ANNUAL REPORT
FOR THE HAMLET OF BAKER LAKE

YEAR BEING REPORTED: 2015

The following information is compiled pursuant to the requirements of Part B, Item 1 of Water License No. 3BM-BAK1526 issued to the Hamlet of Baker Lake.

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 quantities of water used as reported in our On Tap Water Delivery System and the estimated discharge of sewage waste based on quantities used.

Month Reported	Quantity of Water Obtained from all sources (m^3)	Quantity of Sewage Waste Discharged (Estimated, m^3)
January 2015	5535.348	Same
February 2015	5272.532	Same
March 2015	5790.857	Same
April 2015	5484.641	Same
May 2015	5852.240	Same
June 2015	5979.393	Same
July 2015	5742.453	Same
August 2015	5813.855	Same
September 2015	6111.521	Same
October 2015	6112.394	Same
November 2015	5739.704	Same
December 2015	5745.681	Same
ANNUAL TOTAL	**69,180.619**	**69,180.619**

Note: There is no meter existing at the end of the Sewage Truck discharge pipe. Therefore the monthly sewage discharge volume is considered as equal volume to the monthly water consumption.

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;

- Repair to the sewage holding cell berm took place in summer 2015. The following pictures show the berm before (July 29, 2014) and after (August 31, 2015) the repair took place.

July 29, 2014 – breach in sewage holding cell berm

August 31, 2015 – repaired sewage holding cell berm

- Repair to the sewage diversion berm (behind the solid waste site) took place in summer 2015. The following pictures show the berm before (July 29, 2014) and after (December 7, 2015) the repair took place.

July 29, 2014 – breach in sewage diversion berm

December 7, 2015 - repaired sewage diversion berm

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

Spills:

- 2015058, 2015-05-18, Meadowbank Mine Site, Used Oil, 180 L
- 2015159, 2015-04-10, Baker Lake, NU, Fuel, 100 L
- 2015215, 2015-05-22, AEM Diesel Refuelling Station in Baker Lake, Diesel Fuel, 250 L
- 2015217, 2015-05-22, Unit #258, Heating Oil #2, 1090 L
- 2015424, 2015-10-08, Baker Lake NU Unit 1149, Fuel Oil, 800 L

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

- No abandonment and restoration work was done in 2015 and none is planned for 2016.

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;

- Hamlet of Baker Lake - Plan for Compliance was submitted with the Amendment/Renewal Application March 6, 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 2016. Pictures of the signage at Monitoring Program Stations will be included in the 2016 Annual Report.

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

- The *Operations and Maintenance Manual for the Water, Sewage and Solid Waste Facilities, Baker Lake, NU* prepared by Nunami Stantec, June, 2011, including:
  - *Water Distribution System Operations and Maintenance* (Section 3);
  - *Sewage Disposal Facilities Operations and Maintenance* (Section 4);
  - *Solid Waste Disposal Facilities Operations and Maintenance* (Section 5); and
  - *Emergency Response and Spill Contingency Plan* (Section 6);

  and the *Quality Assurance/Quality Control Plan for the Hamlet of Baker Lake's Licensed Monitoring Program* were updated during the licence renewal.

ADDITIONAL INFORMATION THAT THE LICENSEE DEEMS USEFUL:

- The renewed licence was issued on December 7, 2015

FOLLOW-UP REGARDING INSPECTION/COMPLIANCE CONCERNS:

- The AANDC Inspection took place on August 31, 2015. The Hamlet will have the outstanding work of palletizing barrels and collecting batteries for storage in battery boxes completed by June 30, 2016.

Appendix A: BAK-5 Effluent Quality Limits – 1 page
Appendix B: Certificate of Analysis June 29, 2015 – 12 pages
Appendix C: Certificate of Analysis August 218, 2015 – 7 pages
Appendix D: 2015 AANDC Inspection Report – 1 page
Appendix E: Hazardous Materials Spill Database, Baker Lake 2014 – 1 page

Baker Lake Monitoring Stations and Sampling Parameters for Licence No. 3BM-BAK1526
Part D, Item 2; BAK-5 Effluent Quality Limits

Parameter	Maximum Concentration of any grab sample	BAK-5
		29-Jun-15
BOD	80 mg/L	3.7
Total Suspended Solids	100 mg/L	<5.0
Fecal Coliforms	1 x 10^4 CFU/100mL	2300
Oil & Grease	no visible sheen	<2.0
pH	between 6 and 9	6.94

The annual sample taken at BAK-5, as per Part H, Item 1, was below maximum concentration for the effluent quality limits.

Hamlet of Baker Lake
ATTN: PAUL NARKYAGIK
PO Box 149
Baker Lake NU X0C 0A0

Date Received: 30-JUN-15
Report Date: 23-JUL-15 13:03 (MT)
Version: FINAL

Client Phone: 867-793-2881

Certificate of Analysis

Lab Work Order #: L1634980

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

Hua Wo
Chemistry Laboratory Manager

ALS ENVIRONMENTAL ANALYTICAL REPORT

Sample Details/Parameters	Result	Qualifier*	D.L.	Units	Extracted	Analyzed	Batch
L1634980-1 BAK-2							
Sampled By: CLIENT on 29-JUN-15 @ 10:15							
Matrix: SW							
Nunavut WW Group 1							
Alkalinity, Bicarbonate							
Bicarbonate (HCO3)	20.3		1.2	mg/L		13-JUL-15	
Alkalinity, Carbonate							
Carbonate (CO3)	<0.60		0.60	mg/L		13-JUL-15	
Alkalinity, Hydroxide							
Hydroxide (OH)	<0.34		0.34	mg/L		13-JUL-15	
Ammonia by colour							
Ammonia, Total (as N)	1.04	DLA	0.10	mg/L		02-JUL-15	R3218855
Biochemical Oxygen Demand (BOD)							
Biochemical Oxygen Demand	<2.0		2.0	mg/L		01-JUL-15	R3222853
Carbonaceous BOD							
BOD Carbonaceous	<2.0		2.0	mg/L		01-JUL-15	R3222853
Chloride in Water by IC							
Chloride (Cl)	9.24		0.50	mg/L		02-JUL-15	R3221084
Conductivity							
Conductivity	97.1		1.0	umhos/cm		10-JUL-15	R3224269
Fecal Coliform							
Fecal Coliforms	75		3	MPN/100mL		01-JUL-15	R3220039
Hardness Calculated							
Hardness (as CaCO3)	23.1		0.30	mg/L		09-JUL-15	
Mercury Total							
Mercury (Hg)-Total	<0.000020		0.000020	mg/L	08-JUL-15	08-JUL-15	R3222862
Nitrate in Water by IC							
Nitrate (as N)	0.980		0.020	mg/L		02-JUL-15	R3221084
Nitrate+Nitrite							
Nitrate and Nitrite as N	1.01		0.070	mg/L		13-JUL-15	
Nitrite in Water by IC							
Nitrite (as N)	0.033		0.010	mg/L		02-JUL-15	R3221084
Oil and Grease, Total							
Oil and Grease, Total	<2.0		2.0	mg/L	07-JUL-15	07-JUL-15	R3221093
Phenol (4AAP)							
Phenols (4AAP)	<0.0010		0.0010	mg/L		17-JUL-15	R3228789
Phosphorus, Total							
Phosphorus (P)-Total	0.413		0.010	mg/L		08-JUL-15	R3221636
Sulfate in Water by IC							
Sulfate (SO4)	6.71		0.30	mg/L		02-JUL-15	R3221084
Total Alkalinity as CaCO3							
Alkalinity, Total (as CaCO3)	16.6		1.0	mg/L		10-JUL-15	R3224269
Total Metals by ICP-MS							
Aluminum (Al)-Total	0.0798		0.0050	mg/L	08-JUL-15	08-JUL-15	R3222266
Arsenic (As)-Total	0.00055		0.00020	mg/L	08-JUL-15	08-JUL-15	R3222266
Cadmium (Cd)-Total	<0.000010		0.000010	mg/L	08-JUL-15	08-JUL-15	R3222266
Calcium (Ca)-Total	6.91		0.10	mg/L	08-JUL-15	08-JUL-15	R3222266
Chromium (Cr)-Total	<0.0010		0.0010	mg/L	08-JUL-15	08-JUL-15	R3222266
Cobalt (Co)-Total	<0.00020		0.00020	mg/L	08-JUL-15	08-JUL-15	R3222266
Copper (Cu)-Total	0.00340		0.00020	mg/L	08-JUL-15	08-JUL-15	R3222266
Iron (Fe)-Total	0.32		0.10	mg/L	08-JUL-15	08-JUL-15	R3222266
Lead (Pb)-Total	0.000124		0.000090	mg/L	08-JUL-15	08-JUL-15	R3222266
Magnesium (Mg)-Total	1.41		0.010	mg/L	08-JUL-15	08-JUL-15	R3222266
Manganese (Mn)-Total	0.0464		0.00030	mg/L	08-JUL-15	08-JUL-15	R3222266
Nickel (Ni)-Total	<0.0020		0.0020	mg/L	08-JUL-15	08-JUL-15	R3222266

* 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
L1634980-1 BAK-2							
Sampled By: CLIENT on 29-JUN-15 @ 10:15							
Matrix: SW							
Total Metals by ICP-MS							
Potassium (K)-Total	2.02		0.020	mg/L	08-JUL-15	08-JUL-15	R3222266
Sodium (Na)-Total	6.59		0.030	mg/L	08-JUL-15	08-JUL-15	R3222266
Zinc (Zn)-Total	0.0063		0.0020	mg/L	08-JUL-15	08-JUL-15	R3222266
Total Organic Carbon							
Total Organic Carbon	6.2		1.0	mg/L		22-JUL-15	R3231067
Total Suspended Solids							
Total Suspended Solids	<5.0		5.0	mg/L		06-JUL-15	R3221478
pH							
pH	6.98		0.10	pH units		10-JUL-15	R3224269
L1634980-2 BAK-3							
Sampled By: CLIENT on 29-JUN-15 @ 10:05							
Matrix: SW							
Nunavut WW Group 1							
Alkalinity, Bicarbonate							
Bicarbonate (HCO3)	21.8		1.2	mg/L		13-JUL-15	
Alkalinity, Carbonate							
Carbonate (CO3)	<0.60		0.60	mg/L		13-JUL-15	
Alkalinity, Hydroxide							
Hydroxide (OH)	<0.34		0.34	mg/L		13-JUL-15	
Ammonia by colour							
Ammonia, Total (as N)	0.247		0.010	mg/L		02-JUL-15	R3218855
Biochemical Oxygen Demand (BOD)							
Biochemical Oxygen Demand	2.3	BODQ	2.0	mg/L		01-JUL-15	R3222853
Carbonaceous BOD							
BOD Carbonaceous	2.4	BODQ	2.0	mg/L		01-JUL-15	R3222853
Chloride in Water by IC							
Chloride (Cl)	9.53		0.50	mg/L		02-JUL-15	R3221084
Conductivity							
Conductivity	83.4		1.0	umhos/cm		10-JUL-15	R3224269
Fecal Coliform							
Fecal Coliforms	<3		3	MPN/100mL		01-JUL-15	R3220039
Hardness Calculated							
Hardness (as CaCO3)	23.3		0.30	mg/L		09-JUL-15	
Mercury Total							
Mercury (Hg)-Total	<0.000020		0.000020	mg/L	08-JUL-15	08-JUL-15	R3222862
Nitrate in Water by IC							
Nitrate (as N)	0.179		0.020	mg/L		02-JUL-15	R3221084
Nitrate+Nitrite							
Nitrate and Nitrite as N	0.179		0.070	mg/L		13-JUL-15	
Nitrite in Water by IC							
Nitrite (as N)	<0.010		0.010	mg/L		02-JUL-15	R3221084
Oil and Grease, Total							
Oil and Grease, Total	<2.0		2.0	mg/L	07-JUL-15	07-JUL-15	R3221093
Phenol (4AAP)							
Phenols (4AAP)	<0.0010		0.0010	mg/L		10-JUL-15	R3223350
Phosphorus, Total							
Phosphorus (P)-Total	0.145		0.010	mg/L		08-JUL-15	R3221636
Sulfate in Water by IC							
Sulfate (SO4)	3.97		0.30	mg/L		02-JUL-15	R3221084
Total Alkalinity as CaCO3							
Alkalinity, Total (as CaCO3)	17.9		1.0	mg/L		10-JUL-15	R3224269

* 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
L1634980-2 BAK-3							
Sampled By: CLIENT on 29-JUN-15 @ 10:05							
Matrix: SW							
Total Metals by ICP-MS							
Aluminum (Al)-Total	0.0469		0.0050	mg/L	08-JUL-15	08-JUL-15	R3222266
Arsenic (As)-Total	0.00040		0.00020	mg/L	08-JUL-15	08-JUL-15	R3222266
Cadmium (Cd)-Total	<0.000010		0.000010	mg/L	08-JUL-15	08-JUL-15	R3222266
Calcium (Ca)-Total	6.97		0.10	mg/L	08-JUL-15	08-JUL-15	R3222266
Chromium (Cr)-Total	<0.0010		0.0010	mg/L	08-JUL-15	08-JUL-15	R3222266
Cobalt (Co)-Total	<0.00020		0.00020	mg/L	08-JUL-15	08-JUL-15	R3222266
Copper (Cu)-Total	0.00179		0.00020	mg/L	08-JUL-15	08-JUL-15	R3222266
Iron (Fe)-Total	0.47		0.10	mg/L	08-JUL-15	08-JUL-15	R3222266
Lead (Pb)-Total	<0.000090		0.000090	mg/L	08-JUL-15	08-JUL-15	R3222266
Magnesium (Mg)-Total	1.43		0.010	mg/L	08-JUL-15	08-JUL-15	R3222266
Manganese (Mn)-Total	0.0599		0.00030	mg/L	08-JUL-15	08-JUL-15	R3222266
Nickel (Ni)-Total	<0.0020		0.0020	mg/L	08-JUL-15	08-JUL-15	R3222266
Potassium (K)-Total	1.36		0.020	mg/L	08-JUL-15	08-JUL-15	R3222266
Sodium (Na)-Total	5.87		0.030	mg/L	08-JUL-15	08-JUL-15	R3222266
Zinc (Zn)-Total	0.0035		0.0020	mg/L	08-JUL-15	08-JUL-15	R3222266
Total Organic Carbon							
Total Organic Carbon	5.9		1.0	mg/L		22-JUL-15	R3231067
Total Suspended Solids							
Total Suspended Solids	7.0		5.0	mg/L		06-JUL-15	R3221478
pH							
pH	7.18		0.10	pH units		10-JUL-15	R3224269
L1634980-3 BAK-4							
Sampled By: CLIENT on 29-JUN-15 @ 10:30							
Matrix: SW							
BTEX plus F1-F4							
BTX plus F1 by GCMS							
Benzene	<0.00050		0.00050	mg/L		08-JUL-15	R3221792
Toluene	<0.0010		0.0010	mg/L		08-JUL-15	R3221792
Ethyl benzene	<0.00050		0.00050	mg/L		08-JUL-15	R3221792
o-Xylene	<0.00050		0.00050	mg/L		08-JUL-15	R3221792
m+p-Xylenes	<0.00050		0.00050	mg/L		08-JUL-15	R3221792
F1 (C6-C10)	<0.10		0.10	mg/L		08-JUL-15	R3221792
Surrogate: 4-Bromofluorobenzene (SS)	91.6		70-130	%		08-JUL-15	R3221792
CCME Total Hydrocarbons							
F1-BTEX	<0.10		0.10	mg/L		09-JUL-15	
F2-Naphth	<0.25		0.25	mg/L		09-JUL-15	
F3-PAH	0.42		0.25	mg/L		09-JUL-15	
Total Hydrocarbons (C6-C50)	<0.44		0.44	mg/L		09-JUL-15	
F2-F4 PHC method							
F2 (C10-C16)	<0.25		0.25	mg/L	04-JUL-15	07-JUL-15	R3221524
F3 (C16-C34)	0.42		0.25	mg/L	04-JUL-15	07-JUL-15	R3221524
F4 (C34-C50)	<0.25		0.25	mg/L	04-JUL-15	07-JUL-15	R3221524
Surrogate: 2-Bromobenzotrifluoride	117.6		60-140	%	04-JUL-15	07-JUL-15	R3221524
Sum of Xylene Isomer Concentrations							
Xylenes (Total)	<0.0015		0.0015	mg/L		09-JUL-15	
Polyaromatic Hydrocarbons (PAHs)							
1-Methyl Naphthalene	<0.000020		0.000020	mg/L	07-JUL-15	07-JUL-15	R3221586
2-Methyl Naphthalene	<0.000020		0.000020	mg/L	07-JUL-15	07-JUL-15	R3221586
Acenaphthene	<0.000020		0.000020	mg/L	07-JUL-15	07-JUL-15	R3221586
Acenaphthylene	<0.000020		0.000020	mg/L	07-JUL-15	07-JUL-15	R3221586

* 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
L1634980-3 BAK-4							
Sampled By: CLIENT on 29-JUN-15 @ 10:30							
Matrix: SW							
Polyaromatic Hydrocarbons (PAHs)							
Anthracene	<0.000010		0.000010	mg/L	07-JUL-15	07-JUL-15	R3221586
Acridine	<0.000020		0.000020	mg/L	07-JUL-15	07-JUL-15	R3221586
Benzo(a)anthracene	<0.000010		0.000010	mg/L	07-JUL-15	07-JUL-15	R3221586
Benzo(a)pyrene	<0.0000050		0.0000050	mg/L	07-JUL-15	07-JUL-15	R3221586
Benzo(b&j)fluoranthene	<0.000010		0.000010	mg/L	07-JUL-15	07-JUL-15	R3221586
Benzo(g,h,i)perylene	<0.000020		0.000020	mg/L	07-JUL-15	07-JUL-15	R3221586
Benzo(k)fluoranthene	<0.000010		0.000010	mg/L	07-JUL-15	07-JUL-15	R3221586
Chrysene	<0.000020		0.000020	mg/L	07-JUL-15	07-JUL-15	R3221586
Dibenzo(a,h)anthracene	<0.0000050		0.0000050	mg/L	07-JUL-15	07-JUL-15	R3221586
Fluoranthene	<0.000020		0.000020	mg/L	07-JUL-15	07-JUL-15	R3221586
Fluorene	<0.000020		0.000020	mg/L	07-JUL-15	07-JUL-15	R3221586
Indeno(1,2,3-cd)pyrene	<0.000010		0.000010	mg/L	07-JUL-15	07-JUL-15	R3221586
Naphthalene	<0.000050		0.000050	mg/L	07-JUL-15	07-JUL-15	R3221586
Phenanthrene	<0.000050		0.000050	mg/L	07-JUL-15	07-JUL-15	R3221586
Pyrene	<0.000010		0.000010	mg/L	07-JUL-15	07-JUL-15	R3221586
Quinoline	<0.000020		0.000020	mg/L	07-JUL-15	07-JUL-15	R3221586
B(a)P Total Potency Equivalent	<0.000030		0.000030	mg/L	07-JUL-15	07-JUL-15	R3221586
Surrogate: Acenaphthene d10	87.1		40-130	%	07-JUL-15	07-JUL-15	R3221586
Surrogate: Acridine d9	105.8		40-130	%	07-JUL-15	07-JUL-15	R3221586
Surrogate: Chrysene d12	94.0		40-130	%	07-JUL-15	07-JUL-15	R3221586
Surrogate: Naphthalene d8	79.7		40-130	%	07-JUL-15	07-JUL-15	R3221586
Surrogate: Phenanthrene d10	88.0		40-130	%	07-JUL-15	07-JUL-15	R3221586
Nunavut WW Group 1							
Alkalinity, Bicarbonate							
Bicarbonate (HCO3)	30.4		1.2	mg/L		13-JUL-15	
Alkalinity, Carbonate							
Carbonate (CO3)	<0.60		0.60	mg/L		13-JUL-15	
Alkalinity, Hydroxide							
Hydroxide (OH)	<0.34		0.34	mg/L		13-JUL-15	
Ammonia by colour							
Ammonia, Total (as N)	2.86	DLA	0.10	mg/L		02-JUL-15	R3218855
Biochemical Oxygen Demand (BOD)							
Biochemical Oxygen Demand	4.0	BODQ	2.0	mg/L		01-JUL-15	R3222853
Carbonaceous BOD							
BOD Carbonaceous	2.4	BODQ	2.0	mg/L		01-JUL-15	R3222853
Chloride in Water by IC							
Chloride (Cl)	8.66		0.50	mg/L		02-JUL-15	R3221084
Conductivity							
Conductivity	89.2		1.0	umhos/cm		10-JUL-15	R3224269
Fecal Coliform							
Fecal Coliforms	9300		3	MPN/100mL		01-JUL-15	R3220039
Hardness Calculated							
Hardness (as CaCO3)	16.2		0.30	mg/L		09-JUL-15	
Mercury Total							
Mercury (Hg)-Total	<0.00020	DLM	0.00020	mg/L	08-JUL-15	08-JUL-15	R3222862
Nitrate in Water by IC							
Nitrate (as N)	0.044		0.020	mg/L		02-JUL-15	R3221084
Nitrate+Nitrite							
Nitrate and Nitrite as N	<0.070		0.070	mg/L		13-JUL-15	
Nitrite in Water by IC							
Nitrite (as N)	<0.010		0.010	mg/L		02-JUL-15	R3221084
Oil and Grease, Total							

* 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
L1634980-3 BAK-4							
Sampled By: CLIENT on 29-JUN-15 @ 10:30							
Matrix: SW							
Oil and Grease, Total							
Oil and Grease, Total	<2.0		2.0	mg/L	07-JUL-15	07-JUL-15	R3221093
Phenol (4AAP)							
Phenols (4AAP)	<0.0010		0.0010	mg/L		10-JUL-15	R3223350
Phosphorus, Total							
Phosphorus (P)-Total	0.467		0.010	mg/L		08-JUL-15	R3221636
Sulfate in Water by IC							
Sulfate (SO4)	1.90		0.30	mg/L		02-JUL-15	R3221084
Total Alkalinity as CaCO3							
Alkalinity, Total (as CaCO3)	24.9		1.0	mg/L		10-JUL-15	R3224269
Total Metals by ICP-MS							
Aluminum (Al)-Total	0.0511		0.0050	mg/L	08-JUL-15	08-JUL-15	R3222266
Arsenic (As)-Total	0.00029		0.00020	mg/L	08-JUL-15	08-JUL-15	R3222266
Cadmium (Cd)-Total	<0.000010		0.000010	mg/L	08-JUL-15	08-JUL-15	R3222266
Calcium (Ca)-Total	4.66		0.10	mg/L	08-JUL-15	08-JUL-15	R3222266
Chromium (Cr)-Total	<0.0010		0.0010	mg/L	08-JUL-15	08-JUL-15	R3222266
Cobalt (Co)-Total	<0.00020		0.00020	mg/L	08-JUL-15	08-JUL-15	R3222266
Copper (Cu)-Total	0.00494		0.00020	mg/L	08-JUL-15	08-JUL-15	R3222266
Iron (Fe)-Total	0.29		0.10	mg/L	08-JUL-15	08-JUL-15	R3222266
Lead (Pb)-Total	0.000129		0.000090	mg/L	08-JUL-15	08-JUL-15	R3222266
Magnesium (Mg)-Total	1.11		0.010	mg/L	08-JUL-15	08-JUL-15	R3222266
Manganese (Mn)-Total	0.0416		0.00030	mg/L	08-JUL-15	08-JUL-15	R3222266
Nickel (Ni)-Total	<0.0020		0.0020	mg/L	08-JUL-15	08-JUL-15	R3222266
Potassium (K)-Total	1.53		0.020	mg/L	08-JUL-15	08-JUL-15	R3222266
Sodium (Na)-Total	5.69		0.030	mg/L	08-JUL-15	08-JUL-15	R3222266
Zinc (Zn)-Total	0.0068		0.0020	mg/L	08-JUL-15	08-JUL-15	R3222266
Total Organic Carbon							
Total Organic Carbon	6.3		1.0	mg/L		22-JUL-15	R3231067
Total Suspended Solids							
Total Suspended Solids	<5.0		5.0	mg/L		06-JUL-15	R3221478
pH							
pH	6.87		0.10	pH units		10-JUL-15	R3224269
L1634980-4 BAK-5							
Sampled By: CLIENT on 29-JUN-15 @ 11:00							
Matrix: SW							
Nunavut WW Group 1							
Alkalinity, Bicarbonate							
Bicarbonate (HCO3)	32.7		1.2	mg/L		13-JUL-15	
Alkalinity, Carbonate							
Carbonate (CO3)	<0.60		0.60	mg/L		13-JUL-15	
Alkalinity, Hydroxide							
Hydroxide (OH)	<0.34		0.34	mg/L		13-JUL-15	
Ammonia by colour							
Ammonia, Total (as N)	2.63	DLA	0.10	mg/L		02-JUL-15	R3218855
Biochemical Oxygen Demand (BOD)							
Biochemical Oxygen Demand	3.7	BODQ	2.0	mg/L		01-JUL-15	R3222853
Carbonaceous BOD							
BOD Carbonaceous	2.3	BODQ	2.0	mg/L		01-JUL-15	R3222853
Chloride in Water by IC							
Chloride (Cl)	9.01		0.50	mg/L		02-JUL-15	R3221084
Conductivity							
Conductivity	92.8		1.0	umhos/cm		10-JUL-15	R3224269

* 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
L1634980-4 BAK-5							
Sampled By: CLIENT on 29-JUN-15 @ 11:00							
Matrix: SW							
Fecal Coliform							
Fecal Coliforms	2300		3	MPN/100mL		01-JUL-15	R3220039
Hardness Calculated							
Hardness (as CaCO3)	17.2		0.30	mg/L		10-JUL-15	
Mercury Total							
Mercury (Hg)-Total	<0.00020	DLM	0.00020	mg/L	08-JUL-15	08-JUL-15	R3222862
Nitrate in Water by IC							
Nitrate (as N)	0.046		0.020	mg/L		02-JUL-15	R3221084
Nitrate+Nitrite							
Nitrate and Nitrite as N	<0.070		0.070	mg/L		13-JUL-15	
Nitrite in Water by IC							
Nitrite (as N)	<0.010		0.010	mg/L		02-JUL-15	R3221084
Oil and Grease, Total							
Oil and Grease, Total	<2.0		2.0	mg/L	07-JUL-15	07-JUL-15	R3221093
Phenol (4AAP)							
Phenols (4AAP)	<0.0010		0.0010	mg/L		10-JUL-15	R3223350
Phosphorus, Total							
Phosphorus (P)-Total	0.503		0.010	mg/L		08-JUL-15	R3221636
Sulfate in Water by IC							
Sulfate (SO4)	2.01		0.30	mg/L		02-JUL-15	R3221084
Total Alkalinity as CaCO3							
Alkalinity, Total (as CaCO3)	26.8		1.0	mg/L		10-JUL-15	R3224269
Total Metals by ICP-MS							
Aluminum (Al)-Total	0.0490		0.0050	mg/L	09-JUL-15	09-JUL-15	R3223150
Arsenic (As)-Total	0.00034		0.00020	mg/L	09-JUL-15	09-JUL-15	R3223150
Cadmium (Cd)-Total	0.000010		0.000010	mg/L	09-JUL-15	09-JUL-15	R3223150
Calcium (Ca)-Total	4.97		0.10	mg/L	09-JUL-15	09-JUL-15	R3223150
Chromium (Cr)-Total	<0.0010		0.0010	mg/L	09-JUL-15	09-JUL-15	R3223150
Cobalt (Co)-Total	0.00023		0.00020	mg/L	09-JUL-15	09-JUL-15	R3223150
Copper (Cu)-Total	0.00506		0.00020	mg/L	09-JUL-15	09-JUL-15	R3223150
Iron (Fe)-Total	0.47		0.10	mg/L	09-JUL-15	09-JUL-15	R3223150
Lead (Pb)-Total	0.000155		0.000090	mg/L	09-JUL-15	09-JUL-15	R3223150
Magnesium (Mg)-Total	1.17		0.010	mg/L	09-JUL-15	09-JUL-15	R3223150
Manganese (Mn)-Total	0.0612		0.00030	mg/L	09-JUL-15	09-JUL-15	R3223150
Nickel (Ni)-Total	<0.0020		0.0020	mg/L	09-JUL-15	09-JUL-15	R3223150
Potassium (K)-Total	1.56		0.020	mg/L	09-JUL-15	09-JUL-15	R3223150
Sodium (Na)-Total	5.59		0.030	mg/L	09-JUL-15	09-JUL-15	R3223150
Zinc (Zn)-Total	0.0105		0.0020	mg/L	09-JUL-15	09-JUL-15	R3223150
Total Organic Carbon							
Total Organic Carbon	6.7		1.0	mg/L		22-JUL-15	R3231067
Total Suspended Solids							
Total Suspended Solids	<5.0		5.0	mg/L		06-JUL-15	R3221478
pH							
pH	6.94		0.10	pH units		10-JUL-15	R3224269

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

Reference Information

Sample Parameter Qualifier Key:

Qualifier	Description
BODQ	BOD Qualification: Lab Control Sample outside standard 85-115% objective (see QC report). Sample(s) cannot be rerun due to hold time expiry.
DLA	Detection Limit adjusted for required dilution
DLM	Detection Limit Adjusted due to sample matrix effects.
MS-B	Matrix Spike recovery could not be accurately calculated due to high analyte background in sample.
RRQC	Refer to report remarks for information regarding this QC result.

Test Method References:

ALS Test Code	Matrix	Test Description	Method Reference**
ALK-CO3CO3-CALC-WP	Water	Alkalinity, Carbonate	CALCULATION

The Alkalinity of water is a measure of its acid neutralizing capacity.Alkalinity is imparted by bicarbonate, carbonate and hydroxide components of water. The fraction of alkalinity contributed by carbonate is calculated and reported as mg CO3 2-/L.

ALK-HCO3HCO3-CALC-WP	Water	Alkalinity, Bicarbonate	CALCULATION

The Alkalinity of water is a measure of its acid neutralizing capacity.Alkalinity is imparted by bicarbonate, carbonate and hydroxide components of water. The fraction of alkalinity contributed by bicarbonate is calculated and reported as mg HCO3-/L

ALK-OHOH-CALC-WP	Water	Alkalinity, Hydroxide	CALCULATION

The Alkalinity of water is a measure of its acid neutralizing capacity.Alkalinity is imparted by bicarbonate, carbonate and hydroxide components of water. The fraction of alkalinity contributed by hydroxide is calculated and reported as mg OH-/L.

ALK-TITR-WP	Water	Total Alkalinity as CaCO3	APHA 2320B

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

BOD-CBOD-WP	Water	Carbonaceous BOD	APHA 5210 B

Samples are diluted and seeded, have TCMP added to inhibit nitrogenous demands, and then are incubated in airtight bottles at 20°C for 5 days. Dissolved oxygen is measured initially and after incubation, and results are computed from the difference between initial and final DO.

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

Samples are diluted and seeded and then incubated in airtight bottles at 20°C for 5 days. Dissolved oxygen is measured initially and after incubation, and results are computed from the difference between initial and final DO.

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-N-WP	Water	Chloride in Water by IC	EPA 300.1 (mod)

Inorganic anions are analyzed by Ion Chromatography with conductivity and/or UV detection.

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, Pub #1310, Dec 2001-L

Reference Information

Test Method References:

ALS Test Code	Matrix	Test Description	Method Reference**

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.

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-N-WP	Water	Nitrite in Water by IC	EPA 300.1 (mod)

Inorganic anions are analyzed by Ion Chromatography with conductivity and/or UV detection.

NO3-IC-N-WP	Water	Nitrate in Water by IC	EPA 300.1 (mod)

Inorganic anions are analyzed by Ion Chromatography with conductivity and/or UV detection.

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

Reference Information

Test Method References:

ALS Test Code	Matrix	Test Description	Method Reference**
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-N-WP	Water	Sulfate in Water by IC	EPA 300.1 (mod)
Inorganic anions are analyzed by Ion Chromatography with conductivity and/or UV detection.			
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.			

** 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
WT	ALS ENVIRONMENTAL - WATERLOO, ONTARIO, CANADA
WP	ALS ENVIRONMENTAL - WINNIPEG, MANITOBA, CANADA

Chain of Custody Numbers:

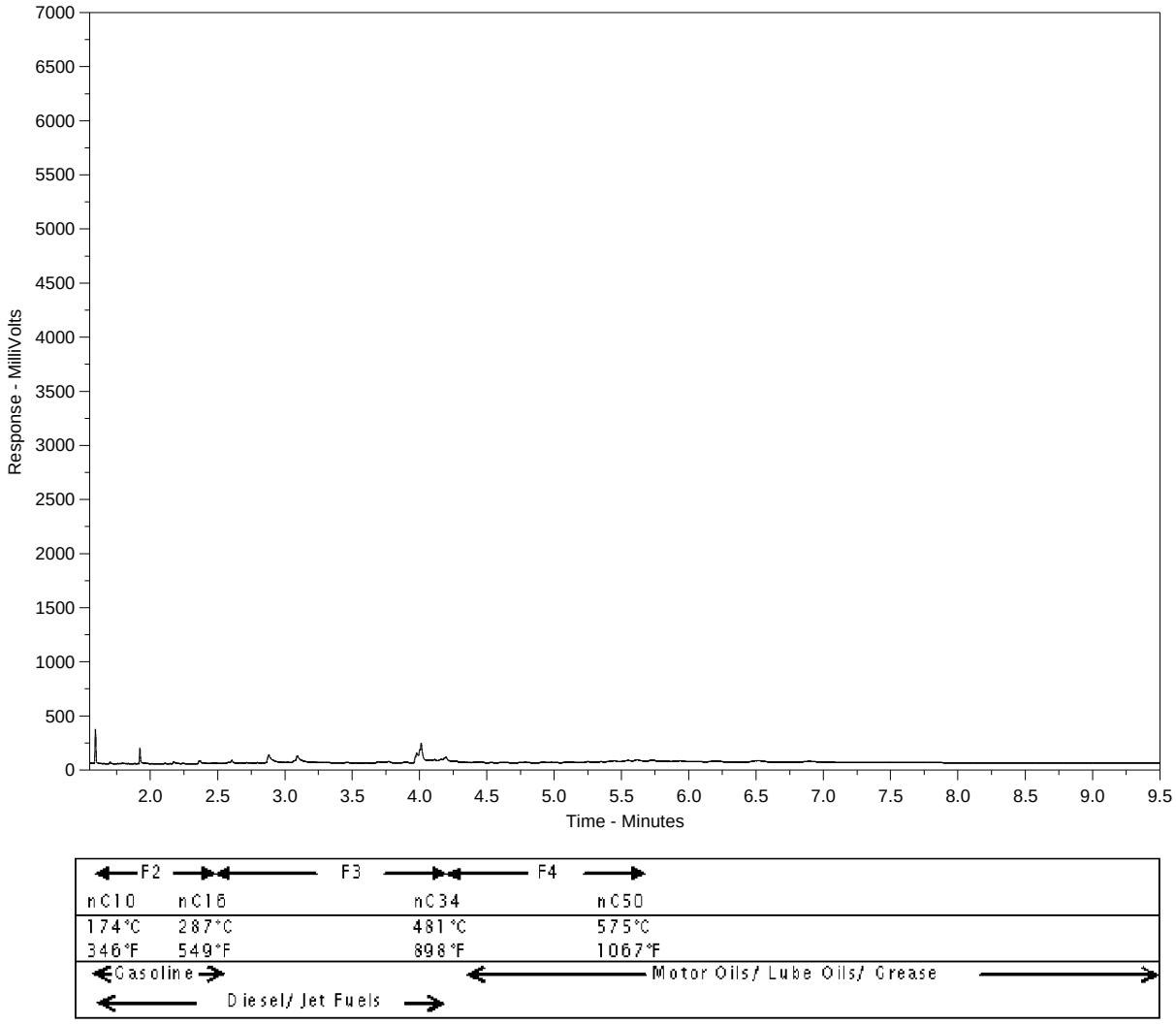
GLOSSARY OF REPORT TERMS

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: L1634980-3
Client Sample ID: BAK-4



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.

ALS Environmental
www.alsglobal.com

Chain of Custody (COC) / Analytical Request Form

Canada Toll Free: 1 800 668 9878

L1634980-COFC

COC Number: 14 - 454512

Page ___ of ___

Report To	
Company:	Hamlet of Baker Lake
Contact:	Paul Narkyagik
Address:	3022-4 Avenue P.O. BOX 149 Baker Lake, Nu X0C-0A0
Phone:	867-793-2881

Report Format / Distribution

Select Report Format: [X] PDF [ ] EXCEL [ ] EDD (DIGITAL)

Quality Control (QC) Report with Report [ ] Yes [ ] No

[ ] Criteria on Report - provide details below if box checked

Select Distribution: [ ] EMAIL [ ] MAIL [ ] FAX

Email 1 or Fax

Email 2

Select Service Level Below (Rush Turnaround Time (TAT) is not available for all tests)

- R [X] Regular (Standard TAT if received by 3pm)
- P [ ] Priority (2-4 business days if received by 3pm)
- E [ ] Emergency (1-2 business days if received by 3pm)
- E2 [ ] Same day or weekend emergency if received by 10am – contact ALS for surcharge.

Specify Date Required for E2,E or P:

Invoice To

Same as Report To [X] Yes [ ] No

Copy of Invoice with Report [X] Yes [ ] No

Company:

Contact:

Invoice Distribution

Select Invoice Distribution: [ ] EMAIL [ ] MAIL [ ] FAX

Email 1 or Fax

Email 2

Project Information

ALS Quote #:

Job #:

PO / AFE:

LSD:

Oil and Gas Required Fields (client use)

Approver ID: [redacted] Cost Center: [redacted]

GL Account: [redacted] Routing Code: [redacted]

Activity Code: [redacted]

Location: [redacted]

ALS Lab Work Order # (lab use only)

ALS Contact:

Sampler:

Analysis Request

Indicate Filtered (F), Preserved (P) or Filtered and Preserved (F/P) below

ALS Sample # (lab use only)	Sample Identification and/or Coordinates (This description will appear on the report)	Date (dd-mmm-yy)	Time (hh:mm)	Sample Type	Routine	BOD	Bacteria	Phenols (P)	Nutrients (P)	Oil and Grease	Metals (P)	Mercury (P)	PAH/EPH/F2-F4 (P)	BTEX/VOC (P)	Number of Containers
	Bak-2	June 29	10:15		X	X	X	X	X	X	X	X			
	Bak-3	June 29	10:[illegible]	Surface [illegible]	X	X	X	X	X	X	X	X			
	Bak-4	June 29	10:30	Surface wtr	X	X	X	X	X	X	X	X	X	X	
	Bak-5	June 29	11:00		X	X	X	X	X	X	X	X			

Drinking Water (DW) Samples[1] (client use)

Are samples taken from a Regulated DW System? [ ] Yes [ ] No

Are samples for human drinking water use? [ ] Yes [ ] No

Special Instructions / Specify Criteria to add on report (client Use)

13°

SAMPLE CONDITION AS RECEIVED (lab use only)

Frozen [ ] SIF Observations Yes [ ] No [ ]

Ice packs Yes [ ] No [ ] Custody seal intact Yes [ ] No [ ]

Cooling Initiated [ ]

INITIAL COOLER TEMPERATURES °C FINAL COOLER TEMPERATURES °C

SHIPMENT RELEASE (client use)	INITIAL SHIPMENT RECEPTION (lab use only)	FINAL SHIPMENT RECEPTION (lab use only)
Released by: Paul Narkyagik Date: June 29 Time: 11:30	Received by: EL Date: 6 30 15 Time: 1126	Received by: Date: Time:

REFER TO BACK PAGE FOR ALS LOCATIONS AND SAMPLING INFORMATION

WHITE - LABORATORY COPY YELLOW - CLIENT COPY

NA-FM-0326e v08 Front/03 October 2013

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.

1. If any water samples are taken from a Regulated Drinking Water (DW) System, please submit using an Authorized DW COC form.

Hamlet of Baker Lake
ATTN: PAUL NARKYAGIK
3022-4 AVENUE
PO Box 149
Baker Lake NU X0C 0A0

Date Received: 19-AUG-15
Report Date: 02-SEP-15 08:09 (MT)
Version: FINAL

Client Phone: 867-793-2881

Certificate of Analysis

Lab Work Order #: L1660161

Project P.O. #: NOT SUBMITTED
Job Reference: BAKER LAKE - NUNAVUT
C of C Numbers:
Legal Site Desc:

Hua Wo
Chemistry Laboratory Manager

ALS ENVIRONMENTAL ANALYTICAL REPORT

Sample Details/Parameters	Result	Qualifier*	D.L.	Units	Extracted	Analyzed	Batch
L1660161-1 BAK-2							
Sampled By: Paul Narkyagik on 18-AUG-15 @ 09:30							
Matrix: Wastewater							
Miscellaneous Parameters							
Total Organic Carbon	9.2		1.0	mg/L		25-AUG-15	R3253553
Nunavut WW Group 1							
Alkalinity, Bicarbonate							
Bicarbonate (HCO3)	46.8		1.2	mg/L		01-SEP-15	
Alkalinity, Carbonate							
Carbonate (CO3)	<0.60		0.60	mg/L		01-SEP-15	
Alkalinity, Hydroxide							
Hydroxide (OH)	<0.34		0.34	mg/L		01-SEP-15	
Ammonia by colour							
Ammonia, Total (as N)	0.026		0.010	mg/L		26-AUG-15	R3254918
Biochemical Oxygen Demand (BOD)							
Biochemical Oxygen Demand	<2.0		2.0	mg/L		20-AUG-15	R3254038
Carbonaceous BOD							
BOD Carbonaceous	<2.0		2.0	mg/L		20-AUG-15	R3254038
Chloride in Water by IC							
Chloride (Cl)	19.9		0.50	mg/L		20-AUG-15	R3254180
Conductivity							
Conductivity	196		1.0	umhos/cm		31-AUG-15	R3257924
Fecal Coliform							
Fecal Coliforms	4	MBHT	3	MPN/100mL		19-AUG-15	R3253286
Hardness Calculated							
Hardness (as CaCO3)	58.0		0.30	mg/L		25-AUG-15	
Mercury Total							
Mercury (Hg)-Total	<0.000020		0.000020	mg/L	25-AUG-15	25-AUG-15	R3253685
Nitrate in Water by IC							
Nitrate (as N)	0.686		0.020	mg/L		20-AUG-15	R3254180
Nitrate+Nitrite							
Nitrate and Nitrite as N	0.686		0.070	mg/L		26-AUG-15	
Nitrite in Water by IC							
Nitrite (as N)	<0.010		0.010	mg/L		20-AUG-15	R3254180
Oil and Grease, Total							
Oil and Grease, Total	<2.0		2.0	mg/L	22-AUG-15	22-AUG-15	R3252463
Phenol (4AAP)							
Phenols (4AAP)	<0.0010		0.0010	mg/L	31-AUG-15	31-AUG-15	R3256906
Phosphorus, Total							
Phosphorus (P)-Total	0.374		0.010	mg/L		28-AUG-15	R3255661
Sulfate in Water by IC							
Sulfate (SO4)	24.0		0.30	mg/L		20-AUG-15	R3254180
Total Alkalinity as CaCO3							
Alkalinity, Total (as CaCO3)	38.4		1.0	mg/L		31-AUG-15	R3257924
Total Metals by ICP-MS							
Aluminum (Al)-Total	0.0494		0.0050	mg/L	21-AUG-15	24-AUG-15	R3252731
Arsenic (As)-Total	0.00066		0.00020	mg/L	21-AUG-15	24-AUG-15	R3252731
Cadmium (Cd)-Total	<0.000010		0.000010	mg/L	21-AUG-15	24-AUG-15	R3252731
Calcium (Ca)-Total	17.5		0.10	mg/L	21-AUG-15	24-AUG-15	R3252731
Chromium (Cr)-Total	<0.0010		0.0010	mg/L	21-AUG-15	24-AUG-15	R3252731
Cobalt (Co)-Total	0.00027		0.00020	mg/L	21-AUG-15	24-AUG-15	R3252731
Copper (Cu)-Total	0.00273		0.00020	mg/L	21-AUG-15	24-AUG-15	R3252731
Iron (Fe)-Total	0.54		0.10	mg/L	21-AUG-15	24-AUG-15	R3252731
Lead (Pb)-Total	0.000113		0.000090	mg/L	21-AUG-15	24-AUG-15	R3252731
Magnesium (Mg)-Total	3.44		0.010	mg/L	21-AUG-15	24-AUG-15	R3252731
Manganese (Mn)-Total	0.0640		0.00030	mg/L	21-AUG-15	24-AUG-15	R3252731

* 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
L1660161-1 BAK-2							
Sampled By: Paul Narkyagik on 18-AUG-15 @ 09:30							
Matrix: Wastewater							
Total Metals by ICP-MS							
Nickel (Ni)-Total	<0.0020		0.0020	mg/L	21-AUG-15	24-AUG-15	R3252731
Potassium (K)-Total	3.30		0.020	mg/L	21-AUG-15	24-AUG-15	R3252731
Sodium (Na)-Total	15.2		0.030	mg/L	21-AUG-15	24-AUG-15	R3252731
Zinc (Zn)-Total	0.0029		0.0020	mg/L	21-AUG-15	24-AUG-15	R3252731
Total Suspended Solids							
Total Suspended Solids	<5.0		5.0	mg/L		24-AUG-15	R3253983
pH							
pH	7.50		0.10	pH units		31-AUG-15	R3257924

* 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
MBHT	The APHA 30 hour hold time was exceeded for microbiological testing. Samples processed within 48 hours from time of sampling may be valid in some cases (refer to Health Canada guidance).
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-CO3CO3-CALC-WP	Water	Alkalinity, Carbonate	CALCULATION
The Alkalinity of water is a measure of its acid neutralizing capacity.Alkalinity is imparted by bicarbonate, carbonate and hydroxide components of water. The fraction of alkalinity contributed by carbonate is calculated and reported as mg CO3 2-/L.			
ALK-HCO3HCO3-CALC-WP	Water	Alkalinity, Bicarbonate	CALCULATION
The Alkalinity of water is a measure of its acid neutralizing capacity.Alkalinity is imparted by bicarbonate, carbonate and hydroxide components of water. The fraction of alkalinity contributed by bicarbonate is calculated and reported as mg HCO3-/L			
ALK-OHOH-CALC-WP	Water	Alkalinity, Hydroxide	CALCULATION
The Alkalinity of water is a measure of its acid neutralizing capacity.Alkalinity is imparted by bicarbonate, carbonate and hydroxide components of water. The fraction of alkalinity contributed by hydroxide is calculated and reported as mg OH-/L.			
ALK-TITR-WP	Water	Total Alkalinity as CaCO3	APHA 2320B
The Alkalinity of water is a measure of its acid neutralizing capacity. Alkalinity is imparted by bicarbonate, carbonate and hydroxide components of water. Total alkalinity is determined by titration with a strong standard mineral acid to the successive HCO3- and H2CO3 endpoints indicated electrometrically.			
BOD-CBOD-WP	Water	Carbonaceous BOD	APHA 5210 B
Samples are diluted and seeded, have TCMP added to inhibit nitrogenous demands, and then are incubated in airtight bottles at 20°C for 5 days. Dissolved oxygen is measured initially and after incubation, and results are computed from the difference between initial and final DO.			
BOD-WP	Water	Biochemical Oxygen Demand (BOD)	APHA 5210 B
Samples are diluted and seeded and then incubated in airtight bottles at 20°C for 5 days. Dissolved oxygen is measured initially and after incubation, and results are computed from the difference between initial and final DO.			
CL-IC-N-WP	Water	Chloride in Water by IC	EPA 300.1 (mod)
Inorganic anions are analyzed by Ion Chromatography with conductivity and/or UV detection.			
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
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.			

Reference Information

Test Method References:

ALS Test Code	Matrix	Test Description	Method Reference**
NO2+NO3-CALC-WP	Water	Nitrate+Nitrite	CALCULATION
NO2-IC-N-WP	Water	Nitrite in Water by IC	EPA 300.1 (mod)
Inorganic anions are analyzed by Ion Chromatography with conductivity and/or UV detection.			
NO3-IC-N-WP	Water	Nitrate in Water by IC	EPA 300.1 (mod)
Inorganic anions are analyzed by Ion Chromatography with conductivity and/or UV detection.			
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-N-WP	Water	Sulfate in Water by IC	EPA 300.1 (mod)
Inorganic anions are analyzed by Ion Chromatography with conductivity and/or UV detection.			
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.			
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.			

** 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.

ALS Environmental
www.alsglobal.com

Chain of Custody (COC) / Analytical Request Form

Canada Toll Free: 1 800 668 9878

L1660161-COFC

COC Number: 14 - 454532

Page ___ of ___

Report To
Company: Hamlet of Baker Lake
Contact: Paul Narkyagik
Address: 3022-4 Avenue, P.O. Box 149
Baker Lake, NU X0C-0A0
Phone: 867-793-2881

Report Format / Distribution
Select Report Format: [X] PDF [ ] EXCEL [ ] EDD (DIGITAL)
Quality Control (QC) Report with Report [ ] Yes [ ] No
[ ] Criteria on Report - provide details below if box checked
Select Distribution: [ ] EMAIL [ ] MAIL [ ] FAX
Email 1 or Fax
Email 2

...ow (Rush Turnaround Time (TAT) is not available for all tests)
R [X] Regular (Standard TAT if received by 3pm)
P [ ] Priority (2-4 business days if received by 3pm)
E [ ] Emergency (1-2 business days if received by 3pm)
E2 [ ] Same day or weekend emergency if received by 10am – contact ALS for surcharge.
Specify Date Required for E2,E or P:

Invoice To
Same as Report To [X] Yes [ ] No
Copy of Invoice with Report [X] Yes [ ] No
Company:
Contact:

Invoice Distribution
Select Invoice Distribution: [ ] EMAIL [ ] MAIL [ ] FAX
Email 1 or Fax
Email 2

Project Information
ALS Quote #:
Job #:
PO / AFE:
LSD:

Oil and Gas Required Fields (client use)
Approver ID: Cost Center:
GL Account: Routing Code:
Activity Code:
Location:

ALS Lab Work Order # (lab use only)
ALS Contact:
Sampler:

Analysis Request
Indicate Filtered (F), Preserved (P) or Filtered and Preserved (F/P) below

ALS Sample # (lab use only)	Sample Identification and/or Coordinates (This description will appear on the report)	Date (dd-mmm-yy)	Time (hh:mm)	Sample Type	Routine	BOD	Bacteria	Phenols	Nutrient	Oil and Grease	Metals	Mercury	Number of Containers
							P	P		P	P	P	
	Bak-2	Aug.18/15	9:30 AM		X	X	X	X	X	X	X	X	

Drinking Water (DW) Samples[1] (client use)
Are samples taken from a Regulated DW System?
[ ] Yes [ ] No
Are samples for human drinking water use?
[ ] Yes [X] No

Special Instructions / Specify Criteria to add on report (client Use)
12

SAMPLE CONDITION AS RECEIVED (lab use only)
Frozen [ ] SIF Observations Yes [ ] No [ ]
Ice packs Yes [ ] No [ ] Custody seal intact Yes [ ] No [ ]
Cooling Initiated [ ]
INITIAL COOLER TEMPERATURES °C | FINAL COOLER TEMPERATURES °C

SHIPMENT RELEASE (client use)			INITIAL SHIPMENT RECEPTION (lab use only)			FINAL SHIPMENT RECEPTION (lab use only)		
Released by: Paul Narkyagik	Date: Aug.18/15	Time: 11:30 AM	Received by: [signature]	Date: 19-8-15	Time: 4:25	Received by:	Date:	Time:

REFER TO BACK PAGE FOR ALS LOCATIONS AND SAMPLING INFORMATION WHITE - LABORATORY COPY YELLOW - CLIENT COPY

NA-FM-0326e v08 Front/03 October 2013

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.

1. If any water samples are taken from a Regulated Drinking Water (DW) System, please submit using an Authorized DW COC form.

Field Log

Name of Sampler(s): Paul Narkyagik

Date of Sampling: Aug. 18, 2015

Time of Sampling: 9:35 AM

Monitoring Station Number: BaK-2

GPS Coordinates: N ____°____'____" W ____°____'____"

Weather Conditions: Windy & Cloudy

Samples:

- [X] 500 mL BOD
- [X] 1 L Routine
- [X] 250 mL Metals + Pres
- [X] 40 mL Glass Mercury Vial + Pres
- [X] 250 mL Amber Nutrients + Pres
- [X] 250 mL Amber Phenols + Pres
- [X] 125 mL Sterile Bacteria Bottle
- [X] **2 x** 500 mL Glass Oil & Grease + Pres
- [ ] 1 L Amber PAH + Pres
- [ ] **3 x** 40 mL BTEX, F1 Vials + Pres
- [ ] **2 x** 60 mL Amber F2-F4 Vials + Pres

Other:

- [ ] _____
- [ ] _____
- [ ] _____

Other Notes: (any unusual conditions, any deviation from standard procedures, etc.)

Aboriginal Affairs and Northern Development Canada | Affaires autochtones et Développement du Nord Canada

WATER LICENCE INSPECTION FORM

☐ Original
☐ Follow-Up Report

Licensee	Licensee Representative
Hamlet of Baker Lake	Dennis Zettler
Licence No. / Expiry	**Representative's Title**
3BM-BAK1526	Senior Administrative Officer
Land / Other Authorizations	**Land / Other Authorizations**
Date of Inspection	**Inspector**
31/08/2015	Atuat Shouldice

Activities Inspected

☐ Camp ☐ Drilling ☐ Mining ☐ Construction ☐ Reclamation ☒ Fuel Storage
☐ Roads/Hauling ☒ Other: Water Discharge ☒ Other:Water use

Conditions: A - Acceptable C - Concern U - Unacceptable NA – Not Applicable NI – Not Inspected

Water Use	Condition	Comment	Site Conditions	Condition	Comment	Haz/Mat Management	Condition	Comment
Intake/Screen	A		Water Management Structures	A		Storage	A	
Flow Measure. Device	A		Culverts / Bridges	A		Spills	A	
Source:	A		Drainage	A		Spill Plan	A	
Water Use:	A		Erosion / Sediment	A				
Recirculation (y /n)	Y		Mitigation Measures	A		**Administrative**		
			Reclamation Activities	A		Records	A	
			Materials Storage	A		Reports	A	
Waste Disposal			Signage	A		Plans	A	
Waste Water/Sewage	C	1				Notifications	A	
Solid Waste	A		**Monitoring**			**Other**		
Hazardous Waste	A		Sample Collection / Analysis	NI				

**The number in the comments field will correspond with specific comments provided below.*

Samples taken by Inspector:	Location(s): Community of Baker Lake
☐ Yes ☒ No	

SECTION 1 ☐ Comments (s.__) ☐ Non-Compliance with Act or Licence (s.__) ☐ Action Required (s.__)

A compliance inspection was conducted on August 31st 2015 of Hamlet of Baker Lake water licence 3BM-BAK1526

SECTION 2 ☒ Comments (s.__) ☐ Non-Compliance with Act or Licence (s.__) ☐ Action Required (s.__)

Waste Water/Sewage: 1

During time of writing report and the inspection on August 31st, Repairs were made to both retention berms. No concerns were noted.

Inspector requested all waste oil drums at the landfill be palletized and capped in order to stop the spreading of contaminates. Process was started and will be completed before the next municipal inspection of 2016.

Batteries were being collected at the landfill in wooden boxes, During municipal inspection batteries were not present, and Hamlet Forman suspected that AEM more than likely took them from the landfill to back haul with their barge. Inspector is waiting on confirmation from AEM. No concerns noted.

Repair to the water intake have been extending to the summer of 2016, The water intake pipe began to float the fall of 2014 and repair began the summer of 2015.

SECTION 3 ☐ Comments (s.__) ☐ Non-Compliance with Act or Licence, (s.__) ☒ Action Required (s.__)

The Hamlet of Baker Lake has started following the yearly goals of the water licence working compliance group in relation to the use of water and deposit of waste.

Licensee or Representative	Inspector's Name
	Atuat Shouldice
Signature	**Signature**
Date	**Date**
	03/03/16

Office Use Only: Follow-up report to be issued by Inspector ☐ Yes ☐ No

Canada

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): 2015

Spill No.	Date	Ter	Region	Location	Site Description	Commodity	Quantity	Source	Agency
2015058	2015-02-18	NU	KEE	Baker Lake	Meadowbank Mine Site	Used Oil	180 L	ST<	INAC
2015159	2015-04-10	NU	KEE	Baker Lake	Baker Lake, NU	Fuel	100 L	ST<	GN
2015215	2015-05-22	NU	KEE	Baker Lake	AEM Diesel Refuelling Station in Baker Lake	Diesel Fuel	250 L	TRU	GN
2015217	2015-05-22	NU	KEE	Baker Lake	Unit #258	Heating Oil #2	1090 L	ST<	GN
2015424	2015-10-08	NU	KEE	Baker Lake	Baker Lake NU unit 1149	Fuel Oil	800 L	ST<	GN

Total Spills on this Report: 5

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