

## APPENDIX-‘A’

Annual Reports: 2011 and 2012

Hamlet of Gjoa Haven

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## ANNUAL REPORT

**YEAR BEING REPORTED: 2011**

The following information is compiled pursuant to the requirements of **Part B, Item 1** of Water Licence # **NWB3GJO-0409** issued to the **Gjoa Haven**

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 (litres)	Quantity of Sewage Waste Discharged
January	3,119,195	Same
February	2,723,180	Same
March	3,045,389	Same
April	2,891,030	Same
May	2,943,596	Same
June	2,850,732	Same
July	2,941,163	Same
August	2,841,695	Same
September	2,836,964	Same
October	2,913,852	Same
November	2,420,308	Same
December	2,539,230	Same
<b>ANNUAL TOTAL</b>	<b>31,229,370</b>	<b>Same</b>

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## ANNUAL REPORT-2011

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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;

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- Existing water supply system in operation, SCADA updating and pumps at intake system maintained with the feedback time to time.
  - New sewage lagoon facility in design stage including wetland connection. Lagoon berm repair and increasing in Free-board height has been carried during the year 2010-11. Such repair prevents the possibility of overflow and prevents leakage of sewage effluent from the current Lagoon during the summer time. Also increase in height increases the ability of the Lagoon in full capacity as it was designed for.
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v. a list of unauthorized discharges and summary of follow-up action taken;

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- No unauthorized discharge listed during this year.
  - No unauthorized discharge also happened during the period 2009-2010
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vi. a summary of any abandonment and restoration work completed during the year and an outline of any work anticipated for the next year;

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No abandoned or restoration for water system, sewage waste and solid waste facilities for this year, but expecting an abandonment & restoration plan for current sewage lagoon sometime in summer 2013 once the new sewage lagoon be completed and operation.

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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;

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Existing Lagoon was losing capacity due to erosion of the berm and lowering freeboard. Board requested to review the Lagoon situation and effluent quality discharging into wetland (INAC report 2010)

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

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Water Licence remains expired with NWB as reported by INAC report 2011 for non-Compliance of certain items such as 'Monitoring program, annual reports with quantity of water drawn and waste disposal, QA/QC plan for sewage and solid waste sites, Operation and Maintenance manual of sewage and solid waste facilities, spill contingency and emergency response plan on existing sewage lagoon and solid waste site.

## ANNUAL REPORT- 2011

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

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Existing Operation and Maintenance manuals are still in effect. But Board has notified the Hamlet that such O & M manual not yet submitted. Licence condition requires the O & M manual to be submitted with the Board within six months of the Licence approval. Since long time expires of the License status, the hamlet is proposing to have updated manuals instead for facilities those were upgraded by this time.

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

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Dillon Consultants has been working on sewage lagoon issue which has been addressed for water licensing renewal requirements. Reports requiring lagoon improvement as well as water licensing information expecting to be received by the end of 2012

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

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Attempted for waste sampling in compliance with the regulation, but too late for this season



**YEAR BEING REPORTED: 2012**

The following information is compiled pursuant to the requirements of **Part B, Item 1** of Water Licence Number **NWB3GJO-0409** issued to the **Gjoa Haven**

- 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 (litres)	Quantity of Sewage Waste Discharged
January	2,769,115	Same
February	2,820,137	Same
March	2,817,192	Same
April	3,162,236	Same
May	2,875,617	Same
June	2,578,271	Same
July	3,072,103	Same
August	3,225,301	Same
September	2,999,728	Same
October	3,440,088	Same
November	3,152,038	Same
December	(estd.) 3,140,530	Same
<b>ANNUAL TOTAL</b>	32,911,826	Same

Note: Tabular summaries of all data generated under "Monitoring Program" are attached with this Report in separate pages. (Refer to the attached files)

- 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:
- Existing water supply system, transmission line, re-heating stations and treatment system remains in operation with same as below and volume of water uses:

Water intake from Swan lake, 2-standalone generator sets, two pumps with remotely off/on system from Treatment plant using SCADA monitoring, twin truck-fill facility at the treatment plant and alternate emergency truck-fill facility at the outside of intake pumphouse. 150mm diameter HDPE transmission line housed in another 50 mm diameter hot water circulation line, two re-heating station in between and two re-heating facilities at the pumphouse & at the entrance of water to treatment plant.

- New sewage lagoon facility in design stage including wet land extension for effluent discharge from new Lagoon.

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

No unauthorized discharge listed by the Board to follow up

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 abandoned or restoration work completed during the year 2012.

But construction for new sewage lagoon and improvement of wet land in process starting late 2012 and expected completion in 2013. Decommissioning of existing sewage lagoon will take place once new lagoon start 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;

- NWB has advised to propose for a 'Short Term Plan and undertaking with regard to the part G, item 1, for Abandonment & Restoration plan, O & M manual for Sewage lagoon and Solid Waste Sites, Spill contingency Plan be completed six (6) months prior to decommissioning of existing lagoon.
- Capital program for new sewage lagoon construction project expected completion by end of 2013. Construction of new sewage lagoon still in progress, so as Operation and Maintenance Plan and other plans. Once finally determined the completion date, abandonment and restoration plan of existing sewage lagoon will be completed and submitted to NWB for review. Meanwhile, preparation for "short Term Plan for compliance" is compiling to the Board.
- Capital program is not included the Solid Waste facility improvement, unless a separate project undertaken which are already in proposal and waiting for Federal Funding or Donor assistance. However, annual monitoring and maintenance are continued since summer 2012 including waste dump separation, segregation of metals and toxic materials, retention of leachate & effluent, sampling/decant of leachate/effluent, prevention of illegal dumping and security of facility access. Short Term Plan will be covered also such activities and comprehensive training.

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

Water licence remains expired with NWB since February 01, 2009 as reported without



amendment and extension for non-compliances. The Board has requested to submit the Annual Reports (missing since 2010), O & M update for sewage & solid waste site and operators training schedule as a part of monthly monitoring program. Hamlet is submitting such reports with the Board for review.

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

Not at this stage, but expecting a new O & M manual for sewage and solid waste site facilities by the end of Dec 2013 once new sewage lagoon will start operation and EXP complete the survey & preparation of O & M manual for solid waste site including full training program for operators.

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

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Dillon Consultants has been working on current sewage lagoon abandonment and restoration plan; activities of this current lagoon will be taken over by the new engineered lagoon which is currently under construction. Such abandonment and restoration plan will be updated with the Board by Oct 2013 once the new lagoon construction completion expected by the end of Dec 2013.

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

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Annual Reports 2011 and 2012 of water drawn and sewage disposal are submitting to the Board for review which has been missing and were not included in the previous reports of INAC (AANDC) and NWB. Also details of last monitoring program, sample results and information on training schedule are submitting with the compliance plan for board review.

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## APPENDIX-B

### Annual Monitoring Results: 2012

Water, sewage and Solid waste

Hamlet of Gjoa Haven





*Handwritten: GH-1*  
*Sample Station: GJO-2*  
*GJO-4*  
*Date of sampling: July 16, 2012*

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

**Taiga Batch No.:**  
120517

**- FINAL REPORT -**

**Prepared For:** Hamlet of Gjoa Haven

**Address:** P.O. Box 200  
Gjoa Haven, NU  
X0B 1T0

**Attn:** Jacob Keanik

**Facsimile:** (867) 360-6309

**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.

**Report Date:** 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.:**  
120517

**- CERTIFICATE OF ANALYSIS -**

**Client Sample ID:** GJO-2

**Taiga Sample ID:** 001

**Client Project:** NWB3GJ00409  
**Sample Type:** Landfill  
**Received Date:** 17-Jul-12  
**Sampling Date:** 16-Jul-12  
**Sampling Time:** 10:00  
**Location:** Gjoa Haven, NU  
**Report Status:** Final

Test Parameter	Result	Detection Limit	Units	Analysis Date	Analytical Method *	Qualifer
<u>Organics - Physicals</u>						
Alkalinity, Total (as CaCO <sub>3</sub> )	327	0.4	mg/L	17-Jul-12	SM2320:B	
Conductivity, Specific (@ 25°C)	2650	0.4	µS/cm	17-Jul-12	SM2510:B	
pH	6.92		pH units	17-Jul-12	SM4500-H:B	
Solids, Total Suspended	86	3	mg/L	18-Jul-12	SM2540:D	
<u>Inorganics - Nutrients</u>						
Ammonia as Nitrogen	8.77	0.01	mg/L	20-Jul-12	SM4500-NH3:	
Biochemical Oxygen Demand	77	2	mg/L	18-Jul-12	SM5210:B	
Organic Carbon, Total	150	0.5	mg/L	19-Jul-12	SM5310:B	
<u>Major Ions</u>						
Calcium	352	0.1	mg/L	17-Jul-12	SM4110:B	
Chloride	194	0.7	mg/L	17-Jul-12	SM4110:B	
Hardness	1120	0.7	mg/L	17-Jul-12	SM2340:B	
Magnesium	58.1	0.1	mg/L	17-Jul-12	SM4110:B	
Nitrate as Nitrogen	< 0.01	0.01	mg/L	17-Jul-12	SM4110:B	

**Report Date:** Thursday, July 26, 2012  
**Print Date:** Thursday, July 26, 2012



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Tel: (867)-669-2788 Fax: (867)-669-2718

**Taiga Batch No.:**  
**120517**

**- CERTIFICATE OF ANALYSIS -**

**Client Sample ID:** GJO-2

**Taiga Sample ID:** 001

Nitrite as Nitrogen	< 0.01	0.01	mg/L	17-Jul-12	SM4110:B
Potassium	44.3	0.1	mg/L	17-Jul-12	SM4110:B
Sodium	171	0.1	mg/L	17-Jul-12	SM4110:B
Sulphate	892	1	mg/L	17-Jul-12	SM4110:B

**Microbiology**

Coliforms, Fecal	820	10	CFU/100mL	17-Jul-12	SM9222:D
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**Organics**

Oil and Grease, visible	Non-visible			23-Jul-12	Visual Exam
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**Trace Metals, Total**

Aluminum	87	5	µg/L	20-Jul-12	EPA200.8
Arsenic	12.9	0.2	µg/L	20-Jul-12	EPA200.8
Cadmium	1.1	0.1	µg/L	20-Jul-12	EPA200.8
Chromium	3.4	0.1	µg/L	20-Jul-12	EPA200.8
Cobalt	7.1	0.1	µg/L	20-Jul-12	EPA200.8
Copper	88.9	0.2	µg/L	20-Jul-12	EPA200.8
Iron	25800	5	µg/L	20-Jul-12	EPA200.8
Lead	54.5	0.1	µg/L	20-Jul-12	EPA200.8
Manganese	1090	0.1	µg/L	20-Jul-12	EPA200.8
Mercury	0.12	0.01	µg/L	20-Jul-12	EPA200.8
Nickel	22.7	0.1	µg/L	20-Jul-12	EPA200.8
Zinc	826	5	µg/L	20-Jul-12	EPA200.8

**Report Date:** 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.:

120517

### - CERTIFICATE OF ANALYSIS -

Client Sample ID: GJO-4

Taiga Sample ID: 002

Client Project: NWB3GJ00409

Sample Type: Sewage

Received Date: 17-Jul-12

Sampling Date: 16-Jul-12

Sampling Time: 10:00

Location: Gjoa Haven, NU

Report Status: Final

Test Parameter	Result	Detection Limit	Units	Analysis Date	Analytical Method *	Qualifer
<b><u>Inorganics - Physicals</u></b>						
Alkalinity, Total (as CaCO <sub>3</sub> )	314	0.4	mg/L	17-Jul-12	SM2320:B	
Conductivity, Specific (@ 25°C)	1020	0.4	µS/cm	17-Jul-12	SM2510:B	
pH	7.50		pH units	17-Jul-12	SM4500-H:B	
Solids, Total Suspended	12	3	mg/L	18-Jul-12	SM2540:D	
<b><u>Inorganics - Nutrients</u></b>						
Ammonia as Nitrogen	11.3	0.01	mg/L	20-Jul-12	SM4500-NH3:	
Biochemical Oxygen Demand	5	2	mg/L	18-Jul-12	SM5210:B	81
Organic Carbon, Total	51.6	0.5	mg/L	19-Jul-12	SM5310:B	
<b><u>Major Ions</u></b>						
Calcium	40.2	0.1	mg/L	17-Jul-12	SM4110:B	
Chloride	137	0.7	mg/L	17-Jul-12	SM4110:B	
Hardness	224	0.7	mg/L	17-Jul-12	SM2340:B	
Magnesium	30.0	0.1	mg/L	17-Jul-12	SM4110:B	
Nitrate as Nitrogen	0.28	0.01	mg/L	17-Jul-12	SM4110:B	
Nitrite as Nitrogen	0.03	0.01	mg/L	17-Jul-12	SM4110:B	

Report Date: Thursday, July 26, 2012

Print Date: Thursday, July 26, 2012



**Taiga Environmental Laboratory**  
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Tel: (867)-669-2788 Fax: (867)-669-2718

**Taiga Batch No.:**  
**120517**

**- CERTIFICATE OF ANALYSIS -**

**Client Sample ID:** GJO-4

**Taiga Sample ID:** 002

Potassium	17.4	0.1	mg/L	17-Jul-12	SM4110:B
Sodium	112	0.1	mg/L	17-Jul-12	SM4110:B
Sulphate	4	1	mg/L	17-Jul-12	SM4110:B

**Microbiology**

Coliforms, Fecal	125	1	CFU/100mL	17-Jul-12	SM9222:D
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**Organics**

Oil and Grease, visible	Non-visible			23-Jul-12	Visual Exam
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**Trace Metals, Total**

Aluminum	45.6	0.6	µg/L	20-Jul-12	EPA200.8
Arsenic	7.7	0.2	µg/L	20-Jul-12	EPA200.8
Cadmium	< 0.1	0.1	µg/L	20-Jul-12	EPA200.8
Chromium	0.7	0.1	µg/L	20-Jul-12	EPA200.8
Cobalt	1.9	0.1	µg/L	20-Jul-12	EPA200.8
Copper	2.8	0.2	µg/L	20-Jul-12	EPA200.8
Iron	3130	5	µg/L	20-Jul-12	EPA200.8
Lead	0.2	0.1	µg/L	20-Jul-12	EPA200.8
Manganese	155	0.1	µg/L	20-Jul-12	EPA200.8
Mercury	0.03	0.01	µg/L	20-Jul-12	EPA200.8
Nickel	6.8	0.1	µg/L	20-Jul-12	EPA200.8
Zinc	< 5	5	µg/L	20-Jul-12	EPA200.8

**Report Date:** Thursday, July 26, 2012  
**Print Date:** Thursday, July 26, 2012



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Tel: (867)-669-2788 Fax: (867)-669-2718

**Taiga Batch No.:**  
**120517**

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**- CERTIFICATE OF ANALYSIS -**

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**Client Sample ID: GJO-4**

**Taiga Sample ID: 002**

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**- DATA QUALIFIERS -**

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*Data Qualifier Descriptions:*

81 *Results are inconclusive due to insufficient depletion of sample, minimum 2 mg/L required over 5 days.*

- \* **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:** 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.:**  
**120725**

**- FINAL REPORT -**

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**Prepared For:** Hamlet of Gjoa Haven

**Address:** P.O. Box 200  
Gjoa Haven, NU  
X0B 1J0

**Attn:** Jacob Keanik

**Facsimile:** (867) 360-6309

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

  
**Helene Harper**  
Manager

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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) 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:** Monday, September 10, 2012

**Print Date:** Monday, September 10, 2012



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

**Taiga Batch No.:**  
**120725**

**- CERTIFICATE OF ANALYSIS -**

**Client Sample ID: GJO-2**

**Taiga Sample ID: 001**

**Client Project:**

**Sample Type:** Unknown Water

**Received Date:** 27-Aug-12

**Sampling Date:** 24-Aug-12

**Sampling Time:** 13:26

**Location:**

**Report Status:** Final

Test Parameter	Result	Detection Limit	Units	Analysis Date	Analytical Method *	Qualifer
<b><u>Inorganics - Physicals</u></b>						
Alkalinity, Total (as CaCO <sub>3</sub> )	312	0.4	mg/L	27-Aug-12	SM2320:B	
Conductivity, Specific (@ 25°C)	1000	0.4	µS/cm	27-Aug-12	SM2510:B	
pH	7.74		pH units	27-Aug-12	SM4500-H:B	
Solids, Total Suspended	18	3	mg/L	06-Sep-12	SM2540:D	
<b><u>Inorganics - Nutrients</u></b>						
Ammonia as Nitrogen	12.8	0.005	mg/L	04-Sep-12	SM4500-NH3:	
Biochemical Oxygen Demand			mg/L		SM5210:B	105
Organic Carbon, Total	52.0	0.5	mg/L	30-Aug-12	SM5310:B	
<b><u>Major Ions</u></b>						
Calcium	43.6	0.1	mg/L	27-Aug-12	SM4110:B	
Chloride	123	0.7	mg/L	27-Aug-12	SM4110:B	
Hardness	238	0.7	mg/L	27-Aug-12	SM2340:B	
Magnesium	31.4	0.1	mg/L	27-Aug-12	SM4110:B	
Nitrate as Nitrogen	1.00	0.01	mg/L	27-Aug-12	SM4110:B	

**ReportDate:** Monday, September 10, 2012

**Print Date:** Monday, September 10, 2012



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Tel: (867)-669-2788 Fax: (867)-669-2718

**Taiga Batch No.:**  
**120725**

**- CERTIFICATE OF ANALYSIS -**

**Client Sample ID: GJO-2**

**Taiga Sample ID: 001**

Nitrite as Nitrogen	< 0.01	0.01	mg/L	27-Aug-12	SM4110:B
Potassium	14.1	0.1	mg/L	27-Aug-12	SM4110:B
Sodium	98.0	0.1	mg/L	27-Aug-12	SM4110:B
Sulphate	1	1	mg/L	27-Aug-12	SM4110:B

**Microbiology**

Coliforms, Fecal	CFU/100mL	SM9222:D	105
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**Organics**

Oil and Grease, visible	Non-visible	31-Aug-12	Visual Exam
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**Trace Metals, Total**

Aluminum	30.6	0.6	µg/L	29-Aug-12	EPA200.8
Arsenic	7.4	0.2	µg/L	29-Aug-12	EPA200.8
Cadmium	< 0.05	0.05	µg/L	29-Aug-12	EPA200.8
Chromium	0.7	0.1	µg/L	29-Aug-12	EPA200.8
Cobalt	3.1	0.1	µg/L	29-Aug-12	EPA200.8
Copper	4.4	0.2	µg/L	29-Aug-12	EPA200.8
Iron	2400	5	µg/L	29-Aug-12	EPA200.8
Lead	0.4	0.1	µg/L	29-Aug-12	EPA200.8
Manganese	193	0.1	µg/L	29-Aug-12	EPA200.8
Mercury	< 0.01	0.01	µg/L	29-Aug-12	EPA200.8
Nickel	9.4	0.1	µg/L	29-Aug-12	EPA200.8
Zinc	7.0	0.4	µg/L	29-Aug-12	EPA200.8

**ReportDate:** Monday, September 10, 2012

**Print Date:** Monday, September 10, 2012





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

**Taiga Batch No.:**  
**120725**

**- CERTIFICATE OF ANALYSIS -**

**Client Sample ID:** GJO-4

**Taiga Sample ID:** 002

**Client Project:**

**Sample Type:** Unknown Water

**Received Date:** 27-Aug-12

**Sampling Date:** 24-Aug-12

**Sampling Time:** 13:26

**Location:**

**Report Status:** Final

Test Parameter	Result	Detection Limit	Units	Analysis Date	Analytical Method *	Qualifer
<b><u>Inorganics - Physicals</u></b>						
Alkalinity, Total (as CaCO <sub>3</sub> )	358	0.4	mg/L	27-Aug-12	SM2320:B	
Conductivity, Specific (@ 25°C)	1100	0.4	µS/cm	27-Aug-12	SM2510:B	
pH	7.40		pH units	27-Aug-12	SM4500-H:B	
Solids, Total Suspended	106	3	mg/L	05-Sep-12	SM2540:D	
<b><u>Inorganics - Nutrients</u></b>						
Ammonia as Nitrogen	17.0	0.005	mg/L	04-Sep-12	SM4500-NH3:	
Biochemical Oxygen Demand			mg/L		SM5210:B	105
Organic Carbon, Total	67.5	0.5	mg/L	30-Aug-12	SM5310:B	
<b><u>Major Ions</u></b>						
Calcium	44.6	0.1	mg/L	27-Aug-12	SM4110:B	
Chloride	132	0.7	mg/L	27-Aug-12	SM4110:B	
Hardness	240	0.7	mg/L	27-Aug-12	SM2340:B	
Magnesium	31.4	0.1	mg/L	27-Aug-12	SM4110:B	
Nitrate as Nitrogen	0.04	0.01	mg/L	27-Aug-12	SM4110:B	
Nitrite as Nitrogen	< 0.01	0.01	mg/L	27-Aug-12	SM4110:B	

**ReportDate:** Monday, September 10, 2012

**Print Date:** Monday, September 10, 2012



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

**Taiga Batch No.:**  
**120725**

**- CERTIFICATE OF ANALYSIS -**

**Client Sample ID: GJO-4**

**Taiga Sample ID: 002**

Potassium	18.3	0.1	mg/L	27-Aug-12	SM4110:B
Sodium	112	0.1	mg/L	27-Aug-12	SM4110:B
Sulphate	2	1	mg/L	27-Aug-12	SM4110:B

**Microbiology**

Coliforms, Fecal		CFU/100mL	SM9222:D	105
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**Organics**

Oil and Grease, visible	Non-visible		31-Aug-12	Visual Exam
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**Trace Metals, Total**

Aluminum	103	5	µg/L	29-Aug-12	EPA200.8
Arsenic	27.1	0.2	µg/L	29-Aug-12	EPA200.8
Cadmium	< 0.1	0.1	µg/L	29-Aug-12	EPA200.8
Chromium	1.1	0.1	µg/L	29-Aug-12	EPA200.8
Cobalt	2.4	0.1	µg/L	29-Aug-12	EPA200.8
Copper	3.3	0.2	µg/L	29-Aug-12	EPA200.8
Iron	16400	5	µg/L	29-Aug-12	EPA200.8
Lead	0.4	0.1	µg/L	29-Aug-12	EPA200.8
Manganese	279	0.1	µg/L	29-Aug-12	EPA200.8
Mercury	< 0.01	0.01	µg/L	29-Aug-12	EPA200.8
Nickel	7.9	0.1	µg/L	29-Aug-12	EPA200.8
Zinc	< 0.4	0.4	µg/L	29-Aug-12	EPA200.8

**ReportDate:** Monday, September 10, 2012

**Print Date:** Monday, September 10, 2012



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

**Taiga Batch No.:**  
**120725**

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**- CERTIFICATE OF ANALYSIS -**

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**Client Sample ID: GJO-4**

**Taiga Sample ID: 002**

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**- 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

**ReportDate:** Monday, September 10, 2012

**Print Date:** Monday, September 10, 2012





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

**Taiga Batch No.:**  
**120843**

**- FINAL REPORT -**

**Prepared For:** Hamlet of Gjoa Haven

**Address:** P.O. Box 200  
Gjoa Haven, NU  
X0B 1J0

**Attn:** Jacob Keanik

**Facsimile:** (867) 360-6309

**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, September 27, 2012

**Print Date:** Thursday, September 27, 2012



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

**Taiga Batch No.:**  
**120843**

**- CERTIFICATE OF ANALYSIS -**

**Client Sample ID: GJO-2**

**Taiga Sample ID: 001**

**Client Project:**

**Sample Type:** Unknown Water

**Received Date:** 18-Sep-12

**Sampling Date:** 17-Sep-12

**Sampling Time:** 11:30

**Location:** Gjoa Haven

**Report Status:** Final

Test Parameter	Result	Detection Limit	Units	Analysis Date	Analytical Method *	Qualifer
<b><u>Inorganics - Physicals</u></b>						
Alkalinity, Total (as CaCO <sub>3</sub> )	288	0.4	mg/L	20-Sep-12	SM2320:B	
Conductivity, Specific (@ 25°C)	910	0.4	µS/cm	20-Sep-12	SM2510:B	
pH	7.78		pH units	20-Sep-12	SM4500-H:B	
Solids, Total Suspended	< 3	3	mg/L	20-Sep-12	SM2540:D	
<b><u>Inorganics - Nutrients</u></b>						
Ammonia as Nitrogen	4.31	0.005	mg/L	24-Sep-12	SM4500-NH3:	
Biochemical Oxygen Demand	3	2	mg/L	18-Sep-12	SM5210:B	
Organic Carbon, Total	62.5	0.5	mg/L	20-Sep-12	SM5310:B	
<b><u>Major Ions</u></b>						
Calcium	48.3	0.1	mg/L	18-Sep-12	SM4110:B	
Chloride	120	0.7	mg/L	18-Sep-12	SM4110:B	
Hardness	254	0.7	mg/L	18-Sep-12	SM2340:B	
Magnesium	32.3	0.1	mg/L	18-Sep-12	SM4110:B	
Nitrate as Nitrogen	0.94	0.01	mg/L	18-Sep-12	SM4110:B	

**ReportDate:** Thursday, September 27, 2012

**Print Date:** Thursday, September 27, 2012



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

**Taiga Batch No.:**  
**120843**

**- CERTIFICATE OF ANALYSIS -**

**Client Sample ID: GJO-2**

**Taiga Sample ID: 001**

Nitrite as Nitrogen	< 0.01	0.01	mg/L	18-Sep-12	SM4110:B
Potassium	11.7	0.1	mg/L	18-Sep-12	SM4110:B
Sodium	89.7	0.1	mg/L	18-Sep-12	SM4110:B
Sulphate	11	1	mg/L	18-Sep-12	SM4110:B

**Microbiology**

Coliforms, Fecal	124	1	CFU/100mL	18-Sep-12	SM9222:D
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**Organics**

Oil and Grease, visible	Non-visible			21-Sep-12	Visual Exam
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**Trace Metals, Total**

Aluminum	19.4	0.6	µg/L	22-Sep-12	EPA200.8
Arsenic	3.8	0.2	µg/L	22-Sep-12	EPA200.8
Cadmium	< 0.05	0.05	µg/L	22-Sep-12	EPA200.8
Chromium	1.2	0.1	µg/L	22-Sep-12	EPA200.8
Cobalt	2.3	0.1	µg/L	22-Sep-12	EPA200.8
Copper	4.3	0.2	µg/L	22-Sep-12	EPA200.8
Iron	1600	5	µg/L	22-Sep-12	EPA200.8
Lead	< 0.1	0.1	µg/L	22-Sep-12	EPA200.8
Manganese	122	0.1	µg/L	22-Sep-12	EPA200.8
Mercury	0.02	0.01	µg/L	22-Sep-12	EPA200.8
Nickel	9.2	0.1	µg/L	22-Sep-12	EPA200.8
Zinc	11.9	0.4	µg/L	22-Sep-12	EPA200.8

**ReportDate:** Thursday, September 27, 2012  
**Print Date:** Thursday, September 27, 2012



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

**Taiga Batch No.:**  
**120843**

**- CERTIFICATE OF ANALYSIS -**

**Client Sample ID: GJO-4**

**Taiga Sample ID: 002**

**Client Project:**  
**Sample Type:** Unknown Water  
**Received Date:** 18-Sep-12  
**Sampling Date:** 17-Sep-12  
**Sampling Time:** 11:30  
**Location:** Gjoa Haven  
**Report Status:** Final

Test Parameter	Result	Detection Limit	Units	Analysis Date	Analytical Method *	Qualifer
<b><u>Inorganics - Physicals</u></b>						
Alkalinity, Total (as CaCO <sub>3</sub> )	317	0.4	mg/L	20-Sep-12	SM2320:B	
Conductivity, Specific (@ 25°C)	989	0.4	µS/cm	20-Sep-12	SM2510:B	
pH	7.74		pH units	20-Sep-12	SM4500-H:B	
Solids, Total Suspended	4	3	mg/L	20-Sep-12	SM2540:D	
<b><u>Inorganics - Nutrients</u></b>						
Ammonia as Nitrogen	9.45	0.005	mg/L	24-Sep-12	SM4500-NH3:	
Biochemical Oxygen Demand	4	2	mg/L	18-Sep-12	SM5210:B	
Organic Carbon, Total	80.0	0.5	mg/L	20-Sep-12	SM5310:B	
<b><u>Major Ions</u></b>						
Calcium	41.7	0.1	mg/L	18-Sep-12	SM4110:B	
Chloride	130	0.7	mg/L	18-Sep-12	SM4110:B	
Hardness	233	0.7	mg/L	18-Sep-12	SM2340:B	
Magnesium	31.4	0.1	mg/L	18-Sep-12	SM4110:B	
Nitrate as Nitrogen	1.02	0.01	mg/L	18-Sep-12	SM4110:B	
Nitrite as Nitrogen	< 0.01	0.01	mg/L	18-Sep-12	SM4110:B	

**ReportDate:** Thursday, September 27, 2012  
**Print Date:** Thursday, September 27, 2012





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

**Taiga Batch No.:**  
**120843**

**- CERTIFICATE OF ANALYSIS -**

**Client Sample ID: GJO-4**

**Taiga Sample ID: 002**

Potassium	16.6	0.1	mg/L	18-Sep-12	SM4110:B
Sodium	109	0.1	mg/L	18-Sep-12	SM4110:B
Sulphate	8	1	mg/L	18-Sep-12	SM4110:B

**Microbiology**

Coliforms, Fecal	48	1	CFU/100mL	18-Sep-12	SM9222:D
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**Organics**

Oil and Grease, visible	Non-visible			21-Sep-12	Visual Exam
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**Trace Metals, Total**

Aluminum	30.2	0.6	µg/L	22-Sep-12	EPA200.8
Arsenic	6.3	0.2	µg/L	22-Sep-12	EPA200.8
Cadmium	< 0.05	0.05	µg/L	22-Sep-12	EPA200.8
Chromium	0.5	0.1	µg/L	22-Sep-12	EPA200.8
Cobalt	4.0	0.1	µg/L	22-Sep-12	EPA200.8
Copper	7.1	0.2	µg/L	22-Sep-12	EPA200.8
Iron	2540	5	µg/L	22-Sep-12	EPA200.8
Lead	< 0.1	0.1	µg/L	22-Sep-12	EPA200.8
Manganese	167	0.1	µg/L	22-Sep-12	EPA200.8
Mercury	0.01	0.01	µg/L	22-Sep-12	EPA200.8
Nickel	12.8	0.1	µg/L	22-Sep-12	EPA200.8
Zinc	0.8	0.4	µg/L	22-Sep-12	EPA200.8

**ReportDate:** Thursday, September 27, 2012

**Print Date:** Thursday, September 27, 2012



## Taiga Environmental Laboratory

4601-52nd Ave., Box 1500, Yellowknife, NT. X1A 2R3

Tel: (867)-669-2788 Fax: (867)-669-2718

**Taiga Batch No.:**  
**120843**

### - CERTIFICATE OF ANALYSIS -

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**Client Sample ID:** GJO-4

**Taiga Sample ID:** 002

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**\* 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:** Thursday, September 27, 2012

**Print Date:** Thursday, September 27, 2012



**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. 20020178

Patient: GIOA HAVEN, HAMLET OF  
DOB: Age: 50 Sex: N  
HCN: Client ID: HX00000032  
Stanton Chart No:  
Pt. Phone: 8676694162  
Location: EHO - KITIKMEOT  
Room: Adm. Date: 05/12/11

Encounter: WX0000000032  
Attending Pract.: PHYSICIAN, NOT  
Requested by: PHYSICIAN, NOT  
Send to: KITIKMEOT REGIONAL ENGINEER  
Copy to: KITIKMEOT REGIONAL  
KITIKMEOT MUNICIPAL

Test, Water

**MICROBIOLOGY**

Requested on: 02/08/12 11:39

Status:

KITIKMEOT REGIONAL ENGINEER, KRI: Cambridge Bay N.L.

Source: Water truck H7660  
Order#: 20020178

Collected: 01/08/12 06:01  
Received: 02/08/12 11:39

No Date and/or Time of Collection Indicated.

**TOTAL COLIFORM & E.COLI TESTING (P/A \* FINAL  
COLILERT METHOD)**

03/08/12 15:01

03/08/12 **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: 08/03/12 14:09



**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. 20020181

Patient: CLIO HAVEN, HAMLET OF  
DOB: Age: 50 Sex: N  
HCN: Client ID: HX00000032  
Stanton Chart No:  
Pt. Phone: 8676694162  
Location: EHO - KITIKMEOT  
Room: Adm. Date: 05/12/11

Encounter: WX0000000032  
Attending Pract.: PHYSICIAN, NOT  
Requested by: PHYSICIAN, NOT  
Send to: KITIKMEOT REGIONAL ENGINEER  
Copy to: KITIKMEOT REGIONAL  
KITIKMEOT MUNICIPAL

Test: Water

**MICROBIOLOGY**

Requested on: 02/08/12 11:40

Status: New Results

KITIKMEOT REGIONAL ENGINEER, KRI: Cambridge Bay NU,

Source: Water Truck# H7449  
Order#: 20020181

Collected: 01/08/12 00:01  
Received: 02/08/12 11:40

No Date and/or Time of Collection Indicated.

TOTAL COLIFORM & E.COLI TESTING (P/A \* FINAL  
COLIFERT METHOD)

03/08/12 15:01

03/08/12 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: 08/03/12 15:09





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

Lab No. 20020183

Patient: GJOA HAVEN, HAMLET OF  
DOB: Age: 50 Sex: M  
HCN: Client ID: HX00000032  
Stanton Chart No:  
Pt. Phone: 8676694162  
Location: EHO - KITIKMEOT  
Room Adm. Date: 05/12/11

Encounter: WX0000000032  
Attending Pract: PHYSICIAN, NOT  
Requested by: PHYSICIAN, NOT  
Send to: KITIKMEOT REGIONAL ENGINEER  
Copy to: KITIKMEOT REGIONAL  
KITIKMEOT MUNICIPAL

Test: Water

**MICROBIOLOGY**

Requested on: 02/08/12 11:41

KITIKMEOT REGIONAL ENGINEER, RRP - Cambridge Bay NU.

Source: Water PTT#1 Return  
Order#: 20020183

Collected: 02/08/12 00:01  
Received: 02/08/12 11:41

No Date and/or Time of Collection Indicated.

TOTAL COLIFORM & E.COLI TESTING (P/A \* FINAL  
COLILERT METHOD)

03/08/12 15:01

03/08/12 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: 08/03/12 15:09



**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: 20220332

Patient: GLIDA HAVEN, HAMLET OF  
DOB: Age: 50 Sex: N  
TCN: Client ID: HXG0000032  
Stanton Chart No:  
Pl. Phone: 8676694162  
Location: FHO - KITIKMEOT  
Room: Adm. Date: 05/12/11

Encounter: WX0000000032  
Attending Pract.: PHYSICIAN, NOT  
Requested by: PHYSICIAN, NOT  
Send to: KITIKMEOT REGIONAL ENGINEER  
Copy to: KITIKMEOT REGIONAL  
KITIKMEOT MUNICIPAL

Test: Water

**MICROBIOLOGY**

Requested on: 22/08/12 13:32

KITIKMEOT REGIONAL ENGINEER, KRF Cambridge Bay N.L.

Source: Lake Water Water Truck #7448  
Order#: 20220332

Collected: 20/08/12 13:32  
Received: 22/08/12 14:48

**TOTAL COLIFORM & E.COLI TESTING (P/A \* FINAL**  
**COLILERT METHOD)**

23/08/12 13:33

23/08/12 **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: 08/23/12 13:39



**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: 20220333

Patient: GIOA HAVEN, HAMLET OF  
DOB: Age: 50 Sex: N  
HICN: Client ID: HX00000032  
Stanton Chart No:  
Pt. Phone: 8676694162  
Location: EHO - KITIKMEOT  
Room: Adm. Date: 05/12/11

Encounter: WX0000000032  
Attending Pract.: PHYSICIAN, NO1  
Requested by: PHYSICIAN, NO1  
Send to: KITIKMEOT REGIONAL ENGINEER  
Copy to: KITIKMEOT REGIONAL  
KITIKMEOT MUNICIPAL

Test: Water

**MICROBIOLOGY**

Requested on: 22/08/12 14:48

Status

KITIKMEOT REGIONAL ENGINEER, KRE Cambridge Bay NU.

Source: Lake Water Water truck H7449

Collected: 20/08/12 13:32

Order#: 20220333

Received: 22/08/12 14:48

TOTAL COLIFORM & E.COLI TESTING (P/A \* FINAL  
(MILLERT METHOD)

23/08/12 13:33

23/08/12 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: 08/23/12 13:39



**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: 20220331

Patient: GJOA HAVEN, HAMLET OF  
DOB: Age: 50 Sex: N  
HCN: Client ID: HXU0000032  
Stanton Chart No:  
Pt. Phone: 8676694162  
Location: EHO - KITIKMEOT  
Room: Adm. Date: 05/12/11

Encounter: WX0000000032  
Attending Pract.: PHYSICIAN, NOT  
Requested by: PHYSICIAN NOT  
Send to: KITIKMEOT REGIONAL ENGINEER  
Copy to: KITIKMEOT REGIONAL  
KITIKMEOT MUNICIPAL

Test: Water

**MICROBIOLOGY**

Requested on: 20/08/12 13:32

Status:

KITIKMEOT REGIONAL ENGINEER, KRG - Cambridge Bay NU,

Source: Lake Water Water track ITT660  
Order#: 20220331

Collected: 20/08/12 13:32  
Received: 22/08/12 14:47

**TOTAL COLIFORM & E.COLI TESTING (T/A \* FINAL**  
**COLILERT METHOD)**

23/08/12 13:33

23/08/12 **TOTAL COLIFORM: absent**  
**E.COLI: absent**

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

SCC

STATUS  
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Printed: 08/29/12 13:39