

## Report Transmission Cover Page

Bill To: Town of Inuvik	Project:	Lot ID: <b>1081731</b>
Report To: Town of Inuvik	ID: SNP 0036-2	Control Number:
Box 1160	Name:	Date Received: Jul 14, 2015
2 Firth Street	Location: Hidden Lake Treatment	Date Reported: Jul 20, 2015
Inuvik, NT, Canada	LSD:	Report Number: 2026110
X0E 0T0	P.O.: 100104	
Attn: Rick Campbell	Acct code:	
Sampled By: Terry Copeman		
Company: Town of Inuvik		

Contact & Affiliation	Address	Delivery Commitments
Rick Campbell Town of Inuvik	2 Firth Street, Box 1160 Inuvik, Northwest Territories X0E 0T0 Phone: (867) 777-8615 Fax: (867) 777-8601 Email: rcampbell@town.inuvik.nt.ca	On [Report Approval] send (COC, Test Report) by Email - Merge Reports On [Lot Approval and Final Test Report Approval] send (Invoice) by Email - Single Report
Utilidor Town of Inuvik	2 Firth Street, Box 1160 Inuvik, Northwest Territories X0E 0T0 Phone: (867) 777-2607 Fax: (867) 777-2071 Email: utilidor@town.inuvik.nt.ca	On [Lot Approval and Final Test Report Approval] send (Invoice) by Email - Single Report
Richard Feilden Aecom - Edmonton	17203 – 103rd Avenue Edmonton, Alberta T5S 1J4 Phone: (780) 488-6800 Fax: (780) 488-2121 Email: richard.feilden@aecom.com	On [Lot Verification] send (COA, COC) by Email - Single Report On [Report Approval] send (COC, Test Report) by Email - Merge Reports
Kim Wainman Town of Inuvik	2 Firth Street, Box 1160 Inuvik, Northwest Territories X0E 0T0 Phone: (867) 777-8615 Fax: (867) 777-8601 Email: kwainman@town.inuvik.nt.ca	On [Lot Approval and Final Test Report Approval] send (Invoice) by Email - Single Report

### Notes To Clients:

- Sample 1081731-1; 5139458 Some total metal results were less than dissolved metal results for sample 1081731-1. The results were verified and are within expected measurement uncertainty.

## Analytical Report

Bill To: Town of Inuvik	Project:	Lot ID: <b>1081731</b>
Report To: Town of Inuvik	ID: SNP 0036-2	Control Number:
Box 1160	Name:	Date Received: Jul 14, 2015
2 Firth Street	Location: Hidden Lake Treatment	Date Reported: Jul 20, 2015
Inuvik, NT, Canada	LSD:	Report Number: 2026110
XOE 0T0	P.O.: 100104	
Attn: Rick Campbell	Acct code:	
Sampled By: Terry Copeman		
Company: Town of Inuvik		

<b>Reference Number</b>	1081731-1
<b>Sample Date</b>	July 13, 2015
<b>Sample Time</b>	NA
<b>Sample Location</b>	
<b>Sample Description</b>	Treated Water / SNP0036-2 / 5.4°C
<b>Sample Matrix</b>	Water

Analyte	Units	Result	Nominal Detection Limit	Guideline Limit	Guideline Comments	
<b>Inorganic Nonmetallic Parameters</b>						
Sulfide	Total	mg/L	<0.002	0.002	0.05	Below AO
Organic Carbon	Total Nonpurgeable	mg/L	10.1	0.5		
Organic Carbon	Dissolved	mg/L	10.0	0.5		
	Nonpurgeable					
Chlorine	Total	mg/L	0.4	0.1		
Cyanide	Dissolved	mg/L	<0.002	0.002	0.2	Below MAC
Hydrogen Sulfide	Calculated	mg/L	<0.002			
<b>Metals Dissolved</b>						
Subsample	Field Filtered		Lab Filtered			
<b>Metals Total</b>						
Aluminum	Total	mg/L	<0.02	0.02	0.1	Below OG
Calcium	Total	mg/L	23.6	0.2		
Iron	Total	mg/L	0.11	0.05	0.3	Below AO
Magnesium	Total	mg/L	6.58	0.2		
Manganese	Total	mg/L	0.036	0.005	0.05	Below AO
Potassium	Total	mg/L	1.6	0.4		
Silicon	Total	mg/L	0.56	0.05		
Sodium	Total	mg/L	4.0	0.4	200	Below AO
Sulfur	Total	mg/L	13.0	0.3		
Mercury	Total	mg/L	<0.000005	0.000005	0.001	Below MAC
Antimony	Total	mg/L	<0.0002	0.0002	0.006	Below MAC
Arsenic	Total	mg/L	0.0006	0.0002	0.01	Below MAC
Barium	Total	mg/L	0.039	0.001	1.0	Below MAC
Beryllium	Total	mg/L	<0.0001	0.0001		
Bismuth	Total	mg/L	<0.0005	0.0005		
Boron	Total	mg/L	0.020	0.002	5.0	Below MAC
Cadmium	Total	mg/L	<0.00001	0.00001	0.005	Below MAC
Chromium	Total	mg/L	<0.0005	0.0005	0.05	Below MAC
Cobalt	Total	mg/L	<0.0001	0.0001		
Copper	Total	mg/L	0.019	0.001	1.0	Below AO
Lead	Total	mg/L	0.0003	0.0001	0.01	Below MAC
Lithium	Total	mg/L	0.003	0.001		
Molybdenum	Total	mg/L	<0.001	0.001		
Nickel	Total	mg/L	0.0015	0.0005		
Selenium	Total	mg/L	<0.0002	0.0002	0.05	Below MAC
Silver	Total	mg/L	<0.00001	0.00001		

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2 Firth Street	Location: Hidden Lake Treatment	Date Reported: Jul 20, 2015
Inuvik, NT, Canada	LSD:	Report Number: 2026110
XOE 0T0	P.O.: 100104	
Attn: Rick Campbell	Acct code:	
Sampled By: Terry Copeman		
Company: Town of Inuvik		

<b>Reference Number</b>	1081731-1
<b>Sample Date</b>	July 13, 2015
<b>Sample Time</b>	NA
<b>Sample Location</b>	
<b>Sample Description</b>	Treated Water / SNP0036-2 / 5.4°C
<b>Sample Matrix</b>	Water

Analyte		Units	Result	Nominal Detection Limit	Guideline Limit	Guideline Comments
<b>Metals Total - Continued</b>						
Strontium	Total	mg/L	0.080	0.001		
Thallium	Total	mg/L	<0.00005	0.00005		
Tin	Total	mg/L	<0.001	0.001		
Titanium	Total	mg/L	<0.0005	0.0005		
Uranium	Total	mg/L	<0.0005	0.0005	0.02	Below MAC
Vanadium	Total	mg/L	0.0002	0.0001		
Zinc	Total	mg/L	0.008	0.001	5.0	Below AO
<b>Microbiological Analysis</b>						
Total Coliforms	Membrane Filtration	CFU/100 mL	<1	1	0	Below MAC
Escherichia coli	Membrane Filtration	CFU/100 mL	<1	1	0	Below MAC
<b>Physical and Aggregate Properties</b>						
Solids	Total Dissolved	mg/L dried at 180 °C	128	7	500	Below AO
Colour	Apparent, Potable	Colour units	5	5	15	Below AO
Turbidity		NTU	1.4	0.1	0.1	Above OG
Solids	Total Suspended	mg/L	<1	1		
<b>Routine Water</b>						
pH			7.36		6.5 - 8.5	Within AO
Temperature of observed		°C	22.9			
pH						
Electrical Conductivity	at 25 °C	uS/cm	192	1		
Calcium	Dissolved	mg/L	24	0.2		
Magnesium	Dissolved	mg/L	7	0.2		
Sodium	Dissolved	mg/L	5	0.4	200	Below AO
Potassium	Dissolved	mg/L	<4	0.4		
Iron	Dissolved	mg/L	<0.1	0.01	0.3	Below AO
Manganese	Dissolved	mg/L	<0.05	0.005	0.05	Below AO
Chloride	Dissolved	mg/L	10.5	0.4	250	Below AO
Fluoride		mg/L	0.54	0.05	1.5	Below MAC
Nitrate - N		mg/L	<0.01	0.01	10	Below MAC
Nitrite - N		mg/L	<0.005	0.005	1	Below MAC
Nitrate and Nitrite - N		mg/L	<0.01	0.01	10	Below MAC
Sulfate (SO4)	Dissolved	mg/L	39.2	0.9	500	Below AO
Hydroxide		mg/L	<5	5		
Carbonate		mg/L	<6	6		
Bicarbonate		mg/L	55	5		

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2 Firth Street	Location: Hidden Lake Treatment	Date Reported: Jul 20, 2015
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XOE 0T0	P.O.: 100104	
Attn: Rick Campbell	Acct code:	
Sampled By: Terry Copeman		
Company: Town of Inuvik		

<b>Reference Number</b>	1081731-1
<b>Sample Date</b>	July 13, 2015
<b>Sample Time</b>	NA
<b>Sample Location</b>	
<b>Sample Description</b>	Treated Water / SNP0036-2 / 5.4°C
<b>Sample Matrix</b>	Water

Analyte	Units	Result	Nominal Detection Limit	Guideline Limit	Guideline Comments
<b>Routine Water - Continued</b>					
P-Alkalinity	as CaCO3	mg/L	<5	5	
T-Alkalinity	as CaCO3	mg/L	45	5	
Total Dissolved Solids	Calculated	mg/L	110	1	500 Below AO
Hardness	Dissolved as CaCO3	mg/L	90		
Ionic Balance	Dissolved	%	98		
<b>Trihalomethanes Screen - Water</b>					
Chloroform		mg/L	0.171	0.001	0.1 Above MAC
Bromodichloromethane		mg/L	0.004	0.001	0.1 Below MAC
Dibromochloromethane		mg/L	<0.001	0.001	0.1 Below MAC
Bromoform		mg/L	<0.001	0.001	0.1 Below MAC
Total Trihalomethanes		mg/L	0.175	0.001	0.1 Above MAC
<b>Trihalomethanes - Surrogate Recovery</b>					
Dibromofluoromethane	EPA Surrogate	%	109	86-118	
Toluene-d8	EPA Surrogate	%	105	85-115	
Bromofluorobenzene	EPA Surrogate	%	89	86-115	

Approved by:



Darlene Lintott, MSc  
Consulting Scientist

Data have been validated by Analytical Quality Control and Exova's Integrated Data Validation System (IDVS).

Generation and distribution of the report, and approval by the digitized signature above, are performed through a secure and controlled automatic process.

## Methodology and Notes

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## Method of Analysis

Method Name	Reference	Method	Date Analysis Started	Location
Alkalinity, pH, and EC in water	APHA	* Alkalinity - Titration Method, 2320 B	14-Jul-15	Exova Edmonton
Alkalinity, pH, and EC in water	APHA	* Conductivity, 2510 B	14-Jul-15	Exova Edmonton
Alkalinity, pH, and EC in water	APHA	* pH - Electrometric Method, 4500-H+ B	14-Jul-15	Exova Edmonton
Anions (Routine) by Ion Chromatography	APHA	* Ion Chromatography with Chemical Suppression of Eluent Cond., 4110 B	16-Jul-15	Exova Edmonton
Approval-Edmonton	APHA	Checking Correctness of Analyses, 1030 E	14-Jul-15	Exova Edmonton
Carbon Organic (Dissolved) in water (DOC)	APHA	High-Temperature Combustion Method, 5310 B	16-Jul-15	Exova Edmonton
Carbon Organic (Total) in water (TOC)	APHA	High-Temperature Combustion Method, 5310 B	14-Jul-15	Exova Edmonton
Chloride in Water	APHA	* Automated Ferricyanide Method, 4500-Cl- E	16-Jul-15	Exova Edmonton
Chlorine (Total) in water	APHA	* DPD Colorimetric Method, 4500-Cl G	15-Jul-15	Exova Edmonton
Coliforms - Membrane Filtration	APHA	E. Coli - MF Partition Procedures, 9222 G	15-Jul-15	Exova Calgary
Coliforms - Membrane Filtration	APHA	Standard Total Coliform Membrane Filter Procedure, 9222 B	15-Jul-15	Exova Calgary
Colour (Apparent) in water	APHA	* Visual Comparison Method, 2120 B	20-Jul-15	Exova Edmonton
Cyanide (Dissolved) in water	Alta. Env. Method	* Cyanide, Simple Extractable (Automated Pyridine-Barbituric Acid Colorimetric Method), 06608L	20-Jul-15	Exova Edmonton
Mercury (Total) in water	EPA	* Mercury in Water by Cold Vapor Atomic Fluorescence Spectrometry, 245.7	16-Jul-15	Exova Edmonton
Metals ICP-MS (Total) in water	APHA/USEPA	* Metals By Inductively Coupled Plasma/Mass Spectrometry, APHA 3125 B / USEPA 200.2, 200.8	14-Jul-15	Exova Edmonton
Metals Trace (Dissolved) in water	APHA	Hardness by Calculation, 2340 B	16-Jul-15	Exova Edmonton
Metals Trace (Dissolved) in water	APHA	* Inductively Coupled Plasma (ICP) Method, 3120 B	16-Jul-15	Exova Edmonton
Metals Trace (Total) in water	APHA	* Inductively Coupled Plasma (ICP) Method, 3120 B	14-Jul-15	Exova Edmonton
Solids Dissolved (Total, Fixed and Volatile)	APHA	* Total Dissolved Solids Dried at 180 C, 2540 C	16-Jul-15	Exova Edmonton
Solids Suspended (Total, Fixed and Volatile)	APHA	* Total Suspended Solids Dried at 103-105°C, 2540 D	18-Jul-15	Exova Edmonton
Sulfide in water	APHA	* Gas Dialysis, Automated Methylene Blue Method, 4500-S2- E	15-Jul-15	Exova Edmonton
THM - Water	US EPA	* US EPA method, 524	16-Jul-15	Exova Calgary
Turbidity in Water	APHA	* Turbidity - Nephelometric Method, 2130 B	20-Jul-15	Exova Edmonton

\* Reference Method Modified

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## References

Alta. Env. Method	Alberta Environment Method
US EPA	US Environmental Protection Agency Test Methods
APHA	Standard Methods for the Examination of Water and Wastewater

## Guidelines

Guideline Description	Health Canada GCDWQ
Guideline Source	Guidelines for Canadian Drinking Water Quality, Health Canada, October 2014
Guideline Comments	MAC = Maximum Acceptable Concentration AO = Aesthetic Objective OG = Operational Guideline for Water Treatment Plants Refer to Health Canada GCDWQ for complete guidelines and additional drinking water information at <a href="http://www.hc-sc.gc.ca">www.hc-sc.gc.ca</a>

## Comments:

- Sample 1081731-1; 5139458 Some total metal results were less than dissolved metal results for sample 1081731-1. The results were verified and are within expected measurement uncertainty.

The comparison of test results to guideline limits is provided for information purposes only. This is not to be taken as a statement of conformance / nonconformance to any guideline, regulation or limit. The data user is responsible for all conclusions drawn with respect to the data and is advised to consult official regulatory references when evaluating compliance.

Please direct any inquiries regarding this report to our Client Services group.  
Results relate only to samples as submitted.

The test report shall not be reproduced except in full, without the written approval of the laboratory.



Project Information  
 Project ID: SNP 0036-2  
 Project Name: Hidden Lake treatment  
 Project Location: Hidden Lake treatment  
 Legal Location: PO/A/E# 100104  
 Proj. Acct Code: 100104

Company: Town of Inuvik  
 Address: Box 1160 2 Fifth Street  
 Inuvik, NT X0E 0T0  
 Attention: Rick Campbell  
 Phone: (867) 777-8615  
 Cell: (867) 678-5388  
 Fax: (867) 777-8601  
 E-mail: [rcampbell@town.inuvik.nt.ca](mailto:rcampbell@town.inuvik.nt.ca)

Company: Aecom - Edmonton  
 Address: 17203-103rd Avenue  
 Edmonton, AB T5S 1J4  
 Attention: Richard Feilden  
 Phone: (780) 488-6800  
 Cell: (780) 488-2121  
 Fax: (780) 488-2121  
 E-mail: [richard.feilden@aecom.com](mailto:richard.feilden@aecom.com)

Report Results:  E-Mail  Mail  Online  PDF  Excel  
 Special Instructions/Comments: Please include contact information including ph. # if different from above. Apply Canadian Drinking Water Guidelines.  
 Sampler: Circle Project ID Below and note weather:  
 SNP3 Lagoon - SNP4 Mt. B. W. - SNP5 Mt. B. E  
 SNP6 GatePond - SNP7 FarPond - SNP8 Twinkl  
 Temp\_12\_C\_precip\_Wind\_dir\_nw\_Vel\_4\_kmh

Copy of invoice: QA/QC Report  
 Indicate Regulatory Requirements below

Signature: *[Signature]*  
 Sample Custody: *[Signature]*  
 Sampled by: Terry Coleman  
 Company: Town of Inuvik  
 I authorize Exova to proceed with the work indicated on this form.  
 Date: July 13 2015 Initial: T.C.  
 Date/Time stamp: *[Stamp]*

Sample Identification	Location	Depth in cm	Date/Time sampled	Matrix	Sampling method	Number of Containers
1 B.O.D	SNP0036-2		July 13 2015		Dip	
2 Routine	"			"	"	
3 Microbiology	"			"	"	
4 T.H.M.	"			"	"	
5 Nutrients + PRESV	"			"	"	
6 Metals + PRESV	"			"	"	
7 Cyanide NO PRESV	"			"	"	
8 Sulphide NO PRESV	"			"	"	
9						
10						
11						
12						
13						
14						
15						

Environmental Sample Information Sheet  
 Note: Proper completion of this form is required in order to proceed with analysis  
 Please indicate any potentially hazardous samples

LOT: 1081731  
 COC

Shipping: COD Y/N  
 Cooler temp: 5.4

# and size of coolers received:  
 Delivery Method: Canadian MAIL  
 Waybill: SLD Yel 697275  
 Received by: *[Signature]*

Indicate below any deficiencies in the condition of samples:  
 Were Exova supplies used?  
 Was there any damage to the shipping container?  
 Were the containers packaged well?  
 Were the expected number of samples received (document below)?  
 Are samples within recommended holding times/temp?