January 29, 2013

Nunavut Water Board

PO Box 119

Gjoa Haven, Nunavut

X0B 1J0

Attention: Phyllis Beaulieu, Manager of Licensing

RE: "Annual Report 2012"- Hamlet of Cambridge Bay, NU (Licence No.3BM-CAM0914)

Dear Ms. Beaulieu,

The Hamlet of Cambridge Bay is pleased to submit to Nunavut Water Board the attached file of "Annual Report" of water uses and sewage solid waste disposal as required and directed under the compliance of use in Water Licence No. 3BM-CAM-0914 as stated above. Copies of required tests reports are attached herewith the report as requested for your review and requirements.

With the help of Government of Nunavut though Community and Government Services, we have undertaken a comprehensive waste management monitoring program which has led to improvement of sewage and solid waste site facilities, wetland and effluent discharge. Our annual monitoring program for water, sewage and solid waste has been in effect since summer 2012. Sample test result has shown excellent control on contamination parameters within allowable limits comprising BOD, TSS, E-coli and Toxicity components. We summarized those conditions and requirements outlined in Part B through part H as below:

Part B: General conditions

Items 1-3: Tabular Form of annual water consumption and sewage disposal are duly filled-up

Note that quantities were measured on daily basis of water distribution and sewage disposal.

Items 4-13: Monitoring stations were marked at site using GPS locator and location signage were placed, any missing signage will be carried out by the hamlet.

No device Meter was used for volume measurement, however, truck-fill measurement was precise in taking the volume of water, sewage and solid waste.

No Spill or emergency occurrences happened and reported during this period.

Plan of modification and improvement of solid waste site was already acknowledged to the Board

Part C: Water Use:

All water obtained from the Water Lake as the only approved source and annual quantity (less than 75 cubic metres) limited within the allowable annual limit of 88,000 cubic metres.

Part D: Waste Disposal

All sewage and solid waste disposal carried into the prescribed locations of sewage Lagoon and waste site facilities using hamlet operated trucks and operators. Sewage and effluent samples were taken during the summer and fall, tested in accredited laboratories and noted all parameters of contaminants within allowable limits-mostly within minimum values (attached tests reports).

Part E-G: Modification, construction, operation, abandonment and restoration

Not many modifications to water or sewage facilities carried out, but some upgrading and improvement construction of solid waste site happened during this year and before the year. Information of such improvement has already acknowledged to the Board and approved with regulatory requirements. However, any outstanding documents and drawings can be updated with the Board once identified and requested.

Part H: Monitoring Program

Annual monitoring of sewage and solid waste effluent has been carried during the summer and fall. Test reports of such samples as well as Chlorine Logs and Bacterial Test are included with the Annual Report for your review information.

We hope that Nunavut Water Board will find our supporting documents valuable to Annual Report in operating the Water Licence for water, sewage and solid waste facility.

Sincerely,

Jan 29, 2013

Shah Alam, P. Eng.

Municipal Planning Engineer

Community & Government Services

Bag 200

Cambridge Bay, NU X0B 0C0

☎ 867-983-4156

Email: salam@gov.nu.ca

(On behalf of Senior Administrative Officer),

Hamlet of Cambridge Bay, Nunavut

MUNICIPALITY OF CAMBRIDGE BAY

January 29, 2013

Shah Alam
Municipal Planning Engineer
Community and Government Services
Government of Nunavut
Bag 200
Cambridge Bay, Nunavut X0B 0C0

Re: Authorization to Act on Behalf of the Hamlet

Dear Shah:

I hereby authorize you to act on behalf of the Municipality of Cambridge Bay in regards to our Water Licence and our annual report to the Nunavut Water Board.

Regards,

Stephen King
Senior Administrative Officer

ANNUAL REPORT

YEAR BEING REPORTED: 2012

The following information is compiled pursuant to the requirements of **Part B**, Item 1 of Water Licence **3BM-CAM0914** issued to the **Hamlet of Cambridge Bay**
.

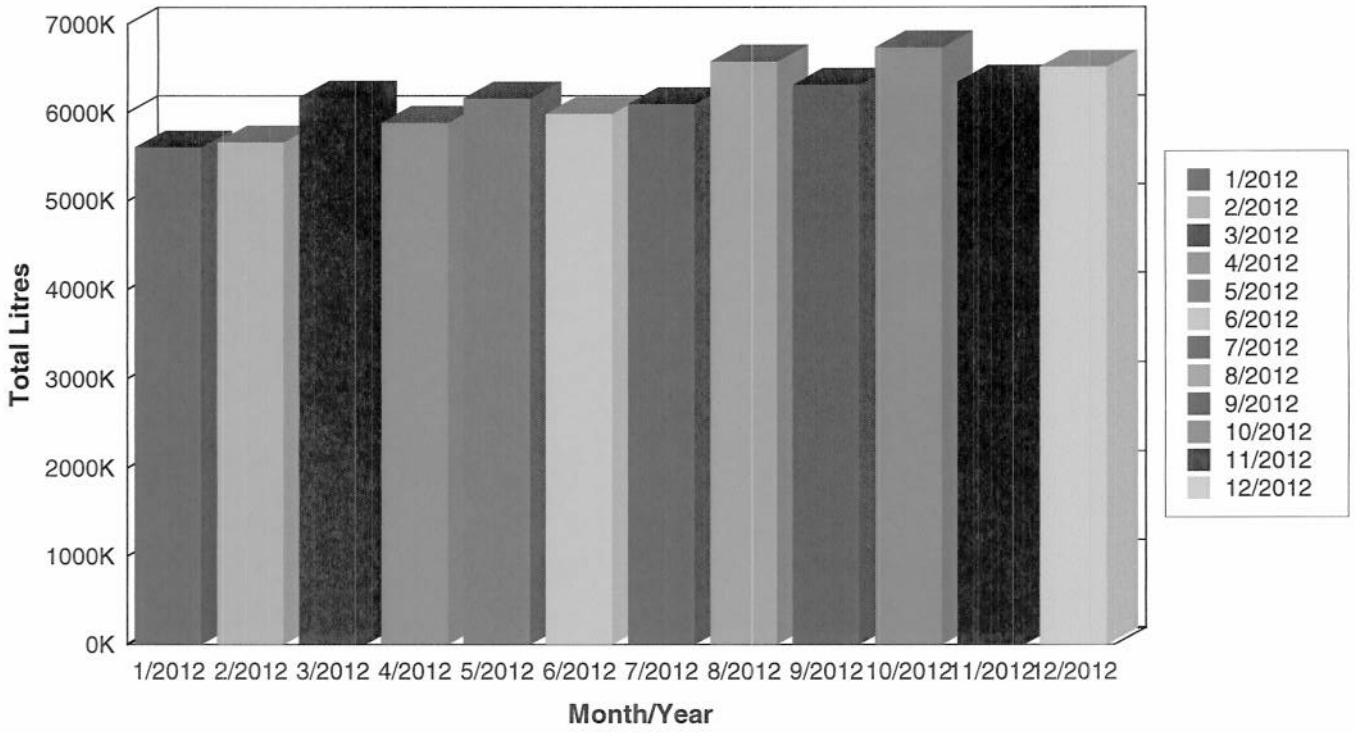
i) - iii) tabular summaries of all data generated under the "Monitoring Program"; monthly and annual quantities in cubic metres of freshwater obtained from all sources; monthly and annual quantities in cubic metres of each and all wastes discharged;

Attached are quantities of water used as reported by Fluid Manager and quantities of sewage waste based on discharged on daily basis.

Month Reported	Quantity of Water Obtained from all sources (litres)	Quantity of Sewage Waste Discharged
January	5,603,693.90	Same
February	5,661,567.42	Same
March	6,169,685.93	Same
April	5,885,133.93	Same
May	6,158,707.51	Same
June	5,987,350.48	Same
July	6,095,818.39	Same
August	6,575,921.65	Same
September	6,313,484.22	Same
October	6,735,272.33	Same
November	6,346,392.67	Same
December	6,514.081.03	Same
ANNUAL TOTAL	74,047,109.46	Same

Delivery Summary By Month and Year

Date Range From:Jan-01-2012 To: Dec-31-2012



Month / Year	Litres Delivered
January 2012	5,603,693.90
February 2012	5,661,567.42
March 2012	6,169,685.93
April 2012	5,885,133.93
May 2012	6,158,707.51
June 2012	5,987,350.48
July 2012	6,095,818.39
August 2012	6,575,921.65
September 2012	6,313,484.22
October 2012	6,735,272.33
November 2012	6,346,392.67
December 2012	6,514,081.03
Grand Total:	**74,047,109.46**

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:

Water Supply:

- Construction contact for new water intake system has been awarded including new prefabricated pumphouse, heat traced intake line, new generator plus 3-phase power line and truck-fill. Pipe materials already barged and mobilized to site. Actual construction will be taken place during early summer 2013.
- New water treatment system and in town delivery line with storage facility in design progress and reviewing by TSD. Tender out for treatment plant and delivery line expected March 2013.
- Alternate water source under survey and study by the consultant.

Sewage lagoon:

- Increased dyke height sufficient maintaining more than 1.0m Freeboard for the retention cell and repaired underground flow leakage near the dyke.
- Lagoon outfall completed with SMP.
- Protection berm constructed between pump discharge pond-3 and wetland outfall for temporary storage and control discharge for BOD facility before ending into ocean.
- Annual decanting has been carried with pumping out of sewage from retention pond into discharge pond-3 through decant dispersion structure – an assembly integration of HDPE solid pipe connected to close end HDPE perforated pipe riprap all around with gravels.
- Screen for sewage pump intake has been replaced and cleaned debris from intake area

Waste Disposal Facility:

- Repaired the berm between the solid waste site and sewage lagoon with liner and gravel.
- Completed fence along the perimeter of the waste site with sufficient height, 6-8 ft.
- Diverted waste streams and access to the facility, controlled access with fencing, segregated wooden pieces and paper boards/pieces and cleared off dump area, graded remaining wastes towards lower areas and covered with covering materials.
- Cleaned debris off from fence, shallow trench along the perimeter inside the fence for waste leachate flow towards retention sump area.
- Increases the size of the primary cell and cleared floating debris from the lagoon system.
- Scrap metals broken to smaller pieces and buried in trenches with sufficient cover materials in accordance with design and drawing.
- New trenches under construction for new metal scraps in coming future.

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

- No unauthorized discharges during the period of the year.

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

- Run-off detention sump inside solid waste area near the retention sewage lagoon has been removed and filled the area with waste materials. Supplementary berm was constructed close near the existing run-off sump to stop leakage from solid waste and sewage lagoon.
- Construction of new control ponds (5 sq. m) for solid waste leachate run-off retention and collection-in two different locations within the area as identified in the drawing. GPS locator for will be updated for these control ponds.
- New cells were also constructed for hazardous waste, honey bag carcass, burn pit and equipment storage outside the solid waste area beside the access road to sewage lagoon.
- One new cell for sewage sludge drying constructed near and outside the new proposed sewage discharge flume.
- All these works were completed and handed over to hamlet for monitoring and operation. All facilities are ready and in operation.

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;

- None been required or requested.
- Annual Monitoring of Sewage Waste and sampling results attached

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

- None

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

- Preparation for new and updated Operation and Maintenance manuals for sewage and solid waste in progress and will be available at Hamlet office and at site.
- Existing old version of O & M manual also available for reference.

ADDITIONAL INFORMATION THAT THE LICENSEE DEEMS USEFUL:

- Hazardous waste were cleared off site and new containment ready for storage
- All the waste cans were shipped out of waste site
- Existing metal dumps were crushed into smaller pieces and buried inside crushed & buried cell with compacted base, covered with low permeable graded-sand materials and 2% slopped down from centre crest with no stagnant of water within the area covering the cell.
- New cells were built with 60 mils HDPE liner at the bottom and sand bedding on liner, berm all around with compacted sand-gravel and slopped 1:2 as per design for the storage of new hazardous materials. Battery and waste oil will be stored inside individual containment within the lined cell.
- Shallow sump trench were built close near to the berm between sewage lagoon and metal dump area for leachate collection and sampling.

FOLLOW-UP REGARDING INSPECTION/COMPLIANCE CONCERNS:

- N/A

Hamlet of Cambridge Bay Chlorine Logs - 2012

Date , 2012	Received		Avg. Free	Date , 2012	Received		Avg. Free
Ending	Yes	No	Chlorine	Ending	Yes	No	Chlorine
Jan 2-8	✓		0.33	July 2-8	✓		0.25
Jan 9-15	✓		0.25	July 9-15	✓		0.41
Jan 16-22	✓		0.21	July 16-22	✓		0.42
Jan 23-29	✓		0.71	July 23-29	✓		0.34
Jan 30-Feb 5		X		July 30-Aug 5		X	
Feb 6-12		X		Aug 6-12	✓		0.42
Feb 13-19		X		Aug 13-19	✓		0.48
Feb 20-26		X		Aug 20-26	✓		0.44
Feb 27-Mar 4		X		Aug 27-Sept 2	✓		0.45
Mar 5-11		X		Sept 3-9	✓		0.43
Mar 12-18		X		Sept 10-16	✓		0.45
Mar 19-25		X		Sept 17-23	✓		0.45
Mar 26-Apr 1		X		Sept 24-30		X	
Apr 2-8		X		Oct 1-7		X	
Apr 9-15		X		Oct 8-14	✓		0.53
Apr 16-22	✓		0.08	Oct 15-21	✓		0.44
Apr 23-29	✓		0.12	Oct 22-28	✓		0.40
Apr 30-May 6	✓		0.19	Oct 29-Nov 4	✓		0.43
May 7-13	✓		0.16	Nov 5-11	✓		0.38
May 14-20	✓		0.14	Nov 12-18	✓		0.37
May 21-27	✓		0.27	Nov 19-25	✓		0.78
May 28-June 3	✓		0.38	Nov 26-Dec 2	✓		0.68
June 4-10	✓		0.24	Dec 3-9	✓		0.44
June 11-17	✓		0.24	Dec 10-16			
June 18-24	✓		0.22	Dec 17-23			
June 25-July 1	✓		0.18	Dec 24-30			

Note: Allowable Free Cl_2 in water: 0.2-0.5 mg/L

Part H: Monitoring program.

Item No.1: Four monitoring stations: - (i) CAM-1 (Raw Water at Water lake)

(ii) CAM-2 (Effluent from Solid waste site (iii) CAM-3: (Raw Sewage at Lagoon)

(iv) CAM-4: (Effluent from sump inmodified solid discharge), (v) CAM-5: (Effluent from Retention Sewage Lagoon onto wetland) and (vi) CAM-6: (effluent outfall for wetland)

items 4-8: samples at monitoring stations:

samples collected on July 12 and Sep 21, 2012 and tested results

Wastewater/Sewage parameters

	MAC	units	July 12,2012		Sep 21,2012		
Parameter	Limits		CAM-5	CAM-6	CAM-5	CAM-6	CAM-3
Alkalinity, as CaCo3		mg/L	219	216	256	241	261
Conductivity		µS/cm	760	746	947	1220	880
P^H	6-9		0.05	8.84	9.32	9.34	9.31
TSS	120	mg/L	114	78	54	72	48
Ammonia as N2	80	mg/L	7.44	4.54	0.07	0.06	0.07
BOD	100	mg/L	52	34	26	43	22
Organic Carbon		mg/L	69.7	66.3	55.5	61	47
Nitrate as N2		mg/L	0.04	0.03	0.21	0.27	0.02
Calcium		mg/L	42.7	42.8	51.3	51.2	51.3
Chloride		mg/L	94.2	90.2	138	212	120
Hardness		mg/L	224	230	286	330	284
Magnesium		mg/L	28.6	30	38.3	49.1	37.8
Nitrite as N2		mg/L	0.14	0.17	<0.01	<0.01	<0.01
Potasium		mg/L	14.6	13.7	17.8	19.2	17.7
Sodium		mg/L	66.3	64.5	92.8	134	83.2
Sulphate		mg/L	38	34	43	81	33
Fecal Coliform	10000	CFU/100mL	490	150	3900	1000	5800
Oil and Gas	5000	µg/L	non-vis	non-vis	non-vis	non-vis	non-vis
Aluminium		µg/L	115	38	75	99	45
Arsenic	100	µg/L	2.2	2.4	2.3	3.1	2.0
Cadmium	10	µg/L	<0.1	<0.1	<0.1	<0.1	<0.1
Chromium	100	µg/L	0.5	0.3	0.8	0.5	0.4
Cobalt	50	µg/L	0.7	0.7	0.6	0.8	0.5
Copper	200	µg/L	22.6	16.8	8.1	6.7	8.0
Iron		µg/L	1020	735	682	793	579
Lead	50	µg/L	1	0.4	1	1.2	0.7
Manganese		µg/L	115	78	52.3	58.3	47.6
Nickel	200	µg/L	3.1	3	3.5	4.2	2.9
Zinc	500	µg/L	18	14	9	8	8
Mercury	0.6	µg/L	<0.01	<0.01	<0.01	<0.01	<0.01

Note: Solid waste site modification construction was in progress and as stations CAM-2 and CAM-4 No run-off from solid waste site for sampling (CAM-2) and sump in Modified Solid CAM-4

Taiga Environmental Laboratory
4601-52nd Ave., Box 1500, Yellowknife, NT. X1A 2R3
Tel: (867)-669-2788 Fax: (867)-669-2718

Taiga Batch No.: 120499

- FINAL REPORT -

Prepared For: Hamlet of Cambridge Bay
Municipal Works

Address: P.O. Box 16
Cambridge Bay, NU
X0B 0C0

Attn: **Wayne Weese** **Facsimile: (867) 983-2186**

Final report has been reviewed and approved by:

Helene Harper
Manager

NOTES:

- Test methods and data are validated by the laboratory's Quality Assurance Program. Taiga Environmental Laboratory is accredited by the Canadian Association for Laboratory Accreditation Inc. (CALA) as a testing laboratory for specific tests registered with CALA.
- Routine methods are based on recognized procedures from sources such as
  - Standard Methods for the Examination of Water and Wastewater APHA AWWA WEF;
  - Environment Canada
  - USEPA
- Samples shall be kept for thirty (30) days after the final report is issued. All microbiological samples shall be disposed of immediately upon completion of analysis to minimize biohazardous risks to laboratory personnel. Please contact the laboratory if you have any special requirements.
- Final results are based on the specific tests at the time of analysis and do not represent the conditions during sampling.

ReportDate: Thursday, July 26, 2012
Print Date: Thursday, July 26, 2012

Taiga Environmental Laboratory
4601-52nd Ave., Box 1500, Yellowknife, NT. X1A 2R3
Tel: (867)-669-2788 Fax: (867)-669-2718

Taiga Batch No.: 120499

- CERTIFICATE OF ANALYSIS -

Client Sample ID: CAM-5 **Taiga Sample ID:** 001

Client Project:
Sample Type: Sewage
Received Date: 13-Jul-12
Sampling Date: 12-Jul-12
Sampling Time: 10:00
Location: Cambridge Bay
Report Status: **Final**

Test Parameter	Result	Detection Limit	Units	Analysis Date	Analytical Method *	Qualifer
Inorganics - Physicals						
Alkalinity, Total (as CaCO3)	219	0.4	mg/L	13-Jul-12	SM2320:B	
Conductivity, Specific (@ 25°C)	760	0.4	µS/cm	13-Jul-12	SM2510:B	
pH	9.05		pH units	13-Jul-12	SM4500-H:B	
Solids, Total Suspended	114	3	mg/L	13-Jul-12	SM2540:D	
Inorganics - Nutrients						
Ammonia as Nitrogen	7.44	0.01	mg/L	20-Jul-12	SM4500-NH3:	
Biochemical Oxygen Demand	52	2	mg/L	13-Jul-12	SM5210:B	
Organic Carbon, Total	69.7	0.5	mg/L	14-Jul-12	SM5310:B	
Major Ions						
Calcium	42.7	0.1	mg/L	14-Jul-12	SM4110:B	
Chloride	94.2	0.7	mg/L	14-Jul-12	SM4110:B	
Hardness	224	0.7	mg/L	14-Jul-12	SM2340:B	
Magnesium	28.6	0.1	mg/L	14-Jul-12	SM4110:B	
Nitrate as Nitrogen	0.04	0.01	mg/L	14-Jul-12	SM4110:B	

ReportDate: Thursday, July 26, 2012
Print Date: Thursday, July 26, 2012

Taiga Environmental Laboratory
4601-52nd Ave., Box 1500, Yellowknife, NT. X1A 2R3
Tel: (867)-669-2788 Fax: (867)-669-2718

Taiga Batch No.: 120499

- CERTIFICATE OF ANALYSIS -

Client Sample ID: CAM-5 **Taiga Sample ID:** 001

Nitrite as Nitrogen	0.14	0.01	mg/L	14-Jul-12	SM4110:B
Potassium	14.6	0.1	mg/L	14-Jul-12	SM4110:B
Sodium	66.3	0.1	mg/L	14-Jul-12	SM4110:B
Sulphate	38	1	mg/L	14-Jul-12	SM4110:B
Microbiology					
Coliforms, Fecal	490	10	CFU/100mL	13-Jul-12	SM9222:D
Organics					
Oil and Grease, visible	Non-visible			23-Jul-12	Visual Exam
Trace Metals, Total					
Aluminum	115	5	µg/L	21-Jul-12	EPA200.8
Arsenic	2.2	0.2	µg/L	21-Jul-12	EPA200.8
Cadmium	< 0.1	0.1	µg/L	21-Jul-12	EPA200.8
Chromium	0.5	0.1	µg/L	21-Jul-12	EPA200.8
Cobalt	0.7	0.1	µg/L	21-Jul-12	EPA200.8
Copper	22.6	0.2	µg/L	21-Jul-12	EPA200.8
Iron	1020	5	µg/L	21-Jul-12	EPA200.8
Lead	1.0	0.1	µg/L	21-Jul-12	EPA200.8
Manganese	115	0.1	µg/L	21-Jul-12	EPA200.8
Mercury	< 0.01	0.01	µg/L	21-Jul-12	EPA200.8
Nickel	3.1	0.1	µg/L	21-Jul-12	EPA200.8
Zinc	18	5	µg/L	21-Jul-12	EPA200.8

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Print Date: Thursday, July 26, 2012

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4601-52nd Ave., Box 1500, Yellowknife, NT. X1A 2R3
Tel: (867)-669-2788 Fax: (867)-669-2718

Taiga Batch No.: 120499

- CERTIFICATE OF ANALYSIS -

Client Sample ID: CAM-6 **Taiga Sample ID:** 002

Client Project:
Sample Type: Sewage
Received Date: 13-Jul-12
Sampling Date: 12-Jul-12
Sampling Time: 10:00
Location: Cambridge Bay
Report Status: **Final**

Test Parameter	Result	Detection Limit	Units	Analysis Date	Analytical Method *	Qualifer
Inorganics - Physicals						
Alkalinity, Total (as CaCO3)	216	0.4	mg/L	13-Jul-12	SM2320:B	
Conductivity, Specific (@ 25°C)	746	0.4	µS/cm	13-Jul-12	SM2510:B	
pH	8.84		pH units	13-Jul-12	SM4500-H:B	
Solids, Total Suspended	78	3	mg/L	13-Jul-12	SM2540:D	
Inorganics - Nutrients						
Ammonia as Nitrogen	4.54	0.01	mg/L	20-Jul-12	SM4500-NH3:	
Biochemical Oxygen Demand	34	2	mg/L	13-Jul-12	SM5210:B	
Organic Carbon, Total	66.3	0.5	mg/L	14-Jul-12	SM5310:B	
Major Ions						
Calcium	42.8	0.1	mg/L	14-Jul-12	SM4110:B	
Chloride	90.2	0.7	mg/L	14-Jul-12	SM4110:B	
Hardness	230	0.7	mg/L	14-Jul-12	SM2340:B	
Magnesium	30.0	0.1	mg/L	14-Jul-12	SM4110:B	
Nitrate as Nitrogen	0.03	0.01	mg/L	14-Jul-12	SM4110:B	
Nitrite as Nitrogen	0.17	0.01	mg/L	14-Jul-12	SM4110:B	

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4601-52nd Ave., Box 1500, Yellowknife, NT. X1A 2R3
Tel: (867)-669-2788 Fax: (867)-669-2718

Taiga Batch No.: 120499

- CERTIFICATE OF ANALYSIS -

Client Sample ID: CAM-6 **Taiga Sample ID:** 002

Potassium	13.7	0.1	mg/L	14-Jul-12	SM4110:B
Sodium	64.5	0.1	mg/L	14-Jul-12	SM4110:B
Sulphate	34	1	mg/L	14-Jul-12	SM4110:B
Microbiology					
Coliforms, Fecal	150	10	CFU/100mL	13-Jul-12	SM9222:D
Organics					
Oil and Grease, visible	Non-visible			23-Jul-12	Visual Exam
Trace Metals, Total					
Aluminum	38	5	µg/L	21-Jul-12	EPA200.8
Arsenic	2.4	0.2	µg/L	21-Jul-12	EPA200.8
Cadmium	< 0.1	0.1	µg/L	21-Jul-12	EPA200.8
Chromium	0.3	0.1	µg/L	21-Jul-12	EPA200.8
Cobalt	0.7	0.1	µg/L	21-Jul-12	EPA200.8
Copper	16.8	0.2	µg/L	21-Jul-12	EPA200.8
Iron	735	5	µg/L	21-Jul-12	EPA200.8
Lead	0.4	0.1	µg/L	21-Jul-12	EPA200.8
Manganese	78.0	0.1	µg/L	21-Jul-12	EPA200.8
Mercury	< 0.01	0.01	µg/L	21-Jul-12	EPA200.8
Nickel	3.0	0.1	µg/L	21-Jul-12	EPA200.8
Zinc	14	5	µg/L	21-Jul-12	EPA200.8

ReportDate: Thursday, July 26, 2012
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Taiga Environmental Laboratory
4601-52nd Ave., Box 1500, Yellowknife, NT. X1A 2R3
Tel: (867)-669-2788 Fax: (867)-669-2718

Taiga Batch No.: 120499

- CERTIFICATE OF ANALYSIS -

Client Sample ID: CAM-6 **Taiga Sample ID:** 002

*** Taiga analytical methods are based on the following standard analytical methods**

SM - Standard Methods for the Examination of Water and Wastewater

EPA - United States Environmental Protection Agency

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Taiga Environmental Laboratory
4601-52nd Ave., Box 1500, Yellowknife, NT. X1A 2R3
Tel: (867)-669-2788 Fax: (867)-669-2718

Taiga Batch No.: 120878

- FINAL REPORT -

Prepared For: Hamlet of Cambridge Bay
Municipal Works

Address: P.O. Box 16
Cambridge Bay, NU
X0B 0C0

Attn: **Wayne Weese** **Facsimile: (867) 983-2186**

Final report has been reviewed and approved by:

Helene Harper

Helene Harper
Manager

NOTES:

- Test methods and data are validated by the laboratory's Quality Assurance Program. Taiga Environmental Laboratory is accredited by the Canadian Association for Laboratory Accreditation Inc. (CALA) as a testing laboratory for specific tests registered with CALA.
- Routine methods are based on recognized procedures from sources such as
  - Standard Methods for the Examination of Water and Wastewater APHA AWWA WEF;
  - Environment Canada
  - USEPA
- Samples shall be kept for thirty (30) days after the final report is issued. All microbiological samples shall be disposed of immediately upon completion of analysis to minimize biohazardous risks to laboratory personnel. Please contact the laboratory if you have any special requirements.
- Final results are based on the specific tests at the time of analysis and do not represent the conditions during sampling.

ReportDate: Friday, October 12, 2012
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4601-52nd Ave., Box 1500, Yellowknife, NT. X1A 2R3
Tel: (867)-669-2788 Fax: (867)-669-2718

Taiga Batch No.: 120878

- CERTIFICATE OF ANALYSIS -

Client Sample ID: CAM-5 **Taiga Sample ID:** 001

Client Project: 3BM-CAM0914
Sample Type: Sewage
Received Date: 21-Sep-12
Sampling Date: 21-Sep-12
Sampling Time: 10:15
Location: Cambridge Bay
Report Status: **Final**

Test Parameter	Result	Detection Limit	Units	Analysis Date	Analytical Method *	Qualifer
Inorganics - Physicals						
Alkalinity, Total (as CaCO3)	256	0.4	mg/L	24-Sep-12	SM2320:B	
Conductivity, Specific (@ 25°C)	947	0.4	µS/cm	24-Sep-12	SM2510:B	
pH	9.32		pH units	24-Sep-12	SM4500-H:B	
Solids, Total Suspended	54	3	mg/L	26-Sep-12	SM2540:D	
Inorganics - Nutrients						
Ammonia as Nitrogen	0.07	0.01	mg/L	01-Oct-12	SM4500-NH3:	
Biochemical Oxygen Demand	26	2	mg/L	21-Sep-12	SM5210:B	
Organic Carbon, Total	55.5	0.5	mg/L	01-Oct-12	SM5310:B	
Major Ions						
Calcium	51.3	0.1	mg/L	23-Sep-12	SM4110:B	
Chloride	138	0.7	mg/L	23-Sep-12	SM4110:B	
Hardness	286	0.7	mg/L	23-Sep-12	SM2340:B	
Magnesium	38.3	0.1	mg/L	23-Sep-12	SM4110:B	
Nitrate as Nitrogen	0.21	0.01	mg/L	23-Sep-12	SM4110:B	

ReportDate: Friday, October 12, 2012
Print Date: Friday, October 12, 2012

Taiga Environmental Laboratory
4601-52nd Ave., Box 1500, Yellowknife, NT. X1A 2R3
Tel: (867)-669-2788 Fax: (867)-669-2718

Taiga Batch No.: 120878

- CERTIFICATE OF ANALYSIS -

Client Sample ID: CAM-5 **Taiga Sample ID:** 001

Nitrite as Nitrogen	< 0.01	0.01	mg/L	23-Sep-12	SM4110:B
Potassium	17.8	0.1	mg/L	23-Sep-12	SM4110:B
Sodium	92.8	0.1	mg/L	23-Sep-12	SM4110:B
Sulphate	43	1	mg/L	23-Sep-12	SM4110:B
Microbiology					
Coliforms, Fecal	3900	100	CFU/100mL	21-Sep-12	SM9222:D
Organics					
Oil and Grease, visible	Non-visible			12-Oct-12	Visual Exam
Trace Metals, Total					
Aluminum	75	5	µg/L	02-Oct-12	EPA200.8
Arsenic	2.3	0.2	µg/L	02-Oct-12	EPA200.8
Cadmium	< 0.1	0.1	µg/L	02-Oct-12	EPA200.8
Chromium	0.8	0.1	µg/L	02-Oct-12	EPA200.8
Cobalt	0.6	0.1	µg/L	02-Oct-12	EPA200.8
Copper	8.1	0.2	µg/L	02-Oct-12	EPA200.8
Iron	682	5	µg/L	02-Oct-12	EPA200.8
Lead	1.0	0.1	µg/L	02-Oct-12	EPA200.8
Manganese	52.3	0.1	µg/L	02-Oct-12	EPA200.8
Mercury	< 0.01	0.01	µg/L	02-Oct-12	EPA200.8
Nickel	3.5	0.1	µg/L	02-Oct-12	EPA200.8
Zinc	9	5	µg/L	02-Oct-12	EPA200.8

ReportDate: Friday, October 12, 2012
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Tel: (867)-669-2788 Fax: (867)-669-2718

Taiga Batch No.: 120878

- CERTIFICATE OF ANALYSIS -

Client Sample ID: CAM-6 **Taiga Sample ID:** 002

Client Project: 3BM-CAM0914
Sample Type: Sewage
Received Date: 21-Sep-12
Sampling Date: 21-Sep-12
Sampling Time: 10:15
Location: Cambridge Bay
Report Status: **Final**

Test Parameter	Result	Detection Limit	Units	Analysis Date	Analytical Method *	Qualifer
Inorganics - Physicals						
Alkalinity, Total (as CaCO3)	241	0.4	mg/L	24-Sep-12	SM2320:B	
Conductivity, Specific (@ 25°C)	1220	0.4	µS/cm	24-Sep-12	SM2510:B	
pH	9.34		pH units	24-Sep-12	SM4500-H:B	
Solids, Total Suspended	72	3	mg/L	26-Sep-12	SM2540:D	
Inorganics - Nutrients						
Ammonia as Nitrogen	0.06	0.01	mg/L	01-Oct-12	SM4500-NH3:	
Biochemical Oxygen Demand	43	2	mg/L	21-Sep-12	SM5210:B	
Organic Carbon, Total	61.0	0.5	mg/L	01-Oct-12	SM5310:B	
Major Ions						
Calcium	51.2	0.1	mg/L	23-Sep-12	SM4110:B	
Chloride	212	0.7	mg/L	23-Sep-12	SM4110:B	
Hardness	330	0.7	mg/L	23-Sep-12	SM2340:B	
Magnesium	49.1	0.1	mg/L	23-Sep-12	SM4110:B	
Nitrate as Nitrogen	0.27	0.01	mg/L	23-Sep-12	SM4110:B	
Nitrite as Nitrogen	< 0.01	0.01	mg/L	23-Sep-12	SM4110:B	

ReportDate: Friday, October 12, 2012
Print Date: Friday, October 12, 2012

Taiga Environmental Laboratory
4601-52nd Ave., Box 1500, Yellowknife, NT. X1A 2R3
Tel: (867)-669-2788 Fax: (867)-669-2718

Taiga Batch No.: 120878

- CERTIFICATE OF ANALYSIS -

Client Sample ID: CAM-6 **Taiga Sample ID:** 002

Potassium	19.2	0.1	mg/L	23-Sep-12	SM4110:B
Sodium	134	0.1	mg/L	23-Sep-12	SM4110:B
Sulphate	81	1	mg/L	23-Sep-12	SM4110:B
Microbiology					
Coliforms, Fecal	1000	100	CFU/100mL	21-Sep-12	SM9222:D
Organics					
Oil and Grease, visible	Non-visible			12-Oct-12	Visual Exam
Trace Metals, Total					
Aluminum	99	5	µg/L	02-Oct-12	EPA200.8
Arsenic	3.1	0.2	µg/L	02-Oct-12	EPA200.8
Cadmium	< 0.1	0.1	µg/L	02-Oct-12	EPA200.8
Chromium	0.5	0.1	µg/L	02-Oct-12	EPA200.8
Cobalt	0.8	0.1	µg/L	02-Oct-12	EPA200.8
Copper	6.7	0.2	µg/L	02-Oct-12	EPA200.8
Iron	793	5	µg/L	02-Oct-12	EPA200.8
Lead	1.2	0.1	µg/L	02-Oct-12	EPA200.8
Manganese	58.3	0.1	µg/L	02-Oct-12	EPA200.8
Mercury	< 0.01	0.01	µg/L	02-Oct-12	EPA200.8
Nickel	4.2	0.1	µg/L	02-Oct-12	EPA200.8
Zinc	8	5	µg/L	02-Oct-12	EPA200.8

ReportDate: Friday, October 12, 2012
Print Date: Friday, October 12, 2012

Taiga Environmental Laboratory
4601-52nd Ave., Box 1500, Yellowknife, NT. X1A 2R3
Tel: (867)-669-2788 Fax: (867)-669-2718

Taiga Batch No.: 120878

- CERTIFICATE OF ANALYSIS -

Client Sample ID: CAM-3 **Taiga Sample ID:** 003

Client Project: 3BM-CAM0914
Sample Type: Sewage
Received Date: 21-Sep-12
Sampling Date: 21-Sep-12
Sampling Time: 10:15
Location: Cambridge Bay
Report Status: **Final**

Test Parameter	Result	Detection Limit	Units	Analysis Date	Analytical Method *	Qualifer
Inorganics - Physicals						
Alkalinity, Total (as CaCO3)	261	0.4	mg/L	24-Sep-12	SM2320:B	
Conductivity, Specific (@ 25°C)	880	0.4	µS/cm	24-Sep-12	SM2510:B	
pH	9.31		pH units	24-Sep-12	SM4500-H:B	
Solids, Total Suspended	48	3	mg/L	26-Sep-12	SM2540:D	
Inorganics - Nutrients						
Ammonia as Nitrogen	0.07	0.01	mg/L	01-Oct-12	SM4500-NH3:	
Biochemical Oxygen Demand	22	2	mg/L	21-Sep-12	SM5210:B	
Organic Carbon, Total	47.0	0.5	mg/L	01-Oct-12	SM5310:B	
Major Ions						
Calcium	51.3	0.1	mg/L	23-Sep-12	SM4110:B	
Chloride	120	0.7	mg/L	23-Sep-12	SM4110:B	
Hardness	284	0.7	mg/L	23-Sep-12	SM2340:B	
Magnesium	37.8	0.1	mg/L	23-Sep-12	SM4110:B	
Nitrate as Nitrogen	0.02	0.01	mg/L	23-Sep-12	SM4110:B	
Nitrite as Nitrogen	< 0.01	0.01	mg/L	23-Sep-12	SM4110:B	

ReportDate: Friday, October 12, 2012
Print Date: Friday, October 12, 2012

Taiga Environmental Laboratory
4601-52nd Ave., Box 1500, Yellowknife, NT. X1A 2R3
Tel: (867)-669-2788 Fax: (867)-669-2718

Taiga Batch No.: 120878

- CERTIFICATE OF ANALYSIS -

Client Sample ID: CAM-3 **Taiga Sample ID:** 003

Potassium	17.7	0.1	mg/L	23-Sep-12	SM4110:B
Sodium	83.2	0.1	mg/L	23-Sep-12	SM4110:B
Sulphate	33	1	mg/L	23-Sep-12	SM4110:B
Microbiology					
Coliforms, Fecal	5800	100	CFU/100mL	21-Sep-12	SM9222:D
Organics					
Oil and Grease, visible	Non-visible			12-Oct-12	Visual Exam
Trace Metals, Total					
Aluminum	45	5	µg/L	02-Oct-12	EPA200.8
Arsenic	2.0	0.2	µg/L	02-Oct-12	EPA200.8
Cadmium	< 0.1	0.1	µg/L	02-Oct-12	EPA200.8
Chromium	0.4	0.1	µg/L	02-Oct-12	EPA200.8
Cobalt	0.5	0.1	µg/L	02-Oct-12	EPA200.8
Copper	8.0	0.2	µg/L	02-Oct-12	EPA200.8
Iron	579	5	µg/L	02-Oct-12	EPA200.8
Lead	0.7	0.1	µg/L	02-Oct-12	EPA200.8
Manganese	47.6	0.1	µg/L	02-Oct-12	EPA200.8
Mercury	< 0.01	0.01	µg/L	02-Oct-12	EPA200.8
Nickel	2.9	0.1	µg/L	02-Oct-12	EPA200.8
Zinc	8	5	µg/L	02-Oct-12	EPA200.8

ReportDate: Friday, October 12, 2012
Print Date: Friday, October 12, 2012

Taiga Environmental Laboratory
4601-52nd Ave., Box 1500, Yellowknife, NT. X1A 2R3
Tel: (867)-669-2788 Fax: (867)-669-2718

Taiga Batch No.: 120878

- CERTIFICATE OF ANALYSIS -

Client Sample ID: CAM-3 **Taiga Sample ID:** 003

*** Taiga analytical methods are based on the following standard analytical methods**

SM - Standard Methods for the Examination of Water and Wastewater

EPA - United States Environmental Protection Agency

ReportDate: Friday, October 12, 2012
Print Date: Friday, October 12, 2012

STANTON TERRITORIAL HEALTH AUTHORITY

LABORATORY REPORT

Stanton Territorial Hospital Laboratory
550 Byrne Road, P.O. Box 10
Yellowknife, NT X1A 2N1
Phone: 867-669-4163 Fax: 867-669-4141

Lab No: 19120205

Patient: **CAMBRIDGE BAY . HAMLET OF**
DOB: Age: **50** Sex: **M**
HCN: Client ID: IDX00000007
Stanton Chart No:
Pt. Phone: 8676694373
Location: KITIKMEOT REGIONAL ENGINEEER
Room: Adm. Date: 05/12/11

Encounter: WX00000007
Attending Pract.: PHYSICIAN, NOT
Requested by: PHYSICIAN, NOT
Send to: KITIKMEOT MUNICIPAL PLANNER
Copy to: KITIKMEOT REGIONAL
KITIKMEOT MUNICIPAL

Test, Water

MICROBIOLOGY

Received on: 12/07/12 12:05 Status:

KITIKMEOT MUNICIPAL PLANNER, KMP Cambridge Bay NU.

Source: **Pool Water** Collected: **10/07/12 10:33**
Order#: **19120205** Received: **12/07/12 12:05**

TOTAL COLIFORM & E.COLI TESTING (P/A COLILERT METHOD)	*** FINAL**	**13/07/12**	**16:44**

13/07/12 ***TOTAL COLIFORM: absent***
E.COLI: absent

Micro Key for Results: * - New Results ** - Result was modified after Final status set

STANTON TERRITORIAL HEALTH AUTHORITY

LABORATORY REPORT

Stanton Territorial Hospital Laboratory
550 Byrne Road, P.O. Box 10
Yellowknife, NT X1A 2N1
Phone: 867-669-4163 Fax: 867-669-4141

Lab No: 19120207

Patient: **CAMBRIDGE BAY . HAMLET OF**
DOB: Age: **50** Sex: **M**
HCN: Client ID: HX00000007
Stanton Chart No:
PL Phone: 8676694373
Location: KITIKMEOT REGIONAL ENGINEER
Room: Adm. Date: 05/12/11

Encounter: WX00000007
Attending Pract.: PHYSICIAN, NOT
Requested by: PHYSICIAN, NOT
Send to: KITIKMEOT MUNICIPAL PLANNER
Copy to: KITIKMEOT REGIONAL
KITIKMEOT MUNICIPAL

Test: Water

MICROBIOLOGY

Requested on: 12/07/12 12:08 Status:

KITIKMEOT MUNICIPAL PLANNER, KMP Cambridge Bay NU

Source: **Water Water Truck Truck# 9016** Collected: **11/07/12 11:03**
Order#: **19120207** Received: **12/07/12 12:08**

Public and Chlorinated, 1500 users

TOTAL COLIFORM & E.COLI TESTING (P/A COLILERT METHOD)	*** FINAL**	**13/07/12**	**16:44**

13/07/12 ***TOTAL COLIFORM: absent***
E.COLI: absent

*Micro Key for Results: * - New Results ** - Result was modified after Final status set*

STANTON TERRITORIAL HEALTH AUTHORITY

LABORATORY REPORT

Stanton Territorial Hospital Laboratory
550 Byrne Road, P.O. Box 10
Yellowknife, NT X1A 2N1
Phone: 867-669-4163 Fax: 867-669-4141

Lab No: 19120209

Patient: **CAMBRIDGE BAY , HAMLET OF**
DOB: Age: **50** Sex: **M**
HCN: Client ID: HX00000007
Stanton Chart No:
Pt. Phone: 8676694373
Location: KITIKMEOT REGIONAL ENGINEER
Room: Adm. Date: 05/12/11

Encounter: WX00000007
Attending Prac.: PHYSICIAN, NOT
Requested by: PHYSICIAN, NOT
Send to: KITIKMEOT MUNICIPAL PLANNER
Copy to: KITIKMEOT REGIONAL
KITIKMEOT MUNICIPAL

Test, Water

MICROBIOLOGY

Requested on: 12/07/12 12:10 Status:

KITIKMEOT MUNICIPAL PLANNER, KMP - Cambridge Bay NU.

Source: **Water Water Truck Truck# 9002**
Order#: **19120209**

Collected: **11/07/12 10:37**
Received: **12/07/12 12:10**

TOTAL COLIFORM & E.COLI TESTING (P/A COLILERT METHOD)	*** FINAL**	**14/07/12**	**14:16**

14/07/12 ***TOTAL COLIFORM: absent***
E.COLI: absent

*Micro Key for Results: * - New Results ** - Result was modified after Final status set*

SCC

STATUS
Page 1 of 1

Printed: 07/14/12 14:45

STANTON TERRITORIAL HEALTH AUTHORITY

LABORATORY REPORT

Stanton Territorial Hospital Laboratory
550 Byrne Road, P.O. Box 10
Yellowknife, NT X1A 2N1
Phone: 867-669-4163 Fax: 867- 669-4141

Lab No: 19120210

Patient: **CAMBRIDGE BAY , HAMLET OF**
DOB: Age: **50** Sex: **M**
HCN: Client ID: HX00000007
Stanton Chart No:
Pt. Phone: 8676694373
Location: KITIKMEOT REGIONAL ENGINEEER
Room: Adm. Date: 05/12/11

Encounter: WX00000007
Attending Pract.: PHYSICIAN, NOT
Requested by: PHYSICIAN, NOT
Send to: KITIKMEOT MUNICIPAL PLANNER
Copy to: KITIKMEOT REGIONAL
KITIKMEOT MUNICIPAL

Test, Water

MICROBIOLOGY

Requested on: 12/07/12 12:10 Status:

KITIKMEOT MUNICIPAL PLANNER, KMP Cambridge Bay NU.

Source: **Water Water Truck Truck# 9001** Collected: **11/07/12 10:56**
Order#: **19120210** Received: **12/07/12 12:11**

Public and Chlorinated

TOTAL COLIFORM & E.COLI TESTING (P/A COLILERT METHOD)	*** FINAL**	**14/07/12**	**14:17**

14/07/12 ***TOTAL COLIFORM: absent***
E.COLI: absent

*Micro Key for Results: * - New Results ** - Result was modified after Final status set*

STANTON TERRITORIAL HEALTH AUTHORITY

LABORATORY REPORT

Stanton Territorial Hospital Laboratory
550 Byrne Road, P.O. Box 10
Yellowknife, NT X1A 2N1
Phone: 867-669-4163 Fax: 867- 669-4141

Lab No: 19120208

Patient: **CAMBRIDGE BAY , HAMLET OF**
DOB: Age: **50** Sex: **M**
HCN: Client ID: HX00000007
Stanton Chart No:
Pt. Phone: 8676694373
Location: KITIKMEOT REGIONAL ENGINEEER
Room: Adm. Date: 05/12/11

Encounter: WX00000007
Attending Pract.: PHYSICIAN, NOT
Requested by: PHYSICIAN, NOT
Send to: KITIKMEOT MUNICIPAL PLANNER
Copy to: KITIKMEOT REGIONAL
KITIKMEOT MUNICIPAL

Test, Water

MICROBIOLOGY

Requested on: 12/07/12 12:09 Status:

KITIKMEOT MUNICIPAL PLANNER, KMP - Cambridge Bay NU

Source: **Pool Water** Collected: **11/07/12 10:32**
Order#: **19120208** Received: **12/07/12 12:09**

Public and Chlorinated

TOTAL COLIFORM & E.COLI TESTING (P/A COLILERT METHOD)	*** FINAL**	**13/07/12**	**16:44**

13/07/12 ***TOTAL COLIFORM: absent***
E.COLI: absent

Micro Key for Results: * - New Results ** - Result was modified after Final status set