APPENDIX 12

ENNADAI LAKE
REMEDIATION PROJECT

SPILL CONTINGENCY PLAN

Kudlik Construction Ltd.
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SPILL CONTENGENCY PLAN

Ennadai Lake Weather Station Environmental Remediation Project

ENNADAI LAKE, NUNAVUT

Presented to

Public Works and Government Services Canada

Review: August 2013

KUDLIK CONSTRUCTION LTD.
P.O. BOX 727, 1519 FEDERAL ROAD
IQALUIT, NUNAVUT

SPILL CONTENGENCY PLAN

Ennadai Lake Weather Station Environmental Remediation Project

ENNADAI LAKE, NUNAVUT

Prepared by :

François Bourassa, P. Eng.
Project Manager
Kudlik Construction Ltd.

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1. INTRODUCTION

The purpose of this document is to present the spill contingency plan elaborated for the environmental remediation of the Ennadai Lake weather station located within the Kivalliq region of Nunavut. The site lies approximately 380 km west of Arviat, on the east shore of the north arm of the Ennadai Lake.

The remediation project was awarded to Kudlik Construction Ltd. in May 2013. In September 2013, heavy equipments, camp facilities, material and all consumables will be delivered by sealift to Arviat. All equipment, material and consumables required to achieve the remediation project will be transported by CAT train during the winter 2014 from Arviat to Ennadai Lake.

This spill contingency plan is covering the storage and the manipulations of consumables (diesel, aviation fuel, gasoline and lubricants) in Arviat and their transport and storage at the Ennadai Lake working site. This plan is effective from September 2013 and will be updated prior the winter mobilization and the first cleanup season.

Figure 1: Site location

2. ARVIAT

2.1 STORAGE

All material, equipment and supplies will be unloaded from the sealift and transported to the staging area belonging to municipality of Arviat.

The following consumables will be stored on site:

- Arctic Diesel: 200,000 litres stored in 976 drums
- Jet A aviation fuel: 6,560 litres stored in 32 drums
- Gasoline: 4,920 litres stored in 48 drums
- Engine oil 15W-40: 7,380 litres in 36 drums
- Transmission fluid 30: 1,230 litres in 6 drums
- Transmission fluid Dextron: 820 litres in 4 drums
- Hydraulic fluid 10W: 5,740 litres in 28 drums
- Gear oil 80W-90: 1,230 litres in 6 drums

All drums will be strapped four by four on a wooden pallet. The pallets will be stacked two rows high. The oils and lubricants barrels will be stored in two (2) 20ft marine containers.

All drums will be clearly labeled with the name of the company, the date of delivery to the site and the type of fuel contained within. "NO SMOKING" signs will be erected around the fuel storage area.

2.2 RESPONSE AND CLEANUP EQUIPMENT

Two complete emergency spill kits will be installed nearby the drum storage area. Each kit is made of the following items and stored into pre-identified 45 gallons drum:

- 5 Tyveck coveralls
- 10 pairs of disposable gloves
- 2 x 100 absorbent pad packs
- 1 x 20kg granular absorbent bag
- 4 x 2" diam. Floating absorbent booms
- 10 yellow storage bags
- One shovel

Fuel and gas electric pumps, hoses and fittings and portable generators are stored in the marine container #2047185. All environmental supplies for the entire cleanup project, including a large inventory of hydrocarbon absorbents and emergency spill material are stored in the marine container #2541623.

3. TRANSPORTATION

During the winter 2014, marine containers, camp facilities heavy equipments and consumables will be transported from Arviat to Ennadai Lake on sleighs pulled by tractors. The overland mobilization route is presented on the following figure.

Figure 2: Overland route

The drums will be transported gradually with other materials during the mobilization. The remaining drums that can't be transported with regular loads will be brought at the end. The drums will be unloaded and stored at Ennadai Lake, as indicated in the following section. During the transportation, sleighs loaded with diesel and gasoline barrels will be equipped with the following spill kit:

- 2 empty 45 gallons steel drums
- 5 Tyveck coveralls
- 10 pairs of disposable gloves
- 2 x 100 absorbent pads packs
- 1 x 20kg granular absorbent bag
- 4 x 2" diam. Floating absorbent boom

- 10 yellow storage bags
- One shovel
- One 12 volts diesel pump
- One gasoline manual pump

In order to refuel the tractors during the mobilization, a 4000 litres aboveground horizontal dyke tank (ULC-S653) will be installed at the mid-camp located at the Henik Lake. The tank will be refilled on a regular basis from drums transported from Arviat or from a mobile IMO tank mounted on a sled (23000 litres capacity).

IMO tank mounted on a sled

Drums on sled

Only the authorized and trained people wearing the appropriated PPE are allowed to carry on the refueling and the fuel transfer operations. A spill kit and a no smoking sign will be installed at the refueling area. The tank refilling procedures with drums is presented in the following section. The fuel transfer from the IMO mobile tank will be done by two employees according to the following procedures:

- Bring the sled with the IMO tank beside the dyke tank;
- Install the grounding devices;
- Deploy the suction hose and the discharge hose;
- Connect hoses to the pump;
- Open the 4" filling lid on the dyke tank;
- Place and secure the discharge hose end into the dyke tank;
- Open the top lid of the IMO tank and install the suction hose;
- Start the pump and begin transfer;
- One crew member to stay at the pump and the other on the dyke tank to monitor the fuel level until the transfer is completed;

- Stop the pump, drain the hoses into the tanks and use absorbent sheets to wipe both ends
- Close both lids
- Disconnect the ground devices
- Remove the sled nearby the dyke tank

The tractors tanks will be refilled from the dyke tank equipped with an electrical pump and a dispensing hose that includes an automatic shut-off nozzle.

4. ENNADAI LAKE

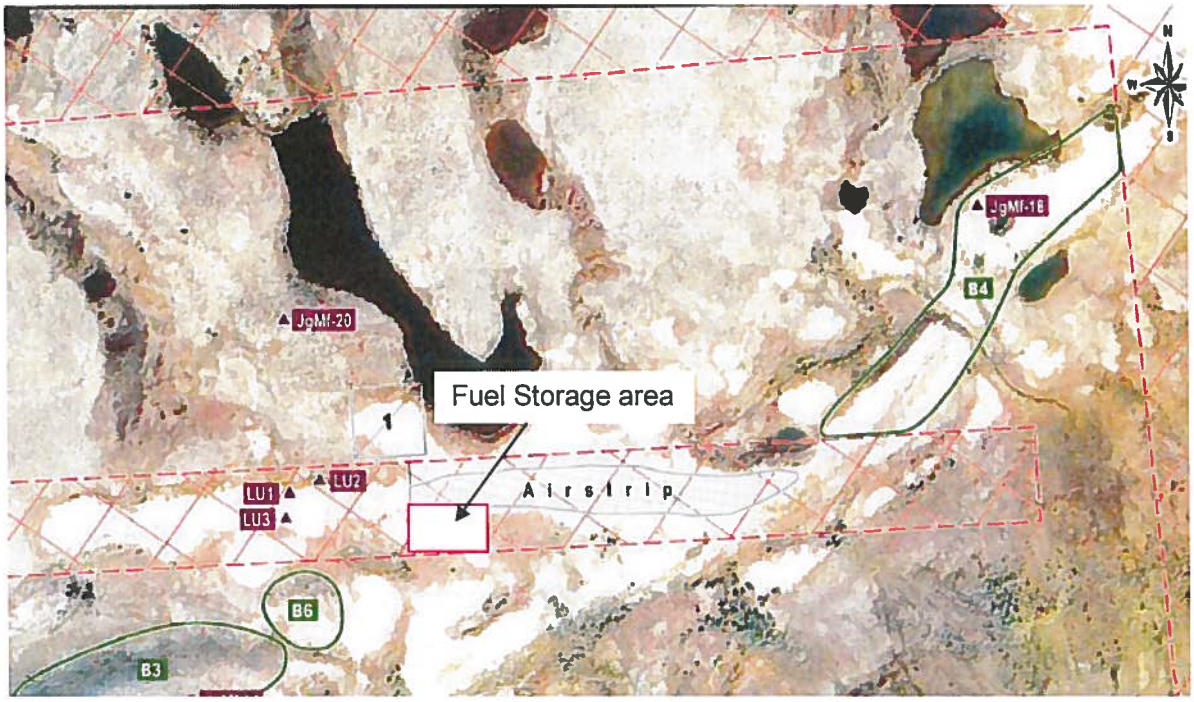
Enough fuel and gasoline will be transported to Ennadai Lake in order to complete all project activities.

4.1 STORAGE

The camp facilities and the fuel storage area will be established on the south side of the runway, as indicated on Figure 3. As mentioned previously, about 1000 drums of arctic diesel, 48 drums of gasoline and 32 drums of jet fuel will be stored in this area.

The camp generator will be connected to a 4,000 litres aboveground horizontal dyke tank (ULC-S653).

Figure 3: Fuel Storage area at Ennadai Lake



4.2 REFUELING

Only authorized and trained people wearing the appropriated PPE are allowed to carry on the refueling operations. A spill kit and a no smoking sign will be installed at both refueling areas.

4.2.1 Refueling the camp generator tank (4,000l)

The camp generator fuel tank will be refilled once a week with drums by using the following procedures:

- Transport fuel pallets nearby the tank with the loader;
- Open the tank spill box and open the 2" lid;
- Insert the hose nozzle into the tank filling pipe;
- Remove the drum seal and lid;
- Connect the ground wire to the tank;
- Insert the suction pipe into the drum;
- Start the pump and use the nozzle handle to adjust the flow;
- Stop the pump when the drum is empty, remove the suction pipe carefully and use and absorbent pad to avoid fuel leakages;
- Proceed with other drums until the tank is filled;
- Drain the remaining fuel at the bottom of each drums into the steel tub;
- When full, transfer the fuel from the steel tub into a drum identified "old fuel";
- Put the lid back on each drum and bring them into the empty drum storage area.

4.2.2 Refueling the heavy equipment and vehicles with diesel

A refueling area will be dedicated on site. Drums pallets will be transported on this area on a daily basis and vehicles tank will be filled from the drums. Same procedures as described in the previous section will be applied.

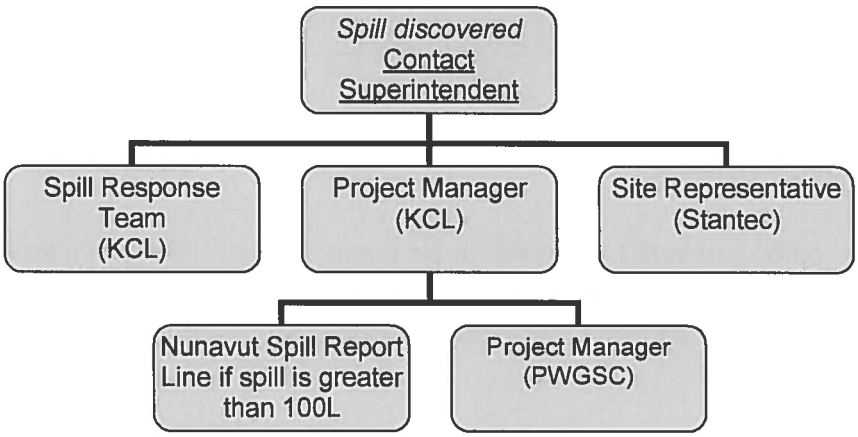
4.2.3 Refueling vehicles and tools with gasoline

Use only the Jerri canes to fill vehicles and small tools. Make sure that product is gasoline. The gasoline transfer from the drum to the Jerri canes will be done only by the mechanics.

5. PROCEDURES IN CASE OF SPILL

5.1 LINE OF COMMUNICATION

No matter the size of the spill, it must be reported as soon as possible to the site superintendent. The following line of communication must be applied during the mobilization and site works:



5.2 EMERGENCY PHONE NUMBERS

Kudlik Construction Ltd	Business hours	After hours
Main Office, Iqaluit	(867) 979-1166	
René Déziel, General Manager	(866) 781-0704	(418) 571-8889
François Bourassa, Project Manager	(866) 781-0704	(418) 930-0850
Arviat	To be confirmed	To be confirmed
Henik Lake lodge	To be confirmed	
Ennadai Lake camp	To be confirmed	
Satellite Phone #1 (irridium)	To be confirmed	
Satellite Phone #2 (irridium)	To be confirmed	

Satellite Phone #3 (Bgan)	To be confirmed	
PWGSC		
Michael Bernardin, project manager	(780) 497-3853	
AANDC		
Erika Solski, project manager	(867) 975-4577	
RCMP		
Arviat	(867)-857-0123	
Environment		
Nunavut Spill Report Line	(867) 920-8130.	
INAC manager of field operations	(867) 975-4295.	

5.3 GENERAL PROCEDURES

This general procedure is to be followed in the event of a spill. Steps are listed in the order of importance; however, depending on the circumstances, conditions, and potential injuries, this order may need to be altered to meet specific needs.

1. Identify the product spilled and call for help:

Petroleum products on site are arctic diesel, gasoline and lubricants. Advise as soon as possible the site superintendent and call for help when needed.

2. Assessment of dangers and hazards:

Immediate determinations must be made about the direction of the spill's progress, whether downhill, on the ice, towards the water, or already in the water. As well, careful attention will be paid to the full nature of the incident; is this solely a surface contaminant, or are fumes an additional factor; are there any injuries current or possible.

3. Stop the flow at source:

Has the flow been stopped or is it still leaking? Is there an emergency Shut-off valve? Have holes in the container been patched? Is the container empty? PRECAUTION: ONLY ATTEMPT TO STOP THE FLOW IF IT IS SAFE TO DO SO.

4. Take actions to contain the spill:

Prompt containment can reduce environmental exposure and risk. Containment measures may be land or water based. Land based measures include application of sorbents, construction of berms and diversion/collection trenches. Water based measures could include dams, dykes, and floating booms.

5.4 SPECIFIC PROCEDURES FOR DIFFERENT ENVIRONMENTS

The entire mobilization/demobilization will be done on snow or ice while the cleanup activities will be performed during summer. As explained in the following sections, procedures in case of spill vary depending in which environment it occurs.

5.4.1 Spill on land

- Do not flush into ditches or drainage systems.
- Block entry into waterways and contain with earth, snow or other barrier.
- Remove small spills with sorbent pads.
- On tundra, collect as much contamination as possible while to the maximum extent practicable minimizing destruction of the root zone of the tundra grasses.

5.4.2 Spill on ice and snow

- Block entry into waterways and contain with snow or other barrier.
- Remove minor spills with sorbent pads and/or snow.
- Use ice augers and pump to recover diesel under ice.
- Slots in ice can be cut over slow moving water to contain oil.
- Burn accumulated diesel from the surface using Tiger Torches if feasible and safe to do so.

5.4.3 Spill on Muskeg

- Do not deploy personnel and equipment on marsh or vegetation.
- Remove pooled diesel with pumps and skimmers.
- Flush with low pressure water to herd diesel to collection point.
- Burn only in localized areas, e.g., trenches, piles or windrows.
- Do not burn if root systems can be damaged (low water table).
- Minimize damage caused by equipment and excavation.

5.4.4 Spill in water

- Contain spill as close to release point as possible.
- Use spill containment boom to concentrate slicks for recovery.
- On small spills, use sorbent pads to pick up contained oil.
- On larger spills, use skimmer on contained slicks.

- Do not deploy personnel and equipment onto mudflats or into wetlands

5.4.5 Spill in rivers and streams

- Prevent entry into water, if possible, by building berm or trench.
- Intercept moving slicks in quiet areas using (sorbent) booms.
- Do not use sorbent booms/pads in fast currents and turbulent water.

5.5 REPORTING

All spills must be reported to Kudlik management, PWGSC and INAC manager of field operations. For every spill, the attached form "NWT Spill Report" must be filled. Pictures must be taken during and after the cleanup progress. The GPS coordinates of the spill location must be recorded. All information and pictures will be used for the spill report. Any spill grater than 100 litres must be reported the Nunavut 24-hours spill report line (see emergency phone number list). The person reporting the spill shall give as much of the following information as possible. Please note that the operators at the Hotline are NOT spill management experts. They can only relay information to the appropriate authorities/protection agencies. Reportable information includes but is not limited to the following:

- Date and time of spill;
- Direction spill is moving (or if it has stopped);
- Name and phone number of persons close to the location of the spill;
- Type of contaminant spilled and quantity spilled;
- Cause of spill;
- Whether the spill is continuing or has stopped;
- Description of the existing containment;
- Actions taken to recover, clean-up and dispose of spilled contaminant;
- Name, address and phone number of person reporting the spill;
- Name of person in charge of management or control at time of spill;

6. TRAINING

All employees working on the remediation project will have to attempt the worker orientation seminar. Through this seminar, the spill contingency plan will be review and explained to everyone. The employees will be trained in the safe operation of all machinery and tools, as well as in the handling of materials to help prevent and respond to hazardous material spills in a timely and effective manner. Training will also include initial spill response in the event of a spill. The spill response team will be also determined and the member list will be posted.

APPENDIX 1
NWT Spill Report Form

NT-NU SPILL REPORT

OIL, GASOLINE, CHEMICALS AND OTHER HAZARDOUS MATERIALS

NT-NU 24-HOUR SPILL REPORT LINE
TEL: (867) 920-8130
FAX (867) 873-6924
EMAIL: spills@gov.nt.ca

				REPORT LINE USE ONLY
A	REPORT DATE: MONTH – DAY – YEAR	REPORT TIME	☐ ORIGINAL SPILL REPORT, OR	REPORT NUMBER
B	OCCURRENCE DATE: MONTH – DAY – YEAR	OCCURRENCE TIME	☐ UPDATE # TO THE ORIGINAL SPILL REPORT	
C	LAND USE PERMIT NUMBER (IF APPLICABLE)	WATER LICENCE NUMBER (IF APPLICABLE)		
D	GEOGRAPHIC PLACE NAME OR DISTANCE AND DIRECTION FROM THE NAMED LOCATION	REGION ☐ NWT ☐ NUNAVUT ☐ ADJACENT JURISDICTION OR		
E	LATITUDE DEGREES MINUTES SECONDS	LONGITUDE DEGREES MINUTES SECONDS		
F	RESPONSIBLE PARTY OR VESSEL NAME	RESPONSIBLE PARTY ADDRESS OR OFFICE LOCATION		
G	ANY CONTRACTOR INVOLVED	CONTRACTOR ADDRESS OR OFFICE LOCATION		
H	PRODUCT SPILLED	QUANTITY IN LITRES, KILOGRAMS OR CUBIC METRES	U.N. NUMBER	
	SECOND PRODUCT SPILLED (IF APPLICABLE)	QUANTITY IN LITRES, KILOGRAMS OR CUBIC METRES	U.N. NUMBER	
I	SPILL SOURCE	SPILL CAUSE	AREA OF CONTAMINATION IN SQUARE METRES	
J	FACTORS AFFECTING SPILL OR RECOVERY	DESCRIBE ANY ASSISTANCE REQUIRED	HAZARDS TO PERSONS, PROPERTY OR ENVIRONMENT	
K	ADDITIONAL INFORMATION, COMMENTS, ACTIONS PROPOSED OR TAKEN TO CONTAIN, RECOVER OR DISPOSE OF SPILLED PRODUCT AND CONTAMINATED MATERIALS			

L	REPORTED TO SPILL LINE BY	POSITION	EMPLOYER	LOCATION CALLING FROM	TELEPHONE
M	ANY ALTERNATE CONTACT	POSITION	EMPLOYER	ALTERNATE CONTACT LOCATION	ALTERNATE TELEPHONE

REPORT LINE USE ONLY					
N	RECEIVED AT SPILL LINE BY	POSITION **Station operator**	EMPLOYER	LOCATION CALLED **Yellowknife, NT**	REPORT LINE NUMBER **(867) 920-8130**
LEAD AGENCY ☐ EC ☐ CCG ☐ GNWT ☐ GN ☐ ILA ☐ INAC ☐ NEB ☐ TC			SIGNIFICANCE ☐ MINOR ☐ MAJOR ☐ UNKNOWN		FILE STATUS ☐ OPEN ☐ CLOSED

AGENCY	CONTACT NAME	CONTACT TIME	REMARKS
LEAD AGENCY			
FIRST SUPPORT AGENCY			
SECOND SUPPORT AGENCY			
THIRD SUPPORT AGENCY			

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