

Appendix: A

Water Samples Results- 2018

Water Licence: 3BM-GJO 1828

[Previous: 3BM-GJO 1318]

Hamlet of Gjoa Haven, NU



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

Taiga Batch No.:
180767

- 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:

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
 - o Standard Methods for the Examination of Water and Wastewater APHA AWWA WEF;
 - o Environment Canada
 - o 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 06, 2018

Print Date: *Sunday, September 09, 2018*

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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.:
180767

- CERTIFICATE OF ANALYSIS -

Client Sample ID: **GJO-1**

Taiga Sample ID: **001**

Client Project: Gjoa Haven Water

Sample Type: Raw Water

Received Date: 17-Aug-18

Sampling Date: 17-Aug-18

Sampling Time: 10:00

Location: Raw Water and Treated Water

Report Status: **Final**

Test Parameter	Result	Detection Limit	Units	Analysis Date	Analytical Method *	Qualifier
<u>Inorganics - Nutrients</u>						
Organic Carbon, Dissolved	3.5	0.5	mg/L	31-Aug-18	SM5310:B	
Organic Carbon, Total	4.7	0.5	mg/L	31-Aug-18	SM5310:B	
<u>Inorganics - Physicals</u>						
Alkalinity, Total (as CaCO ₃)	100	0.4	mg/L	20-Aug-18	SM2320:B	
Conductivity, Specific (@25C)	496	0.4	µS/cm	20-Aug-18	SM2510:B	
pH	8.28		pH units	20-Aug-18	SM4500-H:B	
Solids, Total Suspended	< 3	3	mg/L	21-Aug-18	SM2540:D	
Turbidity	0.52	0.05	NTU	20-Aug-18	SM2130:B	
<u>Major Ions</u>						
Calcium	27.2	0.1	mg/L	20-Aug-18	SM4110:B	
Chloride	83.5	0.7	mg/L	20-Aug-18	SM4110:B	
Hardness	102	0.7	mg/L	20-Aug-18	SM4110:B	
Magnesium	8.4	0.1	mg/L	20-Aug-18	SM4110:B	
Nitrate as Nitrogen	0.34	0.01	mg/L	20-Aug-18	SM4110:B	

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Taiga Environmental Laboratory

4601-52nd Ave., Box 1320, Yellowknife, NT. X1A 2L9

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

Taiga Batch No.:

180767

- CERTIFICATE OF ANALYSIS -

Client Sample ID: **GJO-1**

Taiga Sample ID: **001**

Potassium	4.3	0.1	mg/L	20-Aug-18	SM4110:B
Sodium	46.2	0.1	mg/L	20-Aug-18	SM4110:B
Sulphate	10	1	mg/L	20-Aug-18	SM4110:B

Microbiology

Coliforms, Fecal	< 1	1	CFU/100mL	18-Aug-18	SM9222:D
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Subcontracted Inorganics

Sulphide	0.0180	0.018	mg/L	23-Aug-18	APHA4500-S2
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Subcontracted Organics

Benzene	< 0.00050	0.0005	mg/L	28-Aug-18	EPA 5021
Cyanide, Total	< 0.0050	0.005	mg/L	23-Aug-18	APHA4500-CN
Ethylbenzene	< 0.00050	0.0005	mg/L	28-Aug-18	EPA 5021
Phenols, Total	0.0019	0.001	mg/L	24-Aug-18	AB ENV.06537
Toluene	< 0.00450	0.0045	mg/L	28-Aug-18	EPA 5021
Xylenes	< 0.00050	0.0005	mg/L	28-Aug-18	EPA 5021

Trace Metals, Total

Aluminum	5.5	0.6	µg/L	30-Aug-18	EPA200.8
Arsenic	0.3	0.2	µg/L	30-Aug-18	EPA200.8
Beryllium	< 0.1	0.1	µg/L	30-Aug-18	EPA200.8
Cadmium	< 0.04	0.04	µg/L	30-Aug-18	EPA200.8
Chromium	< 0.1	0.1	µg/L	30-Aug-18	EPA200.8
Cobalt	< 0.1	0.1	µg/L	30-Aug-18	EPA200.8
Copper	< 0.2	0.2	µg/L	30-Aug-18	EPA200.8
Iron	7	5	ug/L	30-Aug-18	EPA200.8
Lead	< 0.1	0.1	µg/L	30-Aug-18	EPA200.8
Manganese	6.6	0.1	µg/L	30-Aug-18	EPA200.8

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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.:
180767

- CERTIFICATE OF ANALYSIS -

Client Sample ID: **GJO-1**

Taiga Sample ID: **001**

Mercury	< 0.01	0.01	µg/L	30-Aug-18	EPA200.8
Nickel	< 0.1	0.1	µg/L	30-Aug-18	EPA200.8
Selenium	< 0.3	0.3	µg/L	30-Aug-18	EPA200.8
Zinc	< 0.4	0.4	µg/L	30-Aug-18	EPA200.8

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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.:

180767

- CERTIFICATE OF ANALYSIS -

Client Sample ID: **Overnight Truck**

Taiga Sample ID: **002**

Client Project: Gjoa Haven Water

Sample Type: Treated Water

Received Date: 17-Aug-18

Sampling Date: 17-Aug-18

Sampling Time: 9:00

Location: Raw Water and Treated Water

Report Status: **Final**

Test Parameter	Result	Detection Limit	Units	Analysis Date	Analytical Method *	Qualifer
<u>Inorganics - Nutrients</u>						
Organic Carbon, Dissolved	3.7	0.5	mg/L	31-Aug-18	SM5310:B	
Organic Carbon, Total	4.6	0.5	mg/L	31-Aug-18	SM5310:B	
<u>Inorganics - Physicals</u>						
Alkalinity, Total (as CaCO ₃)	100	0.4	mg/L	20-Aug-18	SM2320:B	
Conductivity, Specific (@25C)	508	0.4	µS/cm	20-Aug-18	SM2510:B	
pH	8.26		pH units	20-Aug-18	SM4500-H:B	
Solids, Total Suspended	< 3	3	mg/L	21-Aug-18	SM2540:D	
Turbidity	0.52	0.05	NTU	20-Aug-18	SM2130:B	
<u>Major Ions</u>						
Calcium	26.9	0.1	mg/L	20-Aug-18	SM4110:B	
Chloride	86.8	0.7	mg/L	20-Aug-18	SM4110:B	
Hardness	101	0.7	mg/L	20-Aug-18	SM4110:B	
Magnesium	8.3	0.1	mg/L	20-Aug-18	SM4110:B	
Nitrate as Nitrogen	0.14	0.01	mg/L	20-Aug-18	SM4110:B	
Potassium	4.3	0.1	mg/L	20-Aug-18	SM4110:B	
Sodium	48.0	0.1	mg/L	20-Aug-18	SM4110:B	

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Taiga Environmental Laboratory

4601-52nd Ave., Box 1320, Yellowknife, NT. X1A 2L9

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

Taiga Batch No.:

180767

- CERTIFICATE OF ANALYSIS -

Client Sample ID: **Overnight Truck**

Taiga Sample ID: **002**

Sulphate	10	1	mg/L	20-Aug-18	SM4110:B
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Microbiology

Coliforms, Fecal	< 1	1	CFU/100mL	18-Aug-18	SM9222:D
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Subcontracted Inorganics

Sulphide	< 0.0180	0.018	mg/L	23-Aug-18	APHA4500-S2
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Subcontracted Organics

Benzene	< 0.00050	0.0005	mg/L	28-Aug-18	EPA 5021
Bromodichloromethane	0.0349	0.001	mg/L	28-Aug-18	SW-846
Bromoform	0.0347	0.005	mg/L	28-Aug-18	SW-846
Chloroform	0.0216	0.001	mg/L	28-Aug-18	SW-846
Cyanide, Total	< 0.0050	0.005	mg/L	23-Aug-18	APHA4500-CN
Dibromochloromethane	0.0683	0.001	mg/L	28-Aug-18	SW-846
Ethylbenzene	< 0.00050	0.0005	mg/L	28-Aug-18	EPA 5021
Phenols, Total	0.0018	0.001	mg/L	24-Aug-18	AB ENV.06537
Toluene	< 0.00450	0.0045	mg/L	28-Aug-18	EPA 5021
Trihalomethanes, Total	0.1600	0.005	mg/L	28-Aug-18	SW-846
Xylenes	< 0.00050	0.0005	mg/L	28-Aug-18	EPA 5021

Trace Metals, Total

Aluminum	25.2	0.6	µg/L	30-Aug-18	EPA200.8
Arsenic	0.4	0.2	µg/L	30-Aug-18	EPA200.8
Beryllium	< 0.1	0.1	µg/L	30-Aug-18	EPA200.8
Cadmium	< 0.04	0.04	µg/L	30-Aug-18	EPA200.8
Chromium	< 0.1	0.1	µg/L	30-Aug-18	EPA200.8
Cobalt	< 0.1	0.1	µg/L	30-Aug-18	EPA200.8
Copper	20.4	0.2	µg/L	30-Aug-18	EPA200.8

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Taiga Batch No.:

180767

- CERTIFICATE OF ANALYSIS -

Client Sample ID: **Overnight Truck**

Taiga Sample ID: **002**

Iron	65	5	ug/L	30-Aug-18	EPA200.8
Lead	0.3	0.1	ug/L	30-Aug-18	EPA200.8
Manganese	6.7	0.1	ug/L	30-Aug-18	EPA200.8
Mercury	< 0.01	0.01	ug/L	30-Aug-18	EPA200.8
Nickel	< 0.1	0.1	ug/L	30-Aug-18	EPA200.8
Selenium	< 0.3	0.3	ug/L	30-Aug-18	EPA200.8
Zinc	71.8	0.4	ug/L	30-Aug-18	EPA200.8

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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.:
180767

- CERTIFICATE OF ANALYSIS -

Client Sample ID: **WTP**

Taiga Sample ID: **003**

Client Project: Gjoa Haven Water

Sample Type: Treated Water

Received Date: 17-Aug-18

Sampling Date: 17-Aug-18

Sampling Time: 9:30

Location: Raw Water and Treated Water

Report Status: **Final**

Test Parameter	Result	Detection Limit	Units	Analysis Date	Analytical Method *	Qualifier
<u>Inorganics - Nutrients</u>						
Organic Carbon, Dissolved	3.8	0.5	mg/L	31-Aug-18	SM5310:B	
Organic Carbon, Total	4.4	0.5	mg/L	31-Aug-18	SM5310:B	
<u>Inorganics - Physicals</u>						
Alkalinity, Total (as CaCO ₃)	100	0.4	mg/L	20-Aug-18	SM2320:B	
Conductivity, Specific (@25C)	509	0.4	µS/cm	20-Aug-18	SM2510:B	
pH	8.25		pH units	20-Aug-18	SM4500-H:B	
Solids, Total Suspended	< 3	3	mg/L	21-Aug-18	SM2540:D	
Turbidity	0.56	0.05	NTU	20-Aug-18	SM2130:B	
<u>Major Ions</u>						
Calcium	26.3	0.1	mg/L	20-Aug-18	SM4110:B	
Chloride	87.0	0.7	mg/L	20-Aug-18	SM4110:B	
Hardness	95.2	0.7	mg/L	20-Aug-18	SM4110:B	
Magnesium	7.2	0.1	mg/L	20-Aug-18	SM4110:B	
Nitrate as Nitrogen	0.15	0.01	mg/L	20-Aug-18	SM4110:B	
Potassium	4.1	0.1	mg/L	20-Aug-18	SM4110:B	
Sodium	54.3	0.1	mg/L	20-Aug-18	SM4110:B	

ReportDate: Thursday, September 06, 2018

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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.:

180767

- CERTIFICATE OF ANALYSIS -

Client Sample ID: **WTP**

Taiga Sample ID: **003**

Sulphate	10	1	mg/L	20-Aug-18	SM4110:B
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Microbiology

Coliforms, Fecal	< 1	1	CFU/100mL	18-Aug-18	SM9222:D
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Subcontracted Inorganics

Sulphide	< 0.0180	0.018	mg/L	23-Aug-18	APHA4500-S2
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Subcontracted Organics

Benzene	< 0.00050	0.0005	mg/L	28-Aug-18	EPA 5021
Bromodichloromethane	0.0360	0.001	mg/L	28-Aug-18	SW-846
Bromoform	0.0348	0.005	mg/L	28-Aug-18	SW-846
Chloroform	0.0218	0.001	mg/L	28-Aug-18	SW-846
Cyanide, Total	< 0.0050	0.005	mg/L	23-Aug-18	APHA4500-CN
Dibromochloromethane	0.0719	0.001	mg/L	28-Aug-18	SW-846
Ethylbenzene	< 0.00050	0.0005	mg/L	28-Aug-18	EPA 5021
Phenols, Total	0.0016	0.001	mg/L	24-Aug-18	AB ENV.06537
Toluene	< 0.00050	0.0005	mg/L	28-Aug-18	EPA 5021
Trihalomethanes, Total	0.1650	0.005	mg/L	28-Aug-18	SW-846
Xylenes	< 0.00050	0.0005	mg/L	28-Aug-18	EPA 5021

Trace Metals, Total

Aluminum	5.9	0.6	µg/L	30-Aug-18	EPA200.8
Arsenic	0.4	0.2	µg/L	30-Aug-18	EPA200.8
Beryllium	< 0.1	0.1	µg/L	30-Aug-18	EPA200.8
Cadmium	< 0.04	0.04	µg/L	30-Aug-18	EPA200.8
Chromium	< 0.1	0.1	µg/L	30-Aug-18	EPA200.8
Cobalt	< 0.1	0.1	µg/L	30-Aug-18	EPA200.8
Copper	21.4	0.2	µg/L	30-Aug-18	EPA200.8

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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.:
180767

- CERTIFICATE OF ANALYSIS -

Client Sample ID: **WTP**

Taiga Sample ID: **003**

Iron	60	5	ug/L	30-Aug-18	EPA200.8
Lead	0.2	0.1	ug/L	30-Aug-18	EPA200.8
Manganese	7.3	0.1	ug/L	30-Aug-18	EPA200.8
Mercury	< 0.01	0.01	ug/L	30-Aug-18	EPA200.8
Nickel	0.1	0.1	ug/L	30-Aug-18	EPA200.8
Selenium	< 0.3	0.3	ug/L	30-Aug-18	EPA200.8
Zinc	85.0	0.4	ug/L	30-Aug-18	EPA200.8

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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.:
180767

- CERTIFICATE OF ANALYSIS -

Client Sample ID: **Truckfill**

Taiga Sample ID: **004**

Client Project: Gjoa Haven Water

Sample Type: Treated Water

Received Date: 17-Aug-18

Sampling Date: 17-Aug-18

Sampling Time: 10:15

Location: Raw Water and Treated Water

Report Status: **Final**

Test Parameter	Result	Detection Limit	Units	Analysis Date	Analytical Method *	Qualifer
<u>Inorganics - Nutrients</u>						
Organic Carbon, Dissolved	3.7	0.5	mg/L	31-Aug-18	SM5310:B	
Organic Carbon, Total	4.3	0.5	mg/L	31-Aug-18	SM5310:B	
<u>Inorganics - Physicals</u>						
Alkalinity, Total (as CaCO ₃)	101	0.4	mg/L	20-Aug-18	SM2320:B	
Conductivity, Specific (@25C)	509	0.4	µS/cm	20-Aug-18	SM2510:B	
pH	8.26		pH units	20-Aug-18	SM4500-H:B	
Solids, Total Suspended	< 3	3	mg/L	21-Aug-18	SM2540:D	
Turbidity	0.46	0.05	NTU	20-Aug-18	SM2130:B	
<u>Major Ions</u>						
Calcium	27.9	0.1	mg/L	20-Aug-18	SM4110:B	
Chloride	87.3	0.7	mg/L	20-Aug-18	SM4110:B	
Hardness	99.4	0.7	mg/L	20-Aug-18	SM4110:B	
Magnesium	7.2	0.1	mg/L	20-Aug-18	SM4110:B	
Nitrate as Nitrogen	0.13	0.01	mg/L	20-Aug-18	SM4110:B	
Potassium	4.2	0.1	mg/L	20-Aug-18	SM4110:B	
Sodium	42.9	0.1	mg/L	20-Aug-18	SM4110:B	

ReportDate: Thursday, September 06, 2018

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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.:

180767

- CERTIFICATE OF ANALYSIS -

Client Sample ID: **Truckfill**

Taiga Sample ID: **004**

Sulphate	10	1	mg/L	20-Aug-18	SM4110:B
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Microbiology

Coliforms, Fecal	< 1	1	CFU/100mL	18-Aug-18	SM9222:D
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Subcontracted Inorganics

Sulphide	< 0.0180	0.018	mg/L	23-Aug-18	APHA4500-S2
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Subcontracted Organics

Benzene	< 0.00050	0.0005	mg/L	28-Aug-18	EPA 5021
Bromodichloromethane	0.0221	0.001	mg/L	28-Aug-18	SW-846
Bromoform	0.0285	0.005	mg/L	28-Aug-18	SW-846
Chloroform	0.0138	0.001	mg/L	28-Aug-18	SW-846
Cyanide, Total	< 0.0050	0.005	mg/L	23-Aug-18	APHA4500-CN
Dibromochloromethane	0.0510	0.001	mg/L	28-Aug-18	SW-846
Ethylbenzene	< 0.00050	0.0005	mg/L	28-Aug-18	EPA 5021
Phenols, Total	0.0018	0.001	mg/L	24-Aug-18	AB ENV.06537
Toluene	< 0.00450	0.0045	mg/L	28-Aug-18	EPA 5021
Trihalomethanes, Total	0.1150	0.005	mg/L	28-Aug-18	SW-846
Xylenes	< 0.00050	0.0005	mg/L	28-Aug-18	EPA 5021

Trace Metals, Total

Aluminum	29.9	0.6	µg/L	30-Aug-18	EPA200.8
Arsenic	0.4	0.2	µg/L	30-Aug-18	EPA200.8
Beryllium	< 0.1	0.1	µg/L	30-Aug-18	EPA200.8
Cadmium	< 0.04	0.04	µg/L	30-Aug-18	EPA200.8
Chromium	< 0.1	0.1	µg/L	30-Aug-18	EPA200.8
Cobalt	< 0.1	0.1	µg/L	30-Aug-18	EPA200.8
Copper	20.8	0.2	µg/L	30-Aug-18	EPA200.8

ReportDate: Thursday, September 06, 2018

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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.:
180767

- CERTIFICATE OF ANALYSIS -

Client Sample ID: **Truckfill**

Taiga Sample ID: **004**

Iron	50	5	ug/L	30-Aug-18	EPA200.8
Lead	0.3	0.1	ug/L	30-Aug-18	EPA200.8
Manganese	6.7	0.1	ug/L	30-Aug-18	EPA200.8
Mercury	< 0.01	0.01	ug/L	30-Aug-18	EPA200.8
Nickel	< 0.1	0.1	ug/L	30-Aug-18	EPA200.8
Selenium	< 0.3	0.3	ug/L	30-Aug-18	EPA200.8
Zinc	71.5	0.4	ug/L	30-Aug-18	EPA200.8

ReportDate: Thursday, September 06, 2018
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Tel: (867)-767-9235 Fax: (867)-920-8740

Taiga Batch No.:
180767

- CERTIFICATE OF ANALYSIS -

Client Sample ID: **Truckfill**

Taiga Sample ID: **004**

*** 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 06, 2018

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Appendix: B

Sewage Samples Results- 2018

Water Licence: 3BM-GJO 1828

Hamlet of Gjoa Haven, NU



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

Taiga Batch No.:
180610

- 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:

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
 - o Standard Methods for the Examination of Water and Wastewater APHA AWWA WEF;
 - o Environment Canada
 - o 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: Tuesday, August 07, 2018

Print Date: *Wednesday, August 08, 2018*

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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.:
180610

- CERTIFICATE OF ANALYSIS -

Client Sample ID: **GJO-3A**

Taiga Sample ID: **001**

Client Project: Sewage and Solid Waste Facilities

Sample Type: Sewage Lagoon Water

Received Date: 24-Jul-18

Sampling Date: 23-Jul-18

Sampling Time: 9:00

Location:

Report Status: **Final**

Test Parameter	Result	Detection Limit	Units	Analysis Date	Analytical Method *	Qualifier
<u>Inorganics - Nutrients</u>						
Ammonia as Nitrogen	1.99	0.005	mg/L	26-Jul-18	SM4500-NH3:G	
Biochemical Oxygen Demand	91	2	mg/L	24-Jul-18	SM5210:B	
CBOD	94	2	mg/L	24-Jul-18	SM5210:B	
Organic Carbon, Total	136	0.5	mg/L	02-Aug-18	SM5310:B	
<u>Inorganics - Physicals</u>						
Alkalinity, Total (as CaCO ₃)	465	0.4	mg/L	24-Jul-18	SM2320:B	
Conductivity, Specific (@25C)	1580	0.4	µS/cm	24-Jul-18	SM2510:B	
pH	7.59		pH units	24-Jul-18	SM4500-H:B	
Solids, Total Suspended	14	3	mg/L	26-Jul-18	SM2540:D	
<u>Major Ions</u>						
Calcium	26.7	0.1	mg/L	24-Jul-18	SM4110:B	
Chloride	165	0.7	mg/L	24-Jul-18	SM4110:B	
Hardness	151	0.7	mg/L	24-Jul-18	SM4110:B	
Magnesium	20.5	0.1	mg/L	24-Jul-18	SM4110:B	

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Taiga Environmental Laboratory

4601-52nd Ave., Box 1320, Yellowknife, NT. X1A 2L9

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

Taiga Batch No.:

180610

- CERTIFICATE OF ANALYSIS -

Client Sample ID: **GJO-3A**

Taiga Sample ID: **001**

Nitrate as Nitrogen	0.50	0.01	mg/L	24-Jul-18	SM4110:B
Nitrite as Nitrogen	< 0.01	0.01	mg/L	24-Jul-18	SM4110:B
Potassium	56.3	0.1	mg/L	24-Jul-18	SM4110:B
Sodium	123	0.1	mg/L	24-Jul-18	SM4110:B
Sulphate	10	1	mg/L	24-Jul-18	SM4110:B

Microbiology

Coliforms, Fecal	70000	1000	CFU/100mL	24-Jul-18	SM9222:D
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Organics

Benzene	< 0.002	0.002	mg/L	31-Jul-18	EPA8260B
Ethylbenzene	< 0.002	0.002	mg/L	31-Jul-18	EPA8260B
F2: C10-C16	< 0.2	0.2	mg/L	02-Aug-18	EPA8015B
F3: C16-C34	1.0	0.2	mg/L	02-Aug-18	EPA8015B
F4: C34-C50	< 0.2	0.2	mg/L	02-Aug-18	EPA8015B
Hydrocarbons, Total Extractable	1.2	0.2	mg/L	02-Aug-18	EPA8015B
Hydrocarbons, Total Purgeable	< 0.3	0.3	mg/L	31-Jul-18	EPA8015
Oil and Grease, visible	Non-visible			24-Jul-18	Visual Exam
Toluene	< 0.002	0.002	mg/L	31-Jul-18	EPA8260B
Xylenes	< 0.002	0.002	mg/L	31-Jul-18	EPA8260B

Subcontracted Organics

Phenols, Total	0.6460	0.001	mg/L	01-Aug-18	AB ENV.06537
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Trace Metals, Total

Aluminum	112	5	µg/L	03-Aug-18	EPA200.8
Arsenic	1.1	0.2	µg/L	03-Aug-18	EPA200.8
Cadmium	< 0.1	0.1	µg/L	03-Aug-18	EPA200.8
Chromium	0.9	0.1	µg/L	03-Aug-18	EPA200.8

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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.:
180610

- CERTIFICATE OF ANALYSIS -

Client Sample ID: GJO-3A

Taiga Sample ID: 001

Cobalt	0.6	0.1	µg/L	03-Aug-18	EPA200.8
Copper	123	0.2	µg/L	03-Aug-18	EPA200.8
Iron	466	5	µg/L	03-Aug-18	EPA200.8
Lead	0.9	0.1	µg/L	03-Aug-18	EPA200.8
Manganese	37.8	0.1	µg/L	03-Aug-18	EPA200.8
Mercury	0.01	0.01	µg/L	03-Aug-18	EPA200.8
Nickel	2.7	0.1	µg/L	03-Aug-18	EPA200.8
Zinc	110	5	µg/L	03-Aug-18	EPA200.8

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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.:
180610

- CERTIFICATE OF ANALYSIS -

Client Sample ID: **GJO-2**

Taiga Sample ID: **002**

Client Project: Sewage and Solid Waste Facilities

Sample Type: Effluent on Wetland

Received Date: 24-Jul-18

Sampling Date: 23-Jul-18

Sampling Time: 9:00

Location:

Report Status: Final

Test Parameter	Result	Detection Limit	Units	Analysis Date	Analytical Method *	Qualifier
<u>Inorganics - Nutrients</u>						
Biochemical Oxygen Demand	36	2	mg/L	24-Jul-18	SM5210:B	
CBOD	41	2	mg/L	24-Jul-18	SM5210:B	
Organic Carbon, Total	26.7	0.5	mg/L	02-Aug-18	SM5310:B	
<u>Inorganics - Physicals</u>						
Alkalinity, Total (as CaCO ₃)	191	0.4	mg/L	24-Jul-18	SM2320:B	
Conductivity, Specific (@25C)	780	0.4	µS/cm	24-Jul-18	SM2510:B	
pH	7.99		pH units	24-Jul-18	SM4500-H:B	
Solids, Total Suspended	20	3	mg/L	26-Jul-18	SM2540:D	
<u>Major Ions</u>						
Calcium	35.5	0.1	mg/L	24-Jul-18	SM4110:B	
Chloride	69.6	0.7	mg/L	24-Jul-18	SM4110:B	
Hardness	197	0.7	mg/L	24-Jul-18	SM4110:B	
Magnesium	26.3	0.1	mg/L	24-Jul-18	SM4110:B	
Nitrate as Nitrogen	5.11	0.01	mg/L	24-Jul-18	SM4110:B	
Nitrite as Nitrogen	0.35	0.01	mg/L	24-Jul-18	SM4110:B	
Potassium	18.8	0.1	mg/L	24-Jul-18	SM4110:B	

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Taiga Environmental Laboratory

4601-52nd Ave., Box 1320, Yellowknife, NT. X1A 2L9

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

Taiga Batch No.:

180610

- CERTIFICATE OF ANALYSIS -

Client Sample ID: **GJO-2**

Taiga Sample ID: **002**

Sodium	72.6	0.1	mg/L	24-Jul-18	SM4110:B
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Sulphate	64	1	mg/L	24-Jul-18	SM4110:B
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Microbiology

Coliforms, Fecal	< 100	100	CFU/100mL	24-Jul-18	SM9222:D
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Organics

Benzene	< 0.002	0.002	mg/L	31-Jul-18	EPA8260B
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Ethylbenzene	< 0.002	0.002	mg/L	31-Jul-18	EPA8260B
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F2: C10-C16	< 0.2	0.2	mg/L	02-Aug-18	EPA8015B
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F3: C16-C34	< 0.2	0.2	mg/L	02-Aug-18	EPA8015B
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F4: C34-C50	< 0.2	0.2	mg/L	02-Aug-18	EPA8015B
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Hydrocarbons, Total Extractable	< 0.2	0.2	mg/L	02-Aug-18	EPA8015B
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Hydrocarbons, Total Purgeable	< 0.3	0.3	mg/L	31-Jul-18	EPA8015
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Oil and Grease, visible	Non-visible			24-Jul-18	Visual Exam
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Toluene	< 0.002	0.002	mg/L	31-Jul-18	EPA8260B
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Xylenes	< 0.002	0.002	mg/L	31-Jul-18	EPA8260B
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Subcontracted Organics

Phenols, Total	0.0028	0.001	mg/L	01-Aug-18	AB ENV.06537
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Trace Metals, Total

Aluminum	33.3	5	µg/L	03-Aug-18	EPA200.8
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Arsenic	6.7	0.2	µg/L	03-Aug-18	EPA200.8
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Cadmium	< 0.1	0.1	µg/L	03-Aug-18	EPA200.8
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Chromium	0.4	0.1	µg/L	03-Aug-18	EPA200.8
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Cobalt	1.7	0.1	µg/L	03-Aug-18	EPA200.8
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Copper	4.6	0.2	µg/L	03-Aug-18	EPA200.8
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Iron	1760	5	µg/L	03-Aug-18	EPA200.8
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Taiga Environmental Laboratory
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Tel: (867)-767-9235 Fax: (867)-920-8740

Taiga Batch No.:
180610

- CERTIFICATE OF ANALYSIS -

Client Sample ID: **GJO-2**

Taiga Sample ID: **002**

Lead	0.7	0.1	µg/L	03-Aug-18	EPA200.8
Manganese	168	0.1	µg/L	03-Aug-18	EPA200.8
Mercury	< 0.01	0.01	µg/L	03-Aug-18	EPA200.8
Nickel	6.2	0.1	µg/L	03-Aug-18	EPA200.8
Zinc	< 5.0	5	µg/L	03-Aug-18	EPA200.8

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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.:
180610

- CERTIFICATE OF ANALYSIS -

Client Sample ID: **GJO-4**

Taiga Sample ID: **003**

Client Project: Sewage and Solid Waste Facilities

Sample Type: Final Discharge

Received Date: 24-Jul-18

Sampling Date: 23-Jul-18

Sampling Time: 9:00

Location:

Report Status: Final

Test Parameter	Result	Detection Limit	Units	Analysis Date	Analytical Method *	Qualifier
<u>Inorganics - Nutrients</u>						
Biochemical Oxygen Demand	8	2	mg/L	24-Jul-18	SM5210:B	
CBOD	9	2	mg/L	24-Jul-18	SM5210:B	
Organic Carbon, Total	13.0	0.5	mg/L	02-Aug-18	SM5310:B	
<u>Inorganics - Physicals</u>						
Alkalinity, Total (as CaCO ₃)	172	0.4	mg/L	24-Jul-18	SM2320:B	
Conductivity, Specific (@25C)	596	0.4	µS/cm	24-Jul-18	SM2510:B	
pH	8.09		pH units	24-Jul-18	SM4500-H:B	
Solids, Total Suspended	< 3	3	mg/L	26-Jul-18	SM2540:D	
<u>Major Ions</u>						
Calcium	34.9	0.1	mg/L	24-Jul-18	SM4110:B	
Chloride	44.5	0.7	mg/L	24-Jul-18	SM4110:B	
Hardness	185	0.7	mg/L	24-Jul-18	SM4110:B	
Magnesium	23.9	0.1	mg/L	24-Jul-18	SM4110:B	
Nitrate as Nitrogen	3.76	0.01	mg/L	24-Jul-18	SM4110:B	
Nitrite as Nitrogen	0.13	0.01	mg/L	24-Jul-18	SM4110:B	
Potassium	6.4	0.1	mg/L	24-Jul-18	SM4110:B	

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Taiga Environmental Laboratory

4601-52nd Ave., Box 1320, Yellowknife, NT. X1A 2L9

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

Taiga Batch No.:

180610

- CERTIFICATE OF ANALYSIS -

Client Sample ID: **GJO-4**

Taiga Sample ID: **003**

Sodium	51.3	0.1	mg/L	24-Jul-18	SM4110:B
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Sulphate	44	1	mg/L	24-Jul-18	SM4110:B
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Microbiology

Coliforms, Fecal	1	1	CFU/100mL	24-Jul-18	SM9222:D
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Organics

Benzene	< 0.002	0.002	mg/L	31-Jul-18	EPA8260B
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Ethylbenzene	< 0.002	0.002	mg/L	31-Jul-18	EPA8260B
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F2: C10-C16	< 0.2	0.2	mg/L	02-Aug-18	EPA8015B
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F3: C16-C34	< 0.2	0.2	mg/L	02-Aug-18	EPA8015B
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F4: C34-C50	< 0.2	0.2	mg/L	02-Aug-18	EPA8015B
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Hydrocarbons, Total Extractable	< 0.2	0.2	mg/L	02-Aug-18	EPA8015B
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Hydrocarbons, Total Purgeable	< 0.3	0.3	mg/L	31-Jul-18	EPA8015
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Oil and Grease, visible	Non-visible			24-Jul-18	Visual Exam
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Toluene	< 0.002	0.002	mg/L	31-Jul-18	EPA8260B
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Xylenes	< 0.002	0.002	mg/L	31-Jul-18	EPA8260B
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Subcontracted Organics

Phenols, Total	0.0029	0.001	mg/L	31-Jul-18	AB ENV.06537
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Trace Metals, Total

Aluminum	9.9	5	µg/L	03-Aug-18	EPA200.8
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Arsenic	1.3	0.2	µg/L	03-Aug-18	EPA200.8
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Cadmium	< 0.1	0.1	µg/L	03-Aug-18	EPA200.8
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Chromium	0.2	0.1	µg/L	03-Aug-18	EPA200.8
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Cobalt	0.8	0.1	µg/L	03-Aug-18	EPA200.8
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Copper	4.6	0.2	µg/L	03-Aug-18	EPA200.8
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Iron	101	5	µg/L	03-Aug-18	EPA200.8
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ReportDate: Tuesday, August 07, 2018

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

Taiga Batch No.:
180610

- CERTIFICATE OF ANALYSIS -

Client Sample ID: **GJO-4**

Taiga Sample ID: **003**

Lead	0.2	0.1	µg/L	03-Aug-18	EPA200.8
Manganese	11.4	0.1	µg/L	03-Aug-18	EPA200.8
Mercury	< 0.01	0.01	µg/L	03-Aug-18	EPA200.8
Nickel	3.9	0.1	µg/L	03-Aug-18	EPA200.8
Zinc	< 5.0	5	µg/L	03-Aug-18	EPA200.8



Taiga Environmental Laboratory

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

Taiga Batch No.:

180610

- CERTIFICATE OF ANALYSIS -

Client Sample ID: **GJO-5**

Taiga Sample ID: **004**

Client Project: Sewage and Solid Waste Facilities

Sample Type: Solid Waste Runoff

Received Date: 24-Jul-18

Sampling Date: 23-Jul-18

Sampling Time: 9:00

Location:

Report Status: **Final**

Test Parameter	Result	Detection Limit	Units	Analysis Date	Analytical Method *	Qualifier
<u>Inorganics - Nutrients</u>						
Ammonia as Nitrogen	132	0.005	mg/L	26-Jul-18	SM4500-NH3:G	
Biochemical Oxygen Demand	96	2	mg/L	24-Jul-18	SM5210:B	
CBOD	95	2	mg/L	24-Jul-18	SM5210:B	
Organic Carbon, Total	232	0.5	mg/L	02-Aug-18	SM5310:B	
<u>Inorganics - Physicals</u>						
Alkalinity, Total (as CaCO ₃)	504	0.4	mg/L	24-Jul-18	SM2320:B	
Conductivity, Specific (@25C)	2340	0.4	µS/cm	24-Jul-18	SM2510:B	
pH	7.12		pH units	24-Jul-18	SM4500-H:B	
Solids, Total Suspended	56	3	mg/L	26-Jul-18	SM2540:D	
<u>Major Ions</u>						
Calcium	266	0.1	mg/L	24-Jul-18	SM4110:B	
Chloride	134	0.7	mg/L	24-Jul-18	SM4110:B	
Hardness	801	0.7	mg/L	24-Jul-18	SM4110:B	
Magnesium	33.0	0.1	mg/L	24-Jul-18	SM4110:B	
Nitrate as Nitrogen	0.40	0.01	mg/L	24-Jul-18	SM4110:B	
Nitrite as Nitrogen	< 0.01	0.01	mg/L	24-Jul-18	SM4110:B	

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Taiga Environmental Laboratory

4601-52nd Ave., Box 1320, Yellowknife, NT. X1A 2L9

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

Taiga Batch No.:

180610

- CERTIFICATE OF ANALYSIS -

Client Sample ID: **GJO-5**

Taiga Sample ID: **004**

Potassium	59.1	0.1	mg/L	24-Jul-18	SM4110:B
Sodium	140	0.1	mg/L	24-Jul-18	SM4110:B
Sulphate	551	1	mg/L	24-Jul-18	SM4110:B

Microbiology

Coliforms, Fecal	650	10	CFU/100mL	24-Jul-18	SM9222:D
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Organics

Benzene	0.003	0.002	mg/L	31-Jul-18	EPA8260B
Ethylbenzene	< 0.002	0.002	mg/L	31-Jul-18	EPA8260B
F2: C10-C16	< 0.2	0.2	mg/L	02-Aug-18	EPA8015B
F3: C16-C34	< 0.2	0.2	mg/L	02-Aug-18	EPA8015B
F4: C34-C50	< 0.2	0.2	mg/L	02-Aug-18	EPA8015B
Hydrocarbons, Total Extractable	< 0.2	0.2	mg/L	02-Aug-18	EPA8015B
Hydrocarbons, Total Purgeable	0.3	0.3	mg/L	31-Jul-18	EPA8015
Oil and Grease, visible	Non-visible			24-Jul-18	Visual Exam
Toluene	0.007	0.002	mg/L	31-Jul-18	EPA8260B
Xylenes	0.005	0.002	mg/L	31-Jul-18	EPA8260B

Subcontracted Organics

Phenols, Total	0.0687	0.001	mg/L	31-Jul-18	AB ENV.06537
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Trace Metals, Total

Aluminum	243	5	µg/L	03-Aug-18	EPA200.8
Arsenic	5.6	0.2	µg/L	03-Aug-18	EPA200.8
Cadmium	1.6	0.1	µg/L	03-Aug-18	EPA200.8
Chromium	4.5	0.1	µg/L	03-Aug-18	EPA200.8
Cobalt	9.5	0.1	µg/L	03-Aug-18	EPA200.8
Copper	166	0.2	µg/L	03-Aug-18	EPA200.8

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

Taiga Batch No.:
180610

- CERTIFICATE OF ANALYSIS -

Client Sample ID: **GJO-5**

Taiga Sample ID: **004**

Iron	28300	5	µg/L	03-Aug-18	EPA200.8
Lead	36.3	0.1	µg/L	03-Aug-18	EPA200.8
Manganese	1260	0.1	µg/L	03-Aug-18	EPA200.8
Mercury	0.09	0.01	µg/L	03-Aug-18	EPA200.8
Nickel	36.5	0.1	µg/L	03-Aug-18	EPA200.8
Zinc	1330	5	µg/L	03-Aug-18	EPA200.8



Taiga Environmental Laboratory

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Taiga Batch No.:

180610

- CERTIFICATE OF ANALYSIS -

Client Sample ID: **GJO-5**

Taiga Sample ID: **004**

*** 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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