AGNICO EAGLE

MELIADINE GOLD PROJECT

SD 2-16
Spill Contingency Plan

APRIL 2014
VERSION 3

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DOCUMENT CONTROL

Version	Date	Section	Page	Revision	Author
1	October 2012			First draft of the Spill Contingency Plan	John Witteman, Env. Consultant, AEM
2	March 2013			DEIS re-submission	Rebranding
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		App. H	A-32 - A-36	Completed regulations table (ref. information requests)	Josée Noël, Env. Coord., AEM

EXECUTIVE SUMMARY

The Spill Contingency Plan (SCP) for Agnico Eagle Mines Limited (AEM) Meliadine Gold Project covers: the Meliadine site; Rankin Inlet Itivia land-based facilities; and All-weather Access Road (AWAR) and associated access roads in between, including the Rankin Inlet bypass road. The contingency plans for ship-to-shore transfer at the proposed Itivia Oil Handling Facility in Rankin Inlet and an example of Shipboard Oil Pollution Emergency Plan can be found in the Oil Pollution Emergency Plan SD 8-2.

This SCP ensures that AEM respects all applicable federal and territorial laws, regulations, and guidelines for spills to land, water and/or ice. External reportable spills will be reported by AEM to the NT-NU 24-Hour Spill Report Line, Aboriginal Affairs and Northern Development Canada (AANDC), Kivalliq Inuit Association (KIA) and Nunavut Water Board (NWB).

The goal of the SCP is to minimize the impacts of spills by the establishment of predetermined lines of response and plans of action, and to protect the safety of workers and contractors in the event of a spill. This goal will be achieved by applying best management practices, by promoting environmental awareness and safety, by encouraging prevention and maintenance, and by facilitating efficient cleanup of spills, releases, or discharges to land, water, ice and snow.

Substances covered by the SCP include hydrocarbons products, liquid and solid hazardous substances, and compressed gas.

For all spill emergencies, priority actions are: (1) respond quickly, (2) ensure safety, and (3) report the spill. The SCP outlines response organization and communication lines, and lists emergency response contacts. The person who causes a spill, or the first to observe a spill, is the first responder. The first responder shall contact a Supervisor or the Incident Commander, which will be responsible for initiating appropriate spill emergency response. AEM will have an Emergency Response Team (ERT) that will be trained and responsible for responding to large spills. All members of the ERT will be trained and familiar with emergency and spill response resources, the SCP, and appropriate emergency spill response methodologies. ERT members will receive extensive training on hazardous materials (Material Safety Data Sheets) and will learn how to respond while wearing Personal Protective Equipment (PPE). The General Mine Manager, Environment Superintendent, Health and Safety Superintendent and Health care personnel are all identified as key elements to spill emergency response.

Spill response kits will be strategically located where required on-site and at Itivia. All mobile equipment on site (heavy equipment) will also be equipped with an emergency spill kit. A mobile environmental emergency trailer will be located on site.

Action plans will first involve standard and appropriate spill control and containment techniques (e.g., dikes and trenches, floating booms, etc.). Free-product will be recovered as much as possible using vacuums, pumps, etc. and placed in appropriate containers. Absorbent materials will be used to soak up residual products. Contaminated materials will be salvaged, put into appropriate containers, and labelled for temporary storage. Depending on the nature of the contamination, solid materials will be either treated on-site (biopile), disposed on-site if possible, or eventually shipped off-site to an approved treatment and disposal facility.

ACRONYMS

AANDC	Aboriginal Affairs and Northern Development Canada (formerly INAC)
AEM	Agnico Eagle Mines Limited
ANFO	Ammonium Nitrate – Fuel Oil, a type of explosive
ATV	All-Terrain Vehicle
AWAR	All-Weather Access Road
CCME	Canadian Council of Ministers of Environment
DFO	Department of Fisheries and Oceans Canada
EC	Environment Canada
EMS	Environmental Management System
ERP	Emergency Response Plan
ERTC	Emergency Response Team Coordinator
ERT	Emergency Response Team
GN	Government of Nunavut
HAZCOM	Hazards Communication
HAZMAT	Hazardous Materials
HCN	Hydrogen Cyanide
INAC	Indian and Northern Affairs Canada
KIA	Kivalliq Inuit Association
MSDS	Material Safety Data Sheet
NIRB	Nunavut Impact Review Board
NT	Northwest Territories
NU	Nunavut
NWB	Nunavut Water Board
OHSA	Occupational Health and Safety Administration
PCB	Polychlorinated Biphenyls
PPE	Personal Protective Equipment
ppm	Parts per million
RCMP	Royal Canadian Mounted Police
SCP	Spill Contingency Plan
SD	Support Document
TBD	To be determined
WHMIS	Workplace Hazardous Materials Information Sheet

SECTION 1 • INTRODUCTION

1.1 Overview

Agnico Eagle Mines Limited (AEM) is committed to preventing spills and to being prepared to take appropriate action in case of an accidental spill. This Spill Contingency Plan (SD 2-16; SCP) will remain conceptual for the purposes of the environmental assessment process[1]. It will be further detailed during permitting and will be updated periodically to reflect any changes to Project specific protocols, teams, and management contact information.

The contingency plans for the Oil Handling Facility (tank farm) at Itivia in Rankin Inlet and an example of Shipboard Oil Pollution Emergencies Plan requirements can be found in the Oil Pollution Emergency Plan (SD 8-2).

1.2 Purpose and Scope

The goal of the Meliadine Gold Project SCP is to minimize the impacts of spills by the establishment of predetermined lines of response and plans of action, and to protect the safety of workers and contractors in the event of a spill. These are core values of the company as supported by AEM's Environmental Policy (see Section 1.5 AEM's Sustainable Development Policy).

This goal will be achieved by applying best management practices, by promoting environmental awareness and safety, by encouraging prevention and maintenance, and by facilitating efficient cleanup of spills, releases, or discharges to land, water, ice and snow related to the Project.

This Plan has been designed to facilitate effective communication and efficient cleanup of spills of potentially hazardous materials. These hazardous materials include:

- Hydrocarbon products such as diesel fuel, gasoline, hydraulic oil;
- Soluble solids such as ammonium nitrate prill;
- Liquids such as glycols and paints;
- Corrosive liquids such as Sulphuric Acid and Sodium Cyanide;
- Compressed (inert and flammable) gas; and
- Other hazardous substances.

Furthermore, the objectives of this SCP are to:

- Comply with federal and territorial laws, regulations and guidelines;
- Identify roles, responsibilities, and reporting procedures;
- Detail plans of action to be followed in the event of a spill at the Meliadine Project;

[1] In the interim, advanced exploration at the Meliadine site will continue to use the current on-site Spill Contingency Plan in the event of a spill.

- Provide readily accessible emergency information to the cleanup crews, management, and government agencies;
- Promote the safe and effective recovery of spilled materials; and
- Minimize the environmental impacts of spills to land, water and/or ice and snow.

This Plan applies to all AEM employees and any contractors associated with:

- The Meliadine site;
- The Rankin Inlet Itivia land-based facilities; and
- The All-weather Access Road (AWAR) and associated access roads in between, including the Rankin Inlet bypass road.

1.3 Related Documents

EIS documents containing information related to this Plan include:

- Environmental Management and Protection Plan (SD 2-5);
- Risk Management and Emergency Response Plan (SD 2-15);
- Explosives Management Plan (SD 2-14);
- Borrow Pits and Quarries Management Plan (SD 2-10);
- Roads and Management Plan (SD 2-9);
- Landfill and Waste Management Plan (SD 2-11);
- Hazardous Materials Management Plan (SD 2-13);
- Surface Water Management Plan (SD 2-6);
- Occupational Health and Safety Plan (SD 9-6);
- Oil Pollution Emergency Plan (SD 8-2); and
- Shipping Management Plan (SD 8-1).

1.4 Applicable Legislation

This SCP has been developed to conform to Section 9.4.3 of the Nunavut Impact Review Board (NIRB) “Guidelines for the Preparation of an Environmental Impact Statement for Agnico Eagle Mines Ltd.’s Meliadine Project (NIRB File No. 11MN034)”. Guidelines specific to marine shipping and marine mammals are tackled within AEM’s Shipping Management Plan (SD 8-1). It ensures that AEM respects all applicable federal and territorial laws, regulations, and guidelines. A complete list of applicable legislation is provided in Appendix H • Federal and Territorial Laws, Regulations and Guidelines for spills to land, water and/or ice.

Spills of potentially harmful substances to the environment are covered by existing federal and territorial regulations. Meliadine Project will put into place operational policies and procedures which meet or exceed the required regulations, guidelines and policies. The main applicable regulations are (but are not limited to):

Federal legislation:

- *Canadian Environmental Protection Act;*
- *Storage Tank Systems for Petroleum Products and Allied Petroleum Products Regulations;*
- *Environmental Emergency Regulations;*
- *Transportation of Dangerous Goods Act* and *Regulations.*

Territorial legislation:

- *Environmental Protection Act (Nunavut);*
- *Used Oil and Waste Fuel Management Regulations;*
- *Work Site Hazardous Materials Information System Regulations;*
- *Transportation of Dangerous Goods Act* and *Regulations.*

Guidelines and policies:

- *Guidelines for the Preparation of Hazardous Material Spill Contingency Plans* (Environment Canada (EC))*;*
- *Spill Contingency Planning and Spill Reporting in Nunavut. A Guide to the New Regulations* (Government of Nunavut (GN));
- *Environmental Guideline for Contaminated Site Remediation* (GN)*;*
- *Guidelines for Spill Contingency Planning* (Indian and Northern Affairs Canada (INAC)).

1.5 AEM's Sustainable Development Policy

Our Sustainable Development Policy is built on four fundamental values: operate safely, protect the environment, and treat our employees and communities with respect. This means we commit to:

- Promote leadership, personal commitment and accountability to these principles from all employees and contractors, both on and off the job;
- Assess potential impacts and risks associated with our activities throughout the life cycle of our projects or operations, including impacts of purchasing or acquisition decisions on the basis of our sustainability values;
- Ensure sufficient resources are allocated to implement and manage these commitments;
- Design and operate our facilities to ensure that effective controls and technologies are in place to minimize and mitigate the identified risks;
- Evaluate, control, eliminate or minimize risks through the implementation of a Responsible Mining Management System;
- Verify regularly our performance;
- Strive for continuous improvement by setting targets, measuring results against those targets and recognizing and rewarding performance;
- Comply in full with our internal policies and Code of Business Conduct and with the laws and regulations in each country in which we operate;

- Implement emergency response plans to eliminate or minimize and mitigate the impacts of unforeseen events;
- Engage in open and transparent communication and reporting of our policies, programs, payments to government and performance to our stakeholders;
- Provide appropriate planning and supervision to ensure that our policies, procedures and Responsible Mining Management System are implemented by all.

SECTION 2 • DEFINITIONS

2.1 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 impact. The Emergency Response Team (ERT) must be notified immediately of a major spill or emergency. As an example, for the purpose of this Plan, a tanker truck overturn on the AWAR is considered a major spill (Section 9 • Potential Spill Analysis provides response procedures for an incident of this type).

A minor spill is defined as any hazardous chemical spill that does not involve highly toxic, highly reactive, or explosive chemicals, in a situation that is not life threatening. Furthermore, this type of spill presents a manageable physical or health hazard to personnel who, when wearing proper personal protective equipment (PPE), will not be exposed to any chemical at a level that exceeds any recognized action levels or permissible exposure limits. Minor spills will still to be reported to the Environment Department but are not expected to involve emergency responders.

2.2 Materials and Reportable Spills on Site

As a precaution, if there is any doubt as to whether the quantity spilled meets the minimum reportable thresholds listed in Table 2-1[2], the spill incident will be reported to the spill line. Furthermore, AEM will maintain a detailed log of all spills of hazardous materials, including non-reportable spills. As part of AEM's overall Environmental Management System (EMS), and in the spirit of a continuous improvement of environmental performance, procedures will be implemented to encourage all employees to communicate non-reportable spill incidents and clean them up as required.

To ensure compliance with Section 36 (3) of the *Fisheries Act*, all spills of fuel or hazardous materials, regardless of quantity, into a water body or onto ice will be reported immediately to the NT-NU 24-Hour Spill Report Line[3] (phone 867 920 8130, fax 867 873 6924, spills@gov.nt.ca).

[2] Aboriginal Affairs and Northern Development Canada (AADNC). 2010. Guidelines for Spill Contingency Planning. Last modified-2010/09/15 http://www.aadnc-aandc.gc.ca/eng/1100100024236/1100100024253#sub1A_6

[3] Nunavut Environmental Protection Act. *Consolidation of Spill Contingency Planning and Reporting Regulations* R-068-93.

Table 2-1 Spill Quantities to be Reported to the 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
9.3	Dangerous wastes	5 L 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

Note: PCB = polychlorinated biphenyls; ppm = parts per million.

SECTION 3 • HAZARDOUS MATERIALS ON-SITE

A variety of petroleum products and other hazardous materials will be used as part of the mining operations. Large quantities of petroleum products will be stored in Rankin Inlet and at site. Explosives will also be stored on-site; details are available in the Explosives Management Plan (SD 2-14). Other hazardous materials will be used but in smaller quantities. Nonetheless, all these products are considered as potential environmental and safety hazards; they are listed in Table 3-1.

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 B to G also provide general response procedures for specific spilled chemical substances.

Table 3-1 Main Hazardous Materials Transported, Stored and Used On-Site

Product	Use/Location	Maximum Amount Anticipated on Site	Maximum Amount by Unit
Process Plant Reagents			
Activated Carbon	Carbon-In-Leach	101 t	500 kg/bag (10 t/sea can)
Antiscalant	Mill	118 t	
Borax	Refinery	17 t	3,375 kg/sea can
Chlorhydric Acid	Elution-Regeneration	2,361 t	
Copper Sulfate	Cyanide Destruction	506 t	2,500 kg/bag (20 t/sea can)
Cyanide	Carbon-In-Leach	2,023 t	1,000 kg/bag (19 t/sea can)
Flocculant	Grinding	135 t	750 kg/bag (15 t/sea can)
Lead Nitrate	Carbon-In-Leach	-	
Lime	Carbon-In-Leach	8,431 t	1,743 t/bag
Silica	Refinery	17 t	
Sodium Hydroxide	Elution-Regeneration	843 t	1,000 kg/bag
Sodium Metabisulfite	Cyanide Destruction	-	1,000 kg/bag
Sodium Nitrate	Refinery	17 t	5.1 t/sea can
Sulfur Prills	Cyanide Destruction	2,172 t	1,000 kg/bag (20 t/sea can)
Water Treatment Reagents			
Hydrogen Peroxide	Water Treatment Plant	-	1,000 kg/bag
Calcium Peroxide	Water Treatment Plant	-	45 kg/bag

Product	Use/Location	Maximum Amount Anticipated on Site	Maximum Amount by Unit
Emulsion Plant Reagents			
Ammonium Nitrate	Emulsion Plant	10,000 t	20 t/sea can
Ammonium Nitrate Fuel Oil (ANFO)	Emulsion Plant	Manufactured on demand	20,000 kg/truck
Blasting Boosters	Emulsion Plant	34,000 kg	15 t/sea can
Pre-Split Explosive	Emulsion Plant	135,000 kg	15 t/sea can
Detonators	Emulsion Plant	3,200 kg	15 t/sea can
Fuel Products			
Diesel	Rankin Inlet	80 ML	10 ML/tank
	Site Main Fuel Tank	5.6 ML	5.6 ML/tank
	Powerhouse	75,000 L	25,000 L/tank
	Mechanical shop	1,000 L	1,000 L/tank
	Explosives truck shop	25,000 L	25,000 L/tank
Motor Oil	Mechanical shop	800,000 L	20,800 L/sea can
	Powerhouse		
Hydraulic Fluid	Mechanical shop		Cubes or Barrels
	Powerhouse		Cubes or Barrels
	Plant		Cubes or Barrels
Ethylene glycol	Mechanical shop	60,000 L	10,000 L/sea can
Other			
Acetylene	Welding	500 cylinders	300 cylinders/sea can
Paints	Maintenance	375 L (100 gal)	
Varsol	Maintenance	4,000 L	2,000 L/ sea can
Hydrofluoric acid	Laboratory	7,000 L (1,825 gal)	
Lead Acid Batteries	Mechanical Shop / Maintenance	500 L	500 L/sea can
Portland Cement	Paste Backfill	17,169 t	20 t/sea can

SECTION 4 • PREVENTION AND INSPECTIONS

Spill response is reactive while spill prevention is proactive. The SCP will be presented to all staff during their on-site orientation sessions. All employees and contractors will be aware of the locations of the SCP. Moreover, prior to an event occurring, all employees and contractors will be shown where spill kits are stored, will be aware of their contents, and will be familiar in using spill equipment and responding to spills.

Transport, transfer and storage of materials will be performed by trained personnel using secondary containment, with well-maintained equipment. Refuelling stations in Rankin Inlet and at the mine site will be equipped with a lined area to contain any minor leaks or spills while refuelling. Transfer of fuel from tanks to tanker trucks will be performed with the aid of fuel pumps. Good housekeeping practices will be adopted, especially in areas such as storage facilities, loading and unloading zones. Regular worksite inspections will be conducted to identify measures to minimize the risk of spills. As is the current practice at the advanced exploration site, site orientations will be conducted with all employees and contractors, and spill prevention and response will be discussed in detail. During site orientation, inductions will be scheduled to ensure employees have an understanding of the steps to be undertaken in the event of a spill. All personnel will be trained to be aware of the potential hazards associated with the fuel/chemicals with which they will be assigned to work. In addition to work site inspections conducted by area specific employees, the Environmental Department will conduct weekly inspections to audit facilities where are handled and stored hazardous materials.

AEM supports the following general principles for spill prevention:

- Provide up to date and accessible Material Safety Data Sheets (MSDS) for all hazardous materials to designated emergency response personnel and mine health staff, and to the Rankin Inlet health centre staff;
- Daily inspection of fuel/chemical storage areas for leaks (including flex connectors and plumbing) and platform shifting;
- Daily inspection 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;
- 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 prevention equipment are outlined in Section 7 • Response Equipment).

SECTION 5 • RESPONSE ORGANIZATION

This section addresses the response organization and the responsibilities of each individual during response to an incident. All employees and contractors will be aware of the locations of the SCP. During site orientation, inductions will be scheduled to ensure employees have an understanding of the steps to be undertaken in the event of a spill. All employees and contractors will be shown where spill kits are stored, will be aware of their contents and will be familiar in using spill equipment and responding to spills. All drivers will be required to be trained to respond to spills at a first response level. They will also have radios to call for assistance from the Environment Department or ERT, if required.

Figure 5-1 illustrates AEM's spill/incident reporting procedure and the following sub-sections list the major responsibilities of site staff that will be participating in the emergency response.

Spill Emergency Response Procedure – An example

In the case of a large spill such as a tanker truck overturn on the municipal bypass road or AWAR, the first person (first responder) to notice, or come in contact with any spill situation will initiate a Code 1. The Incident Commander will respond to a Code 1 in conjunction with the Emergency Response Team (ERT). Major responsibilities such as initial coordination, spill cleanup and mobilizing the ERT are part of the Incident Commander's duties.

The Incident Commander will contact the Environment Superintendent and/or General Mine Manager or designate, who in turn will inform the SVP, Environment and Sustainable Development. After all information has been collected, the Environment Superintendent or designate will submit a spill report and follow-up spill report to the NT/NU Spill Line, Nunavut Water Board, Kivalliq Inuit Association, and Aboriginal Affairs and Northern Development Canada. Communications with the media will be the responsibility of the General Mine Manager or designate.

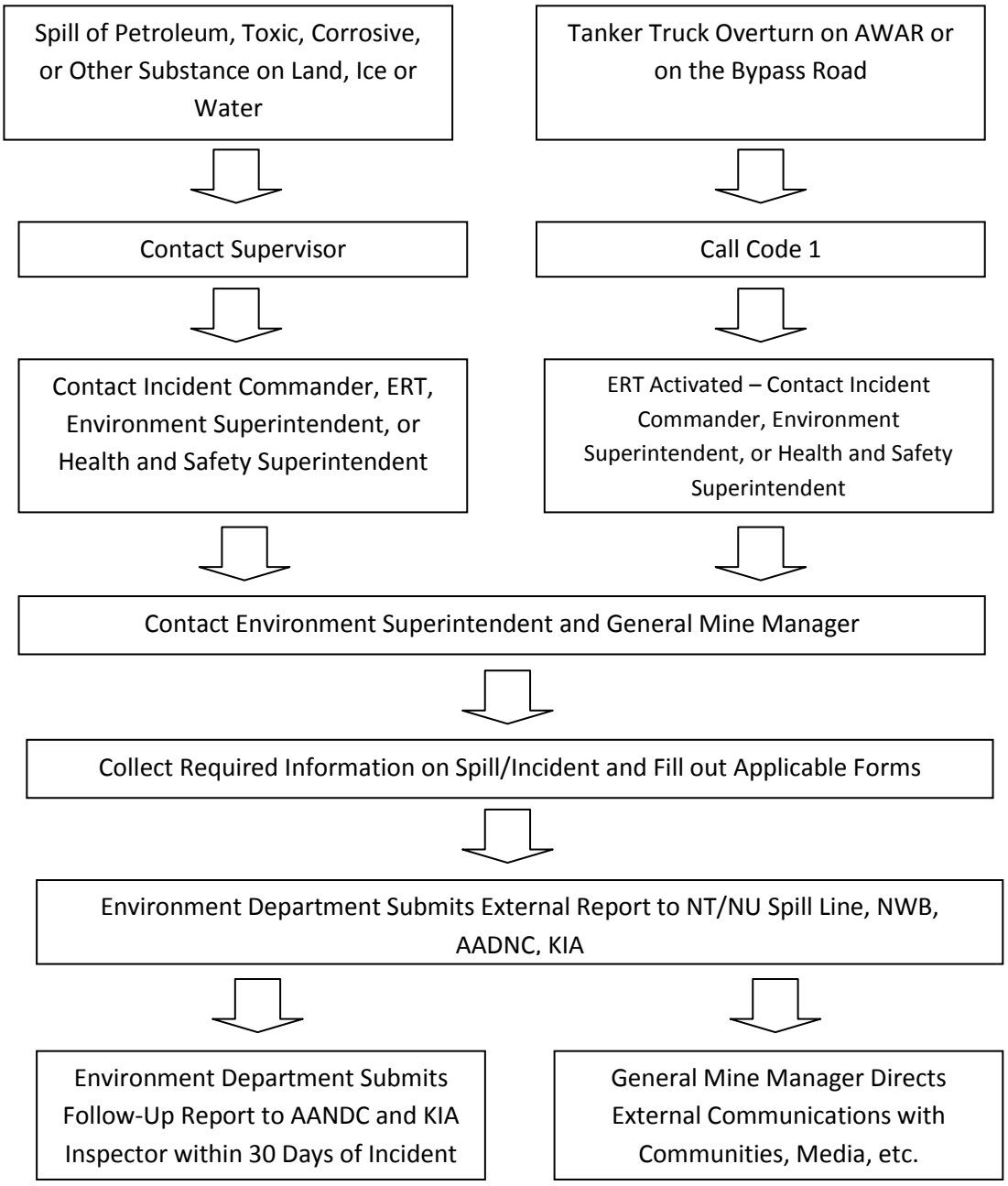

Figure 5-1 Spill/Incident Reporting Procedure

5.1 First Responder

The person who causes a spill, or the first to observe a spill, is the first responder. The responsibilities of the First Responder will be as follows:

- In case of a tanker truck overturn, initiate Code 1. Remain on radio to provide guidance to the ERT;
- In case of spill to land, ice or water, contact the Supervisor to report the incident;
- Identify spilled product and contain the spill, IF SAFE TO DO SO; and
- Participate in spill response as a member of the cleanup crew.

5.2 Supervisor

The responsibilities of the Supervisor will be as follows:

- Initially assess the severity of the incident;
- Contact the Incident Commander;
- Gather facts about the spill; and
- Participate in spill response as a member of the cleanup crew.

5.3 Incident Commander

Responsibilities of the Incident Commander (IC) will be as follows:

- Assume complete authority over cleanup personnel and the spill scene;
- Assume responsibility for all mitigation efforts;
- Evaluate the initial situation and assess the magnitude of the problem;
- Activate the initial response plan;
- Alert and assemble key personnel in the ERT, as deemed appropriate, to handle the situation;
- In consultation with the Environment Superintendent or designate, develop the overall plan of action for containment and cleanup and 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 Environment Superintendent or designate, mobilize any additional resources that may be required and arrange for the transportation of necessary personnel and/or materials to the spill site.

5.4 Emergency Response Team

AEM will have an Emergency Response Team (ERT) that will be trained and responsible for controlling the large spills. For example, they will be called upon to respond to spills from tanker truck rollovers along the Rankin Inlet bypass road and AWAR, the Itivia laydown yard and tank farm. These team members will attend regular training sessions in spill response.

5.5 Emergency Response Team Coordinator

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

- Mobilize all ERT personnel, equipment, Personal Protective Equipment (PPE) and supplies as required to the site of the spill;
- Assist the Incident Commander in obtaining any additional resources not available on-site;
- Ensure that appropriate PPE is worn and used properly;
- Assist in developing and implementing emergency response training programs and exercises; and
- Ensure that all spill response personnel receive adequate training to fulfil their responsibilities as part of the ERT.

5.6 Environment Superintendent

The Environment Superintendent or designate will be responsible for implementing and maintaining the SCP. In addition, the responsibilities of the Environment Superintendent or designate will be as follows:

- 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 report (see Appendix A for NT/NU Spill Report Form) to regulators and AEM management detailing the occurrence of a spill;
- Contact the Senior Vice President - Environment and Sustainable Development immediately in case of a major spill;
- Act as the spokesperson with regulatory and government agencies;
- If authorized by the General Mine Manager or delegate, 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;
- Review incident occurrences and recommend preventative measures; and
- Assist in implementing training and simulation requirements for spill response personnel.

5.7 General Mine Manager

The General Mine Manager or designate will be required to inform ERT members of the detailed nature of the operations to be performed in the event of a facility malfunction causing a spill during the operation phase. The responsibilities of the General Mine Manager or designate will be as follows:

- Liaise with AEM personnel resources and keep them informed of cleanup activities; and
- Assist the Incident Commander and ERT as needed, particularly in obtaining any additional personnel and resources not available on-site for spill response and cleanup.

5.8 Health and Safety Superintendent

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

5.9 On-Site Health Care Providers

On-site medics' responsibilities will be to:

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

In addition to the health care providers on-site, the Rankin Inlet health professionals will be called for assistance, if required. They may be the first to respond to incidences that could occur at Itivia.

5.10 Emergency Response Team Contact Information

Internal contact information is presented in Table 5-1 for all AEM personnel involved in spill recovery and subsequent reporting. Table 5-2 provides contact information for AEM contractors present at the mine site. Important external contacts such as regulatory agencies and health organizations are listed in Table 5-3. Table 5-4 provides contact information for external contractors should incident warrant assistance from outside sources. These tables will be updated frequently.

Table 5-1 Internal Contacts

Title	Name	Telephone No.
Senior Vice President, Environment and Sustainable Development	Louise Grondin	416 847-8656 Cell: 819 724-2020
General Mine Manager	To Be Determined (TBD)	
Health and Safety Superintendent or Assistant Superintendent	TBD	
Emergency Response Team	TBD	
Environment Superintendent	TBD	
Environment Coordinator or Environment Department	TBD	
Incident Commander	TBD	
On-Site Medics	TBD	
Site Security	TBD	

Table 5-2 Contractor Contacts

Title	Telephone No.
Nolinor Aviation Services	Protocol Agent 867 793-4610 ext. 6808
First Air	867 446-1744
Calm Air	867 793-2873
Shipping Company	TBD
Explosives Manufacturer	TBD

Table 5-3 External Contacts

Organization/Authority	Telephone No.	Fax No.
NT-NU 24-Hour Spill Report Line	867 920-8130 spills@gov.nt.ca	867 873-6924
Workers Safety and Compensation Commission	867 979-8637	867 873-6924
Kivalliq Inuit Association (KIA)	867 920-8130	867 873-6924
Nunavut Water Board (NWB)	867 360-6338	867 360-6369
AANDC Inspector	867 975-4548	867 979-6445
Environment Canada, Enforcement Branch	867 975-4644	867 975-4594
Department of Fisheries and Ocean (DFO) – Nunavut Regional Office	867 979-8000	867 979-8039
Manager, Environmental Protection, Government of Nunavut	867 975-7748	867 975-5981
Kivalliq Health Services – Rankin Inlet (Health Centre after hours)	867 645-8300 867 645-6700	
Rankin Inlet Hamlet Office (Senior Adm. Officer)	867 645-2895	
Rankin Inlet Fire Emergency	867 645-2525	N/A
RCMP 24-Hour Emergency Number	867 645-1111	
Canadian Coast Guard (in the event of a spill to the marine environment)	800 265-0237	519 337-2498

Table 5-4 External Spill Response Contractor Contacts

Contractor	Telephone No.	Area of Expertise
M&T Enterprises, Rankin Inlet	867 645-2778	Fuel Transportation

SECTION 6 • 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; and
- Spills resulting from accidents during transportation.

As mentioned in Section 4, the primary form of ensuring safety is by using preventative measures. All personnel who will have to deal with chemicals will 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 will be integral to preventing incidents.

Procedures will vary depending on the season and hazardous materials spilled, as well as on location of the spill (on land, water, ice or snow). The MSDS will 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 sub-sections as general guidelines.

6.1 Initial Action

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

- Respond quickly;
- Ensure safety; and
- Report the spill.

6.1.1 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 nearby;
- Attend to the injured;
- Assess the severity of the spill; and
- Contact the Incident Commander, identify the location, and request assistance as required. The Incident Commander will mobilize the Emergency Response Team if necessary.

6.1.2 Respond Safely

- Consult the MSDS and Product Guides for further information on the substance;
- Keep people away from the spill site;
- 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;
- Approach spill from upwind IF IT IS SAFE TO DO SO;
- Do not contain compounds (e.g gasoline, aviation fuel) if vapours might ignite – allow them to evaporate;
- 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; and
- Wear appropriate PPE such as impervious clothing, goggles, and gloves when containing the spill.

6.1.3 Report Spill

- Obtain all necessary information to complete the external spill report (see Appendix A). External reportable spills must be reported by AEM Environment Staff to the NT-NU 24-Hour Spill Report Line, AANDC, KIA and NWB; and
- Submit a detailed spill report to the AANDC Water License Inspector and the KIA Land's Inspector no later than 30 days after the spill. This is to be done by AEM Environment Staff. This report shall 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.

6.2 Spills on Land

Response to spills on land will include the general procedures detailed in the following section. The main spill control techniques involve 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 spilled material and will also serve as containment to allow recovery of the spilled material.

Depending on the volume spilled, the site of the spill and available material, a dike may be built with soil, booms, lumber, snow, etc. A plastic liner should be placed at the foot of and over the dikes to protect the underlying soil or other material and to facilitate recovery of the spilled material. Construct dikes 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 material (such as fuel).

The use of large quantities of absorbent materials to recover important volumes of spilled 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. 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.

6.3 Spills on Water

Response to spills on water will include the general procedures provided in the following section. Various containment, diversion and recovery techniques are discussed. The following elements must be taken into consideration when conducting response operations:

- Type of waterbody or watercourse (lake, stream, river);
- The spilled material;
- Water depth and surface area;
- Wind speed and direction;
- Water flow and direction;
- Type of shoreline; and
- Seasonal considerations (open-water, freeze-up, break-up, frozen).

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 encircle 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 (e.g., skimmers and oil/water separators) will be mobilized to site if required.

Measures will be taken to protect sensitive and accessible shoreline. The spill will be monitored to determine the direction of migration. In the absence of strong winds, the material will likely follow water flow direction. Measures will be taken to block and concentrate the spilled material at the discharge of a waterbody using booms where it will subsequently be recovered using a portable skimmer, a 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 material for collection while allowing water to continue to flow unimpeded. In the case of a spill in a stream heading for a culvert (i.e., at a road crossing), a culvert block will be used to stop and concentrate moving material for collection while allowing water to continue to flow unimpeded. In both cases, spilled material 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 spilled material 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 depends on the current velocity. Choosing a section of a river that is both wider and shallower makes boom deployment easier. Diversion booming may also be used to direct the spilled material away from a sensitive area to be protected.

6.4 Spills on Snow and Ice

In general, snow and ice will slow the movement of hydrocarbons or other spilled material. Snow is generally a good natural sorbent; 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 spilled material from migrating down into soil or at least slow the migration process. Ice will prevent seepage of spilled material into the water. On the other hand, the presence of snow may hide the spilled material (especially oil slicks) and make it more difficult to follow its progression.

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

6.5 Disposal of Spilled Material

Contaminated materials will be salvaged, put into appropriate containers (e.g., Quatrex bags), and labelled for temporary storage. Contaminated water will be placed in drums for shipment to an approved disposal facility. Depending on the nature of the contamination, solid materials will be either treated on-site (biopile), disposed on-site if possible, or eventually shipped off-site to an approved disposal facility.

Soils contaminated with light hydrocarbons (such as gasoline or aviation fuel) will be treated on-site in a biopile. Details on the design and operation of the biopile are provided in the Hazardous Materials Management Plan (SD 2-13).

Soils contaminated with other spilled products will be segregated, packaged and shipped to an external approved facility for proper treatment and disposal. In this, AEM will be cognisant of the requirements under the *Transportation of Dangerous Goods Regulations* (TDGR), particularly Part 5. All contaminated materials (dangerous goods) will be shipped in a means of containment required or permitted by Part 5 of the Regulations.

SECTION 7 • RESPONSE EQUIPMENT

This section addresses the emergency response machinery, equipment, tools and other resources that will be made available on-site for spill recovery measures (see Tables 7-1, 7-2 and 7-3).

Table 7-1 Mobile Equipment for Spill Emergency Response

Mobile Equipment	
Grader	Winch trucks
Cranes	Pickup trucks
Snowmobiles	Generator sets
Vacuum truck	Fire truck
Loaders	Aluminium boats
Backhoe	Fuel trucks
Bulldozer	Bobcat
Forklift	Haul truck
Water trucks	Snow cat
Excavators	
Temporary Containment Systems	
Booms	Spill absorbent material packages/pads
Drums	
Tanks	Silt fencing
Tailings pond	Maritime barrier
Emergency Transportation	
Aircraft (helicopter)	Snowmobiles
4-Wheel drive vehicles (Pickup trucks, for example)	ATV
	Boats
Communication Equipment	
Radios	Fax
Telephone	Wireless communication systems

If required, additional equipment on site will be made available to assist with spill recovery. Temporary containment systems will be also available on-site and at Itivia. If required, external resources available in Rankin Inlet are listed in Table 5-2 and Table 5-4.

Communication equipment on site will include radios, telephones, faxes and other wireless communication systems that will be available in the event of an emergency situation.

Spill response kits will be strategically located where required on-site and at Itivia. Each department and work area will be responsible for providing sufficient spill response kits in their respective work areas. The kits will be kept in marked and accessible locations. The locations will notably include all fuel storage areas and chemical storage areas.

All mobile equipment on site (heavy equipment) will also be equipped with an emergency spill kit.

A mobile environmental emergency trailer, which will be easily accessible and transportable, will be located on site and will contain the items listed in Table 7-2.

Table 7-2 Contents of Mobile Environmental Emergency Trailer

Emergency Response Equipment	
Pump Elastec	White oil spill pads
Pump accessories	Universal booms
Vacuum ends	Cell-U-Sorb
Tubing or pipes for vacuum or pumping	Sphagsorb
45 gallons top	Wedge wood
Diesel fuel jerry can (placed on a miniberm)	Plug pattie
Spill kit accessory (red box)	Quattrex bags
Drums opener	Hand shovel
Wescot (to open empty drum screw)	Ice breaker chisel
Empty drums	Sledge hammer
Drums berms	Rod bars
Tarps	

Environmental emergency sea cans will be located at the Itivia laydown yard and tank farm for spills within this area, and for tanker spills close to the hamlet along the bypass road or the AWAR. Each environmental emergency sea can will contain material listed in Table 7-3.

Table 7-3 Oil Response Containment Equipment to be Located at Itivia

Quantity	Equipment/tool name
3	Empty drum (sealed)
2	Mini berm 36”x 36”
2	4 drums berm 4’x 8’
4	Tarp 20’x 30’
4	Tarp 30’x 50’
10	Oil spill absorbent pad
5	Universal absorbent boom 5”x 10’ (for hydro-soluble chemical)
5	Universal absorbent boom 8”x 10’ (for hydro-soluble chemical)
5	Petroleum base absorbent boom 5”x 10’ (for petroleum product)
3	Maritime barrier (baffle)
5	ABS pipe: 10’ long x 4” diameter
2	Cell-U-Sorb (absorbent)
2	Amerisorb peat moss (absorbent)
2	Oil gator absorbent
1	Plug pattie
4	Quatrex bag
2	Fork lift crate
4	Hand shovel
1	Crowbar chisel
1	Ice breaker chisel
1	Sledge hammer
15	Rod bar 4’
1	½ drum containment
1	Boat with motor and gasoline jerry can

SECTION 8 • TRAINING AND EMERGENCY SPILL EXERCISE

8.1 Training

8.1.1 On-Site Personnel

A designated Emergency Response Team (ERT) consisting of on-site personnel will be established. AEM will ensure that the ERT is trained and present at all times. All members of the team will be trained and familiar with emergency and spill response resources, including their location and access, the Spill Contingency Plan, and appropriate emergency spill response methodologies. The ERT will have up to 40 members, each of whom trained 8 hours per month.

The training will include the following:

- 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;
- Distribution of MSDS sheets;
- Emergency contact lists;
- Worker health and safety during emergency interventions;
- Communication methods and signals;
- Desktop exercises of “worst case” scenarios;
- Emergency evacuation;
- Fires or explosions;
- Emergency equipment and use;
- Personal protective equipment and clothing;
- Marine shoreline recovery operations; and
- The likely causes and possible effects of spills.

Every employee at the Meliadine site will receive 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 will receive more extensive HAZMAT (Hazardous Materials) training and learn how to respond while wearing PPE.

The Environment Department will regularly attend tool-box sessions to provide information on spill response and reporting procedures. Health and Safety Department, including the Health Center staff, will be familiar and have up-to-date MSDS sheets.

SECTION 9 • POTENTIAL SPILL ANALYSIS

In order to prepare for emergency spill response, potential spill analysis will be conducted for a variety of potential worst case scenarios. The exercise will serve in identifying potential risk areas, as well as in determining the fate of spilled products and their environmental effects. The following example is used to demonstrate the application of the spill response as part of the spill analysis. The example is of tanker truck spill along the AWAR.

Description of incident: Roll-over of fuel tanker due to poor road conditions. The roll-over has resulted in approximately 1,000 L of fuel to the ground along the AWAR from Rankin Inlet to the Meliadine site.

Potential causes: Vehicle accident, human error.

Hazardous product(s) spilled: Diesel fuel.

Maximum potential volume spilled: 45,000 litres.

Immediate receiving medium: Land.

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

Resources to protect: land and any nearby stream, river or waterbody.

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, depending on the distance from the Meliadine site.

Spill response procedures: Under this scenario, the truck driver is not injured, and therefore he acted as the first responder and immediately activated the SCP as defined in Section 6. The driver attempted to seal the leak. He tried to use the spill kit carried in the fuel truck and made all attempts to contain and recover the fuel on the ground using dikes, sumps or trenches as described in Section 6.2. In this example, no streams or waterbodies were identified nearby, therefore the protection of waterbodies and shorelines using sorbent booms was not necessary. The first responder notified the Incident Commander and ERT and Environment Department by calling a Code 1 on radio. The mobile emergency response trailer was brought to the spill site by the ERT which assisted in digging trenches to contain and collect free-product for temporary storage. Spilled material was recovered using pumps. The Environment Superintendent immediately transmitted the information to the General Mine Manager. The fuel remaining in the tanker was pumped into a temporary storage tank using appropriate equipment. The leak stopped as the tank volume was reduced below the leaking safety valve. Pumping continued until all of the fuel was removed. The empty tanker was righted and brought back to the site. All soil was cleaned up thereafter and disposed of in the biopile. The spill was reported to the NT/NU spill report line, KIA and AANDC

APPENDIX A • NT/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 ENVIRONMENT	
K	ADDITIONAL INFORMATION, COMMENTS, ACTIONS PROPOSED OR TAKEN TO CONTAIN, RECOVER OR DISPOSE OF SPILLED PRODUCT AND CONTAMINATED MATERIALS			

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

REPORT LINE USE ONLY

N	RECEIVED AT SPILL LINE BY	POSITION STATION OPERATOR	EMPLOYER	LOCATION CALLED YELLOWKNIFE, NT	REPORT LINE NUMBER (867) 920-8130

LEAD AGENCY ☐ EC ☐ CCG ☐ GNWT ☐ GN ☐ ILA ☐ INAC ☐ NEB ☐ TC | SIGNIFICANCE ☐ MINOR ☐ MAJOR ☐ UNKNOWN | FILE STATUS ☐ OPEN ☐ CLOSED

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

PAGE 1 OF _____

APPENDIX B • GENERAL RESPONSE PROCEDURES FOR SPILLED EXPLOSIVES

B.1 Ammonium Nitrate

The first step to prevent potential spills and associated hazards is the application of proper storage procedures for bulk ammonium nitrate, including the following:

- Ensure good housekeeping of the storage facility in order to prevent spilling and/or cross-contamination of materials;
- Store ammonium nitrate away from combustible materials, fuels, and other blasting accessories (i.e., boosters, delays, detonating cords and detonators);
- Post proper signage restricting the use/exposure of ammonium nitrate to ignition sources (e.g., no hot work, smoking or vehicle maintenance);
- Ensure the storage facility is well ventilated; and
- Ensure the storage facility is locked at all times with only authorized personnel allowed access.

The following is a general spill response procedure for ammonium nitrate. Consult the MSDS to determine whether deviations from the general guidance are required.

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

1) Isolate and evacuate the spill area.

2) Contact your Supervisor who will then contact the Incident Commander and coordinate appropriate spill response (assemble ERT members and the appropriate spill response materials). **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 outdoor) 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 on land, protect the spill area from 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 PPE for cleaning or disposal at a licensed facility. Thoroughly wash potential skin contact locations after handling.

B.2 Ammonium Nitrate Fuel Oil (ANFO)

Proper storage, handling and disposal of ANFO is an important first step in preventing spills and associated hazards.

The proper storage procedures are as follows:

- Use ANFO under the supervision of authorized trained personnel;
- Keep ANFO away from heat, sparks, and flames, as well as initiating explosives, oxidizing agents, combustibles, and other sources of heat; and
- Protect containers from physical damage and store them in dry, well ventilated conditions.

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.

Transportation of explosives-related compounds and materials will be in accordance with Section 14 of the *Mine Health and Safety Act* and associated 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.

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.

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

1) Isolate and evacuate the spill area.

2) **IF SAFE TO DO SO,** immediately extinguishes any open flames and remove ignition sources (no smoking, flares, sparks in immediate area). **Fires involving large quantities of ANFO should not be fought.**

3) Contact the Incident Commander 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; and

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 cleanup.

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 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 PPE 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 C • GENERAL RESPONSE PROCEDURES FOR COMPRESSED GAS LEAK

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.

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

1) **IF SAFE TO DO SO** and if 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 Incident Commander 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) If possible and if safety permits, adjust leaking cylinder so that gas escapes rather than liquid.

5) If possible and if 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, it may also be necessary to have it shut-down. Allow vapours to ventilate outdoors by opening windows and doors to the exterior.

7) Isolate area until gas has dispersed. Incident Commander to verify safe conditions.

APPENDIX D • GENERAL RESPONSE PROCEDURES FOR SPILLED FLAMMABLE OR COMBUSTABLE LIQUIDS

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.

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

1) Isolate and evacuate the spill area.

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

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

4) Contact the Incident Commander 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 PPE. 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, 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 cleanup. 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.) from within the spilled area.

9) Contain spill by using spill absorbent, spill pads or pillows, soil or snow by constructing a dike that will limit flow and prevent 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 biopile facility 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 Incident Commander and/or Environment 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 PPE for cleaning, inform laundry personnel of contaminant hazards, or dispose at a licensed disposal facility. Thoroughly wash with soap potential skin contact locations after handling. Properly dispose of contaminated leather articles (including boots and shoes) that cannot be decontaminated.

APPENDIX E • GENERAL RESPONSE PROCEDURES FOR SPILLED OXIDIZING SUBSTANCES

E.1 Liquids

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.

For a **liquid oxidizer** spill:

1) Isolate and evacuate the spill area.

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

3) Contact the Incident Commander who will assemble, if required, 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 PPE. 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 cleanup.

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 cleanup 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 Incident Commander and/or Environment Superintendent will assess this requirement.

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

E.2 Solids

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.

For a **solid oxidizer** spill:

1) Isolate and evacuate the spill area.

2) Contact the Incident Commander who will assemble, if required, 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 PPE. 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 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 at 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.

9) Remove and bag PPE for cleaning, inform laundry personnel of contaminant hazards, or dispose 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 F • GENERAL RESPONSE PROCEDURES FOR SPILLED POISONOUS AND TOXIC SUBSTANCES

F.1 Sodium Cyanide

The following is a general spill response procedure for solid Sodium Cyanide.

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

1) Isolate and evacuate the spill area.

2) Contact the Incident Commander 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 PPE. 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 as recommended by the MSDS or respirator manufacturer.

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

4) Ventilate area of spill or leak.

5) Avoid exposure to acids, water or weak alkalies, 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 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.

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.

10) Remove and bag PPE 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 G • GENERAL RESPONSE PROCEDURES FOR SPILLED CORROSIVE SUBSTANCES

G.1 Acids, Liquids

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.

For a **liquid acid** spill:

1) Isolate and evacuate the spill area.

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

3) Contact the Incident Commander who will assemble, if required, 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 PPE. 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, 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 PPE for cleaning, inform laundry personnel of contaminant hazards, or dispose at a licensed disposal facility. Thoroughly wash with soap potential skin contact locations after handling. Properly dispose of contaminated clothing that cannot be decontaminated.

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 Incident Commander or Environment Superintendent.

G.2 Acids, Solids

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.

For a **solid acid** spill:

1) Isolate and evacuate the spill area.

2) Contact the Incident Commander who will assemble, if required, 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 PPE. 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 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.

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

G.3 Bases/Alkali, Liquids

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.

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

1) Isolate and evacuate the spill area.

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

3) Contact the Incident Commander 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 PPE. 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, it may also be necessary to have it shut-down.

6) Ventilate (open doors/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 PPE for cleaning, inform laundry personnel of contaminant hazards, or dispose at a licensed disposal facility. Thoroughly wash with soap potential skin contact locations after handling. Properly dispose of contaminated clothing that cannot be decontaminated.

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 Incident Commander or Environment Superintendent.

G.4 Bases/Alkali, Solids

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.

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

1) Isolate and evacuate the spill area.

2) Contact the Incident Commander who will assemble, if required, 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 PPE. 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 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 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 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.

9) Remove and bag PPE for cleaning, inform laundry personnel of contaminant hazards, or dispose 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 • FEDERAL AND TERRITORIAL LAWS, REGULATIONS AND GUIDELINES

Act	Regulation	Guideline
Federal		
Canadian Environmental Protection Act (1999 c.33)	*Storage Tank Systems for Petroleum Products and Allied Petroleum Products Regulations* (SOR/2008-197) *Environmental Emergency Regulations* (SOR/2003-307) *Interprovincial Movement of Hazardous Waste and Hazardous Recyclable Material Regulations* (SOR/2002-301)	CCME - Environmental Code of Practice for Aboveground and Underground Storage Tank Systems Containing Petroleum and Allied Petroleum Products Notice with respect to substances in the National Pollutant Release Inventory Canada-Wide Standards for Particulate Matter (PM) and Ozone Canada-wide Standards for Petroleum Hydrocarbons (PHC) in Soil
Canada Wildlife Act (1985 w9)		
Species at Risk Act (2002 c.29)		
Migratory Birds Convention Act (1994 c.22)	*Migratory Birds Regulations* (C.R.C., c. 1035)	
Canada Water Act (1985 c.11)		
Arctic Waters Pollution Prevention Act (R.S.C., 1985, c. A-12)		
Canada Shipping Act, 2001 (S.C. 2001, c. 26)	*Response Organizations and Oil Handling Facilities Regulations* (SOR/95-405)	
Navigable Waters Protection Act (R.S. 1985 c. N-22)	*Navigable Waters Works Regulations* (C.R.C., c. 1232) *Navigable Waters Bridges Regulations* (C.R.C., c. 1231)	
Marine Liability Act (A.C. 2001, c.6)	*Marine Liability Regulations* (SOR/2002-307)	
Fisheries Act (1985, c. F-14)	*Metal Mining Effluent Regulations* SOR/2002-2222)	The Policy for the Management of Fish Habitat Guidelines for the Use of Explosives In or Near Canadian Fisheries Waters Freshwater Intake End-of-Pipe Fish Screen Guideline Standard Operating Procedure – Clear Span Bridges
Transport of Dangerous Goods Act (1992, c. 34)	*Transportation of Dangerous Goods Regulations* (SOR/2001-286)	

Act	Regulation	Guideline
Explosives Act (1985 c.E-17)	*Ammonium Nitrate and Fuel Oil Order* (C.R.C., c. 598) *Explosives Regulations* (C.R.C., c. 599)	
National Fire Code of Canada (2010)		
Nuclear Safety and Control Act (s.c. 1997, c.9)	*General Nuclear Safety and Control Regulations* (SOR/2000-202)	
Canadian Human Rights Act (R.S.C., 1985, c. H-6)		
Canada Labour Code (R.S.C., 1985, c. L-2)	*Canada Labour Standards Regulations* (C.R.C., c. 986) *Canada Occupational Health and Safety Regulations* (SOR/86 304)	
Territorial Lands Act (R.S. 1985, c. T-7)	*Northwest Territories and Nunavut Mining Regulations* (C.R.C., c. 1516) *Territorial Land Use Regulations* (C.R.C., c. 1524) *Territorial Quarrying Regulations* (C.R.C. c. 1527)	
Nunavut Waters and Nunavut Surface Rights Tribunal Act (2002, c. 10)	*Northwest Territories Waters Regulations* (SOR/93/303)	
Nunavut Act (1993 c.28)	*Nunavut Archaeological and Paleontological Sites Regulations* (SOR/2001-220)	
Nu*navut Land Claims Agreement Act* (1993, c. 29)		
Territorial		
Environmental Protection Act (RSNWT (Nu) 1988, c E-7)	*Spill Contingency Planning and Reporting Regulations (NWT Reg (Nu) 068-93)* *Used Oil and Waste Fuel Management Regulations (NWT Reg 064-2003)* [The removal of hazardous materials will require the registration with the Government of Nunavut, Department of Environment as a waste generator as well as carrier (if applicable) prior to transport.]	Guideline on Dust Suppression Guideline for the General Management of Hazardous Waste in Nunavut Guideline for Industrial Waste Discharges in Nunavut Guideline for Air Quality – Sulphur Dioxide and Suspended Particulates Guideline for the Management of Waste Antifreeze Guideline for the Management of Waste Batteries Guideline for the Management of Waste

Act	Regulation	Guideline
		Paint Guideline for the Management of Waste Solvents Guideline for Industrial Projects on Commissioner's Land
Scientists Act (RSNWT (Nu) 1988, c S-4)	*Scientists Act Administration Regulations* (NWT Reg (Nu) 174-96)	
Historical Resources Act (RSNWT (Nu) 1988, c H-3)		
Territorial Parks Act (RSNTW (Nu) 1988, c T-4)	*Territorial Parks Regulations* (RRNWT (Nu) 1990 c T-13)	
Wildlife Act (RSNWT (Nu) 1988, c W-4)	*Wildlife General Regulations* (NWT Reg (Nu) 026-92) *Wildlife Licences and Permits Regulations* (NWT Reg (Nu) 027-92) *Wildlife Management Barren-Ground Caribou Areas Regulations* (NWT Reg (Nu) 099-98) *Wildlife Management Grizzly Bear Areas Regulations* (NWT Reg (Nu) 155-96) *Wildlife Management Zones Regulations* (RRNWT (Nu) 1990 c W-17) *Wildlife Regions Regulations* (NWT Reg (Nu) 108-98)	
Commissioner's Land Act (RSNWT 1988, c C-11)	*Commissioner's Airport Lands Regulations* (NWT Reg (Nu) 067-97) *Commissioner's Land Regulations* (RRNWT 1990, c C-13)	
Safety Act (RSNWT 1988, c.S-1)	*General Safety Regulations* (RRNWT (Nu) 1990 c S-1) *Work Site Hazardous Materials Information System Regulations* (RSNWT 1988, C 81 (Supp))	
Mine Health And Safety Act (SNWT (Nu) 1994, c 25)	*Mine Health And Safety Regulations* (NWT Reg (Nu) 125-95)	
Workers' Compensation Act (RSNWT, 1988, c. W-6)	*Workers' Compensation General Regulations* (Nu Reg 017-2010)	

Act	Regulation	Guideline
Apprenticeship, Trade and Occupations Certification Act (RSNWT (Nu) 1988, c A-4)	*Apprenticeship, Trade and Occupations Certification Regulations* (RRNWT (Nu) 1990 c A-8)	
Labour Standards Act (RSNWT (Nu) 1988, c L-1)	*Annual Vacations Regulations* (RRNWT 1990, c.L-1) *Educational Work Experience Regulations* (RRNWT 1990, c.L-2) *Employment of Young Persons Regulations* (RRNWT 1990, c.L-3) *Labour Standards Meal Regulations* (RRNWT 1990, c.L-4) *Notice of Termination Exemption Regulations* (RRNWT 1990 c.L-5) *Pregnancy and Parental Leave Regulations* (RRNWT 1990, c.8(Supp.)) *Reciprocating Jurisdiction Order* (RRNWT 1990, c.L-6) *Wages Regulations* (RRNWT 1990, c.L-7)	
Electrical Protection Act (RSNWT (Nu) 1988, c E-3)	*Electrical Protection Regulations* (RRNWT 1990 c. E-21)	
Explosives Use Act (RSNWT (Nu) 1988, c E-10)	*Explosives Regulations* (RRNWT (Nu) 1990 c E-27)	
Petroleum Products Tax Act (RSNWT (Nu) 1988, c P-5)	*Petroleum Products Tax Regulations* (RRNWT (Nu) 1990 c P-3)	
Fire Prevention Act (RSNWT (Nu) 1988, c F-6)	*Fire Prevention Regulations* (RRNWT (Nu) 1990 c F-12)	
Hospital Insurance and Health and Social Services Administration Act (RSNWT 1988, c T-3)	*Territorial Hospital Insurance Services Regulations* (RRNWT (Nu) 1990 c T-12)	
Public Health Act (RSNWT (Nu) 1988, c P-12)	*Camp Sanitation Regulations* (RRNWT (Nu) 1990 c P-12) *General Sanitation Regulations* (RRNWT (Nu) 1990 c P-16)	
All-terrain Vehicles Act (RSNWT (Nu) 1988, c A-3)	*All-terrain Vehicles Regulations* (RRNWT (Nu) 1990 c A-1)	
Motor Vehicles Act (RSNWT (Nu) 1988 c M-16)	*Large Vehicle Control Regulations* (RRNWT (Nu) 1990 c M-30)	

Act	Regulation	Guideline
Public Highways Act (RSNWT (Nu) 1988, c P-13)	*Highway Designation and Classification Regulations* (NWT Reg (Nu) 047-92)	
Transportation Of Dangerous Goods Act (1990, RSNWT (Nu) 1988, c 81 (Supp))	*Transportation Of Dangerous Goods Regulations* (1991, NWT Reg (Nu) 095-91)	