NWB Annual Report **Year being reported:** 2009

License No: 3BC-EUR0611 **Issued Date:** February 6, 2006
Expiry Date: January 30, 2011

Project Name: Eureka Weather Station

Licensee: Environment Canada

Mailing Address: 355 River Road,
Ottawa, ON, K1A 0H3
for Eureka Weather Station, Eureka, NU, X0A 0G0

Name of Company filing Annual Report (if different from Name of Licensee please clarify relationship between the two entities, if applicable):

Environment Canada

General Background Information on the Project (*optional):

Licence Requirements: the licensee must provide the following information in accodance with

Part B Item 2

A summary report of water use and waste disposal activities, including, but not limited to: methods of obtaining water; sewage and greywater management; drill waste management; solid and hazardous waste management.

Water Source(s):	Station Creek	
Water Quantity:	10,000	Quantity Allowable Domestic (cu.m)
	2,966	Actual Quantity Used Domestic (cu.m)
	0	Quantity Allowable Drilling (cu.m)
	0	Total Quantity Used Drilling (cu.m)

Waste Management and/or Disposal

- [x] Solid Waste Disposal
- [x] Sewage
- [ ] Drill Waste
- [x] Greywater
- [ ] Hazardous
- [ ] Other:

☐ Other:

Additional Details:

Appendix A: Quantity of Raw Water
Appendix B: Quality of Raw Water
Appendix C: Quality of Tap (non-drinking) Water
Appendix D: Quantity of Drinking Water Consumed
Appendix E: Quality of Drinking Water Consumed
Appendix F: Quantity of Waste Water Discharged
Appendix G: Quality of Waste Water Discharged

A list of unauthorized discharges and a summary of follow-up actions taken.

Spill No.: (as reported to the Spill Hot-line)
Date of Spill:
Date of Notification to an Inspector:
Additional Details: (impacts to water, mitigation measures, short/long term monitoring, etc)

There were no unauthorized discharges of any type during 2009.

Revisions to the Spill Contingency Plan

N/A - not applicable

Additional Details:

The Oil Pollution Emergency Plan was revised and re-submitted to the Nunavut Water Board under separate cover.

Revisions to the Abandonment and Restoration Plan

Other: (see additional details)

Additional Details:

No revisions to draft plan submitted to the Nunavut Water Board in 2009.

Progressive Reclamation Work Undertaken

Additional Details (i.e., work completed and future works proposed)

Reference to part B.2.v of license:

Work completed in 2009

a. Potable water settling tanks replaced.

b. Fuel tank farm inspected according to API 653. Report forthcoming.

c. Fuel tanks inspected with respect to compliance with June, 2008 *Storage Tank Systems for Petroleum Products and Allied Petroleum Products Regulations* . Report forthcoming.

d. Fuel tank registration completed in accordance with requirements of above *Regulations* and tanks tagged accordingly.

e. Fuel tanks have been labelled to ensure that the fuel contained therein is properly identified pursuant to Workers Hazardous Materials Information System (WHMIS). Labelling of the tanks and piping for the tank farm has been delayed until repainting is complete in summer 2010. Labels are on site

f. Risk analysis of spills associated with fuel transfer and storage areas conducted. Report received and being reviewed.

g. Study underway to expand the fuel tank farm to provide for a 2 year capacity and serve future needs of the Station. Report forthcoming

h. Study conducted to recommend replacement and testing of the floating fuel hosed employed during annual fuel resupply

i. Additional soil sampling conducted to more accurately delineate scope of contaminated sites.

j. Study underway on decommissioning of surplus buildings. Report forthcoming.

k. Phases 2 and 3 of Environmental Site Assessments completed.

Work planned for 2010

a. Study to underpin runway recapitalilzation. Forecasted for 2009 - delays in tendering of contract moved report date to 2010.

b. Study to underpin sewage lagoon replacement. Forecasted for 2009 - delays in tendering of contracted moved report date to 2010.

c. Study to underpin fresh water lagoon recapitalization. Forecasted for 2009 - delays in tendering contract moved report date to 2010.

d. Fuel tanks and associated pipe line will be stripped and repainted. Lead based paint to be sent south for disposal as hazardous material.

Results of the Monitoring Program including:

Details attached

Additional Details:

See Appendix H for GPS Co-ordinates of each location where sources of water are utilized

The GPS Co-ordinates (in degrees, minutes and seconds of latitude and longitude) of each location where wastes associated with the licence are deposited;

Details attached

Additional Details:

See Appendix H for GPS Co-ordinates of each location where wastes associated with the licence are deposited.

Results of any additional sampling and/or analysis that was requested by an Inspector

No additional sampling requested by an Inspector or the Board

Additional Details: (date of request, analysis of results, data attached, etc)

Any other details on water use or waste disposal requested by the Board by November 1 of the year being reported.

No additional sampling requested by an Inspector or the Board

Additional Details: (Attached or provided below)

Any responses or follow-up actions on inspection/compliance reports

No inspection and/or compliance report issued by INAC

Additional Details: (Dates of Report, Follow-up by the Licensee)

Any additional comments or information for the Board to consider

Date Submitted:		
Submitted/Prepared by:		
Contact Information:	**Tel:**	
	Fax:	
	email:	

QUANTITIES OF FRESH WATER OBTAINED

EUREKA, 2009

Fresh Water: Fresh Water Lagoon

1. 2 Pump capacities: Tsurmi Pumps Model LB2-400 with a 20' head ~ 19.5 gal/min
2. Pump time*: 2 pumps x 11.5 days x 24 hours x 60 min x 19.5 gal/min = ~ 650,000 gal or ~ 3,000 m^3

*Pumping began on July 3, 2009 and ended on September 10, 2009
Intake hose screen has ¼" diameter holes
Pumping took place after initial rush of stream had taken place and the amount of silt/mud had diminished.

EUREKA RAW WATER ANALYSIS 2007-2009

	RAW WATER Lagoon			Guidelines mg/l	
					CANADIAN[i]
				MAC[1]	OG[2]/AO[3]
Parameter	**2007**	**2008**	**2009**		
TSS			256		
Organic Carbon	61.2	40.8	0.9		
Hardness	1300	1330	132		
Coliforms, Total		<1.0		0/100 ml	
Escherichia coli		<1.0		0/100 ml	
Aluminum	<0.030	0.0092	0.964		0.2
Antimony			0.0002		
Arsenic			<0.0002		
Barium	0.0781	0.0657	0.0064	1	
Beryllium	<0.0001	<0.0001	<0.0001		
Boron	0.233	0.103		5	
Cadmium	0.0003	<0.00005	<0.0001	0.005	
Cesium			<0.0001		
Chromium	0.0003	0.0002	0.0002	0.05	
Cobalt	0.0006	0.0004	<0.0001		
Copper	0.0016	0.022	0.0066		<1.0
Iron	0.0536	<0.050	0.151		<0.3
Lead	0.0002	<0.0001	<0.0001	0.01	
Lithium			0.0041		
Manganese	0.0182	0.0347	0.0051		<0.05
Molybdenum	0.0006	0.0006	0.0001		
Nickel	0.0035	0.003	0.0006		
Rubidium			0.0005		
Selenium			<0.0005		
Silver	<0.0001	<0.0001	<0.0001		
Strontium	1.34	1.18	0.112		
Thallium	<0.0001	<0.0001	<0.0001		
Titanium	0.0014	0.001	0.0013		
Uranium			0.0002	0.02	
Vanadium	0.0003	<0.0001	0.0003		
Zinc	0.01	0.0039	<0.0005		<5.0
Silicon	2.51	2.27			
*Bromodicholormethane			<0.005	0.016	
*Bromoform			<0.005		
*Dibromochloromethane			<0.005		
*Trihalomethanes	0.005		<0.005	0.1	

*All subcontracted organics are in concentrations less than detectable levels except for those listed immediately above

[i]Guidelines for Canadian Drinking Water Quality Summary Table, May 2008
http://www.hc-sc.gc.ca/ewh-semt/pubs/water-eau/sum_guide-res_recom/chemical-chimiques-eng.php#tbl6
http://www.ccme.ca/assets/pdf/cda_wide_strategy_mwwe_final_e.pdf

[ii]US Environmental Protection Agency Drinking Water Standards
http://www.epa.gov/safewater/contaminants/index.html

[1]Maxiumum Acceptable Concentration

[2]Aesthetic Objectives

[3]Operational Guidance Values

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

Taiga Batch No.:
290373

- FINAL REPORT -

Prepared For: Environment Canada
Eureka Weather Station

Address: 123 Main Street
Suite 150
Winnipeg, MB
R3C 4W2

Attn: Harvey Pukin **Facsimile:**

Final report has been reviewed and approved by:

Angelique Ruzindana
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 of Environmental Analytical Laboratories (CAEAL) as a testing laboratory for specific tests registered with CAEAL.
- 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, July 23, 2009
Print Date: Thursday, July 23, 2009

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

Taiga Batch No.: 290373

- CERTIFICATE OF ANALYSIS -

Client Sample ID: EUFW0709 **Taiga Sample ID: 001**

Client Project:
Sample Type: Freshwater
Received Date: 09-Jul-09
Sampling Date: 09-Jul-09
Sampling Time: 7:30
Location:
Report Status: **Final**

Test Parameter	Result	Detection Limit	Units	Analysis Date	Analytical Method *	Qualifer
Inorganics - Physicals						
Solids, Total Dissolved	256	10	mg/L	15-Jul-09	SM2540:C	
Inorganics - Nutrients						
Organic Carbon, Total	0.9	0.5	mg/L	15-Jul-09	SM5310:B	
Major Ions						
Hardness	132	0.7	mg/L	10-Jul-09	SM2340:B	
Microbiology						
Coliforms, Total			MPN/100mL		SM9223:B	203
Escherichia coli			MPN/100mL		SM9223:B	203
Organics						
Bromodichloromethane	< 0.005	0.005	mg/L	13-Jul-09	EPA8260B	
Bromoform	< 0.005	0.005	mg/L	13-Jul-09	EPA8260B	
Chloroform	< 0.005	0.005	mg/L	13-Jul-09	EPA8260B	
Dibromochloromethane	< 0.005	0.005	mg/L	13-Jul-09	EPA8260B	
Trihalomethanes, Total	< 0.005	0.005	mg/L	13-Jul-09	EPA8260B	

ReportDate: Thursday, July 23, 2009
Print Date: Thursday, July 23, 2009

RAW WATER: WATER LAGOON: 2008

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

Taiga Batch No.: 280154

- CERTIFICATE OF ANALYSIS -

Client Sample ID: TOC 07-EU10 Water Lagoon **Taiga Sample ID: 001**

Client Project:
Sample Type: Unknown Water
Received Date: 16-Apr-08
Sampling Date: 15-Apr-08
Sampling Time: 7:15
Location: Water Lagoon
Report Status: **FINAL**

Test Parameter	Result	Detection Limit	Units	Analysis Date	Analytical Method *	Qualifer
Inorganics - Nutrients						
Organic Carbon, Total	40.8	0.5	mg/L	17-Apr-08	SM5310:B	
Major Ions						
Hardness	1330	0.7	mg/L	23-Apr-08	SM2340:B	

ReportDate: Thursday, May 01, 2008
Print Date: Thursday, May 01, 2008

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

Taiga Batch No.: 280148

- CERTIFICATE OF ANALYSIS -

Client Sample ID: Water Lagoon **Taiga Sample ID: 003**

Client Project:
Sample Type: Unknown Water
Received Date: 10-Apr-08
Sampling Date: 10-Apr-08
Sampling Time: 7:30
Location:
Report Status: FINAL

Test Parameter	Result	Detection Limit	Units	Analysis Date	Analytical Method *	Qualifer
Microbiology						
Coliforms, Total	< 1.0	1.0	MPN/100mL	10-Apr-08	SM9223:B	
Escherichia coli	< 1.0	1.0	MPN/100mL	10-Apr-08	SM9223:B	
Trace Metals, Total						
Aluminum	9.2	0.6	µg/L	20-Apr-08	EPA200.8	
Barium	65.7	0.1	µg/L	20-Apr-08	EPA200.8	
Beryllium	< 0.1	0.1	µg/L	20-Apr-08	EPA200.8	
Boron	103	0.9	µg/L	20-Apr-08	EPA200.8	
Cadmium	< 0.05	0.05	µg/L	20-Apr-08	EPA200.8	
Chromium	0.2	0.1	µg/L	20-Apr-08	EPA200.8	
Cobalt	0.4	0.1	µg/L	20-Apr-08	EPA200.8	
Copper	22.0	0.3	µg/L	20-Apr-08	EPA200.8	
Iron	< 50	50	µg/L	20-Apr-08	EPA200.8	
Lead	< 0.1	0.1	µg/L	20-Apr-08	EPA200.8	
Manganese	34.7	0.1	µg/L	20-Apr-08	EPA200.8	
Molybdenum	0.6	0.1	µg/L	20-Apr-08	EPA200.8	

ReportDate: Wednesday, April 23, 2008
Print Date: Wednesday, April 23, 2008

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

Taiga Batch No.: 280148

- CERTIFICATE OF ANALYSIS -

Client Sample ID: Water Lagoon **Taiga Sample ID: 003**

Nickel	3.0	0.1	µg/L	20-Apr-08	EPA200.8
Silver	< 0.1	0.1	µg/L	20-Apr-08	EPA200.8
Strontium	1180	0.1	µg/L	20-Apr-08	EPA200.8
Thallium	< 0.1	0.1	µg/L	20-Apr-08	EPA200.8
Titanium	1.0	0.1	µg/L	20-Apr-08	EPA200.8
Vanadium	< 0.1	0.1	µg/L	20-Apr-08	EPA200.8
Zinc	3.9	0.4	µg/L	20-Apr-08	EPA200.8
Subcontracted Metals					
Silicon	2.27	0.05	mg/L	17-Apr-08	SM3120B
Subcontracted Organics					
1,1,1,2-Tetrachloroethane	< 1	1	ug/L	17-Apr-08	EPA8260
1,1,1-Trichloroethane	< 1	1	ug/L	17-Apr-08	EPA8260
1,1,2,2-Tetrachloroethane	< 1	1	ug/L	17-Apr-08	EPA8260
1,1,2-Trichloroethane	< 1	1	ug/L	17-Apr-08	EPA8260
1,1-Dichloroethane	< 1	1	ug/L	17-Apr-08	EPA8260
1,1-Dichloropropene	< 1	1	ug/L	17-Apr-08	EPA8260
1,2,3-Trichlorobenzene	< 1	1	ug/L	17-Apr-08	EPA8260
1,2,3-Trichloropropane	< 1	1	ug/L	17-Apr-08	EPA8260
1,2,4-Trichlorobenzene	< 1	1	ug/L	17-Apr-08	EPA8260
1,2,4-Trimethylbenzene	< 1	1	ug/L	17-Apr-08	EPA8260
1,2-Dibromo-3-Chloropropane	< 1	1	ug/L	17-Apr-08	EPA8260
1,2-Dibromoethane	< 1	1	ug/L	17-Apr-08	EPA8260
1,2-Dichlorobenzene	< 1	1	ug/L	17-Apr-08	EPA8260
1,2-Dichloroethane	< 1	1	ug/L	17-Apr-08	EPA8260

RAW WATER: WATER LAGOON: 2007

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

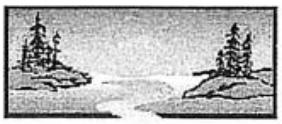
Taiga Batch No.: 270218

- CERTIFICATE OF ANALYSIS -

Client Sample ID: TOC 07-EU4 Taiga Sample ID: 002

Client Project:
Sample Type: Freshwater
Received Date: 15-May-07
Sampling Date: 15-May-07
Sampling Time: 6:00
Location: Water Lagoon
Report Status: FINAL

Test Parameter	Result	Detection Limit	Units	Analysis Date	Analytical Method *	VMV Code	Qualifer
Inorganics - Nutrients							
Organic Carbon, Total	61.2	0.5	mg/L	22-May-07	SM5310:B		
Major Ions							
Hardness	1300	0.7	mg/L	22-May-07	SM2340:B	010602	



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

Taiga Batch No.: 270218

- CERTIFICATE OF ANALYSIS -

Client Sample ID: Metal 07-EU7 Taiga Sample ID: 003

Client Project:
Sample Type: Freshwater
Received Date: 15-May-07
Sampling Date: 15-May-07
Sampling Time: 6:00
Location: Water Lagoon
Report Status: FINAL

Test Parameter	Result	Detection Limit	Units	Analysis Date	Analytical Method *	VMV Code	Qualifer
Trace Metals, Total							
Aluminum	< 30	30	µg/L	25-May-07	EPA200.8	100107	
Barium	78.1	0.1	µg/L	25-May-07	EPA200.8	100139	
Beryllium	< 0.1	0.1	µg/L	25-May-07	EPA200.8	100105	
Boron	233	0.9	µg/L	25-May-07	EPA200.8		
Cadmium	0.3	0.1	µg/L	25-May-07	EPA200.8	100132	
Chromium	0.3	0.3	µg/L	25-May-07	EPA200.8	100110	
Cobalt	0.6	0.1	µg/L	25-May-07	EPA200.8	100114	
Copper	1.6	0.1	µg/L	25-May-07	EPA200.8	100118	
Iron	53.6	50	µg/L	25-May-07	EPA200.8		
Lead	0.2	0.1	µg/L	25-May-07	EPA200.8	100146	
Manganese	18.2	0.1	µg/L	25-May-07	EPA200.8	100112	
Molybdenum	0.6	0.1	µg/L	25-May-07	EPA200.8	100152	
Nickel	3.5	0.1	µg/L	25-May-07	EPA200.8	100117	
Silver	< 0.1	0.1	µg/L	25-May-07	EPA200.8	100131	
Strontium	1340	0.1	µg/L	25-May-07	EPA200.8	100128	

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Taiga Batch No.: 270218

- CERTIFICATE OF ANALYSIS -

Client Sample ID: Metal 07-EU7 Taiga Sample ID: 003

Thallium	< 0.1	0.1	µg/L	25-May-07	EPA200.8	100140
Titanium	1.4	0.1	µg/L	25-May-07	EPA200.8	102642
Vanadium	0.3	0.1	µg/L	25-May-07	EPA200.8	100109
Zinc	< 10	10	µg/L	25-May-07	EPA200.8	100120
Subcontracted Metals						
Silicon	2.51	0.05	mg/L	22-May-07	EPA200.8	

EUREKA WATER ANALYSIS 2008-2009: TAP WATER

	TAP WATER			GUIDELINES (mg/l)			
				CANADIAN[i]		US EPA[ii]	
				MAC[1]	OG[2]/AO[3]	MCL[4]	MCLG[5]
Parameter	**2007**	**2008**	**2009**				
TSS			524				
Organic Carbon			1.5				
Hardness			112				
Coliforms, Total		<1.0	<1.0	0/100 ml		100/100ml	0
Escherichia coli		<1.0	<1.0	0/100 ml			0
Aluminum		0.0053	0.046		0.2	0.05-0.2	
Antimony			0.0002				
Arsenic			<0.0002				
Barium		0.0165	0.0054	1		2	2
Beryllium		<0.0001	<0.0001			0.004	
Boron		0.0992		5			
Cadmium		<0.00005	<0.0001	0.005		0.005	0.005
Cesium			<0.0001				
Chromium		0.0003	0.0002	0.05		0.1	0.1
Cobalt		0.0001	<0.0001				
Copper		0.134	0.0652		<1.0		1.3
Iron		<0.050	0.101		<0.3	0.3	
Lead		0.0012	0.0001	0.01		0.015	0
Lithium			0.0037				
Manganese		0.0092	0.0036		<0.05	0.05	
Molybdenum		0.0008	0.0002				
Nickel		0.0015	0.0007				
Rubidium			0.0004				
Selenium			0.0005				
Silver		<0.0001	<0.0001			0.1	
Strontium		0.28	0.0898				
Thallium		<0.0001	<0.0001				
Titanium		0.0008	<0.0001				
Uranium			0.0003				
Vanadium		<0.0001	0.0002				
Zinc		0.109	0.047		<5.0	5	
Silicon		0.0024					
*Bromodicholormethane			0.01	0.016			
*Bromoform			0.052				
*Dibromochloromethane			0.027				
*Trihalomethane			0.092	0.1		0.08	

*All subcontracted organics are in concentrations less than detectable levels except for those listed immediately above

[i]Guidelines for Canadian Drinking Water Quality Summary Table, May 2008
http://www.hc-sc.gc.ca/ewh-semt/pubs/water-eau/sum_guide-res_recom/chemical-chimiques-eng.php#tbl6

[ii]US Environmental Protection Agency Drinking Water Standards
http://www.epa.gov/safewater/contaminants/index.html

[1]Maxiumum Acceptable Concentration

[2]Aesthetic Objectives

[3]Operational Guidance Values

[4]Maximum Contaminant Level

[5]Maximum Contaminant Level Goal

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

Taiga Batch No.: 290373

- CERTIFICATE OF ANALYSIS -

Client Sample ID: EUDW0709 **Taiga Sample ID:** 003

Client Project:
Sample Type: Drinking Water
Received Date: 09-Jul-09
Sampling Date: 09-Jul-09
Sampling Time: 7:30
Location:
Report Status: **Final**

Test Parameter	Result	Detection Limit	Units	Analysis Date	Analytical Method *	Qualifer
Inorganics - Physicals						
Solids, Total Dissolved	524	10	mg/L	15-Jul-09	SM2540:C	
Inorganics - Nutrients						
Organic Carbon, Total	1.5	0.5	mg/L	15-Jul-09	SM5310:B	
Major Ions						
Hardness	112	0.7	mg/L	10-Jul-09	SM2340:B	
Microbiology						
Coliforms, Total	< 1.0	1.0	MPN/100mL	09-Jul-09	SM9223:B	
Escherichia coli	< 1.0	1.0	MPN/100mL	09-Jul-09	SM9223:B	
Organics						
Bromodichloromethane	0.010	0.005	mg/L	13-Jul-09	EPA8260B	
Bromoform	0.052	0.005	mg/L	13-Jul-09	EPA8260B	
Chloroform	< 0.005	0.005	mg/L	13-Jul-09	EPA8260B	
Dibromochloromethane	0.027	0.005	mg/L	13-Jul-09	EPA8260B	
Trihalomethanes, Total	0.092	0.005	mg/L	13-Jul-09	EPA8260B	

ReportDate: Thursday, July 23, 2009
Print Date: Thursday, July 23, 2009

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

Taiga Batch No.: 290373

- CERTIFICATE OF ANALYSIS -

Client Sample ID: EUDW0709 **Taiga Sample ID: 003**

Trace Metals, Total

Aluminum	46	5	µg/L	21-Jul-09	EPA200.8
Antimony	0.2	0.1	µg/L	21-Jul-09	EPA200.8
Arsenic	< 0.2	0.2	µg/L	21-Jul-09	EPA200.8
Barium	5.4	0.1	µg/L	21-Jul-09	EPA200.8
Beryllium	< 0.1	0.1	µg/L	21-Jul-09	EPA200.8
Cadmium	< 0.1	0.1	µg/L	21-Jul-09	EPA200.8
Cesium	< 0.1	0.1	µg/L	21-Jul-09	EPA200.8
Chromium	0.2	0.1	µg/L	21-Jul-09	EPA200.8
Cobalt	< 0.1	0.1	µg/L	21-Jul-09	EPA200.8
Copper	65.2	0.2	µg/L	21-Jul-09	EPA200.8
Iron	101	5	µg/L	21-Jul-09	EPA200.8
Lead	0.1	0.1	µg/L	21-Jul-09	EPA200.8
Lithium	3.7	0.2	µg/L	21-Jul-09	EPA200.8
Manganese	3.6	0.1	µg/L	21-Jul-09	EPA200.8
Molybdenum	0.2	0.1	µg/L	21-Jul-09	EPA200.8
Nickel	0.7	0.1	µg/L	21-Jul-09	EPA200.8
Rubidium	0.4	0.1	µg/L	21-Jul-09	EPA200.8
Selenium	0.5	0.5	µg/L	21-Jul-09	EPA200.8
Silver	< 0.1	0.1	µg/L	21-Jul-09	EPA200.8
Strontium	89.8	0.1	µg/L	21-Jul-09	EPA200.8
Thallium	< 0.1	0.1	µg/L	21-Jul-09	EPA200.8
Titanium	0.7	0.1	µg/L	21-Jul-09	EPA200.8
Uranium	0.3	0.1	µg/L	21-Jul-09	EPA200.8

ReportDate: Thursday, July 23, 2009
Print Date: Thursday, July 23, 2009

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

Taiga Batch No.: 280148

- CERTIFICATE OF ANALYSIS -

Client Sample ID: Water Tap Wx Office **Taiga Sample ID: 001**

Client Project:
Sample Type: Unknown Water
Received Date: 10-Apr-08
Sampling Date: 10-Apr-08
Sampling Time: 7:30
Location:
Report Status: **FINAL**

Test Parameter	Result	Detection Limit	Units	Analysis Date	Analytical Method *	Qualifer
Microbiology						
Coliforms, Total	< 1.0	1.0	MPN/100mL	10-Apr-08	SM9223:B	
Escherichia coli	< 1.0	1.0	MPN/100mL	10-Apr-08	SM9223:B	
Trace Metals, Total						
Aluminum	5.3	0.6	µg/L	20-Apr-08	EPA200.8	
Barium	16.5	0.1	µg/L	20-Apr-08	EPA200.8	
Beryllium	< 0.1	0.1	µg/L	20-Apr-08	EPA200.8	
Boron	99.2	0.9	µg/L	20-Apr-08	EPA200.8	
Cadmium	< 0.05	0.05	µg/L	20-Apr-08	EPA200.8	
Chromium	0.3	0.1	µg/L	20-Apr-08	EPA200.8	
Cobalt	0.1	0.1	µg/L	20-Apr-08	EPA200.8	
Copper	134	0.3	µg/L	20-Apr-08	EPA200.8	
Iron	< 50	50	µg/L	20-Apr-08	EPA200.8	
Lead	1.2	0.1	µg/L	20-Apr-08	EPA200.8	
Manganese	9.2	0.1	µg/L	20-Apr-08	EPA200.8	

ReportDate: Wednesday, April 23, 2008
Print Date: Wednesday, April 23, 2008

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

Taiga Batch No.: 280148

- CERTIFICATE OF ANALYSIS -

Client Sample ID: Water Tap Wx Office **Taiga Sample ID: 001**

Molybdenum	0.8	0.1	µg/L	20-Apr-08	EPA200.8
Nickel	1.5	0.1	µg/L	20-Apr-08	EPA200.8
Silver	< 0.1	0.1	µg/L	20-Apr-08	EPA200.8
Strontium	280	0.1	µg/L	20-Apr-08	EPA200.8
Thallium	< 0.1	0.1	µg/L	20-Apr-08	EPA200.8
Titanium	0.8	0.1	µg/L	20-Apr-08	EPA200.8
Vanadium	< 0.1	0.1	µg/L	20-Apr-08	EPA200.8
Zinc	109	0.4	µg/L	20-Apr-08	EPA200.8
Subcontracted Metals					
Silicon	2.04	0.05	mg/L	17-Apr-08	SM3120B
Subcontracted Organics					
1,1,1,2-Tetrachloroethane	< 1	1	ug/L	17-Apr-08	EPA8260
1,1,1-Trichloroethane	< 1	1	ug/L	17-Apr-08	EPA8260
1,1,2,2-Tetrachloroethane	< 1	1	ug/L	17-Apr-08	EPA8260
1,1,2-Trichloroethane	< 1	1	ug/L	17-Apr-08	EPA8260
1,1-Dichloroethane	< 1	1	ug/L	17-Apr-08	EPA8260
1,1-Dichloropropene	< 1	1	ug/L	17-Apr-08	EPA8260
1,2,3-Trichlorobenzene	< 1	1	ug/L	17-Apr-08	EPA8260
1,2,3-Trichloropropane	< 1	1	ug/L	17-Apr-08	EPA8260
1,2,4-Trichlorobenzene	< 1	1	ug/L	17-Apr-08	EPA8260
1,2,4-Trimethylbenzene	< 1	1	ug/L	17-Apr-08	EPA8260
1,2-Dibromo-3-Chloropropane	< 1	1	ug/L	17-Apr-08	EPA8260
1,2-Dibromoethane	< 1	1	ug/L	17-Apr-08	EPA8260
1,2-Dichlorobenzene	< 1	1	ug/L	17-Apr-08	EPA8260

ReportDate: Wednesday, April 23, 2008
Print Date: Wednesday, April 23, 2008

	2001	2002	2003	2004	2005	2006	2007	2008	2009
Jan	57.8	43.8	91.7	104.0	104.9	22.0	131.9	126.9	140.9
Feb	117.5	90.0	60.6	116.7	117.0	137.9	106.3	178.0	194.9
Mar	113.0	79.2	160.6	121.2	188.2	103.5	222.6	271.4	237.7
Apr	84.1	186.8	111.7	160.1	63.7	73.6	209.2	236.3	221.5
May	261.8	233.8	280.3	203.7	273.9	322.8	273.8	410.7	328.8
Jun	335.3	287.9	432.5	418.2	489.0	495.7	325.6	499.7	438.7
Jul	438.0	354.8	369.1	427.6	501.8	379.6	319.3	423.3	357.6
Aug	238.5	160.6	260.3	247.4	236.3	111.3	167.7	163.0	130.0
Sep	114.5	77.1	59.4	180.3	237.8	77.8	153.9	221.1	197.2
Oct	103.1	79.6	165.3	70.8	71.5	107.4	142.6	183.1	275.1
Nov	83.5	94.6	61.5	104.6	71.5	106.4	89.2	103.9	187.0
Dec	141.5	85.5	149.5	144.2	78.1	108.6	163.6	159.9	141.0
Total (cu M)	2088.6	1773.7	2202.5	2298.8	2433.7	2046.6	2305.7	2977.3	2850.4

EUREKA WATER ANALYSIS 2007-2009: REVERSE OSMOSIS

	REVERSE OSMOSIS WATER			GUIDELINES (mg/l)			
				CANADIAN[i]		US EPA[ii]	
				MAC[1]	OG[2]/AO[3]	MCL[4]	MCLG[5]
Parameter	**2007**	**2008**	**2009**				
TSS			208				
Organic Carbon	<0.5		0.5				
Hardness	1.7		11.1				
Coliforms, Total		<1.0	<1.0	0/100 ml		100/100ml	0
Escherichia coli		<1.0	<1.0	0/100 ml			0
Aluminum	0.0009	0.0019	0.017		0.2	0.05-0.2	
Antimony			<0.0001				
Arsenic			<0.0002				
Barium	<0.0001	0.0027	0.0022	1		2	2
Beryllium	<0.0001	<0.0001	<0.0001			0.004	
Boron	0.149	0.0092		5			
Cadmium	<0.00005	<0.00005	<0.00005	0.005		0.005	0.005
Cesium			<0.0001				
Chromium	<0.0001	0.001	<0.0001	0.05		0.1	0.1
Cobalt	<0.0001	<0.0001	<0.0001				
Copper	0.0101	0.0297	0.0133		<1.0		1.3
Iron	<0.050	<0.050	0.01		<0.3	0.3	
Lead	0.0003	0.0057	0.0001	0.01		0.015	0
Lithium			0.0009				
Manganese	<0.0001	0.0001	0.0005		<0.05	0.05	
Molybdenum	<0.0001	0.0003	<0.0001				
Nickel	0.0034	0.0013	0.0016				
Rubidium			<0.0001				
Selenium			0.0003				
Silver	<0.0001	0.0001	<0.0001			0.1	
Strontium	0.0004	0.0007	0.0072				
Thallium	<0.0001	<0.0001	<0.0001				
Titanium	<0.0001	<0.0001	0.0003				
Uranium			<0.0001				
Vanadium	<0.0001	<0.0001	<0.0001				
Zinc	0.413	0.819	0.0588		<5.0	5	
Silicon	0.00007						
*Bromodicholormethane			<0.005	0.016			
*Bromoform			<0.005				
*Dibromochloromethane			<0.005				
*Trihalomethane			<0.005	0.1		0.08	

*All subcontracted organics are in concentrations less than detectable levels except for those listed immediately above

[i]Guidelines for Canadian Drinking Water Quality Summary Table, May 2008
http://www.hc-sc.gc.ca/ewh-semt/pubs/water-eau/sum_guide-res_recom/chemical-chimiques-eng.php#tbl6

[ii]US Environmental Protection Agency Drinking Water Standards
http://www.epa.gov/safewater/contaminants/index.html

[1]Maxiumum Acceptable Concentration

[2]Aesthetic Objectives

[3]Operational Guidance Values

[4]Maximum Contaminant Level

[5]Maximum Contaminant Level Goal

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

Taiga Batch No.:
290375

- FINAL REPORT -

Prepared For: Environment Canada
Eureka Weather Station

Address: 123 Main Street
Suite 150
Winnipeg, MB
R3C 4W2

Attn: Harvey Pukin **Facsimile:**

Final report has been reviewed and approved by:

Angelique Ruzindana
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 of Environmental Analytical Laboratories (CAEAL) as a testing laboratory for specific tests registered with CAEAL.
- 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, July 23, 2009
Print Date: Thursday, July 23, 2009

Taiga Environmental Laboratory

Taiga Batch No.:
290373

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

Taiga Batch No.: 290373

- CERTIFICATE OF ANALYSIS -

Client Sample ID: EUOW0709 **Taiga Sample ID: 002**

Client Project:
Sample Type: Freshwater
Received Date: 09-Jul-09
Sampling Date: 09-Jul-09
Sampling Time: 7:30
Location:
Report Status: **Final**

Test Parameter	Result	Detection Limit	Units	Analysis Date	Analytical Method *	Qualifer
Inorganics - Physicals						
Solids, Total Dissolved	208	10	mg/L	15-Jul-09	SM2540:C	
Inorganics - Nutrients						
Organic Carbon, Total	0.5	0.5	mg/L	15-Jul-09	SM5310:B	
Major Ions						
Hardness	11.1	0.7	mg/L	10-Jul-09	SM2340:B	
Microbiology						
Coliforms, Total	< 1.0	1.0	MPN/100mL	09-Jul-09	SM9223:B	
Escherichia coli	< 1.0	1.0	MPN/100mL	09-Jul-09	SM9223:B	
Organics						
Bromodichloromethane	< 0.005	0.005	mg/L	13-Jul-09	EPA8260B	
Bromoform	< 0.005	0.005	mg/L	13-Jul-09	EPA8260B	
Chloroform	< 0.005	0.005	mg/L	13-Jul-09	EPA8260B	
Dibromochloromethane	< 0.005	0.005	mg/L	13-Jul-09	EPA8260B	
Trihalomethanes, Total	< 0.005	0.005	mg/L	13-Jul-09	EPA8260B	

ReportDate: Thursday, July 23, 2009
Print Date: Thursday, July 23, 2009

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

Taiga Batch No.: 290373

- CERTIFICATE OF ANALYSIS -

Client Sample ID: EUOW0709 **Taiga Sample ID: 002**

Trace Metals, Total

Aluminum	17.0	0.6	µg/L	21-Jul-09	EPA200.8
Antimony	< 0.1	0.1	µg/L	21-Jul-09	EPA200.8
Arsenic	< 0.2	0.2	µg/L	21-Jul-09	EPA200.8
Barium	2.2	0.1	µg/L	21-Jul-09	EPA200.8
Beryllium	< 0.1	0.1	µg/L	21-Jul-09	EPA200.8
Cadmium	< 0.05	0.05	µg/L	21-Jul-09	EPA200.8
Cesium	< 0.1	0.1	µg/L	21-Jul-09	EPA200.8
Chromium	< 0.1	0.1	µg/L	21-Jul-09	EPA200.8
Cobalt	< 0.1	0.1	µg/L	21-Jul-09	EPA200.8
Copper	13.3	0.2	µg/L	21-Jul-09	EPA200.8
Iron	10	5	µg/L	21-Jul-09	EPA200.8
Lead	0.1	0.1	µg/L	21-Jul-09	EPA200.8
Lithium	0.9	0.2	µg/L	21-Jul-09	EPA200.8
Manganese	0.5	0.1	µg/L	21-Jul-09	EPA200.8
Molybdenum	< 0.1	0.1	µg/L	21-Jul-09	EPA200.8
Nickel	1.6	0.1	µg/L	21-Jul-09	EPA200.8
Rubidium	< 0.1	0.1	µg/L	21-Jul-09	EPA200.8
Selenium	< 0.3	0.3	µg/L	21-Jul-09	EPA200.8
Silver	< 0.1	0.1	µg/L	21-Jul-09	EPA200.8
Strontium	7.2	0.1	µg/L	21-Jul-09	EPA200.8
Thallium	< 0.1	0.1	µg/L	21-Jul-09	EPA200.8
Titanium	0.3	0.1	µg/L	21-Jul-09	EPA200.8
Uranium	< 0.1	0.1	µg/L	21-Jul-09	EPA200.8

ReportDate: Thursday, July 23, 2009
Print Date: Thursday, July 23, 2009

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

Taiga Batch No.: 290373

- CERTIFICATE OF ANALYSIS -

Client Sample ID: EUOW0709 **Taiga Sample ID: 002**

Vanadium	< 0.1	0.1	µg/L	21-Jul-09	EPA200.8
Zinc	55.8	0.4	µg/L	21-Jul-09	EPA200.8

ReportDate: Thursday, July 23, 2009
Print Date: Thursday, July 23, 2009

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

Taiga Batch No.: 280148

- FINAL REPORT -

Prepared For: Environment Canada
Eureka Weather Station

Address: 123 Main Street
Suite 150
Winnipeg, MB
R3C 4W2

Attn: Harvey Pukin **Facsimile:**

Final report has been reviewed and approved by:

Helene Harper
Helene Harper
A/Laboratory Manager

NOTES:

- Test methods and data are validated by the laboratory's Quality Assurance Program. Taiga Environmental Laboratory is accredited by the Canadian Association of Environmental Analytical Laboratories (CAEAL) as a testing laboratory for specific tests registered with CAEAL.
- Routine methods are based on recognized procedures from sources such as
  - Standard Methods for the Examination of Water and Wastewater APHA AWWA WEF;
  - Environment Canada
  - USEPA
- Samples shall be kept for thirty (30) days after the final report is issued. All microbiological samples shall be disposed of immediately upon completion of analysis to minimize biohazardous risks to laboratory personnel. Please contact the laboratory if you have any special requirements.
- Final results are based on the specific tests at the time of analysis and do not represent the conditions during sampling.

ReportDate: Wednesday, April 23, 2008
Print Date: Wednesday, April 23, 2008

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

Taiga Batch No.: 280148

- CERTIFICATE OF ANALYSIS -

Client Sample ID: R.O. Tap Wx Office **Taiga Sample ID: 002**

Client Project:
Sample Type: Unknown Water
Received Date: 10-Apr-08
Sampling Date: 10-Apr-08
Sampling Time: 7:30
Location:
Report Status: **FINAL**

Test Parameter	Result	Detection Limit	Units	Analysis Date	Analytical Method *	Qualifer
Microbiology						
Coliforms, Total	< 1.0	1.0	MPN/100mL	10-Apr-08	SM9223:B	
Escherichia coli	< 1.0	1.0	MPN/100mL	10-Apr-08	SM9223:B	
Trace Metals, Total						
Aluminum	1.9	0.6	µg/L	20-Apr-08	EPA200.8	
Barium	2.7	0.1	µg/L	20-Apr-08	EPA200.8	
Beryllium	< 0.1	0.1	µg/L	20-Apr-08	EPA200.8	
Boron	92.0	0.9	µg/L	20-Apr-08	EPA200.8	
Cadmium	< 0.05	0.05	µg/L	20-Apr-08	EPA200.8	
Chromium	1.0	0.1	µg/L	20-Apr-08	EPA200.8	
Cobalt	< 0.1	0.1	µg/L	20-Apr-08	EPA200.8	
Copper	29.7	0.3	µg/L	20-Apr-08	EPA200.8	
Iron	< 50	50	µg/L	20-Apr-08	EPA200.8	
Lead	5.7	0.1	µg/L	20-Apr-08	EPA200.8	
Manganese	0.1	0.1	µg/L	20-Apr-08	EPA200.8	
Molybdenum	0.3	0.1	µg/L	20-Apr-08	EPA200.8	

ReportDate: Wednesday, April 23, 2008
Print Date: Wednesday, April 23, 2008

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

Taiga Batch No.: 280148

- CERTIFICATE OF ANALYSIS -

Client Sample ID: R.O. Tap Wx Office **Taiga Sample ID: 002**

Nickel	1.3	0.1	µg/L	20-Apr-08	EPA200.8
Silver	0.1	0.1	µg/L	20-Apr-08	EPA200.8
Strontium	0.7	0.1	µg/L	20-Apr-08	EPA200.8
Thallium	< 0.1	0.1	µg/L	20-Apr-08	EPA200.8
Titanium	< 0.1	0.1	µg/L	20-Apr-08	EPA200.8
Vanadium	< 0.1	0.1	µg/L	20-Apr-08	EPA200.8
Zinc	819	0.4	µg/L	20-Apr-08	EPA200.8
Subcontracted Metals					
Silicon	< 0.05	0.05	mg/L	17-Apr-08	SM3120B
Subcontracted Organics					
1,1,1,2-Tetrachloroethane	< 1	1	ug/L	17-Apr-08	EPA8260
1,1,1-Trichloroethane	< 1	1	ug/L	17-Apr-08	EPA8260
1,1,2,2-Tetrachloroethane	< 1	1	ug/L	17-Apr-08	EPA8260
1,1,2-Trichloroethane	< 1	1	ug/L	17-Apr-08	EPA8260
1,1-Dichloroethane	< 1	1	ug/L	17-Apr-08	EPA8260
1,1-Dichloropropene	< 1	1	ug/L	17-Apr-08	EPA8260
1,2,3-Trichlorobenzene	< 1	1	ug/L	17-Apr-08	EPA8260
1,2,3-Trichloropropane	< 1	1	ug/L	17-Apr-08	EPA8260
1,2,4-Trichlorobenzene	< 1	1	ug/L	17-Apr-08	EPA8260
1,2,4-Trimethylbenzene	< 1	1	ug/L	17-Apr-08	EPA8260
1,2-Dibromo-3-Chloropropane	< 1	1	ug/L	17-Apr-08	EPA8260
1,2-Dibromoethane	< 1	1	ug/L	17-Apr-08	EPA8260
1,2-Dichlorobenzene	< 1	1	ug/L	17-Apr-08	EPA8260
1,2-Dichloroethane	< 1	1	ug/L	17-Apr-08	EPA8260

ReportDate: Wednesday, April 23, 2008
Print Date: Wednesday, April 23, 2008

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

Taiga Batch No.: 270218

- CERTIFICATE OF ANALYSIS -

Client Sample ID: TOC 07-EU6 **Taiga Sample ID: 005**

Client Project:
Sample Type: Reverse osmosis
Received Date: 15-May-07
Sampling Date: 15-May-07
Sampling Time: 6:00
Location: RO TAP Wx OFFICE
Report Status: FINAL

Test Parameter	Result	Detection Limit	Units	Analysis Date	Analytical Method *	VMV Code	Qualifer
Inorganics - Nutrients							
Organic Carbon, Total	< 0.5	0.5	mg/L	22-May-07	SM5310:B		
Major Ions							
Hardness	1.7	0.7	mg/L	22-May-07	SM2340:B	010602	

ReportDate: Sunday, May 27, 2007
Print Date: Sunday, May 27, 2007

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

Taiga Batch No.: 270218

- CERTIFICATE OF ANALYSIS -

Client Sample ID: METAL 07-EU9 **Taiga Sample ID:** 006

Client Project:
Sample Type: Reverse osmosis
Received Date: 15-May-07
Sampling Date: 15-May-07
Sampling Time: 6:00
Location: RO TAP Wx OFFICE
Report Status: **FINAL**

Test Parameter	Result	Detection Limit	Units	Analysis Date	Analytical Method *	VMV Code	Qualifer
Trace Metals, Total							
Aluminum	0.9	0.6	µg/L	25-May-07	EPA200.8	100107	
Barium	< 0.1	0.1	µg/L	25-May-07	EPA200.8	100139	
Beryllium	< 0.1	0.1	µg/L	25-May-07	EPA200.8	100105	
Boron	149	0.9	µg/L	25-May-07	EPA200.8		
Cadmium	< 0.05	0.05	µg/L	25-May-07	EPA200.8	100132	
Chromium	< 0.1	0.1	µg/L	25-May-07	EPA200.8	100110	
Cobalt	< 0.1	0.1	µg/L	25-May-07	EPA200.8	100114	
Copper	10.1	0.1	µg/L	25-May-07	EPA200.8	100118	
Iron	< 50.0	50	µg/L	25-May-07	EPA200.8		
Lead	0.3	0.1	µg/L	25-May-07	EPA200.8	100146	
Manganese	< 0.1	0.1	µg/L	25-May-07	EPA200.8	100112	
Molybdenum	< 0.1	0.1	µg/L	25-May-07	EPA200.8	100152	
Nickel	3.4	0.1	µg/L	25-May-07	EPA200.8	100117	
Silver	< 0.1	0.1	µg/L	25-May-07	EPA200.8	100131	
Strontium	0.4	0.1	µg/L	25-May-07	EPA200.8	100128	

ReportDate: Sunday, May 27, 2007
Print Date: Sunday, May 27, 2007

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

Taiga Batch No.: 270218

- CERTIFICATE OF ANALYSIS -

Client Sample ID: METAL 07-EU9 **Taiga Sample ID: 006**

Thallium	< 0.1	0.1	µg/L	25-May-07	EPA200.8	100140
Titanium	< 0.1	0.1	µg/L	25-May-07	EPA200.8	102642
Vanadium	< 0.1	0.1	µg/L	25-May-07	EPA200.8	100109
Zinc	413	0.4	µg/L	25-May-07	EPA200.8	100120
Subcontracted Metals						
Silicon	0.07	0.05	mg/L	22-May-07	EPA200.8	

ReportDate: Sunday, May 27, 2007
Print Date: Sunday, May 27, 2007

QUANTITIES OF

WASTE WATER DISCHARGED

EUREKA, 2009

Waste Water: Sewage Lagoon

1. Pump capacity: Monarch Pump Model TT30 Type E – 280 gal/min
2. Pump time*: 20 hours x 60 min x 280 gal/min = ~ 336,000 gal or ~ 1527 m^3
   *Discharge commenced on July 7 and ended on July 09, 2009

ANALYSIS OF EUREKA SEWAGE PARAMETERS

Wastewater effluent at Eureka is governed by two guidelines: CCME's Canada-wide Strategy for the Management of Municipal Wastewater Effluent, 2009; and Guidelines for the Discharge of Municipal Wastewater in the Northwest Territories (NWT), 1992. The CCME guidelines address municipal wastewater facilities (owned by municipalities, communities, federal and other government entities, and facilities on federal and aboriginal lands) discharging effluent into surface water, including combined and sanitary sewer overflows. The NWT guidelines are also applicable to the Eureka lagoon. Under Eureka's water licence with the Nunavut Water Board, the NWT guidelines are referenced as the criteria to be used to assess compliance.

The Eureka wastewater lagoon effluent was sampled in 2007, 2008 and 2009 to determine the level of compliance with CCME and NWT guidelines for wastewater (Table 1). This report discusses each exceeding parameter over the 3-year period, potential causes of exceedance, and identifies corrective solutions if applicable.

Effluent exceedances and possible causes

1. Total suspended solids (TSS)

Effluent total suspended solids averaged approximately 197 mg/l in 2009 which is above Territorial guidelines. The elevated levels could be caused by[1]:

- **a.** Suspended bacterial solids;[1]
- **b.** Algae growth. Indicators of algae growth are as follows:
  - i. Biological demand (BOD) > 30 mg/l (Eureka's is ~ 75 mg/l);
  - ii. pH > 9 (Eureka's is 9.2-9.7); and
  - iii. TSS/BOD ratio > 2 (Eureka's is ~2.62).
- **c.** Silt, clay, cell debris, and bottom solids suspended from lagoon pumping.

2. pH

pH results averaged 9.45 in 2009. This result exceeds the CCME guidelines. High pH values are typically caused by excessive algae growth[1].

3. Iron (Fe)

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[1] Richard, Michael. Microbiological and Chemical Testing for Troubleshooting Lagoons. 2003

Effluent iron averaged 0.155 mg/l which is within Territorial guidelines. The possible sources of iron (Fe) are[2]:

a. Natural sources (land, water)

b. Iron sediments or deposits in the lagoon which are being dissolved; and

c. Industrial processes (either onsite or from DND) which are producing Fe waste streams.

4. Manganese (Mn)

Manganese has been found at levels averaging 0.037 mg/l, which is also within Territorial guidelines. Possible sources of manganese include[3]:

a. Natural sources (soils, rocks, and water). Manganese can be found naturally in water in levels as high as 1.0 mg/l. Manganese and iron are often found together in water. ;

b. Sources of pollution rich in organic matter (e.g., runoff from landfills, compost, brush or silage piles, or chemicals such as gasoline) can add to the background level by increasing manganese release from soil or bedrock into the surface water.

Next steps for elevated parameters

1. TSS, pH, iron, manganese

For all of these parameters, it is critical to identify the causes of elevated levels before identifying possible solutions. The following steps are proposed for the 2009 season:

a. Collect and analyze the undisturbed effluent (before pumping) in the lagoon to determine TSS, Fe, and Mn concentrations. The previous results may be elevated by sediments and are therefore not an accurate reflection of actual wastewater conditions.

b. Collect and analyze waste samples before they reach the lagoon to determine TSS, Fe and Mn concentrations as levels may be a result of natural systems or other pollution sources.

c. Suspend the foot valve of the pumping system above the bottom sediments to limit contamination of effluent from bottom sediments. This practice may be particularly detrimental to TSS concentrations.

d. Analyze the effluent TSS to determine if the nature of the particles:

---

[2] Tillman, Glenn. Wastewater Treatment: Troubleshooting and Problem Solving.

[3] Connecticut Department of Public Health. Fact Sheet: Manganese in Drinking Water. 2001

i. Sludge

ii. Filamentous bacteria

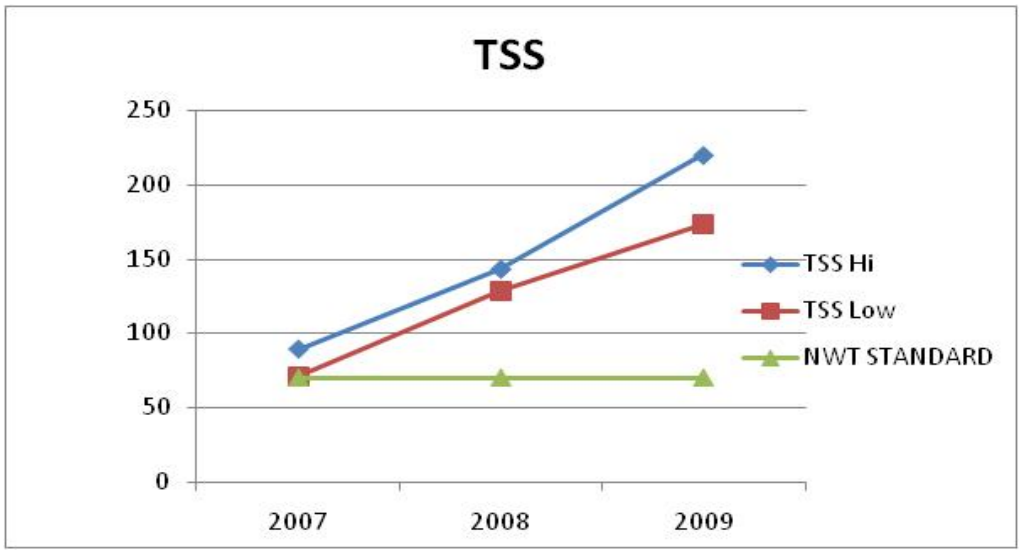
iii. Sulphur bacteria

iv. Algae

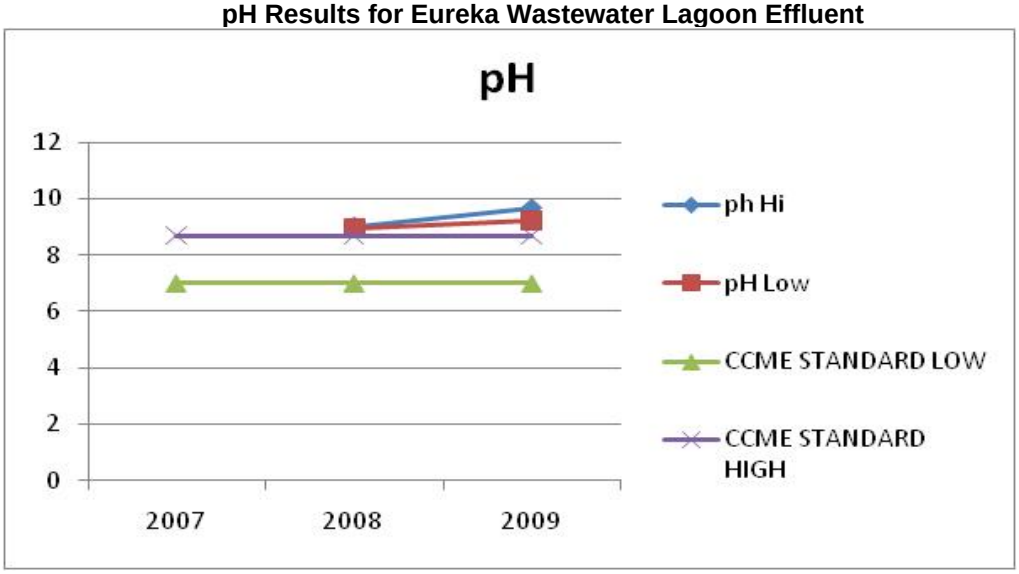
Table 1: Comparison of Eureka Wastewater Results with NWT & Federal Guidelines

Parameter	2008 Results (mg/l)	2009 Results (mg/l)	Guidelines for the Discharge of Municipal Wastewater in the Northwest Territories, 1992	CCME's Canada-wide Strategy for the Management of Municipal Wastewater Effluent, 2009
Aluminum	0.274 - 0.284	0.020-0I24	2	
Antimony	0.0019 - 0.0021	0.0008-0.0009		
Arsenic	0.0009 - 0.001	0.0007-0.0008	0.05	0.0125
Barium	0.0233 - 0.0239	0.0282-0.0285	1	
Beryllium	<0.0001	<0.0001		
Cadmium	<0.0001	<0.0001	0.005	0.00012
Cesium	<0.0001	<0.0001		
Chromium	0.0011 - 0.0012	0.001-0.003	0.01	
Cobalt	0.0009 - 0.001	0.0004	0.1	
Copper	0.03	0.0419-0.0431	0.2	
Iron	0.539 - 0.543	0.138-0.171	0.3	
Lead	0.0013 - 0.0015	0.0005-0.0006	0.5	
Lithium	0.0273 - 0.0274	0.0286-0.0298		
Manganese	0.0545 - 0.0648	0.035700.0378	0.05	
Molybdenum	0.0006 - 0.0007	0.0005	0.2	
Nickel	0.0054- 0.0061	0.005	0.3	
Rubidium	0.0135 - 0.0136	0.0104-0.0111		
Selenium	0.0008	0.0015-0.0016	0.05	0.05
Silver	<0.0001	<0.0001	0.1	0.1
Strontium	0.606 - 0.612	0.85300.862		
Thallium	<0.0001	<0.0001		

TSS Results for Eureka Wastewater Lagoon Effluent

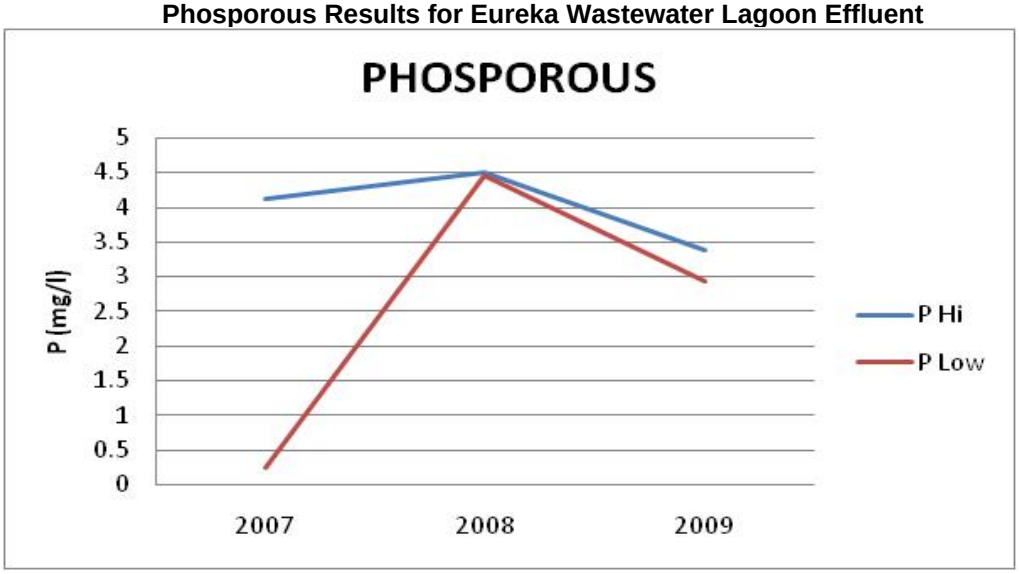


pH Results for Eureka Wastewater Lagoon Effluent

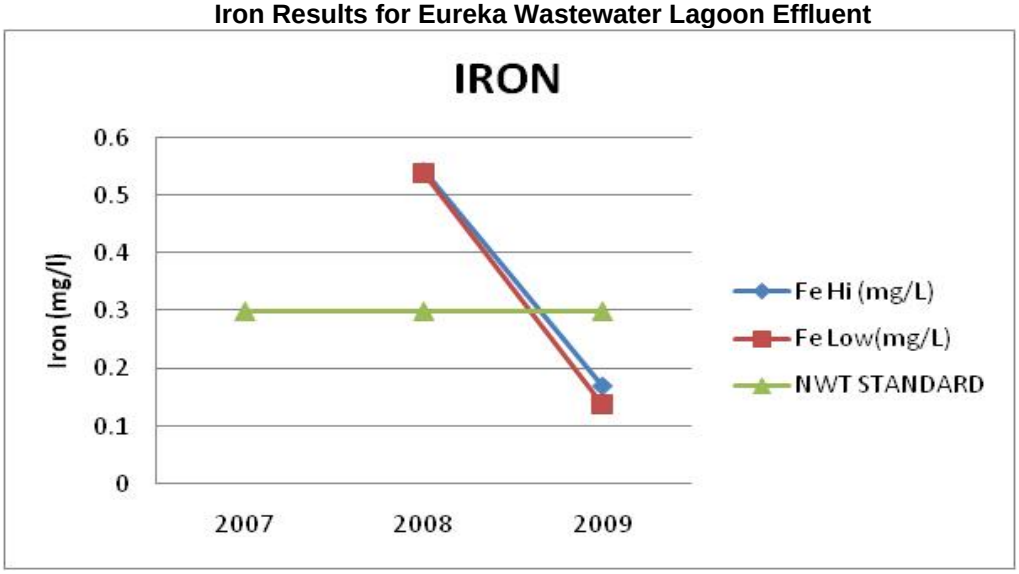


* Note - the CCME Guidelines identify both a maximum and minimum pH, indicated above

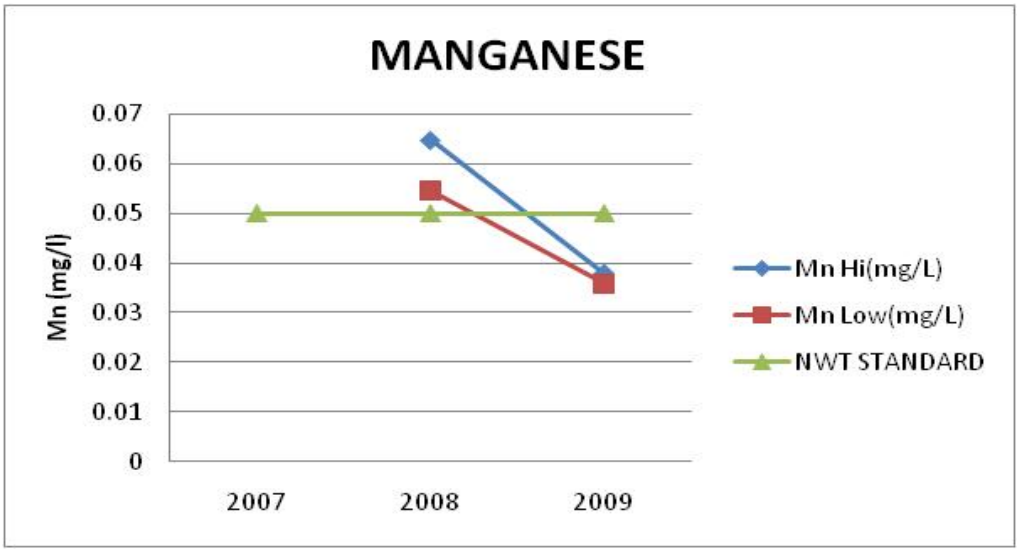
Phosporous Results for Eureka Wastewater Lagoon Effluent



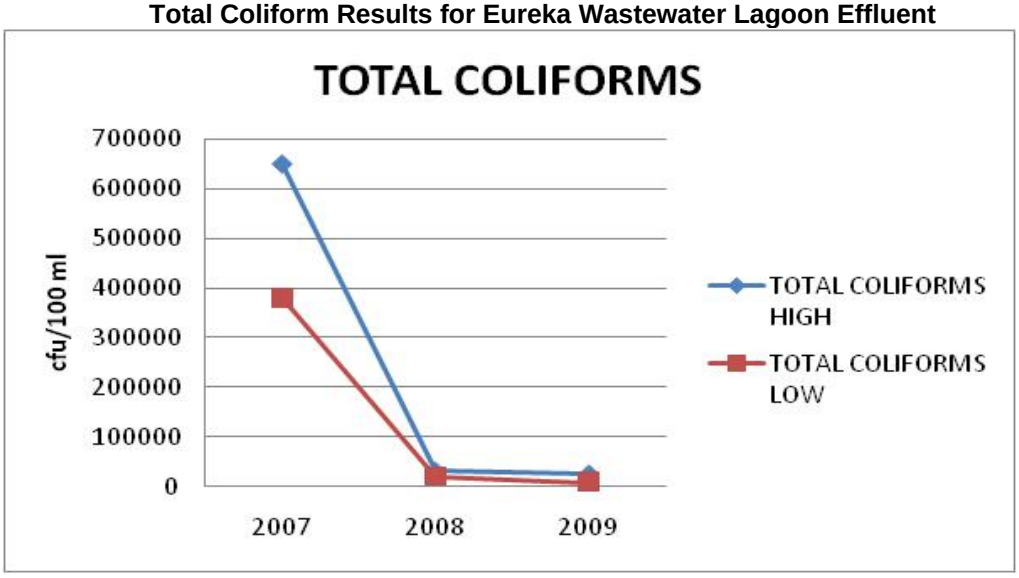
Iron Results for Eureka Wastewater Lagoon Effluent



Manganese Results for Eureka Wastewater Lagoon Effluent

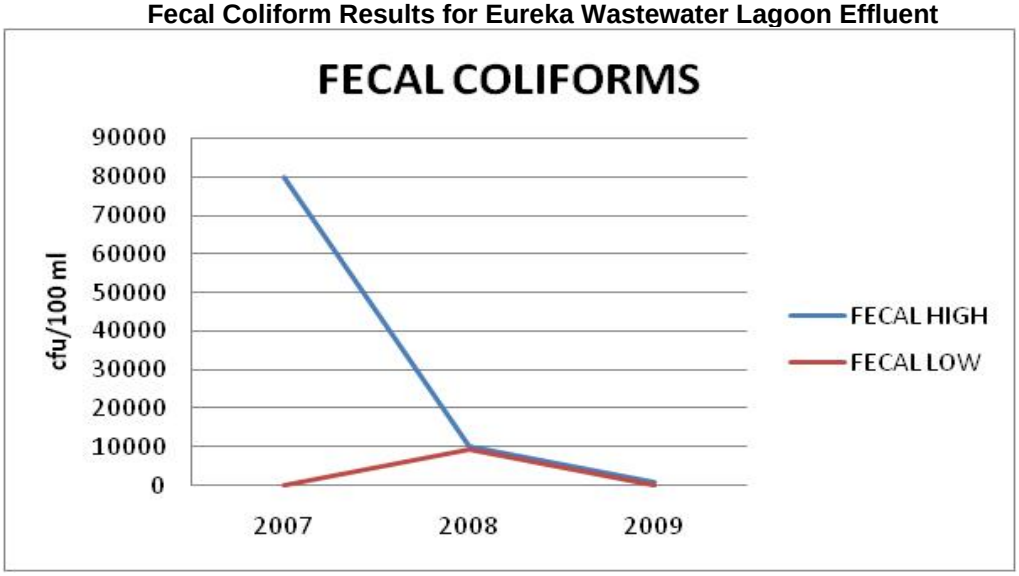


Total Coliform Results for Eureka Wastewater Lagoon Effluent



Note: cfu = colony forming units

Fecal Coliform Results for Eureka Wastewater Lagoon Effluent



EUREKA SEWAGE LAGOON: ANALYSIS RESULTS: 2009

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

Taiga Batch No.: 290375

- FINAL REPORT -

Prepared For: Environment Canada
Eureka Weather Station

Address: 123 Main Street
Suite 150
Winnipeg, MB
R3C 4W2

Attn: Harvey Pukin **Facsimile:**

Final report has been reviewed and approved by:

Angelique Ruzindana
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 of Environmental Analytical Laboratories (CAEAL) as a testing laboratory for specific tests registered with CAEAL.
- 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, July 23, 2009
Print Date: Thursday, July 23, 2009

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

Taiga Batch No.: 290375

- CERTIFICATE OF ANALYSIS -

Client Sample ID: EUWW #1-09 **Taiga Sample ID: 001**

Client Project:
Sample Type: wastewater 1/3
Received Date: 09-Jul-09
Sampling Date: 08-Jul-09
Sampling Time: 16:00
Location: Eureka Sewage Lagoon
Report Status: **Final**

Test Parameter	Result	Detection Limit	Units	Analysis Date	Analytical Method *	Qualifer
Inorganics - Physicals						
Conductivity, Specific (@ 25°C)	6140	0.4	µS/cm	10-Jul-09	SM2510:B	
pH	9.22		pH units	10-Jul-09	SM4500-H:B	
Solids, Total Suspended	173	3	mg/L	14-Jul-09	SM2540:D	
Inorganics - Nutrients						
Biochemical Oxygen Demand	104	2	mg/L	10-Jul-09	SM5210:B	
Nitrate+Nitrite as Nitrogen	0.02	0.01	mg/L	14-Jul-09	SM4110:B	
Phosphorous, Total	3.38	0.01	mg/L	21-Jul-09	SM4500-P:D	
Subcontracted Nutrients						
Kjeldahl Nitrogen, Total	34.9	0.06	mg/L	14-Jul-09	ISO 11905-2	
Microbiology						
Coliforms, Fecal	900	100	CFU/100mL	09-Jul-09	SM9222:D	
Coliforms, Total	25100	100	MPN/100mL	09-Jul-09	SM9223:B	
Organics						
Hexane Extractable Material	4.5	2.0	mg/L	22-Jul-09	EPA1664A	

ReportDate: Thursday, July 23, 2009
Print Date: Thursday, July 23, 2009

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

Taiga Batch No.: 290375

- CERTIFICATE OF ANALYSIS -

Client Sample ID: EUWW #1-09 **Taiga Sample ID: 001**

Trace Metals, Total

Aluminum	20	5	µg/L	21-Jul-09	EPA200.8
Antimony	0.9	0.1	µg/L	21-Jul-09	EPA200.8
Arsenic	0.7	0.2	µg/L	21-Jul-09	EPA200.8
Barium	28.5	0.1	µg/L	21-Jul-09	EPA200.8
Beryllium	< 0.1	0.1	µg/L	21-Jul-09	EPA200.8
Cadmium	< 0.1	0.1	µg/L	21-Jul-09	EPA200.8
Cesium	< 0.1	0.1	µg/L	21-Jul-09	EPA200.8
Chromium	1.0	0.1	µg/L	21-Jul-09	EPA200.8
Cobalt	0.4	0.1	µg/L	21-Jul-09	EPA200.8
Copper	41.9	0.2	µg/L	21-Jul-09	EPA200.8
Iron	138	5	µg/L	21-Jul-09	EPA200.8
Lead	0.5	0.1	µg/L	21-Jul-09	EPA200.8
Lithium	28.6	0.2	µg/L	21-Jul-09	EPA200.8
Manganese	37.8	0.1	µg/L	21-Jul-09	EPA200.8
Molybdenum	0.5	0.1	µg/L	21-Jul-09	EPA200.8
Nickel	5.0	0.1	µg/L	21-Jul-09	EPA200.8
Rubidium	11.1	0.1	µg/L	21-Jul-09	EPA200.8
Selenium	1.5	0.5	µg/L	21-Jul-09	EPA200.8
Silver	< 0.1	0.1	µg/L	21-Jul-09	EPA200.8
Strontium	862	0.1	µg/L	21-Jul-09	EPA200.8
Thallium	< 0.1	0.1	µg/L	21-Jul-09	EPA200.8
Titanium	0.4	0.1	µg/L	21-Jul-09	EPA200.8
Uranium	0.7	0.1	µg/L	21-Jul-09	EPA200.8

ReportDate: Thursday, July 23, 2009
Print Date: Thursday, July 23, 2009

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Taiga Batch No.: 290375

- CERTIFICATE OF ANALYSIS -

Client Sample ID: EUWW #1-09 **Taiga Sample ID: 001**

Vanadium	0.3	0.1	µg/L	21-Jul-09	EPA200.8
Zinc	50	5	µg/L	21-Jul-09	EPA200.8
Subcontracted Organics					
Phenols, Total	0.140	0.001	mg/L	16-Jul-09	APHA 5530D

ReportDate: Thursday, July 23, 2009
Print Date: Thursday, July 23, 2009

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

Taiga Batch No.: 290375

- CERTIFICATE OF ANALYSIS -

Client Sample ID: EUWW #1-09 **Taiga Sample ID:** 002

Client Project:
Sample Type: wastewater 1/3
Received Date: 09-Jul-09
Sampling Date: 08-Jul-09
Sampling Time: 16:00
Location: Eureka Sewage Lagoon
Report Status: **Final**

Test Parameter	Result	Detection Limit	Units	Analysis Date	Analytical Method *	Qualifer
Inorganics - Physicals						
Conductivity, Specific (@ 25°C)	6180	0.4	µS/cm	10-Jul-09	SM2510:B	
pH	9.69		pH units	10-Jul-09	SM4500-H:B	
Solids, Total Suspended	220	3	mg/L	14-Jul-09	SM2540:D	
Inorganics - Nutrients						
Biochemical Oxygen Demand	48	2	mg/L	10-Jul-09	SM5210:B	
Nitrate+Nitrite as Nitrogen	< 0.01	0.01	mg/L	14-Jul-09	SM4110:B	
Phosphorous, Total	2.93	0.01	mg/L	21-Jul-09	SM4500-P:D	
Subcontracted Nutrients						
Kjeldahl Nitrogen, Total	32.2	0.06	mg/L	14-Jul-09	ISO 11905-2	
Microbiology						
Coliforms, Fecal	< 100	100	CFU/100mL	09-Jul-09	SM9222:D	
Coliforms, Total	7990	100	MPN/100mL	09-Jul-09	SM9223:B	
Organics						
Hexane Extractable Material	7.7	2.0	mg/L	22-Jul-09	EPA1664A	

ReportDate: Thursday, July 23, 2009
Print Date: Thursday, July 23, 2009

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

Taiga Batch No.: 290375

- CERTIFICATE OF ANALYSIS -

Client Sample ID: EUWW #1-09 **Taiga Sample ID: 002**

Trace Metals, Total

Aluminum	24	5	µg/L	21-Jul-09	EPA200.8
Antimony	0.8	0.1	µg/L	21-Jul-09	EPA200.8
Arsenic	0.8	0.2	µg/L	21-Jul-09	EPA200.8
Barium	28.2	0.1	µg/L	21-Jul-09	EPA200.8
Beryllium	< 0.1	0.1	µg/L	21-Jul-09	EPA200.8
Cadmium	< 0.1	0.1	µg/L	21-Jul-09	EPA200.8
Cesium	< 0.1	0.1	µg/L	21-Jul-09	EPA200.8
Chromium	1.3	0.1	µg/L	21-Jul-09	EPA200.8
Cobalt	0.4	0.1	µg/L	21-Jul-09	EPA200.8
Copper	43.1	0.2	µg/L	21-Jul-09	EPA200.8
Iron	171	5	µg/L	21-Jul-09	EPA200.8
Lead	0.6	0.1	µg/L	21-Jul-09	EPA200.8
Lithium	29.8	0.2	µg/L	21-Jul-09	EPA200.8
Manganese	35.7	0.1	µg/L	21-Jul-09	EPA200.8
Molybdenum	0.5	0.1	µg/L	21-Jul-09	EPA200.8
Nickel	5.0	0.1	µg/L	21-Jul-09	EPA200.8
Rubidium	10.4	0.1	µg/L	21-Jul-09	EPA200.8
Selenium	1.6	0.5	µg/L	21-Jul-09	EPA200.8
Silver	< 0.1	0.1	µg/L	21-Jul-09	EPA200.8
Strontium	853	0.1	µg/L	21-Jul-09	EPA200.8
Thallium	< 0.1	0.1	µg/L	21-Jul-09	EPA200.8
Titanium	0.3	0.1	µg/L	21-Jul-09	EPA200.8
Uranium	0.9	0.1	µg/L	21-Jul-09	EPA200.8

ReportDate: Thursday, July 23, 2009
Print Date: Thursday, July 23, 2009

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

Taiga Batch No.: 290375

- CERTIFICATE OF ANALYSIS -

Client Sample ID: EUWW #1-09 **Taiga Sample ID: 002**

Vanadium	0.4	0.1	µg/L	21-Jul-09	EPA200.8
Zinc	49	5	µg/L	21-Jul-09	EPA200.8
Subcontracted Organics					
Phenols, Total	0.011	0.001	mg/L	16-Jul-09	APHA 5530D

ReportDate: Thursday, July 23, 2009
Print Date: Thursday, July 23, 2009

EUREKA SEWAGE LAGOON: ANALYSIS RESULTS: 2008

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

Taiga Batch No.: 280324

- FINAL REPORT -

Prepared For: Environment Canada
Eureka Weather Station

Address: 123 Main Street
Suite 150
Winnipeg, MB
R3C 4W2

Attn: **Facsimile:**

Final report has been reviewed and approved by:

Angelique Ruzindana
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 of Environmental Analytical Laboratories (CAEAL) as a testing laboratory for specific tests registered with CAEAL.
- 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: Tuesday, July 22, 2008
Print Date: Tuesday, July 22, 2008

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

Taiga Batch No.: 280324

- CERTIFICATE OF ANALYSIS -

Client Sample ID: EUWW #1-08 **Taiga Sample ID: 001**

Client Project:
Sample Type: Wastewater
Received Date: 03-Jul-08
Sampling Date: 02-Jul-08
Sampling Time: 20:00
Location: Eureka Sewage Lagoon
Report Status: **Final**

Test Parameter	Result	Detection Limit	Units	Analysis Date	Analytical Method *	Qualifer
Inorganics - Physicals						
Conductivity, Specific (@ 25°C)	5370	0.4	µS/cm	04-Jul-08	SM2510:B	
pH	9.03		pH units	03-Jul-08	SM4500-H:B	
Solids, Total Suspended	143	3	mg/L	15-Jul-08	SM2540:D	
Inorganics - Nutrients						
Biochemical Oxygen Demand	34	2	mg/L	04-Jul-08	SM5210:B	81
Nitrate+Nitrite as Nitrogen	1.10	0.01	mg/L	10-Jul-08	SM4110:B	
Phosphorous, Total	4.45	0.01	mg/L	15-Jul-08	SM4500-P:D	
Subcontracted Nutrients						
Kjeldahl Nitrogen, Total	30.6	0.06	mg/L	10-Jul-08	ISO 11905-2	
Microbiology						
Coliforms, Fecal	9200	100	CFU/100mL	03-Jul-08	SM9222:D	
Coliforms, Total	19200	100	MPN/100mL	03-Jul-08	SM9223:B	
Organics						
Hexane Extractable Material	7.0	2.0	mg/L	21-Jul-08	EPA1664A	

ReportDate: Tuesday, July 22, 2008
Print Date: Tuesday, July 22, 2008

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

Taiga Batch No.: 280324

- CERTIFICATE OF ANALYSIS -

Client Sample ID: EUWW #1-08 **Taiga Sample ID: 001**

Trace Metals, Total

Aluminum	284	5	µg/L	15-Jul-08	EPA200.8
Antimony	1.9	0.1	µg/L	15-Jul-08	EPA200.8
Arsenic	0.9	0.2	µg/L	15-Jul-08	EPA200.8
Barium	23.9	0.1	µg/L	15-Jul-08	EPA200.8
Beryllium	< 0.1	0.1	µg/L	15-Jul-08	EPA200.8
Cadmium	< 0.1	0.1	µg/L	15-Jul-08	EPA200.8
Cesium	< 0.1	0.1	µg/L	15-Jul-08	EPA200.8
Chromium	1.2	0.1	µg/L	15-Jul-08	EPA200.8
Cobalt	0.9	0.1	µg/L	15-Jul-08	EPA200.8
Copper	30.0	0.2	µg/L	15-Jul-08	EPA200.8
Iron	539	5	µg/L	15-Jul-08	EPA200.8
Lead	1.5	0.1	µg/L	15-Jul-08	EPA200.8
Lithium	27.3	0.2	µg/L	15-Jul-08	EPA200.8
Manganese	54.5	0.1	µg/L	15-Jul-08	EPA200.8
Molybdenum	0.7	0.1	µg/L	15-Jul-08	EPA200.8
Nickel	5.4	0.1	µg/L	15-Jul-08	EPA200.8
Rubidium	13.5	0.1	µg/L	15-Jul-08	EPA200.8
Selenium	0.8	0.5	µg/L	15-Jul-08	EPA200.8
Silver	< 0.1	0.1	µg/L	15-Jul-08	EPA200.8
Strontium	612	0.1	µg/L	15-Jul-08	EPA200.8
Thallium	< 0.1	0.1	µg/L	15-Jul-08	EPA200.8
Titanium	13.2	0.1	µg/L	15-Jul-08	EPA200.8
Uranium	0.8	0.1	µg/L	15-Jul-08	EPA200.8

ReportDate: Tuesday, July 22, 2008
Print Date: Tuesday, July 22, 2008

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

Taiga Batch No.: 280324

- CERTIFICATE OF ANALYSIS -

Client Sample ID: EUWW #1-08 **Taiga Sample ID: 001**

Vanadium	0.8	0.1	µg/L	15-Jul-08	EPA200.8
Zinc	51	5	µg/L	15-Jul-08	EPA200.8
Subcontracted Organics					
Phenols, Total	0.023	0.001	mg/L	11-Jul-08	APHA 5530D

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Taiga Batch No.: 280324

- CERTIFICATE OF ANALYSIS -

Client Sample ID: EUWW #2-08 **Taiga Sample ID: 002**

Client Project:
Sample Type: Wastewater
Received Date: 03-Jul-08
Sampling Date: 03-Jul-08
Sampling Time: 6:00
Location: Eureka Sewage Lagoon
Report Status: **Final**

Test Parameter	Result	Detection Limit	Units	Analysis Date	Analytical Method *	Qualifer
Inorganics - Physicals						
Conductivity, Specific (@ 25°C)	5440	0.4	µS/cm	04-Jul-08	SM2510:B	
pH	8.95		pH units	03-Jul-08	SM4500-H:B	
Solids, Total Suspended	128	3	mg/L	15-Jul-08	SM2540:D	
Inorganics - Nutrients						
Biochemical Oxygen Demand	33	2	mg/L	04-Jul-08	SM5210:B	81
Nitrate+Nitrite as Nitrogen	1.80	0.01	mg/L	10-Jul-08	SM4110:B	
Phosphorous, Total	4.51	0.01	mg/L	15-Jul-08	SM4500-P:D	
Subcontracted Nutrients						
Kjeldahl Nitrogen, Total	33.7	0.06	mg/L	10-Jul-08	ISO 11905-2	
Microbiology						
Coliforms, Fecal	10200	100	CFU/100mL	03-Jul-08	SM9222:D	
Coliforms, Total	30800	100	MPN/100mL	03-Jul-08	SM9223:B	
Organics						
Hexane Extractable Material	2.8	2.0	mg/L	21-Jul-08	EPA1664A	

ReportDate: Tuesday, July 22, 2008
Print Date: Tuesday, July 22, 2008

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Taiga Batch No.: 280324

- CERTIFICATE OF ANALYSIS -

Client Sample ID: EUWW #2-08 **Taiga Sample ID: 002**

Trace Metals, Total

Aluminum	274	5	µg/L	15-Jul-08	EPA200.8
Antimony	2.1	0.1	µg/L	15-Jul-08	EPA200.8
Arsenic	1.0	0.2	µg/L	15-Jul-08	EPA200.8
Barium	23.3	0.1	µg/L	15-Jul-08	EPA200.8
Beryllium	< 0.1	0.1	µg/L	15-Jul-08	EPA200.8
Cadmium	< 0.1	0.1	µg/L	15-Jul-08	EPA200.8
Cesium	< 0.1	0.1	µg/L	15-Jul-08	EPA200.8
Chromium	1.1	0.1	µg/L	15-Jul-08	EPA200.8
Cobalt	1.0	0.1	µg/L	15-Jul-08	EPA200.8
Copper	30.0	0.2	µg/L	15-Jul-08	EPA200.8
Iron	543	5	µg/L	15-Jul-08	EPA200.8
Lead	1.3	0.1	µg/L	15-Jul-08	EPA200.8
Lithium	27.4	0.2	µg/L	15-Jul-08	EPA200.8
Manganese	64.8	0.1	µg/L	15-Jul-08	EPA200.8
Molybdenum	0.6	0.1	µg/L	15-Jul-08	EPA200.8
Nickel	6.1	0.1	µg/L	15-Jul-08	EPA200.8
Rubidium	13.6	0.1	µg/L	15-Jul-08	EPA200.8
Selenium	0.8	0.5	µg/L	15-Jul-08	EPA200.8
Silver	< 0.1	0.1	µg/L	15-Jul-08	EPA200.8
Strontium	606	0.1	µg/L	15-Jul-08	EPA200.8
Thallium	< 0.1	0.1	µg/L	15-Jul-08	EPA200.8
Titanium	13.4	0.1	µg/L	15-Jul-08	EPA200.8
Uranium	0.8	0.1	µg/L	15-Jul-08	EPA200.8

ReportDate: Tuesday, July 22, 2008
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Taiga Batch No.: 280324

- CERTIFICATE OF ANALYSIS -

Client Sample ID: EUWW #2-08 **Taiga Sample ID: 002**

Vanadium	0.8	0.1	µg/L	15-Jul-08	EPA200.8
Zinc	51	5	µg/L	15-Jul-08	EPA200.8
Subcontracted Organics					
Phenols, Total	0.044	0.001	mg/L	11-Jul-08	APHA 5530D

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Taiga Batch No.: 280324

- CERTIFICATE OF ANALYSIS -

Client Sample ID: EUWW #2-08 **Taiga Sample ID: 002**

- DATA QUALIFERS -

Data Qualifier Descriptions:

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

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

SM - Standard Methods for the Examination of Water and Wastewater

EPA - United States Environmental Protection Agency

ReportDate: Tuesday, July 22, 2008
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EUREKA SEWAGE LAGOON: ANALYSIS RESULTS: 2007

APPENDIX C : EUREKA WASTE WATER RESULTS 2007

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

Taiga Batch No.: 270391

- FINAL REPORT -

Prepared For: Environment Canada
Eureka Weather Station

Address: 123 Main Street
Suite 150
Winnipeg, MB
R3C 4W2

Attn: Harvey Pukin

Facsimile:

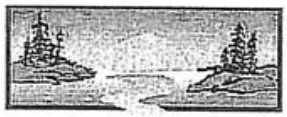
Final report has been reviewed and approved by:

Angelique Ruzindana
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 of Environmental Analytical Laboratories (CAEAL) as a testing laboratory for specific tests registered with CAEAL.
- 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 20, 2007
Print Date: Friday, July 20, 2007



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

Taiga Batch No.: 270391

- CERTIFICATE OF ANALYSIS -

Client Sample ID: EUWW#1 Taiga Sample ID: 001

Client Project:
Sample Type: Wastewater
Received Date: 05-Jul-07
Sampling Date: 04-Jul-07
Sampling Time:
Location: Eureka Sewage Lagoon
Report Status: FINAL

Test Parameter	Result	Detection Limit	Units	Analysis Date	Analytical Method *	VMV Code	Qualifer
Inorganics - Physicals							
Solids, Total Suspended	71	3	mg/L	10-Jul-07	SM2540:D	106005	
Inorganics - Nutrients							
Biological Oxygen Demand	35	2	mg/L	05-Jul-07	SM5210:B		
Nitrate+Nitrite as Nitrogen	< 0.01	0.01	mg/L	18-Jul-07	SM4110:B	106000	
Phosphorous, Total	0.24	0.01	mg/L	13-Jul-07	SM4500-P:D	106007	
Subcontracted Nutrients							
Kjeldahl Nitrogen, Total	43.7	0.06	mg/L	19-Jul-07	ISO 11905-2		
Major Ions							
Magnesium	81.2	0.1	mg/L	19-Jul-07	SM4110:B	106011	
Sodium	967	0.1	mg/L	19-Jul-07	SM4110:B	106012	
Microbiology							
Coliforms, Fecal	< 10000	10000	CFU/100mL	05-Jul-07	SM9222:D	036014	68
Coliforms, Total	379000	10000	MPN/100mL	05-Jul-07	SM9223:B	103454	

ReportDate: Friday, July 20, 2007
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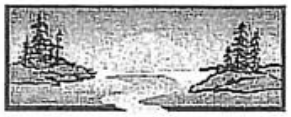

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Tel: (867)-669-2788 Fax: (867)-669-2718

Taiga Batch No.:
270391

- CERTIFICATE OF ANALYSIS -

Client Sample ID: EUWW#1 Taiga Sample ID: 001

Subcontracted Organics

Phenols, Total	0.040	0.001	mg/L	12-Jul-07	APHA 5530D

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Taiga Batch No.:
270391

- CERTIFICATE OF ANALYSIS -

Client Sample ID: EUWW#2 Taiga Sample ID: 002

Client Project:
Sample Type: Wastewater
Received Date: 05-Jul-07
Sampling Date: 04-Jul-07
Sampling Time:
Location: Eureka Sewage Lagoon
Report Status: FINAL

Test Parameter	Result	Detection Limit	Units	Analysis Date	Analytical Method *	VMV Code	Qualifer
Inorganics - Physicals							
Solids, Total Suspended	89	3	mg/L	10-Jul-07	SM2540:D	106005	
Inorganics - Nutrients							
Biological Oxygen Demand	37	2	mg/L	05-Jul-07	SM5210:B		
Nitrate+Nitrite as Nitrogen	1.11	0.01	mg/L	18-Jul-07	SM4110:B	106000	
Phosphorous, Total	4.13	0.01	mg/L	13-Jul-07	SM4500-P:D	106007	
Subcontracted Nutrients							
Kjeldahl Nitrogen, Total	42.7	0.06	mg/L	19-Jul-07	ISO 11905-2		
Major Ions							
Magnesium	78.4	0.1	mg/L	19-Jul-07	SM4110:B	106011	
Sodium	850	0.1	mg/L	19-Jul-07	SM4110:B	106012	
Microbiology							
Coliforms, Fecal	80000	10000	CFU/100mL	05-Jul-07	SM9222:D	036014	
Coliforms, Total	650000	10000	MPN/100mL	05-Jul-07	SM9223:B	103454	
Subcontracted Organics							

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Taiga Batch No.:
270391

- CERTIFICATE OF ANALYSIS -

Client Sample ID: EUWW#2 Taiga Sample ID: 002

Phenols, Total	0.055	0.001	mg/L	12-Jul-07	APHA 5530D

ReportDate: Friday, July 20, 2007
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GPS Coordinates for water sources utilized

Source Description	Latitude			Longitude		
	° Deg	' Min	" Sec	° Deg	' Min	" Sec
Station Creek	79	59	21	85	57	4
Water Lagoon	79	59	20	85	56	46

GPS Locations of areas of waste disposal

Location Description (type)	Latitude			Longitude		
	° Deg	' Min	" Sec	° Deg	' Min	" Sec
Sewage Lagoon	79	59	23	85	50	11
East Landfill	79	59	29	85	46	20
Asbestos Landfill	79	59	17	85	46	50
Crushed Barrel Landfill	79	59	38	85	49	38
Ash Landfill	79	59	32	85	47	52
Contaminated Soil Pit	79	59	40	85	49	34
Land Farm	79	59	40	85	50	11
DND Sewage Lagoon	79	59	23	85	50	11