INUVIALUIT SIVUNNIUQPAIT IMAKKUN

INUVIALUIT WATER BOARD

Hamlet of Tuktoyaktuk

Water Licence Number: N7L3-0714

Municipal Water Licence

Annual Report for the Year 2019

Date Prepared: January 20, 2020

Municipal Water Licence Annual Report

Hamlet of Tuktoyaktuk
Licence # N7L3-0714
Reporting year _____

1. Water Usage

Table 1: Monthly and annual quantities of fresh water obtained from all sources

Month	Volume from Source (m^3 or L)	Volume from any other Source (m^3 or L)
January	4,463.50 m3	0
February	3,392.65 m3	0
March	3,695.71 m3	0
April	4,134.01 m3	0
May	3,693.99 m3	0
June	3,641.56 m3	0
July	4,431.94 m3	0
August	4,044.04 m3	0
September	4,120.52 m3	0
October	3,758.62 m3	0
November	3,668.33 m3	0
December	3,756.63 m3	0
TOTALS	46,801.50 m3	0
ANNUAL TOTAL (m^3 or L)	46,801.50 m3	
% Increase or decrease from previous year	2.7 increase	

Reasons for increase / decrease (if applicable):

N/A

Reasons for exceeding licensed withdrawal volumes (if applicable):

N/A

General information:

N/A

2. Sewage Disposal

Table 2: Monthly and annual quantities of sewage discharged to the sewage disposal facilities

Month	Volume of sewage discharged (m^3 or L)
January	4,463.50 m3
February	3,392.65 m3
March	3,695.71 m3
April	4,134.01 m3
May	3,693.99 m3
June	3,641.56 m3
July	4,431.94 m3
August	4,044.04 m3
September	4,120.52 m3
October	3,758.62 m3
November	3,668.33 m3
December	3,756.63 m3
ANNUAL TOTAL (m^3 or L)	46,801.50 m3
% Increase or decrease from previous year	

3. Hazardous Waste Storage and Transportation

On Table 3, list the types of hazardous waste accepted into the facility including volumes.

Table 3: Monthly and annual quantities of hazardous waste stored on site and transported off site

Month	Type of hazardous waste accepted (Volume in m^3 or L)	Type of hazardous waste transported off site (Volume in m^3 or L)
January		
February		
March		
April	25-207L contaminated drums	
May	145 Used Batteries	
June	1-Tote(1000L) Used Oil Rags/Filters	
July	1-Tote(1000L) Fuel, Paint, Solvents	
August	1-Tote(1000L) Used Floor Dry	
September	2-Totes(1000L) Contaminated Water	
October		
November		
December		
ANNUAL TOTAL (m^3 or L)		
% Increase or decrease from previous year		

If hazardous waste has been transported off site this year, please describe how it was transported and the final destination:

N/A

Please include treatment or disposal plans for the remaining quantities:

Liquid identity and volumes were not included for the 25 - 207L drums. I will contact ENR to see if they are willing to send someone here or send devices to record the liquid identity and volumes. THE HAMLET WILL SEND REVISED LIQUID IDENTITY AND VOLUMES FOR THE 25 DRUMS.

Please describe any changes or improvements to temporary hazardous waste storage areas:

Signage and a 6 foot Temporary Fencing has been erected around the Hazardous Waste.

4. Sewage Sludge Removal

Table 4: Monthly and annual quantities of sewage sludge removed from the sewage disposal facilities and disposal location

Month	Volume of sewage sludge removed (m^3 or L)	Disposal location
January	0	
February	0	
March	0	
April	0	
May	0	
June	0	
July	0	
August	0	
September	0	
October	0	
November	0	
December	0	
ANNUAL TOTAL (m^3 or L)	0	
% Increase or decrease from previous year		

5. Problems, Modifications or Repairs Completed During the Year on Water Supply and Waste Disposal Facilities

Include any changes to infrastructure of all facilities completed during the year, including any changes, repairs and modifications. Please note any problems that occurred during the year. If there are no changes, make note of that also.

- Solid Waste Disposal Site: 2 casuals clean up domestic garbage debris inside of SWDS, June 2019.
- Solid Waste Disposal Site: Main Entrance Gate and Fencing were repaired on July 2019
- Solid Waste Disposal Site: Debris Fencing was installed on the Domestic Garbage area on October 2019.
- Replaced alternator on engine for water pump at Kudlak Lake, Sept. 2019

6. SNP Data

A condition of the Water Licence is the Surveillance Network Program (SNP). The SNP outlines the sampling requirements and frequency at monitoring stations. *In table 5, insert the sites sampled during the reporting year and the sampling period (sampling date). Attach the complete Taiga Laboratory results, with your "Municipal Water Licence Annual Report" to the Inuvialuit Water Board.*

Table 5: Sampling station and sampling period

Sampling station	After break-up	Prior to freeze-up
SNP-0714-1	ANNUAL RAW & TREATED WATER	NOV. 18/19 TAIGA BATCH #191076
SNP-0714-2	SEPT.11/19 TAIGA BATCH #190863	NOV.28/19 TAIGA BATCH # 191104
SNP-0714-3	SEPT. 12/19 TAIGA BATCH #190869	NOV. 28/19 TAIGA BATCH #191104

7. Spills and Unauthorized Discharges

List any spills and unauthorized discharges, how and when they were reported, and clean up methods.

N/A

8. Spill Response Training and/or other Operator Training

Please provide a description of any Spill Response Training and/or other operator training carried out during the year.

WAYNE COCKNEY: CLASS1 WATER TREATMENTOPERATOR CERTIFICATION, JULY 2019.
BRAD FELIX: TRAINING FOR BACK UP WATER TREATMENT OPERATOR, NOVEMBER 2019.

9. Closure and Reclamation

Include a description of any closure, remediation and/or reclamation activities completed during the year and an outline of any work anticipated for next year.

N/A

10. Studies Requested by the Board that Relate to Water Use, Waste Disposal or Closure and Reclamation

If the Board has requested that specific studies be completed or have asked for specific information be included in the annual report, include these details in this section. Include a summary report of the study completed and the results. Include as attachments with the submission of the Annual Report. Include details of any upcoming studies that will be completed by the Hamlet.

N/A

11. Updates or Revisions to Approved Plans

Include details on any changes to approved plans such as the Solid and Sewage Waste Disposal Facilities Operating and Maintenance Plan (O&M Plan) or any other plans specific to your Water Licence.

- *Spill Contingency Plan*
- *Solid Waste Disposal Facilities Operation and Maintenance Plan*
- *Sewage Disposal Facilities Operation and Maintenance Plan*
- *Hazardous Waste Management Plan*
- *Closure and Reclamation Plan*

N/A

12. Inspection of Dams, Berms, Dykes and Control Structures

Include results of any inspections of all dams, berms, dykes and control structures related to the water intake facilities, solid waste disposal facilities, sewage disposal facilities and/or any other specific to your water licence.

INSPECTION WAS DONE ON AUGUST 15, 2019. NO DEFICIENCIES TO ALL BERMS, DYKES, DAMS AND CONTROL STRUCTURES. 2019 TUKTOYAKTUK SEWAGE LAGOON/SOLID WASTE SITE ANNUAL REPORT ATTACHED.

13. Inspections on all Water and Waste Disposal Facilities

Include results of regular staff inspections on all water and waste disposal facilities authorized under this licence and any corrective actions taken, as necessary.

INSPECTION WERE DONE ON AUGUST 15, 2019. BERM FREEBOARD AT SOLID WASTE DISPOSAL SITE WAS AT 1.25 METERS. NO DECANTING REQUIRED.
- REPAIR MAIN ENTRANCE GATE AND FENCING AT SOLID WASTE DISPOSAL SITE ON JULY 25/19.
- INSTALL POST AND DEBRIS FENCING ON THE DOMESTIC GARBAGE DISPOSAL AREA ON OCT. 16/19.

14. Correspondence between the Inspector and the Licensee

Include all correspondence between the Inspector and the Licensee with your annual report.

JUNE 26, 2019 HAMLET OF TUKTOYAKTUK INSPECTION CORRESPONDENCE ATTACHED FROM INSPECTOR: LLOYD GRUBEN, WATER RESOURCE OFFICER, ENR

15. Other Information

Include any other details on waste disposal requested by the Board by November 1, of the year being reported. In this section you may include non-compliance items identified in the inspection reports and how the Hamlet is addressing them. If there are any contaminated soil piles currently in use, please list the details of containment, remediation, and progress in this section. Ongoing issues with compliance can be identified here. If the IWB is aware of ongoing problems with the licence, discussions can occur to find a resolution.

Attached:
- June 26, 2019 Lloyd Gruben, Water Resource Officer ENR Annual Inspection Report for Hamlet of Tuktoyaktuk- Water Treatment Plant, Sewage Lagoon & Solid Waste Disposal Site.
- 2019 Tuktoyaktuk Water Reservoir Annual Report, December 30, 2019.
- 2019 Tuktoyaktuk Sewage Lagoon/Solid Waste Disposal Site Annual Report, December 19, 2019.
- SNP-0714-1: Annual Raw & Treated Water Sample, Taiga Batch No. 191076
- SNP-0714-2: Sewage Lagoon Annual Samples Before Freeze Up, Taiga Batch No. 190863
- SNP-0714-2: Sewage lagoon Annual Samples After Freeze Up, Taiga Batch No. 191104
- SNP-0714-3: Solid Waste Disposal Site Annual Samples Before Freeze Up, Taiga Batch No. 190869
- SNP-0714-3: Solid Waste Disposal Site Annual Samples After Freeze Up, Taiga Batch No. 191104

Hamlet of Tuktoyaktuk
P.O. Box 120
Tuktoyaktuk, NT X0E 0T0

August 1, 2019

Attention: Mayor Merven Gruben Hamlet of Tuktoyaktuk

File Number	**N5L3-0714**
Type of Operation	**Type B – MUNICIPAL Water License**
Location	**Tuktoyaktuk**

Attention: Merven Gruben, Mayor, Hamlet of Tuktoyaktuk

On June 26, 2019, I completed an inspection at the Hamlet of Tuktoyaktuk's landfill, sewage lagoon, garage and water treatment plant. I attached a copy of the Municipal Water License Inspection Report for your review.

During my inspection, I noted one non compliance issue

- Section 1 of Part B of the Water License requires the Hamlet Of Tuktoyaktuk to submit their annual report no later than April 30

I would like to commend the Hamlet of Tuktoyaktuk for the following:

- Visible signage and segregation at the Solid Waste Site
- SNP sampling
- Designated area for storing hazardous waste

Please contact me at the number below if you have any questions or concerns or if you require additional information.

Sincerely,

Lloyd Gruben
Water Resource Officer
Environment an Natural Resources
P.O. Box 2749
Inuvik, NT X0E 0T0
Ph: 867 – 678 - 6676

Cc:

«INSP_TYPE» WATER USE INSPECTION REPORT

Lila Voudrach ;	Manager, Wildlife and Environment
Mardy Semmler	Executive Director, Inuvialuit Water Board
Bijaya Adhikara	Science and Regulatory Coordinator
Leigh Anne Williams Jones	Regulatory Officer
Shawn Stuckey	Senior Administrative Officer, Hamlet of Tuktoyaktuk

«INSP_TYPE» WATER USE INSPECTION REPORT

LICENCE #:	**N5L3 - 0714**	**EXPIRY DATE:**	**November 20, 2023**
LICENCEE:	**Hamlet of Tuktoyaktuk**	**PREVIOUS INSPECTION:**	**Sept 11, 2017**
COMPANY REP:	**Mayor Merven Gruben**	**INSPECTION DATE:**	**June 26, 2019**

WATER SUPPLY

Source:	Kudlak Lake	Quantity Used:	N/A
Owner/Operator:	Hamlet of Tuktoyaktuk	Meter Reading:	N/I

Indicate: **A - Acceptable** **U - Unacceptable** **N/A - Not Applicable N/I - Not Inspected**

Intake Facilities	A	Storage Structures	A	Treatment Systems	A	Recycling	A
Flow Meas. Device	A	Conveyance Lines	A	Pumping Stations	A	Chem. Storage	A
						Modifications	N/A

Water Supply Comments:
Good record keeping
Shop is clean
Daily logbook up to date
The Hamlet of Tuktoyaktuk benefits from having other employees of operating the Water Treatment Plant
No leaks observed
The water reservoir is locked at all times and is surrounded by a fence only assesible by the Hamlet of Tuktoyaktuk employees. The public and animals have no access to the water reservoir
Fuel tank on good solid base
No stress on fuel pipes entering building.
Pad underneath truck fill hose, eroding and ditch created
No spill kit located at Water Treatment Plant, mentioned this to foreman that spill kit required at the Water Treatment Plant
Fuel Tank is double walled

WASTE DISPOSAL - WELL WASTE

Disposal Method		N/A							
Off-Site Removal	N	Drilling Sump	N	Downhole Injection	N	Treat and Landspread	N	Other	

Indicate: **A - Acceptable** **U - Unacceptable** **N/A - Not Applicable N/I - Not Inspected**

Sump Liners	N/A	Sump Treatment	N/A	Freeboard	N/A
Erosion	N/A	Construction	N/A		N/A
SNP Samples Collected	N/A				

Well Waste Comments:

WASTE DISPOSAL - SEWAGE

Disposal Method		Primary Treatment					
Mechanical	N	Camp Sump	N	Natural Water Body	Y	Wetland Treatment	Y
Continuous Discharge	Y	Intermittent Discharge	N	Seasonal Discharge	N	Land Spread	N
Accelerated Biological	N	Other	N/A				

Indicate: A - Acceptable U - Unacceptable N/A - Not Applicable N/I - Not Inspected

Discharge Quality	A	Decant Process & Structures	No	Discharge Measurement Device	N/A
Freeboard	1M	Sludge Disposal Method	N/A		
Periods Of Discharge	Fall			SNP Samples Collected	Y
Effluent Discharge Rates					

Sewage Comments:
Chutes in good working condition – 1 new chute along with 1 for RV dumping station
Renovation and modifications done. All in good working order
No smell from lagoon
Pads and cement blocking put in place so Sewage trucks won't back into chutes
SNP samples taken

WASTE DISPOSAL - TAILINGS

Disposal Method		N/A					
Tailings Pond	N	Natural Lake	N	Underground	N	Other	N/A

Indicate: A - Acceptable U - Unacceptable N/A - Not Applicable N/I - Not Inspected

Conveyance	N/A	Runoff Diversion	N/A	Dams, Dykes	N/A

«INSP_TYPE» WATER USE INSPECTION REPORT

Line					
Freeboard	N/A	Seepages	N/A	Dyke Inspection	N/A
Erosion	N/A	Pond Treatment		Construction	N/A
Periods Of Discharge	N/A			SNP Samples Collected	N/A

Tailings Comments:

WASTE DISPOSAL – MINING – OTHER

Indicate: A - Acceptable U - Unacceptable N/A - Not Applicable N/I - Not Inspected

Ore & Waste Rock Stockpiles	N/A	Chemical Storage	N/A
Ground Water Discharge	N/A	Mine Water Discharge	N/A

Mining-Other Comments:

WASTE DISPOSAL – SOLID WASTE

Disposal Method		Landfill					
Open Dump	N	Landfill	N	Burn & Landfill	N	Underground	N
Offsite Removal	N	Other					
Owner / Operator	Hamlet of Tuktoyaktuk						

Indicate: A - Acceptable U - Unacceptable N/A - Not Applicable N/I - Not Inspected

Runoff Diversion	N/A	SNP Samples Collected	Y

Solid Waste Comments:
Visible Signage
Visble Segregation
Wind Blown Material Picked by Casuals Hired
Honey Bucket Ditch Available
Gate at Entrance will be installed, locked during non business hours, bins put by the gates for public to place garbage
Interior fence will be installed to capture wind blown material.
All waste, used oil, paint and batteries taken at shop
According to the foreman, they are having problems with residents from Inuvik scavenging and leaving a mess

«INSP_TYPE» WATER USE INSPECTION REPORT

Did not accept any debris from the demolition of Hotel Tuk Inn

FUEL STORAGE

Indicate: **A - Acceptable** **U - Unacceptable** **N/A - Not Applicable** **N/I - Not Inspected**

Owner:	Hamlet of Tuktoyaktuk	Operator:	Hamlet of Tuktoyaktuk	Condition of tanks:	Very Good
Berms & Liners	Yes	Water within Berm:	Not Noticed	Evidence of Leaks:	No

Drainage Pipes	Not Noticed	Pump Station and Catchment Berm	A	Runoff Diversion	A
Pipeline Condition	A				

Fuel Storage Comments:
All fuel tanks are double walled, also bermed
No stress on pipes
No evidence of leaks
All tanks have good stable base, no erosion

DAM – STRUCTURAL CONDITION OF DAM

Dam	N/A

Indicate: **A - Acceptable** **U - Unacceptable** **N/A - Not Applicable** **N/I - Not Inspected**

Required Freeboard	N/A									
Crest	Cracking	N/A	Subsidence	N/A	Heaving	N/A	Wave Erosion	N/A	Brushing Required	N/A
Upstream Face	Cracking	N/A	Surface Erosion	N/A	Gullying	N/A	Wave Erosion	N/A	Brushing Required	N/A
Downstream Face	Cracking	N/A	Surface Erosion	N/A	Gullying	N/A	Wave Erosion	N/A	Brushing Required	N/A

Structural Condition Of Dam Comments:

DAM – SPILLWAYS and DISCHARGE STRUCTURES

Indicate: **A - Acceptable** **U - Unacceptable** **N/A - Not Applicable** **N/I - Not Inspected**

«INSP_TYPE» WATER USE INSPECTION REPORT

Intake Structures	N/A	Discharge Structures	N/A
Seepage	N/A	Erosion	N/A
Downstream Discharge	N/A	Stage Discharge Curves	N/A
Forebay Level	N/A	Tail Race Level	N/A
Flow rate (Power House)		N/A	
Flow rate (Spillway)		N/A	
Power Production		N/A	
Forebay Max Level		N/A	
Forebay Min Level		N/A	

Spillways and Discharge Structures Comments:

SURVEILLANCE NETWORK PROGRAM

Samples Collected Licencee	Yes
Samples Collected ENR	Yes

Signs Posted: SNP	Yes	Warning	No

Surveillance Network Program Comments:
SNP Stations marked clearly
Samples Taken

GENERAL CONDITIONS/REPORTS/PLANS

Indicate: A - Acceptable U - Unacceptable N/A - Not Applicable N/I - Not Inspected

C &R Plan	N/A	Records & Reporting	N/A	Final Report	N/A
Geotechnical Inspection	N/A	Posting, Signage	N/A	Contingency Plan	N/A
Restorations Activities	N/A	Spills	N/A	O&M Plan	N/A
Maintenance	N/A	Modifications	N/A	Annual Report	N/A

General Condition Comments:
Weather was +18
Calm Winds, Clear and Sunny

ADDITIONAL COMMENTS/REMARKS

With no Solid Waste Operator, there is no control of what is brought to the landfill: industrial
Spill Kit observed at shop
Used Oil totes, dead batteries, paint in fence under lock and key at shop yard

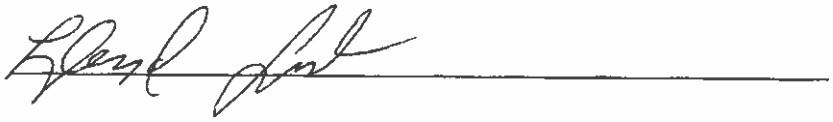
«INSP_TYPE» WATER USE INSPECTION REPORT

MATTERS FOR FOLLOW UP

Spill Kit Required at Water Treatment Plant

NON-COMPLIANCE/VIOLATIONS OF ACT OR LICENCE

- Part B, Section 1, of General Conditions states"The Licensee shall File an Annual Report with the Board not later than April 30 of each year" was submitted to the Board Late
- The 2018 Annual Report was submitted to the IWB on May 9, 2019. On May 14, 2019, the IWB swent a letter for Additional Information Request. The request was for Part B Item C: Summary of the monthly and annual quantities of Hazardous waste stored on site
- In the future, would like to see the Annual Water License Report submitted to the IWB prior to the April 30 deadline

Inspector's Signature: 

2019 TUKTOYAKTUK WATER RESERVOIR ANNUAL REPORT December 30, 2019

2019 ANNUAL RESERVOIR REFILL STARTED ON AUGUST 21, 2019 AT KUDLAK LAKE, CONNECTING PIPE FLANGES FROM RESERVOIR TO KUDLAK LAKE. AUGUST 22/19, HAUL BOAT TO KUDLAK LAKE. AUGUST 27/19 CONNECT SUCTION LINE AND PONTOON AT KUDLAK LAKE.

STARTED DATE: 6:30 PM AUGUST 28, 2019.
PUMP HOUR METER: 5432.89
RESERVOIR DEPTH: 15 FEET
PROPANE PERCENTAGES:

- **TANK # 1 - 80%**
- **TANK # 2 - 78%**
- **TANK # 3 – 85%**
- **TANK # 4 – 80%**
- **TANK # 5 – 82%**
- **TANK # 6 – 87%**

COMPLETION DATE: 1:00 PM SEPTEMBER 19, 2019
PUMP HOUR METER: 5871.40
RESERVOIR DEPTH: 21 FT 8 IN
PROPANE PERCENTAGES:

- **TANK # 1 – 0%**
- **TANK # 2 - 0%**
- **TANK # 3 – 0%**
- **TANK # 4 – 15%**
- **TANK # 5 – 0%**
- **TANK # 6 – 5%**

WE HAD A FEW ISSUES WITH THE PUMP LOSING PRIME AND HAD TO CHANGE ALTERNATOR ON ENGINE, OTHER THEN THAT THE REFILL WENT GOOD.

ANNUAL WATER SAMPLES WERE SENT OUT NOVEMBER 07/19 AND RECEIVED FINAL RESULTS NOVEMBER 18/19 FOR THE RAW AND TREATED WATER SAMPLES, TIAGA BATCH NO. 191076 FOR BOTH SAMPLES.

SUBMITTED DECEMBER 30, 2019

DAVY KRENGNEKTAK
MUNICIPAL WORKS MANAGER
INC. HAMLET OF TUKTOYAKTUK

2019 TUKTOYAKTUK SEWAGE LAGOON/SOLID WASTE SITE ANNUAL REPORT December 19, 2019

THE SEWAGE LAGOON AND SOLID WASTE SITE WERE BOTH INSPECTED ON AUGUST 15, 2019.

SEAWAGE LAGOON BERM:

- **THE BERM WAS INSPECTED WITH NO DEFICIENCIES. THE FREE BOARD WAS AT 4.5 METERS.**

SEWAGE LAGOON DISCHARGE CHUTES:

- **BOTH THE NORTH AND SOUTH DISCHARGE CHUTE WERE IN GOOD OPERATING CONDITIONS. THE TIRE STOPS WERE IN GOOD CONDITION. NO DEFICIENCIES.**

SEWAGE LAGOON:

- **NO DECANTING REQUIRED.**
- **ANNUAL SAMPLES BEFORE FREEZE UP WERE SENT OUT TO TAIGA ON SEPT. 11/19 AND RECEIVED THE FINAL RESULTS ON SEPT. 27/19, TAIGA BATCH NO. 190863.**
- **ANNUAL SAMPLES AFTER FREEZE UP WERE SENT OUT NOV. 28/19 AND RECEIVED FINAL RESULTS ON DEC. 05/19, TAIGA BATCH NO. 191104.**

SOLID WASTE DISPOSAL SITE:

- **THE BERM WAS INSPECTED ON AUGUST 15, 2019 WITH NO DEFICIENCIES. THE FREE BOARD WAS AT 1.25 METERS.**
- **NO DECANTING REQUIRED.**
- **ANNUAL SAMPLES BEFORE FREEZE UP WERE COLLECTED AND SENT OUT TO TAIGA ON SEPT. 12/19. RECEIVED FINAL RESULTS ON SEPT. 30/19, TAIGA BATCH NO. 190869.**
- **ANNUAL SAMPLES AFTER FREEZE UP WERE COLLECTED AND SENT OUT TO TAIGA ON NOV. 28/19. RECEIVED FINAL RESULTS ON DEC. 05/19, TAIGA BATCH NO. 191104.**
- **REPAIR MAIN ENTRANCE FENCING AND GATE ON JULY 25/19.**
- **INSTALL POST AND DEBRIS FENCING ON THE DOMESTIC GARBAGE AREA ON OCT. 16/19**

SUBMITTED DECEMBER 19, 2019

DAVY KRENGNEKTAK
MUNICIPAL WORKS MANAGER
INC. HAMLET OF TUKTOYAKTUK

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

Taiga Batch No.: 191076

- FINAL REPORT -

Prepared For: Hamlet of Tuktoyaktuk

Address: P.O. Box 120
Tuktoyaktuk,NT
X0E 1C0

Attn: Duncan Walker **Facsimile:** (867) 977-2110

Final report has been reviewed and approved by:

Glen Hudy
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.

ReportDate: Monday, November 18, 2019
Print Date: *Monday, November 18, 2019*

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

Taiga Batch No.: 191076

- CERTIFICATE OF ANALYSIS -

Client Sample ID: 1 **Taiga Sample ID:** 001

Client Project:
Sample Type: Drinking Water (RAW)
Received Date: 08-Nov-19
Sampling Date: 07-Nov-19
Sampling Time: 8:10
Location: Tuktoyaktuk WTP
Report Status: **Final**

Test Parameter	Result	Detection Limit	Units	Analysis Date	Analytical Method *	Qualifer
Inorganics - Nutrients						
Organic Carbon, Dissolved	9.2	0.5	mg/L	08-Nov-19	SM5310:B	
Organic Carbon, Total	9.8	0.5	mg/L	08-Nov-19	SM5310:B	
Inorganics - Physicals						
Alkalinity, Total (as CaCO3)	74.8	0.4	mg/L	08-Nov-19	SM2320:B	
Colour, True	6	5	TCU	08-Nov-19	SM2120:B	
pH	7.53		pH units	08-Nov-19	SM4500-H:B	
Solids, Total Dissolved	112	10	mg/L	12-Nov-19	SM2540:C	
Solids, Total Suspended	< 3	3	mg/L	12-Nov-19	SM2540:D	
Turbidity	0.92	0.05	NTU	08-Nov-19	SM2130:B	
Major Ions						
Chloride	21.6	0.7	mg/L	08-Nov-19	SM4110:B	
Fluoride	< 0.1	0.1	mg/L	08-Nov-19	SM4110:B	
Hardness	85.9	0.7	mg/L	08-Nov-19	SM4110:B	
Nitrate as Nitrogen	0.10	0.01	mg/L	08-Nov-19	SM4110:B	

ReportDate: Monday, November 18, 2019
Print Date: *Monday, November 18, 2019*

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

Taiga Batch No.: 191076

- CERTIFICATE OF ANALYSIS -

Client Sample ID: 1 **Taiga Sample ID:** 001

Sodium	12.9	0.1	mg/L	08-Nov-19	SM4110:B
Sulphate	12	1	mg/L	08-Nov-19	SM4110:B
Subcontracted Organics					
Cyanide, Total	< 0.0050	0.005	mg/L	14-Nov-19	APHA4500-CN
Trace Metals, Total					
Aluminum	3.7	0.6	µg/L	08-Nov-19	EPA200.8
Arsenic	0.5	0.2	µg/L	08-Nov-19	EPA200.8
Barium	158	0.1	µg/L	08-Nov-19	EPA200.8
Cadmium	< 0.04	0.04	µg/L	08-Nov-19	EPA200.8
Chromium	< 0.1	0.1	µg/L	08-Nov-19	EPA200.8
Copper	4.3	0.2	µg/L	08-Nov-19	EPA200.8
Iron	148	5	ug/L	08-Nov-19	EPA200.8
Lead	0.4	0.1	µg/L	08-Nov-19	EPA200.8
Manganese	254	0.1	µg/L	08-Nov-19	EPA200.8
Mercury	< 0.01	0.01	µg/L	08-Nov-19	EPA200.8
Selenium	< 0.3	0.3	µg/L	08-Nov-19	EPA200.8
Uranium	0.1	0.1	µg/L	08-Nov-19	EPA200.8
Zinc	16.8	0.4	µg/L	08-Nov-19	EPA200.8

ReportDate: Monday, November 18, 2019
Print Date: *Monday, November 18, 2019*

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

Taiga Batch No.: 191076

- CERTIFICATE OF ANALYSIS -

Client Sample ID: 2 **Taiga Sample ID:** 002

Client Project:
Sample Type: Drinking Water (TREATED)
Received Date: 08-Nov-19
Sampling Date: 07-Nov-19
Sampling Time: 8:10
Location: Tuktoyaktuk WTP
Report Status: **Final**

Test Parameter	Result	Detection Limit	Units	Analysis Date	Analytical Method *	Qualifer
Inorganics - Nutrients						
Organic Carbon, Dissolved	9.1	0.5	mg/L	08-Nov-19	SM5310:B	
Organic Carbon, Total	9.5	0.5	mg/L	08-Nov-19	SM5310:B	
Inorganics - Physicals						
Alkalinity, Total (as CaCO3)	74.3	0.4	mg/L	08-Nov-19	SM2320:B	
Colour, True	6	5	TCU	08-Nov-19	SM2120:B	
pH	7.62		pH units	08-Nov-19	SM4500-H:B	
Solids, Total Dissolved	126	10	mg/L	12-Nov-19	SM2540:C	
Solids, Total Suspended	< 3	3	mg/L	12-Nov-19	SM2540:D	
Turbidity	0.67	0.05	NTU	08-Nov-19	SM2130:B	
Major Ions						
Chloride	24.5	0.7	mg/L	08-Nov-19	SM4110:B	
Fluoride	< 0.1	0.1	mg/L	08-Nov-19	SM4110:B	
Hardness	87.7	0.7	mg/L	08-Nov-19	SM4110:B	
Nitrate as Nitrogen	0.10	0.01	mg/L	08-Nov-19	SM4110:B	
Sodium	15.3	0.1	mg/L	08-Nov-19	SM4110:B	
Sulphate	11	1	mg/L	08-Nov-19	SM4110:B	

ReportDate: Monday, November 18, 2019
Print Date: *Monday, November 18, 2019*

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Taiga Batch No.: 191076

- CERTIFICATE OF ANALYSIS -

Client Sample ID: 2 **Taiga Sample ID:** 002

Organics						
Bromodichloromethane		0.005	mg/L		EPA8260B	16
Bromoform		0.005	mg/L		EPA8260B	16
Chloroform		0.005	mg/L		EPA8260B	16
Dibromochloromethane		0.005	mg/L		EPA8260B	16
Trihalomethanes, Total		0.005	mg/L		EPA8260B	16
Subcontracted Organics						
Cyanide, Total	< 0.0050	0.005	mg/L	14-Nov-19	APHA4500-CN	
Trace Metals, Total						
Aluminum	9.0	0.6	µg/L	08-Nov-19	EPA200.8	
Arsenic	0.5	0.2	µg/L	08-Nov-19	EPA200.8	
Barium	150	0.1	µg/L	08-Nov-19	EPA200.8	
Cadmium	< 0.04	0.04	µg/L	08-Nov-19	EPA200.8	
Chromium	< 0.1	0.1	µg/L	08-Nov-19	EPA200.8	
Copper	22.8	0.2	µg/L	08-Nov-19	EPA200.8	
Iron	69	5	ug/L	08-Nov-19	EPA200.8	
Lead	1.2	0.1	µg/L	08-Nov-19	EPA200.8	
Manganese	179	0.1	µg/L	08-Nov-19	EPA200.8	
Mercury	< 0.01	0.01	µg/L	08-Nov-19	EPA200.8	
Selenium	< 0.3	0.3	µg/L	08-Nov-19	EPA200.8	
Uranium	0.1	0.1	µg/L	08-Nov-19	EPA200.8	
Zinc	23.3	0.4	µg/L	08-Nov-19	EPA200.8	

ReportDate: Monday, November 18, 2019
Print Date: *Monday, November 18, 2019*

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

Taiga Batch No.: 191076

- CERTIFICATE OF ANALYSIS -

Client Sample ID: 2 **Taiga Sample ID:** 002

- DATA QUALIFERS -

Data Qualifier Descriptions:

16 *Test requested but no sample bottle received*

*** 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, November 18, 2019
Print Date: *Monday, November 18, 2019*

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

Taiga Batch No.: 190863

- FINAL REPORT -

Prepared For: Hamlet of Tuktoyaktuk

Address: P.O. Box 120
Tuktoyaktuk,NT
X0E 1C0

Attn: Duncan Walker **Facsimile:** (867) 977-2110

Final report has been reviewed and approved by:

Glen Hudy
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.

ReportDate: Wednesday, September 25, 2019
Print Date: *Friday, September 27, 2019*

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

Taiga Batch No.: 190863

- CERTIFICATE OF ANALYSIS -

Client Sample ID: Sewage Lagoon (SNP-0714-2) **Taiga Sample ID:** 001

Client Project:
Sample Type: Water
Received Date: 11-Sep-19
Sampling Date: 11-Sep-19
Sampling Time: 8:03
Location:
Report Status: **Final**

Test Parameter	Result	Detection Limit	Units	Analysis Date	Analytical Method *	Qualifer
Inorganics - Nutrients						
Ammonia as Nitrogen	4.41	0.005	mg/L	18-Sep-19	SM4500-NH3:G	
Biochemical Oxygen Demand	34	2	mg/L	11-Sep-19	SM5210:B	
Inorganics - Physicals						
pH	8.65		pH units	16-Sep-19	SM4500-H:B	
Solids, Total Suspended	106	3	mg/L	12-Sep-19	SM2540:D	
Microbiology						
Coliforms, Fecal	5600	1	CFU/100mL	11-Sep-19	SM9222:D	
Organics						
Hexane Extractable Material	2.5	2.0	mg/L	23-Sep-19	EPA1664A	

ReportDate: Wednesday, September 25, 2019
Print Date: *Friday, September 27, 2019*

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

Taiga Batch No.: 190863

- CERTIFICATE OF ANALYSIS -

Client Sample ID: Sewage Lagoon (SNP-0714-2) **Taiga Sample ID:** 001

*** 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: Wednesday, September 25, 2019
Print Date: *Friday, September 27, 2019*

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

Taiga Batch No.: 190869

- FINAL REPORT -

Prepared For: Hamlet of Tuktoyaktuk

Address: P.O. Box 120
Tuktoyaktuk,NT
X0E 1C0

Attn: Duncan Walker **Facsimile:** (867) 977-2110

Final report has been reviewed and approved by:

Glen Hudy
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.

ReportDate: Monday, September 30, 2019
Print Date: *Monday, September 30, 2019*

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

Taiga Batch No.: 190869

- CERTIFICATE OF ANALYSIS -

Client Sample ID: Solid Waste Site **Taiga Sample ID:** 001

Client Project:
Sample Type: Water
Received Date: 12-Sep-19
Sampling Date: 12-Sep-19
Sampling Time: 7:55
Location:
Report Status: **Final**

Test Parameter	Result	Detection Limit	Units	Analysis Date	Analytical Method *	Qualifer
Inorganics - Nutrients						
Biochemical Oxygen Demand	3	2	mg/L	13-Sep-19	SM5210:B	
Inorganics - Physicals						
pH	8.28		pH units	13-Sep-19	SM4500-H:B	
Solids, Total Suspended	8	3	mg/L	13-Sep-19	SM2540:D	
Microbiology						
Coliforms, Fecal	8	1	CFU/100mL	12-Sep-19	SM9222:D	
Subcontracted Organics						
Polychlorinated Biphenyls	< 0.00100	0.0010	mg/L	26-Sep-19	EPA3510	
Trace Metals, Total						
Cadmium	< 0.04	0.04	µg/L	18-Sep-19	EPA200.8	
Chromium	0.3	0.1	µg/L	18-Sep-19	EPA200.8	
Cobalt	0.1	0.1	µg/L	18-Sep-19	EPA200.8	
Copper	1.4	0.2	µg/L	18-Sep-19	EPA200.8	
Iron	283	5	ug/L	18-Sep-19	EPA200.8	
Lead	0.3	0.1	µg/L	18-Sep-19	EPA200.8	

ReportDate: Monday, September 30, 2019
Print Date: *Monday, September 30, 2019*

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

Taiga Batch No.: 190869

- CERTIFICATE OF ANALYSIS -

Client Sample ID: Solid Waste Site **Taiga Sample ID:** 001

Manganese	26.4	0.1	µg/L	18-Sep-19	EPA200.8
Mercury	< 0.01	0.01	µg/L	18-Sep-19	EPA200.8
Nickel	3.3	0.1	µg/L	18-Sep-19	EPA200.8
Zinc	11.5	0.4	µg/L	18-Sep-19	EPA200.8

ReportDate: Monday, September 30, 2019
Print Date: *Monday, September 30, 2019*

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

Taiga Batch No.: 190869

- CERTIFICATE OF ANALYSIS -

Client Sample ID: Solid Waste Site **Taiga Sample ID:** 001

*** 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 30, 2019
Print Date: *Monday, September 30, 2019*

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

Taiga Batch No.: 191104

- FINAL REPORT -

Prepared For: Hamlet of Tuktoyaktuk

Address: P.O. Box 120
Tuktoyaktuk,NT
X0E 1C0

Attn: Duncan Walker **Facsimile:** (867) 977-2110

Final report has been reviewed and approved by:

Glen Hudy
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.

ReportDate: Thursday, December 05, 2019
Print Date: *Thursday, December 05, 2019*

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

Taiga Batch No.: 191104

- CERTIFICATE OF ANALYSIS -

Client Sample ID: Sewage Lagoon (SNP-0714-2) **Taiga Sample ID:** 001

Client Project:
Sample Type: Water
Received Date: 29-Nov-19
Sampling Date: 28-Nov-19
Sampling Time: 8:10
Location:
Report Status: Final

Test Parameter	Result	Detection Limit	Units	Analysis Date	Analytical Method *	Qualifer
Inorganics - Nutrients						
Ammonia as Nitrogen	6.32	0.005	mg/L	03-Dec-19	SM4500-NH3:G	
Biochemical Oxygen Demand	24	2	mg/L	29-Nov-19	SM5210:B	
Inorganics - Physicals						
pH	7.58		pH units	29-Nov-19	SM4500-H:B	
Solids, Total Suspended	22	3	mg/L	03-Dec-19	SM2540:D	
Microbiology						
Coliforms, Fecal	15000	1000	CFU/100mL	29-Nov-19	SM9222:D	88
Organics						
Hexane Extractable Material	2.5	2.0	mg/L	29-Nov-19	EPA1664A	

ReportDate: Thursday, December 05, 2019
Print Date: *Thursday, December 05, 2019*

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

Taiga Batch No.: 191104

- CERTIFICATE OF ANALYSIS -

Client Sample ID: Solid Waste Site **Taiga Sample ID:** 002

Client Project:
Sample Type: Water
Received Date: 29-Nov-19
Sampling Date: 28-Nov-19
Sampling Time: 7:45
Location:
Report Status: **Final**

Test Parameter	Result	Detection Limit	Units	Analysis Date	Analytical Method *	Qualifer
Inorganics - Nutrients						
Biochemical Oxygen Demand	4	2	mg/L	29-Nov-19	SM5210:B	
Inorganics - Physicals						
pH	7.78		pH units	29-Nov-19	SM4500-H:B	
Solids, Total Suspended	20	3	mg/L	03-Dec-19	SM2540:D	
Microbiology						
Coliforms, Fecal	< 1	1	CFU/100mL	29-Nov-19	SM9222:D	88
Subcontracted Organics						
Polychlorinated Biphenyls	< 0.00100	0.001	mg/L	04-Oct-19	EPA3510	
Trace Metals, Total						
Cadmium	< 0.1	0.1	µg/L	04-Dec-19	EPA200.8	
Chromium	0.5	0.1	µg/L	04-Dec-19	EPA200.8	
Cobalt	0.5	0.1	µg/L	04-Dec-19	EPA200.8	
Copper	3.1	0.2	µg/L	04-Dec-19	EPA200.8	
Iron	774	5	µg/L	04-Dec-19	EPA200.8	
Lead	0.3	0.1	µg/L	04-Dec-19	EPA200.8	
Manganese	736	0.1	µg/L	04-Dec-19	EPA200.8	

ReportDate: Thursday, December 05, 2019
Print Date: *Thursday, December 05, 2019*

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

Taiga Batch No.: 191104

- CERTIFICATE OF ANALYSIS -

Client Sample ID: Solid Waste Site **Taiga Sample ID:** 002

Mercury	0.01	0.01	µg/L	04-Dec-19	EPA200.8
Nickel	5.6	0.1	µg/L	04-Dec-19	EPA200.8
Zinc	56.3	5	µg/L	04-Dec-19	EPA200.8

ReportDate: Thursday, December 05, 2019
Print Date: *Thursday, December 05, 2019*

Taiga Environmental Laboratory
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Tel: (867)-767-9235 Fax: (867)-920-8740

Taiga Batch No.: 191104

- CERTIFICATE OF ANALYSIS -

Client Sample ID: Solid Waste Site **Taiga Sample ID:** 002

- DATA QUALIFERS -

Data Qualifier Descriptions:

88 *Samples analysed past holding time, as per client request.*

*** 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, December 05, 2019

Print Date: *Thursday, December 05, 2019*