

# ADVANCED EXPLORATIONS INC.



## **Oil and Hazardous Material Spill Contingency Plan Roche Bay Project**

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## **EXECUTIVE SUMMARY**

Advanced Explorations Inc.'s (AEI) Oil and Hazardous Material Spill Contingency Plan has been designed for the exploration programs being planned and undertaken at AEI's projects on the Melville Peninsula. The purpose of the plan is to provide a plan of action for foreseeable spill events at the camp and drill locations. It defines the responsibilities of key response personnel and outlines the procedures for responding to spills in a way that will minimize potential health and safety hazards, environmental damage, and clean up costs. The plan has been prepared to provide easy access to all of the information needed in dealing with a spill.

It is the policy of the Company to initiate cleanup activities when, in the opinion of its management, the Company is clearly associated or likely to be associated with the spilled material. As well, corporate policy is to: comply with existing regulations; provide such protection of the environment as is technically feasible and economically practical; cooperate with other groups working on the protection of the environment; anticipate future pollution control requirements and to make provision for them; and keep employees, government officials and the public informed of the status of the site.

As part of this policy, all fuel barrels in storage are kept within secondary containment berms which are purpose-designed for the application. The Company also ensures that spill kits are on hand at all times, and that waste products produced at the site are shipped to appropriate facilities for proper disposal. Procedures of the Plan are incorporated in the weekly safety meetings to ensure that the topic stays relevant and active in the minds of personnel working on the site. Any improvements suggested by personnel are evaluated and included in the Spill Contingency Plan, if appropriate, as part of the continuous improvement initiative which the company pursues.

It is the belief of the Company that the best policy is to take proper and necessary precautions during the handling of materials in order to avoid spills. Thus, the spill contingency plan is dynamic and will evolve with the changing conditions on site, such as changes in the stage of development or in personnel. This plan is effective as of the front cover date of this document and updated throughout the life of the project to reflect changes in operation and technology. The Company has received the appropriate permits/licenses for the area, as detailed on the cover page of report.

This plan will be distributed to all head office and site management personnel directly involved in the project and hard copies will be kept on site for all employees to review. Additional copies and updates of this plan may be obtained via email at [jennifer@advanced-exploration.com](mailto:jennifer@advanced-exploration.com).

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## Introduction

The purpose of the Advanced Explorations Inc. ('AEI' or 'Company') Oil and Hazardous Material Spill Contingency Plan is to provide a plan of action for foreseeable spill events on project lands. It defines the responsibilities of key response personnel and outlines the procedures for responding to spills in a way that will minimize potential health and safety hazards, environmental damage, and clean up costs. The Plan has been prepared to provide easy access to all of the information needed in dealing with a spill.

The project area and land administration units and a schematic of the temporary camp areas are presented in Figures 1 and 2. A description of the facility including location, size and licensed storage capacity are also provided in Appendix A. Currently, there is no permanent infrastructure at the site. The present goal is to explore the property for mineral potential.

It is the policy of AEI to initiate cleanup activities when, in the opinion of its management, the Company is clearly associated or likely to be associated with a spilled material. As well, it is AEI's Company policy:

- to comply with existing regulations;
- to provide such protection of the environment as is technically feasible and economically practical;
- to cooperate with other groups working on the protection of the environment;
- to anticipate future pollution control requirements and to make provision for them; and
- to keep employees, government officials and the public informed of the status of the site.

It is the belief of the Company that the best way to avoid ever having to implement this Spill Contingency Plan is by taking proper and necessary precautions during the handling of the materials. As part of this, all fuel barrels in storage will be kept within a secondary containment berm which is purpose-designed for the application. We will also ensure that spills kits are on hand at all times. Materials used on site such as gasoline and oil will be stored in drums and transported to the site by helicopter from storage areas. Waste products produced at the site will be shipped out on returning supply aircraft or searift.

## Response Organization

The spill response team will comprise all employees and personnel who are present at the site of an undertaking. Generally, this should include the current site manager and the site representative of any contractors that may be involved, such as drill contractor, camp contractor or helicopter crew. The site manager is responsible for managing the entire

undertaking and is in charge of the management of petroleum products or hazardous materials. It is the site manager who will be initially responsible for cleanup activities.

In the event that the primary personnel are away from the site, it will be the responsibility of the primary personnel to appoint a duly authorized responsible person. The first team member at the scene shall assume spill activation procedures until the responsible person is present and shall take over the responsibility.

In the case of a major spill situation, the primary personnel who should be onsite to activate the proper procedures are the Project Manager and Site Supervisor. They may be reached 24 hours/day on the camp satellite phone or 867-928-8030 (Hall Beach Office) during the summer exploration season; off season, contact AEI at 416-203-0057.

## **Initial Actions**

This section is included to educate company personnel about the proper procedures for reacting to a spill.

The suggested course of action of the first person at a spill scene is the following:

- (a) Be alert and considerate of your safety first. If possible, identify the product spilled (refer to Product Information in Appendix B and Supporting Documentation in Appendix C);
- (b) Assess the hazard to persons in the vicinity of the spill;
- (c) If possible, without further assistance, control danger to human life;
- (d) Assess whether the spill can be readily stopped or brought under control;
- (e) If safe to do so, and if possible, try to stop the flow of material;
- (f) Gather information of the status of the situation;
- (g) Report the spill without delay to the Site Manager and ensure that the government is notified at the same time by the NT-NU 24-Hour Spill Report Line at 867-920-8130. AANDC's Manager of Field Operations shall also be notified by phone at 867-975-4295 and/or fax at 867-979-6445;
- (h) Notify the Project Manager and Site Supervisor on the camp satellite phone or 867-928-8030 (Hall Beach Office); off season, contact AEI at 416-203-0057; and
- (i) Resume any effective action to contain, clean up, or stop the flow of the spilled product.

## **Reporting Procedures**

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 an investigation may be undertaken by the appropriate government authority. This should be done by either the Site Manager or the

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Project Manager. If neither of these people is available at the time of a spill, the first spill response team member who is present at the site is responsible for the reporting procedures.

**Spill Reporting Procedures**

1. Fill out the "Spill Report Form" found in Appendix D as completely as possible before calling in the report.
2. Report IMMEDIATELY to Iqaluit using the 24-hour Spill Report Line

**24-HOUR SPILL REPORT LINE 867-920-8130**

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

**FAX: 867-873-6924**

4. Confirm receipt of the Spill Report
5. Report spill immediately to the **Nunavut Government Field Operations Manager**

**PHONE: 867-975-4295**

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

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

Once the proper governmental authorities have been notified, attempts should be made to notify the Site Manager and/or Project Manager if they were not present at the time of the spill. The next person to be notified is the Chief Executive Officer, and a copy of the report should be e-mailed to him at [john@advanced-exploration.com](mailto:john@advanced-exploration.com) as soon as is possible after the spill. A list of additional contact information that might be needed at the time of a spill can be found in Appendix E.

For each spill occurrence, AANDC's Water Resources Officer/Inspector/Manager of Field Operations shall be contacted immediately by phone at 867-975-4295 and/or fax at 867-979-6445. The spill report shall be submitted to the Inspector no later than thirty (30) days after initially reporting the spill to the Spill Report Line.

If and when any hazardous waste has to be moved to a proper disposal facility, the Environmental Protection Service (EPS) must be contacted to track the movement of hazardous

waste from the generator to the final disposal site through the use of a document called a waste manifest. This document must accompany all hazardous waste in transit regardless of the means of transport. All parties (the generator, carrier, and receiver) must be registered by the EPS and the registration number entered in the appropriate location on the waste manifest form. Registration numbers and waste manifest forms are available from the EPS. More details on the waste manifest can be found in Appendix F.

## Action Plans

Given the nature of the undertaking, the most likely spill possibilities would be leakage of the drums at the camp, spilling during transit, as a result of defective equipment, or through simple human error. Due to the small quantities in transit at any given time (45 gallon drums), the likelihood of a major spill is negligible. Further, contamination of bodies of water will be avoided by not transporting fuel over water and storage at least 31 m from any body of water. Fuel spill kits will be kept in close proximity to all fuel caches.

The risk of spills will be further reduced through regular inspection and maintenance of all storage areas and equipment associated with fuel handling. These include:

- all fuels to be stored within secondary containment berms designed for the purpose, and inspected on a regular basis: visual checks every time the cache is visited and a formal inspection by the Site Supervisor or other person appointed by the Site Supervisor on a weekly basis;
- pre-use visual checks of fuel pumps and hoses;
- carefully monitoring content in the receiving vessel during transfer;
- cleaning up drips and minor spills immediately;
- regularly inspecting drums, tanks and hoses for leaks or potential to leak; and
- training personnel, especially those who will be operators, in proper fuel handling and spill response procedures.

A record of these inspections and any remedial action is kept in camp and forwarded to Head Office.

### *Procedure for Spills on Rock*

For spills on rock outcrops, boulder fields, etc.:

1. First responder or their designate obtains plastic tarpaulin(s) and absorbent sheeting on site.

2. A berm of peat, native soil or snow is constructed down-slope of the seepage or spill. The tarp is placed in such a way that the fuel can pool for collection and removal (e.g. at the foot of the berm). If there is a large volume of spilled product, pump the liquid into spare empty drums for sealing and disposal.
3. Absorbent sheeting is placed on the rock to soak up spilled oil, fuel, etc.
4. Crushed lava rock can be used to scrub the rock surface.
5. Saturated material is disposed of in an empty drum, which is then labeled and sealed. Alternatively, the pads may be wrung out into empty drums and the drums marked and then secured for eventual disposal.
6. Report the nature and volume of the spill to the 24-Hour Spill Report Line.

### *Procedure for Spills on Land*

For spills on land:

1. First responder or their designate obtains plastic tarpaulin(s), absorbent sheeting, ultra-dry absorbent and any other necessary spill containment equipment, pumps, hoses, etc.
2. A berm of peat, native soil or snow is constructed down-slope of the seepage or spill. The tarp is placed in such a way that the fuel can pool for collection and removal (e.g. at the foot of the berm). If there is a large volume of spilled product, pump the liquid into spare empty drums for sealing and disposal.
3. Applying a thin dusting of ultra-dry absorbent to the groundcover may control petroleum-product sheen on vegetation.
4. All contaminated soil must be shoveled into empty drums as far as possible and kept for disposal. The material shall be transported away from site and disposed of at the nearest suitable facility where a capable waste management contractor will ensure disposal.
5. Contact the 24-Hour Spill Report Line to report the incident, the nature of the spill and the estimated volume of the spill.

### *Procedure for Spills on Water*

It is important to immediately limit the extent of spills. The following is the procedure to be implemented when an incident on water occurs:

1. If the spill is small, deploy hydrophobic (water repellent) absorbent pads on the water. Hydrophobic pads readily absorb hydrocarbons. Alternatively, an ultra-dry absorbent designed for use on water-based spills may be deployed.
2. If the spill is larger, ready several empty drums to act as refuge containers for the spills.
3. Deploy containment booms on the water surface to “fence in” the spill area gradually and to prevent it from spreading. Keep in mind those environmental factors such as high winds and wave action can adversely affect attempts at spill cleanup. Absorbent booms can then be deployed to encircle and then absorb any spillage that may have escaped the containment boom.
4. Once a boom has been secured, a skimmer may be brought on scene to help capture the hydrocarbon. Once captured, the product should be pumped into the empty fuel drums and held for disposal.
5. Contact the 24-Hour Spill Report Line to report the incident, the nature of the spill and the estimated volume.

### *Procedure for Spills on Snow*

By its nature, snow is an absorbent and fuel spilled on snow is collected with relative ease using either a shovel or loader, depending on the size of the spill.

1. Assess the nature of the spill. Necessary equipment might include shovels, plastic tarps, empty drums and/or wheeled equipment.
2. Shovel or scrape contaminated snow and deposit in empty fuel drums, and then secure for eventual disposal. If the spill is more extensive, build compacted snow berms with plastic overtop around the affected area.
3. Contact the 24-Hour Spill Report Line and report the spill.

### *Procedure for Spills on Ice*

Spills on ice are handled similarly to those on snow. However, as ice presents the added danger of immediate access to water, care must be taken to respond quickly to such spills. Should fuel seep or flow through cracks or breaks in the ice, despite all precautions, assistance should be sought immediately (refer to Appendix E).

1. Construct a compacted snow berm around the edge of the spill area.

2. Although hard ice will slow or prevent fuel entry to the receiving waters below, all contaminated snow and ice, as well as objects embedded in the ice (such as gravel or frozen absorbent pads) must be scraped from the ice surface and disposed of in an appropriate manner.
3. Contact the 24-Hour Spill Report Line and report the spill.

### *Procedure for Berm Water Contamination*

In order to reduce the potential impact to water that collects in fuel containment berms from natural sources, it is important to minimize the amount of snow and/or rain entering the berms at all times. This is accomplished by covering the drummed fuel with polytarps to the extent possible. In addition, drums inside the berms are stacked for long-term storage with bungs at the 3 and 9 o'clock positions. Water that does collect in the berms will be pumped into empty 205 L (45 gallon) drums for containment and future treatment, if immediate treatment is not available. Water in the berms or in the storage containers will be treated once an approved filtration system is available, with the release of treated water being discharged away from any surface water bodies.

### *Procedure for Loss of External Load during Air Transportation*

The loss of external loads of fuel, oil, or chemicals from aircrafts almost certainly results in complete and catastrophic failure of the container that once held the product. Immediate response is imperative.

1. Mark the loss target with global positioning system (GPS) coordinates and relay to camp ASAP. Include quantity and type of load loss.
2. Camp should contact the 24-Hour Spill Report Line and report the spill.
3. Administer the appropriate procedures for spills on land, water, snow or ice depending on the location of the spill.

Note: Contamination of waterbodies will be minimized by limiting fuel transport over water.

### *Procedure for Loss of External Load during Ground Transportation*

Spills during the transportation of fuel over land should be treated the same as spills on snow, ice, water or land, depending on the location of the spill. Further the response should include:

1. Mark the loss target with global positioning system (GPS) coordinates and relay to camp ASAP. Include quantity and type of spill.

2. Camp should contact the 24-Hour Spill Report Line and report the spill.
3. Administer the appropriate procedures for spills on land, water, snow or ice depending on the location of the spill.

Note: Contamination of waterbodies will be minimized by limiting fuel transport over water.

## Resource Inventory

The following is a list of both the personnel and the specific types of equipment, machinery and tools that will be made available at camp. This includes equipment to be used by a contractor responding to the spill on the Company's behalf. These resources are described in two categories, and are partially dependent on the size of the exploration program being conducted, and the stage at which the camp is in operation:

- Personnel (dependent on the size of the seasonal drill programs):
  - o Site Manager
  - o Drill Supervisor
  - o Drillers and Drill Helpers
  - o Camp Cooks, who are also First Aid Officers
  - o Camp Manager
  - o Geologists and Geotechs
  - o General Labourers
  - o Consultants (presence will fluctuate during the undertaking)
  - o Pilot(s)
  - o Aircraft Engineer(s)
  - o Environmental Specialist
  - o Bear Monitor(s)
- Equipment (estimate; some equipment onsite only seasonally):
  - o Helicopter
  - o Diamond drills
  - o ATVs; Snowmobiles
  - o Industrial Diesel Generators
  - o Piston Water Pumps
  - o A Weatherhaven camp
    - Complete spill kits. A spill kit will be located at each drill site during drilling operations, at the camp where fuel is stored and at any fuel cache. All kits will be inspected on a regular basis to ensure they are fully equipped and usable. Each kit contains (or similar), depending on the size:

- 
- Absorbent pads, pillows, socks
  - Booms
  - Protective coveralls, gloves, boot covers
  - Disposal bags
  - Shovel
  - Skimmer
  - Plugs
  - Mats

For resources and contact information available from other sources, please see Appendix D.

## **Training and Exercises**

To prepare personnel to deal with a spill, all people in the camp will be instructed on the procedures set out in this Spill Contingency Plan, and on the practical use of a spill kit. The training shall include dry demonstrations of the application of the components making up the spill kits. The location of spill kits will be communicated as part of the training and all personnel will be instructed on the importance and necessity of preventing fuel spills.

The procedures of the Spill Contingency Plan will be incorporated in the weekly safety meetings to ensure that the topic stays relevant and active in the minds of personnel working on the site. Any improvements suggested by personnel will be evaluated and included in the Spill Contingency Plan as part of the continuous improvement initiative which the company pursues.

Further, upon arrival at the site, each member of the Team will also undergo a site induction which includes the contents of this Spill Contingency Plan as part of site orientation.

## **Conclusion**

This spill contingency plan is dynamic and will evolve with the changing conditions on site, such as changes in the stage of development or in personnel. This plan shall be updated annually, as a condition of the water license, to reflect changes in operation and technology.

Copies of this spill contingency plan will be readily available in all locations of concern at the site as well as with personnel entrusted with spill response duties.

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\_\_\_\_\_  
**John Gingerich**  
Chief Executive Officer  
Advanced Explorations Inc.

Feb 17 / 14  
Date

  
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**Eric Guo**  
Director  
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Date

[Appendices available on CD only]