Indian and Northern Affairs Canada
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INAC, Nunavut District Office
P.O. Box 100
Iqaluit, NU
X0A 0H0

Tel.: (867) 975-4298
Fax.:(867) 979-6445

Your file - Votre référence

Our file - Notre référence

December 3, 2002

NWB3-BAK9904

Dennis Zettler
Senior Administrative Officer
Hamlet of Baker Lake
P.O. Box 149
Baker Lake, NU X0C 0A0

RE: July 9, 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 July 9, 2002. During the inspection the following observations were noted.

- **Water Supply:** The water intake facility appeared to be well maintained and cleanly kept (Photo 1 & 2). The chlorination system was in use during the inspection. The results enclosed of samples taken at (BAK-1) the Baker Lake Water Intake Facility indicate that Nitrate + Nitrite (0.041 mg/L vs 3.2 mg/L) and pH (7.21 vs 6.5-8.5) meets the *Guidelines for Canadian Drinking Water Quality*. Further attached analysis indicate Colour (20 TCU vs 15 TCU) and Turbidity (1.3 NTU vs 1 NTU) are just in excess of the *Guidelines for Canadian Drinking Water Quality* Maximum Acceptable Concentration.

- **Sewage Disposal:** The Sewage Lagoon appears to be relatively ineffective at reducing the Total Suspended Solids from entering the Sewage Lake (Photo 5 & 6). All the treatment of sewage is performed in Sewage Lake before entering Baker Lake. Given the distance to Baker Lake most of the water has undergone considerable treatment by the time it reaches Airplane Lake (Photo 16).

- **Solid Waste Disposal:** The Solid Waste Disposal Facility is a well segregated facility with good signs posted throughout (Photo 7 & 8). There are 3 culverts that drain from the dump to the sewage treatment lake (Photo 12). Enclosed analysis of seepage samples from the dump at (BAK-4) indicate that Total Ammonia

(72.8 mg/L vs 2.2 mg/L), Turbidity (2160 NTU vs 8 NTU), Total Suspended Solids (658 mg/L vs 120 mg/L) and Biological Oxygen Demand (180 mg/L vs 100 mg/L) are in excess of the *Municipal Wastewater Effluent Quality Guidelines*. However by the time the Dump effluent gets to the inlet of Airplane Lake considerable treatment of effluent would have occurred. There is an area adjacent to Sewage Lake where a large amount of animal remains have been removed from the dump (Photo 11) this practice should not be continued. There were waste oil drums in the ditch and visible indications that oil had leaked out (Photo 9). Waste battery storage area should have some sort of spill protection for spilled acid.

☐ **Bulky Metal Dump:** The bulky metal dump is not a well segregated facility however no hazardous waste were observed at this site during the inspection (Photo 13). The adjacent contaminated soil rededication area appeared to have a containment layer under the contaminated soil. The top covering poly membrane appeared to be covering about ½ of the soil within the containment berm (Photo 14).

☐ **Non-Compliance of Act or Licence:** The following reports have yet to be submitted: Annual Reports for 1999, 2000 and 2001 and Operational & Maintenance Plan for municipal waste disposal facilities. All hazardous materials (drums and batteries) should be properly stored in area with spill protection.

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)

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MUNICIPAL WATER USE INSPECTION REPORT

Date: July 9, 2002 **Licensee Rep. (Name/Title):** Dennis Zettler/ SAO

Licensee: Hamlet of Baker Lake **Licence No.: NWB3-BAK9904**

WATER SUPPLY

Source(s): Baker Lake **Quantity used:** 1635267.9

Owner:/Operator: Hamlet of Baker Lake

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:** NA **Pumping Stations:** NA

Comments: The Baker Lake Water Intake Facility is a clean operation. The chlorination system was operational at time of inspection.

WASTE DISPOSAL

Sewage: **Sewage Treatment System** (Prim./Sec/Ter.): secondary; discharge to wetland

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

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

Solid Waste: **Owner/Operator:** Hamlet of Baker Lake

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:** A **Seepages:** A

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

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

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

Comments: Good segregation of refuse at dump, with very good signs throughout. Waste oil and empty drums should be maintained to minimize drums in ditch and over turned drums from leaking. Oil stained soil noted in waste oil storage area. Waste batteries should be stored in a manner that prevents spilled acid from entering environment.

FUEL STORAGE

Owner/Operator:

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

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

Drainage Pipes: NI **Pump Station & Catchment Berm:** NI

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

SURVEILLANCE NETWORK PROGRAM (SNP)

Samples Collected **Hamlet:** NIL

INAC: potable water, sewage effluent, dump seepage

Signs Posted **SNP:** NIL **Warning:** sewage lagoon, dump

Records & Reporting: NIL

Geotechnical Inspection: Not Applicable

Non-Compliance of Act or Licence: No Surveillance Network Program signs were noticed during the inspection. The following reports have yet to be submitted: Annual Reports and Operational & Maintenance Plan 1999, 2000, 2001.

Constantine Bodykevich

Inspector's Name

Inspector's Signature

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Global Positioning System Coordinates for the Hamlet of Baker Lake 2002

Your file - Votre référence

Our file - Notre référence

Baker Lake-1 Baker Lake Dump Lake-1	N64.19729 W95.59606
Baker Lake -2 Baker Lake-2	N64.1910 W95.59628
Baker Lake Dump-3 Baker Lake Dump-3	N64.19749 W95.59840
Baker Lake Dump-4 Baker Lake Dump-4	N64.19790 W95.59990
Baker Lake Dump-5 Baker Lake Dump Drums-5	N64.19775 W95.59965
Baker Lake Dump-6 Baker Lake Dump Drums-6	N64.19769 W95.59928
Baker Lake Dump-7 Baker Lake Dump Drums-7	N64.19754 W95.59843
Baker Lake-8 Baker Lake Dump Fence-8	N64.19712W95.59612
Baker Lake-9 Baker Lake Dump Sample-9	N64.19749 W95.59617
Baker Lake-10 Baker Lake Potable Water sample-10	N64.18947 W95.01031
Baker Lake-11 Baker Lake Aeroplane Creek Sample-11	N64.18996 W95.58511
Baker Lake-12 Baker Lake Old Dump/Land Farm-12	N64.18908 W95.58010

Canada

Baker Lake Inspection Pictures 2002

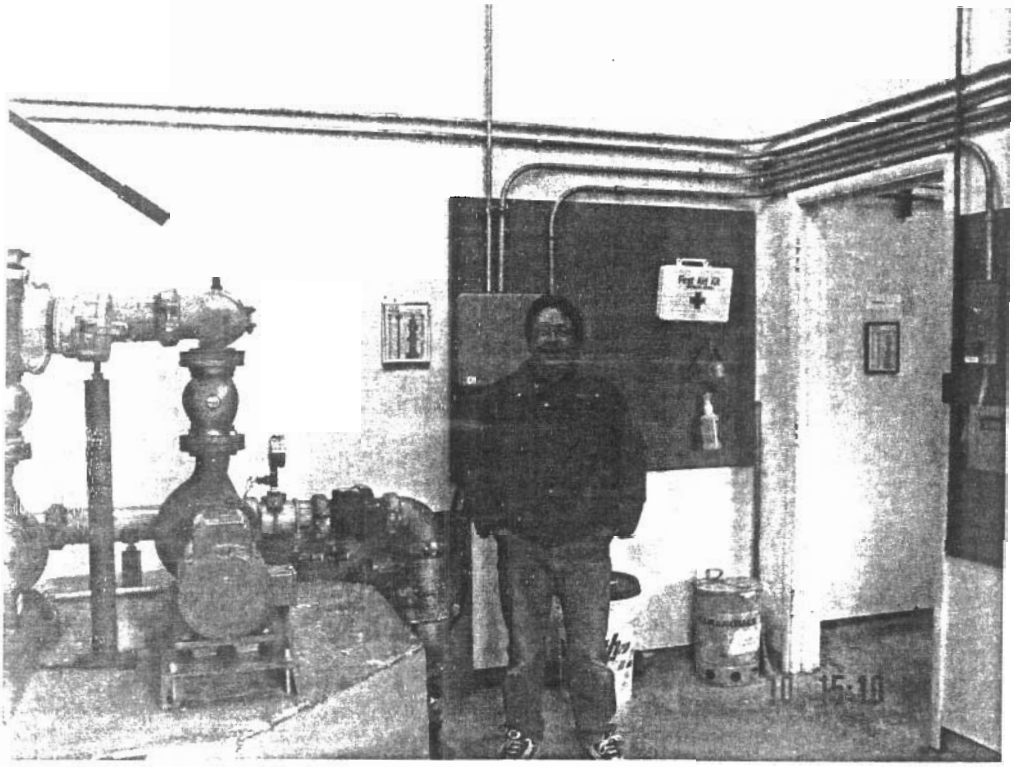

Photo # 1. Interior of Water Intake Facility, well maintained.

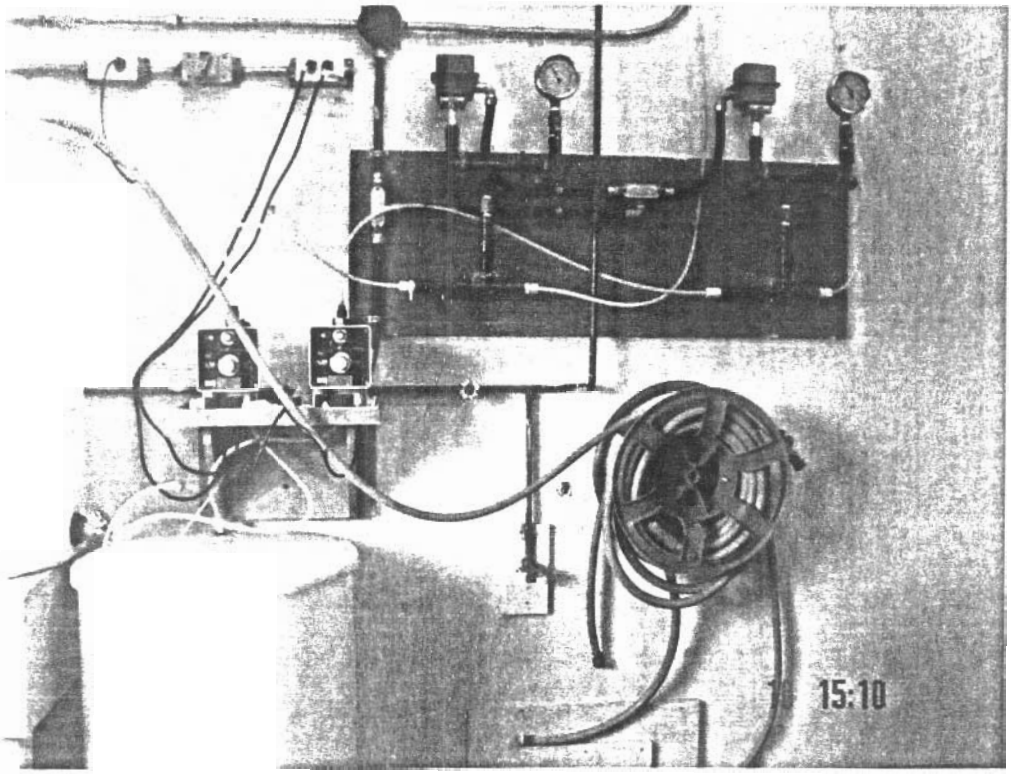

Photo # 2. Chlorination system for potable water at Water Intake Facility.

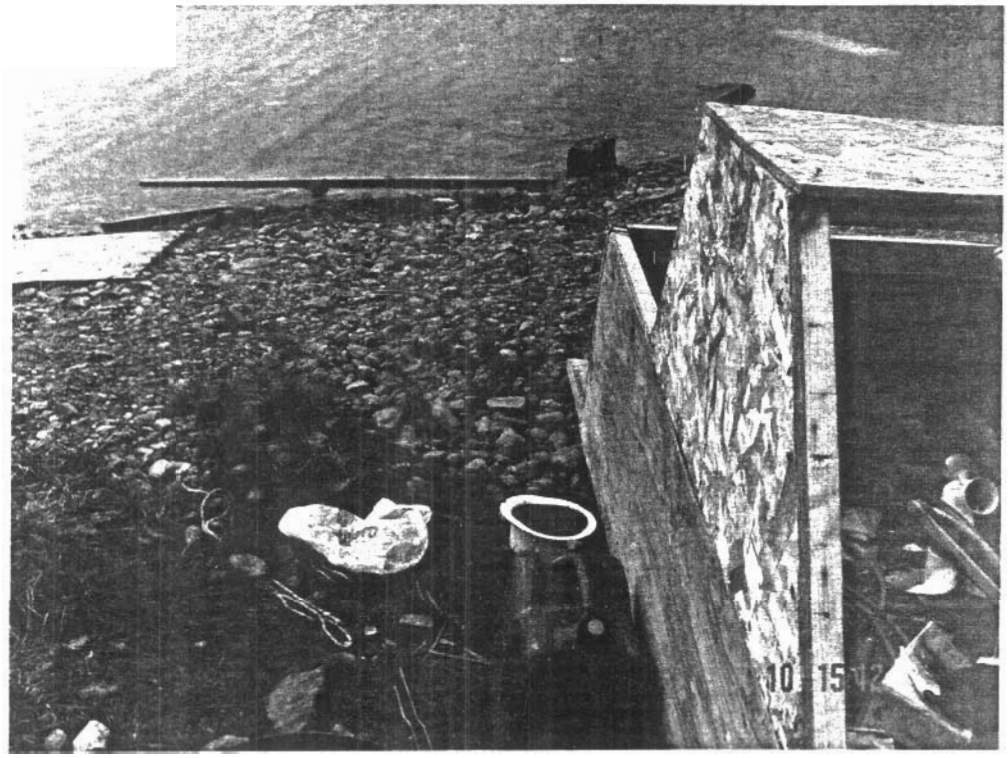

Photo # 3. Boats, oil and fuel within 50 metres of potable water intake.

Photo # 4. Water Intake Facility on bank of Baker Lake.

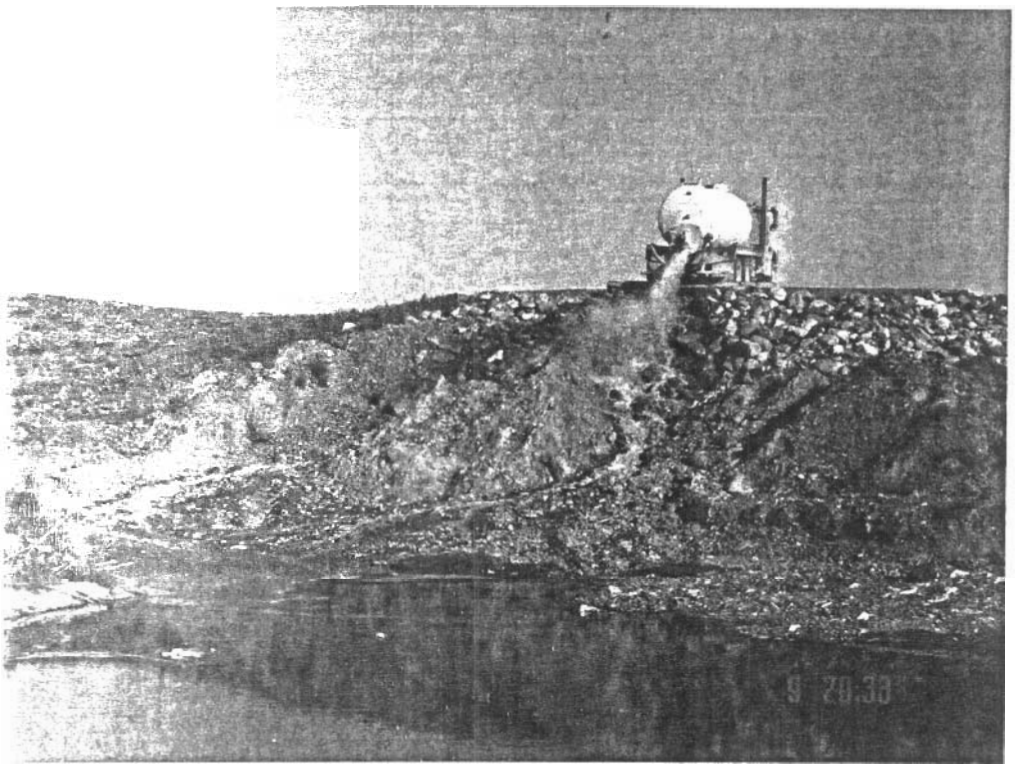

Photo # 5. Sewage truck discharging sewage at Sewage Treatment Facility discharge structure.

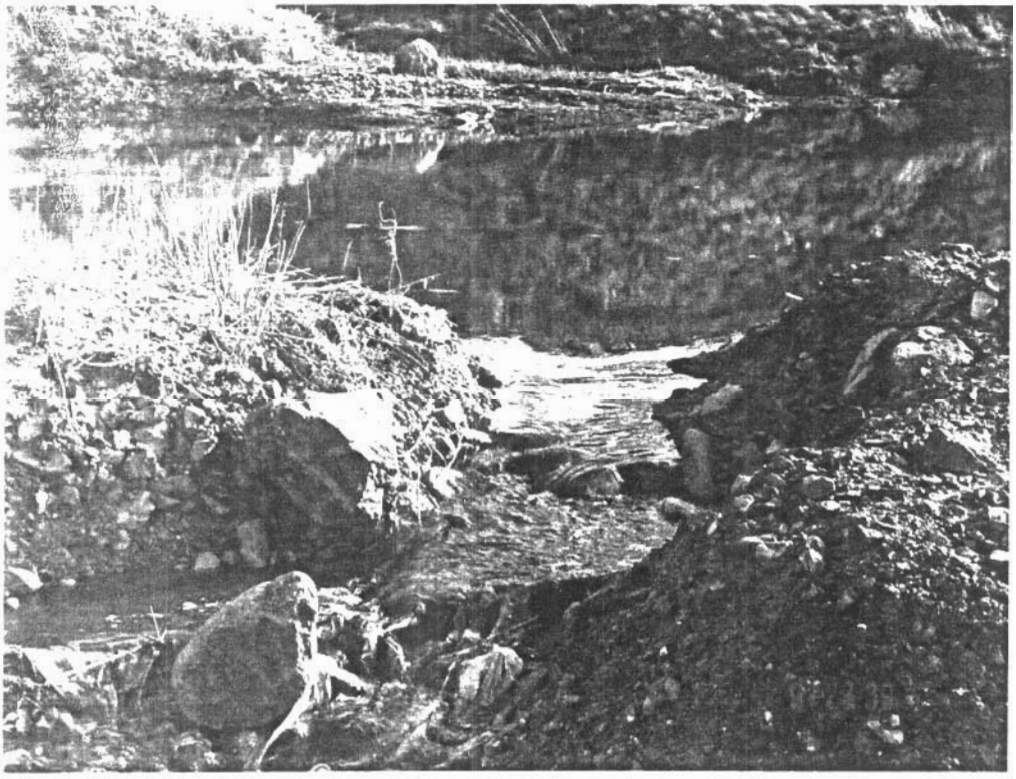

Photo # 6. Sewage effluent exiting lagoon within seconds of truck discharge into sewage lagoon.

Photo # 7. Entrance into Solid Waste Disposal Facility, signage is present throughout the facility.

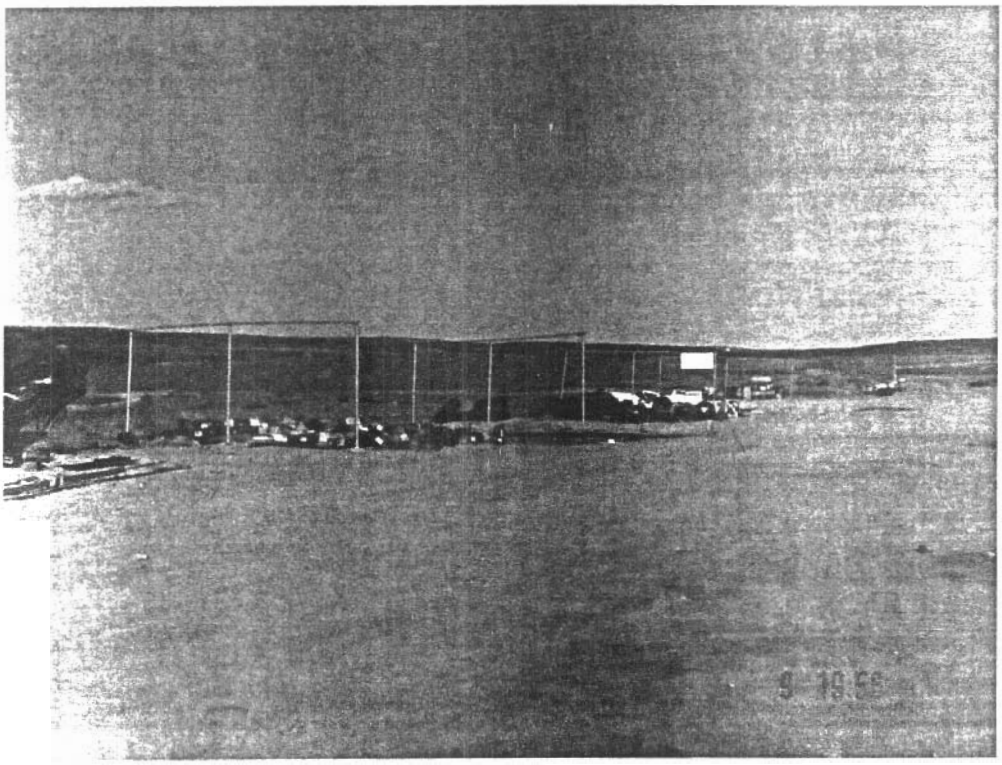

Photo # 8. Segregation of waste is organized with the aid of signage and partial fencing.

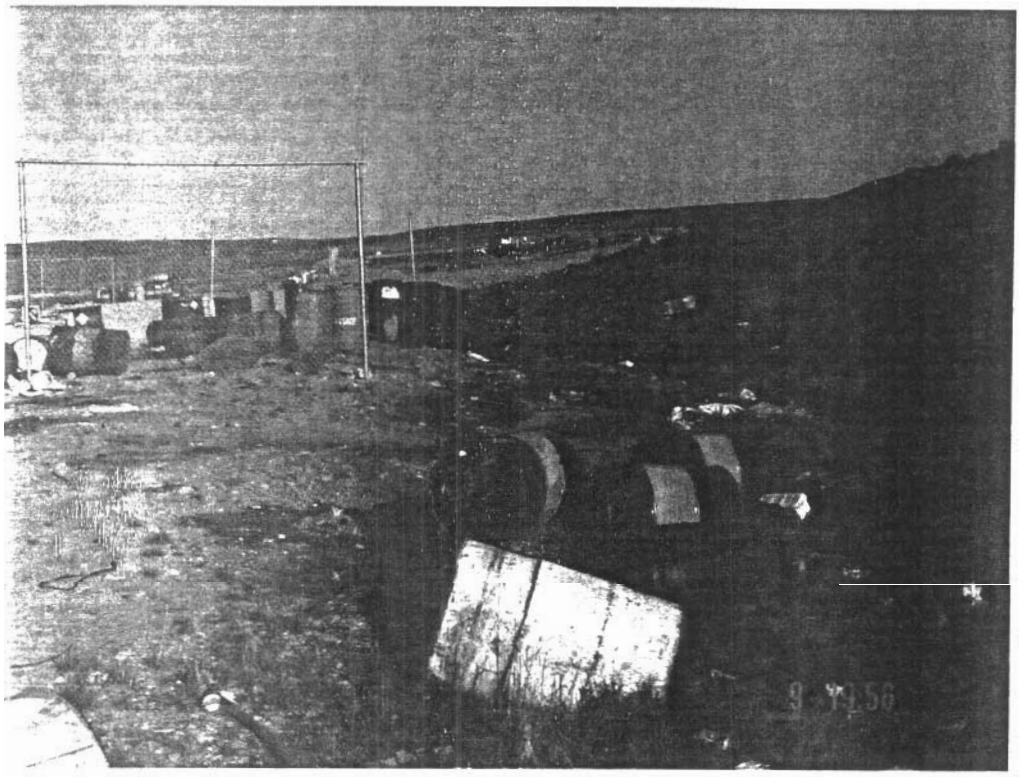

Photo # 9. Waste oil drums on their side in ditch some signs of leaking oil present.

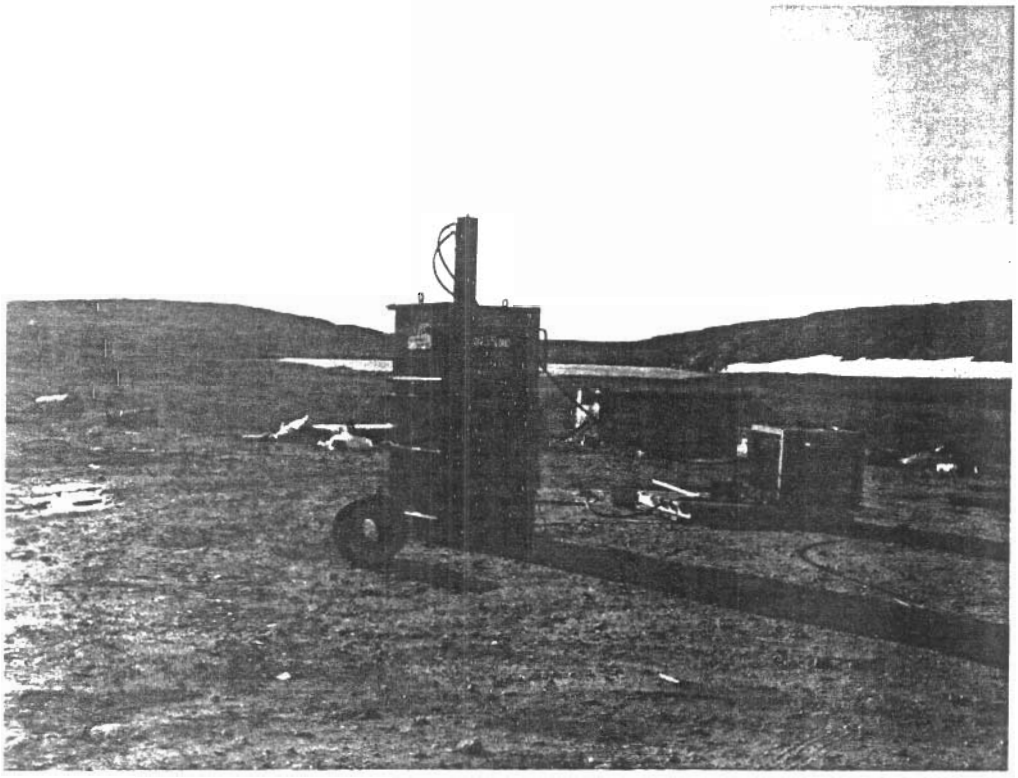

Photo # 10. Drum crusher located at Solid Waste Disposal Facility, could be used to reduce number of empty drums at Solid Waste Disposal Facility.

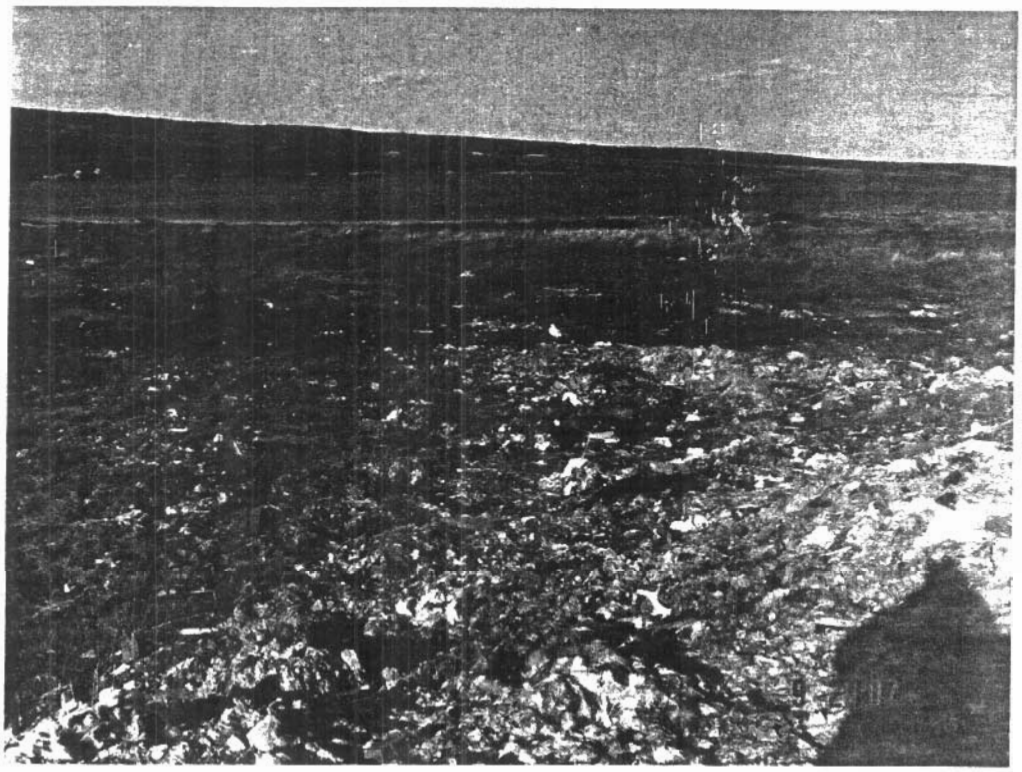

Photo # 11. Caribou skins and carcasses in wetlands alongside dump.

Photo # 12. One of 3 culverts that drain seepage from Solid Waste Disposal Facility,

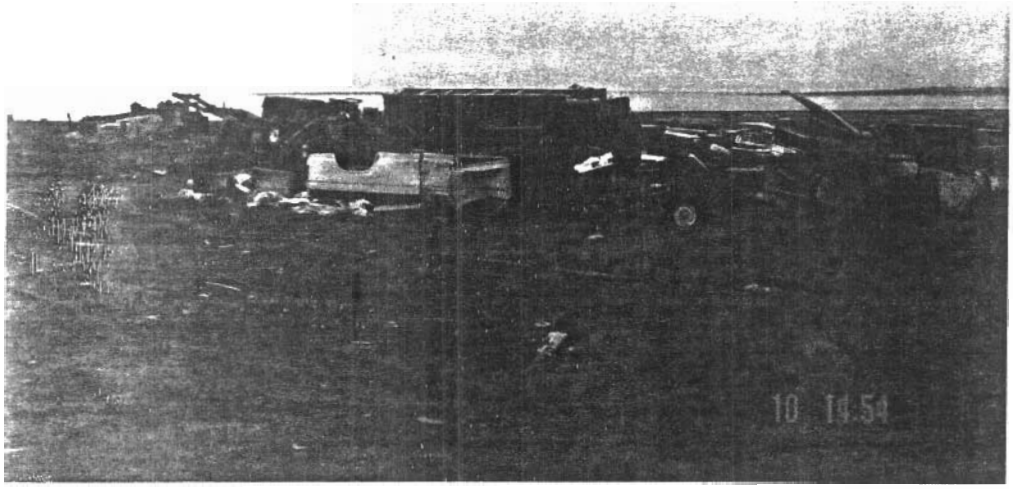

Photo # 13. Bulky metal disposal area located by Old Solid Waste Disposal Facility.

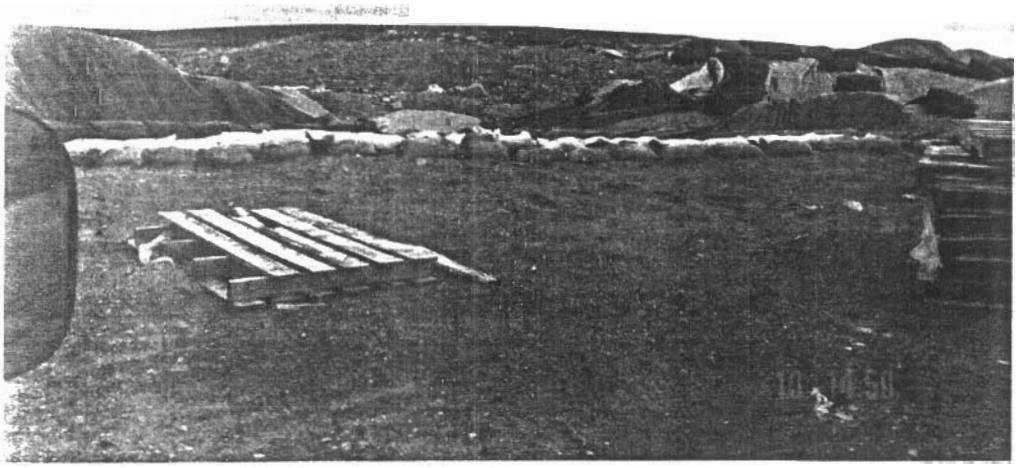

Photo # 14. Contaminated Soil Reclamation area located by Old Solid Waste Disposal area.

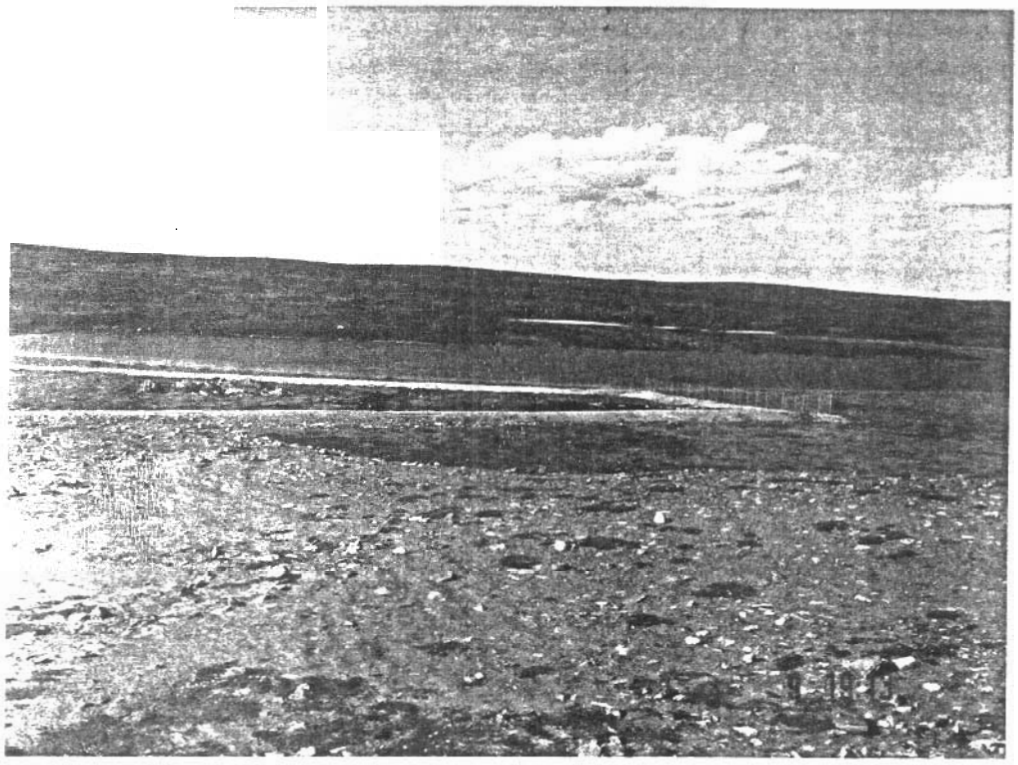

Photo # 15. Lake located behind solid waste, and sewage disposal facilities.

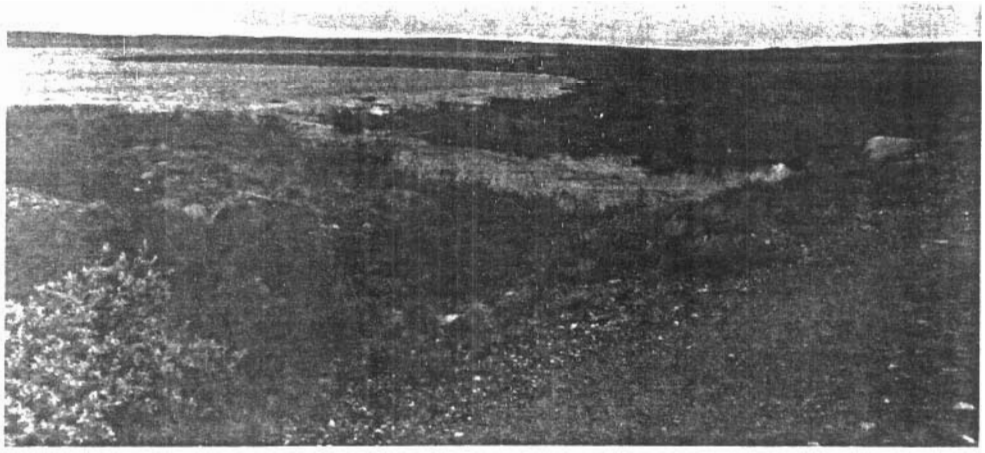

Photo # 16. Culvert drainage of sewage treatment lake to Airplane Lake, location of SNP station.

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

- CERTIFICATE OF ANALYSIS -

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

Sample ID: Baker Lake Potable Water (5,6) Taiga Sample ID: 222306

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

Location: Baker Lake Potable Water Sampling Date:

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

Test Parameter	Result	Units	Detection Limit	Analysis Date
Physicals				
Alkalinity	15.1	mg/L	0.3	15-Aug-02
Colour	20		5	15-Aug-02
Conductivity, Specific	44.6	µS/cm	0.3	15-Aug-02
pH	7.21	pH units	0.05	15-Aug-02
Solids, Total Dissolved	30	mg/L	10	19-Aug-02
Solids, Total Suspended	5	mg/L	3	19-Aug-02
Turbidity	1.3	NTU	0.1	28-Aug-02
Nutrients				
Ammonia as N	0.012	mg/L	0.005	14-Aug-02
Biological Oxygen Demand	<2	mg/L	2	12-Aug-02
Nitrate+Nitrite as N	0.041	mg/L	0.008	27-Aug-02
Organic Carbon, Dissolved	4.0	mg/L	0.5	22-Aug-02
Organic Carbon, Total	3.7	mg/L	0.5	22-Aug-02
Phosphorous, Dissolved	0.023	mg/L	0.004	15-Aug-02
Phosphorous, Total	0.004	mg/L	0.004	15-Aug-02

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- CERTIFICATE OF ANALYSIS -

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

Sample ID: Baker Lake Potable Water (5,6) **Taiga Sample ID: 222306**

Major Ions

Calcium	5.04	mg/L	0.05	21-Aug-02
Chloride	2.1	mg/L	0.2	16-Aug-02
Hardness as CaCO3	18.0	mg/L	0.17	21-Aug-02
Magnesium	1.32	mg/L	0.02	21-Aug-02
Potassium	0.58	mg/L	0.03	20-Aug-02
Silica, Reactive	0.51	mg/L	0.02	19-Aug-02
Sodium	1.09	mg/L	0.02	20-Aug-02
Sulphate	<3	mg/L	3	14-Aug-02

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Fax: (867)-669-2718

- CERTIFICATE OF ANALYSIS -

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

Sample ID: Baker Lake Dump (9) **Taiga Sample ID:** 222308

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

Location: Baker Lake Dump **Sampling Date:**

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

Test Parameter	Result	Units	Detection Limit	Analysis Date
Physicals				
Alkalinity	951	mg/L	0.3	19-Aug-02
Colour	120		5	15-Aug-02
Conductivity, Specific	6810	µS/cm	0.3	15-Aug-02
pH	7.85	pH units	0.05	15-Aug-02
Solids, Total Dissolved	1180	mg/L	10	19-Aug-02
Solids, Total Suspended	658	mg/L	3	19-Aug-02
Turbidity	2160	NTU	0.1	28-Aug-02
Nutrients				
Ammonia as N	72.8	mg/L	0.005	14-Aug-02
Biological Oxygen Demand	180	mg/L	2	12-Aug-02
Nitrate+Nitrite as N	< 0.008	mg/L	0.008	27-Aug-02
Organic Carbon, Dissolved	251	mg/L	0.5	22-Aug-02
Organic Carbon, Total	80.0	mg/L	0.5	
Phosphorous, Dissolved	0.548	mg/L	0.004	21-Aug-02
Phosphorous, Total	8.72	mg/L	0.004	21-Aug-02

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Fax: (867)-669-2718

- CERTIFICATE OF ANALYSIS -

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

Sample ID: Baker Lake Dump (9) **Taiga Sample ID:** 222308

Major Ions

Calcium	457	mg/L	0.05	21-Aug-02
Chloride	1120	mg/L	0.2	16-Aug-02
Hardness as CaCO3	1870	mg/L	0.17	21-Aug-02
Magnesium	178	mg/L	0.02	21-Aug-02
Potassium	153	mg/L	0.03	20-Aug-02
Silica, Reactive	11.0	mg/L	0.02	19-Aug-02
Sodium	849	mg/L	0.02	20-Aug-02
Sulphate	1340	mg/L	3	14-Aug-02