

Nunavut Power Corporation generating facilities.

P.O. Box 119 GJOA HAVEN, NU X0E 1J0

TEL: (867) 360-6338 FAX: (867) 360-6369 KATIMAYINGI kNK5 wmoEp5 vtmpq NUNAVUT WATER BOARD NUNAVUT IMALIRIYIN

### WATER LICENCE APPLICATION FORM

Application for: (check of	ie)				
X New Amend	ment _	_Renew	al	Assignment	
LICENCE NO: (for NWB use only)					
1. NAME AND MAILIN APPLICANT/LICEN Mosher Engineering Limited 1358 Queen, Halifax, NS, B3	NSEE ,	F	2.	ADDRESS OF CORP OFFICE IN CANAI	
Phone: (902) 429-0272 Fax: (902) 429-7762 e-mail: marc@mosher.ca or da	ave@mosher.ca		Fax:		
3. LOCATION OF UNI the Undertaking) Latitude: 62°49'	DERTAKING (de Longitude:				Scale
4. DESCRIPTION OF UTHE Nunavut Power Corpor Rankin Inlet Power Plant to space heating systems of 1  A. Siniktarvik Bldg  B. Sakku Bldg  C. Royal Bank Bldg./P  D. Hagiktuk Center (Pleter Tapariit Bldg (Health F. Kivalliq Hall (Colleter G. Alaittuq High Schooleter H. Water Treatment Pleter The system consists of a 63 Treatment Plant (building I). The lines run	oration (NPC) is oration (NPC) is oration (NPC) is oration distribute rejuiced on the content of	s construented heathe comments of a returnes reduced heather the comments of a returnes reduced heather the second heather the construction of a returnes reduced heather the reduced heather the returnes reduced heather reduced heath	acting a I at from the nunity in a lines ru se to 4" f	Residual Heat Distraction of the diesel engines to cluding:  In from the Power Prom the Water Trea	Plant to the Water atment Plant to the Arena
The system as proposed w	ill connect 11 b	ooiler roo	oms in th	e 10 buildings to th	ne heat source at the

Mosher Engineering have been contracted to provide the following: All civil, structural, electrical and mechanical work required to complete the installation of the distribution system with branch connection to present and future customer buildings. Installation of the Energy Transfer Station (ETS) equipment in the 10 customer buildings, including all piping connecting the Energy Transfer Stations to the District Heating (DH) mains, and all connections to the building heating systems on the customer side. The complete system will be hydrostatically tested with water. The water would be taken from the Street Hydrant and dumped in the municipality sewage system. TYPE OF PRIMARY UNDERTAKING (A supplementary questionnaire must be submitted with the application for undertakings listed in "bold") \_\_ Industrial \_\_\_\_ Agricultural \_ Mining and Milling \_\_\_ Conservation X Municipal (includes camps/lodges) \_\_\_ Recreational \_\_\_ Miscellaneous (includes exploration/drilling) Power (describe): See Schedule II of Northwest Territories Waters Regulations for Description of Undertakings WATER USE \_\_\_ To divert a watercourse To obtain water To modify the bed or bank of a watercourse Flood control To alter the flow of, or store, water X Other (describe): Hydrostatic test of piping system. To cross a watercourse QUANTITY OF WATER INVOLVED (cubic meters per day including both quantity to be used and quality to be returned to source) 5000 Liters per day. Total expected water used: 40,000 Liters WASTE (for each type of waste describe: composition, quantity (cubic metres per day), methods of treatment and disposal, etc.) \_\_\_ Waste oil \_\_\_ Sewage \_\_\_ Greywater \_\_\_ Solid Waste Sludges Hazardous \_\_\_\_ Bulky Items/Scrap Metal X Other (describe): Water that may have metals in it. Prior to discharge the water into the community sewage system, the water will be run through a solid particle collector as shown in Annex B. Predicted volume of water discharge per day is 5 cubic meters for a total expected water used of 40 cubic meters. PERSONS OR PROPERTIES AFFECTED BY THIS UNDERTAKING (give name, mailing address and location; attach if necessary) NOT APPLICABLE **Land Use Permit** 

\_\_\_ Yes \_X\_ No If no, date expected \_\_\_\_\_

**DIAND** 

Commissioner	_ Yes <u>_ X</u> _ No _ If	no, date expected	
	_	-	
10. PREDICTED ENVIRONME MEASURES (direct, indirect, cumulat NOT APPLICABLE		F UNDERTAKING A	AND PROPOSED MITIGATION
NIRB Screening	Yes	No If no, date expec	cted
11. INUIT WATER RIGHTS			
Will the project or activity substantially and the rights of Inuit under Article 20 <b>NO</b>			r flowing through Inuit Owned Lands
If yes, has the applicant entered into an or damage that may be caused by the al determined?			
12. CONTRACTORS AND SUB- Mosher Engineering Limited, 1358 On Functions: General Contractor. Contact names: David Mosher or Mar	ueen Street, Halifax,		
REGULATORY PROCESS TO BEG	MENTS <u>MUST</u> BE I	•	HE APPLICATION FOR THE
NOT APPLICABLE Supplementary Questionnaire (where a	pplicable: see section	5) <u>X</u> Yes No	o If no, date expected
Inuktitut/English Summary of Project		_X_ Yes No	If no, date expected
Application fee \$30.00 (Payee Receiver	r General for Canada)	X Yes N	o If no, date expected
	T Waters Peculation	s: Pavee Receiver Gene	eral for Canada)
Water Use fee (see Section 9 of the <i>NW</i>	1 waters Regulation,		o If no, date expected <u>N/A</u>
· 	Ü		
· 	JLE		
15. PROPOSED TIME SCHEDU Annual (or) _X Multi Ye	JLE	Yes No	
15. PROPOSED TIME SCHEDU Annual (or) _X Multi Ye Start Date: Aug. 1, 2006  Marc Losier Technica	J <b>LE</b> ear  1 Coordinator	Yes No	o If no, date expected <u>N/A</u>
15. PROPOSED TIME SCHEDU Annual (or) _X Multi Ye Start Date: Aug. 1, 2006  Marc Losier Technica	J <b>LE</b> ear	Yes No	o If no, date expected <u>N/A</u>
15. PROPOSED TIME SCHEDU  Annual (or) _X Multi Ye  Start Date: Aug. 1, 2006 Marc Losier _ Technica  Name (Print) Title  Nunavut Water Board use only	JLE ear  l Coordinator e (Print)	Yes No	e: September 30, 2007  Date

### **Supplementary Questionnaire**

1- Site of local area identifying areas of impact.

The area of impact is the municipality of Rankin Inlet; see attached Drawing in Annex A

2- Location of water source

Water hydrant

3-Total quantity of water to be withdrawn from source.

40,000 Liters

4-Method to minimize volumes of water sources.

The system will be tested in sections thus eliminating disposal of large volume of water if the system has to be drained for repairs. The water will not be disposed until the entire system is tested. The water will be transferred from one section to another and/or to a storage tank.

5-Method of monitoring volumes of fresh water sources.

The water will be pumped into a piping system with a known length and size thus the volume can easily be calculated.

6-Procedure, amount, method of disposal and location of waste and sludge to be disposed of.

The Distribution System consists of a 6" supply and 6" return. Approximately 1000m will run underground and 500m above ground. The total amount of water to fill the system is approximately 40,000 Liters.

The Heat Transfer System consists of branches from the distribution system connecting 11 boiler rooms in 10 separate buildings. The volume of water in each building is approximately 1000 liters for a total of 10,000 liters.

The Distribution system will be tested in three or four sections to facilitate leak detection and to be able to better control the operation. Any underground piping will be tested prior to cover the pipes.

The heat transfer system in each building will be tested individually.

A hose will be connected from a hydrant to the closest branch connection on the piping system. Prior to start filling with water, the integrity of the system will be thoroughly checked. Every valve positions will be verified.

The testing crew will consist of four persons. One person will be at hydrant controlling the water supply. Another person will be at the end of the system where he will be watching when the water reaches the end of the system. He will leave the end valve opened to ensure air is out of the system and when the water starts flowing out he will shut the end valve. The other two persons will walk the system to check and repair leaks as required. All persons will have two-way radios, therefore, in the event of a major leak, the system can be shut immediately and proceed with the repairs. A test of a small section or inside one building, the testing crew can be reduced to two persons.

The section of the system being tested will be pressurized to 348psig and kept under pressure for four hours. In the event that the system leaks, the water will be pumped out into a storage tank. After the

leaked repaired, the system will be refilled using the water from the storage tank and pressurized until the test passes the requirement.

The system will then be flushed in a closed loop pattern using the same water. The strainers in the line will be cleaned periodically to remove all solid contaminants created by the fabrication of the pipe. Ounce the system is cleaned the water will be push back the storage tank. Using the same water the next section of the system or the next building, will be tested and flush in a similar manner.

Ounce all systems are tested and flushed and prior to the discharge of any water utilized in hydrostatic testing operations, sample will be taken and analyze for the following parameters and submitted to the Nunavut Water Board:

PH	Total Suspended Solids (TSS)
Major Ions	Hardness
Conductivity	Total Petroleum Hydrocarbons (TPH)
Metals (Pb, Hg, As, Cr, Cd, Cu, Zn, Fe	Total Dissolved Solids (TDS)
Benzene, Toulene, Ethyl benzene, Xzylene	Total Organic Carbons (TOC)
(BTEX)	

Upon approval from the Nunavut Water Board, the water will be run through a solid particle collector (see sketch in Annex C) and discharge in the municipality drain system.

### 7- Provide a spill contingency action plan.

### 7.1 Introduction

The purpose of spill contingency action plan is to provide a plan of action for every foreseeable spill event in the performance of the hydrostatic testing of all new piping from the Rankin Inlet Energy Distribution and transfer system.

### 7.2 Initial Action

- (a) Be alert and consider your safety first. If possible, identify the product spilled
- (b) Assess the hazard to persons in the vicinity of the spill
- (c) Assess whether the spill can be readily stopped or brought under control;
- (d) If safe to do so, and if possible, try to stop the flow of material;
- (e) Report the spill without delay to the Site Superintendent. The Site Superintendent will ensure that government is notified at the same time by the 24 Hour Spill Report Line (867) 920-8130.
- (f) Resume any effective action to contain, clean up, or stop the flow of the spilled product.

### 7.3 Reporting Procedure

All spills or potential spills of petroleum products or other hazardous materials must be reported to the 24-hour Spill Report Line to ensure that and investigation may be undertaken by the appropriate government authority.

### SPILL REPORTING PROCEDURE

- 1. Fill out "SPILL REPORT" form as completely as possible before making the report
- 2. Report IMMEDIATELY to Yellowknife using the 24 –hour Spill Report

### 24-HOUR SPILL REPORT LINE (867) 920 8130

3. Follow up immediately by sending a copy of the Spill Report.

Fax: (867) 873-6924

NOTE: Telephone calls can be made collect by informing the Operator that you wish to report a spill.

4. RCMP communications may be used if other means are not available

### Additional Information or Assistant:

1 -Earle G. Baddaloo Director; Environmental Protection

Department of Environment, P.O. Box 1000 Station 1360

IQALUIT, NU X0A 0H0

Phone: (867) 975-7729 Fax: (867) 975-7739

š: ebaddaloo@gov.nu.ca

2 -Alain Chouinard, Environmental Protection Officer for Kivalliq

Department of Environment,

P.O. Box 120 ARVIAT, NU

X0C 0E0

Phone: (867) 857-2828 Fax: (867) 857-2986

Achouinard@gov.nu.ca

3 -Joani Kringayark, Wildlife Officer

Department of Environment,

P.O. Box 59

Repulse Bay, NU

X0C 0H0

Phone: (867) 462-4002 Fax: (867) 462-4400

jkringayark@gov.nu.ca

4 Hamlet of Rankin Inlet

Phone: (867)-645-2895

## 5. INAC

### **Email:**

Environment Manager <u>nunavutenvironment@ainc-inac.gc.ca</u> Nunavut Projects Public Registry <u>nuregistryinfo@ainc-inac.gc.ca</u>

### **Phone:**

Environment Manager (867) 975-4549

### Fax:

(867) 975-4585

### Mail:

INAC-NRO – Environment Division Building 918 on Nunavut Drive PO Box 100 Iqaluit NU XOA 0H0

And for Environment Canada:

Nunavut Office: 867-975-4636 (general)

Nunavut Office: 867-975-4644 (Protection services)

Alain Chouinard

### 7.4 Action Plan

The following are the potential spills and remedial actions:

• The water during or after filling the pipeline, could leak out from a valve, joint connection or another source: The watch person will immediately call the person at the filling station and advise to stop filling. The filling operation will not resume until the leak is repaired and the spill water removed and dumped in the storage tank. The operation do not involve any hazardous material, however, if for any unforeseen reason there is a petroleum or a type of hazardous material spill, the site superintendent will be immediately notified and he will proceed with the reporting as per item 7.3.

7.5 Environmental Mapping See drawing annex 'A'

### 7.6 Resource Inventory

7.6.1 Resources available on site:

- Manpower
- Pump and hose
- Mop, buckets, rags.

### 7.6.2 Resources available off site

Not applicable, everything is on site for remediation of any spills.

8-Details of work to be completed and restoration work required.

The Nunavut Power Corporation (NPC) is constructing a Residual Heat Distribution System at the Rankin Inlet Power Plant to distribute rejected heat from the diesel engines to supplement building space heating systems of 10 buildings in the community including:

- A. Siniktarvik Bldg
- B. Sakku Bldg
- C. Royal Bank Bldg./Post Office
- D. Hagiktuk Center (PPD Offices)
- E. Tapariit Bldg (Health Board)
- F. Kivalliq Hall (College)
- G. Alaittuq High School
- H. Water Treatment Plant
- I. Area
- J. New Health Center

The system consists of a 6" supply and a 6" return lines run from the Power Plant to the Water Treatment Plant (building H). The two lines reduce to 4" from the Water Treatment Plant to the Arena (building I). The lines run parallel under ground with branches going to each building.

The system as proposed will connect 11 boiler rooms in the 10 buildings to the heat source at the Nunavut Power Corporation generating facilities.

Mosher Engineering have been contracted to provide the following:

- All civil, structural, electrical and mechanical work required to complete the installation of the distribution system with branch connection to present and future customer buildings.
- Installation of the Energy Transfer Station (ETS) equipment in the 10 customer buildings, including all piping connecting the Energy Transfer Stations to the District Heating (DH) mains, and all connections to the building heating systems on the customer side.

9-Waste disposal alternatives for contaminated liquid waste. Cleaning materials, absorbent material and sludge.

There are no contaminated liquid waste expected on this job.

10- Location of sumps or holding cells in relation to existing water bodies.

Not applicable.

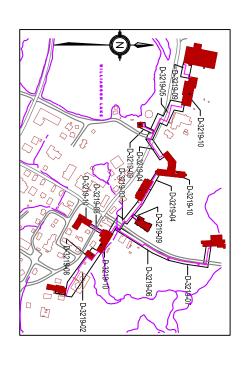
11-Will these undertakings interfere with existing water users or waste depositors?

No.

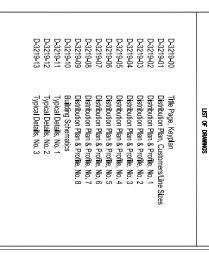
# Annex A

Construction drawings

# RANKIN INLET, NUNAVUT HEAT RECOVERY UPGRADE HEATING DISTRIBUTION SYSTEM



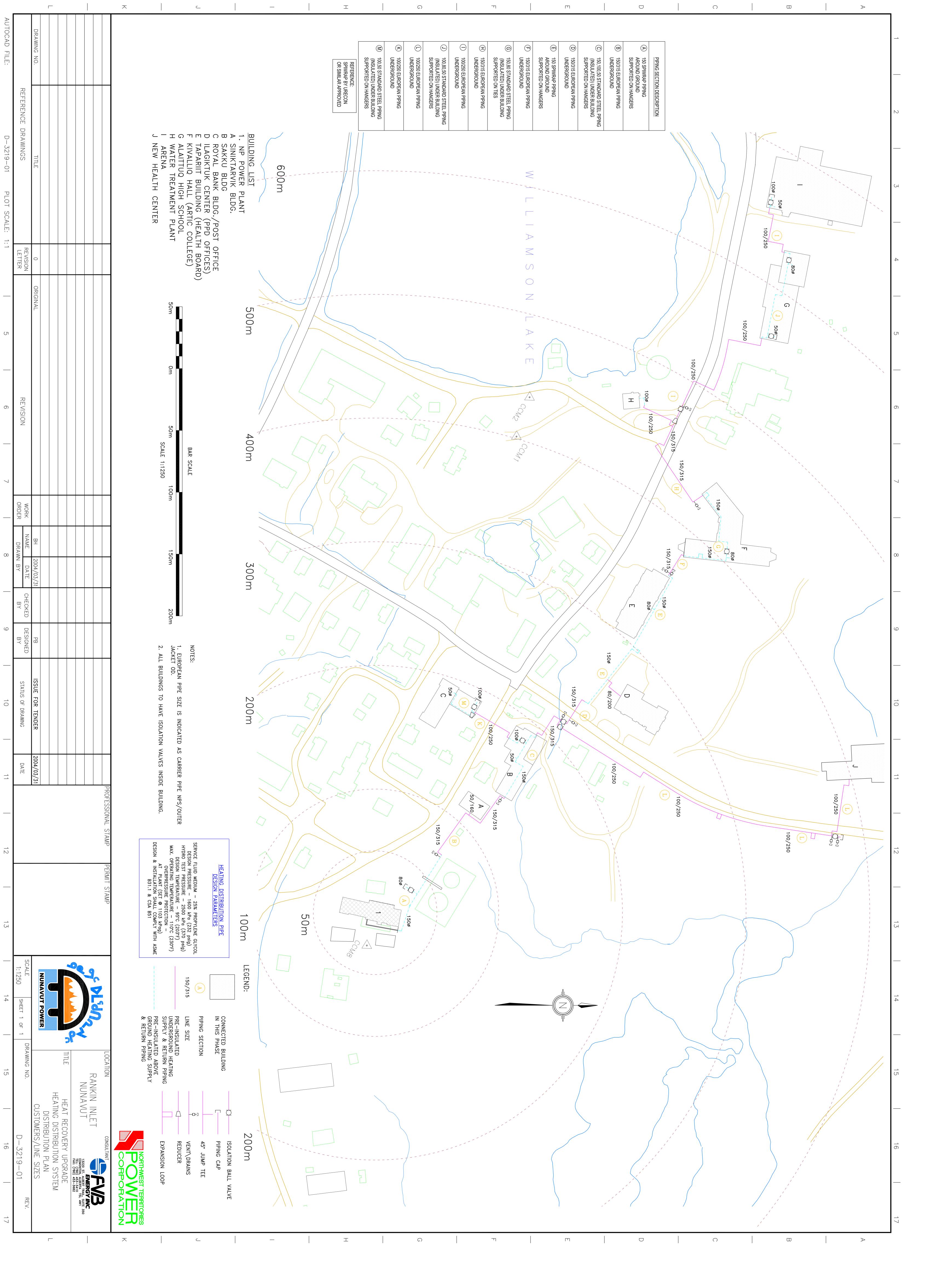








SEI 190



### Annex 'B'

Spill Report Form



# NUNAVUT SPILL REPORT (Oil, Gas, Hazardous Chemicals or other Materials) عمع د ملاحم که که اولان که اولان که اولان که اولان که اولان اولان که اولان که اولان که اولان که دور مادی دور م

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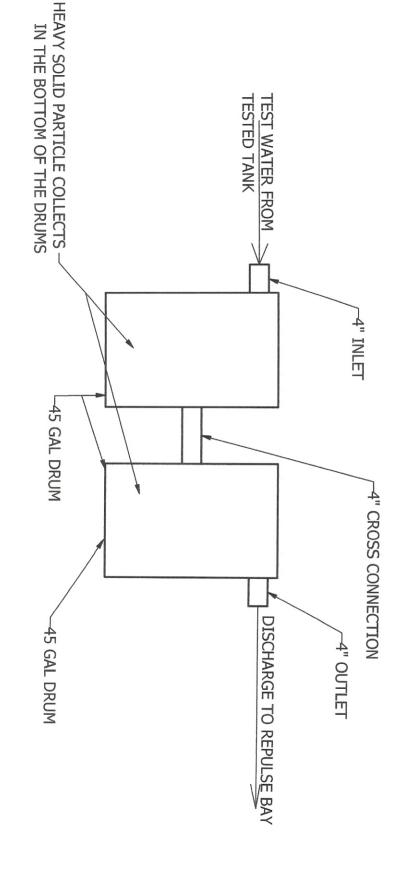
Phone/Þ₺८ÞĊ (867)920-8130 Fax/~b°2bd° (867)873-6924

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<b>D</b> Location and Map Coordin	ates (if known) and Direction	n (if moving) פר פאל לאר (if moving) פר פאר	ላ‹	۱۹۳۰ د ۱۳			
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O Do You Require Assistance	? ☐ No ☐ Yes, describ خ⁄ه À, منگلهدی				e.g. fire, drinking water, fish or wildlii i' בינוליס, Δ۲٬۱٬ ۵۳۹۹ ۵۲٬۱۰ . בי		
Q Comments and/or Recomments	nendations Þ&ÞアヤムΔ゚ 색Lュ	۵۰۲-۲۵۹۶ مورد ۱۳۵۲-۲۵۹۶ کورد ۱۳۵۲-۲۵۹۶ کورد			FOR SPILL LI  4)%(▷ ⊀ʰ\% d\ ⊀¬º  Lead Agency  Δ%c \ A'\% d\ ∀¬°	₽₽(৺₽₲₽₽) ₽₽(™₽₽₽	
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		Pan	e 21 of 27				

### Annex 'C'

Sketch 4: Test Water Solid Particle Collector

# SKETCH #4



TEST WATER SOLID PARTICLE COLLECTOR