# Spill Contingency Plan, Version 7

# MEADOWBANK MINE

## Spill Contingency Plan

Meadowbank Mine Site
All Weather Access Road (AWAR)
Whale Tail Pit
Whale Tail Haul Road
Baker Lake Facilities

In Accordance with Water License 2AM-WTP1826 & 2AM-MEA1526

Prepared by:
Agnico Eagle Mines Limited – Meadowbank Division

Version 7
February 2019

# EXECUTIVE SUMMARY

This document presents the Spill Contingency Plan for Agnico Eagle Mines Limited (Agnico Eagle) Meadowbank Mine Site, All Weather Access Road (AWAR), Whale Tail Mine Site, Whale Tail Haul Road, and Baker Lake Marshalling Facilities, which is a requirement of the Meadowbank Gold Project Type A Water License No. 2AM-MEA1526 issued on July 23, 2015 and 2AM-WTP1826 issued on July 11, 2018.

The Spill Contingency Plan (SCP) designates lines of authority, responsibility, establishes proper reporting and details plans of action in the event of a spill. This plan applies to the operational phase of the Project and is applicable to all Agnico Eagle employees and any contractors associated with the project located at latitude 65°01'52"N and longitude 96°04'22"W approximately 70 km north of Baker Lake in Nunavut including the Baker Lake Marshalling Facilities located at latitude 64°18'36"N and longitude 95°58'04"W, Whale Tail Project located at latitude 64°24’14” and 96°40’50”, the All-Weather Access Road (AWAR), and the Whale Tail Haul Road between Meadowbank and Whale Tail sites.

## IMPLEMENTATION SCHEDULE

As required by Water License 2AM-WTP1826 Part B, Item 13 & 2AM-MEA1526 Part B Item 11, the implementation schedule for this Plan is effective immediately (February 2019) subject to any modification proposed by the NIRB and NWB as a result of the review and approval process.

## DISTRIBUTION LIST

Agnico Eagle – Environmental Superintendent
Agnico Eagle – Environmental General Supervisor
Agnico Eagle – General Mine Manager
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Agnico Eagle – Geology Superintendent
Agnico Eagle – Mill Superintendent
Agnico Eagle – Maintenance Superintendent
Agnico Eagle – Mine Superintendent
Agnico Eagle – Energy & Infrastructure Superintendent

# DOCUMENT CONTROL

| Version | Date (YMD) | Section | Page | Revision |
|---|---|---|---|---|
| 1 | 08/08/08 | | | Comprehensive plan for Meadowbank Mine Site, Exploration Camp and Baker Lake Facilities |
| 2 | 11/12/04 | | | Update of Contacts, Spill management materials, include AWAR map and Spill KIT Location Map |
| 3 | 12/07/25 | | | Update of the hazardous materials stored on site |
| 4 | 2013/11 | | | Comprehensive revision and update with info for Baker Lake Jet-A Tank |
| 5 | 2014/11 | Appendices I & J | | Include the prohibition of adding neutralizing chemicals to drainages or near or within water bodies |
| 6 | 2015/09 | 3<br>Table 4<br>5.1.3<br>5.6<br>Appendix L<br>Appendix M | | Change definition of a major spill and minor spill<br>Contact Information<br>Add point that procedure MBK-ENV-0016 will be followed for reporting spills<br>Addition of section on event monitoring. Seepage monitoring included in section.<br>Dyno Nobel Emergency Response Plan added in Appendix J<br>MBK-ENV-0016 Spill Response Procedure Added |
| 7 | 2019/02 | Complete document | | Added Whale Tail pit and haul road to the Spill Plan. |

Prepared By: Environmental Department

Approved By:

Robin Allard
*General Supervisor Environment*

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# LIST OF ACRONYMS

| | |
|---|---|
| Agnico Eagle | Agnico Eagle Mines Limited |
| ANFO | Ammonium Nitrate Fuel Oil |
| AWAR | All-Weather Access Road |
| CCME | Canadian Council of Ministers of the Environment |
| CIRNAC | Crown-Indigenous Relations and Northern Affairs Canada |
| DFO | Fisheries and Oceans Canada |
| ECCC | Environment and Climate Change Canada |
| EMS | Environmental Management System |
| ERP | Emergency Response Plan |
| ERT | Emergency Response Team |
| ERTC | Emergency Response Team Coordinator |
| GN | Government of Nunavut |
| HCN | Hydrogen Cyanide |
| HMMP | Hazardous Materials Management Plan |
| LEL | Lower Explosion Limit |
| MSDS | Materials Safety Data Sheets |
| NIOSH | National Institute for Occupational Safety and Health |
| OHSP | Occupational Health & Safety Plan |
| PCB | Polychlorinated Biphenyls |
| PPE | Personal Protective Equipment |
| PTA | Product Transfer Area |
| SCP | Spill Contingency Plan |
| TBD | To Be Determined |
| TDG | Transportation of Dangerous Goods |
| WHMIS | Workplace Hazardous Materials Information System |

# 1. INTRODUCTION

## 1.1 PURPOSE AND SCOPE OF THE SPILL CONTINGENCY PLAN

The overall purpose of creating a spill contingency plan is to minimize the impacts of spills by the establishment of predetermined lines of response and plans of action. This plan has been designed to facilitate effective communication and the efficient clean-up of potentially hazardous materials spills. These materials include:

- Hydrocarbon liquids such as diesel fuel, aviation fuel (Jet-A), gasoline, hydraulic oil;
- Soluble solids such as ammonium nitrate prills;
- Soluble liquids, such as glycols, acids, paints;
- Corrosive liquids such as sulphuric acid and corrosive solids such as sodium cyanide; and
- Any deleterious substances such as suspended solids, arsenic, copper, lead, nickel, zinc etc.

More specifically the objectives of this Spill Contingency Plan (SCP) are to:

- Identify roles, responsibilities, and reporting procedures;
- Provide readily accessible emergency information to the cleanup crews, management, and government agencies;
- Comply with federal and territorial regulations and guidelines pertaining to the preparation of contingency plans and notification requirements;
- Promote the safe and effective recovery of spilled materials; and
- Minimize the environmental impacts of spills to water or land.

This plan has been prepared in accordance with the following reference documents:

- Crown-Indigenous Relations and Northern Affair Canada (CIRNAC) 2007. *Guidelines for Spill Contingency Planning*;
- Government of Canada, Department of Fisheries and Ocean (DFO) 2016, *Fisheries Act*;
- Government of Canada, Environment and Climate Change Canada (ECCC) 1999, *Canadian Environmental Protection Act (CEPA) Environmental Emergency Regulations*;
- Government of Canada, Environment and Climate Change Canada (ECCC) 2017, *Migratory Birds Convention Act 1994*;
- Government of Canada, Environment and Climate Change Canada (ECCC) 2018, *Metal and Diamond Mining Effluent Regulations*;
- Government of Nunavut (GN), *Contingency Planning and Spill Reporting in Nunavut. A Guide to the New Regulations;*
- Government of Nunavut (GN) 2002, *Guideline General Management of Hazardous Wastes in Nunavut*; and
- Northwest Territories Resources Wildlife and Economic Development, Environmental Protection Service. 1988. *Spill Contingency Planning and Reporting Regulations*.

# 2 PROJECT DESCRIPTION

The Meadowbank Gold Project, operated by Agnico Eagle Mines Limited, is located approximately 70 km north of the Hamlet of Baker Lake in Nunavut. The project is located on Inuit Owned surface lands (IOL BL-14) and has the following coordinates:

Latitude: 65°01'52"N
Longitude: 96°04'22"W
NTS map sheet 66H/1

Meadowbank Project components include marshalling facilities in Baker Lake, the 110 kilometer All-Weather Access Road (AWAR) from Baker Lake, the Meadowbank mine site (Figure 9), the Whale Tail Project and the Whale Tail Pit Haul Road between Meadowbank and Whale Tail sites (Figure 10). The Meadowbank mine site consists of the process plant, landfarm, sewage treatment plant, water intake, accommodation buildings, power plant, tank farm, warehouse, truck shop, emulsion plant, open pit (Figure 1) and Vault area (Figure 2). The Baker Lake Marshalling Area consists of a laydown transfer area to temporarily store materials prior to the delivery to the Meadowbank mine site. The Baker Lake fuel farm consists of six (6), ten (10) million litre tanks for diesel fuel, within secondary containment (Figure 3) and eighteen (18) 100,000L double walled tanks, within secondary containment, for aviation fuel (Figure 4). Agnico Eagle is in the permitting process to add two 10,000,000 L tanks in Bake Lake. The Whale Tail camp (Figure 5) consists of sewage treatment plant, water intake, accommodation buildings, power plant, 1,500,000 bulk fuel storage area, warehouse, maintenance shop, and open pit. The Whale Tail Haul Road has one diesel tank of 1,915L installed at Km 132.

The fuel is delivered in bulk by sealift to the Baker Lake fuel farm. From there, fuel is hauled to the Meadowbank and Whale Tail sites by contractor tanker trucks on the AWAR and on the Whale Tail Pit Haul Road, respectively. Diesel fuel coming from the Baker Lake Tank Farm is stored at the Meadowbank site into a single 5.6 million litre tank, within secondary containment, and the aviation fuel into eight (8) – 50,000L double walled tanks in proximity of the airstrip. Fuel at the Whale Tail site will be stored in one 1,500,000 L tank. From there, the diesel is redistributed around site by an onsite fuel truck to site fuel tanks. Fuel storage locations have been designed to meet the CCME guidelines for Aboveground Storage Tank Systems Containing Petroleum and Allied Petroleum Products.

Emergency spill response equipment (i.e. spill kits) is installed at each fuel storage location. Spill kits contain the appropriate type, size and quantity of equipment for the volume and type of product present at the storage location. Transport trucks, heavy equipment and light vehicles are all equipped with spill kits.

Construction at the Meadowbank mine site began with the issuance of the Type A Water License and other relevant authorizations in July 2008 with operations commencing in January 2010. Mining of ore at Meadowbank is expected to cease in Q3 2019. The Meadowbank site is expected to be extended through the operation of the Whale Tail Project which will supply ore to the Meadowbank process plant. Construction of the Whale Tail open pit has started in July 2018.

## 2.1 PREVENTION AND INSPECTIONS

The first step in spill contingency planning is to take actions to prevent spills from occurring.

Transport, transfer and storage of materials are performed by trained personnel using secondary containment, with well- maintained equipment and containers. Refueling stations in Baker Lake, at the mine site, and at the Whale Tail site are equipped with a lined area to contain any minor leaks or spills while refueling. Transfer of fuel from tanks to tanker trucks are performed with the aid of fuel pumps. A Product Transfer Area Assessment were conducted for the Baker Lake Oil Handling Facility and can be found in Appendix M. Good housekeeping practices are adopted especially in areas such as storage facilities, loading and unloading zones. Site orientations are conducted with all employees and spill prevention and response is discussed in detail. Regular worksite inspections are conducted to identify measures to minimize the risk of spills. All personnel are trained to be aware of the potential hazards associated with the fuel/chemicals with which they are assigned to work. In addition to work site inspections conducted by area specific employees, the Environmental Department conducts weekly inspections to audit facilities handling or storing hazardous materials (Appendix A).

Agnico Eagle supports the following general principles for spill prevention:

- Provide up-to-date and accessible Material Safety Data Sheets (MSDS) for all hazardous materials;
- Regular inspections of fuel/chemical storage areas for leaks (including flex connectors and plumbing) and platform shifting;
- Regular inspections of hazardous materials storage areas;
- Train workers in the use of safe work procedures for hazardous materials, and procedures to clean up spills;
- Encourage workers to take reasonable measures to prevent spills;
- Keep drums/containers sealed or closed when not in use;
- Place drums/containers within a suitable form of secondary or spill containment;
- Keep “overpack” or “salvage” drums nearby to contain leaking drums;
- Keep storage areas secure from unauthorized access;
- Segregate incompatible materials;
- Ensure chemical storage areas are adequately protected from weather and physical damage; and
- Provide adequate spill response materials at storage areas (details of spill response equipment are outlined in Section 8).

**Figure 1: Layout Meadowbank Mine Site**

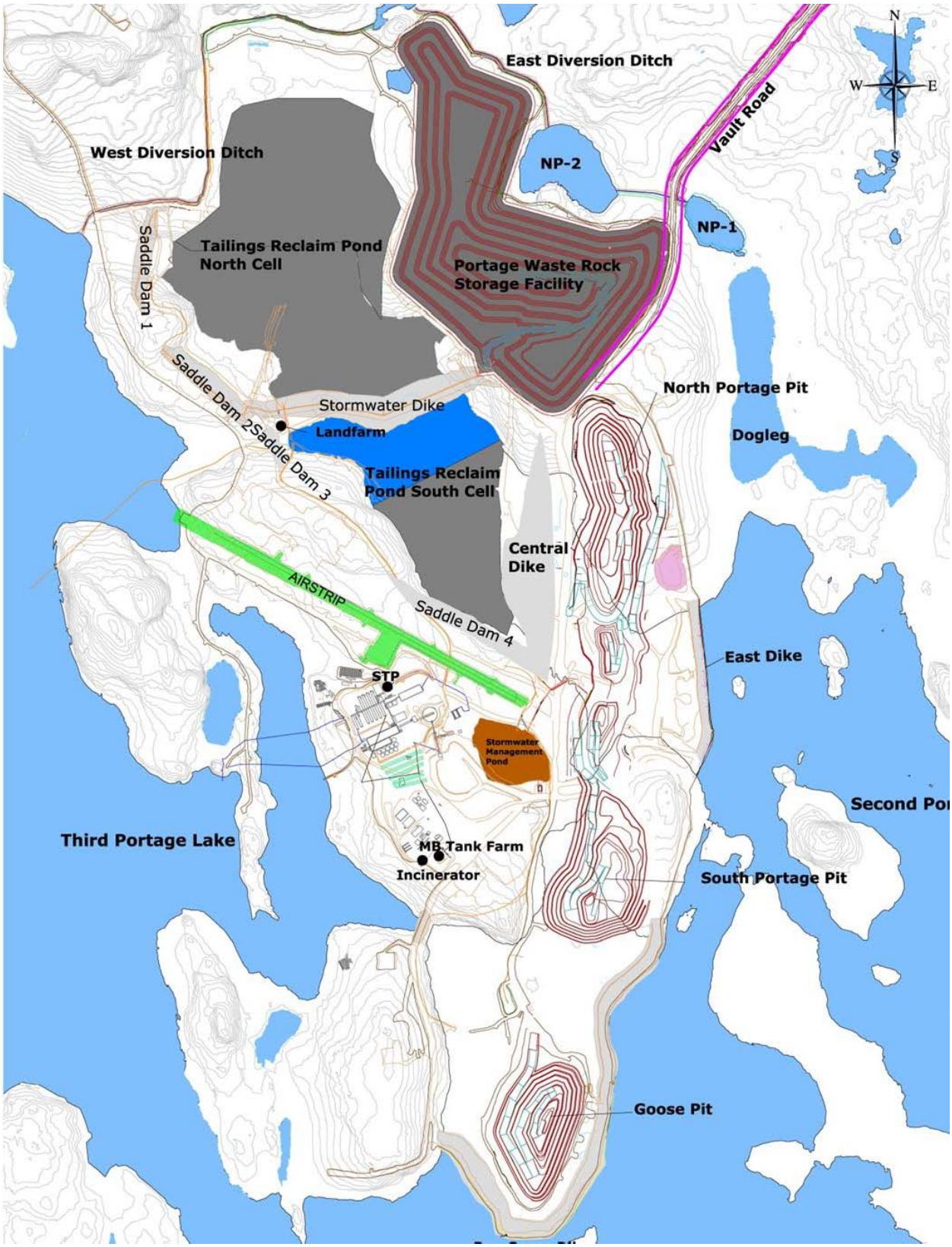


**Figure 2: Layout Vault Site**

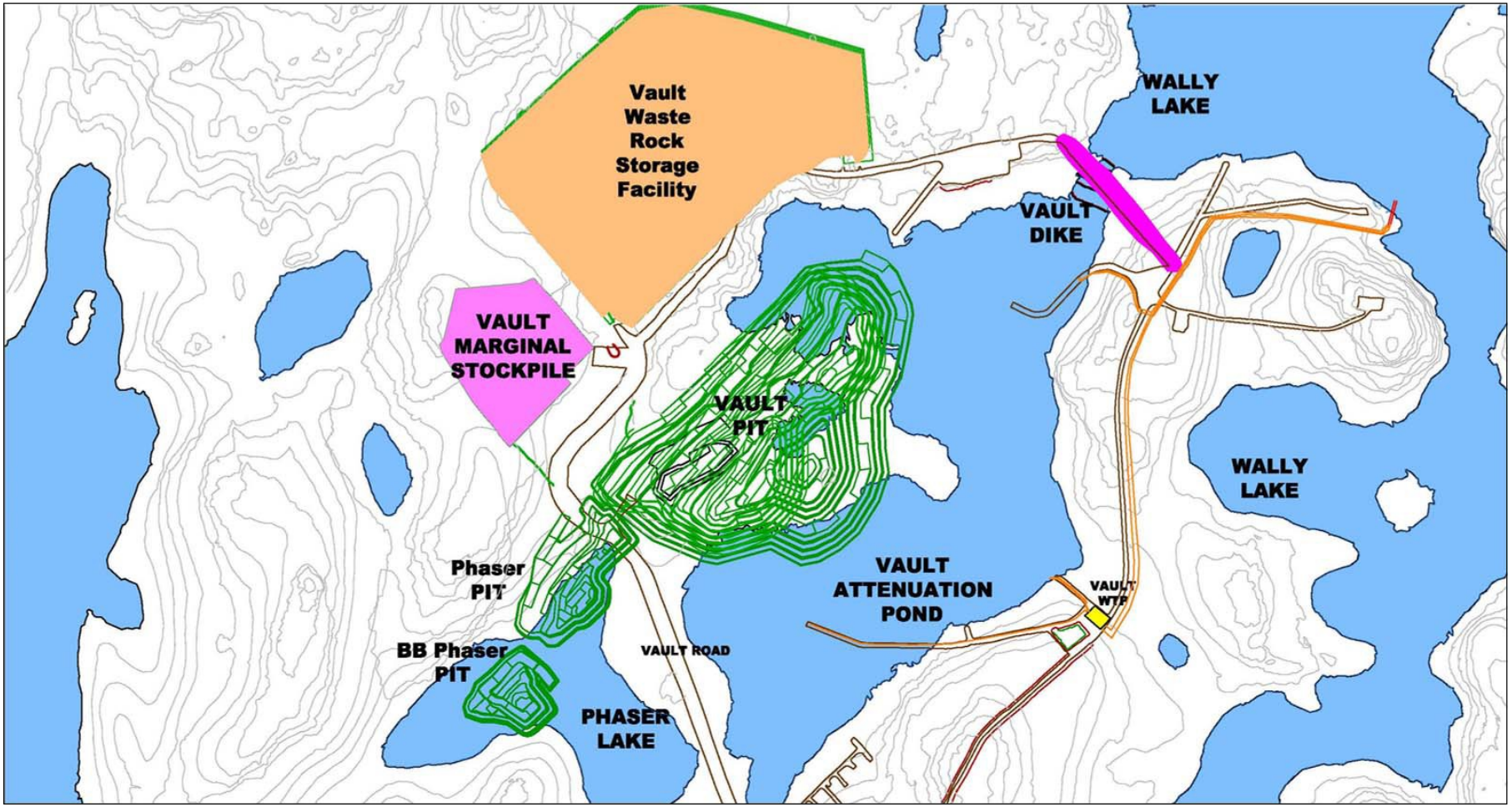


**Figure 3: Baker Lake Diesel Fuel Tank Farm**

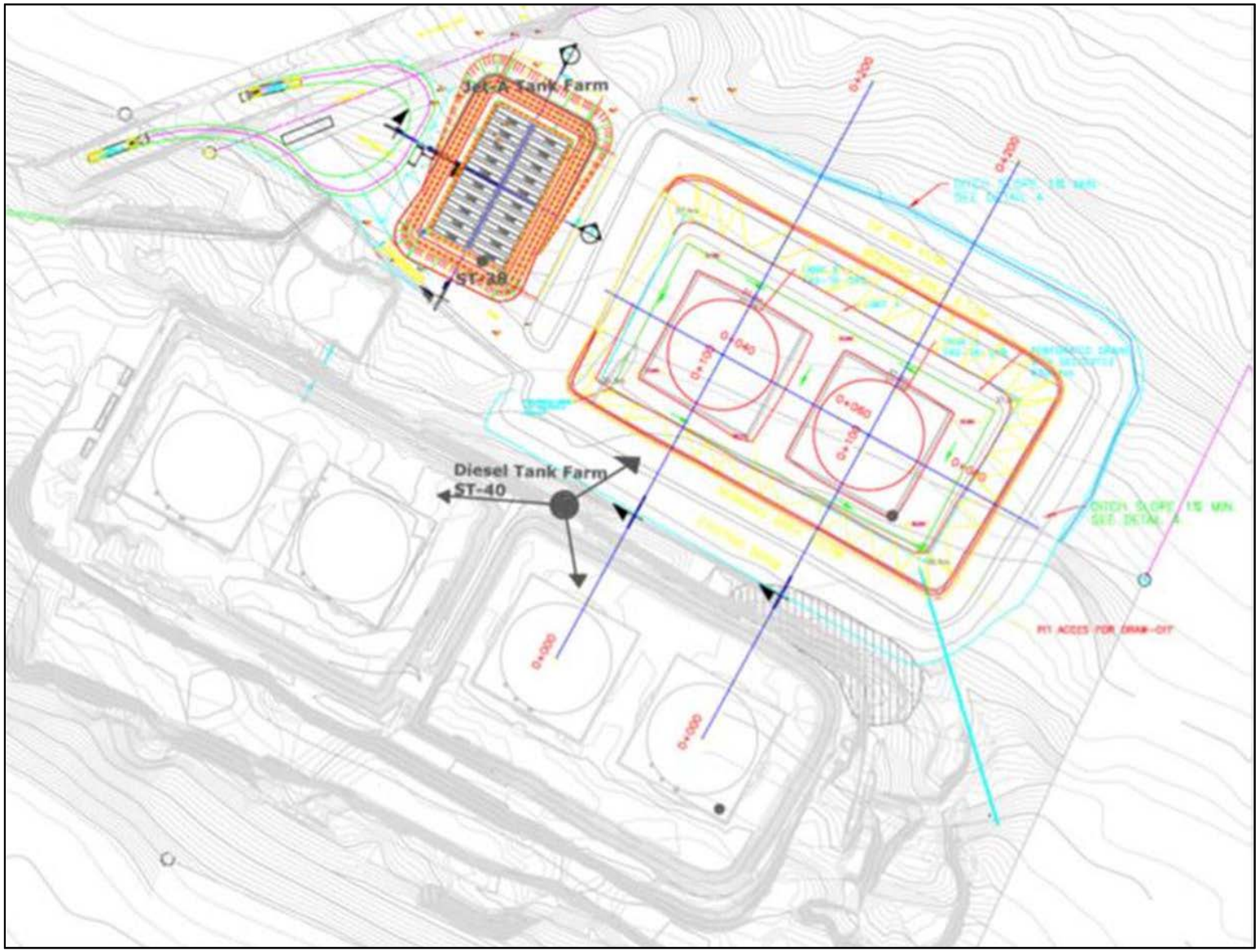


**Figure 4: Baker Lake Jet-A Fuel Tank Farm**

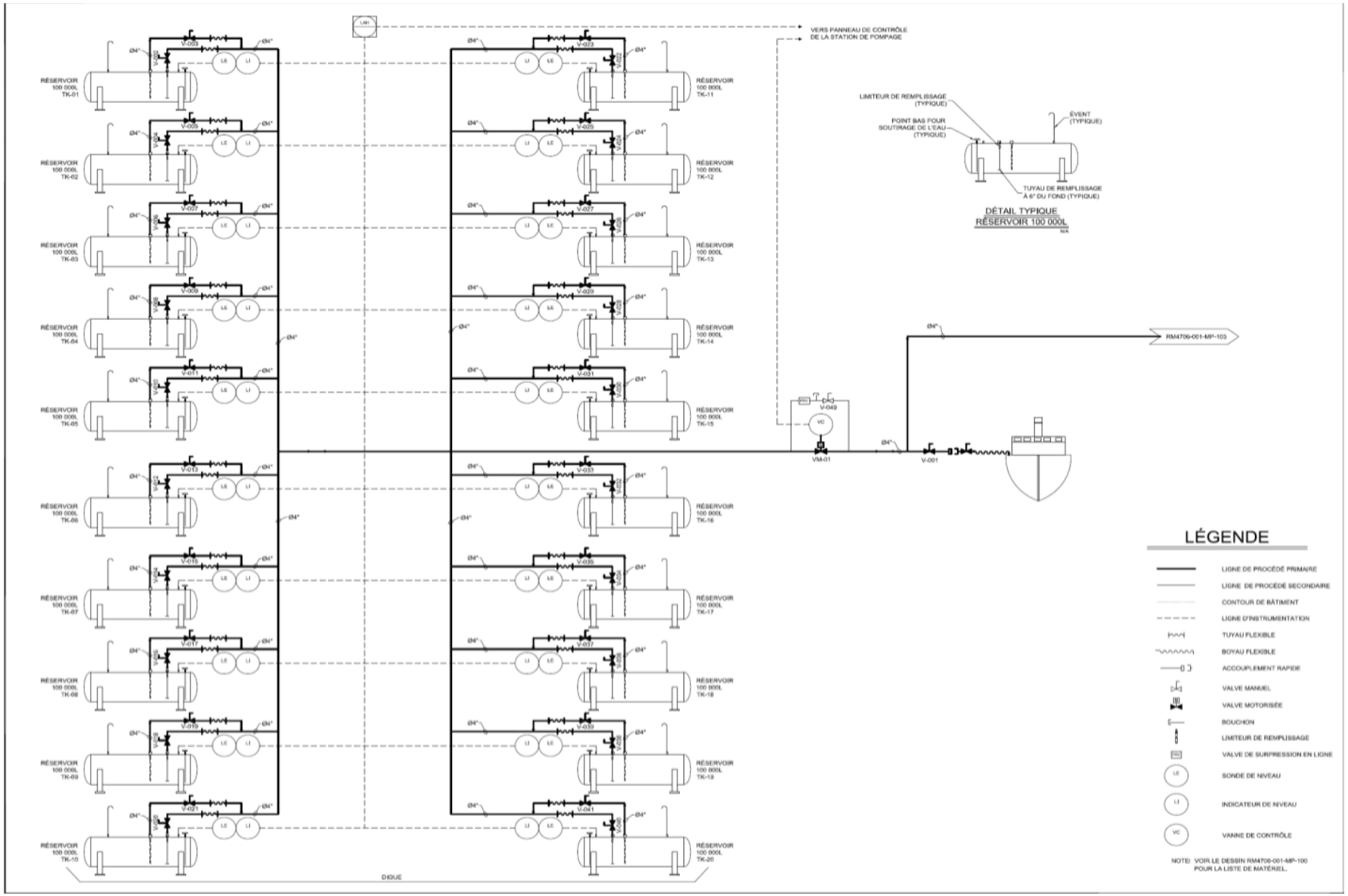
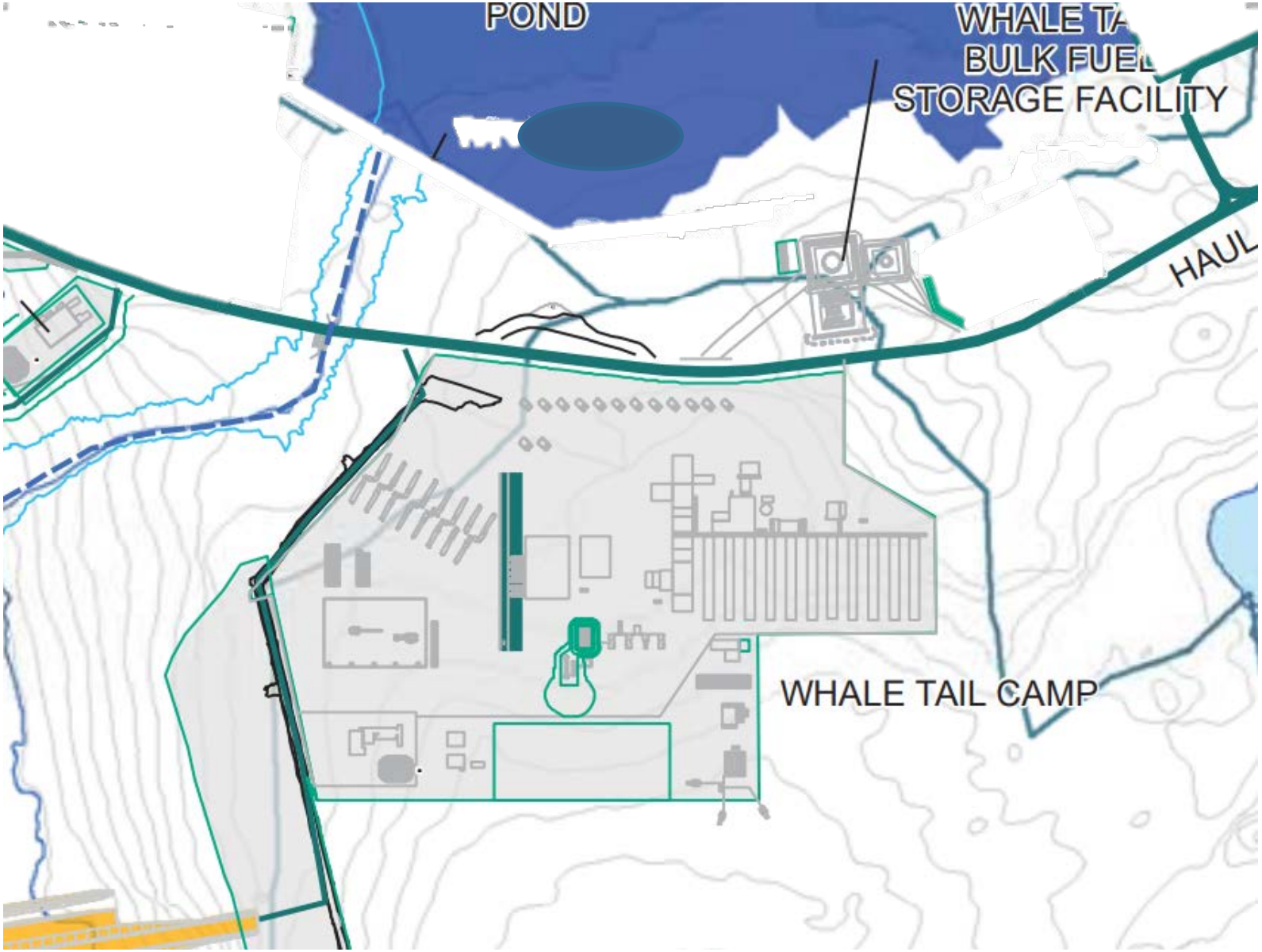


**Figure 5: Layout Whale Tail Project Camp**



# 3 DEFINITIONS

## 3.1 WHAT IS A SPILL?

For the purposes of this plan, a major spill is defined as an accidental release of product into the environment that has the potential for adverse impacts to the receiving environment, Agnico Eagle property or human health. This can include potential impacts to water, surface and groundwater, land, equipment, buildings, local communities, human health and the atmosphere.

A minor spill is defined as any spill that does not involve a toxic, reactive, or explosive material in a situation that does not pose a significant risk to the environment, human health or Agnico Eagle property. Minor spills are generally contained within Agnico Eagle facilities.

## 3.2 MATERIALS AND REPORTABLE (TO REGULATORY AUTHORITIES) SPILLS ON SITE

As a precaution, if there is any doubt as to whether the quantity spilled meets the minimum thresholds for reporting to regulatory authorities listed in Table 1, the spill incident will be reported. Furthermore, Agnico Eagle maintain a detailed log of all spills reportable to authorities and those non-reportable for all materials listed in Section 1.1. As part of Agnico Eagle's overall environmental management system and in the spirit of a continuous improvement of environmental performance, procedures will be implemented to ensure **all** spills irrespective of location are reported to the Meadowbank Environment Department.

To ensure compliance with Section 36(3) and 38(5) of the Fisheries Act, Section 5(1) of the Migratory Birds Convention Act, the CEPA Environmental Emergency Regulations, Nunavut Spill Regulation and the Metal and Diamond Mining Effluent Regulations all spills of fuel or hazardous/deleterious materials, regardless of quantity, into a water body (including frozen), shall be reported immediately to the NT-NU 24-HOUR SPILL REPORT LINE (at 867.920.8130 or online at spills@gov.nt.ca). All spills on land that reach the reportable quantity listed in Table 1 need to be report to the NT-NU 24-HOUR SPILL REPORT LINE within 24 hours of the spill occurrence.

**Table 1 - Spill quantities that must be reported to the NT-NU 24-HOUR SPILL REPORT LINE**

| Transportation Class | Type of Substance | Compulsory Reporting Amount |
|---|---|---|
| 1 | Explosives | Any amount |
| 2.1 | Compressed gas (flammable) | Any amount of gas from containers with a capacity exceeding 100 L |
| 2.2 | Compressed gas (non-corrosive, non- flammable) | Any amount from containers with a capacity exceeding 100 L |
| 2.3 | Compressed gas | Any amount |
| 2.4 | Compressed gas (corrosive) | Any amount |
| 3.1, 3.2, 3.3 | Flammable liquid | 100 L |
| 4.1 | Flammable solid | 25 kg |
| 4.2 | Spontaneously combustible solid | 25 kg |
| 4.3 | Water reactant solids | 25 kg |
| 5.1 | Oxidizing substances | 50 L or 50 kg |
| 5.2 | Organic peroxides | 1 L or 1 kg |
| 6.1 | Poisonous substances | 5 L or 5 kg |
| 7 | Radioactive substances | Any amount |
| 8 | Corrosive substances | 5 L or 5 kg |
| 9.1 (in part) | Miscellaneous substances | 50 L or 50 kg |
| 9.2 | Environmentally hazardous | 1 L or 1 kg |

| Transportation Class | Type of Substance | Compulsory Reporting Amount |
|---|---|---|
| 9.3 | Dangerous wastes | 5L or 5 kg |
| 9.1 (in part) | PCB mixtures of 5 ppm or more | 0.5 L or 0.5 kg |
| None | Other contaminants | 100 L or 100 kg |
| None | Deleterious substances, Seepage | Any amount |

*Note: L = litre; kg = kilogram; PCB = polychlorinated biphenyls; ppm = parts per million*

# 4 RESPONSE ORGANIZATION

This section addresses the response organization and the responsibilities of each individual during response to an incident.

Figure 6 and 7 illustrates Agnico Eagle's Spill Reporting Procedure Steps in the event of a spill and Sections 4.1 -4.9 list the major responsibilities of site staff that will be participating in the emergency response management.

The first person (first responder) to notice, or come in contact with, any spill situation either initiates a Code 1 (i.e. If a tanker truck overturns on the AWAR/Whale Tail Haul Road) or reports to his/her immediate supervisor (i.e. All other spills on land or water). The supervisor is responsible to report the incident to the designated Incident Commander for a major spill or to the environmental department for a minor spill. If a Code 1 is initiated, the Incident Commander will respond in conjunction with the Emergency Response Team (ERT). Major responsibilities such as initial coordination, spill clean-up and mobilizing the ERT are part of the Incident Commander's duties.

The Incident Commander will contact the Environmental Superintendent and/or General Mine Manager or alternate, who in turn will inform the Senior Vice President, Environment and Sustainable Development. After all information has been collected, the Environmental Superintendent or alternate will submit a spill report and follow up spill report to the NWT/NU Spill Line, Nunavut Water Board, Kivalliq Inuit Association, Environment and Climate Change Canada (ECCC) and Crown-Indigenous Relations and Northern Affairs Canada (CIRNAC). Incidents that require media communications will be the responsibility of Agnico Eagle General Mine Manager or alternate.

In the event of a major spill during a ship-to-ship transfer or due to unforeseen circumstances, the shipping company will be solely responsible for responding to the spill. The containment and clean-up of inadvertent spills resulting from the tankers in transporting the fuel is the responsibility of the shipping company. In the unlikely event where a major fuel spill becomes unmanageable, the shipping company could call on external resources such as the Canadian Coast Guard for assistance. In these situations, Agnico Eagle would provide whatever assistance it can to the shipping company[1]. Due to the lack of resources Agnico Eagle possess to counter act such a large scale marine spill, Agnico Eagle's assistance would be limited to providing support to preserve the shoreline environment. Agnico Eagle would put its resources to the best use possible during such an event, and assist as much as possible with the resources at hand. The Shipboard Oil Pollution Emergency Plan (SOPEP) is the responsibility of the shipping company; it covers the ship-to- ship transfer of fuel near Helicopter Island. Please refer to the Oil Pollution Emergency Plan for more details. Please refer to the certificate of entry and acceptance boats of shipping company, communication protocol, safety management system for entry into confined water and monthly safety meeting forms found in the Oil Pollution Emergency Plan.

[1] The Emergency Response Team will not be equipped or trained to respond to spills offshore in the Marine environment. They will however be able to respond to spills in the near shore area

**Figure 6: Spill/incident reporting procedure**

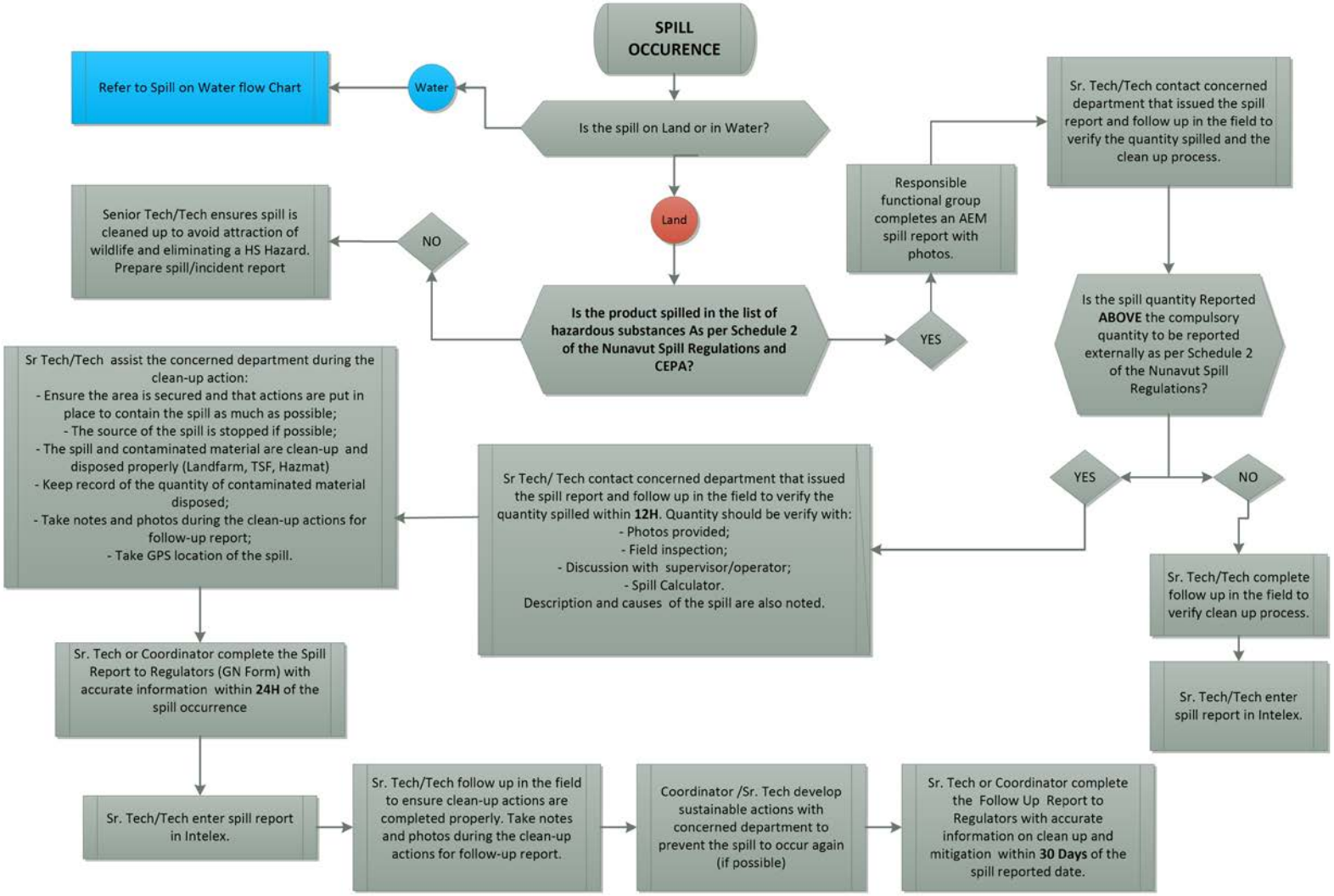
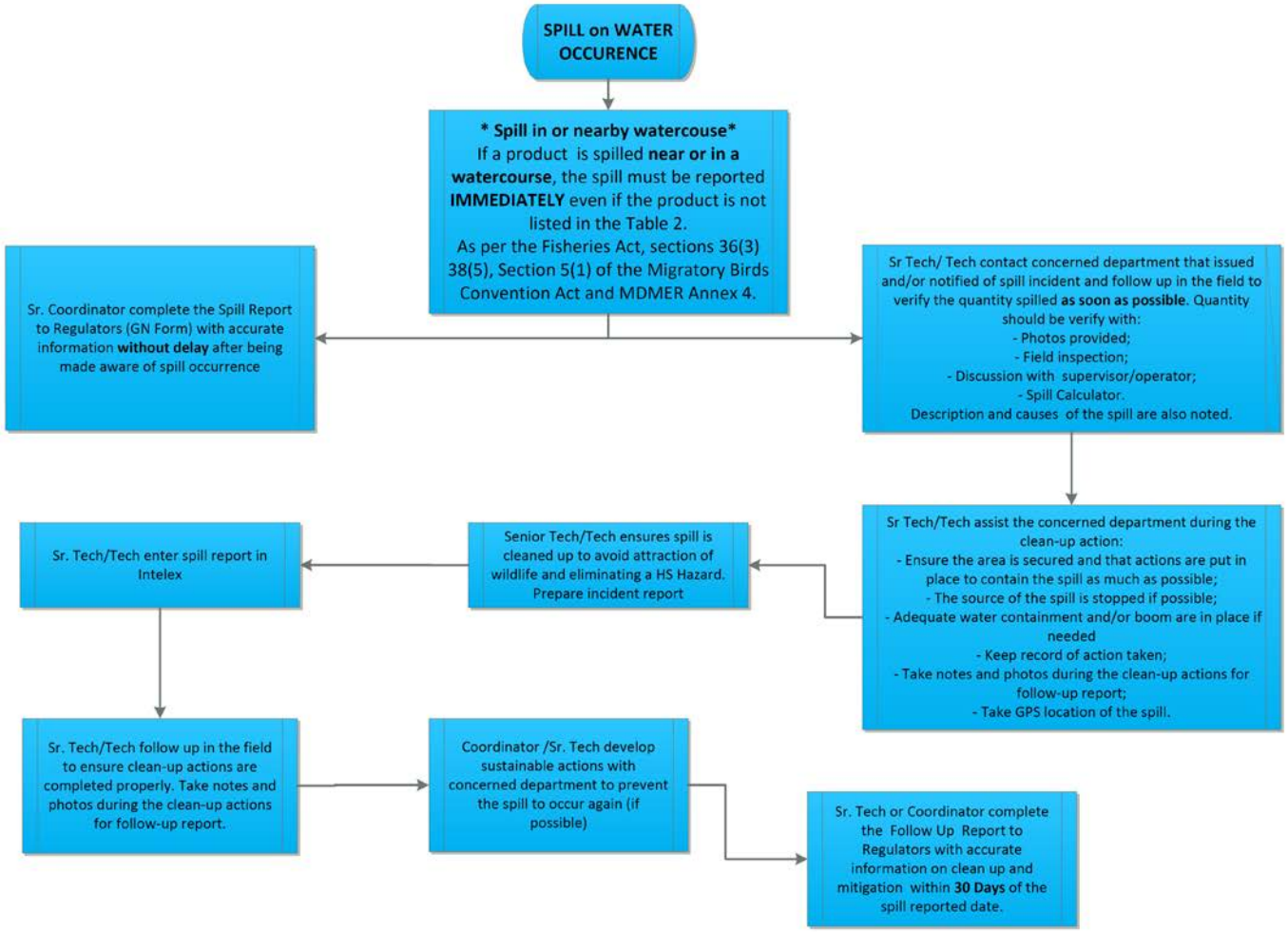


**Figure 7: Spill/incident on Water Reporting Procedure**



## 4.1 FIRST RESPONDER

The person who has caused a spill or the first to observe the spill is the first responder. The responsibilities of the first responder are as follows:

- In case of major incident (example: tanker truck overturn) and/or spill in or nearby watercourse, initiate a Code 1. Remain on radio to provide guidance to the ERT;
- In case of spill to land or water, contact the supervisor to report the incident;
- Immediately identify and contain the spill, IF SAFE TO DO SO; and
- Participate in spill response as a member of the clean-up crew.

## 4.2 SUPERVISOR

The responsibilities of the Supervisor are as follows:

- Initial assessment of the severity of the incident;
- Contacts the Incident Commander or Environmental Department;
- Gathers facts about the spill; and
- Participate in spill response as a member of the clean-up crew.

## 4.3 INCIDENT COMMANDER

Responsibilities of the Incident Commander are as follows:

- Assume complete authority over cleanup personnel and the spill scene, as well as assume responsibility for all mitigation efforts;
- Evaluate the initial situation and assess the magnitude of the problem;
- Activates the initial response plan;
- Alert and assemble key personnel in the response team, as deemed appropriate, to handle the situation;
- In consultation with the Environmental Superintendent or designate, develop the overall plan of action for containment and cleanup of the specific incident, as well as direct and implement the plan;
- Ensure assigned responsibilities are carried out and the activities of team members are coordinated;
- Assess the requirements for people, equipment, materials, and tools to contain the spill in light of what resources are immediately available; urgency will depend on the nature of the spill; and
- In consultation with the Environmental Superintendent or designate mobilize any additional resources that may be required and arrange for the transportation of necessary personnel and/or materials to the site.

## 4.4 EMERGENCY RESPONSE TEAM

Agnico Eagle has an Emergency Response Team (ERT) that is trained and responsible for controlling major spills, including those that could occur should a tanker truck overturn along the AWAR or on the Whale Tail Haul Road, and assisting with medical and other emergencies that may occur at the Meadowbank Mine, wherever the location. ERT team members attend regular training sessions.

## 4.5 EMERGENCY RESPONSE TEAM COORDINATOR

The responsibilities of the Emergency Response Team Coordinator (ERTC) are as follows:

- Mobilize all ERT personnel, equipment, personal protective equipment and supplies as

required to the site of the spill;
- Assist Incident Commander in obtaining any additional resources not available on site;
- Ensure that appropriate PPE is worn properly;
- Assist in developing and implementing emergency response training programs and exercises; and
- Ensure that all spill response personnel receive adequate training to fulfill their responsibilities as part of the ERT.

## 4.6 ENIVRONMENTAL SUPERINTENDENT OR DESIGNATE

The Environmental Superintendent or designate is responsible for implementing and maintaining the SCP. In addition, the Environmental Superintendent's or designates responsibilities in the case of a spill are to:

- Liaise with the Incident Commander;
- Provide technical advice on the anticipated environmental impacts of the spill;
- Advise on the effectiveness of various containment, recoveries, and disposal options, and suggest the most appropriate approach;
- Prepare and submit any formal reports (see Appendix B for NWT/NU Spill Report Form) to regulators and Agnico Eagle management detailing the occurrence of a spill;
- Contact the Senior Vice President Environment and Sustainable Development immediately for a major spill;
- Act as the spokesperson with regulatory and government agencies;
- If authorized by the General Mine Manager, act as a spokesperson with the public and media, as required;
- Implement a sampling protocol for the collection and analysis of samples to identify and monitor possible contaminant levels resulting from the spill;
- Ensure on-site resources for spill response and cleanup are available;
- Monitor the effectiveness of the cleanup operation and recommend further work, if necessary;
- Reviews incident occurrences and recommends preventative measures; and
- Assists in implementing training and simulation requirements for spill response personnel.

## 4.7 GENERAL MINE MANAGER ON DUTY

The General Mine Manager/designate is required to inform team members of the detailed nature of the operations to be performed in the event of a major spill during the operations phase. The responsibilities of the General Mine Manager/designate are as follows:

- Liaise with Agnico Eagle personnel resources and keep them informed of cleanup activities;
- Incidents that require media communications will be the responsibility of Agnico Eagle General Mine Manager or alternate; and
- Assist the Incident Commander and ERT as needed, particularly in obtaining any additional resources not available onsite for spill response and cleanup.

## 4.8 HEALTH AND SAFETY SUPERINTENDENT OR DESIGNATE

The following are the responsibilities of the Health and Safety Superintendent or designate in conjunction with the Training Department:

- Maintain emergency and health and safety records;
- Assist in conducting emergency spill response exercises;
- Track all emergency and health and safety training that on-site staff have received, and

when retraining will be required;
- Notify the Incident Commander (related to ERT) when retraining is required;
- Ensure that employees are retrained in appropriate emergency response skills, Workplace Hazardous Materials Information System (WHMIS) training, Hazard Communication (HAZCOM), Occupational Health and Safety Administration (OHSA) training, first aid, and respirator fit-testing prior to expiry of existing training certification; and
- Consult with appropriate organizations regarding retraining requirements and schedules.

## 4.9 ON-SITE HEALTH CARE PROVIDERS

On-site medics are responsible for the following:

- Providing on-site first aid and other medical support; and
- Providing additional training for ERT members.

In addition to the health care providers on site, the Baker Lake Hamlet health professionals will be called first on the scene, if required.

## 4.10 SPILL RESPONSE TEAM CONTACT INFORMATION

Internal contact information is contained in Table 2 for all Agnico Eagle personnel involved in spill recovery and subsequent reporting. Table 3 provides contact information for Agnico Eagle contractors present at the mine site and transportation contractors. Important external contacts such as regulatory agencies and health organizations are listed in Table 4. Table 5 provides contact information for external contractors should incident warrant assistance from outside sources.

**Table 2 - Internal Contacts**

| Title | Name | Telephone No. |
|---|---|---|
| Sr. Vice President, Environment and Sustainable Development | Louise Grondin | 416.847.8656<br>Cell: 819.24.2020 |
| Vice President of Environment | Michel Julien | 416-947-1212 ext. 4013738<br>Cell: 514.244.5876 |
| Corporate Director, Communications & Public Affairs | Dale Coffin | 416.847.8669<br>Cell: 647.274.4154 |
| Manager of Nunavut Services Group | Jason Allaire | 819.759.3555 ext. 4608004<br>M: 819.355.2608 |
| Meadowbank General Mine Manager | Luc Chouinard | 819.759.3555 ext. 4606896<br>Cell: 819.859.8160 |
| H&S Superintendent<br>or<br>H&S Ass. Superintendent | Markus Uchtenhagen | 819.759.3555 ext.4606720<br>Cell: 819.860.6258 |
| Emergency Response Counselors | André Rouleau or<br>Philip Beaudoin | 819.759.3555 ext.4606809<br>Cell: 819.355.2191<br>or<br>819.759.3555 ext.4606809<br>Cell: 450.847.4214 |
| Environmental Superintendent | Nancy Duquet Harvey | 819.759.3555 ext.4606980<br>Cell: 819.856.4385 |
| Environmental General Supervisor | Robin Allard | 819.759.3555 ext.4606838 |
| Environmental Coordinator | Martin Archambault<br>or<br>Tom Thomson | 819.759.3555 ext.4606744 |
| Environmental Department | Environmental Technicians | 819.759.3555 ext.4606747/4606759 |
| Incident Commander | Nancy Duquet Harvey<br>or Robin Allard | 819.759.3555 ext. 4606838 |
| On-site Medics | On-site Nurses | 819.759.3555 ext.4606734 or 4606751 |
| Site Security | On-site Security | (867) 793-4610 ext. 4606748 |

**Table 3 - Contractor Contacts**

| Title | Telephone No. | Contact in Emergency for: |
|---|---|---|
| Nolinor Aviation Services | Protocol Agent<br>867.759.3700 ext. 4608008 | Flight services for additional crew, or additional supplies |
| First Air | 1-800-267-1247 | Flight services for additional crew, or additional supplies |
| Calm Air | 1-800-839-2256 | Flight services for additional crew, or additional supplies |
| Dyno Nobel Explosives Ltd. | (819) 825-5441 | Heavy Equipment, Man power, Emergency Blasting |
| Desgagnés Transarctik Inc. | (450) 635-0833 | Fuel Hauler |
| Baker Lake Contracting & Supplies | (867) 793-2831<br>Press #1 | Man power, equipment, trades personnel i.e. pipefitter, plumber, electrical |
| Peter's Expediting | (867) 793-2703 | Equipment, man power, Ground transportation services |
| Arctic Fuel Services | (867) 793-2311 | Fuel hauling, trucking, man power. |

**Table 4 - External Contacts**

| Organization/Authority | Telephone Number | Fax Number |
|---|---|---|
| NT-NU 24-Hour Spill Report Line | (867) 920-8130<br>spills@gov.nt.ca | (867) 873-6924 |
| Workers Safety and Compensation Commission | (867) 979-8500 | (867) 979-8501 |
| Kivalliq Inuit Association | (867) 645-5725 | (867) 645-2348 |
| Nunavut Water Board | (867) 360-6338 | (867) 360-6369 |
| CIRNAC Inspector | (867) 669-2442 | (867) 669-2871 |
| Environment and Climate Change Canada – Pacific Prairies and the North | (780)-951-8600 | 780-495-2615 |
| Government of Nunavut – Department of Environment | (867) 975-7700 | (867) 975-7742 |
| Kivalliq Health Services – Baker Lake | (867) 793-2816<br>*Dial 0* | (867) 793-2812 |
| Baker Lake Hamlet Office | (867)-793-2874 | (867) 793-2509 |
| Baker Lake Fire Emergency | (867) 793-2900 | |
| RCMP Regular Hour<br>RCMP 24 Hour Emergency Number | (867) 793-0123<br>(867) 793-1111 | |
| Canadian Coast Guard (in the event of a spill to the marine environment)<br>Superintendent Environmental Response | (800) 265-0237<br>(519) 383-1954<br>(519) 381-6186 (cell) | (519) 337-2498 |
| Transport Canada – Marine Safety<br>Shane Sadoway<br>Philip Levesque | <br>(780)-495-7079<br>(204)-984-5786 | <br><br>(204)-801-6951 |

**All above phone numbers are current as of February 1, 2019*

# 5 ACTION PLAN

Spills may be the result of any of the following occurrences:

- Tanks, drums or containers may develop leaks or rupture;
- Failure of equipment such as valves, piping or containment structures;
- Overfilling;
- Improper storage;
- Spills during transfer of fuel, chemicals or waste products;
- Spills resulting from accidents during transportation; and
- Seepage that may migrate off site to receiving water or land; and
- Discharge to receiving environment of a deleterious substance exceeding the MDMER and/or NWB Water License and/or any other regulation.

## 5.1 INITIAL ACTION

For all spill emergencies, it is required that priority actions be undertaken. These are:

- Respond Quickly;
- Ensure Safety; and
- Report the Spill;

### 5.1.1 Respond Quickly

- Identify the spilled material;
- Be alert – ensure safety of yourself and others by notifying them of the incident;
- Shut off ignition sources such as vehicles and unplug electrical equipment – NO SMOKING;
- Attend to the injured;
- Assess the severity of the spill; and
- Contact the Incident Commander, identify the location and request assistance as required. If required the Incident Commander will mobilize the Emergency Response Team.

The primary form of ensuring safety is by using preventative measures. All personnel who deal with chemicals must have training in first aid and safe materials handling, including the Workplace Hazardous Materials Information System (WHMIS). In addition, regular training updates and site-specific exercises/drills are integral to preventing incidents.

### 5.1.2 Ensure safety

- Consult the MSDS and Product Guides for further information on the substance;
- Keep people away from spill site;
- Wear appropriate PPE such as impervious clothing, goggles, and gloves when containing the spill;
- Approach spill from upwind IF IT IS SAFE TO DO SO;
- Assess whether the spill, leak, or system failure can be readily stopped or brought under control;
- Stop product flow or leak if possible and IF IT IS SAFE TO DO SO;
- Do not contain compounds (e.g. gasoline, aviation fuel) if vapors might ignite – allow them to evaporate; and
- Depending on the type of compound spilled and IF IT IS SAFE TO DO SO, contain product using booms, berms, absorbent pads, earthen dike, trenches or improvise with materials at hand.

### 5.1.3 Report Spill

- Spill reporting will follow Spill Reporting procedure MBK-ENV-0016. This procedure can be found in Appendix K

- Obtain all necessary information to complete the spill report form (reportable or not) and provide to Environment Staff within 12 hours. Spills that meet regulatory reporting criteria must be reported to the NWT-NU 24 Hour Spill Line/CIRNAC/ECCC/Kivalliq Inuit Association and the NWB by Agnico Environment Staff within 24 hours. Any spills near and/or in water must be reported immediately to NWT-NU 24 Hour Spill Line/CIRNAC/ECCC/Kivalliq Inuit Association and the NWB by Agnico Environment Staff even if not meeting regulatory criteria describe in Table 1; and

- For spills that meet regulatory reporting criteria, a detailed spill report will be submitted to the CIRNAC Water License Inspector, ECCC inspector and the KIA Land's Inspector by Agnico Eagle Environment Staff no later than 30 days after the initial reporting of the spill. This report will contain the amount and type of spilled product, the GPS location of the spill and the measures taken to contain, cleanup and restore the spill site.

Procedures will vary depending on the season and materials spilled. The MSDS for spilled materials and/or Transport Canada's "Emergency Response Guidebook" must be consulted to ensure that safety procedures are followed. Response procedures specific to spills on land, water, snow and ice are presented in the following sections as general guidelines.

## 5.2 SPILLS ON LAND

Response to spills on land will include control techniques involving the use of two types of barriers: dikes and trenches. Barriers should be placed down-gradient (down-slope) from the source of the spill, and as close as possible to the source of the spill. Barriers will slow the progression of the material spilled and will also serve as containment to allow for recovery.

Depending on the volume spilled, the site of the spill as well as available material, a dike may be built with soil, booms, lumber, snow, etc. A plastic liner, if necessary, can be placed at the toe of and over the dykes to protect the underlying soil or other material and to facilitate recovery of the material. Dikes will be constructed in such a way as to accumulate a thick layer of free product in a single area (V-shaped or U-shaped).

Trenches are useful in the presence of permeable soil and when the spilled material is migrating below the ground surface. A plastic liner should be placed on the down-gradient edge of the trench to protect the underlying soil. Liners should not be placed at the bottom of the trench to allow water to continue flowing underneath the layer floating oil.

The use of absorbent materials to recover a large volume of spilled liquids such as petroleum based material should be avoided. Large volumes of free-product should be recovered, as much as possible, by using vacuums and pumps, and containerized. Mixtures of water and fuel may be processed through an oil-water separator. However absorbent materials work well for smaller volumes of spilled hydrocarbon based materials such as fuel. Absorbent sheets should be used to soak up residual fuel on water, on the ground (soil and rock), and on vegetation. Peat moss may also be sprinkled on vegetation to absorb films of petroleum products.

## 5.3 SPILLS ON WATER

Response to spills on water will include procedures that include containment, diversion and recovery techniques. The following elements must be taken into consideration when conducting response operations:

- To ensure compliance with Section 36(3) and 38(5) of the *Fisheries Act* and Section 5(1) of the Migratory Birds Convention Act all spills of fuel or hazardous materials, regardless of quantity, into a water body (including frozen), shall be reported immediately to the NT-NU 24-HOUR SPILL REPORT LINE (at 867.920.8130).
- Type of water body or water course (lake, stream, river);
- Water depth and surface area;
- Wind speed and direction;
- Type of shoreline; and
- Seasonal considerations (open-water, freeze-up, break-up, frozen).

The most common type of spill that could be anticipated is a petroleum hydrocarbon (diesel) spill during fuel transfers/transport. Containment of an oil slick in water will require the deployment of mobile floating booms to intercept, control, contain and concentrate (i.e., increase thickness) the floating oil. One end of the boom will be anchored to shore while the other will be towed by a boat and used to circle the oil slick and return it close to shore for recovery using a skimmer. Reducing the surface area of the slick will increase its thickness and thereby improve recovery. Mechanical recovery equipment (i.e., skimmers and oil/water separators) will be mobilized to site if required.

Measures will be taken to protect sensitive and accessible shoreline. The oil slick will be monitored to determine the direction of migration. In the absence of strong winds the oil will likely flow towards the discharge of the lake. Measures will be taken to block and concentrate the oil slick at the lake discharge using booms where it will subsequently be recovered using a portable skimmer, vacuum, or sorbent materials.

In small slowly-flowing rivers, streams, channels, inlets or ditches, inverted weirs (i.e., siphon dams) will be used to stop and concentrate moving oil for collection while allowing water to continue to flow unimpeded. In the case of floating oil, in a stream, heading for a culvert (i.e., at a road crossing) a culvert block will be used to stop and concentrate moving oil for collection while allowing water to continue to flow unimpeded. In both cases oil will then be recovered using a portable skimmer or sorbent materials.

In the case of spills in larger rivers, with fast moving currents, diversion booming will be used to direct the oil slick ashore for recovery. Single or multiple booms (i.e., cascading) may be used for diversion. Typically, the booms are anchored across the river at an angle. The angle will depend on the current velocity. Choosing a section of a river that is both wider and shallower will make boom deployment easier. Diversion booming may also be used to direct an oil slick away from a sensitive area to be protected.

## 5.4 SPILLS ON SNOW AND ICE

In general, snow and ice will slow the movement of hydrocarbons. The presence of snow may also hide the oil slick and make it more difficult to follow its progression. Snow is generally a good natural sorbent, as hydrocarbons will have a tendency to be soaked up by snow through capillary action. However, the use of snow as a sorbent material will be limited as much as possible. Snow and frozen ground will also prevent hydrocarbons from migrating down into soil or at least slow the migration process. Ice will prevent seepage of fuel into the water.

Most response procedures for spills on land discussed previously may be used for spills on snow and ice. The use of dykes (i.e., compacted snow berms lined with plastic sheeting) or trenches (dug in ice) will slow the progression of the fuel and will also serve as containment to allow recovery of the fuel.

Free-product will be recovered by using a vacuum, a pump, or sorbent materials. Contaminated snow and ice will be scraped up manually or using heavy equipment depending on volumes. The contaminated snow and ice will be placed in containers or within plastic lined berms on land.

## 5.5 DISPOSAL OF SPILLED MATERIAL

All contaminated spill pads, and booms are placed within Quatrex bags for shipment to an approved disposal facility. All the petroleum hydrocarbon contaminated soil is placed into the Meadowbank landfarm for treatment, this includes contaminated soil from the Baker Lake and Whale Tail facilities. Spills over 100 L of non-petroleum hydrocarbon material (e.g. solvents, glycol) will be placed in drums and stored in the on-site hazardous material area for shipment south to approve facilities during barge season. Spills of non-petroleum hydrocarbon material fewer than 100 L will be placed in the Tailings Storage Facility (TSF).

Spills under 100 L of petroleum hydrocarbon contaminated snow will be placed in a designated area of the landfarm and treated as contact water after snowmelt. Spills over 100 L of petroleum hydrocarbon contaminated snow will be excavated and stored in labeled drums or at the TSF. After snow melt, the contaminated water will be pumped through the site's oil-water separator (carbon filter) to remove petroleum hydrocarbon residue. The treated water will be sampled per Part F, Item 6 of the NWB 2AM-MEA1526 Water License, and discharged to the respective Stormwater Management Pond at Meadowbank and Whale Tail if criteria are met. If criteria are not met, water will be treated as hazardous material and shipped south. Also, after snowmelt, visible product will be cleaned up with absorbent pads or booms.

For more information refer to the Meadowbank Landfarm Design and Management Plan.

## 5.6 EVENT MONITORING

The Event Monitoring (EM) program addresses the site specific monitoring that is required following any accidental release. A "release" may be caused by a spill or an emergency (Emergency Response Plan; January 2018).

The EM program is designed to verify whether contamination of the surface soil, nearby receiving environment and active zone has occurred as a result of an accidental release of a hazardous material or contaminated water, through monitoring of surface runoff and nearby receiving environment following remediation of any release. It is anticipated that owing to the presence of permafrost beneath most of the mine footprint, there will be minimum impact to groundwater. A complete list of hazardous materials in use during operations at all sites is provided in the Hazardous Materials Management Plan (June 2016).

The EM plan is developed on a site-specific basis subsequent to a spill or accidental release, and considers the type of product spilled, the potential receptors, and the potential for any remaining contamination after clean up. The plan is done in coordination with the Environmental Superintendent.

In the event of an accidental release, the water quality of the downstream receptor and possibly upstream of the receiving point, if any, is to be sampled (during the ice-free season) and analyzed. Should the spill have happened over snow cover, water and possibly soil sampling is to take place at the earliest feasible time after thaw to verify if there has been any impact to the receiving water or soil quality. The specific parameters monitored as part of the EM program will depend on the nature of the spill, and will be determined for the specific hazardous material released.

EM sampling is to occur following the clean-up of a release and the frequency of sampling will depend on the type of material spilled (wet or dry spill), the environment into which the chemical was released (surface water body or soil; frozen or thawed), and the quantity of spill material. The EM program for a particular spill will cease upon obtaining satisfactory analytical results (within 20% of background level, to accommodate for analytical accuracy) from the potentially affected areas or as required by regulators.

In the event of a seepage from the TSF and/or rock storage facility (RSF), water will be pumped back to the North Cell TSF (or South Cell if necessary). Visual inspections will be conducted regularly to confirm that the seepage is appropriately contained and will not enter into the receiving environment.

# 6 HAZARDOUS MATERIALS STORED ON SITE

A variety of petroleum products and other hazardous materials will be used as part of mining operations. Large quantities of petroleum products will be stored at various sites at the Meadowbank Mine and at Whale Tail Project. Explosives will also be stored on site. Other hazardous materials will be used but in smaller quantities. Nonetheless, all these products are considered as potential environmental and safety hazards.

Material Safety Data Sheets (MSDS) of all materials transported, stored and used on-site will be made available at strategic locations near to where hazardous materials or toxic substances are stored or utilized. Appendices C to H provide General Response Procedures for Spilled Chemical Substances.

Table 5 identifies the predominant hazardous materials transported, stored and generated at the sites. Those destined for use in the process plant will only be stored at Meadowbank. Refer to the *Hazardous Materials Management Plan* for more details.

**Table 5 - Materials stored at site during operations**

| Material | Maximum Anticipated on - site | Maximum Amount transported per unit | Storage Location |
|---|---|---|---|
| Acetylene | 500 cylinders | 300 cylinders per sea can | Inventory Lay down |
| Acid Hydrochloric | 120 L | NA | Inventory Lay down, Laboratory |
| Activated Carbon | 350 Mt | 10 Mt per sea can | Inventory Lay down and Process Plant lay down |
| Ammonium Nitrate | 10,000 Mt | 20 Mt per sea can | Emulsion plant |
| Ammonium Nitrate Fuel Oil (ANFO) | Manufactured on demand | 20,000 kg per truck | Emulsion plant |
| Anionic Flocculent | 99,000 Kg | 750 kg/bag | Inventory Lay down |
| Motor Oil | Estimated at 800,000L | 20,800L per sea can | Inventory Lay down, garage |
| Trojan Boosters (Blasting Systems) | 34,000 kg | 15 Mt per sea can | Emulsion plant |
| Borax, Anhydrous | 7,500 kg | 3,375 kg per sea can | Inventory Lay down and Process Plant lay down |
| Calcium Chloride | 600,000L | 10,000L per sea can | Inventory Lay down |
| Carbon Dioxide | 10 cylinders | 10 cylinders per sea can | Inventory Lay down |
| Caustic Soda | 138,000 Kg | 1,000kg/Bag | Inventory Lay down |
| Copper Sulphate | 500 Mt | 20 Mt per sea can | Inventory Lay down and Process Plant lay down |
| Diesel Fuel | 5.6 million Litres | 40,000L per tanker | Meadowbank Tank farm |
| Diesel Fuel | 1.5 million Litres | 40,000L per tanker | Whale Tail Tank farm |
| Diesel Fuel | 60 million Litres | NA | Baker Lake Tank farm |
| Dyno Split (Detagel) | 135,000 kg | 15 Mt per sea can | Emulsion plant |
| Lead nitrate | 350,000 kg | 1,000kg/bag | Inventory Lay down |
| Nonel EZTL | 1,400 kg | 15 Mt per sea can | Emulsion plant |

| Material | Maximum Anticipated on - site | Maximum Amount transported per unit | Storage Location |
|---|---|---|---|
| Nonel MS | 1,800 kg | 15 Mt per sea can | Emulsion plant |
| Ethylene Glycol | 60,000L | 10,000L per sea can | Inventory Lay down |
| Jet A Fuel | 400,000L | 11,000L Tanker | Meadowbank Tank, tarmac |
| Jet A Fuel | 1,800,000L | NA | Baker Lake Tank Farm |
| Lead Acid Batteries | 500L | 500L per sea can | Warehouse |
| Magnafloc 10 (Flocculant) | 300 Mt | 15 Mt per sea can | Inventory Lay down |
| Metabisulfite | 22,000,000kg | 1,000kg/bag | Inventory Lay down |
| Nitric Acid | 120,000L | 8,000L per sea can | Inventory Lay down |
| Portland Cement | 3,500 Mt | 20 Mt per sea can | Dyke and Construction lay down |
| Sodium Cyanide | 1,550,000kg Mt | 19 Mt per sea can | Inventory Lay down and Process Plant lay down |
| Sodium Hydroxide | 10 kg | 10 kg in sea can | Warehouse |
| Sodium Nitrate | 10.2 Mt | 5.1 Mt per sea can | Inventory Lay down |
| Sulfur | 4,600 Mt | 20 Mt per sea can | Inventory Lay down<br>Process Plant lay down |
| Quick Lime | 600,000,000kg | 1,700kg/bag | Inventory Lay down |
| Unleaded Gasoline | 50,000L | 40,000L tanker | Meadowbank and Baker Lake Tank |
| Varsol | 4,000L | 2,000 L per sea can | Inventory Lay down |

# 7 POTENTIAL SPILL ANALYSIS

To prepare for emergency spill response, potential spill analyses were conducted using various worst case scenarios. These exercises serves to identify potential risk areas, as well as to determine the fate of spilled products and their environmental effects. One such potential scenario was identified for the Meadowbank Gold Project, this being a tanker truck spilling its contents into a waterbody somewhere between Baker Lake and Meadowbank alongside the AWAR. Such a scenario could also be applied to a tanker truck going off the Whale Tail haul road and spilling its contents.

**Scenario #1: Road Accident Tanker Truck Spill on AWAR**

Description of incident: Spill of the contents of a fuel tanker to the ground or water during transport from Baker Lake to the Meadowbank site.

Potential causes: Vehicle accident, human error, mechanical failure

Hazardous products spilled: Diesel fuel, aviation fuel

Maximum volume spilled: 40,000 litres

Immediate receiving medium: Stream, river or lake

Distance and direction to nearest receiving body of water: N/A

Resources to protect: Streams, rivers and lakes

Estimated emergency response time: Maximum time is 90 minutes depending on location of spill (assuming truck driver is injured and cannot commence spill response procedures). Minimum time to respond to a spill on the AWAR is 15 minutes.

Spill response procedures: Contain and recover oil slick downriver as described in Section 5.3, protect shorelines using sorbent booms. Collect free-product for temporary storage. Clean-up soiled shorelines. If the response crew arrives before the complete loss of fuel from the tanker truck seal the leak if feasible, contain and recover oil spill on ground using dykes, sumps or trenches as described in Section 5.2. Also, if the truck driver is not injured, he will act as a first responder and immediately initiate the spill contingency plan as defined in Section 5 using the spill kit kept in fuel trucks.

# 8 RESPONSE EQUIPMENT

## 8.1 GENERAL EQUIPMENT

This section addresses the emergency response machinery, equipment, tools and other resources that will be made available on-site for spill counter measures.

Mobile Equipment available to Agnico Eagle that will be used for spill contingency includes:

- Graders
- Cranes
- Snowmobiles
- Vacuum Truck
- Loaders
- Backhoe
- Bulldozer
- Forklift
- Water Trucks
- Excavators
- Winch Trucks
- Pickup Trucks
- Generator Sets
- Fire Truck
- Aluminum Boats
- Fuel Trucks
- Bobcat
- Haul Trucks
- Snow Cat

If required, additional equipment on site will be made available to assist with spill recovery. Temporary containment systems are also available on site and include:

- Booms
- Drums
- Tanks
- Tailings Pond
- Spill absorbent material packages/pads
- Silt fencing
- Maritime Barrier

Emergency transportations that will be used under an emergency situation are:

- Aircraft (fixed wing or helicopter)
- 4-wheel drive vehicles
- Snowmobiles
- Boats
- Tundra Buggy

Communication equipment at Meadowbank and Whale Tail includes radios, telephones, faxes and other wireless communication systems that will be used in the event of an emergency situation.

Spill Response kits are strategically located where required around the Meadowbank (Figure 8) and Whale Tail (TBD) sites. Each department and work area is responsible for providing sufficient spill response kits in their respective work areas. The kits are kept in marked and accessible locations. The locations include all fuel storage areas, chemical storage areas and so on.

All of the mobile equipment on all sites (heavy equipment) contains an emergency spill kit.

An Environmental Emergency Trailer, which is easily accessible and mobile, is located on site at Meadowbank and contains the following items:

- Pump Elastec
- Pump accessories
- Vacuum ends
- 45 gallons top
- Tubing 2 inches diameter
- Tubing 3 or 4 inches diameter
- Diesel Fuel jerry can (place on a miniberm)
- Spill kit accessory (red box)
- Drums opener
- Wescot (to open empty drum screw)
- Empty drums
- 2 drums berm
- 4 drums berm 4x8
- Tarp 20x30
- Tarp 30x50
- Oil white spill pads
- Universal boom 5x10
- Universal boom 8x10
- ABS pipe: 10' (4")
- ABS pipe: 10' (6")
- Cell U-Sorb
- Sphagsorb
- 3 Size of Wedge wood
- Plug pattie
- Quattrex bags
- Hand shovel
- Ice braker chisel
- Sledge hammer
- Rod bar (4')

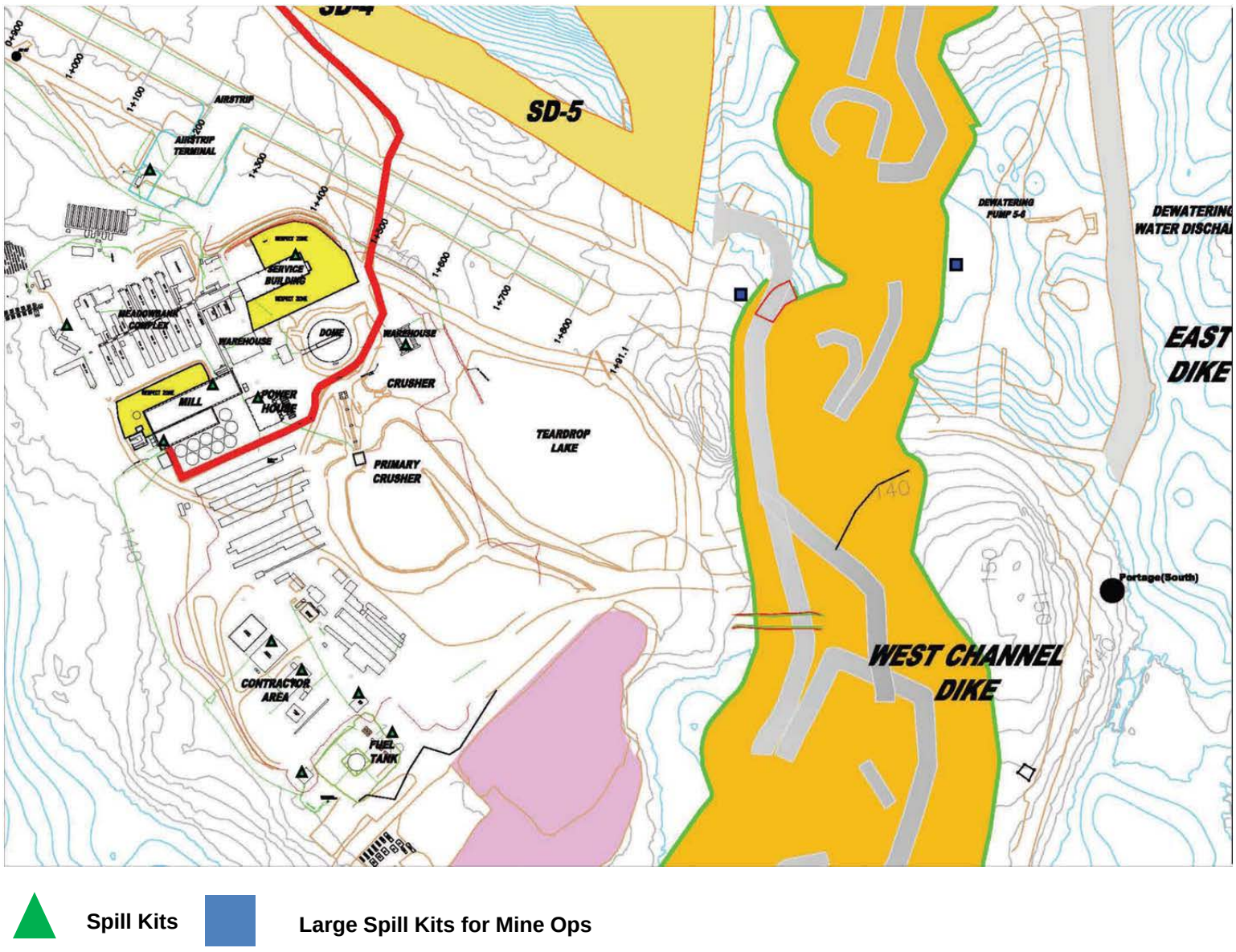
Along the AWAR there are 9 environmental emergency sea cans (Figure 9). Currently, there is two (2) environmental emergency sea cans installed along the Whale Tail Haul Road at Km 125.5 and Km 147, between Whale Tail Pit and Meadowbank. More environmental sea can are planned to be installed. Approximate location are detailed on Figure 10 below. These sea cans are, or will be placed, strategically placed along the roads at water crossings. Each environmental emergency sea can contains the following material:

- Empty drums (Sealed)
- Mini berm 36"x36" x4'
- 4 drum spill berm 4x8
- Tarp 20'x30'
- Tarp 30'x50'
- Oil white spill pads
- Universal boom 5"x10' (Chemical)
- Universal boom 8"x10' (Chemical)
- Oil only booms 5"x10' (Hydro-carbons)
- Maritime barrier (Baffle)
- ABS pipe: 10' (4")
- Cell U-Sorb
- Amerisorb peat moss
- Oil gator absorbent
- Plug pattie
- Quattrex bags

- Fork lift crate (pallets)
- Long handle round point shovel
- Chisel point crow bar 16 lbs 57"
- Ice braker chisel
- Sledge hammer 12 lbs 36"
- Rod bar (4')

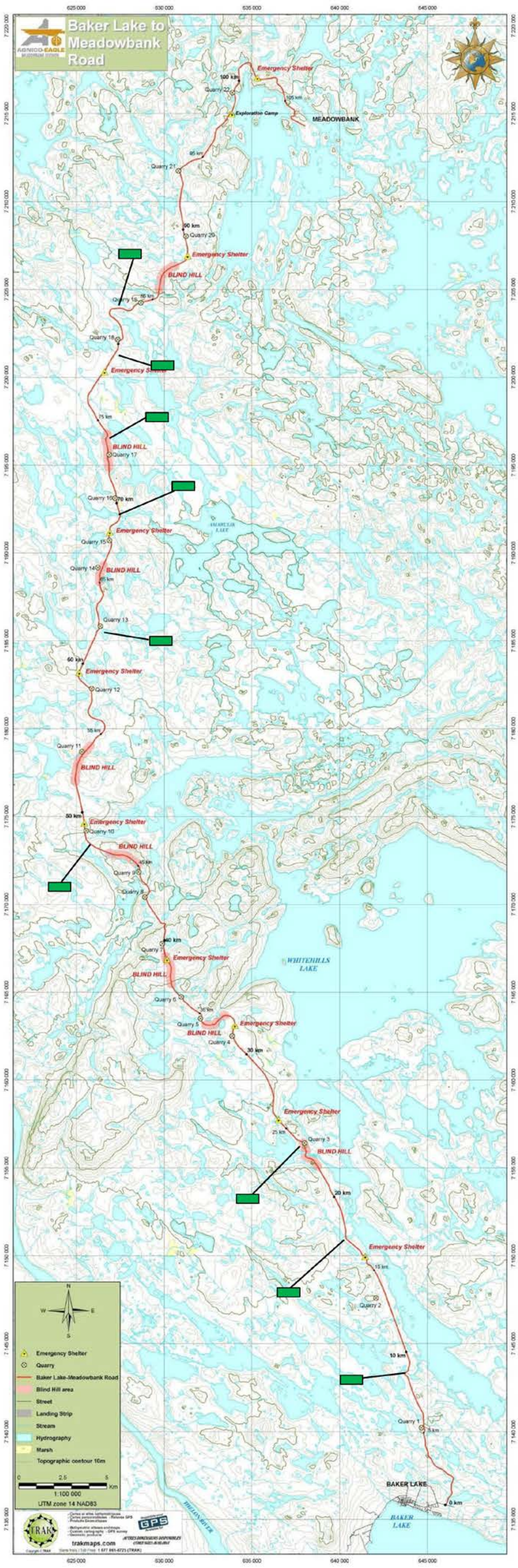
If required, external resources are available in the Hamlet of Baker Lake and those contacts are found in Table 5.

**Figure 8: Spill Response Equipment Location at Meadowbank**



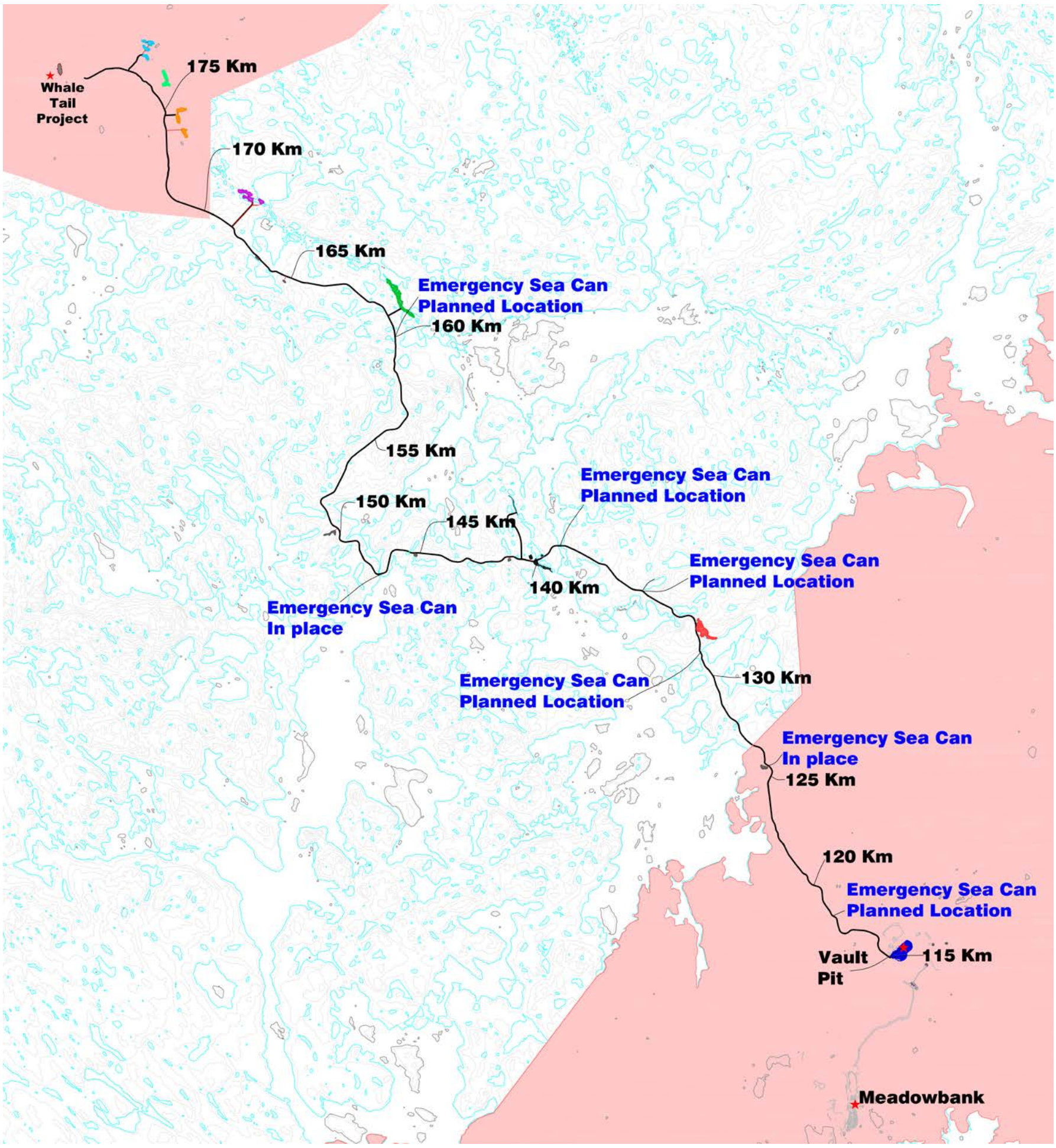

Spill Kits  Large Spill Kits for Mine Ops

**Figure 9: Map of AWAR Including Locations of Environmental Emergency Sea cans**




Environmental Emergency Sea cans

**Figure 10: Map of Whale Tail Haul Road Including Locations of Environmental Emergency Sea cans**



# 9 TRAINING & EMERGENCY SPILL/EXERCISE

A designated Emergency Response Team (ERT) consisting of on-site personnel has been established at Meadowbank and another team will be established at Whale Tail. Agnico Eagle will ensure that the ERTs are trained and present for major spill response at all times. All members of the teams are trained and familiar with emergency and spill response resources, including their location and access, the SCP, and appropriate emergency spill response methodologies. The ERT has up to 40 members, each of whom train 8 hours per month.

The following training is included:

- A review of the spill response plan and responsibilities of the ERT members;
- The nature, status, and location of fuel and chemical storage facilities;
- The on-site and off-site spill response equipment and how to use it;
- Emergency contact lists;
- Desktop exercises of “worst case” scenarios;
- The likely causes and possible effects of spills; and
- On-site personnel.

Every employee at Agnico Eagle receives spill and waste management training during their initial site orientation so they are able to respond to small spills and raise the alarm if a larger response is required. ERT members receive more extensive HAZMAT training and learn how to respond while wearing personal protective equipment (PPE).

A training program is being developed to provide more complete training to all personnel (Agnico and contractors) that will cover safe spill response and intervention as well as awareness to different guidelines pertaining to spills. This training would be mandatory for all staff and renewable yearly.

The road crews between Baker Lake and Meadowbank, and Meadowbank and Whale Tail also received or will receive training regarding the actions that they have to carry out during an emergency or major spill on the road. You can find records of different trainings that Agnico Eagle personnel have attended in Appendix I. Agnico also performed each year a Mock Spill Scenario in Baker Lake. You can find the detailed of the 2018 Mock Spill in Appendix L. A Product Transfer Area Assessment for Baker Lake Oil handling Facility was also completed and can be found in Appendix M. The Environmental Department regularly attends tool-box sessions to provide information on spill response, spill prevention and spill reporting procedures.

## Appendix A

## Environmental Department weekly inspection template

**Environmental Inspection report for MBK Refuelling Station, Jet-A tank and fueling area, Tank farm, and Camp Gensets**

**Date:** _____ **Inspected By:** _____

**Time:** _____ **Weekly Inspection**

| Compliance with | Subject | Conform | Non-conform | N/A | Comments |
|---|---|---|---|---|---|
| NIRB Condition 26 | Ensure that spills, if any, are cleaned up immediately and that the site is kept clean of debris, including wind-blown debris. | | | | |
| NIRB Condition 25 | Management and control waste in a manner that reduces or eliminates the attraction to carnivores and/or raptors. | | | | |
| NWB Part D Item 29<br><br>MBK - SCP | Spills on the ground | | | | |
| NWB Part H Item 4<br><br>NIRB Condition 27 | Secondary containment for fuel, Jet-A, and chemical storage in place | | | | |
| NWB Part D Item 29 | Refuelling procedures followed (secondary containment at every connection and 3 persons) | | | | |
| MBK Bulk Fuel Storage Monitoring Plan Section 6.1 | Precipitation or runoff accumulation in secondary containment | | | | |
| MBK Bulk Fuel Storage Monitoring Plan Section 6.1 | Any visible sheen on water. | | | | |

| | | | | | |
|---|---|---|---|---|---|
| NWB Part F Item 23 | Water in secondary containment of MBK Bulk Fuel Storage Facility and Jet-A storage being measured and recorded in $m^3$. | | | | |
| NWB Part F Item 9<br><br>NIRB Condition 12 | Discharge of water not causing erosion | | | | |
| MBK Bulk Fuel Storage Monitoring Plan Section 6.1 | Any visual structural issues with containment berms | | | | |
| NWB Part F Item 8 | 10 days' notice given to inspector prior to discharge? | | | | |
| NWB Part F Item 6 | Water being discharged to land meets water quality limits | | | | |
| MBK Bulk Fuel Storage Monitoring Plan Section 6.1 | Any indicators that would suggest damage to liner for secondary containments | | | | |
| NWB Part F Item 9 | Discharge of water >30m from ordinary high water mark | | | | |
| NWB Part F Item 5 | Discharge from MBK Fuel Storage Facility being directed to Stormwater Management Pond | | | | |
| NWB Part I Item 10(e) | Is the discharge volume being tracked? | | | | |
| NWB Part F Item 9 | Discharge of water not directly flowing to water body | | | | |
| NWB Part H Item 3<br><br>NIRB Condition 27 | Prevention in place to disallow chemicals, petroleum products and waste from entering Water | | | | |
| NWB Part H Item 5 | Date of last Env. visual inspection (weekly) | | | | |

| | | | | | |
|---|---|---|---|---|---|
| MBK Bulk Fuel Storage Monitoring Plan Section 6.1 | Weekly manual or electronic dip tests were conducted for inventory reconciliation. Date of last test | | | | |
| CCME - Above Ground Storage Tank Guidelines | Non-smoking sign, Extinguisher, and tank identification present | | | | |
| MBK - SCP | Spill Kits Present | | | | |
| NWB Part D Item 22<br><br>NWB Part D Item 33 | Erosion present / Erosion control in Place | | | | |
| NWB Part D Item 36<br><br>NIRB Condition 27 | All tanks and piping are not altered from approved construction. | | | | |
| NWB Part I Item 9 | Are signs identifying monitoring stations in place and posted in English, Inuktitut and French | | | | |
| NWB Part I Item 12 (l) | Annual Geotechnical inspection completed | | | | |
| MBK Wildlife Management Plan | Any nesting taking place on tanks or stairways of tank farm | | | | |
| BMP | Are there any additional environmental hazards/potential impacts that require attention? | | | | |
| MINE ACT | Are there any Health and Safety issues that should be addressed to prevent injury to workers? | | | | |

**Comments/Recommendations:**_____

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**Environmental Personnel Name:** _____

**Signature:** _____

**Actions Corrected:**
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_____

**Site Service Supervisor Name:** _____

**Signature:** _____

**Picture 1: Description**

**Picture 2: Description**

**Picture 3: Description**

**Picture 4: Description**

**Picture 5: Description**

**Picture 6: Description**

**Environmental Inspection report for Baker Lake Marshalling Area, Refuelling Station, Jet-A, and Tank farm**

**Date** **Inspected By**:

**Time:** **Weekly Inspection**

| NWB WL NIRB Cert | Subject | Conform | Non-conform | N/A | Comments |
|---|---|---|---|---|---|
| NIRB Condition 26 | Ensure that spills, if any, are cleaned up immediately and that the site is kept clean of debris, including wind-blown debris. | | | | |
| NIRB Condition 25 | Management and control waste in a manner that reduces or eliminates the attraction to carnivores and/or raptors. | | | | |
| NWB Part D Item 29 MBK SCP | Spills on the ground | | | | |
| NWB Part H Item 4<br><br>NIRB Condition 27 | Secondary containment for fuel, Jet-A, and chemical storage in place | | | | |
| NWB Part D Item 29 | Use of the bucket when refilling fuel truck | | | | |
| NWB Part D Item 29 | Refuelling procedures followed (secondary containment at every connection and 3 persons) | | | | |
| MBK - BLFSF Monitoring Plan Section 6.1 | Precipitation or runoff accumulation in secondary containment | | | | |

| | | | | | |
|---|---|---|---|---|---|
| MBK - BLFSF Monitoring Plan Section 6.1 | Any visible sheen on water. | | | | |
| NWB Part F Item 23 | Water in secondary containment of Marshalling Area Bulk Fuel Storage Facility and Jet-A storage being measured and recorded in $m^3$. | | | | |
| NWB Part F Item 9 NIRB Condition 12 | Discharge of water not causing erosion | | | | |
| MBK - BLFSF Monitoring Plan Section 6.1 | Any visual structural issues with containment berms | | | | |
| MBK - BLFSF Monitoring Plan Section 6.1 | Any indicators that would suggest damage to liner for secondary containments | | | | |
| NWB Part F Item 9 NIRB Condition 12 | Discharge of water >30m from ordinary high water mark | | | | |
| NWB Part I Item 8(g) | Is the discharge volume being tracked? | | | | |
| NWB Part F Item 9 NIRB Condition 12 | Discharge of water not directly flowing to water body | | | | |
| NWB Part F Item 19 NIRB Condition 12 | Waste disposal area >30 m from high water mark | | | | |
| NWB Part F Item 22 NIRB Condition 25 | All solid waste disposed of at approved disposal facility | | | | |
| NWB Part H Item 3 NIRB Condition 27 | Prevention in place to disallow chemicals, petroleum products and waste from entering Water | | | | |

| | | | | | |
|---|---|---|---|---|---|
| EC Requirement | Date of last pipe and tank visual inspection Site Services (monthly) | | | | |
| NWB Part H Item 5 | Date of last env. visual inspection (weekly) | | | | |
| MBK - BLFSF Monitoring Plan Section 6.1 | Weekly manual or electronic dip tests were conducted for inventory reconciliation. Date of last test | | | | |
| CCME Above Ground Storage Tank Guidelines | Non-smoking sign, Extinguisher, and tank identification present | | | | |
| MBK SCP | Spill Kits Present | | | | |
| NWB Part D Item 31 | No material stored on Ice of lake or streams. | | | | |
| NWB Part D Item 32 | No equipment stored <30m from high water mark | | | | |
| NWB Part D Item 22<br>NWB Part D Item 33 | Erosion present / Erosion control in Place | | | | |
| NWB Part D Item 30 | Any rutting or ground disturbance present | | | | |
| NWB Part D Item 36<br><br>NIRB Condition 27 | All tanks and piping are not altered from approved construction. | | | | |
| NWB Part E Item 10 | Measures in place to prevent the generation and deposition of dust | | | | |
| NWB Part H Item 7<br>MBK OPEP<br>MBK SCP | Copies of current OPEP, ERP, and SCP available at Marshalling area | | | | |
| NWB Part H Item 8<br>NIRB Condition 27 | Designated area present with measures to collect motor fluids, waste, and contain spills in the case of required emergency maintenance and Servicing. | | | | |
| NWB Part H Item 8<br><br>NIRB Condition 27 | Emergency maintenance and servicing is being undertaken in designated areas | | | | |

| | | | | | |
|---|---|---|---|---|---|
| NWB Part I Item 9 | Are signs identifying monitoring stations in place and posted in English, Inuktitut and French | | | | |
| NWB Part I Item 12 (l) | Annual Geotechnical inspection completed | | | | |
| NIRB Condition 81 | Is security in place to ensure safe and secure storage of any hazardous or explosive comp | | | | |
| MBK Wildlife Management Plan | Any nesting taking place on tanks or stairways of tank farm | | | | |
| BMP | Are there any additional environmental hazards/potential impacts that require attention? | | | | |
| MINE ACT | Are there any Health and Safety issues that should be addressed to prevent injury to workers? | | | | |

**Comments :**
**Recommendation :**

**Environmental Personnel Name :**

**Signature:** _____

**Actions Corrected:**
_____
_____
_____
_____

**Site Service Supervisor Name:** _____

**Signature:** _____

**Picture 1: Description**

**Picture 2: Description**

**Picture 3: Description**

**Picture 4: Description**

**Picture 5: Description**

**Picture 6: Description**

**Environmental Inspection Report for the Hazardous Material Storage Area**

**Date:** **Inspected By:**

**Location:** HAZMAT area **Weekly Inspection**

| In Compliance with | Subject | Conform | Non-conform | N/A | Comments |
|---|---|---|---|---|---|
| NWB Part B Item 15 | Sign posted to inform of a waste disposal facility | | | | |
| NWB Part D Item 29<br>MBK SCP<br>NIRB Condition 26 | Are there any visual spills? | | | | |
| NWB Part F Item 19 | All Hazardous Waste disposal is located 30m from the ordinary high water mark. | | | | |
| NWB Part H Item 3 | Resources in place to prevent any chemicals, petroleum products, or unauthorized Wastes from entering a water body. | | | | |
| NWB Part H Item 4 | Is secondary containment for chemical storage provided. | | | | |
| NWB Part I Item 9 | Monitoring signs are posted in English, French, and Inuktitut. | | | | |
| MBK SCP | Spill Kits Present | | | | |
| NWB Part F Item 14 | All Hazardous waste generated is sent off site to an approved disposal facility | | | | |
| NWB Part F Item 15 | All Hazardous waste sent off site is manifested | | | | |
| NWB Part F Item 15 | Manifests are sent to Government of Nunavut | | | | |
| NIRB Condition 26 | Ensure that spills, if any, are cleaned up immediately and that the site is kept clean of debris, including wind- | | | | |

| | | | | | |
|---|---|---|---|---|---|
| | blown debris. | | | | |
| NIRB Condition 25 | Management and control waste in a manner that reduces or eliminates the attraction to carnivores and/or raptors. | | | | |
| NIRB Condition 27 | Ensure the hazardous material area is contained using environmentally protective methods based on practical best management practices | | | | |
| | Are storage containers clearly labelled to identify Hazmat substance? | | | | |
| | Are storage containers in good condition? Is there any visible damage or leaks? Can the doors be sealed shut? | | | | |
| | Is HAZMAT in containers properly segregated? | | | | |
| | Is HAZMAT arrangement to prevent from falling or dislodging? | | | | |
| | Where necessary – Is HAZMAT placed on pallets i.e. Drums? | | | | |
| | Where necessary – Are containers with product stored in an upright position? | | | | |
| | Where necessary – Are Quatrex bags closed properly? | | | | |
| | Do you see any potential environmental hazards posed by these HAZMAT containers/materials? | | | | |
| BMP | Are there any additional environmental hazards/potential impacts that require attention? | | | | |
| MINE ACT | Are there any Health and Safety issues that should be addressed to prevent injury to workers? | | | | |

| | | | | | |
|---|---|---|---|---|---|
| Misc. | In the punctured spray can c-can, do we have non-punctured spray can? | | | | |
| | In the grease c-can, do we have open top drums without top, or screw? | | | | |
| | In the empty pails c-can, do we have metal pails that should be in the metal recycling c-can? | | | | |

**Comments/Recommendations :**

**Environmental Personnel Name:** _____ **Signature:** _____

_

**Actions Corrected:**
_____
_____
_____
_____

**Site Service Supervisor Name:** _____

**Signature:** _____

**Picture 1: Open c-can doors**

**Picture 2:**

**Picture 3:**

## Appendix B

## NWT/NU 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 ☐ UPDATE # _____ TO THE ORIGINAL SPILL REPORT | REPORT NUMBER ____-_____ |
| B | OCCURRENCE DATE: MONTH – DAY – YEAR | OCCURRENCE TIME | | |
| C | LAND USE PERMIT NUMBER (IF APPLICABLE) | WATER LICENCE NUMBER (IF APPLICABLE) | | |
| D | GEOGRAPHIC PLACE NAME OR DISTANCE AND DIRECTION FROM NAMED LOCATION | REGION ☐ NWT ☐ NUNAVUT ☐ ADJACENT JURISDICTION OR OCEAN | | |
| 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 EQUIPMENT | |
| 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 | | | |

## Appendix C

**General Response Procedures for Spilled Chemical Substances**

**Explosives**

**C.1 Ammonium Nitrate**
**C.2 Ammonium Nitrate Fuel Oil (ANFO)**

**C.1 Ammonium Nitrate**

Agnico Eagle commits to review, modify and approve as required to establish this procedure as appropriate for use at the Meadowbank and Whale Tail sites.

The first step against prevention of potential spills and association hazards is the application of proper storage procedures for bulk Ammonium Nitrate, including the following:

- Good housekeeping of the storage facility will prevent spilling and or contamination of materials;
- Ammonium nitrate should be stored away from combustible materials and fuels, as well as other blasting accessories (i.e. boosters, delays, detonating cords and detonators);
- The storage facility should be well ventilated;
- Proper signage restricting the use/exposure of ammonium nitrate to ignition sources should be posted (e.g. no hot work, smoking or vehicle maintenance); and
- The storage facility should be locked at all times with only authorized personnel allowed access.

The following is a general spill response procedure for ammonium nitrate. Consult the MSDS for the specific spilled compound to determine whether deviations from the general guidance are required. Agnico Eagle commits to review and test, and if necessary, modify and update this spill response procedure on an annual basis.

**For an ammonium nitrate spill (solid):**

1. Isolate and evacuate the spill area;
2. Contact your Supervisor who will then contact the On-Scene Coordinator and coordinate appropriate spill response materials outside the spill area. **Obtain and read the MSDS** for the substance to determine the chemical-specific hazards and to identify any special precautions that must be taken;
3. Put on appropriate personal protective equipment. For an ammonium nitrate spill this includes:
    a) Gloves **as recommended by the MSDS or glove manufacturer**;
    b) Protective eyeglasses or chemical safety goggles or face shield **as recommended by the MSDS**;
    c) Lab coat, coveralls or TyvekTM coveralls **as recommended by the MSDS**; and
    d) Half mask air-purifying respirator with cartridges and/filters **as recommended by the MSDS or respirator manufacturer**;
4. Ventilate (open windows/doors to outdoors) closed spaces before entering;
5. Remove all sources of heat and ignition (no smoking, flares, sparks or flames in immediate area) and remove uncontaminated combustible materials and organic compounds (wood,

paper, oil, etc.,) from spill area;

6. For spills to land, protect the spill area from storm water runoff by constructing a ditch or dike using suitable absorbent materials, soil or other appropriate barrier;

7. Vacuum or sweep the spill residue using non-metal, non-sparking tools and place the residue in a labelled, plastic, container (plastic pail with lid or double heavy duty plastic bags) for re-use or off-site disposal at a licensed disposal facility;

   *Note: Recovered solid, if generally free from impurities, may be suitable for its intended use. In this case, place solid in suitable container with lid, and* ***clearly label the container per WHMIS Guidelines****.*

   *Note: Minimize dust generation during the operation.*

8. Remove and bag personal protective equipment for cleaning and disposal at a licensed facility. Thoroughly wash potential skin contact locations after handling.

**C.2 Ammonium Nitrate Fuel Oil (ANFO)**

Currently no ANFO is stored at the Meadowbank or Whale Tail sites. ANFO is fabricated on demand using ammonium nitrate and fuel oil. In the event that ANFO would be stored at the sites, Agnico Eagle commits to review, modify and approve as required to establish this procedure as appropriate for use at the Meadowbank Gold Project. Proper handling and disposal of ANFO is an important first step in mitigating against spills and associated hazards.

The proper storage procedures are as follows:

- ANFO should only be used under the supervision of authorized trained personnel;
- ANFO should be kept away from heat, sparks, and flames, as well as initiating explosives, oxidizing agents, combustibles, and other sources of heat;
- Containers should be protected from physical damage and in dry, well ventilated conditions;
- Transportation to the Mine site will be in accordance with Section 14 of the *Mines Act* and Regulations and the *Transportation of Dangerous Goods Act*. Transport vehicles will be in sound mechanical condition and equipped with proper safety equipment. Loaded vehicles will not be left unattended and only authorized personnel will be responsible for the security of the explosives under their control; and
- Explosives that have been identified as deteriorated or damaged will need to be disposed of or destroyed. The appropriate method of disposal or destruction and subsequent course of action will be determined by authorized personnel or the explosive supplier.

The following is a general spill response procedure for ammonium nitrate fuel oil – ANFO. The following procedure does not apply to emulsions or other explosives. Consult the MSDS for the specific spilled compound to determine whether deviations from the general guidance are required. Agnico Eagle commits to review and test, and if necessary, modify and update this spill response procedure on an annual basis.

**For an ANFO spill (solid):**

1. Isolate and evacuate the spill area;
2. Immediately extinguish any open flames and remove ignition sources (no smoking, flares, sparks in immediate area) IF SAFE TO DO SO. **Fires involving large quantities of ANFO should not be fought;**
3. Contact the On-Scene Coordinator who will assemble ERT members and the appropriate spill response materials outside the spill area. **Obtain and read the MSDS** for the substance to determine the chemical- specific hazards and to identify any special precautions that must be taken;
4. Put on appropriate personal protective equipment. For an ANFO spill this includes:

    a. Gloves **as recommended by the MSDS or glove manufacturer**;
    b) Protective eyeglasses or chemical safety goggles or face shield **as recommended by the MSDS**;
    c) Lab coat, coveralls or TyvekTM coveralls **as recommended by the MSDS**;
    d) Shoe covers or rubber boots;
    e) Half mask air-purifying respirator with cartridges and/filters **as recommended by**

**the MSDS or respirator manufacturer;**

5. If the spill has occurred outdoors, stay upwind and avoid low lying areas. Ventilate (open windows/doors to outdoors) closed spaces before entering. Ensure adequate explosion proof ventilation for clean-up;

6. Remove all sources of heat and ignition (no smoking, flares, sparks or flames in immediate area) and remove uncontaminated combustible materials and organic compounds (wood, paper, oil, etc.) from spill area;

7. Do not operate radio transmitters within 100 m of electric detonators;

8. For spill on land, protect the spill area from storm water runoff by constructing a ditch or dike using suitable absorbent materials, soil or other appropriate barrier. For spill to water, utilize damming, and/or water diversion to minimize the spread of contamination;

9. Collect, sweep or shovel spilled material and the other contaminated material/soil using non- metallic, spark- proof tools and place residue into a labelled, plastic, waste container (plastic pail with lid or double heavy duty plastic bags) for off-site disposal at a licensed disposal facility;

   *Note: Recovered solid, if generally free from impurities, may be suitable for its intended use. In this case, place solid in suitable container with lid, and* ***clearly label the container per WHMIS Guidelines.***

   *Note: The drums/containers/residues are to be stored in ventilated areas away from incompatible materials for eventual off-site disposal at a licensed disposal facility.*

10. Remove and bag personal protective equipment for cleaning or disposal at a licensed disposal facility. Thoroughly wash with soap potential skin contact locations after handling. Properly dispose of contaminated leather articles including shoes that cannot be decontaminated.

## Appendix D

## General Response Procedures for Spilled Chemical Substances

### D.1 Compressed Gases

## D.1 Compressed Gases

Agnico Eagle commits to review, modify and approve as required to establish this procedure as appropriate for Meadowbank Gold Project.

The following is a general spill response procedure for compressed gases. Consult the MSDS for the specific spilled compound to determine whether deviations from the general guidance are required.

Agnico Eagle commits to review and test, and if necessary, modify and update this spill response procedure on an annual basis.

**For a compressed (inert and flammable) gas leak:**

1. IF SAFE TO DO SO and it will stop the gas leak, turn off cylinder valve;

2. If the leak cannot be stopped by closing the cylinder valve, and it is an inert atmospheric gas (e.g. nitrogen, carbon dioxide, etc.) isolate and evacuate the affected area. If the leak is a flammable gas and the leak is outside of a ventilated building enclosure that will contain the gas, immediately activate the fire alarm system and evacuate the area/building;

3. Contact the On-Scene Coordinator who will assemble spill response team members and the appropriate spill response materials outside the spill area. Obtain and read the MSDS for the substance to determine the chemical-specific hazards and to identify any special precautions that must be taken;

4. If possible and safety permits, adjust leaking cylinder so that gas escapes rather than liquid;

5. If possible and safety permits, eliminate all ignition sources (no smoking, flares, sparks or flames in immediate area) and turn off electrical equipment;

6. If the spilled has occurred outdoors, stay upwind and avoid low lying areas. If the spill has occurred inside a building, prevent spread of vapour throughout the building by closing doors to other rooms and hallways. If the room's air exchange system distributes air throughout the building, then it may also be necessary to have it shut-down. Allow vapours to ventilate outdoors by opening windows and doors to the exterior; and

7. Isolate area until gas has dispersed. On-Scene Coordinator to verify safe conditions.

# Appendix E

## General Response Procedures for Spilled Chemical Substances

### E.1 Flammable and Combustible Liquids

## E.1 Flammable and Combustible Liquids

Agnico Eagle commits to review, modify and approve as required to establish this procedure as appropriate for use at the Meadowbank Gold Project. The following is a general spill response procedure for flammable or combustible liquids, particularly petroleum hydrocarbon products. Consult the MSDS for the specific spilled compound to determine whether deviations from the general guidance are required.

Agnico Eagle commits to review and test, and if necessary, modify and update this spill response procedure on an annual basis.

**For a spill of flammable or combustible petroleum hydrocarbon product (liquid):**

1. Isolate and evacuate the spill area;

2. Immediately extinguish any open flames and remove ignition sources (no smoking, flares, sparks in immediate area) IF SAFE TO DO SO;

3. Stop leak and contain spill (**see Step 9**) IF SAFE TO DO SO;

4. Contact the On-Scene Coordinator who will assemble ERT members if required and the appropriate spill response materials outside the spill area. **Obtain and read the MSDS** for the substance to determine the chemical-specific hazards and to identify any special precautions that must be taken;

5. Put on appropriate personal protective equipment. Depending on the scale of the spill and properties of the spilled substance, this can include:

   a) Gloves **as recommended by the MSDS or glove manufacturer**;

   b) Splash goggles or face shield;

   c) Shoe covers or rubber boots;

   d) Lab coat or TyvekTM coveralls; and

   e) Half mask air-purifying respirator with **organic vapour or combination** cartridges, or **as otherwise recommended by the MSDS or respirator manufacturer**.

6. If the spilled has occurred outdoors, stay upwind and avoid low lying areas. If the spill has occurred inside a building, prevent spread of vapour throughout the building by closing doors to other rooms and hallways. If the room's air exchange system distributes air throughout the building, then it may also be necessary to have it shut-down;

7. Ventilate (open windows/doors to outdoors) closed spaces before entering. Ensure adequate explosion- proof ventilation for clean-up. A vapour suppressing foam or water spray may be used to reduce vapours;

8. Remove all sources of ignition (no smoking, flares, sparks or flames in immediate area) and combustible materials (wood, paper, oil, etc.) within the spilled area;

9. Contain spill by using spill absorbent, spill pads or pillows, soil or snow to construct a dike that limits flow and prevents entry to sewer, waterways or onto ice. For spills to land,

excavation of trenches/pits to capture spill flow may also be appropriate. If possible, compact soil or snow dikes, and place plastic tarps over the dike and at its foot to allow the product to pool on the plastic for easy recovery;

*Note: Do not use paper towels to absorb spill as this increases the rate of evaporation and vapour concentration in the air.*

*Note: Do not flush with water into drainage areas or ditches as this will spread spill.*

*Note: Snow works well as a natural absorbent to collect and contain spilled petroleum hydrocarbons. However, its use in containing a spill will result in a water-contaminant mixture that may be more difficult to manage. It is important to scrape up the contaminated snow and ice as soon as possible.*

10. Carefully cover the spill area with spill absorbent, spill pads, soil or snow, starting at the outside and working inward. Do not touch or walk through spilled material;

11. Sweep up or shovel the residue using non-metallic, spark-proof tools and place the residue into a labelled, plastic, waste container (plastic pail with lid or double heavy duty plastic bags). For larger spills to land, excavate impacted absorbent material and soil, place in lined and bermed temporary storage area or directly into sealed drums/containers;

    *Note: The drums/containers/residues are to be stored in ventilated areas away from incompatible materials for eventual treatment at on-site landfarm or off-site disposal at a licensed disposal facility. Electrically ground all containers and transporting equipment.*

    *Note: Larger pools of product may be pumped into empty storage tanks or drums.*

12. If spill is indoors, mop the affected area using detergent and water. Dispose of this water to drums for eventual off-site disposal at a licensed disposal facility. Spills to land may require further excavation or remediation of contaminated soil until acceptable soil quality is achieved. The On- Scene Coordinator and/or Environmental Superintendent will assess this requirement;

13. For spills to water, immediately limit the area of the spill on water using absorbent pads and booms and similar materials to capture small spills on water. Deploy and slowly draw in absorbent booms to encircle and absorb the spilled product. Recover larger spills on water with floating skimmers and pumps, as required, and discharge recovered product to drums or tanks;

    *Note: Petroleum hydrocarbons are generally hydrophobic, and as such, do not readily dissolves in water. They typically tend to float on the water's surface. Absorbent booms are often relied on to recover hydrocarbons that escape land containment and enter water.*

    *Note: Antifreeze sinks and mixes with water. If released to water, attempt to isolate/confine the spill by damming or diverting the spill. Pump contaminated water to tanks or drums.*

14. Remove and bag personal protective equipment for cleaning, informing laundry personnel of contaminant hazards, or disposal at a licensed disposal facility. Thoroughly wash with soap potential skin contact locations after handling. Properly dispose of contaminated leather articles, (including shoes) that cannot be decontaminated.

**Appendix F**

**General Response Procedures for Spilled Chemical Substances**

**Oxidizing Substances**

**F.1 Liquids**
**F.2 Solids**

**F.1 Liquids**

Agnico Eagle commits to review, modify and approve as required and to establish this procedure as appropriate for use at the Meadowbank Gold Project. The following is a general spill response procedure for liquid oxidizer compounds. Consult the MSDS for the specific spilled compound to determine whether deviations from the general guidance are required.

Agnico Eagle commits to review and test, and if necessary, modify and update this spill response procedure on an annual basis.

**For a liquid oxidizer spill:**

1. Isolate and evacuate the spill area;

2. Stop leak and contain spill (**see Step 8**) IF SAFE TO DO SO;

3. Contact the On-Scene Coordinator who will assemble ERT members if required and the appropriate spill response materials outside the spill area. **Obtain and read the MSDS** for the substance to determine the chemical-specific hazards and to identify any special precautions that must be taken;

4. Put on the appropriate personal protective equipment. Depending on the scale of the spill and properties of the spilled substance, this can include:

   a) Gloves **as recommended by the MSDS or glove manufacturer**;
   b) Splash goggles or face shield;
   c) Shoe covers or rubber boots;
   d) Lab coat, coveralls or TyvekTM coveralls **as recommended by the MSDS**; and
   e) Half mask air-purifying respirator with cartridges and/or filters **as recommended by the MSDS or respirator manufacturer**.

5. Ventilate closed spaces before entering. Ensure adequate explosion-proof ventilation for clean-up;

6. Remove and/or moisten with water any combustible material (wood, paper, oil, etc.) affected by the spill;

7. Use water spray to reduce vapours or divert vapour cloud drift, if required;

8. Contain spill by using non-combustible spill absorbent, soil or snow to construct a dike that limits flow and prevents entry to sewer, waterways or onto ice. For spills to land, excavation of trenches/pits to capture spill flow may also be appropriate;

   *Note: Flushing area with flooding quantities of water may also be appropriate assuming this does not make clean up and waste management more difficult– **refer to the MSDS**.*

9. Carefully cover the spill area with spill absorbent, soil or snow, starting at the outside and working inward. Use non-combustible absorbent. Do not touch or walk though spilled material.

10. Sweep up or shovel the spill residue using non-metal, non-sparking tools and place the residue into a labelled, plastic, waste container (plastic pail with lid or double heavy duty plastic bags) for off- site disposal at a licensed disposal facility;

11. For indoor spills, mop the affected area using detergent and water. Flushing area with

flooding quantities of water may also be appropriate – **refer to the MSDS**. Dispose of this water to the sanitary sewer, process stream or waste drums as appropriate. Spills to land may require further excavation or remediation of contaminated soil until acceptable soil quality is achieved. The On- Scene Coordinator and/or Environmental Superintendent will assess this requirement; and

12. Remove and bag personal protective equipment for cleaning, informing laundry personnel of contaminant hazards, or disposal at a licensed disposal facility. Thoroughly wash with soap potential skin contact locations after handling. Properly dispose of contaminated clothing that cannot be decontaminated.

## F.2 Solids

Agnico Eagle commits to review, modify and approve as required to establish this procedure as appropriate for use at the Meadowbank Gold Project.

The following is a general spill response procedure for solid oxidizer compounds. Consult the MSDS for the specific spilled compound to determine whether deviations from the general guidance are required.

Agnico Eagle commits to review and test, and if necessary, modify and update this spill response procedure on an annual basis.

**For a solid oxidizer spill:**

1. Isolate and evacuate the spill area;

2. Contact the On-Scene Coordinator who will assemble ERT members if required and the appropriate spill response materials outside the spill area. **Obtain and read the MSDS** for the substance to determine the chemical-specific hazards and to identify any special precautions that must be taken;

3. Put on the appropriate personal protective equipment. Depending on the scale of the spill and properties of the spilled substance, this can include:

   a) Gloves **as recommended by the MSDS or glove manufacturer**;
   b) Safety glasses or goggles;
   c) Lab coat; and
   d) Half mask air-purifying respirator with **N95 or greater protection** particulate filter or **as recommended by the MSDS or respirator manufacturer**.

4. Remove all sources of heat and ignition (no smoking, flares, sparks or flames in immediate area) and remove uncontaminated combustible materials and organic compounds (wood, paper, oil, etc.,) from spill area;

5. For spills to land, protect the spill area from storm water runoff by constructing a ditch or dike using suitable non-combustible absorbent materials, soil or other appropriate barrier. For spill to water, utilize damming, and/or water diversion to minimize the spread of contamination;

6. Vacuum, sweep or shovel the spill residue using non-metal, non-sparking tools and place the residue into a labelled, plastic, container (plastic pail with lid or double heavy duty plastic bags) for re- use or off-site disposal at a licensed disposal facility;

   *Note: Recovered solid, if generally free from impurities, may be suitable for its intended use. In this case, place solid in suitable container with lid, and **clearly label the container per WHMIS Guidelines**.*

   *Note: Minimize dust generation.*

7. If there is still oxidizer residue left in the spill area, neutralize with appropriate agent **as recommended by the MSDS**, or for spills to land continue to excavate until no visible spilled solid remains. Use non- combustible spill absorbent or soil to absorb the neutralized residue. Place in suitable drums/containers for disposal to a licensed facility;

8. For indoor spills, mop the affected area using detergent and water. Dispose of this water to the sanitary sewer, process stream or waste drums as appropriate; and

9. Remove and bag personal protective equipment for cleaning, informing laundry personnel of contaminant hazards, or disposal at a licensed disposal facility. Thoroughly wash with soap potential skin contact locations after handling. Properly dispose of contaminated clothing that cannot be decontaminated.

# Appendix G

## General Response Procedures for Spilled Chemical Substances

## Poisonous and Toxic Substances

### G.1 Sodium Cyanide

## G.1 Sodium Cyanide

Agnico Eagle commits to review, modify and approve as required to establish this procedure as appropriate for use at the Meadowbank Gold Project. The following is a general spill response procedure for solid Sodium Cyanide.

Agnico Eagle commits to review and test, and if necessary, modify and update this spill response procedure on an annual basis.

**For a Sodium Cyanide (solid) spill:**

1. Isolate and evacuate the spill area;

2. Contact the On-Scene Coordinator who will assemble ERT members and the appropriate spill response materials outside the spill area. **Obtain and read the MSDS** for the substance to determine the chemical- specific hazards and to identify any special precautions that must be taken;

3. Put on the appropriate personal protective equipment. Depending on the scale of the spill and properties of the spilled substance, this can include:

   a) Impermeable Gloves **as recommended by the MSDS or glove manufacturer;**
   b) TyChem; and
   c) SCBA – Self Contained Breathing Apparatus
   d) Rubber Boots

   *Note: For worker safety, maintain readily accessible supply of cyanide response kits on site.*

4. Ventilate area of spill or leak;

5. Avoid exposure to acids, water or weak alkalis which can react to form toxic hydrogen cyanide (HCN) gas.

6. Contain spill to prevent release to sewer, waterway or onto ice. For spills to land, protect the spill area from storm water runoff by constructing a ditch or dike using absorbent materials, soil or other appropriate barrier. If raining, cover spill area with tarp or plastic to minimize contact with water and prevent subsequent runoff. For spill to water, utilize damming, and/or water diversion to minimize the spread of contamination;

7. Shovel the spilled material into labelled drums, containers or plastic bags for re-use or off-site disposal at a licensed disposal facility.

   *Note: Recovered solid, if generally free from impurities, may be suitable for its intended use. In this case, place solid in suitable container with lid, and **clearly label the container per WHMIS Guidelines**.*

   *Note: Minimize dust generation.*

8. If there is still spilled sodium cyanide residue left in the spill area, neutralize with appropriate agent **as recommended by the MSDS** (sodium or calcium hypochlorite solution), or for

spills to land continue to excavate until no visible spilled solid remains. Use suitable spill absorbent or soil to absorb the neutralized residue. Place in suitable drums/containers for disposal to a licensed facility. Collect material and place in a closed container for recovery or disposal.

***IMPORTANT:*** ***It is strictly prohibited to add any chemicals or neutralizing solutions to a Sodium Cyanide Spill near a drainage system, or near or in a water body.***

9. For indoor spills, mop the affected area using detergent and water. Dispose of this water to waste drums/containers for disposal to a licensed facility; and

10. Remove and bag personal protective equipment for disposal at a licensed disposal facility. Thoroughly wash with soap potential skin contact locations after handling. Properly dispose of contaminated clothing that cannot be decontaminated.

**Appendix H**

**General Response Procedures for Spilled Chemical Substances**

**Corrosive Substances**

**H.1 Acids, Liquids**
**H.2 Acids, Solids**
**H.3 Bases/Alkali, Liquids**
**H.4 Bases/Alkali, Solids**

**Response to Spilled Chemicals**

***IMPORTANT:*** ***It is strictly prohibited to add any chemicals or neutralizing solutions to a Spilled Chemicals near a drainage system, or near or in a water body.***

**H.1 Acids, Liquids**

Agnico Eagle commits to review, modify and approve as required to establish this procedure as appropriate for use at the Meadowbank Gold Project.

The following is a general spill response procedure for liquid acid compounds. Consult the MSDS for the specific spilled compound to determine whether deviations from the general guidance are required.

Agnico Eagle commits to review and test, and if necessary, modify and update this spill response procedure on an annual basis.

**For a liquid acid spill:**

1. Isolate & evacuate the spill area;

2. Stop leak and contain spill (**see Step 8 below**) IF SAFE TO DO SO;

3. Contact the On-Scene Coordinator who will assemble ERT members if required and the appropriate spill response materials outside the spill area. **Obtain and read the MSDS** for the substance to determine the chemical-specific hazards and to identify any special precautions that must be taken;

4. Put on appropriate personal protective equipment. Depending on the scale of the spill and properties of the spilled substance, this can include:

    a) Gloves **as recommended by the MSDS or glove manufacturer**;

    b) Splash goggles or face shield;

    c) Shoe covers or rubber boots;

    d) Lab coat or TyvekTM coveralls; and

    e) Half mask air-purifying respirator with **acid gas or combination** cartridges, or **as otherwise recommended by the MSDS or respirator manufacturer**.

5. If the spill has occurred outdoors, stay upwind and stay out of low areas. If the spill has occurred inside a building, prevent spread of vapour throughout the building by closing doors to other rooms and hallways. If the room's air exchange system distributes air throughout the building, then it may also be necessary to have it shut-down;

6. Ventilate (open windows/doors to outdoors) closed spaces before entering;

7. Remove all sources of ignition (no smoking, flares, sparks or flames in immediate area);

8. Contain spill by using spill absorbent, spill pads or pillows, or dry soil to construct a dike

that limits flow and prevents entry to sewer, waterways or onto ice. For spills to land, excavation of trenches/pits to capture spill flow may also be appropriate. Ideally, use spill absorbent that contains a mild neutralizing agent **as recommended by the MSDS;**

*Note: Many acids, particularly concentrated acids react violently in the presence of water. Do not flush spill area with water unless the **MSDS** indicates acceptable.*

*Note: Nitric Acid reacts violently and explosively with organic chemicals and organic material such as wood, cotton and paper; therefore, do not use organic absorbent material on Nitric acid.*

*Note: Hydrofluoric acid will fume during neutralization. Provide adequate ventilation and approach from upwind. Neutralize carefully with sodium bicarbonate, soda ash or lime. Use water spray to disperse the gas/vapour if required. Remove all sources of ignition.*

9. Carefully cover the spill area with spill absorbent, spill pads or dry soil, starting at the outside and working inward. If practical, neutralize spill using **MSDS-recommended** or commercially available neutralizers. Use pH indicator paper to determine if spill is neutralized (pH 7);

   *Note: Use caution as neutralization reactions generate heat.*

10. Sweep or shovel the neutralized spill residue using non-metal, non-sparking tools and place the residue into a labelled, plastic, waste container (plastic pail with lid or double heavy duty plastic bags) for off-site disposal at a licensed disposal facility;

11. Check the pH of the spill area. If it is less than pH 6, then further neutralize with a dilute solution of a suitable reagent **as identified on the MSDS** or for spill to land continue to excavate contaminated soil;

12. For indoor spills, mop the affected area using detergent and water. Dispose of this water to the sanitary sewer, process stream or waste drums as appropriate;

13. Remove and bag personal protective equipment for cleaning, informing laundry personnel of contaminant hazards, or disposal at a licensed disposal facility. Thoroughly wash with soap potential skin contact locations after handling. Properly dispose of contaminated clothing that cannot be decontaminated; and

14. After the spill has been cleaned up, the area should be free of vapours. However, if personnel note odours or irritation, isolate the spill area; re-clean the area as per **Steps 11 and 12** or wait at least **1 hour** before re-entering or until considered safe by the On-Scene Coordinator or Environmental Superintendent.

**H.2 Acids, Solids**

Agnico Eagle commits to review, modify and approve as required to establish this procedure as appropriate for use on the Meadowbank Gold Project.

The following is a general spill response procedure for solid acid compounds. Consult the MSDS for the specific spilled compound to determine whether deviations from the general guidance are required.

Agnico Eagle commits to review and test, and if necessary, modify and update this spill response procedure on an annual basis.

**For a solid acid spill;**

1. Isolate and evacuate the spill area;

2. Contact the On-Scene Coordinator who will assemble ERT members if required and the appropriate spill response materials outside the spill area. **Obtain and read the MSDS** for the substance to determine the chemical-specific hazards and to identify any special precautions that must be taken;

3. Put on the appropriate personal protective equipment. Depending on the scale of the spill and properties of the spilled substance, this can include:

   a) Gloves **as recommended by the MSDS or glove manufacturer**;

   b) Safety glasses or goggles;

   c) Lab coat; and

   d) Half mask air-purifying respirator with **N95 or greater protection** particulate filter, or **as otherwise recommended by the MSDS or respirator manufacturer**.

4. Contain spill to prevent release to sewer, waterway or onto ice. For spills to land, protect the spill area from storm water runoff by constructing a ditch or dike using absorbent materials, dry soil or other appropriate barrier. If raining, cover spill area with tarp or plastic to minimize contact with water and prevent reaction and/or subsequent runoff. For spill to water, utilize damming, and/or water diversion to minimize the spread of contamination;

5. If necessary to minimize dust production, slightly moisten the solid. Use water, or if the material is water reactive, another inert liquid **as recommended by the MSDS;**

6. Sweep up or shovel the residue using non-metallic, spark-proof tools and place the residue into a labelled, plastic, waste container (plastic pail with lid or double heavy duty plastic bags) for reuse or off-site disposal at a licensed disposal facility;

   *Note: Recovered solid, if generally free from impurities, may be suitable for its intended use. In this case, place solid in suitable container with lid, and **clearly label the container per WHMIS Guidelines**.*

7. Remaining solid acid residue may be neutralized using a dilute solution of appropriate agent **as recommended by the MSDS** (e.g. sodium bicarbonate - baking soda), or for spills to land continue to excavate until no visible spilled solid remains. Check the pH of the spill area; the final pH should be between pH 6 and 10. Use spill absorbent, spill pads or

dry soil to absorb the neutralized residue;

*Note: Use caution as neutralization reactions generate heat.*

8. For indoor spills, mop the affected area using detergent and water. Dispose of this water to the sanitary sewer, process stream or waste drums as appropriate; and

9. Remove and bag personal protective equipment for cleaning, informing laundry personnel of contaminant hazards, or disposal at a licensed disposal facility. Thoroughly wash with soap potential skin contact locations after handling. Properly dispose of contaminated clothing that cannot be decontaminated.

**H.3 Bases/Alkali, Liquids**

Agnico Eagle commits to review, modify and approve as required to establish this procedure as appropriate for use at the Meadowbank exploration camp.

The following is a general spill response procedure for liquid alkali or base compounds. Consult the MSDS for the specific spilled compound to determine whether deviations from the general guidance are required.

Agnico Eagle commits to review and test, and if necessary, modify and update this spill response procedure on an annual basis.

**For a liquid alkali or base spill:**

1. Isolate & evacuate the spill area;

2. Stop leak and contain spill (**see Step 8**) IF SAFE TO DO SO;

3. Contact the On-Scene Coordinator who will assemble ERT members and the appropriate spill response materials outside the spill area. **Obtain and read the MSDS** for the substance to determine the chemical- specific hazards and to identify any special precautions that must be taken;

4. Put on the appropriate personal protective equipment. Depending on the scale of the spill and properties of the spilled substance, this can include:

   a) Gloves **as recommended by the MSDS or glove manufacturer**;

   b) Splash goggles or face shield;

   c) Shoe covers or rubber boots;

   d) Lab coat or TyvekTM coveralls; and

   e) Half mask air-purifying respirator with cartridges/filters **as recommended by the MSDS or respirator manufacturer**.

5. If the spill has occurred outdoors, stay upwind and stay out of low areas. If the spill has occurred inside a building, prevent spread of vapour throughout the building by closing doors to other rooms and hallways. If the room's air exchange system distributes air throughout the building, then it may also be necessary to have it shut-down;

6. Ventilate (open/windows to outdoors) closed spaces before entering;

7. Remove all sources of ignition (no smoking, flares, sparks or flames in immediate area) and combustible materials (wood, paper, oil, etc.);

8. Contain spill by using spill absorbent, spill pads or pillows, or dry soil to construct a dike that limits flow and prevents entry to sewer, waterways or onto ice. For spills to land, excavation of trenches/pits to capture spill flow may also be appropriate. Ideally, use spill absorbent that contains a mild neutralizing agent **as recommended by MSDS;**

   *Note: Use caution as neutralization reactions generate heat.*

9. Carefully cover the spill area with spill absorbent, spill pads or dry soil, starting at the outside and working inward. If practical, neutralize spill using MSDS-recommended or commercially available neutralizers. Use pH indicator paper to determine if spill is neutralized (pH 7);

   *Note: Use caution as neutralization reactions generate heat.*

10. Sweep or shovel the neutralized spill residue using non-metal, non-sparking tools and place the residue into a labelled, plastic, waste container (plastic pail with lid or double heavy duty plastic bags) for off-site disposal at a licensed disposal facility;

11. Check the pH of the spill area. If it is greater than pH 10, then further neutralize with a dilute solution of a suitable reagent **as identified on the MSDS**, or for spill to land continue to excavate contaminated soil;

12. For indoor spills, mop the affected area using detergent and water. Dispose of this water to the sanitary sewer, process stream or waste drums as appropriate;

13. Remove and bag personal protective equipment for cleaning, informing laundry personnel of contaminant hazards, or disposal at a licensed disposal facility. Thoroughly wash with soap potential skin contact locations after handling. Properly dispose of contaminated clothing that cannot be decontaminated; and

14. After the spill has been cleaned up, the area should be free of vapours. However, if personnel note odours or irritation, isolate the spill area; re-clean as per **Steps 11 and 12** or wait at least **1 hour** before re- entering or until it is considered to be safe by the On-Scene Coordinator or Environmental Superintendent.

**H.4 Bases/Alkali, Solids**

Agnico Eagle commits to review, modify and approve as required to establish this procedure as appropriate for use at the Meadowbank Gold Project.

The following is a general spill response procedure for solid alkali or base compounds. Consult the MSDS for the specific spilled compound to determine whether deviations from the general guidance are required.

Agnico Eagle commits to review and test, and if necessary, modify and update this spill response procedure on an annual basis.

**For a solid alkali or base spill;**

1. Isolate and evacuate the spill area;

2. Contact the On-Scene Coordinator who will assemble ERT members if required and the appropriate spill response materials outside the spill area. **Obtain and read the MSDS** for the substance to determine the chemical-specific hazards and to identify any special precautions that must be taken;

3. Put on the appropriate personal protective equipment. Depending on the scale of the spill and properties of the spilled substance, this can include:

   a) Gloves **as recommended by the MSDS or glove manufacturer**;

   b) Safety glasses or goggles;

   c) Lab coat; and

   d) Half mask air-purifying respirator with **N95 or greater protection** particulate filter or **as recommended by the MSDS or respirator manufacturer**.

4. Contain spill to prevent release to sewer, waterway or onto ice. For spills to land, protect the spill area from storm water runoff by constructing a ditch or dike using absorbent materials, dry soil or other appropriate barrier. If raining, cover spill area with tarp or plastic to minimize contact with water and prevent reaction and/or subsequent runoff. For spill to water, utilize damming, and/or water diversion to minimize the spread of contamination;

5. If necessary to minimize dust production, slightly moisten the solid. Use water, or if the material is water reactive, another inert liquid **as recommended by the MSDS**;

   *Note: Do not use water to flush bases in powdered form, such as calcium oxide (lime), as this material is not very soluble.*

6. Sweep or shovel the residue using non-metallic, spark-proof tools and place the residue into a labelled, plastic, waste container (plastic pail with lid or double heavy duty plastic bags) for offsite disposal at a licensed disposal facility;

   *Note: Recovered solid, if generally free from impurities, may be suitable for its intended use. In this case, place solid in suitable container with lid, and **clearly label the container per WHMIS Guidelines**.*

7. Remaining solid alkali or base residue may be neutralized using a dilute solution of

appropriate acid. Check the pH of the spill area; the final pH should be between pH 6 and 10. Use spill absorbent, spill pads or dry soil to absorb the neutralized residue;

8. For indoor spills, mop the affected area using detergent and water. Dispose of this water to the sanitary sewer, process stream or waste drums as appropriate; and

9. Remove and bag personal protective equipment for cleaning, informing laundry personnel of contaminant hazards, or disposal at a licensed disposal facility. Thoroughly wash with soap potential skin contact locations after handling. Properly dispose of contaminated clothing that cannot be decontaminated.

## Appendix I

## Agnico Eagle Spill Response Training Records

# Group Training Report

Course Name: Emergency Planning and Spill Response Awareness

Trainer's Name: Trever Miller

Date: Jan. 15/2013

Agnico-Eagle Mines Ltd.
Meadowbank Division

| M | | Name | Company | Signature | Hours TRG. | Hours ASS. | Total Hours | Code |
|---|---|---|---|---|---|---|---|---|
| | 1 | Jeffrey Pratt | AEM | | | | 10 | |
| | 2 | Fanny Laporte | AEM | | | | 10 | |
| | 3 | RICHARD JACKSON | AEM | | | | 10 | |
| | 4 | Tom Thomson | AEM | | | | 10 | |
| | 5 | MAURICE BARIRAU | AEM | | | | 10 | |
| | 6 | DAVID ALEXANDER | AEM | | | | 10 | |
| | 7 | Martin Theriault | AEM | | | | 10 | |
| | 8 | | | | | | | |
| | 9 | | | | | | | |
| | 10 | | | | | | | |

COMMENTS:

Trainer's signature:

Date: January 15, 2013

Codes:
1. AEM Permit
2. Restrictive Permit
3. Temporary Permit
4. Training Completed
5. Training Not Completed
6. Fail

Assessment Codes:
A+: Very Good
A : Good
B : Average
C : Below Average

Tom Thomson

# SWAT OILSPILL ISSUES WORKSHOP

## Situation Analysis – Truck Rollover

- **Incident** - 45 $m^3$ diesel spills/plus oil/acid – Originates on Land, flows into the River
- **Spill** - occurred 22:00 hrs on March 20, 2013
- **River** – water flow, 5 km/hr, braided channels; approx 15 km to Baker Lake
- **Lake** – winds from the North West at 20 km/hr. Tide is high.

Km 23 - Bridge 3

1. List the **issues** linked to this scenario:

Response Time + Moving Equipment / Resources to the Area
Light + Temperature
Fish Bearing Stream
Speed of Containment / Cut off Point
Vast Contaminated area - Type of Contaminate

* Safety of Personel, Communications, Environment, Equipment

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2. What **resources** are required?

Baker Lake Contractor / Peters Exp.
Baker Lake Command Center, Camp, at Spill Location
Ert Personal + Relieve
Emergency Trailer - Environmental
Emergency C-Cans / Roll offs
Lighting / Generators
Transportation
Safety officer(s)
AEM Personal from Baker Lake
Mapping of Area

3. What are the **initial spill response steps and what does your ICS look like**?

3rd Control / Crisis Centre
On Site Commander
Baker Lake
Logistic, Planning, Finance

1) Review ERP + Spill Contingency Plan
Prepare J.H.A on Spill

Establish Safety Zones - Hot, Warm, Cold



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4. What is your oil spill containment and recovery **strategy**?

Shut off / Stop Spill - Identify Source
Contain Spill - Trench n Bell or (POE)
Maritime Booms & Absorbants
Estimate Direction of spill & find a cut off points

By Using 10 - 30 - 4 - Protect Shoreline and diverting flow

* Pre plan - Plan it now

5. What is your strategy for shoreline **cleanup** operations; if using SCAT what are the forecasted shoreline types, what is your treatment options for each type and what is your end point criteria

Vacuum Pump, Absorbants, Oil/water Separator
- Vegatated / Rocky Shorelines - Excavate cont Soil
-
- Sample & Monitored until we have clearance from DFO, ENV Canada

- Do a quick wash & leave it for Bio remediation



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6. What are some **safety** issues?

[redacted], Drinking Water - Baker Lake

Temperature + H+S of Response Team
LEL's
water + Ice

7. How do you manage your **waste**?

Quatrex, 45 Gallons, oil/water separator

Contaminated Soil pad

8. If it were to make it to the lake what is your containment, recovery, cleanup and general overall response?

Same as #3 - Notify Proper Personal / Additional Authorities
DFO, EC, Baker Lake Res.



SWAT Consulting Inc.

Fanny Laporte.

# SWAT OILSPILL ISSUES WORKSHOP

**Situation Analysis – Truck Rollover**

45 000 Litres KM 23

- **Incident -** 45 $m^3$ diesel spills/plus oil/acid – Originates on Land, flows into the River
- **Spill** - occurred 22:00 hrs on March 20, 2013
- **River** – water flow, 5 km/hr, braided channels; approx 15 km to Baker Lake
- **Lake** – winds from the North West at 20 km/hr. Tide is high.

KM 23.

1. List the **issues** linked to this scenario:

Communication issu

Contamination

- Back to land / Water contamination / Wildlife. To white ~~fish~~ lake. (Fishing major site for invit)
- Time of day and distance from camp.
- March → still snow – could be cold
- Accident → Health & Safety (Driver) and the Responder
- Acid → add another safety issue ↓ less.
- Baker Lake water intake
- Public relation case / inform the Community
  ↳ by appropriate person

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2. What **resources** are required? *60 people

- Labor → with incident Command Plan / everybody has a task in the organization / ERT Team.
- Commandement Trailer & facilities close to site ✓
  ↳ could be a container, heated
- decontamination area.
- Machinery → loader → TRUCK → shovel. ✓
- Disposal and containing material DRUMS/45Gall (berm - secondary material) Vacum - emergency trailer with supply.
- Towerlight → because it is night ✓ zodiac empty tanker.
  helicopter for next morning.

3. What are the **initial spill response steps and what does your ICS look like**?

Command ICS:

INFO. ①
- MSDS Sheets - Planning - Logistic
- JHA
- S.R.P spill response Plan. / ERP. / SRP /

② Find resources / General Briefing.

③ Logistic and reassess at all change (FLRA)

↳ operations.
- Isolation
- Contain
- Recovery - Remediate
- wildlife
- waste management
- Sampling.

Level 3 SPILL Emergency

Because it is night and impact can be desastrous



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4. What is your oil spill containment and recovery **strategy**?

(1) (A) → Make the environment safe for me and my Team - Gaz det for - PPE
(1) Stop the leaks
(3) (2) dig a ~~ditch~~ trench to protect the water (Shore)
(3) evaluate where the contaminent are
→ wind → slope → current.
(4) Instal maritime bariere to contain (or) the biggest part of the oil.
(5) Snow barrier if needed.
(2) (6) cut all entries to other ponds and rivers
(7) Vaccum the contaminent and dispose the waste adequatly.
(8) transpose what is still in the tanker to another container

5. What is your strategy for shoreline **cleanup** operations; if using SCAT what are the forecasted shoreline types, what is your treatment options for each type and what is your end point criteria

Tundra / Rock
→ Inspect the Shore / contain with ~~snow~~ Maritime barrier. trenches / bell hole.
→ Monitoring often and sample
→ When melting / sample and vaccum if needed Quick wash.
→ let nature take over.
→ if ~~not~~ too much → excavate the Shore and remove contaminent. and dispose



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6. What are some **safety** issues?

Under The ice. → leave it.

→ LEL / Fire / toxic Gases.

→ Water / ice / cold for response team and equipment.

→ darkness → uneven Ground / strain ankle

7. How do you manage your **waste**?

45 Gall.

used Fuel → sent back south to appropriate place

used absorbant supply → ship down south in Quadrex

material → brought to Land farm

Clean and rinse - PPE

8. If it were to make it to the lake what is your containment, recovery, cleanup and general overall response?

See # 4 ~~Questio~~ answer. ✓

→ cut the Hamlet Water intake. ✓

inform additional Autorities.

Skimming Vessels

Boats. ✓ ✓ ✓



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Jeff Pratt

# SWAT OILSPILL ISSUES WORKSHOP

**Situation Analysis – Truck Rollover**

- **Incident** - 45 $m^3$ diesel spills/plus oil/acid – Originates on Land, flows into the River
- **Spill** - occurred 22:00 hrs on March 20, 2013
- **River** – water flow, 5 km/hr, braided channels; approx 15 km to Baker Lake
- **Lake** – winds from the North West at 20 km/hr. Tide is high.

1. List the **issues** linked to this scenario:

- 90km from mine
- Dark out
- Very Cold
- Vacinty to lake
- low tide will suck out

2. What **resources** are required?

- Personnel
- Command center both on site & Baker Lake
- Lightening
- Amenities for personnel
- Spill Response Equipment
- Transportation

3. What are the **initial spill response steps and what does your ICS look like**?

- Alert ERT and immobilize
- Alert ICS

ICS - Review of Spill Contingency - Planning for mobilization

- ERT Captain would assess situation and report incident command



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4. What is your oil spill containment and recovery **strategy**?

~~Cont~~

- Stop the release - Plug hole or build berm.
- Contain release - Do Not Let Enter Lake
  - Place boom along ~~mouth~~ deltas From the tributaries.
  - Have to create ice road to down stream collection point.
  - ~~Use~~ Extract contaminent from down stream boom point*

5. What is your strategy for shoreline **cleanup** operations; if using SCAT what are the forecasted shoreline types, what is your treatment options for each type and what is your end point criteria

- Create Hot, Warm, Cold Zones
- Rocky Sandy Substate
- Leave to summer Valatilize



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6. What are some **safety** issues?

- No light
- Cold Weather
- PPE For Chemicals

7. How do you manage your **waste**?

- Quatrex bags
- Totes for liquid Contaminants

8. If it were to make it to the lake what is your containment, recovery, cleanup and general overall response?

M. Theriault

# SWAT OILSPILL ISSUES WORKSHOP

**Situation Analysis – Truck Rollover**

- **Incident -** 45 $m^3$ diesel spills/plus oil/acid – Originates on Land, flows into the River
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- **Lake** – winds from the North West at 20 km/hr. Tide is high.

1. List the **issues** linked to this scenario:

- BL water intake
- impact to the land / to the water
- Going towards white hills lake (fishing lake)
- Distance from camp / time of event / Weather
- H/S for the driver and responder + Possible acid reaction
- Spalding of cont.
- Wildlife (fish)
- Public relationship (not have the appropriate person)
- Dispersion
- Communication, Road Access

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2. What **resources** are required?

- Equipment : Boat, Maritime Barrier, Shovel, truck, Quadrex waste disposal, secondary containment, Spot (toward light) Vaccum (Emergency trailer)

Decontamination unit, Commandement unit

- Personnal : Labour, ERT, IC, public relationship

helicopter

3. What are the **initial spill response steps and what does your ICS look like**?

Planning { MSDS sheet, JHA, ERP, SRP,

Logist. { General Briefing
Find ressource and equipment and make them available

Operation → Field Level Risk Assessment
↳ Isolation - contain - Recovery ~~est~~. Wildlife - Waste Managment
Sampling

Reassess between field and Management by IC.



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4. What is your oil spill containment and recovery **strategy**?

Make sure everything is safe, gaz detector, PPE ect.

Plug the hole / Stop the leak

Dig a ditch (trench) close to the shore

Evaluate the location of the contaminate in the watere

Install maritime barrier to enclose/isolate the leaking shore

Cut all entries to other channels

Vaccum the accumulate diesel / transfert the diesel left in the tanker

Adequately dispose the waste

5. What is your strategy for shoreline **cleanup** operations; if using SCAT what are the forecasted shoreline types, what is your treatment options for each type and what is your end point criteria

inspect the shore, Keep the maritime barrier containing the fuel close to shore, monitore and sample if needed, vaccum, let nature take over

WASH II

If too much contaminant Keep coming from the underground, dig everything



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6. What are some **safety** issues?

- LEL / fire / toxic gasses
- WATER / ICE
- cold weather
- Heavy equipment
- Uneven soil, darkness (strain ankle)

7. How do you manage your **waste**?

- used fuel send back south to appropriate location
- Absorbant stuff used (quadrex) burned or ship down south
- Contaminated soil send to landfarm
- Rinse all the PPE

8. If it were to make it to the lake what is your containment, recovery, cleanup and general overall response?

See question #4



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R-Jackson

# SWAT OILSPILL ISSUES WORKSHOP

23 2h

**Situation Analysis – Truck Rollover**

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- **Lake** – winds from the North West at 20 km/hr. Tide is high.

1. List the **issues** linked to this scenario:

- RESPONSE TIME
- MOVING RESOURCES + EQUIP
- LIGHT FACTOR
- FISH BEARING
- SPEED OF CONTAINMENT
- VAST CONTAMINATED AREA
-

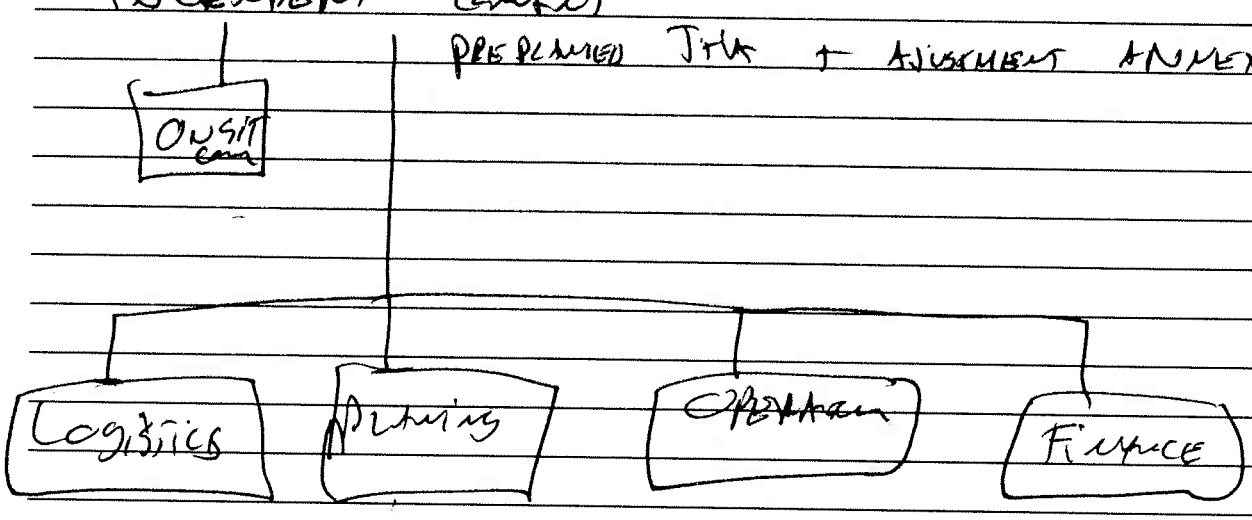
2. What **resources** are required?

- BLCS + PETER EXPEDITING HEAVY EQUIPMENT
- ERT PERSONEL + RELIEF PERSONEL
- COMMAND CENTER ON SITE + AT CAMP
- EMERGENCY SEA CANS ROLLOFF BINS
- LIGHTING, GENERATORS
- INFORMATION + SAFETY OFFICER
- MAPPING OF THE AREA
-

3. What are the **initial spill response steps and what does your ICS look like**?

INCIDENT COMMAND

PREPLANNED JHA + ADJUSTMENT ANNEXE




RI



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4. What is your oil spill containment and recovery **strategy**?

CONTAIN SPILL (STOP SPILL AT THE SOURCE
PREVENT FURTHER ENTRY/ TRENCH BELL HOLE
ESTIMATE DIRECTION OF SPILL MARITIME BOOMING
FIND CUT OFF POINTS
BY USING 10/30 Q4 RULE DIRECT FLOW TO AND
PROTECT SHORE LINE

5. What is your strategy for shoreline **cleanup** operations; if using SCAT what are the forecasted shoreline types, what is your treatment options for each type and what is your end point criteria

- VACU PUMP
- PADS
- SORBANTS
-



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6. What are some **safety** issues?

LEL
COLD T°
~~[illegible]~~ INHALATION
CONTAMINATION
FIRE
WATER OVERFLOW

7. How do you manage your **waste**?

QUATRON PACKS
45 Gal DRUMS
OIL WAT SEPERATION
CONTAMINATED SOIL PAD

8. If it were to make it to the lake what is your containment, recovery, cleanup and general overall response?



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D. ALEXANDER

# SWAT OILSPILL ISSUES WORKSHOP

**Situation Analysis – Truck Rollover**

- **Incident -** 45 $m^3$ diesel spills/plus oil/acid – Originates on Land, flows into the River
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- **Lake** – winds from the North West at 20 km/hr. Tide is high.

1. List the **issues** linked to this scenario:

WATER INFILTRATION 90KM away
~~Sound alarm~~ Pitch DARK
~~Extreme~~ cold
Set-up block before ~~RIVER~~ EMPTIES INTO BAKER LAKE
Low tide when it comes will make it worse

2. What **resources** are required?

~~FIRST RESPONSE - ALERT BAKER LAKE FIRE DEPT.~~
COMMAND CENTRE AT MEADOW + BAKER
LIGHTING
WARM-UP FOR STAFF
SPILL RESPONSE EQUIP.
TRANSPORT FROM MINE
50-60 people fly off at MB

**3.** What are the **initial spill response steps and what does your ICS look like**?

~~ALERT ERT~~ ALERT ERT, INCL. ENVIRO, MINE SUPER, H+S SUPER, SITE SERVICES, HR
REVIEW CONTINGENCY PLAN, PLANNING FOR MOBILIZATION
ERT CAPTAIN - WITH ENVIRO, WOULD ASSES REPORT BACK TO the ICS



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4. What is your oil spill containment and recovery **strategy**?

STOP ~~CONTAIN~~ SPILL CONTAIN FROM ENTRY INTO LAKE.
PLUG THE HOLE IN TRUCK OR BUILD BERM
CREW ASSIGNED.
- INSTALL BOOM ALONG THE DELTA MOUTH OF THE RIVER JUST BEFORE IN ENTERS THE LAKE
- MAKE ICE ROAD TO DOWNSTREAM COLLECTION POINT
- WITH VACUUM TRUCK
- ESTABLISH ZONES

5. What is your strategy for shoreline **cleanup** operations; if using SCAT what are the forecasted shoreline types, what is your treatment options for each type and what is your end point criteria

ROCKY, SANDY SUBSTRATE, WAIT TIL SUMMER
VALITISE.
ZONE OFF.



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6. What are some **safety** issues?

PITCH DARK - Need
Cold weather
PROPER PPE

7. How do you manage your **waste**?

VACUUM TRUCK

8. If it were to make it to the lake what is your containment, recovery, cleanup and general overall response?

CELLULOSE BOOMS.



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M. BARIBEAU

# SWAT OILSPILL ISSUES WORKSHOP

**Situation Analysis – Truck Rollover**

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- **Lake** – winds from the North West at 20 km/hr. Tide is high.

1. List the **issues** linked to this scenario:

- 90 kms from site
- Patch dark, very cold.
- Sanity to lake.
⇒ Set up on site operational post.
⇒ Low tide will draw water away.
⇒

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2. What **resources** are required?

→ Manpower.
→ Boat, Light Tower, ammunition.
→ Bather lake, Free flight.
→ Personnel transportation.
→ Means of communication.
→ Small loader, Vacuum Truck.

3. What are the **initial spill response steps and what does your ICS look like**?

- Set up ICS
- H&S, Environment, HR, Site Services, General Services. spill.
- Review emergency contingency Plan.
- Plan mobilization. → ERT Captain assess situation and Report, →



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4. What is your oil spill containment and recovery **strategy**?

Stop the Release, prevent further entry
- shut off flow, Build Berms,
=> Block off.

Water use Boat to collection Pond,

5. What is your strategy for shoreline **cleanup** operations; if using SCAT what are the forecasted shoreline types, what is your treatment options for each type and what is your end point criteria

Rocky Sand want to leave till Summer.



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6. What are some **safety** issues?

- Measuring ice thickness
- Wear Proper PPE
- Lighting
- cold weather
- acid
- Ashes Zoning

7. How do you manage your **waste**?

8. If it were to make it to the lake what is your containment, recovery, cleanup and general overall response?



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# Group Training Report

Course Name:

Trainer's Name:

Date: 2013-01-16

Agnico-Eagle Mines Ltd.
Meadowbank Division

| M | | Name | Company | Signature | Hours TRG. | Hours ASS. | Total Hours | Code |
|---|---|---|---|---|---|---|---|---|
| | 1 | Jamie Kataluk | AEM | | | | 10 | |
| | 2 | Robin ALLARD | AEM | | | | 10 | |
| | 3 | Dave Holmston | AEM, | | | | | |
| | 4 | ALAIN GENESSE | A-E-M | | | | | |
| | 5 | Stéphane Larose | AEM | | | | | |
| | 6 | LUC BLANCHETTE | FGL | | | | | |
| | 7 | | | | | | | |
| | 8 | | | | | | | |
| | 9 | | | | | | | |
| | 10 | | | | | | | |

COMMENTS:

Trainer's signature:

Date:

Codes:
1. AEM Permit
2. Restrictive Permit
3. Temporary Permit
4. Training Completed
5. Training Not Completed
6. Fail

Assessment Codes:
A+: Very Good
A : Good
B : Average
C : Below Average

STÉPHANE LAROSE

# SWAT OILSPILL ISSUES WORKSHOP

**Situation Analysis – Truck Rollover**

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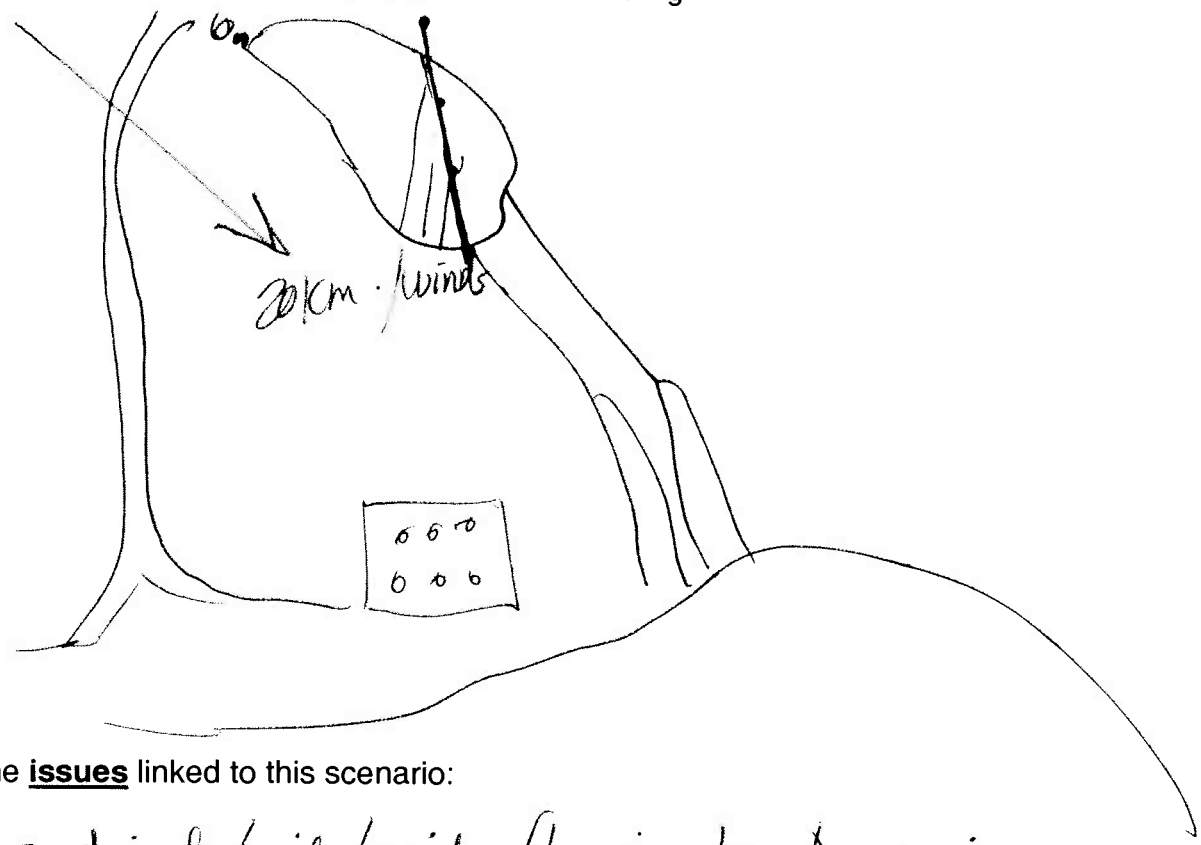


1. List the **issues** linked to this scenario:

→ 45 $m^3$ diesel / oil / acid flowing to the river heading to Baker lake. (15 km away)
→ Give less than 3 hours to react.
→ Contain the spill before the lake (Before to 2 rivers)
→ Secure and take care of the driver.

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2. What **resources** are required?

→ Helicopter to have look on the scene (Speed of the spill)
→ 1 team at the scene (accident) to contain the spill at the source
→ 1 team further down to stop the flow before the lake.
→ Boats / maritime barrier / boom, etc... light plan
→ ERT TEAM in case of fire.
→ empty tanker to pump in.
→ Good communication
→ MSDS → Proper PPE

**3.** What are the **initial spill response steps and what does your ICS look like**?

- Scene survey (analyse) (inspection)
- Make the plan (planning)
- Decision (delegatee people)
- Execution
- Call proper authority

command
PLANNING OPERATION logistique cost

Safety first!!!



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4. What is your oil spill containment and recovery **strategy**?

→ Install barrier before the rivers (less contamination)
→ Recover the fuel/oil (Skimmer)

5. What is your strategy for shoreline **cleanup** operations; if using SCAT what are the forecasted shoreline types, what is your treatment options for each type and what is your end point criteria

→ Assest the shoreline situation and ask trained people to evaluate if we need to clean and what we have to do.
→ Flush
→ is it transferable?



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6. What are some **safety** issues?

- Risk of fire
- Falling into water / ice
- Poor visibility at night.
- Hypothermia
- Hot water.
- PPE (:

7. How do you manage your **waste**?

- Bring to the proper facility disposal (ENV. DEPT.) (QUATREX BAG)

8. If it were to make it to the lake what is your containment, recovery, cleanup and general overall response?

- Protect the water intake of the town.
- Do whatever it takes at all cost.
- Inform community



SWAT Consulting Inc.

Dave Holmstrom.

# SWAT OILSPILL ISSUES WORKSHOP

**Situation Analysis – Truck Rollover**

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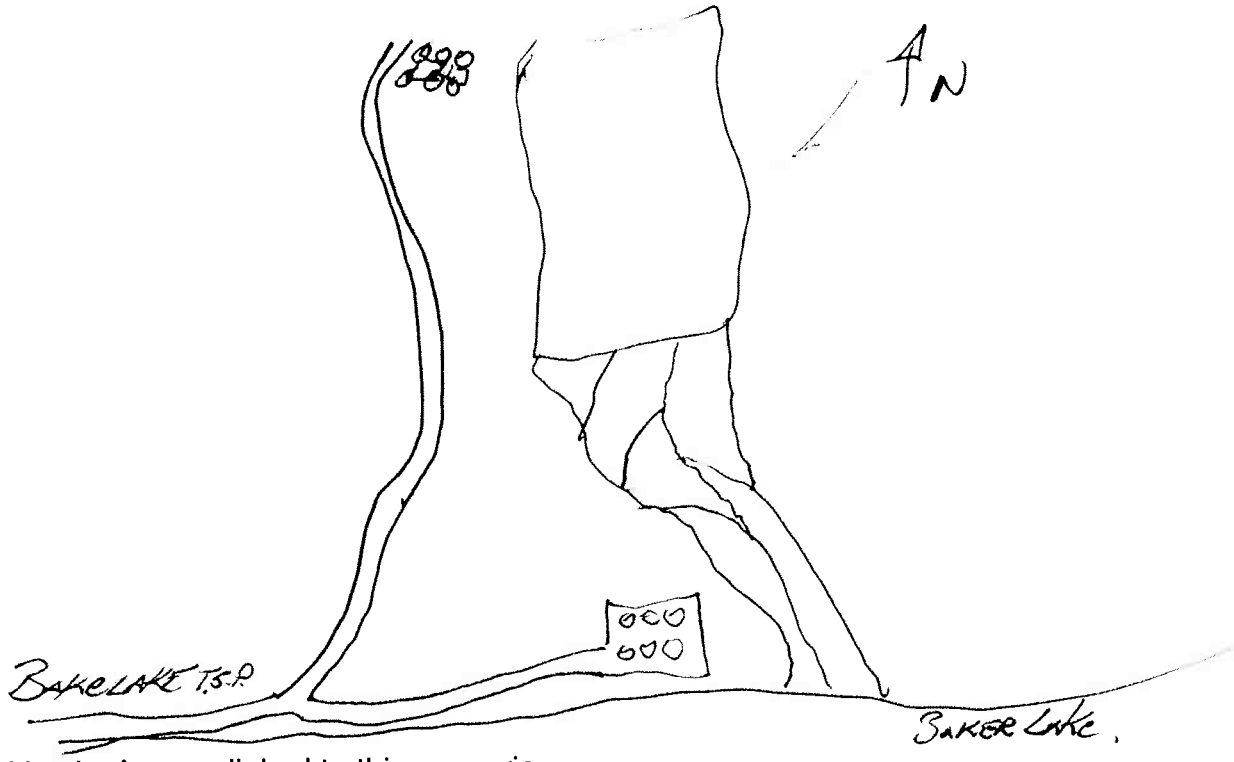


1. List the **issues** linked to this scenario:

- Potential Risk to Baker Lake portable drinking water.
- Fast moving water (Freshet). High travel rate / ICE,
- Potential Impact to spawning grounds.
- Is it stopped? - Truck Rollover & Contained
- What are the sensitive areas.
- Time Frame / Braided channel extended shoreline
- LEL
- Road traffic / Security

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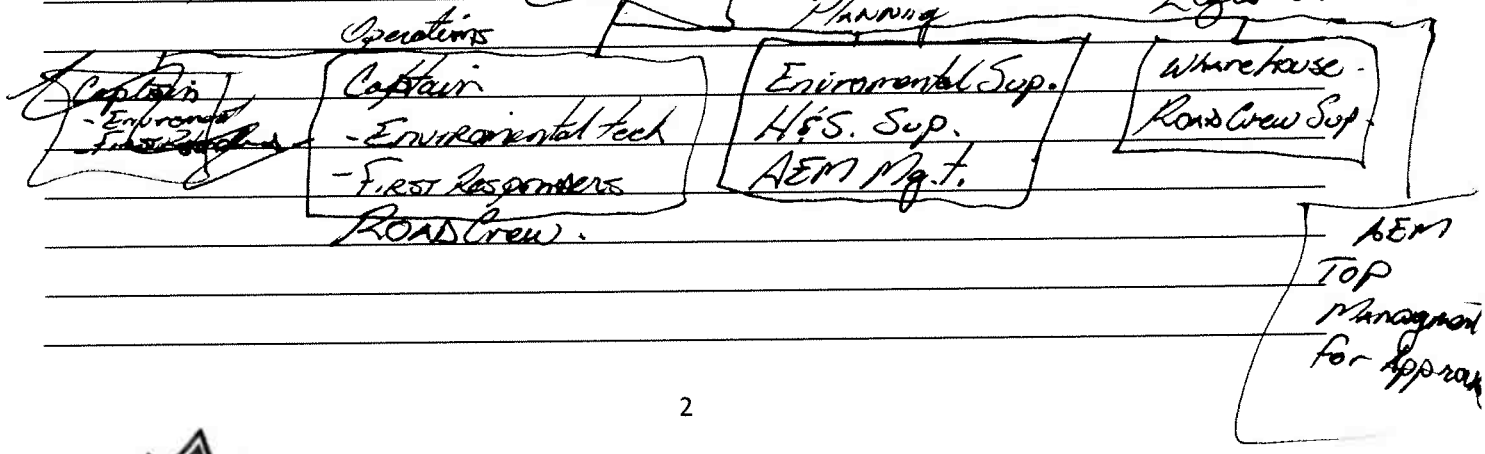
2. What **resources** are required?

- pump trucks - helicopter, - boat
- personal facilities - food, PPE, Bathroom -
- personnel - clean up, communication, H&S, Environmental.
- stop & containment resources - booms, pumps, earth
- - ~~[illegible]~~, C-Cans for [illegible], earth movers, storage -
- ERP, ~~[illegible]~~ Spill contingency Plan, OPEP, JHA.
- WHMIS,
- Level C, for first 6 Hours. Level D After.
- TIER 3 response. initially

3. What are the **initial spill response steps and what does your ICS look like**?

- Call appropriate personnel.
- Evaluate Spill - Immediate danger threat level.
- ~~[illegible]~~ Identify Incident Command team - with ERP
  - Operations personnel.
  - Planning Team.
  - Logistics
  - Finances.

- Spill response plan
- JHSA



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4. What is your oil spill containment and recovery **strategy**?

- STOP Source.
- Based on Evaluation = ~~contain~~ Establish Booms for River Containment
  - Recover land based spills using
  - haul truck, Hoe, Loader ~~if~~
  - create ditch pump oil - from there.
  - Water containment - skimmer cleanup.
  - pump from bottom of V, U, S, Boom.
  - Install booms at 30° of ∠.
  - Install ~~proper~~ bell hole. pump from there.

5. What is your strategy for shoreline **cleanup** operations; if using SCAT what are the forecasted shoreline types, what is your treatment options for each type and what is your end point criteria

~~Shore~~ Shoreline types.
- Rock
- Tundra, Organics.

Using SCAT.

Identified shoreline types
- rock - nothing
- Tundra - Absorbants
- and natural recovery.
- is it transferable.



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6. What are some **safety** issues?

- LEL, Benzine,
- Tired personal.
- recovery of truck
- Water Ice operation - ~~PPE~~! Assesment.
- other road traffic.
- Possibility of Community water supply
- Wild Animals.

7. How do you manage your **waste**?

Hazmat / Quadrex / TOTES / DRUMS / Soil Pad.
Soil farms, Incinerate

8. If it were to make it to the lake what is your containment, recovery, cleanup and general overall response?

- U-Boom
- V-Boom.
- S-Boom.
- Corral it.
- Install Booms @ P.O.E.



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Robin Allard

# SWAT OILSPILL ISSUES WORKSHOP

**Situation Analysis – Truck Rollover**

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- **Lake** – winds from the North West at 20 km/hr. Tide is high.

1. List the **issues** linked to this scenario:

Flow in River.
→ close Baker Lake - Potential
→ Ice → Flow Forward
→ Potential Impact to wildlife
Stop possible a mat.
Sensitive area
TIME FRAME.
+ Surface for Braided.
Road usus.

Safety Driver
LEL ISSUE.
High flow.

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2. What **resources** are required?

→ pump truck / Machinery
Personnel facilities . Food / PPE / Tax
HR
Spill - Stop / contain mant resources / Lights
Helicopter
Communication
H/S
Environment Dept / Rep
Documentation (ERP / Spill / OPEP) - JHA / BOAT
WHMIS

TIER III / → →

3. What are the **initial spill response steps and what does your ICS look like**?

Evaluate / call
→ STOP if possible / Safety ERP / Spill RP /
immediate Danger
→ ICS
C → ~~OCT~~ - OOC

| O | P | L | F |
|---|---|---|---|
| Capt. | Env | Work | Management |
| Tech. | | P/L | |
| Responders | H/S | | |
| Salvor | | | |
| Load | | | |



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4. What is your oil spill containment and recovery **strategy**?

→ Prevent from going to WATER.
→ Boom for containment.
→ Recover Truck / Ditch / VAC TRUCK
HOE - IF POSSIBLE

→ WATER CONTAINMENTS - Bottom/Bund.
→ collect. Skimmer /

Protect Shore line

5. What is your strategy for shoreline **cleanup** operations; if using SCAT what are the forecasted shoreline types, what is your treatment options for each type and what is your end point criteria

SCAT
Rocks / Organic Matter -
↳ No SHEEN / Small. minimal.

Tool. Hatha
Org → Sorbents / mm Nature

TRANSFERT



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6. What are some **safety** issues?

Tired
Recovery of fuel
ON WATER/ICE OPERATION/ assement.
FAST WATER
DRINKING WATER.

7. How do you manage your **waste**?

HAZMAT / QUADREX / TOTES / DRUMS
GS?

8. If it were to make it to the lake what is your containment, recovery, cleanup and general overall response?

✓ BOOM
✓ BOOM
✓ BOOM.



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LUC BLANCHETTE

# SWAT OILSPILL ISSUES WORKSHOP

**Situation Analysis – Truck Rollover**

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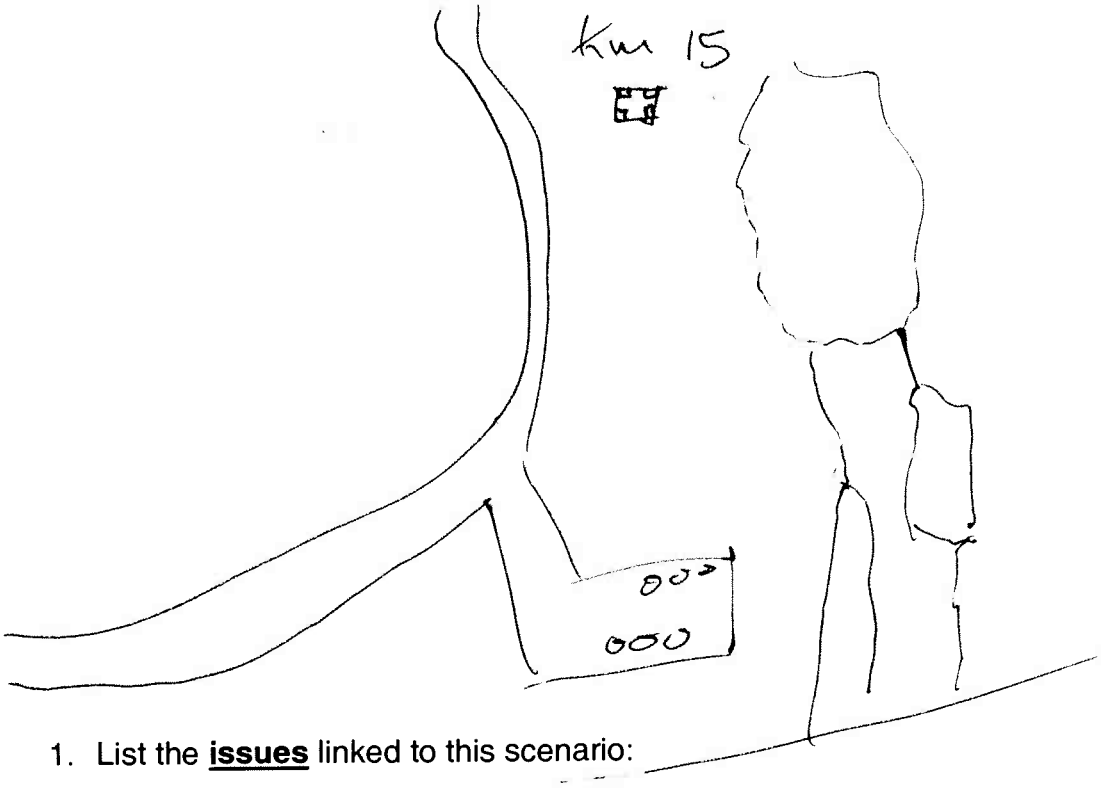


1. List the **issues** linked to this scenario:

- POSSIBLE CONTAMINATION OF COMMUNITIES WATER SUPPLY
- FRESHET WILL MAKE IT HARDER TO COLLECT CONTAMINANTS.
- BRAIDED CHANNELS INCREASE THE CHANCES OF MORE CONTAMINATED AREA
- MAY DISTURB SPAWNING AREAS → FISH
- TIDES WILL INCREASE THE CONTAMINATION OF SOIL.
- SHORT TIME FRAME
- SAFETY OF THE DRIVER
- LEL'S
- OTHER ROAD USERS.

2. What **resources** are required?

- HEAVY EQUIPMENTS TO BUILD TRENCHES
- ENOUGH MATERIAL TO DO ENTIRE CLEANUP. (LAND & RIVER)
- PROPER PPE TO PROVIDE TO ALL PERSONEL
- ENOUGH MATERIAL TO DISPOSE CONTAMINATED MATERIAL (TOTES, SEALED DRUMS
- ADEQUATE MATERIAL TO BRING CONTAMINATED MATERIAL TO MINE SITE.
- SAFETY MONITORING DEVICE BEFORE STARTING ANY CLEANUP.
- PROPER COMMUNICATION.
- MSDS.
- MATERIAL TO MOVE THE TRUCK.
- H&S AND ENVIRONNEMENT PERSONNEL.
-

3. What are the **initial spill response steps and what does your ICS look like**?

- CODE 1 RADIO CALLED
- IC INFORMS TEAM OF SITUATION AND DOES HEADCOUNT BEFORE DEPLOYING TEAM
- COMMAND CENTRE SET UP - INCLUDE MANAGEMENT TO ASSISTS IN DECISION
- MONITOR AND DEVELOPPE A SAFETY ZONE IN THE SPILL AREA.
- IDENTIFY HAZARDS.
-
-

COMMAND



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4. What is your oil spill containment and recovery **strategy**?

- PREVENT FURTHER ENTRY.
- BUILD TRENCHES OF BARRIERS TO AVOID THE SPREADING OF THE SPILL.
- PLACE BOOMS INSIDE BARRIERS TO PICK UP CONTAMINANTS
- ONCE BOOMS ARE FULL - REPLACE WITH NEW ONES. PLACE CONTAMINATED BOOMS IN PROPER CONTAINERS.
- SEND QUADREX BAGS TO MINE SITE AND PLACED INSIDE SEACANS, PROPERLY LABELLED
- WATER → PLACE MARITIME BARRIER INSIDE LAKE. PLACE BOOMS OR ABSORBS ON SHORE TO PROTECT SOIL ALSO ALONG MARITIME BARRIERS.
-

5. What is your strategy for shoreline **cleanup** operations; if using SCAT what are the forecasted shoreline types, what is your treatment options for each type and what is your end point criteria

- ASSES THE SHORELINE.
- FLUSH THE SHORELINE
- STOP THE CLEANING WHEN CONTAMINANTS IS NOT TRANSFERABLE.



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6. What are some **safety** issues?

- TIRENESS OF THE CREW
- LEL'S
- REMOVAL OF THE TRUCK
- WORK ON ICE AND NEAR FAST WATER.
- WILDLIFE

7. How do you manage your **waste**?

- PUT IT INTO DRUMS OR TOTES TO BURN IT OR STORE IT → MINE SITE.
- ~~IF IT HITS THE WATER, SET UP A V, J OR U~~ Boom.

8. If it were to make it to the lake what is your containment, recovery, cleanup and general overall response?

SET UP A V, J OR U Boom.



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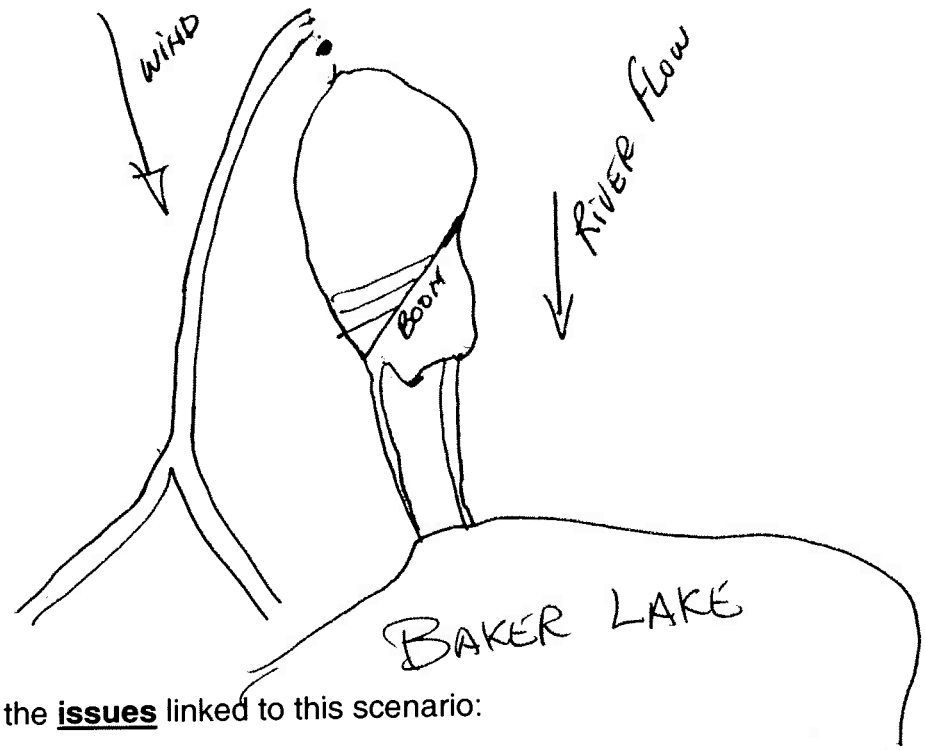
ALAIN GENESSE

# SWAT OILSPILL ISSUES WORKSHOP

## Situation Analysis – Truck Rollover

- **Incident** - 45 $m^3$ diesel spills/plus oil/acid – Originates on Land, flows into the River
- **Spill** - occurred 22:00 hrs on ~~March~~ June 20, 2013
- **River** – water flow, 5 km/hr, braided channels; approx 15 km to Baker Lake
- **Lake** – winds from the North West at 20 km/hr. Tide is high.




1. List the **issues** linked to this scenario:

- DIESEL FLOWING INTO THE RIVER, HEADING TO BAKER LAKE (15 KM AWAY) giving us LESS THAN 3 HRS TO CONTAIN THE SPILL BEFORE IT GETS TO THE LAKE.
- ISOLATE THE VEHICULE.
- MAKE SURE THE DRIVER IS OK.

2. What **resources** are required?

- HELICOPTER TO ASSESS THE SPILL ON THE RIVER AND THE ACTUAL SPEED OF THE SPILL.

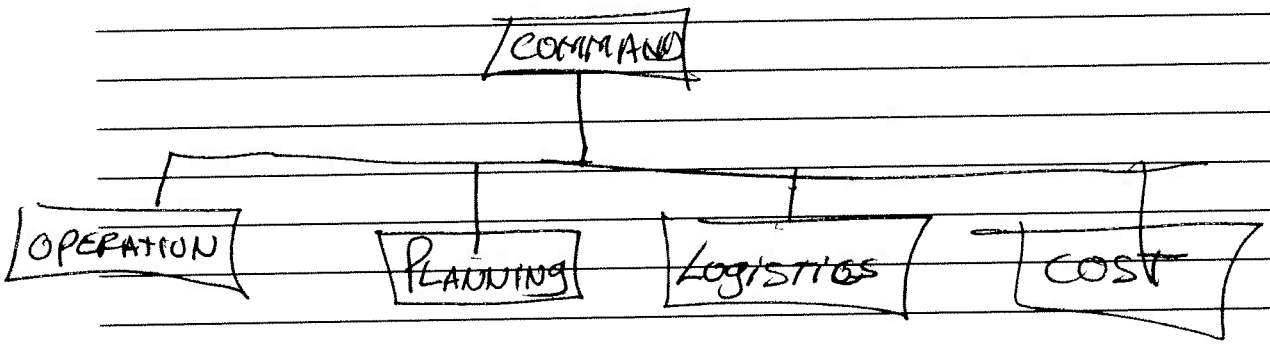
- A TEAM OF RESPONDERS AT THE ACCIDENT TO CONTAIND THE SPILL AT THE SOURCE.
- ANOTHER TEAM FURTHER DOWN STREAM BEFORE THE LAKE TO PREVENT ANY SPILL INTO THE LAKE

- NEED BOATS, MARITIME BARRIERS, SKIMERS, LIGHT PLANTS
- E.R.T. TEAM IN CASE OF FIRE

- M/T TANKER TRUCK TO PUMP THE REST OF THE LOAD
- M.S.D.S. - P.P.E.

3. What are the **initial spill response steps and what does your ICS look like**?

- ANALIZE THE SCENE, DELEGATE PEOPLE
- MAKE A PLAN, MAKE A DECISION, TAKE ACTION
- CALL PROPER AUTHORITY
- SAFETY



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4. What is your oil spill containment and recovery **strategy**?

- INSTALL BOOM ACROSS THE RIVER (POUND) BEFORE IT GETS INTO THE 2 RIVERS (CREEK) AND THE BIG LAKE

FABRICATE A BERM

10-30-4 BARRIER

5. What is your strategy for shoreline **cleanup** operations; if using SCAT what are the forecasted shoreline types, what is your treatment options for each type and what is your end point criteria

- ASSESS THE SHORELINE SITUATION, ASK TRAINNED PEOPLE TO EVALUATE IF WE NEED TO CLEAN, IF YES WHAT IS THE BEST WAY TO DO IT. (ANY FRAGILE SYSTEM)

- IS IT TRANSFERABLE? YES OR NO



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6. What are some **safety** issues?

- RISK OF FIRE
- FALLING INTO WATER
- DEALING WITH POOR VISIBILITY (DARK AT NIGHT)
- WATER & ICE
- POTABILITY

7. How do you manage your **waste**?

- BRING TO THE PROPER DISPOSAL FACILITY.

8. If it were to make it to the lake what is your containment, recovery, cleanup and general overall response?

- PROTECT THE WATER INTAKE FOR THE TOWN
- DO WHATEVER IT TAKES AT ALL COST.
- INFORM THE COMMUNITY.
- U-BOOM, V-BOOM, J-BOOM



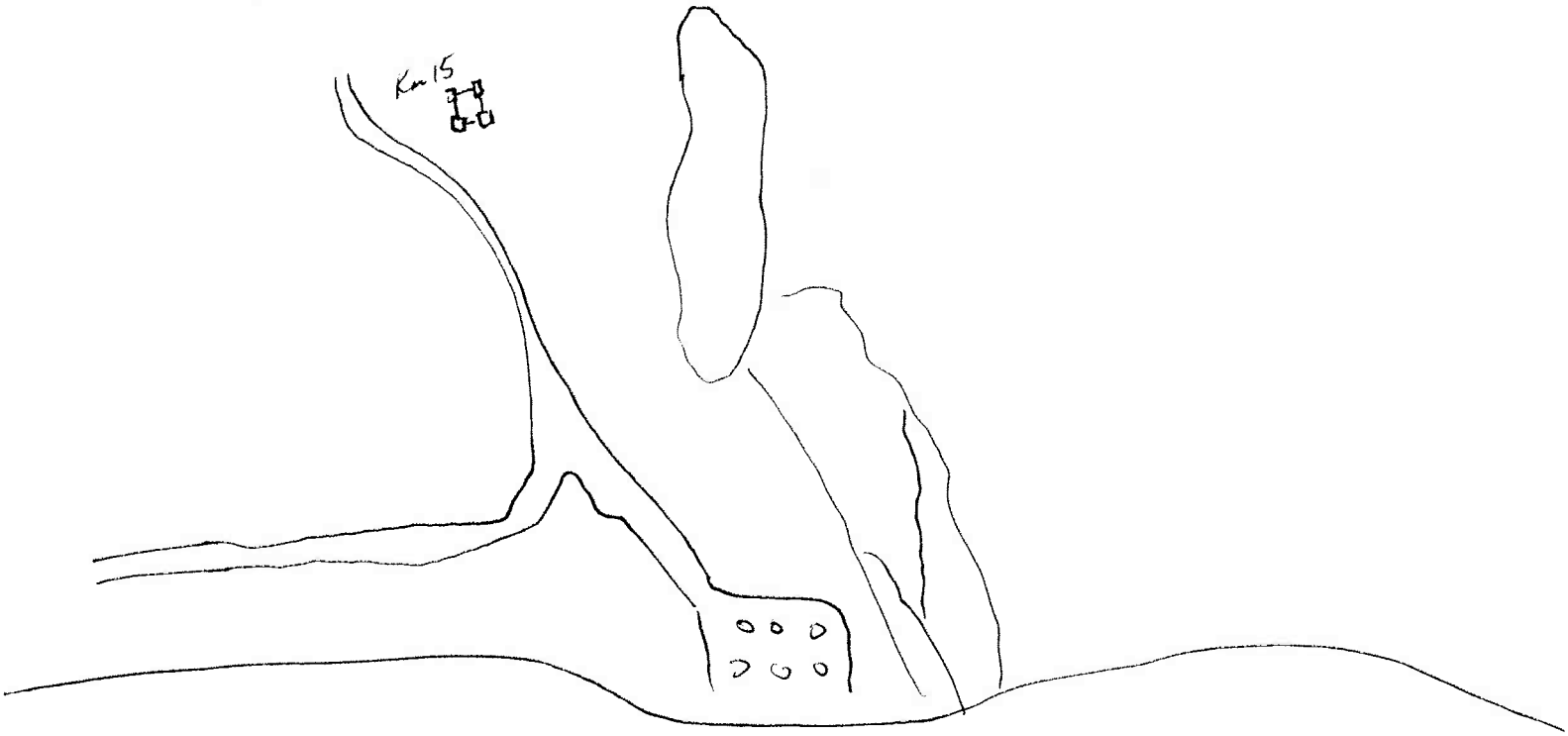
SWAT Consulting Inc.

Janie Katalnt

# SWAT OILSPILL ISSUES WORKSHOP

**Situation Analysis – Truck Rollover** considered Tier 3 incident

- **Incident -** 45 $m^3$ diesel spills/plus oil/acid – Originates on Land, flows into the River
- **Spill** - occurred 22:00 hrs on ~~March~~ June 20, 2013
- **River** – water flow, 5 km/hr, braided channels; approx 15 km to Baker Lake
- **Lake** – winds from the North West at 20 km/hr. Tide is high.




1. List the **issues** linked to this scenario:

possible contamination of communitys water supply
freshet will make it harder to collect contaminants
braided channels - increases chances of more contamination area
may disturb spawning areas - fish
tides will increase contamination of soil
response time
other road users

2. What **resources** are required?

heavy equipment to build trenches (COMMS) ERP
enough material to do entire clean up
proper PPE for all ~~personell~~ personnel
enough material to dispose contaminated material - totes, sealed drums
adequate equipment to bring contaminated material to mine site
safety monitoring devices before starting any clean up

3. What are the **initial spill response steps and what does your ICS look like**?

- Code 1 on radio called - safety
- IC informs team of situation and does a head count before deploying team
- command centre setup - include management to assist in decisions
- develop a safety zone in spill area



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4. What is your oil spill containment and recovery **strategy**?

land - build bell holes or barriers to avoid spreading of contaminants
- place booms inside barriers to pick up contaminants
- once booms are full, replace with new ones - place contaminated booms into Quattrex bags
- send Quattrex bags to mine site and placed inside seacans - properly labelled

Water - place maritime barrier inside lake
place booms along shore to protect soil - also along maritime barrier collect

5. What is your strategy for shoreline **cleanup** operations; if using SCAT what are the forecasted shoreline types, what is your treatment options for each type and what is your end point criteria



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6. What are some **safety** issues?

LEL

fatigue
water and ice
removal of truck
other road users
fast water
wildlife

7. How do you manage your **waste**?

place contaminated material - rags, booms - inside quattrex bags
send bags to mine site - placed into seacans

8. If it were to make it to the lake what is your containment, recovery, cleanup and general overall response?



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# Group Training Report

Course Name:

Trainer's Name: Robin Allard

Date: June 18, 2013

AGNICO-EAGLE

Agnico-Eagle Mines Ltd.
Meadowbank Division

| M | | Name | Company | Signature | Hours TRG. | Hours ASS. | Total Hours | Code |
|---|---|---|---|---|---|---|---|---|
| | 1 | JEAN-CLAUDE POITRAS | AEM | | 1.5 | | 1.5 | 4 |
| | 2 | Bernard Paradis | AEM | | 1.5 | | 1.5 | 4 |
| | 3 | MICHEL POITRAS | PRO-AB | | 1.5 | | 1.5 | 4 |
| | 4 | SERGE PARÉ | A.E.M | | 1.5 | | 1.5 | 4 |
| | 5 | RAY CARLSON | AEM | | 1.5 | | 1.5 | 4 |
| | 6 | | | | | | | |
| | 7 | | | | | | | |
| | 8 | | | | | | | |
| | 9 | | | | | | | |
| | 10 | | | | | | | |
| | 11 | | | | | | | |
| | 12 | | | | | | | |
| | 13 | | | | | | | |
| | 14 | | | | | | | |
| | 15 | | | | | | | |
| | 16 | | | | | | | |
| | 17 | | | | | | | |

Trainer's signature

Date: 18 June, 2013

Induction Department Signatures:

Human Resources:
Camp:
Nurse:
Security:
Health & Safety:
Environment:
Training:

Comments:

Codes:
1. AEM Permit
2. Restrictive Permit
3. Temporary Permit
4. Training Completed
5. Training Not Completed
6. Fail

Assessment Codes:
A+: Very Good
A : Good
B : Average
C : Below Average

AGNICO EAGLE
MEADOWBANK

# Tool box Meeting attendance sheet

**Topic:** Spill Response (Baise BL)
**Date** 02/Aug/2018
**Department** INTERTEK - PETRONAV - AGNICO

| Name (Print) | Signature |
|---|---|
| STEPHEN EASTERBY | |
| Ricardo Echeverria | |
| ARBOSSI NACEUR | |
| Hugo Ferreira Filho | |
| Fredy Rivera | |
| Samuel Plante | |

## Appendix J

## Dyno Nobel Emergency Response Plan

**Please refer to the approved Meadowbank Spill Contingency Plan Version 4 (November 2013)**

# EMERGENCY RESPONSE PLAN

Meadowbank Mine Site.

## Magazine, Plant and Work Sites

**This Emergency Response Plan (ERP) addresses incidents and potential incidents involving the manufacturing, handling and storage of explosives and related products in Dyno Nobel Canada Inc.' magazines, plants and worksites. This ERP has been developed for Dyno Nobel Canada Inc. and all of it's wholly-owned subsidiaries (DNX Drilling). Actions detailed within this plan are compulsory, under the approval and authorization of DNCI's Regional Operations Managers.**

"This document, as presented on Dyno Nobel's database, is a controlled document and represents the version currently in effect. All printed copies are uncontrolled documents and may not be current".

Note: Information provided within this document may be privileged and is not intended for general distribution.

Publication/Amendment

| Date | Changes To Prior Edition | Pg. |
|---|---|---|
| 15 Oct 03 | **New document** | All |
| 26 Apr 04 | **Amendment # 1** | |
| | Renumbering of Appendices 6 – 13 | App. 7 – 14 |
| | Miscellaneous Typos & Amendment Dates | All |
| 17 March 08 | Amendment #2 | |
| | Updated Contact information | |
| | Addition of definitions | |
| | Included Calling and responding emergency procedures | |
| | Addition Duties of Key personnel | |
| | Addition of response to Natural disasters | |
| | Addition of visitor and contractors access control - | |
| | Replaced the Appendices and renumbering | |
| | Included a Emergency Report form | |
| | Addition of Nitric acid, Aluminum and Diethylene glycol and CFE | |
| | Addition of alternate methods of communication | |
| | Addition of Reportable Substance list | |
| | Miscellaneous Typos & Amendment Dates | All |
| August 18, 2010 | Amendment #3 | |
| | Updated Scope and ERP Outline | |
| | Added Sign-off sheet for Annual Fire Department Review | |
| | Added Appendix for Employee Training sign-off | |
| | Updated Reporting Incidents Flowchart | |
| | Updated procedure for Raw Material Truck Spills | |
| | Updated Bomb Threat Checklist | |
| February 14, 2011 | Amendment #4 | |
| | Updated site contacts | |
| | Updated site evacuation & Muster locations | |
| July 14, 2011 | Amendment #5 | |
| | Updated site contacts | |
| | Updated site evacuation & muster loaction (Map drawn) | |
| | Site specific emergency procedures | |

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| 5.0 | Training | 7 |
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**Work Site Phone Numbers and Magazine / Plant Details**

Appendix 1 DNCI Emergency report form
Appendix 2 DNCI Corporate Contacts
Appendix 3 ERA Contact List
Appendix 4 Management and Site Contact list
Appendix 5 Site Information
Appendix 6 Bomb Threat Checklist
Appendix 7 New/Transferred Employee or Annual Refresher Form
Appendix 8 Annual Fire Department Review Form
Appendix 9 TDG Regualtion Class Quantity Emission Limit
Appendix 10 Evacuation/Muster locations

## 1.0 SCOPE

This document provides a Work Site Emergency Response Plan covering fire/explosion, spills, security breach, bomb threat, evacuation and prescribed actions that employees must take to ensure employee and public safety in the event of an emergency. The general reference to DNCI's "Work Sites" throughout this document includes magazines, plants and miscellaneous work locations.

The Emergency Response Plan appearing on Dyno Nobel Canada Inc.' database is a controlled document. Uncontrolled copies of this ERP are provided to customers and associates who own the land on which DNCI's worksite is located, plus applicable municipal and regulatory authorities. As well, uncontrolled copies are issued to all Company employees and are placed in all central offices and Company delivery vehicles.

## 2.0 RELATED DOCUMENTS

The following documents also relate to emergency situations that can arise and should be held at each Work Site:

- Federal, Provincial and Municipal regulations, standards and guidelines
- Corporate Policies plus HSE Management System Standards & Procedures
- Standard Operating Procedures (SOP's)
- Dyno Nobel General and Specialized Work Rules
- Material Safety Data Sheets
- Prime Contractor's / Customer's ERP
- Transportation ERAP #2-1037
- Crisis Communication Plan

## 3.0 ERP OUTLINE

3.1 The following materials are covered by this ERP:

Fuel Oil
ATF Hydraulic Fluid
Ammonium Nitrate Prills and Solution
Sodium Nitrite
Sodium Thiocyanate
ANFO
Emulsion
Packaged Explosives
Detonators
Diethylene glycol

3.2 The following situations are addressed in this ERP:

- Fire / Explosion
- Storage Tank Failure
- Spills from Product Delivery Trucks
- Spills from Raw Material Delivery Trucks
- Process Spills
- Shut down due to weather, floods, lightning, fires, explosions and other threats to the security and operation of DNCI's facilities, equipment and material.
- Bomb Threats
- Quantities of spills and reportable to Dyno Nobel and authorities

3.3 This ERP covers:

| | |
|---|---|
| Preparation | Reporting |
| Training | Waste Disposal Permits |
| Lines of Authority | Containment |
| Notification | Inspection |
| Decontamination | Maintenance |

3.4 The following definitions apply to this plan:

DNCI Corporate contact : A DNCI corporate employee who is assigned to receive Emergency Calls at all times from the answering service.

ER Advisor: Emergency Response Advisor (ERA), who will normally be the applicable General Manager, Area Manager, or Technical Advisor who will liaise with First Responders.

OSC: (DNCI) On Scene Coordinator, the Senior DNCI employee at an incident site who manages and controls DNCI resources in support of First Responders and incident recovery.

ERT: Emergency Response Team, DNCI personnel dispatched to an incident site to assist First Responders and conduct incident recovery under the direction of the OSC.

## 4.0 PREPARATION AND PLANNING

4.1 In order to provide competent emergency response at Dyno Nobel Canada Inc. magazines, plants and worksites, first responders (local fire departments and mine rescue personnel) must be thoroughly briefed on an annual basis of the potential hazards involved in a Dyno Nobel Canada Inc. worksite fire. To this end, Work Site Supervisors must take fire department plus mine safety and security representatives on an annual magazine/plant tour to view:

| | |
|---|---|
| Explosives Storage Areas | Evacuation (Meeting) Area |
| Bulk Emulsion Equipment | Communications Equipment |
| ANFO Blending Area | Facility Layout |
| Fire Fighting Equipment Sites | (Waste) Burn Facilities |

A record of each explosives worksite tour and the names of the first responder representatives attending are to be documented and kept on file.

Annual Fire Department Review Form (Appendix 9)

4.2 All DNCI employees shall review this ERP on an annual basis and participate in ERP drills / exercises when scheduled.

4.3 All worksite accidents involving fire, explosion, reportable spills/emissions, breaches of security and bomb threats are to be reported to applicable authorities and senior management. As per incident reporting procedure

4. 4 Spill procedures for each of the materials listed in section 3.1 are outlined in Table 6-3. All procedures specify: Method of Cleanup, Method of Disposal and Protective Clothing. Based on the procedures presented in Table 6-3, worksite supervisors must ensure that adequate clean-up equipment and materials are readily available and in good condition.

4.5 Worksite information for each of DNCI's facilities is contained in the attached appendices. The ERP is revised whenever significant changes are made.

4.6 Current Material Safety Data Sheets (MSDS) are to be kept at each Work Site for all hazardous materials that are stored and handled at the Work Site. Copies of current product MSDS' are also made available to customers and landowners. Obsolete MSDS' will be replaced as new ones are issued.

4.7 Each Work Site will hold and maintain in good repair, appropriate fire fighting and spill control equipment for potential emergencies. Fire extinguishers, hoses and other fire fighting equipment are to be visually inspected on a monthly basis to ensure Magazine, Plant, Work Site and delivery vehicle readiness.

## 5.0 TRAINING

5.1 All employees will complete training on the contents of this Plan during their "new hire" orientation and review the plan annually.

5.2 A trained person is considered to have reviewed all related documents (Section 2.0), to have been instructed on the use of related equipment and procedures, and to have discussed with their Supervisor or trainer, questions and issues of concern.

5.3 Training records, including certificates for training completed, are to be kept onsite in the Employee's Training Record.

5.4 The Magazine, Plant or Work Site Supervisor/Manager will certify their employees as having received training by signing the training form. In signing the training form, the Supervisor / Manager will have satisfied themselves that trained employees are able to:

- Recognize fire and explosive hazards for the materials and processes to which they are exposed /involved with;
- Competently use Fire Fighting / Fire Protection Equipment (Note: employees should receive refresher training in the use of fire extinguishers at least every three years)
- Competently use applicable personal protective equipment (PPE) when handling hazardous substances;
- Recognize and be familiar with substances which become hazardous wastes when spilled; and
- Follow SOP's and use established work practices to minimize the potential for fires, explosions, environmental releases and other accidents.
- Worksite Managers / Supervisors will ensure that all contractors receive a worksite orientation before commencing work or being left unaccompanied in the worksite. Following the orientation process, the contractors will be required to sign off on the Contractor Checklist acknowledging training in the applicable areas including the site emergency response plan.

- All Plant & Magazine sites will have in place, a continuous (24 hour) access control system to control the entrance, presence and exit of visitor and contractors and their equipment and materials
- Employees must be trained on Reportable Quantities to the Government in the unlikely event of a spill.
- All employees are aware of evacuation routes, muster point location, and all-clear notice procedure.
- New/Transferred employee or Annual Refresher sign-off form located in Appendix 8

## 6.0 EMERGENCY PROCEDURES AND LINES OF AUTHORITY

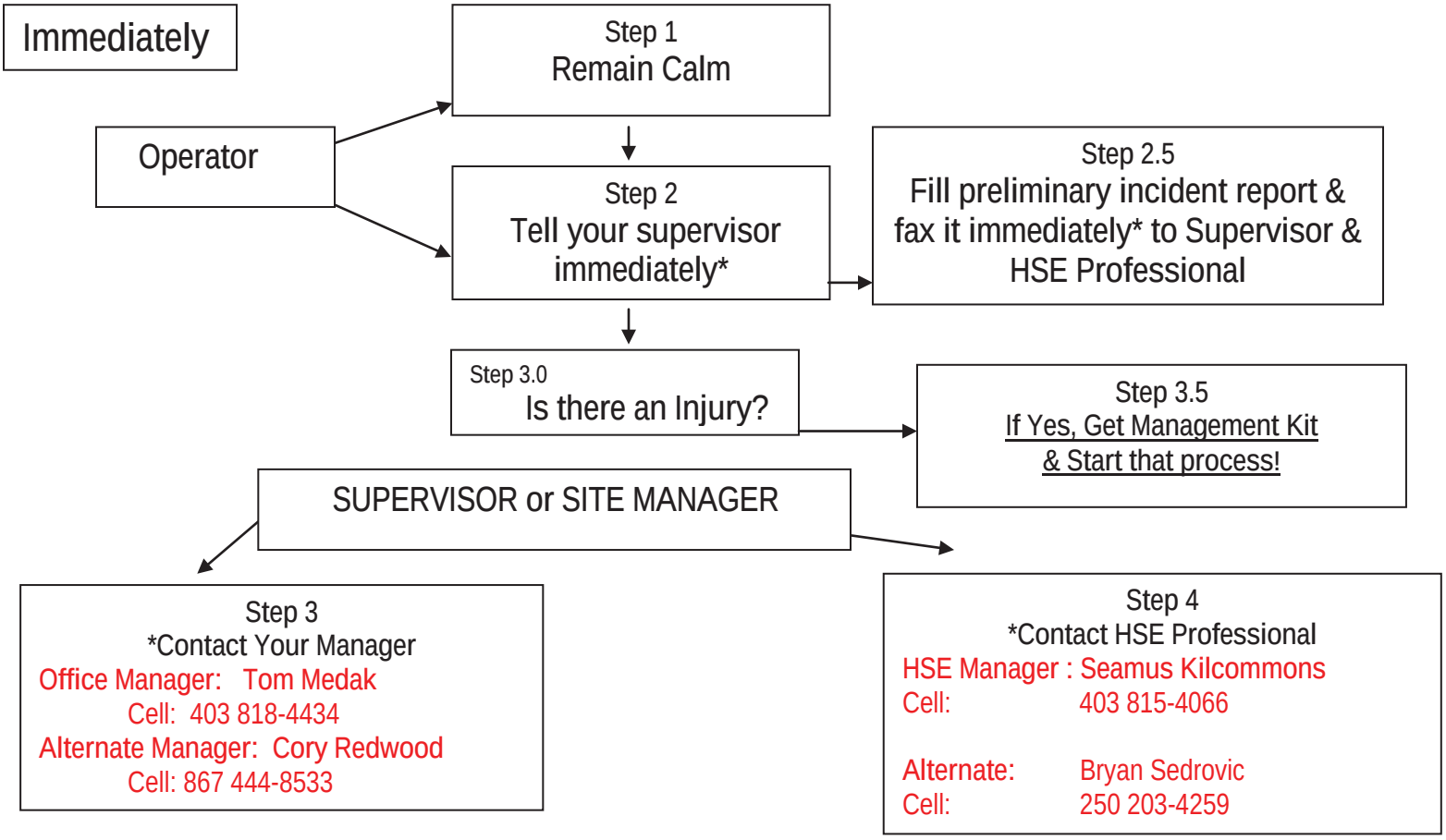
### 6.1 GENERAL

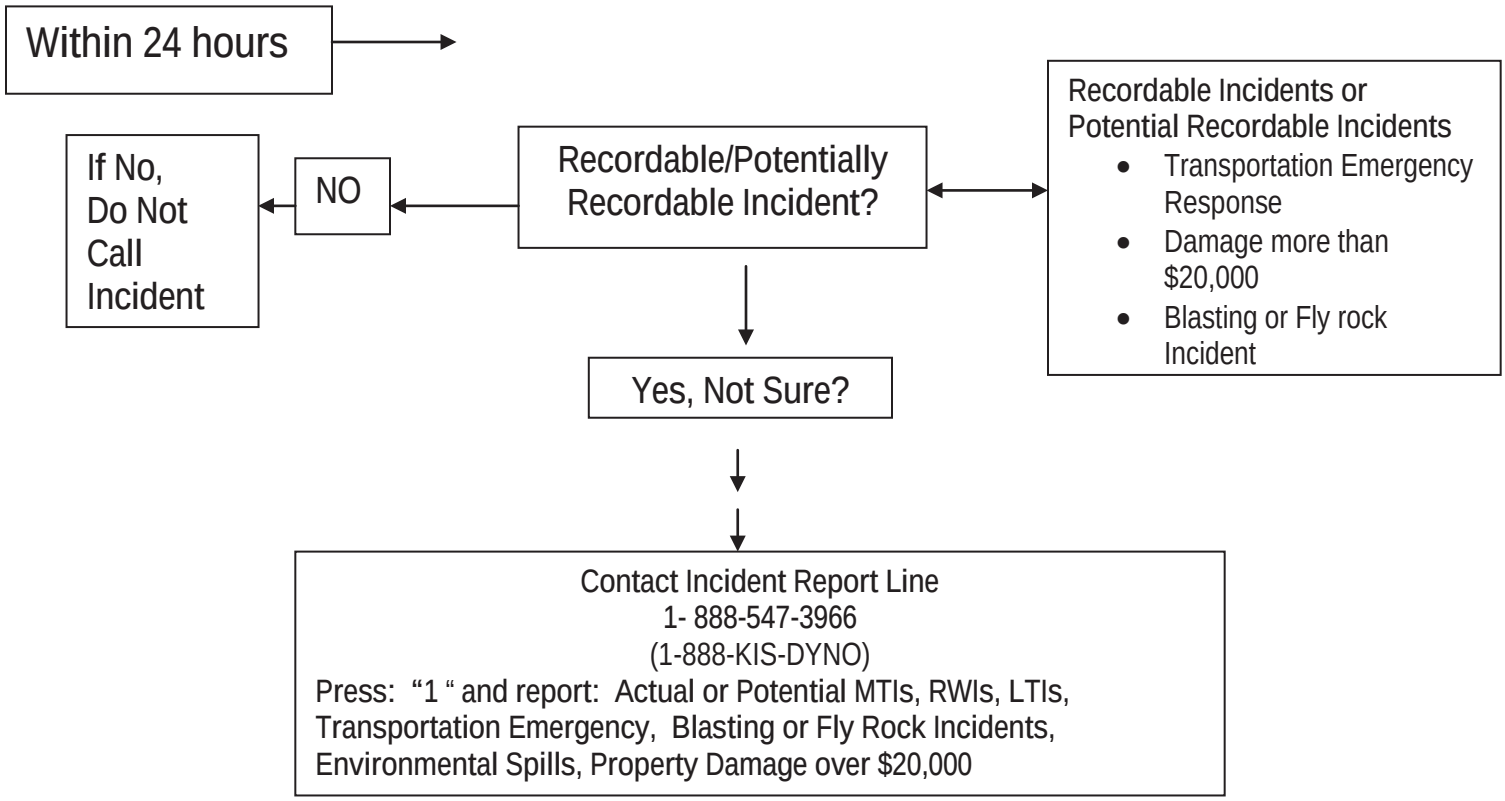
Reporting Incidents Flow Chart (Following page)

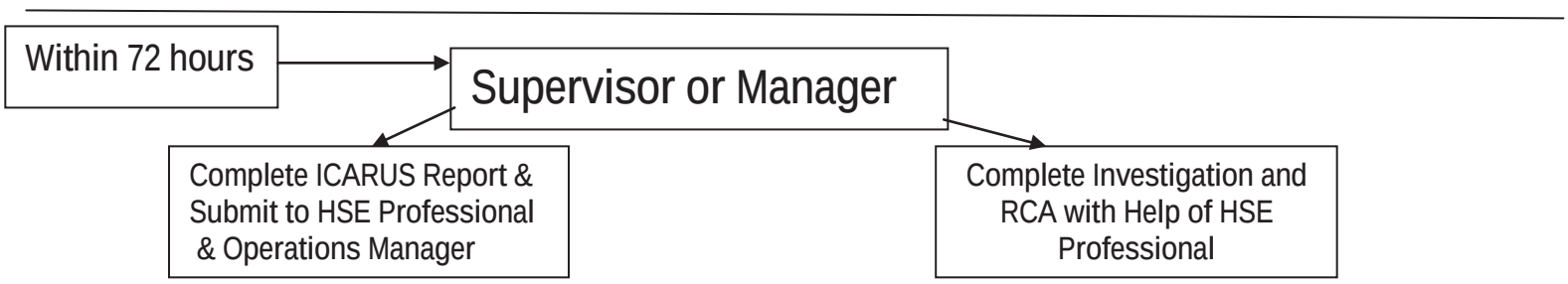
**Table 6-1**
**Emergency Response Flow Chart**

# Reporting Incidents

## Property Loss/Fly Rock/Environmental Spill/Injury




Within 24 hours
Recordable/Potentially Recordable Incident?
NO
If No, Do Not Call Incident
Recordable Incidents or Potential Recordable Incidents
• Transportation Emergency Response
• Damage more than $20,000
• Blasting or Fly rock Incident
Yes, Not Sure?
Contact Incident Report Line
1- 888-547-3966
(1-888-KIS-DYNO)
Press: "1 " and report: Actual or Potential MTIs, RWIs, LTIs, Transportation Emergency, Blasting or Fly Rock Incidents, Environmental Spills, Property Damage over $20,000


Within 72 hours
Supervisor or Manager
Complete ICARUS Report & Submit to HSE Professional & Operations Manager
Complete Investigation and RCA with Help of HSE Professional

## SITE SUPERVISOR/DELAGATE
## EXPERIENCING EMERGENCY / POTENTIAL EMERGENCY

- **CALL FOR EMERGENCY ASSISTANCE**
  In the event of an emergency, accidental release or imminent accidental release involving explosives, eliminate potential sources of detonation where possible (eg. turn off the ignition of a vehicle), call **6911** (or the local emergency number) for immediate assistance, **call the site Supervisor/Area Manager** and initiate the site's Emergency Response Plan. If normal phone systems are down other methods of communication can include two way radios, satellite phones, pager, e mail and vehicle satellite tracking systems.

- **WARN PUBLIC WITHIN EVACUATION DISTANCES IF RISK OF DETONATION**
  Should there be explosive detonations, or the risk of detonations due to the presence of fire or other detonating factors, advise the First Responders (or anyone within the immediate vicinity if First Responders are not at the scene) of the risk and applicable safety distances per Table 6-4, page 17 (liaise with Emergency Response Advisor (ERA) if time permits). Help organize perimeter guards to prevent people from entering the evacuation zone.
  Note: See ERP, page 17 Table 6-4 for Evacuation Procedures.

- **ASSIST LOCAL AUTHORITIES**
  Assist First Responders and Local Authorities in eliminating the emergency situation, and liaise with DNCI's On-Call Employee / ERA until relieved by the Company's Emergency Response Team (ERT).

## TO RESPOND TO AN EMERGENCY CALL

### DNCI Corporate contact instructions:

Upon receiving a call for emergency response assistance, keep a log of all subsequent communications and actions, and do the following:

1. Immediately obtain the name and callback number of the caller, in case the telephone line is lost.

2. Obtain information as fully and accurately as possible following the emergency report form (see appendix 1).

3. Call an ER Advisor for the applicable Region (see appendix 2) and report the emergency situation. In turn, the ER Advisor will phone the emergency scene caller, establish ongoing contact, assess the emergency, determine what Company resources and/or contracted emergency response services are required and organize an Emergency Response Team – ERT to proceed to the emergency scene if required.

4. Assist the Emergency Response Advisor (ERA).

5. Liaise with Company Executive / Senior Managers.

## Emergency Response Advisor (ERA) instructions:

1.Call the Branch/Plant Supervisor nearest the emergency scene plus territorial & federal authorities (see applicable appendix to Annex D) to advise them of the situation and the need for an emergency response.

2. Designate, assemble and dispatch an Emergency Response Team (ERT), made up of Groups 1 & 2 personnel (see ERAP pg. 16 and Annex D) under the leadership of an On Scene Coordinator (OSC), if required.

3. Authorize the dispatching of additional resources, communications, transportation and contracted services as necessary.

4. Contact and instruct the designated Emergency Response Team (ERT) to proceed to the emergency scene with the required vehicles and equipment.

5. Liaise with the Person in Charge of the Emergency) and/or Local Authorities to obtain a situation update.

6.Advise Local Authorities as appropriate, regarding the properties, hazards and handling procedures for the explosives involved in the emergency. In particular, advise the Local Authorities of appropriate evacuation distances per Table 6-4 pg. 17.

7. Continue to consult with the Local Authorities as appropriate, plus the Company's On-Scene Coordinator (OSC), to stabilize and eliminate the emergency.

8. Refer to **Regional Manager** *(Tom Medak, Willard Pierce, Dale Bodnarchuk or Francois Lambert)* for any media requests in accordance to the Crisis Communication Plan (CCP). Media contacts shall be through Regional Manager designated for the area.

9. Contact the explosives supplier and / or transporter (if other than DNCI) to advise them of the emergency and to request their assistance if/as required.

**ON-SCENE CO-ORDINATOR (OSC)**

- The On-Scene Coordinator (OSC) is the Company's representative and local authority in charge of all company actions and resources at the emergency scene. Once the OSC arrives at the emergency scene, the ERA will transfer communication with First Responders/Local Authorities to the OSC. In turn, the OSC will liaise with the ER Advisor as required. Throughout the Company's emergency response, the OSC will ensure that First Responders and Company personnel (employees and contractors) observe all safety and regulatory standards and procedures.
- The OSC may revise / adjust the composition of the Emergency Response Team (ERT) and supporting resources as required. The OSC may, in consultation with the ER Advisor, contract commercial services to assist in addressing and resolving the emergency situation.

- The OSC will oversee the Company's local involvement with emergency services, government (municipal & provincial) and public interests until the emergency is fully resolved. Post-emergency activities (clean-up, restoration, etc.) under the direction of the Environment Manager may be delegated to an appropriate Branch, Plant or Area Manager. **EMERGENCY RESPONSE TEAM (ERT)**

- Selected emergency response personnel will take their direction to assemble and proceed to the emergency scene from the ERA or their representative. Team members will immediately report to the On-Scene-Coordinator.

- The primary role of the ERT is to provide a competent and trained / certified workforce plus specialized equipment and material to assist First Responders / Local Authorities in the stabilizing and elimination of an 'explosives emergency', and to retrieve / recover, repackage and remove to safe and secure storage, non-detonated explosives.

- While at the emergency scene, ERT members will take their direction from the Company's OSC and remain available until released by the OSC.

**NOTE:**

**ONLY INDIVIDUALS WHO HAVE RECEIVED TRAINING AS REQUIRED UNDER THE TRANSPORTATION OF DANGEROUS GOODS (CLEAR LANGUAGE) REGULATIONS, OR WHO ARE WORKING UNDER THE DIRECT AND CONTINUOUS SUPERVISION OF AN EMPLOYEE WHO HAS BEEN TRAINED FOR CLASS 1 DANGEROUS GOODS UNDER TDG, MAY PARTICIPATE IN SITE CLEAN-UP ACTIVITIES SUCH AS PICKING UP, REPACKAGING AND TRANSPORTING EXPLOSIVE MATERIAL**.

6.1.1 In any emergency the Work Site Supervisor/Manager or their delegate must take certain actions, including the following:

- Call local fire/emergency authorities (at mine sites, also call Mine Fire, Safety and Security if different and give relevant information).
- Account for all employees and visitors. Arrange for Rescue of anyone who may be trapped, without endangering oneself or others.
- Notify Dyno Nobel Canada Inc. ERA's so that necessary arrangements can be made for technical / administrative support, including accident reporting and investigation plus continued/alternate production. The following information should be provided and refer to appendix 1:

| | |
|---|---|
| What Occurred | Time of Occurrence |
| Action Taken | People Contacted |
| Status of Situation | Anticipated Follow-up |

## 6.2 FIRE & EXPLOSIVES

6.2.1. There are three categories of fire that may involve explosives:

I. Fires Directly Involving Class 1 Explosives and Blasting Agents

- **DO NOT FIGHT THE FIRE.** Instruct all fire fighters on the scene not to fight fire with explosives.
- Shut off power at main breakers if possible. At mine sites, call Mine Security or Fire/Rescue. At all other DNCI locations call local Fire/Rescue personnel.
- Evacuate all personnel from the Work Site to the safe meeting place as outlined in the Work Site Appendix.
- Set up a communications base at the meeting place and guard
- against anyone entering the area.

**II. Fires Involving Components For Manufacture of Blasting Agents**

Bulk blasting agents may be in the form of emulsion or ANFO. ANFO is a mixture of prilled ammonium nitrate and fuel oil.

Under conditions of large mass, intense heat, confined dust / vapor buildup, and the right mixture combination of the basic ingredients, emulsion and ANFO will explode. The probability of explosion with

ammonium nitrate (AN) alone is very small, but increases when under intense heat and confinement. Table 6-1 includes recommended fire fighting procedures for each of these substances.

**III. <u>Fires Involving Dyno Nobel Canada Inc. Trucks</u>**

In cases where the Dyno Nobel Canada Inc. delivery trucks are in a building that is on fire, if there is no explosives and safe to do so, may be moved provided access to the truck and exit from the building is not barred by flames or smoke, with available fire extinguishers with caution only if the fire is small and not in the storage compartment.

Fires on re-pump or other bulk explosive delivery vehicles shall not be fought if the fire involves the explosives compartment. Fire fighting measures should be taken immediately to prevent any fire such as a tire, electrical or cab fire from reaching the explosives compartment.

Fires on other transport vehicles may be fought with caution. Fires that cannot be controlled sufficiently to avoid involvement of the vehicle's fuel compartment shall be left and personnel evacuated to a safe distance.

**6.2.2.** When a fire is small and does not involve any explosive agents, it may be fought with plant extinguishing equipment. If the fire is widespread and intense, all personnel, including visitors and contractors should be evacuated to the meeting area outside the main gate.

## Table 6 - 2
## FIRE FIGHTING INFORMATION

| MATERIAL | RECOMMENDED FIRE-FIGHTING METHODS | SPECIAL CONSIDERATION |
|---|---|---|
| Ammonium Nitrate Prill – Odorless white to light tan crystaline solid | Use flooding amounts of water in early stages of fire. Keep upwind. AN is an oxidizing agent which supports combustion and is an explosive hazard if heated under confinement that allows high-pressure buildup. Ensure good ventilation and remove combustible materials if it can be safely done. Evacuate to designated area if fire cannot be controlled. | Toxic oxides of nitrogen are given off during combustion. Fire fighters require self-contained positive pressure breathing apparatus. Avoid contaminating with organic materials. Many powdered metals such as Al, Sb, Si, Cd, Cr, Co, Cu, Fe, Pb, Mg, Mn, Ni, Sn, Zn and brass react violently and explosively with fused AN below 200˚C Sensitivity to detonation increases when heated. |
| Ammonium Nitrate Solution- Colorless/Odourless Liquid – white paste like solid when cooled | Use flooding amounts of water in early stages of fire. Cool containing vessels with flooding quantities of water until after fire is out | Material will not burn, but thermal decomposition may result in flammable/toxic gases being formed. These products are nitrogen oxides and ammonia. ($NO$,$NO_2$ $NH_3$). Product may form explosive mixtures when contaminated and comes in contact with organic materials. Explosive when exposed to heat or flame under confinement. Avoid temperatures over 210°C (410°F) A self contained breathing apparatus should be used to avoid inhalation of toxic fumes |
| Sodium Thiocyanate – White solid - odourless | Use extinguishing media most appropriate for the surrounding fire | Wear self contained breathing apparatus – MSHA/NIOSH approved or equivalent, and full protective gear. During a fire, irritating or highly toxic gases may be generated by thermal decomposition or combustion. |
| Sodium Nitrite – Oxydizing agent - white to light yellow crystals- faint odour | Flammability class – not regulated. Flood with water only – Isolate materials not involved in the fire and cool containers with flooding quantities of water until well after the fire is out. | Self contained apparatus should be worn in a fire involving Sodium Nitite.Thermal decomposition will cause reddish brown nitrogen oxides to be released. |
| Fuel Oil (No. 2 diesel) Dyed or pale yellow liquid with petroleum odor; and/or ATF Fluid | Use water spray to cool fire-exposed surfaces and to protect personnel. Shut off fuel from fire. Use foam, dry chemical or water spray to extinguish fire. Avoid spraying water directly into storage container due to danger of boil-over. | Avoid strong oxidizing agents. |

| | | |
|---|---|---|
| Explosive emulsions, ANFO, packaged explosives and firing devices. | **Fire involving explosive materials must never be fought. Evacuate the incident scene. Do not confine (ventilate to prevent / reduce pressure build-up if safe to do so).** | Explosion hazard. |
| Enviro CFE | Dry chemical, foam, water spray (fog). Use water spray to cool exposed surfaces and containers | OIL FLOATS ON WATER. Do not use direct or heavy water stream to fight fire.<br>Use organic vapour respirator or self-contained breathing apparatus to fight fire. |

**Table 6 - 3**
**CONTROL MEASURES FOR FIRE**

| MATERIAL | RECOMMENDED FIRE-FIGHTING METHODS | SPECIAL CONSIDERATION |
|---|---|---|
| Diethylene glycol | Small fire: type ABC dry chemical or $CO_2$ fire extinguisher.<br>Large fire: water fog. | Keep away from oxidizers (nitrates and perchlorate). Explosion hazard if heated under confinement. |

**EVACUATION PROCEDURES**

Advise the first emergency responders at the scene (police or fire) of the need to evacuate using the guidance in the Emergency Response Plan. Employees at the scene should assist local emergency services to the best of their ability to accomplish this. For incidents within a worksite such as a mine, quarry or construction operation, in most cases access is radio controlled. The quickest way of alerting people, therefore, is by site radio. Clearly state your location, situation and call for assistance in evacuating the area.

**DO NOT FIGHT EXPLOSIVES FIRES. EVACUATE THE AREA AND LET THE FIRE BURN ITSELF OUT.**

**THE MINIMUM EVACUATION DISTANCE IS AS OUTLINED IN TABLE 6-4 (Pg. 17) FOR ALL DIRECTIONS** (which is based on a higher traffic / risk / population density within the area, without benefit of protective features such as berms and hills. (**Transport Canada requires 1,600 meters for situations that involve high-risk surroundings**) upon determining actual quantity of explosives refer to Table 6-4 as per ERD quantity of distances.

**Table 6 - 4**
**EVACUATION DISTANCES**
**Based On Amount of Explosives Present**

| Explosive Quantity | | Metric Distance | | English Distance |
|---|---|---|---|---|
| 250 kg | | 70 Meters | | 230 Feet |
| 500 kg | | 100 Meters | | 320 Feet |
| 1,000 kg | | 150 Meters | | 500 Feet |
| 2,000 kg | | 240 Meters | | 800 Feet |
| 5,000 kg | | 400 Meters | | 1,300 Feet |
| 7,000 kg | | 450 Meters | | 1,450 Feet |
| 10,000 kg | | 480 Meters | | 1,550 Feet |
| 20,000 kg | | 700 Meters | | 2,300 Feet |
| 40,000 kg | | 800 Meters | | 2,640 Feet |
| 60,000 kg | | 870 Meters | | 2,860 Feet |
| 80,000 kg | | 960 Meters | | 3,150 Feet |
| 100,000 kg | | 1040 Meters | | 3,420 Feet |
| 120,000 kg | | 1100 Meters | | 3,610 Feet |
| >120,000 kg | | 1600 Meters | | 5,250 Feet |

## 6.3 ENVIRONMENTAL RELEASES

### 6.3.1 Procedure For Fuel Oil Storage Tank Failure

- Assess the magnitude of the leak.
- If the leak is slow and the source can be determined, take the appropriate action to prevent further leakage.
- Transfer fuel from storage tank into drums if necessary.
- Collect spilled material, including contaminated soil, with absorbent pads or inert solid absorbent and store in drums labeled for disposal.
- If the leak is large and further leakage cannot be prevented, allow the dyke to fill. Transfer to drums, label for reuse or disposal, and store.
- Inspect empty tank to identify failure/cause of leak and repair tank.

### 6.3.2 **Procedure For Raw Material Truck Spills**

- Identify the material involved, assess the magnitude of the spill or leak and assist the driver to take appropriate action to stop the leak, taking care to prevent run off and/or entry into any water course or drainage system near the spill site.
- For AN prill, shovel spilled material into drums, label for reuse or disposal, and store. Use a non-sparking shovel to transfer spilled material into lined drums.
- For spilled fuel, contain by dyking with earth. Collect spilled fuel with absorbent pads or solid inert absorbent, transfer into drums, label and store for disposal.
- Remove contaminated soil for disposal in conformance with Environment Canada standards.

### 6.3.3 **Procedure For Process Spills**

- Identify the material involved and assess the magnitude of the spill or leak, taking care to prevent run off and/or entry into any watercourse or drainage system near the spill site.
- For AN prill, shovel spilled material into drums, label for reuse or disposal, and store.
- For spilled fuel, contain by dyking with earth. Collect with absorbent pads or solid inert absorbent, transfer into drums, label, and store for disposal.
- In the case of leaking bags of ANFO, sweep or shovel the spilled material into a clean drum or other suitable container, label for reuse or disposal, and store.
- Remove contaminated soil for disposal in conformance with Environment Canada standards.
- Have any process equipment (pumps, process lines, parts, gauges, etc.) involved in a leak or spill inspected and repaired or replaced. Re-inspect and test if necessary after repair is affected.

### 6.3.4 **Procedure For Emulsion Tank Failure**

- Assess the magnitude of the leak.
- If the leak is slow and the source can be determined, take the appropriate action to prevent further leakage.
- Transfer remaining emulsion from leaking storage tank into another storage tank, a tanker trailer if available, or into drums as necessary.
- Collect spilled material using double diaphragm pump(s) and store in labeled drums for reuse or disposal at the mine.
- If the leak is large and further leakage cannot be prevented, allow the room to fill. Transfer to drums, label for reuse or disposal, and store.
- Inspect empty tank to identify failure/cause of leak and repair or replace the tank

### 6.3.5 **Procedure For Fire**

- In the event of a raw material or product fire, take care to protect all persons from exposure to smoke and gaseous emissions from the fire.
- Potential toxic gaseous emissions from fires involving explosive materials include:

  Oxides of Nitrogen
  Carbon Monoxide
  Cyanide Gas

- All fires must be reported to local authorities and Mine Site Security as soon as possible.
- Self contained breathing apparatus is required for fighting a fire in the plant.
- Follow procedures outlined above for any spills and leaks resulting from fire when it is safe to do so

## Table 6 – 5
## ENVIRONMENTAL RELEASE PROCEDURES

| MATERIAL | SPILL AND LEAK PROCEDURES | WASTE DISPOSAL |
|---|---|---|
| Ammonium Nitrate Prill (odorless white to light tan crystalline solid) | Remove source of heat and ignition. Sweep or shovel spill into a clean, non-combustible container. Wash remaining trace residues with water. Wear rubber gloves and safety glasses to minimize contact with skin and eyes. | Re-use if possible or give it to a farmer as a fertilizer. If not possible, dispose of as-is in approved. Remove as much as possible the spilled material as a solid. |
| Ammonium Nitrate Solution-Colorless/Odourless Liquid – white paste like solid when cooled | Small spill - Dike and contain spilled material. Ensure spilled material does not enter sewers, wells or water courses. Allow to solidify. Use appropriate tools to place in container for disposal. Larger spill - Dike and contain spilled material. Ensure spilled material does not enter sewers, wells or water courses. Notify downstream water users. Allow to solidify. Use appropriate tools to place in container for disposal. | Call for assistance for disposal. Ensure disposal complies with regulatory requirements and regulations. |
| Fuel Oil (dyed or pale yellow liquid with petroleum odor) | Eliminate any source of ignition. Prevent spills from entering watercourses or drainage systems. Contain with sand or earth. Recover with pump or inert absorbent material into clean container. Wear safety glasses and rubber gloves to prevent contact with the eyes and skin. | Dispose of recovered material in approved landfill or other waste disposal facility. |
| ANFO (Ammonium Nitrate Fuel Oil) | This material is an explosive. Remove all sources of heat and ignition. Transfer into clean plastic container with a plastic shovel. Label drums. Wear rubber gloves. | Recycle product, if possible. If not practical, explode it inside a borehole or burn it in an authorized burning ground. |
| Emulsion | This product is a blasting agent. Remove all sources of heat and ignition. Prevent spills from entering watercourses or drainage systems. If large amount of emulsion is involved, contain spill with earth or sand found locally. Recover spilled material with a diaphragm pump. Use of a diaphragm pump also requires an air compressor. Limitation of the pump suction is approximately 2.5 meters, pump discharge is approximately 8 meters. Use a screening device on pump suction hose. Out of area spills will require taking two pumps and extra hose. Transfer the product into a tanker trailer or clean 200 liter drums. If small amount of emulsion is involved, transfer material into a clean plastic container with a plastic shovel. Label tanker trailer or drums. Wear rubber gloves and rubber boots. | Recycle product, if possible. If not practical, explode it inside a borehole or if large amount is involved, demulsify it with liquid detergent. |

| | | |
|---|---|---|
| Enviro CFE | Eliminate any source of ignition. Prevent spills from entering watercourses or drainage systems. Contain with sand or earth. Recover with pump or inert absorbent material into clean container. Wear safety glasses and rubber gloves to prevent contact with the eyes and skin. | Dispose of recovered material in approved landfill or other waste disposal facility. |
| Sodium Thiocyanate – White solid - odourless | Ensure adequate ventilation whe handling Sodium Thiocyanate. Keep containers closed when not in use. Wear appropriate PPE – eye protection, gloves and appropriate clothing to prevent skin exposure. | Vacuum or sweep up material and place into a suitable disposal container. Avoid run off into storm sewers and ditches which lead to waterways. Not regulated as a hazardous material. Chemical waste generators must consult appropriate hazardous waste regulations to ensure complete and accurate classification. |
| Sodium Nitrite – Oxydizing agent - white to light yellow crystals- faint odour | In the event of a spill or leak, contact the vendor (403-263-8660) for advice. Wear respirator, protective clothing and gloves. Vacuuming is the recommended method to clean up spills. Do **not** sweep or use compressed air for clean up. Recover spilled material on non-combustible material, such as vermiculite. Use non-sparking tools and place in covered containers for disposal. Any recovered material mau be used for it's intended purpose , depending on contamination. | Dispose of the waste material at an approved hazardous waste treatment/disposal facility. |
| Acetic Acid – Colourless liquid with a pungent odour | Wear appropriate PPE – evacuate downind areas as required to prevent exposure and to allow fumes and vapours to dissipate. Prevent entry into sewers or streams. Dike if needed. Eliminate all sources of ignition. Neutralize the residue with sodium carbonate or crushed limestone. Absorb win an inert dry material and place in an appropriate container for disposal. Flush area with water to remove trace residue. | Waste disposal must be done in accordance with provincial and federal regulations. Empty containers must be recycled or disposed of through an approved waste management facility. |

## 6.4 SECURITY

6.4.1. In the event of a breach of security at a Dyno Nobel Canada Inc. Work Site, a call is to be made to the RCMP / local Police Department at the discretion of the Supervisor/Manager, or their delegate. In the case of a breach of security, Dyno Nobel Canada Inc.' HSE, Regulatory Affairs and Executive / Senior Management shall also be informed immediately and provided with the same information as outlined in Section 6.1

6.4.2. Any person(s) apprehended during the course of a serious security breach shall be detained until the Police arrive (note: employees are not to put themselves at undue risk by attempting to apprehend or restrain a potentially violent person).

## 6.5 BOMB THREAT

6.5.1. The safety of employees and the public is of primary concern. A person receiving a bomb threat over the telephone should attempt to remain calm and keep the caller talking by asking the questions listed in Table 6-6 (ERP pg. 20). Recording (writing) as much information about the caller and their comments is also very important for future reference. If possible, alert a co-worker to the situation while talking to the caller.

6.5.2. The police / mine security should be advised of the bomb threat as soon as possible. Unless there is good reason to the contrary, all personnel should evacuate the Work Site and await the arrival of the police / first responders at the designated meeting area. Suspicious objects should be reported but not tampered with and other people should be prevented from entering the Work Site until the local authority has authorized a return to the Work Site. Employees should be prepared to assist local authorities in their search / inspection of the Work Site as necessary.

**Table 6 - 6**
***CONVERSATION GUIDELINES IN THE EVENT OF RECEIVING A BOMB THREAT***

*See Appendix 7*

## 6.6 LINES OF AUTHORITY

6.6.1 Based upon the information available at the time of the incident, the Work Site Supervisor/Manager, in consultation with others (such as DNCI Senior Management, Mine/local authorities and/or Dyno Nobel advisors), will evaluate the incident and proceed with appropriate steps to implement this ERP. A decision on when to return to the scene of a serious incident will be made in like fashion, subject to approval by public authorities overseeing the incident.

6.6.2 The Work Site Supervisor/Manager will have overall responsibility for the implementation of this ERP and the supervision of all Company activities. Public authorities and the site owner have ultimate authority regarding the resumption of normal production activities.

## 7.0 NOTIFICATION AND REPORTING

7.1 Any incident that activates this ERP shall be documented on the DYNO Incident (Cintellate) Report. The Corporate Emergency Response Advisor must also be notified and in turn will advise the:

HSE Manager Vice President Operations
Area Manager

It is the responsibility of the HSE Manager or his delegate to report the incident to DYNO's HSE Management Team. A major incident involving a fire with emissions and/or a hazardous material spill shall be reported to a provincial Environment Officer under the direction of the Environmental Manager. Major incidents shall also be reported to the Chief Inspector, Explosives Branch, Natural Resources Canada; a Provincial/Territorial Safety Officer; and as applicable, an Emergency Measures Official.

Any incident which involves a spill at a Mine Site shall be immediately reported to the Mine Site Environmental Representative, and followed up with a copy of the incident report when complete.

### 7.2 Spills and Releases – Reportable and Significant Classifications

1) Determine if the spill/release is reportable

All environmental incidents are to be input into Cintellate. Reportable spills/releases are not only input into Cintellate, but the investigation and corrective action sections of Cintellate must be completed. To assist in determining if a spill/release is reportable, a listing of common materials with assigned reportable quantities is referenced (see Appendix 5, Reportable Substance List). The reportable quantities utilize the most stringent "reportable quantity" in Canada. Even if the spill/released material is recovered, the media impacted by the spill/release may be reportable to authorities (e.g., a portion of a spill reaching a source of drinking water or wetland). In addition, a spill/release is reportable if the amount equals or exceeds the Dyno Nobel Default Threshold.

2) Determine if the spill/release is significant

- Significant spills/releases are disclosed in the company's annual report. Significant spills/releases trigger time-critical internal actions as required by the company's procedures (crisis communication, internal investigation, etc)

The following table is provided to assist in making these determinations:

Reporting of Environmental Spills

**Is the spill reportable?**

- Yes if above a Reportable Quantity
- Yes if oil sheen is visible or sludge/emulsion is deposited beneath water surface
- Yes if water quality standards are exceeded
- Yes if from a UST exceeding 25 gallons or result in a sheen

**Is the spill significant?**

- Yes if authorities implement a national contingency plan
- Yes if "sensitive" environmental features have been impacted
- Yes if neighbors are evacuated
- Yes if authorities and/or neighbors file complaints and/or demand response activities
- Yes if financial impact is >US$100K
- Yes if media coverage is adverse.

7.3 Internal investigation reports will include:

- Name, work address, and phone number of the investigating (reporting) individual
- Identification and quantity of the released substance
- Time, duration, and location of the release
- Nature and quantity of injuries, property damage, production loss, administrative penalty and/or legal liability
- Precautions taken during the incident
- Relevant environmental conditions
- Corrective actions taken at the time of the incident
- Recommended corrective actions to prevent future occurrence

7.4 Senior Management shall be immediately informed by telephone of any major incident that requires Government notification as per Dyno Nobel's reporting procedures.

7.5 Major incidents involving explosive material shall also be reported to the Chief Inspector, Explosives Branch, and Natural Resources Canada by the applicable Regulatory Affairs Coordinator.

## Table 7 – 1
## REPORTABLE SUBSTANCE QUANTITY LIST

| Material Released | Reportable to Authorities | | Dyno Nobel Default Threshold (Proposed) |
|---|---|---|---|
| | If Recovered | If Unrecoverable/ Abandoned / Disposed | |
| AN Solution | Not Reportable if it can be used as a product | 45 Kg (100 lbs) as released oxidizer (not media specific) | 225 Kg (500 lbs) |
| | 44 Kg (100 lbs) for ammonia if released into water | 45 Kg (100 lbs) for ammonia if released into water | |
| | Report if released to Drinking Water (DW std at 10mg/L-N) | Report if released to Drinking Water (DW std at 10mg/L-N) | |
| | Report if released to aquatic ecosystem (NH3 toxic to fish) | Report if released to aquatic ecosystem (NH3 toxic to fish) | |
| AN Prill | Not Reportable if it can be used as a product | 45 Kg (100 lbs) as released oxidizer (not media specific) | 225 Kg (500 lbs) |
| | 45 Kg (100 lbs) for ammonia if released into water | 45 Kg (100 lbs) for ammonia if released into water | |
| | Report if released to Drinking Water (DW std at 10mg/L-N) | Report if released to Drinking Water (DW std at 10mg/L-N) | |
| | Report if released to aquatic ecosystem (NH3 toxic to fish) | Report if released to aquatic ecosystem (NH3 toxic to fish) | |
| | Report if released to Drinking Water (DW std at 10mg/L-N) | Report if released to Drinking Water (DW std at 10mg/L-N) | |
| | Report if released to Drinking Water (DW std at 10mg/L-N) | Report if released to Drinking Water (DW std at 10mg/L-N) | |
| Sodium Nitrite | 45 Kg (100 lbs) | 45 Kg (100 lbs) | 225 Kg (500 lbs) |
| | Report if released to Drinking Water (DW std at 1mg/L-N) | Report if released to Drinking Water (DW std at 1mg/L-N) | |
| Fuel Oil | Reportable if sheen on surface of pond, stream, etc. or sludge within such | Reportable if sheen on surface of pond, stream, etc. or sludge within such | 225 Kg (500 lbs); 261 L (69 gallons) |
| | State Regulations - Varies from Any Amount to specific Trigger Amounts | State Regulations - Varies from All Spills to specific Trigger Amounts | |
| | 95 L (25 gallons) from UST | 96 L (25 gallons) from UST | |
| Mineral Oil | Reportable if sheen on surface of pond, stream, etc. or sludge within such | Reportable if sheen on surface of pond, stream, etc. or sludge within such | 225 Kg (500 lbs); 261 L (69 gallons) |
| | State Regulations - Varies from Any Amount to specific Trigger Amounts | State Regulations - Varies from All Spills to specific Trigger Amounts | |
| | 95 L (25 gallons) from UST | 96 L (25 gallons) from UST | |

| | | | |
|---|---|---|---|
| Emulsifier Agents | Reportable if sheen on surface of pond, stream, etc. or sludge within such | Reportable if sheen on surface of pond, stream, etc. or sludge within such | 225 Kg (500 lbs); 261 L (69 gallons) |
| | State Regulations - Varies from Any Amount to specific Trigger Amounts | State Regulations - Varies from All Spills to specific Trigger Amounts | |
| ANFO | Not Reportable if it can be used as a product | 45 Kg (100 lbs) as released oxidizer (not media specific) | 225 Kg (500 lbs) |
| | 45 Kg (100 lbs) for ammonia if released into water | 45 Kg (100 lbs) for ammonia if released into water | |
| | Report if released to Drinking Water (DW std at 10mg/L-N) | Report if released to Drinking Water (DW std at 10mg/L-N) | |
| | Report if released to aquatic ecosystem (NH3 toxic to fish) | Report if released to aquatic ecosystem (NH3 toxic to fish) | |
| | Reportable if sheen on surface of pond, stream, etc. | Reportable if sheen on surface of pond, stream, etc. | |
| Emulsion | Not Reportable if it can be used as a product | 45 Kg (100 lbs) as released oxidizer (not media specific) | 225 Kg (500 lbs) |
| | 44 Kg (100 lbs) for ammonia if released into water | 45 Kg (100 lbs) for ammonia if released into water | |
| | Report if released to Drinking Water (DW std at 10mg/L-N) | Report if released to Drinking Water (DW std at 10mg/L-N) | |
| | Report if released to aquatic ecosystem (NH3 toxic to fish) | Report if released to aquatic ecosystem (NH3 toxic to fish) | |
| | Reportable if sheen on surface of pond, stream, etc. or sludge within such | Reportable if sheen on surface of pond, stream, etc. or sludge within such | |
| Ethylene Glycol | 2250 Kg (5000 lbs) | 2250 Kg (5000 lbs) | 225 Kg (500 lbs) |
| Sodium Thiocyanate | 45 Kg (100 lbs) | 45 Kg (100 lbs) | 225 Kg (500 lbs) |
| | Report if released to Drinking Water (DW std at 1mg/L-N) | Report if released to Drinking Water (DW std at 1mg/L-N) | |

## 8.0 DECONTAMINATION

8.1 DNCI's Standard Operating Procedures and safety rules establish work practices that minimize employees' direct and indirect contact with hazardous substances.

8.2 Equipment, rubber boots, gloves and clothes that have been contaminated can be washed with soap and water. Wash water should be collected and disposed of in an approved manner with other contaminated material.

## 9.0 WORKSITE CLOSURE / SHUT DOWN

9.1 **Plant Shutdown (use appropriate lock-out/tag-out procedures)**

- In the event that a plant is shut down due to weather, flood, or other adverse situation, the Plant Manager / Supervisor or his delegate will ensure that all non-essential power is shut off. The Plant Manager / Supervisor will secure all valves and flow devices so as to prevent accidental opening.
- The Plant Manager / Supervisor shall determine if any raw material or raw material storage will be contaminated or at risk of fire/explosion, and take steps to move the material or isolate it from the contamination / hazard source.
- If the power and/or gas will create a dangerous situation the Plant Manager / Supervisor will cut the outside supply of power, thereby isolating all plant equipment.
- The Plant Manager /Supervisor will advise local Mine authorities of the plant shutdown and preventative actions taken.
- All sensitive documents must be secured.

9.2 **Magazine Closure (use appropriate lock-out/tag-out procedures)**

- In the event that a magazine is closed due to weather, flood, or other adverse situation, the Supervisor/Manager or his delegate will ensure that all non-essential power is shut off. Also, the Supervisor/Manager will ensure that all magazines and compound gates are locked before leaving the site.
- The Supervisor/Manager shall determine if any products or raw materials will be contaminated and take steps to move the material or isolate it from the contamination source.
- If power and/or gas will create a dangerous situation the Supervisor/Manager will cut the outside supply of power, thereby isolating all magazine equipment.

## 10. RESPONSE TO NATURAL DISASTER

Hurricanes, tornadoes, floods, slides, forest fires, and earthquakes, have the ability to damage or destroy everything in their path. Yet much of the

damage or destruction associated with such phenomena is the result of some secondary event, e.g. fallen power lines, ruptured tanks valves, pipes etc. If reasonable warning of an approaching disaster is received, efforts can be made to minimize damage by taking specific preventative measures. These measures are outlined in the following procedures.

1.Consult the Site Supervisor for guidance and proceed according to his direction.
2. If so directed, notify key personnel regarding the action being taken.
3. Collect important files, records and papers for safekeeping.
4. Open main electrical breaker to cut off all power to the site. (The main breaker is marked for easy identification).
5. Secure all buildings and equipment and lock the site gate.
6. Evacuate the site taking mobile equipment to safety.
7. Post Guards on site access routes to monitor the activities of unauthorized personnel.
8. A report of the incident must be submitted to the Area Manager within 24 hours.

## 10.1 PREVENTIVE MEASURES

### 10.2 Waste Disposal Permits

If nitrate waste is generated, a disposal permit must be obtained and kept up to date if the product will be disposed of off-site, or in mine tailings. Permits to dispose of other collected waste in the event of spills or leaks (such as described in Section 6.3) must also be obtained in consultation with mine / provincial environmental representatives

### 10.3 Liquid Containment

All fuel / oil storage tanks must be dyked according to the provisions of Federal and/or Provincial regulations (eg. National Fire Code, Environmental Protection Act), or have a double-walled tank.

A plan must be in place and materials on hand to create a dyke in the event of a large fuel or solution leak or spill or other emergency spill situation.

### 10.4 Inspection

All site emergency storage areas and equipment must be inspected monthly by qualified personnel, monthly for physical condition and serviceability, and the results recorded according to quality and safety standard operating procedures.

All recommendations/orders made by NRC Explosives Branch inspectors, Fire Marshals and insurance inspectors must be responded to and acted upon accordingly. Copies of their reports are to be forwarded to DNCI's HSE representative for the region.

10.5 **Maintenance**

All preventive and breakdown maintenance must be carried out and recorded in accordance with standard operating procedures.

## 11.0 WORK SITE START UP (Restoration of Business)

11.1 Before startup, the condition prompting the shutdown / closure must be over / corrected (i.e. flood, fire, explosion or blizzard).

11.2 All decontamination procedures must be followed and the site cleared and cleaned of any environmental waste hazards.

11.3 All repairs to plant equipment involving safety shutdowns and essential operating machinery must be completed.

11.4 All electrical circuits, plumbing and piping must be tested.

11.5 The Work Site Supervisor / Manager will ensure that all lockout and tag-out procedures have been followed and signed off.

11.6 The Work Site Supervisor / Manager will start up the facility by turning on individual switches to the components that have been shutdown.

11.7 Operational checks will be done to ensure that all equipment is functioning at safe working pressures and voltage.

11.8 The Work Site Supervisor / Manager will give the verbal "all clear" before workers will be allowed to return to work.

11.9 The Work Site Supervisor / Manager or one of their delegates will cancel / remove all roadblocks, terminate evacuation activities, and notify employees to return to normal activities.

# APPENDIX 1

## DNCI'S EMERGENCY REPORT FORM FOR INCIDENTS INVOLVING EXPLOSIVES

WHO IS CALLING? NAME:_____

PHONE #: _____ TIME:_____DATE:_____

CALLER'S ORGANIZATION:_____

LOCATION OF INCIDENT: _____

WHAT IS THE EMERGENCY?
PROBLEM**:** (Motor Vehicle Accident, Fire, Scattered Product, Disabled Truck, etc.)

_____

**PRODUCTS INVOLVED** : VISIBLE PLACARDS ? YES_____ NO_____

SHIPPING NAME(S)_____

UN NUMBER(S)_____

HAZARD CLASSIFICATION (ex: 1.1 D) :_____

QUANTITY: _____

INJURIES: _____

PROPERTY DAMAGE:_____

EXPLOSIVES VEHICLE UNIT NUMBER:_____LICENSE NO._____

DRIVER:_____CARRIER:_____

WHEN DID INCIDENT OCCUR? DATE: _____TIME: _____

WHERE IS THE EMERGENCY? (City, Town, Rural Area, Lat. & Long., Specific Directions)

_____

ARE THERE RESIDENCES, BUSINESSES, OR OTHER PUBLIC GATHERING PLACES WITHIN THE EVACUATION ZONE (what, where)?

_____

WHAT ACTION HAS BEEN TAKEN TO THIS POINT IN TIME?_____
(Medical, evacuation, fire fighting, etc.)

_____

# APPENDIX 2

## DNCI Corporate contact

| Name | Position | Cell number |
|---|---|---|
| Benoit Choquette | Environmental Manager - Canada | (514) 246-6285 |
| Nicholas Ebsworth | General Manager HSE - Canada | (514) 708-5417 |
| Hubert Fafard | HSE Manager Eastern Canada | (418) 570-9257 |
| Willard Pierce | Regional Manager -West | (403) 836-9029 |
| Francois Lambert | Regional Manager –East | (514) 212-3490 |
| Dale Bodnarchuk | Regional Manager – Central | (705) 715-6672 |
| Seamus Kilcommons | HSE Manager Western Canada | (403) 815-4066 |
| Brad Rhude | Sales Manager - Central | (705) 494-5171 |
| Rick Chopp | HSE Manager – Central Canada | (705) 498-2855 |
| Pierre Poulin | Sales Manager – Quebec/Maritimes | (418) 569-5565 |
| Greg Brown | Sales Manager Western | (403) 512-5127 |
| Bryan Sedrovic | HSE/ Regulatory Affairs Coordinator West | (250) 203-4259 |

## APPENDIX 3

## DNCI Emergency Response Advisors (ERA) per area

| Name | Position | Cell number | Area (West, Central or East) |
|---|---|---|---|
| Tom Medak | Mgr, Bulk Emulsion Operations | (403) 818-4434 | West |
| Ralph Olson | Operations Manager, Vancouver Island | (250) 713-8720 | West |
| Darren Woodhead | Gregg River worksite supervisor | (780) 223-4491 | West |
| Randy Armella | Bulk Operations Manager | (780) 865-6580 | West |
| Cory Redwood | Manager dnx Drilling/ Joint Ventures | (867) 444 - 8533 | West |
| Kevin S Kelly | Operations Manager – Seismic | (403) 934-0753 | West |
| Tyrone McClean | Operations manager, Manitoba and Saskatchewan | (204) 687-0046 | Central |
| Scott Smith | Operations Manager, Red Lake Ontario | (807) 727-7300 | Central |
| Mike Ertel | Operation Manager – Ontario | (807) 629-9660 | Central |
| Joss Forget | Operations Manager Northern Ontario | (705) 471- 8745 | East |
| David Roy | Manager Plant operations | (418) 570-5604 | East |
| Francois Lambert | Operations Manager | (514) 212-3490 | East |
| Daniel Roy | Dyno Consult , Ste-Sophie | (514) 213-5889 | East |
| Pierre St-George | Regulatory Affairs Canada | (613) 677 - 1051 | Canada |

# APPENDIX 4

## SITE: Meadowbank Site

### MANAGEMENT AND WORK SITE CONTACT LIST

| NAME | TITLE | BUSINESS PHONE | HOME PHONE | CELL PHONE |
|---|---|---|---|---|
| **Doug Robertson** | **Site Supervisor** | **(867) 793-4610 *(Option 2; option 1 ext 6804)*** | | **(867) 222-3930** |
| **Dennis Wall** | **Site Supervisor** | **(867) 793-4610 *(Option 2; option 1 ext 6804)*** | | **(867) 222-3930** |
| **Site employees** | **All employees on shift** | **(867) 793-4610 *(Option 2; option 1 ext 6804)*** | | |
| **Tom Medak** | **Operations Manager** | **(403) 723-7530** | | **(403) 818-4434** |
| **Seamus Kilcommons** | **HSE Manager** | **(403) 236-9160 Ext 7547** | | **(403) 815-4066** |
| | | | | |
| | | | | |
| | | | | |

### EXTERNAL CONTACT NUMBERS

| ORGANIZATION/CONTACT | LOCATION | PHONE NUMBER |
|---|---|---|
| Mine security | Meadowbank | Ext. 6817 |
| | | |
| Local Fire; ERT | Hinton | Ext 6911 |
| | | |
| Local Ambulance | Hinton | Ext 6911 |
| | | |
| Baker Lake RCMP | Hinton | 867 793-1111 |

# APPENDIX 5

**Area Office Address:**
Meadowbank site
Baker Lake, NU

**Type of Facility:**
Emulsion Plant
AN Tote storage

**Emergency Meeting Place Upon Evacuation:**
As identified on site orientation forms, employees and visitors are to meet at muster point for head count. Once all persons are accounted for, all will proceed to the Muster Point located at Security Gate #1, located at junction of All Weather Road. (see map)

**Emergency Equipment On Hand:**
Fire Extinguishers, First Aid Kits, Fire alarm system, video monitoring,

# FY 2011 drill conducted

# APPENDIX 6

## BOMB THREAT CHECKLIST

| | |
|---|---|
| Exact time of call: | |
| Exact words of caller: | |
| **QUESTIONS TO ASK** | |
| 1- When is bomb going to explode? | |
| 2- Where is the bomb? | |
| 3- What does it look like? | |
| 4- What kind of bomb is it? | |
| 5-What will cause it to explode? | |
| 6- Did you place the bomb? | |
| 7- Why? | |
| 8- Where are you calling from? | |
| 9- What is your address? | |
| 10- What is your name? | |
| **CALLER'S VOICE (circle)** | |
| Calm / Slow / Crying / Slurred | |
| Stutter / Deep / Loud / Broken | |
| Giggling / Accent / Angry / Rapid | |
| Stressed / Nasal / Lisp / Excited | |
| Disguised / Sincere / Squeaky / Normal | |
| If voice is familiar, whom did it sound like? | |
| Were there any background noises? | |
| Remarks: | |
| Person receiving call: | Telephone number call received at: |
| Date: | Report call immediately to: |

## APPENDIX 7

## NEW/TRANSFERED EMPLOYEE OR ANNUAL REFRESHER FORM

# HSE Employee Orientation Form

**To Be Completed By Supervisor (within 2 to 4 weeks of hiring)**

| | | |
|---|---|---|
| (Employee Surname) | (Given Names) | (Worksite)<br>(Date of Hire) |
| (Job / Position) | (RFT/ RPT/ Casual / Temp) | (End date if applic) |

**Show & Tell**

| | Date Completed | | | Date Completed |
|---|---|---|---|---|
| Tour Of Facility | | | Introduction To Staff | |
| Emergency/Fire Exits & Procedures | | | Workplace Hazards & Controls | |
| Environmental Clothing Issued | | | First Aid & WCB Reporting | |
| Overview Of Organization | | | Telephone Contacts | |
| Work Schedules | | | Time Sheets & Pay Periods | |
| Security & Key Control | | | E-mail & Website Access | |
| Expense Claims Procedures | | | Other: | |

**Documentation Given To &/or Discussed With Employee**

| | | | |
|---|---|---|---|
| Position Description | | DYNO G & S Work Rules | |
| Worksite ERP, TDG ERAP & CCP | | MSDS's | |
| Handling/Transporting Explosives | | SOP's | |
| Employee Guidelines | | Policy: HSE & Quality | |
| Policy: Privacy & Confidentiality | | Policy: Substance Abuse | |
| icy: Violence In The Workplace | | Policy: Security | |
| Policy: Smoking In The Workplace | | Performance Reviews | |
| Other: | | Other: | |

**New Hire Training Completed**

| | | | |
|---|---|---|---|
| Customer Orientation | | WHMIS | |
| TDG Clear Language | | PPE (as applicable) | |
| Handling/Transporting Explosives | | Fire Extinguisher | |
| ICARUS (Incident Reporting) | | Take 5 (Hazard Assessment) | |
| Worksite ERP, TDG ERAP & CCP | | | |

_____ _____ _____

Supervisor (Print Name) Supervisor Signature Date

APPENDIX 8

ANNUAL ERT VISIT REVIEW FORM

## Information to be released to Emergency Services

**From: Local Emergency Services**

**Subject: Emergency Response Plan for _____.**

**The following is a copy of the Emergency Response Plan that has been prepared by Dyno Nobel Inc. Has been received from _____ operations. The ERP has been discussed and being kept on file for future reference. If questions arise, we have been given the contact information for the _____ operations staff.**

**On _____ the _____ of 2011, AEM ERT responder _____ attended the Dyno Nobel Meadowbank site for an annual visit and ERP review.**

**Signed:_____**

**Position:_____**

**Date:**_____

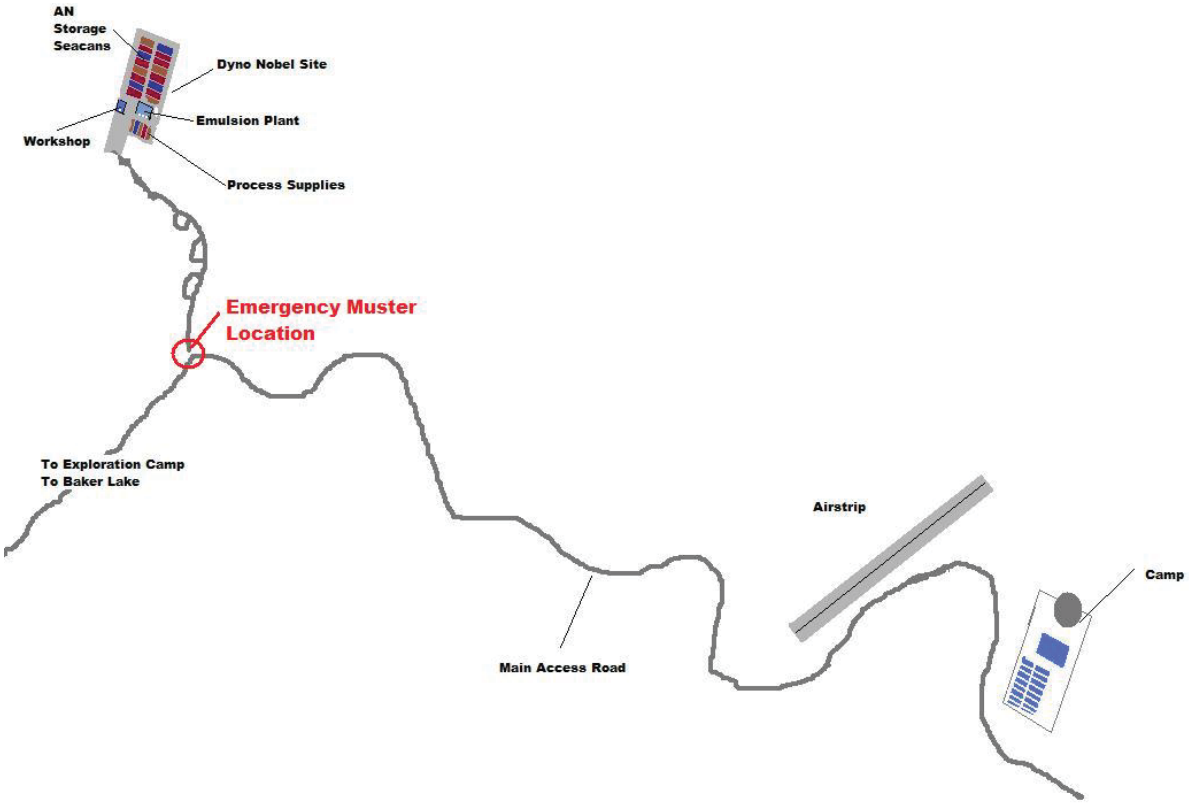
## APPENDIX 9

### Transportation of Dangerous Goods Regulation
### Class Quantity Emission Limit

| | |
|---|---|
| **1** | Any quantity that could pose a danger to public safety or 50 kg |
| **2** | Any quantity that could pose a danger to public safety or any sustained release of 10 minutes or more |
| **3** | 200 L |
| **4** | 25 kg |
| **5.1** | 50 kg or 50 L |
| **5.2** | 1 kg or 1 L |
| **6.1** | 5 kg or 5 L |
| **6.2** | Any quantity that could pose a danger to public safety or 1 kg or 1 L |
| **7** | Any quantity that could pose a danger to public safety. An emission level greater than the level established in section 20 of the *Packaging and Transport of Nuclear Substances Regulations* |
| **8** | 5 kg or 5 L |
| **9** | 25 kg or 25 L |

Table identified in Section 8.1(1) of Part 8 of the Transportation of Dangerous Goods Regulation Class Quantity Emission Limit

# Evacuation/ Muster location



## Appendix K

## MBK-ENV-0016 Spill Reporting Procedure

# Spill Reporting Procedure

| | | | |
|---|---|---|---|
| | | **PROCEDURE NUMBER:** | **MBK-ENV-0016** |
| **People concerned** | • **All Departments** | **Prepared by** | **Jeff Pratt**<br>**Erika Voyer**<br>**Environment Coordinator** |
| | | **Authorized by** | **Kevin Buck**<br>**Assistant Environmental Superintendent** |
| **Effective :** | **January 18, 2015** | ***"Safety First, Safety Last … Safety Always!"***<br><br>***"No Repeats" – Our Stepping Stone to ZERO HARM*** | |

*This procedure corresponds to the required minimum standard. Each and everyone also have to comply with the rules and regulations of the Nunavut Government in terms of health and safety at work.*

## Objective:

- As per Meadowbank's Water License we must have and employ a Spill Contingency Plan. The overall purpose of creating a spill contingency plan is to minimize the impacts of spills by the establishment of predetermined lines of response and plans of action. The plan has been designed to facilitate effective communication and the efficient clean-up of spills from potentially hazardous materials. The Plan also specifies the reporting of all spills on site to the Environment Department. The Plan details which spills will be reported to regulators.

## Concerned departments:

ALL DEPARTMENTS

## Risks/ Impacts Legend

| Health & Safety | Process/quality | Costs | Environment |
|---|---|---|---|

# Spill Reporting Procedure

## Definitions:

A) A **Major spill** is defined as an accidental release of product into the environment that has the potential for adverse impacts to the receiving environment, AEM property or human health. This can include potential impacts to water, surface and groundwater, land, equipment, buildings, human health and the atmosphere.

B) A **Minor spill** is defined as any spill that does not involve a toxic, reactive, or explosive material in a situation that does not pose a significant risk to the environment, is not human health or AEM property.

| *Procedure* | Risks/ Impacts |
|---|---|
| **1.** ***All Spills*** on the Meadowbank site regardless of size, quantity, location, or time of spill are to be reported to the Environment department. | |
| **2.** Spills must be immediately reported to the Supervisor. | |
| **3.** The supervisor will determine if the spill is a major or minor spill.<br>A) If the spill is *Major*, supervisor will call CODE 1 to dispatch (Mine, AWAR, or Control room).<br>B) If the spill is *Minor* the supervisor will contact the Environment Department (**Channel 9** or extension 6747 or 6759 Techs / 6980 or 6728 Coordinators) | |
| **4.** Whether the spill is Major or Minor the following must be verbally reported:<br>a) Product description (diesel, hydraulic oil, sodium cyanide)<br>b) Estimated quantity of the product<br>c) Location of Spill<br>d) Area contaminated (#meters x # meters)<br>e) Cause of spill – If this is not yet know best assumption<br>** if photos can be taken of the spill, please submit to the environment department with spill report | |
| **5.** For a *Major Spill* the Supervisor will ensure the area stays safe until the ERT team arrives to intervene. The environment department will assist the ERT team. | |

| | |
|---|---|
| **6.** For a minor spill the supervisor and the Environment department will then determine the clean-up method and the location in which the contaminated material will be taken too.<br><br>**Environment department may want to investigate the spill prior to clean up. | |
| **7.** A spill report will need to be completed, ***In Full***, and submitted to the environment department within ***12 hrs.*** of the spill occurring. Thus allowing time for the environment department to determine if it needs to be reportable to the Governing bodies.<br><br>*****Spill report is attached below or can be found here:*** http://mymeadowbank/documentcentre/Documents/Health%20and%20Safety/2014%20-%20AEM%20Internal%20Spill%20Report%20Form_V03.pdf | |
| **8.** Spills found on site that have not been reported to the environment department will be deemed as Non-Reported spills. | |

**Agnico Eagle Mines Meadowbank Project:**
**Internal Spill Reporting Form**

**(Spills greater than the *Reportable Volume*, see Spill Contingency Plan, require the completion and submission of the *Nunavut Spill Report Form*)**

| AGNICO EAGLE | Meadowbank Project | Spill report #. |
|---|---|---|
| Date and time of spill : | | |
| Location of spill : | | |
| First responder name : | | |
| Company Name: | | |
| AEM Contact: | | |
| Nature of contaminant : | | |
| Volume/quantity of the container / tank (L) | | |
| Quantity spilled (L) : | | |
| Cause of the spill : | | |
| | | |
| | | |
| | | |
| | | |
| | | |
| Contaminant collected by : | | |
| Follow-up done by : | | |
| Actions taken : | | |
| | | |
| | | |
| | | |
| | | |
| | | |
| | | |
| Report completed by: | | Date : |
| Incident investigation recommended : | YES ☐ | NO ☐ |
| Government agency notified : | YES ☐ | NO ☐ |
| Date of notification to government agency : | | |
| Date of report : | Signature of environmental personnel : | |

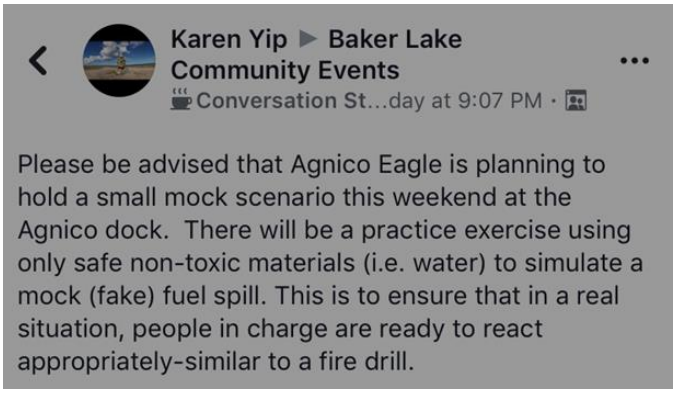
# Appendix L

## 2018 Mock Spill

# Mock Spill Baker Lake

September 8th, 2018

Karen Yip, AEM Community Liaison Coordinator in Baker Lake sent a Facebook message to advise the community of the scenario, in case that we use the radios and call a code one or that information is spread on this simulation event.




Scope/event : During the Jet A discharge, simulation of a breaking valve in the secondary containment and overflow of the secondary containment;

Environment technician on site; Fanny Laporte & Jonathan Pameolik

## Event:

16:04 the Intertek crew discovered the leaking valve and advised ship captain to stop the fuel discharge

16:05 communication from Intertek to AEM staff at the spud barge, Freddy Riveron and Jean-Noel Vigneault explaining the emergency

16:05 Guillotine activated on the fuel line by the labor in charge of the inspection of the line /Employee of PetroNav Desgagnés

AEM employee left right away to the Environment spill response sea cans and grabbed the necessary supplies to contain the spill, absorbent booms, pads, PPEs, ½ cut drum, yellow secondary containment

16:07 confirmation from the vessel captain that the discharge has stopped- AEM spud barge team arrive at the location of spill Jet A.

Action taken to stop the spreading of the spill, installation of absorbent, etc.

16:12- call from the crew to AEM environment team- AEM E&I supervisors for extra resources, if not available- Arctic Fuel services will be called.

- Shovel to make a trench

- Vacuum truck
- Emergency pump and drums
- Truck for transportation, etc.

Emergency document and phone list was available at the spud barge office.

16:20 Debriefing; review of the ***General Spill Procedure, section 10*** of the OPEP, *Oil Pollution Emergency Plan*

Proper PPEs were worn- rubber gloves for the worker in contact with Jet A and safety glasses.

Good communication between the Intertek and AEM crew,

<u>Recommendation from Environment;</u>

Secure the perimeter: block access to the spill site with a pickup, a ribbon or/and message on the radio

Call dispatch for CODE 1, if the spill is significant or uncontrolled or the environment impact is major, e.i running to the lake.

Pick up at the spud barge need to have a hitch to put the boat in the water in case of emergency, it was not the case at the moment of the mock scenario.

Some documents related to OPEP and Emergency Spill response plan are outdated in the binder at the spud barge office; they need to be updated with the new documents. (as for example Woodward is now replaced by PetroNav Desgagnés, etc.)

<u>Recommendation from the **Intertek** crew for H&S and environment;</u>

To have a dock or a bridge section for pedestrian, they have to walk on the dock around the heavy equipment and they often have glass fuel jars that can break while they try to jump from the boat to the dock (they mention that the access is not easy and unsafe)

While doing the scenario, the Intertek employee recommended that they have a spill kit ready in a box in their pick up at all time during the discharge. This plastic box or cut drum can contain the minimum required to react to an eventual spill without having to drive down to the emergency sea-can, putty, absorbent, PPE- gloves, etc.

<u>Recommendation/question from the **spud barge** personnel;</u>

Why isn't there a permanent pipe & manifold with valve for the Jet A as well as the fuel tank, as of right now, there is probably 5000 feet of hoses which increase the risk of a spill while assembling/dismantling, connections, etc.

**Varia;**

Sulfur was removed from the Jet A fuel as per new regulation, therefore, the Jet A does not have a strong odor anymore and a spill may not be detected by the smell.

Camera, radio, electronic devices are not allowed around the discharge to prevent the risk of explosion

Low pressure alarm will go off in case of any loss of pressure, therefore, spill will or leak can easily be taken in charge early.

Employee of AEM getting supplies for spill response

Guillotine was pre-installed as per discharge protocol and it was closed right after the call of the leak

Scene where the mock spill occurred

Intertek and AEM crew installing the secondary containment and spill supplies

Drums, spills kits, quattrex and totes were available

Boat, gasoline, safety items were also available- the boat works, we went on the lake

Debriefing

## Appendix M

## Product Transfer Area Assessment - Baker Lake Oil Handling Facility

AGNICO EAGLE

# Meadowbank Gold Project

## Product Transfer Area Assessment – Baker Lake Oil Handling Facility

February 15th, 2019

**Prepared for:**

Environment and Climate Change Canada

**Prepared by:**

Agnico Eagle Mines Limited – Meadowbank Division

## Document Control

| Version | Date | Tank/EC number | Section | Revision | Author |
|---|---|---|---|---|---|
| 1 | February 2019 | EC# 00025772 and 00026142 | | Implementation of the Product Transfer Area Assessment – Baker Lake Oil Handling Facility for the ERP | Robin Allard, General Supervisor Environment |
| 2 | | | | | |

Prepared by: Environmental Department

Approved By:

Robin Allard
*Meadowbank General Supervisor Environment*

# 1 Introduction

The purpose of this document is to satisfy the requirement of Section 15 of the Storage Tank Systems for Petroleum Products and Allied Petroleum Products Regulations (STSPPR) (SOR/2008-197) made pursuant to Canadian Environmental Protection Act, 1999 which states:

> ***15 (1)*** *The owner or operator of a storage tank system must ensure that petroleum product and allied petroleum product transfer areas are designed to contain any releases in liquid form in the environment that occur during the transfer process.*

In accordance to the STSPPR, a ''transfer area" means:

> *the area around the connection point between a delivery truck, railcar, aircraft or vessel and a storage tank system in which the tanks have an aggregate capacity of more than 2,500 L.*

Furthermore, Subparagraph 2.1(2) of the STSPPR states:

> *a person must not release - or permit or cause any release of - a petroleum product or allied petroleum product, in liquid form in the environment, during the transfer of the product to or from a storage tank system if, in the case of a system that has a transfer area, the release during transfer reaches outside the transfer area.*

In accordance with the above requirement, the following information intents to be the Product Transfer Area Assessment –for the Baker Lake Oil Handling Facility for both the Jet-A and the Diesel Tanks.

# 2 Fuel Transfer Area Description

## 2.1 Baker Lake Oil Handling Facility

The Baker Lake Oil Handling Facility (OHF) consists of six (6), ten (10) million liter tanks for diesel fuel, within secondary containment (Figure 1). The steel fuel tanks have been field-erected and built to API-650 standards with each bermed area holding two tanks. This area is capable of containing 110% of the volume of one ten (10) million liter tanks storage tank. Agnico Eagle is currently in the permitting process to add two (2) 10 ML diesel tanks in Baker Lake. The additional diesel tank will not change the current Product Transfer Area Assessment, as the process for fuel transfer will remain the same, i.e. no additional transfer area will be created.

The OHF also consist of eighteen (18), 100,000L double walled tanks, within secondary containment, for aviation fuel (Jet-A) (Figure 1). The steel fuel tanks have been field-erected and built to API-650 standards with the bermed area holding eighteen tanks. This area is capable of containing >110% of the volume of one 100,000L storage tank. Both Jet-A and Diesel storage area were designed by qualified engineering firm.

The Diesel and Jet-A tanks are refilled during the barge season on an annual basis, generally from July to October.

## 2.2 Ship to shore transfer area

The Diesel fuel transfer area from ship to tank farm consists of a permanent 6 inches steel pipe, 266m long. Two (2) shipper certified transfer hoses, 4 inches and 178m long, are connected to the shore permanent based pipeline manifold for the transfer of diesel fuel to the diesel tank farm (Photo 2). The diesel transfer rate is 200 $m^3$/hr. At the connection of the ship's transfer hose to the OHF manifold a portable containment pool is erected and in place during the transfer of product. This pool is capable of holding ~250L of liquid in the case that there is a leak at the flange or residual drips out of the conduit or hard wall pipe. Spill "pop-up" pools are also place under each joint for the transfer hose used to fill the Fuel tanks. These popup pools are only capable of holding 20-50 L of fuel and are in place to catch residual and be a first line of defense in the case of a leak. There is also a permanent watcher at the fuel manifold to detect any leak.

For Jet-A fuel, separate shipper certified hoses are laid out from the vessel to the Jet-A manifold located in the Jet-A Secondary Containment (Photo 3). As detailed in Section 2.1 above, this area is capable of containing >110% of the volume of one 100,000L storage tank. A total of 582m of 4'' certified hose are required to reach the Jet-A transfer area. The Jet-A transfer rate is 100 $m^3$/hr. Spill "pop-up" pools are place under each joint for the transfer hose used to fill the Fuel tanks. These popup pools are only capable of holding 20-50 L of fuel and are in place to catch residual and be a first line of defense in the case of a leak.

## 2.3 Refueling station to truck transfer area

For both the Diesel and Jet-A transfer area, there is one loading arm with dry quick connect coupling for tank truck filling operation (Photo 4). Loading arm is connected to an insulated pumping station (Photo 5) and consist of a single continuous 4m x 3 ½ inches pipe from the loading arm to the fuel truck. Both refueling system are equipped of a Scully System. These systems are capable of controlling fills and eliminating spills of tanker trucks. All fuel truck are equipped of a sensor that connected directly with the fuel dispenser. When the volume reach 90% of the truck tank capacity, the sensor stopped the refueling. The flow rate is approximately 715 L/min for both the Jet-A and Diesel. During refueling activities, a portable containment is place under the dry quick connect coupling to capture small spills that may result during disengagement of the loading arm. At the Diesel refueling station, a secondary containment area of 5,000L was constructed.

**Location:** 64°18’22.76” N, 95°57’33.99” W. Baker Lake, Nunavut
**Diesel Tank System ID:** EC# 00025772
**Jet-A Tank System ID:** EC# 00026142

***Photo 1: Agnico Eagle Ltd.’s Baker Lake Oil Handling Facility***

*Figure 2: Diesel Transfer - Connection between shipper transfer hoses and Agnico permanent pipeline*

*Photo 3: Jet-A Transfer - Connection between shipper transfer hoses and Agnico permanent pipeline*

***Photo 4: Agnico Eagle Ltd.'s Refueling Station – Loading arm and Scully System***

***Photo 5: Agnico Eagle Ltd.'s Refueling Station – general view***

# 3 Legislation

## 3.1 Ship to shore transfer area

Transfer of from ship to shore is performed in conformance with procedures outlined in:

- Canada Shipping Act;
- Response Organizations and Oil Handling Facilities Regulations;
- Vessel Pollution and Dangerous Chemical Regulation;
- Environmental Response Arrangements Regulations;
- Oil Handling Facilities Standards (TP 12402E);
- Response Organization Standards (TP 12401);
- Arctic Waters Oil Transfer Guidelines (TP 10783);
- Environmental Prevention and Response National Preparedness Plan (TP 13585);
- Release and Environmental Emergency Notification Regulations;
- Guidelines for reporting Incidents Involving Dangerous Goods, Harmful Substances and/or Marine Pollutants;
- Requirements of the Central & Arctic Regional Response Plan;
- National Fire Code of Canada (NFCC);
- Storage Tank Systems for Petroleum Products and Allied Petroleum Products Regulations – 2008; and
- Canadian Council of Ministers of the Environment, "Environmental Code of Practice of Aboveground and Underground Storage Tank Systems Containing Petroleum Products and Allied Petroleum Products – 2003 (Updated in 2013).

## 3.2 Refueling station to truck transfer area

Transfer of fuel into trucks is performed in conformance with procedures outlined in:

- National Fire Code of Canada (NFCC);
- American Petroleum Institute (API) Standard: 2610-94: *"Design, Construction, Operation, Maintenance and Inspection of Terminal and Tank Facilities"*;
- Canadian Petroleum Products Institute (CPPI, 1992*): "Professional Driver's Manual"*;
- Canadian Council of Ministers of Environment (CCME) – Code of Practice (COP) 2003; and
- Agnico Eagle fuel transfer procedure.

# 4 Analysis of Product Transfer Area Risks

The diesel and Jet-A storage tank system owned by Agnico Eagle Mines, located in Baker Lake, Nunavut, was evaluated in accordance with Environment and Climate Change Canada's (ECCC) approach to transfer area protection. A number of potential incidents, risk and related receiving environments were identified for this product transfer area.

The table below lists potential incidents, outcomes, description of PTA and receiving environments that have been identified for the storage tank system on site. The table also provides an evaluation of identified risks and an assessment on whether further action is required, and a list of mitigation measures.

**Table 1: Product Transfer Risk Assessment – Ship to shore**

| Potential Incident | Outcome | PTA and Receiving Environment | Spill Consequence | Probability | Potential Impact | Evaluation | Mitigation Measures |
|---|---|---|---|---|---|---|---|
| Leakage if fuel remains in line after offloading and leakage at all couplings in the line (by the boat and outside the connections) | Maximum of ~7,900L of diesel and ~4,800L of Jet-A is released to Baker Lake | Secondary containment<br><br>Adjacent soil/gravel area within ~10m<br><br>Baker Lake | Low: the product is confined secondary containment.<br><br>Moderate: the product reaches bare ground.<br><br>High: the product reaches a water body. | Moderate | High | No Action Required | Trained Intertek Personal oversee product transfer at all time<br><br>Line is cleared of fuel following transfer<br><br>Portable containment used under each transfer hose connection |
| Coupling/equipment fails at onshore coupling | Maximum of ~7,900L of diesel and ~4,800L of Jet-A is released to Baker Lake | | | Moderate | High | No Action Required | Ships pumping system shuts off if hose pressure is lost.<br><br>Trained Intertek Personal oversee product transfer at all time<br><br>Transfer point is up gradient of pumping point so line does not completely drain if uncoupled<br><br>Emergency Response Plan and Spill Contingency Plan<br><br>Oil Pollution Emergency Plan<br><br>Shipboard Oil Pollution Emergency Plan<br><br>Marine spill response equipment adjacent to transfer point |
| Coupling/equipment fails at offshore coupling | Maximum of ~7,900L of diesel and ~4,800L of Jet-A is released to Baker Lake | | | Moderate | High | No Action Required | Spill contained onboard at pumping area<br><br>Shipboard Oil Pollution Emergency Plan |
| Public interference | Transfer hose is damaged by passing boat or | | | Low | High | No Action Required | Community awareness conducted by Agnico |

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| | transfer impacted by public protest | | | | | | Boat traffic monitored by Desgagnes and Intertek |
| Operator spills small amount of fuel while uncoupling hose | ~1 L of fuel is captured in secondary containment | | | High | Low | No Action Required | Portable containment used under each transfer hose connection |
| Vehicle contact with piping between transfer point and tank | Broken piping releases ~5,000L of fuel to adjacent gravel area, potentially reaching Baker Lake | | | Low | High | No Action Required | No road where pipes are installed for the transfer<br><br>Trained Intertek Personal oversee product transfer at all time<br><br>Fuel lines connected to tank farm can only release contents of the line. |

**Table 2: Product Transfer Risk Assessment - refueling station to fuel truck**

| Potential Incident | Outcome | PTA and Receiving Environment | Spill Consequence | Probability | Potential Impact | Evaluation | Mitigation Measures |
|---|---|---|---|---|---|---|---|
| Overfill during loading of fuel truck | Approximately 95L product is captured in secondary containment | Secondary containment<br><br>Adjacent soil/gravel area within ~10m<br><br>Bake Lake | Low: the product is confined secondary containment.<br><br>Moderate: the product reaches bare ground.<br><br>High: the product reaches a water body. | Moderate | Low | No Action Required | Secondary containment<br><br>Scully fitted with optic overfill prevention system<br><br>Permanent indoor structure with visual display for operator in cold weather<br><br>Live cameras to Agnico Security Officer office |
| Overfill device fails | Product flows into secondary containment | | | Moderate | Low | No Action Required | Shut off button and tanker overfill pipe<br><br>Scully System<br><br>Permanent visual contact while refueling |
| Coupling/equipment fails at pump | Broken piping/hose | | | Moderate | Moderate | No Action Required | Shut off button, drainage to low point on roadside |

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| station-hose connection. | releases ~121L of fuel to adjacent gravel area. | | | | | | Emergency Response Plan and Spill Contingency Plan<br><br>Trained spill response staff and equipment for large spills on site<br><br>Spill kit |
| Absence of inspection (pre-op, checklist) | Faulty component or leak is not detected resulting in slow release of ~1L of product | | | Moderate | Moderate | No Action Required | Pre-op inspection (daily)<br><br>Standard Operating Procedure (SOP) |
| Public access | Member of the public attempts to take or release fuel | | | Low | Low | No Action Required | Signage and surveillance cameras<br><br>Fuel system security coded<br><br>Community awareness conducted by Agnico |
| Vehicle contact with building/equipment | Broken piping releases ~1,000L of fuel to adjacent gravel area. | | | Low | Moderate | No Action Required | Secondary containment structure protects fuel station from collision by forming a barrier.<br><br>Fuel lines connected to tank farm can only release contents of the line. |
| Inappropriate equipment for arctic conditions (arm/valve) | Valves and components fail in arctic conditions releasing ~121L of product | | | Moderate | Moderate | No Action Required | Valves and hoses suitable for arctic conditions installed.<br><br>Pre-op inspection (daily) |
| Operator spills small amount of fuel while uncoupling hose | ~1L of fuel is captured in secondary containment | | | High | Low | No Action Required | Portable containment used under dry quick connection |

Please see Appendix A for the calculations relating to the product transfer areas. In summary, potential product spillage, volume has been calculated as follows:

Fueling station: a maximum delivery rate of 715 L/min and an emergency shut off time of 8 seconds would result in a product spillage volume of approximately 95.36L. Based on 8.9 cm hose at 4.06 m in length, a maximum potential spill at the tank / hose connection would result in an additional volume of 25.24 L, for a total 120.6 L of fuel spilled.

Ship to shore: a diesel maximum delivery rate of 3,333 L/min and an emergency shut off time of 8 seconds would result in a product spillage volume of approximately 444.4 L. Based on shipper transfer hose (10 cm diameter/178m in length * 2 hoses) and permanent pipeline (15 cm diameter/266 m in length), a maximum potential spill at the tank / hose connection would result in an additional volume of 7,492.65 L, for a total 7,937 L of diesel spilled.

Ship to shore: a Jet-A maximum delivery rate of 1,667 L/min and an emergency shut off time of 8 seconds would result in a product spillage volume of approximately 222.24 L. Based on 10 cm hose at 582 m in length, a maximum potential spill at the tank / hose connection would result in an additional volume of 4,568.70 L, for a total 4,790.94 L of Jet-A spilled.

# 5 Mitigation of Risks

## 5.1 Ship to shore transfer area

In the event of a spill, three (3) potential receiving environments have been identified for the fuel transfer system: the soil/gravel area partially surrounding the transfer area secondary containment and extending a distance of approximately 10 meters, the adjacent soil/ground surface, and the adjacent water body Baker Lake.

Any product amount of 100L or less that spills onto the gravel area can be recovered using the spill kit and shovels/equipment available on site. For spills of over 100 L, the product will likely reach the adjacent soil/ground surface and/or Baker Lake directly via overland surface flow (depending on the season). The following mitigation measures include:

- 250L secondary containment pool at onshore connection point;
- 20-50L spill 'pop-up' pools are also place under each joint for the transfer hose used;
- Pump and 1,000L portable containments on standby during transfer;
- Trained Intertek Personnel oversee product transfer at all time;
- Emergency Response Plan and Spill Contingency Plan on site;
- Oil Pollution Emergency Plan updated annually and review with all personnel involved in the ship to shore fuel transfer;
- Marine spill response equipment on site;
- As the ship to shore transfer only occurred during open water season, there is no potential spill risk during winter;
- Shipboard Oil Pollution Emergency Plan;
- The ship's pumping system is fitted with an emergency shut off system which is activated when pumping pressure is lost; and
- Annual MOCK spill and result analysis;

## 5.2 Refueling station to truck transfer area

In the event of a spill three (3) potential receiving environments have been identified for the refueling system: the gravel area surrounding the refueling station and extending a distance of approximately 10 meters, the adjacent soil/ground surface, and the adjacent water body Baker Lake.

Any product amount of 1,000L or less that spills onto the gravel area can be recovered using the spill kit and heavy equipment on site. For spills of over 1,000L, the product will likely reach the adjacent soil/ground surface and/or the Baker Lake directly via overland surface flow (depending on the season). During winter, the likely hood of product flowing to the shoreline increases; however, snow berms can be quickly installed. Mitigation measures include;

- Secondary containment for hose storage;
- Secondary containment for refueling of fuel trucks;
- Standard Operating Procedure (SOP);
- Inspection to determine if SOP are followed;
- Trained operators;
- Spill kit at refueling area containing absorbent pads;
- Marine spill response equipment on site;

- Personnel monitor transfer from viewing window in pump station; and
- Scully system - wire optic transfer system to prevent overfill.

# 6 Standard Operating Procedure (SOP)

## 6.1 Refueling station to truck transfer area

The Agnico procedure for diesel and Jet-A refueling fuel trucks in summarized as follows;

1. Perform an inspection of the vehicle.
2. Park the vehicle in the vicinity of the refueling tank and shut off your ignition.
3. Install wheel chocks on either side of the tanker tire.
4. Inspect the entire working area including the steps up to the HMI and the area in front of the loading arm and scully system; call your supervisor if there are problems.
5. Install the portable spill containment underneath the connection point.
6. Check the maximum capacity for the tanker being used. Ensure to only fill the tanker at 90% of the capacity to have room for fuel expansion at different temperatures, and a safe level for haulage. Fill the tanker to maximum 40,000L.
7. At the valve control panel, lift all the levers up, and make sure the valves are open.
8. Remove the cap of the scully plug and push and twist it onto the receiving end on the truck. Make sure the green light is on before continuing.
9. Connect the loading arm to the tanker.
10. Make sure the valves are open on each side.
11. Open the valve on the building.
12. Enter the control room and begin to program the fuel loading on the HMI.
13. Enter the applicable Microload identification and load sequence.
14. Enter the volume measure with the pop-up keypad.
15. Select the start button to activate the pump.
16. Once the fueling begins, the operator must monitor the situation diligently; this includes checking for leaks or monitoring any other unusual situations. The operator must be at the connection point at all times during fueling.
17. When finished pumping, close the valve on the building.
18. Disconnect the loading arm first, and then the truck level control.
19. Put the arm back and the truck level control in place. Close the valve.
20. Put the protection bag over the scully and the hose. Verify if the caps are put back on the truck.
21. Put back the portable spill containment.
22. At the valve control panel, pull down all the lever to close valve, and make sure they are closed.
23. Complete the mechanical verification in the pump station. Make sure they have no leaks on the equipment.
24. Before you leave, make sure the three doors are close at the fuel station.
25. Remove the wheel chocks and fully inspect the vehicle before beginning to bring the fuel to the Meadowbank Fuel Tank Farm.
26. If you encounter any emergency or a spill occurs, call your supervisor immediately and the Road supervisor of Agnico Eagle Mine Meadowbank.

## 6.2 Ship to shore transfer area

For a completed review of procedure during fuel transfer, refer to the Oil Pollution Emergency Plan. The fuel transfer is overseen by Intertek (contracted first responder). The Agnico procedure for refueling diesel and Jet-A tanks in summarized as follows:

1. The Oil Pollution Emergency Plan (OPEP) must be reviewed on an annual basis and updated prior to the first annual discharge. This will include but not limited to:
   a) Reviewing the phone numbers for emergencies
   b) Updating maps
   c) Review and if necessary update equipment lists
   d) Review roles and responsibilities
   e) Update Declaration
2. Contact Canadian Coast Guard and Transport Canada Pollution Prevention and make them aware of plans for transferring of fuel into our Oil Handling Facility (OHF) for that season
3. Complete Inventory report for Spill Response Sea Can at Agnico's Oil Handling Facility in Baker Lake
4. Ensure Shipping Company has provided Hose Testing Annual certification
5. All personnel who will be a part of the fuel transfer (including Baker Lake Supervisor and third part contractor Intertek) must review the OPEP and be familiar with preventive measures to take and with the steps to take in the case of a spill event while fueling
6. Install and monitor secondary containment underneath each connection of conduit on land
7. Ensure there is two-way functional communications between the OHF and the off-loading vessel
8. Ensure there is lighting in place at the transfer flange to provide illumination during any transfers taking place during the low to no light hours
9. Prior to any discharge, Agnico Eagle must receive a copy of the ship/shore checklist completed by the shipping company. Agnico Eagle should also verify this has been completed (as much as realistically possibly without boarding the ship)
10. The Pre-discharge Checklist for Agnico's Oil Handling Facility in Baker Lake must be completed, signed and provided to the Environment Department prior to discharge
11. During the ship-to-shore transfer, Agnico Eagle will have competent personnel on location at all times to monitor the fuel transfer and maintain contact with the tanker's crew
12. Monitor the fuel transfer at the beginning of each transfer and after that on an hourly basis checking the manifold, conduit, tank, and any connection points on land for spills and/or leaks. Communication between shore and ship should take place on an hourly basis
13. Have a fuel spill scenario annually

# 7 Conclusion

Agnico Eagle have the ability to respond and prevent spill to the fuel transfer area in Baker Lake according to the following management plan and refer the reader to those plan for more details:

- Oil Pollution Emergency Plan
- Spill Contingency Plan
- Shipboard Oil Pollution Emergency Plan
- Product Transfer Area Assessment – Baker Lake Oil Handling Facility

Furthermore, in the event of a spill reaching Baker Lake, a dedicated boat (open water season), containment booms, anchors, trench shovels, absorbent pads, pumps and are accessible year-round, and

regular spill response training is conducted with members of the Meadowbank Emergency Response Team and Environment Department. Meadowbank Environmental Technicians also conduct regular inspections of the Baker Lake OHF in order to ensure proper spill prevention and containment equipment is available, and that proper fuel transfer protocols are followed. All of the measures noted above are in place in order to contain, mitigate and prevent spills during the process of transferring fuel.

## Appendix A - Potential Spill Quantities

### 1- Diesel Ship to shore

Flow rate = 200 $m^3$/hr (3,333 L/min) maximum rate
Transfer hose length: 17,800 cm, 10 cm diameter
Permanent pipeline: 26,600 cm, 15 cm diameter

Volume of Spill (from time it takes operator to shut off pumping)

3,333L/60s = 55.55 L/s
8s = time it takes for operator to turn off the pump should the tank start to overflow

Volume = 55.55L/s * 8s
= **444.4L**

Volume of the Shipper Transfer Hose

1. Radius = (diameter of the pipe / 2)
   Radius = (10/2)
   = 5

   Volume of a cylinder: V = $\pi$r2h
   Volume = 3.14 * $5^2$ * 17,800
   = 1,397,300 $cm^3$

2. 1 Liter = 1,000$m^3$
   Volume in Liters = (volume in $cm^3$) * (1L/1,000$cm^3$)
   Volume = (1,397,300 / 1,000 L)
   = 1,397.3 L

3. Two (2) shipper transfer hose use to connect the permanent pipeline manifold
   = 1,397.3 * 2
   = **2,794.6 L**

Volume of the permanent pipeline

1. Radius = (diameter of the pipe / 2)
   Radius = (15/2)
   = 7.5

2. Volume of a cylinder: V = $\pi$r2h
   Volume = 3.14 * $7.5^2$ * 26,600
   = 4,698,225 $cm^3$

3. 1 Liter = 1,000$m^3$
   Volume in Liters = (volume in $cm^3$) * (1L/1,000$cm^3$)
   Volume = (4,698,225 / 1,000 L)
   **= 4,698 L**

The maximum amount of a potential spill at the site would be **7,937L**.

**2- Jet-A Ship to shore**

Flow rate = 100 $m^3$/h (1,667 L/min) maximum rate
Transfer hose length: 58,200 cm, 10 cm diameter

Volume of Spill (from time it takes operator to shut off pumping)

1,667L/60s = 27.78 L/s
8s = time it takes for operator to turn off the pump should the tank start to overflow

Volume = 27.78L/s * 8s
= **222.24L**

Volume of Transfer Hose

1. Radius = (diameter of the pipe / 2)
   Radius = (10/2)
   = 5

   Volume of a cylinder: V = $\pi$r2h
   Volume = 3.14 * $5^2$ * 58,200
   = 4,568,700 $cm^3$

2. 1 Liter = 1,000$m^3$
   Volume in Liters = (volume in $cm^3$) * (1L/1,000$cm^3$)
   Volume = (4,568,700 / 1,000 L)
   = **4,568.7 L**

The maximum amount of a potential spill at the site would be **4,790.94 L**.

**3- Diesel and Jet-A Fuel Station to Fuel Truck**

Flow rate = 715 L/min
Scully arm and hose length: 406cm, 8.9cm diameter

Volume of Spill (from time it takes operator to shut off pumping)

715L/min = 715L/60s = 11.92 L/s
8s = time it takes for operator to turn off the pump should the tank start to overflow

Volume = 11.92L/s * 8s
= **95.36 L**

Volume of Loading Arm

1. Radius = (diameter of the pipe / 2)
   Radius = (8.9/2)

= 4.45

Volume of a cylinder: V = $\pi$r2h

Volume = 3.14 * $4.45^2$ * 406
= 25,245.02 $cm^3$

2. 1 Liter = 1,000$m^3$
   Volume in Liters = (volume in $cm^3$) * (1L/1,000$cm^3$)
   Volume = (25,245.02 / 1,000 L)
   = **25.24 L**

The maximum amount of a potential spill at the site would be **<u>120.6L</u>**.