Indian and Northern Affairs Canada
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Tel.: (867) 975-4298
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December 5, 2002

N6L4-1538 (Expired)

Roy Mullins
Senior Administrative Officer
Hamlet of Chesterfield Inlet
P.O. Box 10
Chesterfield Inlet, NU X0C 0B0

RE: September 4, 2002 Municipal Water Use Inspection - Report

The Water Resources Officer (WRO) appreciates the assistance provided during the tour of the Hamlet's water use and waste disposal facilities. Enclosed for your records is a copy of the Municipal Water Use Inspection Report performed on September 4, 2002. During the inspection the following observations were noted.

☐ **Water Supply:** At the time of this inspection it was noted, that a section of the first 30 meters of the reservoir supply line by the pump house at First Lake required maintenance. The Water Intake Facility appears to be in good operational condition with chlorination system operational but requiring maintenance (Photo 3 & 4). Enclosed analysis of samples taken at First Lake (Photo 1) and at the Water Reservoir (Photo 2) indicate that Turbidity (0.3 NTU vs 1 NTU), Nitrate + Nitrite (<0.008 mg/L vs 3.2 mg/L) and pH (7.2 vs 6.5-8.5) meets the *Guidelines for Canadian Drinking Water Quality*. Enclosed analysis of samples taken at the Water Reservoir (Photo 2) indicate that Turbidity (0.6 NTU vs 1 NTU), Nitrate + Nitrite (<0.008 mg/L vs 3.2 mg/L) and pH (7.31 vs 6.5-8.5) meets the *Guidelines for Canadian Drinking Water Quality*.

☐ **Sewage Disposal:** The Sewage Lagoon seemed well operated with adequate freeboard, however considerable refuge including drums were noted in the lagoon (Photo 6 & 7). The adjacent wetlands provides additional treatment to the lagoon effluent. Additional loading of nutrients to the wetlands, may be a result of seepage from the Solid Waste Disposal Facility. Attached analysis of Sewage Lagoon effluent taken 50 meters from the Sewage Lagoon outlet (Photo 10) indicate that Total Suspended Solids (10500 mg/L vs 120 mg/L), Total Ammonia (42.8 mg/L vs 2.2 mg/L) and Biological Oxygen Demand (382 mg/L vs 100

mg/L) exceeded the *Municipal Wastewater Effluent Quality Guidelines.*

☐ **Solid Waste Disposal:** The Solid Waste Disposal Facility, is fairly well run with the entire facility being fenced. The tipping face is kept to a minimum, with burning and compacting of refuge being practiced on a regular basis (Photo 8). One area of concern with the facility, is the natural sloping of the dump to the adjacent Lake which may cause excessive runoff. It was suggested that some aggregate material be placed in low lying areas, to reduce the amount of runoff from the facility. It was also noted at the time of inspection, that there was drummed waste mixed in with general refuse (Photo 9). Waste oil storage, bulky metal waste and battery storage areas were all in place, diverting hazardous materials from the general refuse (Photo 11 & 12). Drums requiring lids and bungs, have stained sections of the waste oil storage area (Photo 13 & 14).

☐ **Fuel Storage:** The Tank Farm berm is in good condition with no signs of seepage (Photo 15). There was however a unmanned drainage hose left in place that should be removed (Photo 16).

☐ **Non-Compliance of Act** : At the time of this inspection, the Hamlet of Chesterfield Inlet did not hold a Water Licence as required under both *Nunavut Land Claims Agreement* and the *Nunavut Waters and Nunavut Surface Rights Tribunal Act,* for the use of water and disposal of waste. Samples of the Sewage Lagoon effluent exceeded the *Municipal Wastewater Effluent Quality Guidelines.* There is considerable oil staining on the ground in the waste oil storage area. All contaminated soil should be removed to Land Farm or drummed and sent south for destruction.

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If there are any concerns or questions in regards to this inspection, please contact me at (867) 975 4298 or bodykevichc@inac.gc.ca.

Sincerely,

Constantine Bodykevich
Water Resources Officer (WRO)
INAC, Nunavut District

cc. -Nunavut Water Board, (Jim Wall)
-CG&T, Rankin Inlet (Don Forsyth)
- Keewatin Health & Social Services, Rankin Inlet (Wanda Poirier)
- EC Environmental Protection, Yellowknife (Anne Wilson)
- INAC Water Management, Iqaluit (Michelle Mc Christie)

MUNICIPAL WATER USE INSPECTION REPORT

Date: September 4 , 2002 **Licensee Rep. (Name/Title):** Roy Mullins/ SAO

Licensee: Hamlet of Chesterfield Inlet **Licence No.: N6L4-1538** (expired July 31, 1998)

WATER SUPPLY

Source(s): First Lake /Reservoir **Quantity used:** 0100138

Owner:/Operator: Hamlet of Chesterfield Inlet

Indicate: **A** - Acceptable **U** - Unacceptable **NA** - Not Applicable **NI** - Not Inspected

Intake Facilities: A **Storage Structure:** A **Treatment Systems:** A **Chemical Storage:** A

Flow Meas. Device: A **Conveyance Lines:** U **Pumping Stations:** A

Comments: The Water Intake Facility appeared to be in good condition, with a operational chlorination system in place. The recently recharged water reservoir appeared well kept and was totally enclosed by a fence. Chlorine pump requires maintenance. Excessive leakage of the reservoir recharge line at First Lake requires some maintenance. Considerable silt may be introduced to First Lake by this leaking high pressure pipe.

WASTE DISPOSAL

Sewage: **Sewage Treatment System** (Prim./Sec/Ter.)**:** Secondary; discharge to wetlands on way to ocean

Natural Water Body: X **Continuous Discharge** (land or water): water

Seasonal Discharge: A **Wetlands Treatment:** considerable **Trench:**

Solid Waste: **Owner/Operator:** Hamlet of Chesterfield Inlet

Landfill: **Burn & Landfill:** X **Other:**

Indicate: **A** - Acceptable **U** - Unacceptable **NA** - Not Applicable **NI** - Not Inspected

Discharge Quality: Sampled **Decant Structure:** NA **Erosion:** A

Discharge Meas. Device: NIL **Dyke Inspection:** U **Seepages:** A

Dams, Dykes: U **Freeboard:** A **Spills:** NIL

Construction: NA **O&M Plan:** U **A&R Plan:** U

Periods of Discharge: A **Effluent Discharge Rate:** Not Measured

Comments: The totally fenced Solid Waste Disposal Facility is well operated with segregation of most hazardous materials. Burning and burial of refuse is practiced on a regular basis. Bulky metal waste is segregated to separate storage area. The Sewage Lagoon appears to operate properly but has considerable refuse including drums in it. The waste oil storage area is stained with spilled fuel or oil.

FUEL STORAGE

Owner/Operator:

Indicate: **A** - Acceptable **U** - Unacceptable **NA** - Not Applicable **NI** - Not Inspected

Berms & Liners: A **Water within Berms:** A **Evidence of Leaks:** A

Drainage Pipes: U **Pump Station & Catchment Berm:** NA

Pipeline Condition: NI **Not Applicable:** **Condition of Tanks:** NI

SURVEILLANCE NETWORK PROGRAM (SNP)

Samples Collected **Hamlet:** NIL

INAC: potable water, sewage effluent

Signs Posted **SNP:** NIL **Warning:** at water reservoir

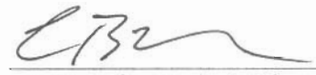
Records & Reporting: Not Applicable

Geotechnical Inspection: Not Applicable

Non-Compliance of Act or Licence: At the time of inspection the Hamlet of Chesterfield Inlet did not hold a Water Licence as required under both *Nunavut Land Claims Agreement* and the *Nunavut Waters and Nunavut Surface Rights Tribunal Act* for the use of water and disposal of waste.

Constantine Bodykevich

Inspector's Name



Inspector's Signature

Global Positioning System Coordinates for the Municipality of Chesterfield Inlet

Chesterfield Inlet 1 Chesterfield Inlet 1St./ Lake drinking water	N63.19483 W90.46189
Chesterfield Inlet 2 Chesterfield Inlet Water Reservoir	N63.20220 W90.43078
Chesterfield Inlet 3 Chesterfield Inlet Sewage Lagoon	N63.20395 W90.45008
Chesterfield Inlet 4 Chesterfield Inlet Sewage Sample	N63.20409 W90.45124
Chesrerfield Inlet 5 Chesterfield Inlet Dump	N63.20437 W90.45076
Chesterfield Inlet 6 Chesterfield Inlet Waste Oil	N63.20344 W90.44560
Chesterfield Inlet 7 Chesterfield Inlet Tank Farm	N63.20269 W90.41278

Chesterfield Inlet Inspection Pictures 2002

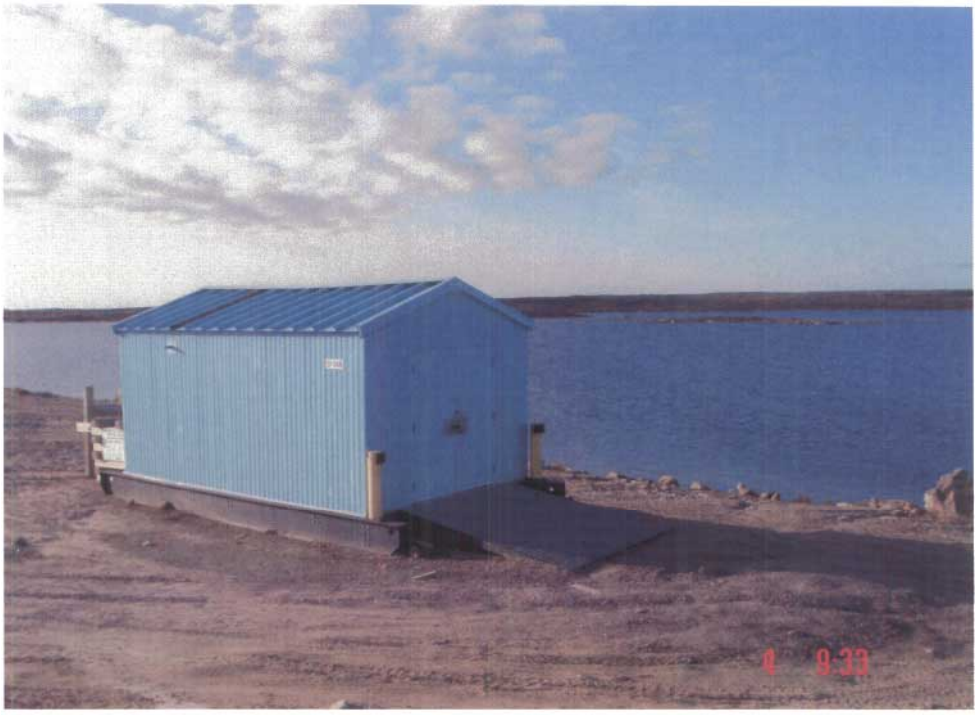


Photo # 1. Pump house at First Lake, location of potable water sample.

Photo # 2. Water Intake Facility at water reservoir, reservoir fill pipe noted in photo left.

Photo # 3. Chlorination system at Water Intake Facility.

Photo # 4. Chemical feed pump on chlorine concentrate requires maintenance.

Photo # 5. Fence and signage shown around potable water reservoir.

Photo # 6. Sewage disposal facility shown with considerable garbage including drums.

Photo # 7. Sewage truck shown discharging at Sewage Treatment Facility discharge structure with sign shown by truck.

Photo # 8. Tipping face of Solid Waste Disposal Facility.

Photo # 9. Drum of waste oil noted in general refuse area.

Photo # 10. Sewage Lake adjacent to Solid Waste Disposal Facility.

Photo # 11. Bulky metal waste disposal area.

Photo # 12. Bulky metal waste disposal area.

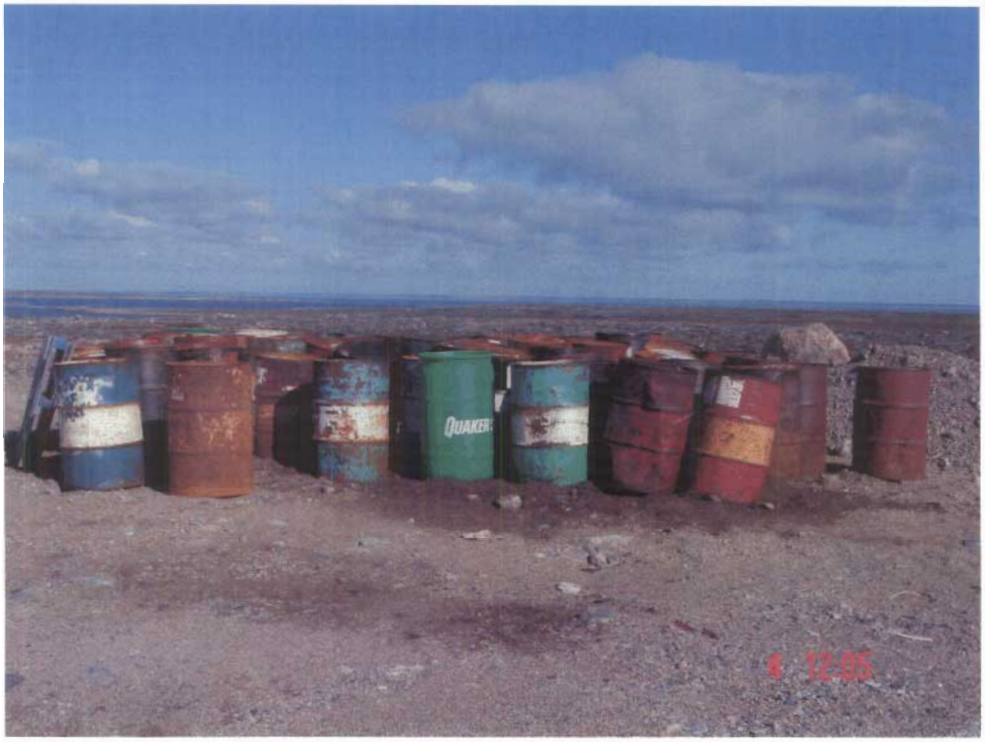


Photo # 13. Waste oil storage area, staining noted on ground in area.

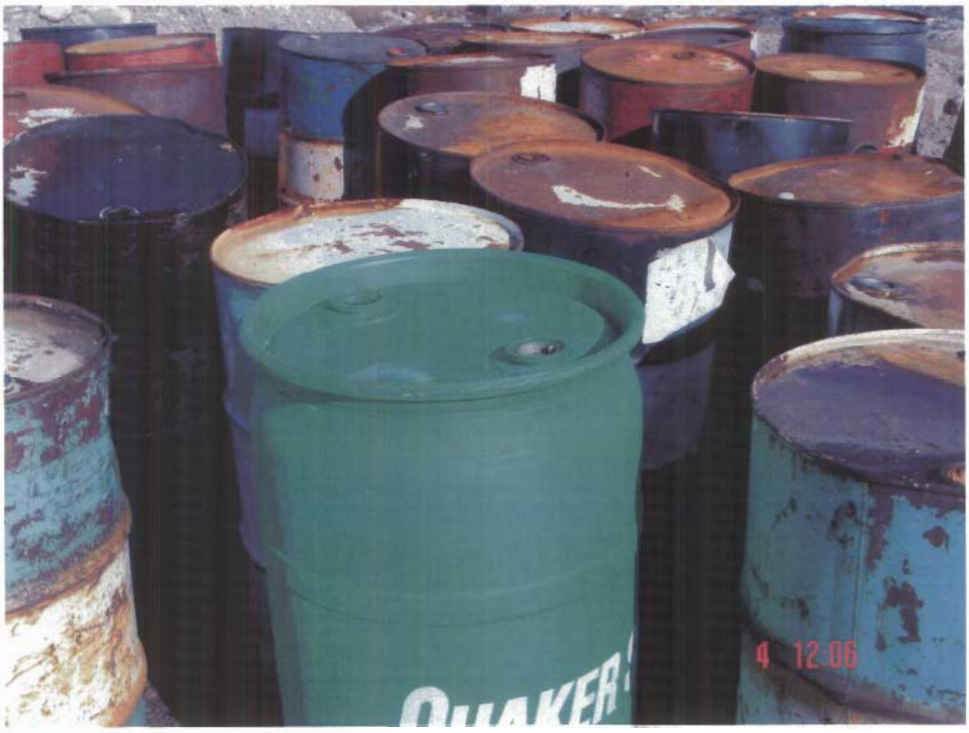
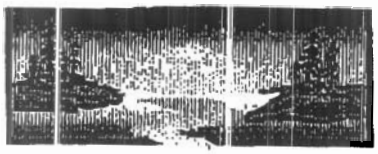


Photo # 14 . Waste oil storage area, drums with missing bungs and tops noted.

Photo # 15. Tank Farm berm shown in good condition.

Photo # 16. Drainage hose left unattended in Tank Farm berm.



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

- CERTIFICATE OF ANALYSIS -

Prepared For: Nunavut Regional Officer, Operati Indian Affairs and Northern D *Attn:* James Lee Noble

Sample ID: Chesterfield Inlet #2 First LAKE **Taiga Sample ID:** 222930

Client Project: **Sample Type:** Potable Water **Received Date:** 10-Sep-02

Location: Nunavut **Sampling Date:** 04-Sep-02

Report Status: **Preliminary** ***Approved by:*** _____

Test Parameter	Result	Units	Detection Limit	Analysis Date
Physicals				
Solids, Total Dissolved	55	mg/L	10	15-Oct-02
Solids, Total Suspended	<3	mg/L	3	15-Oct-02
Turbidity	0.3	NTU	0.1	17-Sep-02
Nutrients				
Ammonia as N	<0.005	mg/L	0.005	10-Sep-02
Biological Oxygen Demand	<2	mg/L	2	11-Sep-02
Nitrate+Nitrite as N	<0.008	mg/L	0.008	13-Sep-02
Organic Carbon, Dissolved	2.5	mg/L	0.5	07-Oct-02
Organic Carbon, Total	2.5	mg/L	0.5	07-Oct-02
Ortho-Phosphate as P		mg/L		
Phosphorous, Dissolved	0.060	mg/L	0.004	23-Oct-02
Phosphorous, Total	0.063	mg/L	0.004	25-Sep-02

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- CERTIFICATE OF ANALYSIS -

Prepared For: Nunavut Regional Officer, Operati Indian Affairs and Northern D Attn: James Lee Noble

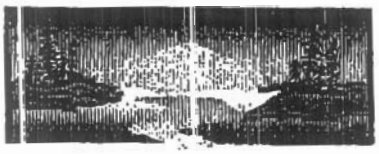
Sample ID: Chesterfield Inlet #1 First LAKE Taiga Sample ID: 222929

Client Project: Sample Type: Potable_Water Received Date: 10-Sep-02

Location: Nunavut Sampling Date: 04-Sep-02

Report Status: Final Approved by: _____

Test Parameter	Result	Units	Detection Limit	Analysis Date
Physicals				
Alkalinity	13.2	mg/L	0.3	30-Sep-02
Conductivity, Specific	126	µS/cm	0.3	30-Sep-02
pH	7.20	pH units	0.05	30-Sep-02
Nutrients				
Organic Carbon, Dissolved	2.6	mg/L	0.5	07-Oct-02
Organic Carbon, Total	2.6	mg/L	0.5	07-Oct-02
Major Ions				
Calcium	4.98	mg/L	0.05	20-Sep-02
Chloride	23.9	mg/L	0.2	23-Oct-02
Hardness as CaCO3	21.5	mg/L	0.17	20-Sep-02
Magnesium	2.21	mg/L	0.02	20-Sep-02
Potassium	1.22	mg/L	0.03	11-Sep-02
Silica, Reactive	0.06	mg/L	0.02	12-Sep-02
Sodium	13.9	mg/L	0.02	11-Sep-02
Sulphate	7	mg/L	3	02-Oct-02



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- CERTIFICATE OF ANALYSIS -

Prepared For: Nunavut Regional Officer, Operati Indian Affairs and Northern D *Attn:* James Lee Noble

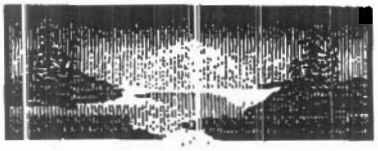
Sample ID: Chesterfield Inlet #4 Water Reservoir **Taiga Sample ID:** 222932

Client Project: **Sample Type:** Potable Water **Received Date:** 10-Sep-02

Location: Nunavut **Sampling Date:** 04-Sep-02

Report Status: **Final** ***Approved by:*** _____

Test Parameter	Result	Units	Detection Limit	Analysis Date
Physicals				
Alkalinity	14.0	mg/L	0.3	30-Sep-02
Conductivity, Specific	132	µS/cm	0.3	30-Sep-02
pH	7.31	pH units	0.05	30-Sep-02
Nutrients				
Organic Carbon, Dissolved	1.8	mg/L	0.5	07-Oct-02
Organic Carbon, Total	1.8	mg/L	0.5	07-Oct-02
Major Ions				
Calcium	5.20	mg/L	0.05	20-Sep-02
Chloride	26.5	mg/L	0.2	23-Oct-02
Hardness as CaCO3	21.8	mg/L	0.17	20-Sep-02
Magnesium	2.14	mg/L	0.02	20-Sep-02
Potassium	1.29	mg/L	0.03	11-Sep-02
Silica, Reactive	<0.02	mg/L	0.02	12-Sep-02
Sodium	14.9	mg/L	0.02	11-Sep-02
Sulphate	5	mg/L	3	02-Oct-02



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- CERTIFICATE OF ANALYSIS -

Prepared For: Nunavut Regional Officer, Operati Indian Affairs and Northern D *Attn:* James Lee Noble

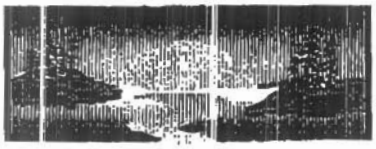
Sample ID: Chesterfield Inlet #3 Water Reservoir **Taiga Sample ID:** 222931

Client Project: **Sample Type:** Potable Water **Received Date:** 10-Sep-02

Location: Nunavut **Sampling Date:** 04-Sep-02

Report Status: **Preliminary** ***Approved by:***

Test Parameter	Result	Units	Detection Limit	Analysis Date
Physicals				
Solids, Total Dissolved	56	mg/L	10	15-Oct-02
Solids, Total Suspended	<3	mg/L	3	15-Oct-02
Turbidity	0.6	NTU	0.1	17-Sep-02
Nutrients				
Ammonia as N	<0.005	mg/L	0.005	10-Sep-02
Biological Oxygen Demand	<2	mg/L	2	11-Sep-02
Nitrate+Nitrite as N	<0.008	mg/L	0.008	13-Sep-02
Organic Carbon, Dissolved	1.8	mg/L	0.5	07-Oct-02
Organic Carbon, Total	1.7	mg/L	0.5	07-Oct-02
Ortho-Phosphate as P		mg/L		
Phosphorous, Dissolved	0.071	mg/L	0.004	23-Oct-02
Phosphorous, Total	0.062	mg/L	0.004	25-Sep-02



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- CERTIFICATE OF ANALYSIS -

Prepared For: Nunavut Regional Officer, Opera Indian Affairs and Northern De *Attn:* James Lee Noble

Sample ID: Chesterfield Inlet #6 Sewage Lagoon Taiga Sample ID: 222934

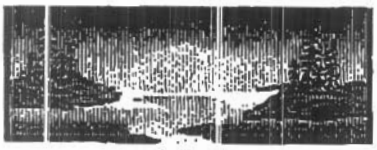
Client Project: Sample Type: wastewater Received Date: 10-Sep-02

Location: Nunavut Sampling Date: 04-Sep-02

Report Status: Preliminary *Approved by:* _____

Test Parameter	Result	Units	Detection Limit	Analysis Date	Data Qualifier
Physicals					
Solids, Total Dissolved	575	mg/L	10	15-Oct-02	
Solids, Total Suspended	10500	mg/L	3	15-Oct-02	
Turbidity		NTU	0.1	17-Sep-02	15
Nutrients					
Ammonia as N	42.8	mg/L	0.005	19-Sep-02	
Biological Oxygen Demand	382	mg/L	2	11-Sep-02	
Nitrate+Nitrite as N	0.526	mg/L	0.008	09-Oct-02	
Organic Carbon, Dissolved	65.0	mg/L	0.5	07-Oct-02	
Organic Carbon, Total	460	mg/L	0.5	07-Oct-02	
Ortho-Phosphate as P		mg/L			
Phosphorous, Dissolved		mg/L		11-Oct-02	15
Phosphorous, Total		mg/L		11-Oct-02	

Report Date: Tuesday, November 12, 2002



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- CERTIFICATE OF ANALYSIS -

Prepared For: Nunavut Regional Officer, Operati Indian Affairs and Northern D **Attn:** James Lee Noble

Sample ID: Chesterfield Inlet #5 Sewage Lagoon **Taiga Sample ID: 222933**

Client Project: **Sample Type:** wastewater **Received Date:** 10-Sep-02

Location: Nunavut **Sampling Date:** 04-Sep-02

Report Status: **Final** ***Approved by:*** _____

Test Parameter	Result	Units	Detection Limit	Analysis Date
Physicals				
Alkalinity	316	mg/L	0.3	30-Sep-02
Conductivity, Specific	1040	µS/cm	0.3	30-Sep-02
pH	7.61	pH units	0.05	30-Sep-02
Nutrients				
Organic Carbon, Dissolved	49.0	mg/L	0.5	07-Oct-02
Organic Carbon, Total	200	mg/L	0.5	07-Oct-02
Major Ions				
Calcium	12.4	mg/L	0.05	20-Sep-02
Chloride	288	mg/L	0.2	29-Oct-02
Hardness as CaCO3	76.3	mg/L	0.17	20-Sep-02
Magnesium	11.0	mg/L	0.02	20-Sep-02
Potassium	12.5	mg/L	0.03	11-Sep-02
Silica, Reactive	1.80	mg/L	0.02	12-Sep-02
Sodium	7.95	mg/L	0.02	11-Sep-02
Sulphate	84	mg/L	3	02-Oct-02

Report Date: Tuesday, November 12, 2002