Municipal Water Licence Annual Report

Community Government of Behchokǫ
Licence #: W2014L3-0002
Reporting year: 2016
Expires: November 25, 2029

The Licensee shall file an Annual Report with the Board not later than March 31st of the year following the calendar year reported which shall contain the following information:

1. Water Usage

Licensed Water Volume Withdrawal: 300,000 m^3

Total volume withdrawn for reporting year: 119,600 m^3

Table 1(a): Monthly & annual quantities obtained from the raw water intake at the Edzo Water Supply Facility (SNP 2014-E1)

Month	Volume from main source (m^3)	Volume from any other source (m^3)	TOTAL Volume (m^3)
January	3646		3646
February	3676		3676
March	2175		2175
April	1416		1416
May	3322		3322
June	4561		4561
July	3654		3654
August	3279		3279
September	3322		3322
October	3572		3572
November	3882		3882
December	4132		4132
TOTALS	40637		40637
% Increase/decrease from previous year	6% Increase		

Table 1(b): Monthly & annual quantities obtained from the raw water intake at the Rae Water Supply Facility (SNP 2014-R1)

Month	Volume from main source (m^3)	Volume from any other source (m^3)	TOTAL Volume (m^3)
January	5662		5662
February	5743		5743
March	8004		8004
April	9244		9244
May	8723		8723
June	5705		5705
July	5903		5903
August	6188		6188
September	6187		6187
October	5784		5784
November	5612		5612
December	6208		6208
TOTALS	78963		78963
% Increase/decrease from previous year	--		

Reasons for increase/decrease:

Overall recorded water volumes were higher in 2016 than in 2015. The variance is due to higher recorded volumes at the Edzo Plant.

Continued freeze-up in West Channel, due to low water levels, resulted in the Edzo intake being inoperable from March 10 to May 12, 2016. This resulted in the need to acquire raw water from Frank Channel during this period. However with new equipment, providing further efficiencies in water supply for Edzo during this period, all supplementary deliveries of raw water to the Edzo water plant were metered. With more consistent metering, the total 2016 numbers equal those recorded in 2013 and 2014.

At various times during the March to May period additional water was required for Edzo facilities. Treated water was trucked from the Rae plant to meet these needs, and this activity is reflected in the higher figures recorded for the Rae plant over this period.

2. Solid Waste Disposal

Approximate total yearly volume of solid waste deposited: 10,800 m^3

Table 2: Monthly and annual quantities of solid waste deposited based on population of 2,000

Month	Volume of solid waste deposited (m^3)
January	900
February	900
March	900
April	900
May	900
June	900
July	900
August	900
September	900
October	900
November	900
December	900
TOTALS	10,800
% Increase/decrease from previous year	N/A

GNWT – MACA has provided a standard formula for estimating the amount of solid waste deposited into a Solid Waste Facility in the absence of a metered Garbage Truck. The following can be used: Volume per person per day X number of days X population

0.015 m^3 X 30 days X 2000 people = 900 m^3 of domestic trash deposited into Solid Waste Facility in a 30 day month

3. Sewage Deposited to Primary Sewage Cells

Table 3(a): Monthly and annual quantities deposited at Edzo Sewage Disposal Facility

Month	Volume of sewage waste deposited (m^3)		
	Pumper Truck	Utilidor	TOTAL
January			3646
February			3676
March			2175
April			1416
May			3322
June			4561
July			3654
August			3279
September			3322
October			3572
November			3882
December			4132
TOTALS			40637
Is this an estimated volume?		**YES**	
% Increase/decrease from previous year			

To calculate monthly sewage waste deposited to the Primary Lagoon, please provide the above information if metered information is available. If metered information is not available, please fill in the table using the corresponding TOTAL water volumes from Table 1. This provides estimation only and equals water in/sewage out.

Has any sludge been removed during this reporting year? **NO**

Table 3(b): Monthly and annual quantities deposited at Rae Sewage Disposal Facility

Month	Volume of sewage waste deposited (m^3)		
	Pumper Truck	Utilidor	TOTAL
January			5662
February			5743
March			8004
April			9244
May			8723
June			5705
July			5903
August			6188
September			6187
October			5784
November			5612
December			6208
TOTALS			78963
Is this an estimated volume?		**YES**	
% Increase/decrease from previous year			

To calculate monthly sewage waste deposited to the Primary Lagoon, please provide the above information if metered information is available. If metered information is not available, please fill in the table using the corresponding TOTAL water volumes from Table 1. This provides estimation only and equals water in/sewage out.

Has any sludge been removed during this reporting year? **NO**

Decant dates and volume:

The 2016 annual decant of Cell 2 of the Rae lagoon began on June 24 and finished on July 8. The decant process is not metered therefore actual volumes are not available.

4. Problems, modifications or repairs completed during the year on water supply and waste disposal facilities

As noted above, the Edzo intake was once again inoperable for several weeks in 2016. The CGB continues to work toward a long term solution to address the intake issues. In the meantime, the acquisition and use of better equipment has improved the ability of the CGB to address the freeze up situation.

5. **Surveillance Network Program Data**

The CGB undertook a range of testing at the SNP sites in the community - below is a list of the 2016 SNP testing done in Behchoko. Most of the testing results are attached, however several results have already been posted on the WLWB website and are noted as such. The attachments are labelled by date and by SNP station, as follows:

- May16-SNP-R3-R4 (on WLWB Register)
- May24-SNP-R3-R4 (on WLWB Register)
- May30-SNP-R2 (on WLWB Register)
- June8-SNP-R3-R4
- June16-SNP-R3-R4
- June20-SNP-R2 (on WLWB Register)
- June 27-SNP-R3-R4
- June29-SNP-E2-E3-E4
- June30-SNP-E4
- July28-SNP-E2-E3-R5
- September29-SNP-E2-E3-E4
- October3-SNP-R1

6. SNP Sample Locations

An updated map showing exact locations of all SNP locations is attached to this Report. Currently, the following information is available:

Edzo

- SNP 2014-E1 – Raw water intake line at the water supply facilities serving Edzo
- SNP 2014-E2 – In the Sewage Disposal Facilities serving Edzo, immediately prior to flowing towards the overflow ditches (N62 46 16.1 W116 01 35.6)
- SNP 2014-E3 – Point of junction at the outflow ditches from the Sewage Disposal Facilities serving Edzo (N62 46 16.1 W116 01 30.0)
- SNP 2014-E4 – In natural wetland system, immediately prior to entering Great Slave Lake (no coordinates recorded)
- SNP 2014-E5 (inactive unless E4 cannot be sampled) – Great Slave Lake downstream from Sewage Disposal Facilities serving Edzo (no coordinates recorded)

Rae

- SNP 2014-R1 – Raw water intake line at the Water Supply Facilities serving Rae (no coordinates recorded)
- SNP 2014-R2 – Sewage Disposal Facilities Serving Rae near decant structure (N62 49 53.9 W116 00 33.9)
- SNP 2014-R3 – Point of outflow from the Sewage Disposal Facilities Serving Rae at the culvert crossing the Rae Access road (N62 49 43.9 W116 00 02.9)
- SNP 2014-R4 – At the end of Rae Wetland prior to entering Frank's Channel (N62 49 40.3 W117 13 50.2)
- SNP 2014-R5 – Run-off from old Solid Waste Disposal Facilities (north-west of Landfarm) (no coordinates recorded)

- SNP 2014-R6 – New Solid Waste Disposal Facilities (north of waste footprint) (coordinates TBD)
- SNP 2014-R7 – New Solid Waste Disposal Facilities (north-east of waste footprint, south-east of SNP station 2014-R6) (coordinates TBD)
- SNP 2014-R8 – New Solid Waste Disposal Facilities (south of waste footprint, north of waterbody) (coordinates TBD)
- SNP 2014-R9 – New Solid Waste Disposal Facilities (south of waste footprint, east of waterbody, south-east of SNP station 2014-R8) (coordinates TBD)

7. Unauthorized discharges

N/A

8. Spill Training and Communications Exercises

The Water Inspector assisted with SNP testing in the community on July 28, 2016.

9. Closure and Reclamation

The CGB continued construction of a new solid waste site throughout the summer of 2016. The work is being undertaken as per Board-approved plans, available on the Board's website. Technical, management and surveying assistance was provided by BluMetric Engineering, on a daily basis through the active construction season (as done in 2015).

Through the construction season of 2016 the focus was on preparation and completion of the new SWS as opposed to closure of the old SWS. Closure work will commence in 2017.

The CGB used, for the most part, in-house resources for construction. Unfortunately equipment issues slowed progress. At the end of 2016, the base of the first cell is complete and the berm surrounding the cell is nearly finished. As part of the preparation for use of the new site, a number of scrap vehicles were removed from the community for recycling.

10. Studies requested by the Board

A *Landfarm Operations and Management Plan* was completed and submitted to the Board at the end of 2016. Implementation will begin in 2017.

Efficacy studies on the Rae and Edzo sewage treatment systems will be addressed beginning in 2017.

11. Updates or revisions to approved plans

N/A

12. Other Information

Construction of the new SWS was again the focus of the CGB in 2016. The project consumed available labour, equipment and funds, as well as requiring significant coordination between this project and other public works projects in the community.

Improvements were made to the Edzo Lagoon, with extensive brushing around the cells and dredging of the ‘fingers’ acting as the engineered wetlands.

Concerns about non-soil related waste items deposited at the Land Farm were addressed through the removal and proper disposal of these items, and by further securing the site from unauthorized access through fencing and a barrier at the road access point.

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

Taiga Batch No.: 160339

- FINAL REPORT -

Prepared For: Community Government of Behchoko

Address: P.O. Box 68
Behchoko,NT
X0E 0Y0

Attn: **Galvin Simpson** **Facsimile: (867) 392-6967**

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.
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  - Environment Canada
  - USEPA
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ReportDate: Friday, June 17, 2016
Print Date: ***Friday, June 17, 2016***

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

Taiga Batch No.: 160339

- CERTIFICATE OF ANALYSIS -

Client Sample ID: SNP2014-R2 **Taiga Sample ID:** 001

Client Project:
Sample Type: Sewage
Received Date: 08-Jun-16
Sampling Date: 08-Jun-16
Sampling Time:
Location: Rae Cell#2
Report Status: **Final**

Test Parameter	Result	Detection Limit	Units	Analysis Date	Analytical Method *	Qualifer
Inorganics - Nutrients						
Ammonia as Nitrogen	30.6	0.005	mg/L	13-Jun-16	SM4500-NH3:G	
Biochemical Oxygen Demand	21	2	mg/L	08-Jun-16	SM5210:B	
Chemical Oxygen Demand	97	5	mg/L	09-Jun-16	SM5220:D	
Phosphorous, Total	7.28	0.002	mg/L	16-Jun-16	SM4500-P:D	
Inorganics - Physicals						
pH	8.06		pH units	08-Jun-16	SM4500-H:B	
Solids, Total Suspended	14	3	mg/L	16-Jun-16	SM2540:D	
Microbiology						
Coliforms, Fecal	3	1	CFU/100mL	08-Jun-16	SM9222:D	

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Taiga Batch No.: 160339

- CERTIFICATE OF ANALYSIS -

Client Sample ID: SNP2014-R3 **Taiga Sample ID:** 002

Client Project:
Sample Type: Sewage
Received Date: 08-Jun-16
Sampling Date: 08-Jun-16
Sampling Time:
Location: Rae Cell#2
Report Status: **Final**

Test Parameter	Result	Detection Limit	Units	Analysis Date	Analytical Method *	Qualifer
Inorganics - Nutrients						
Ammonia as Nitrogen	1.71	0.005	mg/L	13-Jun-16	SM4500-NH3:G	
Biochemical Oxygen Demand	7	2	mg/L	08-Jun-16	SM5210:B	
Chemical Oxygen Demand	74	5	mg/L	09-Jun-16	SM5220:D	
Phosphorous, Total	3.10	0.002	mg/L	16-Jun-16	SM4500-P:D	
Inorganics - Physicals						
pH	7.27		pH units	08-Jun-16	SM4500-H:B	
Solids, Total Suspended	5	3	mg/L	16-Jun-16	SM2540:D	
Microbiology						
Coliforms, Fecal	1	1	CFU/100mL	08-Jun-16	SM9222:D	

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Taiga Batch No.: 160339

- CERTIFICATE OF ANALYSIS -

Client Sample ID: SNP2014-R4 **Taiga Sample ID:** 003

Client Project:
Sample Type: Sewage
Received Date: 08-Jun-16
Sampling Date: 08-Jun-16
Sampling Time:
Location: Rae Cell#2
Report Status: **Final**

Test Parameter	Result	Detection Limit	Units	Analysis Date	Analytical Method *	Qualifer
Inorganics - Nutrients						
Ammonia as Nitrogen	0.010	0.005	mg/L	13-Jun-16	SM4500-NH3:G	
Biochemical Oxygen Demand	3	2	mg/L	08-Jun-16	SM5210:B	
Chemical Oxygen Demand	66	5	mg/L	09-Jun-16	SM5220:D	
Phosphorous, Total	0.022	0.002	mg/L	16-Jun-16	SM4500-P:D	
Inorganics - Physicals						
pH	7.31		pH units	08-Jun-16	SM4500-H:B	
Solids, Total Suspended	7	3	mg/L	16-Jun-16	SM2540:D	
Microbiology						
Coliforms, Fecal	< 1	1	CFU/100mL	08-Jun-16	SM9222:D	

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Taiga Batch No.: 160339

- CERTIFICATE OF ANALYSIS -

Client Sample ID: SNP2014-R4 **Taiga Sample ID:** 003

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

SM - Standard Methods for the Examination of Water and Wastewater

EPA - United States Environmental Protection Agency

ReportDate: Friday, June 17, 2016

Print Date: *Friday, June 17, 2016*

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

Taiga Batch No.: 160380

- FINAL REPORT -

Prepared For: Community Government of Behchoko

Address: P.O. Box 68
Behchoko,NT
X0E 0Y0

Attn: **Galvin Simpson** **Facsimile: (867) 392-6967**

Final report has been reviewed and approved by:

Glen Hudy
Quality Assurance Officer

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ReportDate: Wednesday, June 29, 2016
Print Date: ***Wednesday, June 29, 2016***

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

Taiga Batch No.: 160380

- CERTIFICATE OF ANALYSIS -

Client Sample ID: SNP2014-R3 **Taiga Sample ID:** 001

Client Project:
Sample Type: Sewage
Received Date: 16-Jun-16
Sampling Date: 16-Jun-16
Sampling Time: 11:15
Location: R3
Report Status: **Final**

Test Parameter	Result	Detection Limit	Units	Analysis Date	Analytical Method *	Qualifer
Inorganics - Nutrients						
Ammonia as Nitrogen	1.61	0.005	mg/L	22-Jun-16	SM4500-NH3:G	
Biochemical Oxygen Demand	6	2	mg/L	16-Jun-16	SM5210:B	
Chemical Oxygen Demand	79	5	mg/L	22-Jun-16	SM5220:D	
Phosphorous, Total	3.19	0.002	mg/L	28-Jun-16	SM4500-P:D	
Inorganics - Physicals						
pH	7.26		pH units	16-Jun-16	SM4500-H:B	
Solids, Total Suspended	3	3	mg/L	17-Jun-16	SM2540:D	
Microbiology						
Coliforms, Fecal	1	1	CFU/100mL	16-Jun-16	SM9222:D	

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Taiga Batch No.: 160380

- CERTIFICATE OF ANALYSIS -

Client Sample ID: SNP2014-R4 **Taiga Sample ID:** 002

Client Project:
Sample Type: Sewage
Received Date: 16-Jun-16
Sampling Date: 16-Jun-16
Sampling Time: 11:15
Location: R4
Report Status: **Final**

Test Parameter	Result	Detection Limit	Units	Analysis Date	Analytical Method *	Qualifer
Inorganics - Nutrients						
Ammonia as Nitrogen	0.006	0.005	mg/L	22-Jun-16	SM4500-NH3:G	
Biochemical Oxygen Demand	3	2	mg/L	16-Jun-16	SM5210:B	
Chemical Oxygen Demand	68	5	mg/L	22-Jun-16	SM5220:D	
Phosphorous, Total	0.036	0.002	mg/L	28-Jun-16	SM4500-P:D	
Inorganics - Physicals						
pH	7.26		pH units	16-Jun-16	SM4500-H:B	
Solids, Total Suspended	11	3	mg/L	17-Jun-16	SM2540:D	
Microbiology						
Coliforms, Fecal	5	1	CFU/100mL	16-Jun-16	SM9222:D	

ReportDate: Wednesday, June 29, 2016
Print Date: ***Wednesday, June 29, 2016***

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

Taiga Batch No.: 160380

- CERTIFICATE OF ANALYSIS -

Client Sample ID: SNP2014-R4 **Taiga Sample ID:** 002

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

SM - Standard Methods for the Examination of Water and Wastewater

EPA - United States Environmental Protection Agency

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

Taiga Batch No.: 160477

- FINAL REPORT -

Prepared For: Community Government of Behchoko

Address: P.O. Box 68
Behchoko,NT
X0E 0Y0

Attn: **Galvin Simpson** **Facsimile: (867) 392-6967**

Final report has been reviewed and approved by:

Glen Hudy
Quality Assurance Officer

NOTES:

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ReportDate: Saturday, July 09, 2016
Print Date: ***Saturday, July 09, 2016***

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

Taiga Batch No.: 160477

- CERTIFICATE OF ANALYSIS -

Client Sample ID: SNP 2014-E4 **Taiga Sample ID:** 001

Client Project:
Sample Type: Sewage
Received Date: 30-Jun-16
Sampling Date: 30-Jun-16
Sampling Time: 9:00
Location: Edzo Lagoon
Report Status: **Final**

Test Parameter	Result	Detection Limit	Units	Analysis Date	Analytical Method *	Qualifer
Organics						
Hexane Extractable Material	< 2.0	2.0	mg/L	05-Jul-16	EPA1664A	

ReportDate: Saturday, July 09, 2016
Print Date: *Saturday, July 09, 2016*

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Taiga Batch No.: 160477

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Client Sample ID: SNP 2014-E4 **Taiga Sample ID:** 001

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Taiga Environmental Laboratory
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Taiga Batch No.:
160449

- FINAL REPORT -

Prepared For: Community Government of Behchoko

Address: P.O. Box 68
Behchoko,NT
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Attn: **Galvin Simpson** **Facsimile: (867) 392-6967**

Final report has been reviewed and approved by:

Glen Hudy
Quality Assurance Officer

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ReportDate: Monday, July 11, 2016
Print Date: ***Monday, July 11, 2016***

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

Taiga Batch No.: 160449

- CERTIFICATE OF ANALYSIS -

Client Sample ID: SNP 2014-R3 **Taiga Sample ID:** 001

Client Project:
Sample Type: Sewage
Received Date: 27-Jun-16
Sampling Date: 27-Jun-16
Sampling Time: 8:45
Location: R3
Report Status: **Final**

Test Parameter	Result	Detection Limit	Units	Analysis Date	Analytical Method *	Qualifer
Inorganics - Nutrients						
Ammonia as Nitrogen	8.06	0.005	mg/L	04-Jul-16	SM4500-NH3:G	
Biochemical Oxygen Demand	19	2	mg/L	28-Jun-16	SM5210:B	
Phosphorous, Total	7.25	0.002	mg/L	09-Jul-16	SM4500-P:D	
Inorganics - Physicals						
pH	8.50		pH units	27-Jun-16	SM4500-H:B	
Solids, Total Suspended	24	3	mg/L	06-Jul-16	SM2540:D	
Microbiology						
Coliforms, Fecal	10	1	CFU/100mL	27-Jun-16	SM9222:D	

ReportDate: Monday, July 11, 2016
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Tel: (867)-767-9235 Fax: (867)-920-8740

Taiga Batch No.: 160449

- CERTIFICATE OF ANALYSIS -

Client Sample ID: SNP 2014-R4 **Taiga Sample ID:** 002

Client Project:
Sample Type: Sewage
Received Date: 27-Jun-16
Sampling Date: 27-Jun-16
Sampling Time: 8:45
Location: R4
Report Status: **Final**

Test Parameter	Result	Detection Limit	Units	Analysis Date	Analytical Method *	Qualifer
Inorganics - Nutrients						
Ammonia as Nitrogen	0.005	0.005	mg/L	04-Jul-16	SM4500-NH3:G	
Biochemical Oxygen Demand	3	2	mg/L	28-Jun-16	SM5210:B	
Phosphorous, Total	0.039	0.002	mg/L	09-Jul-16	SM4500-P:D	
Inorganics - Physicals						
pH	7.29		pH units	27-Jun-16	SM4500-H:B	
Solids, Total Suspended	< 3	3	mg/L	06-Jul-16	SM2540:D	
Microbiology						
Coliforms, Fecal	2	1	CFU/100mL	27-Jun-16	SM9222:D	

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Taiga Batch No.: 160449

- CERTIFICATE OF ANALYSIS -

Client Sample ID: SNP 2014-R4 **Taiga Sample ID:** 002

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

SM - Standard Methods for the Examination of Water and Wastewater

EPA - United States Environmental Protection Agency

ReportDate: Monday, July 11, 2016

Print Date: *Monday, July 11, 2016*

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

Taiga Batch No.:
160467

- FINAL REPORT -

Prepared For: Community Government of Behchoko

Address: P.O. Box 68
Behchoko,NT
X0E 0Y0

Attn: **Galvin Simpson** **Facsimile: (867) 392-6967**

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: Friday, July 22, 2016
Print Date: ***Friday, July 22, 2016***

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

Taiga Batch No.: 160467

- CERTIFICATE OF ANALYSIS -

Client Sample ID: SNP2014-R3 **Taiga Sample ID:** 001

Client Project:
Sample Type: Sewage
Received Date: 29-Jun-16
Sampling Date: 29-Jun-16
Sampling Time:
Location:
Report Status: **Final**

Test Parameter	Result	Detection Limit	Units	Analysis Date	Analytical Method *	Qualifer
Inorganics - Nutrients						
Ammonia as Nitrogen	9.50	0.005	mg/L	04-Jul-16	SM4500-NH3:G	
Biochemical Oxygen Demand	11	2	mg/L	30-Jun-16	SM5210:B	
Phosphorous, Total	6.58	0.002	mg/L	09-Jul-16	SM4500-P:D	
Inorganics - Physicals						
Alkalinity, Total (as CaCO3)	221	0.4	mg/L	30-Jun-16	SM2320:B	
Conductivity, Specific (@25C)	694	0.4	µS/cm	30-Jun-16	SM2510:B	
pH	7.85		pH units	30-Jun-16	SM4500-H:B	
Solids, Total Suspended	12	3	mg/L	06-Jul-16	SM2540:D	
Microbiology						
Coliforms, Fecal	23	1	CFU/100mL	30-Jun-16	SM9222:D	
Organics						
Hexane Extractable Material	< 2.0	2.0	mg/L	05-Jul-16	EPA1664A	

ReportDate: Friday, July 22, 2016
Print Date: ***Friday, July 22, 2016***

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

Taiga Batch No.: 160467

- CERTIFICATE OF ANALYSIS -

Client Sample ID: SNP2014-R4 **Taiga Sample ID:** 002

Client Project:
Sample Type: Sewage
Received Date: 29-Jun-16
Sampling Date: 29-Jun-16
Sampling Time:
Location:
Report Status: **Final**

Test Parameter	Result	Detection Limit	Units	Analysis Date	Analytical Method *	Qualifer
Inorganics - Nutrients						
Ammonia as Nitrogen	< 0.005	0.005	mg/L	04-Jul-16	SM4500-NH3:G	
Biochemical Oxygen Demand	< 2	2	mg/L	30-Jun-16	SM5210:B	
Phosphorous, Total	0.036	0.002	mg/L	09-Jul-16	SM4500-P:D	
Inorganics - Physicals						
pH	7.16		pH units	30-Jun-16	SM4500-H:B	
Solids, Total Suspended	9	3	mg/L	06-Jul-16	SM2540:D	
Microbiology						
Coliforms, Fecal	< 1	1	CFU/100mL	30-Jun-16	SM9222:D	

ReportDate: Friday, July 22, 2016
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Taiga Batch No.: 160467

- CERTIFICATE OF ANALYSIS -

Client Sample ID: SNP2014-E2 **Taiga Sample ID:** 003

Client Project:
Sample Type: Sewage
Received Date: 29-Jun-16
Sampling Date: 29-Jun-16
Sampling Time:
Location:
Report Status: **Final**

Test Parameter	Result	Detection Limit	Units	Analysis Date	Analytical Method *	Qualifer
Inorganics - Nutrients						
Ammonia as Nitrogen	1.17	0.005	mg/L	04-Jul-16	SM4500-NH3:G	
Biochemical Oxygen Demand	43	2	mg/L	30-Jun-16	SM5210:B	
Phosphorous, Total	2.63	0.002	mg/L	09-Jul-16	SM4500-P:D	
Inorganics - Physicals						
Conductivity, Specific (@25C)	485	0.4	µS/cm	30-Jun-16	SM2510:B	
pH	8.93		pH units	30-Jun-16	SM4500-H:B	
Solids, Total Suspended	259	3	mg/L	06-Jul-16	SM2540:D	
Major Ions						
Calcium	46.1	0.1	mg/L	28-Jun-16	SM4110:B	
Magnesium	16.2	0.1	mg/L	28-Jun-16	SM4110:B	
Potassium	11.5	0.1	mg/L	28-Jun-16	SM4110:B	
Sodium	44.4	0.1	mg/L	28-Jun-16	SM4110:B	
Microbiology						
Coliforms, Fecal	50	10	CFU/100mL	30-Jun-16	SM9222:D	
Organics						
Hexane Extractable Material	4.9	2.0	mg/L	05-Jul-16	EPA1664A	

ReportDate: Friday, July 22, 2016
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Taiga Batch No.: 160467

- CERTIFICATE OF ANALYSIS -

Client Sample ID: SNP2014-E2 **Taiga Sample ID:** 003

Subcontracted Organics					
Phenols, Total	0.0090	0.001	mg/L	11-Jul-16	AB ENV.06537
Trace Metals, Total					
Aluminum	1460	5	µg/L	07-Jul-16	EPA200.8
Antimony	0.3	0.1	µg/L	07-Jul-16	EPA200.8
Arsenic	2.7	0.2	µg/L	07-Jul-16	EPA200.8
Barium	53.4	0.1	µg/L	07-Jul-16	EPA200.8
Beryllium	< 0.1	0.1	µg/L	07-Jul-16	EPA200.8
Cadmium	0.1	0.1	µg/L	07-Jul-16	EPA200.8
Cesium	0.1	0.1	µg/L	07-Jul-16	EPA200.8
Chromium	0.9	0.1	µg/L	07-Jul-16	EPA200.8
Cobalt	0.5	0.1	µg/L	07-Jul-16	EPA200.8
Copper	25.7	0.2	µg/L	07-Jul-16	EPA200.8
Iron	504	5	µg/L	07-Jul-16	EPA200.8
Lead	1.0	0.1	µg/L	07-Jul-16	EPA200.8
Lithium	6.5	0.2	µg/L	07-Jul-16	EPA200.8
Manganese	96.9	0.1	µg/L	07-Jul-16	EPA200.8
Molybdenum	18.1	0.1	µg/L	07-Jul-16	EPA200.8
Nickel	3.1	0.1	µg/L	07-Jul-16	EPA200.8
Rubidium	10.1	0.1	µg/L	07-Jul-16	EPA200.8
Selenium	< 0.5	0.5	µg/L	07-Jul-16	EPA200.8
Silver	0.4	0.1	µg/L	07-Jul-16	EPA200.8
Strontium	271	0.1	µg/L	07-Jul-16	EPA200.8
Thallium	< 0.1	0.1	µg/L	07-Jul-16	EPA200.8
Titanium	14.1	0.1	µg/L	07-Jul-16	EPA200.8

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Taiga Batch No.: 160467

- CERTIFICATE OF ANALYSIS -

Client Sample ID: SNP2014-E2 **Taiga Sample ID:** 003

Uranium	0.5	0.1	µg/L	07-Jul-16	EPA200.8
Vanadium	0.8	0.1	µg/L	07-Jul-16	EPA200.8
Zinc	36.1	5	µg/L	07-Jul-16	EPA200.8

ReportDate: Friday, July 22, 2016
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Taiga Batch No.: 160467

- CERTIFICATE OF ANALYSIS -

Client Sample ID: SNP2014-E3 **Taiga Sample ID:** 004

Client Project:
Sample Type: Sewage
Received Date: 29-Jun-16
Sampling Date: 29-Jun-16
Sampling Time:
Location:
Report Status: **Final**

Test Parameter	Result	Detection Limit	Units	Analysis Date	Analytical Method *	Qualifer
Inorganics - Nutrients						
Ammonia as Nitrogen	16.3	0.005	mg/L	04-Jul-16	SM4500-NH3:G	
Biochemical Oxygen Demand	95	2	mg/L	30-Jun-16	SM5210:B	
Phosphorous, Total	3.71	0.002	mg/L	09-Jul-16	SM4500-P:D	
Inorganics - Physicals						
Conductivity, Specific (@25C)	588	0.4	µS/cm	30-Jun-16	SM2510:B	
pH	7.33		pH units	30-Jun-16	SM4500-H:B	
Solids, Total Suspended	788	3	mg/L	06-Jul-16	SM2540:D	
Major Ions						
Calcium	66.3	0.1	mg/L	28-Jun-16	SM4110:B	
Magnesium	20.3	0.1	mg/L	28-Jun-16	SM4110:B	
Potassium	12.5	0.1	mg/L	28-Jun-16	SM4110:B	
Sodium	24.7	0.1	mg/L	28-Jun-16	SM4110:B	
Microbiology						
Coliforms, Fecal	300000	10000	CFU/100mL	30-Jun-16	SM9222:D	
Organics						
Hexane Extractable Material	17.4	2.0	mg/L	05-Jul-16	EPA1664A	

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Taiga Batch No.: 160467

- CERTIFICATE OF ANALYSIS -

Client Sample ID: SNP2014-E3 **Taiga Sample ID:** 004

Subcontracted Organics					
Phenols, Total	0.0216	0.001	mg/L	11-Jul-16	AB ENV.06537
Trace Metals, Total					
Aluminum	2740	5	µg/L	07-Jul-16	EPA200.8
Antimony	0.4	0.1	µg/L	07-Jul-16	EPA200.8
Arsenic	1.2	0.2	µg/L	07-Jul-16	EPA200.8
Barium	63.5	0.1	µg/L	07-Jul-16	EPA200.8
Beryllium	< 0.1	0.1	µg/L	07-Jul-16	EPA200.8
Cadmium	0.1	0.1	µg/L	07-Jul-16	EPA200.8
Cesium	0.2	0.1	µg/L	07-Jul-16	EPA200.8
Chromium	2.2	0.1	µg/L	07-Jul-16	EPA200.8
Cobalt	1.5	0.1	µg/L	07-Jul-16	EPA200.8
Copper	70.0	0.2	µg/L	07-Jul-16	EPA200.8
Iron	1660	5	µg/L	07-Jul-16	EPA200.8
Lead	1.1	0.1	µg/L	07-Jul-16	EPA200.8
Lithium	8.1	0.2	µg/L	07-Jul-16	EPA200.8
Manganese	141	0.1	µg/L	07-Jul-16	EPA200.8
Molybdenum	4.4	0.1	µg/L	07-Jul-16	EPA200.8
Nickel	3.2	0.1	µg/L	07-Jul-16	EPA200.8
Rubidium	10.4	0.1	µg/L	07-Jul-16	EPA200.8
Selenium	< 0.5	0.5	µg/L	07-Jul-16	EPA200.8
Silver	< 0.1	0.1	µg/L	07-Jul-16	EPA200.8
Strontium	312	0.1	µg/L	07-Jul-16	EPA200.8
Thallium	< 0.1	0.1	µg/L	07-Jul-16	EPA200.8
Titanium	49.4	0.1	µg/L	07-Jul-16	EPA200.8

ReportDate: Friday, July 22, 2016
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Taiga Batch No.: 160467

- CERTIFICATE OF ANALYSIS -

Client Sample ID: SNP2014-E3 **Taiga Sample ID:** 004

Uranium	0.6	0.1	µg/L	07-Jul-16	EPA200.8
Vanadium	1.9	0.1	µg/L	07-Jul-16	EPA200.8
Zinc	85.6	5	µg/L	07-Jul-16	EPA200.8

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Taiga Batch No.: 160467

- CERTIFICATE OF ANALYSIS -

Client Sample ID: SNP2014-E4 **Taiga Sample ID:** 005

Client Project:
Sample Type: Sewage
Received Date: 29-Jun-16
Sampling Date: 29-Jun-16
Sampling Time:
Location:
Report Status: **Final**

Test Parameter	Result	Detection Limit	Units	Analysis Date	Analytical Method *	Qualifer
Inorganics - Nutrients						
Ammonia as Nitrogen	4.48	0.005	mg/L	04-Jul-16	SM4500-NH3:G	
Biochemical Oxygen Demand	8	2	mg/L	30-Jun-16	SM5210:B	
Phosphorous, Total	1.36	0.002	mg/L	09-Jul-16	SM4500-P:D	
Inorganics - Physicals						
Conductivity, Specific (@25C)	563	0.4	µS/cm	30-Jun-16	SM2510:B	
pH	7.47		pH units	30-Jun-16	SM4500-H:B	
Solids, Total Suspended	77	3	mg/L	06-Jul-16	SM2540:D	
Major Ions						
Calcium	55.7	0.1	mg/L	28-Jun-16	SM4110:B	
Magnesium	24.3	0.1	mg/L	28-Jun-16	SM4110:B	
Potassium	7.9	0.1	mg/L	28-Jun-16	SM4110:B	
Sodium	37.8	0.1	mg/L	28-Jun-16	SM4110:B	
Microbiology						
Coliforms, Fecal	105000	1000	CFU/100mL	30-Jun-16	SM9222:D	
Subcontracted Organics						
Phenols, Total	0.0034	0.001	mg/L	11-Jul-16	AB ENV.06537	

ReportDate: Friday, July 22, 2016
Print Date: ***Friday, July 22, 2016***

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Taiga Batch No.: 160467

- CERTIFICATE OF ANALYSIS -

Client Sample ID: SNP2014-E4 **Taiga Sample ID:** 005

Trace Metals, Total

Aluminum	25.4	5	µg/L	07-Jul-16	EPA200.8
Antimony	< 0.1	0.1	µg/L	07-Jul-16	EPA200.8
Arsenic	1.1	0.2	µg/L	07-Jul-16	EPA200.8
Barium	35.3	0.1	µg/L	07-Jul-16	EPA200.8
Beryllium	< 0.1	0.1	µg/L	07-Jul-16	EPA200.8
Cadmium	< 0.1	0.1	µg/L	07-Jul-16	EPA200.8
Cesium	< 0.1	0.1	µg/L	07-Jul-16	EPA200.8
Chromium	0.2	0.1	µg/L	07-Jul-16	EPA200.8
Cobalt	0.4	0.1	µg/L	07-Jul-16	EPA200.8
Copper	1.1	0.2	µg/L	07-Jul-16	EPA200.8
Iron	1010	5	µg/L	07-Jul-16	EPA200.8
Lead	< 0.1	0.1	µg/L	07-Jul-16	EPA200.8
Lithium	8.9	0.2	µg/L	07-Jul-16	EPA200.8
Manganese	186	0.1	µg/L	07-Jul-16	EPA200.8
Molybdenum	0.4	0.1	µg/L	07-Jul-16	EPA200.8
Nickel	1.5	0.1	µg/L	07-Jul-16	EPA200.8
Rubidium	5.6	0.1	µg/L	07-Jul-16	EPA200.8
Selenium	< 0.5	0.5	µg/L	07-Jul-16	EPA200.8
Silver	< 0.1	0.1	µg/L	07-Jul-16	EPA200.8
Strontium	264	0.1	µg/L	07-Jul-16	EPA200.8
Thallium	< 0.1	0.1	µg/L	07-Jul-16	EPA200.8
Titanium	1.1	0.1	µg/L	07-Jul-16	EPA200.8
Uranium	< 0.1	0.1	µg/L	07-Jul-16	EPA200.8
Vanadium	0.3	0.1	µg/L	07-Jul-16	EPA200.8

ReportDate: Friday, July 22, 2016
Print Date: *Friday, July 22, 2016*

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Taiga Batch No.: 160467

- CERTIFICATE OF ANALYSIS -

Client Sample ID: SNP2014-E4 **Taiga Sample ID:** 005

Zinc	<	5.0	5	µg/L	07-Jul-16	EPA200.8

ReportDate: Friday, July 22, 2016
Print Date: *Friday, July 22, 2016*

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Taiga Batch No.: 160467

- CERTIFICATE OF ANALYSIS -

Client Sample ID: SNP2014-E4 **Taiga Sample ID:** 005

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

SM - Standard Methods for the Examination of Water and Wastewater

EPA - United States Environmental Protection Agency

ReportDate: Friday, July 22, 2016

Print Date: *Friday, July 22, 2016*

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

Taiga Batch No.: 160679

- FINAL REPORT -

Prepared For: Community Government of Behchoko

Address: P.O. Box 68
Behchoko,NT
X0E 0Y0

Attn: **Galvin Simpson** **Facsimile: (867) 392-6967**

Final report has been reviewed and approved by:

Judy Mah
Client Service 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: Friday, August 19, 2016
Print Date: ***Friday, August 19, 2016***

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

Taiga Batch No.: 160679

- CERTIFICATE OF ANALYSIS -

Client Sample ID: R5 **Taiga Sample ID:** 001

Client Project: Behchoko SNP
Sample Type: Runoff Water
Received Date: 28-Jul-16
Sampling Date: 28-Jul-16
Sampling Time: 13:30
Location:
Report Status: **Final**

Test Parameter	Result	Detection Limit	Units	Analysis Date	Analytical Method *	Qualifer
Inorganics - Nutrients						
Ortho-Phosphate as Phosphorus	0.015	0.002	mg/L	29-Jul-16	SM4500-P:D	
Inorganics - Physicals						
Conductivity, Specific (@25C)	1560	0.4	µS/cm	29-Jul-16	SM2510:B	
pH	8.14		pH units	29-Jul-16	SM4500-H:B	
Solids, Total Suspended	291	3	mg/L	09-Aug-16	SM2540:D	
Turbidity	43.1	0.05	NTU	29-Jul-16	SM2130:B	
Major Ions						
Calcium	91.9	0.1	mg/L	03-Aug-16	SM4110:B	
Magnesium	60.8	0.1	mg/L	03-Aug-16	SM4110:B	
Potassium	11.4	0.1	mg/L	03-Aug-16	SM4110:B	
Sodium	145	0.1	mg/L	03-Aug-16	SM4110:B	
Sulphate	36	1	mg/L	03-Aug-16	SM4110:B	
Microbiology						
Coliforms, Fecal	< 1	1	CFU/100mL	29-Jul-16	SM9222:D	
Organics						

ReportDate: Friday, August 19, 2016
Print Date: ***Friday, August 19, 2016***

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Taiga Batch No.: 160679

- CERTIFICATE OF ANALYSIS -

Client Sample ID: R5 **Taiga Sample ID:** 001

Hexane Extractable Material	< 2.0	2.0	mg/L	09-Aug-16	EPA1664A	
Subcontracted Organics						
Phenols, Total	0.0040	0.002	mg/L	15-Aug-16	AB ENV.06537	207
Trace Metals, Dissolved						
Cadmium	< 0.05	0.05	µg/L	18-Aug-16	EPA200.8	
Chromium	< 0.1	0.1	µg/L	18-Aug-16	EPA200.8	
Copper	< 0.2	0.2	µg/L	18-Aug-16	EPA200.8	
Iron	31	5	µg/L	18-Aug-16	EPA200.8	
Lead	0.4	0.1	µg/L	18-Aug-16	EPA200.8	
Mercury	0.01	0.01	µg/L	18-Aug-16	EPA200.8	
Nickel	0.7	0.1	µg/L	18-Aug-16	EPA200.8	
Zinc	< 0.4	0.4	µg/L	18-Aug-16	EPA200.8	
Trace Metals, Total						
Cadmium	< 0.1	0.1	µg/L	18-Aug-16	EPA200.8	
Chromium	3.3	0.1	µg/L	18-Aug-16	EPA200.8	
Copper	1.4	0.2	µg/L	18-Aug-16	EPA200.8	
Iron	2010	5	µg/L	18-Aug-16	EPA200.8	
Lead	0.8	0.1	µg/L	18-Aug-16	EPA200.8	
Mercury	< 0.01	0.01	µg/L	18-Aug-16	EPA200.8	
Nickel	2.7	0.1	µg/L	18-Aug-16	EPA200.8	
Zinc	6.9	5	µg/L	18-Aug-16	EPA200.8	

ReportDate: Friday, August 19, 2016
Print Date: *Friday, August 19, 2016*

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

Taiga Batch No.: 160679

- CERTIFICATE OF ANALYSIS -

Client Sample ID: E2 **Taiga Sample ID:** 002

Client Project: Behchoko SNP
Sample Type: Water
Received Date: 28-Jul-16
Sampling Date: 28-Jul-16
Sampling Time: 14:50
Location:
Report Status: **Final**

Test Parameter	Result	Detection Limit	Units	Analysis Date	Analytical Method *	Qualifer
Inorganics - Nutrients						
Ammonia as Nitrogen	3.00	0.005	mg/L	10-Aug-16	SM4500-NH3:G	
Biochemical Oxygen Demand	29	2	mg/L	28-Jul-16	SM5210:B	
CBOD	29	2	mg/L	28-Jul-16	SM5210:B	
Phosphorous, Total	0.606	0.002	mg/L	04-Aug-16	SM4500-P:D	
Inorganics - Physicals						
pH	9.70		pH units	29-Jul-16	SM4500-H:B	
Solids, Total Suspended	34	3	mg/L	09-Aug-16	SM2540:D	
Major Ions						
Potassium	8.6	0.1	mg/L	03-Aug-16	SM4110:B	
Sodium	29.7	0.1	mg/L	03-Aug-16	SM4110:B	
Microbiology						
Coliforms, Fecal	700	1	CFU/100mL	29-Jul-16	SM9222:D	

ReportDate: Friday, August 19, 2016
Print Date: ***Friday, August 19, 2016***

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

Taiga Batch No.: 160679

- CERTIFICATE OF ANALYSIS -

Client Sample ID: E3 **Taiga Sample ID:** 003

Client Project: Behchoko SNP
Sample Type: Water
Received Date: 28-Jul-16
Sampling Date: 28-Jul-16
Sampling Time: 14:40
Location:
Report Status: **Final**

Test Parameter	Result	Detection Limit	Units	Analysis Date	Analytical Method *	Qualifer
Inorganics - Nutrients						
Ammonia as Nitrogen	9.55	0.005	mg/L	10-Aug-16	SM4500-NH3:G	
Biochemical Oxygen Demand	50	2	mg/L	28-Jul-16	SM5210:B	
CBOD	56	2	mg/L	28-Jul-16	SM5210:B	
Phosphorous, Total	0.705	0.002	mg/L	04-Aug-16	SM4500-P:D	
Inorganics - Physicals						
pH	7.35		pH units	29-Jul-16	SM4500-H:B	
Solids, Total Suspended	28	3	mg/L	09-Aug-16	SM2540:D	
Major Ions						
Potassium	8.6	0.1	mg/L	03-Aug-16	SM4110:B	
Sodium	24.7	0.1	mg/L	03-Aug-16	SM4110:B	
Microbiology						
Coliforms, Fecal	18000	1	CFU/100mL	29-Jul-16	SM9222:D	

ReportDate: Friday, August 19, 2016
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Taiga Batch No.: 160679

- CERTIFICATE OF ANALYSIS -

Client Sample ID: E3 **Taiga Sample ID:** 003

- DATA QUALIFERS -

Data Qualifier Descriptions:

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: Friday, August 19, 2016

Print Date: ***Friday, August 19, 2016***

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

Taiga Batch No.:
160990

- PRELIMINARY REPORT -

Prepared For: Community Government of Behchoko

Address: P.O. Box 68
Behchoko,NT
X0E 0Y0

Attn: **Galvin Simpson** **Facsimile: (867) 392-6967**

Final report has been reviewed and approved by:

Judy Mah
Client Service 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:
Print Date: ***Wednesday, October 12, 2016***

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

Taiga Batch No.: 160990

- CERTIFICATE OF ANALYSIS -

Client Sample ID: Raw Water **Taiga Sample ID:** 001

Client Project:
Sample Type: Raw Water
Received Date: 03-Oct-16
Sampling Date: 03-Oct-16
Sampling Time: 11:15
Location: Edzo Plant
Report Status: **Preliminary**

Test Parameter	Result	Detection Limit	Units	Analysis Date	Analytical Method *	Qualifer
Inorganics - Nutrients						
Ammonia as Nitrogen		0.005	mg/L		SM4500-NH3:G	
Biochemical Oxygen Demand	2	2	mg/L	03-Oct-16	SM5210:B	
Phosphorous, Total		0.002	mg/L		SM4500-P:D	
Inorganics - Physicals						
Alkalinity, Total (as CaCO3)	37.6	0.4	mg/L	03-Oct-16	SM2320:B	
pH	7.45		pH units	03-Oct-16	SM4500-H:B	
Major Ions						
Calcium	10.7	0.1	mg/L	05-Oct-16	SM4110:B	
Hardness	45.7	0.7	mg/L	05-Oct-16	SM4110:B	
Microbiology						
Coliforms, Fecal	< 10	10	CFU/100mL	03-Oct-16	SM9222:D	68
Trace Metals, Total						
Aluminum	517	5	µg/L	07-Oct-16	EPA200.8	
Antimony	< 0.1	0.1	µg/L	07-Oct-16	EPA200.8	
Arsenic	0.5	0.2	µg/L	07-Oct-16	EPA200.8	

ReportDate:
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Taiga Batch No.: 160990

- CERTIFICATE OF ANALYSIS -

Client Sample ID: Raw Water **Taiga Sample ID:** 001

Barium	16.7	0.1	µg/L	07-Oct-16	EPA200.8
Beryllium	< 0.1	0.1	µg/L	07-Oct-16	EPA200.8
Cadmium	< 0.1	0.1	µg/L	07-Oct-16	EPA200.8
Cesium	< 0.1	0.1	µg/L	07-Oct-16	EPA200.8
Chromium	0.9	0.1	µg/L	07-Oct-16	EPA200.8
Cobalt	0.2	0.1	µg/L	07-Oct-16	EPA200.8
Copper	26.6	0.2	µg/L	07-Oct-16	EPA200.8
Iron	403	5	µg/L	07-Oct-16	EPA200.8
Lead	0.2	0.1	µg/L	07-Oct-16	EPA200.8
Lithium	2.6	0.2	µg/L	07-Oct-16	EPA200.8
Manganese	11.3	0.1	µg/L	07-Oct-16	EPA200.8
Molybdenum	0.1	0.1	µg/L	07-Oct-16	EPA200.8
Nickel	1.0	0.1	µg/L	07-Oct-16	EPA200.8
Rubidium	2.7	0.1	µg/L	07-Oct-16	EPA200.8
Selenium	< 0.5	0.5	µg/L	07-Oct-16	EPA200.8
Silver	< 0.1	0.1	µg/L	07-Oct-16	EPA200.8
Strontium	39.8	0.1	µg/L	07-Oct-16	EPA200.8
Thallium	< 0.1	0.1	µg/L	07-Oct-16	EPA200.8
Titanium	20.4	0.1	µg/L	07-Oct-16	EPA200.8
Uranium	0.1	0.1	µg/L	07-Oct-16	EPA200.8
Vanadium	0.7	0.1	µg/L	07-Oct-16	EPA200.8
Zinc	< 5.0	5	µg/L	07-Oct-16	EPA200.8

ReportDate:
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Taiga Batch No.: 160990

- CERTIFICATE OF ANALYSIS -

Client Sample ID: Treated Edzo **Taiga Sample ID:** 002

Client Project:
Sample Type: Treated Water
Received Date: 03-Oct-16
Sampling Date: 03-Oct-16
Sampling Time: 11:15
Location: Edzo Plant
Report Status: **Preliminary**

Test Parameter	Result	Detection Limit	Units	Analysis Date	Analytical Method *	Qualifer
Inorganics - Nutrients						
Ammonia as Nitrogen		0.005	mg/L		SM4500-NH3:G	
Biochemical Oxygen Demand	< 2	2	mg/L	03-Oct-16	SM5210:B	
Phosphorous, Total		0.002	mg/L		SM4500-P:D	
Inorganics - Physicals						
Alkalinity, Total (as CaCO3)	15.2	0.4	mg/L	03-Oct-16	SM2320:B	
pH	6.75		pH units	03-Oct-16	SM4500-H:B	
Major Ions						
Calcium	10.5	0.1	mg/L	05-Oct-16	SM4110:B	
Hardness	44.7	0.7	mg/L	05-Oct-16	SM4110:B	
Microbiology						
Coliforms, Fecal	< 1	1	CFU/100mL	03-Oct-16	SM9222:D	
Trace Metals, Total						
Aluminum	183	0.6	µg/L	07-Oct-16	EPA200.8	
Antimony	< 0.1	0.1	µg/L	07-Oct-16	EPA200.8	
Arsenic	0.3	0.2	µg/L	07-Oct-16	EPA200.8	
Barium	13.0	0.1	µg/L	07-Oct-16	EPA200.8	

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

Taiga Batch No.: 160990

- CERTIFICATE OF ANALYSIS -

Client Sample ID: Treated Edzo **Taiga Sample ID:** 002

Beryllium	< 0.1	0.1	µg/L	07-Oct-16	EPA200.8
Cadmium	< 0.05	0.05	µg/L	07-Oct-16	EPA200.8
Cesium	< 0.1	0.1	µg/L	07-Oct-16	EPA200.8
Chromium	< 0.1	0.1	µg/L	07-Oct-16	EPA200.8
Cobalt	< 0.1	0.1	µg/L	07-Oct-16	EPA200.8
Copper	21.3	0.2	µg/L	07-Oct-16	EPA200.8
Iron	18	5	µg/L	07-Oct-16	EPA200.8
Lead	< 0.1	0.1	µg/L	07-Oct-16	EPA200.8
Lithium	1.9	0.2	µg/L	07-Oct-16	EPA200.8
Manganese	3.4	0.1	µg/L	07-Oct-16	EPA200.8
Molybdenum	< 0.1	0.1	µg/L	07-Oct-16	EPA200.8
Nickel	0.4	0.1	µg/L	07-Oct-16	EPA200.8
Rubidium	2.0	0.1	µg/L	07-Oct-16	EPA200.8
Selenium	< 0.3	0.3	µg/L	07-Oct-16	EPA200.8
Silver	< 0.1	0.1	µg/L	07-Oct-16	EPA200.8
Strontium	40.6	0.1	µg/L	07-Oct-16	EPA200.8
Thallium	< 0.1	0.1	µg/L	07-Oct-16	EPA200.8
Titanium	0.5	0.1	µg/L	07-Oct-16	EPA200.8
Uranium	< 0.1	0.1	µg/L	07-Oct-16	EPA200.8
Vanadium	< 0.1	0.1	µg/L	07-Oct-16	EPA200.8
Zinc	2.8	0.4	µg/L	07-Oct-16	EPA200.8

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

Taiga Batch No.: 160990

- CERTIFICATE OF ANALYSIS -

Client Sample ID: Treated Edzo **Taiga Sample ID:** 002

- DATA QUALIFERS -

Data Qualifier Descriptions:

68 *Unable to repeat analysis at lower dilution. Holding time exceeded.*

*** 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:

Print Date: *Wednesday, October 12, 2016*

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

Taiga Batch No.: 160978

- FINAL REPORT -

Prepared For: Community Government of Behchoko

Address: P.O. Box 68
Behchoko,NT
X0E 0Y0

Attn: **Galvin Simpson** **Facsimile: (867) 392-6967**

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, October 20, 2016
Print Date: ***Thursday, October 20, 2016***

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

Taiga Batch No.: 160978

- CERTIFICATE OF ANALYSIS -

Client Sample ID: SNP2014-E2 **Taiga Sample ID:** 001

Client Project:
Sample Type: Sewage
Received Date: 29-Sep-16
Sampling Date: 29-Sep-16
Sampling Time: 14:00
Location: Rae Landfill, and Edzo Lagoon
Report Status: **Final**

Test Parameter	Result	Detection Limit	Units	Analysis Date	Analytical Method *	Qualifer
Inorganics - Nutrients						
Ammonia as Nitrogen	21.1	0.005	mg/L	30-Sep-16	SM4500-NH3:G	
Biochemical Oxygen Demand	35	2	mg/L	30-Sep-16	SM5210:B	81
Nitrogen, Total	26.9	0.06	mg/L	30-Sep-16	ISO/TR 11905:1997(E)	
Phosphorous, Total	1.31	0.002	mg/L	11-Oct-16	SM4500-P:D	
Inorganics - Physicals						
pH	7.51		pH units	29-Sep-16	SM4500-H:B	
Solids, Total Suspended	27	3	mg/L	04-Oct-16	SM2540:D	
Microbiology						
Coliforms, Fecal	TNTC	1	CFU/100mL	29-Sep-16	SM9222:D	86

ReportDate: Thursday, October 20, 2016
Print Date: ***Thursday, October 20, 2016***

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

Taiga Batch No.: 160978

- CERTIFICATE OF ANALYSIS -

Client Sample ID: SNP2014-E3 **Taiga Sample ID:** 002

Client Project:
Sample Type: Sewage
Received Date: 29-Sep-16
Sampling Date: 29-Sep-16
Sampling Time: 14:00
Location: Rae Landfill, and Edzo Lagoon
Report Status: **Final**

Test Parameter	Result	Detection Limit	Units	Analysis Date	Analytical Method *	Qualifer
Inorganics - Nutrients						
Ammonia as Nitrogen	19.3	0.005	mg/L	30-Sep-16	SM4500-NH3:G	
Biochemical Oxygen Demand	25	2	mg/L	30-Sep-16	SM5210:B	55
Nitrogen, Total	23.6	0.06	mg/L	30-Sep-16	ISO/TR 11905:1997(E)	
Phosphorous, Total	0.831	0.002	mg/L	11-Oct-16	SM4500-P:D	
Inorganics - Physicals						
pH	7.74		pH units	29-Sep-16	SM4500-H:B	
Solids, Total Suspended	11	3	mg/L	04-Oct-16	SM2540:D	
Microbiology						
Coliforms, Fecal	19600	100	CFU/100mL	29-Sep-16	SM9222:D	

ReportDate: Thursday, October 20, 2016
Print Date: ***Thursday, October 20, 2016***

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

Taiga Batch No.: 160978

- CERTIFICATE OF ANALYSIS -

Client Sample ID: SNP2014-E4 **Taiga Sample ID:** 003

Client Project:
Sample Type: Sewage
Received Date: 29-Sep-16
Sampling Date: 29-Sep-16
Sampling Time: 14:00
Location: Rae Landfill, and Edzo Lagoon
Report Status: **Final**

Test Parameter	Result	Detection Limit	Units	Analysis Date	Analytical Method *	Qualifer
Inorganics - Nutrients						
Ammonia as Nitrogen	0.039	0.005	mg/L	30-Sep-16	SM4500-NH3:G	
Biochemical Oxygen Demand	23	2	mg/L	30-Sep-16	SM5210:B	
Nitrogen, Total	6.96	0.06	mg/L	30-Sep-16	ISO/TR 11905:1997(E)	
Phosphorous, Total	1.95	0.002	mg/L	11-Oct-16	SM4500-P:D	
Inorganics - Physicals						
pH	7.23		pH units	29-Sep-16	SM4500-H:B	
Solids, Total Suspended	610	3	mg/L	04-Oct-16	SM2540:D	
Microbiology						
Coliforms, Fecal	< 10	10	CFU/100mL	29-Sep-16	SM9222:D	68
Trace Metals, Total						
Aluminum	409	5	µg/L	19-Oct-16	EPA200.8	
Antimony	< 0.1	0.1	µg/L	19-Oct-16	EPA200.8	
Arsenic	1.0	0.2	µg/L	19-Oct-16	EPA200.8	
Barium	35.5	0.1	µg/L	19-Oct-16	EPA200.8	
Beryllium	< 0.1	0.1	µg/L	19-Oct-16	EPA200.8	
Cadmium	< 0.1	0.1	µg/L	19-Oct-16	EPA200.8	

ReportDate: Thursday, October 20, 2016
Print Date: ***Thursday, October 20, 2016***

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

Taiga Batch No.: 160978

- CERTIFICATE OF ANALYSIS -

Client Sample ID: SNP2014-E4 **Taiga Sample ID:** 003

Cesium	< 0.1	0.1	µg/L	19-Oct-16	EPA200.8
Chromium	0.4	0.1	µg/L	19-Oct-16	EPA200.8
Cobalt	0.7	0.1	µg/L	19-Oct-16	EPA200.8
Copper	1.8	0.2	µg/L	19-Oct-16	EPA200.8
Iron	449	5	µg/L	19-Oct-16	EPA200.8
Lead	0.3	0.1	µg/L	19-Oct-16	EPA200.8
Lithium	12.5	0.2	µg/L	19-Oct-16	EPA200.8
Manganese	319	0.1	µg/L	19-Oct-16	EPA200.8
Molybdenum	0.1	0.1	µg/L	19-Oct-16	EPA200.8
Nickel	2.0	0.1	µg/L	19-Oct-16	EPA200.8
Rubidium	5.7	0.1	µg/L	19-Oct-16	EPA200.8
Selenium	< 0.5	0.5	µg/L	19-Oct-16	EPA200.8
Silver	< 0.1	0.1	µg/L	19-Oct-16	EPA200.8
Strontium	327	0.1	µg/L	19-Oct-16	EPA200.8
Thallium	< 0.1	0.1	µg/L	19-Oct-16	EPA200.8
Titanium	1.4	0.1	µg/L	19-Oct-16	EPA200.8
Uranium	< 0.1	0.1	µg/L	19-Oct-16	EPA200.8
Vanadium	1.0	0.1	µg/L	19-Oct-16	EPA200.8
Zinc	8.9	5	µg/L	19-Oct-16	EPA200.8

ReportDate: Thursday, October 20, 2016
Print Date: *Thursday, October 20, 2016*

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

Taiga Batch No.: 160978

- CERTIFICATE OF ANALYSIS -

Client Sample ID: SNP2014-E4 **Taiga Sample ID:** 003

- DATA QUALIFERS -

Data Qualifier Descriptions:

55 *BOD result is inconclusive; residual DO was less than 1 mg/L. For evaluation purposes only.*

68 *Unable to repeat analysis at lower dilution. Holding time exceeded.*

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

86 *Too numerous to count. Unable to repeat analysis at higher dilution. Holding time exceeded.*

*** 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, October 20, 2016
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