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August 8, 2003

Bill Harding
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NWB3ARC0207

Nunavut Water
Board

APR 28 2004

Public Registry

RE: August 3, 2003 Municipal Water Licence 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 August 4, 2003. During the inspection the following observations were noted.

Part B: General Conditions

The Licencee has been directed by the WRO as to the placement of Surveillance Network Program stations ARC-1 Water Intake Facility and ARC-3 Sewage Disposal Facility Effluent. ARC-2 Solid Waste Disposal Facility runoff will be identified by the WRO once drainage at the dump is addressed. As a condition of the Water Licence the municipality of Arctic Bay is required to submit a Annual Report detailing a summary of all Water Supply and Waste Disposal Facility modifications, a summary of all data generated under the Monitoring Program and any other information as described in Part B: General Conditions of the Licence. Although there was no evidence of disposal of industrial waste (waste oil, solvent and fuel). The Inspector has informed Arctic Bay SAO that the municipality is not currently authorized under it's Water Licence to store hazardous waste from any commercial sources, to do so would be in direct violation of the Water Licence and *Nunavut Water and Nunavut Surface Rights Tribunal Act*.

Part C: Conditions Applying to Water Use

The Water Intake Facility is fairly well maintained however there is garbage around the Water Intake Facility (photo 3-5). Signs are required at the Water Intake Facility to alert the public that no boating or fishing are allowed on Marcil Lake. The Inspector noted oil staining at the Water Intake Facility ruck fill station (photo 2). This stained soil shall be removed and a Spill Kit shall be placed at the Water Intake Facility to reduce the potential of contaminating the water supply. Secondary containment shall be provided

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for the Water Intake Facility fuel oil supply (photo 1). The NWB shall be contacted for authorization prior to the removal and remediation (land farming) of the contaminated soil.

Part D: Conditions Applying to Waste Disposal

On May 13, 2003 the (New - Lagoon) berm was breached. The WRO Inspected the Sewage Lagoon failure in May 22, 2003. The municipality had put the (Old - Sewage Lagoon) into use prior the WRO attending the site. The WRO noted on May 22, 2003 excessive sewage effluent flow emitting from the (Old - Lagoon). On August 5, 2003 during the Water Licence Inspection the WRO observed seepage at an estimated (180 L/m) emitting from the (Old - Lagoon) at (photo 13 & 14). The WRO requested Arctic Bay take immediate measures required to reduce the excessive Sewage Lagoon seepage to an acceptable amount. Under direction of the WRO the Licencee and there contractor were unable to reduce the seepage from the (Old - Lagoon). Dave Parker of Community Government & Transportation (CG&T) advised the municipality to breach the berm between the Old and New Lagoon. This berm breach drained the (Old - Lagoon) into the (New - Lagoon) and ceased the excessive seepage from the (Old - Lagoon). The (New Sewage Lagoon) was then put into use. On October 22, 2003 the WRO was informed by CG&T of the wetlands treatment area build up of ice, due to leakage from the (New-Lagoon). The WRO contacted CG&T and was informed that the excessive seepage condition would be alleviated when the berm freezes latter in the year. The WRO observed on August 4, 2003 the Wetlands Sewage Treatment area was not operating as designed (photo 14 - 30). The Solid Waste Disposal Facility is a fairly well maintained burn and burial operation. The tipping face is kept to a minimum. The bulky metal waste has been buried in 2003 (photo 33). Waste oil drums require consolidation (photo 34), waste batteries are well stored in a sea lift container (photo 35). The Dump and adjacent Sewage Lagoon - Wetlands Treatment area are not fenced.

Part E: Conditions Applying to Modifications and Construction

The Licencee has not notified the NWB prior to the burial of the bulky metal waste at the Solid Waste Disposal Facility. At the time of writing this report the municipality has not provided the NWB with plans /drawings of the modifications made to the original New Sewage Lagoon - Wetlands Treatment area. Due to the numerous failures encountered during construction at the Sewage Disposal Facilities in Arctic Bay, the WRO is requesting that an Engineering Inspector be on site during all construction phases to insure proper construction procedures (as detailed in the design) are adhered to.

Part F: Conditions Applying to Operation and Maintenance

The Licencee has been requested by the WRO to report the Sewage Lagoon spill on August 5, 2003. The Spill Report received by the WRO did not have a Spill Report number on the report. Other spill reports regarding the failure of the sewage lagoon

have been received by the WRO these reports have had a spill number on the reports. Follow up reports are still outstanding for spills 03-332, 03-619.

Part G: Conditions Applying to Abandonment and Restoration

Given the inability of the municipality and CG&T to get the (Old - Sewage Lagoon) to operate in accordance with the Water Licence discharge criteria. The WRO requests the Municipality decommission the (Old - Sewage Lagoon); once the (New - Sewage Lagoon) meets designed operating parameters. A plan will be submitted to the NWB, and authorization will be requested prior to the decommissioning of the (Old - Sewage Lagoon). The municipality shall submit to the NWB plans /drawings associated with the consolidation and burial of bulky metal waste at the Solid Waste Disposal Facility.

Part H: Conditions Applying to the Surveillance Network Program

Arctic Bay has been instructed by the WRO as to the placement of the SNP stations at the Water Supply Intake (ARC-1) and the Sewage Lagoon Effluent (ARC-3). The dump seepage SNP (ARC-2) station will be located once the drainage at the Solid Waste Disposal Facility has been modified to reduce the seepage through the dump.

Non-Compliance of Act or Licence

At the time of Inspection the Hamlet of Arctic Bay was in breach of the *Nunavut Waters and Nunavut Surface Rights Tribunal Act* and the Water Licence NWB3ARC0207 for the use of water and disposal of waste Part B: Section 6 General Conditions. The Licencee shall immediately report any spill to the 24-Hour Spill Line. The WRO has requested in 2001 and 2002 to erect a fence around the dump to reduce wind blown refuse and limit access of animals to the dump. No fence or work related to the erection of the fence has been forthcoming.

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, Iqaluit (Doug Sitland)
 - Baffin Health & Social Services, Iqaluit (Bruce Trotter)
 - EC Environmental Protection, Yellowknife (Anne Wilson)
 - INAC Water Management, Iqaluit (Michelle Mc Christie)

Arctic Bay Inspection 2003



Photo 1. Water Supply Intake Facility, water sample N 72.5931.7 W 85.0048.5.



Photo 2. Contaminated ground at truck fill station at Water Intake Facility.

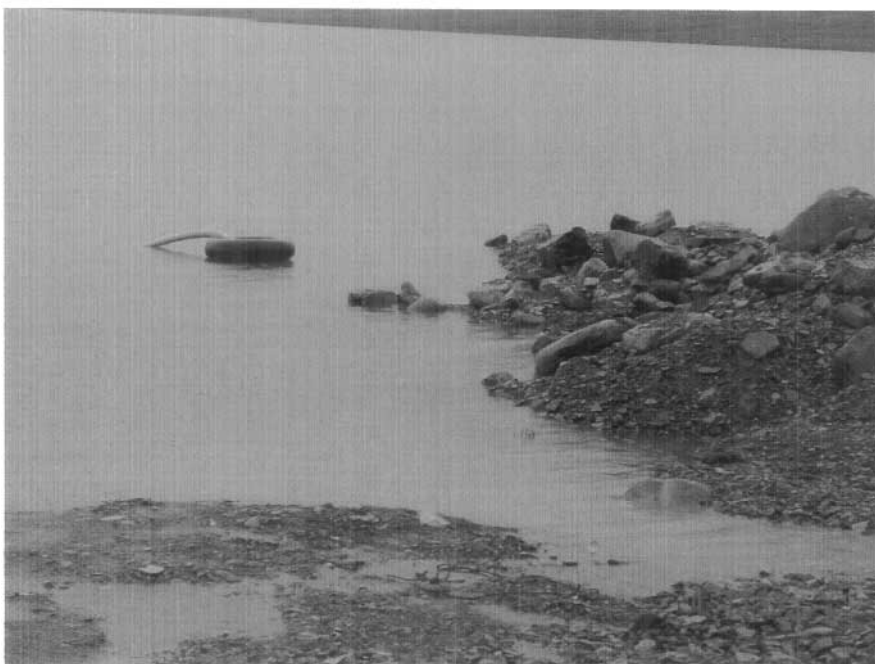


Photo 3. Auxiliary truck fill intake at Water Intake Facility



Photo 4. Abandon mooring line adjacent to Water Intake Facility.

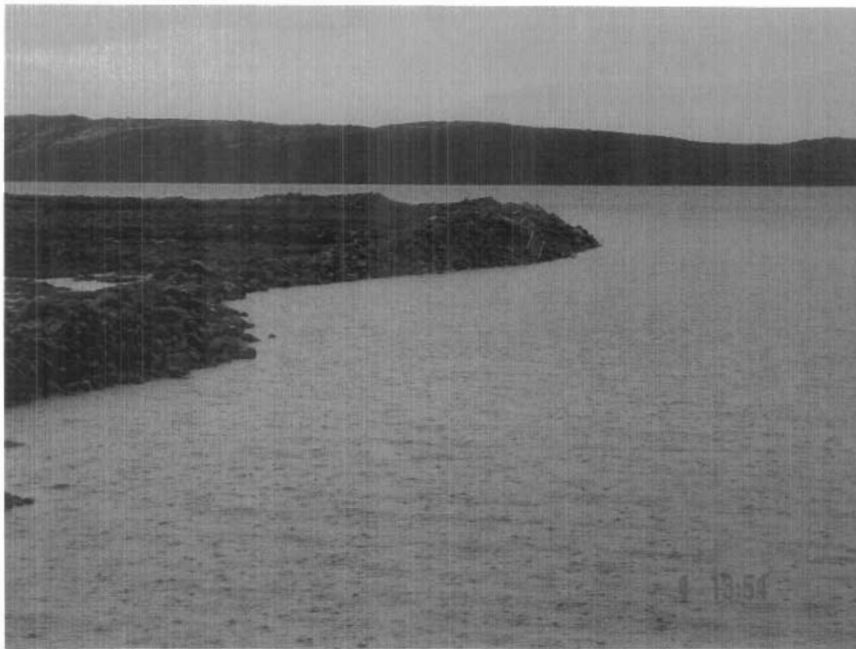


Photo 5. Abandon ladder found by Water Intake Facility.

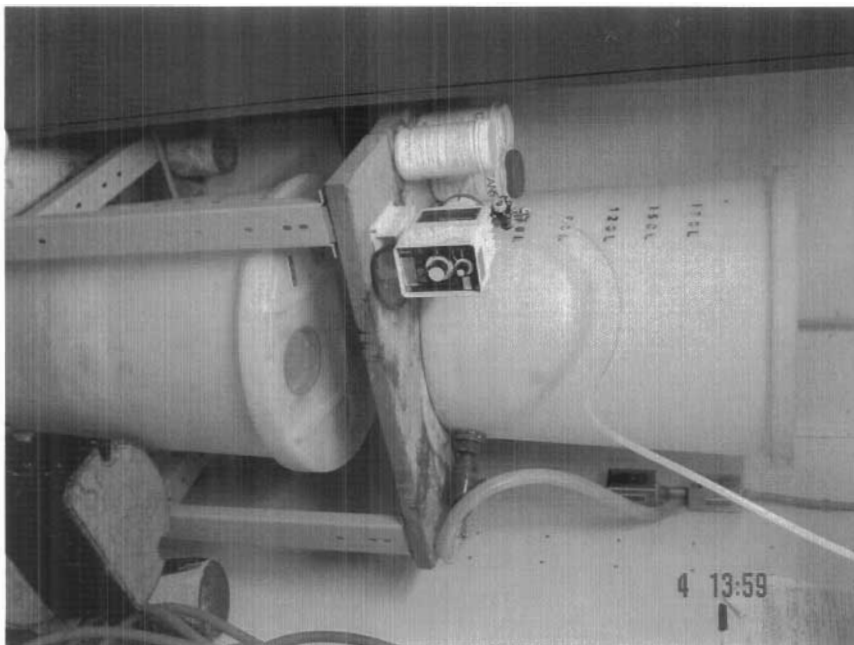


Photo 6. Chlorination system in Water Intake Facility.

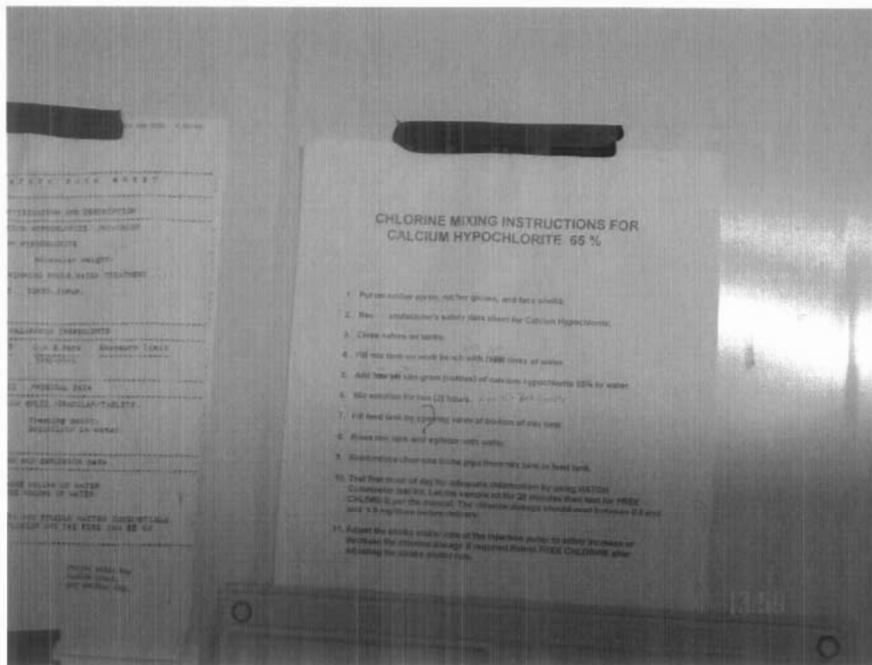


Photo 7. Instructions for preparing concentrated chlorine solution.

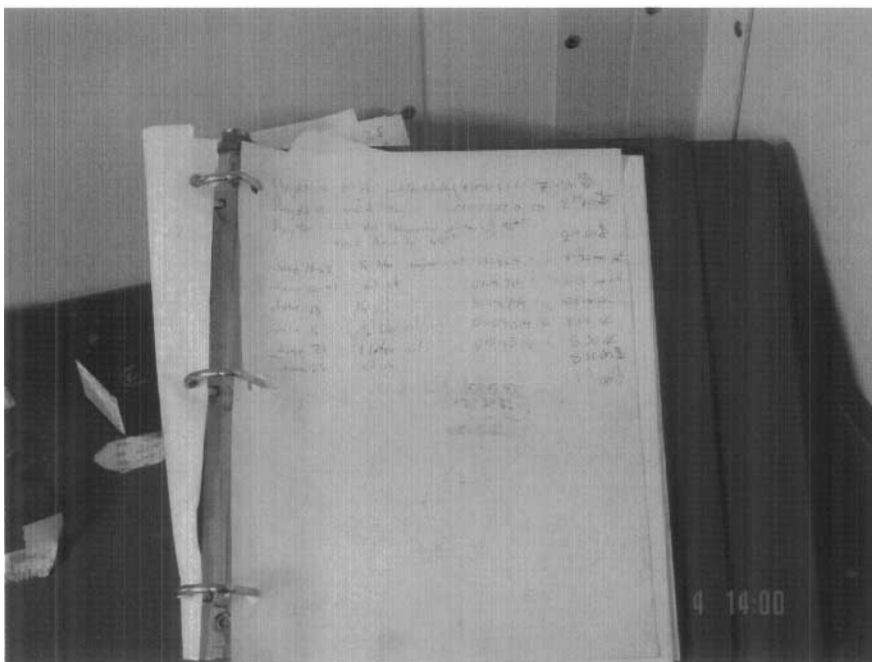


Photo 8. Log book at Water Intake Facility.

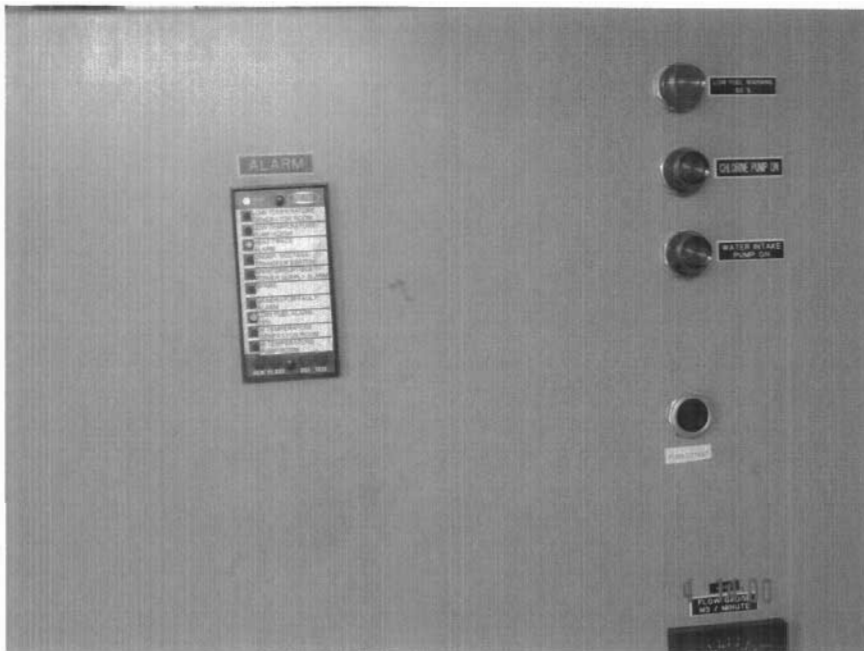


Photo 9. Control panel in Water Intake Facility.



Photo 10. Runoff and Sewage Lagoon effluent at Arctic Bay Road.



Photo 11. Runoff diversion berm, and Runoff observed during high rain event.



Photo 12. Erosion to Arctic Bay road caused by Runoff and sewage effluent.
Sewage sample N 73.0153.6 W 85.0511.5.



Photo 13. Erosion on discharge side of Arctic Bay Road, Erosion caused by runoff and sewage effluent.



Photo 14. Sewage effluent shown at dispersion berm # 3.



Photo 15. Sewage seepage shown percolating through berm #2.



Photo # 16. Excessive sewage effluent shown at berm #2 spillway.



Photo 17. Berm # 3 spillway shown.



Photo 18. Berm # 3 shown operating as designed.



Photo 19. Excessive seepage at (Old-summer Sewage Lagoon).



Photo 20. Old - Summer Sewage Lagoon seepage chanal.



Photo 21. Size of aggregate material in side of Old Sewage Lagoon.



Photo 22. Seepage from Old-Summer Sewage Lagoon.



Photo 23. Chanel cut by excessive seepage from Old-Summer Lagoon.



Photo 24. Seepage channel from Old-Summer Sewage Lagoon.



Photo 25. Erosion caused by Runoff around sewage treatment area.



Photo 26. Berm #2 shown in wetlands treatment area.



Photo 27. Shale and coarse aggregate material shown in wetlands dispersion berm. Excessive flow in spillway.



Photo 28. Spillway shown in berm #2, shown operating due to improper material in berm.

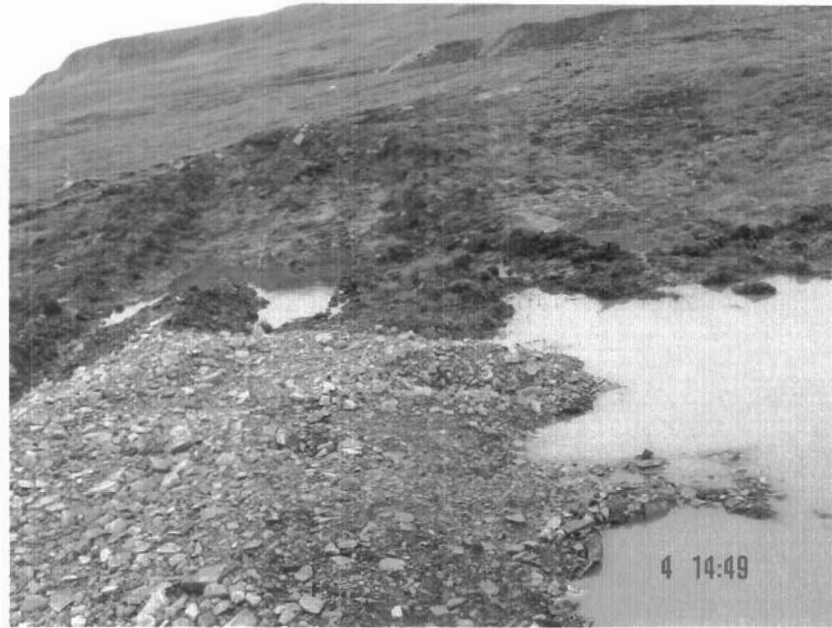


Photo 29. Seepage shown circumventing dispersion berm # 1.



Photo 30. Dispersion berm shown with insufficient coarse aggregate material above shale core.



Photo 31. Erosion trench produced by diversion of runoff.



Photo 32. Runoff from hill at back of dump.



Photo 33. Runoff through buried metal dump area.
Dump seepage sample N 73.0208.4 W 85.0459.9.



Photo 34. Staining of soil shown by improperly stored waste drums.



Photo 35. Waste batteries stored on shelves in sea lift container.



Photo 36. Tank Farm berm in good condition with minimal contained water.



MUNICIPAL WATER USE INSPECTION REPORT

Date: August 3, 2003

Licensee Rep. (Name/Title): Bill Harding/ SAO

Licensee: Hamlet of Arctic Bay

Licence No.: NWB3ARC0207

WATER SUPPLY

Source(s): Marcil Lake

Quantity used: not metered

Owner:/Operator: Hamlet of Arctic Bay

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: NA

Conveyance Lines: NA

Pumping Stations: A

Comments: The Water Treatment and Storage Facility was very well maintained, with chlorination system operating. The log book on site was up to date. The municipality asked for clarification with regards to frequency and method for cleaning water storage tanks at municipal locations. There was some spilled oil noted within 10 meters of the potable water. The municipality was directed to remove the contaminated soil and place a spill kit at the Water Intake Facility. The Municipality was informed that holding tank maintenance was a Municipal or Territorial responsibility, and that the Territory Department of Health would be contacted for storage tank cleaning procedures.

WASTE DISPOSAL

Sewage: Sewage Treatment System (Prim./Sec/Ter.): Secondary; over land to ocean.

Natural Water Body:

Continuous Discharge (land or water): water

Continuous Discharge: X

Wetlands Treatment: X

Trench:

Solid Waste:

Owner/Operator: Hamlet of Arctic Bay

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: NA

Seepages: U

Dams, Dykes: NA

Freeboard: NA

Spills: 03-332, 03-619

Construction: U

O&M Plan: NA

A&R Plan: NA

Periods of Discharge: A

Effluent Discharge Rate: 180 gallons per minuet

Comments: Due to excessive seepage from the old sewage lagoon the municipality was directed to immediately take actions that would reduce the amount of sewage seepage to an acceptable volume. The Sewage Lagoon discharges to a large 3 bermed grassland treatment area prior to entering the ocean. There is considerable vegetation in this area that assists in the breakdown of the sewage. The Solid Waste Disposal Facility is segregated into several sections, bulky metal waste, waste oil and general garbage. The waste oil area requires attention to consolidate drums and clean up contaminated soil. Excessive water drains through the dump, this drainage water should be redirected to minimize the seepage through the dump. A number of stray dogs have been observed at the dump. To reduce wind blown garbage and access of animals to the dump a fence encompassing the dump is required. Lab analysis will be forwarded once received by the Inspector.

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: NI

Condition of Tanks: NI

SURVEILLANCE NETWORK PROGRAM (SNP)

Samples Collected

Hamlet: NIL

INAC: ARC-1, ARC-2, ARC-3

Signs Posted

SNP: NIL

Warning: None Observed

Records & Reporting: Unacceptable

Geotechnical Inspection: Not Applicable

Non-Compliance of Act or Licence: At the time of inspection the Hamlet of Arctic Bay was in breach of the *Nunavut Waters and Nunavut Surface Rights Tribunal Act* and the water Licence NWB3ARC0207 for the use of water and disposal of waste. (Part B, Section 6 General Conditions)The Licencee shall immediately report any spill to the 24 hour spill line, and (Part D, Section 2 Conditions Applying to Waste Disposal) All effluent discharged shall meet the effluent quality standards.

Constantine Bodykevich

Inspector's Name


Inspector's Signature

Peter Kusugak

Field Operations Manager Name


Manager's Signature