

## ANNUAL REPORT FOR THE MUNICIPALITY OF CAMBRIDGE BAY

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**YEAR BEING REPORTED: 2021**

The following information is compiled pursuant to the requirements of Part B, Item 1 of Water License No. 3BM-CAM2030 issued to the Municipality of Cambridge Bay.

- a) **Tabular summaries of all data generated under the “Monitoring Program”;**
- b) **Monthly and annual quantities in cubic metres of fresh Water obtained at the Water Supply Facility and/or for all purposes under the licence;**
- c) **Monthly and annual quantities in cubic metres of all Waste discharged;**

Attached are quantities of water used as reported by the Municipality and the estimated discharge of sewage waste based on quantities used.

<b>Month Reported</b>	<b>Quantity of Water Obtained from all sources (L)</b>	<b>Quantity of Sewage Waste Discharged (Estimated, L)</b>
<b>January</b>	7,039,179.45	Same
<b>February</b>	6,401,414.56	Same
<b>March</b>	7,387,865.02	Same
<b>April</b>	6,930,952.01	Same
<b>May</b>	6,769,823.38	Same
<b>June</b>	6,809,658.17	Same
<b>July</b>	6,531,553.21	Same
<b>August</b>	6,748,878.80	Same
<b>September</b>	6,963,060.92	Same
<b>October</b>	6,809,557.42	Same
<b>November</b>	7,571,833.99	Same
<b>December</b>	6,153,131.90	Same
<b>ANNUAL TOTAL</b>	82,116,908.83	<b>Same</b>

Note: Monthly sewage discharge volume is considered as equal to the monthly water consumption volume.

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- d) A summary of any open burning undertaken under Part D, Item 10, including quantity and details of the waste being burned, along with photographic evidence of site cleanup;**
- Open burning was limited to days when westerly winds prevailed.
  - Open burning was limited to domestic nonhazardous waste according to Environmental Guideline for the Burning and Incineration of Solid Waste (Government of Nunavut – Department of Environment, 2012)
- e) Summary of modifications and/or major maintenance work carried out on the Water Supply Facility and Waste Disposal Facilities, including all associated structures;**
- There were no modifications and/or major maintenance work carried out on the Water Supply Facility and Waste Disposal Facilities in 2021.
- f) A list of unauthorized discharges and summary of follow-up action taken;**
- No unauthorized discharges for the infrastructure under license 3BM-CAM2030 occurred in 2021.
- g) A summary of any abandonment and restoration work completed during the year and an outline of any work anticipated for the next year;**
- There was no abandonment and restoration work completed during 2021. There is no abandonment and restoration work anticipated for 2022.
- h) Any Addendum with updates or revisions for manuals and plans (including *Operations and Maintenance Manuals/Plans*) as required by changes in operation and/or technology;**
- There were no addendums with updates or revisions for manuals and plans in 2021.
- i) A summary of any studies or reports requested by the Board that relate to the use of Water and Waste disposal or restoration, and a brief description of any future studies planned;**
- There were no reports requested for 2021 and there are no future studies currently planned.
- j) Any other details on Water or Waste deposit requested by the Board by November 1 of the year being reported.**
- There were no other details on Water or Waste deposit requested by the Board by November 2021.

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

- No flow observed in the month of July at CAM-6
- The August samples were delayed and arrived at the lab past the allowable holding time for BOD<sub>5</sub> samples. The rest of the parameters did not have a holding time restriction and the results were provided.

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

- 2020 CIRNAC Municipal Inspection, the Inspector noted the Licence Holder must install the new Fuel Tank a minimum of 30 meters from the High-Water Mark and remove the old Fuel Tank. The fuel tank at the intake pumphouse will be replaced with a new double walled tank and will be installed within a lined berm an appropriate distance from the water source. The construction contract was awarded in September 2021 for the work to take place in summer 2022.
- 2020 CIRNAC Municipal Inspection, the inspector noted the License holder shall replace the missing Signage for Sample Station CAM-6. The missing signage at Sample Station CAM-6 has been replaced.
- 2020 CIRNAC Inspection, the inspector noted the Licence Holder must remove all water from the Bermed Area. The Inspector recognizes this as a 2-year process and the Licence Holder must provide the Inspector with photographic proof of significant progress by October 1, 2020. In summer 2021 the water was pumped out, however there was significantly more rainfall than usual, and the berm filled back up with water. The Hamlet is working with an environmental contractor to develop a strategy for Waste Management, including a plan for Hazardous waste. Within a few months time, they will have a Waste Management Strategy report and be in a better position to address the Landfill and Hazardous Waste site clean up.
- 2021 Solid Waste Inspection, the Inspector noted erosion leading out of the lagoon near the fence. The Hamlet intends to replace the fence in summer 2022 after which they will fill in the eroded area with new material (Photo 7 of 2021 Solid Waste Inspection).
- 2021 Solid Waste Inspection, the Inspector noted the licensee is to provide a plan to sort, package and ship hazardous materials out in the next sealift season to an approved facility. Within a few months time, the Hamlet will have a Waste Management Strategy report and be in a better position to address the Landfill and Hazardous Waste site clean up.
- 2021 sealift, the Municipality in coordination with Arctic Cooperative Limited removed over 600 hundred empty propane bottles.

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- 2021 CIRNAC Municipal Inspection, the inspector noted the License holder is to provide water consumption records for 2020 and 2021 to date. The 2021 are in this report and the 2020 consumption records were submitted in the 2020 annual report that was submitted to NWB and is available on the FTP site.

### **List of Appendices**

**Appendix A: CAM-6 Effluent Quality Limits – 1 page**

**Appendix B: Laboratory Certificate of Analysis**

- **Certificate of Analysis 07/07/2021 - 11 pages**
- **Certificate of Analysis 08/31/2021 - 11 pages**
- **Certificate of Analysis 09/14/2021 - 9 pages**

**Appendix C: Hazardous Materials Spill Database, Cambridge Bay 2021 – 1 page**

**Appendix D: Cambridge Bay 2021 Sampling Summary – 1 page**

**Appendix E: CIRNAC Inspection – 1 page**

**Appendix F: 2021 Solid Waste Inspection Report – 10 pages**

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FOR THE MUNICIPALITY OF CAMBRIDGE BAY**

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**Appendix A: CAM-6 Effluent Quality Limits**

**3BM-CAM2030 Cambridge Bay Monitoring Program Results 2021 for Effluent Quality**

Parameters	Maximum concentration of Any Grab Sample	CAM-6	
		August 31	September 14
BOD <sub>5</sub>	100 mg/L	-	26
Total Suspended Solids	120 mg/L	44	44
Fecal Coliforms	1x10 <sup>6</sup> CFU/100mL	3x10 <sup>2</sup>	1.6x10 <sup>3</sup>
Oil + Grease	No visible sheen	Non-visible	Non-visible
pH	between 6 and 9	8.82	8.22

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## Appendix B: Laboratory Certificate of Analysis



**Taiga Environmental Laboratory**  
4601-52nd Ave., Box 1320, Yellowknife, NT. X1A 2L9  
Tel: (867)-767-9235 Fax: (867)-920-8740

Taiga Batch No.:  
**211118**

### - FINAL REPORT -

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**Prepared For:** Hamlet of Cambridge Bay

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

**Attn:** Wiz Mohammed

**Facsimile:** (867) 983-2186

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**Final report has been reviewed and approved by:**

**Glen Hudry**  
Quality Assurance Officer

#### 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) to ISO/IEC 17025 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.

**Report Date:** Sunday, July 25, 2021  
**Print Date:** Wednesday, July 28, 2021

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**Taiga Environmental Laboratory**  
4601-52nd Ave., Box 1320, Yellowknife, NT. X1A 2L9  
Tel: (867)-767-9235 Fax: (867)-920-8740

**Taiga Batch No.:**  
**211118**

## - CERTIFICATE OF ANALYSIS -

**Client Sample ID:** CAM-3

**Taiga Sample ID:** 001

**Client Project:**  
**Sample Type:** Sewage Lagoon  
**Received Date:** 12-Jul-21  
**Sampling Date:** 07-Jul-21  
**Sampling Time:** 10:30  
**Location:** Cambridge Bay Sewage  
**Report Status:** Final

Test Parameter	Result	Detection Limit	Units	Analysis Date	Analytical Method *	Qualifier
<b><u>Inorganics - Nutrients</u></b>						
Ammonia as Nitrogen	23.6	0.005	mg/L	13-Jul-21	SM4500-NH3:G	
Biochemical Oxygen Demand		2	mg/L		SM5210:B	105
CBOD		2	mg/L		SM5210:B	105
Organic Carbon, Total	32.0	0.5	mg/L	13-Jul-21	SM5310:B	
<b><u>Inorganics - Physicals</u></b>						
Alkalinity, Total (as CaCO3)	209	0.4	mg/L	12-Jul-21	SM2320:B	
Conductivity, Specific (@25C)	748	0.4	µS/cm	12-Jul-21	SM2510:B	
pH	7.42		pH units	12-Jul-21	SM4500-H:B	
Solids, Total Dissolved	364	10	mg/L	12-Jul-21	SM2540:C	
Solids, Total Suspended	40	3	mg/L	12-Jul-21	SM2540:D	
<b><u>Major Ions</u></b>						
Calcium	31.6	0.1	mg/L	13-Jul-21	SM4110:B	
Chloride	88.3	0.7	mg/L	13-Jul-21	SM4110:B	
Hardness	181	0.7	mg/L	13-Jul-21	SM4110:B	

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Taiga Batch No.:  
**211118**

## - CERTIFICATE OF ANALYSIS -

Client Sample ID: **CAM-3**

Taiga Sample ID: **001**

Magnesium	24.8	0.1	mg/L	13-Jul-21	SM4110:B
Nitrate as Nitrogen	< 0.01	0.01	mg/L	13-Jul-21	SM4110:B
Nitrate+Nitrite as Nitrogen	< 0.01	0.01	mg/L	13-Jul-21	SM4110:B
Nitrite as Nitrogen	< 0.01	0.01	mg/L	13-Jul-21	SM4110:B
Potassium	20.5	0.1	mg/L	13-Jul-21	SM4110:B
Sodium	59.5	0.1	mg/L	13-Jul-21	SM4110:B
Sulphate	14	1	mg/L	13-Jul-21	SM4110:B

### Microbiology

Coliforms, Fecal		1	CFU/100mL		SM9222:D
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### Organics

Oil and Grease, visible	Non-visible			12-Jul-21	Visual Exam
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### Subcontracted Organics

Phenols, Total	0.0021	0.001	mg/L	16-Jul-21	AB ENV.06537
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### Trace Metals, Total

Aluminum	74.3	5	µg/L	22-Jul-21	EPA200.8
Arsenic	0.8	0.2	µg/L	22-Jul-21	EPA200.8
Barium	21.9	0.1	µg/L	22-Jul-21	EPA200.8
Cadmium	< 0.1	0.1	µg/L	22-Jul-21	EPA200.8
Chromium	0.3	0.1	µg/L	22-Jul-21	EPA200.8
Cobalt	0.4	0.1	µg/L	22-Jul-21	EPA200.8
Copper	38.8	0.2	µg/L	22-Jul-21	EPA200.8
Iron	983	5	µg/L	22-Jul-21	EPA200.8
Lead	0.4	0.1	µg/L	22-Jul-21	EPA200.8
Manganese	73.7	0.1	µg/L	22-Jul-21	EPA200.8
Mercury	0.03	0.01	µg/L	22-Jul-21	EPA200.8

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**Taiga Batch No.:**  
**211118**

## - CERTIFICATE OF ANALYSIS -

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**Client Sample ID:** CAM-3

**Taiga Sample ID:** 001

Nickel	1.6	0.1	µg/L	22-Jul-21	EPA200.8
Zinc	22.1	5	µg/L	22-Jul-21	EPA200.8

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Taiga Batch No.:  
**211118**

## - CERTIFICATE OF ANALYSIS -

Client Sample ID: **CAM-4**

Taiga Sample ID: **002**

**Client Project:**

Sample Type: Sewage Lagoon

Received Date: 12-Jul-21

Sampling Date: 07-Jul-21

Sampling Time: 10:30

Location: Cambridge Bay Sewage

Report Status: **Final**

Test Parameter	Result	Detection Limit	Units	Analysis Date	Analytical Method *	Qualifier
<b><u>Inorganics - Nutrients</u></b>						
Ammonia as Nitrogen	1.86	0.005	mg/L	13-Jul-21	SM4500-NH3-G	
Biochemical Oxygen Demand		2	mg/L		SM5210-B	105
CBOD		2	mg/L		SM5210-B	105
Organic Carbon, Total	46.7	0.5	mg/L	13-Jul-21	SM5310-B	
<b><u>Inorganics - Physicals</u></b>						
Alkalinity, Total (as CaCO3)	128	0.4	mg/L	12-Jul-21	SM2320-B	
Conductivity, Specific (@25C)	1940	0.4	µS/cm	12-Jul-21	SM2510-B	
pH	7.67		pH units	12-Jul-21	SM4500-H-B	
Solids, Total Dissolved	1520	10	mg/L	12-Jul-21	SM2540-C	
Solids, Total Suspended	14	3	mg/L	12-Jul-21	SM2540-D	
<b><u>Major Ions</u></b>						
Calcium	254	1.1	mg/L	13-Jul-21	SM4110-B	
Chloride	139	7.7	mg/L	13-Jul-21	SM4110-B	
Hardness	917	7.7	mg/L	13-Jul-21	SM4110-B	
Magnesium	68.6	1.1	mg/L	13-Jul-21	SM4110-B	
Nitrate as Nitrogen	0.12	0.11	mg/L	13-Jul-21	SM4110-B	

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Taiga Batch No.:  
**211118**

## - CERTIFICATE OF ANALYSIS -

**Client Sample ID: CAM-4**

**Taiga Sample ID: 002**

Nitrate+Nitrite as Nitrogen	0.12	0.11	mg/L	13-Jul-21	SM4110:B
Nitrite as Nitrogen	< 0.11	0.11	mg/L	13-Jul-21	SM4110:B
Potassium	50.6	1.1	mg/L	13-Jul-21	SM4110:B
Sodium	105	1.1	mg/L	13-Jul-21	SM4110:B
Sulphate	764	11	mg/L	13-Jul-21	SM4110:B

### Microbiology

Coliforms, Fecal		1	CFU/100mL		SM9222:D
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### Organics

Oil and Grease, visible	Non-visible			12-Jul-21	Visual Exam
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### Subcontracted Organics

Phenols, Total	0.0014	0.001	mg/L	16-Jul-21	AB ENV.06537
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### Trace Metals, Total

Aluminum	43.2	5	µg/L	22-Jul-21	EPA200.8
Arsenic	2.0	0.2	µg/L	22-Jul-21	EPA200.8
Barium	29.8	0.1	µg/L	22-Jul-21	EPA200.8
Cadmium	< 0.1	0.1	µg/L	22-Jul-21	EPA200.8
Chromium	0.8	0.1	µg/L	22-Jul-21	EPA200.8
Cobalt	3.7	0.1	µg/L	22-Jul-21	EPA200.8
Copper	32.8	0.2	µg/L	22-Jul-21	EPA200.8
Iron	3270	5	µg/L	22-Jul-21	EPA200.8
Lead	2.0	0.1	µg/L	22-Jul-21	EPA200.8
Manganese	192	0.1	µg/L	22-Jul-21	EPA200.8
Mercury	0.02	0.01	µg/L	22-Jul-21	EPA200.8
Nickel	20.0	0.1	µg/L	22-Jul-21	EPA200.8
Zinc	42.7	5	µg/L	22-Jul-21	EPA200.8

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Tel: (867)-767-9235 Fax: (867)-920-8740

**Taiga Batch No.:**  
**211118**

## - CERTIFICATE OF ANALYSIS -

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**Client Sample ID:** CAM-4

**Taiga Sample ID:** 002

**ReportDate:** Sunday, July 25, 2021  
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**Taiga Environmental Laboratory**  
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Tel: (867)-767-9235 Fax: (867)-920-8740

Taiga Batch No.:  
**211118**

## - CERTIFICATE OF ANALYSIS -

Client Sample ID: **CAM-5**

Taiga Sample ID: **003**

Client Project:  
Sample Type: Sewage Lagoon  
Received Date: 12-Jul-21  
Sampling Date: 07-Jul-21  
Sampling Time: 10:30  
Location: Cambridge Bay Sewage  
Report Status: **Final**

Test Parameter	Result	Detection Limit	Units	Analysis Date	Analytical Method *	Qualifier
<b><u>Inorganics - Nutrients</u></b>						
Ammonia as Nitrogen	< 0.005	0.005	mg/L	14-Jul-21	SM4500-NH3:G	
Biochemical Oxygen Demand		2	mg/L		SM5210:B	105
CBOD		2	mg/L		SM5210:B	105
Organic Carbon, Total	85.5	0.5	mg/L	13-Jul-21	SM5310:B	
<b><u>Inorganics - Physicals</u></b>						
Alkalinity, Total (as CaCO <sub>3</sub> )	144	0.4	mg/L	12-Jul-21	SM2320:B	
Conductivity, Specific (@25C)	688	0.4	µS/cm	12-Jul-21	SM2510:B	
pH	10.0		pH units	12-Jul-21	SM4500-H:B	
Solids, Total Dissolved	450	10	mg/L	12-Jul-21	SM2540:C	
Solids, Total Suspended	134	3	mg/L	12-Jul-21	SM2540:D	
<b><u>Major Ions</u></b>						
Calcium	40.8	0.1	mg/L	13-Jul-21	SM4110:B	
Chloride	120	0.7	mg/L	13-Jul-21	SM4110:B	
Hardness	218	0.7	mg/L	13-Jul-21	SM4110:B	
Magnesium	28.1	0.1	mg/L	13-Jul-21	SM4110:B	
Nitrate as Nitrogen	< 0.01	0.01	mg/L	13-Jul-21	SM4110:B	

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**Taiga Environmental Laboratory**  
4601-52nd Ave., Box 1320, Yellowknife, NT. X1A 2L9  
Tel: (867)-767-9235 Fax: (867)-920-8740

Taiga Batch No.:  
**211118**

## - CERTIFICATE OF ANALYSIS -

**Client Sample ID: CAM-5**

**Taiga Sample ID: 003**

Nitrate+Nitrite as Nitrogen	< 0.01	0.01	mg/L	13-Jul-21	SM4110:B
Nitrite as Nitrogen	< 0.01	0.01	mg/L	13-Jul-21	SM4110:B
Potassium	13.8	0.1	mg/L	13-Jul-21	SM4110:B
Sodium	75.3	0.1	mg/L	13-Jul-21	SM4110:B
Sulphate	33	1	mg/L	13-Jul-21	SM4110:B

### Microbiology

Coliforms, Fecal		1	CFU/100mL		SM9222:D
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### Organics

Oil and Grease, visible	Non-visible			12-Jul-21	Visual Exam
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### Subcontracted Organics

Phenols, Total	0.0056	0.001	mg/L	16-Jul-21	AB ENV.06537
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### Trace Metals, Total

Aluminum	143	5	µg/L	22-Jul-21	EPA200.8
Arsenic	1.9	0.2	µg/L	22-Jul-21	EPA200.8
Barium	25.9	0.1	µg/L	22-Jul-21	EPA200.8
Cadmium	< 0.1	0.1	µg/L	22-Jul-21	EPA200.8
Chromium	0.5	0.1	µg/L	22-Jul-21	EPA200.8
Cobalt	0.4	0.1	µg/L	22-Jul-21	EPA200.8
Copper	4.4	0.2	µg/L	22-Jul-21	EPA200.8
Iron	541	5	µg/L	22-Jul-21	EPA200.8
Lead	1.4	0.1	µg/L	22-Jul-21	EPA200.8
Manganese	72.1	0.1	µg/L	22-Jul-21	EPA200.8
Mercury	0.02	0.01	µg/L	22-Jul-21	EPA200.8
Nickel	2.4	0.1	µg/L	22-Jul-21	EPA200.8
Zinc	28.8	5	µg/L	22-Jul-21	EPA200.8

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4601-52nd Ave., Box 1320, Yellowknife, NT. X1A 2L9  
Tel: (867)-767-9235 Fax: (867)-920-8740

**Taiga Batch No.:**  
**211118**

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## - CERTIFICATE OF ANALYSIS -

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**Client Sample ID:** CAM-5

**Taiga Sample ID:** 003

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Tel: (867)-767-9235 Fax: (867)-920-8740

**Taiga Batch No.:**  
**211118**

## - CERTIFICATE OF ANALYSIS -

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**Client Sample ID:** CAM-5

**Taiga Sample ID:** 003

## - DATA QUALIFIERS -

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### *Data Qualifier Descriptions:*

**105** *Samples received past hold time; analysis not possible.*

- \* 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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4601-52nd Ave., Box 1320, Yellowknife, NT, X1A 2L9  
Tel: (867)-767-9235 Fax: (867)-920-8740

Taiga Batch No.:  
**211659**

## - FINAL REPORT -

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**Prepared For:** Hamlet of Cambridge Bay

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

**Attn:** Wiz Mohammed

**Facsimile:** (867) 963-2186

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**Final report has been reviewed and approved by:**

**Glen Hudry**  
Quality Assurance Officer

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### 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) to ISO/IEC 17025 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.

**Report Date:** October-05-21  
**Print Date:** October-05-21

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# ANNUAL REPORT FOR THE MUNICIPALITY OF CAMBRIDGE BAY



**Taiga Environmental Laboratory**  
4601-52nd Ave., Box 1320, Yellowknife, NT. X1A 2L9  
Tel: (867)-767-9235 Fax: (867)-920-8740

Taiga Batch No.:  
**211659**

## - CERTIFICATE OF ANALYSIS -

Client Sample ID: **CAM-4**

Taiga Sample ID: **001**

Client Project:  
Sample Type: Solid Waste Run  
Received Date: 01-Sep-21  
Sampling Date: 31-Aug-21  
Sampling Time: 9:00  
Location: Cambridge Bay Sewage  
Report Status: **Final**

Test Parameter	Result	Detection Limit	Units	Analysis Date	Analytical Method *	Qualifier
<b><u>Inorganics - Nutrients</u></b>						
Ammonia as Nitrogen	11.0	0.005	mg/L	04-Sep-21	TEL068	
Biochemical Oxygen Demand		2	mg/L		TEL019	16
CBOD		2	mg/L		TEL019	16
Organic Carbon, Total	45.5	0.5	mg/L	05-Sep-21	TEL033	
<b><u>Inorganics - Physicals</u></b>						
Alkalinity, Total (as CaCO <sub>3</sub> )	225	0.4	mg/L	01-Sep-21	TEL060	
Conductivity, Specific (@25C)	4000	0.4	µS/cm	01-Sep-21	TEL059	
pH	7.83		pH units	01-Sep-21	TEL058	
Solids, Total Dissolved	3280	10	mg/L	02-Sep-21	TEL009	
Solids, Total Suspended	38	3	mg/L	02-Sep-21	TEL008	
<b><u>Major Ions</u></b>						
Chloride	358	18.2	mg/L	02-Sep-21	TEL055	
Nitrate as Nitrogen	< 0.26	0.26	mg/L	02-Sep-21	TEL055	
Nitrate+Nitrite as Nitrogen	< 0.26	0.26	mg/L	02-Sep-21	TEL055	

Report Date: October-05-21  
Print Date: *October-05-21*

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# ANNUAL REPORT FOR THE MUNICIPALITY OF CAMBRIDGE BAY



**Taiga Environmental Laboratory**  
4601-52nd Ave., Box 1320, Yellowknife, NT. X1A 2L9  
Tel: (867)-767-9235 Fax: (867)-920-8740

Taiga Batch No.:  
**211659**

## - CERTIFICATE OF ANALYSIS -

Client Sample ID: **CAM-4**

Taiga Sample ID: **001**

Nitrite as Nitrogen	< 0.26	0.26	mg/L	02-Sep-21	TEL055
Sulphate	1780	26	mg/L	02-Sep-21	TEL055
<b><u>Microbiology</u></b>					
Coliforms, Fecal	2	1	CFU/100mL	01-Sep-21	TEL017
<b><u>Organics</u></b>					
Oil and Grease, visible	Non-visible			01-Sep-21	Visual Exam
<b><u>Subcontracted Inorganics</u></b>					
Calcium	410	0.05	mg/L	10-Sep-21	EPA200.2
Hardness	1680	0.5	mg/L	10-Sep-21	EPA200.2
Magnesium	160	0.005	mg/L	10-Sep-21	EPA200.2
Potassium	109	0.05	mg/L	10-Sep-21	EPA200.2
Sodium	263	0.05	mg/L	10-Sep-21	EPA200.2
<b><u>Subcontracted Organics</u></b>					
Bromodichloromethane	< 0.0010	0.001	mg/L	10-Sep-21	SW-846
Bromoform	< 0.0010	0.001	mg/L	10-Sep-21	SW-846
Chloroform	< 0.0010	0.001	mg/L	10-Sep-21	SW-846
Cyanide, Total	< 0.0050	0.005	mg/L	08-Sep-21	APHA4500-CN
Dibromochloromethane	< 0.0010	0.001	mg/L	10-Sep-21	SW-846
Phenols, Total	0.0017	0.001	mg/L	09-Sep-21	AB ENV.06537
Trihalomethanes, Total	< 0.0020	0.002	mg/L	10-Sep-21	SW-846
<b><u>Trace Metals, Total</u></b>					
Aluminum	23.7	5	µg/L	16-Sep-21	TEL035
Arsenic	2.2	0.2	µg/L	16-Sep-21	TEL035
Cadmium	< 0.1	0.1	µg/L	16-Sep-21	TEL035
Chromium	0.5	0.1	µg/L	16-Sep-21	TEL035

Report Date: October-05-21  
Print Date: October-05-21

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# ANNUAL REPORT FOR THE MUNICIPALITY OF CAMBRIDGE BAY

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**Taiga Environmental Laboratory**  
4601-52nd Ave., Box 1320, Yellowknife, NT. X1A 2L9  
Tel: (867)-767-9235 Fax: (867)-920-8740

**Taiga Batch No.:**  
**211659**

## - CERTIFICATE OF ANALYSIS -

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**Client Sample ID:** CAM-4

**Taiga Sample ID:** 001

Cobalt	2.4	0.1	µg/L	16-Sep-21	TEL035
Copper	7.6	0.2	µg/L	16-Sep-21	TEL035
Iron	1290	5	µg/L	16-Sep-21	TEL035
Lead	1.5	0.1	µg/L	16-Sep-21	TEL035
Manganese	406	0.1	µg/L	16-Sep-21	TEL035
Mercury	0.03	0.01	µg/L	16-Sep-21	TEL035
Nickel	21.4	0.1	µg/L	16-Sep-21	TEL035
Zinc	28.5	5	µg/L	16-Sep-21	TEL035

**ReportDate:** October-05-21  
**Print Date:** October-05-21

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# ANNUAL REPORT FOR THE MUNICIPALITY OF CAMBRIDGE BAY



**Taiga Environmental Laboratory**  
4601-52nd Ave., Box 1320, Yellowknife, NT. X1A 2L9  
Tel: (867)-767-9235 Fax: (867)-920-8740

**Taiga Batch No.:**  
**211659**

## - CERTIFICATE OF ANALYSIS -

**Client Sample ID: CAM-5**

**Taiga Sample ID: 002**

**Client Project:**  
**Sample Type:** Wetland Cell  
**Received Date:** 01-Sep-21  
**Sampling Date:** 31-Aug-21  
**Sampling Time:** 9:20  
**Location:** Cambridge Bay Sewage  
**Report Status:** Final

Test Parameter	Result	Detection Limit	Units	Analysis Date	Analytical Method *	Qualifier
<b><u>Inorganics - Nutrients</u></b>						
Ammonia as Nitrogen	5.57	0.005	mg/L	03-Sep-21	TEL068	
Biochemical Oxygen Demand		2	mg/L		TEL019	16
CBOD		2	mg/L		TEL019	16
Organic Carbon, Total	49.5	0.5	mg/L	05-Sep-21	TEL033	
<b><u>Inorganics - Physicals</u></b>						
Alkalinity, Total (as CaCO <sub>3</sub> )	221	0.4	mg/L	01-Sep-21	TEL060	
Conductivity, Specific (@25C)	898	0.4	µS/cm	01-Sep-21	TEL059	
pH	8.88		pH units	01-Sep-21	TEL058	
Solids, Total Dissolved	546	10	mg/L	02-Sep-21	TEL009	
Solids, Total Suspended	48	3	mg/L	02-Sep-21	TEL008	
<b><u>Major Ions</u></b>						
Chloride	132	0.7	mg/L	02-Sep-21	TEL055	
Nitrate as Nitrogen	2.03	0.01	mg/L	02-Sep-21	TEL055	
Nitrate+Nitrite as Nitrogen	2.57	0.01	mg/L	02-Sep-21	TEL055	
Nitrite as Nitrogen	0.54	0.01	mg/L	02-Sep-21	TEL055	
Sulphate	20	1	mg/L	02-Sep-21	TEL055	

**Report Date:** October-05-21  
**Print Date:** October-05-21

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# ANNUAL REPORT FOR THE MUNICIPALITY OF CAMBRIDGE BAY



**Taiga Environmental Laboratory**  
4601-52nd Ave., Box 1320, Yellowknife, NT. X1A 2L9  
Tel: (867)-767-9235 Fax: (867)-920-8740

Taiga Batch No.:  
**211659**

## - CERTIFICATE OF ANALYSIS -

Client Sample ID: **CAM-5**

Taiga Sample ID: **002**

### Microbiology

Coliforms, Fecal	370	10	CFU/100mL	01-Sep-21	TEL017	20
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### Organics

Oil and Grease, visible	Non-visible			01-Sep-21	Visual Exam	
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### Subcontracted Inorganics

Calcium	43.4	0.05	mg/L	10-Sep-21	EPA200.2	
Hardness	239	0.5	mg/L	10-Sep-21	EPA200.2	
Magnesium	31.7	0.005	mg/L	10-Sep-21	EPA200.2	
Potassium	19.0	0.05	mg/L	10-Sep-21	EPA200.2	
Sodium	88.0	0.05	mg/L	10-Sep-21	EPA200.2	

### Subcontracted Organics

Bromodichloromethane	< 0.0010	0.001	mg/L	10-Sep-21	SW-846	
Bromoform	< 0.0010	0.001	mg/L	10-Sep-21	SW-846	
Chloroform	< 0.0010	0.001	mg/L	10-Sep-21	SW-846	
Cyanide, Total	< 0.0050	0.005	mg/L	08-Sep-21	APHA4500-CN	
Dibromochloromethane	< 0.0010	0.001	mg/L	10-Sep-21	SW-846	
Phenols, Total	< 0.0100	0.01	mg/L	09-Sep-21	AB ENV.06537	207
Trihalomethanes, Total	< 0.0020	0.002	mg/L	10-Sep-21	SW-846	

### Trace Metals, Total

Aluminum	25.1	5	µg/L	16-Sep-21	TEL035	
Arsenic	1.3	0.2	µg/L	16-Sep-21	TEL035	
Cadmium	< 0.1	0.1	µg/L	16-Sep-21	TEL035	
Chromium	0.3	0.1	µg/L	16-Sep-21	TEL035	
Cobalt	0.5	0.1	µg/L	16-Sep-21	TEL035	
Copper	10.8	0.2	µg/L	16-Sep-21	TEL035	

Report Date: October-05-21  
Print Date: October-05-21

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# ANNUAL REPORT FOR THE MUNICIPALITY OF CAMBRIDGE BAY

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**Taiga Environmental Laboratory**  
4601-52nd Ave., Box 1320, Yellowknife, NT. X1A 2L9  
Tel: (867)-767-9235 Fax: (867)-920-8740

**Taiga Batch No.:**  
**211659**

## - CERTIFICATE OF ANALYSIS -

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**Client Sample ID:** CAM-5

**Taiga Sample ID:** 002

Iron	551	5	µg/L	16-Sep-21	TEL035
Lead	0.2	0.1	µg/L	16-Sep-21	TEL035
Manganese	63.6	0.1	µg/L	16-Sep-21	TEL035
Mercury	0.01	0.01	µg/L	16-Sep-21	TEL035
Nickel	2.3	0.1	µg/L	16-Sep-21	TEL035
Zinc	10.3	5	µg/L	16-Sep-21	TEL035

**ReportDate:** October-05-21  
**Print Date:** October-05-21

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# ANNUAL REPORT FOR THE MUNICIPALITY OF CAMBRIDGE BAY



**Taiga Environmental Laboratory**  
4601-52nd Ave., Box 1320, Yellowknife, NT. X1A 2L9  
Tel: (867)-767-9235 Fax: (867)-920-8740

**Taiga Batch No.:**  
**211659**

## - CERTIFICATE OF ANALYSIS -

**Client Sample ID: CAM-6**

**Taiga Sample ID: 003**

**Client Project:**  
**Sample Type:** Outfall  
**Received Date:** 01-Sep-21  
**Sampling Date:** 31-Aug-21  
**Sampling Time:** 9:30  
**Location:** Cambridge Bay Sewage  
**Report Status:** Final

Test Parameter	Result	Detection Limit	Units	Analysis Date	Analytical Method *	Qualifier
<b><u>Inorganics - Nutrients</u></b>						
Ammonia as Nitrogen	4.42	0.005	mg/L	03-Sep-21	TEL068	
Biochemical Oxygen Demand		2	mg/L		TEL019	16
CBOD		2	mg/L		TEL019	16
Organic Carbon, Total	63.3	0.5	mg/L	05-Sep-21	TEL033	
<b><u>Inorganics - Physicals</u></b>						
Alkalinity, Total (as CaCO <sub>3</sub> )	219	0.4	mg/L	01-Sep-21	TEL060	
Conductivity, Specific (@25C)	912	0.4	µS/cm	01-Sep-21	TEL059	
pH	8.82		pH units	01-Sep-21	TEL058	
Solids, Total Dissolved	540	10	mg/L	02-Sep-21	TEL009	
Solids, Total Suspended	44	3	mg/L	02-Sep-21	TEL008	
<b><u>Major Ions</u></b>						
Chloride	135	0.7	mg/L	02-Sep-21	TEL055	
Nitrate as Nitrogen	2.02	0.01	mg/L	02-Sep-21	TEL055	
Nitrate+Nitrite as Nitrogen	2.54	0.01	mg/L	02-Sep-21	TEL055	
Nitrite as Nitrogen	0.52	0.01	mg/L	02-Sep-21	TEL055	
Sulphate	23	1	mg/L	02-Sep-21	TEL055	

**Report Date:** October-05-21  
**Print Date:** October-05-21

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# ANNUAL REPORT FOR THE MUNICIPALITY OF CAMBRIDGE BAY



**Taiga Environmental Laboratory**  
4601-52nd Ave., Box 1320, Yellowknife, NT. X1A 2L9  
Tel: (867)-767-9235 Fax: (867)-920-8740

Taiga Batch No.:  
**211659**

## - CERTIFICATE OF ANALYSIS -

Client Sample ID: **CAM-6**

Taiga Sample ID: **003**

### Microbiology

Coliforms, Fecal	300	10	CFU/100mL	01-Sep-21	TEL017	20
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### Organics

Oil and Grease, visible	Non-visible			01-Sep-21	Visual Exam	
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### Subcontracted Inorganics

Calcium	41.7	0.05	mg/L	10-Sep-21	EPA200.2	
Hardness	236	0.5	mg/L	10-Sep-21	EPA200.2	
Magnesium	32.0	0.005	mg/L	10-Sep-21	EPA200.2	
Potassium	19.0	0.05	mg/L	10-Sep-21	EPA200.2	
Sodium	87.4	0.05	mg/L	10-Sep-21	EPA200.2	

### Subcontracted Organics

Bromodichloromethane	< 0.0010	0.001	mg/L	10-Sep-21	SW-846	
Bromoform	< 0.0010	0.001	mg/L	10-Sep-21	SW-846	
Chloroform	< 0.0010	0.001	mg/L	10-Sep-21	SW-846	
Cyanide, Total	< 0.0050	0.005	mg/L	08-Sep-21	APHA4500-CN	
Dibromochloromethane	< 0.0010	0.001	mg/L	10-Sep-21	SW-846	
Phenols, Total	< 0.0100	0.01	mg/L	09-Sep-21	AB ENV.06537	207
Trihalomethanes, Total	< 0.0020	0.002	mg/L	10-Sep-21	SW-846	

### Trace Metals, Total

Aluminum	28.9	5	µg/L	16-Sep-21	TEL035	
Arsenic	1.6	0.2	µg/L	16-Sep-21	TEL035	
Cadmium	< 0.1	0.1	µg/L	16-Sep-21	TEL035	
Chromium	0.2	0.1	µg/L	16-Sep-21	TEL035	
Cobalt	0.6	0.1	µg/L	16-Sep-21	TEL035	
Copper	10.8	0.2	µg/L	16-Sep-21	TEL035	

Report Date: October-05-21  
Print Date: October-05-21

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# ANNUAL REPORT FOR THE MUNICIPALITY OF CAMBRIDGE BAY

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**Taiga Environmental Laboratory**  
4601-52nd Ave., Box 1320, Yellowknife, NT. X1A 2L9  
Tel: (867)-767-9235 Fax: (867)-920-8740

**Taiga Batch No.:**  
**211659**

## - CERTIFICATE OF ANALYSIS -

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**Client Sample ID:** CAM-6

**Taiga Sample ID:** 003

Iron	571	5	µg/L	16-Sep-21	TEL035
Lead	0.3	0.1	µg/L	16-Sep-21	TEL035
Manganese	70.3	0.1	µg/L	16-Sep-21	TEL035
Mercury	0.01	0.01	µg/L	16-Sep-21	TEL035
Nickel	2.7	0.1	µg/L	16-Sep-21	TEL035
Zinc	9.0	5	µg/L	16-Sep-21	TEL035

**Report Date:** October-05-21  
**Print Date:** October-05-21

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# ANNUAL REPORT FOR THE MUNICIPALITY OF CAMBRIDGE BAY

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**Taiga Environmental Laboratory**  
4601-52nd Ave., Box 1320, Yellowknife, NT. X1A 2L9  
Tel: (867)-767-9235 Fax: (867)-920-8740

**Taiga Batch No.:**  
**211659**

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## - CERTIFICATE OF ANALYSIS -

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**Client Sample ID:** CAM-6

**Taiga Sample ID:** 003

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## - DATA QUALIFIERS -

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*Data Qualifier Descriptions:*

- 16 *Test requested but no sample bottle received*
- 20 *Possible matrix interference, reported result uncertain.*
- 207 *Detection limit adjusted due to sample matrix effects*

\* 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:** October-05-21  
**Print Date:** October-05-21

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# ANNUAL REPORT FOR THE MUNICIPALITY OF CAMBRIDGE BAY

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**Taiga Environmental Laboratory**  
4601-52nd Ave., Box 1320, Yellowknife, NT, X1A 2L9  
Tel: (867)-767-9235 Fax: (867)-920-8740

Taiga Batch No.:  
**211782**

## - FINAL REPORT -

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**Prepared For:** Hamlet of Cambridge Bay

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

**Attn:** Wiz Mohammed

**Facsimile:** (867) 983-2186

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**Final report has been reviewed and approved by:**

**Glen Hudry**  
Quality Assurance Officer

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### 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) to ISO/IEC 17025 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.

**Report Date:** October-06-21  
**Print Date:** October-06-21

*Page 1 of 9*

# ANNUAL REPORT FOR THE MUNICIPALITY OF CAMBRIDGE BAY



**Taiga Environmental Laboratory**  
4601-52nd Ave., Box 1320, Yellowknife, NT. X1A 2L9  
Tel: (867)-767-9235 Fax: (867)-920-8740

**Taiga Batch No.:**  
**211782**

## - CERTIFICATE OF ANALYSIS -

**Client Sample ID: CAM-4**

**Taiga Sample ID: 001**

**Client Project:** Cambridge Bay  
**Sample Type:** Solid Waste Run  
**Received Date:** 15-Sep-21  
**Sampling Date:** 14-Sep-21  
**Sampling Time:** 9:20  
**Location:** Cambridge Bay Sewage  
**Report Status:** Final

Test Parameter	Result	Detection Limit	Units	Analysis Date	Analytical Method *	Qualifier
<b><u>Inorganics - Nutrients</u></b>						
Ammonia as Nitrogen	9.49	0.005	mg/L	17-Sep-21	TEL068	
Biochemical Oxygen Demand	10	2	mg/L	15-Sep-21	TEL019	
CBOD	7	2	mg/L	15-Sep-21	TEL019	
Organic Carbon, Total	46.2	0.5	mg/L	21-Sep-21	TEL033	
<b><u>Inorganics - Physicals</u></b>						
Alkalinity, Total (as CaCO <sub>3</sub> )	234	0.4	mg/L	15-Sep-21	TEL060	
Conductivity, Specific (@25C)	3640	0.4	µS/cm	15-Sep-21	TEL059	
pH	7.95		pH units	15-Sep-21	TEL058	
Solids, Total Dissolved	2940	10	mg/L	15-Sep-21	TEL009	
Solids, Total Suspended	36	3	mg/L	15-Sep-21	TEL008	
<b><u>Major Ions</u></b>						
Chloride	348	7.7	mg/L	17-Sep-21	TEL055	
Nitrate as Nitrogen	1.96	0.11	mg/L	17-Sep-21	TEL055	
Nitrate+Nitrite as Nitrogen	1.96	0.11	mg/L	17-Sep-21	TEL055	

**Report Date:** October-06-21  
**Print Date:** October-06-21

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# ANNUAL REPORT FOR THE MUNICIPALITY OF CAMBRIDGE BAY

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**Taiga Environmental Laboratory**  
4601-52nd Ave., Box 1320, Yellowknife, NT. X1A 2L9  
Tel: (867)-767-9235 Fax: (867)-920-8740

Taiga Batch No.:  
**211782**

## - CERTIFICATE OF ANALYSIS -

---

**Client Sample ID: CAM-4**

**Taiga Sample ID: 001**

Nitrite as Nitrogen	< 0.11	0.11	mg/L	17-Sep-21	TEL055
Sulphate	1520	11	mg/L	17-Sep-21	TEL055
<b><u>Microbiology</u></b>					
Coliforms, Fecal	230	10	CFU/100mL	15-Sep-21	TEL017
<b><u>Organics</u></b>					
Oil and Grease, visible	Non-visible			15-Sep-21	Visual Exam
<b><u>Subcontracted Inorganics</u></b>					
Calcium	349	0.05	mg/L	24-Sep-21	EPA200.2
Hardness	1530	0.5	mg/L	24-Sep-21	EPA200.2
Magnesium	160	0.005	mg/L	24-Sep-21	EPA200.2
Potassium	100	0.05	mg/L	24-Sep-21	EPA200.2
Sodium	271	0.05	mg/L	24-Sep-21	EPA200.2
<b><u>Subcontracted Organics</u></b>					
Phenols, Total	0.0023	0.001	mg/L	22-Sep-21	AB ENV.06537
<b><u>Trace Metals, Total</u></b>					
Aluminum	47.4	5	µg/L	23-Sep-21	TEL035
Arsenic	1.9	0.2	µg/L	23-Sep-21	TEL035
Cadmium	< 0.1	0.1	µg/L	23-Sep-21	TEL035
Chromium	0.7	0.1	µg/L	23-Sep-21	TEL035
Cobalt	1.4	0.1	µg/L	23-Sep-21	TEL035
Copper	29.9	0.2	µg/L	23-Sep-21	TEL035
Iron	1770	5	µg/L	23-Sep-21	TEL035
Lead	2.6	0.1	µg/L	23-Sep-21	TEL035
Manganese	52.6	0.1	µg/L	23-Sep-21	TEL035
Mercury	0.03	0.01	µg/L	23-Sep-21	TEL035

Report Date: October-06-21  
Print Date: October-06-21

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# ANNUAL REPORT FOR THE MUNICIPALITY OF CAMBRIDGE BAY

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**Taiga Environmental Laboratory**  
4601-52nd Ave., Box 1320, Yellowknife, NT. X1A 2L9  
Tel: (867)-767-9235 Fax: (867)-920-8740

**Taiga Batch No.:**  
**211782**

## - CERTIFICATE OF ANALYSIS -

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**Client Sample ID:** CAM-4

**Taiga Sample ID:** 001

Nickel	21.5	0.1	µg/L	23-Sep-21	TEL035
Zinc	38.9	5	µg/L	23-Sep-21	TEL035

**ReportDate:** October-06-21  
**Print Date:** October-06-21

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# ANNUAL REPORT FOR THE MUNICIPALITY OF CAMBRIDGE BAY



**Taiga Environmental Laboratory**  
4601-52nd Ave., Box 1320, Yellowknife, NT. X1A 2L9  
Tel: (867)-767-9235 Fax: (867)-920-8740

**Taiga Batch No.:**  
**211782**

## - CERTIFICATE OF ANALYSIS -

**Client Sample ID:** CAM-5

**Taiga Sample ID:** 002

**Client Project:** Cambridge Bay  
**Sample Type:** Wetland Cell  
**Received Date:** 15-Sep-21  
**Sampling Date:** 14-Sep-21  
**Sampling Time:** 9:20  
**Location:** Cambridge Bay Sewage  
**Report Status:** Final

Test Parameter	Result	Detection Limit	Units	Analysis Date	Analytical Method *	Qualifier
<b><u>Inorganics - Nutrients</u></b>						
Ammonia as Nitrogen	2.54	0.005	mg/L	17-Sep-21	TEL068	
Biochemical Oxygen Demand	26	2	mg/L	15-Sep-21	TEL019	SS
CBOD	28	2	mg/L	15-Sep-21	TEL019	
Organic Carbon, Total	46.1	0.5	mg/L	21-Sep-21	TEL033	
<b><u>Inorganics - Physicals</u></b>						
Alkalinity, Total (as CaCO <sub>3</sub> )	211	0.4	mg/L	15-Sep-21	TEL060	
Conductivity, Specific (@25C)	950	0.4	µS/cm	15-Sep-21	TEL059	
pH	8.26		pH units	15-Sep-21	TEL058	
Solids, Total Dissolved	576	10	mg/L	15-Sep-21	TEL009	
Solids, Total Suspended	46	3	mg/L	15-Sep-21	TEL008	
<b><u>Major Ions</u></b>						
Chloride	148	0.7	mg/L	16-Sep-21	TEL055	
Nitrate as Nitrogen	2.82	0.01	mg/L	16-Sep-21	TEL055	
Nitrate+Nitrite as Nitrogen	3.21	0.01	mg/L	16-Sep-21	TEL055	
Nitrite as Nitrogen	0.39	0.01	mg/L	16-Sep-21	TEL055	
Sulphate	40	1	mg/L	16-Sep-21	TEL055	

**Report Date:** October-06-21  
**Print Date:** October-06-21

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# ANNUAL REPORT FOR THE MUNICIPALITY OF CAMBRIDGE BAY



**Taiga Environmental Laboratory**  
4601-52nd Ave., Box 1320, Yellowknife, NT. X1A 2L9  
Tel: (867)-767-9235 Fax: (867)-920-8740

Taiga Batch No.:  
**211782**

## - CERTIFICATE OF ANALYSIS -

Client Sample ID: **CAM-5**

Taiga Sample ID: **002**

### Microbiology

Coliforms, Fecal	2400	1000	CFU/100mL	15-Sep-21	TEL017	20
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### Organics

Oil and Grease, visible	Non-visible			15-Sep-21	Visual Exam	
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### Subcontracted Inorganics

Calcium	44.0	0.05	mg/L	24-Sep-21	EPA200.2	
Hardness	251	0.5	mg/L	24-Sep-21	EPA200.2	
Magnesium	34.2	0.005	mg/L	24-Sep-21	EPA200.2	
Potassium	18.1	0.05	mg/L	24-Sep-21	EPA200.2	
Sodium	92.4	0.05	mg/L	24-Sep-21	EPA200.2	

### Subcontracted Organics

Phenols, Total	< 0.0100	0.01	mg/L	22-Sep-21	AB ENV.06537	207
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### Trace Metals, Total

Aluminum	36.4	5	µg/L	23-Sep-21	TEL035	
Arsenic	1.4	0.2	µg/L	23-Sep-21	TEL035	
Cadmium	< 0.1	0.1	µg/L	23-Sep-21	TEL035	
Chromium	0.2	0.1	µg/L	23-Sep-21	TEL035	
Cobalt	0.6	0.1	µg/L	23-Sep-21	TEL035	
Copper	10.3	0.2	µg/L	23-Sep-21	TEL035	
Iron	854	5	µg/L	23-Sep-21	TEL035	
Lead	0.5	0.1	µg/L	23-Sep-21	TEL035	
Manganese	72.4	0.1	µg/L	23-Sep-21	TEL035	
Mercury	0.02	0.01	µg/L	23-Sep-21	TEL035	
Nickel	2.7	0.1	µg/L	23-Sep-21	TEL035	
Zinc	11.3	5	µg/L	23-Sep-21	TEL035	

Report Date: October-06-21  
Print Date: *October-06-21*

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# ANNUAL REPORT FOR THE MUNICIPALITY OF CAMBRIDGE BAY



**Taiga Environmental Laboratory**  
4601-52nd Ave., Box 1320, Yellowknife, NT. X1A 2L9  
Tel: (867)-767-9235 Fax: (867)-920-8740

**Taiga Batch No.:**  
**211782**

## - CERTIFICATE OF ANALYSIS -

**Client Sample ID: CAM-6**

**Taiga Sample ID: 003**

**Client Project:** Cambridge Bay  
**Sample Type:** Outfall  
**Received Date:** 15-Sep-21  
**Sampling Date:** 14-Sep-21  
**Sampling Time:** 9:20  
**Location:** Cambridge Bay Sewage  
**Report Status:** Final

Test Parameter	Result	Detection Limit	Units	Analysis Date	Analytical Method *	Qualifier
<b><u>Inorganics - Nutrients</u></b>						
Ammonia as Nitrogen	2.27	0.005	mg/L	17-Sep-21	TEL068	
Biochemical Oxygen Demand	26	2	mg/L	15-Sep-21	TEL019	
CBOD	29	2	mg/L	15-Sep-21	TEL019	
Organic Carbon, Total	41.6	0.5	mg/L	21-Sep-21	TEL033	
<b><u>Inorganics - Physicals</u></b>						
Alkalinity, Total (as CaCO <sub>3</sub> )	209	0.4	mg/L	15-Sep-21	TEL060	
Conductivity, Specific (@25C)	975	0.4	µS/cm	15-Sep-21	TEL059	
pH	8.22		pH units	15-Sep-21	TEL058	
Solids, Total Dissolved	582	10	mg/L	15-Sep-21	TEL009	
Solids, Total Suspended	44	3	mg/L	15-Sep-21	TEL008	
<b><u>Major Ions</u></b>						
Chloride	153	0.7	mg/L	16-Sep-21	TEL055	
Nitrate as Nitrogen	2.72	0.01	mg/L	16-Sep-21	TEL055	
Nitrate+Nitrite as Nitrogen	3.09	0.01	mg/L	16-Sep-21	TEL055	
Nitrite as Nitrogen	0.36	0.01	mg/L	16-Sep-21	TEL055	
Sulphate	44	1	mg/L	16-Sep-21	TEL055	

**Report Date:** October-06-21  
**Print Date:** October-06-21

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# ANNUAL REPORT FOR THE MUNICIPALITY OF CAMBRIDGE BAY



**Taiga Environmental Laboratory**  
4601-52nd Ave., Box 1320, Yellowknife, NT. X1A 2L9  
Tel: (867)-767-9235 Fax: (867)-920-8740

Taiga Batch No.:  
**211782**

## - CERTIFICATE OF ANALYSIS -

Client Sample ID: **CAM-6**

Taiga Sample ID: **003**

### Microbiology

Coliforms, Fecal	1600	1000	CFU/100mL	15-Sep-21	TEL017
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### Organics

Oil and Grease, visible	Non-visible			15-Sep-21	Visual Exam
-------------------------	-------------	--	--	-----------	-------------

### Subcontracted Inorganics

Calcium	43.0	0.05	mg/L	24-Sep-21	EPA200.2
Hardness	252	0.5	mg/L	24-Sep-21	EPA200.2
Magnesium	35.0	0.005	mg/L	24-Sep-21	EPA200.2
Potassium	18.2	0.05	mg/L	24-Sep-21	EPA200.2
Sodium	95.2	0.05	mg/L	24-Sep-21	EPA200.2

### Subcontracted Organics

Phenols, Total	< 0.0100	0.01	mg/L	22-Sep-21	AB ENV.06537	207
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### Trace Metals, Total

Aluminum	37.5	5	µg/L	23-Sep-21	TEL035
Arsenic	1.6	0.2	µg/L	23-Sep-21	TEL035
Cadmium	< 0.1	0.1	µg/L	23-Sep-21	TEL035
Chromium	0.2	0.1	µg/L	23-Sep-21	TEL035
Cobalt	0.6	0.1	µg/L	23-Sep-21	TEL035
Copper	9.8	0.2	µg/L	23-Sep-21	TEL035
Iron	835	5	µg/L	23-Sep-21	TEL035
Lead	0.5	0.1	µg/L	23-Sep-21	TEL035
Manganese	71.3	0.1	µg/L	23-Sep-21	TEL035
Mercury	0.01	0.01	µg/L	23-Sep-21	TEL035
Nickel	2.7	0.1	µg/L	23-Sep-21	TEL035
Zinc	13.4	5	µg/L	23-Sep-21	TEL035

Report Date: October-06-21  
Print Date: *October-06-21*

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# ANNUAL REPORT FOR THE MUNICIPALITY OF CAMBRIDGE BAY

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**Taiga Environmental Laboratory**  
4601-52nd Ave., Box 1320, Yellowknife, NT. X1A 2L9  
Tel: (867)-767-9235 Fax: (867)-920-8740

**Taiga Batch No.:**  
**211782**

## - CERTIFICATE OF ANALYSIS -

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**Client Sample ID:** CAM-6

**Taiga Sample ID:** 003

## - DATA QUALIFIERS -

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### *Data Qualifier Descriptions:*

- 20 *Possible matrix interference, reported result uncertain.*
- 207 *Detection limit adjusted due to sample matrix effects*
- 55 *BOD result is inconclusive; residual DO was less than 1 mg/L. For evaluation purposes only.*

\* 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

**Report Date:** October-06-21  
**Print Date:** October-06-21

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**ANNUAL REPORT  
FOR THE MUNICIPALITY OF CAMBRIDGE BAY**

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**Appendix C: Hazardous Materials Spill Database, Cambridge Bay 2021**

No unauthorized discharges for the infrastructure under license 3BM-CAM2030 occurred in 2021.

# ANNUAL REPORT FOR THE MUNICIPALITY OF CAMBRIDGE BAY

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## Appendix D: Cambridge Bay 2021 Sampling Summary

		CAM-4	CAM-5			CAM-6	
Parameter	Unit	July 07	July 07	August 31	September 14	August 31	September 14
CBOD	mg/L	*	*	*	26*	*	26
TSS	mg/L	14	134	48	46	44	44
Fecal Coliforms	CFU/100ml	*	*	370*	2400	300	1600
pH	pH	7.67	10.0	8.88	8.26	8.82	8.22
Conductivity	µS/cm	1940	688	898	950	912	975
Nitrate-Nitrite	mg/L						
Oil and Grease	Visible	Non-Visible	Non-Visible	Non-Visible	Non-Visible	Non-Visible	Non-Visible
Magnesium	mg/L	68.6	28.1	31.7	34.2	32.0	35.0
Calcium	mg/L	254	40.8	43.4	44.0	41.7	43.0
Sodium	mg/L	105	75.3	88.0	92.4	87.4	95.2
Potassium	mg/L	50.6	13.8	19.0	18.1	19.0	18.2
Chloride	mg/L	139	120	132	148	135	153
Sulphate	mg/L	764	33	20	40	23	44
Total Hardness	mg/L	917	218	239	1530	236	252
Total Alkalinity	mg/L	128	144	221	234	219	209
Ammonia Nitrogen	mg/L	1.86	<0.005	5.57	9.49	4.42	2.27
Total Cadmium	µg/L	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Total Cobalt	µg/L	3.7	0.4	0.5	1.4	0.6	0.6
Total Chromium	µg/L	0.8	0.5	0.3	0.7	0.2	0.2
Total Copper	µg/L	32.8	4.4	10.8	29.9	10.8	9.8
Total Aluminum	µg/L	43.2	143	25.1	47.4	28.9	37.5
Total Mercury	µg/L	0.02	0.02	0.01	0.03	0.01	0.01
Total Zinc	µg/L	42.7	28.8	10.3	38.9	9.0	13.4
Total Iron	µg/L	3270	541	551	1770	571	835
Total Manganese	µg/L	192	72.1	63.6	52.6	70.3	71.3
Total Nickel	µg/L	20.0	2.4	2.3	21.5	2.7	2.7
Total Lead	µg/L	2.0	1.4	0.2	2.6	0.3	0.5
Total Arsenic	µg/L	2.0	1.9	1.3	1.9	1.6	1.6
Total Organic Carbon	mg/L	46.7	85.5	49.5	46.1	63.3	41.6

\*Samples arrived at the lab past the allowable BOD<sub>5</sub> holding time

# ANNUAL REPORT FOR THE MUNICIPALITY OF CAMBRIDGE BAY

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## Appendix E: CIRNAC Inspection Report

The CIRNAC Municipal Inspection did not take place in 2021; however, there was an inspection of only the Waste Storage facilities September 06, 2021. This inspection did not include a representative from either the Hamlet or the Government of Nunavut.





RE: New Inspections contact - Kitikmeot region




**Pedersen, Baba** (AADNC/AANDC) <baba.pedersen@canada.ca>

To: Cole, Madeline

Cc: Chalmers, Elan; Hack, Justin (AADNC/AANDC)

 Reply  Reply All  Forward 

Mon 2021-06-14 2:46 PM

 Follow up. Completed on June 15, 2021.  
You forwarded this message on 2021-06-14 2:52 PM.

**CAUTION:** This email originated from outside of the organization. Do not click links or open attachments unless you recognize the sender and know the content is safe.

Hello Madeline,

Due to the ongoing COVID-19 Pandemic and associated restrictions, CIRNAC has decided it is best NOT to do the annual Municipal Water License Inspection Tour this year.

We MAY entertain 1-off Community Inspections later in the season if specific circumstances require it.

Please notify all Kitikmeot Hamlets of this and if any Hamlet has concerns with this they are welcome to contact me at any time.

Koana,

**Baba**

**Baba Pedersen**

Resource Management/Water Resource Officer

CIRNAC - Kitikmeot Region

Kugluktuk, NU

[Baba.pedersen@canada.ca](mailto:baba.pedersen@canada.ca)

Cell 867-222-2839



# ANNUAL REPORT FOR THE MUNICIPALITY OF CAMBRIDGE BAY

## WATER LICENCE INSPECTION FORM

☒ Original  
☐ Follow-Up Report

<b>Licensee</b> Hamlet of Cambridge Bay	<b>Licensee Representative</b> NA
<b>Licence No. / Expiry</b> 3BM-CAM2030	<b>Representative's Title</b> NA
<b>Land / Other Authorizations</b>	<b>Land / Other Authorizations</b> --
<b>Date of Inspection</b> September 6, 2021	<b>Inspector</b> Jonathan MESHER
<b>Activities Inspected</b>	
<input type="checkbox"/> Camp <input type="checkbox"/> Drilling <input type="checkbox"/> Mining <input type="checkbox"/> Construction <input type="checkbox"/> Reclamation <input type="checkbox"/> Fuel Storage <input type="checkbox"/> Roads/Hauling <input type="checkbox"/> Other: <input checked="" type="checkbox"/> Other: Hamlet waste storage.	

**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	NA		Water Management Structures	NA		Storage	C	
Flow Measure. Device	NA		Culverts / Bridges	NA		Spills	NA	
Source:	NA		Drainage	NA		Spill Plan	NI	
Water Use:	NA		Erosion / Sediment	NA				
Recirculation (y / n)	NA		Mitigation Measures	A		<b>Administrative</b>		
			Reclamation Activities	NA		Records	NI	
			Materials Storage	NA		Reports	NI	
<b>Waste Disposal</b>			Signage			Plans	NI	
Waste Water	NA					Notifications	A	
Solid Waste	NA		<b>Monitoring</b>			<b>Other</b>		
Hazardous Waste	C		Sample Collection / Analysis	A		Follow-up from previous inspection	NI	

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

<b>Samples taken by Inspector:</b>	<b>Location(s):</b>
<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	

<b>SECTION 1</b>	<input checked="" type="checkbox"/> <b>Comments</b>	<input type="checkbox"/> <b>Non-Compliance with Act or Licence</b>	<input type="checkbox"/> <b>Action Required</b>
------------------	-----------------------------------------------------	--------------------------------------------------------------------	-------------------------------------------------

On September 06, 2021, I Jonathan Mesher conducted an inspection of the Waste storage facilities to ensure compliance with the terms and conditions of the Water licence 3BM-CAM2030.



- a) During the inspection there was various batteries stored inside wooden boxes and a sea can, there was also batteries scattered around the storage area outside of containment. PART D, item 11 of the licence 3BMCAM2030 states; "The Licensee shall segregate and store all hazardous materials and/or hazardous Waste within the Solid Waste Disposal Facility in such a manner as to prevent the deposit of deleterious substances into any Water, until such a time that the materials have been removed for proper disposal at an approved facility." see photo 1 for the battery storage.
- b) During the inspection the Hazardous material containment cells appeared to be retaining water and it appeared that there was significant room in this containment. See photos 2 and 3 for the hazardous material berm.
- c) The inspector noted significant hazardous material outside on containment within the metal dump. See photos 4, 5 and 6 for the waste mentioned.

- a) During the inspection there was signs of erosion near the landfill gate, the slope of the area indicates the water causing the erosion is originating from within the landfill. PART D item 2 of the licence 3BMCAM2030 states; "The Licensee shall direct Effluent from the Solid Waste Disposal Facility to the Retention Sewage Lagoon as required." See photo 7 for the erosion noted.
- b) The inspector noted various types of non-burnable waste within the landfill such as; Styrofoam and plastics. PART D, Item 9 states "The Licensee shall not open burn plastics, wood treated with preservatives, electric wire, Styrofoam, asbestos or painted wood to prevent the deposition of waste materials of incomplete combustion and/or leachate from contaminated ash residual, from impacting any surrounding waters, unless otherwise approved by the Board in writing."



# ANNUAL REPORT FOR THE MUNICIPALITY OF CAMBRIDGE BAY

Inspector's Name Jonathan MESHER

Signature

Date

December 8, 2021

Water Resource Officer, Nunavut Region

Crown Indigenous Relations and Northern Affairs Canada – CIRNAC

Jonathan.mesher@canada.ca

Office #: 867-975-4296

Fax: 867 979-6445

Date	Camera	Inspector	Authorization
	Sony Cyber-shot	J.Mesher	3BM-CAM


## Photo Log

Photo 1



Description: batteries outside of containment

**ANNUAL REPORT  
FOR THE MUNICIPALITY OF CAMBRIDGE BAY**

Date	Camera	Inspector	Authorization
	Sony Cyber-shot	J.Mesher	3BM-CAM
<b>Photo Log</b>			
Photo 2			
			
Description: containment cell with space for waste			

**ANNUAL REPORT  
FOR THE MUNICIPALITY OF CAMBRIDGE BAY**

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Date	Camera	Inspector	Authorization
	Sony Cyber-shot	J.Mesher	3BM-CAM
Photo Log			
Photo 3			



Description: waste outside of containment near pooling water.



**ANNUAL REPORT  
FOR THE MUNICIPALITY OF CAMBRIDGE BAY**

Date	Camera	Inspector	Authorization
	Sony Cyber-shot	J.Mesher	3BM-CAM

**Photo Log**

Photo 4



Description: various wastes outside of containment

## ANNUAL REPORT FOR THE MUNICIPALITY OF CAMBRIDGE BAY

---

Date	Camera	Inspector	Authorization
September,16-17 2021			
	Sony Cyber-shot	J.Mesher	3BM-CAM

### Photo Log

Photo 5



Description: barrels outside of containment



**ANNUAL REPORT  
FOR THE MUNICIPALITY OF CAMBRIDGE BAY**

---

Date	Camera	Inspector	Authorization
September,16-17 2021			
	Sony Cyber-shot	J.Mesher	3BM-CAM

**Photo Log**

Photo 6



Description: Barrels outside of containment.

# ANNUAL REPORT FOR THE MUNICIPALITY OF CAMBRIDGE BAY

Date	Camera	Inspector	Authorization
September,16-17 2021			
	Sony Cyber-shot	J.Mesher	3BM-CAM

## Photo Log

### Photo 7



**Description: erosion near landfill entrance indicating effluent leaving the facility**



# ANNUAL REPORT FOR THE MUNICIPALITY OF CAMBRIDGE BAY

Date	Camera	Inspector	Authorization
September,16-17 2021			
	Sony Cyber-shot	J.Mesher	2AM-MRY

## Photo Log

### Photo 8



Description: BG-24, erosion on down stream side of culvert/ damaged culvert.