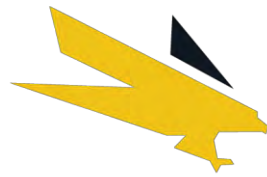


HOPE BAY SPILL CONTINGENCY PLAN



AGNICO EAGLE
HOPE BAY

HOPE BAY, NUNAVUT

MARCH 2023

Hope Bay Spill Contingency Plan

Plain Language Overview:

This Plan describes the spill response procedures to be used at the Hope Bay mine site. This Plan ensures that 1) human life is protected and the potential for injury during spill response activities is minimized to the extent possible, 2) all potentially harmful environmental impacts are kept to a minimum, 3) resources are used effectively and efficiently, and 4) all required internal and regulatory reporting is completed on time and as required.

Hope Bay, Nunavut

Publication Date: March 2023

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Toronto, Ontario, M5C 2Y7
Phone: 1-416-947-1212

In accordance with Water Licenses 2AM-DOH1335, 2BB-MAE1727, 2BE-HOP2232, 2BB-BOS1727 and 2AM-BOS1835 and NIRB Project Condition 32.

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Hope Bay Emergency Phone Numbers

Onsite Contacts	Day (7 am to 7 pm)	Night (7 pm to 7 am)
24 hour Emergency Line Mill Control Room Operator	1-867-988-6882 ext. 150	1-867-988-6882 ext. 150
Mine General Manager (MGM) Eric Steinmetzer	1-819-759-3555 ext. 4600104	Offsite Cell: 1-514-234-3261
Interim Maintenance Superintendent Cody Kerr	1-819-759-3555 ext. 4600131	
General Superintendent of Mining Engineering Philemon Desrochers-Gagnon	1-819-759-3555 ext. 4600106	
Health and Safety Assistant Superintendent Jake Murdoch	1-819-759-3555 ext. 4600138	
Environmental Superintendent Nancy Duquet-Harvey	819-759-3555 ext. 4600102	Offsite cell 1-819-856-4385
Environment General Supervisor Guy Dufour	819-759-3555 ext. 4600102	Offsite cell 1-418-933-5799
Medics Todd McDonald Vicky Hamelin	1-819-759-3555 ext. 4600105	1-867-988-6882 ext. 115
Security Officer John Fitzgerald	1-819-759-3555 ext. 4600165	
Offsite Contacts	Day (7 am to 7 pm)	Night (7 pm to 7 am)
V.P. Environment and Critical Infrastructure Michel Julien	1-416-947-1212 ext. 4013738	
Senior V.P., Operations – Canada and Europe Dominique Girard V.P. Nunavut Martin Plante	1-416-947-1212 ext. 4013747 1-819-759-3555	
V.P. Health, Safety, Social and Public Affairs Patrice Gilbert	1-416-644-2058	

Site Radio Channels

Channel 1	Emergency	Channel 6	Medic
Channel 2	Security	Channel 7	Environment
Channel 3	Aviation	Channel 8	General
Channel 4	Roads	Channel 9	Electrical
Channel 5	Site Services	Channel 10	Mill

Key Government Contacts

Organization	Contact	Location	Telephone	Fax
NT-NU Spill Centre	24 hour Spill Report Line	Yellowknife	867-920-8130	867-873-6924
Canadian Coast Guard – Central and Arctic Region (Any discharge to the marine environment)	24 hour Spill Report Line	Yellowknife	800-265-0237	
GN Department of Environment	Director Environmental Protection Division	Iqaluit	867-975-7748	
Nunavut Water Board	Executive Director	Gjoa Haven	867-360-6338	867-360-6369
Kitikmeot Inuit Association (KIA)	Sr. Lands Officer	Kugluktuk	867-982-3310	867-982-3311
CIRNAC (Crown-Indigenous Relations and Northern Affairs Canada)	Field Operations Manager	Iqaluit	867-975-4553	867-979-6445
CIRNAC (Crown-Indigenous Relations and Northern Affairs Canada)	Inspector	Iqaluit	867-975-4655	867-979-6445
ECCC (Environment and Climate Change Canada)	Manager of Enforcement	Yellowknife	867-669-4730	867-669-6831
ECCC (Environment and Climate Change Canada)	Environmental Enforcement Officer	Iqaluit	867-975-4644	
DFO (Fisheries & Oceans Canada)	Habitat Team Leader	Ottawa	705-522-9909	
Transport Canada, Marine	Regional Preparedness & Response Officer	Jasper	780-442-1945	780-495-8607

Offsite Resource Contacts

Organization	Contact	Location	Telephone
Riverspill	Ian Lambton	Burnaby	604-434-0994
Points West Archaeology	Gabriella Prager	Langley	780-980-2079
Focus Wildlife	Chris Bataglia	North Vancouver	1-800-578-3048

Immediately Reportable Spills

Spill quantities that must be reported to the NT-NU 24-HOUR SPILL REPORT LINE ^(a)
Per GNWT-ENR Report a Spill Website (<https://www.enr.gov.nt.ca/en/services/report-spill>)

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	5L or 5 kg
9.1 (in part)	PCB mixtures of 5 ppm or more	0.5 L or 0.5 kg
None	Other contaminants	100 L or 100 kg
None	Deleterious substances, MDMER effluent parameters, Seepage	Any amount

(a) *Nunavut Environmental Protection Act. Consolidation of Spill Contingency Planning and Reporting Regulations R-068-93.*

(b) *Sewage and wastewater are considered deleterious substances in this plan; consistent with previous plans, any amount of spill is reportable.*

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

In the event that a particular material spill meets or exceeds the amount specified or conditions outlined in the above table the Environmental Superintendent will immediately report the spill by telephone to the NT-NU 24 Hour Spill Report Line, Yellowknife, Tel: 867-920-8130 (Email: spills@gov.nt.ca; Fax: 867-873-6924) using the NT-NU Spill Report.

Any spill or discharge that occurs to the marine environment must immediately be reported to the Canadian Coast Guard – Central and Arctic Region station at Tel: 1-800-265-0237.

First Responder

When someone on site sees an unanticipated discharge or spill, he or she is immediately designated as the First Responder and, as such, shall complete the following actions

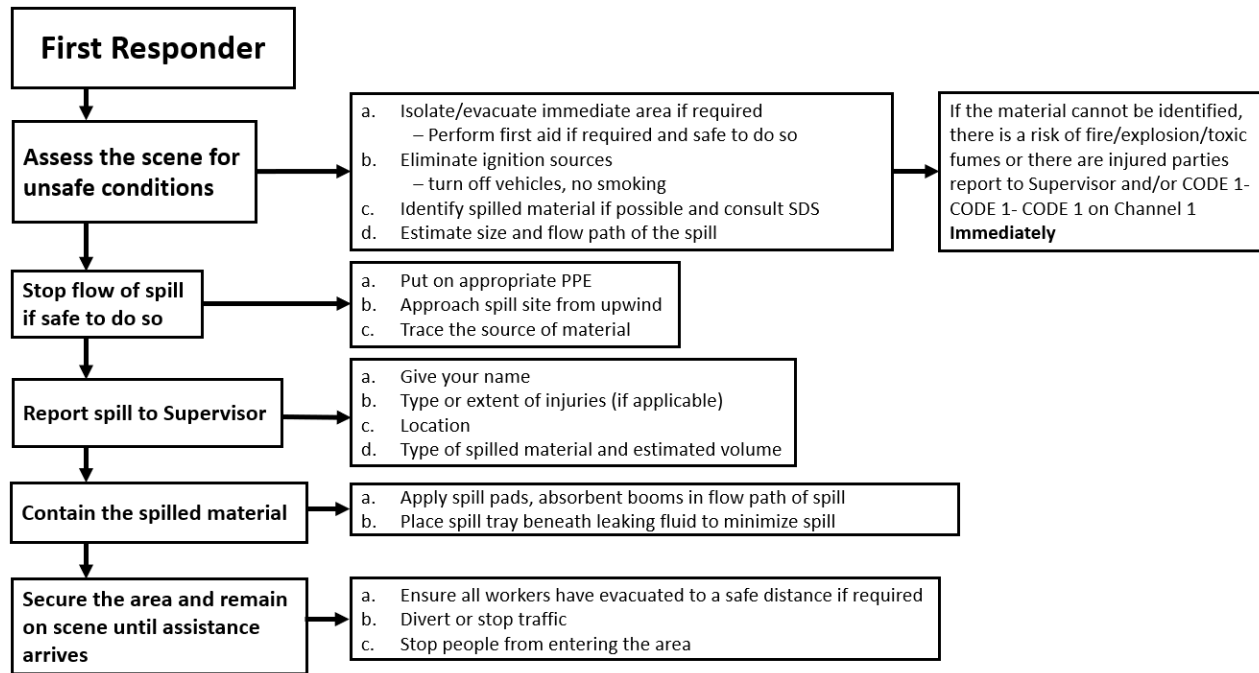


Figure 1-1. First Responder Spill Response Actions

Spill Response Organization Structure

When a Supervisor receives a report of an unanticipated discharge or spill, he or she shall immediately complete the following actions:

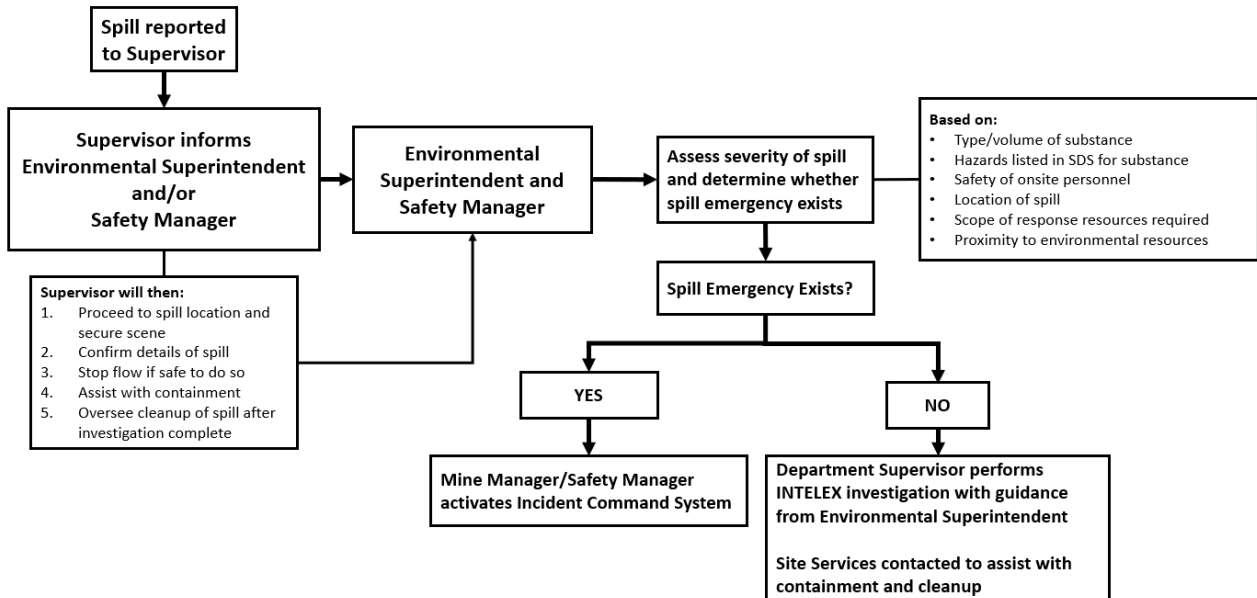


Figure 1-2. Spill Response Organizational Structure

Spill Emergency Incident Command System

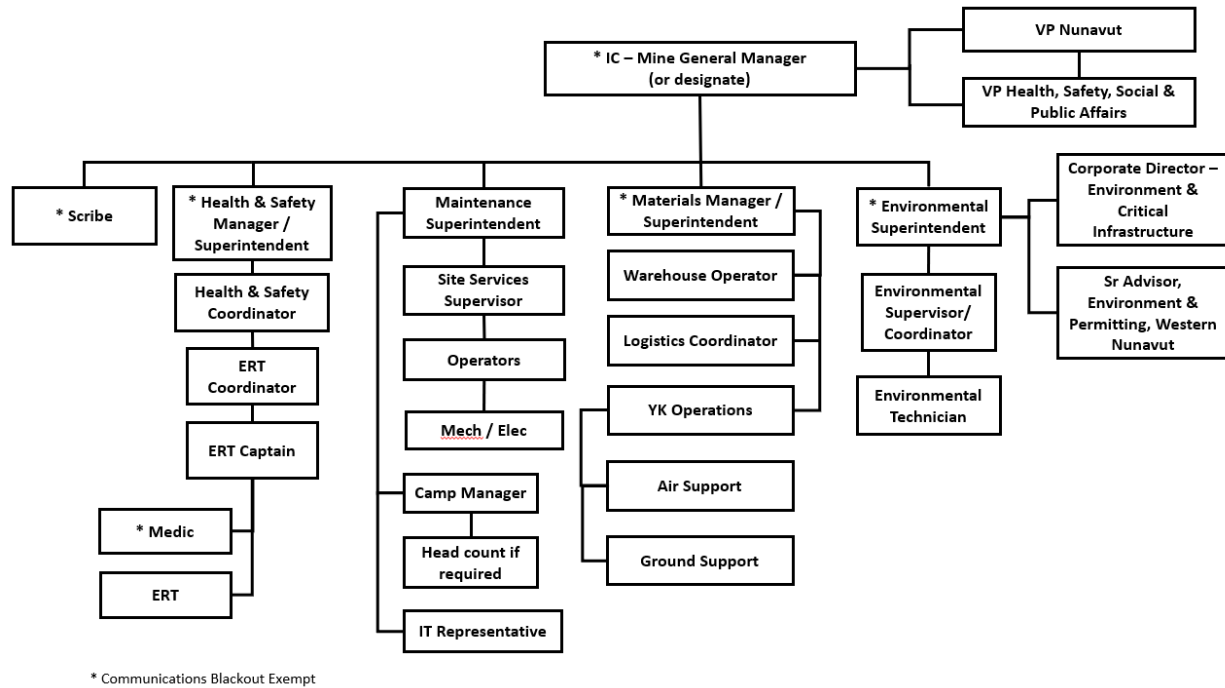


Figure 1-3. Incident Command System organizational structure in the event of a spill emergency

Revisions

Revision #	Date	Section	Changes Summary
1	2009		Hope Bay Project Spill Contingency Plan, August 2009
2	Feb 2010		Update phone numbers
3	Jul 2010		Update phone numbers
4	2011	Throughout	Update channels, figures, included OPPP info, updated phone numbers, revised fuel storage locations
5	2012	Throughout	Overall revision for change to Care and Maintenance. Updated roles and responsibilities, phone numbers, fuel storage, added non-hydrocarbon chemicals, updated spill response procedures
6	2014	Throughout	Overall revision to include Care and Maintenance under ownership of TMAC Resources Inc. Updated roles and responsibilities, contact information, fuel storage, updated spill response procedures
7	Apr 2016	Throughout	Updated to reflect comments on 2014 Plan and other stakeholder inputs. Changes to document structure and addition of licence specific modules and Incident Command System response structure. Revisions to reflect Construction and Operations phases for Doris and anticipated chemical storage quantities. Inclusion of Product-specific response plans, updated contacts.
8	Jan 2017	Throughout	Revisions in consideration of comments on 2016 Plan, and in consideration of planned resumption of exploration activity at Boston
9	Nov 2017	Throughout	Revisions to emergency contact information, spill response organizational and ICS structure. Updates to fuel/chemical storage quantities/locations and spill kit location maps in all modules. Addition of Module C: Madrid as per licence 2BB-MAE1727. Revisions to Module D: Boston as per licence 2BB-BOS1727. Addition of Aviation fuel Product Specific Spill Response Plan to Module A.
10	Mar 2019	Throughout	Revisions to emergency contact information, spill response organizational and ICS structure. Updates to fuel/chemical storage quantities/locations and spill kit location maps in all modules.
11	Sep 2019	Throughout, Module A	Revisions to emergency contact information, addition of spill prevention measures along the Roberts Bay Discharge Pipeline in Module A
12	Mar 2020	Throughout, Appendix	Overall revisions to the plan
13	Mar 2021	Throughout Section 3.4	Updated to Agnico Eagle Mines Ltd ownership and format. Updated Emergency Phone Numbers, Site Radio Channels and Offsite Resource Contacts. Clarified scenarios where monitoring of spills is required.
14	Mar 2022	Throughout	Overall revision to incorporate comments from ECCC for compliance with E2 regulations and Agnico Eagle internal policy on Environmental Incident
15	Jun 2022	Throughout	Overall revision for change to Care and Maintenance per Part H, Item 6 of the Water Licence.
16	Jan 2023	Throughout	<p>Updates to environmental resource maps and hierarchy for sensitive areas.</p> <p>Revisions made as part of AEM responses to intervenor comments in the:</p> <ul style="list-style-type: none"> - 2021 Annual Reports (NWB & NIRB) - Care & Maintenance Plan (NWB) - CIRNAC Inspection Report (June 2022)

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Appendix 3: Environmental Resource Maps

Appendix 4: Responses to Comments on Previous Plan Versions

Appendix 5: E2 and MDMER Cross-reference Tables

Glossary

Term	Definition
Agnico Eagle	Agnico Eagle Mines Ltd. – Hope Bay
CWS	Canadian Wildlife Services
CIRNAC	Crown-Indigenous Relations and Northern Affairs Canada (formerly INAC)
DoE	Department of Environment
ECCC	Environment and Climate Change Canada
ERT	Emergency Response Team
ERP	Emergency Response Plan
GN	Government of Nunavut
IC	Incident Commander
ICS	Incident Command System
KIA	Kitikmeot Inuit Association
MGM	Mine General Manager
NWB	Nunavut Water Board
PSER	Product Specific Emergency Response Plan
PPE	Personal Protection Equipment
SDS	Safety Data Sheet

1 Introduction

This Hope Bay Spill Contingency Plan (the Plan) has been prepared by Agnico Eagle Mines Limited (Agnico Eagle) in accordance with various water licences held by Agnico Eagle associated with developments throughout the Hope Bay region. This Plan has been developed to also meet the requirements of the Environmental Emergency (E2) Regulations as well as the Metal and Diamond Mining Effluent Regulations enacted under the Canadian Environmental Protection Act (CEPA, 1999).

The Plan is intended primarily for use by Agnico Eagle Hope Bay and its contractors to ensure that best practices for response are implemented in the event of a spill or unintentional release, and that the conditions of water licences, project permits and relevant legislations are met.

This Plan is structured in a manner such that one document pertaining to spill response is approved and implemented across all Hope Bay sites, while still addressing site- and licence-specific needs: the main document outlines Agnico Eagle's approach to spill response planning and management as it pertains to all Agnico Eagle Hope Bay developments; subsequent modules provide details for each site and the associated water licence. In the event of a new water licence, or an existing licence amendment, only the specific modules pertaining to that licence and site may need to be revised. This is intended for consistency and efficiency across operations and for compliance management.

This plan has been revised to reflect the Care and Maintenance phase of the project and will again be revised as required and prior to returning to the Operations phase.

1.1 Objectives

Agnico Eagle's vision and values strive for zero harm and protection of people and the environment. Safe work procedures and training provided to all employees promote best practices and sound environmental management; however, the potential exists for unanticipated discharges or spills to occur during the course of operations. Agnico Eagle recognizes that prompt, effective and organized responses to an unanticipated discharge or spill will enhance the health and safety of all employees, minimize the potential adverse environmental impacts resulting from such an event, and ensure effective communication with the appropriate regulatory agencies and the public. Consistent with Agnico Eagle's intent to be a responsible operator, these objectives are described as follows:

- Provide procedures for every employee should he/she identify an unanticipated discharge or spill;
- Define roles, responsibilities and procedures for spill response actions, documentation, reporting, incident investigation and review following an event;
- Outline a process to be followed when conducting spill clean-up activities to promote safe and effective recovery of spilled materials and minimize impacts to the environment;
- Provide information on available resources and potential operational hazards/risks that may be encountered during spill response activities;
- Define methods to provide spill response training for all employees; and
- Implement a process to evaluate and continuously improve site spill response procedures.

1.2 Relevant Legislation and Guidance

Table 1.1 provides a summary of federal and territorial regulations relevant to this Plan and associated guidelines.

Table 1.1. List of Federal and Territorial Regulations Relevant the Hope Bay Spill Contingency Plan

Acts	Regulations	Guidelines
Federal		
<i>Arctic Waters Pollution Prevention Act (R.S.C., 1985, c.A-12)</i>	Arctic Shipping Pollution Prevention Regulations (C.R.C., c. 353)	
<i>Canadian Environmental Protection Act (R.S.C. 1999 c.33)</i>	Storage Tank Systems for Petroleum Products and Allied Petroleum Products Regulations (SOR/2008-197)	Environmental Code of Practice for Aboveground and Underground Storage Tank Systems Containing Petroleum and Allied Petroleum Products (Canadian Council of the Ministers of Environment (CCME) 2003)
	<i>Environmental Emergency Regulations</i> (SOR/2019-51)	
	Interprovincial Movement of Hazardous Waste and Hazardous Recyclable Material Regulations (SOR/2002-301)	Canada-Wide Standards for Petroleum Hydrocarbons (PHC) in Soil (CCME2008)
	Export and Import of Hazardous Waste and Hazardous Recyclable Material Regulations (SOR/2005-149)	
<i>Fisheries Act (1985, c.F-14)</i>	Metal and Diamond Mining Effluent Regulations (SOR/2002-222)	
<i>Explosives Act (1985, c.E-17)</i>	Explosives Regulations (C.R.C., c.1516)	
<i>Nunavut Waters and Nunavut Surface Rights Tribunal Act (2002)</i>	Nunavut Water Regulations (2013)	
<i>National Fire Code of Canada (2010)</i>		
<i>Transportation of Dangerous Goods Act (1992, C.34)</i>	Transportation of Dangerous Goods Regulations (SOR/2001-286)	2016 Emergency Response Guidebook (Transport Canada and U.S. Department of Transportation, 2016)
<i>Territorial Lands Act (R. S. 1985, c.T-7)</i>	Northwest Territories and Nunavut Mining Regulations (C.R.C., c.1516)	
	Territorial Land Use Regulations (C.R.C., c.1524)	
	Territorial Lands Regulations (C.R.C., c.1525)	
<i>Hazardous Products Act</i>	<i>Controlled Products Regulations</i>	<i>Workplace Hazardous Materials Information System (WHMIS)</i>
<i>Nunavut Act (1993 c.28)</i>		

Acts	Regulations	Guidelines
Territorial – Nunavut		
<i>Environmental Protection Act</i>	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 (DOE) as a waste generator as well as carrier (if applicable) prior to transport]	Government of Nunavut (GN) Environmental Guidelines for the Management of: <ul style="list-style-type: none"> • General Management of Hazardous Waste in Nunavut (GN, 2010) • Waste Paint (GN, 2010) • Mercury-Containing Products and Waste Mercury (GN, 2010) • Industrial Waste Discharges into Municipal Solid Waste and Sewage Disposal Facilities (GN, 2011) • Waste Batteries (GN, 2011) • Waste Solvent (GN, 2011) • Waste Antifreeze (GN, 2011) • Used Oil and Waste Fuel (GN, 2012) • Biomedical and Pharmaceutical Waste (GN, 2014) • Canada-Wide Standards for Petroleum Hydrocarbons (PHC) In Soil (CCME 2008)
<i>Mine Health and Safety Act (SNWT (Nu) 1994, c.25)</i>	Mine Health and Safety Regulations (NWT Reg (Nu) 125-95)	
<i>Workers' Compensation Act (RSNWT, 1998, c.W-6)</i>	Workers' Compensation General Regulations (Nu Reg 017-2010)	
<i>Explosives Use Act (RSNWT (Nu) 1988, c.E-10)</i>	Explosives Regulations (RRNWT (Nu) 1990, c.E-27)	
<i>Fire Prevention Act (RSNWT (Nu) 1988, c.F-6)</i>	Fire Prevention Regulations (RRNWT (Nu) 1990, c.F-12)	
<i>Motor Vehicles Act (RSNWT (Nu) 1988, c.M-16)</i>	Large Vehicle Control Regulations (RRNWT (Nu) 1990, c.M-30)	
<i>Public Health Act (RSNWT (Nu) 1988, c.P12)</i>	Camp Sanitation Regulations (RRNWT (Nu) 1990, c.P-12)	
<i>Safety Act (RSNWT 1988, c.S-1)</i>	General Safety Regulations (RRNWT (Nu) 1990, c.P-16)	
	Work Site Hazardous Materials Information System Regulations (RSNWT 1988, c.81 (Supp))	
<i>Transportation of Dangerous Goods Act (1990, RSNWT (Nu) 1988, c.81 (Supp))</i>	Transportation of Dangerous Goods Regulations (1991, NWT Reg (Nu) 095-91)	

1.3 Related Agnico Eagle Documents

The documents listed in Table 1.2 are expected to be referenced and utilized in conjunction with the Spill Contingency Plan.

Table 1.2. List of Agnico Eagle documents related to the Hope Bay Spill Contingency Plan

Document Title	Year	Relevance
Hazardous Waste Management Plan	2020	Describes proper handling, storage and disposal procedures for hazardous wastes.
Non-Hazardous Waste Management Plan	2017	Describes proper handling, storage and disposal procedures for non- hazardous wastes.
Hope Bay Project Hydrocarbon Contaminated Material Management Plan	2017	Describes process for remediating hydrocarbon contaminated soil, water and gravel and criteria for determining level of remediation.
Emergency Response Plan	2022	Describes Incident Command System and actions relating to all surface emergencies.
Doris-Madrid Tailings Impoundment Area Operations, Management and Surveillance (OMS) Plan	2022	Describes the tailings management procedures and the aspects of the pipelines designed to reduce spills of tailings and effluent.
Oil Pollution Prevention and Oil Emergency Preparedness Plan	2020	Describes spill response actions associated with fuel transfer activities during annual sea-lift fuel offload.

1.4 Plan Management

This Plan has been prepared by Agnico Eagle, with review by relevant stakeholders, in accordance with various licences held by Agnico Eagle associated with developments throughout the Hope Bay region. The plan is updated and submitted for review annually as required by the licences. Stakeholder comments that were considered in the development of this Plan are provided in Appendix 4.

The Mine General Manager (MGM) has the overall responsibility for implementing this plan at the Hope Bay site and providing on-site support and resources for spill response management. The MGM will act as Incident Commander (IC) in the event that a spill occurs that requires activation of the Emergency Response Plan (ERP). As Incident Commander, the MGM will coordinate the spill response efforts that protect the health and safety of all responders and minimizes impacts to the environment.

The Environmental Superintendent is responsible for reviewing and revising this plan. In the event that a spill requires activation of the Emergency Response Plan, the Environmental Superintendent will provide guidance to the MGM regarding implementing response actions according to this plan and evaluating priorities for protection of sensitive habitats/species and archeological features at risk. The Environmental Superintendent will also ensure that regular inspections of spill response resources are conducted and documented.

The Environmental Coordinators will assist departmental supervisors with investigation of spill incidents, development of corrective actions for those incidents as necessary, maintain records

of all spill events, and complete appropriate reporting as required by Agnico Eagle policies and relevant regulations as identified in this plan. Plan Implementation

In accordance with the requirements of the General Conditions (Part B) of the applicable water licences, the Environmental Emergency Regulations (SOR/2019-51) and the Metal and Diamond Mining Effluent Regulations (SOR/2002-222), this plan will be immediately implemented following its submission, subject to any modifications proposed by the NWB or applicable regulatory agencies as a result of the review and approval process.

This plan is reviewed annually and updated as necessary to capture changes to site operational structure/contacts, response technologies or applicable legislation and regulations. The plan is submitted annually to the Nunavut Water Board and interested branches of the federal government (ECCC, CIRNAC, DFO) to provide recommendations at that time.

1.5 Project Description

Hope Bay is a gold mine located in the West Kitikmeot region of Nunavut approximately 705 km northeast of Yellowknife and 153 km southwest of Cambridge Bay. The nearest settlements are Umingmaktok (Bay Chimo), located 62 km to the west, and Kingaok (Bathurst Inlet), located 130 km southwest. Umingmaktok and Kingaok are seasonal settlements, and the nearest permanently populated settlement is Cambridge Bay. These settlements are not expected to be impacted by an environmental emergency.

The various elements of the Hope Bay mine are centered at approximately N 68° 09' and W 106° 40' and extend from the head of Roberts Bay (an extension of Melville Sound) at the north end of the property to south of the Boston site located approximately 60 km to the south. Two jetties extend into Roberts Bay and are located on foreshore Crown Land. The Hope Bay mineral exploration rights property comprises an area of 1078 km² and forms a contiguous block that is approximately 80 km long by up to 20 km wide. Descriptions of infrastructure pertinent to each licence area are provided in the appended modules.

The Hope Bay area has a low arctic eco-climate and consists of coastal lowland habitats with numerous fresh water lakes and ponds. The drainage basins are generally long and narrow and predominately oriented along the north-south axis and are separated by bedrock ridges. Continuous permafrost covers the project area with a surficial active layer of approximately 1 m. Groundwater movement only occurs in the shallow active layer during the seasonal thaw period and within the talik zones (unfrozen ground underlying larger water bodies). Permafrost underlying the area is generally impervious to groundwater movements.

1.5.1 Care and Maintenance

Agnico Eagle announced its decision on February 18, 2022 to place the Doris Mill into Care and Maintenance and suspend production on the Project. Care and Maintenance at Doris and Madrid includes the temporary suspension of ore extraction at Doris and Madrid and milling operation at the Doris Mine. Agnico Eagle intends to continue exploration activities (site activities) as well as management and modification of facilities to remain in regulatory compliance with various permits, licenses, and approvals for the Project. Site activities that will

continue as part of the temporary closure include construction of the wind turbines, extension of the airstrip, and reallocation of the Naartok Portal and associated water management activities.

The main Care and Maintenance activities that Agnico Eagle will implement at the Doris-Madrid site include:

1. **Continuation of underground development:** Underground equipment and infrastructure will be inspected and if not required will be prepared for on-site storage. When not in use, the underground and surface mobile equipment at Doris will be stored on surface and as per operating guidelines.
2. **Waste Rock Stockpiles, Ore Stockpiles, and Overburden Piles:** A new surface waste rock stockpile within the approved project footprint at Doris, which will not impact any Nunavut waters, is required for temporary storage of rock fill associated with underground activities at Doris. The ore hauled from the underground mining activities at the relocated Madrid Naartok East Crown Pillar portal will be temporarily stored on the existing ore transit stockpile on the adjacent industrial pad until being transferred to the ore stockpile at Doris.
3. **Tailings Impoundment Area:** There will be no active deposition of tailings in the Doris TIA thus activities will be limited to water management for discharge to the receiving environment. A water treatment plant will be installed North of the TIA to address exceedance of authorized discharge criteria prior to discharge.
4. **Building and Equipment:** Building security and maintenance activities that will be implemented during Care and Maintenance to include securing and restricting access to unused buildings and structures; locking out and securing equipment that are not required to operate; and guarding/blocking all underground openings that are not being used and place warning signs around the site. The vacant Windy Camp (located at Windy Lake) will be dismantled and decommissioned.
5. **Waste Management:** The way in which hazardous, non-hazardous, incinerator waste and hydrocarbon contaminated material is managed on site is not expected to change during Care and Maintenance although the volumes of waste are expected to be substantially less.
6. **Roads and Airstrip:** Roads and the airstrip will continue to be used during the Care and Maintenance; therefore, maintenance and inspection of access roads and the airstrip (including repairing culverts, employing sediment and erosion control measures, dust suppression) will continue.
7. **Doris Mill:** Shutdown procedures for the mill have been underway, since the announcement to place the Doris Mill into Care and Maintenance. All reagent tanks have been drained and flushed. The flotation reagent mix and day tanks were cleaned after the shutdown of the flotation circuits. The cyanide mix tank has been cleaned and flushed. Solid reagents used for mixing have been placed back into their respective shipping containers and the containers sealed by warehouse and mill personnel.

8. **Camp:** Staffing levels will be reduced and unused camp facilities will be secured and isolated to restrict access. Weekly inspections will continue to be performed on life safety systems (including power generation), water treatment, sewage treatment, and electrical equipment and systems.
9. **Power:** Powerhouse will continue 24/7 operation to produce sufficient electricity to support activities and critical services to maintain the Project. Generators will provide minimal spinning reserve to accommodate routine starting and stopping of equipment.
10. **Fuel:** Diesel fuel will continue to be transported from the Roberts Bay bulk fuel storage facility as required with the consumption expected to drop significantly. Site services personnel will be responsible for transferring the fuel. Fuel tracking and reporting by the site services lead will be consistent with operations.
11. **Pipelines, Ponds, Sumps:** Various containment sumps and ponds will continue to operate during Care and Maintenance. Discharge criteria will continue to be met prior to any discharge to the environment and regulator inspections will continue.
12. **Domestic Wastewater:** The Doris Wastewater Treatment Plant will continue to treat domestic sewage and grey water generated by site personnel. A qualified operator will maintain the system to confirm it is operating within an acceptable range. Treated effluent will continue to be monitored.
13. **Sealift:** Quantities of fuel, materials, equipment required will be reduced during Care and Maintenance. Any sealift will be managed consistent with the required and established protocols at the Hope Bay Site. Fuel transfer activities during sealift will be conducted as detailed in the Oil Pollution Prevention & Oil Pollution Emergency Plan.

1.6 Plan Structure

Section 2 outlines the Spill Incident response including the responsibilities of the individuals involved in spill response actions. Investigation and follow up reporting requirements are presented in Section 3. Section 4 summarizes potential spill risks (worst case scenarios) and the management and mitigation measures employed to reduce the likelihood of these occurrences. Training and Spill Response simulation exercises are summarized in Section 5.

A comprehensive set of modules and appendices are included at the end of the Plan. The modules contain details pertaining to the chemical storage specific to each of the developments throughout the Hope Bay region. Appendices 1 to 3 include substance specific spill responses plans, spill response resources and environmental resource maps, respectively. Appendix 4 includes the stakeholder comments that were considered in the development of this Plan.

2 Spill Response and Management

2.1 Environmental Incident and Level of Confinement

Definition

Agnico considers a leak or spill to be an Environmental Incident if it results in a release of a potential contaminant or substance from a confinement with higher Level of Confinement (LOC) to a lower one, whether there's a release to the environment or not. A spill that has an impact but remains below the regulatory limit, would still be considered an Environmental Incident. All environmental incidents should be reported in Agnico's internal Incident Management Database System (INTELEX).

The Level of Confinement (LOC) is an important consideration for spills at Agnico. For a substance (liquid or gas) stored in a confinement infrastructure (reservoir, basin, pond, tank, etc), the LOC is the description of the confinement of this infrastructure offers to this substance. The LOC is meant to be defined in simple and clear terms referring to a reservoir (generic term) as open, enclosed, inside a building, outside a building, with or with no groundwater protection system, with or without an animal-human intrusion system, etc. For example:

- Fuel tank outside: LOC = enclosed reservoir outside
- Open reservoir inside a building: LOC = open reservoir inside a building
- Collecting basin around an open reservoir inside a building: LOC = open reservoir inside a building
- Closed reservoir outside a building: LOC = enclosed reservoir outside a building
- Collecting basin around an enclosed reservoir outside a basin: LOC = open reservoir outside a building
- A pond with a liner to protect leak in groundwater: LOC = open reservoir outside with groundwater protection system
- A sump outside a pond with no leak protection system: LOC = open reservoir outside with no groundwater protection system

The following scenarios explain the LOC change during a spill:

- An outside fuel tank leak into its confinement reservoir would be an EI. It went LOC: enclosed reservoir outside to LOC: open reservoir outside
- A spill from an open tank inside a mill, spilling into its open collecting reservoir would not be an EI. It went from a LOC: open reservoir inside a building to a LOC: open reservoir inside a building.
- A spill from an outside lined pond into an unlined sump would be an EI. It went from a LOC : open reservoir with groundwater protection system to a LOC: open reservoir with no groundwater protection system

2.2 Spill Incident Alerts

Any person on the Hope Bay mine site who comes across or sees an unanticipated discharge or spill is designated as the First Responder and will complete the following actions (Figure 1):

1. Assess the Site:

- (a) Isolate/evacuate immediate area if required;
- (b) Perform first aid if required and safe to do so;
- (c) Eliminate ignition sources – turn off vehicles, no smoking;
- (d) Identify spilled material if possible and consult product SDS; and
- (e) Estimate size and flow path of the spill.

NOTE: If the material cannot be identified, there is a risk of fire/explosion/toxic fumes produced or there are injured parties report to Supervisor **immediately** or call **Mill Control** if applicable (Step 3).

2. Stop flow of spill if safe to do so:

- (a) Put on appropriate PPE;
- (b) Approach spill site from upwind; and
- (c) Trace the source of material.
- (d) Stop flow of spill (Section 2.3.9)

3. Report spill to Supervisor:

- (a) Give your name;
- (b) Type or extent of injuries (if applicable);
- (c) Location; and
- (d) Type of spilled material and estimated volume.

NOTE: Mill Control can be contacted on Radio **Channel 1**, Phone Extension **911** or **150**.

4. Contain the spilled material:

- (a) Apply spill pads, absorbent booms in flow path of spill; and
- (b) Place spill tray beneath leaking fluid to minimize spill.

5. Secure the area and remain on scene until assistance arrives:

- (a) Ensure all workers have evacuated to a safe distance if required;
- (b) Divert or stop traffic; and
- (c) Stop people from entering the area.

All personnel receive appropriate training during their initial site orientation of what to do when he/she sees an unanticipated discharge or spill anywhere at the Hope Bay mine site. A flow-chart summarizing the First Responder spill actions is provided in Figure I as a quick reference at the beginning of this plan and is available in all spill kits on site.

2.3 Spill Response Organizational Structure

Once a spill has been identified by the First Responder the following spill response organizational structure will be implemented. The responsibilities of the individuals involved in spill response actions are summarized in the sections below. A flow-chart summarizing this structure is provided in Figure II as a quick reference at the beginning of this plan.

2.3.1 Supervisors

In the event that a Supervisor is informed of a spill by an employee, he/she will immediately inform the Environmental Superintendent and/or Safety Manager that a spill has occurred and provide details of the spill as outlined in Section 2.1 above. The Supervisor will proceed to the spill location, secure the scene, confirm the type of material/size of the spill and assist with containment actions. Depending on the severity of the spill incident, either the Mine General Manager (MGM) or Environmental Superintendent will provide direction to the Supervisor regarding the removal, storage and disposal of the spilled material. The incident scene is not to be disturbed until an incident investigation can be completed.

Removal and disposal of spill materials is only to be conducted after this investigation is complete and the scene is released by the MGM and/or Environmental Superintendent.

2.3.2 Mine General Manager

Once notified of the spill, the MGM will consult with the Environmental Superintendent and Health & Safety Manager/Superintendent to assess the severity of the spill incident and determine whether a spill emergency exists that requires activation of the Incident Command System (ICS) emergency procedures. This assessment will take into account the type and volume of the substance that has spilled, the location of the spill, safety of site personnel, scope of resources required to respond and the proximity of the spill to environmental resources at risk, including water bodies, sensitive habitat, archeological sites or sensitive species in the area.

The ICS is a command structure used in the Emergency Response Plan (ERP) at the Hope Bay mine site. This structure is designed to have a documented sequence of decisions that has been reviewed in advance of an emergency situation and establishes a chain of command to minimize confusion, so that employees will have no doubt who has the authority for making decisions.

If the ICS is activated in response to a spill emergency, the MGM (or designate) becomes the Incident Commander and implements the ICS command system outlined in Figure III at the beginning of this plan. The Incident Commander will communicate with onsite managers and direct all efforts in the spill response including evacuating personnel, identifying resources required to respond to the incident and activating the Emergency Response Team (ERT). The Incident Commander will direct the Maintenance Superintendent to coordinate containment and clean-up actions based on safety of the responders and environmental protection priorities as identified by the Health & Safety Manager/Superintendent and the Environmental Superintendent. In the event of a large spill, the Incident Commander may direct the Materials

Manager/Superintendent to secure off-site resources and facilitate shipment to the Hope Bay site. The Incident Commander will establish communications with the VP Nunavut and VP Health, Safety, Social & Public Affairs and regularly brief these individuals on the status of the spill emergency. A scribe will be assigned to the Incident Commander to document all communications and response actions of the spill incident.

After the spill emergency has been contained, the Incident Commander will conduct an incident investigation with the assistance of the Environmental Superintendent, Health & Safety Manager/Superintendent and other site managers as required.

If the spill is not deemed an emergency by the MGM, the ICS will not be activated and the Environmental Superintendent will provide direction to Site Services for containment and clean-up of the spill after an incident investigation has been completed.

2.3.3 Environmental Superintendent

The Environmental Superintendent will assist the MGM in evaluating the severity of a spill situation to determine whether a spill emergency exists. The Environmental Superintendent will identify environmental resources at risk, including water bodies, sensitive habitat and species, or archeological sites in proximity to the spill based on the size/location of the spill, anticipated path of flow and weather conditions at the time. If a spill emergency exists that triggers the ICS, the Environmental Superintendent will advise the Incident Commander on the prioritization of containment and clean-up efforts. If the ICS is not triggered, the Environmental Superintendent will provide direction to Site Services for containment and clean-up of the spill after an incident investigation has been completed.

The Environmental Superintendent is also responsible for ensuring that incident reporting as outlined in Section 3 of this plan is completed and that follow-up monitoring actions deemed necessary to evaluate the extent of the spill and effectiveness of clean-up/remediation efforts are implemented. The Environmental Superintendent will communicate with the Corporate Director – Environment & Critical Infrastructure and the Sr Advisor – Environment & Permitting, Western Nunavut at any time as required to determine effective clean-up measures, discuss reporting submissions and implement environmental monitoring as necessary.

2.3.4 Environmental Supervisor/Coordinators

The Environmental Supervisors/Coordinators will assist departmental Supervisors to document and investigate the cause of all spills, and work with onsite managers to develop corrective actions as required to prevent a repeat occurrence of the incident.

The Environmental Supervisors/Coordinators will oversee any follow-up monitoring actions deemed necessary to evaluate the extent of the spill and effectiveness of clean-up/remediation efforts at the direction of the Environmental Superintendent.

2.3.5 Health & Safety Manager/Superintendent

The Health & Safety Manager/Superintendent will assist the MGM in evaluating the severity of a spill situation in instances where hazardous conditions may exist for site personnel as a result of

a spill. This includes events involving injured personnel or damage to property resulting from the event, and/or situations where risk of fire, explosion or toxic fumes may be created as a result of the spill. The Health & Safety Manager/Superintendent will identify risks to site personnel and emergency responders and advise the Incident Commander on the response in conjunction with the Emergency Response Plan (ERP).

2.3.6 Emergency Response Team Coordinator

The Emergency Response Team (ERT) Coordinator is responsible for the implementation and training of the Emergency Response/Mine Rescue Team. During a spill emergency event, the ERT Coordinator will organize the response action of the ERT as directed by the Mine General Manager.

2.3.7 Emergency Response Team/Mine Rescue Team

The Emergency Response Team/Mine Rescue Team (ERT/MRT) may be the primary responders to a spill emergency event depending on the severity of spill incident and the containment and clean-up efforts.

2.3.8 Communications Delegate

In the event of a spill emergency, a Communications Delegate will be identified by Agnico Eagle who will communicate regularly with the Incident Commander to monitor the spill response and maintain a log of internal and external communications. Depending on the legislation implicated by the spill, the Communications Delegate will inform all appropriate agencies. The appropriate agencies may include the Kitikmeot Inuit Association, the Nunavut Water Board, the Nunavut Impact Review Board, Environment and Climate Change Canada, Crown-Indigenous Relations and Northern Affairs Canada, the Department of Fisheries and Oceans Canada and will advise the public in the immediate vicinity of the spill if warranted. The Communications Delegate is responsible for understanding the Spill Reporting Requirements in Nunavut and the appropriate parties to inform. The communication will be in the form of a phone call and email and will include the type of material and size of the spill. The Communications Delegate may designate alternative personnel to perform these communications. This individual will also update the Agnico Eagle Executive as required.

2.3.8.1 Spill Response Communications

During a spill emergency, on-site staff WILL NOT communicate directly with regulatory agencies, the press or other parties off of the mine site. All external communication is to be through the Communications Delegate. Communication systems will be shut down at the direction of the Incident Commander and only emergency radio and phone lines identified in the Incident Command organizational structure will remain operational.

All on-site communication with the Communications Designate will occur through or at the direction of the Incident Commander. On-site communications will use portable radios on designated radio channels. Independent satellite phones are available for crews for emergency communications in the unlikely event that the radio and phone systems fail.

2.4 Spill Response Actions

Most chemicals stored onsite are kept in small quantities and not expected to result in a major spill incident. Any chemical product which is listed under the E2 Regulations and which will be stored in quantities on site equal to or greater than that listed in Schedule 1 of these regulations will have an additional Product Specific Emergency Response (PSER) Plan detailed for that product. These PSER plans can be found in Appendix 1 of this document.

Chemical containers are appropriately labelled to identify their contents in the event of a spill. The product label will be used to identify the substance and hazards, the Safety Data Sheet (SDS) will be consulted to determine the proper PPE requirements and appropriate spill response procedures. The following sections outline general spill response actions to be taken in the event of a spill in each associated environment. The basic spill response steps to be taken in the event of the spill are illustrated in Figure 2.1 below.

Note that some substances can be highly reactive in contact with water, air, or other substances and should not be addressed unless safe to do so.

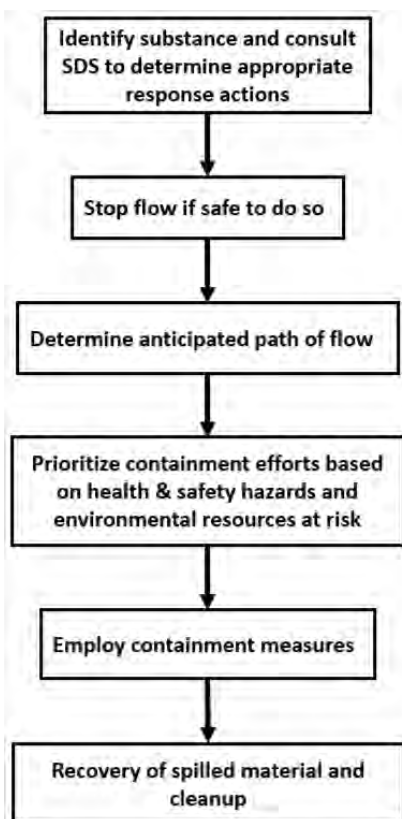


Figure 2-1. General Spill Response Actions

2.4.1 Spills on Land and Water

In the event of a liquid spill on gravel, rock, soil or vegetation, it is very important to prevent the liquid from entering any body of water where it will spread and likely have greater environmental impact. Liquid spills on land will be contained and cleaned up by:

- Covering the spill with appropriate absorbent pads and placing absorbent booms in the path of flow of the spill;
- Constructing temporary berms from soil or snow at the leading edge of the spill to minimize flow:

Plastic tarps can be placed over and at the foot of the berm to capture pooling liquid and facilitate recovery; and

Temporary berms are an interim measure and will be removed as soon as possible after the spill is contained and remedial actions complete.

- Pumping spilled material to empty drums or tanks;
- Using a vacuum truck to recover spilled material;
- Excavators and other heavy equipment may be used to excavate contaminated materials; and
- If safe to do so, blow torches (Tiger Torches) may be used to clean small hydrocarbon spills that occur on unlined areas of the camp pad to reduce waste generation and handling.

In the event of a spill on water, the spread of the spilled material will be limited to the extent possible. The appropriate response to spills of substances which dissolve may solely be to limit discharge as soon as possible and safe to do so. The following steps will be taken to contain and clean-up a spill on water:

- Identify the direction and speed of the flow path of the product based on weather conditions and drainage patterns:

Monitor the spread of the material using a drone or from a helicopter if possible to identify the area of spread.

- Use appropriate absorbent pads, socks and similar materials to recover spilled product:
Granular sorbent materials are NOT to be used for spill response on water.
- Hydrophobic absorbent booms will be deployed to contain large spills and to facilitate recovery:

Absorbent booms will be drawn slowly in to encircle the spilled product and absorb it. High winds, waves and other factors may limit the effectiveness of these materials.

- Skimmers will be deployed in open-water areas to remove product from the water surface and boards or plywood may be used in streams or culverts to reduce the flow of spilled product on the surface and limit the area of the spill on the water;
- Use of sub-surface barriers to contain spilled product that may sink;

- Pump contaminated water into tanks or storage bladders if possible:
A vacuum truck may be used to recover spilled product.
- Contaminated substrate and vegetation will be removed either manually or with the use of heavy equipment if feasible; and
- Chemical dispersants should not be used as a spill response technique at the Hope Bay project, seek direction from the Environmental Superintendent
- Also see Section 2.3.19 of this document for guidance related to additional spill protection, clean-up, and reporting measures for environmentally sensitive species and archaeological sites.

For saline water spills, tundra treatment guidelines from the Alaska Department of Environmental Conservation (ADEC) will be incorporated (see also Section 3.4). The following decision tree may be used specifically for recovery of saline water spills:

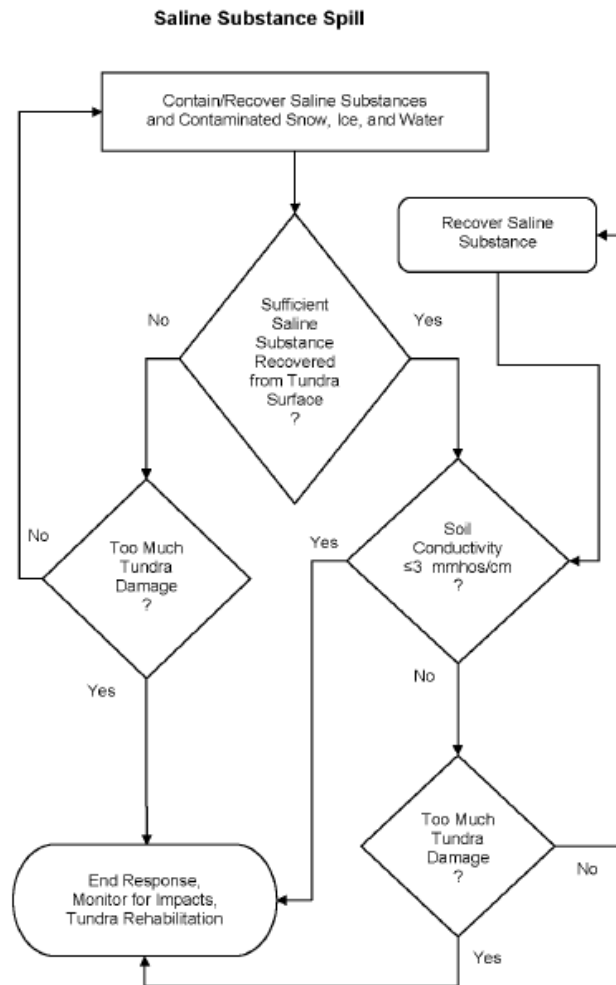


Figure 2-2. Saline Water Decision Tree (Adapted from ADEC Tundra Treatment Guidelines, 2010)

2.4.2 Spills in a Marine Environment

The most effective way to minimize environmental damage is to focus on source control and to prevent product from spreading. The following steps will be taken in the event of a spill in the marine environment:

- Identify the direction, speed and flow path of the product based on weather conditions and drainage patterns:

Monitor the spread of the material using a drone or from a helicopter if possible to identify the area of spread.

- Use of appropriate absorbent pads, socks and similar materials to recover small volumes of spilled product:

Floating spill response booms will be used to encircle a barge prior to off-loading chemicals and fuel from the barge as a precautionary measure.

Granular sorbent materials are NOT to be used for spill response on water.

- Hydrophobic absorbent booms will be deployed to contain large spills and to facilitate recovery:

Absorbent booms will be drawn slowly in to encircle the spilled fuel and absorb it.

High winds, waves and other factors may limit the effectiveness of these materials.

Granular sorbent materials are NOT to be used for spill response on water.

- Skimmers will be deployed in open-water areas to remove product from the water surface;
- Use of sub-surface barriers to contain spilled product that may sink;
- Pump contaminated water into tanks or storage bladders if possible; and
- Chemical dispersants should not be used as a spill response technique at the Hope Bay project, seek direction from the Environmental Superintendent

Also see Section 2.3.19 of this document for guidance related to additional spill protection, clean-up, and reporting measures for environmentally sensitive species and archaeological sites.

Spill response measures specific to bulk fuel offloads completed at Roberts Bay are detailed in the Hope Bay Ocean Pollution Prevention Plan/Oil Pollution Emergency Plan (OPPP/OPEP). The OPPP/OPEP is the main document of reference for spill control actions during a fuel offload at the Hope Bay project and is revised annually.

2.4.3 Spills on Snow

Spills on snow will be contained and recovered by:

- Use of appropriate absorbent pads, socks and similar materials to recover spilled product;
- Compacting the snow into snow-berms and placing a liner of plastic sheeting at the toe and over the berm to collect spilled material and facilitate recovery;
- Using the snow as a natural absorbent to collect spilled product; and
- An excavator, grader or other heavy equipment may be used to scrape up contaminated snow to be stored in a lined containment area or placed in steel drums.

2.4.4 Spills on Ice

Spills on ice will be contained and cleaned up by:

- Use of appropriate absorbent pads, socks and similar materials to recover spilled product;

- Creating snow-berms by compacting snow around the edge of the spill and placing a liner of plastic sheeting at the toe and over the berm to collect spilled material and facilitate recovery;
- Scraping contaminated snow/ice from the ice surface and placing in lined containment:
Snow may act as a natural absorbent to collect spilled product.
- In broken-ice conditions a skimmer may be used to collect product on the surface of open-water areas:
Caution must be used when conducting spill response efforts in broken-ice situations.
An appropriate Task Hazard Analysis safety plan and PPE must be determined before initiating these actions.
- An excavator, grader or other heavy equipment may be used to scrape up contaminated ice to be stored in a lined containment area or placed in steel drums:
A vacuum truck may be employed to recover large volumes of spilled material.

2.4.5 Spills under Ice of Substances that Float

Hydrocarbon spills under ice will be addressed by:

- An appropriate Task Hazard Analysis safety plan and PPE must be determined before initiating these actions;
- Testing of the ice to ensure thickness is safe for personnel to work on the surface;
- Once ice has been deemed safe, slots will be cut in the ice surface in the area surrounding the spill and downstream of the anticipated direction of flow/spread:
Contaminant will rise to the surface within the slots.
Determine the direction of any currents (if expected; this would not be the case in an ice-covered lake) to identify the direction of flow and conduct ice profiling beyond the extent of the spill to identify any spread of the contaminant.
- Contaminant will be skimmed/scooped out from within the slots and placed into empty pails/drums as it is recovered;
- Pockets within the ice where contaminants can pool will be identified (this applies to ice which may have buckled areas where spills may pool; largely an ocean occurrence);
- Absorbent pads and booms will be used to contain spill if there is water moving past the ice edge (if any) where the spill took place:
Set booms ahead of the spill based on the direction of anticipated flow.
- A vacuum truck may be employed to recover larger volumes of spilled material or utilizing an Auger and pump system to pump spilled material into containers (e.g., drums).

2.4.6 Spills under Ice of Substances that Sink

- Response to spills below ice of substances which sink will be evaluated on a quantity, substance-specific, and risk basis. In many circumstances, particularly for small releases of non-toxic substances, the appropriate response may solely be to limit discharge as soon as possible and safe to do so. Agnico Eagle will assess each individual situation and may consult a remediation specialist for advice in addition to discussions with the KIA, CIRNAC, DFO, and ECCC.
- Allowing substance to settle with minimal disturbance to limit spread (for waterbodies without current);
- A vacuum truck may be employed to recover larger volumes of spilled material or utilizing an Auger and pump system to pump spilled material into containers (e.g., drums);
- Use of sub-surface barriers to contain spilled product if there is water moving past the ice edge (if any) where the spill took place; and
- Appropriate subsurface containment will be used to contain spilled material if there is water moving past the ice edge (if any) where the spill took place.

2.4.7 Spills under Ice of Substances that Dissolve

- Response to spills below ice of substances which dissolve will be evaluated on a quantity, substance-specific, and risk basis. In many circumstances, the appropriate response may solely be to limit discharge as soon as possible and safe to do so. Agnico Eagle will assess each individual situation and may consult a remediation specialist for advice in addition to discussions with the KIA, CIRNAC, DFO, and ECCC, where appropriate;
- A vacuum truck or an Auger and pump system may be used to pump contaminated water into containers (e.g., drums) if rate of dissolution is slow enough/contaminated water volume is small enough to make this feasible; and
- For Sodium Cyanide spills see substance-specific emergency response plan in Appendix 1.

2.4.8 Spills of Compressed Gas

If an accidental release of compressed gas occurs:

- Stop the source if safe to do so;
- Ventilate the area well to dilute the gas;
- Cordon off the area to prevent accidental ignition, explosion or inhalation by personnel; and
- Only employees with proper training and PPE will attempt to mitigate the release.

2.4.9 Burning Spills

Small spills of hydrocarbons (< 100 L) may be removed from unlined camp pad areas by using a propane torch (Tiger torch). This response method would reduce the waste production and handling/storage of contaminated materials associated with the spill and would reduce the risk

of spreading or contaminating other areas during transport of these materials. No water would be used and no waste would be deposited to water as a result of this response method.

Extra safety precautions must be taken prior to the use of a propane torch in the event of a spill. A Task Hazard Analysis will be completed prior to undertaking this activity. The SDS for the product will be reviewed to check for the reaction of the substance to heat. PPE such as Fire Resistant clothing and the proper gloves and respirator will also be worn and a spotter with a fire extinguisher rated for the type of spill and fire must be present during the clean-up.

Burning of larger spills may be considered on a case by case basis and only once Agnico Eagle has consulted with and received approval from ECCC, the KIA, the CIRNAC Inspector and any other associated regulatory agencies. This method of response is only useful if quick action is possible, and prior to natural spill dispersal and loss of the more ignitable hydrocarbon fraction.

2.4.10 Spills Affecting Environmentally Sensitive Species or Archeological Sites

The Hope Bay mine site contains a number of habitats, species and sites of archeological and historical importance. The possibility exists for a spill or an environmental emergency to impact these environmental and cultural resources.

Agnico Eagle and previous companies operating on the Hope Bay site have conducted numerous ecological surveys to identify these areas at risk, with the focus of identifying those areas immediately surrounding mine infrastructure which are at greatest risk of impact from a spill.

In the event that a spill enters the natural environment, the Environmental Superintendent may use maps identifying these sensitive areas to prioritize the protection of these resources. Prioritization of environmental sensitivities will not be at the expense of safety or of reaching or maintaining control of the release.

Should decisions be required which protect some sensitive areas at the expense of others, the hierarchy of protection will attempt to favour (except as directed otherwise by regulatory agencies). Sensitivity maps are provided in Appendix 3 to display features according to the hierarchy:

1. waterbodies and watercourses: fish-bearing waterbodies and known Arctic char habitat;
2. sensitive ecosystems: unique landscape features considered rare or sensitive, due to their scarcity on the landscape, special habitat features they provide, and/or cultural importance, as defined by Terrestrial Ecosystem Mapping features in the Final Environmental Impact Statement (Volume 4 Ch 8 Table 8.3-3);
3. archaeological sites: not mapped due to confidential information, but available to the Environmental Superintendent in the event of a spill;
4. rare plants: known rare plant locations based on surveys conducted for the Final Environmental Impact Statement (Volume 4 Ch 8 Figure 8.2-5); and

5. active raptor nest or wildlife den: based on continuously updated monitoring data from monitoring and baseline surveys.

For spills in water, prioritization will attempt to avoid vegetated and finer substrate shoreline areas (sand, gravel and cobble) from which recovery is most difficult and which may be of high value to fish.

All of the communications outlined in this section would occur in addition to any appropriate spill reporting outlined in Section 3.

2.4.10.1 Mitigation of Impacts to Wildlife and Birds

In the event that a contaminant is released to a body of water, initial wildlife response measures will be exercised in alignment with the Birds and Oil-CWS Response Plan Guidance document if migratory birds are or may be impacted.

All reasonable measures will be taken to deter wildlife from coming into contact with any spilled material. Deterrence methods are outlined in Table 2.4-, based on recommendations from the *Bird Hazing Manual: Techniques and Strategies for Dispersing Birds from Spill Sites* (Gorenzel and Salmon 2008; available to download online from <https://eurowa.eu/resource/bird-hazing-manual-techniques-and-strategies-for-dispersing-birds-from-spill-sites/>). The Wildlife Response Team are trained in deterrence techniques and wildlife retrieval, with training refreshers occurring at least annually.

In the event that wildlife does come in contact with a spilled material, Environment and Climate Change Canada's Canadian Wildlife Service (ECCC-CWS), the KIA, and the GN Wildlife Officers will be consulted to determine response strategies including the most appropriate humane treatment of oiled wildlife. Agnico Eagle may also engage contract response agencies specialized in wildlife response actions during a spill event. In cases where wildlife can be rescued, wildlife spill response experts will be contacted for assistance and guidance.

Table 2.4-1. Deterrence Methods for Preventing Wildlife Contact at a Spill

Deterrent Type	Applicable Wildlife	Considerations for Use
Watercraft	Mammals, Birds	<ul style="list-style-type: none"> Requires operator, only useful in open water
Helicopter	Mammals, Birds	<ul style="list-style-type: none"> Requires authorization from ECCC-CWS prior to use as deterrent May not be available onsite Extremely effective, but expensive and requires operator. Ideal as a short-term deterrent.
Drone	Mammals, Birds	<ul style="list-style-type: none"> Can be widely deployed regardless of terrain May not be consistently effective Requires
Bangers/Screamers, Horns, Whistles	Mammals, Birds	<ul style="list-style-type: none"> Easy to use, readily available

		<ul style="list-style-type: none"> • Short range applicability
Propane Cannon	Birds	<ul style="list-style-type: none"> • Appropriate for congregation points such as shorelines, creek mouths • Birds may habituate after a few days • Cannot be used near flammable spill materials • Requires purchase, not immediately available onsite
Mylar Strips and/or flags	Birds	<ul style="list-style-type: none"> • Visual deterrent that repels birds, made from shiny mylar or plastic bags strung on poles/strings • Does not work at night or in low wind

Monitoring will be conducted to assess the spill area and possible effects on wildlife. This will include:

- Assessment surveys for oiled and unoled wildlife;
- Assessment surveys for oiled shoreline vegetation that may be consumed by either terrestrial or marine wildlife;
- Assessment surveys for oiled nests and eggs; and
- Wildlife observers will be on vessels and aircraft if possible;
- Wildlife collection (with authorization from ECCC-CWS):
To collect dead and live wildlife within the spill area and adjacent. All response vessels should be equipped with dip nets, large plastic collecting bags to hold dead birds, and cloth bags or cardboard boxes to hold live oiled birds.

2.4.10.2 Mitigation of Impacts to Archeological Features and Sensitive Habitats

If a spill is determined to have impacted any archeological or historic resources, prior to removing soil or vegetation, Agnico Eagle will immediately contact the Project Archaeologist. The Project Archaeologist will provide advice on next steps, and may travel to site to mitigate the archeological site. Surveys may also be conducted to assess impacts to Culturally important vegetation. The Archeologist will also coordinate permits and communications with the Government of Nunavut Territorial Archaeologist.

In the event that shoreline substrates or aquatic vegetation have been impacted, Agnico Eagle will contact Environment and Climate Change Canada and the Department of Fisheries and Ocean for advice prior to initiating removal. Agnico will also seek advice and approval from the KIA prior to removal of shoreline substrate or aquatic vegetation.

2.5 Disposal of Contaminated Materials

All contaminated materials generated during a spill event will be contained and disposed of as per the product specific SDS and as outlined in the Hazardous Waste Management Plan and Non-Hazardous Waste Management Plan. Empty drums, barrels, mega-bags and storage tanks are available to store contaminated materials for disposal.

Hydrocarbon contaminated soil, snow and water may be remediated in Landfarm facilities if

these materials meet the requirements for remediation as per the Hydrocarbon Contaminated Material Management Plan or may be placed within the underground mine.

2.6 Spill Response Resources

2.6.1 On-Site Resources

Spill Response Kits will be available near (within 200 m) any areas where chemicals are stored and used on site, including near all bulk fuel berms and smaller fuel tanks. Spill response kits will be easily accessible for personnel responding to a spill. As project activities evolve and new locations of chemical storage and use are identified new spill kits will be added as needed, and all active construction areas where equipment is operating will also have a spill kit located within 200 m.

Additional spill response equipment is maintained for response in an aquatic environment. This equipment is stored in ten moveable containers that can be relocated for rapid response to a spill in a stream, lake or marine environment.

Agnico Eagle maintains an on-site supply of appropriate Personal Protective Equipment compatible with the chemical products used on site, including chemical resistant suits, gloves and boots, face shields/goggles and respirators. In the event of a spill, this equipment is used by spill responders as outlined in the product SDS. Specialty equipment, such as Self-Contained Breathing Apparatus, air quality monitors and fire retardant clothing are available and used as needed to ensure a safe response to a spill incident.

All fuel transfer vehicles are also equipped with a spill kit designed to address smaller spills of hazardous fluids (< 40 L). Personnel are trained in proper fueling procedures and spill trays are used during all fueling activities to minimize the potential of an unintentional release.

A list of supplies contained in each spill kit type, supplies in the aquatic spill response containers, and PPE/specialized equipment for spill response is provided in Appendix 2.

Agnico Eagle also maintains an on-site supply of roll, pad and mat absorbents, plug and dyke kits, mini booms, absorbent socks, peat moss, crushed corn cobs, coconut mats, hand tools, empty storage tanks and various pieces of heavy equipment including a vacuum truck, grader, dozers, loaders, excavators and haul trucks that would be used in the event of a large spill.

Spill kits are replenished as needed after use and inspected at least once per quarter. The purpose of the inspection is to evaluate the location of spill kit proximity to associated work activities, inspect the condition of the spill kit, and check that all required contents are available and in good condition.

The aquatic response supplies and equipment are inspected annually prior to fuel offloading events and after use in the event of a spill to the aquatic environment.

2.6.2 Off-Site Resources

The Hope Bay Project is a remote location that is only accessible by plane for the majority of the year, with a short open-water ship access season. The Hope Bay Project Spill Contingency Plan does not rely on off-site resources to successfully respond to anticipated upset conditions. The Plan has been developed such that the resources required to respond to spills have been positioned on site. It is anticipated that the Hope Bay Project will have sufficient resources and trained personnel to respond to all types/sizes of spills that could potentially occur on site.

Additional off-site resources would be procured and flown to site as needed in the event that onsite resources were exhausted.

3 Spill Investigation, Documentation and Reporting

3.1 Spill Investigation

A spill investigation will be completed for all spill events that occur at the Hope Bay site. This investigation will be aimed at determining the root cause of a spill and identifying corrective actions that may reduce the risk of a repeated incident.

For spills that exceed the volume thresholds outlined in the Immediately Reportable Spills table at the beginning of this plan, an Intellex Investigation will be completed. The investigation will be completed by the departmental Supervisor with support from the departmental Manager/Superintendent and the Environmental Superintendent within 7 days of the spill occurrence. The Safety Manager/ Safety Superintendent and MGM may participate in the investigation and assist in developing corrective actions.

For spills that do not exceed the volume thresholds outlined in the Immediately Reportable Spills table, an Intellex Investigation will be completed. The investigation will be completed by the departmental Supervisor within 48 hours of the event and forwarded to the Environmental Supervisor/Coordinator.

Records of all spill events and investigations will be maintained by the Environmental department and documented in the Environmental Incident Register. Any corrective actions that are identified will be entered into the Environmental Incident Register and implemented immediately by the departmental Supervisor and/or Manager/Superintendent.

3.2 Agnico Eagle Internal Reporting

An Incident Event notification will be sent by the departmental Supervisor to the Environmental Superintendent prior to the end of the shift in which the spill event occurred. This notification will provide a brief description of the spill, consequences of the spill, root cause of the event if identified and a brief description of the response including containment and cleanup actions. All Environmental Incidents are documented in Agnico's Incident Management Database System (Intellex). All incidents that have a consequence ≥ 3 are communicated to the Environmental Corporate representative within 24 hours. If the incident has a consequence of level 5, the investigation lead will be the VP of Environment, otherwise the investigation lead is the Environmental Superintendent. The investigation has a deadline of 14 days. Results of the SCAT Investigation and the '5 Whys' Investigation will be communicated to all site Supervisors, Superintendents and Managers, as well as offsite Environmental personnel. Corrective actions generated by these investigations will be discussed with all personnel at the Hope Bay site through email communications and/or discussions at departmental safety meetings. All details of the spill investigation and implementation of corrective/preventative actions will be documented in the Environmental Incident Register by the Environmental department. The investigation report is attached to the incident report in Intellex and communicated in the weekly update report.

3.3 External Reporting Requirements

In the event that a particular material spill meets or exceeds the amount specified in the Immediately Reportable Spills Table (located at <https://www.enr.gov.nt.ca/en/services/report-spill>, and at the beginning of this plan), the Environmental Superintendent or delegate will complete the NT-NU Spill Report form (available through the preceding link) and report the spill to the NT-NU 24 Hour Spill Report Line by phone (867-920-8130) and/or e-mail (spills@gov.nt.ca) as soon as possible within 24 hours of the event. The CIRNAC Inspector and the KIA will be copied on these submissions. The submission of the report will not be delayed even if not all information is available at the time of submission.

In the event that a spill or an unauthorized deposit of a deleterious substance has occurred to the marine environment, the MGM and/or Environmental Superintendent will also notify the ECCC Enforcement Officer, the KIA and the Canadian Coast Guard station immediately and provide details on the time and location of the discharge, type and quantity of pollutant, description of assistance and salvage measures employed and any other relevant information. A written report will also be submitted within 24 hours. A copy of this report will be submitted to a Transport Canada Marine Safety Inspector if required.

The Environmental Superintendent will communicate with the V.P. Environment and Critical Infrastructure during the incident to determine additional notifications to be submitted to regulatory agencies during the event.

In the unlikely event that an environmental emergency occurs which may adversely affect members of the public (closest community is located >120km away) the Mine General Manager will work with the Communications Delegate to provide notification to the public during and after the event. The communication will initially be in the form of a phone call but will be expanded as necessary to protect the safety of the community members. This may include a press release and/or Facebook/Twitter post.

Within 30 days of the event, the Environmental Superintendent or delegate will submit a detailed written spill report to the appropriate regulatory agencies. This report will include a description of the spill location, type and quantity of spilled material, associated causes that led to the incident, details of actions taken to remediate affected areas and potential effects of the spill, measures undertaken to reduce the potential for a reoccurrence of a similar incident, results of monitoring activities undertaken and details of any further actions required. Other applicable details such as the names of agencies on the scene, persons or agencies advised concerning the spill, a chronological sequence of events including internal/external notifications, and lessons learned from events leading up to the spill and the response actions taken may be included in this report. Additional follow-up engagement may occur as deemed appropriate by the Corporate Director – Environment and Critical Infrastructures based on the specific spill and stakeholder input.

A list of spills reported to the NT-NU Spill Report Line will also be provided in the annual report for each of the licence areas.

3.4 Monitoring and Restoration

Specific monitoring requirements for spills will be determined on a case by case basis dependent on the nature of the spill. Monitoring will be conducted in the event that i) spilled material cannot be removed, ii) spill occurs to water of substances that dissolve, sink, or where substance recovery is unlikely and iii) externally reportable spills to land for which recovery is unlikely or incomplete. Details of follow-up monitoring conducted in response to a spill will be detailed in the 30 day follow-up spill report submitted to the NT-NU Spills Hotline, the CIRNAC Inspector and the KIA.

Monitoring activities will be conducted to assess the impacts of the spill and the effectiveness of associated cleanup/remediation efforts in the event spilled material cannot be removed. This may include a number of monitoring techniques and collection of samples for laboratory analysis. The monitoring program will be developed by the Environmental Superintendent in consultation with the Environmental Affairs Department and associated regulatory agencies.

Monitoring will be triggered in the event of spills to water of substances that dissolve or sink or where substance recovery is unlikely. Samples will be collected and analyzed by a commercial laboratory to characterize 1) the material discharged (if not of known characteristics), 2) the water at the location of entry into the waterbody as soon after the discharge as possible, and 3) water at a 'reference' location, preferably within the same waterbody but outside of the area of potential impact and collected at approximately the same time as the sample collected at the point of entry. Samples collection will be decided on a case-by-case basis and may include downstream and upstream (of the spill) locations. Sediment sampling may be necessary for substances that are removed from the water column.

Monitoring will also be triggered in the event of externally reportable spills to land for which recovery of spilled material is unlikely or may be incomplete. Samples will be collected from locations of suspected highest remaining contamination, or as a composite sample from the remediated area. Samples will be compared to soil remediation criteria and background soil concentration data to verify appropriate clean-up has occurred.

The Environmental Supervisor/Coordinators will be responsible for overseeing the implementation of these monitoring activities at the direction of the Environmental Superintendent. No person will be permitted to sample spilled materials unless that person has received adequate training in the identification of the hazards associated with the spilled material, the selection and use of appropriate personal protective equipment, and safe sampling procedures.

The final required clean-up, restoration (or mitigation) and on-going monitoring will be conducted as needed, and where appropriate in consultation with, and satisfaction of, the CIRNAC Inspector and the KIA. Consultation may include a follow-up with the CIRNAC Inspector and the KIA to review the final cleanup, restoration/mitigation, and continuing/on-going monitoring for areas that will not be further amended at project closure. Continued monitoring may be required for spills where the collection of all the spilled material may not be completed and is suspected to have migrated further downstream causing an impact. For example, a spill in a water body or an undetected spill occurring over several days. Site specific studies may be

required to determine the appropriate final clean-up criteria. For saline water spills, treatment guidelines from the Alaska Department of Environmental Conservation (ADEC) will be consulted.

If required, continuing and progressive sample collection/analysis will be conducted and reported upon until the completion of all prescribed remedial activities.

3.5 Incident Review and Root Cause Analysis

A review of incidents and root cause analysis will be conducted by the Environmental Superintendent quarterly. The purpose of this review will be to identify trends in root cause. Lessons learned from this exercise will be used to develop additional corrective actions including awareness campaigns for site personnel, improvements to operational equipment and spill response resources.

4 Spill Management and Mitigation

Site supervisors and managers are responsible for ensuring work area inspections and risk assessments are conducted of their respective work areas. Risk assessments include evaluation of hazardous materials available and in use in the work area, and likelihood and potential consequences of various spills. Where appropriate based on likelihood and potential severity, mitigation, management and/or substance-specific spill response plans will be developed.

The following section outlines currently identified potential spill risks with potential for high severity and/or probability of occurrence (worst case scenarios) and the management and mitigation measures employed to reduce the likelihood of these occurrences and/or the potential severity. Additional scenarios, as well as appropriate management and mitigation actions, will be added to this section through time as they are identified.

4.1 Issue: Spill from a Chemical Storage Tank or Other Containment

A fuel storage tank, containment area, sump, emergency dump catch basin or other product container may release their contents for a number of reasons, such as damage due to puncture, openings developed over time due to degradation (such as rusting), or overfilling.

Equipment malfunction or facility failure may cause a spill event to occur, particularly during extreme winter temperature conditions experienced at the Hope Bay mine site.

4.1.1 Management Response

This risk is minimized through the use of secondary containment and spill containment. All bulk fuel facilities are located in secondary containment (i.e., tank farms which have containment designed to contain volumes equivalent or greater than 110% of the aggregate or total volume of the largest container in the containment – whichever is greater).

Smaller chemical storage tanks are either double walled (have built-in secondary containment), and are located in spill trays such that any leakage from hoses or lines are further contained or are located in secondary containment berms.

It is industry practice not to use secondary containment in the case of inventory seacans received from a sealift operation. Since the inventory seacans are not in use, the probability of a spill is minimized as the containers inside the seacans are protected from the elements and from collision. These would be the primary causes of a spill from a container.

Spill trays designed to contain volumes equivalent or greater than 110% of the aggregate or total volume of the largest container in the containment are used under fuel drums and other smaller chemical containers that are in use around the camp and not within an inventory seacan.

Inspections of all containment structures will be conducted weekly to ensure concerns are noted and are addressed promptly.

In the event that a spill exceeded the capacity of a containment berm (for example, if more than one container in a berm was breached) or a containment berm became compromised, the spill response actions outlined in Section 2 would be implemented. Containment measures would be deployed to prevent the spread of the chemical into the natural environment. This would include deploying absorbent materials or booms and constructing diversion trenches or sumps to intercept the spilled product. The vacuum truck and all available pumps would be deployed to transfer spilled product into empty storage tanks or alternative containment berms if necessary.

4.2 Issue: Spill during Transport

Spills may occur during the transport of chemicals from one site location to another.

4.2.1 Management Response

As new chemicals, fuels and hazardous materials are brought to site, standard operating procedures are developed that outline the process for safely transporting or transferring these products between locations at site. Experienced operators transport these materials and are familiar with site road conditions. Traffic right-of-way procedures are established that reduce the risk of an accident between two vehicles and all vehicles are equipped with radio communication to ensure operators can remain in contact at all times. A spotter is used to direct operators loading and off-loading these materials from transport vehicles to reduce the risk of damage to chemical storage containers during transport and loading. Spill trays are used when chemicals are transferred to equipment or secondary containers for use.

4.3 Issue: Spill during Transfer

Spills have an increased likelihood of occurring during transfer of chemicals. This may be the case during equipment refuelling, transfer of chemicals between containers, or transfer of wastewater or tailings in pipelines. Such spills may result from human error (overfilling, inaccurate filling) or equipment malfunction (such as a break in the transfer line/pipe due to wear or freeze/thaw cycles).

4.3.1 Management Response

As new chemicals, fuels and hazardous materials are brought to site, standard operating procedures are developed that outline the process for safely using these chemicals during operations. Workers who use chemicals or fuels during daily operational activities receive training in the proper handling, storage and disposal of these materials prior to commencement of work. Any applicable SDS sheets are reviewed by all workers using these chemicals to identify potential hazards. Workers are encouraged to plan work activities before beginning a task to reduce the potential for inadvertent errors.

Fueling of mobile equipment generally takes place at designated fueling stations, which are located inside of secondary containment berms, minimizing risk to the environment. Remote

fueling, such as occurs for stationary equipment and helicopters, requires a spill kit be easily accessible and spill trays are used.

Fuel tanks are not filled to full capacity, to reduce the possibility of overflow during fueling or due to expansion.

Workers are provided with on-site training in spill response techniques and are familiar with the response resources available in the event of a spill.

Wastewater transfer pipelines, for sewage as well as other wastewaters, are constructed to reduce breakage due to freeze/thaw cycles and are routinely inspected to ensure they are functioning. Delineators are used to mark pipelines to ensure vehicle and equipment operators are aware of pipeline locations when travelling on site roads.

Additional design features of the tailings lines which reduce the risk of spills are outlined in the Hope Bay Project Phase 2 Doris Tailings Impoundment Area Operations, Maintenance and Surveillance (OMS) Manual.

Should any of the above measures fail, spill response would be undertaken as outlined in this document.

4.4 Issue: Spills from Equipment

Spills may occur from mobile and stationary equipment during routine maintenance or due to equipment malfunction or wear combined with extreme weather conditions.

4.4.1 Management Response

All equipment at site undergoes routine preventative maintenance, and mobile equipment is subject to daily pre-operational inspections to identify specific issues for mechanical resolution. Where possible, all equipment maintenance is performed in designated maintenance areas. During equipment maintenance, spill trays are used as needed. Spill trays are also used for stationary equipment, or those parked for extended periods of time.

4.5 Issue: Health and Safety of Spill Responders

Some products and chemicals used at the Hope Bay site may pose a risk to the health and safety of personnel responding to a spill. Spilled materials may create toxic, explosive or flammable hazards that must be considered during response efforts.

4.5.1 Management Response

Personnel working at the Hope Bay site are provided on-site training in the proper handling, storage and disposal of chemicals related to their tasks. The product SDS is reviewed by personnel prior to using these chemicals to identify potential hazards related to handling these materials.

The SDS for each chemical outlines the specific personal protective equipment (PPE) required when handling each product and provides information on methods for clean-up in the event of an accidental release to the environment. SDS sheets are maintained at site for all chemicals stored and used at the Hope Bay Project.

In the event that a spill poses toxic, explosive, flammable or other hazards that endanger personnel or the environment, the Emergency Response Team (ERT) will be activated through the Incident Command System. Members of the ERT are equipped with additional PPE that allows them to safely respond to hazardous situations and receive additional training in response techniques for these scenarios.

Site chemicals are reviewed annually and compared to the Environmental Emergency Regulations. If any chemicals are anticipated to be stored in quantities exceeding the quantity thresholds outlined in these regulations a Product Specific Emergency Response Plan will be developed and submitted as an addendum to this Plan. Product Specific Emergency Response Plans identified as necessary for products stored at the Hope Bay site are located in Appendix 1 of this Plan.

4.6 Issue: Spills to Water

Spills to water are of particular concern due to the sensitivity of water environments and potential of rapid spread of spills into water.

4.6.1 Management Response

No chemicals are stored within 31 m of water. When storing chemicals within 100 m of a waterbody, they are kept in secondary containment, and spill kits are located nearby which contain small booms and absorbent pads. In the event of a large spill to water, additional itemized and audited Aquatic Spill Response Equipment is located at Roberts Bay in movable seacans. Response actions protective of wildlife are outlined in Section 2.4.10 Spills Affecting Environmentally Sensitive Species or Archeological Sites.

4.7 Issue: Operational Considerations for Spill Response

Hope Bay is a remote project site that experiences extreme weather conditions and seasonal daylight variations which may impact the effectiveness of spill response actions. The Hope Bay Project is only accessible by plane for the majority of the year, with a short open-water ship access season.

4.7.1 Management Response

This Plan has been developed such that the resources required to respond to spills have been positioned on site. It is anticipated that the Hope Bay Project will have sufficient resources and trained personnel to respond to all types/sizes of spills that could potentially occur on site.

The majority of activities conducted at the site occur on the project infrastructure roads and camp pads. In the event that a spill occurs off the site infrastructure, helicopters and off-road tundra (low impact) vehicles, such as the Rim-pull, will be used to mobilize spill response

resources. The impact from these vehicles will be monitored and damage to the surrounding tundra minimized to the extent possible.

Extreme weather conditions, such as sub-zero temperatures, that may impact the response capabilities of personnel will be mitigated by rotating personnel from response activities to break areas as needed. This may include using heated vehicles, portable shelters or heated buildings.

Portable light plants are available on-site and will be used in seasonal darkness to aid in spill response containment, clean-up and remedial actions.

4.8 Risk Identification Matrix

As part of Environmental Incident Management, a risk assessment exercise using the Agnico Eagle RMMS risk quantification and classification methodologies and risk criteria for Critical Infrastructures was completed. The risk assessment was also used to identify the Worst-Case Scenario and Alternative Worst-Case Scenario as defined by reporting requirements of the E2 Regulations. The matrix defines the level of risk (low risk ≤ 3 , high risk ≥ 12) by considering likelihood and consequence severity. The exercise increases the visibility of risks and identifies potential risk areas, as well as determines the fate of spilled products and their environmental effects. The risk assessment exercise is documented in Intellex.

4.8.1 Worst-Case Scenario (WCS)

Under Section 4(2)(3) of the E2 Regulations, the Worst-Case Scenario is the release of the greatest quantity of a hazardous substance, contained in the largest container or not in a container system, irrespective of the impact distance to an endpoint being inside or outside the boundary of a facility. The scenario does not need to be reasonable.

A diesel spill from a 5 ML storage tank at the Roberts Bay Laydown Facility would be the Worst-Case scenario at Hope Bay. In this scenario, the entire storage tank contents are emptied, the containment berm fails, and diesel is released to the surrounding area. The maximum quantity of diesel that can be released from a single tank is 5 ML. At this volume, the spill is expected to follow topography and reach Roberts Bay (< 1 km away). Potential receptors from the spill include the waterbody, fish, and wildlife habitat. Given the isolation of the site, there is no potential for impact on communities.

4.8.2 Alternate Worst-Case Scenario (AWCS)

The Alternate Worst Case Scenario is described in Section 4(2)(f) of the E2 Regulations. This scenario is more likely to occur than the worst-case scenario and has the longest impact distance to an endpoint outside the boundary of the facility.

A spill during the transport of fuel at Roberts Bay is considered the Alternate Worst-Case Scenario at Hope Bay. In this scenario the spill occurs during a fuel tanker truck accident while transporting fuel from the Roberts Bay tank farm. The spill is between 10,000 – 15,000 L (~ 20-30% of the storage). At this volume, the spill is expected to reach Roberts Bay (>1 km away). Potential receptors from the spill include the waterbody, fish, and wildlife habitat. Given the

isolation of the site, there is no potential for impact on communities. The impact distance is outside the boundary of the facility and is controlled by sea conditions in Roberts Bay.

4.8.3 Alternate Scenario (AS)

The Alternate Scenario is an E2 environmental emergency scenario, that has not been assigned as the WCS or AWSC. It is a scenario that could reasonably be expected to occur at a facility and that would likely cause harm to the environment or constitute a danger to human life or health. A spill during the transfer of fuel at fueling stations is considered an Alternate Scenario at Hope Bay. In this scenario the spill occurs while workers fuel vehicles/equipment at fueling stations, or when transferring fuel into portable tanks for use. The worker is distracted and responds within 5 minutes to stop the spill. In this case the spill is between 1000 – 5,000 L. Potential receptors from the spill include the tundra environment, the waterbody (Doris Lake), fish and/or wildlife habitat. Given the isolation of the site, there is no potential for impact on communities.

5 Training

All personnel working at the Hope Bay site receive onsite training during the initial site orientation. At that time, every employee is informed that he/she is potentially a First Responder to any spill or unanticipated discharge event and is provided a brief explanation of the actions expected of every First Responder and where to find the First Responder SOP (flow chart) which is included in the site spill kits. Spill response plans are also located in accessible public locations on site.

Supervisors provide task-specific training to workers using chemicals onsite which includes appropriate handling, storage, disposal, and where to find guidance on spill response for these chemicals. Workers are provided with information on spill response requirements and the locations of spill kits in their immediate work area. Spill response techniques are reviewed in departmental safety meetings by representatives of the Environmental department on an annual basis as part of a tool-box session. The lessons learned from spill investigations are communicated to all workers as corrective actions are developed.

Additionally, more detailed training is provided to workers involved in fuel offloading activities, through consultants such as Riverspill Response Canada Ltd. The instructional sessions include site safety, materials properties and strategies as well as tactics for containment and recovery in-facility, on land (brief) and on water spills. This training also includes the performance of mock spill response practical exercises (tabletop and field drills) in years of fuel offload, including deployment of spill response equipment under typical operating conditions.

Members of the Emergency Response Team receive frequent training regarding a variety of incident scenarios and response techniques applicable at the Hope Bay site. This training includes response to fire, explosive or toxic incidents, including spill of materials that could result in these conditions.

As per the Environment Emergency Regulation, a yearly simulation exercise will be conducted, and a full-scale exercise will occur every five years. Supervisory training of the SCP occurs annually prior to the yearly simulation exercise. Debriefing of the simulation exercise will allow to determine the aspect of the current plan (training, prevention, communication) that will need to be improved. This SCP will be updated to reflect the conclusions and improvement needed.

These training programs ensure that personnel understand the procedures in the Hope Bay Spill Contingency Plan, the hazards of the materials stored on-site, who is responsible for what activities, how to initiate a response, where to find and use response equipment, and how to obtain off-site resources. Training is delivered by the Health & Safety and Environment Groups. Supervisors are responsible to ensure that their employees are trained for the tasks.

5.1 Spill Response Simulation Exercises

A spill response simulation exercise will be conducted annually in coordination with Agnico Eagle Management and the Emergency Response Team. The exercise will simulate one of the environmental emergencies identified in Appendix 1 for an E2 Schedule 1 listed hazardous chemical or product stored on site. The exercise will simulate the release of one of these

products to the environment and will test the response actions of the Incident Command System and Emergency Response Teams.

Every 5 years, a full-scale simulation exercise will be conducted which will test the response actions of the Incident Command System and Emergency Response Teams, and will include deployment of personnel, resources and equipment during the simulation.

Each annual exercise will simulate the release of a different E2 Schedule 1 listed product stored on site until all environmental emergencies identified in the Product Specific Emergency Response Plans have been tested, at which point the cycle will begin again. Emergency Response Plans for E2 Schedule 1 listed products stored on site are provided in Appendix 1 of this Plan.

Details of spill response simulation exercises will be documented and improvements identified will be incorporated into updates to the Spill Contingency and Emergency Response Plans. A record of these exercises, results and modifications to these plans will be maintained on file for 5 years and available for inspection upon request.

Once completed, a notice regarding the simulation exercise will be submitted to the Minister as outlined in Schedule 5 of the Environmental Emergency Regulations.

6 References

2010. *Consolidation of Environmental Protection Act* (R.S.N.W.T 1988, c.E-7). Current to August 29, 2010, Government of Nunavut.
2011. *Nunavut Waters and Nunavut Surface Rights Tribunal Act* (S.C.2002, c.10) Current to May 5, 2011, Aboriginal Affairs and Northern Development Canada.
- Consolidation of Environmental Emergency Regulations* (S.O.R. 2019-51). Current to November 19, 2019, Environment and Climate Change Canada.
- Consolidation of Regulation R-068-93 Spill Contingency Planning and Reporting Regulations* as provided by the Government of Nunavut website.
- Contingency Planning and Spill Reporting in Nunavut, A Guide to the New Regulations.* Environmental Protection Service, Department of Sustainable Development, Government of Nunavut.
- Implementation Guidelines for Environmental Emergency Regulations.* 2011. Environment and Climate Change Canada.
- Canadian Wildlife Services. 2012. *Birds and oil-CWS Response Plan.*
- INAC. 2007. *Guidelines for Spill Contingency Planning.* Water resource Division, Indian and Northern Affairs Canada, April 2007.
- International Council on Metals and the Environment. 1999. *The Management of Cyanide in Gold Extraction.*
- Mudder, T.I. *Cyanide Spills Prevention and Response.*



AGNICO EAGLE
HOPE BAY

HOPE BAY SPILL CONTINGENCY PLAN

HOPE BAY, NUNAVUT

Module A: Doris

Conformity Table

Licence	Part	Item	Topic	Report Section
2AM-DOH1335	H	1.	The Licensee shall implement the following plans as approved by the Board: <i>Surface Emergency Response Plan</i> , <i>Underground Emergency Responses Plan</i> , and <i>Hope Bay Project Spill Contingency Plan</i> . The Licensee shall comply with the Plan(s) and any changes deemed significant shall require the submission and subsequent approval of the Board in writing.	This Plan
		2.	All sumps and fuel caches shall be located at a distance of at least thirty one (31) metres from the ordinary High Water Mark of any adjacent Water body and inspected on a regular basis.	Section 2 Section 4.6
		3.	The Licensee shall prevent any chemicals, petroleum products or wastes associated with the project from entering Water.	Section 2 Section 4.6
		4.	The Licensee shall provide secondary containment for fuel and chemical storage as required by applicable standards and acceptable industry practice.	Section 4.1
		5.	The Licensee shall perform weekly inspections of petroleum products storage and containment facilities, fuel tanks and connectors, for leaks and settlement and shall keep a written log of inspections to be made available to an Inspector upon request. More frequent inspections may be requested by an Inspector.	Section 4.1
		8.	The Licensee shall conduct emergency maintenance and servicing on equipment, in designated areas, and shall implement measures to collect motor fluids and other Waste to prevent and contain spills.	Section 4.4
		9.	The Licensee shall, subject to Section 16 of the Regulations, report any unauthorized deposits or foreseeable unauthorized deposits of waste and/or discharges of Effluent, and:	See below
		9a.	<ul style="list-style-type: none"> employ the Spill Contingency Plan; 	Section 2
		9b.	<ul style="list-style-type: none"> report the incident immediately via the 24-Hour Spill Reporting Line [see pg. iii Key Government Contact List], to the Inspector at [see pg. iii Key Government Contact List] and to the Kitikmeot Inuit Association at [see pg. iii Key Government Contact List]; and 	Section 3.3
		9c.	<ul style="list-style-type: none"> for each spill occurrence, submit a detailed report to the Inspector, no later than thirty (30) days after initially reporting the event, which includes the amount and type of spilled product, the GPS location of the spill, and the measures taken to contain and clean up the spill site. 	Section 3.3
		10.	The Licensee shall, in addition to Part H, Item 9, regardless of the quantity of releases of harmful substances, report to the NWT/NU Spill Line if the release is near or into a Water body.	Section 3.3
	I	11.	The Licensee shall submit to the Board for review, at least sixty (60) days prior to operation of the Roberts Bay Discharge System, an addendum to the Spill Contingency Plan detailing spill prevention measures along the pipeline.	A3

Licence	Part	Item	Topic	Report Section
	Schedule B		The Annual Report referred to in Part B, Item 2 shall include the following:	See below
		8.	A list and description of all reportable unauthorized discharges including volumes, spill report line identification number and summaries of follow-up action taken	Section 3.3

A1 Introduction

The Type A Water Licence No. 2AM-DOH1335 issued by the Nunavut Water Board (NWB) requires the development of a Spill Contingency Plan in accordance with Part I. The Spill Contingency Plan has been prepared and is being submitted by Agnico Eagle to address this requirement, and also includes the plan for spill response throughout the Hope Bay belt.

The 2AM-DOH1335 Licence area includes the Doris Camp and the necessary infrastructure to support surface exploration, underground mining and development activities, and ore processing. Refer to Module C of this plan for details and description of chemical storage related to Madrid infrastructure under this licence.

A2 Chemical Storage at Doris

A list of fuel and chemical storage facilities, containment capacity, products stored and maximum expected quantity to be stored within each facility for the Doris area is provided in Table A.1 below. Table A.1. is a comprehensive list of the chemical storage at Doris, exclusions under the E2 regulations have not been considered. Chemical storage locations are also depicted on the photographs provided below, in addition to the default spill kit locations.

Table A.1. Doris Fuel and Chemical Storage Total Quantities

Products Stored	Total Maximum Expected Quantity Stored
Diesel Fuel	32,627,151 L
Jet-A Fuel	420,160 L
Waste Oil	1,700 L
Amex (Ammonium nitrate)	900,000 kg
Collector	90,000 kg
Promoter	30, 100kg
Frother	16,000 kg
Flocculant Low pH	16, 000 kg
Sodium Cyanide	240,000 kg
Caustic Soda	450,000 kg
Flocculant High pH	2,000 kg
Sodium Metabisulphate	240,000 kg
Copper Sulphate	125,000 kg
Hydrochloric Acid	4000 kg
Sodium Benzoate	20,000 kg
Silica Sand	5000 kg
Borax	12,500 kg
Soda Ash	8750 kg

Products Stored	Total Maximum Expected Quantity Stored
Potassium Nitrate	5000 kg
Calcium Chloride	11,030 tonnes
Acetylene	3600 cu. ft.
Propane	3000 lbs
Oxygen	79,400 L
Anionic Polymer Hydrex 6105	1200 kg
Cationic Polymer Hydrex 3266	1200 kg
VEOLIA Actisand	4355 kg

Table A.2. Doris Fuel and Chemical Storage Locations

Storage Location	Facility Description/ Storage Capacity	Tank Description	Containment Capacity	Products Stored	Maximum Expected Quantity Stored
Roberts Bay Bulk Fuel Storage Facility (Quarry 1 / ST-6a)	1 @ 5,000,000 L Tank	Field-erected	Gravel/HDPE, 6,270,000 L	Diesel Fuel	5,000,000 L (1)
Roberts Bay Bulk Fuel Storage Facility (ST-6b)	4 @ 5,000,000 L 1@ 400,000 L Tanks	Field-erected, individual tanks	Gravel/HDPE, 9,190,000 L	Diesel Fuel Jet-A	20,000,000 L 400,000 L (1)
Batch Plant/ equipment storage	2 @ 1240 L	Pre-fabricated, double-walled, portable	Spill containment	Diesel Fuel	2 @ 1116 L (2)
Doris Camp Site Fuel Storage Facility (ST-5)	5 @ 1,500,000 L Tanks Dispensing Module (Active)	Field Erected tanks interconnected with double manual valves and electrically interlocked motor actuated valve	Gravel/HDPE, 2,976,000 L	Diesel Fuel	7,500,000 L (1)
Doris Helipad (office, washcar)	1 @ 1240 L	Pre-fabricated, double-walled, portable	Insta-berm, spill containment	Diesel Fuel	1116 L (2)
Doris Helipad (Jet-A Storage)	Drums in Seacan (maximum 64 drums)	Drums	spill containment	Jet A Fuel	13,120 L
	2 @ 3000 L Tanks	Pre-fabricated, double-walled, portable	Spill containment	Jet-A Fuel	5400 L (1)
Doris Helipad (landing pads)	Drum fuel (8) placed at each active helicopter landing pad	Drums	Plastic spill pallets, 220 L	Jet A Fuel	1640 L (1)
Doris Muster Station	1 @ 1240 L	Pre-fabricated, double-walled, portable	HDPE/Wood spill containment	Diesel Fuel	1116 L (2)

Storage Location	Facility Description/ Storage Capacity	Tank Description	Containment Capacity	Products Stored	Maximum Expected Quantity Stored
Doris Powerhouse (old)	1 @ 15,000 L	Pre-fabricated, double-walled, portable	HDPE/Wood spill containment	Diesel Fuel	15,000 L (1)
Doris Powerhouse (new)	4 @ 5000 L	Pre-fabricated, double-walled, portable	4 @ 5500 L each, Concrete	Diesel Fuel	20,000 L (1)
Roberts Bay Waste Management Facility Generator	Internal tank @ 2250 L	Pre-fabricated, double-walled,	Internal steel spill containment	Diesel Fuel	2025 L (2)
Roberts Bay Incinerator	1 @ 1500 L (Inactive)	Pre-fabricated, double-walled	Steel Spill containment	Diesel Fuel	1350 L (2)
	2 @ 1000 L (Inactive)	Pre-fabricated, double-walled		Diesel Fuel	2 @ 1000 L (1)
Quarry 2 Incinerator	1 @ 4500 L	Pre-fabricated, double-walled	Steel Spill containment	Diesel Fuel	4500 L (1)
Waste Management Facility Waste Oil Burner	2 @ 850 L	Plastic Cube	Spill containment	Waste Oil	1700 L (2)
Rob Bay Muster Station	1 @ 1240 L	Pre-fabricated, double-walled, portable	Steel Spill containment	Diesel Fuel	1116 L (2)
Doris Vent Raise	1 @ 70,000 L	Pre-fabricated, double-walled, portable	Gravel/HDPE, 77,000 L	Diesel Fuel	70,000 L (1)
Doris Airport Tower Generator	1 @ 1240 L	Pre-fabricated, double-walled, portable	Steel spill containment; in seacan	Diesel Fuel	1116 L (2)
Doris Pump House	1 @ 1240 L	Pre-fabricated, double-walled, portable	HDPE/Wood spill containment	Diesel Fuel	1116 L (2)
Geotech Shop	1 @ 1240 L	Pre-fabricated, double-walled, portable	Steel spill containment	Diesel Fuel	1116 L (2)
Main Shop	2 @ 1240 L	Pre-fabricated, double-walled, portable	Steel spill containment	Diesel Fuel	2 @ 1116 L
Explosive Berm (TIA Access Road)	Seacan	NA	NA	Amex (Ammonium nitrate)	900,000 kg (3)
Mill Building	1 @ 1240 L	Pre-fabricated, double-walled, portable	Steel spill containment	Diesel Fuel	1116 L (2)
Doris Camp Pad	Locked Seacan	NA	Seacans	Sodium Cyanide	240,000 kg (3)
Upper Laydown (Inventory seacans)	Locked Seacan	NA	Seacans	Collector	90,000 kg (3)
	Locked Seacan	NA	Seacans	Promoter	30, 100kg (3)

Storage Location	Facility Description/ Storage Capacity	Tank Description	Containment Capacity	Products Stored	Maximum Expected Quantity Stored
	Locked Seacan	NA	Seacans	Frother	16,000 kg (3)
	Locked Seacan	NA	Seacans	Flocculant Low pH	16, 000 kg (3)
	Locked Seacan	NA	Seacan	Caustic Soda	450,000 kg (3)
	Locked Seacan	NA	Seacans	Flocculant High pH	2,000 kg (3)
	Locked Seacan	NA	Seacan	Sodium Metabisulphate	240,000 kg (3)
	Locked Seacan	NA	Seacans	Copper Sulphate	125,000 kg (3)
	Locked Seacan	NA	Seacans	Hydrochloric Acid	4000 kg (3)
	Locked Seacan	NA	Seacans	Sodium Benzoate	20,000 kg (3)
	Locked Seacan	NA	Seacans	Silica Sand	5000 kg (3)
	Locked Seacan	NA	Seacans	Borax	12,500 kg (3)
	Locked Seacan	NA	Seacans	Soda Ash	8750 kg (3)
	Locked Seacan	NA	Seacans	Potassium Nitrate	5000 kg (3)
Lower Laydown	Seacans with 1000 kg mega bags	NA	NA	Calcium Chloride	11,030 tonnes (3)
	Seacan	NA	NA	Acetylene	10 - WTL bottles (~3600 cu. ft. of product) (3)
	Seacan	NA	NA	Propane	30 – 100 lb bottles (3000 lbs) (3)
	Seacan ERT building ERT building	NA	NA	Oxygen	10 - K bottles (6900 L ea) 3 - M bottles (3000 L ea) 4 - D bottles (350 L ea) (~79,400 L. of product) (3)

(1) Maximum Capacity of Container System

(2) Safe Fill Zone Capacity

(3) Normal quantity stored in container



Plate A.1. Roberts Bay Laydown (Note: Red circles are fuel or chemical storage locations, smaller containment locations may vary. Yellow stars [or a yellow circle in the case of the aquatic mobile response spill response equipment] indicate default spill kit locations.)

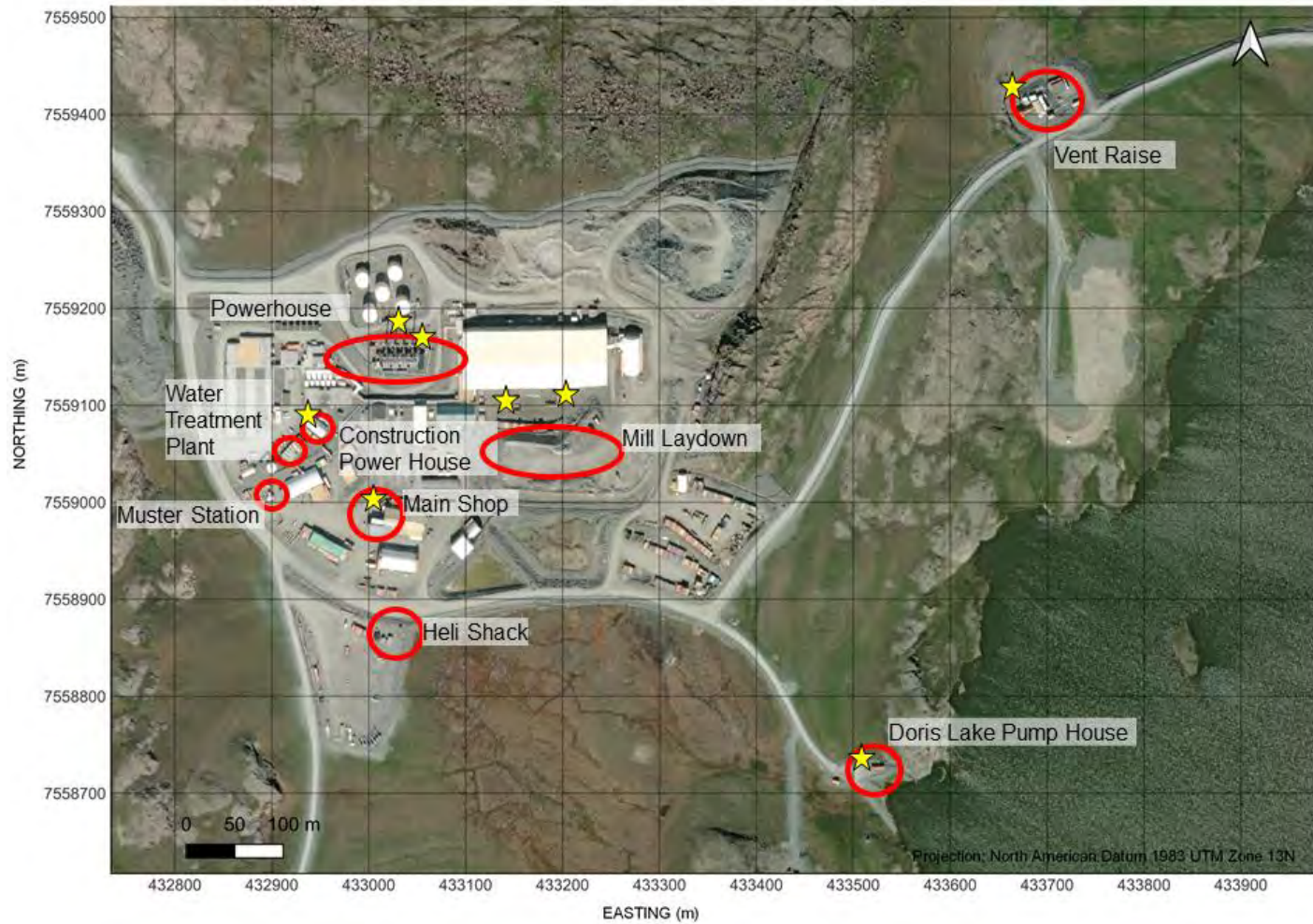


Plate A.2. Doris Camp (Note: Red circles are fuel or chemical storage locations, smaller containment locations may vary. Yellow stars indicate default spill kit locations.)

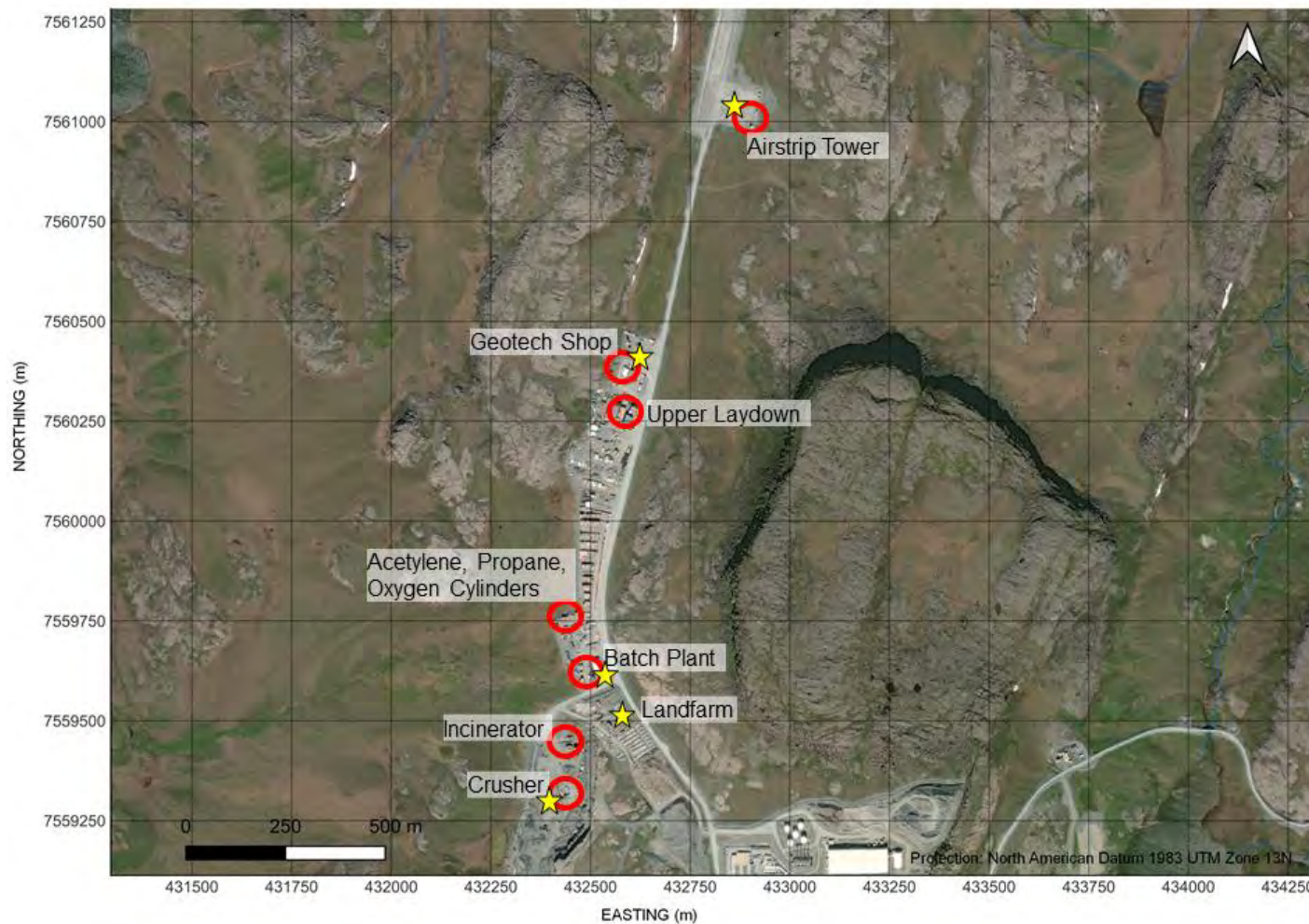


Plate A.3. Quarry 2, Laydowns, Airstrip (Note: Red circles are fuel or chemical storage locations, smaller containment locations may vary. Yellow stars indicate default spill kit locations.)



Plate A.4. Explosive Magazine (Note: Yellow star indicate default spill kit locations.)

A3 Water Treatment Process

Underground mine water is pumped from a settling sump system to a Water Treatment Plant (WTP) on surface designed to provide Total Suspended Solids (TSS) removal from the effluent stream prior to being pumped to the RBDS Water Management Facility and to final discharge to Roberts Bay. The multi-stage process consists of coarse suspended solids removal via a lamella clarifier and the addition of a polymer flocculent and coagulant followed by fine suspended solids removal utilizing multimedia filters. This treatment process is capable of meeting the authorized limits for TSS outlined in Schedule 4 of the MDMER.

Agnico plans to install an additional water treatment plant to treat TSS, in the vicinity of the reclaim pond at the TIA, that utilizes the Veolia Actiflo® technology. The water treatment plant will have the capacity to treat both underground and reclaim water streams prior to discharge to Roberts Bay. The Veolia system consists of a flocculation and sedimentation process with patented micro sand. The water treatment plant will also have capability to be expanded to treat metals and ammonia when required.

A4 Roberts Bay Discharge System

The Roberts Bay Discharge System (RBDS) is designed to transport compliant effluent from the Doris underground mine and excess water from the Tailings Impoundment Area (TIA) to a subsea diffuser extending 2.1km into Roberts Bay. The Roberts Bay Discharge System consists of an insulated pipeline, the Roberts Bay Discharge Pipeline, which runs from the RBDS Water Management Facility, along to the Primary Road and the airstrip to the Roberts Bay Laydown Areas. At Roberts Bay the pipeline runs in front of the 20 ML fuel tank farm, along the south side of the Roberts Bay Jetty Access Road and laydown pads, to the Roberts Bay shoreline along the south side of the Roberts Bay Discharge Access Road. The discharge pipeline enters the Roberts Bay marine environment through a Marine Outfall Berm, and terminates at the Roberts Bay Diffuser, situated approximately at 20 m depth and 1.4 km from shore.

A5 Spill Prevention

All pipelines in the system are constructed from HDPE material resistant to wear. Each pipe connection has been fuse welded to remove the risk introduced by Victaulic clamp installations which are susceptible to expansion during freeze/thaw conditions and wear resulting in leaks. The number of elbow joints on the pipelines has been minimized to the extent possible; elbow joints are more susceptible to wear over time due to increased force/pressure of effluent travelling through the joint. The system will operate at relatively low pressures, therefore leakage from normal operating modes is highly unlikely.

Flow meters have been installed between the TIA Intake Pump station and the RBDS Water Management Facility, and between the RBDS Water Management Facility and the Marine Outfall Berm Pump station to monitor flow within the pipeline. These flow meters are connected by fibre optic communication lines linked to a PLC system which communicates real-time flow measurements to the Process Plant Control Room. The Process Plant Control Room is manned 24hrs a day allowing for continuous monitoring of the discharge pipeline. An unanticipated drop

in flow registered on these flow meters will trigger an immediate inspection of the pipeline to investigate cause. If a leak is detected during this inspection, discharge from the pipeline will be immediately shut down minimizing the volume of the release.

Inline instrumentation has been installed to measure TSS in each effluent stream prior to being combined. TSS is also measured after the effluent streams have been combined to determine compliance with the authorized limits for TSS outlined in Schedule 4 of the MDMER prior to discharge from the Final Discharge Point (FDP) to the environment. Low and high level alarms have been established to provide early notification of an increase in TSS to the Process Plant Control Room. If the low level alarm is triggered, the Water Treatment Operator is notified and is able to respond to any potential treatment upsets. If the high level alarms are triggered for either effluent stream, the system is automatically placed into recirculation back to the TIA until effluent streams are determined to be in compliance with the authorized discharge limits, and discharge to the environment may then be resumed. This real time monitoring significantly reduces the likelihood of non-compliant effluent being discharged to the environment.

The pipeline connecting the Underground sump system to the RBDS Water Management Facility is located upstream of the Doris Sedimentation and Pollution Control Ponds. Any leak from this system would report to these water management ponds and be transferred to the TIA.

Delineators are used to mark pipelines to ensure vehicle and equipment operators are aware of pipeline locations when travelling on site roads. Pipelines in this system have been aligned adjacent to roadways to the extent possible to allow for thorough inspections and to reduce the risk of vehicle and equipment interaction with the pipelines.

Pipeline inspections are conducted during each 12hr shift. This inspection includes driving the entire length of the pipeline and visually assessing the line for signs of leaks or spills.



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HOPE BAY SPILL CONTINGENCY PLAN

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Module B: Windy

Conformity Table

Licence	Part	Item	Topic	Report Section
2BE-HOP1222	B	2.	The Licensee shall file an Annual Report on the appurtenant undertaking with the Board no later than March 31st of the year following the calendar year being reported which shall contain the following information:	See below
		2.e	<ul style="list-style-type: none"> an update to the Spill Contingency Plan, if required, including contact information in the form of an addendum. 	This report
	H	1.	The Licensee has submitted, September 23, 2011, a Spill Contingency Plan entitled Hope Bay Project Spill Contingency Plan, for the Hope Bay Project, which encompasses the Hope Bay Belt projects including Roberts Bay, the Doris, Boston and Windy camps. This Plan covers the Windy Camp with respect to care and maintenance of the site. The Licensee shall submit to the Board for approval in writing, within ninety (90) days of issuance of this Licence, a revised Plan that takes into consideration the status of the entire Hope Bay Belt project as it influences the activities, environmental and safety issues of the Windy Camp and the Hope Bay Regional Exploration Project.	This report
		2.	Licensee shall submit to the Board for approval in writing, sixty (60) days prior to the resumption of exploration activity at the Hope Bay Regional Exploration Project, a revised Spill Contingency Plan that is specific to the scope of this Licence and prepared in accordance with the <i>Spill Contingency Planning and Reporting Regulations</i> developed under Section 34 of the <i>Environmental Protection Act</i> .	Plan filed in March 2014, updated here. Sections 2 and B2
		3.	The Licensee shall, if not approved by the Board, revise the Plan referred to in Part H, Item 1, and resubmit to the Board for approval within thirty (30) days of receiving notification of the Board's decision.	Section 1.5
		4.	The Licensee shall implement the Plan specified in Part H, Item 1 as and when approved by the Board.	Section 1.5
		5.	The Licensee shall review the Plan referred to in this Part as required by changes in operation and/or technology and modify the Plan accordingly. Revisions to the Plan are to be submitted in the form of an Addendum, to be included with the Annual Report unless directed otherwise by an Inspector.	Section 1.4
		6.	The Licensee shall ensure that any chemicals, petroleum products or wastes associated with the project do not enter water. All sumps and fuel caches shall be located at a distance of at least thirty one (31) metres from the ordinary high water mark of any adjacent water body and inspected on a regular basis.	Section 2 Section 4.6
		7.	The Licensee shall ensure that any equipment maintenance and servicing be conducted only in designated areas and shall implement special procedures (such as the use of drip pans) to manage motor fluids and other waste and contain potential spills.	Section 4.4
		8.	If during the term of this Licence, an unauthorized discharge of waste occurs, or if such a discharge is foreseeable, the Licensee shall:	See below
		8a.	<ul style="list-style-type: none"> employ the Spill Contingency Plan; 	Section 2
		8b.	<ul style="list-style-type: none"> report the spill immediately to the 24-Hour Spill Line and to the Inspector at [see pg. iii Key Government Contact List]; and 	Section 3.3
		8c.	<ul style="list-style-type: none"> for each spill occurrence, submit to the Inspector, no later than thirty (30) days after initially reporting the event, a detailed report that will include the amount and type of spilled product, the GPS location of the spill, and the measures taken to contain and clean up the spill site. 	Section 3.3

B1 Introduction

The Type B Water Licence No. 2BE-HOP2232 issued by the Nunavut Water Board (NWB) requires the development of a Spill Contingency Plan in accordance with Part H. The Spill Contingency Plan has been prepared and is being submitted by Agnico Eagle to address this requirement, and also includes the plan for spill response throughout the Hope Bay belt.

As part of Care and Maintenance, the vacant Windy Camp at Windy Lake will be dismantled and decommissioned.

B2 Chemical Storage at Windy

Windy Camp is located 10km south of Doris Camp at N 68° 03.715' W 106° 37.109' and is in the process of being decommissioned. Fuel storage at Windy Camp is limited to one tank (double-walled Tidy Tank) containing a maximum of 1240L of diesel fuel. This tank is located more than 31 m from any waterbody and fuels a generator used to heat a pump house structure located at the potable freshwater intake south of Windy Camp. Water is used to supply Doris Camp with potable water, and regular inspection of this facility occurs as per the requirements of the Doris Water Licence. In case of a potential spill involving the Tidy Tank, there is a spill kit located at the pump house (at the shoreline).

No other hydrocarbons or chemicals are stored at Windy Camp. Any hydrocarbons or chemicals needed for decommissioning the camp structures will be brought to Windy Camp and consumed on an as-needed basis. Spill kits will be available within 200 m of working equipment during these activities. Chemical storage and spill kit locations at Windy Camp are shown in the photo below.

The Bulk Fuel Storage Facility at Patch Lake was fully dismantled in 2012 and the area is in the process of being reclaimed. There are no hydrocarbons or chemicals stored at the Patch Lake Facility. Fuel or lubes required to complete reclamation work will be brought in for immediate equipment use, and a spill kit will be available on site to support operating machinery.

In case of exploration drilling on land and on ice, chemicals will be brought in to assist with the drilling process and stored within secondary containment. Each drill will have its own fully stocked spill kit and chemicals stored will be kept to an amount needed for each shift. Excess chemicals will not be stored within Windy Camp.

One permitted facility for explosives materials is located at Quarry A on the west side of the Doris-Windy all-weather road. This facility can store a maximum of 40,800 kg of explosive materials containing ammonium nitrate. In the event of a spill of this material, the spill response actions would be completed as outlined in the Product Specific Emergency Response plan in Appendix 1 of this document.

B3 Windy Fuel and Chemical Storage Locations

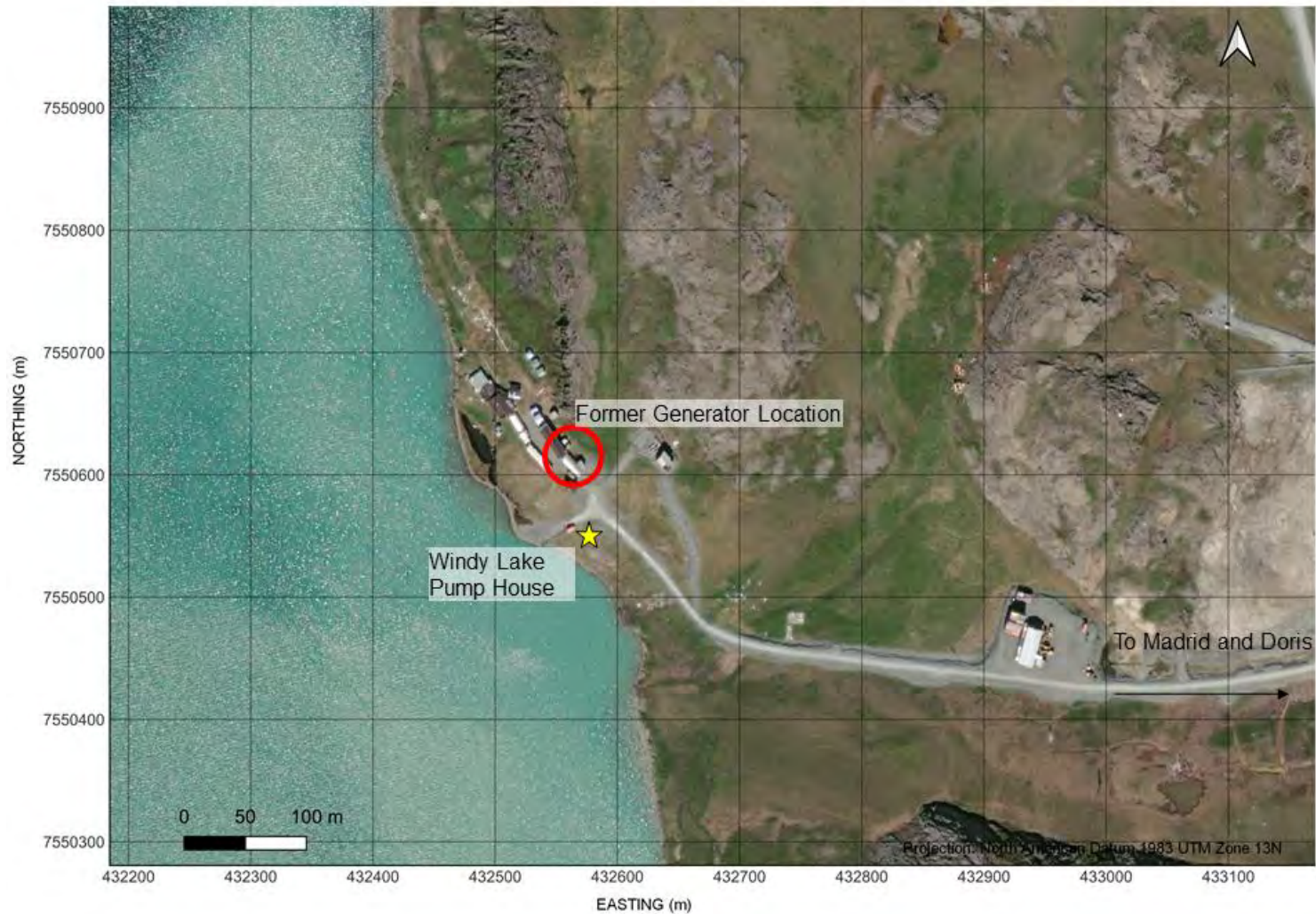


Plate B.1. Windy Camp (Note: Red circle is fuel storage location. Yellow star indicates spill kit location.)



Plate B.2. Quarry A Explosives Magazine (Note: Yellow star indicates spill kit location.)



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HOPE BAY SPILL CONTINGENCY PLAN

HOPE BAY, NUNAVUT

Module C: Madrid (Exploration and Operations)

Conformity Table

Licence	Part	Item	Topic	Report Section
2AM-DOH1335	H	1.	The Licensee shall implement the following plans as approved by the Board: Surface Emergency Response Plan, Underground Emergency Responses Plan, and Hope Bay Project Spill Contingency Plan. The Licensee shall comply with the Plan(s) and any changes deemed significant shall require the submission and subsequent approval of the Board in writing.	This Plan
		2.	All sumps and fuel caches shall be located at a distance of at least thirty one (31) metres from the ordinary High Water Mark of any adjacent Water body and inspected on a regular basis.	Section 2 Section 4.6
		3.	The Licensee shall prevent any chemicals, petroleum products or wastes associated with the project from entering Water.	Section 2 Section 4.6
		4.	The Licensee shall provide secondary containment for fuel and chemical storage as required by applicable standards and acceptable industry practice.	Section 4.1
		5.	The Licensee shall perform weekly inspections of petroleum products storage and containment facilities, fuel tanks and connectors, for leaks and settlement and shall keep a written log of inspections to be made available to an Inspector upon request. More frequent inspections may be requested by an Inspector.	Section 4.1
		8.	The Licensee shall conduct emergency maintenance and servicing on equipment, in designated areas, and shall implement measures to collect motor fluids and other Waste to prevent and contain spills.	Section 4.4
		9.	The Licensee shall, subject to Section 16 of the Regulations, report any unauthorized deposits or foreseeable unauthorized deposits of waste and/or discharges of Effluent, and:	See below
		9a.	<ul style="list-style-type: none"> employ the Spill Contingency Plan; 	Section 2
		9b.	<ul style="list-style-type: none"> report the incident immediately via the 24-Hour Spill Reporting Line [see pg. iii Key Government Contact List], to the Inspector at [see pg. iii Key Government Contact List] and to the Kitikmeot Inuit Association at [see pg. iii Key Government Contact List]; and 	Section 3.3
		9c.	<ul style="list-style-type: none"> for each spill occurrence, submit a detailed report to the Inspector, no later than thirty (30) days after initially reporting the event, which includes the amount and type of spilled product, the GPS location of the spill, and the measures taken to contain and clean up the spill site. 	Section 3.3
		10.	The Licensee shall, in addition to Part H, Item 9, regardless of the quantity of releases of harmful substances, report to the NWT/NU Spill Line if the release is near or into a Water body.	Section 3.3
	I	11.	The Licensee shall submit to the Board for review, at least sixty (60) days prior to operation of the Roberts Bay Discharge System, an addendum to the Spill Contingency Plan detailing spill prevention measures along the pipeline.	A3
	Schedule B		The Annual Report referred to in Part B, Item 2 shall include the following:	See below
		8.	A list and description of all reportable unauthorized discharges including volumes, spill report line identification number and summaries of follow-up action taken	Section 3.3
2BB-MAE1727	B	2.	The Licensee shall file an Annual Report on the Appurtenant Undertaking with the Board no later than 31 st of March, of the year following the calendar year being reported, containing the following information:	See below

Licence	Part	Item	Topic	Report Section
		2j.	<ul style="list-style-type: none"> Updates or revisions to the Water Management Plan, Abandonment and Restoration Plan, QA/QC, Waste Rock and Ore Storage Plan, and Spill Contingency Plan and/or any other management plan. 	This Plan
	H	1.	The Licensee shall submit for Board approval in writing, within ninety (90) days following issuance of the Licence, a spill contingency Plan that is specific to the scope of this Licence, addresses comments received by the parties, and is prepared in the format set out by the Consolidation of Spill Contingency Planning and Reporting Regulations, R-068-93.	This Plan
		2.	The Licensee shall prevent any chemicals, petroleum products or wastes associated with the project from entering water. All Sumps and fuel caches shall be located at a distance of at least thirty-one (31) metres from the ordinary High Water Mark of any adjacent water body and inspected on a regular basis.	Section 2 Section 4.1
		3.	The Licensee shall conduct any equipment maintenance and servicing in designated areas and shall implement special procedures (such as the use of drip pans) to manage motor fluids and other waste and contain potential spills.	Section 4.4
		4.	If during the term of this Licence, an unauthorized discharge of waste occurs, or if such a discharge is foreseeable, the Licensee shall:	See below
		4a.	<ul style="list-style-type: none"> employ the Spill Contingency Plan; 	This plan
		4b.	<ul style="list-style-type: none"> report the spill immediately to the 24-Hour Spill Line at <i>[see pg. iii Key Government Contact List]</i> and to the Inspector at <i>[see pg. iii Key Government Contact List]</i>; and 	Section 3.3
		4c.	<ul style="list-style-type: none"> for each spill occurrence, submit to the Inspector, no later than thirty (30) days after initially reporting the event, a detailed report that will include the amount and type of spilled product, the GPS location of the spill, and the measures taken to contain and clean up the spill site. 	Section 3.3
		5.	The Licensee shall, in addition to Part H, Item 4, regardless of the quantity of releases of harmful substances, report to the NWT/NU Spill Line if the release is near or into a Water body.	Section 3.3

C1 Introduction

The Type A Water Licence No. 2AM-DOH1335 and the Type B Water Licence No. 2BB-MAE1727 issued by the Nunavut Water Board (NWB) requires the development of a Spill Contingency Plan in accordance with Part H. The Spill Contingency Plan has been prepared and is being submitted by Agnico Eagle to address this requirement, and also includes the plan for spill response throughout the Hope Bay belt.

The 2AM-DOH1335 Licence Area includes the Madrid North and Madrid South sites. Work at the Madrid North site began in 2019 and includes the necessary infrastructure to support surface mining at the Naartok East Crown Pillar trench and underground mining at the Madrid North portal. This infrastructure includes the Madrid North Contact Water Pond, Madrid North Waste Rock storage pad, as well as laydown pads and shop facilities.

Work at the Madrid North site was suspended in March 2020 due to the Covid-19 global pandemic and mining remains inactive at this site. Routine monitoring of fuel and chemical storage locations is conducted to ensure not spill of stored product occurs.

No work has yet been conducted at the Madrid South site.

C2 Chemical Storage at Madrid North and Madrid South

A list of fuel and chemical storage facilities, containment capacity, products stored and maximum expected quantity to be stored within each facility for the Madrid North site is provided in Table C.1 below. Table C.1. is a comprehensive list of the chemical storage at Madrid, exclusions under the E2 regulations have not been considered. All storage facilities will be located at a distance greater than 31 m from any water body. Currently there is no chemical storage at Madrid South.

Table C.1. Madrid North Fuel and Chemical Storage Total Quantities

Products Stored	Expected Total Quantity Stored
Calcium Chloride	11,030 tonnes
Diesel Fuel	9,010,000 L

Table C.2. Madrid North Fuel and Chemical Storage Locations

Location*	Facility Description/ Storage Capacity	Tank Description	Containment Capacity	Products Stored	Expected Quantity Stored
Madrid North Fuel Storage Area ** (MMS-8)	3 @ 1,500,000 Tanks	Field erected	Gravel/HDPE	Diesel Fuel	4,500,000 L

Table C.2. Madrid South Fuel and Chemical Storage Locations

Location*	Facility Description/ Storage Capacity	Tank Description	Containment Capacity	Products Stored	Expected Quantity Stored
Madrid South Fuel Storage Area ** (MAE-07)	1 @ 750,000 Tank	Field erected	Gravel/HDPE	Diesel Fuel	4,500,000 L

*Additional portable storage facilities may be used depending on Project activity.

** Facility not yet constructed.

C3 Madrid Fuel and Chemical Storage Locations



Plate C.1. Surface Equipment Shop and Naartok East Crown Pillar Recovery Trench (Note: Red circles are fuel or chemical storage locations, smaller containment locations may vary. Yellow stars indicate default spill kit locations.)



Plate C.2. Madrid North Contact Water Pond and Waste Rock Pad (Note: Yellow stars indicate default spill kit locations.)



HOPE BAY SPILL CONTINGENCY PLAN

HOPE BAY, NUNAVUT

**Module D: Boston
(Exploration and Operations)**

Conformity Table

Licence	Part	Item	Topic	Report Section
2BB-BOS1727	B	9.	The Licensee shall file an Annual Report on the appurtenant undertaking with the Board no later than March 31st of the year following the calendar year being reported which shall contain the following information:	See below
		9l.	<ul style="list-style-type: none"> updates or revisions to the Abandonment and Restoration Plan, QA/QC, Waste Rock and Ore Storage Plan, Spill Contingency Plan, and Landfarm Plan. 	This Plan
	H	2.	The Licensee shall prevent any chemicals, petroleum products or wastes associated with the project from entering Water. All Sumps and fuel caches shall be located at a distance of at least thirty-one (31) metres from the ordinary High Water Mark of any adjacent Water body and inspected on a regular basis.	Section 2 Section 4.1
		3.	The Licensee shall conduct any equipment maintenance and servicing in designated areas and shall implement special procedures (such as the use of drip pans) to manage motor fluids and other waste and contain potential spills.	Section 4.4
		4.	If during the term of this Licence, an unauthorized discharge of waste occurs, or if such a discharge is foreseeable, the Licensee shall:	See below
		4a.	<ul style="list-style-type: none"> employ the Spill Contingency Plan; 	This plan
		4b.	<ul style="list-style-type: none"> report the spill immediately to the 24-Hour Spill Line at [see pg. iii Key Government Contact List] and to the Inspector at [see pg. iii Key Government Contact List]; and 	Section 3.3
		4c.	<ul style="list-style-type: none"> for each spill occurrence, submit to the Inspector, no later than thirty (30) days after initially reporting the event, a detailed report that will include the amount and type of spilled product, the GPS location of the spill, and the measures taken to contain and clean up the spill site. 	Section 3.3
		5.	The Licensee shall, in addition to Part H, Item 4, regardless of the quantity of releases of harmful substances, report to the NWT/NU Spill Line if the release is near or into a Water body.	Section 3.3
2AM-BOS1835	H	1.	The Licensee shall implement the following plans as approved by the Board: <i>Surface Emergency Response Plan</i> , <i>Underground Emergency Responses Plan</i> , and <i>Hope Bay Project Spill Contingency Plan</i> . The Licensee shall comply with the Plan(s) and any changes deemed significant shall require the submission and subsequent approval of the Board in writing.	This Plan
		2.	All sumps and fuel caches shall be located at a distance of at least thirty one (31) metres from the ordinary High Water Mark of any adjacent Water body and inspected on a regular basis.	Section 2 Section 4.6
		3.	The Licensee shall prevent any chemicals, petroleum products or unauthorized Wastes associated with the project from entering Water.	Section 2 Section 4.6
		4.	The Licensee shall provide secondary containment for fuel and chemical storage as required by applicable standards and acceptable industry practice.	Section 4.1
		5.	The Licensee shall perform regular inspections of Fuel Storage and Containment Facilities, Sumps, Emergency Dump Catch Basins, other fuel tanks and connectors for leaks and movement and shall keep a written log of inspections to be made available to an Inspector upon request. More frequent inspections may be required at the request of an Inspector	Section 4.1

Licence	Part	Item	Topic	Report Section
		8.	The Licensee shall conduct emergency maintenance and servicing on equipment, in designated areas, and shall implement measures to collect motor fluids and other Waste to prevent and contain spills.	Section 4.4
		9.	The Licensee shall, subject to Section 16 of the Regulations, report any unauthorized deposits or foreseeable unauthorized deposits of waste and/or discharges of Effluent, and:	See below
		9a.	<ul style="list-style-type: none"> employ the Spill Contingency Plan; 	Section 2
		9b.	<ul style="list-style-type: none"> report the incident immediately via the NT-NU 24-Hour Spill Reporting Line <i>[see pg. iii Key Government Contact List]</i> and to the Inspector at <i>[see pg. iii Key Government Contact List]</i>; and 	Section 3.3
		9c.	<ul style="list-style-type: none"> for each spill occurrence, submit a detailed report to the Inspector, no later than thirty (30) days after initially reporting the event, which includes the amount and type of spilled product, the GPS location of the spill, and the measures taken to contain and clean up the spill site. 	Section 3.3 Section D3.2
		10.	The Licensee shall, in addition to Part H, Item 9, regardless of the quantity of release of harmful substance, report to the NT-NU 24-Hour Spill Report Line if the release is near or into a Water body.	Section 3.3
		11.	The Licensee shall submit to the Board for review, at least sixty (60) days prior to operation of the Aimaokatalok Lake Discharge System, an addendum to the Spill Contingency Plan detailing spill prevention measures along the pipeline.	To be provided 60 days prior to operation of Aimaokatalok Lake Discharge System
	Schedule B		The Annual Report referred to in Part B, Item 2 shall include the following:	See below
		8.	A list and description of all reportable unauthorized discharges including volumes, spill report line identification number and summaries of follow-up action taken.	Section 3.3

D1 Introduction

The Type A Water Licence No. 2AM-BOS1835 and Type B Water Licence No. 2BB-BOS1727 issued by the Nunavut Water Board (NWB) require the development of a Spill Contingency Plan in accordance with Part H. The Spill Contingency Plan has been prepared and is being submitted by Agnico Eagle to address this requirement, and also includes the plan for spill response throughout the Hope Bay belt.

The 2BB-BOS1727 Licence Area includes the current Boston Camp site, which is opened seasonally to support exploration activities.

Facilities outlined in the 2AM-BOS1835 Licence have not yet been constructed and there is no activity occurring at Boston Camp under this licence at this time.

D2 Chemical Storage at Boston

Photos of current chemical storage locations and a list of current fuel and chemical storage facilities, containment capacity, products stored and maximum expected quantity to be stored within the facility for the Boston Licence area is provided below. All storage facilities are located at a distance greater than 31m from any water body.

Photos of anticipated fuel and chemical storage locations associated with facilities identified in the licence 2AM-BOS1835 for the Boston Project will be provided when these facilities are constructed.

The current and anticipated fuel and chemical storage facilities, containment capacity, products stored and maximum expected quantity to be stored within each facility associated with development of Boston are provided in Table D.1 below. Table D.1 is a comprehensive list of the chemical storage at Boston, exclusions under the E2 regulations have not been considered.

D3 Additional Spill Contingency Management at Boston

D3.1 Issue: Bulk Fuel Tank Farm

Eight fuel tanks are currently located in a lined fuel berm covered with crush material at the Boston Site. The berm was constructed on permafrost and the crush pad is thin in some areas which may lead to permafrost degradation beneath the berm over time. Foundation settlement of the tanks due to permafrost degradation could potentially occur over time and could cause the fuel tank to destabilize creating risk of one or more of the fuel tanks to destabilize and tip.

D3.2 Management Response

Fuel tanks are visually monitored for differential settlement during seasonal visits when the Boston site is accessible and during annual geotechnical inspections. Measurements of tank movement may also be collected if visual monitoring indicates a potential issue with one or

more of the tanks. This may involve measuring the vertical angle of the fuel tank sidewall. A comparison of these values over time will indicate if differential settlement is occurring.

If settlement of the fuel tanks at the Boston site are detected beyond an acceptable limit, Agnico Eagle will discontinue the use of the tank(s) that are effected by settlement and engage the Engineer of Record for guidance and recommendations for correcting the settlement issue.

Table D.1. Boston Fuel and Chemical Storage Total Quantities

Products Stored	Expected Total Quantity Stored
Diesel Fuel	7,883,742 L
Gasoline	628 L
Jet A Fuel	52,890 L

Table D.2. Boston Fuel and Chemical Storage Locations

Location*	Facility Description/ Storage Capacity	Tank Description	Containment Capacity	Products Stored	Expected Quantity Stored
Boston Camp Bulk Fuel Storage Facility (BOS-5)	6 @ 77,000L Tanks 2 @ 33,500L Tanks	Pre-fabricated	Gravel/HDPE, 84,700 L	Diesel Fuel	377,127 L (1)
Boston Fuelling Stations (tidy tank beside bulk storage)	1 @ 1374 L	Pre-fabricated, double-walled, portable	Gravel/HDPE spill containment	Diesel Fuel	1236 L (2)
Boston Fuelling Stations (fly tank beside bulk storage)	1 @ 785 L	Pre-fabricated, double-walled, portable	Gravel/HDPE spill containment	Gasoline	628 L (2)
Boston Helipad	Drum storage (8 drums)	Drums	Plastic spill pallets, 220 L each	Jet A Fuel	1640 L (1) (empty when Project closed)
Boston Jet A fuel storage	Drum storage (Portable Insta-Berm)	Drums	2 x 25,500 L	Jet A	51,250 L (1)
Boston Generator Daytanks	2 @ 1240 L	Pre-fabricated, double-walled, portable	Gravel/HDPE spill containment (2)	Diesel Fuel	2232 L (2)
Boston Tent Heaters Daytank	1 @ 1374 L	Pre-fabricated, double-walled, portable	Gravel/HDPE spill containment	Diesel Fuel	1236 L (2)
Boston Daytank (inside)	1 @ 350 L	Pre-fabricated, Single walled	Steel floor and kickplate	Diesel Fuel	315 L (2)
Boston Camp Daytank (NE side of camp between main camp and tents)	1 @ 1374 L	Pre-fabricated, double-walled, portable	Gravel/HDPE spill containment	Diesel Fuel	1236 L (2)
Boston Incinerator	1 @ 400 L	Pre-fabricated, double-walled	Steel spill containment	Diesel Fuel	360 L (1)
Boston Secondary Fuel Storage	8 – 50,000 L	Pre-fabricated, double-walled	HDPE, Arctic-shield Insta-Berm	Diesel Fuel	360,000L (2)

Location*	Facility Description/ Storage Capacity	Tank Description	Containment Capacity	Products Stored	Expected Quantity Stored
Boston Bulk Fuel Storage Facility**	5 @ 1,500,000	Field erected	Gravel/HDPE spill containment	Diesel Fuel	7,500,000

(1) Maximum Capacity of Container System

(2) Safe Fill Zone Capacity

(3) Normal quantity stored in container

* Additional portable storage facilities may be used depending on Project activity.

** Anticipated fuel storage as part of proposed Phase 2 Boston development outlined in Type A Water Licence 2AM-BOS1835. Facility not constructed at this time.

D4 Boston Fuel and Chemical Storage Locations

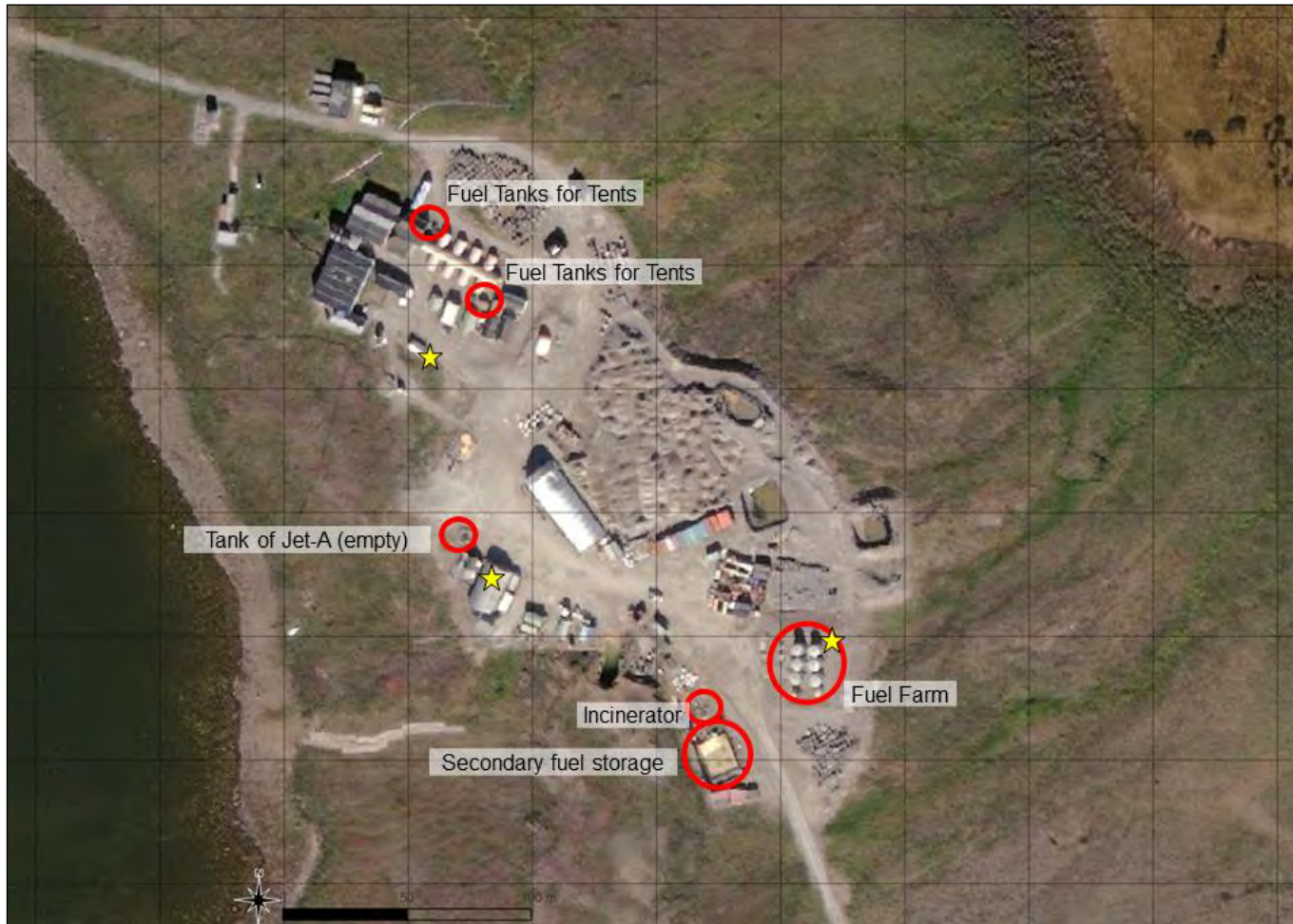


Plate D.1. Boston Camp (Note: Red circles are fuel or chemical storage locations, smaller storage locations may vary. Yellow star indicates spill kit locations.)



Plate D.2. Boston Airstrip (Note: Red circles are fuel or chemical storage locations, smaller storage locations may vary. Yellow star indicates spill kit locations.)



HOPE BAY SPILL CONTINGENCY PLAN

HOPE BAY, NUNAVUT

Appendix 1: Hazardous Materials and Product Specific Emergency Response Plans

Poisonous and Toxic Substances

Sodium Cyanide Specific Spill Response Plan

Note: Sodium cyanide is not currently listed in Schedule 1 of the E2 regulations. However, a Product Specific Emergency Response Plan has been developed for this product based on the environmental and health and safety impacts of a potential spill. Hydrogen cyanide is produced when sodium cyanide reacts with water, acids or oxidizing agents. Hydrogen cyanide is listed in Schedule 1 of the E2 regulations.

CAS No: 143-33-9 (Sodium cyanide)

Hazards Identification:

Physical State: Solid (granular), White
Odor: Almond-like

Emergency Overview: DANGER. MAY BE FATAL IF INHALED, ABSORBED THOROUGH SKIN OR SWALLOWED

Potential Acute Health Effects: Very hazardous in case of skin contact (irritant), of eye contact (irritant), of ingestion, and of inhalation. Corrosive to eyes and skin. Cyanide is classified as extremely toxic.

Environmental Effects: Very toxic to aquatic organisms, may cause long-term adverse effects in the aquatic environment.

Usage: Sodium cyanide is used in gold recovery process within the process plant.

Storage: Sodium cyanide briquettes will be packaged in 1,000 kg bags. These bags must be kept dry, away from heat and sources of ignition. Keep away from oxidizing agents, acids and moisture. Bags will be stored on pallets in lined seacans or located in a lined containment berm or inside the Mill building as used. Do not store above 24°C. Avoid exposure to acid, water or weak alkalines which can react to form a toxic hydrogen cyanide (HCN) gas.

Personal Protective Equipment for Spill Response

- Self-contained breathing apparatus (SCBA) while conducting air quality monitoring to confirm HCN levels prior to initiating response and clean-up;
- SCBA required for response activities if HCN levels >2.5ppm;
- Full face respirator with vapor or dust cartridges, half face respirator with vapor or dust cartridges and splash goggles or safety glasses with face shield may be worn if HCN levels <2.5ppm;
- Full body chemical resistant suit (rubber);
- Rubber boots (chemical resistant); and

- Rubber gloves (chemical resistant).

Emergency response for a Sodium Cyanide Spill

- Isolate and evacuate the spill area if HCN has potentially been released.
 - Evacuation of other site locations may be required (large spills in water may require protection of personnel up to 5 km downwind).
- Report spill to Supervisor immediately. Provide location, estimated quantity, physical nature of the spilled material (e.g., solid or solution) and other substances/conditions that may create hazardous conditions during response (e.g., exposure of substance to water, acids, oxidizing agents).
- Supervisor will report the spill immediately to the Environmental Superintendent or Safety Coordinator.
- Mine General Manager will activate Incident Command System and Emergency Response Team if required for response:
 - Based on size, location of spill and potential hazardous conditions/environmental impacts; and
 - SDS will be consulted to confirm appropriate response measures and associated hazards.
- Ventilate the area of the spill or leak and eliminate all ignition sources.
 - Air quality monitoring will be conducted in enclosed spaces to determine concentration of hazardous vapours prior to initiating spill response efforts.
- Stop the flow of spill.
- Contain the spill by placing spill booms or constructing interception dikes ahead of the flow (prioritizing prevention of release to waterways or onto ice).
- Protect the spill area from water runoff by constructing dike/berm. If raining, use tarps to cover the area to minimize water contact and spread of contamination.
- For spill to land:
 - Recover spilled solid material by shoveling into drums or containers free from impurities, seal container with lid and clearly label per WHMIS guidelines.
 - Minimize dust generated to the extent possible. Use water spray to reduce vapours; avoid contact of water spray with spilled material. Use tarps to cover spill area if water spray is used to reduce vapours.
 - Recovered solids, if free from impurities, may be suitable for its intended use. In this case, material is to be placed into containers with lid, and clearly labeled as per WHMIS guidelines.
 - Recovered material which cannot be used will be packaged into drums for offsite disposal at an approved waste management facility.

- Neutralize residual spill material with appropriate agent as recommended by the SDS (sodium or calcium hypochlorite solution) or continue to excavate area until no visible spilled solid remains. Use suitable spill absorbent or soil to absorb the neutralized residue.
- For spill to water:
 - NaCN dissolves in water producing highly toxic hydrogen cyanide gas – use extreme caution.
 - Pump contaminated water to drums, tanks or lined containment berms if possible. Isolate/confine the spill by damming or diversion if feasible.
 - Water treatment is only effective if it can be accomplished in conjunction with the spill.
 - Treatment chemicals (sodium or calcium hypochlorite) must not be added to surface waters (e.g., streams, lakes) as these are not generally effective and could result in additional environmental impacts.
 - Hydrogen peroxide for treatment of solution spills or a sulfur dioxide/air process for treatment of slurry spills may be considered. This measure may only be used as a last resort if containment is not achievable and the spill can be treated directly at the point of release.
- For indoor spills:
 - Recover spilled solid material by shoveling into drums or containers free from impurities, seal container with lid and clearly label per WHMIS guidelines.
 - Minimize dust generated to the extent possible. Use water spray to reduce vapours; avoid contact of water spray with spilled material. Use tarps to cover spill area if water spray is used to reduce vapours.
 - Recovered solids, if free from impurities, may be suitable for its intended use. In this case, material is to be placed into containers with lid, and clearly labeled as per WHMIS guidelines.
 - Recovered material which cannot be used will be packaged into drums for offsite disposal at an approved waste management facility.
 - Neutralize residual spill material with appropriate agent as recommended by the SDS (sodium or calcium hypochlorite solution) or continue to excavate area until no visible spilled solid remains. Use suitable spill absorbent or soil to absorb the neutralized residue and package into drums for offsite disposal at an approved waste management facility.
 - Mop the affected area using detergent and water.
 - Place this water in labeled waste drums for offsite disposal at an approved waste management facility
- Remove, bag and label personal protective equipment for offsite disposal.
- Thoroughly wash skin with soap.

Material Safety Data Sheet

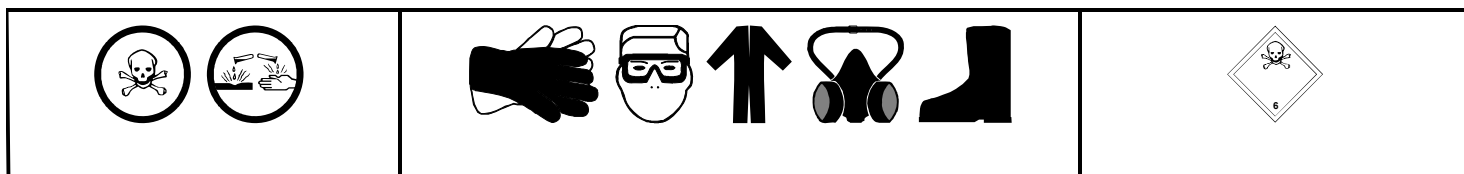


SODIUM CYANIDE (CH)

WHMIS

Protective Clothing

TDG



1. Product and company identification

Product name	: SODIUM CYANIDE (CH)
Supplier	: QUADRA CHEMICALS LTD. 3901 F.X. Tessier Vaudreuil-Dorion, Quebec Canada J7V 5V5 Tel: 1-800-665-6553
Material uses	: Industrial applications
Code	: Q07182
Validation date	: 2/24/2016.
Responsible name	: Regulatory Affairs / Affaires réglementaires
In case of emergency	: TRANSPORTATION EMERGENCY - 24HRS/DAY - 7 DAYS/WEEK IN CANADA - CALL 1-800-567-7455

2. Hazards identification

Physical state	: Solid. [Granular. Deliquescent.]
Odor	: Almond-like.
Emergency overview	: DANGER! MAY BE FATAL IF INHALED, ABSORBED THROUGH SKIN OR SWALLOWED. CAUSES RESPIRATORY TRACT, DIGESTIVE TRACT, EYE AND SKIN BURNS. CAN CAUSE TARGET ORGAN DAMAGE. Very toxic by inhalation, in contact with skin and if swallowed. Corrosive to the eyes, skin, respiratory system and digestive tract. Causes burns. Handling and/or processing of this material may generate a dust which can cause mechanical irritation of the eyes, skin, nose and throat. Do not breathe dust. Do not ingest. Do not get in eyes or on skin or clothing. Can cause target organ damage. Use only with adequate ventilation. Keep container tightly closed and sealed until ready for use. Wash thoroughly after handling.
Routes of entry	: Dermal contact. Eye contact. Inhalation. Ingestion.
Potential acute health effects	
Inhalation	: Very toxic by inhalation. Corrosive to the respiratory system. Exposure to decomposition products may cause a health hazard. Serious effects may be delayed following exposure.
Ingestion	: Very toxic if swallowed. Corrosive to the digestive tract. Causes burns.
Skin	: Corrosive to the skin. Causes burns. Very toxic in contact with skin.
Eyes	: Corrosive to eyes. Causes burns.
Potential chronic health effects	
Chronic effects	: Can cause target organ damage. Repeated or prolonged inhalation of dust may lead to chronic respiratory irritation.
Carcinogenicity	: No known significant effects or critical hazards.
Mutagenicity	: No known significant effects or critical hazards.
Teratogenicity	: No known significant effects or critical hazards.
Developmental effects	: No known significant effects or critical hazards.
Fertility effects	: No known significant effects or critical hazards.

2 . Hazards identification

Target organs : Causes damage to the following organs: blood, cardiovascular system, central nervous system (CNS), thyroid.

Over-exposure signs/symptoms

Inhalation : Adverse symptoms may include the following:
respiratory tract irritation
coughing

Ingestion : Adverse symptoms may include the following:
stomach pains

Skin : Adverse symptoms may include the following:
pain or irritation
redness
blistering may occur

Eyes : Adverse symptoms may include the following:
pain
watering
redness

Medical conditions aggravated by over-exposure : Pre-existing disorders involving any target organs mentioned in this MSDS as being at risk may be aggravated by over-exposure to this product.

See toxicological information (section 11)

3 . Composition/information on ingredients

<u>Name</u>	<u>CAS number</u>	<u>%</u>
sodium cyanide	143-33-9	60 - 100

There are no additional ingredients present which, within the current knowledge of the supplier and in the concentrations applicable, are classified as hazardous to health or the environment and hence require reporting in this section.

4 . First aid measures

Eye contact : Call medical doctor or poison control center immediately. Check for and remove any contact lenses. Immediately flush eyes with plenty of water for at least 15 minutes, occasionally lifting the upper and lower eyelids. Get medical attention immediately.

Skin contact : Call medical doctor or poison control center immediately. In case of contact, immediately flush skin with plenty of water for at least 15 minutes while removing contaminated clothing and shoes. Wash clothing before reuse. Clean shoes thoroughly before reuse. Get medical attention immediately.

Inhalation : Call medical doctor or poison control center immediately. Move exposed person to fresh air. If not breathing, if breathing is irregular or if respiratory arrest occurs, provide artificial respiration or oxygen by trained personnel. Loosen tight clothing such as a collar, tie, belt or waistband. Get medical attention immediately.

Ingestion : Call medical doctor or poison control center immediately. Wash out mouth with water. Do not induce vomiting unless directed to do so by medical personnel. Never give anything by mouth to an unconscious person. Get medical attention immediately.

Protection of first-aiders : No action shall be taken involving any personal risk or without suitable training. If it is suspected that fumes are still present, the rescuer should wear an appropriate mask or self-contained breathing apparatus. It may be dangerous to the person providing aid to give mouth-to-mouth resuscitation. Wash contaminated clothing thoroughly with water before removing it, or wear gloves.

Notes to physician : In case of inhalation of decomposition products in a fire, symptoms may be delayed. The exposed person may need to be kept under medical surveillance for 48 hours.

5 . Fire-fighting measures

Flammability of the product : No specific fire or explosion hazard.

Extinguishing media

Suitable : Use an extinguishing agent suitable for the surrounding fire.

Not suitable : None known.

Special exposure hazards : Promptly isolate the scene by removing all persons from the vicinity of the incident if there is a fire. No action shall be taken involving any personal risk or without suitable training.

Hazardous thermal decomposition products : Decomposition products may include the following materials:
carbon dioxide
carbon monoxide
nitrogen oxides
metal oxide/oxides
hydrogen cyanide

Special protective equipment for fire-fighters : Fire-fighters should wear appropriate protective equipment and self-contained breathing apparatus (SCBA) with a full face-piece operated in positive pressure mode.

6 . Accidental release measures

Personal precautions : No action shall be taken involving any personal risk or without suitable training. Evacuate surrounding areas. Keep unnecessary and unprotected personnel from entering. Do not touch or walk through spilled material. Do not breathe dust. Provide adequate ventilation. Wear appropriate respirator when ventilation is inadequate. Put on appropriate personal protective equipment (see section 8).

Environmental precautions : Avoid dispersal of spilled material and runoff and contact with soil, waterways, drains and sewers. Inform the relevant authorities if the product has caused environmental pollution (sewers, waterways, soil or air).

Methods for cleaning up

Spill or leak : Move containers from spill area. Vacuum or sweep up material and place in a designated, labeled waste container. Dispose of via a licensed waste disposal contractor.

7 . Handling and storage

Handling : Put on appropriate personal protective equipment (see section 8). Eating, drinking and smoking should be prohibited in areas where this material is handled, stored and processed. Workers should wash hands and face before eating, drinking and smoking. Do not get in eyes or on skin or clothing. Do not breathe dust. Do not ingest. Use only with adequate ventilation. Wear appropriate respirator when ventilation is inadequate. Keep in the original container or an approved alternative made from a compatible material, kept tightly closed when not in use. Empty containers retain product residue and can be hazardous. Do not reuse container.

Storage : Store in accordance with local regulations. Store in original container protected from direct sunlight in a dry, cool and well-ventilated area, away from incompatible materials and food and drink. Keep container tightly closed and sealed until ready for use. Containers that have been opened must be carefully resealed and kept upright to prevent leakage. Do not store in unlabeled containers. Use appropriate containment to avoid environmental contamination.

8 . Exposure controls/personal protection

Product name

sodium cyanide

Exposure limits

ACGIH TLV (United States). Absorbed through skin.
CEIL: 5 mg/m³

Consult local authorities for acceptable exposure limits.

Recommended monitoring procedures : If this product contains ingredients with exposure limits, personal, workplace atmosphere or biological monitoring may be required to determine the effectiveness of the ventilation or other control measures and/or the necessity to use respiratory protective equipment.

8 . Exposure controls/personal protection

Engineering measures	: Use only with adequate ventilation. Use process enclosures, local exhaust ventilation or other engineering controls to keep worker exposure to airborne contaminants below any recommended or statutory limits.
Hygiene measures	: Wash hands, forearms and face thoroughly after handling chemical products, before eating, smoking and using the lavatory and at the end of the working period. Appropriate techniques should be used to remove potentially contaminated clothing. Wash contaminated clothing before reusing. Ensure that eyewash stations and safety showers are close to the workstation location.
Personal protection	
Respiratory	: Use a properly fitted, air-purifying or air-fed respirator complying with an approved standard if a risk assessment indicates this is necessary. Respirator selection must be based on known or anticipated exposure levels, the hazards of the product and the safe working limits of the selected respirator.
Hands	: Chemical-resistant, impervious gloves complying with an approved standard should be worn at all times when handling chemical products if a risk assessment indicates this is necessary.
Eyes	: Safety eyewear complying with an approved standard should be used when a risk assessment indicates this is necessary to avoid exposure to liquid splashes, mists or dusts. If operating conditions cause high dust concentrations to be produced, use dust goggles. Recommended: splash goggles
Skin	: Personal protective equipment for the body should be selected based on the task being performed and the risks involved and should be approved by a specialist before handling this product. Recommended: chemical-resistant protective suit
Environmental exposure controls	: Emissions from ventilation or work process equipment should be checked to ensure they comply with the requirements of environmental protection legislation. In some cases, fume scrubbers, filters or engineering modifications to the process equipment will be necessary to reduce emissions to acceptable levels.

9 . Physical and chemical properties

Physical state	: Solid. [Granular. Deliquescent.]
Color	: White.
Odor	: Almond-like.
Molecular weight	: 49.01 g/mole
Molecular formula	: NaCN
Boiling/condensation point	: 1496°C (2724.8°F)
Melting/freezing point	: 564°C (1047.2°F)
Relative density	: 1.6 [@ 25/4°C]
Vapor pressure	: 0.13 kPa (1 mm Hg) @ 817°C
Volatility	: 0% (v/v) @ 21°C
Solubility	: Soluble in the following materials: cold water.

10 . Stability and reactivity

Stability	: The product is stable.
Hazardous polymerization	: Under normal conditions of storage and use, hazardous polymerization will not occur.
Conditions to avoid	: No specific data.
Materials to avoid	: oxidizing materials metals acids alkalis moisture
Hazardous decomposition products	: Under normal conditions of storage and use, hazardous decomposition products should not be produced.

11 . Toxicological information

Acute toxicity

Product/ingredient name	Result	Species	Dose	Exposure
sodium cyanide	LD50 Dermal	Rat	11.28 to 14.63 mg/kg	-
	LD50 Oral	Rat	6.44 mg/kg	-

Conclusion/Summary : Not available.

12 . Ecological information

Environmental effects : Very toxic to aquatic organisms, may cause long-term adverse effects in the aquatic environment.


13 . Disposal considerations

Waste disposal : The generation of waste should be avoided or minimized wherever possible. Empty containers or liners may retain some product residues. This material and its container must be disposed of in a safe way. Dispose of surplus and non-recyclable products via a licensed waste disposal contractor. Disposal of this product, solutions and any by-products should at all times comply with the requirements of environmental protection and waste disposal legislation and any regional local authority requirements. Avoid dispersal of spilled material and runoff and contact with soil, waterways, drains and sewers.

Waste and empty packaging must be disposed of in accordance with federal, provincial, and municipal environmental control regulations.

Refer to Section 7: HANDLING AND STORAGE and Section 8: EXPOSURE CONTROLS/PERSONAL PROTECTION for additional handling information and protection of employees.

14 . Transport information

Regulatory information	UN number	Proper shipping name	Classes	PG*	Label	Additional information
TDG Classification	1689	SODIUM CYANIDE	6.1	I		ERAP Index 1000 Remarks ERP / PIU # 2-0032

PG* : Packing group

15 . Regulatory information

WHMIS (Canada) : Class D-1A: Material causing immediate and serious toxic effects (Very toxic).
Class E: Corrosive material

Canada inventory : All ingredients are listed or exempted.

16 . Other information

Additional information : This product has been classified in accordance with the hazard criteria of the Controlled Products Regulations (CPR) and the MSDS contains all the information required by the CPR.

Other special considerations : Not available.

Regulatory Affairs Department : 1 800 665-6553

Notice to reader

16 . Other information

To the best of our knowledge, the information contained herein is accurate. However, neither the above-named supplier, nor any of its subsidiaries, assumes any liability whatsoever for the accuracy or completeness of the information contained herein.

Final determination of suitability of any material is the sole responsibility of the user. All materials may present unknown hazards and should be used with caution. Although certain hazards are described herein, we cannot guarantee that these are the only hazards that exist.

Ammonium Nitrate Specific Spill Response Plan

Notes: Ammonium Nitrate is a substance listed on Schedule 1 of the E2 Regulations, with a threshold of 20 tonnes. Ammonium nitrate is part of the Amex explosives (UN No 0082) mixture used at site.

CAS No: 6484-52-2 (Ammonium Nitrate)

UN No: 0082 (Amex)

Hazards Identification:

Physical State: Solid, pale oil-covered prills

Odour: Fuel oil

Emergency Overview: DANGER. STRONG OXIDIZER. CONTACT WITH OTHER MATERIALS MAY CAUSE FIRE OR EXPLOSION

Environmental Effects: Cause release of nitrogen compounds (nitrate, nitrite, ammonia) into aquatic environments. Potential effects include algal blooms, reduced oxygen and eutrophication of surface water bodies.

Usage: Amex is used for surface and subsurface blasting associated with quarrying and subsurface blasting related to mine development and mining.

Storage: Ammonium Nitrate is found in mixture form on site, in the form of Amex. Amex is stored in locked seacans located within the explosives berms or storage magazines, as well as temporary use locations during blasting preparation both underground and surface sites. The magazines and explosives berm locations are established and permitted through NRCan or the Ministry of Mines as appropriate.

The explosives storage areas are constructed and located so as to minimize risk to personnel and as permitted by the Ministry of Mines. The expected quantity to be stored on site is 1350 tonnes of Amex. The maximum allowed capacity of the largest container in which the substance is stored is 40,800 kgs.

Spill Response

Personal Protective Equipment for Spill Response:

- Chemically resistant gloves;
- Protective glasses or chemical safety goggles;
- Chemically resistant coveralls or tyvek coveralls; and
- Dust mask if spill is in confined space.

Emergency response for an Ammonium Nitrate Spill

- Isolate and evacuate the spill area if potential for explosion.
- Report spill to Supervisor immediately. Provide location and estimate of spill quantity.
- Supervisor will report the spill immediately to the Environmental Superintendent or Safety Coordinator.
- Mine General Manager will activate Incident Command System and Emergency Response Team if required for response.
 - Based on size, location of spill and potential hazardous conditions/environmental impacts.
- Remove all sources of heat and ignition (there is to be no smoking or use of any flames within the area). Remove all uncontaminated combustible materials or organic compounds from spill area.
- Stop flow if safe to do so.
 - Ventilate space prior to entering, if indoors.
- For spills to land, snow or ice:
 - Protect spill area from storm water runoff and prevent entry into surface waters by constructing a ditch or dike using suitable absorbent materials, soil or other appropriate barriers.
 - Vacuum or sweep the spilled residue using non-metal, non-sparking tools.
 - Avoid shock, friction and contact with grit. Wet spillage with water to prevent dust generation.
 - Place the residue in a plastic container, label as per WHMIS Guidelines and transport to waste management for offsite disposal.
 - Recovered solids, if free from impurities, may be suitable for its intended use. In this case, material is to be placed into suitable containers with lid, and clearly labelled as per WHMIS Guidelines.
- For spills to water:
 - Ammonium nitrate sinks and mixes with water.
 - Isolate/confine the spill from spreading by damming or diversion if feasible.
 - Pump contaminated water to drums, tanks or lined containment berms if possible.
 - Label drums for offsite disposal at an approved waste management facility.
- Remove, bag and label personal protective equipment for offsite disposal.
- Thoroughly wash skin with soap.

Safety Data Sheet

SECTION 1 – IDENTIFICATION

Name, Address, and Telephone of the Responsible Party

Dyno Nobel Inc.

6440 S. Millrock Drive, Suite 150

Salt Lake City, Utah 84121

Phone: 801-364-4800 Fax 801-321-6703

E-Mail: dnna.hse@am.dynonobel.com www.dynonobel.com

SDS #: 1020

Date: 07/20/2020

Supersedes: 09/10/2018

Product Identifier

Product Name: Superprill

Formula: NH₄NO₃

Other Means of Identification

Synonyms: Superprill™, Prilled Ammonium Nitrate, Industrial Grade LoDAN, Ammonium Nitrate, Industrial Grade HiDAN, Ammonium Nitrate, Agricultural Grade

Intended Use of the Product

Industrial applications

Emergency Telephone Number

FOR 24 HOUR EMERGENCY, CALL CHEMTREC (USA) 800-424-9300
CANUTEC (CANADA) 613-996-6666

SECTION 2 – HAZARD(S) IDENTIFICATION

Classification of the Substance or Mixture

Classification (GHS-US)

Ox. Sol. 3

H272

Eye Irrit. 2A

H319

Label Elements

GHS-US Labeling

Hazard Pictograms (GHS-US)



Signal Word (GHS-US)

: Warning

Hazard Statements (GHS-US)

: H272 - May intensify fire; oxidizer
H319 - Causes serious eye irritation

Precautionary Statements (GHS-US)

: P210 - Keep away from heat, sparks, open flames, hot surfaces. - No smoking
P220 - Keep/Store away from combustible materials, clothing, incompatible materials
P221 - Take any precaution to avoid mixing with combustibles, organic material, clothing, incompatible materials
P260 - Do not breathe fume, dust.
P264 - Wash hands, forearms, and other exposed areas thoroughly after handling
P270 - Do not eat, drink or smoke when using this product.
P273 - Avoid release to the environment.
P280 - Wear protective gloves, protective clothing, eye protection
P305+P351+P338 - If in eyes: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing
P337+P313 - If eye irritation persists: Get medical advice/attention
P370+P378 - In case of fire: Use water only on AN fires.
P405 - Store locked up.
P501 - Dispose of contents/container according to local, regional, national,

Safety Data Sheet

territorial, provincial, and international regulations*

*Do not perform hot work on contaminated equipment.

Other Hazards

Other Hazards: Aquatic Acute 3 H402

H402 – Harmful to aquatic life

SECTION 3 - COMPOSITION/INFORMATION ON INGREDIENTS

Mixture

Name	Product identifier	% (w/w)	Ingredient Classification (GHS-US)
Ammonium nitrate	(CAS No) 6484-52-2	98 - 100	Ox. Sol. 3, H272 Eye Irrit. 2A, H319

Full text of H-phrases: see section 16

SECTION 4 - FIRST AID MEASURES

Description of First Aid Measures

General: Never give anything by mouth to an unconscious person. If you feel unwell, seek medical advice (show the label where possible).

Inhalation: If symptoms occur, go into fresh air and ventilate suspected area. Seek medical attention.

Skin Contact: Remove contaminated clothing. Wash with soap and water followed by rinsing with water. Seek medical attention if irritation develops or persists. Wash contaminated clothing before reuse.

Eye Contact: Rinse cautiously with water for at least 15 minutes. Remove contact lenses, if present and easy to do. Continue rinsing. Obtain medical attention if irritation develops or persists.

Ingestion: Rinse mouth. Do NOT induce vomiting. Seek medical attention.

Most Important Symptoms and Effects Both Acute and Delayed

General: Irritation to eyes, skin and respiratory tract.

Inhalation: May cause irritation to the respiratory tract, sneezing, coughing, burning sensation of throat with constricting sensation of the larynx and difficulty breathing.

Skin Contact: May cause skin irritation.

Eye Contact: Causes serious eye irritation.

Ingestion: Ingestion is likely to be harmful or have adverse effects.

Chronic Symptoms: None known.

Indication of Any Immediate Medical Attention and Special Treatment Needed

If exposed or concerned, get medical advice and attention. If ingested, may cause methemoglobinemia – emergency response should treat appropriately, such as by intravenous administration of methylene blue.

SECTION 5 - FIRE-FIGHTING MEASURES

Extinguishing Media

Suitable Extinguishing Media: Evacuate the area for 1 mile if ammonium nitrate is involved in a fire. Only water shall be used on ammonium nitrate fires. Dry chemical, foams, steam and smothering devices are not effective and can lead to possible explosion of the ammonium nitrate. General extinguishers may be used on fires **not involving the ammonium nitrate** such as conveyors, electrical equipment, tires, bearings, general plant equipment or the like when only minimal amounts of ammonium nitrate are present. For large fires use unmanned monitor nozzles if available.

Unsuitable Extinguishing Media: Dry chemical, carbon dioxide, or regular foam.

Special Hazards Arising From the Substance or Mixture In intense fires, the ammonium nitrate can melt and detonate from confinement or strong shocks. Evacuation of at least 1 mile is recommended if the ammonium nitrate is involved in a fire.

Fire Hazard: May intensify fire; oxidizer. Will accelerate the burning of other combustibles, resulting in more rapid spread of fire.

Explosion Hazard: Heat may build pressure, rupturing closed containers, spreading fire and increasing risk of burns and

Safety Data Sheet

injuries. Smothering, contact with organic material, or combustible material may cause an explosive situation.

Reactivity: May cause or intensify fire; oxidizer. May accelerate the burning of other combustible materials. Smothering, contact with organic material, or combustible material may cause an explosive situation.

Advice for Firefighters

Precautions for Firefighting: Evacuate the area for 1 mile if ammonium nitrate is involved in a fire. Only fires which are in the initial or beginning stage or those involving minimal amounts of ammonium nitrate in a manufacturing setting or in an area where ammonium nitrate is stored or in vehicles transporting ammonium nitrate should be attacked using manual fire extinguishing methods (fire extinguishers, hose streams, etc.) that require a human operator. If a fire in an area where ammonium nitrate is stored or in vehicles transporting ammonium nitrate progresses beyond the incipient stage or involves the ammonium nitrate, evacuation is required. Fire fighters downwind from a fire should wear self-contained breathing apparatus. Fire fighters must use standard protective equipment including flame retardant coat, helmet with face shield, gloves and rubber boots.

Hazardous Combustion Products: Nitrogen oxides. Toxic fumes are released. Carbon oxides (CO, CO₂). Ammonia.

Additional Information: If a fire has not reached the ammonium nitrate, cool the ammonium nitrate or container thereof to prevent the fire from reaching it. Ammonium nitrate does not burn by itself and thus needs to be kept separate from combustible materials. Ammonium nitrate is an oxidizer and will significantly increase the burning rate of combustible materials.

When in confinement and in the presence of a strong detonation sources the material can explode when subject to sudden shock, pressure, or high temperatures. Avoid temperatures above 210 C (410 F) which may cause thermal decomposition or explosion, especially in confined or poorly ventilated spaces.

Do not allow run-off from fire fighting to enter drains or water courses.

Reference to Other Sections: Refer to section 9 for flammability properties. Not flammable.

SECTION 6 - ACCIDENTAL RELEASE MEASURES

Personal Precautions, Protective Equipment and Emergency Procedures

General Measures: Handle in accordance with good industrial hygiene and safety practice. Avoid breathing (dust, vapor, mist, gas). Avoid getting in eyes or on skin. Keep away from combustible material.

For Non-Emergency Personnel

Protective Equipment: Use appropriate personal protection equipment (PPE).

Emergency Procedures: Evacuate unnecessary personnel.

For Emergency Personnel

Protective Equipment: Use appropriate personal protection equipment (PPE).

Emergency Procedures: Ventilate area.

Environmental Precautions

Prevent entry to sewers and public waters.

Methods and Material for Containment and Cleaning Up

For Containment: Avoid generation of dust during clean-up of spills. Use a broom for small spills do not mix with other materials.

Methods for Cleaning Up: Collect spillage for possible reuse. Clean up spills immediately and dispose of waste safely. Contact competent authorities after a spill. Do not take up in combustible material such as: saw dust or cellulosic material.

Reference to Other Sections

See heading 8, Exposure Controls and Personal Protection

SECTION 7 - HANDLING AND STORAGE

Precautions for Safe Handling

Additional Hazards When Processed: When heated to decomposition, emits toxic fumes. Smothering, contact with organic material, or combustible material in a fire situation may be an explosive situation. Do not puncture or incinerate container.

Hygiene Measures: Handle in accordance with good industrial hygiene and safety procedures. Wash hands and other exposed areas with mild soap and water before eating, drinking, or smoking and again when leaving work.

Safety Data Sheet

Conditions for Safe Storage, Including Any Incompatibilities

Technical Measures: Comply with applicable regulations 29 CFR 1910.109(i).

Storage Conditions: Store in a dry, cool and well-ventilated place. Keep container closed when not in use. Keep/Store away from combustible materials, ignition sources, and incompatible materials.

Incompatible Materials: Strong acids. Strong bases. Strong oxidizers. halogens (F, Cl, Br, I). Chlorine compounds, chlorinated inorganics (potassium, calcium and sodium hypochlorite) and hydrogen peroxides. Organic materials. Combustible materials.

SECTION 8 - EXPOSURE CONTROLS/PERSONAL PROTECTION

Control Parameters

No Occupational Exposure Limits (OELs) have been established for this product or its chemical components.

Exposure Controls

Appropriate Engineering Controls: Ensure all national/local regulations are observed. Ensure adequate ventilation, especially in confined areas.

Personal Protective Equipment: Approved safety glasses. Gloves. If insufficient ventilation: wear respiratory protection. Protective clothing when appropriate as indicated by air monitoring or if engineering controls are insufficient.



Materials for Protective Clothing: Chemically resistant materials and fabrics.

Hand Protection: Wear protective gloves.

Eye Protection: Approved safety glasses

Skin and Body Protection: Not available

Respiratory Protection: Use NIOSH-approved air-purifying or supplied-air respirator where airborne concentrations of vapor or mist are expected to exceed exposure limits.

Other Information: When using, do not eat, drink or smoke.

SECTION 9 - PHYSICAL AND CHEMICAL PROPERTIES

Information on Basic Physical and Chemical Properties

Physical State	: Solid
Appearance	: Colorless to off-white prills
Odor	: Odorless
Odor Threshold	: Not available
pH	: Not available
Relative Evaporation Rate (butylacetate=1)	: Not available
Melting Point	: 170 °C (337°F)
Freezing Point	: Not available
Boiling Point	: 177 - 210 °C Decomposition (350 - 410°F)
Flash Point	: Not available
Auto-ignition Temperature	: Not available
Decomposition Temperature	: Not available
Flammability (solid, gas)	: Not flammable
Lower Flammable Limit	: Not available
Upper Flammable Limit	: Not available
Vapor Pressure	: Not available
Relative Vapor Density at 20 °C	: Not available
Relative Density	: Not available

Safety Data Sheet

Specific Gravity	: 1.72 - 1.00 (Poured bulk density)
Solubility	: Soluble in water. Water: 192 g/100 ml @ 20 °C (68 °F); 118 g/100 ml @ 0 °C (32 °F)
Partition coefficient: n-octanol/water	: Not applicable. (inorganic)
Viscosity	: Not available
Explosion Data – Sensitivity to Mechanical Impact	: Not sensitive to mechanical impact. May be sensitive to supersonic explosively driven projectile impacts.
Explosion Data – Sensitivity to Static Discharge	: Not sensitive to static discharge.

SECTION 10 - STABILITY AND REACTIVITY

Reactivity: May cause or intensify fire; oxidizer. May accelerate the burning of other combustible materials. Smothering, contact with organic material, or combustible material may cause an explosive situation.

Chemical Stability: May intensify fire; oxidizer.

Possibility of Hazardous Reactions: Hazardous polymerization will not occur.

Conditions to Avoid: Extremely high temperatures. Overheating. Open flame. Combustible materials. Sources of ignition. Incompatible materials.

Incompatible Materials: Strong acids. Strong bases. Strong oxidizers. Halogens. Chlorine compounds, chlorinated inorganics (potassium, calcium and sodium hypochlorite) and hydrogen peroxides.

Hazardous Decomposition Products: Nitrogen oxides. Toxic vapors. Ammonia. Nitric acid

SECTION 11 - TOXICOLOGICAL INFORMATION

Information on Toxicological Effects – Product

Acute Toxicity: Not classified

LD50 and LC50 Data: Not available

Skin Corrosion/Irritation: Not classified

Serious Eye Damage/Irritation: Causes serious eye irritation.

Respiratory or Skin Sensitization: Not classified

Germ Cell Mutagenicity: Not classified

Teratogenicity: Not available

Carcinogenicity: Not classified

Specific Target Organ Toxicity (Repeated Exposure): Not classified

Reproductive Toxicity: Not classified

Specific Target Organ Toxicity (Single Exposure): Not classified

Aspiration Hazard: Not classified

Symptoms/Injuries After Inhalation: May cause respiratory irritation.

Symptoms/Injuries After Skin Contact: May cause skin irritation.

Symptoms/Injuries After Eye Contact: Causes serious eye irritation.

Symptoms/Injuries After Ingestion: Ingestion is likely to be harmful or have adverse effects.

Chronic Symptoms: None known.

Information on Toxicological Effects - Ingredient(s)

LD50 and LC50 Data:

Ammonium nitrate (6484-52-2)

LD50 Oral Rat	2217 mg/kg
LC50 Inhalation Rat	> 88.8 mg/l/4h
ATE CLP (oral)	2217.000 mg/kg body weight

SECTION 12: ECOLOGICAL INFORMATION

Safety Data Sheet

Toxicity Not classified	
Persistence and Degradability	
Superprill	
Persistence and Degradability	Not established.
Bioaccumulative Potential	
Superprill	
Bioaccumulative Potential	Not established.
Ammonium nitrate (6484-52-2)	
BCF fish 1	(no bioaccumulation expected)
Log Pow	-3.1 (at 25 °C)
Mobility in Soil Not available	
Other Adverse Effects	
Other Information: Avoid release to the environment.	

SECTION 13 – DISPOSAL CONSIDERATIONS

Waste Disposal Recommendations: Collect spillage for possible reuse. Dispose of waste material in accordance with all local, regional, national, provincial, territorial and international regulations.

Additional Information: Clean up even minor leaks or spills if possible without unnecessary risk.

SECTION 14 - TRANSPORT INFORMATION

14.1 In Accordance with DOT

Proper Shipping Name : AMMONIUM NITRATE with not more than 0.2% total combustible material, including any organic substance, calculated as carbon to the exclusion of any other added substance

Hazard Class : 5.1

Identification Number : UN1942

Label Codes : 5.1

Packing Group : III

ERG Number : 140



14.2 In Accordance with IMDG

Proper Shipping Name : AMMONIUM NITRATE

Hazard Class : 5.1

Identification Number : UN1942

Packing Group : III

Label Codes : 5.1

EmS-No. (Fire) : F-H

EmS-No. (Spillage) : S-Q



14.3 In Accordance with IATA

Proper Shipping Name : AMMONIUM NITRATE

Packing Group : III

Identification Number : UN1942

Hazard Class : 5

Label Codes : 5.1

ERG Code (IATA) : 5L



Safety Data Sheet

14.4 In Accordance with TDG

Proper Shipping Name : AMMONIUM NITRATE with not more than 0.2 per cent combustible substances, including any organic substance calculated as carbon, to the exclusion of any other added substance

Packing Group : III

Hazard Class : 5.1

Identification Number : UN1942

Label Codes : 5.1



SECTION 15 - REGULATORY INFORMATION

US Federal Regulations

Superprill

SARA Section 311/312 Hazard Classes : Immediate (acute) health hazard

Ammonium nitrate (6484-52-2)

Listed on the United States TSCA (Toxic Substances Control Act) inventory

US State Regulations

Ammonium nitrate (6484-52-2)

U.S. - Massachusetts - Right To Know List

U.S. - New Jersey - Right to Know Hazardous Substance List

U.S. - Pennsylvania - RTK (Right to Know) - Environmental Hazard List

U.S. - Pennsylvania - RTK (Right to Know) List

Canadian Regulations

Superprill

WHMIS Classification : Class C - Oxidizing Material
Class D Division 2 Subdivision B - Toxic material causing other toxic effects



Ammonium nitrate (6484-52-2)

Listed on the Canadian DSL (Domestic Substances List) inventory.

WHMIS Classification : Class C - Oxidizing Material
Class D Division 2 Subdivision B - Toxic material causing other toxic effects

This product has been classified in accordance with the hazard criteria of the Controlled Products Regulations (CPR) and the SDS contains all of the information required by CPR.

SECTION 16: OTHER INFORMATION, INCLUDING DATE OF PREPARATION OR LAST REVISION

Revision date : 07/20/2020

Other Information : This document has been prepared in accordance with the SDS requirements of the OSHA Hazard Communication Standard 29 CFR 1910.1200.

GHS Full Text Phrases:

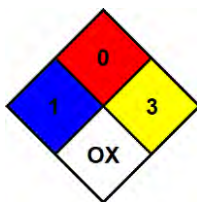
Eye Irrit. 2A	Serious eye damage/eye irritation Category 2A
Ox. Sol. 3	Oxidizing solids Category 3
H272	May intensify fire; oxidizer

Safety Data Sheet

H319

Causes serious eye irritation

- NFPA Health Hazard** : 1 - Exposure could cause irritation but only minor residual injury even if no treatment is given.
- NFPA Fire Hazard** : 0 - Materials that will not burn.
- NFPA Reactivity** : 3 - Capable of detonation or explosive reaction, but requires a strong initiating source or must be heated under confinement before initiation, or reacts explosively with water.
- NFPA Specific Hazard** : OX - This denotes an oxidizer, a chemical which can greatly increase the rate of combustion/fire.



Party Responsible for the Preparation of This Document

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Dyno Nobel SDS

Explosive Materials

Aviation Fuel (Jet-A) Specific Spill Response Plan

Notes: Aviation fuel is a substance listed in Schedule 1 of the E2 regulations. The quantities of Aviation fuel currently stored at the Hope Bay Project do not exceed the Schedule 1 thresholds; however, a Product Specific Emergency Response Plan has been developed for this product based on the environmental and health and safety impacts of a potential spill. If spilled, aviation fuel could be immediately harmful to humans and/or the environment and has the potential to cause pool fires and vapour cloud explosion (dependent on manufacturer specific additives).

CAS No: 8008-20-06 (Kerosene)

UN No: 1223 (Kerosene)

Hazards Identification:

Physical State: Liquid, pale yellow

Odor: Petroleum/solvent

Flash Point: > 38°C

Emergency Overview: HIGHLY COMBULSTIBLE. FLASH FIRE/EXPLOSION POTENTIAL. MATERIAL IS STATIC ACCUMULATOR.

Potential Acute Health Effects: Highly Explosive when vapour meets the air. Causes combustion and explosion. Hazardous if ingested or inhaled. May cause irritation to the eyes and respiratory tract. Reacts with oxidizing agents. Hazardous decomposition product: Carbon monoxide.

Environmental Effects: Toxic to aquatic organisms, may cause long-term adverse effects in aquatic environments.

Usage: Jet-A is used to fuel aircraft operating at the Hope Bay site (helicopters, airplanes).

Storage: Jet-A is stored in steel fuel tanks or manufactured fuel bladders within the secondary containment berm. Smaller quantities are stored in steel drums within ventilated seacans or within lined containment facilities at the location of use.

The expected quantity to be stored on site is 775 tonnes of Jet-A fuel. The maximum allowed capacity of the largest container in which the substance is stored is 400,000 L.

Spill Response

Personal Protective Equipment for Spill Response:

- Chemical-resistant gloves (e.g., nitrile);
- Protective glasses or chemical safety goggles;
- Chemically resistant coveralls or Tyvek coveralls;

- Half face respirator with organic vapour cartridges or self-contained breathing apparatus; and
- Anti-static clothing.

Emergency response for a Jet-A Spill

- Isolate and evacuate the spill area if potential for explosion or combustion.
- Report spill to Supervisor immediately. Provide location and estimate of spill quantity.
- Supervisor will report the spill immediately to the Environmental Superintendent or Safety Coordinator.
- Mine General Manager will activate Incident Command System and Emergency Response Team if required for response.
 - Based on size, location of spill and potential hazardous conditions/environmental impacts.
- Remove all sources of heat and ignition (there is to be no smoking or use of any flames within the area).
- Stop flow if safe to do so.
 - Low-lying areas can trap explosive vapours.
 - Air quality monitoring will be conducted in enclosed spaces to determine concentration of hazardous vapours prior to initiating spill response efforts.
 - Ventilate space prior to entering, if indoors.
 - Restrict access to area and approach upwind of spill.
- For spills to land, snow or ice:
 - Protect spill area from storm water runoff and prevent entry into surface waters by constructing a ditch or berm using suitable non-combustible absorbent materials (e.g., sand, diatomaceous earth).
 - Do not contain spill if there is any chance of igniting vapours.
 - Cover small spills with non-combustible absorbent materials.
 - Use non-metal, non-sparking tools to collect absorption materials.
 - Place the residue in a steel container, clearly labeled as per WHMIS guidelines. Close tightly.
 - Ground tools and containers when collecting absorption material.
 - Transport to waste management for offsite disposal. Store in ventilated areas away from incompatible materials.
- For spills to water:
 - Jet-A fuel floats on surface of water.

- Light hydrocarbon with narrow boiling range and low viscosity. Will evaporate or naturally disperse within a day or less in open water (NOAA Office of Response & Restoration, 2019).
 - Do not attempt to contain or remove spills (high explosion potential due to quick evaporation).
 - If ambient temperature is $< 28^{\circ}\text{C}$, use containment booms and remove from the surface by skimming.
 - If ambient temperature is $\geq 28^{\circ}\text{C}$, use booms as a barrier to protect shorelines and allow the material to evaporate.
 - Use booms to prevent spread of spill. Protect spread to shoreline where fuel can penetrate quickly into porous sediments.
- Remove, bag and label personal protective equipment for offsite disposal.
 - Thoroughly wash skin with soap.

Diesel Fuel Specific Spill Response Plan

Notes: Diesel Fuel is a substance listed in Schedule 1 of the E2 regulations, with a threshold of 2500 tonnes. Diesel fuel is used on site to for power and to fuel various pieces of light/heavy equipment. A diesel fuel spill is characterized as the Worst-Case and Alternate Worst-Case Scenario Spill under the E2 Regulations. The details of these spills are presented in section 4.8 of the Plan. CAS No: 68334-30-5 (Diesel)

UN No: UN1202

Hazards Identification:

Physical State: Liquid, clear to yellow
Odor: Petroleum/solvent
Flash Point: $\geq 40.0^{\circ}\text{C}$

Emergency Overview:

Potential Acute Health Effects: Flammable liquid and vapour. Harmful if swallowed. May be fatal if swallowed and enters airways. Causes skin and serious eye irritation. Harmful if inhaled.

Environmental Effects: Toxic to aquatic life with long lasting effects, as well as terrestrial wildlife and vegetation.

Usage: Diesel is used for power generation and to fuel various pieces of light/heavy equipment operating at site.

Storage: Diesel is stored in steel fuel tanks within secondary containment berm or double walled fuel tanks.

The expected quantity to be stored on site is 30,000,000 L of diesel fuel. The maximum allowed capacity of the largest container in which the substance is stored is 5,000,000 L.

Spill Response

Personal Protective Equipment for Spill Response:

- Chemical-resistant gloves (e.g., nitrile);
- Protective glasses or chemical safety goggles;
- Chemically resistant coveralls or Tyvek coveralls;
- Full face respirator with organic vapour cartridges or self-contained breathing apparatus

Emergency response for a Diesel Spill

- Isolate and evacuate the spill area if potential for explosion or combustion. Stay upwind of spill/leak.

- Eliminate ignition sources.
- Report spill to Supervisor immediately. Provide location and estimate of spill quantity.
- Supervisor will report the spill immediately to the Environmental Superintendent or Safety Coordinator.
- Mine General Manager will activate Incident Command System and Emergency Response Team if required for response.
 - Based on size, location of spill and potential hazardous conditions/environmental impacts.
- Remove all sources of heat and ignition (there is to be no smoking or use of any flames within the area).
- Stop flow if safe to do so.
 - Air quality monitoring will be conducted in enclosed spaces to determine concentration of hazardous vapours prior to initiating spill response efforts.
 - Ventilate space prior to entering, if indoors.
 - Restrict access to area and approach upwind of spill.
- For spills to land, snow or ice:
 - Protect spill area from storm water runoff and prevent entry into surface waters by constructing a ditch or berm using suitable non-combustible absorbent materials (e.g., sand, diatomaceous earth).
 - Cover small spills with non-combustible absorbent materials, appropriate absorbent pads and placing absorbent booms in the path of flow of the spill.
 - Constructing temporary berms from soil or snow at the leading edge of the spill to minimize flow
 - Plastic tarps can be placed over and at the foot of the berm to capture pooling liquid and facilitate recovery
 - Pumping spilled material to empty drums or tanks
 - Excavators and other heavy equipment may be used to excavate contaminated materials
 - Use non-metal, non-sparking tools to collect absorption materials.
 - Place the residue in a steel container, clearly labeled as per WHMIS guidelines. Close tightly.
 - Ground tools/equipment and containers when collecting absorption material.
 - Transport to waste management for offsite disposal. Store in ventilated areas away from incompatible materials.
- For spills to water:
 - Diesel fuel floats on surface of water.

- Identify the direction and speed of the flow path of the product based on weather conditions and drainage patterns
- Monitor the spread of the material using a drone or from a helicopter if possible to identify the area of spread
- Use appropriate absorbent pads, socks and similar materials to recover spilled product
- Granular sorbent materials are NOT to be used for spill response on water
- Hydrophobic absorbent booms will be deployed to contain large spills and to facilitate recovery
- Absorbent booms will be drawn slowly in to encircle the spilled product and absorb it
- Skimmers will be deployed in open-water areas to remove product from the water surface and boards or plywood may be used in streams or culverts to reduce the flow of spilled product on the surface and limit the area of the spill on the water
- Pump contaminated water into tanks or storage bladders if possible
- Remove, bag and label personal protective equipment for offsite disposal.
- Thoroughly wash skin with soap.

SAFETY DATA SHEET

DIESEL FUEL

000003000395



Version 6.3

Revision Date 2022/02/01

Print Date 2022/02/01

SECTION 1. IDENTIFICATION

Product name : DIESEL FUEL

Synonyms : Seasonal Diesel, #2 Diesel, #1 Diesel, #2 Heating Oil, #1 Heating Oil, OSX, D50, Arctic Diesel, Farm Diesel, Marine Diesel, Low Sulphur Diesel, LSD, Ultra Low Sulphur Diesel, ULSD, Mining Diesel, Naval Distillate, Dyed Diesel, Marked Diesel, Coloured Diesel, Furnace special, Biodiesel blend, B1, B2, B5, Renewable Diesel blend (RX where X is 2- 50, X is representative of volume %), Diesel Low Cloud (LC), Marine Gas Oil, Marine Gas Oil Dyed

Product code : 103213, 100679, 100654, 100653, 100105, 100992, 100637, 100634, 100631, 100638, 100641, 100635, 100632, 100684, 100683, 100657, 100656, 100655, 100687, 100686, 100685, 100681, 100661, 100659, 100667, 100666, 100665, 100682, 100671, 100669, 100664, 100662, 100680, 100781, 100964, 103204, 103180, 103179, 103193, 103178, 103136, 103135, 103134, 103133, 103132, 103131, 101799, 102907, 102762, 102763, 102755, 102302, 102744, 101801, 100678, 100677, 101802, 100107, 100668, 100658, 100911, 100663, 100652, 100460, 100065, 101796, 101793, 101795, 101792, 101794, 101791, 100768, 100643, 100642, 100103, 101798, 101800, 101797, 101788, 101789, 101787, 102531, 100734, 100733, 100640, 100997, 100995, 100732, 100731, 100994

Manufacturer or supplier's details
Petro-Canada
P.O. Box 2844, 150 - 6th Avenue South-West
Calgary Alberta T2P 3E3
Canada, Telephone: 1-866-786-2671

Emergency telephone number : CHEMTREC: 1-800-424-9300 (toll free) or +1 703-527-3887; Suncor Energy: +1 403-296-3000

Recommended use of the chemical and restrictions on use

Recommended use : Diesel fuels are distillate fuels suitable for use in high and medium speed internal combustion engines of the compression ignition type. Mining diesels, marine diesels, MDO and naval distillates may have a higher flash point requirement.

Prepared by : Product Safety

SECTION 2. HAZARDS IDENTIFICATION

Emergency Overview

Appearance	Bright oily liquid.
Colour	Clear to yellow (This product may be dyed red for taxation purposes)

SAFETY DATA SHEET

DIESEL FUEL

000003000395



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Odour	Mild petroleum oil like.
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GHS Classification

Flammable liquids	: Category 3
Acute toxicity (Inhalation)	: Category 4
Skin irritation	: Category 2
Carcinogenicity	: Category 2
Specific target organ toxicity - single exposure	: Category 3 (Central nervous system)
Specific target organ toxicity - repeated exposure	: Category 2 (Liver, thymus, Bone)
Aspiration hazard	: Category 1

GHS label elements

Hazard pictograms	:	  
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Signal word	: Danger
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Hazard statements	: Flammable liquid and vapour. May be fatal if swallowed and enters airways. Causes skin irritation. Harmful if inhaled. May cause drowsiness or dizziness. Suspected of causing cancer. May cause damage to organs (Liver, thymus, Bone) through prolonged or repeated exposure.
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Precautionary statements	: Prevention: Obtain special instructions before use. Do not handle until all safety precautions have been read and understood. Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking. Keep container tightly closed. Ground and bond container and receiving equipment. Use explosion-proof electrical/ ventilating/ lighting equipment. Use non-sparking tools. Take action to prevent static discharges. Do not breathe dust/ fume/ gas/ mist/ vapours/ spray. Wash skin thoroughly after handling. Use only outdoors or in a well-ventilated area. Wear protective gloves/ protective clothing/ eye protection/ face protection. Response:
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IF SWALLOWED: Immediately call a POISON CENTER/doctor.
IF ON SKIN (or hair): Take off immediately all contaminated clothing. Rinse skin with water.
IF INHALED: Remove person to fresh air and keep comfortable for breathing. Call a POISON CENTER/doctor if you feel unwell.
IF exposed or concerned: Get medical advice/ attention.
Do NOT induce vomiting.
If skin irritation occurs: Get medical advice/ attention.
Take off contaminated clothing and wash it before reuse.
In case of fire: Use dry sand, dry chemical or alcohol-resistant foam to extinguish.

Storage:

Store in a well-ventilated place. Keep container tightly closed.
Store in a well-ventilated place. Keep cool.
Store locked up.

Disposal:

Dispose of contents/ container to an approved waste disposal plant.

Potential Health Effects

Primary Routes of Entry : Eye contact
Ingestion
Inhalation
Skin contact

Aggravated Medical Condition : None known.

Other hazards

None known.

SECTION 3. COMPOSITION/INFORMATION ON INGREDIENTS

Substance / Mixture : Mixture

Hazardous components

Chemical name	CAS-No.	Concentration
Kerosine (petroleum), hydrodesulfurized; Kerosine — unspecified	64742-81-0	48 - 100 %
Kerosine (petroleum); Straight run kerosine	8008-20-6	
Fuels, diesel; Gasoil — unspecified	68334-30-5	
Alkanes, C10-20-branched and linear	928771-01-1	0 - 50 %
Fatty acids, C16-18 and C18-unsatd., Me esters	67762-38-3	0 - 20 %

All above concentrations are in percent by weight.

SECTION 4. FIRST AID MEASURES

If inhaled : Move to fresh air.
Artificial respiration and/or oxygen may be necessary.
Seek medical advice.

In case of skin contact : In case of contact, immediately flush skin with plenty of water for at least 15 minutes while removing contaminated clothing

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	and shoes. Wash skin thoroughly with soap and water or use recognized skin cleanser. Wash clothing before reuse. Seek medical advice.
In case of eye contact	: Remove contact lenses. Rinse immediately with plenty of water, also under the eyelids, for at least 15 minutes. Obtain medical attention.
If swallowed	: Rinse mouth with water. DO NOT induce vomiting unless directed to do so by a physician or poison control center. Never give anything by mouth to an unconscious person. Seek medical advice.
Most important symptoms and effects, both acute and delayed	: Harmful if inhaled. Respiratory, skin and eye irritation; nausea; cancer.
Notes to physician	: Treat symptomatically. For specialist advice physicians should contact the Poisons Information Service.

SECTION 5. FIREFIGHTING MEASURES

Suitable extinguishing media	: Dry chemical Carbon dioxide (CO ₂) Water fog. Foam
Unsuitable extinguishing media	: Do NOT use water jet.
Specific hazards during fire-fighting	: Cool closed containers exposed to fire with water spray.
Hazardous combustion products	: Carbon oxides (CO, CO ₂), nitrogen oxides (NO _x), sulphur oxides (SO _x), smoke and irritating vapours as products of incomplete combustion.
Further information	: Prevent fire extinguishing water from contaminating surface water or the ground water system.
Special protective equipment for firefighters	: Wear self-contained breathing apparatus for firefighting if necessary.

SECTION 6. ACCIDENTAL RELEASE MEASURES

Personal precautions, protective equipment and emergency procedures	: For personal protection see section 8. Ensure adequate ventilation. Evacuate personnel to safe areas. Material can create slippery conditions.
Environmental precautions	: If the product contaminates rivers and lakes or drains inform respective authorities.
Methods and materials for containment and cleaning up	: Prevent further leakage or spillage if safe to do so. Remove all sources of ignition. Soak up with inert absorbent material. Non-sparking tools should be used. Ensure adequate ventilation.

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Contact the proper local authorities.

SECTION 7. HANDLING AND STORAGE

- Advice on safe handling : For personal protection see section 8.
Smoking, eating and drinking should be prohibited in the application area.
Use only with adequate ventilation.
In case of insufficient ventilation, wear suitable respiratory equipment.
Avoid spark promoters. Ground/bond container and equipment. These alone may be insufficient to remove static electricity.
Avoid contact with skin, eyes and clothing.
Do not ingest.
Keep away from heat and sources of ignition.
Keep container closed when not in use.
- Conditions for safe storage : Store in original container.
Containers which are opened must be carefully resealed and kept upright to prevent leakage.
Keep in a dry, cool and well-ventilated place.
Keep in properly labelled containers.
To maintain product quality, do not store in heat or direct sunlight.
Ensure the storage containers are grounded/bonded.

SECTION 8. EXPOSURE CONTROLS/PERSONAL PROTECTION

Components with workplace control parameters

Components	CAS-No.	Value type (Form of exposure)	Control parameters / Permissible concentration	Basis
Kerosine (petroleum), hydrodesulfurized; Kerosine — unspecified	64742-81-0	TWA	200 mg/m ³ (As total hydrocarbon vapour)	ACGIH
		TWA	200 mg/m ³ (total hydrocarbon vapor)	CA AB OEL
		TWA	525 mg/m ³	CA ON OEL
		TWA	200 mg/m ³ (As total hydrocarbon vapour)	ACGIH
		TWA	200 mg/m ³ (total hydrocarbon vapor)	ACGIH
Kerosine (petroleum); Straight run kerosine	8008-20-6	TWA	200 mg/m ³ (total hydrocarbon vapor)	CA BC OEL
		TWA	200 mg/m ³ (total hydrocarbon vapor)	CA AB OEL
		TWA	200 mg/m ³ (total hydrocarbon	ACGIH

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			vapor)	
Fuels, diesel; Gasoil — unspecified	68334-30-5	TWA	100 mg/m ³ (total hydrocarbons)	CA AB OEL
		TWA (Vapour and inhalable aerosols)	100 mg/m ³ (total hydrocarbons)	CA BC OEL
		TWA (Inhalable fraction and vapor)	100 mg/m ³ (total hydrocarbons)	ACGIH

Engineering measures : Adequate ventilation to ensure that Occupational Exposure Limits are not exceeded.
Use only in well-ventilated areas.
Ensure that eyewash station and safety shower are proximal to the work-station location.

Personal protective equipment

Respiratory protection : Concentration in air determines protection needed.
Use respiratory protection unless adequate local exhaust ventilation is provided or exposure assessment demonstrates that exposures are within recommended exposure guidelines. Respirator selection must be based on known or anticipated exposure levels, the hazards of the product and the safe working limits of the selected respirator.

Filter type : organic vapour cartridge or canister may be permissible under certain circumstances where airborne concentrations are expected to exceed exposure limits. Protection provided by air-purifying respirators is limited. Use a positive-pressure, air-supplied respirator if there is any potential for uncontrolled release, exposure levels are unknown, or any other circumstances where air-purifying respirators may not provide adequate protection.

Hand protection
Material : neoprene, nitrile, polyvinyl alcohol (PVA), Viton(R). Consult your PPE provider for breakthrough times and the specific glove that is best for you based on your use patterns. It should be realized that eventually any material regardless of their imperviousness, will get permeated by chemicals. Therefore, protective gloves should be regularly checked for wear and tear. At the first signs of hardening and cracks, they should be changed.

Remarks : Chemical-resistant, impervious gloves complying with an approved standard should be worn at all times when handling chemical products if a risk assessment indicates this is necessary.

Eye protection : Wear face-shield and protective suit for abnormal processing problems.

Skin and body protection : Choose body protection in relation to its type, to the concentration and amount of dangerous substances, and to the specific work-place.

Protective measures : Wash contaminated clothing before re-use.

Hygiene measures : Remove and wash contaminated clothing and gloves, including the inside, before re-use.

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Wash face, hands and any exposed skin thoroughly after handling.

SECTION 9. PHYSICAL AND CHEMICAL PROPERTIES

Appearance	: Bright oily liquid.
Colour	: Clear to yellow (This product may be dyed red for taxation purposes)
Odour	: Mild petroleum oil like.
Odour Threshold	: No data available
pH	: No data available
Melting point	: No data available
Boiling point/boiling range	: 150 - 371 °C (302 - 700 °F)
Decomposition temperature	No data available
Flash point	: > 40 °C (104 °F) Method: closed cup
Auto-Ignition Temperature	: 204 °C (399 °F)
Evaporation rate	: No data available
Flammability	: Flammable in presence of open flames, sparks and heat. Vapours are heavier than air and may travel considerable distance to sources of ignition and flash back. This product can accumulate static charge and ignite.
Upper explosion limit	: 6 %(V)
Lower explosion limit	: 0.7 %(V)
Vapour pressure	: 7.5 mmHg (20 °C / 68 °F)
Relative vapour density	: 4.5
Relative density	: 0.8 - 0.88
Solubility(ies)	
Water solubility	: insoluble
Partition coefficient: n-octanol/water	: No data available
Viscosity	
Viscosity, kinematic	: 1.3 - 4.1 cSt (40 °C / 104 °F)

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SECTION 10. STABILITY AND REACTIVITY

Reactivity	: Stable at normal ambient temperature and pressure.
Chemical stability	: Stable under normal conditions.
Possibility of hazardous reactions	: Hazardous polymerisation does not occur.
Conditions to avoid	: Extremes of temperature and direct sunlight.
Incompatible materials	: Reactive with oxidising agents and acids.
Hazardous decomposition products	: May release COx, NOx, SOx, smoke and irritating vapours when heated to decomposition.

SECTION 11. TOXICOLOGICAL INFORMATION

Information on likely routes of exposure

Eye contact
Ingestion
Inhalation
Skin contact

Acute toxicity

Product:

Acute oral toxicity	: Remarks: Based on available data, the classification criteria are not met.
Acute inhalation toxicity	: Acute toxicity estimate: 1.5 mg/l Exposure time: 4 h Test atmosphere: dust/mist Method: Calculation method Assessment: The component/mixture is moderately toxic after short term inhalation. Remarks: Harmful if inhaled.
Acute dermal toxicity	: Assessment: The substance or mixture has no acute dermal toxicity

Components:

Kerosine (petroleum), hydrodesulfurized; Kerosine — unspecified:

Acute oral toxicity	: LD50 (Rat): > 5,000 mg/kg,
Acute inhalation toxicity	: LC50 (Rat): > 5.2 mg/l Exposure time: 4 hrs Test atmosphere: dust/mist
Acute dermal toxicity	: LD50 (Rabbit): > 2,000 mg/kg,

Kerosine (petroleum); Straight run kerosine:

Acute oral toxicity	: LD50 (Rat): > 5,000 mg/kg,
Acute inhalation toxicity	: LC50 (Rat): > 5 mg/l Exposure time: 4 h Test atmosphere: dust/mist
Acute dermal toxicity	: LD50 (Rabbit): > 2,000 mg/kg,

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Fuels, diesel; Gasoil — unspecified:

Acute oral toxicity : LD50 (Rat): 7,500 mg/kg,
Acute inhalation toxicity : LC50 (Rat): 4.1 mg/l
Exposure time: 4 h
Test atmosphere: vapour
Acute dermal toxicity : LD50 (Mouse): 24,500 mg/kg,

Skin corrosion/irritation

Product:

Remarks: Causes skin irritation.

Serious eye damage/eye irritation

Product:

Remarks: Based on available data, the classification criteria are not met.

Respiratory or skin sensitisation

Product:

Remarks: Based on available data, the classification criteria are not met.

Germ cell mutagenicity

Product:

Germ cell mutagenicity- Assessment	Based on available data, the classification criteria are not met.
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Carcinogenicity

Product:

Carcinogenicity - As- sessment	Suspected of causing cancer.
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Reproductive toxicity

Product:

Reproductive toxicity - Assessment	Based on available data, the classification criteria are not met.
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STOT - single exposure

Product:

Target Organs: Central nervous system
Remarks: May cause drowsiness or dizziness.

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STOT - repeated exposure

Product:

Target Organs: Liver, thymus, Bone

Remarks: May cause damage to organs through prolonged or repeated exposure.

No data available

Aspiration toxicity

Product:

May be fatal if swallowed and enters airways.

SECTION 12. ECOLOGICAL INFORMATION

Ecotoxicity

Product:

Toxicity to fish : Remarks: No data available

Toxicity to daphnia and other aquatic invertebrates : Remarks: No data available

Toxicity to algae : Remarks: No data available

Toxicity to bacteria : Remarks: No data available

Persistence and degradability

Product:

Biodegradability : Remarks: No data available

Bioaccumulative potential

No data available

Mobility in soil

No data available

Other adverse effects

No data available

SECTION 13. DISPOSAL CONSIDERATIONS

Disposal methods

Waste from residues : The product should not be allowed to enter drains, water courses or the soil.
Offer surplus and non-recyclable solutions to a licensed disposal company.
Waste must be classified and labelled prior to recycling or disposal.
Send to a licensed waste management company.

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Dispose of as hazardous waste in compliance with local and national regulations.
Dispose of product residue in accordance with the instructions of the person responsible for waste disposal.
Contaminated packaging : Contact local or business unit authorities for guidance on disposal of product.

SECTION 14. TRANSPORT INFORMATION

International Regulations

IATA-DGR

UN/ID No. : UN 1202
Proper shipping name : Diesel fuel
Class : 3
Packing group : III
Labels : Class 3 - Flammable Liquid
Packing instruction (cargo aircraft) : 366

IMDG-Code

UN number : UN 1202
Proper shipping name : DIESEL FUEL
Class : 3
Packing group : III
Labels : 3
EmS Code : F-E, S-E
Marine pollutant : yes

Transport in bulk according to Annex II of MARPOL 73/78 and the IBC Code

National Regulations

TDG

UN number : UN 1202
Proper shipping name : DIESEL FUEL
Class : 3
Packing group : III
Labels : 3
ERG Code : 128
Marine pollutant : yes

SECTION 15. REGULATORY INFORMATION

This product has been classified according to the hazard criteria of the Hazardous Products Regulations (HPR) and the SDS contains all of the information required by the HPR.

The components of this product are reported in the following inventories:

DSL On the inventory, or in compliance with the inventory

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SECTION 16. OTHER INFORMATION

For Copy of SDS : Internet: www.petro-canada.ca/msds
Canada-wide: telephone: 1-800-668-0220; fax: 1-800-837-1228
For Product Safety Information: 1 905-804-4752

Prepared by : Product Safety

Revision Date : 2022/02/01

The information provided in this Safety Data Sheet is correct to the best of our knowledge, information and belief at the date of its publication. The information given is designed only as a guidance for safe handling, use, processing, storage, transportation, disposal and release and is not to be considered a warranty or quality specification. The information relates only to the specific material designated and may not be valid for such material used in combination with any other materials or in any process, unless specified in the text.

Acetylene Specific Spill Response Plan

Notes: Acetylene is a substance listed in Schedule 1 of the E2 regulations, with a threshold of 4.5 tonnes. Acetylene is used on site for welding on site.

CAS No: 74-86-2 (Acetylene)

UN No: UN1001

Hazards Identification:

Physical State: Dissolved gas, colourless
Odor: Garlic-like
Flash Point: -18°C
Lower Flammable Limit: 2.4%

Emergency Overview: EXTREMELY FLAMMABLE GAS. CHEMICALLY UNSTABLE. STORED UNDER PRESSURE. CAN CAUSE RAPID SUFFOCATION. IMMEDIATE FIRE AND EXPLOSION HAZARD EXISTS WHEN CONCENTRATIONS EXCEED LOWER FLAMMABILITY LEVEL.

Potential Acute Health Effects: Extremely flammable gas. May react explosively even in absence of air at elevated pressure and/or temperature. Contains gas under pressure. May explode if heated. May form explosive mixtures in air.

Environmental Effects: No known eco-toxicological effects.

Usage: Acetylene is used for welding on site.

Storage: Acetylene is stored in steel compressed gas cylinder secured in cages or racks in seacans.

The expected quantity to be stored on site is 175 tonnes of Acetylene gas. The maximum allowed capacity of the largest container in which the substance is stored is 242 cubic ft.

Spill Response

Personal Protective Equipment for Spill Response:

- Self-contained breathing apparatus when entering confined spaces

Emergency response for an Acetylene Spill:

- Isolate and evacuate the spill area. Suffocation potential.
- Report spill to Supervisor immediately. Provide location and estimate of spill quantity.
- Supervisor will report the spill immediately to the Environmental Superintendent or Safety Coordinator.

- Mine General Manager will activate Incident Command System and Emergency Response Team if required for response.
 - Based on size, location of spill and potential hazardous conditions/environmental impacts.
- Remove all sources of heat and ignition (there is to be no smoking or use of any flames within the area).
- Never enter confined space or other area where flammable gas concentration is > 10% of its lower flammable limit.
- Ventilate area and monitor concentrations.
- Stop flow if safe to do so.

Praxair Material Safety Data Sheet

1. Chemical Product and Company Identification

Product Name: Acetylene	Trade Name: Acetylene
Product Use: Metal industry: Welding and cutting of metals.	
Chemical Name: Acetylene	Synonym: Acetylen, Ethine, Ethyne, Narcylene
Chemical Formula: C ₂ H ₂	Chemical Family: Alkyne
Telephone:	Supplier /Manufacture: Praxair Canada Inc. 1 City Centre Drive Suite 1200 Mississauga, ON L5B 1M2 Phone: 905-803-1600 Fax: 905-803-1682
Emergencies: * 1-800-363-0042	

**Call emergency numbers 24 hours a day only for spills, leaks, fire, exposure, or accidents involving this product. For routine information, contact your supplier or Praxair sales representative.*

2. Hazards Identification

Emergency Overview

DANGER! Flammable gas under pressure. Can form explosive mixtures with air. Fusible plugs in top, bottom, or valve melt at 98 - 104 C. Do not discharge at pressures above 103 kPa. May cause dizziness and drowsiness. Self-contained breathing apparatus may be required by rescue workers. At normal temperature and pressure, commercial acetylene is a colourless gas with a distinctive garlic-like odour.

ROUTES OF EXPOSURE: Inhalation.

EFFECTS OF A SINGLE (ACUTE) OVEREXPOSURE:

- INHALATION:** Asphyxiant. Effects are due to lack of oxygen. Moderate concentrations may cause headaches, drowsiness, dizziness, excitation, excess salivation, vomiting, and unconsciousness. The vapour from a liquid (acetone) release may also cause incoordination and abdominal pain. Lack of oxygen can kill.
- SKIN CONTACT:** No harm expected. Liquid (acetone) may cause frostbite.
- SKIN ABSORPTION:** No harm expected. Liquid (acetone) may cause frostbite.
- SWALLOWING:** An unlikely route of exposure, but frostbite of the lips and mouth may result from contact with the liquid (acetone). If swallowed, the liquid may cause nausea.
- EYE CONTACT:** Vapour containing acetone may cause irritation. Liquid (acetone) may cause irritation and frostbite.

EFFECTS OF REPEATED (CHRONIC) OVEREXPOSURE:

NOTE: Acetylene cylinders are filled with a porous material containing acetone into which the acetylene is dissolved. ACGIH has established a TLV-TWA of 500 ppm for acetone and a STEL of 750 ppm.

WORKING WITH WELDING AND CUTTING MAY CREATE ADDITIONAL HEALTH HAZARDS. FUMES AND GASES can be dangerous to your health and may cause serious lung disease.* Keep your head out of the fumes. Do not breathe fumes and gases caused by the process. Use enough ventilation, local exhaust, or both to keep fumes and gases from your breathing zone and the general area. The type and amount of fumes and gases depend on the equipment and supplies used. Possibly dangerous materials may be found in fluxes, coatings, gases, metals etc. Obtain a Material Safety Data Sheet (MSDS) for each material used. Air samples can be used to find out what respiratory protection is needed. Short term overexposure to fumes may result in discomfort such as dizziness, nausea, or dryness or irritation of nose, throat, or eyes.

***NOTES TO PHYSICIAN:**

Acute: Gases, fumes, and dusts may cause irritation to the eyes, lungs, nose, and throat. Some toxic gases associated with welding and related processes may cause pulmonary edema, asphyxiation, and death. Acute overexposure may include signs and symptoms such as watery eyes, nose and throat irritation, headache, difficulty breathing frequent coughing, or chest pains.

Chronic: Protracted inhalation of air contaminants may lead to their accumulation in the lungs, a condition which may be seen as dense areas on chest x-rays. The severity of change is proportional to the length of exposure. The changes seen are not necessarily associated with symptoms or signs of reduced lung function or disease. In addition, the changes on x-rays may be caused by non-work related factors such as smoking, etc.

OTHER EFFECTS OF OVEREXPOSURE:

None known.

MEDICAL CONDITIONS AGGRAVATED BY OVEREXPOSURE:

Repeated or prolonged exposure is not known to aggravate medical condition.

SIGNIFICANT LABORATORY DATA WITH POSSIBLE RELEVANCE TO HUMAN HEALTH HAZARD EVALUATION:

None

CARCINOGENICITY:

Not listed as carcinogen by OSHA, NTP or IARC.

3. Composition and Information on Ingredients**COMPONENTS****CAS
NUMBER****CONCENTRATION
% by Mole**

Acetylene

74-86-2

>99.9*

*Note: Acetylene cylinders are filled with a porous material containing acetone (CAS 67-64-1) into which the acetylene is dissolved.

4. First Aid Measures**INHALATION:**

If inhaled, remove to fresh air. If not breathing, give artificial respiration. If breathing is difficult, give oxygen. Get medical attention immediately.

SKIN CONTACT:

In case of contact, immediately flush skin with plenty of water. Remove contaminated clothing and shoes. Cold water may be used. Wash clothing before reuse. Thoroughly clean shoes before reuse. Get medical attention.

SWALLOWING:

If liquid is swallowed, do not induce vomiting. Call a physician.

EYE CONTACT:

Check for and remove any contact lenses. In case of contact, immediately flush eyes with plenty of water for at least 15 minutes. Cold water may be used. See a physician, preferably an ophthalmologist, immediately.

NOTES TO PHYSICIAN:

Aspired acetone may cause severe lung damage. If a large quantity of material has been swallowed, stomach contents should be evacuated quickly in a manner which avoids aspiration. Otherwise, treatment should be directed at the control of symptoms and the clinical condition. No specific antidote is known.

5. Fire Fighting Measures

FLAMMABLE : Yes. **IF YES, UNDER WHAT CONDITIONS?** See "Unusual Fire and Explosion Hazards" in this section.

EXTINGUISHING MEDIA: See paragraphs below.

PRODUCTS OF COMBUSTION: These products are carbon oxides (CO, CO₂).

PROTECTION OF FIREFIGHTERS:

DANGER! Refer to CGA safety bulletin SB-4, "Handling Acetylene Cyinders in Fire Situations". Evacuate all personnel from danger area. Immediately cool containers with water spray from maximum distance taking care not to extinguish flames. Remove ignition sources if without risk. If flames are accidentally extinguished, explosive re-ignition may occur. Use self-contained breathing apparatus. Stop flow of gas if without risk while continuing cooling water spray. Remove all containers from area of fire if without risk. Allow fire to burn out.

SPECIFIC PHYSICAL AND CHEMICAL HAZARDS:

Extremely flammable gas. Forms explosive mixtures with air and oxidizing agents. Container may rupture due to heat of fire. Do not extinguish flames due to possibility of explosive re-ignition. No part of a container should be subjected to temperature higher than 52 C. Most containers are provided with a pressure relief device designed to vent contents when they are exposed to elevated temperature. Contact with copper, silver, or mercury or their alloys or halogens can cause explosion. Vapours form from this product and may travel or be moved by air currents and ignited by pilot lights, other flames, smoking, sparks, heaters, electrical equipment, static discharges, or other ignition sources at locations distant from product handling point. Explosive atmospheres may linger. Before entering area, especially confined areas, check atmosphere with approved device.

SENSITIVITY TO IMPACT:

Avoid impact against container.

SENSITIVITY TO STATIC DISCHARGE:

Possible, See Section 7.

PROTECTIVE EQUIPMENT AND PRECAUTIONS FOR FIREFIGHTERS:

Firefighters should wear self-contained breathing apparatus and full fire-fighting turnout gear.

FLAMMABLE LIMITS IN AIR, % by volume:

LOWER: 2.5

UPPER: 100

FLASH POINT: CLOSED CUP: -17.8°C (0°F). (Tag)

AUTOIGNITION TEMPERATURE: 305°C (581°F)

6. Accidental Release Measures

STEPS TO BE TAKEN IF MATERIAL IS RELEASED OR SPILLED:

Personal Precautions:

DANGER! **Flammable, high-pressure gas.** Forms explosive mixtures with air. Immediately evacuate all personnel from danger area. Use self-contained breathing apparatus where needed. Remove all sources of ignition if without risk. Reduce gas with fog or fine water spray. Shut off flow if without risk. Ventilate area or move cylinder to a well-ventilated area. Flammable gas may spread from leak. Before entering area, especially confined areas, check atmosphere with an appropriate device.

Environmental Precautions:

Prevent waste from contaminating the surrounding environment. Keep personnel away. Discard any product, residue, disposable container, or liner in an environmentally acceptable manner, in full compliance with federal, provincial, and local regulations. If necessary, call your local supplier for assistance.

7. Handling and Storage

PRECAUTIONS TO BE TAKEN IN HANDLING:

Protect cylinders from damage. Use a suitable hand truck to move cylinders; do not drag, roll, slide, or drop. All piped acetylene systems and associated equipment must be grounded. Electrical equipment must be non-sparking or explosion-proof. Leak check with soapy water; never use a flame. Never use copper piping for acetylene service; use only steel or wrought iron. Open acetylene cylinder valves the minimum amount required for acceptable flow; this will allow you to close valves as quickly as possible in an emergency. Do not open acetylene cylinder valves more than 1½ turns. Never use acetylene at pressures exceeding 103.5 kPa (15 psig). Acetylene cylinders are heavier than other cylinders because they are packed with a porous material and acetone. Never attempt to lift a cylinder by its cap; the cap is intended solely to protect the valve. Never insert an object (e.g., wrench, screwdriver, pry bar) into cap openings; doing so may damage the valve and cause a leak. Use an adjustable strap wrench to remove over-tight or rusted caps. Open valve slowly. If valve is hard to open, discontinue use and contact your supplier. For other precautions in using acetylene, see section 16.

PRECAUTIONS TO BE TAKEN IN STORAGE:

Store and use with adequate ventilation. Separate flammable cylinders from oxygen, chlorine, and other oxidizers by at least 6.1 m or use a barricade of non-combustible material. This barricade should be at least 1.53 m high and have a fire resistance rating of at least ½ hour. Firmly secure cylinders upright to keep them from falling or being knocked over. Screw valve protection cap firmly in place by hand. Post "No Smoking or Open Flames" signs in storage and use areas. There must be no sources of ignition. All electrical equipment in storage areas must be explosion-proof. Storage areas must meet national electric codes for Class 1 hazardous areas. Store only where temperature will not exceed 52 C. Store full and empty cylinders separately. Use a first-in, first-out inventory system to prevent storing full cylinders for long periods.

OTHER HAZARDOUS CONDITIONS OF HANDLING, STORAGE, AND USE:

Flammable high-pressure gas. Use only in a closed system. Use piping and equipment adequately designed to withstand pressures to be encountered. Use only spark-proof tools and explosion-proof equipment. Keep away from heat, sparks, and open flame. **May form explosive mixtures with air.** Ground all equipment. **Gas can cause rapid suffocation due to oxygen deficiency.** Store and use with adequate ventilation. Close valve after each use; keep closed even when empty. **Prevent reverse flow.** Reverse flow into cylinder may cause rupture. Use a check valve or other protective device in any line or piping from the cylinder. **When returning cylinder to supplier, be sure valve is closed, then install valve outlet plug tightly. Never work on a pressurized system.** If there is a leak, close the cylinder valve. Vent the system down in a safe and environmentally sound manner in compliance with all federal, provincial, and local laws; then repair the leak. **Never place a compressed gas cylinder where it may become part of an electrical circuit.**

RECOMMENDED PUBLICATIONS:

Additional information on storage, handling, and use of this product is provided in **NFPA 55: Standard for the Storage, Use, and Handling of Compressed and Liquefied Gases in Portable Cylinders**, published by the National Fire Protection Association.

See also Praxair publication P-14-153, *Guidelines for Handling Gas Cylinders and Containers*. Obtain from your local supplier.

8. Exposure Controls/Personal Protection

INGREDIENTS	CAS NUMBER	LD ₅₀ (Species & Routes)	LC ₅₀ (Rat, 4 hrs.)	Exposure Limits
Acetylene	74-86-2	Not available.	Not available.	Simple asphyxiant.

IMMEDIATELY DANGEROUS TO LIFE AND HEALTH (IDLH):**VENTILATION/ENGINEERING CONTROLS:**

LOCAL EXHAUST: Use process enclosures, local exhaust ventilation, or other engineering controls to keep airborne levels below recommended exposure limits. Train the worker to keep his head out of the fumes.

MECHANICAL (General): Use a local exhaust system, if necessary, to maintain an adequate supply of oxygen in the worker's breathing zone.

SPECIAL: Use only in a closed system.

OTHER: Use local exhaust ventilation or handle in a ventilated enclosure.

PERSONAL PROTECTION:

RESPIRATORY PROTECTION: Use respirable fume respirator or air supplied respirator when working in confined space or where local exhaust or ventilation does not keep exposure below TLV (acetone) or the applicable TLVs for fumes, gases, and other by-products of welding with acetylene. Select in accordance with the provincial regulations or guidelines. Selection should also be based on the current CSA standards Z94.4, "Selection, care and use of respirators". Respirators should be approved by NIOSH and MSHA

SKIN PROTECTION: Welding gloves recommended.

EYE PROTECTION: Wear safety glasses when handling cylinders.

Select in accordance with the current CSA standard Z94.3, "Industrial Eye and Face Protection", and any provincial regulations, local bylaws or guidelines.

OTHER PROTECTIVE EQUIPMENT: Metatarsal shoes for cylinder handling. Protective clothing where needed. Cuffless trousers should be worn outside the shoes. Select in accordance with the current CSA standard Z195, "Protective Foot Wear", and any provincial regulations, local bylaws or guidelines.

9. Physical and Chemical Properties

PHYSICAL STATE: Gas.	FREEZING POINT: -82.2°C (-116°F) 6170 KPa abs	pH: Not applicable.
BOILING POINT -75.2°C (-103.4°F) 6170 KPa abs	VAPOUR PRESSURE 44 76.8 kPa (@ 20°C)	MOLECULAR WEIGHT: 26.04 g/mole
SPECIFIC GRAVITY: LIQUID (Water = 1)	SOLUBILITY IN WATER, Not applicable.	
SPECIFIC GRAVITY: VAPOUR (air = 1)	EVAPORATION RATE Not applicable. (Butyl Acetate=1):	COEFFICIENT OF WATER/OIL DISTRIBUTION: Not applicable.
VAPOUR DENSITY: 0.00117 g/ml @ 0 C	% VOLATILES BY VOLUME: 100% (v/v).	ODOUR THRESHOLD: 657 mg/m3
APPEARANCE & ODOUR: Colourless. Odour: Acetylene of 100% purity is odourless, but commercial acetylene has a distinctive garlic-like odour.		

10. Stability and Reactivity

STABILITY:	Unstable.
CONDITIONS OF CHEMICAL INSTABILITY:	Stable as shipped. Avoid use at pressure above 15 psig.
INCOMPATIBILITY (materials to avoid):	Avoid contact with copper, silver, mercury or their alloys, oxidizing agents, acids, halogens, moisture.
HAZARDOUS DECOMPOSITION PRODUCTS:	Thermal decomposition or burning may produce carbon monoxide/carbon dioxide. The welding and cutting process may form reaction products such as carbon monoxide and carbon dioxide.
HAZARDOUS POLYMERIZATION:	Will not occur.
CONDITIONS TO AVOID:	Elevated temperatures and pressures and/or presence of a catalyst.
CONDITIONS OF REACTIVITY:	Fire or explosion may result from use at elevated temperatures & pressures or from use with incompatible materials.

11. Toxicological Information

ACUTE DOSE EFFECTS: No known effects from acetylene gas. The welding process may generate hazardous fumes and gases. (See section 8, 10, 15 and 16.)

STUDY RESULTS:

None known.

12. Ecological Information

No adverse ecological effects expected. This product does not contain any Class I or Class II ozone-depleting chemicals. The components of this mixture are not listed as marine pollutants by TDG Regulations.

13. Disposal Considerations

WASTE DISPOSAL METHOD: Do not attempt to dispose of residual or unused quantities. Return cylinder to supplier.

14. Transport Information

TDG/IMO SHIPPING NAME: Acetylene, dissolved

HAZARD CLASS: CLASS 2.1: Flammable gas.	IDENTIFICATION #: UN1001	PRODUCT REPORTABLE QUANTITY (PRQ):
---	---------------------------------	---

Any accidental release in a quantity that could pose a danger to public safety or any sustained release of 10 minutes or more.

SHIPPING LABEL(s): Flammable gas

PLACARD (When Required): Flammable gas

SPECIAL SHIPPING INFORMATION:

Cylinders should be transported in a secure position, in a well-ventilated vehicle. Cylinders transported in an enclosed, non-ventilated compartment of a vehicle can present serious safety hazards.

15. Regulatory Information

The following selected regulatory requirements may apply to this product. Not all such requirements are identified. Users of this product are solely responsible for compliance with all applicable federal, provincial, and local regulations. This product has been classified in accordance with the hazard criteria of the CPR and the MSDS contains all the information required by the CPR.

WHMIS (Canada): CLASS A: Compressed gas.
CLASS B-1: Flammable gas.
CLASS F: Dangerously reactive material.

This product is on the DSL list.

International Regulations:

EINECS: Not available.

DSCL (EEC): This product is not classified according to the EU regulations.

International Lists: No products were found.

16. Other Information**MIXTURES:**

When two or more gases, or liquefied gases are mixed, their hazardous properties may combine to create additional, unexpected hazards. Obtain and evaluate the safety information for each component before you produce the mixture. Consult an Industrial Hygienist, or other trained person when you make your safety evaluation of the end product. Remember, gases and liquids have properties which can cause serious injury or death.

HAZARD RATING SYSTEM:**HMIS RATINGS:**

HEALTH 2

FLAMMABILITY 4

PHYSICAL HAZARD 2

STANDARD VALVE CONNECTIONS FOR U.S. AND CANADA:

THREADED:	CGA-510, CGA-520, CGA-200
PIN-INDEXED YOKE:	None.
ULTRA-HIGH-INTEGRITY CONNECTION:	None.

Use the proper CGA connections. **DO NOT USE ADAPTERS.** Additional limited-standard connections may apply. See CGA pamphlets V-1 and V-7 listed below.

Ask your supplier about free Praxair safety literature as referred to in this MSDS and on the label for this product. Further information about this product can be found in the following pamphlets published by the Compressed Gas Association, Inc. (CGA), 4221 Walney Road, 5th Floor, Chantilly, VA 20151-2923, Telephone (703) 788-2700, Fax (703) 961-1831, website: www.cganet.com.

AV-1	Safe Handling and Storage of Compressed Gas
G-1	Acetylene
G-1.1	Commodity Specification for Acetylene
G-1.2	Recommendation for Chemical Acetylene Metering
G-1.3	Acetylene Transmission for Chemical Synthesis
P-1	Safe Handling of Compressed Gases in Containers
P-14	Accident Prevention in Oxygen-Rich, Oxygen-Deficient Atmosphere
SB-2	Oxygen-Deficient Atmospheres
V-1	Compressed Gas Cylinder Valve Inlet and Outlet Connections
V-7	Standard Method of Determining Cylinder Valve Outlet Connections for Industrial Gas Mixtures
---	Handbook of Compressed Gases, Fifth Edition

Praxair asks users of this product to study this MSDS and become aware of product hazards and safety information. To promote safe use of this product, a user should (1) notify employees, agents, and contractors of the information in this MSDS and of any other known product hazards and safety information, (2) furnish this information to each purchaser of the product, and (3) ask each purchaser to notify its employees and customers of the product hazards and safety information.

PREPARATION INFORMATION:

DATE:	Oct 15, 2016
DEPARTMENT:	Safety and Environmental Services
TELEPHONE:	905-803-1600

The opinions expressed herein are those of qualified experts within Praxair Canada Inc. We believe that the information contained herein is current as of the date of this Material Safety Data Sheet. Since the use of this information and the conditions of use of the product are not within the control of Praxair Canada Inc., it is the user's obligation to determine the conditions of safe use of the product.

Praxair Canada Inc. requests the users of this product to study this Material Data Sheet (MSDS) and become aware of product hazards and safety information. To promote safe use of this product, a user should (1) notify its employees, agents and contractors of the information on this MSDS and any product hazards and safety information, (2) furnish this same information to each of its customers for the product, and (3) request such customers to notify their employees and customers for the product of the same product hazards and safety information.

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Praxair Canada Inc.
1 City Centre Drive
Suite 1200
Mississauga, ON L5B 1M2

Hydrochloric Acid Specific Spill Response Plan

Notes: Hydrochloric Acid is a substance listed in Schedule 1 of the E2 regulations, with a threshold of 6.8 tonnes. Hydrochloric acid is used within the process plant.

CAS No: 7647-01-0 (Hydrochloric Acid)

UN No: UN1789

Hazard Identification:

Physical State: Liquid, clear to pale yellow

Odor: Pungent

Emergency Overview: MAT BE FATAL IF INHALED. CAUSES RESPIRATORY TRACT, DIGESTIVE TRACT, EYE AND SKIN BURNS

Potential Acute Health Effects: Very toxic by inhalation. Corrosive to eyes, skin, respiratory system and digestive tract. Causes burns. Do not breathe vapor or mist. Do not ingest. Do not get in eyes or on skin or clothing.

Environmental Effects: Toxic to aquatic organisms, may cause long term adverse effects in the aquatic environment.

Usage: Hydrochloric acid is used within the process plant.

Storage: Hydrochloric acid is stored plastic totes inside seacans.

The expected quantity to be stored on site is 140 tonnes of hydrochloric acid. The maximum allowed capacity of the largest container in which the substance is stored is 240 kg.

Spill Response

Personal Protective Equipment for Spill Response:

- Chemical-resistant gloves (e.g., nitrile);
- Protective glasses or chemical safety goggles;
- Chemically resistant coveralls or Tyvek coveralls;
- Self-contained breathing apparatus.

Emergency response for a Hydrochloric Acid Spill

- Isolate and evacuate the spill area.
- Report spill to Supervisor immediately. Provide location and estimate of spill quantity.

- Supervisor will report the spill immediately to the Environmental Superintendent or Safety Coordinator.
- Mine General Manager will activate Incident Command System and Emergency Response Team if required for response.
 - Based on size, location of spill and potential hazardous conditions/environmental impacts.
- Do not touch or walk through spilled material.
- Do not breathe vapor or mist. Provide adequate ventilation.
- Stop flow if safe to do so.
- For spills to land, snow or ice:
 - Protect spill area from storm water runoff and prevent entry into surface waters by constructing a ditch or berm using suitable non-combustible absorbent materials (e.g., sand, diatomaceous earth).
 - Neutralize with soda ash or lime. Use caution neutralization reaction can cause splashes, fumes and yield large amounts of heat resulting in boiling.
 - Dilute with water and mop up or absorb with inert dry material
 - Place in appropriate waste disposal container and seal tightly
 - Keep away from alkalis
 - Transport to waste management for offsite disposal. Store in ventilated areas away from incompatible materials.
- For spills to water:
 - Hydrochloric acid is soluble in water.
 - Do not attempt to contain or remove spills (high explosion potential).
- Remove, bag and label personal protective equipment for offsite disposal.
- Thoroughly wash skin with soap.

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Hydrochloric Acid,ACS

SECTION 1 : Identification of the substance/mixture and of the supplier

Product name : Hydrochloric Acid,ACS

Manufacturer/Supplier Trade name:

Manufacturer/Supplier Article number: S25358

Recommended uses of the product and uses restrictions on use:

Manufacturer Details:

AquaPhoenix Scientific
9 Barnhart Drive, Hanover, PA 17331

Supplier Details:

Fisher Science Education
15 Jet View Drive, Rochester, NY 14624

Emergency telephone number:

Fisher Science Education Emergency Telephone No.: 800-535-5053

SECTION 2 : Hazards identification

Classification of the substance or mixture:



Corrosive

Serious eye damage, category 1
Corrosive to metals, category 1
Skin corrosion, category 1B



Irritant

Specific target organ toxicity following single exposure, category 3

Corr. Metals 1
Corr. Skin 1B
Eye Damage 1
STOT. SE 3

Signal word :Danger

Hazard statements:

May be corrosive to metals
Causes severe skin burns and eye damage
May cause respiratory irritation

Precautionary statements:

If medical advice is needed, have product container or label at hand
Keep out of reach of children
Read label before use
Use only outdoors or in a well-ventilated area
Wear protective gloves/protective clothing/eye protection/face protection
Keep only in original container
Do not get in eyes, on skin, or on clothing
Wash skin thoroughly after handling
IF SWALLOWED: Rinse mouth. Do NOT induce vomiting

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IF ON SKIN (or hair): Remove/Take off immediately all contaminated clothing. Rinse skin with water/shower
IF INHALED: Remove victim to fresh air and keep at rest in a position comfortable for breathing
IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses if present and easy to do.
Continue rinsing
Immediately call a POISON CENTER or doctor/physician
Specific treatment (see supplemental first aid instructions on this label)
Wash contaminated clothing before reuse
Absorb spillage to prevent material damage
Store in a well ventilated place. Keep container tightly closed
Store locked up
Store in corrosive resistant stainless steel container with a resistant inner liner
Dispose of contents and container to an approved waste disposal plant

Other Non-GHS Classification:

WHMIS



NFPA/HMIS



NFPA SCALE (0-4)

Health	3
Flammability	0
Physical Hazard	1
Personal Protection	X

HMIS RATINGS (0-4)

SECTION 3 : Composition/information on ingredients

Ingredients:		
CAS 7647-01-0	Hydrochloric Acid, ACS	30-50 %
CAS 7732-18-5	Water	50-70 %
Percentages are by weight		

SECTION 4 : First aid measures

Description of first aid measures

After inhalation: Move exposed individual to fresh air. Loosen clothing as necessary and position individual in a comfortable position. Seek medical attention if irritation or coughing persists.

After skin contact: Wash affected area with soap and water. Immediately remove contaminated clothing and shoes. Rinse thoroughly with plenty of water for at least 15 minutes. Immediately seek medical attention.

After eye contact: Protect unexposed eye. Flush thoroughly with plenty of water for at least 15

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minutes.Remove contact lenses while rinsing.Continue rinsing eyes during transport to hospital.

After swallowing: Rinse mouth thoroughly. Do not induce vomiting. Have exposed individual drink sips of water. Immediately seek medical attention.

Most important symptoms and effects, both acute and delayed:

Inhalation may cause irritation to nose and upper respiratory tract, ulceration, coughing, chest tightness and shortness of breath. Higher concentrations cause tachypnoea, pulmonary oedema and suffocation . Ingestion may cause corrosion of lips, mouth, oesophagus and stomach, dysphagia and vomiting.Pain, eye ulceration, conjunctival irritation, cataracts and glaucoma may occur following eye exposure.Erythema and skin irritation, as well as chemical burns to skin and mucous membranes may arise following skin exposure.;Potential sequelae following ingestion of hydrochloric acid include perforation, scarring of the oesophagus or stomach and stricture formation causing dysphagia or gastric outlet obstruction. In some cases, RADS may develop. Respiratory symptoms may take up to 36 hours to develop.Symptoms of burning sensation, cough, wheezing, laryngitis, shortness of breath, spasm, inflammation, edema of the larynx, spasm, inflammation and edema of the bronchi, pneumonitis, pulmonary edema. Material is extremely destructive to tissue of the mucous membranes and upper respiratory tract, eyes, and skin.

Indication of any immediate medical attention and special treatment needed:

Provide SDS to Physician.Physician should treat symptomatically.

SECTION 5 : Firefighting measures

Extinguishing media

Suitable extinguishing agents: Use water, dry chemical, chemical foam, carbon dioxide, or alcohol-resistant foam.

For safety reasons unsuitable extinguishing agents:

Special hazards arising from the substance or mixture:

Combustion products may include carbon oxides or other toxic vapors.If in contact with metals toxic fumes may be released.

Advice for firefighters:

Protective equipment: Wear protective eyeware, gloves, and clothing. Refer to Section 8. Wear respiratory protection.

Additional information (precautions): Thermal decomposition can produce poisoning chlorine. Hydrochloric acid reacts also with many organic materials with liberation of heat.Avoid inhaling gases, fumes, dust, mist, vapor, and aerosols. Avoid contact with skin, eyes, and clothing.

SECTION 6 : Accidental release measures

Personal precautions, protective equipment and emergency procedures:

Ensure adequate ventilation. Ensure that air-handling systems are operational.

Environmental precautions:

Should not be released into environment. Prevent from reaching drains, sewer, or waterway.

Methods and material for containment and cleaning up:

Always obey local regulations. If necessary use trained response staff or contractor. Evacuate personnel to safe areas. Containerize for disposal. Refer to Section 13. Keep in suitable closed containers for disposal. Soak up with inert absorbent material and dispose of as hazardous waste. Cover spill with soda ash or calcium carbonate. Mix and add water to form slurry.Wear protective eyeware, gloves, and clothing. Refer to Section 8.

Reference to other sections:

SECTION 7 : Handling and storage

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Precautions for safe handling:

Prevent formation of aerosols. Never use hot water and never add water to the acid. Do not allow contact between hydrochloric acid, metal, and organics. Follow good hygiene procedures when handling chemical materials. Refer to Section 8. Prevent contact with skin, eyes, and clothing. Follow proper disposal methods. Refer to Section 13. Do not eat, drink, smoke, or use personal products when handling chemical substances. Use only in well ventilated areas. Avoid splashes or spray in enclosed areas.

Conditions for safe storage, including any incompatibilities:

Store in a cool location. Keep away from food and beverages. Protect from freezing and physical damage. Store away from incompatible materials. Provide ventilation for containers. Keep container tightly sealed. Containers for hydrochloric acid must be made from corrosion resistant materials: glass, polyethylene, polypropylene, polyvinyl chloride, carbon steel lined with rubber or ebonite.

SECTION 8 : Exposure controls/personal protection



Control Parameters:

7647-01-0, Hydrochloric Acid, ACGIH: 2 ppm Ceiling
7647-01-0, Hydrochloric Acid, NIOSH: 5 ppm Ceiling; 7 mg/m³ Ceiling

Appropriate Engineering controls:

Provide exhaust ventilation or other engineering controls to keep the airborne concentrations of vapor and mists below the applicable workplace exposure limits (Occupational Exposure Limits-OELs) indicated above. Emergency eye wash fountains and safety showers should be available in the immediate vicinity of handling.

Respiratory protection:

Not required under normal conditions of use. Where risk assessment shows air-purifying respirators are appropriate use a full-face particle respirator type N100 (US) or type P3 (EN 143) respirator cartridges as a backup to engineering controls. When necessary use NIOSH approved breathing equipment.

Protection of skin:

Select glove material impermeable and resistant to the substance. Select glove material based on rates of diffusion and degradation. Dispose of contaminated gloves after use in accordance with applicable laws and good laboratory practices. Use proper glove removal technique without touching outer surface. Avoid skin contact with used gloves. Wear protective clothing.

Eye protection:

Faceshield (8-inch minimum).Tightly fitting safety goggles.

General hygienic measures:

Perform routine housekeeping. Wash hands before breaks and immediately after handling the product. Avoid contact with skin, eyes, and clothing. Before rewearing wash contaminated clothing.

SECTION 9 : Physical and chemical properties

Appearance (physical state,color):	Clear, colorless liquid.	Explosion limit lower: Explosion limit upper:	Non Explosive Non Explosive
Odor:	Pungent odor	Vapor pressure:	5.7mmHg @ 0C
Odor threshold:	0.3 - 14.9 mg/m ³	Vapor density:	1.27 (Air=1)
pH-value:	< 1	Relative density:	1.0 - 1.2

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Melting/Freezing point:	- 74 C	Solubilities:	Miscible
Boiling point/Boiling range:	81.5 - 110 C	Partition coefficient (n-octanol/water):	Not Determined
Flash point (closed cup):	Not Applicable	Auto/Self-ignition temperature:	Not Determined
Evaporation rate:	>1.00	Decomposition temperature:	Not Determined
Flammability (solid,gaseous):	non combustible	Viscosity:	a. Kinematic:Not Determined b. Dynamic: Not Determined
Density: Not Determined Hydrochloric Acid: MW is36.46			

SECTION 10 : Stability and reactivity

Reactivity:Reacts violently with bases and is corrosive.

Chemical stability:No decomposition if used and stored according to specifications.

Possible hazardous reactions:Attacks many metals in the presence of water forming flammable explosive gas (hydrogen).Reacts violently with oxidants forming toxic gas (chlorine).

Conditions to avoid:Incompatible materials.

Incompatible materials:Bases, Amines, Alkali metals, Metals, permanganates (potassium permanganate), Fluorine, Metal acetylides, Hexalithium disilicide.

Hazardous decomposition products:Hydrogen chloride gas.Carbon oxides.

SECTION 11 : Toxicological information

Acute Toxicity:		
Inhalation:	7647-01-0	LD50 Rat 3124 ppm/hour
Oral:	7647-01-0	LD50 Rat 238 - 277 mg/kg
Dermal:	7647-01-0	LD50 Rabbit >5010 mg/kg
Chronic Toxicity: No additional information.		
Corrosion Irritation:		
Dermal:	7647-01-0	Skin - rabbit Result: Causes burns.
Ocular:	7647-01-0	Eyes - rabbit Result: Corrosive to eyes
Sensitization:		No additional information.
Single Target Organ (STOT):		7647-01-0: The substance or mixture is classified as specific target organ toxicant, single exposure, category 3 with respiratory tract irritation.
Numerical Measures:		No additional information.
Carcinogenicity:		No additional information.
Mutagenicity:		No additional information.

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Reproductive Toxicity:

No additional information.

SECTION 12 : Ecological information

Ecotoxicity

7647-01-0: Toxicity to fish LC50 - Gambusia affinis (Mosquito fish) - 282 mg/l - 96 h (Hydrochloric acid)

Persistence and degradability:

Bioaccumulative potential:

Mobility in soil:

Other adverse effects:

SECTION 13 : Disposal considerations

Waste disposal recommendations:

Do not allow product to reach sewage system or open water. It is the responsibility of the waste generator to properly characterize all waste materials according to applicable regulatory entities (US 40CFR262.11). Contact a licensed professional waste disposal service to dispose of this material. Dispose of empty containers as unused product. Product or containers must not be disposed together with household garbage. Chemical waste generators must determine whether a discarded chemical is classified as a hazardous waste. Chemical waste generators must also consult local, regional, and national hazardous waste regulations. Ensure complete and accurate classification.

SECTION 14 : Transport information

UN-Number

1789

UN proper shipping name

HYDROCHLORIC ACID

Transport hazard class(es)



Class:

8 Corrosive substances

Packing group:II

Environmental hazard:

Transport in bulk:

Special precautions for user:

SECTION 15 : Regulatory information

United States (USA)

SARA Section 311/312 (Specific toxic chemical listings):

Acute

SARA Section 313 (Specific toxic chemical listings):

7647-01-0 Hydrochloric Acid

RCRA (hazardous waste code):

None of the ingredients is listed

TSCA (Toxic Substances Control Act):

All ingredients are listed.

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CERCLA (Comprehensive Environmental Response, Compensation, and Liability Act):

7647-01-0 Hydrochloric Acid 5000 lbs

Proposition 65 (California):

Chemicals known to cause cancer:

None of the ingredients is listed

Chemicals known to cause reproductive toxicity for females:

None of the ingredients is listed

Chemicals known to cause reproductive toxicity for males:

None of the ingredients is listed

Chemicals known to cause developmental toxicity:

None of the ingredients is listed

Canada

Canadian Domestic Substances List (DSL):

All ingredients are listed.

Canadian NPRI Ingredient Disclosure list (limit 0.1%):

None of the ingredients is listed

Canadian NPRI Ingredient Disclosure list (limit 1%):

7647-01-0 Hydrochloric Acid

SECTION 16 : Other information

This product has been classified in accordance with hazard criteria of the Controlled Products Regulations and the SDS contains all the information required by the Controlled Products Regulations. Note: The responsibility to provide a safe workplace remains with the user. The user should consider the health hazards and safety information contained herein as a guide and should take those precautions required in an individual operation to instruct employees and develop work practice procedures for a safe work environment. The information contained herein is, to the best of our knowledge and belief, accurate. However, since the conditions of handling and use are beyond our control, we make no guarantee of results, and assume no liability for damages incurred by the use of this material. It is the responsibility of the user to comply with all applicable laws and regulations applicable to this material.

GHS Full Text Phrases:

Abbreviations and acronyms:

IMDG: International Maritime Code for Dangerous Goods

PNEC: Predicted No-Effect Concentration (REACH)

CFR: Code of Federal Regulations (USA)

SARA: Superfund Amendments and Reauthorization Act (USA)

RCRA: Resource Conservation and Recovery Act (USA)

TSCA: Toxic Substances Control Act (USA)

NPRI: National Pollutant Release Inventory (Canada)

DOT: US Department of Transportation

IATA: International Air Transport Association

GHS: Globally Harmonized System of Classification and Labelling of Chemicals

ACGIH: American Conference of Governmental Industrial Hygienists

CAS: Chemical Abstracts Service (division of the American Chemical Society)

NFPA: National Fire Protection Association (USA)

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HMIS: Hazardous Materials Identification System (USA)

WHMIS: Workplace Hazardous Materials Information System (Canada)

DNEL: Derived No-Effect Level (REACH)

Effective date : 01.08.2015

Last updated : 03.20.2015

Additional E2 Regulations Schedule 2 Materials to be Stored Onsite

The hazardous materials to be stored onsite and listed in the E2 Regulations may include the following substances throughout the duration of the project:

- Formalin;
- Unleaded Gasoline;
- Ethyl Mercaptan
- Propane; and
- Nitric acid.

The quantities of these products are not anticipated to meet the thresholds under the E2 Regulations for the development of a product specific spill response plan. However, if at any time the quantities of these materials stored onsite reach the threshold volume identified in these regulations a product specific spill plan will be developed and submitted as an addendum to this Plan.



AGNICO EAGLE
HOPE BAY

HOPE BAY SPILL CONTINGENCY PLAN

HOPE BAY, NUNAVUT

Appendix 2: Spill Response Resources

Mobile Equipment

Any mobile equipment present on site may be used as a resource for spill response or spill clean-up. This includes pick-ups, skid steers, excavators, loaders, dozers, vacuum trucks, haul trucks, and flatbed trucks.

Spill Kit Contents

Each Spill Kit contains:

- 1 roll absorbent or bundle of spill pads;
- 2 plug and dyke kits;
- 1 – 3 m x 4 m tarpaulin;
- 2 pairs of disposable coveralls;
- 4 mini booms;
- 1 bag of corncob and/or peat moss absorbent;
- 1 bag of gravel type fire retardant granular for aviation stations (helipad and airstrip);
- 2 pair of neoprene gloves (i.e., POL [petroleum/oil/lubricants] resistant);
- 2 sets of splash proof POL resistant goggles;
- 1 shovel;
- 10 disposable waste bags and ties; and
- A copy of the First Responder diagram (Figure I at the beginning of this plan).

Spill kits are replenished as needed after use and inspected at least once per quarter. The purpose of the inspection is to evaluate the location of spill kit proximity to associated work activities, inspect the condition of the spill kit, and check that all required contents are available and in good condition. The Environmental Supervisor/Coordinators are required to check the contents quarterly and the results of the inspections are stored locally with other inspection documents.

Aquatic Environment Response Equipment

Response equipment available in the event of a spill to the aquatic environment is stored in ten moveable seacans, with the exception of the boats. This equipment includes:

- 450 feet of 24" solid floatation boom;
- 70 lb, 43 lb, 25 lb, and 17 lb Danforth anchors;
- 8 lb Grapnel Anchors;
- 36" sea anchors;

- Anchor pins;
- Anchor Buoys;
- Anchor lines;
- 150 feet Towline;
- Boom towing bridles;
- 1250 feet of skirted booms (preassembled with tow lines, bridles and floats);
- 200 feet of inflatable Shore Saver booms (with inflation kit);
- 1TDS-118 Drum Skimmer;
- 1 P10E Power Pack;
- 2 Pump;
- 175 L Drum Response Kits c/w lids;
- Disposable coveralls (i.e., Tyvek suits);
- POL (petroleum/oil/lubricants) resistant gloves;
- POL resistant goggles;
- Toolbox c/w assorted tools;
- 45 Gallon containers c/w lids;
- Pails and Rubbermaid tubs;
- 300 foot Nylon rope (3/8);
- Bags of Oclansorb™ Peat Moss or crushed corn cobs;
- Bundles of oil sorbent pads;
- Bundles of universal sorbent pads;
- Oil Sorbent booms;
- Oil snares;
- Universal sorbent booms;
- Bag of Sorbent scraps (spaghetti);
- Containment tanks and berms;
- Plug and dyke kits;
- HAZMAT Disposal Bags and Garbage bags;
- Portable fuel bladders;
- Ice scrapers;
- A net for capturing seabirds/oiled wildlife;

- An 18-foot landing craft boat (with boat safety kit); and
- An 18-foot Zodiac (with boat safety kit and repair kit).

The above aquatic response equipment is considered more than necessary for the potential spills covered under this Plan. Spills to the aquatic environment are limited in potential scale as all fuel storage tanks are located in secondary containment and most are located away from water. The Roberts Bay multiple tank fuel farm berm also has significant excess capacity to contain failure of more than one tank.

As a consequence, spills that may reach water are expected to be limited in size, manageable and recoverable using the aquatic response equipment available on site. If for any reason additional resources are needed, the Materials Manager/Superintendent would immediately begin procuring additional supplies to be flown to site.

Large spills to the marine environment resulting from bulk fuel offloads are addressed through the OPPP/OPEP. As outlined therein, shipping contractors provide all necessary equipment needed to appropriately respond to a fuel-offload spill, with Agnico Eagle supplies serving as additional resources available.

Specialized Response Equipment

A stock of specialized spill response equipment is maintained on site and available for use if a product spill as outlined in a Product Specific Spill Response plan occurs. All of the specialized equipment is maintained in the Mine Rescue Bays which are located in the Mine Ops area. The Health & Safety Manager is responsible for maintaining and ensuring the availability of this equipment. The equipment includes:

- Full body chemical resistant suits (Tyvek);
- Rubber chemical resistant jackets, pants;
- Chemical resistant boots and gloves;
- Splash goggles and full face shields;
- Full and half face respirators with appropriate filters (e.g. organic vapour cartridges);
- Drager Self-contained breathing apparatus;
- Fire retardant coveralls and firefighting bunker gear;
- Drager BG-4 breathing apparatus (not to be used if product has explosive potential);
- Air quality monitors equipped with HCN, CO and O2 sensors;
- Non sparking tools, such as plastic shovels; and
- Sodium hypochlorite solution.



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HOPE BAY SPILL CONTINGENCY PLAN

HOPE BAY, NUNAVUT

Appendix 3:
Environmental Resource Maps

Environmental Resource Maps

Shown in the following resource maps are areas of particular vegetation meaningful to the local wildlife and ecosystems which surround the project as well as raptor nests, rare plants and fish habitat. Additional detailed information may be found in baseline and monitoring reports available from the Environmental Superintendent and publically available on the Nunavut Impact Review Board and Nunavut Water Board websites. Information regarding archeological sites that have been identified on the Hope Bay belt is available to the Environmental Superintendent in the event of a spill. At the requirement of the Territorial Archaeologist, the locations of these sites are strictly confidential and information on these locations is only shared on an as needed basis. Spill containment will attempt to minimize impacts to sensitive habitats and archaeological sites.

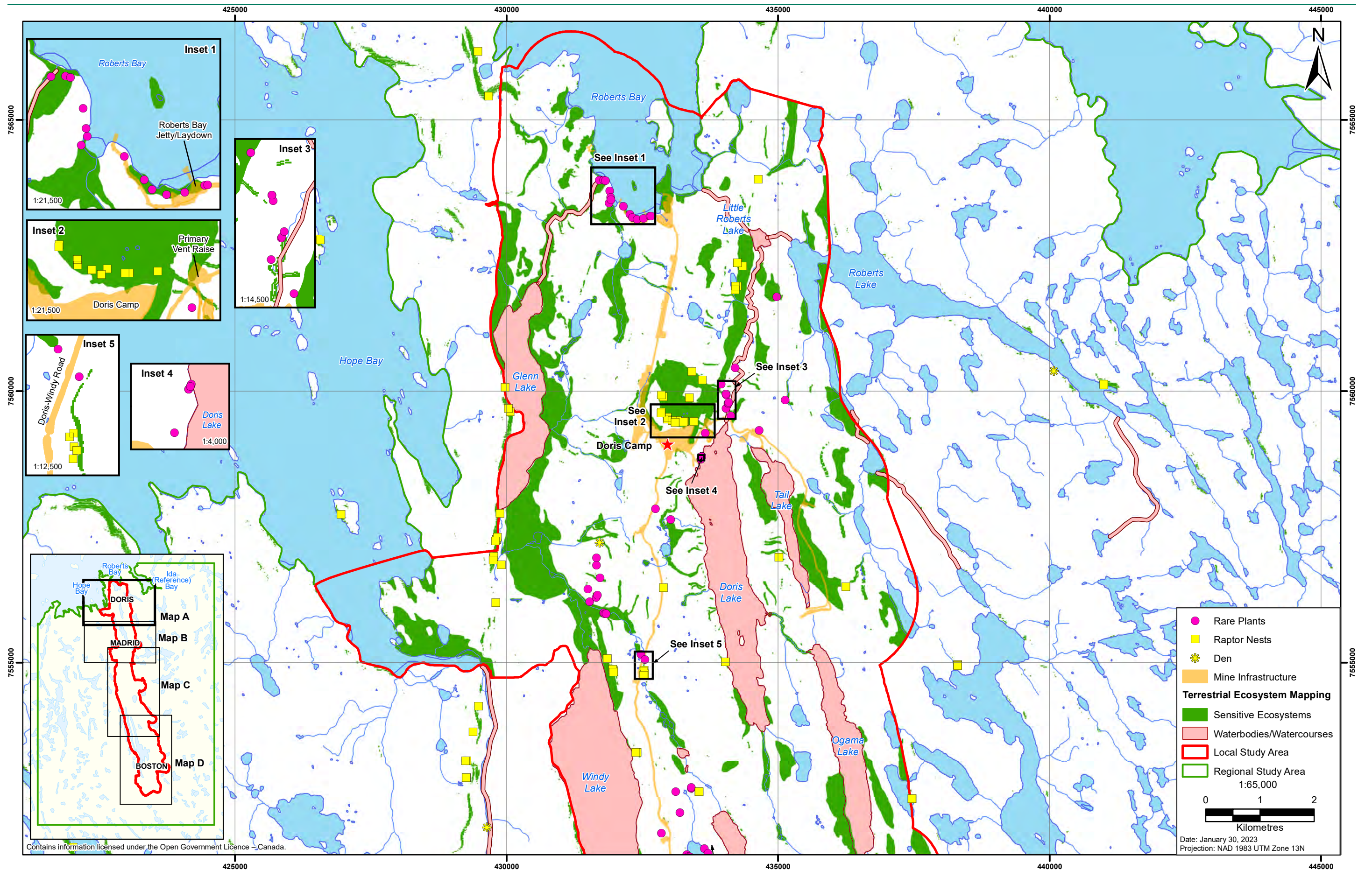


Figure 3-1: Environmental Sensitivity Mapping - Map A

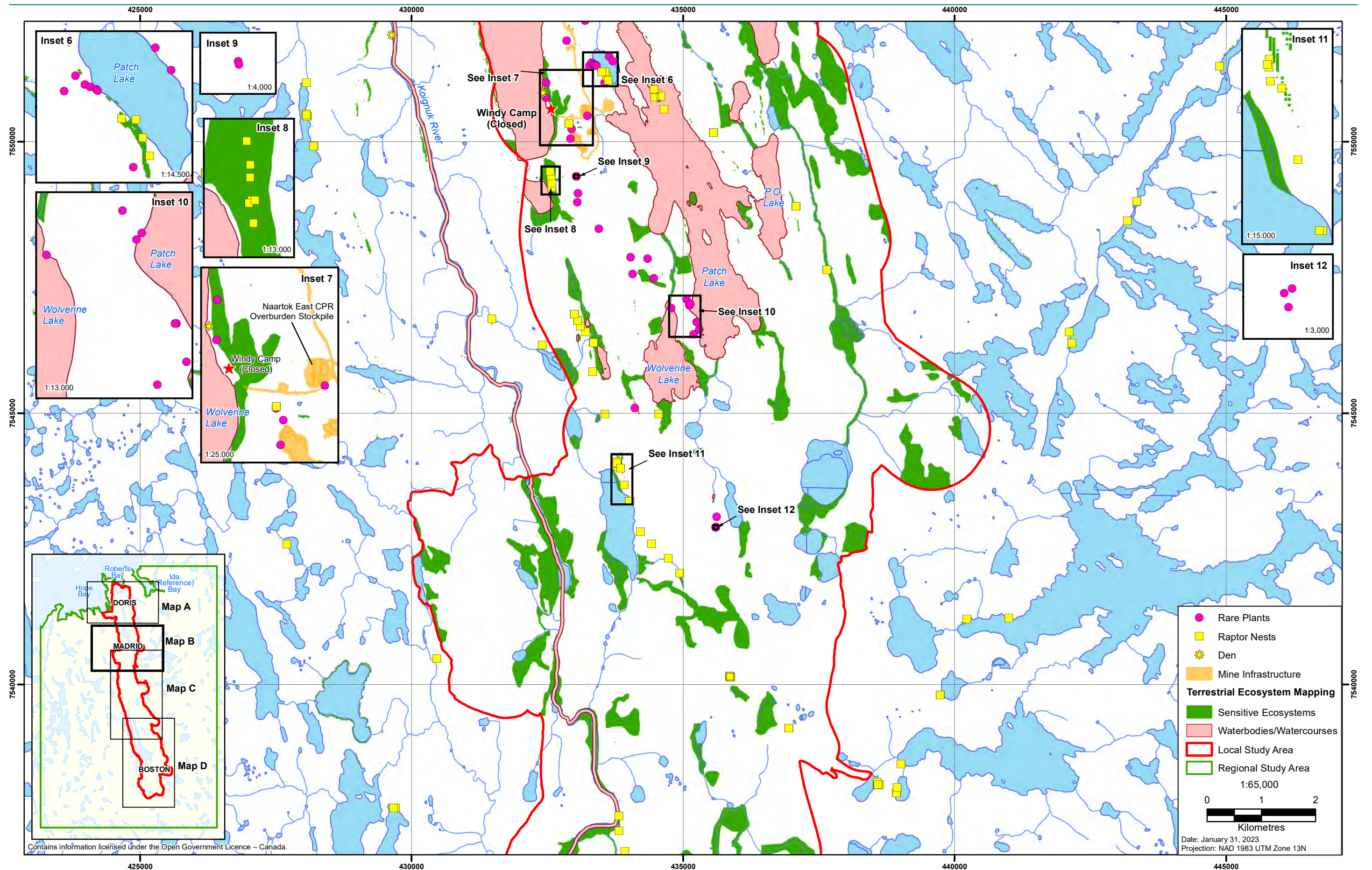


Figure 3-2: Environmental Sensitivity Mapping - Map B

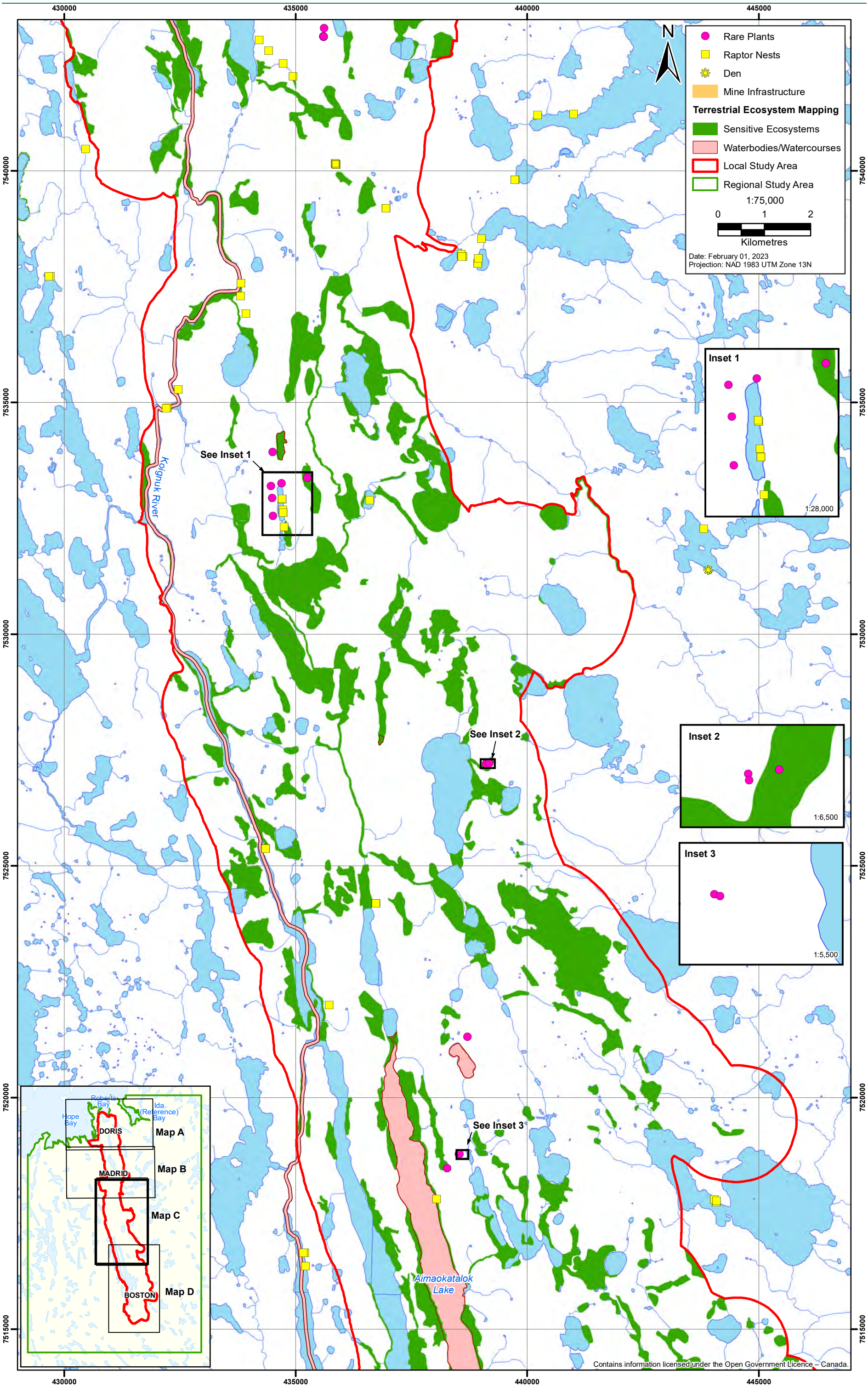


Figure 3-3: Environmental Sensitivity Mapping - Map C

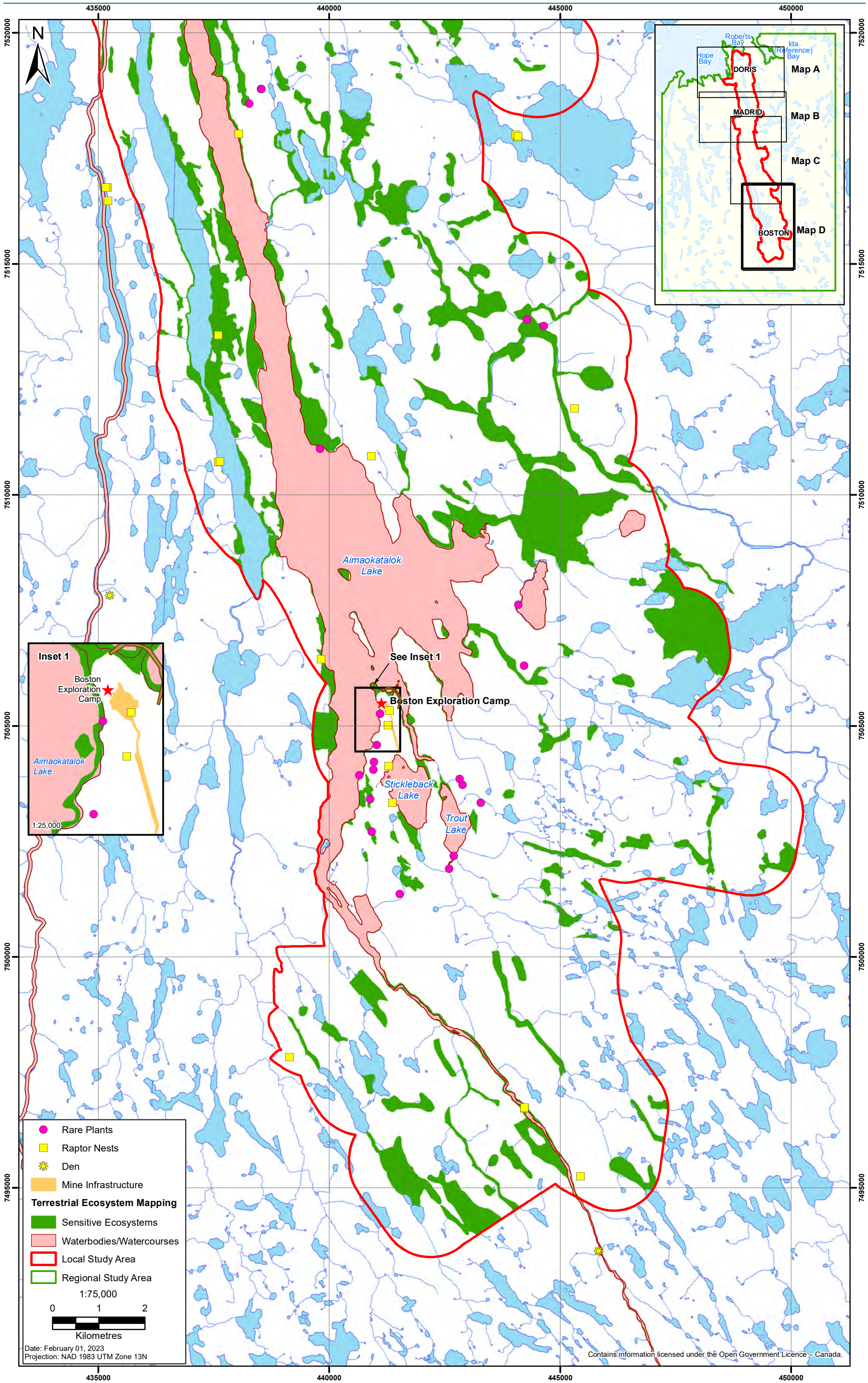


Figure 3-4: Environmental Sensitivity Mapping - Map D



HOPE BAY SPILL CONTINGENCY PLAN

HOPE BAY, NUNAVUT

Appendix 4: Responses to Comments on Previous Plan Versions

Comment Responses and Revision References

This Plan replaces the September 2020 Spill Contingency Plan for the Hope Bay Project. Table 4.1 below outlines the comments received on previous versions of this Plan and Agnico Eagle’s responses.

Table 4.1. Comments Received on Previous Versions of this Plan and TMAC’s responses

Version	Reviewer	Comment #	Comment	Recommendation	Response
2016	INAC	1	Module A of the Spill Contingency Plan provides details on spill kit contents and aquatic environment response equipment, but the information on mobile equipment (machinery) to be used for spill response is not available.	INAC recommends that the licensee include the list of mobile equipment to be used for spill management, as well as the spill containment equipment on each piece of equipment.	Any mobile equipment present on site may be used as a resource for spill response or spill clean-up. This includes pick-ups, skid steers, excavators, loaders, vacuum trucks, haul trucks, and flatbed trucks. This has been made clear in revised text in Module A.
2016	INAC	2	Section 2.5.1 of the spill contingency plan states that spill response kits will be available within 200 m of any areas where chemicals are stored and used. Aquatic spill response kits are available in moveable containers. The spill response kit locations are described as being easily accessible, but it is not clear if there will be adequate signage to identify them. As well, the modules at the end of the plan include pictures on which chemical storage locations are circled, but there is no indication where to find the spill kits beside them. The Guidelines for Spill Contingency Planning recommend including a plan with many features including storage locations of hazardous materials and locations of spill response kits.	INAC recommends that spill kit locations be identified on the ground and, on a site map or indicated in the pictures included in the plan. Default storage locations for the mobile aquatic response spill kits should be included so that a person consulting the plan would quickly know where to look for them.	Default spill kit locations, including the mobile aquatic response spill kits, have been now indicated on the site photographs provided in the site-specific modules.
2016	INAC	3	The section on spill response actions (2.3) outlines actions to be taken in event of different spill scenarios. Two of the scenarios for spills in water outline actions to be taken in event of a hydrocarbon spill, but do not speak to what should be done if other materials are spilled. These are sub-sections 2.3.5, spills under ice, and mitigation of impacts to birds. Some of the materials listed as on site including sodium cyanide would not disperse in the same way as petroleum products and would require different action responses.	INAC recommends that the licensee include action responses for materials that might sink or dissolve in water for spills under ice and mitigation of impacts to birds.	Information addressing spill under ice of substances that sink and dissolve is now presented in Sections 2.3.6 and 2.3.7, respectively. Mitigation of impacts to birds is addressed under 2.3.10.1.

Version	Reviewer	Comment #	Comment	Recommendation	Response
2016	INAC	4	Table 1 of Section 1.2 includes regulations and guidelines governing the spill contingency plan. Other regulations are referenced in the text and included in Section 7 of the plan.	INAC suggests that other material to be considered might include: - Federal Transportation of Dangerous Goods Act and regulations; and - NWT Used Oil and Waste Fuel Management Regulations	Waste material generated during spill response is managed as per the Hazardous Waste Management, Non-Hazardous Waste Management Plan, and/or the Landfarm Management Plan as indicated in Section 2.4 of the Plan. TMAC's Hazardous Waste Management Plan includes consideration of/reference to the Federal Transportation of Dangerous Goods Act and regulations and NWT Used Oil and Waste Fuel Management Regulations, as well as many other materials which may apply to management and disposal of spill response wastes, such as GN's Environmental Guideline for Used Oil and Waste Fuel.
2016	ECCC	1	Reference: Page 18 of the revised Spill Contingency Plan, EC #2 Comment: As noted in the table ECCC requested that TMAC undertake and incorporate hazardous substance identification and risk assessment into the Spill Contingency Plan in order to provide the required basis for accident scenario characterization and response planning.	It is expected that the risk assessment process will incorporate consideration of the likelihood of various spills and their potential consequences, which will determine appropriate mitigation/response strategies according to the resulting matrix rankings.	TMAC has provided further clarification of the risk assessment process to be undertaken for all work areas in the revised Plan, in Section 4.
2016	ECCC	2	Reference: Pages 18-19 of the revised Spill Contingency Plan, EC #4 Comment: ECCC reiterates recommendation EC #4 which requests that TMAC document and provide information on worst case accident scenarios for each hazardous product stored and handled onsite.	While the TMAC has indicated that the appropriate sections of the SCP "will continue to be refined in future revisions to capture additional scenarios as operational activities evolve and corrective actions/lessons learned are developed through incident investigations" ECCC is of the opinion that by identifying worst case accident scenarios now, TMAC will be better placed to determine actual required response capacities and develop adequate preparedness and response plans.	During the 2016 revision of the Plan, and based on ECCC's recommendation # 4 cited in the 2016 Plan, TMAC identified worse case scenarios and appropriate responses and included this information in the 2016 SCP as Section 4 "Spill Response Management Issues and Contingencies". TMAC's text indicating that worst case scenarios and responses 'will continue to be refined in future' was an acknowledgement of the continual improvement process loop employed at the Hope Bay Project including the risk assessment process, and recognition that additional scenarios may be identified and added to this Plan in future as a result.
2017	KIA	1 (KIA-6)	The Spill Contingency Plan provides a solid outline of reporting and mitigation measures in the event of a spill. Although specific mitigation of impacts to wildlife, including birds, and sensitive habitats is outlined, there is no specific detail associated with a spill into fish habitat. It is noted that no chemicals are stored with 31 m of water, but there are no specific response actions protective of fish, as is outlined for other wildlife in the 'environmentally Sensitive Species' section. Environmental Resource Maps are provided in Module C, but the focus is on vegetation and terrestrial features.	TMAC should include additional maps and detail be provided for freshwater and marine fish habitat, so that sensitive features can be avoided, and if a spill were to occur near or in water, that the sensitivity of the habitat would be easily found and appropriate mitigation measures taken.	Fish are addressed and protected under the Plan by the management actions addressing spills to water. Fish habitat (sites which have been sampled for fish and within which fish have been found) are also indicated on the Environmental Resource Maps presented in Module C. TMAC has also included a fish habitat map of Roberts Bay in the revised Plan to allow identification of sensitive intertidal and shallow subtidal habitat for avoidance where possible.

Version	Reviewer	Comment #	Comment	Recommendation	Response
2017	KIA	2 (KIA-7)	<p>The Spill Contingency Plan states in section 1.4, “In the event that a spill requires activation of the Emergency Response Plan, the Environmental Coordinator will provide guidance to the Surface Manager regarding implementing response actions according to this plan and evaluating priorities for protection of sensitive habitats/species and archeological features at risk.”</p> <p>A decision tree for use by the Surface Manager/Incident Commander or Environmental Coordinator has not been provided for the reviewer to evaluate how sensitive habitats/species and archeological features are prioritized in the event of potential impact to multiple priority areas.</p>	TMAC should include a decision tree outlining how various sensitive or high value locations are prioritized. This will ensure of these locations are prioritized in the event of a spill or unplanned discharge in a manner satisfactory to KIA.	A prioritization hierarchy has been proposed for the environmental sensitivities and is now included in Section 2.3.10.
2017	KIA	3 (KIA-8)	<p>In Section 2.3.8, the Plan states, “TMAC and previous companies operating on the Hope Bay site have conducted numerous ecological surveys to identify [environmentally sensitive habitats or archeological sites] at risk, with the focus of identifying those areas immediately surrounding Project infrastructure which are at greatest risk of impact from a spill. In the event that a spill enters the natural environment, the Environmental Coordinator will use maps identifying these sensitive areas to prioritize the protection of these resources.”</p> <p>In the event of an unplanned spill or discharge, these sites will only become a mitigation priority after the Environmental Coordinator has had a chance to review the pertinent maps and provide guidance to the response team.</p> <p>A delay in First Responders becoming aware of these priority locations may limit the effectiveness of mitigation measures, permit more significant adverse impacts than necessary, or even damage those locations through the application of mitigation measures. We understand that, Environmental Resource Maps outlining archeological sites are kept confidential by TMAC. However, the need to keep the locations of these sites confidential must be weighed against the risk of potential spills and unplanned discharges.</p>	TMAC should ensure that the Environmental Coordinator has a-priori knowledge of high priority environmentally sensitive habitats and archeological sites and how to respond in these areas and provide all first responders with instruction on the locations of high priority environmentally sensitive habitats and archeological sites so that First Responders are immediately aware of them in the event of a spill or unplanned discharge. This would allow these locations to be prioritized and/or avoided when applying mitigation measures.	TMAC wishes to clarify that environmentally sensitive habitat maps are included in the Plan, which is available to all staff including the Environmental Coordinator. These maps identify locations of sensitive habitat, raptor nests, den sites, and fish habitat. Only archaeological site locations are kept confidential, at the requirement of the GN's Territorial Archaeologist. However, the Environmental Coordinator has ready access to archaeological site maps. of all locations which may be designated high priority.
2017	KIA	4 (KIA-9)	In Section 3.4 the Plan states, "Monitoring activities may be conducted to assess the impacts of the spill and the	TMAC should include triggers which require monitoring activities, and provide details of the type of monitoring that will be undertaken as part of adaptive management to spills	TMAC has provided more detail on spill related monitoring in Section 3.4.

Version	Reviewer	Comment #	Comment	Recommendation	Response
			<p>effectiveness of associated cleanup/remediation efforts in the event a spill cannot be completely removed."</p> <p>The KIA notes that spills reaching watercourses or waterbodies will eventually disperse as a result of natural hydrology such that they are "completely removed" from the environment even if impacts have occurred. The language included in the Plan does not require monitoring in the event of a spill or unplanned discharge to water nor other habitat types.</p> <p>The KIA's right to compensation for damages to their lands and waters makes prompt and effective monitoring important to both TMAC and the KIA in the event of a spill or unplanned discharge.</p>	<p>and unplanned discharges in the Plan. This discussion should be specific to the type of spill, volume, mobility of the spilled material and proximity to various habitat features. Triggered monitoring should be implemented as quickly as possible such that it would characterize the impact of a spill to the receiving environment as well as the effectiveness of mitigation.</p>	
2017	KIA	5 (KIA-10)	<p>TMAC specifies in Module B that the Windy Camp is "no longer occupied". TMAC further specifies that "Fuel storage at Windy Camp is limited to one tank (double-walled Tidy Tank) containing a maximum of 1240L of diesel fuel." This tank is located more than 31 m from any waterbody and has been placed in "a secondary portable berm capable of containing the full volume of this tank in the event that the double-walled system failed".</p> <p>However, no schedule for regular inspections of the tank or secondary containment has been included. A breach in the double-walled Tidy Tank may persist within the secondary containment for an unknown period of time placing the receiving environment and wildlife at potential risk.</p>	<p>TMAC should include the frequency fuel storage structures will be inspected at the Windy Camp, and increase the capacity of the secondary portable berm to 110% the total volume of the 1240L Tidy Tank.</p>	<p>TMAC has clarified in the revised Plan that the tank at Windy is a double-walled enviro tank (i.e. it possesses 110% secondary containment in its design and construction), and is also located inside of tertiary containment, with a capacity > 110 % of the volume of the tank. Although this tank is located at Windy camp, it is there to support Doris activities (it is the fuel supply tank for the potable water pump used to collect all potable water for Doris Camp), as such it is inspected on a regular basis as required under the Doris Water Licence (Part I Items 2 and 4).</p>
2017	CIRNAC	8		<p>Section 2.4.1 of the Hope Bay Spill Contingency Plan indicates that spill response kits will be available near (within 200 m) areas where chemicals are stored and used on site, on fuel transfer vehicles, in moveable containers, and that additional kits will be added as project activities evolve and new locations of chemical storage and use are identified. Reference is made to Module B for a list of supplies in each spill kit and aquatic spill response container. This reference is incorrect – contents of spill kits and the aquatic spill response container are provided in Appendix 2: Spill Response Resources. CIRNAC recommends this error be corrected to eliminate confusion.</p>	<p>Corrected in this version of the Plan.</p>

Version	Reviewer	Comment #	Comment	Recommendation	Response
2017	CIRNAC	9		Sections 2.3.12 and 2.2.13 of the Hope Bay Spill Contingency Plan make reference to substances that will sink or dissolve if spilled under ice, indicating that response to these substances will be decided on a case-by-case basis, with consultation with regulatory agencies and remediation specialists as necessary. CIRNAC recommends that the plan should include an indication of whether these categories of materials are present on site, what they are, as well as where and how they are stored and/or utilized.	TMAC keeps on file Safety Data Sheets (SDS) for all chemicals and materials on-site. The information provided in the SDS and by the manufacturer define what they are, as well as where and how they are stored and/or utilized. SDS are made available to all employees on site and help define spill response activities for any material, including any substances that will sink or dissolve if spilled under ice.
2017	CIRNAC	10		Appendix 2 of the Hope Bay Project Spill Contingency Plan provides information on spill response resources including mobile equipment, spill kit contents, and aquatic environment response equipment, however no mention is made of specialized equipment and material to cleanup/handle spills, for example, the respirators/self-contained breathing apparatus, fire retardant clothing, sodium or calcium hypochlorite solution, etc. identified in Appendix 1 as required to clean up/neutralize spilled sodium cyanide. CIRNAC recommends Appendix 2 should be enhanced to include all equipment and material referenced in the plan for spill response and the Proponent ensures the equipment is available on site.	Appendix 2 in this version of the Plan has been revised to include specialized equipment required for spill response.
2017	CIRNAC	15	Multiple references (e.g. in Section 2.2.6, 2.2.24 and 4.5.1) incorrectly state that Product Specific Spill Response Plans are provided in Module A	Ensure the proper reference (Appendix 1: Hazardous Materials and Product Specific Spill Response Plans) is used to eliminate confusion	References to appendices corrected in this version of the Plan.
2018	CIRNAC	CIRNAC-3	In reviewing the 2017 Annual Report, CIRNAC commented that a table of key government contacts was presented in the Hope Bay Project Spill Contingency Plan which required an update. This contact information has not been updated to the recommended phone number in the 2019 revision.	CIRNAC recommends that the contact numbers for the inspector be updated. Candice Peterson is now responsible for this file. She is based out of Cambridge Bay, her phone number is 867-983-5115, and her fax number is 867-982-4307.	During the upcoming annual review and update of the Spill Contingency Plan, TMAC will update the Inspector contact information, as well as any other key government contacts, as required to ensure they are current.
2018	CIRNAC	CIRNAC-6	Continuous monitoring and timely reporting of spills incidents is required by regulations and project Term and Condition. The Term and Condition 20 states that: "The Proponent shall ensure spill kits are at hand at the Roberts Bay oil handling facility at all times, and that appropriate containment measures are used in the event of a spill". The Term and Condition 32 requires that: "Prior to the commencement of operation the Proponent shall have a complete Environment, Health and Safety Management System in place which includes: Emergency Response and Spill Contingency Plan;	CIRNAC recommends that TMAC Resources Inc.: <ul style="list-style-type: none"> Consider including details of all spills (minor and major/reportable) in the Annual Report. Minimum details should include numbers, quantities, material spilled, impacted media, reasons/causes, and corrective measures implemented (both short term and long term). Identify corrective measures to address the timing for reporting of reportable spills. All reportable spills have to be reported within 24 hours as required by the Spill 	TMAC tracks all unauthorized discharges and spills on site, regardless if they are externally reportable or not and identifies any observable trends. Based on those results, root cause analysis and corrective actions are recorded, tracked and implemented. CIRNAC is welcome to review information with TMAC staff during any of their multiple annual site inspections. See Section 3 of this plan. TMAC would like to clarify that only two of the 15 spills were reported outside of the 24 hour reporting window. TMAC strives to provide adequate reporting within the 24 hour

Version	Reviewer	Comment #	Comment	Recommendation	Response
			<p>Occupational Health and Safety Plan; Monitoring and Follow-up Plan; and Auditing and Continuous Improvement Plan”.</p> <p>General comments in Section 6.2 regarding the 2017 Annual Report state: “An information summary should be included in the annual report on these minor spills such as numbers, quantities, impacted media, reasons/causes, and corrective measures implemented (both short term and long term). As one of the objectives stated in the Hope Bay Project Spill Contingency Plan is to “Implement a process to evaluate and continuously improve site spill response procedures”, discussion should be provided regarding lessons learned related to spill response and improvement measures implemented.” The objectives for monitoring spills and discharges are designed to prevent negative impacts to the environment (e.g., water, soil, vegetation, wildlife, air, etc.) associated with project activities, prevent injuries and health impacts to workers and other people associated with project activities; ensure adequate spill response capacity and emergency response planning is in place and ensure adequate oversight of project activities is occurring. In the 2018 Annual Report, 15 spills were reported to have met the reporting threshold of the Nunavut Spill Contingency Planning and Reporting Regulations and were reported to regulatory agencies. An unquantified number of spills termed minor in nature are noted. It is notable that:</p> <ul style="list-style-type: none"> • The overall number of reportable spills increased from 2017 (11) to 2018 (15). • The overall number of total spills including minor spills is not reported and there is no provision of quantities, details of the ‘minor’ spills. • Eight of 15 reportable spills were reported one day after the spill occurred. • The total quantity of hazardous materials spilled to the environment is more than 25,000 L and is a greater volume than that of the previous year. • The March 2019 Spill Contingency Plan does not include continuous improvement management processes addressing prevention. 	<p>Contingency and Reporting regulation R-068-93 (Government of Nunavut, clauses 9(2) and 11(2)).</p> <ul style="list-style-type: none"> • Consider adding the following testing and review elements to the Spill Contingency Plan to promote continuous improvement, as best management practice: • Document all spill incidents (major/reportable and minor/non-reportable) and undertake periodic review of trends and lessons learned. Analyze previous year’s data of reportable and non-reportable spills to identify trends. • Plan, undertake and document an annual spill drill / simulation exercise. The incorporation of this element into the existing management plan(s) will provide a mechanism to learn and improve from accidents and malfunctions. • Revise Spill Contingency Plan to include requirements for evaluation and continuous improvement. 	<p>reporting period and will aim to ensure all spills are reported as per the Spill Contingency and Reporting regulation R-068-93 (Government of Nunavut, clauses 9(2) and 11(2)).</p> <p>An annual tabletop exercise is conducted prior to the sealift fuel transfer simulating a spill to land or water. The exercise tests TMAC’s Incident Command System and the implementation of the Spill Contingency Plan, Oil Pollution Prevention Plan and the Oil Pollution Emergency Plan in response to a spill scenario at the Roberts Bay oil handling facility as required by Transport Canada. See Section 5.1 of this plan.</p>
2018	CIRNAC	CIRNAC-7	Sections 2.3.12 and 2.2.13 of the Hope Bay Project Spill Contingency Plan (December 2017) make reference to substances that will sink or dissolve if spilled under ice,	CIRNAC recommends that TMAC Resources Inc.:	TMAC agrees to update and correct the formatting and reference errors in the next annual update of the Spill Contingency Plan.

Version	Reviewer	Comment #	Comment	Recommendation	Response
			<p>indicating that response to these substances will be decided on a case-by-case basis, with consultation with regulatory agencies and remediation specialists as necessary. CIRNAC recommended that at a minimum, the plan should include an indication of whether these categories of materials are present on site currently, if so identify them and indicate where they are stored and how they are utilized. TMAC Resources Inc. provided a response and referred to these substances in Table 4.2 (Pg. 27) of the updated Spill Contingency Plan (March, 2019). Therefore this issue has been resolved. Appendix 2 of the Hope Bay Project Spill Contingency Plan provides information on spill response resources including mobile equipment, spill kit contents, and aquatic environment response equipment, however no mention is made of specialized equipment and material to cleanup/handle spills, for example, the respirators/self-contained breathing apparatus, fire retardant clothing, sodium or calcium hypochlorite solution, etc. identified in Appendix 1 as required to clean up/neutralize spilled sodium cyanide. CIRNAC recommended that Appendix 2 should be enhanced to include all equipment and material referenced in the plan for spill response. TMAC Resources Inc. listed the specialized response equipment in the Spill Contingency Plan, March, 2019 (Pg. 13). This issue is resolved.</p> <p>Format and reference errors were identified for the updated Spill Contingency Plan (March, 2019): Hope Bay Project Spill Contingency Plan (March 2019) Section 1.2 Title of Table 1.1 references the Incinerator Management Plan Correct Title of Table 1.1 Table 1.1 Regulation / Guideline Include updated regulation:</p>	<ul style="list-style-type: none"> • Correct the Format and Reference errors indicated in the table above. • Review and add new relevant documents pertaining to spills including: • “A Guide to Spill Contingency Planning and Reporting” dated 2018 June, Nunavut Department of Environment; and • Environmental Emergency Regulations, 2019 published in the Canada Gazette March 6, 2019, coming into force August 24, 2019, Environment and Climate Change Canada 	
2018	KIA	KIA-NIRB-21 KIA-NWB-3	<p>There is a discrepancy in the spill amount-reporting threshold for “miscellaneous products, substances, or organisms” that needs to be resolved. The table of Immediately Reportable Spills (p. iv) refers to the “NU Spill Contingency Planning and Reporting Regulations”, a document on the GN DOE website that was created by the GNWT for the GNWT’s use in 1998. These regulations specify a 50 L or 50 kg reporting threshold. However, Section 3.3 of the Plan also implies that the Immediately Reportable Spills Table follows the current GNWT ENR “Report a spill” website, which states that this limit is ≥ 5L or 5kg. Unless there is a typo on the GNWT website, the more</p>	<p>The KIA recommends that TMAC confirm spill-reporting thresholds with the GN and GNWT, and to update the information presented in the Immediately Reportable Spills, if needed.</p>	<p>TMAC will investigate to determine the correct reportable quantity and include in the next update of the Spill Contingency Plan if required. Use of the GNWT ENR “Report a Spill” website confirmed with the Inspector. This plan has been updated to reflect these thresholds (Section 3.3).</p>

Version	Reviewer	Comment #	Comment	Recommendation	Response
			<p>conservative values should be used in TMAC's Spill Contingency Plan. In the Mar 2019 Hope Bay Spill Contingency Plan, there is a table showing Immediately Reportable Spills following "Schedule B of the NU Spill Contingency Planning and Reporting Regulations". This document is available on the GN DOE website – it is a 1998 consolidation of the 1993 regulations created by the GNWT. In Schedule B of this document, the immediately reportable amount of "miscellaneous products or substances, excluding PCB mixtures" is 50 L or 50 kg, which are the values listed in the Plan.</p> <p>However, the Plan also references the GNWT ENR "Report a spill" website within Section 3.3 when discussing the Immediately Reportable Spills Table. On this website, the reportable quantities for spills of "miscellaneous products, substances or organisms" are ≥ 5 L or 5 kg. These values are 10x lower than those listed in the Regulations, suggesting that the Hope Bay Spill Contingency Plan, or the website itself, contains a typo. It seems more likely that the values on the website are correct, and that those in the Plan are incorrect, based on precedents seen in other projects. Note also that the cited website link in Section 3.3 is broken. The current URL is: https://www.enr.gov.nt.ca/en/services/report-spill The correct spill amount threshold for miscellaneous substances needs to be resolved with regulators. The Immediately Reportable Spills table in the Hope Bay Spill Contingency Plan should then be updated, if necessary.</p>		
2018	KIA	KIA-NIRB-22 KIA-NWB-4	<p>The Plan states that a marine spill report will be submitted to a Transport Canada (TC) Marine Safety Inspector if required. There is no further information regarding these reporting requirements; and the table showing Key Government Contacts does not include the TC Inspector's contact information. In addition, the CIRNAC Inspector's phone number in the Key Government Contacts table is different from the number listed in the Type A/B Water License conditions within the Conformity Tables.</p>	<p>The KIA requests additional information about spill reporting requirements for Transport Canada, and that contact information be included in the Plan for TC's Marine Safety Inspector.</p> <p>The KIA also recommends that TMAC confirm the correct contact information for the CIRNAC Inspector and update the table of Key Government Contacts, if needed.</p>	<p>TMAC will ensure the correct contact information for the CIRNAC inspector is up to date with key Government Contacts in the next annual update of the Spill Contingency Plan.</p>
			<p>Section 3.3 of the Hope Bay Spill Contingency Plan states that in the event that a spill has occurred to the marine environment, a written report will be submitted within 24 hours to the Canadian Coast Guard, and a copy of this</p>	<p>TMAC's response is partially satisfactory. They will confirm and include the correct contact information for the CIRNAC inspector in the next update of the Spill Contingency Plan. However, TMAC did not address the KIA's comment</p>	<p>Contact information for the Marine Safety Inspector and the situation(s) in which the Inspector would be contacted are detailed in the Hope Bay Ocean Pollution Prevention Plan/Oil Pollution Emergency Plan (OPPP/OPEP). The</p>

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			<p>report will be submitted to a Transport Canada Marine Safety Inspector “if required”. There are no further details regarding the situation(s) in which a TC Marine Safety Inspector will need to be notified. There is also no contact information for the TC Marine Safety Inspector within the table of Key Government Contacts on p. iii of the Plan.</p> <p>The Conformity Tables within Modules A, B, C, and D include conditions of the Type A and B Water Licenses that the Spill Contingency Plan is intended to address. Among these conditions is the reporting of any unauthorized deposits or foreseeable unauthorized depots of waste and/or discharges of effluent to “the Inspector at (867) 975-4295” (in addition to the 24-Hour NT-NU Spill Reporting Line and the KIA). However, the phone number listed in Key Government Contacts (p. iii of the Plan) for the CIRNAC Inspector is (867) 983-5115. Please confirm which phone number is correct and update the list of key contacts, if needed.</p>	<p>regarding marine spills and reporting requirements to a Transport Canada Marine Safety Inspector.</p> <p>Request to TMAC: Please include contact information for the Marine Safety Inspector in the list of Key Government Contacts and indicate the situation(s) in which the Marine Safety Inspector needs to be notified in the next update of the Spill Contingency Plan.</p>	<p>OPPP/OPEP is the main document of reference for spill control actions in a marine environment and is directly referenced in section 2.2.8 – Spill in a Marine Environment of the Spill Contingency Plan.</p>
2018	KIA	KIA-NIRB-23 KIA-NWB-5	<p>It is difficult to judge from the plates in Modules A and D whether TMAC is complying with their own policy of making spill kits available within 200 m of fuel and chemical storage locations. TMAC should ensure that spill kits are available as described. Section 2.4.1 of the Hope Bay Spill Contingency Plan states that spill response kits will be available near (within 200 m) any areas where chemicals are stored and used on site, including near all bulk fuel berms and smaller fuel tanks. In addition, all active construction areas where equipment is operating will have a spill kit located within 200 m.</p> <p>Modules A through D within the Plan describe the specific conditions of Doris, Windy, Madrid, and Boston operations relevant to spill response, including chemical storage volumes and locations, and photographs of the sites. Plate A.4 shows the Reagent Berm at Doris, and an Explosive Berm is indicated to the right, outside of the photo. It is unclear whether the spill kit located at the Reagent Berm is also intended to serve spill incidents at the Explosive Berm, and it is also unknown whether the Explosive Berm is located within 200 m of the Reagent Berm (and spill kit). Furthermore, the lack of scale, and possible forced</p>	<p>The KIA recommends that updated photos or site diagrams, with appropriate scale indicators, be included in the next version of the Hope Bay Spill Contingency Plan.</p>	<p>TMAC will ensure updated site diagrams will be included in the next annual update of the Spill Contingency Plan. Please refer to Modules A through D of this Plan.</p>

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			<p>perspective, of Plate D.1 (Boston Camp) makes it difficult for a reviewer to determine whether the spill kit in the middle-left is located within 200 m of the chemical storage locations to the farthest left of the photo.</p> <p>It would be useful to have updated photos or site diagrams, for all Hope Bay project locations, that encompass all infrastructure and activities and have a scale to assess distances. These would allow for a more comprehensive review of TMAC's spill response plan.</p>		
2018	KIA	KIA-NIRB-24 KIA-NWB-6	<p>The Jet-A Specific Spill Response Plan needs more information and subsequent steps for emergency response to a spill to water. Currently, the plan is limited to advising responders not to attempt to contain or remove spills, and to use booms to prevent spread. Even if TMAC staff are not responsible for cleaning up a Jet-A spill, there should be further information about who to contact for proper treatment. TMAC has developed a Product Specific Spill Response Plan for Jet-A fuel because spills of this substance could be immediately harmful to humans and/or the environment and has the potential to cause pool fires and vapour cloud explosion. Within the Jet-A plan, the instructions for spills to water include three bullet points:</p> <ul style="list-style-type: none"> • Jet-A fuel floats on surface of water. • Do not attempt to contain or remove spills (high explosion potential). • Use booms to prevent spread of spill. • The subsequent generic steps regarding Jet-A fuel spills are to properly dispose of PPE and to thoroughly wash skin with soap. This is the end of the Jet-A spill response plan. <p>Further details are needed regarding Jet-A spills to water. It is perhaps implied (though this should be clarified) that no Hope Bay Project staff within the Spill Emergency Incident Command System (Figure III, p. vii) is qualified to clean up Jet-A spills to water. If this is the case, information about who should be contacted, and who will be responsible for clean-up, should be included in the Plan.</p>	The KIA requests that additional information regarding spills to water be included in the Jet-A Specific Spill Response Plan, such as the party(ies) responsible for cleanup/ treatment.	<p>TMAC will provide additional information to the Aviation Fuel (Jet-A) Specific Spill Response Plan.</p> <p>Additional information has been provided in the Jet-A Specific Spill Response Plan with rationale for response to a spill on water. Refer to Appendix 1 of this Plan. Note, multiple spill response resources direct that attempts to recover spills of Jet-A to water should not be attempted due to volatility and explosive potential of the material, and the fact that evaporation of the product occurs within hours to days makes recovery of this product by conventional skimming methods difficult to accomplish.</p>
2018	KIA	KIA-NIRB-25 KIA-NWB-7	TMAC's revisions to the Spill Contingency Plan in response to the previous KIA comment #2 are incomplete. There are ambiguities between Section 2.2.16 and the Environmental	The KIA requests that the proposed prioritization hierarchy in Section 2.2.16 of the Spill Contingency Plan be revised to a level of detail that is compatible with the Environmental	TMAC would like to take the opportunity to re-visit the response hierarchy to reflect operational experience. TMAC's first priority in any spill incident is to stop the source

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			<p>Resource Maps provided in Appendix 3, which would prevent a clear understanding of priorities in the event of a spill.</p> <p>In response to previous KIA review comment KIA-7, TMAC proposed a prioritization hierarchy for environmental sensitivities. (Note that there is a typo in TMAC's response on p. 24 – it should refer to Section 2.2.16 rather than 2.3.10.) The proposed hierarchy of protection will attempt to favour:</p> <ol style="list-style-type: none"> 1. Waterbodies; 2. Sensitive habitat types; 3. Archaeological sites; 4. Rare plants; and 5. Active raptor nest or wildlife den. <p>In addition, for spills in water, prioritization will attempt to avoid vegetated and finer substrate shoreline areas (sand, gravel, cobble). TMAC's proposed hierarchy is not detailed enough in comparison to the Environmental Sensitivity Maps A-C, which include rare plants, raptor nests, and wildlife dens. Are the "sensitive habitat types", indicated as the second highest priority, the other features on these maps, i.e., eskers, slopes of 40-90% (possible cliffs), or certain TEM classes?</p> <p>For example, would the TEM class of Dry Carex-Lichen be prioritized over others because this is important forage for caribou?</p> <p>Furthermore, the Environmental Resource Maps in Appendix 3 may not be at a size, scale, or resolution that is useful for emergency spill response. For example, Figure 3.1 (Map A) is very difficult to read; the need for 12 insets may indicate that larger scale maps are needed to cover the study area in sufficient detail. Map A also shows that Hope Bay is within the study area; however, only Roberts Bay was mapped for shoreline fish habitat values (Figure 3.4, Map D).</p>	<p>Sensitivity Mapping for this project. The KIA also requests that Environmental Sensitivity Maps be provided to Project personnel in a larger format and at higher resolution, such that they are useful for emergency spill response.</p>	<p>of the spill (if not already accomplished at the time discovered), then to prevent the spread and contain the spill and then to assess the best method to remove as much of the spilled substance as possible taking into consideration numerous factors including but not limited to land, water, topography, substrate depth, location and season. Safety of personnel is the paramount consideration in all efforts and workplans. Based on the review of Appendix 3 and experience to date, TMAC will re-visit the Environmental Sensitivity Mapping to account for the abiotic and biotic factors that practically guide spill response at Hope Bay. KIA will be engaged on this matter and the potential timing of the next update in the plan.</p>

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2018	KIA	KIA-NIRB-26 KIA-NWB-8	TMAC has made some revisions to the Spill Contingency Plan regarding spill-related monitoring. However, the wording is weak and does not reflect a commitment by TMAC to conduct monitoring activities. In response to previous KIA review comment KIA-9, TMAC responded that more details on spill related monitoring have been included in Section 3.4 of the Spill Contingency Plan. However, the revisions to Section 3.4 do not fully address the KIA's concerns. While TMAC has deleted the phrase "completely removed" and has added more information about monitoring triggers and locations for spills to water, the wording in this section still needs to be stronger. The current wording throughout Section 3.4 is that "monitoring may be triggered". TMAC should commit to conducting monitoring activities for spills that potentially have negative environmental impacts, and that are unlikely to be (completely) recovered, whether on land or in water. While monitoring for all spills may not be feasible, especially for small spills with little expected impact, TMAC could develop spill thresholds for various substances or situations for which "monitoring will be triggered".	The KIA recommends that TMAC use stronger wording within Section 3.4 of the Spill Contingency Plan, i.e. "monitoring will be triggered" rather than "monitoring may be triggered" for various spill response scenarios.	TMAC is committed to the application of the appropriate spill prevention, response, monitoring and restoration activities outlined in the Spill Contingency Plan. TMAC believes that it is not practical to establish specific thresholds for various spill response scenarios as there are many, and monitoring and restoration activities would need to be determined on a case-by-case basis. Where deemed appropriate, monitoring and restoration programs deemed would be developed in consultation with the CIRNAC Inspector and the KIA.
			Without a strong commitment from TMAC to monitor the potential effects of spilled substances that cannot be recovered, there is no guarantee that monitoring will occur at all. The KIA's right to compensation for damages to their lands and waters makes prompt and effective monitoring important to both TMAC and the KIA in the event of a spill or unplanned discharge.	TMAC's response is partially satisfactory. Please see detailed KIA review comments for KIA-NWB-9 below.	Please see detailed response as part of KIA-NWB-9 below.
2018	KIA	KIA-NIRB-27 KIA-NWB-9	Conditions for triggering of monitoring of spills into water is unclear. TMAC states that "monitoring may be triggered in the event of spills to water of substances that dissolve or sink where substance recovery unlikely" and that "monitoring may also be triggered in the event of externally reportable spills to land for which recovery of spilled material is unlikely or may be incomplete". In Appendix 4, under Comment #4 (KIA-9), the KIA requested that "TMAC should include triggers which require monitoring activities, and provide details of the type of monitoring that will be undertaken as part of adaptive management to spills and unplanned discharges...the discussion should be specific to the type of spill, volume, mobility of the spilled material and proximity to various habitat	Please remove the discretionary language in Section 3.4 so that monitoring is required for (i) all spills to water of substances that dissolve or sink which are unlikely to be recovered and (ii) all externally reportable spills to land of substances unlikely to be fully recovered. Please specify under what conditions monitoring will be triggered for spills (i) and (ii) (e.g., type of spill, volume, mobility, proximity to sensitive environmental features), what parameters will be collected, and how soon after a spill triggered monitoring will be implemented.	TMAC is committed to the application of the appropriate spill prevention, response, monitoring and restoration activities outlined in the Spill Contingency Plan. TMAC believes that it is not practical to establish specific thresholds for various spill response scenarios as there are many, and monitoring and restoration activities would need to be determined on a case-by-case basis. Where deemed appropriate, monitoring and restoration programs would be developed in consultation with the CIRNAC Inspector and the KIA.

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			features. Triggered monitoring should be implemented as quickly as possible".		
			<p>TMAC responds that it "has provided more detail on spill related monitoring in Section 3.4". We do not believe TMAC has satisfactorily responded to our original concern regarding monitoring spills. We are concerned with the use of discretionary language in the guidelines for monitoring spills under Section 3.4 ("may be triggered"). Furthermore, it is not clear what conditions will actually trigger monitoring under the two scenarios presented in this section (e.g., type of spill? volume? mobility? proximity to sensitive environmental features?). TMAC also has not indicated how soon after a spill triggered monitoring would be implemented, or what parameters will be collected.</p>	<p>TMAC's response is the same as for KIA-NWB-8, which is partially satisfactory. The proponent states that "where deemed appropriate, monitoring and restoration programs would be developed in consultation with the CIRNAC Inspector and the KIA." As evidenced by comments KIA-NWB-8 and -9, the KIA believes that monitoring and restoration programs should be developed prior to spill events as part of spill response planning and preparedness and to show an understanding of the potential effects of spills on land and in water. These programs can then be adapted, in a timely manner, to each spill response scenario on a case-by-case basis. We appreciate that TMAC's monitoring and restoration programs will be developed in consultation with the KIA; however, we recommend that consultation about spill response and triggered monitoring occur as soon as possible.</p> <p>KIA acknowledges that spill response varies depending on numerous factors (including type of substance, location of spill, volume, proximity to sensitive environmental features etc.), all spills need to be monitored to help determine what response is appropriate. Furthermore, in the case of spills to water and land that are unlikely to be recovered, it is paramount that monitoring be conducted to track whether these spills cause any adverse environmental effects, so that effective mitigation measures can be implemented.</p> <p>Consequently, the discretionary language in the guidelines for monitoring spills under Section 3.4 should be removed and replaced with wording stating that monitoring is required for all spills described under (i) and (ii) in our prior recommendation. The KIA also requests clarification about situations in which TMAC would deem it appropriate to develop appropriate monitoring and restoration programs in consultation with the CIRNAC Inspector and the KIA (e.g., compared to when it would be inappropriate to do so).</p>	<p>TMAC appreciates KIA's intent to understand spill preparedness however TMAC does not feel predetermining every possible scenario, response, follow up monitoring, including parameters to be measured, and reclamation actions, is practical or effective. If TMAC were to attempt to address these requests it would result in an extremely voluminous document with thousands of iterations and combinations that account for every possible factor at Hope Bay. TMAC has explored this approach in the past and determined it would be unreasonable to maintain but more importantly, unnecessary. Including these details up front in the management plan is not the intent of the Spill Contingency Plan.</p> <p>The Spill Contingency Plan was developed for the efficient and effective management of activities at site by ensuring the people responsible have the information required to make informed decisions that consider key factors. TMAC has evaluated this approach as being more effective than predetermined responses to a copious amount of scenarios. That said, TMAC would welcome discussing this matter further with the KIA to understand if there are opportunities for improvement that TMAC can incorporate into its approach to spill response.</p>
2019	KIA	KIA-NIRB-28 KIA-NWB-10	Photograph does not indicate location of spill kit at Patch Laydown Facility. Plate B.2 shows a photograph of the Patch Laydown Facility. The caption indicates that the red circle is for the fuel storage location and the yellow star is for the spill kit location.	Please clarify whether any fuel storage and spill kit locations exist at the Patch Laydown Facility.	Fuel and chemical storage facilities have been removed from the Patch Laydown Facility. Plate B.2 been removed in this version of the Plan.

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			However, no red circles or yellow stars are shown on the photograph.		
2019	KIA	KIA-NIRB-29 KIA-NWB-11	<p>No mitigation measures are stated for settlement of tanks. Eight fuel tanks at the Boston site are situated on a lined fuel berm on the permafrost. TMAC indicates that there are concerns that the permafrost may degrade over time due to thin areas of the crush pad, which could cause settlement of the tanks, making them unstable and prone to tipping. TMAC states that regular monitoring of the fuel tanks for differential settlement occurs during seasonal visits, annual geotechnical inspections, and as needed. However, TMAC does not discuss what mitigation measures are in place should settlement of the tanks be detected.</p>	Please explain what management action is taken if settlement of the fuel tanks at the Boston site is detected during routine monitoring.	If settlement of the fuel tanks at the Boston site are detected beyond an acceptable limit, TMAC will discontinue the use of the tank(s) that are effected by settlement and engage the Engineer of Record (SRK Consulting) for guidance and recommendations for correcting the settlement issue. TMAC will continue to monitor permafrost and physical stability of site infrastructure on an ongoing basis and will take a proactive approach to risks identified.
2020	KIA	KIA-NWB-33	<p>The discretionary language KIA identified in the 2018 Annual Report relating to monitoring of spills remains in the 2019 Annual Report. Under section 3.4 of Appendix H, TMAC states that “monitoring activities may be conducted to assess the impacts of the spill and the effectiveness of associated cleanup/ remediation efforts in the event spill material cannot be removed” (p. 20) and “monitoring may be triggered in the event of spills to water of substances that dissolve or sink or where substance recovery is unlikely” (p. 21) and “monitoring may also be triggered in the event of externally reportable spills to land for which recovery of spilled material is unlikely or may be incomplete” (p. 21).</p> <p>In Appendix 4, in response to our previous comments, TMAC indicates that it is not reasonable or necessary to predetermine “every possible scenario, response, follow up monitoring” because such an approach “would result in an extremely voluminous document with thousands of iterations and combinations that account for every possible factor at Hope Bay” (p. 43).</p> <p>We are not suggesting that every possible step for monitoring should be detailed in the Spill Contingency Plan, but we are requesting that monitoring be required for (i) every spill that cannot be removed, (ii) spills to water of substances that dissolve or sink or where substance recovery is unlikely, and (iii) externally reportable spills to</p>	Please remove the discretionary language in section 3.4 and replace with wording that monitoring is required for all spills detailed in (i) to (iii) above.	TMAC acknowledges that any required environmental monitoring would be evaluated on a case by case basis in situations of reportable spills that cannot be removed or fully recovered; or, involve a substance spilled to water that dissolves, sinks or where substance recovery is unlikely. As part of regulated spill reporting and follow up, specific details on the spill and any follow-up monitoring would be detailed in the 30 day spill report submitted to the Government of Nunavut with copy to the KIA. Spill response and monitoring is determined on a case by case basis, depending on the nature of the spill and the KIA has the opportunity to inspect spill locations with their routine site inspections.

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			land for which recovery is unlikely or incomplete. Specific details on what the required monitoring would entail could then be determined on a case by case basis, depending on the nature of the spill. We do not think such an approach would be unduly time-consuming or cumbersome, but rather, would provide an effective and efficient framework for ensuring monitoring of spills that are not fully or partially recoverable is conducted, so that ultimately no adverse effects to the environment occur, and long-term liabilities on IOL are avoided.		
2021	KIA	KIA-NWB-6	In 2020 the discharge location of the Roberts Bay Discharge System changed. The subsea diffuser now extends 1.4 km into Roberts Bay and the Marine Outfall Berm now extends from the shoreline to approximately the 20 m bathymetric contour. It is recommended that TMAC update Section A4 of Module A: Doris to reflect the recent changes to the Roberts Bay Discharge System.	It is recommended that TMAC update the description of the Roberts Bay Discharge System in Module A of the Spill Contingency Plan to reflect recent changes to the discharge location.	The new location will be included in the next revision of the plan and submitted in the 2021 annual report.
2021	ECCC	3.(1)	Did the responsible person submit a SCH 2 Notice of Substance within 90 days of either of the following situations: The SCH 2 Notice must be submitted via the SWIM database within 90 days of meeting the threshold for quantity and/or container capacity of an E2 substance and re-submitted every 5 years thereafter (s.13)		Schedule 2 was submitted by TMAC on June 23, 2020; however, because the substances on site met the E2 concentration and substance thresholds on August 24, 2019, Schedule 2 was due on Nov. 22, 2019.
		3.(1)	The total quantity of an E2 substance stored at the facility is equal to or greater than the Schedule 1 threshold <i>Total includes quantities inside & outside of the container system at the facility; If the quantity exceeds the threshold limit they must submit a SCH 2 Notice.</i>	<i>Table A.1</i> - The E2-regulated substances listed in this table are diesel fuel, ammonium nitrate, HCl, calcium chloride, acetylene, and propane; the quantities and max. container system capacities of calcium chloride, acetylene and propane do not meet the reporting thresholds. - It appears as if this list of chemicals is only presented in this table, and therefore, somewhat hidden	Updated Modules (A-D) to include an additional table presenting the total quantities for each chemical substance at the facility

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				<p>- I really like the way the location and substance information is presented in this table; however, although the max. expected quantity stored at each storage location is listed, the max. expected quantity stored overall is not. Both types of information are important, and should be included in this plan.</p> <p>- According to the information submitted in Schedule 2, the total expected quantity of ammonium nitrate (solid) on site was 1197.4 T; however, the information presented in Appendix I indicates that 1350 T is on site. Likewise, the submitted info. for the max. capacity of the largest container system is 0.5 T, whereas, the info. in Appendix I appears to indicate that it is 40.8 T, which is a considerable difference.</p> <p>- Similarly, the values in Appendix I for the max. capacity of the largest container system of diesel fuel appears to be different from the 5000 T submitted in Schedule 2.</p> <p>. The annotated photographs are helpful.</p>	<p>Schedule 2 will be updated</p> <p>The 5000 T listed in Schedule 2 is the containment capacity of the 5,000,000 L diesel tanks. 5,000,000 L is the maximum quantity stored in the tank.</p>
		3.(1)	<p>(b) Any quantity of an E2 substance is stored within a container system at the facility that has a maximum capacity equal to or greater than the Schedule 1 threshold for that E2 substance</p> <p>If the maximum capacity of the container system equals or exceeds the SCH 1 threshold limit they must submit a SCH 2 Notice even if the quantity of the E2 substance w/i the container is below the threshold limit;The maximum capacity means the full physical capacity, including any capacity beyond the safe-fill limit.</p>	Diesel fuel	Diesel fuel is stored at a capacity greater than the Schedule 1 threshold for that E2 substance.

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		3.(2)	<p>Do any of the following exclusions apply to the total quantity calculations at the facility:</p> <p>a) Quantities located at a facility for less than 72 hrs;</p> <p>b) Quantities that are in a container system with a capacity less than 0.03t;</p> <p>c) Quantities of the substance that are found in slag, waste rock, tailings, solid residues, ores and ore concentrates</p> <p>d) Quantities of propane w/i a container system with a max capacity of 10t that is located 360m from all points along the boundary of the facility;</p> <p>e) Quantities of anhydrous ammonia, ammonia hydroxide & ammonia solution that are located at a farming operation for on-site use as an agricultural nutrient.</p> <p>Do any substance exclusions apply? Refer to Exclusions Table in the Appendix</p> <p>If there are substances that are stored at the facility for less than 72 hours, ask for the records showing the date/arrival time/ departure time/quantities?</p> <p>Regarding exclusions, refer to the Exclusions Table in the Appendix.</p>	There was no information indicating that any exclusions applied to the chemicals identified in this E2 Plan. I proceeded on the assumption that exclusions were applied prior to the creation of this document; thus, only chemicals to which exclusions did not apply were identified in it.	Exclusions under the E2 Regulation were not considered when tabulating the chemicals stored. Text has been updated in Modules.
		3.(5)	<p>Has there been any change to the following information submitted under the SCH 2 Notice:</p> <p>(a) Information respecting the facility or head office of the facility (address, company contacts, facility name);</p> <p>(b) An increase by 10% or more of reported maximum quantity of the E2 substance;</p>	Amended Schedule 2 notices submitted on June 8, 2021 and June 30, 2021; unknown if these were submitted within 60 days of the change(s).	Agnico confirms this was submitted within 60 days, as required by the Regulations.

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			<p>(c) An increase by 10% or more of the reported maximum capacity of the container system in which the E2 substance is stored</p> <p>The SCH2 information must be updated via the SWIM database within 60 days of any change.</p>		
		4.(1)	<p>Did the responsible person prepare an E2 plan with respect to an E2 substance under the following circumstances:</p> <p>(a) Some or all of the E2 substance is not contained within a container system and the maximum expected quantity equals or exceeds the SCH 1 threshold limit</p> <p>OR</p> <p>(b) The E2 substance is contained within a container system and the maximum expected quantity equals or exceeds the SCH 1 threshold AND The E2 substance is in a container system that has a maximum capacity, which equals or exceeds the SCH 1 threshold</p> <p>A facility must develop and implement an E2 plan if one or more substances are present AND either:</p> <p>Some or all of the substance is uncontained, and its maximum expected quantity equals or exceeds the SCH1 threshold quantity;</p> <p>OR</p> <p>BOTH the maximum expected quantity on-site equals or exceeds the SCH 1 threshold and is contained in a container system AND the container system's maximum capacity equals or exceeds the SCH1 threshold quantity.</p>	<p><i>Table A.1</i></p> <p>- I like the way the location and substance information is presented in this table; however, it is unclear from this information what the <u>total expected quantity</u> is, nor what is the <u>maximum (i.e., 100%) capacity of the largest container system</u>.</p> <p>- It is unclear if any of these tanks are connected; if so, the connected tanks (if not able to be segregated) would constitute one container system.</p> <p>- Although the max. expected quantity stored at each storage location is listed, the max. expected quantity stored overall is not. Both types of information are important, and should be included in this plan.</p> <p>- I like that the substances listed in this table include all the substances on site, not just the E2-regulated ones (diesel fuel, ammonium nitrate, propane, HCl).</p> <p><i>Appendix I</i></p> <p>- There are a lot of hazardous chemicals stored on site, and it is concerning that the list of these substances is not included in this plan until Appendix 1.</p> <p>- It's unclear if the "largest container" is the largest container or the largest container system.</p>	<p>Updated each Module to include a table presenting the total expected quantity at each Site. For the Maximum Expected Quantity Stored at each location, a foot note is included with the quantity details.</p> <p>The tanks are not interconnected and do not constitute a container system. Module A2 has been updated.</p> <p>Updated each Module to include a table presenting the total expected quantity at each Site.</p> <p>Updated table in Module A2 to indicate largest container is not a container system.</p>

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		4.(2)	<p>A description of the properties and characteristics of the substance and the maximum expected quantity of the substance at the facility;</p> <p>pH, boiling point, density, gas/liquid/solid, incompatibility, reactivity; Usually contained in a safety data sheet or other specific sources.</p>	<p><i>Appendix 1</i></p> <ul style="list-style-type: none"> - Sodium cyanide, ammonium nitrate, diesel, Jet-A aviation fuel <ul style="list-style-type: none"> o There are no SDS included in this document, nor is the information from those SDS (i.e., boiling point, density) included in this document. - <i>Ammonium Nitrate</i> <ul style="list-style-type: none"> o There is a discrepancy between the total expected quantity indicated in Appendix 1 (1350 T) and the value submitted in Schedule 2 (1197.4 T). - <i>Diesel</i> <ul style="list-style-type: none"> o Using different units in the same sentence can be problematic. - <i>Jet-A Aviation Fuel</i> <ul style="list-style-type: none"> o Contrary to what was indicated, this chemical (i.e., kerosene) is not currently listed as a substance in Schedule 1 of the E2 Regulations. <p><i>Modules A2, B2, and C2 – indicate the quantities of the chemicals and different locations</i> It's unclear if the quantities listed in the tables are the 100% maximum capacity of the container system, the safe fill zone capacity, or the quantity that is normally stored in those containers</p>	<p>Updated Appendix 1 to include SDS</p> <p>Updated each Module to include a table presenting the total expected quantity at each Site. For the Maximum Expected Quantity Stored at each location, a foot note is included with the quantity details.</p>
		4.(2)	<p>(b) a description of the commercial, manufacturing, processing or other activity involving the substance that takes place at the facility; <i>Is there a description of what the substance is used for on-site (is it stored, produced, reacted or used)? If the substance is used within a larger system, the facility may choose to represent the system in a figure/diagram.</i></p>	<p><i>Appendix 1</i></p>	<p>Appendix 1 contains the Hazardous Materials details and Product Specific Emergency Response Plans.</p>

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		4.(2)-	<p>(c) a description of the facility and of the area surrounding the facility that may be affected by an environmental emergency referred to in paragraph (d), including any hospitals, schools, residential, commercial or industrial buildings and any highways, public transit infrastructure, parks, forests, wildlife habitats, water sources or water bodies;</p> <p>Plan/map/table or adequate description of facility and surrounding area;</p> <p>Other sensitive receptors to be considered: childcare, long-term care and senior facilities; public camping and wetlands;</p>	<p>1.5 Project Description - facility description, location, climate</p> <ul style="list-style-type: none"> - <i>Module A</i> = water sources, WTP - Photo plates in modules A, B, C, D - <i>Appendix 3</i> = sensitive information - There is no information specifying the area, if any, that may be affected by an environmental emergency – i.e., discussion of presence/absence of sensitive receptors. 	<p>Section 1.5 has been updated to include details regarding the project area and the absence of sensitive receptors.</p> <p>Section 4.8 has been updated to include discussion on sensitive receptors for the Worst-Case Scenario and the Alternate Worst Case Scenario.</p>
		4.(2)	<p>(d) an identification of any environmental emergency that could reasonably be expected to occur at the facility and that would likely cause harm to the environment or constitute a danger to human life or health, including the environmental emergency referred to in paragraph (e) and, if applicable, the environmental emergency that is more likely to occur than the environmental emergency referred to in paragraph (e) and that would have the longest impact distance outside the boundary of the facility;</p> <p>Has every environmental emergency that could reasonably be expected to occur and have impacts (harm to environment, human life or health) been identified for each E2 regulated substance at the facility?</p> <p>Has the Worst Case Scenario (WCS) environmental emergency (release of the max quantity that could be contained in the largest container system and/or the release of the max expected quantity that is not in a container system on-site) been identified for each E2 regulated substance at the facility?</p>	<p>S. 4 – Spill Management and Mitigation</p> <ul style="list-style-type: none"> - s. 4.1 - Three causes of a spill from a chemical storage tank or other containment identified. - s. 4.2 - Three causes of a spill during transfer identified. - s. 4.3 - Three causes of a spill during transfer identified. - s. 4.4 - Two causes of spills from equipment identified. - No scenario identified in s. 4.5. - A risk analysis that depicts the probability and consequences of identified scenarios is recommended to be included. This matrix would ID all scenarios and score the risk. <p><i>Appendix I</i></p> <ul style="list-style-type: none"> - There are no specified causes of spills (i.e., identified scenarios) in Appendix I. - I like the thought process in s. 4.1.1. - The worst case scenario and alternate worst case scenarios were not identified as such. The potentially affected members of the public were 	<p>Section 4.8 has been updated to include a risk analysis.</p> <p>Section 4.8 has been updated to include the Worst-Case Scenario, the Alternate Worst-Case Scenario and an Alternate Scenario.</p>

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			If any, has the Alternate Worst-Case Scenario environmental emergency (scenario that may most realistically happen with the longest impact distance outside the boundary of the facility) been identified for each E2 regulated substance at the facility? Have impact zones with distances to potential consequences been identified for every scenario?	not identified - is this because there are none, or because it was overlooked?	
		4.(2)	(e) an identification of the harm to the environment or danger to human life or health that would likely result from an environmental emergency involving the release of Has the harm been identified under the following Worst Case Scenarios for each E2 substance located on-site? Look for a map demonstrating impact zones.	The worst case scenario was not identified in s. 4, nor elsewhere in the document; therefore, neither was the harm resulting from that scenario.	Section 4.8 has been updated to include the Worst-Case Scenario, the Alternate Worst-Case Scenario and an Alternate Scenario.
		4.(2)	(i) the maximum quantity of the substance that could be contained in the container system that has the largest maximum capacity, if a quantity of the substance is in a container system, and WCS involving the release of the maximum quantity that could be contained in the largest container system on-site	Same comment as above, but the non-site specific environmental effects were touched upon in <i>Appendix 1</i> .	
			(ii) the maximum expected quantity of the substance that will not be in a container system, if a quantity of the substance is not in a container system; WCS involving the release of the maximum quantity that could be contained in the largest container system on-site	WCS involving the release of the maximum quantity that is not contained within a container system on-site. - Same comment as above, but the non site-specific environmental effects were touched upon in the <i>Ammonium Nitrate Specific Spill Response Plan in Appendix 1</i> .	
		4.(2)	(f) an identification of the harm to the environment or danger to human life or health that would likely result from the environmental emergency identified under paragraph (d), if any, that is more likely to occur than	No AWC scenario was identified in Section 4 or in Appendix 1; therefore, the harm from this scenario was not identified either.	

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			the environmental emergency referred to in paragraph (e) and would have the longest impact distance outside the boundary of the facility; Has the harm been identified in the Alternate Worst-Case Scenario for each E2 substance located on-site, if any? Look for a map demonstrating impact zones.	- It is possible that NO AWC exists, which is fine; however, this possibility needs to be stated. The potentially affected members of the public were not identified - is this because there are none, or because it was overlooked?	Section 3.3 has been updated with more detail regarding the external reporting protocol.
		4.(2)	<p>(g) a description of the measures to be taken to prevent and prepare for the environmental emergencies identified under paragraph (d) and the measures that will be taken to respond to and recover from such emergencies if they were to occur;</p> <p>PREVENTION: Mitigation measures such as spill containment around tanks (dykes/catch basins); Concrete blocks used for collision protection, walls, shut-off valves, detectors, alarms; Standard Operating Procedures; Regular Maintenance and Inspection Programs i.e. checking pipes for corrosion, awareness of equipment lifespan; Management systems for process design and operation, training and facility operation.</p> <p>PREPAREDNESS: Prediction of environmental emergencies and their harm to the environment or their danger to human life and health; Consultation with first responders; Training of staff and on-site responders; Availability of resources and equipment; communication with neighbours; Testing and updating the plan annually;</p> <p>RESPONSE: activation of plan; rapid assessment of the emergency and potential impacts; proper notification to first responders and affected public; communication systems between stakeholders; evacuating and accounting for personnel and</p>	<p>PREVENTION:</p> <ul style="list-style-type: none"> - s. 4.1.1 & s. 4.3.1 - secondary containment and spill containment, weekly inspections of all containment structures - s. 4.4.1 - spill trays - s. 4.6.1 - No chemicals are stored within 31 m of water; containment, etc. <p>PREPAREDNESS:</p> <ul style="list-style-type: none"> - s. 4.2.1 - Traffic ROW procedures for transport, comm. equipment, procedures - s. 4.3.1 - SOPs for safe use and handling, storage - 4.4.1 - 4.5.1 - Training, PPE, chemicals reviewed annually - 4.7.1 - Due to its location, all the required spill response resources and trained personnel are available on site. GOOD section. - s. 5(1) - Spill response simulation exercises <p>RESPONSE:</p> <ul style="list-style-type: none"> - Section 2, Appendix 1 (NOT listed in the cross-reference table) - s. 2.2.15 – Perhaps using words such as “appropriate” unless there is additional info. or clarification. - s. 2.2.16 - the appropriate response for small spills was indicated, but what about large spills? <p>RECOVER:</p> <ul style="list-style-type: none"> - s. 3.4 	<p>Section 2.5 has been updated.</p> <p>Section 2.5 has been updated.</p>

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			<p>members of the public present at the facility; adequate reporting;</p> <p>RECOVERY: pre-planning for the restoration of any part of the environment that is damaged during an emergency; adequate finances available for restoration; availability of restoration equipment; work with outside resources to support recovery i.e., emergency response contractor;</p>		
		4.(2)	<p>(h) a list of the position titles of the persons who will make decisions and take a leadership role in the event of an environmental emergency and a description of their roles and responsibilities;</p> <p>Interview the people involved in emergency management and ensure that each one named is aware of their responsibility; and their alternatives.</p>		Section 2.3 has been updated
		4.(2)	<p>(i) a list of the environmental emergency training that has been or will be provided to prepare personnel at the facility who will respond in the event that an environmental emergency identified under paragraph (d) occurs;</p> <p>Has the training required for each position/person identified above been outlined? Ensure that the training has been taken or ask for the date on which they will take place. Good overview, and nice and concise.</p>	<p>- The training was identified for potential and designated first responders, but what about for the personnel identified in sections 2.2.1-2.2.8. Require more specifics about how each role's specified training is achieved, or refer to another document (e.g., internal computer software).</p> <p>- Although the purpose of the training was identified (e.g., the fuel offloading training, response to fire, explosive, or toxic incidents, and appropriate handling, storage, and disposal of chemicals), the types of training (specific training sessions) were not.</p> <p>- Is there a spreadsheet or checklist available that lists the required training, and the status of all employees? Who is responsible to ensure that this is done? It's fine if this information is located in other documents, but it must be referenced in this one.</p>	Section 5 has been updated with additional details on training.

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				- There is no indication about how often training is provided or how often recertification is required, only that it is provided.	
		4.(2)	<p>(j) a list of the emergency response equipment that is necessary for the measures described in paragraph (g) and the equipment's location;</p> <p>Ensure that the emergency response equipment referred to in paragraph g) is at the right location and usable. Is there a list of emergency response equipment and the equipment's location – the location may be depicted on a site map. Is the list of equipment complete and adequate - specific to the nature of the hazard. Was training provided on how to use the equipment?</p>	<p>2.4.1 – On Site Resources</p> <p>Appendix 2</p> <p>- Very good.</p> <p>- I like that the OPPP/OPEP was considered and referenced</p> <p>- Where is the specialized response equipment stored? Is there someone designated to maintain and ensure the availability of the emergency equipment</p> <p>Modules A, B, C, D</p> <p>- The photo plates with the clearly marked spill kit locations are good; however, there is no information indicating where in that facility the spill kit is located</p>	<p>Appendix 2 has been updated with additional details regarding the spill kit maintenance and storage.</p> <p>Spill kits are clearly identified in the facilities.</p>
		4.(2)	<p>(k) a description of the measures that will be taken by a responsible person or by a responsible person and local authorities, acting jointly, to communicate with the members of the public who may be adversely affected by the environmental emergency referred to in paragraph (f) to inform them, before the environmental emergency occurs, of</p> <p>Ask specific questions about the authorities that will be contacted and by what means. Was public notification made under the alternate worst-case scenario (most likely) where the impact distance is outside the boundary of the facility? (If predicted impacts do not extend beyond the boundary of the facility, prior notification of the public is not required.) Have all members of the public been notified within the calculated impact zone? How were they identified? The method of notification is not specified by the</p>		Section 2.3.8 has been updated

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			Regulations, some options include: public meetings, flyers, posters, stickers, websites, newsletters, open house meetings, safety day, door-to-door direct contact, partnering with a local community awareness and emergency response group.		
			<p>(i) the possibility that the environmental emergency could occur,</p> <p>(ii) the potential effects of the environmental emergency on the environment and on human life or health, taking into account the factors referred to in paragraphs (a) to (c), and</p> <p>(iii) the measures that will be taken by the responsible person to protect the environment and human life or health, and the means by which the responsible person will communicate with them, in the event that the environmental emergency occurs;</p> <p>Have members of the public been informed of the type of environmental emergency that could occur, the potential effects, the protective measures taken and how the facility will communicate with them in the event of an emergency?</p> <p>Notification must be provided to the public BEFORE an environmental emergency occurs – it is recommended that this action be completed as part of the implementation/ bringing into effect of the plan</p>	<p>- The info. in <i>Section 2.2.8</i> refers to the requirement in s. 4(2)(l), not this clause.</p> <p>- I could not find any information in this plan about an environmental emergency scenario designated under s. 4(2)(f), which may explain why there is no information meeting the s. 4(2)(k) requirements; however, since its existence, or lack thereof is not referenced, it's impossible to know if this is an oversight or not.</p>	Section 4.8 has been updated to include the Worst-Case Scenario, the Alternate Worst-Case Scenario and an Alternate Scenario.
		4.(2)	(l) a description of the measures that will be taken by a responsible person or by a responsible person and local authorities, acting jointly, to, in the event that an environmental emergency involving the release of a substance occurs, communicate with the members of the public who may be adversely affected to provide them, during and after its occurrence, with information and guidance concerning the actions that could be	<p><i>Section 2.2.8</i></p> <p>- I really liked the information in this subsection, but there was no info. about how the communication will happen.</p> <p>- There is no description of the measures to be taken - i.e., how communication would occur, what info. would be relayed.</p>	Section 2.3.8 has been updated to include additional details around communication methods.

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			<p>taken by them to reduce the potential harm to the environment and danger to human life or health, including an explanation of how those actions may help to reduce the harm or danger;</p> <p>Is there a description of how the public will be notified as soon as possible of an emergency situation and by what method (siren, automated phone message, media release, police/fire services, etc); Is there a description of how the public will receive communications during and after an environmental emergency? Have members of the public been informed of what to do in the event of an emergency, i.e., shelter in place; wait for instructions by local authorities, etc;</p>	<p>- The potentially affected members of the public were not identified in this plan, which may be the cause of this omission in this paragraph.</p> <p><i>Section 3.3</i></p> <p>- There is no description of the measures that will be taken, only that the Mine General Manager will work with the Communications Delegate to provide notification to the public during and after the event.</p> <p>- However, this is the only place in this document that refers to members of the public and their vicinity to the mine (closest community is located >120 km away).</p>	Product Specific Spill Response Plans are detailed in Appendix 1.
		4.(2)	<p>(m) the position title of the person who will communicate with the members of the public referred to in paragraphs(k)&(l);</p> <p>Position title of the person who will communicate with the members of the public. <i>Section 2.2.8</i></p>		Section 2.3.8 has been updated
		4.(2)	<p>(n) a description of the consultations that a responsible person had with local authorities, if any, with respect to the measures referred to in paragraph (k) and (l); and</p> <p>Local authorities are not required to participate in the plan development or simulation exercises, although it is strongly encouraged by ECCC.</p>	The comments in <i>Appendix 4</i> do not relate to the communication provisions in paragraphs s. 4(2)(k) and s. 4(2)(k).	No update required
		4.(2)	<p>(o) a plan of the facility showing the location of any substances in relation to the physical features of the facility.</p> <p>Plan/map of the facility depicting the location of the E2 substances at the facility.</p>	<p><i>Plate A.3</i> is the only photograph in which certain chemicals were identified to be in a specific building.</p> <p>- Are the tables and the photographs meant to be used in conjunction with each other? The storage locations are indicated by red circles, but they are not labelled. Emergency responders would not know which chemicals were stored in specific buildings</p>	The modules have been updated with labels for all storage locations.

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		5	<p>Did the responsible person submit a Schedule 3 Notice: Preparation of Plan within 6 months of meeting or exceeding BOTH the substance quantity and container capacity thresholds OR only the quantity threshold for a substance that is not in a container system</p> <p>A SCH3 Notice must be submitted via the SWIM database within 6 months of meeting the threshold for quantity (when not contained) or quantity & container capacity of an E2 substance (when contained).</p>	Schedule 3 was submitted on June 23, 2020, which was later than the Feb. 24, 2020 reporting deadline.	Agnico will meet all regulatory deadlines going forward.
		6	<p>Did the responsible person bring the plan into effect within 12 months of meeting/exceeding BOTH the substance quantity and container capacity thresholds OR only the quantity threshold for a substance that is not in a container system AND submit the Schedule 4 Notice: Bringing Into Effect of an E2 Plan</p> <p>A SCH4 Notice must be submitted via the SWIM database within 12 months of meeting the threshold for quantity or quantity & container capacity of an E2 substance. This requirement is to ensure readiness to respond in the event of an emergency, which means that any prevention measures and preparedness (except exercises, which are due in following year) have been implemented.</p> <p>Recommended approach to assess the implementation of the plan:</p> <p>4 (2) (h): Interview the people involved in emergency management and ensure that each one named is aware of their responsibility;</p> <p>4 (2) (i): Ensure that the training has been taken or ask for the date on which it will take place.</p>	According to Schedule 4, the E2 Plan was brought into effect on March 31, 2020; Schedule 4 was submitted on June 23, 2020	No update required.

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			<p>4 (2) (j): Ensure that the emergency response equipment referred to in paragraph g) is at the right location and usable.</p> <p>4 (2) (k): Ask specific questions about the authorities that will be contacted and by what means.</p> <p>Enforcement received a legal opinion regarding this section. Consult with enforcement leads/programs and potentially legal services if required regarding enforceability.</p>		
		7.(1)	<p>(a) Was an Annual Simulation exercise conducted within one year of the plan being brought into effect and annually thereafter (excluding the year of the full-scale exercise)?</p> <p>Did the exercise simulate a response to an environmental emergency identified according to 4(2)(d) that involved the release of one Schedule 1 substance from EACH of the hazard categories (A,C,E,F,I,O) present at the facility?</p> <p>The Annual Simulation is administrative in nature; Examples to fulfill requirements include Drills, Table Top Exercises, Functional Exercises</p> <p>Notices are not required for the annual simulations but records must be kept at the facility for 7 yrs (s.21) starting on the day on which they are prepared.</p>		The annual simulation exercise was conducted on March 28, 2022. Records are stored on internal Agnico servers.
		7.(1)	<p>(b) Was a Full-Scale Simulation exercise completed within 5 years of the E2 plan being brought into effect and every 5 years thereafter?</p> <p>Was a SCH 5 Notice: Full-Scale Exercise of E2 Plan Conducted submitted following the completion</p>		The full scale simulation exercise will be completed within the regulated time frame.

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			<p>of the full-scale exercise and within 5 years of the plan being brought into effect, and every 5 years thereafter?</p> <p>The full-scale simulation is an action-based exercise requiring the deployment of personnel, resources and equipment; only one SCH 1 substance at the facility is required to be part of the full-scale exercise and can be from any of the 6 hazard categories; full-scale exercise pertains to WCS or Alternate Scenarios identified in the plan.</p>		
		7.(2)	<p>With respect to the annual simulations, has the facility cycled through a different environmental emergency each year until all the environmental emergencies identified under the plan have been tested?</p> <p>Once the facility has cycled through all the possible environmental emergencies identified under the plan, the expectation is for them to repeat the cycle again and again and so on. A different substance from each hazard category needs to be the subject of the annual simulation exercise.</p>		Agnico will comply with the requirements of the annual simulations.
		7.(3)	The annual simulation is not required during the year of the full-scale exercise.		No update required.
		8	<p>Was a record prepared after each simulation exercise (annual and full-scale) outlining the date, summary of activity and result of the exercise?</p> <p>Annual simulation records must be kept at the facility for a period of 7 years and available for inspection upon request.</p>	Annual simulation records must be kept at the facility for a period of 7 years and available for inspection upon request.	Agnico receives a record of the annual simulation exercise from the consultant conducting the drill.
		9	Was a SCH 5 Notice: Full-Scale Exercise Conducted submitted for the full-scale exercise <u>within</u>	A Schedule 5 has not been submitted to the E2 database, but the reporting deadline for this facility is	Agnico will submit Schedule 5 by the regulatory deadline.

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			<p>5 years of the plan being brought into effect and every 5 years thereafter?</p> <p>The SCH 5 Notice must be submitted via the SWIM database within 5 years of the implementation of the plan and every 5 years thereafter (s.14)</p> <p>The full-scale simulation records must be kept at the facility for a period of 7 years.</p>	March 31, 2025 (within 5 years after the implementation of the E2 Plan).	
		10	<p>Was the E2 plan reviewed and updated (if required) once per year and did they keep a record of the date of review with the plan as required?</p> <p>Records of plan updates must be kept at the facility for a period of 7 years.</p>	According to this document, it was published in March 2021. There is no review or amendment page included in this document, so either it is missing or this is the original version of the E2 Plan.	The Hope Bay Spill Contingency Plan is the E2 Plan. It is reviewed and updated annually. The plan includes a revision section to keep track of annual changes.
		11	<p>Is the plan readily available at the facility where the substance is located AND is the plan readily available to those individuals who are to carry out the plan? Is the plan readily accessible in the event of an emergency?</p> <p>Things to consider: Was the plan provided to local authorities (eg. the fire dept.)? Is the plan accessible via a company wide network system? Is there a hardcopy of the plan located at the facility in the event that it cannot be accessed via a network system, i.e. in a lockbox located near the entrance to the property?</p>		The Spill Contingency Plan is located within yhr Intelex application readily available to all staff along with a copy in the main hallway
		15	<p>Has the total quantity of the E2 substance located at the facility become less than the threshold amount for a period of one year or more?</p> <p>Has the regulated container capacity been below the E2 threshold quantity for a period of one year or more?</p>	A schedule 6 has not been submitted in the E2 database.	A change in circumstance (Schedule 6) has not occurred at Hope Bay.

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			<p>If yes to either situation, a SCH 6 Notice: Change in Quantity or Capacity must be submitted via the SWIM database no later than <u>60 days</u> after the one year time period has expired;</p> <p>Situational Examples: they stop storing the E2 substance at the facility or they reduce the capacity of the storage container system to below the E2 threshold quantity.</p>		
		16	<p>Has operations at the facility stopped for a period of <u>more than one year</u> for any purpose other than maintenance?</p> <p>If yes, a SCH 7 Notice: Cessation of Operations must be submitted via the SWIM database at least <u>30 days</u> before operations cease or as soon as feasible in the case of extraordinary circumstances i.e. fire, major accident, natural disaster, etc.</p>		The facility has been placed in Care & Maintenance since February 2022 but does not meet the requirement to submit a schedule 7.
		17	<p>Has there been a transfer of ownership at the facility?</p> <p>If yes, a SCH 7 Notice: Transfer of Ownership must be submitted via the SWIM database on or <u>before the date of transfer</u></p> <p>An amended Schedule 2 was submitted on June 8, 2021 in order to change the address and contact information for the Facility and Head Office subsequent to Agnico Eagle Mines Ltd. becoming the new parent company of TMAC Resources Inc. A Schedule 7 was not submitted.</p>		No update required
		18	<p>Has there been any release of an E2 substance at the facility?</p> <p>If yes, was verbal and/or written notification provided and to whom was it provided?</p> <p>For the purposes of these Regulations, paragraph</p>		There has not been a release of an E2 regulated substance at the facility as per CEPA 201(1)(a).

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			<p>201(1)(a) of CEPA relating to verbal and written notification of an environmental emergency, only applies to an environmental emergency involving the release or anticipated release of an E2 substance, in any quantity, that</p> <ul style="list-style-type: none">• has or may have immediate or long-term harmful effect on the environment;• constitutes or may constitute a danger to the environment; OR• constitutes or may constitute a danger in Canada to human life/health. <p>When assessing reported release incidents, EOs should consider the following criteria for the provision of the written report:</p> <p>1) Accidental release of a SCH 1 substance (in the threshold concentration) in an unplanned or uncontrolled manner; and the</p> <p>2) Release resulted or may result in-impacts or the potential for consequences exist, examples include: impact to water and air; impact to habitat and wildlife i.e., migratory bird staging area or fish habitat; and/or</p> <p>3) Release results or may result in a site evacuation or shelter in-place response at the facility or outside the facility; and/or</p> <p>4) Release resulted in an injury on or off-site;</p> <p>The Written Report must be provided to the Regional Director, Enforcement Branch in the region that the environmental emergency occurs through the E2 Regulations reporting application accessible through SWIM. This written report must be submitted as soon as is reasonably possible after an incident.</p>		

Version	Reviewer	Comment #	Comment	Recommendation	Response
		19	<p>Was all the information submitted under a Notice or any written report accompanied by a signed certification stating that the information is accurate?</p> <p>Submissions online require a mandatory online certification. If the information is submitted on paper (must justify why they could not use electronic submission), then the following applies: If certification is provided by an authorized representative, they must provide their name, telephone number and email address.</p>		No update necessary



HOPE BAY SPILL CONTINGENCY PLAN

HOPE BAY, NUNAVUT

Appendix 5: E2 and MDMER Cross-reference Tables

E2 Regulations Cross-Reference Table

Environmental Emergency Regulations, 2019: SOR/2019-15
Cross-reference Table Hope Bay Project Facility, E2 ID# 2-4032, E2 Substance Diesel Fuel

EER Reference	Information required	Location of information in this emergency plan
4 (2) (a)	a description of the properties and characteristics of the substance and the maximum expected quantity of the substance at the facility	Maximum expected quantity – Hope Bay Spill Contingency Plan Module A Section A2, Module B Section B2, Module C Section C2 and Module D Section D2 Substance properties – Appendix 1
4 (2) (b)	a description of the commercial manufacturing, processing or other activity involving the substance that takes place at the facility	Hope Bay Spill Contingency Plan Appendix 1
4 (2) (c)	a description of the facility and of the area surrounding the facility that may be affected by an environmental emergency referred to in paragraph (d), including any hospitals, schools, residential, commercial or industrial buildings and any highways, public transit infrastructure, parks, forests, wildlife habitats, water sources or water bodies;	Hope Bay Spill Contingency Plan Section 1.5, Module A, Appendix 1, Appendix 3
4 (2) (d)	an identification of any environmental emergency that could reasonably be expected to occur at the facility and that would likely cause harm to the environment or constitute a danger to human life or health, including the environmental emergency referred to in paragraph (e) and if applicable, the environmental emergency that is more likely to occur than the environmental emergency referred to in paragraph (e) and that would have the longest impact distance outside the boundary of the facility	Hope Bay Spill Contingency Plan Section 4.8
4 (2) (e) (i)	an identification of the harm to the environment or danger to human life or health that would likely result from an environmental emergency involving the release of the maximum quantity of the substance that could be contained in the container system that has the largest maximum capacity, if a quantity of the substance is in a container system, and	Hope Bay Spill Contingency Plan Section 4.8
4 (2) (e) (ii)	an identification of the harm to the environment or danger to human life or health that would likely result from an environmental emergency involving the release of the maximum expected quantity of the substance that will not be in a container system, if a quantity of the substance is not in a container system	Hope Bay Spill Contingency Plan Section 4.8, Appendix 1
4 (2) (f)	an identification of the harm of the environment or danger to human life or health that would likely result from the environmental emergency identified under paragraph (d), if any, that is more likely to occur than the environmental emergency referred to in paragraph (e) and would have the longest impact distance outside the boundary of the facility;	Hope Bay Spill Contingency Plan Section 4, Appendix 1
4 (2) (g)	a description of the measures to be taken to prevent and prepare for the environmental emergencies identified under paragraph (d) and the measures that will be taken to respond to and recover from such emergencies if they were to occur	Hope Bay Spill Contingency Plan Section 2, Section 3.4 and Section 3.5, Appendix 1
4 (2) (h)	a list of the position titles of the persons who will make decisions and take a leadership role in the event of an environmental emergency and a description of their roles and responsibilities	Hope Bay Spill Contingency Plan Section 2.3
4 (2) (i)	a list of the environmental emergency training that has been or will be provided to prepare personnel at the facility who will respond in the event that an environmental emergency identified under paragraph (d) occurs	Hope Bay Spill Contingency Plan Section 5
4 (2) (j)	a list of the emergency response equipment that is necessary for the measures described in paragraph (g) and the equipment's location	Hope Bay Spill Contingency Plan Appendix 2, Equipment locations shown in Module A Plate A.1 to A.4, Module B Plate B.1 to B.2, Module C Plate C.1 to C.4, Module D Plate D.1 to D.3
4 (2) (k) (i)	a description of the measures that will be taken by a responsible person or by a responsible person and local authorities, acting jointly, to communicate with the members of the public who may be adversely affected by the environmental emergency referred to in paragraph (f) to inform them, before the environmental emergency occurs, of the possibility that the environmental emergency could occur	Hope Bay Spill Contingency Plan Section 2.2.8

EER Reference	Information required	Location of information in this emergency plan
4 (2) (k) (ii)	a description of the measures that will be taken by a responsible person or by a responsible person and local authorities, acting jointly, to communicate with the members of the public who may be adversely affected by the environmental emergency referred to in paragraph (f) to inform them, before the environmental emergency occurs, of the potential effects of the environmental emergency on the environment and on human life or health, taking into account the factors referred to in paragraphs (a) to (c), and	Hope Bay Spill Contingency Plan Section 3.3
4 (2) (k) (iii)	a description of the measures that will be taken by a responsible person or by a responsible person and local authorities, acting jointly, to communicate with the members of the public who may be adversely affected by the environmental emergency referred to in paragraph (f) to inform them, before the environmental emergency occurs, of the measures that will be taken by the responsible person to protect the environment and human life or health, and the means by which the responsible person will communicate with them, in the event that the environmental emergency occurs;	Hope Bay Spill Contingency Plan Section 1.5 and Section 3.3
4 (2) (l)	a description of the measures that will be taken by a responsible person or by a responsible person and local authorities, acting jointly, to, in the event that an environmental emergency involving the release of a substance occurs, communicate with the members of the public who may be adversely affected to provide them, during and after its occurrence, with information and guidance concerning the actions that could be taken by them to reduce the potential harm to the environment and danger to human life or health, including an explanation of how those actions may help to reduce the harm or danger;	Hope Bay Spill Contingency Plan Section 1.5 and Section 3.3
4 (2) (m)	the position title of the person who will communicate with the members of the public referred to in paragraphs (k) and (l);	Hope Bay Spill Contingency Plan Section 3.3
4 (2) (n)	a description of the consultations that a responsible person had with local authorities, if any, with respect to the measures referred to in paragraph (k) and (l); and	Hope Bay Spill Contingency Plan Appendix 4
4 (2) (o)	a plan of the facility showing the locations of any substances in relation to the physical features of the facility	Hope Bay Spill Contingency Plan Module A Plate A.1 to A.4, Module B Plate B.1 to B.2, Module C Plate C.1 to C.4, Module D Plate D.1 to D.3

MDMER Cross-Reference Table

MDMER Cross-reference table for section 30(1) to 30(5)
Hope Bay Project Facility, FDP RBD-1

MDMER Reference	Information required	Location of information in this emergency plan
s. 30(1)	The owner or operator of a mine shall prepare an emergency response plan that describes the measures to be taken in respect of a deleterious substance within the meaning of subsection 34(1) of the Act to prevent any unauthorized deposit of such a substance or to mitigate the effects of such a deposit.	Hope Bay Spill Contingency Plan
s. 30(2)	The emergency response plan shall include the following elements:	
s. 30(2)(a)	the identification of any unauthorized deposit that can reasonably be expected to occur at the mine and that can reasonably be expected to result in damage or danger to fish habitat or fish or the use by man of fish, and the identification of the damage or danger;	Hope Bay Spill Contingency Plan Section 4
s. 30(2)(b)	a description of the measures to be used to prevent, prepare for, respond to and recover from a deposit identified under paragraph (a);	Hope Bay Spill Contingency Plan Section 2, Section 4, Module A Section A5
s. 30(2)(c)	a list of the individuals who are to implement the plan in the event of an unauthorized deposit, and a description of their roles and responsibilities;	Hope Bay Spill Contingency Plan Section 2
s. 30(2)(d)	the identification of the emergency response training required for each of the individuals listed under paragraph (c);	Hope Bay Spill Contingency Plan Section 5
s. 30(2)(e)	a list of the emergency response equipment included as part of the plan, and the equipment's location; and	Hope Bay Spill Contingency Plan Appendix 2. Equipment locations shown in Modules A through D.
s. 30(2)(f)	alerting and notification procedures including the measures to be taken to notify members of the public who may be adversely affected by a deposit identified under paragraph (a).	Hope Bay Spill Contingency Plan Section 3.3
s. 30(3)	The owner or operator shall complete the emergency response plan and have it available for inspection no later than 60 days after the mine becomes subject to this section.	Hope Bay Spill Contingency Plan
s. 30(4)	The owner or operator shall update and test the emergency response plan at least once each year to ensure that the plan continues to meet the requirements of subsection (2).	Hope Bay Spill Contingency Plan Section 5
s. 30(4.1)	The owner or operator of a mine shall, each time the emergency response plan is tested, record the following information and keep the record for at least five years: (a) a summary of the test (b) the test results; and any modifications that are made to the plan as a consequence of the test.	Hope Bay Spill Contingency Plan Section 5
s. 30(4.2)	The owner or operator of a mine shall ensure that a copy of the most recent version of the emergency response plan is kept at the mine in a location that is readily available to the individuals who are responsible for implementing the plan.	Hope Bay Spill Contingency Plan Available on Public server, posted in main camp hallway, copy maintained in main conference room (assembly point for Incident Command Group) and Geo-Hub conference room (alternate assembly point)
s. 30(5)	If a mine has not been subject to the requirements of this section for more than one year, a new emergency response plan shall be prepared and completed no later than 60 days after the day on which the mine again becomes subject to this section.	NA