXS+F1-HSMS-WP | Water | BTX plus F1 by GCMS | EPA 8260C / EPA 5021A |

The water sample, with added reagents, is heated in a sealed vial to equilibrium. The headspace from the vial is transfered into a gas chromatograph. Target compound concentrations are measured using mass spectrometry detection.

| | | | |
|---|---|---|---|
| C-TOT-ORG-WP | Water | Total Organic Carbon | APHA 5310 B-INSTRUMENTAL-WP |

This method is applicable to the analysis of ground water, wastewater, and surface water samples. The form detected depends upon sample pretreatment: Unfiltered sample = TC, 0.45um filtered = TDC. Samples are injected into a combustion tube containing an oxidation catalyst. The carrier gas containing the combustion product from the combustion tube flows through an inorganic carbon reactor vessel and is then sent through a halogen scrubber into a sample cell set in a non-dispersive infrared gas analyzer (NDIR) where carbon dioxide is detected. For total inorganic carbon and dissolved inorganic carbon, the sample is injected into an IC reactor vessel where only the IC component is decomposed to become carbon dioxide.

The peak area generated by the NDIR indicates the TC/TDC or TIC/DIC as applicable. The total organic carbon content of the sample is calculated by subtracting the TIC from the TC.
TOC = TC-TIC, DOC = TDC-DIC, Particulate = Total - Dissolved.

| | | | |
|---|---|---|---|
| CL-IC-WP | Water | Chloride by Ion Chromatography | EPA 300.1 (Modified) |

Anions in aqueous matrices are analyzed using ion chromatography with conductivity and/or UV absorbance detectors.

| | | | |
|---|---|---|---|
| EC-WP | Water | Conductivity | APHA 2510B |

Conductivity of an aqueous solution refers to its ability to carry an electric current. Conductance of a solution is measured between two spatially fixed and chemically inert electrodes.

| | | | |
|---|---|---|---|
| ETL-HARDNESS-TOT-WP | Water | Hardness Calculated | HARDNESS CALCULATED |
| F1-F4-CALC-WP | Water | CCME Total Hydrocarbons | CCME CWS-PHC DEC-2000 - PUB# 1310-L |

Analytical methods used for analysis of CCME Petroleum Hydrocarbons have been validated and comply with the Reference Method for the CWS PHC.

In cases where results for both F4 and F4G are reported, the greater of the two results must be used in any application of the CWS PHC guidelines and the gravimetric heavy hydrocarbons cannot be added to the C6 to C50 hydrocarbons.
In samples where BTEX and F1 were analyzed , F1-BTEX represents a value where the sum of Benzene, Toluene, Ethylbenzene and total Xylenes has been subtracted from F1.

In samples where PAHs, F2 and F3 were analyzed, F2-Naphth represents the result where Naphthalene has been subtracted from F2. F3-PAH represents a result where the sum of Benzo(a)anthracene, Benzo(a)pyrene, Benzo(b)fluoranthene, Benzo(k)fluoranthene, Dibenzo(a,h)anthracene, Fluoranthene, Indeno(1,2,3-cd)pyrene, Phenanthrene, and Pyrene has been subtracted from F3.

Unless otherwise qualified, the following quality control criteria have been met for the F1 hydrocarbon range:
1. All extraction and analysis holding times were met.
2. Instrument performance showing response factors for C6 and C10 within 30% of the response factor for toluene.
3. Linearity of gasoline response within 15% throughout the calibration range.

Unless otherwise qualified, the following quality control criteria have been met for the F2-F4 hydrocarbon ranges:
1. All extraction and analysis holding times were met.
2. Instrument performance showing C10, C16 and C34 response factors within 10% of their average.

# Reference Information

**Test Method References:**

| ALS Test Code | Matrix | Test Description | Method Reference** |
|---|---|---|---|
| | | 3. Instrument performance showing the C50 response factor within 30% of the average of the C10, C16 and C34 response factors.<br>4. Linearity of diesel or motor oil response within 15% throughout the calibration range. | |
| F2-F4-FID-WP | Water | F2-F4 PHC method | CWS (CCME) |
| | | Petroleum Hydrocarbons (F2-F4) in Water Method is adapted from US EPA Method 3511: Organic Compounds in Water by Micro-extraction" (Nov 2002) with instrumental analysis as per the "Reference Method for the Canada-Wide Standard for Petroleum Hydrocarbons in Soil - Tier 1 Method" (CCMS, Dec 2000) Water samples (in their entirety) are extracted using hexane prior to capillary column gas chromatography with flame ionization detection (GC/FID). | |
| FC-MPN-WP | Water | Fecal Coliform | APHA 9221E |
| | | The Most Probable Number (MPN) method is based on the Multiple Tube Fermentation technique. The results of examination of replicate tubes and dilutions of a sample are reported after confirmations specific to total coliform, fecal coliform and E. coli are performed. Results are reported in MPN/100 mL for water and MPN/gram for food and solid samples. | |
| HG-T-CVAF-WP | Water | Mercury Total | EPA245.7 V2.0 |
| | | Mercury in filtered and unfiltered waters is oxidized with Bromine monochloride and analyzed by cold-vapour atomic fluorescence spectrometry. | |
| MET-T-L-MS-WP | Water | Total Metals by ICP-MS | APHA 3030E/EPA 6020A-TL |
| | | This analysis involves preliminary sample treatment by hotblock acid digestion (APHA 3030E). Instrumental analysis is by inductively coupled plasma - mass spectrometry (EPA Method 6020A). | |
| NH3-COL-WP | Water | Ammonia by colour | APHA 4500 NH3 F |
| | | Ammonia in water samples forms indophenol when reacted with hypochlorite and phenol. The intensity is amplified by the addition of sodium nitroprusside and measured colourmetrically. | |
| NO2+NO3-CALC-WP | Water | Nitrate+Nitrite | CALCULATION |
| NO2-IC-WP | Water | Nitrite as N by Ion Chromatography | EPA 300.1 (Modified) |
| | | Anions in aqueous matrices are analyzed using ion chromatography with conductivity and/or UV absorbance detectors. | |
| NO3-IC-WP | Water | Nitrate as N by Ion Chromatography | EPA 300.1 (Modified) |
| | | Anions in aqueous matrices are analyzed using ion chromatography with conductivity and/or UV absorbance detectors. | |
| OGG-TOT-WT | Water | Oil and Grease, Total | APHA 5520 B |
| | | Sample is extracted with hexane, extract is then evaporated and the residue is weighed to determine total oil and grease. | |
| P-T-COL-WP | Water | Phosphorus, Total | APHA 4500 P PHOSPHORUS |
| | | This analysis is carried out using procedures adapted from APHA Method 4500-P "Phosphorus". Total Phosphorus is determined colourimetrically after persulphate digestion of the sample. | |
| PAH,PANH-WP | Water | Polyaromatic Hydrocarbons (PAHs) | EPA SW 846/8270-GC/MS |
| | | Water is spiked with a surrogate spike mix and extracted using solvent extraction techniques. Analysis is performed by GC/MS in the selected ion monitoring (SIM) mode. | |
| PH-WP | Water | pH | APHA 4500H |
| | | The pH of a sample is the determination of the activity of the hydrogen ions by potentiometric measurement using a standard hydrogen electrode and a reference electrode. | |
| PHENOLS-4AAP-WT | Water | Phenol (4AAP) | EPA 9066 |
| | | An automated method is used to distill the sample. The distillate is then buffered to pH 9.4 which reacts with 4AAP and potassium ferricyanide to form a red complex which is measured colorimetrically. | |
| SO4-IC-WP | Water | Sulfate by Ion Chromatography | EPA 300.1 (Modified) |
| | | Anions in aqueous matrices are analyzed using ion chromatography with conductivity and/or UV absorbance detectors. | |
| SOLIDS-TOTSUS-WP | Water | Total Suspended Solids | APHA 2540 D (modified) |
| | | Total suspended solids in aquesous matrices is determined gravimetrically after drying the residue at 103 105°C. | |
| XYLENES-SUM-CALC-WP | Water | Sum of Xylene Isomer Concentrations | CALCULATED RESULT |
| | | Total xylenes represents the sum of o-xylene and m&p-xylene. | |

# Reference Information

**Test Method References:**

| ALS Test Code | Matrix | Test Description | Method Reference** |
|---|---|---|---|

** ALS test methods may incorporate modifications from specified reference methods to improve performance.

*The last two letters of the above test code(s) indicate the laboratory that performed analytical analysis for that test. Refer to the list below:*

| Laboratory Definition Code | Laboratory Location |
|---|---|
| WP | ALS ENVIRONMENTAL - WINNIPEG, MANITOBA, CANADA |
| WT | ALS ENVIRONMENTAL - WATERLOO, ONTARIO, CANADA |

**Chain of Custody Numbers:**

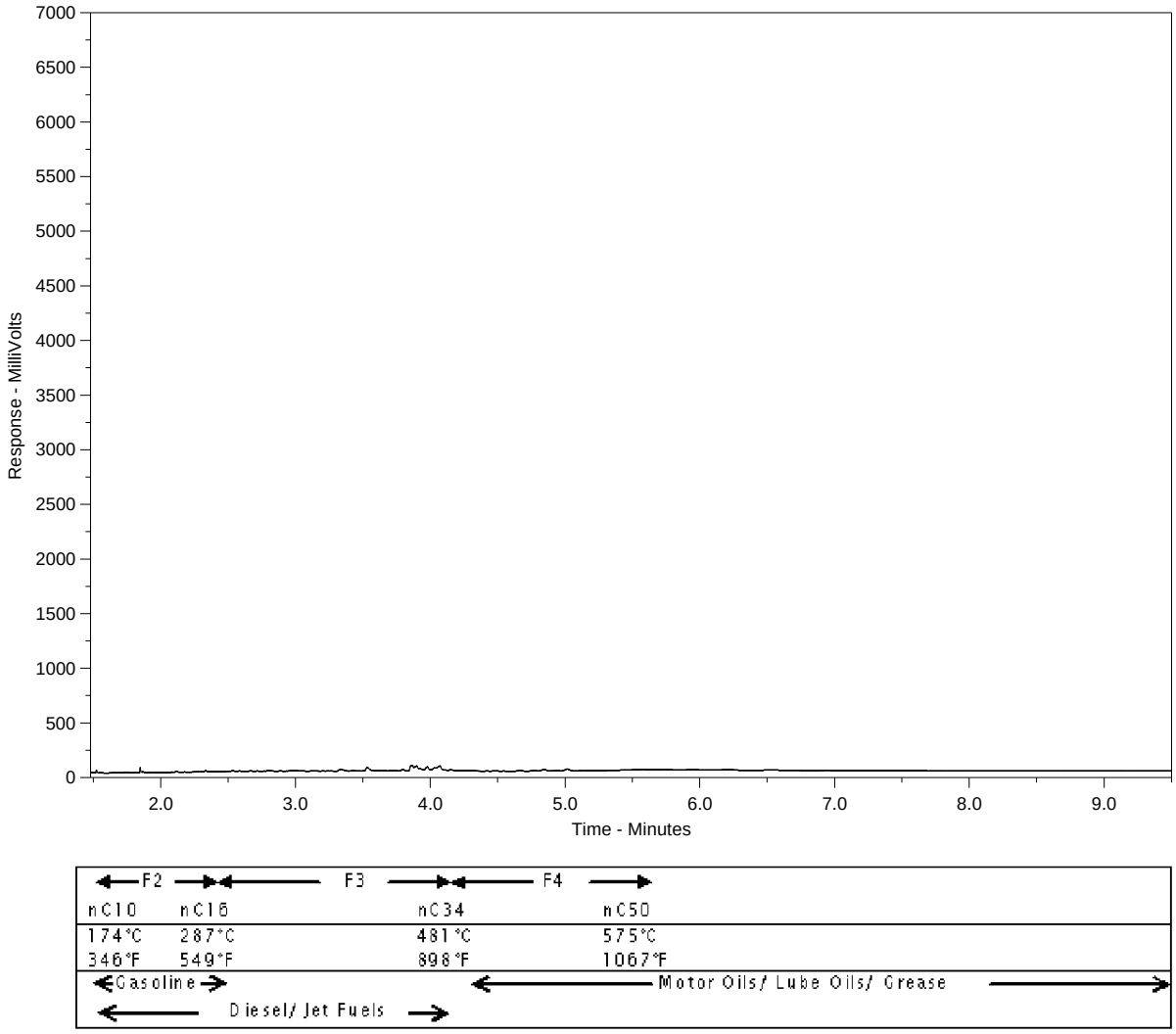
**GLOSSARY OF REPORT TERMS**

*Surrogates are compounds that are similar in behaviour to target analyte(s), but that do not normally occur in environmental samples. For applicable tests, surrogates are added to samples prior to analysis as a check on recovery. In reports that display the D.L. column, laboratory objectives for surrogates are listed there.*
*mg/kg - milligrams per kilogram based on dry weight of sample*
*mg/kg wwt - milligrams per kilogram based on wet weight of sample*
*mg/kg lwt - milligrams per kilogram based on lipid-adjusted weight*
*mg/L - unit of concentration based on volume, parts per million.*
*< - Less than.*
*D.L. - The reporting limit.*
*N/A - Result not available. Refer to qualifier code and definition for explanation.*

*Test results reported relate only to the samples as received by the laboratory.*
*UNLESS OTHERWISE STATED, ALL SAMPLES WERE RECEIVED IN ACCEPTABLE CONDITION.*
*Analytical results in unsigned test reports with the DRAFT watermark are subject to change, pending final QC review.*

# CCME F2-F4 HYDROCARBON DISTRIBUTION REPORT

ALS Sample ID: L1508944-3
Client Sample ID: COR-6




The CCME F2-F4 Hydrocarbon Distribution Report (HDR) is intended to assist you in characterizing hydrocarbon products that may be present in your sample.

The scale at the bottom of the chromatogram indicates the approximate retention times of common petroleum products and four n-alkane hydrocarbon marker compounds. Retention times may vary between samples, but general patterns and distributions will remain similar.

Peak heights in this report are a function of the sample concentration, the sample amount extracted, the sample dilution factor, and the scale at left.

Note: This chromatogram was produced using GC conditions that are specific to ALS Canada CCME F2-F4 method. Refer to the ALS Canada CCME F2-F4 Hydrocarbon Library for a collection of chromatograms from common reference samples (fuels, oils, etc.). The HDR library can be found at www.alsglobal.com.

10-312599

ALS Environmental

L1508944-COFC

tody / Analytical Request Form
Toll Free: 1 800 668 9878
www.alsglobal.com

L1508944

Page 1 of 1

| Report To | Report Format / Distribution | Service Request: (Rush subject to availability - Contact ALS to confirm TAT) |
|---|---|---|
| Company: Hamlet of Coral Harbour | Standard: ✓ Other (specify): | ✓ Regular (Standard Turnaround Times - Business Days) |
| Contact: Leonie Pameolik | Select: PDF ✓ Excel Digital Fax ✓ | Priority (2-4 Business Days)-50% surcharge - Contact ALS to confirm TAT |
| Address: PO Box 30, Coral Harbour, NU X0C 0C0 | Email 1: munchq@qiniq.com | Emergency (1-2 Business Days)-100% Surcharge - Contact ALS to confirm TAT |
| | Email 2: mlusty@gov.nu.ca | Same Day or Weekend Emergency - Contact ALS to confirm TAT |
| Phone: (867) 925-8867 Fax: (867) 925-8233 | | |
| **Invoice To** Same as Report ? (circle) Yes or No (if No, provide details) | **Client / Project Information** | **Analysis Request** |
| Copy of Invoice with Report? (circle) Yes or No | Job #: Coral Harbour Monitoring Program | ( Indicate Filtered or Preserved, F/P ) |
| Company: W10622 | PO / AFE: | |
| Contact: | LSD: | |
| Address: | | |
| Phone: Fax: | Quote #: | |
| **Lab Work Order #** (lab use only) | **ALS Contact:** Paul Nicolas **Sampler:** Casey Pyne | |

| Sample # | Sample Identification (This description will appear on the report) | Date (dd-mmm-yy) | Time (hh:mm) | Sample Type | BOD | Routine | Metals | Nutrients | Phenols | Bacteria | O:I + Grease | PAH | BTEX, F1 | F2-F4 | | | Number of Containers |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | COR-3 | 26-08-14 | 11:10AM | Wastewater | ✓ | ✓ | P | P | P | P | P | | | | | | 8 |
| | COR-4 | 26-08-14 | 11:35 AM | Wastewater | ✓ | ✓ | P | P | P | P | P | | | | | | 8 |
| | COR-6 | 26-08-14 | 10:30AM | Wastewater | ✓ | ✓ | P | P | P | P | P | P | P | P | | | 14 |
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**Special Instructions / Regulation with water or land use (CCME- Freshwater Aquatic Life/BC CSR-Commercial/AB Tier 1-Natural/ETC) / Hazardous Details**

**Failure to complete all portions of this form may delay analysis. Please fill in this form LEGIBLY.**

**By the use of this form the user acknowledges and agrees with the Terms and Conditions as specified on the back page of the white - report copy.**

| SHIPMENT RELEASE (client use) | | | SHIPMENT RECEPTION (lab use only) | | | | SHIPMENT VERIFICATION (lab use only) | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| Released by: | Date: | Time: | Received by: | Date: | Time: | Temperature: | Verified by: | Date: | Time: | Observations: Yes / No ? If Yes add SIF |
| Casey Pyne | Aug 26/14 | 1:16 | JC | 08/27/14 | 1:40 | 12 °C | | | | |

REFER TO BACK PAGE FOR ALS LOCATIONS AND SAMPLING INFORMATION

WHITE - LABORATORY COPY YELLOW - CLIENT COPY

GENF 18.01 Front