

#### Aurora Energy Resources Inc FINAL CLOSURE AND RECLAMATION PLAN Baker Lake Basin Property, Nunavut

Final

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Final Closure & Reclamation Plan

Date: June 28, 2010

Approved by: JSA

# Appendix V

# **Spill Contingency Plan**



# AURORA ENERGY RESOURCES INC. SPILL CONTINGENCY PLAN BAKER LAKE PROPERTY NUNAVUT

June 28, 2010

#### Aurora Energy Resources Inc Baker Lake Basin Property, Nunavut

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#### 1.0 Introduction

The Aurora Energy Resources Inc. Spill Contingency Plan shall be in effect from January 01, 2010. Any proposed changes and/or amendments will be submitted to the Nunavut Water Board, DIAND and the Kivalliq Inuit Association.

This Spill Contingency Plan has been specifically prepared for the Baker Lake Property exploration program. This Plan shall be posted at the camp.

Aurora Energy Resources Inc. endeavours to take every reasonable precaution toward ensuring the protection and conservation of the natural environment and the safety and health of all employees and contractors from any potential harmful effects of stored materials and operations.

#### 2.0 FACILITY

Bissett Lake Camp Location Coordinates (UTM Nad 83, Zone 15) 379624E, 7074865N, 63° 46' 49" N Lat, -95° 26' 30" W Long

There are 3 drums of diesel fuel currently stored on site these will be removed as per the Final Closure and Reclamation Plan.

#### 3.0 PETROLEUM AND CHEMICAL PRODUCT STORAGE AND INVENTORY

#### 3.1 Remote Location Fuel Inventory, Storage and Handling Procedures

There are 3 drums of diesel fuel are currently stored at the Bissett Lake camp. These will be removed as per the Final Closure and Reclamation Plan. No fuel will be transferred at this location.

#### 3.2 Petroleum Product Transfer

No fuel will be transferred for this program.

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#### 4.0 RISK ASSESSMENT AND MITIGATION OF RISK

#### 4.1 Petroleum Products and Other Fuels

#### Potential Spill Sources:

- 1) Drummed product: Leaks or ruptures may occur. This includes drums of Jet B, Diesel, Gasoline, Waste Fuel, and Waste Oil.
- 2) Vehicles and equipment: Mobile equipment and vehicles, aircraft (fixed and rotary wing), snowmobiles, generators, pumps. Incidents involving leaking or dripping fuels and oils may occur due to malfunctions, impact damage, and lack of regular maintenance, improper storage, or faulty operation.

Regular inspection and maintenance in accordance with recognized and accepted standard practices at the camp, reduces risks associated with the categories listed above.

Spill response training is provided to all personnel with particular attention to those personnel who handle fuels and other petroleum products. This training will include a presentation, "mock" spill, review of spill kit contents and their use and reporting.

Spill Kits will be located at the camp. A description of contents is listed in Section 7.0.

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#### 5.0 RESPONDING TO FAILURES AND SPILLS

#### 5.1 Spill Response Contact List

DIAND Water Resources Inspector Iqaluit, Nunavut (867) 975-4298

Environment Canada Iqaluit, Nunavut (867) 975-4644 24 hour pager - (867) 920-5131

Aurora Energy Resources Inc.
Suite 600, 140 Water Street, TD Place
St. John's, NL A1C 6H6
Telephone: (700) 726 2223 Fax: (700)

Telephone: (709) 726-2223 Fax: (709) 726-0138

#### 5.2 Basic Steps - Spill Procedure

In the case of any spill or other environmental emergency, it is necessary to react in the most immediate, safe, and environmentally responsible manner. No spill or incident is so minor that it can be ignored.

The basic steps of the response plan are as follows:

- 1. Ensure the safety of all persons at all times.
- 2. Identify and find the spill substance and its source, and, if possible, stop the process or shut off the source.
- 3. Inform the on-site coordinator or his/her designate at once, so that he/she may take the appropriate actions. Appropriate action includes the notification of the spill to the 24 hour Spill Line and DIAND Water Resource Officer, a copy of the Spill Report form can be found in Appendix 1.
- 4. Contain (if safe to do so) the spill or environmental hazard, as per its nature, and as per the advice of the Spill Line and the DIAND Water Resource Officer as required.
- 5. Implement any necessary cleanup and/or remedial action.

#### 5.3 Basic Steps - Chain of Command

- 1. Immediately notify the on-site coordinator or his/her designate of a spill.
- 2. The on-site coordinator or his/her designate shall immediately report to the 24-Hour Spill Line at (867) 920-8130, the DIAND Water Resources Inspector in Nunavut at (867) 975-4298, and Environment Canada personnel at 867-975-4644.
- 3. A Spill Report Form (Appendix 1) is filled out as completely as possible before or after contacting the 24 Hour Spill Line.
- 4. Notify Paul McNeill, V.P. of Exploration, Aurora Energy Resources Inc. at (709) 765-3842.

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### 5.4 Other contacts for spill response/assistance and further reporting

Nunavut Water Board	(867) 360-6338
Fisheries and Oceans Canada Habitat Impact Assessment Biologist	(867) 979-8007
Government of Nunavut Department of Environment	(867) 975-5910

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#### 6.0 TAKING ACTION

#### 6.1 Fuel Handling, Transfer and Storage: Preventative Measures

The following actions illustrate a proactive approach to environmental stewardship. In addition, these actions minimize the potential for spills during fuel handling, transfer and storage:

- 1. Fuel transfer hoses with cam lock mechanisms are used.
- 2. Carefully monitor fuel content in the receiving vessel during transfer. Always have additional absorbent pads on hand while transferring fuel.
- 3. Clean up drips and minor spills immediately.
- 4. Regularly inspect drums, tanks and hoses for leaks or potential to leak and for proper storage.
- 5. Create fuel caches in natural depressions that are located a <u>minimum</u> of 31 metres from the normal, high-water mark of any water body.
- 6. Train personnel, especially those who will be operators, in proper fuel handling and spill response procedures.

#### **6.2 Spill Control and Mitigation Measures**

- 1. Immediate Response Measures:
  - a) Ensure your own safety and that of others around you, beginning with those nearest to the scene.
  - b) Control danger to human life, if necessary.
  - c) Identify the source of the spill.
  - d) Notify your supervisor, request assistance if needed.
  - e) Assess whether or not the spill can be readily stopped.
  - f) Contain or stop the spill at the source.

#### 2. Secondary steps to take:

- a) Determine status of the spill event.
- b) If necessary, pump fuel from a damaged and/or leaking tank or drum into a refuge container.
- c) Notify the 24-hour Spill Report Line, and receive further instructions from the appropriate contact agencies listed in Section 5.3. (e.g., disposal of contaminated soil or ice/snow in sealed containers for removal from site, etc.).
- d) Complete and Fax a copy of the Spill Report Form (Appendix I).
- e) Notify permitting authorities.
- f) If possible, resume cleanup and containment.

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#### **6.3 Spill Response Actions**

#### 6.3.1 Spill Response: Diesel Fuel, Hydraulic Oil, and Lubricating Oil

- TAKE ACTION ONLY IF SAFETY PERMITS
- CONTINUOUSLY ASSESS AREA FOR BUILD-UP OF VAPOURS
- STOP THE SOURCE FLOW IF SAFE TO DO SO, and
- ELIMINATE ALL IGNITION SOURCES.
- **NEVER SMOKE** WHEN DEALING WITH THESE TYPES OF SPILLS.

#### On Land

- Build a containment berm using soil material or snow and place a plastic tarp at the foot of the berm for easy capture of the spill after all vapours have dissipated.
- Remove the spill by using absorbent pads or excavating the soil, gravel or snow.
- Remove spill splashed on vegetation using particulate absorbent material.
- Contact regulatory agencies for approval before commencing with the removal of any soil, gravel, or vegetation.

#### On Muskeg

- Do not deploy personnel and equipment on marsh or vegetation.
- Remove pooled oil with sorbent pads and/or skimmer.
- Seek instruction from Project Manager or designate on further mitigative measures.
- Only upon receiving direction from regulatory agencies and confirmation from Project Manager, should burning measures be implemented.
- Burn only in localized areas, e.g., trenches, piles or windrows and Do not burn if root systems can be damaged (low water table).
- Minimize damage caused by equipment and excavation.

#### On Water

- Contain spill as close to release point as possible.
- Use containment boom to capture spill for recovery after vapours have dissipated.
- Use absorbent pads to capture small spills.
- For larger spills use skimmer, where possible

#### On Ice and Snow

- Build a containment berm around spill using snow.
- Remove spill using absorbent pads or particulate sorbent material.
- The contaminated ice and snow must be scraped and shoveled into plastic buckets with lids, 205 litre drums, and/or polypropylene bags.

#### **Storage and Transfer**

- All contaminated water, ice, snow, soil, and clean up supplies will be stored in closed, labeled containers.
- All containers will be stored in a well ventilated area away from incompatible materials.

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#### Disposal

• Contact Federal and Territorial regulatory agencies to identify appropriate disposal methods before disposing of contaminated material.

#### 6.3.2 Spill Response: Gasoline And Jet B Aviation Fuel

- TAKE ACTION ONLY IF SAFETY PERMITS
- STOP THE SOURCE FLOW IF SAFE TO DO SO, and
- ELIMINATE ALL IGNITION SOURCES.
- **NEVER SMOKE** WHEN DEALING WITH THESE TYPES OF SPILLS.

#### On Land

- Build a containment berm using soil material or snow and place a plastic tarp at the foot of the berm for easy capture of the spill after all vapours have dissipated.
- Remove the spill by using absorbent pads or excavating the soil, gravel or snow.
- Remove spill splashed on vegetation using particulate absorbent material.
- Contact regulatory agencies for approval before commencing with the removal of any soil, gravel, or vegetation.

#### On Muskeg

- Do not deploy personnel and equipment on marsh or vegetation.
- Remove pooled oil with sorbent pads and/or skimmer.
- Seek instruction from Project Manager or designate on further mitigative measures.
- Flush with low pressure water to herd oil to collection point.
- Only upon receiving direction from regulatory agencies and confirmation from Project Manager, should burning measures be implemented.
- Burn only in localized areas, e.g., trenches, piles or windrows and Do not burn if root systems can be damaged (low water table).
- Minimize damage caused by equipment and excavation.

#### On Water

- Contain spill as close to release point as possible.
- Use containment boom to capture spill for recovery after vapours have dissipated.
- Use absorbent pads to capture small spills.
- For larger spills use skimmer, where possible

#### On Ice and Snow

- Build a containment berm around spill using snow.
- Remove spill using absorbent pads or particulate sorbent material.
- The contaminated ice and snow must be scraped and shoveled into plastic buckets with lids, 205 litre drums, and/or polypropylene bags.

#### Storage and Transfer

- All contaminated water, ice, snow, soil, and clean up supplies will be stored in closed, labeled containers.
- All containers will be stored in a well ventilated area away from incompatible materials.

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#### Disposal

 Contact Federal and Territorial regulatory agencies to identify appropriate disposal methods before disposing of contaminated material.

#### 6.3.3 Spill Response: Propane

Take action only if safety permits. Gases stored in cylinders can explode when ignited. Keep vehicles away from area. **Never smoke** when dealing with these types of spills.

#### On Land

• Do not attempt to contain the propane release.

#### On Water

• Do not attempt to contain the propane release.

#### On Ice and Snow

Do not attempt to contain the propane release.

#### General

- It is not possible to contain vapours when released.
- Water spray can be used to knock down vapours if there is no chance of ignition.
- Small fires can be extinguished with dry chemical of CO2.
- Personnel should withdraw immediately from area unless a small leak is stopped immediately after it has been detected.
- If tanks are damaged, gas should be allowed to disperse and no recovery attempt should be made.
- Personnel should avoid touching release point on containers since contact with propane may cause frostbite.
- Keep away from tank ends.

#### **Storage and Transfer**

• It is not possible to contain vapours when released.

#### Disposal

• Contact Federal and Territorial regulatory agencies to report release and to identify appropriate disposal methods for detective equipment that resulted in the release.

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#### 7.0 SPILL RESPONSE EQUIPMENT

Complete spill kits are kept on hand at the camp. Spill kits contain:

- 1 360 litre/79 gallon polyethylene over-pack drum
- 4 oil sorbent booms (5" X 10')

100 - oil sorbent sheets (16.5" X 20" X 3/8")

- I drain cover (36" X 36" X 1/16")
- 1- Caution tape (3" X 500')
- 1- Danger tape (3" X 500')
- 1 1 lb plugging compound
- 1 box Nitrile gloves
- 2 pair Safety goggles
- 2 pair Tyvek coveralls
- 1 instruction booklet (copy of this spill response plan)
- 10 printed disposable bags (24" X 48")
- 1- shovel

In addition at least one empty fuel drum will be located at each fuel cache in the event of damaged or leaking drums.

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#### 8.0 Training and Practice Drills

#### 8.1 Training

All employees and contractors are required to become familiar with the spill response resources at hand, this Contingency Plan, and will also be trained for initial spill response methods. Involvement of other employees may be required, from time to time. Annual refreshers will be conducted to review the procedures within this plan.



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# Appendix I Nunavut Spill Report Form



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Northwest lierritories Canada NT-NU SPILL REPORT OIL, GASOLINE, CHEMICALS AND OTHER HAZARDOUS MATERIALS  REPORT LINE USE ONLY													
Α	REPORT DATE: MONTH – DAY – YEAR				REPOF	RT TIME						ORT NUMBER	
В	OCCURRENCE DATE: MONTH - DAY - YEAR			OCCURRENCETIM		RRENCETIME	UPDATE# TO THE ORIGINAL SPILL REPORT				-		
С	LAND USE PERMIT NUMBER (IF APPLICABLE)				WATER LICENCE NUMBE			ER (IF APPLICABLE)					
D	GEOGRAPHIC PLACE NAME OR DISTANCE AND DIRECTION FRO				DM THE NAMED LOCATION			REGION ☐ NUNAVUT ☐ ADJACENT JURISDICTION OR					
Е	LATITUDE DEGREES MINUTES SECONDS				LONGITUDE DEGREES MINUTES SECONDS								
F	RESPONSIBLE PARTY	RESPON	RESPONSIBLE PARTY ADDRESS OR OFFICE LOCATION										
G	ANYCONTRACTOR NVOLVED				CONTRACTOR ADDRESSOR OFFICE LOCATION								
Н	PRODUCT SPILLED			QUANTITY N LITRES, KILOGRAMS OR (			OR CUE	CUBIC METRES U.N. NUMBER			MBER		
	SECOND PRODUCT SPILLED (F APPLICABLE)			QUANTI	TY N LI	TRES, KILOGRAMS	OR CUE	BIC MET	TRES	U.N. NUMBER			
I	SPILLSOURCE			SPILL CAUSE					AREA OF CONTAMINATION IN SQUARE METRES				
J	FACTORS AFFECTING SPILL OR RECOVERY			DESCRIBE ANY ASSISTANCE REQUIRED				HAZARDSTO PERSONS, PROPERTY OR ENVIRONMENT					
К	ADDITIONAL INFORMATION, COMMENTS, ACTIONS PROPOSED OR TAKEN TO CONTAIN, RECOVER OR DISPOSE OF SPILLED PRODUCT AND CONTAMINATED MATERIALS												
L	REPORTED TO SPILL UNE BY		POSITION		EMI	EMPLOYER LOCA		OCATIO	ATION CALLING FROM			TELEPHONE	
М	ANY ALTERNATE CONTACT		POSITION		EMI	PLOYER	ALTERNATE CONTA			ACT LOCATION		ALTERNATE TELEPHONE	
REPOR	RT LINE USE ONLY				-								
N			POSITION Station operator		EM	PLOYER			ON CALLED Vknife, NT			REPORT LINE NUMBER (867) 920-8130	
LEAD A	LEAD AGENCY   EC   CCG   GNWT   GN   ILA   INAC   NE			B TC SIGNIFICANCE MINOR [			NOR 🗆	☐ MAJOR ☐ UNKNOWN FLES			FLE ST	TATUS OPEN CLOSED	
AGENCY CONTAC		CONTACT NAME	NTACT NAME		со	NTACT TIME	REMARK		KS				
LEAD A	LEAD AGENCY												
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THIRD	SUPPORT AGENCY												
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# **Appendix II**

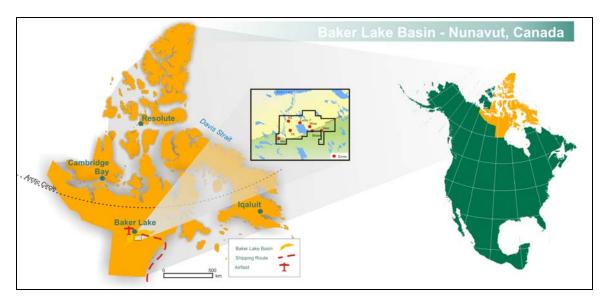
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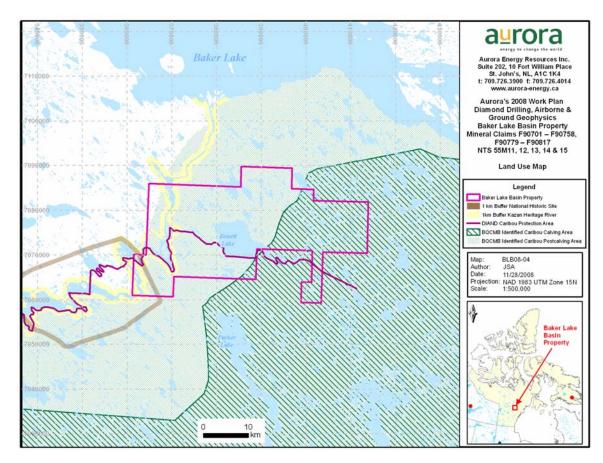
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#### Baker Lake Basin project location map







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#### BAKER LAKE CAMP LAYOUT





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# **Appendix II**

## **MSDS Sheets**