Pond Inlet Water License Application

prepared for:

The Hamlet of Pond Inlet
Nunavut, Canada

prepared by:

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Architects & Engineers
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Yellowknife, NWT
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FSC Project No: 2002-1000-054

Date: January 2003

EXECUTIVE SUMMARY

Enclosed is a water licence application for the Hamlet of Pond Inlet, Nunavut. The Hamlet is seeking a five-year license, valid through 2009, to obtain water for municipal use from Water Lake, located just outside the community. The projected population for the population of Pond Inlet in the year 2009 is 1509 persons. The Hamlet requests an annual water use rate of 67 million litres.

Water Lake is located 4.4 kilometres south of the Hamlet of Pond Inlet. This lake is a reservoir, which has a storage capacity of 277,800 m². Water is treated with chlorine and trucked to Pond Inlet.

A sewage lagoon built in 1996 had seepage problems, and deteriorating berms. It was determined that it must be remediated due to structural and functional weaknesses. Therefore it was drained and a study was undertaken by FSC to determine the Hamlet's twenty-year requirements, and develop a course of action to mitigate the seepage and respond to the needs of the community. Currently the Hamlet is operating under an amended water license that allows the direct discharge of untreated sewage to a nearby gully/wetland while repairs/modifications are made. Work should be completed this summer by Halifax firm Moesher Engineering on a newly designed lagoon.

The solid waste management site was built in 1996 and is located adjacent to the sewage lagoon. The site has an area of approximately 5000 m^2, with the potential for further expansion. The community practices on site burning of municipal waste. The bulky waste site is approximately 7000 m^2, and the decommissioned waste oil pond is 700 m^2.

Overall, this project will not substantially affect the quality, quantity, or flow of water through Inuit Owned Lands.

Section 1
Water Licence Application Form

P.O. BOX 119
GJOA HAVEN, NU X0E 1J0
TEL: (867) 360-6338
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KATIMAYINGI

kNK5 wmoEp5 vtmpq
NUNAVUT WATER BOARD
NUNAVUT IMALIRIYIN

WATER LICENCE APPLICATION FORM

Application for: (check one)

___ New __ Amendment _√_Renewal ___Assignment

LICENCE NO:
(for NWB use only)

1. NAME AND MAILING ADDRESS OF APPLICANT/LICENSEE

Hamlet of Pond Inlet
P.O. Box 180
Pond Inlet, NU, Canada
X0A 0S0
Phone: 867-899-8934
Fax: 867-899-8940
e-mail: _____

2. ADDRESS OF CORPORATE OFFICE IN CANADA (if applicable)

Phone:_____
Fax: _____
e-mail: _____

3. LOCATION OF UNDERTAKING (describe and attach a topographical map, indicating the main components of the Undertaking)

Latitude: 72 ° 42' N Longitude: 77° 59' W NTS Map No. 38 B/10 Scale 1:50,000

4. DESCRIPTION OF UNDERTAKING (attach plans and drawings)

Improvements to truck fill facility are required to mitigate freezing problems.
Construction of a new lagoon will be undertaken in the summer of 2003.

5. TYPE OF UNDERTAKING (A supplementary questionnaire must be submitted with the application for undertakings listed in **"bold"**)

__ Industrial
__ **Mine Development**
__ **Advanced Exploration**
__ **Exploratory Drilling**
__ **Remote/Tourism Camps**
_√_ **Municipal**
__ Power
__ Other (describe): _____

6. WATER USE

_√_ To obtain water
__ To modify the bed or bank of a watercourse
__ To alter the flow of , or store, water
__ To cross a watercourse
__ To divert a watercourse
__ Flood control
__ Other (describe): _____

7. QUANTITY OF WATER INVOLVED (litres per second**,** litres per day or cubic metres per year, including both quantity to be used and quality to be returned to source)

145,243 litres/day in 2002,
176,898 litres/day in 2008

8. WASTE (for each type of waste describe: composition, quantity, methods of treatment and disposal, etc.)

_√_ Sewage
_√_ Solid Waste
_√_ Hazardous
_√_ Bulky Items/Scrap Metal
__ Waste oil
__ Greywater
_√_ Sludges
___ Other (describe):_____

9. PERSONS OR PROPERTIES AFFECTED BY THIS UNDERTAKING (give name, mailing address and location; attach if necessary)

Land Use Permit

DIAND __ Yes _√_No If no, date expected _____

Regional Inuit Association __ Yes _√_No If no, date expected _____

Commissioner __ Yes _√_No If no, date expected _____

10. PREDICTED ENVIRONMENTAL IMPACTS OF UNDERTAKING AND PROPOSED MITIGATION MEASURES (direct, indirect, cumulative impacts, etc.)

NIRB Screening __ Yes _√_ No If no, date expected _____

11. INUIT WATER RIGHTS

Will the project or activity substantially affect the quality, quantity, or flow of water flowing through Inuit Owned Lands and the rights of Inuit under Article 20 of the Nunavut Land Claims Agreement?

No.

11. (Continued)

If yes, has the applicant entered into an agreement with the Designated Inuit organization to pay compensation for any loss or damage that may be caused by the alteration. If no compensation agreement has been made, how will compensation be determined?

12. CONTRACTORS AND SUB-CONTRACTORS (name, address and functions)

N/A

13. STUDIES UNDERTAKEN TO DATE (list and attach copies of studies, reports, research, etc.)

Pond Inlet Lagoon Remediation, FSC 2002

14. THE FOLLOWING DOCUMENTS MUST BE INCLUDED WITH THE APPLICATION FOR THE REGULATORY PROCESS TO BEGIN

Supplementary Questionnaire (where applicable: see section 5) __√__ Yes __ __ No If no, date expected _____

Inuktitut/English Summary of Project __√__ Yes __ __ No If no, date expected _____

Application fee $30.00 (c/o of Receiver General for Canada) __√__ Yes __ __No If no, date expected _____

15. PROPOSED TIME SCHEDULE

__ __ Annual (or) __√__ Multi Year

Start Date: 2004 Completion Date: 2009

Rhoda Katsak	Senior Administrative Officer	_____	_____.
Name (Print)	**Title (Print)**	**Signature**	**Date**

For Nunavut Water Board use only

APPLICATION FEE **Amount: $_____** **Receipt No.:**

WATER USE DEPOSIT **Amount: $_____** **Receipt No.:**

Section 2
Information for the Water Licence Application

Information for the Water License Application for the Hamlet of Pond Inlet

Renewal of Water Licence: NWB3PON9904 Exp Date: Jan 14, 2004

(1) Name and Mailing Address of Applicant/Licensee:

Hamlet of Pond Inlet
P.O. Box 180
Pond Inlet, NU, Canada
X0A 0S0

Phone: 1-867-899-8934
Fax: 1-867-899-8940

(3) Location of Undertaking:

Pond Inlet is located at 72^{o} 42'N latitude and 77^{o} 59' W longitude, on Eclipse Sound on the northern edge of Baffin Island. It is 525 air km southeast of Resolute and 1,883 air km northeast of Yellowknife.

Steep snow-capped mountains, long U-shaped fiords, and highland glacial ice typify Pond Inlet. Relief is sometimes extreme with occasional peaks reaching 2500 m in height. Coastal areas are covered by surficial material, which has been re-worked by marine activity. The settlement occupies a hilly area near the south shore of Eclipse Sound, on the tip of an extensive glacial deposit. The glacial till is composed mainly of sand, with lesser quantities of gravel and silt.

Bedrock composition is typically Precambrian metamorphic gneiss with a sporadic cover of younger Cretaceous-Tertiary sediments. These younger rocks are part of a regional basin known as the Eclipse trough, which is aligned in a northwest direction.

Pond Inlet is within the continuous permafrost zone. Depending on the nature of the ground cover, the thickness of the active layer varies from 0.5 m to 1.5 m. Aerial photographs indicate the presence of vertical ice wedges at closely spaced intervals.

Vegetation is sparse. Mosses, lichens, and a few hardy grasses grow in the summer months.

Pond Inlet receives an average of 5.7 cm of rainfall and 86.9 cm of snowfall per year. Mean annual precipitation totals 14.6 cm. July mean high and low temperatures are 7.9 ^{o} C and 1.2 ^{o} C. January mean high and low temperatures are -26.4 ^{o} C and -35.1 ^{o} C. The mean annual ground surface temperature ranges from -10 ^{o} C to -15 ^{o} C. The winds are generally south and annually average 9.5 km/h.

The ancestral homeland of the North Baffin Inuit, Pond Inlet is rich with archaeological sites of the Thule people. Lieutenant W.E. Parry made the first European contact with the Inuit in 1820. Beginning in the late nineteenth century, whalers and free traders began to frequent an area 27 km east of the present site. Captain John Ross named the Hamlet in 1888, after John Pond, Astronomer Royal.

1921 saw the arrival of the Hudson Bay Company and an RCMP detachment. Roman Catholic and Anglican Missions were established the following year. Until the 1960's, when a school was

built, the Inuit lived a traditional subsistence life in surrounding camps. The centrality of the school encouraged migration to the rapidly growing settlement.

Economic stability continues to stem from marine mammal harvesting, hunting, fishing and trapping. Local business includes building contractors, taxis, general retailers, food sales, consultants, hotels and restaurants.

Tourist draws include a fishing lodge at Koluktoo Bay, the Bylot Island Bird Sanctuary and various package tours from Iqaluit. The tourism industry may expand with the opening of a nature centre and the development of the proposed North Baffin National Park.

Pond Inlet gained hamlet status on April 1, 1975. A traditional name for the Community is "Mittimatalik", meaning 'place of Mittima's grave'. 'Mittima' is thought to be Mitimak, a well-known Inuk who ran the Sabellum Trading Post at Singiyok in the 1930's.

(4) Description of Undertaking:

Water Supply and Treatment:

Water Lake has historically been the winter water supply, while Pond Inlet Creek, which flows through the Hamlet, was the summer supply. Water is now obtained year-round from Water Lake, 4.4 km by road south from the centre of the community.

A number of improvements have been made to the Pond Inlet water supply system. To increase water capacity and ensure adequate fire fighting protection, the berm at Water Lake was raised in 1991. Seasonal pumping from the Salmon River, using a mobile pump, augments natural recharge.

Other improvements to the system include a truck fill station at the lake, a rerouting of the access road away from the airport terminal to allow for higher truck speeds, and an overflow structure at the lake.

Intake and discharge pipes are insulated and heat-traced to prevent freezing. Submersible turbine pumps direct water through the pipes. At the lower end of the intake pipes a screen is required to prevent debris, organic particles or other solids from entering the pumps, thus ensuring greater water purity.

Two 114 L polyethylene tanks mounted above one another are used for chlorination. The upper tank is used for mixing and decanting the lower tank via plastic piping. An impeller type mixer is mounted on the upper tank. The chlorine system is designed to utilize 65-70% calcium hypochlorite powder and to pump a mixed 0.5-1.0% chlorine solution.

Water Storage and Distribution:

Water Lake has a watershed area of 277,800 m^2. If all the annual precipitation were to reach the lake, the volume would not be sufficient to supply the Hamlet's needs in the design year 2006. Pumping water from the Salmon River would make up the shortfall.

The truck fill facility accommodates several features in small, practical building. The overhead truck fill arm is used to fill the trucks. The discharge piping from the intakes is run overhead from the building through a galvanized steel pipe. Freezing problems encountered with this type of piping have been mitigated with insulation and heat tracing. There have been problems with water

pressure associated with the discharge piping. There was an attempt to fix it in the summer of 2002, but this was not successful. Moesher Engineering will attempt to solve the pressure problems in 2003. (Mona Milton, personal correspondence 2003)

The entire community is on a trucked water delivery service. Over 90% of the buildings have holding tanks with pressurized water systems. Those without pressurized systems are typically older houses (pre-1970), which are in need of retrofitting or replacement. Four water trucks serve the community, one has a 4546 L capacity tank and the other three have truck 6819 L tanks.

Household storage tanks vary in size from 205 L to 1135 L. Users with high volume tanks include the school (13,600 L), the nursing station (4540 L), and the hotel (4540 L). All water deliveries are metered.

Water Quality:

According to the June 2002 water samples the turbidity reading exceeds the *Guidelines for Canadian Drinking Water,* and pH level is near the lower end of acceptable limits.
Refer to attached INAC report.

Sewage Collection and Disposal:

Sewage pump out is handled by 6750 L and 5400 L capacity trucks. Residential holding tanks have an access pipe with a knock-off cap. A suction line from the truck is inserted into the access pipe and activated by the truck-mounted pump. Pump out service is presently done by the Hamlet.

Located southeast of the community, the lagoon was commissioned in 1996. Based on a September 2001 survey, it has 47,600m^2 surface area and an estimated depth of 2.5 metres to provide a working volume with 1 metre freeboard of 37,600 m^3.

This sewage site will not meet the community's 20-year requirements. The lagoon is built on a lake with emplaced granular berms. In addition, the lagoon has serious seepage problems, as well as deteriorating berms. In 2001 FSC began a planning study to determine the 20-year requirements for the community and develop a course of action to mitigate the seepage and respond to the needs of the community.
This site was drained in the summer of 2002, and is temporarily unavailable to allow for improvements. During this time, the community will dispose of its wastewater in a gully to the east of the current lagoon**.**

Current Sewage Disposal:

A temporary ditch/lagoon is currently being used for the sewage wastes. The sewage enters a streambed in a gully running along the solid waste site. Moesher Engineering (Halifax) will build a new lagoon in the summer of 2003 to replace this temporary measure. This new lagoon should be built to handle twenty-year requirements of the community as per the FSC 2001 report. (Mona Milton, personal correspondence 2003)

Solid Waste Collection and Disposal:

A two-person crew collects solid waste daily from wooden boxes placed in front of buildings using a Ford model F-350 garbage packer. Yearly, in July, the residents of Pond Inlet participate in a community clean up.

The solid waste management site is located adjacent to the sewage lagoon, east of the hamlet. The new solid waste site was built in 1996; it has an area of approximately 5000 m^2, with the potential for further expansion. The community practices on site burning of municipal waste. The bulky waste site is approximately 7000 m^2, and the decommissioned waste oil pond is 700 m^2.

(5) Type of Undertaking:

Municipal

(6) Water Use:

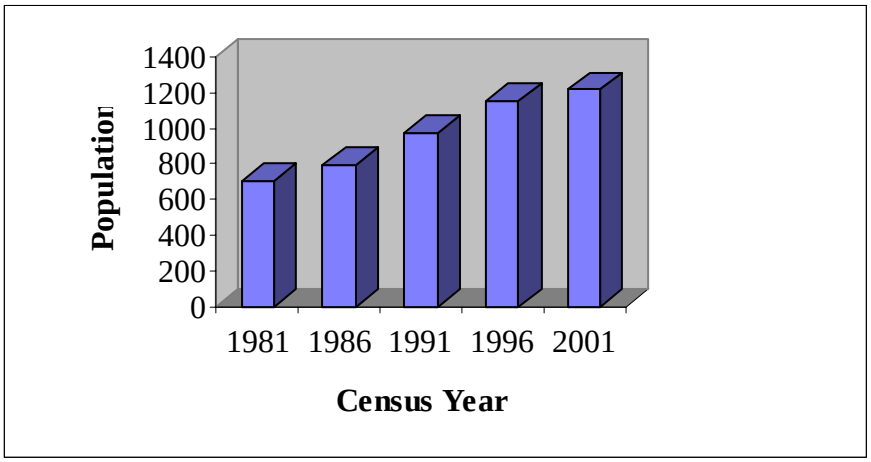
To obtain water

(7) Quantity of Water Involved:

Water Generation Projections:

The 2001 Census Report shows the increase in population of the Hamlet of Pond Inlet between the census years of 1981 to 2001. Figure 1 illustrates this population increase. A per capita growth rate of 2.69% was determined from data found in "Nunavut: Community Population Projections 2000-2020".

Figure 1 - Population Increase in the Hamlet of Pond Inlet



CG&T planning guidelines suggest that the increase in the projected per capita water use in a trucked service community should be modelled as follows:

(1) RWU x (1.0 + (0.0023 x Population)) **Population <2000**

The RWU or residential water use is estimated to be 90 litres per capita (Lpcd) for populations lower than 2000.

Ln is the natural logarithm.

The water use is projected as follows:

- The current amount of water use was estimated to be 53,013,829 L annually. This corresponds to a per capita water use of 115.9 Lpcd.
- In the year 2009, the per capita water use would be 121.2 Lpcd corresponding to an annual water use of 66,754,994 L.

Therefore, the community is requiring an annual volume of 67,000,000 litres.

Table 1 - Water Use Projection for the Hamlet of Pond Inlet

				Daily	Annual
Planning	**Calendar**	**Total**	**Projected**	**Projected**	**Projected**
Year	**Year**	**Population**	**Water Use**	**Volume**	**Volume**
		#	Lpcd	Litres	Litres
	2001	1220	115.3	140,610	51,322,606
	2002	1253	115.9	145,243	53,013,829
0	2003	1287	116.6	150,048	54,767,482
	2004	1321	117.3	155,031	56,586,170
	2005	1357	118.1	160,199	58,472,615
	2006	1393	118.8	165,561	60,429,668
	2007	1431	119.6	171,124	62,460,310
5	2008	1469	120.4	176,898	64,567,663
	2009	1509	121.2	182,890	66,754,994
	2010	1549	122.1	189,112	69,025,725
	2011	1591	122.9	195,571	71,383,439
	2012	1634	123.8	202,279	73,831,888
10	2013	1678	124.7	209,247	76,375,001

(8) Waste Generated:

Sewage:

The volume for the year 2002 of sewage generated by the community of Pond Inlet is 53,013,829 litres annually corresponding to the annual water use. In 2009, the annual volume of sewage generated by the Hamlet of Pond Inlet will be 66,754,994 litres.

Sludges:

Sludge is generated through the sewage lagoon process. If the sludge interferes with the sewage treatment process, they would have to be removed to a Nunavut Water Board approved facility. See attached Pond Inlet Lagoon Remediation, FSC 2002, for proposed sludge disposal options

Greywater:

Greywater is collected with the liquid sewage and deposited in the sewage lagoon.

Abandoned Sewage Lagoon:

There is an abandoned sewage lagoon, east of the hamlets, which according to the 2002 INAC inspection report, is still discharging effluent. (see attached map for location)

Solid Waste Treatment:

The solid waste management site is located adjacent to the sewage lagoon. The new solid waste site was built in 1996; it has an area of approximately 5000 m^2, with the potential for further expansion. The community practices on site burning of municipal waste. There is a separate area for bulky waste

Solid Waste Volume Projections:

The types and quantities of materials in the Pond Inlet waste stream available for reuse, recycling, recover and composting programs was estimated in by reviewing current information and by literature.

A recent solid waste composition study has not been conducted in Pond Inlet. The literature provides an insight. The Heinke and Wong study (1989) used by MACA in their planning studies to determine waste volumes suggests a certain volume and mix of MSW. A study by Quay and Heinke (1992) in Inuvik, Tsiigehtchic, and Fort McPherson suggests similar waste stream mix shown in the table that follows.

Table 3 - Estimated Solid Waste Composition

Food Wastes	20.3 %
Cardboard	9.8 %
Newsprint	2.4 %
Other Paper Products	14.8 %
Cans	4.4 %
Other Metal Products	6.2 %
Plastic, Rubber, Leather	14.0 %
Glass, Ceramics	5.7 %
Textiles	3.8 %
Wood	9.9 %
Diapers	3.8 %
Dirt	4.9 %
	100.0 %

NAPP Protocol

The National Packaging Protocol is an initiative by CCME in 1992 to respond to municipalities and the public over the proliferation of disposable consumer packaging. While per capita consumption of new packaging has decreased overall in the south where the data was generated, the implications for the North and, specifically, for Pond Inlet is not as clear.

Southern reductions were primarily a result of recycling, an opportunity not available in Pond Inlet. It is assumed that packaging for shipping foodstuff and consumer products has increased proportionately with population.

However, southern data for post-consumer packaging has shown an increase for various "sectors" of between 100 to 200 percent over a 5-year period (1992-1996). These sectors include: accommodation, food & beverage, amusement, and recreational services; retail; aluminium packaging; plastic; and paper sacks and bags. This data may have a direct implication in Pond Inlet for increased quantities of waste as the data may transfer directly to current disposal practices.

The classes, "Other paper products", "Cans", and "Plastic, Rubber, Leather" may represent the increasing sectors as per the NAPP data. These first two classes currently account for approximately 19.2% of the estimated waste stream in Pond Inlet. If it can be assumed equal contribution from each waste in the third stream, then plastics account for an additional 5%.

It appears then, increasing packaging impacts on approximately 24% of the waste stream. Assuming worst case, then, the 200% increase over 5 years is about 40% per year and causes an overall increase of approximately (40% of 24%) 10% per year. This value may over estimate the additional contribution and is unlikely to remain at this level during the entire planning horizon.

Regardless, it is prudent to assume some increase during the planning horizon not directly attributed to a population increase, assuming that recycling programs may not be cost-effective, or implemented in Pond Inlet.

Therefore, a 1% increase in the overall garbage generation rate has been incorporated in the volume estimations.

Table 2 shows the garbage volume projections.

The following assumptions were made to prepare this table:

- Per capita volume described by Heinke and Wong (1990) has been increasing at a rate of 1 % per year
- The per capita population growth rate of the Hamlet of Pond Inlet is 2.69% per year.
- The waste density is 0.099 tonnes/m^3 (Bryant et al., 1996)

Table 2 - Solid Waste Projection estimates for the Community of Pond Inlet

Planning Year	Calendar Year	Total Population	Projected Daily Rate (m^3pcd)	Projected Daily Volume (m^3/day)	Projected Daily Weight (Tonnes)	Projected Annual Volume (m^3)	Projected Annual Weight (Tonnes)	Running Total (m^3)
	2001	1220	0.014	17.1	1.7	6234	617	6234
	2002	1253	0.014	17.7	1.8	6466	640	12700
0	2003	1287	0.014	18.4	1.8	6706	664	19406
	2004	1321	0.014	19.1	1.9	6956	689	26362
	2005	1357	0.015	19.8	2.0	7214	714	33576
	2006	1393	0.015	20.5	2.0	7482	741	41058
	2007	1431	0.015	21.3	2.1	7760	768	48818
5	2008	1469	0.015	22.1	2.2	8049	797	56867
	2009	1509	0.015	22.9	2.3	8348	826	65215
	2010	1549	0.015	23.7	2.3	8658	857	73873
	2011	1591	0.015	24.6	2.4	8980	889	82853
	2012	1634	0.016	25.5	2.5	9314	922	92167
10	2013	1678	0.016	26.5	2.6	9660	956	101827

Solid Waste Water Runoff Quality:

According to the 2002 inspection report done by INAC, show that iron levels, in samples taken from the Bulky Metal Dump, exceed the *Municipal Wastewater Effluent Quality Guidelines*. See attached report.

Bulky Waste:

The bulky waste site, approximately 7000 m^2, is located east of the hamlet at the solid waste site.

Honey Bag Pit:

There is currently only one unit in the community which still uses the honeybag service. This waste is picked up with regular garbage and taken to the sewage lagoon

There is an old honey bag disposal area at the Solid Waste Disposal Facility.

Hazardous Waste:

There is a decommissioned oil cell near the current solid waste site. Waste oil is now drummed. Other hazardous wastes are segregated from the main waste stream.

Abandoned Landfill Site:

The abandoned solid waste site is located east of the hamlet across the road from the abandoned sewage lagoon, east of the hamlet.

(11) Inuit Water Rights:

Will the project or activity substantially affect the quality, quantity, or flow of water flowing through Inuit Owned Lands and the rights of Inuit under Article 20 of the Nunavut Land Claims Agreement? No

(12) Contractors and Sub-contractors:

None

(13) Studies Undertaken to Date:

Pond Inlet Lagoon Remediation, FSC 2002

(14) The following documents must be included with the application for the regulatory process to begin:

Supplementary Questionnaire (where applicable: see section 5)	Yes
Inuktitut/English Summary of Project	Yes
Application fee of $30.00 (c/o Receiver General for Canada)	Yes

Section 3
Water Licence Application
Supplementary Questionnaire
For Municipalities

P.O. BOX 119
GJOA HAVEN, NT X0E 1J0
TEL: (867) 360-6338
FAX: (867) 360-6369

kNK5 wmoEp5 vtmpq
NUNAVUT WATER BOARD
NUNAVUT
MALIRIYIN KATIMAYING

Water Licence Application
Supplementary Questionnaire
for Municipalities

I. GENERAL

1. Date: January, 2003

2. Applicant:

   Municipality and Region: The Hamlet of Pond Inlet, Nunavut

   Contacts:

   Name of Contact: Mona Milton
   Position: Water and Sewer Clerk
   Telephone: 867-899-8934
   Fax: 867-899-8940

4. Community Status:

   __ Village
   __ Town
   __ City
   √ Hamlet
   __ Settlement Corporation

5. Indicate the status of the municipality's licence on the date of the application.

   __ New Application
   √ Renewal Water Licence #

II. ATTACHMENTS

1. Attach current or up-to-date detailed map(s) showing the locations of the:

   a. Raw water intake
   b. Water storage and treatment facilities
   c. Fuel and chemical storage
   d. Sewage treatment facilities (lagoon, honey bag pit, wetland)
   e. Wastewater treatment area and discharge outlets
   f. Solid waste disposal areas
   g. Hazardous waste disposal area
   h. Transportation access routes
   i. Existing water bodies/courses and any changes to these water bodies/courses that have or may occur as a result of water use or waste disposal facilities, locations of environmental monitoring sites
   j. Outline drainage basin
   k. Traditional use areas outlined on site map and areas around the community used for recreation, camping, fishing, etc.

l. Abandoned and/or restored water treatment, sewage, and solid waste disposal facilities.

Are maps attached?

___ Yes ___ No

If no, please indicate when they will be available.

Indicate which organization has provided the various maps or diagrams.

III. WATER SUPPLY

Water Source

1. Type of source:

__ Lake
___ River
__ Well
_√_ Other

2. Name of water source and alternative, if any.

Primary Source: Water Lake
Secondary Source: Not Applicable

3. Usual break-up & freeze-up period:

Break-up: May
Freeze-up: September

Water Intake

1. Please provide short descriptions for the following:

a. Freshwater intake facility

The depth of the pump is approximately 7 metres from the full capacity of the lake. The pump has a transition fitting 100mm SCH 40 Galv. Steel NPT to 100mm HDPE Submersible pump.

The water is taken from the Salmon Creek. On the lake the intake it has an intake screen 300mm diameter 3.0 m slot opening stainless steel Type 304. The inclined Shaft is 315 mm series 60 carrier, 50 mm rigid polyurethane insulation.

A number of improvements have been made to the Pond Inlet water supply system. To increase water capacity and ensure adequate fire fighting protection, the berm at Water Lake was raised in 1991. Natural recharge is augmented by seasonal pumping from the Salmon River, using a mobile pump.

Other improvements to the system include a truck fill station at the lake, a rerouting of the access road away from the airport terminal to allow for higher truck speeds, and an overflow structure at the lake.

Intake and discharge pipes are insulated and heat-traced to prevent freezing. Submersible turbine pumps direct water through the pipes. At the lower end of the intake pipes a screen is required to prevent debris, organic particles or other solids from entering the pumps, thus ensuring greater water purity.

b. Operating capacity of pumps used:

110 L/min

c. Intake screen size

The intake has a screen 300mm diameter, 3.0 m slot opening

Water Storage

1. Type of water storage facility. (Check where applicable)

_√_ Reservoir/Pond
___ Storage tank
___ None
___ Other

Description:

2. If "reservoir" checked:

Is the reservoir lined?

Yes

What type of liner?

When was it installed?

1996

Water Treatment

1. Indicate the quality of the water.

Summer:	√ good	___ fair	___ poor
Fall:	___ good	√ fair	___ poor
Winter:	___ good	___ fair	√ poor
Spring:	___ good	√ fair	___ poor

2. Describe.

3. Type of water treatment.

___ Filtration and chlorination
√ Chlorination only
___ None
___ Other

Description:

Two 114 L polyethylene tanks mounted above one another are used for chlorination. The upper tank is used for mixing and decanting the lower tank via plastic piping. An impeller type mixer is mounted on the upper tank. The chlorine system is designed to utilize 65-70% calcium hypochlorite powder and to pump a mixed 0.5-1.0% chlorine solution.

Water Use And Distribution

1. Volume of water use:

Distribution	Estimated number of people on the system A	Estimated average water consumption (Litres/capita/day) B	Total water consumption (Litres/day) A x B
PIPED	0	0	0
TRUCKED	1220		
TOTAL			93 781

General Condition of the water supply facilities

1. General condition of the:

a. Water supply facility

√ Satisfactory __ Unsatisfactory

If unsatisfactory, explain.

b. Storage facility

__ Satisfactory _√ Unsatisfactory

If unsatisfactory, explain.

"*Need fence around Water Lake"*

c. Distribution system

√_ Satisfactory __Unsatisfactory

If unsatisfactory, explain.

Modifications

1. Are there any changes *planned* for the water supply system?

_√_ No ___Yes

If yes, please attach a copy of the plan, or describe changes. Provide information on the implementation schedule.

2. Does the community believe changes needed to the water supply, storage or treatment facilities? Describe.

Identification

1. Are there signs identifying drinking water sources presently used by the municipality?

_√_ Yes ___ No

IV. SEWAGE DISPOSAL

1. What type(s) of sewage treatment does the community have?

_√_ Lagoon
___ Mechanical system
_√_ Wetland
___ Honey bag
__ Combination/Other: describe

Lagoon *(if applicable)*

1. Have there been any operating problems with the lagoon?

   _√_ Yes ___ No

   If yes, describe

   Seepage from berms, see attached report
   Pond Inlet Lagoon Remediation, FSC 2000

Mechanical System *(if applicable)*

1. Describe (type, specifications, operation and maintenance program for the mechanical wastewater treatment system).

   Not applicable

2. Are sludges produced?

   Not applicable

   If yes, describe how the sludges are disposed of:

Wetland *(if applicable)*

1. Describe the Wetland wastewater treatment system.

   Currently, sewage is being discharged into a nearby stream bed where it undergoes limited wetlands treatment.

Honey Bag Pit

1. Does the municipality use a honey bag pit?

   ___ Yes _√_ No

   If yes, describe the location, drainage and operation/maintenance of the site:

Commercial, Industrial and/or Hazardous Wastes

1. Are there any sources of commercial or industrial *liquid* waste being discharged or deposited to the wastewater treatment system that may affect the quality of the effluent or leachate produced? *(The municipality should be aware that any*

commercial or industrial discharge has to be approved by the municipality)

_√_ Yes ___No

If yes, indicate sources, types and quantities.

"Local businesses"

Sewage Discharge

1. Are fish, shellfish and other wildlife harvested in or near the discharge area?

___Yes _√_ No

General Condition of the sewage treatment facilities

1. General conditions

a. Sewage collection system

√_ Satisfactory __ Unsatisfactory

If unsatisfactory, explain.

b. Discharge control system

_√_ Satisfactory __ Unsatisfactory

If unsatisfactory, explain.

c. Dams, diversion dykes, berms

__ Satisfactory _√_ Unsatisfactory

If unsatisfactory, explain.

Seepage from berms, see attached report
Pond Inlet Lagoon Remediation, FSC 2000

Modifications

1. Are there any changes *planned* in the sewage treatment facilities?

__ No _√_ Yes

If yes, please attach a copy of the plan, or describe changes. Provide information

on the implementation schedule.

"To use the old lagoon after fixing it"

FSC provided a preliminary analysis and options to meet the Inspector's direction. One option was to build a new lined lagoon and reclaim the existing lagoon as a sludge farm. Pond Inlet Lagoon Remediation – FSC 2002

2. Does the municipality or residents believe changes are needed to the sewage treatment facilities? Describe:

Abandonment and Restoration

1. List and describe abandoned or restored sewage treatment facilities.
Refer to original attachment maps.

There is an abandoned sewage lagoon east of the hamlet, see attached map.

Identification

Are there signs identifying past and present sewage disposal sites?

_√_ Yes ___ No *(at present site)*

V. SOLID WASTE DISPOSAL

1. Briefly describe how solid wastes are collected and delivered to the disposal area.

Garbage is collected daily by a two-person crew using a Ford model F-350 garbage packer from wooden boxes placed in front of buildings. Yearly, in July, the residents of Pond Inlet participate in a community clean up.

2. Is the solid waste site fenced?

_√_ Yes __ No

3. Is the fence adequate?

_√_ Yes __ No

If no, describe:

Waste Reduction

1. Does the municipality burn garbage?

   _√_ Yes ___No

   If yes, describe how and when this is done.

2. Has the municipality considered measures for waste reduction such as recycling or reuse?

   ___ Yes _√_ No

   If yes, describe

Animal Carcasses Pit

1. Does the municipality have an area for the disposal of animal carcasses?

   __ Yes _√_ No

   If yes, describe the location, drainage and operation/maintenance of the site

Waste Oil Pit

1. Describe the waste oil storage area.

   Decommissioned oil pond (700 m^2) is across from current sewage lagoon
   Waste oil is now drummed.

Bulky Scrap Metal Waste Disposal Area

1. Does the municipality have a scrap metal or bulky waste disposal area?

   _√_ Yes __ No

   The bulky waste site is approximately 7000 m^2, near the current solid waste site.

Commercial, Industrial and/or Hazardous Wastes Disposal Area

1. Are there any commercial or industrial waste being discharged or deposited in the solid waste disposal area? *(The municipality should be aware that any discharge of commercial or industrial waste has to be approved by the municipality)*

   _√_ Yes __ No

If yes, please indicate sources, types and quantity.

"*Local businesses"*

2. Will the municipality use a hazardous waste storage area?

_√_ Yes __ No

If yes, describe:

a. Location

"Fuel oil spill soil in bags to be shipped south"

b. Structure

"*Sealift container"*

c. Operation and maintenance

General Condition of the Solid Waste Disposal Area

1. Comment on the general conditions of the:

a. Solid waste disposal area

_√_ Satisfactory __ Unsatisfactory

If unsatisfactory, explain.

Modifications

1. Are there any changes planned for the solid waste disposal area?

_√_ No __ Yes

If yes, attach a copy of the plan, or describe changes. Provide information on the implementation schedule.

2. Are changes needed to the solid waste disposal area? Describe.

Abandonment and Restoration

1. List and describe abandoned or restored solid waste facilities.
   Indicate their location on a map.

   There is an abandoned facility east of the hamlet. Please see attached map.

Identification

1. Are there signs identifying past and present solid waste disposal sites?

   _√_ Yes ___ No *(For the present site)*

VI. INSPECTION AND MONITORING

1. When were municipal facilities inspected by:

   √ Indian and Northern Affairs Inspector Date: June 25, 2002
   __Community Government and Transportation Date:
   √ Other: *"Environment Canada"* Date: June 19, 2002

2. Is there a system in place for reporting spills?

   _√_ Yes ___ No

   If yes, describe.

   "Forms, Wildlife officer"

3. Is there a contingency plan for clean up of spills?

   ___ Yes _√_ No

   If yes, describe.

4. Have any spills occurred in the past five years?

   _√_ Yes ___ No

   If yes, describe and show on a map the locations of the spills. What action has been taken to clean the affected areas?

   Spill reports attached

Monitoring Program

1. Is water sampling and analysis done?

_√_ Yes ___No

If Yes, answer questions a through e

a. Briefly describe how samples are taken and sent to the laboratory.

"150 chlorine daily. Bacteriological. 5 trucks"

b. Briefly describe any monitoring done for wastewater effluent and leachate.

"Yes, we send sample, when ok we discharge"

c. Who is responsible for water sampling?

Name: Mona Milton
Position: Water and Sewer Clerk
Telephone: (867) 899-8934
Fax: (867) 899-8940
Level of training: Water & Waste Water Association Training

d. Recognized laboratory performing analysis of samples.

Name: Taiga Lab
Address: 4601 52nd Ave. PO Box 1500
Yellowknife, NT, Canada, X1A 2R3
Telephone: (867) 669-2788
Fax: (867) 669-2718

e. Are any changes planned in the water quality monitoring program?

___ Yes _√_ No

If yes, describe.

VII. PUBLIC CONCERNS

1. What concerns does the municipality or residents have regarding the municipal water supply or waste disposal facilities? List the concerns and describe what steps have been taken to address those concerns.

"There needs to be a fence around Water Lake."

VIII. PUBLIC HEALTH

Help may be obtained from the Regional Environmental Health Officer if you have difficulty with this section.

1. Date:
2. Municipality:
3. Contact: Phillip Reeve
   Telephone: (867) 975-4815
   Fax: (867) 975-4830

4. Have there been any problems or health/environmental concerns with drinking water?

   ___ Yes _√_ No

   If yes, describe

5. Have there been any problems or health/environmental concerns with sewage disposal/treatment?

   ___ Yes _√_ No

   If yes, describe

6. Have there been any problems or health/environmental concerns with solid waste disposal?

   ___ Yes _√_ No

   If yes, describe

Monitoring Program

1. Does the Regional Health Board perform water quality sampling?

   ___ Yes _√_ No

   If Yes, answer questions (a) to (e)

a. Briefly describe the sampling methodology.

b. Briefly describe any monitoring of wastewater effluent and leachate.

c. Who is responsible for sampling?

Name: "Mona Milton"
Position: "Water & Sewer Clerk"
Telephone #: 867-899-8934
Fax #: 867-899-8940
Level of training: NTWWA

d. Recognized laboratory performing analysis of samples.

Name:
Address:
Telephone #:
Fax #:

e. Are any changes planned in the water quality monitoring program?

___ Yes _√_ No

If yes, describe.

IX. TECHNICAL INFORMATION

Assistance may be obtained from the Regional Community Government (CG&T) office if you have difficulty with this section.

1. Date: June 26, 2002
2. Municipality: Hamlet of Pond Inlet
3. Contact: Dave Parker
   Telephone # (867)
   Fax # (867)

4. Population (according Hamlet Government):
5. Estimated growth rate over next 5 years:
6. Has any baseline data collection and evaluation been undertaken with respect to the physical, biological, and chemical characteristics of the main water bodies in the area?

__Yes _√_ No

If yes, provide a summary of program details or site title, authors, cities, and dates:

If no, are such studies being planned?

_√_ No ___Yes (If yes, when and by whom):

7. Have Elders been consulted in the collection of baseline data on main water bodies in the area?

_√_No ___Yes

If yes, specify

8. Has any baseline data collection and evaluation been undertaken with respect to the various biophysical components of the environment potentially affected by the project?

_√_No ___Yes

If yes, provide details below.

Prepared by:
Title:
Completion Date:

If no, are such studies being planned?

_√_No __Yes

If yes, specify:

Attachments

1. Attach detailed plan or drawing(s) of the present *solid waste disposal area*. Include the following information:

   a. Details of pond size and elevation:
   b. Details of the drainage basin, and existing and proposed drainage modifications
   c. Details of all decant, siphon mechanisms etc., treatment facilities:
   d. Details regarding direction and path of wastewater flow from the area
   e. Distance from watercourses and fish bearing waters:
   f. Location and construction of liners:
   g. Leachate and groundwater collection systems; and control structures:

2. Attach detailed plan or drawing(s) of the present *sewage treatment system*. The drawing(s) should include the following:

   a. Details of all retaining structures:
   b. Details of the drainage basin, and existing and proposed drainage modifications:
   c. Details regarding direction and path of wastewater flow from the area:
   d. Indications of the distance from watercourses and fish bearing waters:

e. All sources of seepage presently encountered near these areas, including volumes(m^3/day) and directions:
f. The volume of seepage flow (m^3 / day):
g. The direction of each flow:

3. Are drawings for the solid waste disposal area and sewage treatment system attached?

_√_No __Yes

If yes, who has provided them?

Hydrology

1. Effects on surface water flow:

Are any stream channels altered?

__ Yes √_ No

Is the natural storage or water level of any lake or pond changed?

√_ Yes __ No

Are there changes in water flow downstream of the project?

___ Yes _√_No

Is a storage reservoir created in a natural channel?

√_ Yes __ No

If yes to any of the above, briefly describe the expected change in flow or storage:

"Lake drained, liner added, then lake filled"

2. Drainage Area:

What is the drainage area:

What is the average elevation of the drainage basin?

0 m to137.5 m (drains to Eclipse Sound)

Is the drainage basin outlined on an attached map?

_√_No __Yes

Describe the drainage basin characteristics, (vegetation, general soil type, lakes, swamps and permafrost areas, etc.)

Steep snow-capped mountains, long U-shaped fiords, and highland glacial ice typify Pond Inlet. Relief is sometimes extreme with occasional peaks reaching 2500 m in height. Coastal areas are covered by surficial material, which has been re-worked by marine activity. The settlement occupies a hilly area near the south shore of Eclipse Sound, on the tip of an extensive glacial deposit. The glacial till is composed mainly of sand, with lesser quantities of gravel and silt.

Bedrock composition is typically Precambrian metamorphic gneiss with a sporadic cover of younger Cretaceous-Tertiary sediments. These younger rocks are part of a regional basin known as the Eclipse trough, which is aligned in a northwest direction.

Pond Inlet is within the continuous permafrost zone. Depending on the nature of the ground cover, the thickness of the active layer varies from 0.5 m to 1.5 m. Aerial photographs indicate the presence of vertical ice wedges at closely spaced intervals.

Vegetation is sparse. Mosses, lichens, and a few hardy grasses grow in the summer months.

3. Channel characteristics:

Is the course of any channel changed?

____ Yes _√__No

If yes, describe measures to maintain streambed and bank stability.

4. Will the cross-section of any watercourse be changed?

__ Yes _√_ No

If yes, describe the change and its effect on the flow capacity of the channel.

Water Supply

1. What is the rate of withdrawal from the source?

147.9 m^3/day

2. Is water drawn from the source

   _√__ intermittently
   ___ continuously

3. If it is drawn intermittently, during what month(s) is it drawn?

   "All"

4. For what period is it drawn (days/weeks/months)?

   "Days"

5. What is the rate of flow of source (if river) or size (if lake)?

   Water Lake has a watershed area of 277,800 m^2

6. At the intended rate of water usage, describe the effects on the river or lake from which water will be drawn.

   No effect

Water Storage

1. Is a dam or dyke being used to store or alter the flow of water?

   ___Yes √_No

2. What are the dimensions of the dam or dyke?

3. Does the proposed dam create a reservoir in a natural watercourse?

   If yes, what is the storage capacity and surface area of the reservoir?

4. Will the dam or dyke affect fish migration or movement?

   If yes, describe all measures for compensation of fish habitat lost due to the dam or dyke, and mitigation for fish migration or movement.

Water Treatment

1. Indicate the capacity of the treatment facility:

   Pump capacity: 110 L/min

2. What is the capacity of the water storage facility:

   Water Lake has a watershed area of 277,800 m^2

3. Describe the method of water treatment (i.e., backwash, flocculation, sedimentation, chemicals used), and provide the results of the most recent bacteriological and chemical analysis. Attach a diagram, if possible.

   Two 114 L polyethylene tanks mounted above one another are used for chlorination. The upper tank is used for mixing and decanting the lower tank via plastic piping. An impeller type mixer is mounted on the upper tank. The chlorine system is designed to utilize 65-70% calcium hypochlorite powder and to pump a mixed 0.5-1.0% chlorine solution.

4. Are there any changes planned in the water treatment facilities?

   _√_ No ___ Yes

   If yes, attach a copy of the plan or indicate changes and include an implementation schedule.

   Include excerpt from MACA Capital Plan if available.

Sewage Disposal

1. Indicate the level of sewage treatment:

   _√_ primary
   ___ secondary
   ___ tertiary

   Pre-treatment (if applicable):

   ___ screening
   ___ maceration

   Lagoons (if applicable):

   ___ anaerobic
   ___ aerobic
   ___ facultative

2. Indicate the capacity of the sewage treatment facility:

   The lagoon has 47,600m^2 surface area and an estimated depth of 2.5 metres to provide a working volume with 1 metre freeboard of 37,600 m^3.

The Hamlet is now operating under amended water licence that allows the direct discharge of untreated sewage to a nearby gully/wetland while repairs/modifications are made. See attached report Pond Inlet Lagoon Remediation, FSC 2002

3. Based on current population projections, the facility will meet the needs of the community until the year:

4. Average depth of the wastewater lagoon

   2.5 metres

5. What is the design freeboard:

   1 meter

6. Indicate the retention time of the sewage while in the treatment facility
   days:

7. Indicate the estimated rate of discharge of wastewater:

8. Indicate the location of the discharge point:

   Eclipse Sound

9. Is the discharge:

   _√_ seasonal
   ___ continuous

   If the discharge is seasonal, during what month(s) is it done?

   What is the duration of the discharge (days/weeks/months)?

10. Are there any changes planned in the sewage disposal facilities?

    ___ No _√_ Yes

    If yes, attach a copy of the plan or indicate changes and include an implementation schedule.

Include excerpt from MACA Capital Plan if available.

Pond Inlet Lagoon Remediation – FSC 2002

Solid Waste Disposal

1. Indicate the capacity of the disposal area:

   It has an area of approximately 5000 m^2

2. The *average* depth of the solid waste disposal site

3. The current facility will meet community needs until the year "2017"

4. Do any natural watercourse enter the solid waste disposal area? What methods are used to decrease the amount of runoff water entering these areas?

   "No, high ground"

5. Indicate the volume of water that may enter these areas from any source(s) and attach all pertinent details of the diversions.

   Source: Not Applicable
   Volume: Not Applicable

6. Please describe any diversions of watercourses:

   Not Applicable

7. Are there any changes planned in the solid waste disposal facilities?

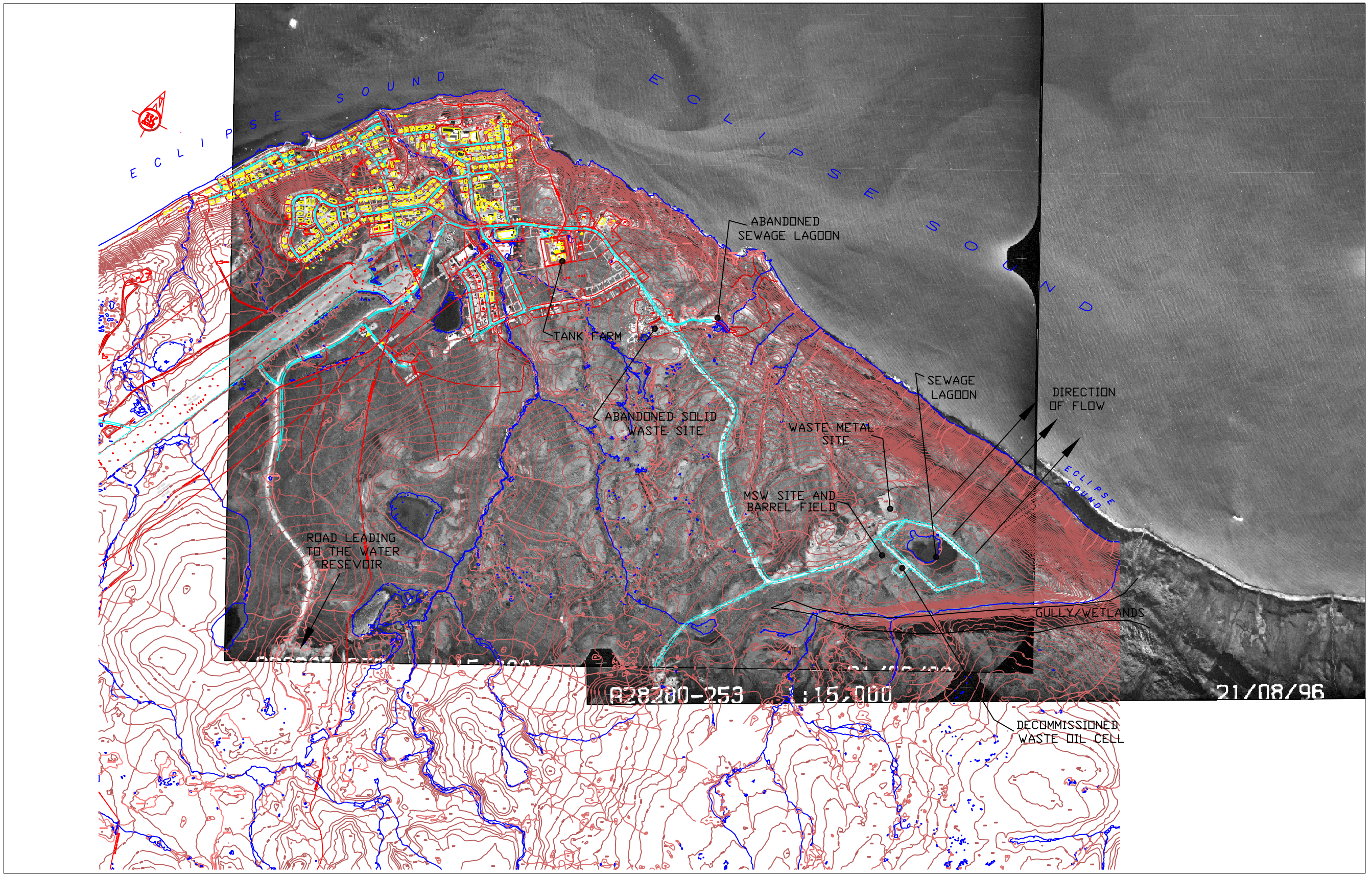
   _√_ No __Yes

   If yes, attach a copy of the plan or indicate changes and include an implementation schedule. Include excerpt from MACA Capital Plan if available.

Other

1. Describe any additional details on the existing municipal facilities which should be considered by the Nunavut Water Board during it review.

Appendix 1
Maps and Drawings



FSC GROUP

FERGUSON SIMEK CLARK

ENGINEERS AND ARCHITECTS

NO	REVISION	DATE	BY	APP'D

JOB TITLE

POND INLET
WATER LICENCE

POND INLET, NU

DRAWING TITLE

POND INLET
HAMLET MAP
DRAFT

DESIGNED BY: KH	SCALE: NTS
DRAWN BY: KH	DATE: DEC 17 2002
CHECKED BY: RJK	CLIENT PROJECT NO.
F.S.C. FILE NO.	F.S.C. JOB NO.: 2002-1000-055
SHEET: 1 OF 1	DRAWING NO

Appendix 2
Hazardous Materials Spill Reports

Resources, Wildlife and Economic Development
investing in our future

Hazardous Materials Spill Database

Enviromental Protection Service of RWED
600, 5102-50th Avenue; Yellowknife, NT X1A 3S8
Phone: (867) 873-7654 Fax: (867) 873-0221

Northwest Territories

Thursday, September 26, 20 **Grouped by Location:** Grise Fiord **For the year(s) : 1998-2003**

Spill No	Spill Date	Region	Location	Description	Commodity	Quantity (L or kg)	Party	Source	Agency
1999016	09-Feb-99	BAF	Grise Fiord	Tank Farm	Gasoline	100	Grise Fiord Co-op (POL)	PL	GNWT
1999127	30-Aug-99	BAF	Grise Fiord	Near Diesel/Gas Dispenser	Diesel P-50	205	Grise Fiord Co-op (POL)	ST>	GN
2000157	17-Jun-00	BAF	Grise Fiord	NTPC Tank Farm	Diesel P-50	100	NWTPC	ST>	GN

Total Spills in the Community of Grise Fiord: 3

1998155	13-Sep-98	BAF	Pond Inlet	Gas Station	Jet A-1	91	POL	TRU	GNWT
1999072		BAF	Pond Inlet	Takijualook School Main Tank	Heating Fuel P-50	150	Takijualook School	ST>	GN
1999142	16-Oct-99	BAF	Pond Inlet	Side Entrance of Pond Inlet Housing Shop	Diesel P-50	184	Housing Association	DRUM	GN
2001183	12-Jun-01	BAF	Pond Inlet	Water Lake	Hydraulic Fluid	0	-	TRU	GN
2001184	30-Sep-00	BAF	Pond Inlet	-	Sewage	0	Hamlet of Pond Inlet	SL	GN
2001212		BAF	Pond Inlet	-	Sewage	0	Hamlet of Pond Inlet	SL	GN
2001213		BAF	Pond Inlet	-	Used Crude Oil	0	Hamlet of Pond Inlet	ST<	GN
2001214		BAF	Pond Inlet	Dump	Crude Oil	0	Hamlet of Pond Inlet	DRUM	GN
2001233	17-Jul-01	BAF	Pond Inlet	Sewage Lagoon	Sewage	500	Hamlet of Pond Inlet	SL	INAC
2002359	04-Jun-02	BAF	Pond Inlet	Small Lake	Heating Fuel P-50	0	Unknown	UK	GN
2002363	01-Jun-02	BAF	Pond Inlet	Building 1030 Gov't Staff House	Fuel Oil P-50	91	T-S CoOp	ST<	GN

Total Spills in the Community of Pond Inlet: 11

Total Spills on this Report: 14

This report contains information regarding spills that were reported to the NWT 24-Hour Spill Line. The absence of information on any particular location in no way guarantees that contamination has not occurred at that location.

LEGEND

Region:
BAF - Baffin
DEH - Deh Cho
INU - Inuvik
KEE - Keewatin
KIT - Kitikmeot
NSL - North Slave
SAH - Sahtu
SSL - South Slave

Source:
AIR - Aircraft
DRUM - Drum or Barrel
MV - Marine Vessel
NS - Natural Seepage
OTH - Other Transportation
PL - Pipe or Line
RT - Rail Train
SL - Sewage Lagoon
ST< - Storage Tank <4000 litres
ST> - Storage Tank >4000 litres
TP - Tailings Pond
TRU - Truck
UK - Unknown
WELL - Wet Wells Flaring Boom

Agency:
CCG - Canadian Coast Guard
EP - Environment Canada
GN - Government of Nunavut
GNWT - Government of the Northwest Territories
ILA - Inuvialuit Lands Administration
INAC - Indian and Northern Affairs Canada
NEB - National Energy Board

Appendix 3
INAC Inspection Reports

Indian and Northern Affairs Canada
www.inac.gc.ca

Affaires indiennes et du Nord Canada
www.ainc.gc.ca

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

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

November 29, 2002 **NWB3PON9904**

Rhoda Kalsak
Senior Administrative Officer
Hamlet of Pond Inlet
P.O. Box 180
Pond Inlet, NU X0A 0S0

RE: June 25, 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 June 25, 2002. During the inspection the following observations were noted.

- **Water Supply**: The location of the reservoir refilling pipe intake, appeared to be in an acceptable location on the Salmon River (Photo 1). The water reservoir appeared to be at full capacity and covered in ice at the time of inspection (Photo 2). Enclosed sample analysis taken at the Water Intake Facility (PON-1), indicate that Turbidity (2.4 NTU vs 1.0 NTU) and pH (6.62 vs 6.5-9) are close to or exceed the *Guidelines for Canadian Drinking Water Quality* Maximum Acceptable Concentrations.

- **Sewage Disposal Facility:** There are currently 3 Sewage Treatment Facilities at Pond Inlet. 1. The old sewage lagoon (Photo 7) which is reportedly not in use, 2. The new sewage lagoon (Photo 10) which has just undergone refurbishment to the berm of the lagoon, 3. And the current sewage disposal area (Photo 3); a stream that flows to the ocean. At the time of the inspection, the old sewage lagoon was discharging effluent (Photo 8). The present sewage disposal facility, consists of a rif-raf sewage truck decanting structure that allows sewage to enter a stream bed in a valley along side the dump (Photo 3 & 6). Samples were taken 100 meters from the sewage decanting area. Enclosed samples of effluent from the old sewage lagoon and currently used sewage disposal facility (PON-3) indicate Total Suspended Solids, Biological Oxygen Demand meet *Municipal Wastewater Effluent Quality Guidelines.*

- **Solid Waste Disposal Facility:** The Solid Waste Disposal Facility had a fence to reduce wind blown refuge. It appears that the old waste oil disposal area had been cleaned up (Photo 4). All waste oil is drummed and stored at the Solid Waste Disposal Facility (Photo 11 & 12). The Solid Waste Disposal Facility seemed well managed with segregation of waste and signage throughout the dump.

- **Bulky Metal Dump:** Although not well segregated the bulky waste dump diverted metal scrap from the general dump area (Photo 9). Attached samples taken at the bulky metal dump (PON-2) indicate that Iron (0.64 mg/L vs 0.3 mg/L) exceed *the Municipal Wastewater Effluent Quality Guidelines*.

- **Non-Compliance of Act or Licence**: The Hamlet of Pond Inlet has yet to provide the NWB with 1999, 2000 and 2001 Annual Reports. Operational & Maintenance plan for the waste disposal facilities, and report detailing the Abandonment and Restoration (A&R) of municipal water and waste facilities are also required. Effluent from dump seepage (PON-2) exceeds *Municipal Wastewater Effluent Quality Guidelines*.

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 (Shannon Mackie)
-EC Environmental Protection, Yellowknife (Anne Wilson)
- INAC Water Management, Iqaluit (Michael Roy)

MUNICIPAL WATER USE INSPECTION REPORT

Date: June 25, 2002 **Licensee Rep. (Name/Title):** Rhoda Kalsak/ SAO

Licensee: Hamlet of Pond Inlet **Licence No.:** NWB3PON9904

WATER SUPPLY

Source(s): Salmon River /Reservoir **Quantity used:** Meter broken

Owner:/Operator: Hamlet of Pond Inlet

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

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

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

Comments: The water reservoir was frozen at the time of inspection. The reservoir had recently been filled from the adjacent Salmon River. The water reservoir is presently not fenced; one should be installed encompassing the entire reservoir. The pump house requires maintenance to water meter and chlorination system

WASTE DISPOSAL

Sewage: **Sewage Treatment System** (Prim./Sec/Ter.): Primary in stream to ocean.

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

Seasonal Discharge: **Wetlands Treatment:** very limited **Trench:**

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

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: 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: At the time of inspection there were 3 Sewage Treatment Facilities; 1. The old abandon lagoon. 2. The new lagoon that had recently underwent berm reinforcement. 3. The current sewage treatment facility. The solid waste disposal site seemed fairly well operated with signage and fencing throughout. The old sewage lagoon should be decommissioned.

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: NI **Pump Station & Catchment Berm** NA

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

SURVEILLANCE NETWORK PROGRAM (SNP)

Samples Collected **Hamlet:** NIL

IAC: potable water, old sewage lagoon, new sewage lagoon, metal dump

Signs Posted **SNP:** NIL **Warning:** None Observed

Records & Reporting: NIL

Geotechnical Inspection: NIL

Non-Compliance of Act or Licence: The following reports have yet to be submitted: Annual Reports and Operational & Maintenance Plan 1999, 2000, 2001 and Abandonment and Restoration plan for old Sewage Lagoon.

Constantine Bodykevich

Pond Inlet Inspection Pictures 2002

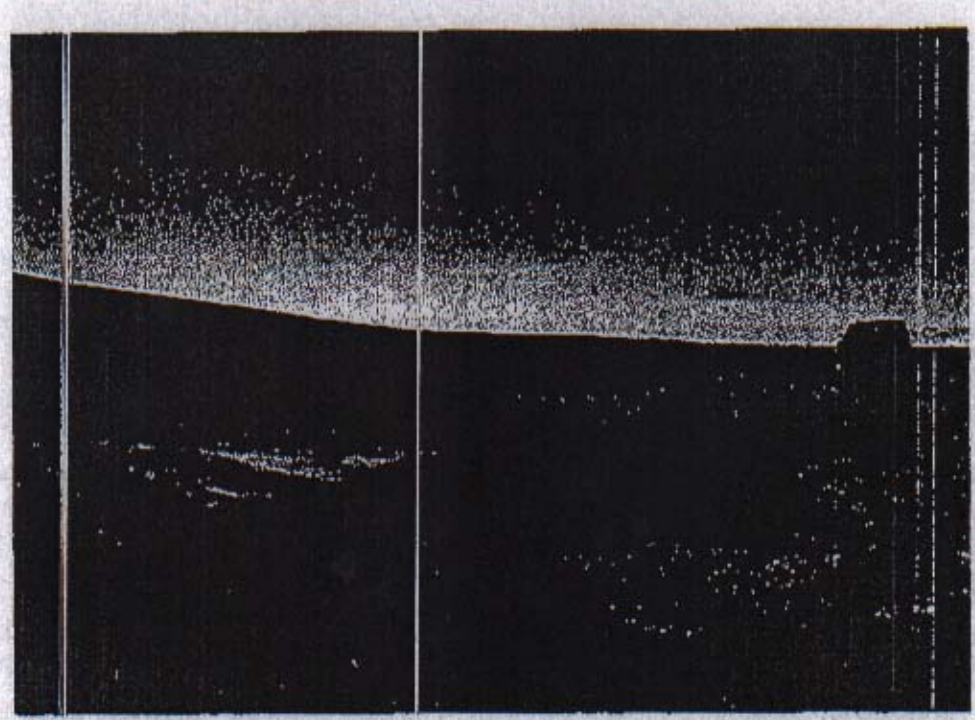


Photo # 1. Salmon River potable water supply.

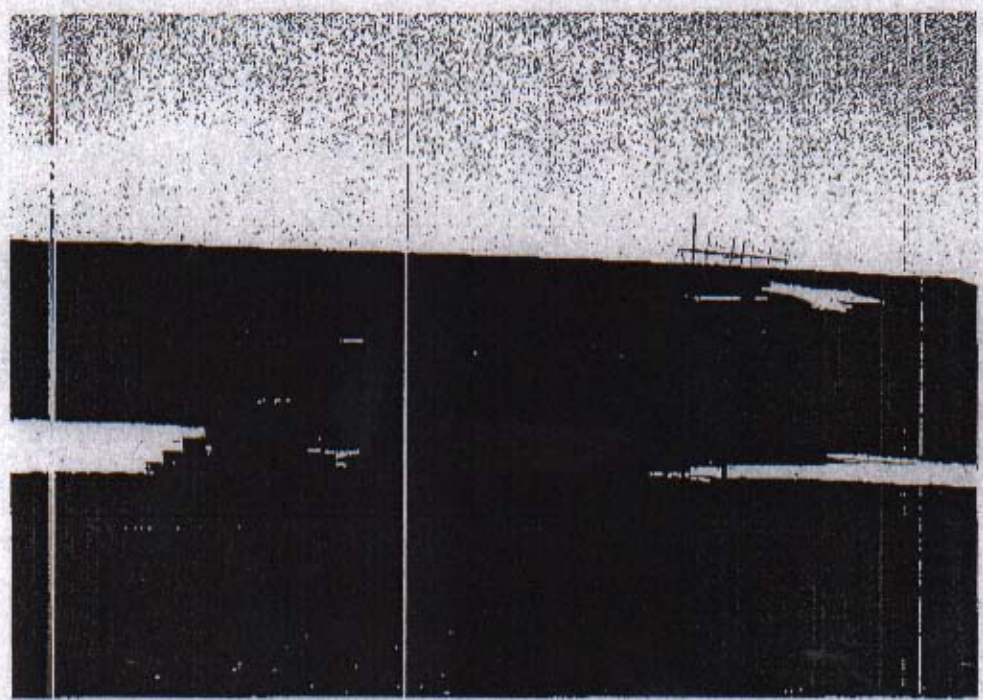


Photo # 2. Water Intake Facility at water reservoir.

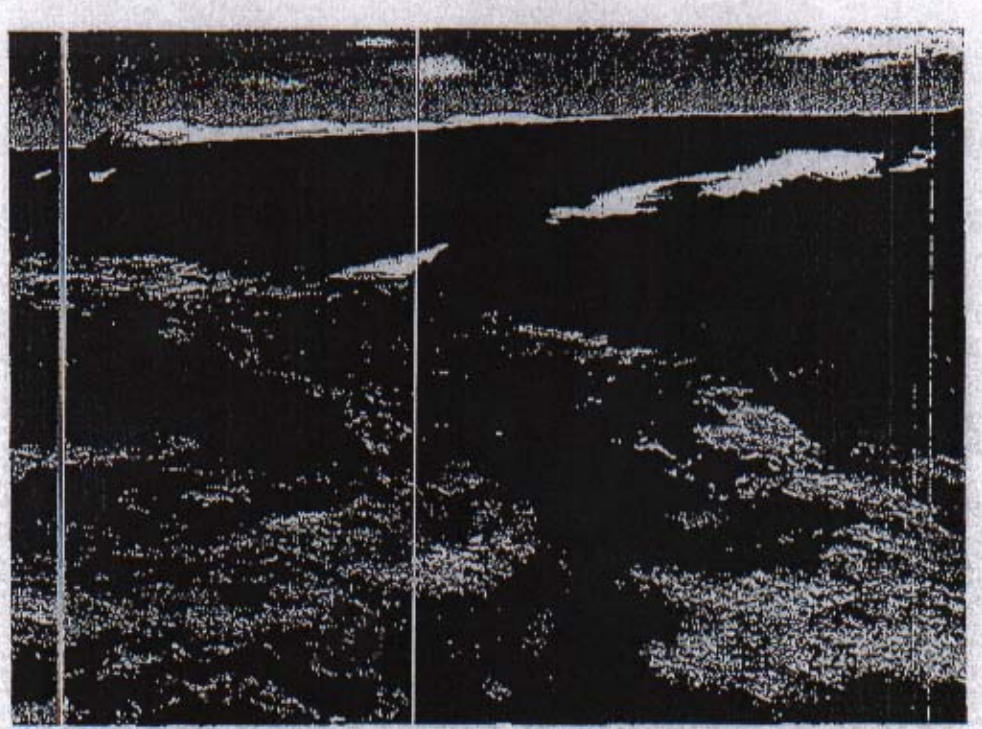


Photo # 3. Sewage truck discharge structure at temporary Sewage Disposal Site.

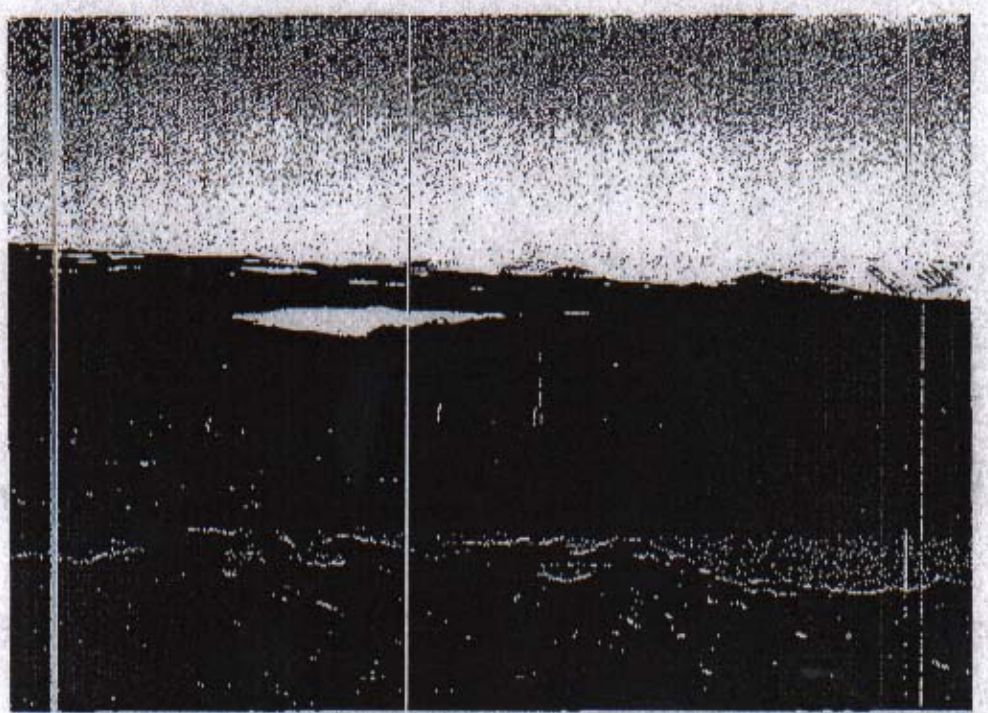


Photo # 4. Solid Waste Disposal Facility location of waste oil cell; no drums of oil and no appearance of oil contaminated soil.

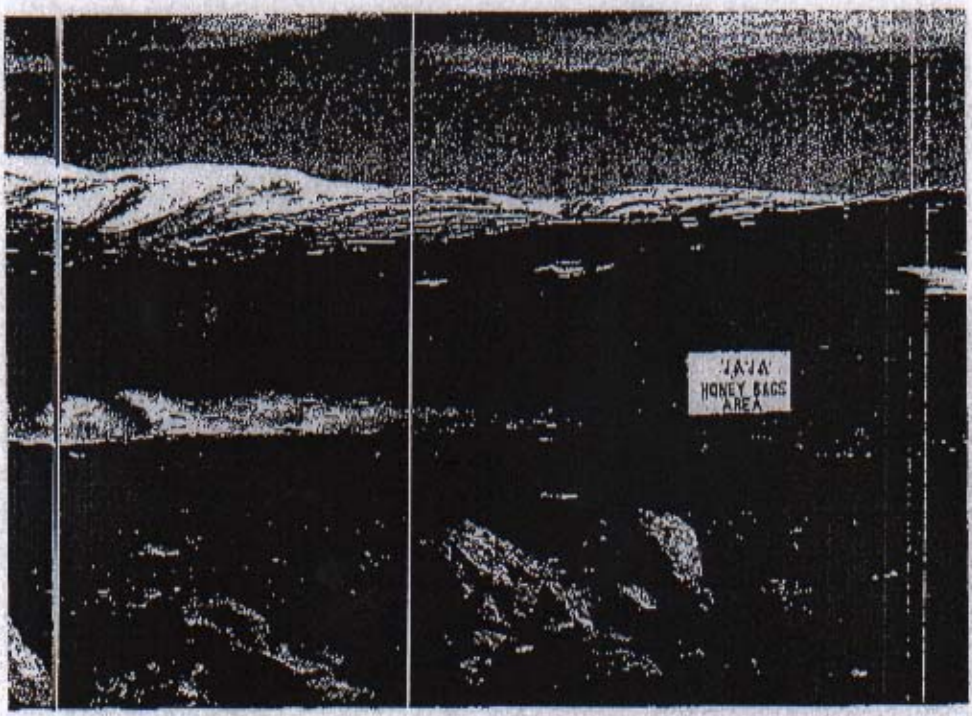


Photo # 5. Solid Waste Disposal Facility location of honey bag disposal area.

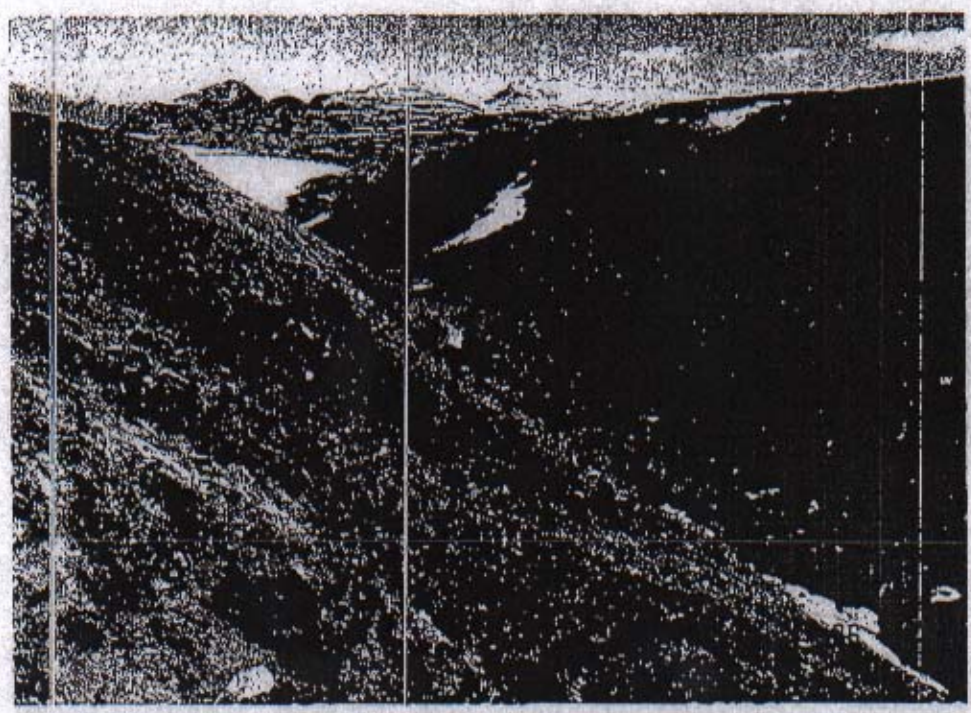


Photo # 6. Creek used as temporary Sewage Disposal Area.

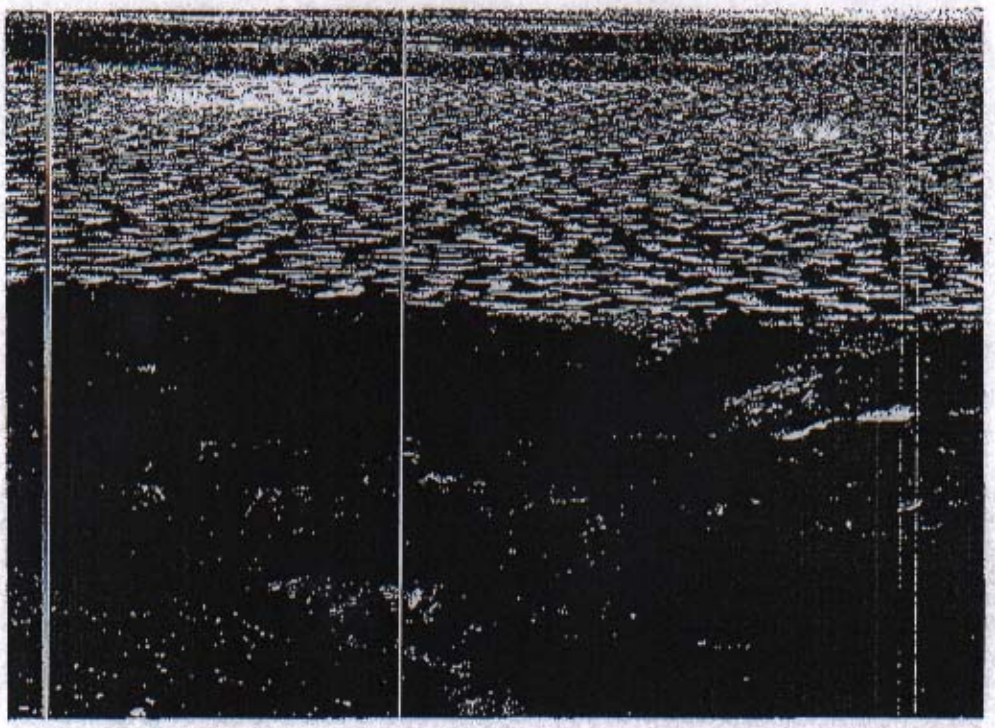


Photo # 7. Old sewage lagoon.

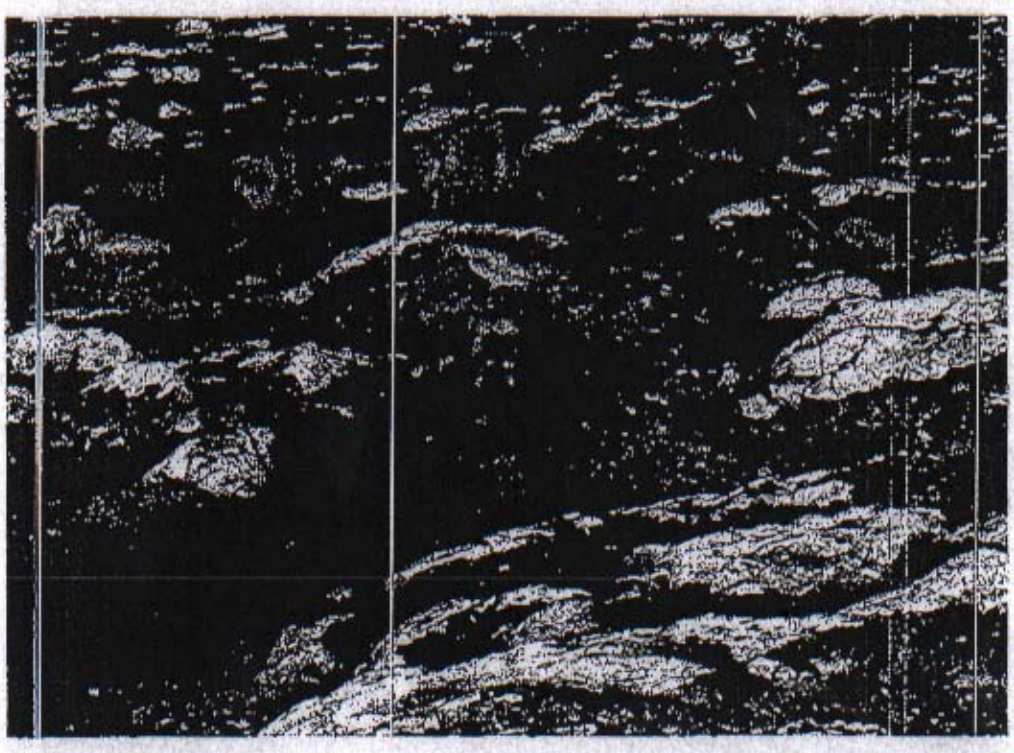


Photo # 8. Sampling effluent from Old sewage lagoon.

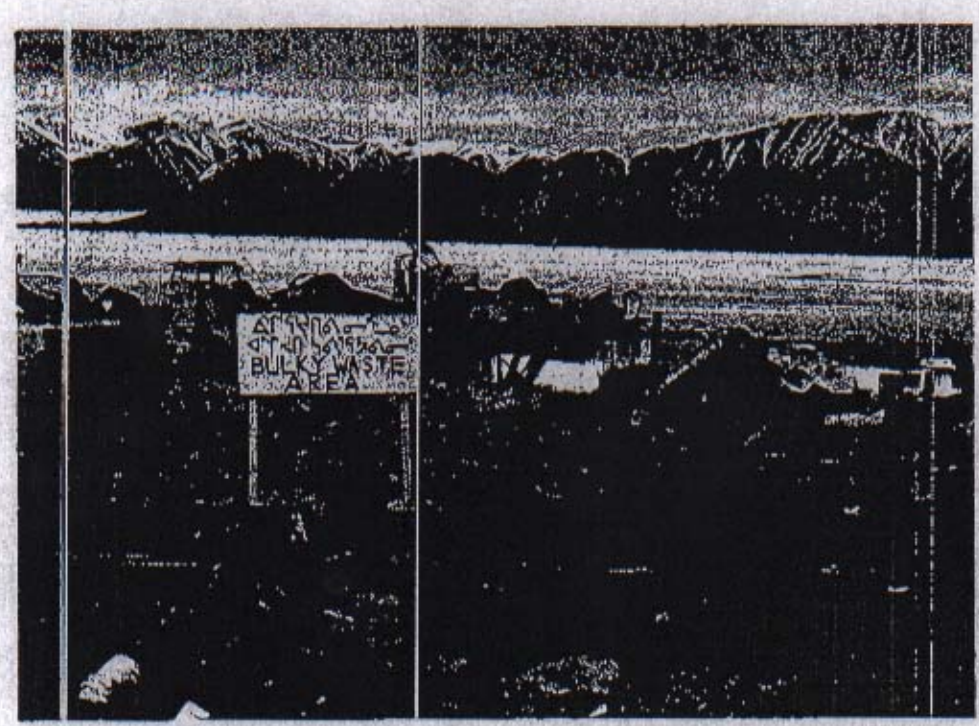


Photo # 9. Solid Waste Disposal Facility bulky metal waste area; location of metal waste sample.

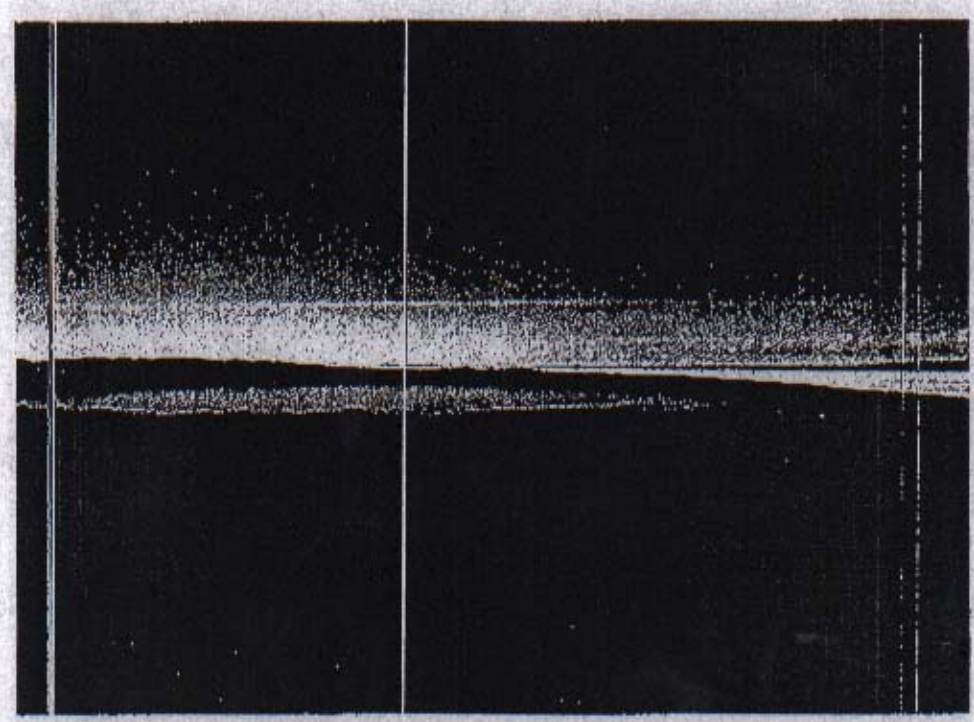


Photo # 10 . Solid Waste Disposal Facility new Sewage Lagoon drained for repairs to berm structure.

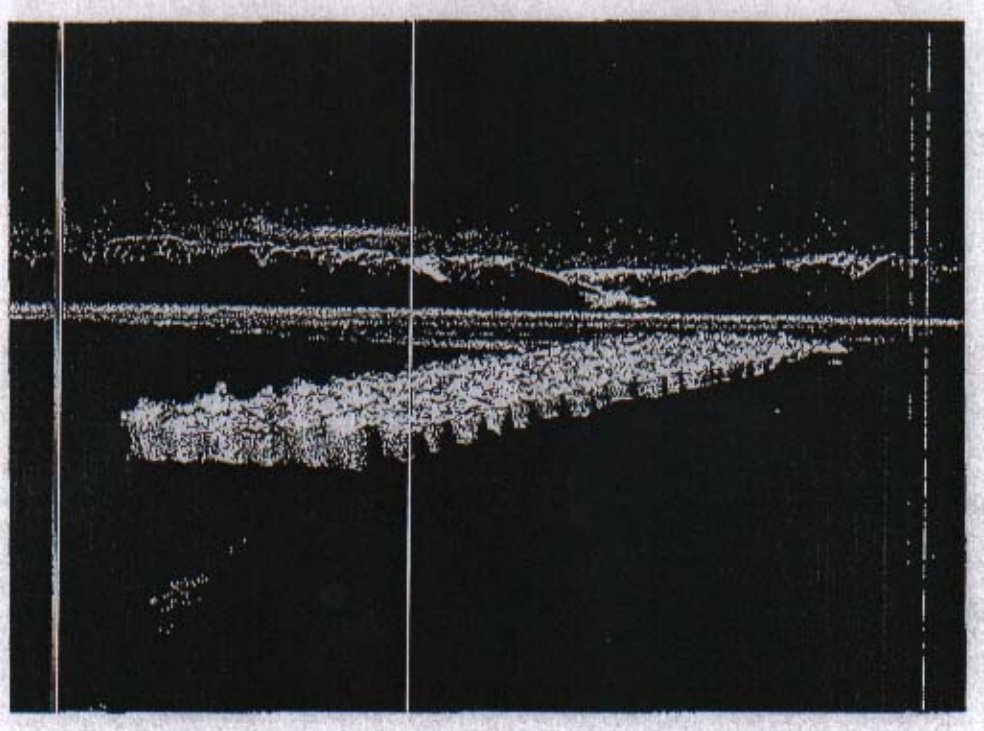


Photo # 11. Contaminated soil staging area, to be removed on next barge.

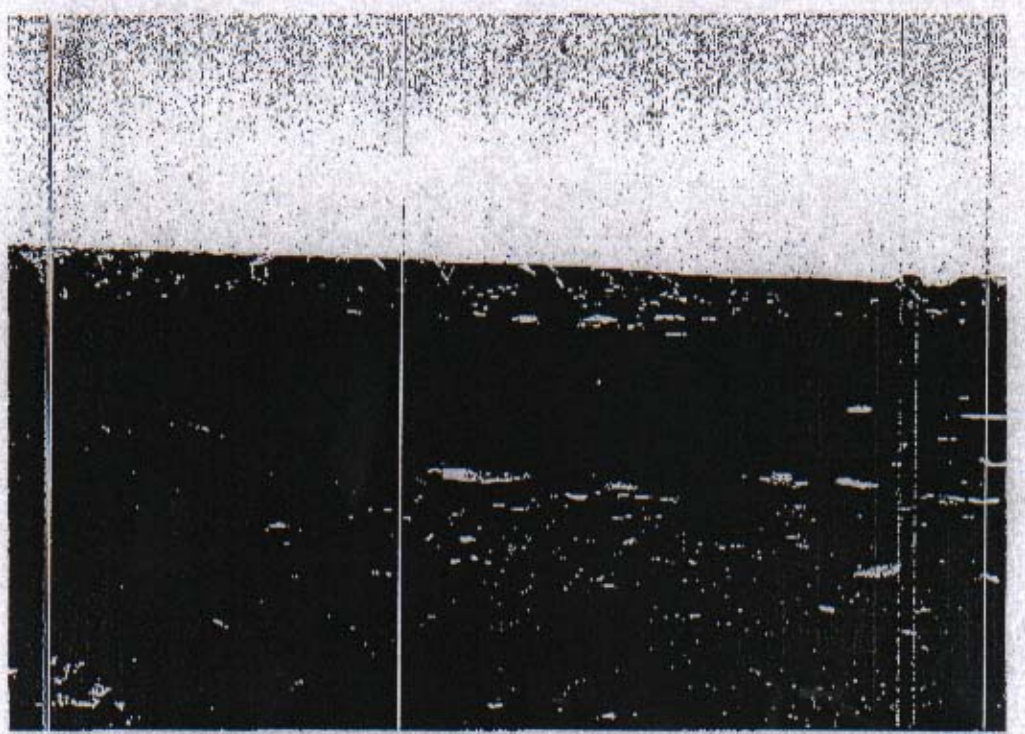


Photo # 12. Waste oil storage area in Solid Waste Disposal Facility.

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: 1/2 Taiga Sample ID: 221812

Client Project: Pon-1
Location: Pond Inlet

Sample Type: potable

Received Date: 02-Jul-02
Sampling Date: 25-Jun-02

Report Status: Final *Approved by:*

Test Parameter	Result	Units	Detection Limit	Analysis Date	Data Qualifier
Physicals					
Alkalinity	3.7	mg/L	0.3	03-Jul-02	
Colour	<5		5	10-Jul-02	
Conductivity, Specific	11.6	µS/cm	0.3	03-Jul-02	
pH	6.62	pH units	0.05	03-Jul-02	
Solids, Total Dissolved	13	mg/L	10	05-Jul-02	
Solids, Total Suspended	<3	mg/L	3	05-Jul-02	
Turbidity	2.4	NTU	0.1	05-Jul-02	
Nutrients					
Ammonia as N	0.007	mg/L	0.005	08-Jul-02	
Biological Oxygen Demand	<2	mg/L	2	02-Jul-02	11
Nitrate+Nitrite as N	<0.008	mg/L	0.008	05-Jul-02	
Organic Carbon, Dissolved	1.2	mg/L	0.5	11-Jul-02	
Organic Carbon, Total	1.3	mg/L	0.5	11-Jul-02	
Phosphorous, Total	<0.004	mg/L	0.004	05-Jul-02	
Major Ions					

Report Date: Thursday, September 19, 2002

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Fax: (867)-669-2718

- CERTIFICATE OF ANALYSIS -

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

Sample ID: 1/2 Poh - 1 **Taiga Sample ID: 221812**

Calcium	0.84	mg/L	0.05	05-Jul-02
Fluoride	<0.03	mg/L	0.03	17-Sep-02
Hardness as CaCO3	4.03	mg/L	0.17	04-Jul-02
Magnesium	0.47	mg/L	0.02	04-Jul-02
Potassium	0.17	mg/L	0.03	04-Jul-02
Silica, Reactive	0.14	mg/L	0.02	15-Jul-02
Sodium	0.45	mg/L	0.02	04-Jul-02
Sulphate	<3	mg/L	3	11-Jul-02

Data Qualifier Descriptions:

11 Holding time exceeded before sample analysis

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Fax: (867)-669-27 18

- CERTIFICATE OF ANALYSIS -

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

Sample ID: 3/4 **Taiga Sample ID:** 221813

Client Project: **Sample Type:** sewage **Received Date:** 02-Jul-02

Location: Pond Inlet Pon - 3 **Sampling Date:** 25-Jun-02

Report Status: Final *Approved by:*

Test Parameter	Result	Units	Detection Limit	Analysis Date	Data Qualifier
Physicals					
Alkalinity	104	mg/L	0.3	03-Jul-02	
Colour	60		5	10-Jul-02	
Conductivity, Specific	323	µS/cm	0.3	03-Jul-02	
pH	7.54	pH units	0.05	03-Jul-02	
Solids, Total Dissolved	133	mg/L	10	05-Jul-02	
Solids, Total Suspended	10	mg/L	3	05-Jul-02	
Turbidity	25.0	NTU	0.1	05-Jul-02	
Nutrients					
Ammonia as N	19.4	mg/L	0.005	08-Jul-02	
Biological Oxygen Demand	27	mg/L	2	02-Jul-02	11
Nitrate+Nitrite as N	<0.008	mg/L	0.008	05-Jul-02	
Organic Carbon, Dissolved	19.3	mg/L	0.5	11-Jul-02	
Organic Carbon, Total	21.4	mg/L	0.5	11-Jul-02	
Phosphorous, Total	2.22	mg/L	0.004	05-Jul-02	
Major Ions					

Report Date: Thursday, September 19, 2002

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Fax: (867)-669-2718

- CERTIFICATE OF ANALYSIS -

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

Sample ID: 3/4 Pon-3 **Taiga Sample ID:** 221813

Calcium	4.76	mg/L	0.05	05-Jul-02
Fluoride	0.04	mg/L	0.03	17-Sep-02
Hardness as CaCO3	25.6	mg/L	0.17	04-Jul-02
Magnesium	3.32	mg/L	0.02	04-Jul-02
Potassium	6.26	mg/L	0.03	04-Jul-02
Silica, Reactive	2.66	mg/L	0.02	15-Jul-02
Sodium	22.4	mg/L	0.02	04-Jul-02
Sulphate	17	mg/L	3	11-Jul-02

Data Qualifier Descriptions:

11 Holding time exceeded before sample analysis