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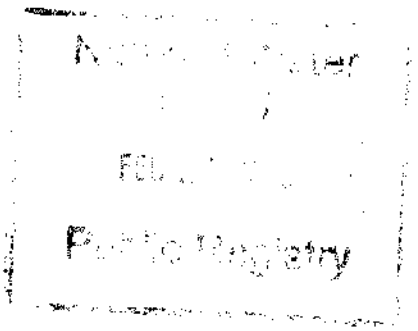
Our file - Notre référence

November 29, 2002

Unlicenced

NWB3ARV-ORIGINAL

Author Osborne
Senior Administrative Officer (SAO)
Hamlet of Arviat
P.O. Box 150
Arviat, NU X0C 0E0



RE: July 11, 2002 Municipal Water Use Inspection - Report

The Water Resources Officer (WRO) appreciate 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 July 11, 2002. During the inspection the following observations were noted.

☐ **Water Supply:** The Water Intake Facility and water reservoir seemed to be well maintained (Photo 1 & 2). The chlorination system was operational at the time of inspection. Enclosed analysis of water samples taken at the time of this inspection indicate that Turbidity (1.0 NTU vs 5.0 NTU), Nitrate + Nitrite (<0.008 mg/L vs 3.2 mg/L) and pH (6.86 vs 6.5-8.5) are found to be within the *Guidelines for Canadian Drinking Water* Quality.

☐ **Sewage Disposal:** At the time of inspection the sewage lagoon was approaching an over topping scenario. During the inspection insufficient freeboard at the sewage lagoon was observed (Photo 3 & 4). The SAO requested authorization from the WRO to discharge sewage from the lagoon. The WRO suggested the SAO contact the Nunavut Water Board for authorization for any discharge of sewage effluent. Attached analysis of sewage effluent seepage located adjacent the Sewage Lagoon berm indicate that Total Suspended Solids (49 mg/L vs 120 mg/L), Biological Oxygen Demand (38 mg/L vs 100 mg/L) and pH (7.3 vs 6.5-9) are within the *Municipal Wastewater Effluent Quality Guidelines.* However enclosed analysis of sewage effluent indicate that Total Ammonia (52 mg/L vs 2.2 mg/L and Nitrate + Nitrite (14.2 mg/L vs 3.2

mg/L) exceed the *Municipal Wastewater Effluent Quality Guidelines* Maximum Allowable Concentration.

☐ **Solid Waste Disposal**: The refuse did not seem well compacted at the time of inspection. The tipping face was large and there appeared to be considerable wind blown garbage around the site despite the good condition of the fence surrounding the facility (Photo 5 & 6). Samples taken of effluent from the solid waste disposal facility (Photo 7) have yet to be analyzed by the laboratory, these analysis will be made available once received by the WRO.

☐ **Bulky Metal Waste Disposal Site:** The site has signs posted with little segregation of wastes (Photo 9). The only noted segregation of waste was that of batteries that were piled on and around a pallet. Some form of spill protection should be provided to assist in reducing contamination from spilled battery acid (Photo 10).

☐ **Fuel Storage:** At the time of inspection the berm surrounding the Tank Farm appeared to be in good condition with no breaches. The containment liner of the berm was not visible. The area within the tank farm berm was dry with no staining from fuel or oil (Photo 11 & 12).

☐ **Non-Compliance of Act**: At the time of inspection, the Hamlet of Arviat 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. Of major concern is the two separate occasions of July 11, 2002 and October 11, 2002 that the SAO requested authorization to discharge sewage effluent from the Sewage Treatment Facility. The Sewage Lagoon effluent exceeding the *Municipal Wastewater Effluent Quality Guidelines* Maximum Allowable Concentration. The WRO recommends that CG&T determine if the capacity of the sewage lagoon is sufficient for the population of Arviat, or if operational practices are causing the necessity to discharge sewage from the lagoon

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, Gjoa Haven (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)

Global Positioning System Coordinates for the Municipality of Arviat

Arviat-1 Arviat Lagoon sample-1	N61.05191 W94.02997
Arviat-2 Arviat lagoon truck discharge-2	N61.05293 W94.02957
Arviat-3 Arviat Dump-3	N61.05311 W94.03145
Arviat-4 Arviat Dump Sample-4	N61.05332 W94.03247
Arviat-5 Arviat Metal Dump-5	N61.05860 W94.02859
Arviat-6 Arviat Tank Farm-6	N61.06189 W94.04039
Arviat-7 Arviat Water Pumphouse-7	N61.06705 W94.05555

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MUNICIPAL WATER USE INSPECTION REPORT

Date: July 11, 2002 **Licensee Rep. (Name/Title):** Aurthor Osborne / SAO

Licensee: Hamlet of Arviat **Licence No.:** File # : **N6L4-1562** (Unlicenced)

WATER SUPPLY

Source(s): Wolf Creek/Reservoir **Quantity used:** Pump #1 258635000, #2 526860700

Owner:/Operator: Hamlet of Arviat

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

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

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

Comments: Both holding cells of Water Reservoir were recently filled. The Water Intake Facility located at the Water Reservoir is very well kept.

WASTE DISPOSAL

Sewage: **Sewage Treatment System** (Prim./Sec/Ter.): Primary; with discharge over land to ocean

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

Seasonal Discharge: X **Wetlands Treatment:** minimal **Trench:**

Solid Waste: **Owner/Operator:** Hamlet of Arviat

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:** NA **Seepages:** A

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

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

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

Comments: At the time of inspection the sewage lagoon seemed to have insufficient freeboard. Daren Flynn asked the WRO for authorization to discharge liquid from the lagoon. The WRO instructed the SAO to contact the Nunavut Water Board for authorization in reducing the volume of sewage effluent in the lagoon. The solid waste disposal site appeared to not have any refuge burned or covered with soil for several months. At the bulky metal dump some segregation of waste was observed however the battery storage area required a storage structure.

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

SURVEILLANCE NETWORK PROGRAM (SNP)

Samples Collected **Hamlet:** Not Applicable

INAC: potable water, sewage effluent, dump seepage

Signs Posted **SNP:** NIL **Warning:** NIL

Records & Reporting: Not Applicable

Geotechnical Inspection: None Required

Non-Compliance of Act or Licence: At the time of inspection the Hamlet of Arviat 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. On July 11, 2002 and October 11, 2002, Arviat SAO requested authorization to discharge sewage from the Sewage Lagoon.

Constantine Bodykevich
Inspector's Name

Inspector's Signature

Arviat Inspection Pictures 2002

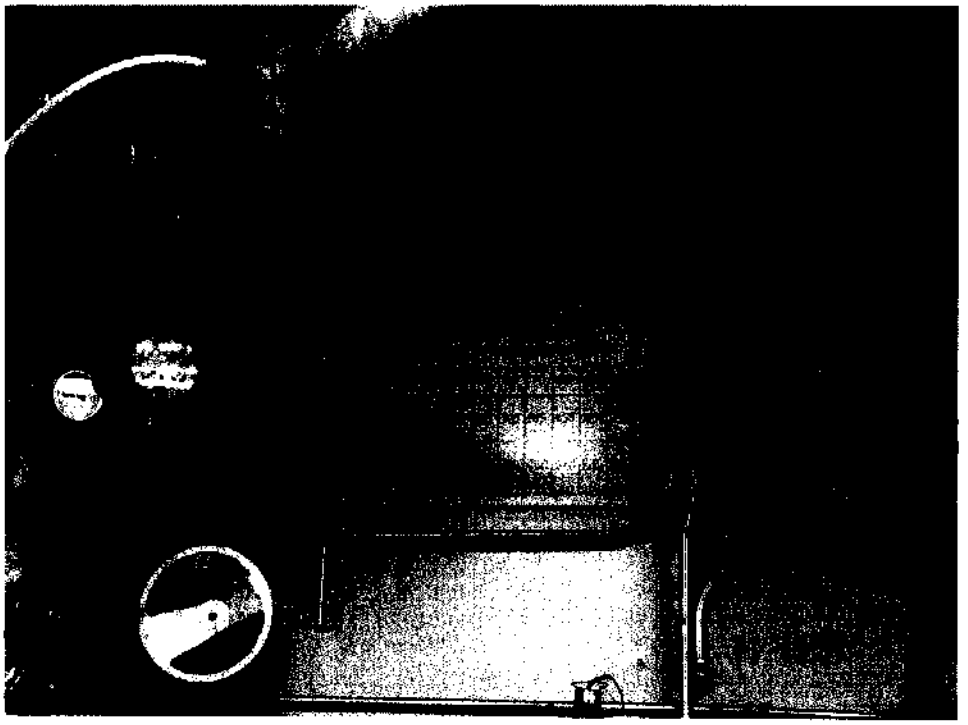


Photo # 1 Chlorine poster in Water Intake Facility showing how to make up concentrated mixture for water disinfection.

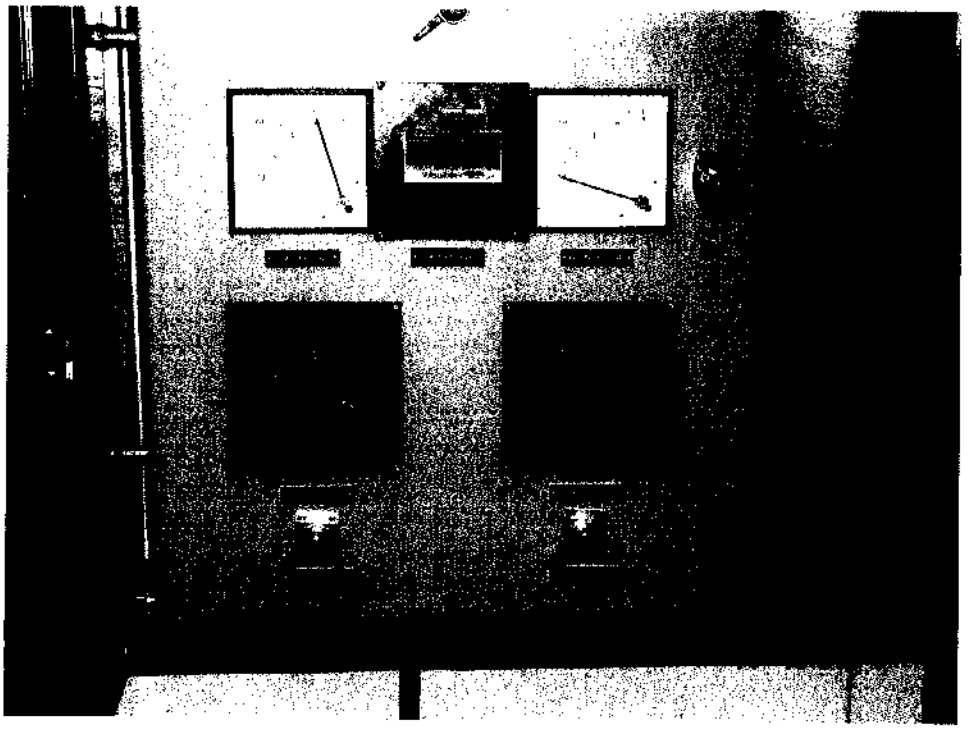


Photo # 2. Water metres in water intake facility metre (# 1. 258635000) metre (# 2. 526860700).

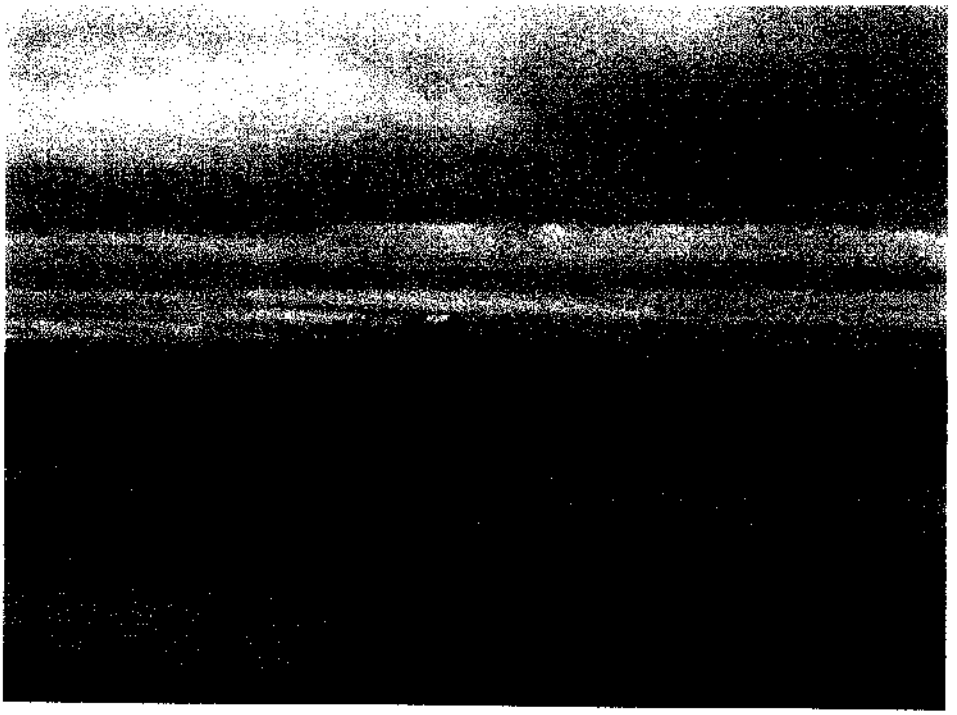


Photo # 3. Sewage truck discharges load at Sewage Treatment Facility.

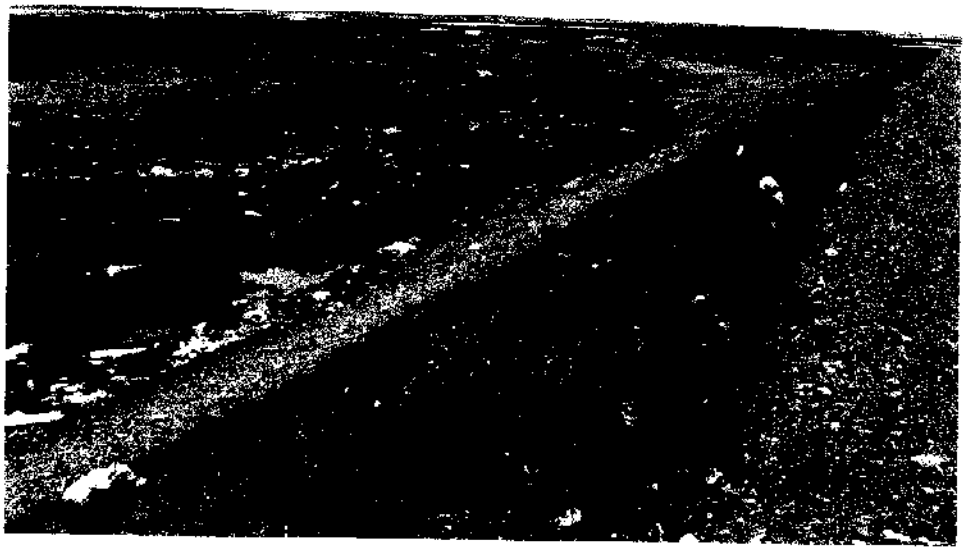


Photo # 4. Location sewage effluent sample alongside Sewage Treatment Facility berm.

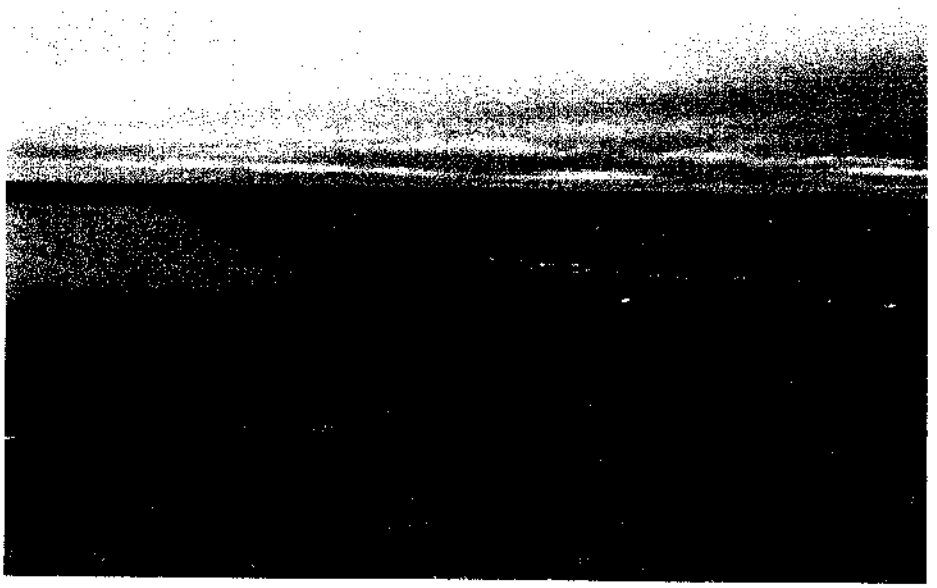


Photo # 5. Solid Waste Disposal Facility excessive pooling water seen in left of picture. Fence appears to be in good condition, and minimal wind blown refuge was noted.

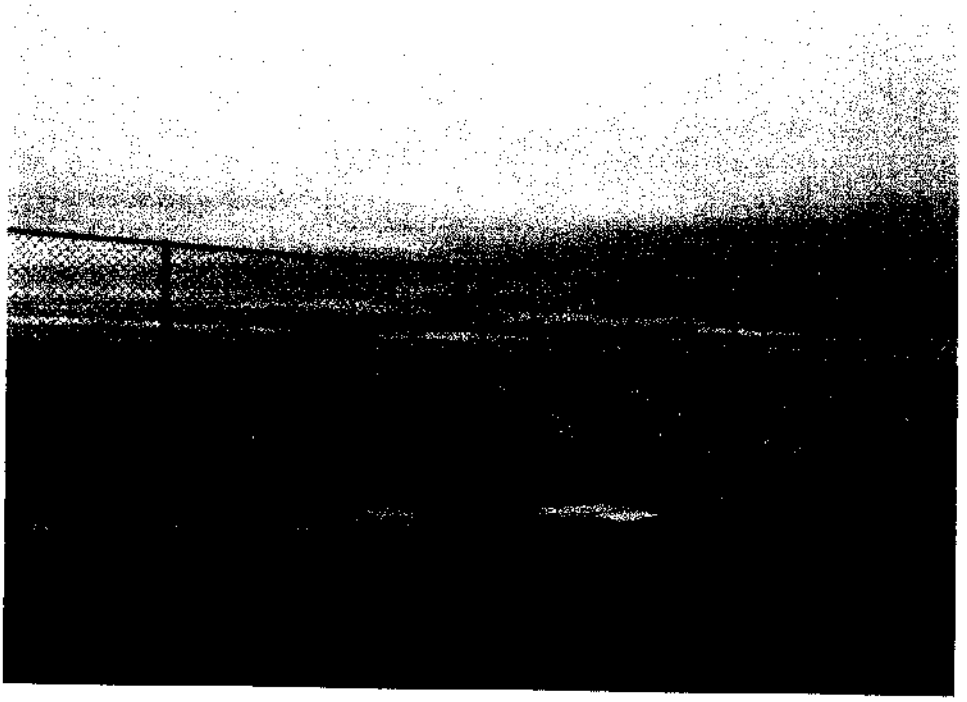


Photo # 6. Tipping face of Solid Waste Disposal Facility.

Photo # 7. Location of Solid Waste Disposal Facility seepage sample.

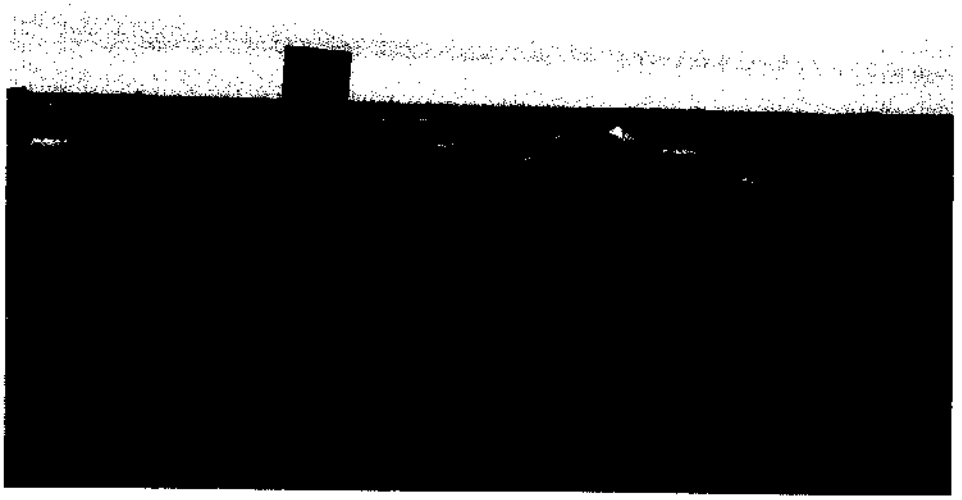


Photo # 8. Bulky metal waste containment area with signage shown.

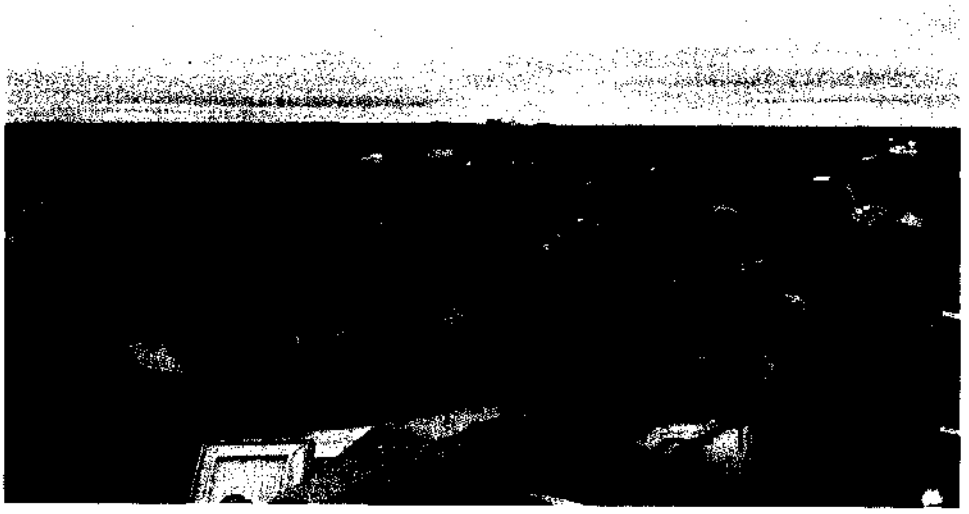


Photo # 9. Bulky metal waste disposal area.

Photo # 10. Segregation of some hazardous materials (batteries) at bulky metal disposal area the batteries should be stored in an container to reduce potential spills.

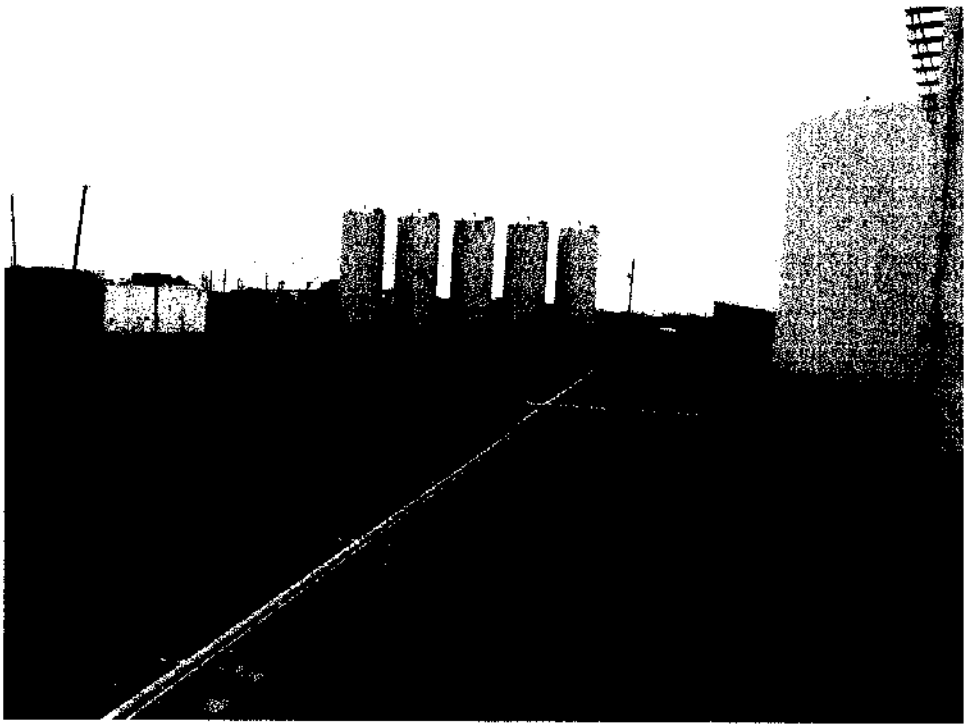


Photo # 11. Tank Farm berms appear in good condition.

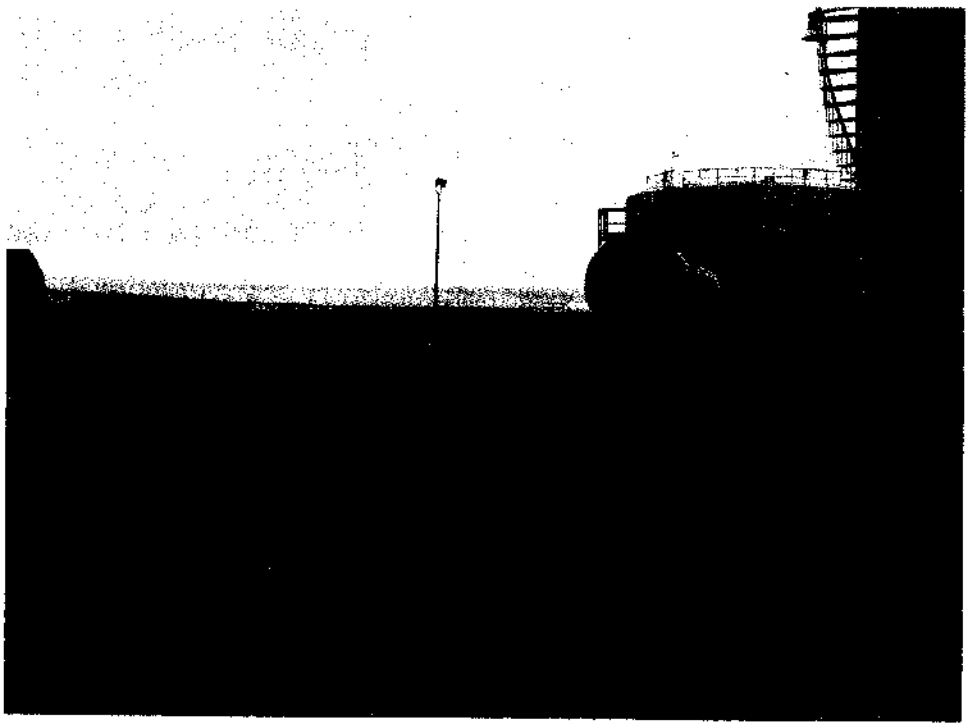
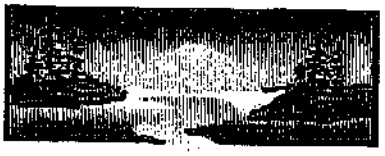


Photo # 12. Tank Farm has no drainage hose left unattended.



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: DIAND Nunavut District Office *Attn:* Constantine Bodykevi

Sample ID: Arviat Potable Water (10,11) **Taiga Sample ID:** 222309

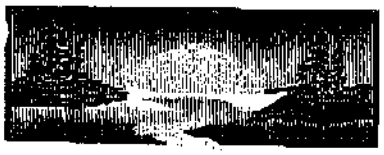
Client Project: **Sample Type:** water **Received Date:** 12-Aug-02

Location: Arviat Potable Wate **Sampling Date:**

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

Test Parameter	Result	Units	Detection Limit	Analysis Date
Physicals				
Alkalinity	8.9	mg/L	0.3	15-Aug-02
Colour	10		5	15-Aug-02
Conductivity, Specific	65.9	µS/cm	0.3	15-Aug-02
pH	6.86	pH units	0.05	15-Aug-02
Solids, Total Dissolved	43	mg/L	10	19-Aug-02
Solids, Total Suspended	3	mg/L	3	19-Aug-02
Turbidity	1.0	NTU	0.1	28-Aug-02
Nutrients				
Ammonia as N	<0.005	mg/L	0.005	14-Aug-02
Biological Oxygen Demand	<2	mg/L	2	12-Aug-02
Nitrate+Nitrite as N	<0.008	mg/L	0.008	27-Aug-02
Organic Carbon, Dissolved	4.1	mg/L	0.5	22-Aug-02
Organic Carbon, Total	3.7	mg/L	0.5	22-Aug-02
Phosphorous, Dissolved	0.013	mg/L	0.004	15-Aug-02
Phosphorous, Total	0.005	mg/L	0.004	15-Aug-02

Report Date: Tuesday, November 12, 2002



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- CERTIFICATE OF ANALYSIS -

Prepared For: DIAND Nunavut District Office *Attn:* Constantine Bodykevi

Sample ID: Arviat Potable Water (10,11) **Taiga Sample ID: 222309**

Major Ions

Calcium	3.79	mg/L	0.05	21-Aug-02
Chloride	10.0	mg/L	0.2	16-Aug-02
Hardness as CaCO3	15.6	mg/L	0.17	21-Aug-02
Magnesium	1.50	mg/L	0.02	21-Aug-02
Potassium	0.88	mg/L	0.03	20-Aug-02
Silica, Reactive	0.05	mg/L	0.02	19-Aug-02
Sodium	5.31	mg/L	0.02	20-Aug-02
Sulphate	5	mg/L	3	14-Aug-02

Report Date: Tuesday, November 12, 2002

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- CERTIFICATE OF ANALYSIS -

Prepared For: DIAND Nunavut District Office *Attn:* Constantine Bodykevi

Sample ID: Arviat Lagoon Effluent (12,13) **Taiga Sample ID:** 222310

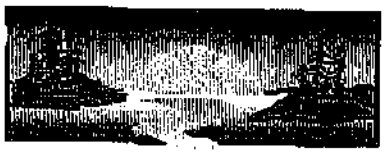
Client Project: **Sample Type:** water **Received Date:** 12-Aug-02

Location: Arviat Lagoon Effluent **Sampling Date:**

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

Test Parameter	Result	Units	Detection Limit	Analysis Date
Physicals				
Alkalinity	182	mg/L	0.3	19-Aug-02
Colour	70		5	15-Aug-02
Conductivity, Specific	2850	µS/cm	0.3	19-Aug-02
pH	7.30	pH units	0.05	19-Aug-02
Solids, Total Dissolved	1750	mg/L	10	19-Aug-02
Solids, Total Suspended	49	mg/L	3	19-Aug-02
Turbidity	29.1	NTU	0.1	28-Aug-02
Nutrients				
Ammonia as N	52.0	mg/L	0.005	14-Aug-02
Biological Oxygen Demand	38	mg/L	2	12-Aug-02
Nitrate+Nitrite as N	14.2	mg/L	0.006	27-Aug-02
Organic Carbon, Dissolved	29.4	mg/L	0.5	22-Aug-02
Organic Carbon, Total	32.2	mg/L	0.5	22-Aug-02
Phosphorous, Dissolved	0.194	mg/L	0.004	21-Aug-02
Phosphorous, Total	1.53	mg/L	0.004	21-Aug-02

Report Date: Tuesday, November 12, 2002



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- CERTIFICATE OF ANALYSIS -

Prepared For: DIAND Nunavut District Office *Attn:* Constantine Bodykevi

Sample ID: Arviat Lagoon Effluent (12,13) **Taiga Sample ID: 222310**

Major Ions

Calcium	92.9	mg/L	0.05	21-Aug-02
Chloride	625	mg/L	0.2	16-Aug-02
Hardness as CaCO3	270	mg/L	0.17	21-Aug-02
Magnesium	9.33	mg/L	0.02	21-Aug-02
Potassium	37.4	mg/L	0.03	20-Aug-02
Silica, Reactive	13.7	mg/L	0.02	19-Aug-02
Sodium	343	mg/L	0.02	20-Aug-02
Sulphate	271	mg/L	3	14-Aug-02

Report Date: Tuesday, November 12, 2002