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INAC, Nunavut District Office
P.O. Box 100
Iqaluit, NU
X0A 0H0

December 29, 2002

Raymond Kamootak
Senior Administrative Officer
Hamlet of Gjoa Haven
General Delivery
Gjoa Haven, NU X0B 1J0

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

NWB3-GJO9904

RE: August 22, 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 August 22, 2002. During the inspection the following observations were noted.

- ☐ **Water Supply:** The Water Lake Intake Facility requires some maintenance to the conveyance line (Photo 1 & 6). A motor boat was observed next to Water Lake Water Intake Facility (Photo 2). The filtration system at the Water Treatment Facility was not in use at the time of inspection. (Photo 3). Of major concern was the presents of Blood Worms in the potable water, given the filtration system at the Water Treatment Plant was not in use. The chlorination system located at the Water Treatment Plant was in use at the time of inspection (Photo 4 & 5). Enclosed analysis of samples taken at the Water Intake Facility (SNP) GJO-1 indicate that Nitrate + Nitrite (<0.008 mg/L vs 3.2 mg/L), pH (7.95 vs 6.5-8.5) and Colour (10 TCU vs 15 TCU) are within the *Guidelines for Canadian Drinking Water Quality*.
- ☐ **Sewage Disposal Facility:** The Sewage Lagoon had sufficient free board at the time of inspection (Photo 11). A large breach in the Sewage Lagoon berm allowed for continual sewage effluent to be discharged (Photo 12). The Lagoon effluent is discharged over land prior to entering the ocean. Enclosed analysis of samples taken from (SNP) GJO-3 the Sewage Lagoon discharge indicate that Total Suspended Solids (59 mg/L vs 120 mg/L) and pH (7.47 vs 6-9) meet the *Municipal Wastewater Effluent Quality Guidelines*. However analysis of Total Ammonia indicate that (101 mg/L vs 2.2 mg/L) is in excess of *Municipal Wastewater Effluent Quality Guidelines*.

Canada

- ☐ **Solid Waste Disposal Facility:** The Solid Waste Disposal Facility has a fence surrounding most of the dump. The dump has a large breach in the fence and the berm (Photo 7). Staining was noted indicating a seepage path. Waste oil storage at Solid Waste Disposal Facility. Enclosed analysis of samples taken of (SNP) GJO-2 dump seepage, indicate that Total Suspended Solids (405 mg/L vs 120 mg/L) Total Ammonia concentration of (40.2 mg/L vs 2.2 mg/L) *are in excess of Municipal Wastewater Effluent Quality Guidelines* . All waste oil is drummed and stored at the Solid Waste Disposal Facility (Photo 8). The Solid Waste Disposal Facility seemed well managed with segregation of waste and signs posted at the dump.

- ☐ **Bulky Metal Dump:** The bulky metal dump was partially segregated diverting bulky waste from the general dump area (Photo 10). The creek alongside the bulky metal dump was sampled (Photo 9). Analysis of samples taken at the Bulky Metal Dump have not been received by the WRO, these sample results will be made available once received by the WRO.

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 (Photo 14). There is a drainage hose that was left not unattended that should be removed (Photo 13).

- ☐ **Non-Compliance of Act or Licence:** The licensee has yet to provide Nunavut Water Board with Annual Reports from 1999, 2000, 2001. An Operational & Management (O&M) plan for the waste disposal facilities has yet to be submitted, so has an report detailing the Abandonment and Restoration (A&R) of municipal water and waste facilities.

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 (Robert Phillips)
- EC Environmental Protection, Yellowknife (Anne Wilson)
- INAC Water Management, Iqaluit (Michelle Mc Christie)



MUNICIPAL WATER USE INSPECTION REPORT

Date: August 22, 2002 Licensee Rep. (Name/Title): Rannond Kamookak/ SAO
Licensee: Hamlet of Gjoa Haven Licence No.: NWB3-GJO9904

WATER SUPPLY

Source(s): Water Lake / Swan Lake (source) Quantity used: recorded at truck
Owner/Operator: Hamlet of Gjoa Haven

Indicate: **A** - Acceptable **U** - Unacceptable **NA** - Not Applicable **NI** - Not Inspected
Intake Facilities: U Storage Structure: A Treatment Systems: U Chemical Storage: A
Flow Meas. Device: NA Conveyance Lines: U Pumping Stations: U

Comments: Conveyance line from Water Lake Water Intake Facility to the Water Filtration Plant requires maintenance due to line damage at Water Intake Facility. Water Treatment Plant filter system presently not in use. Bloodworms present in potable water.

WASTE DISPOSAL

Sewage: Sewage Treatment System (Prim./Sec/Ter.): Secondary; over land to ocean.
Natural Water Body: Continuous Discharge (land or water): land
Seasonal Discharge: X Wetlands Treatment: limited Trench:
Solid Waste: Owner/Operator: Hamlet of Gjoa Haven
Landfill: Burn & Landfill: X Other:

Indicate: **A** - Acceptable **U** - Unacceptable **NA** - Not Applicable **NI** - Not Inspected
Discharge Quality: Sampled Decant Structure: NA Erosion: U
Discharge Meas. Device: NIL Dyke Inspection: U Seepages: U
Dams, Dykes: A Freeboard: A Spills: NIL
Construction: NA O&M Plan: U A&R Plan: NIL
Periods of Discharge: A Effluent Discharge Rate: Not Measured

Comments: There is adequate freeboard in the Sewage lagoon. A breach in the berm is allowing considerable effluent seepage, causing accelerated erosion and exposure of the containment liner at the Sewage Lagoon discharge site. There is a large breach in the Solid Waste Disposal Facility fence and berm. Dump seepage has caused considerable staining along the discharge path. Waste oil is stored at the Solid Waste Disposal facility. Some segregation of waste is practiced at the bulky metal dump. Waste batteries require spill protection in the current storage area.

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: GJO-1 potable water, sewage effluent GJO 3 and dump seepage GJO-2
Signs Posted SNP: NIL Warning:
Records & Reporting: No 1999, 2000, 2001 Annual Reports or Operational Maintenance plan.
Geotechnical Inspection: Not Applicable

Non-Compliance of Act or Licence: Operational & Management plan required for municipal waste disposal facilities since 1999/07/07. Annual Reports required for 1999, 2000 & 2001.

Constantine Bodykevich
Inspector's Name


Inspector's Signature



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Global Positioning System Coordinates for the Municipality of Gjoa Haven

Gjoa Haven-01

Gjoa Haven Pot Water 01

N68.38037 W95.52088

Gjoa Haven-02

Gjoa Haven Dump-02

N68.37013 W95.50247

Gjoa Haven-3

Gjoa Haven Sewage Lagoon-3

N68.37235 W95.50236

Gjoa Haven Inspection pictures 2002



Photo # 1 Damaged section of conveyance line from Water Intake Facility



Photo # 2 Water reservoir with water intake facility in left of photo.



Photo # 3 Sand filters at Gjoa Haven Water Treatment Facility. Not in use at the time of this inspection.



Photo # 4 Chlorination system in place at Gjoa Haven Water Treatment Facility.

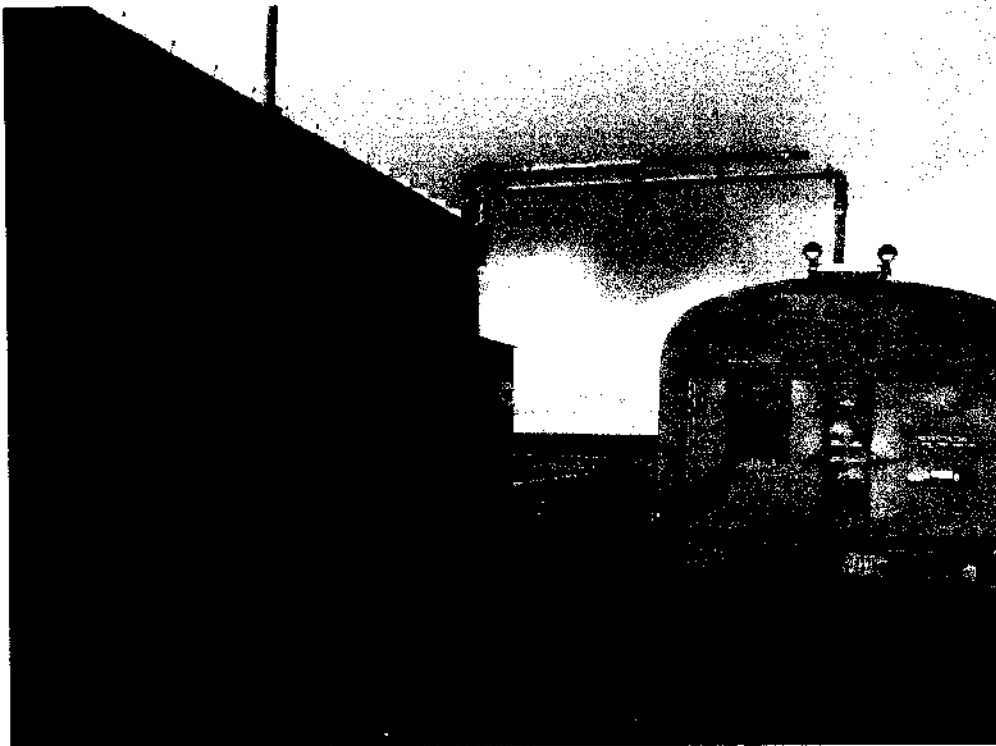


Photo # 5 Water Treatment Facility and truck fill station.

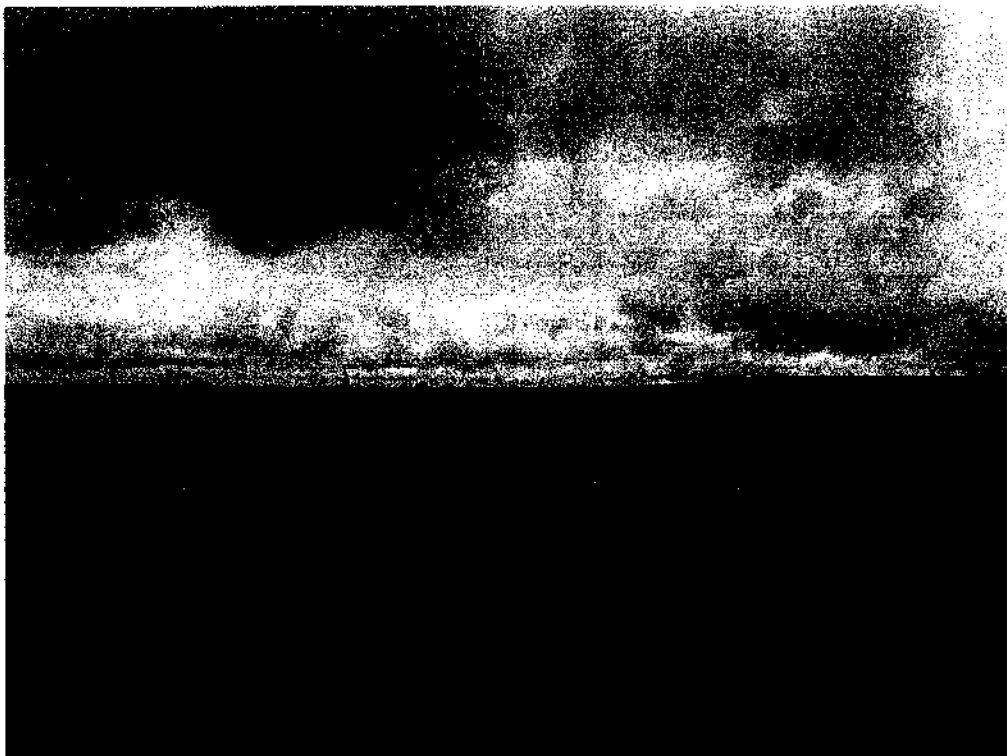


Photo # 6 Water Lake with Water Intake Facility and conveyance line seen to the left of the picture.



Photo # 7 Seepage from Solid Waste Disposal Facility; note a breach in the landfill berm and fencing, location of landfill seepage sample.



Photo # 8 Waste oil storage area in Solid Waste Disposal Facility.



Photo # 9 Creek by bulky metal waste dump; location of metal dump sample.



Photo # 10 Bulky metal dump showing segregation of waste streams.



Photo # 11 Sewage truck discharge structure at Sewage Treatment Facility.



Photo # 12 sewage seepage noted at partial breach in Sewage Treatment Facility berm; location of sewage effluent sample.



Photo # 13 Tank Farm, showing drainage hose in berm area.

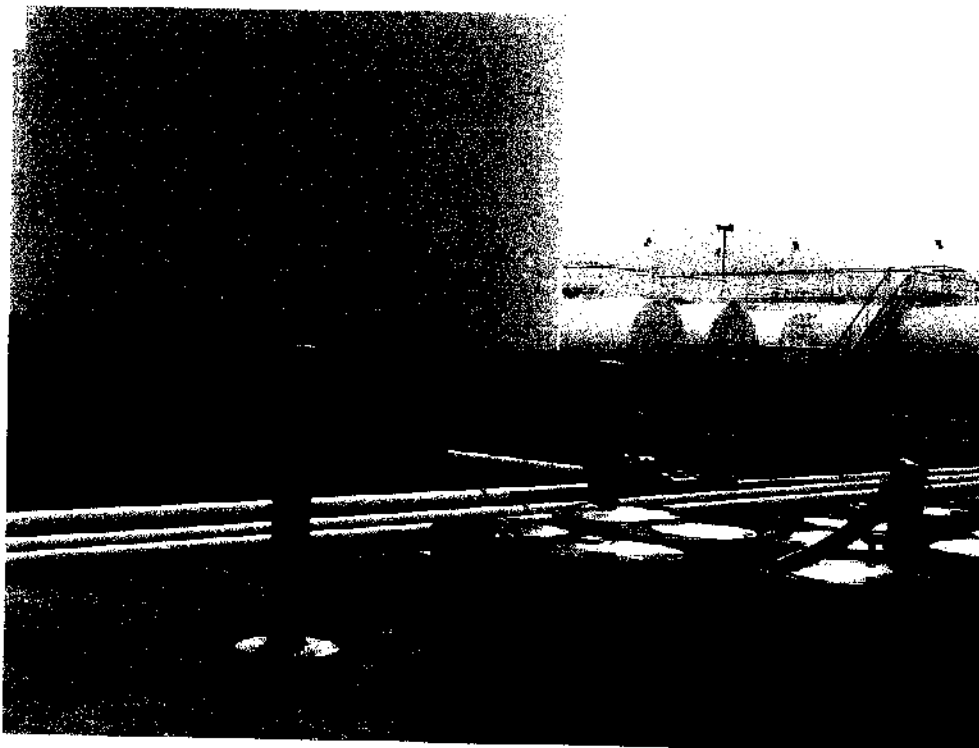


Photo # 14 Drum storage area at Tank Farm.



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: Gjoa Haven pot water 650-1

Taiga Sample ID: 222515

Client Project:

Sample Type: potable

Received Date: 26-Aug-02

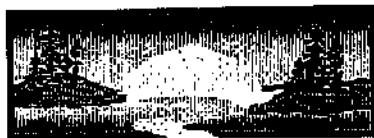
Location: Gjoa Haven pot water

Sampling Date: 19-Aug-02

Report Status: Final

Approved by: _____

Test Parameter	Result	Units	Detection Limit	Analysis Date	Data Qualifier
<u>Physicals</u>					
Alkalinity	77.9	mg/L	0.3	16-Sep-02	
Colour	10		5	16-Sep-02	
Conductivity, Specific	246	µS/cm	0.3	16-Sep-02	
pH	7.95	pH units	0.05	16-Sep-02	
Solids, Total Dissolved	178	mg/L	10	16-Sep-02	
Solids, Total Suspended	<3	mg/L	3	16-Sep-02	
Turbidity		NTU	0.1	17-Sep-02	14
<u>Nutrients</u>					
Ammonia as N	0.010	mg/L	0.005	02-Sep-02	
Nitrate+Nitrite as N	<0.008	mg/L	0.008	05-Sep-02	
Organic Carbon, Total	3.4	mg/L	0.5	07-Oct-02	
Phosphorous, Dissolved	0.066	mg/L	0.004	04-Sep-02	
Phosphorous, Total	0.071	mg/L	0.004	04-Sep-02	
<u>Major Ions</u>					
Calcium	19.1	mg/L	0.05	29-Aug-02	



Taiga Environmental Laboratory
1601 52nd Ave., Box 1500, Yellowknife, NT. X1A 2P3

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

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Prepared For: DIAND Nunavut District Office

Attn: Constantine Bodykevi

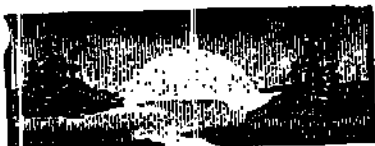
Sample ID: Gjoa Haven pot water 650-1

Taiga Sample ID: 222515

Chloride	19.7	mg/L	0.2	06-Sep-02
Hardness as CaCO ₃	96.9	mg/L	0.17	29-Aug-02
Magnesium	12.0	mg/L	0.02	29-Aug-02
Potassium	1.50	mg/L	0.03	28-Aug-02
Sodium	11.2	mg/L	0.02	28-Aug-02
Sulphate	18	mg/L	3	04-Sep-02

Data Qualifier Descriptions:

14 Insufficient sample to perform analysis



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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: Gjoa Haven

6JO-3

Taiga Sample ID: 222516

Client Project:

Sample Type: sewage

Received Date: 26-Aug-02

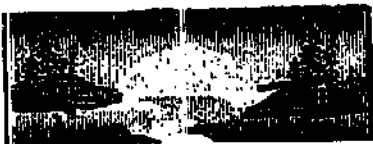
Location: Gjoa Haven sewage

Sampling Date: 19-Aug-02

Report Status: Final

Approved by: _____

Test Parameter	Result	Units	Detection Limit	Analysis Date	Data Qualifier
Physicals					
Alkalinity	777	mg/L	0.3	19-Sep-02	
Colour	300		5	16-Sep-02	
Conductivity, Specific	1950	µS/cm	0.3	16-Sep-02	
pH	7.47	pH units	0.05	16-Sep-02	
Solids, Total Dissolved	1000	mg/L	10	16-Sep-02	
Solids, Total Suspended	59	mg/L	3	16-Sep-02	
Turbidity	42.4	NTU	0.1	17-Sep-02	
Nutrients					
Ammonia as N	101	mg/L	0.005	02-Sep-02	
Nitrate+Nitrite as N	0.017	mg/L	0.008	05-Sep-02	
Organic Carbon, Total	84	mg/L	0.5	07-Oct-02	
Phosphorous, Dissolved	14.7	mg/L	0.001	04-Sep-02	
Phosphorous, Total	15.4	mg/L	0.004	04-Sep-02	
Major Ions					
Calcium	43.8	mg/L	0.05	29-Aug-02	



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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: Gine Haven

6-50-3

Taiga Sample ID: 222316

Chloride	133	mg/L	0.2	06-Sep-02
Hardness as CaCO ₃	262	mg/L	0.17	29-Aug-02
Magnesium	37.0	mg/L	0.02	29-Aug-02
Potassium	45.5	mg/L	0.03	28-Aug-02
Sodium	175	mg/L	0.02	28-Aug-02
Sulphate	11	mg/L	3	04-Sep-02

Data Qualifier Descriptions:



Taiga Environmental Laboratory
4601-52nd Ave., Box 1500, Yellowknife, NT, X1A 2R3

Tel: (867) 669 2798
Fax: (867) 669-2718

- CERTIFICATE OF ANALYSIS -

Prepared For: DIAND Nunavut District Office

Attn: Constantine Bodykevi

Sample ID: GJO-2

Taiga Sample ID: 222517

Client Project:

Sample Type: dump

Received Date: 26-Aug-02

Location: Gjoa Haven

Sampling Date: 19-Aug-02

Report Status: Final

Approved by: _____

Test Parameter	Result	Units	Detection Limit	Analysis Date	Data Qualifier
Physicals					
Solids, Total Dissolved	2300	mg/L	10	16-Sep-02	
Solids, Total Suspended	405	mg/L	3	16-Sep-02	
Turbidity	682	NTU	0.1	17-Sep-02	
Nutrients					
Ammonia as N	40.2	mg/L	0.005	02-Sep-02	
Nitrate+Nitrite as N	0.036	mg/L	0.008	05-Sep-02	
Organic Carbon, Total	72	mg/L	0.5	07-Oct-02	
Phosphorous, Dissolved	0.128	mg/L	0.004	04-Sep-02	
Phosphorous, Total	1.73	mg/L	0.004	04-Sep-02	

Data Qualifier Descriptions: