Nunatta Environmental Services Inc.

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Iqaluit, August 2, 2004

Mr. Jim Wall
Technical Advisor
Nunavut Water Board
P.O. Box 1271
Cambridge Bay NU X0B 0C0

Tel: 867-983-2214
Fax: 867-983-2216

Object: Water License Application for Nunatta Environmental Services Inc. landfarm located in Iqaluit

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Dear Mr. Wall,

You will find attached to this letter a copy of our Spill and General Contingency Plan as well as a copy of the Groundwater Monitoring and Post-Closure Plan as part of the requirements to obtain a water license for Nunatta's landfarming operations. Should you have any comments or modification requests related to the content of these plans, please let me know and we shall undertake the modifications. Our objective is to have these plans in good standings as soon as possible.

If you have any questions regarding the Spill / General Contingency Plan or the Groundwater Monitoring and Post-Closure Plan do not hesitate to contact me or Alain Carriere our operations Manager.

Sincerely,

Pitseolak Shoo

Pitseolak Shoo, President Nunatta Environmental Services Inc.

Cc Alain Carrière, Operations manager, Nunatta Environmental Services Inc.
Cc Scott Stewart, Indian and Northern Affairs Canada, Iqaluit

APPENDIX I - SPILL CONTINGENCY PLAN

Preamble

Nunatta Environmental Services Inc. (NES) owns and operates a petroleum impacted soil treatment facility in Iqaluit, Nunavut. This treatment facility is commonly referred to as a 'landfarm'. NES operations consist in accepting soils impacted with petroleum products at various concentrations at the landfarm's geosynthetic lined platforms and allow indigenous soil microorganisms to degrade petroleum products to broken down compounds such as water, carbon dioxide and hydrogen sulfide. Soils accepted at the landfarm are contaminated with Diesel, gasoline and various oils.

Landfarm treatment operations consist in removing rocks from the fuel impacted soil, mechanically aerate, fertilize and moisten contaminated soil until contaminants have been biologically degraded and have reached acceptable disposal criteria, as dictated by the Canadian Council of Ministers of the Environment (CCME) or other regulating agencies.

The effective starting date of this spill contingency is August 1, 2004 and shall remain valid until the end of NES landfarm operations. Amendments will be added to this plan as operations evolve and as suggested by regulating agencies. This spill contingency plan only applies to NES's landfarming operations, which will soon be licenced by the Nunavut Water Board.

The following formal distribution has been made for this plan:

- City of Iqaluit, Fire Chief – 1 copy, delivered to Mr. Corey Chegwin
- Nunavut Water Board – 2 copies, delivered to Mr. Jim Wall
- Nunatta Environmental Services Inc. – 3 copies: one on site, one at the main office and one backup copy.

Additional copies of the spill contingency plan may be obtained in writing to:

Nunatta Environmental Services Inc
Attention : Mr. Alain Carrière
P.O.Box 267
Iqaluit, NU X0A 0H0
Phone: (867) 979-1488
Fax: (867) 979-8800

1.0 Introduction

The map shown on figure 1 (attachment 3) shows the existing layout of NES's landfarm in Iqaluit, Nunavut.

1.1 Description of the landfarm

Currently, there are 3 treatment platforms at the landfarm, identified as cells 1, 2 and 3. Cell 1 is 60 meters by 25 meters wide, cell 2 is 50 meters by 25 meters and cell 3 is 90 meters by 30 meters. Each cell is 1.5 meters deep (below adjacent ground level). The 3 cells are lined by a geosynthetic material (20 mil High Density Poly Ethylene – HDPE material) covering the cell's bottoms. These liners were welded at the manufacturing plant and their purpose is to prevent petroleum products mixed in soils from seeping into the ground.

The 3 cell's perimeter is bermed with compacted granular material as illustrated on a schematic diagram reported on figure 2 (attachment 3). The height of the fuel-impacted soil placed in the treatment cells will vary with volume to be treated but could be as high as 3 meters above ground level.

1.2 Hazardous material on site

The hazardous and potentially hazardous material present within the fenced landfarm includes the following products.

- Diesel fuel and all lubricants normally associated with the operation of heavy equipment (motor oil, transmission, hydraulic and differential oil and all purpose grease.
- Batteries used in heavy equipment and other vehicles
- Antifreeze fluid and gasoline
- Diesel fuel present in contaminated soil accepted for treatment at the landfarm. These petroleum hydrocarbons cannot be spilled since they are mixed and absorbed to the soil medium. These contaminants are not physically removed from the soil. They are biologically broken down or converted to water, carbon dioxide, hydrogen sulfide and other gases.
- Rainwater collected from treatment cells will have been in contact with contaminated soil. This rainwater will contain varying low amounts of Diesel or gasoline depending on the contaminated soil concentrations. This rainwater will be recuperated and pumped into 3 10,000 liters holding tanks placed directly on top of the contaminated soil pile. This water will be re-used by being re-circulated into the contaminated soil to increase soil's water content on a as-required basis. Water levels in holding tanks will be lowered to half before freezing.
- Fertilizers (20:20:20 all purpose granular fertilizer) will be used to amend the fuel-impacted soil. Fertilizer is kept in closed 45 gallon barrels on site and is spread on the contaminated soil with a conventional farming spreader. The fertilizing operation is done 2-3 times, seasonally.

1.3 Heavy equipment used on site

Equipment using the hazardous and potentially hazardous material listed above includes but are not limited to the following list:

- Screener (Diesel driven)
- Loaders, bulldozers, excavators, backhoes, tandem trucks (Diesel driven)
- Conveyors and pumps (gasoline driven)

All fuels and lubricants required to operate equipment are not kept on site. Fuel and lubricants are delivered on site on a as required basis. Maintenance, unless minor and greasing operations, is not undertaken on site. In the event that such products are kept on site, the plan would be amended with appropriate changes and would be sent to the Nunavut Water Board fro approval.

1.4 Note

Note on the theoretical quantities of Diesel fuel mixed in the contaminated soil: at full capacity, the landfarm would contain 7,000 cubic meters of impacted soil. Assuming that the average Diesel concentration in the impacted soil was 3,500 ppm or 0.35% by weight, the total amount of Diesel present within the 3 lined treatment cell would be 25 cubic meters or 25,000 liters. Even at full capacity, the Diesel would not leach out as it is strongly absorbed onto the soil matrix. The geosynthetic lined are placed in the cells as a preventive way for fuel products to seep into the ground.

2.0 Response Organization

This section contains a list of the Spill Response Team explaining duties of key personnel responsible for responding to spills.

Mr. Alain Carrière: Operations manager of the landfarm. Looks into all aspects of landfarm operations. Mr. Carrière provides on the job training to employees and ensures that spill response programs are implemented and that all equipment and material required to address spills are present on site and at all times.

Mr. Dermott Walsh: Site foreman. Looks into the planning of spill responses. Provides 'tool box' training on safety and spill issues on a weekly basis. Mr. Walsh reports directly to Mr. Carrière.

Joanassie Illauq: Assistant to the foreman. Present on site on a full time basis. Mr. Illauq inspects the property on a daily basis (seasonally) and verifies for abnormal situations. In case of a spill, Mr. Illauq is likely to address the situation first and has reviewed this Spill Contingency Plan and knows procedures to follow in case of a spill. He makes suggestions (to be incorporated into the Plan for approval) as need may be.

Other NES staff: The seasonal workers handle contaminated soil for treatment (screener, heavy equipment, pump and water management). Mr. Walsh and or other NES staff are present at the landfarm and will address spills as they happen. Training is provided on a as required basis as new seasonal employees are hired. Some workers are inmates from the Baffin Correctional Center and will spend time at the landfarm on a rotational basis. These workers will also be provided formal health and safety and spill response training.

Dr. Simon Desjardins: Environmental and safety advisor. Provides suggestions on the content and implementation of the spill contingency and groundwater monitoring plan. Specific issues are addressed to him as the technical advisor to Nunatta Environmental Services Inc.

3.0 Initial Action

This section is included to educate company personnel about the proper procedures for reacting to a spill. The course of action of the first person at the spill scene will be the following:

- Be alert and consider your safety first. If possible, identify the product first.
- Assess the hazard to persons in the vicinity of the spill
- If possible, without further assistance, control danger to human life
- Assess whether the spill can be readily stopped or brought under control
- If safe to do so, and if possible, try to stop the flow of material
- Ask for assistance, if needed
- Gather information on the status of the situation
- Report the spill without delay to the Spill Response Team and ensure that government is notified at the same time by the NWT 24 hour Spill Report Line 867.920.8130, and
- Resume any effective action to contain, clean up, or stop the flow of the spilled product

The last step is further described in the 'Action Plan' section.

Government of NWT and Nunavut Phone: 867.920.8130

SPILL REPORT

(Oil, Gas or Other Material, i.e. Hazardous Chemicals, etc.)

A	Report date; Date and Time of Spill if Known
B	Location and Map Coordinates (if Known) and Direction if Moving
C	Party Responsible
D	Product Spilled and Estimated Quantities (Provide Metric Volumes and Weight if Possible
E	Cause of Spill
F	Is Spill Terminated or Continuing
G	Extent of Contaminated Area
H	Factors affecting Spill or Recovery - Temperature, Snow, Ice, Terrain, Buildings, etc
I	Containment - Naturally, Booms, Dykes or Other. No Containment
J	Action, if any. Taken or Proposed to Contain, Recover, Clean-up or Dispose
K	Do you Require Assistance. If so, what Form
L	Hazard to Persons or Property or Environment - Fire, Drinking Water, Threat to Fish or Wildlife
M	Comments and or other Recommendations
	Reported by; Position, Employer, Location; Telephone
	Reported to; Position, Employer, Location; Telephone

4.0 Reporting Procedure

This part of the plan describes the communication system put in place by Nunatta Environmental Services to ensure an expedient response to a spill. It includes the means of communication available to activate the Spill Response Team and the telephone numbers of company officials, consultants and other companies which may have to be contracted to supply the resources, expertise and advise needed to deal with the spill. A listing of governmental contacts who can provide technical assistance and information regarding environmental sensitivity, spill response procedures, clean up measures, and the like, are also included. Reference is made to the NWT and Nunavut 24 Hour Spill Report Line 867.920.8130, the telephone service used in the NWT and Nunavut to inform all governmental departments that a spill has occurred. The specific information requested when a spill is reported to government is outlined on the enclosed Spill Report Form.

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

Spill reporting procedure

1- The Spill Report form is filled out as completely as possible before making the report
2- The spill is immediately reported to the 24 hour spill line 867.920.8130
3- The spill report is, whenever possible, immediately sent by fax

Other organizations and individuals to be contacted in case of a spill:

Nunatta Environmental Services Inc. head office in Iqaluit : 867.979.1488. Contact name: Alain Carrière.

Simon Desjardins, environmental consultant in Montreal, Quebec . Tel : 514.457.3573

Department of Indian Affairs and Northern Development, Nunavut Regional office. Tel: 867.975-4500

Environment Canada, Nunavut regional office. Tel: 867.975-4645

Government of Nunavut in Iqaluit, Nunavut. Tel: 867.975.6000

City of Iqaluit, fire Chief. Tel: 867.979.5600

Other companies in Iqaluit are not needed in case of accidental spills as Nunatta Environmental Services specializes in emergency spill responses.

5.0 Action plan

The following typical potential spill could occur at NES's landfarm:

- Heavy equipment and other motor re-fueling
- Heavy equipment and other equipment breakage such as hydraulic hose failure or leaking parts
- Fertilizers as a result of drum tipping or mishandling
- Recuperated water: holding tank and pump failure or mishandling

5.1 Remediation

In case of a fuel spill during re fueling operations, staff described in Response Organization section will address the situation. Absorbing material (described in attachment 2) will always be present at the landfarm and will be readily used to prevent fuel and gasoline to seep deep into the ground. Once the spill is controlled (valves closed, fixed ripped fuel hose, etc), absorbent material is placed where the spill occurred, mixed thoroughly with the surface soils and recuperated with hand shovels or with a loader's bucket. The contaminated soil and absorbent material is immediately placed in one of the treatment cells as final disposal.

The same procedure is followed in the event that hydraulic fluid, lubricants and anti-freeze are spilled on the ground. The landfarm is specifically engineered to biologically treat such contaminants from soil.

Other possible spill potential includes holding water tank failure or mishandling. In such cases, the lined berm located around the treatment cells will prevent water mixed with small quantities of petroleum products from escaping controlled areas. In the unlikely event of berm failure, some lightly contaminated water could enter the environment. Considering that landfarm operations require that rain water be collected to be re circulated into contaminated soil, water volumes following a berm failure would be minimal. In such cases and if technically possible, the failed berm would readily get repaired using on site heavy equipment and escaped water into adjacent ditches would be readily pumped into another treatment cell.

Spilled fertilizers, as a result of mishandling, would be shoveled into barrels (fertilizers used for landfarming operations are always under a solid form). Spoiled soils by excess fertilizers would be excavated and placed into the landfarm where they would be mechanically incorporated into soils being treated.

Following the removal of spoiled soils resulting from a liquid or solid spill, the affected area(s) would be backfilled with clean soil. In all spill cases, a spill report will be prepared and sent to competent authorities.