

APPENDIX 29-16. SPILL CONTINGENCY PLAN



AGNICO EAGLE

MELIADINE GOLD MINE

Shipping Management Plan

MARCH 2025

VERSION 10

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DOCUMENT CONTROL

Version	Date	Section	Page	Revision	Author
1	December 2012			First draft of the Shipping Management Plan	John Witteman, Env. Consultant, AEM
2	March 2013			DEIS re-submission; rebranding	
3	April 2014	1.1	1	Anticipated increased shipping traffic	John Witteman, Env. Consultant, AEM
		1.2	4	Updated Figure 1-1	
		3	10-11	Added details on AWPPA and regs. and Shipping Safety Control Zone	
		4	14	Mention of marine birds and ship track data	
		4.2	16	Distance of release from Itivia Harbour Spill vs marine wildlife	
4	January 2016	1.1	1	Decrease in shipping traffic	Phil Rouget, Golder Associates Ltd.
		1.3.3	6	Added details for cyanide	
		2.3	7	Update spill support	
		2.4	8	Added details to SOPEP	
		4.1	13-14	Reference to Spill Risk	
		4.2	14-15	Assessment	
				Updated mitigation and reference to MEMP and MMSO program in accordance with Project Certificate conditions.	
		4.3	15-16	Updated monitoring activities and reference to MEMP and MMSO program.	
		9.2	23	Removed last paragraph	
		10	24	Update to safety	
		A-B		Added Revised Marine Baseline Assessment	
		A-D		Added Marine Environmental Management Plan (MEMP)	
		A-E		Added Revised Spill Risk Assessment	
5	August 2016	1.3.3	6	Up to date Safety Bulletin in relation to vessels	Katelyn Zottenberg, Golder Associates Ltd.
				Added that ammonium nitrate is listed under schedule 1 of the Environmental Emergency Regulations.	
		Table 3-1	12	Update to Navigation Protection Act.	

		4.2	15	<p>Added Section 36(3) of the <i>Fisheries Act</i>.</p> <p>Updated wording “Subject to safe navigation...”</p> <p>Footnote added to include how vessel wake was assessed in the FEIS.</p> <p>Updated to wording around marine mammal mitigation. (changed to 500 m buffer zones).</p>	
		Appendix C	2.2.1.2	<p>Added Government of Nunavut as lead management responsibility for polar bears.</p>	
		Appendix C	Table D-4	<p>Changed wording regarding the handling of birds during a spill.</p>	
		Appendix C Appendix D Figure D3	1.0	<p>Updating wording to state the intent of the MMSO program.</p> <p>Revised</p>	
6	February 2017	Appendix C	2.1.3	<p>Updated to include more detailed protocols for marine mammal and seabird surveys/observations (specifically the ECSAS protocols for seabirds as request by ECCC)</p>	Katelyn Zottenberg, Golder Associates Ltd.
		Figure 1-1 Executive Summary Sections 1.0, 4.0, 11, 12 and 13	4 vi 1, 14, 26, 30, 28	<p>Updated text to reflect comments received from dry cargo shipping contractor (Desgagnes Transarctic). Key edits related to shipping of dry cargo shipping operations included (description of lightering operations, potential anchor location (dry cargo vessels only), number of vessel, and potential nighttime operations).</p>	
7	March 2017	Throughout the Shipping Management Plan		<p>Minor wording updates to the text to reflect comments received from dry cargo shipping contractor (Desgagnes Transarctic).</p>	Katelyn Zottenberg, Golder Associates Ltd.
8	March 2019	Throughout the Shipping Management Plan		<p>Updated wording to reflect current management status.</p>	Dan Gorton
		Section 4.3	17	<p>Updated to address NIRB condition 127.</p>	
9	April 2022	All	All	General Update	Environment Department

				Revised to add references to the <i>Arctic Shipping Safety and Pollution Prevention Regulations (ASSPPR)</i>
				Updated Oil Pollution Emergency Plan (OPEP) for Oil Pollution Emergency and Oil Pollution Prevention Plan (OPEP/OPPP)
10	March 2025	All	All	Updated Ballast Water Management
		All	All	Organized content to provide a more logical and concise presentation of the information.
		All	All	Minor editorial changes.
				Updated figures
		3	Table 3.1	Updated regulations matrix

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EXECUTIVE SUMMARY

The Shipping Management Plan was developed in accordance with federal legislation, notably the *Canada Shipping Act (CSA)* and its *Arctic Shipping Safety and Pollution Prevention Regulations (ASSPPR)* and *Ballast Water Regulations*, and the *Arctic Waters Pollution Prevention Act* and associated regulations. It also recognizes the international conventions and protocols signed by Canada. Agnico Eagle provides the necessary human, material, and financial resources to meet or exceed the legal requirements attributable to the company that arise from shipping-related activities. Shipping contractors are encouraged to do the same. Agnico Eagle and its shipping contractors carry third party liability insurance.

All shipping is carried out during the open water season and follows the recommended shipping routes that are presently in use for the annual sea lift to Rankin Inlet and other Kivalliq communities. Ice breaking is not conducted by Agnico Eagle shipping providers to extend the shipping season.

Upon arrival at Rankin Inlet, all vessels anchor either outside or inside Melvin Bay. Dry cargo is lightered onto barges for transport through the access passage using tugs. The barges then transport the dry cargo by barge to the existing offloading area, which is shared with Hamlet of Rankin Inlet during the annual sealift. Large fuel tankers anchor outside of Melvin Bay and ship-to-ship fuel transfer to smaller tankers is the first step in moving the fuel to the Itivia Harbour fuel tank farm. The small tankers navigate the access passage and anchors near the fuel tank farm at Itivia Harbour where ship-to-shore floating hoses transfer the fuel to the tank farm.

It is Agnico Eagle's intent to prioritize the transport of hazardous materials, including explosives and explosive related materials, to the Meliadine site to avoid having such cargo remain in storage at the Itivia Harbour laydown yard.

Several management plans associated with shipping-related activities are in place and include the Spill Contingency Plan, Risk Management and Emergency Response Plan, and the Oil Pollution Emergency Plan and Oil Pollution and Prevention Plan (OPEP/OPPP). Risk and hazard assessments of shore-based marine response activities are undertaken as part of training the Emergency Response Team (ERT).

Agnico Eagle personnel and the Master of the ship are responsible for security matters for shipping-related activities. While it is anticipated that the Royal Canadian Mounted Police (RCMP) will not be involved in security matters, all criminal activities or matters of a grave nature (e.g., smuggling) will be referred to the RCMP in Rankin Inlet. Mitigation measures to prevent smuggling are in place. Mitigation measures are also employed to minimize potential negative socio-economic effects from shipping-related activities; positive socio-economic impacts are anticipated.

Navigation through the Labrador Sea, Hudson Strait, and Hudson Bay is not challenging during the open water season. No major hazards were identified along the shipping and tug-barge routes under

normal conditions. Shipping can be carried out without pilotage as the shipping routes entail minor hazards not significantly reducing ship safety.

All ships, tugs and tankers use electronic charts and other electronic navigational aids to provide safety in transit, reduce the risk of accidents, and remain within the recommended shipping routes. Traffic through the access passage is coordinated to avoid shipping conflicts, and speed is reduced to ensure safety. To maximize the safety of the persons travelling in boats near the Rankin Inlet access passage, Agnico Eagle informs the community of the shipping activities, promotes actions that will allow the ship and the small boats to see one another.

On board waste management (e.g., solid and hazardous wastes, sewage) is the responsibility of shipping contractors. Agnico Eagle requires the shipping contractors to conform to the *Ballast Water Regulations*, which are intended to reduce the risk of invasive and non-indigenous species from being inadvertently introduced in the region as a result of shipping activities. Agnico Eagle requires that shipping contractors and their vessels adhere to applicable environmental regulations and have a superior safety record.

Care is taken to avoid disturbing marine mammals within the shipping routes as much as possible. As part of shipping companies' standard operating procedures, a designated member of the ships crew monitors the shipping routes for marine mammals from the Hudson Strait to Rankin Inlet. Additionally, mitigation measures may comprise, if safe to do so, slowing the ship and stay at distance from marine mammals.

Vessels contracted by Agnico Eagle are required to have an approved Shipboard Oil Pollution Emergency Plan (SOPEP). If an environmental emergency occurs along the shipping routes, the SOPEP is activated. Close coordination is maintained with Agnico Eagle's shore-based supervisors who can activate Agnico Eagle Emergency Response Plan and OPEP/OPPP to provide assistance to a vessel. Accidents or malfunctions during transit will be reported to Transport Canada, in accordance with provisions under the *Canada Shipping Act (CSA 2001)* and subsequent regulations. Spills would also be reported to the Environmental Emergencies 24-Hour Report Line and, if necessary, advice would be requested from the Regional Environmental Emergency Team (REET). Assistance could also be sought from nearby ships and the Canadian Coast Guard (CCG).

ACRONYMS

Agnico Eagle	Agnico Eagle Mines Limited
BWMP	Ballast Water Management Plan
CCG	Canadian Coast Guard
CSA	Canada Shipping Act
ECCC	Environment and Climate Change Canada
EIA	Environmental Impact Assessment
ERP	Emergency Response Plan
ERT	Emergency Response Team
IMO	International Marine Organization
IMDG	International Maritime Dangerous Goods
MARPOL	International Convention for the Prevention of Pollution from Ships
MEMP	Marine Environmental Management Plan
MMSO	Marine Mammal and Seabird Observer
OHF	Oil Handling Facility
OPEP/OPPP	Oil Pollution Emergency Plan and Oil Pollution Prevention Plan
RCMP	Royal Canadian Mounted Police
REET	Regional Environmental Emergencies Team
SOLAS	International Convention for the Safety of Life at Sea
SOPEP	Shipboard Oil Pollution Emergency Plan
TEU	Twenty-foot Equivalent Unit, a measure used for capacity in container transportation (sea can)
TK	Traditional Knowledge
WSSC	Workers' Safety Compensation Commission

SECTION 1 • INTRODUCTION

Agnico Eagle Mines Limited (Agnico Eagle) gained extensive experience in shipping fuel and dry cargo to the Meadowbank Gold Mine (Meadowbank) since its construction began in 2008. Similar shipping, lightering, and ship-to-shore fuel transfer procedures developed and in use for Meadowbank are employed for the Meliadine Gold Mine.

Dry cargo barges undergo lightering operations at the existing gravel ramp used by the hamlet during the annual sealift in Itivia Harbour¹. A tank farm, sea can storage, and a laydown yard are located at Itivia Harbour (Figure 1-1).

1.1 Shipping Needs

A total of approximately 48,000 metric tonnes of dry cargo (equipment and supplies) and 64 million litres of diesel fuel is required annually for the operations of the Meliadine Mine.² To meet these needs, approximately 8 to 12 vessels deliver dry goods and 6 tankers (including mother ships and vessels) deliver diesel fuel annually.

All shipping is carried out during the open water season (typically from early July to late October) and follow the recommended shipping routes presently in use for the annual sea lift to Rankin Inlet and other Kivalliq communities. Ice breaking is not conducted by Agnico Eagle shipping providers to extend the shipping season.

The priorities in shipping dry cargo and fuel are:

- The protection of the crew and others in small boats that the ship may come across;
- The protection of the marine environment; and
- The preservation of the ship and its cargo.

Ships are not serviced in Rankin Inlet and arrive with enough fuel for the return voyage south.

The Meliadine Mine is anticipated to contribute to shipping in Hudson Strait and Hudson Bay by about 8 to 12 ships during operations. This represents an increase in ship traffic in Hudson Strait, Hudson Bay, and to Rankin Inlet, and extra care is required in regards to marine safety. This includes ensuring there is adequate spill response equipment on the ships and at the Itivia Harbour Oil Handling Facility (OHF).

¹ The current plan is to lighter cargo using the existing gravel ramp in Itivia Harbour. This ramp is also currently used by the Hamlet of Rankin Inlet during the annual sealift. The assessment of potential effects related to the use of this ramp are consistent with those discussed in Section 8.3.4 of the FEIS (e.g., propeller wash from nearshore Mine vessels berthing at the landing ramp may result in adverse effects to marine water quality with associated indirect effects on marine wildlife). The conclusions of the assessment remain the same.

² Based on 2024 available numbers

Spill response personnel need to have adequate training and equipment to effectively respond to a spill in the marine environment³.

1.2 Shipping Routes

The marine transport of dry cargo is comprised of four main segments, all within the recommended shipping routes:

- Bécancour, Québec on the St. Lawrence River, along the coast of Labrador to the Hudson Strait;
- Through Hudson Strait to Hudson Bay (see Appendix A showing the shipping routes);
- Across Hudson Bay to Marble Island, this being approximately 45 km offshore of Rankin Inlet; and
- From Marble Island to the barrier islands, through the islands to an anchoring point either inside or outside of Melvin Bay and Itivia Harbour. Access to anchoring locations inside Melvin Bay occurs through the access passage (Figure 1-1).

Dry cargo and transport barges are loaded onto ocean-going container ships in eastern ports, almost exclusively Bécancour, and delivered directly to Rankin Inlet⁴. The first vessels of the year normally arrive in Rankin Inlet in July. This first container ship includes two (2) transport barges to transport dry cargo to shore, and two (2) tugs.

Up to twelve (12) container ships arrive throughout the open water shipping season delivering dry cargo⁵. All ships, tugs and tankers follow the recommended shipping routes and are equipped with complete electronic navigation aids for navigation in restricted waters.

The port of departure for transporting fuel is different from that for dry cargo. The first leg of the voyage is from an east coast refinery along the coast of Labrador to the Hudson Strait with the remainder of the voyage being the same as for the ships carrying dry goods.

1.3 Lightering Procedures

1.3.1 Dry Cargo

Sea cans, large equipment, machinery, general cargo, and vehicles are lightered onto the transport barges for transport to shore using tugs and then lightered to shore using the existing gravel ramp at Itivia Harbour. During lightering operations, attention is directed to stabilizing the barges at the gravel ramp, with due consideration being given to the prevailing and expected wind, weather, and tide conditions.

³ OPEP/OPPP details spill response at the Itivia Harbour Oil Handling Facility.

⁴ Agnico Eagle's shipping routes within Nunavut are non-compulsory pilotage areas during the ice free shipping season.

⁵ To this point there are no alternative routes under consideration, however future routing may include Churchill to Rankin Inlet on occasion.

Most dry cargo is transported in Twenty-foot Equivalent Unit marine shipping containers on general cargo vessels fitted with cranes. Most materials arrive in sea cans, which are stacked in the Itivia Harbour laydown yard or moved immediately to site. The use of sea cans provides secondary protection against spills and facilitates efficient transfer from ship to ship and ship to shore.

The tug-barge used to ferry the dry cargo to shore is highly manoeuvrable and capable of transiting the access passage with its changing current patterns. Navigation proceeds at a slow speed in periods of low visibility. Traffic through the access passage is coordinated through communication between the tugs to avoid shipping conflicts and to ensure safety.



Figure 1 Itivia Harbour and Melvin Bay

Masters of tugs, large and small tankers, and dry cargo ships are responsible for the safe navigation of their vessels from the port of departure to Rankin Inlet. For tugs this also includes responsibility for the barge they are towing or pushing. When a barge is laid alongside a dry cargo vessel for lightering containers or equipment from the cargo ship to the barge, a loading supervisor on the ship takes charge of the barge. When a cargo barge is stabilized at the gravel ramp for lightering to shore, a shore supervisor takes charge of the cargo barge.

The shore crew then conducts a “roll-on/ roll-off” operation using wheel loaders equipped with forks, trucks, and trailers to unload the cargo from the barges. Cargo is stockpiled on the laydown area before being transported to the Meliadine Mine.

For the majority of the shipping season, outgoing cargo is loaded onto lightering barges and subsequent container ships for the return trip to southern ports. Outgoing cargo could include demobilized construction equipment, hazardous waste being sent to a certified waste management facility for treatment, or other waste / recycling for disposal in another provincial or territorial jurisdiction. No barges, fuel vessels, or tugs remain at Rankin Inlet over the winter; all return to southern ports.

1.3.2 Diesel Fuel

Large tankers delivering diesel fuel anchor in the same general location as the dry cargo vessels (Figure 1-1). Ship-to-ship transfer of fuel occurs at this location from the larger tanker to a smaller tanker that can navigate the access passage. The carrying capacity of the small tanker is typically 7,300 m³ to 10,500 m³. The small tankers anchor opposite Itivia Harbour⁶ and a floating hose of approximately 300-500 m is connected to a shore-based pipeline for fuel transfer to the tank farm. Contingency measures related to the transfer of fuel are described in the Oil Pollution Emergency Plan and Oil Pollution Prevention Plan (OPEP/OPPP).

1.3.3 Explosives and Hazardous Materials

Part of the dry cargo received each year is ammonium nitrate, which is used on site to manufacture explosives. Bulk ammonium nitrate is shipped and stored as prill, which is inert and does not require special handling during transit. The ammonium nitrate and other required raw materials and blasting related products arrive in sea cans and are stored in secure locations at the mine site. Further information related to transport of ammonium nitrate is provided in the Explosives Management Plan.

Agnico Eagle prioritizes the road transport of hazardous materials, including explosive-related materials, to the Meliadine site to avoid having this cargo remain at the Itivia Harbour laydown yard. Sensitive products such as boosters and caps are transported directly to the Meliadine Mine. However, in the event of a delay in their transit to the mine site, these products will be temporarily stored at Itivia Harbour according to applicable regulations which include locked storage and constant surveillance. All handling, transport, storage, manufacture, and use of explosives are subject to federal approval under the *Explosives Act* and the *Nunavut Mine Health and Safety Act*. In addition, the latest Ship Safety Bulletin issued by Transport Canada's Marine Safety Directorate is followed when loading and unloading explosives.

Sodium cyanide is used to optimize gold recovery from the ore at the Meliadine site. The product is transported, stored, handled, transferred and used in compliance with appropriate legislation and applicable Best Management Practices. Agnico Eagle is a signatory to the International Cyanide Management Code.

Hazardous waste is managed on a yearly basis; consequently there will be little to no accumulation of these wastes at the mine site during operations, subject to seasonal shipping considerations. Hazardous

⁶ The anchoring location will vary based on a number of factors such as tide, wind and draught of the small tanker.

waste that cannot be managed on site is appropriately packaged for transport in sea cans and sent via a dry cargo vessel to a certified hazardous waste management facility for treatment, recycling and/or disposal in another provincial or territorial jurisdiction following the Hazardous Materials Management Plan and Spill Contingency Plan. Agnico Eagle contracts shipping companies that are certified under the International Maritime Dangerous Goods code.

Itivia Harbour is presently connected to the hamlet by a municipal road and a private Bypass Road, which is used for the transport of all its dry cargo and fuel around the community. This includes ammonium nitrate, cyanide, and dangerous goods.

SECTION 2 • RELATED DOCUMENTS

The Shipping Management Plan covers the scope of shipping activities for the Meliadine Mine. It is part of the Environmental Management and Protection Plan.

Management and monitoring plans for the Meliadine Mine that provided input to the Shipping Management Plan include the following:

- Spill Contingency Plan;
- Risk Management and Emergency Response Plan;
- OPEP/OPPP;
- Shipboard Oil Pollution Emergency Plan (SOPEP; shipping companies); and
- Occupational Health and Safety Plan.

2.1 Spill Contingency Plan

The cornerstone of spill planning for Agnico Eagle is the Spill Contingency Plan covering spills on land, water and ice. The Spill Contingency Plan, coupled with the Risk Management and Emergency Response Plan, describes the processes to be followed when responding to a spill to the environment.

2.2 Risk Management and Emergency Response Plan

The Risk Management and Emergency Response Plan focuses on responding to emergencies in a timely and adequate manner. It commits Agnico Eagle to being prepared for and providing adequate resources - qualified personnel and equipment - to handle a wide variety of emergency situations.

Risk and hazard assessments of shore-based marine response activities are undertaken as part of training for Emergency Response Team (ERT).

2.3 Oil Pollution Emergency Plan and Oil Pollution and Prevention Plan (OPEP/OPPP)

The OPEP/OPPP complements the Spill Contingency Plan and provides contingency planning for the Oil Handling Facility (OHF) at Itivia Harbour.

The OPEP complies with the requirements for procedures, equipment, and resources as set out in the *Canada Shipping Act* (s.s. 660.2(4)) specific to the fuel handling facility, the bulk incoming transfer of fuel from ship-to-shore, and spill scenarios directly relating to this operation. Further, the OPEP/OPPP provides direction to Agnico Eagle personnel and/or contractors and to Agnico Eagle's ERT in emergency spill response situations. It also contributes in developing oil pollution scenarios, defining the roles and responsibilities of management and responders, and outlining the measures taken to prevent spills. The OPEP seeks to minimize potential health and safety hazards, environmental damage, and cleanup costs.

Spills resulting from ship-to-ship fuel transfer will be the responsibility of the ships contracted by Agnico Eagle and ship's Master. Agnico Eagle will provide assistance wherever possible in these instances.

2.4 Shipboard Oil Pollution Emergency Plan (SOPEP)

SOPEP contains all information and operational instructions as required by the International Marine Organization's (IMO) *"Guidelines for the Development of the Shipboard Marine Pollution Emergency Plan"*. Vessels contracted by Agnico Eagle are required to have an approved SOPEP. The preparation of the SOPEP is the responsibility of the shipping company and is maintained by the vessel's Master. However, close coordination is maintained with Agnico Eagle's shore-based Itivia Harbour supervisors who can activate the Emergency Response Plan (ERP) and OPEP to provide assistance to a vessel in the near-shore area. These two plans have close links to the SOPEP and, as required, include training exercises at regular intervals to ensure ship and shore can cooperate in response to spills of fuel or other hazardous product in the immediate vicinity of Itivia Harbour. SOPEP(s) are required to include how vessel contractor(s) maintain spill equipment and the frequency and framework for training vessel personnel in vessel-based spill response. This includes, but is not limited to:

- Spill equipment audits;
- Maintaining posted list of spill equipment;
- Requirements for spill response drills; and
- On-going training refreshers (e.g. annual renewals).

Accidents or malfunctions during transit will be reported to Transport Canada, in accordance with CSA 2001 and subsequent regulations. If the accident involves the loss of fuel or chemicals, the SOPEP would be activated and on-board spill response materials and equipment put to use. Spills would also be reported to the Government of Nunavut Spill Line and to the Environmental Emergencies 24-Hour Report Line and, if necessary, advice would be requested from the Regional Environmental Emergencies Team. Assistance could be sought from nearby ships and the Canadian Coast Guard (CCG). Spill response resources such as those maintained by the Canadian Coast Guard at select locations along the Kivalliq coast could be dispatched to the spill site. A sea can with spill response materials is maintained by the CCG in Rankin Inlet. Permission to use this material will have to be obtained from CCG before usage.

Outside help could be requested for major accidents such as accidental grounding/stranding of a vessel. The safety of the crew and responders as well as maintaining the integrity of the vessel is the first priority.

2.5 Occupational Health and Safety

All activities carried out by Agnico Eagle must consider the attendant risks and be carried out with safety first in mind. Agnico Eagle will conduct all activities in accordance with the Workers' Safety and Compensation Commission (WSCC) Occupational Health and Safety legislation.

SECTION 3 • APPLICABLE FEDERAL ACTS, REGULATIONS AND GUIDELINES

The Plan was prepared in accordance with federal legislation outlined in Table 3-1. Numerous regulations exist under the *Canada Shipping Act* and these can be found at www.tc.gc.ca and www.canada.ca. The regulations included here are most relevant to the environment and the Shipping Management Plan.

Table 1 Applicable Acts, Regulation and Guidelines

Acts	Regulations	Guidelines
Federal Legislation		
<i>Canada Shipping Act</i> , 2001 (S.C. 2001, c. 26) [An Oil Pollution Emergency Plan is required under the Act (168(1)d)]	<i>Arctic Shipping Safety and Pollution Prevention Regulations</i> (SOR/2017-286) <i>Response Organizations and Oil Handling Facilities Regulations</i> (SOR/95-405) <i>Environmental Response Regulations</i> (SOR/2019-252) <i>Ballast Water Regulations</i> (SOR/2021-120) <i>Vessel Pollution and Dangerous Chemicals Regulations</i> (SOR/2012-69)	Oil Handling Facilities Standards – TP12402 Environmental Prevention and Response National Preparedness Plan – TP13585 E Guidelines for Reporting Incidents Involving Dangerous Goods, Harmful Substances and/or Marine Pollutants – TP9834E 2009 Arctic Waters Oil Transfer Guidelines, 1997 - TP10783E Response Organizations Standards – TP 12401E 1995 Guide to Canada's Ballast Water Regulations (TP 13617E)
<i>Canadian Transportation Accident Investigation and Safety Board Act</i> (S.C. 1989, c. 3)	<i>Transportation Safety Board Regulations</i> (SOR/2014-37)	
<i>Marine Liability Act</i> (S.C. 2001, c. 6)	<i>Marine Liability and Information Return Regulations</i> (SOR/2016-307)	
<i>Arctic Waters Pollution Prevention Act</i> (R.S.C., 1985, c. A-12)	<i>Arctic Waters Pollution Prevention Regulations</i> (C.R.C., c. 354) <i>Arctic Shipping Safety and Pollution Prevention Regulations</i> (SOR/2017-286))	
<i>Transportation of Dangerous Goods Act</i> (1992, c.34)	<i>Transportation of Dangerous Goods Regulations</i> (SOR/2001-286)	
<i>Marine Transportation Security Act</i> (1994, C.40)	<i>Marine Transportation Security Regulations</i> (SOR/2004-144)	
<i>Safe Containers Convention Act</i> (R.S.C. 1985, c. S-1)		
<i>Oceans Act</i> (S.C. 1996, c. 31)		
<i>Canada Navigable Waters Act</i> (R.S.C. 1985 c. N-22)		
<i>Canada Water Act</i> (R.S.C., 1985 c.11)		

Acts	Regulations	Guidelines
<i>Fisheries Act</i> (R.S.C., 1985, c. F-14)	<i>Marine Mammal Regulations</i> (SOR/93-56) Prohibition of Depositing Deleterious Substances (Section 36[3])	
<i>Species at Risk Act</i> (S.C. 2002 c.29)		Species at Risk Policies
<i>Canadian Environmental Protection Act</i> (S.C., 1999 c.33)	<i>Environmental Emergency Regulations</i> (SOR/2003-307) <i>Cross-Border Movement of Hazardous Waste and Hazardous Recyclable Material Regulations</i> (SOR/2021-25) <i>Release and Environmental Emergency Notification Regulations</i> (SOR/2011-90) <i>Storage Tank Systems for Petroleum Products and Allied Petroleum Products Regulations</i> (SOR/2008-197)	

Table 3-2 lists international conventions and protocols signed by Canada. Canada is a signatory to IMO International Convention for the Prevention of Pollution from Ships (MARPOL) and International Convention for the Safety of Life at Sea (SOLAS). As such, Canadian maritime laws, regulations, and guidelines are a reflection of these international conventions, protocols, and agreements.

Table 2 International Conventions and Protocols Signed by Canada

Conventions	
International Convention for the Prevention of Pollution from Ships MARPOL 73/78 Annexes	
	Objective of Annex is to Prevent Pollution from:
Annex 1	Oil from ships
Annex 2	Noxious liquid substances carried in bulk
Annex 3	Harmful substances carried by ships in packaged form
Annex 4	Sewage treatment and disposal
Annex 5	Garbage handling
Annex 6	Air Pollution from Ships
International Maritime Dangerous Goods Code	
International Convention for the Safety of Life at Sea, 1974, SOLAS 74	

All vessels transiting through and operating in Canadian Arctic waters are required to comply with the Arctic Waters Pollution Prevention Act (AWPPA) including the Arctic Shipping Safety and Pollution

Prevention Regulations (ASSPPR), the *Canada Shipping Act 2001* (CSA 2001), the *Marine Transportation Security Act* (MTSA), the *Marine Transportation Security Regulations* (MTSR), the *Marine Liability Act* (MLA), and relevant associated regulations, including requirements for vessel construction and operations. The ASSPPR incorporates the International Code for Ships Operating in Polar Waters (Polar Code). While the provisions of the CSA 2001 apply in all Canadian waters, vessels in Arctic waters north of 60°N and out to the 200 nautical mile limit of Canada's Exclusive Economic Zone are also subject to the provisions of the AWPPA. The AWPPA prohibits discharges of oil, chemicals, garbage and other wastes generated onboard vessels. The *Marine Liability Act* sets out a regime that requires vessels operating in Canadian jurisdiction, including Arctic waters, to carry insurance to pay for damages from oil spills.

Two vessel control systems are established under the *Arctic Shipping Pollution Prevention Regulations* – the Zone/Date System and the Arctic Ice Regime Shipping System, which provide for operational safety by taking into account the vessel's capability to operate safely by virtue of ice strengthening, and the ice conditions it will encounter⁷.

Vessels servicing the Mine will be required to comply with the AWPPA and regulations while in a Shipping Safety Control Zone⁸.

Shipping contractors used by Agnico Eagle will abide by Canadian laws and regulations, applicable MARPOL 73/70 annexes, and international conventions. Inspections carried out by federal inspectors will ensure that all applicable statutes are followed. This could include the review of required plans, an audit of the emergency response equipment carried by the vessel, and the means to prevent the discharge of any oil, contaminated water, or other waste in Arctic waters. Agnico Eagle will notify Transport Canada if contracted shipping companies change.

The certified shipping companies contracted by Agnico Eagle must have an approved SOPEP, and verify that equipment and operating procedures are consistent with Canadian Marine laws, regulations and guidelines, and with IMO agreements to which Canada is a signatory.

Agnico Eagle will provide the necessary human, material, and financial resources to meet the legal requirements attributable to the company that arise from shipping. Shipping contractors will be encouraged to do the same.

⁷ Agnico Eagle will only ship dry goods and fuel during the open water season.

⁸ Rankin Inlet is in Zone 16.

SECTION 4 • MARINE WILDLIFE

Marine mammals have been the basis of the Inuit economy for over 4,000 years. They provide meat, fat, oil, leather, tools and materials for fabrication of arts and crafts. The top layers of the skin yield "muktuk", which is still highly prized as a food rich in vitamin C and high in energy content.

The effects of vessel traffic on marine mammals and birds were assessed in the Final Environmental Impact Statement (FEIS, Golder 2014). This included a Traditional Knowledge (TK) study of the marine environment between Chesterfield Inlet and Whale Cove. Together, scientific and traditional knowledge were used to develop mitigation measures to eliminate potential residual effects. The reaction of marine wildlife to vessel traffic was predicted to not be significant and, providing mitigation measures are employed, should not lead to any residual effects (Golder, 2014). Of greatest interest in the TK study was the distance vessels remained from Marble Island, this being an important area for whales, seals, marine birds, and, on occasion, walruses.

Agnico Eagle requires ships to be mindful of marine areas having a high density of marine mammals and birds and stay within the recommended shipping route, wherever possible⁹. Agnico Eagle monitors ship tracks via tracking data provided by a third-party vendor. Agnico Eagle requests that ships provide their ship track data for inclusion in annual reporting.

Agnico Eagle acquires archived AIS data from a third-party vendor that aggregates AIS data from satellite and shore-based stations. These data vary in frequency based on distance from shore, location of shore-based stations, and position of satellites. In some cases, AIS position data is available on an hourly or sub-hourly basis, but in other cases, position data can be 12 hours or more between fixes, due to the scarcity of satellites over remote areas such as the Arctic. The frequency of fixes is beyond the control of Agnico Eagle, as it is often due to a "gap" in satellite availability over the location of the vessel in the Arctic at the time. Interactions and Potential Effects

Vessel discharges (e.g., bilge water, ballast water), the sight of the vessels and their movement, vessel noise, as well as accidental spills and releases have the potential to interact with and disturb marine wildlife and affect life cycle activities. Possible interactions between shipping and marine wildlife can have the following potential effects:

- Marine mammals may retreat to the water should a vessel pass too close to an island or reef where they have pulled themselves out of the water;
- The foraging of marine birds and mammals may be interrupted when vessels approach and pass them in the shipping route;

⁹ Frobisher Bay and Button Islands key marine habitat sites overlap with the proposed shipping route at their southern and northern boundaries, respectively. This overlap is unavoidable as these two sites almost completely cover the entrance to Hudson Strait from the Atlantic Ocean (see Volume 8 for more details).

- The improper treatment and release of ballast water, grey water, and bilge water could alter the water quality;
- Marine mammal mortalities or injuries may result from collisions with the ship;
- Marine bird mortalities or injuries may result from collisions with the ship; and
- Fuel and/or oil spills could result in mortalities and, for marine birds, could lead to the loss of foraging and brood rearing habitat. A Spill Risk Assessment is provided in Appendix B.

4.1 Mitigation Measures

As part of shipping companies' standard operating procedures, ship crews monitor the shipping route for marine mammals from the Hudson Strait to Rankin Inlet. In addition, a vessel-based Marine Mammal and Seabird Observer (MMSO) program has been implemented during all routine shipping activities in the Regional Study Area (RSA). Protocol for the MMSO program is provided in the Marine Environmental Management Plan (MEMP) in Appendix C. The MEMP is based upon the most current marine mammal and seabird baseline information available for the area impacted by shipping for the Meliadine Mine, as documented in the revised marine baseline report (Appendix D). The ship's Master will be notified if there is a concern of the ship striking a marine mammal. Ship personnel will make a decision if actions are required to avoid a possible collision. This may include, if safe to do so, slowing the ship until the animal has travelled clear of the ship's course. Subject to safe navigation and emergency response, ship personnel shall take every precaution to avoid disturbance, harassment, injury or mortality of marine wildlife by implementation of the following mitigation measures:

- Adherence to monitoring requirements as outlined in the vessel-based MMSO program (Appendix C);
- Ships will, when possible, maintain a straight course and constant speed, and avoid erratic behaviour;
- Use a routing south of Coats Island as the primary shipping route;
- Marine mammals will be given right of way as safe navigation allows. Under no circumstances, other than in the case of an emergency, will ships approach within 300 m of a walrus or polar bear observed on sea ice;
- Ships will remain at least 2 km from Marble Island to avoid disturbing seals, walrus and marine birds that might be in the vicinity. This would significantly reduce interactions between marine wildlife and vessels, and also reduce the noise in near-shore areas;
- Ships will watch for marine mammals and avoid them as possible. If marine mammals are encountered, and remain in the area, effort will be made to avoid them by maintaining a 500 m buffer zone;
- Ships will maintain a minimum distance of 500 m from marine mammals engaged in feeding activities;
- Ships will avoid accelerating within 500 m of a marine mammals;

- If it is not possible for the ship to move away from or detour around a stationary marine mammal or group of marine mammals, the ship will reduce its speed and wait until the animal(s) move to the side and remain at least 500 m from the ship prior to resuming speed;
- When marine mammals appear to be trapped or disturbed by ship movements, the ship will implement appropriate measures to mitigate disturbance, including stoppage of movement until the marine mammal has moved away from the immediate area;
- The ship will not be operated in such a way as to separate an individual member(s) of a group of marine mammals from other members of the group. When weather conditions require, such as when visibility decreases, the ship will adjust its speed accordingly to avoid the likelihood of the ship striking an animal;
- Subject to ship and human safety considerations, the following mitigation techniques will be implemented to avoid impacts to migratory birds nests in low lying shoreline habitats:
 - Tug-barge or shipping vessels will travel at a slow speed (2 knots or less) when transiting through the near shore islands and reefs to reduce wake;
 - Tug-barge or shipping vessels would only travel through the near shore islands and reefs when there is good visibility or adjust their speed according to the conditions;
- Implementation of monitoring and reporting procedures for ship-bird collisions. Any incidents of bird mortalities associated with near-shore lighting and infrastructure, intertidal construction activities, and ship operations are to be recorded and reported to Environment Canada (Canadian Wildlife Services) as outlined in Appendix C;
- Ballast water will only be released as allowed under the relevant regulations and if there is no marine wildlife in the area; and
- Bilge water, grey water and sewage will be released as allowed under the relevant regulations in areas where no marine wildlife is present and at least 50 km from Itivia Harbour.

Spills from ships in transit could affect marine wildlife coming in contact with any petroleum product spilled. In the event of a spill, the ship personnel will discourage marine wildlife from coming in contact with the spilled material. The product most likely to be spilled would be diesel fuel, which floats on the water surface and has a high rate of evaporation. These occurrences are expected to be rare and the activation of the SOPEP in the unlikely event of a spill would significantly reduce their impact. Preventive and contingency measures already in place substantially reduce the risk to marine wildlife from spills.

Adaptive management will allow mitigation measures to be modified in response to new information arising from monitoring carried out by the vessel crews and from traditional knowledge. Appendix C summarizes how and when adaptive management will be implemented during shipping activities for the Meliadine Mine.

4.2 Monitoring and Reporting

Vessels contracted by Agnico Eagle will be required to collect incidental monitoring data during their voyage and to report it to Agnico Eagle. In addition, a vessel-based MMSO program will be implemented

during routine shipping activities in the RSA. This program will be executed by trained observers stationed on-board vessel(s). A proposed protocol for this program is provided in the MEMP in Appendix C.

The MMSO program includes protocols on data collection and reporting requirements. Agnico Eagle will share the data with Inuit organizations and/or government agencies for their information. If effects monitoring identifies potential for effects on marine mammal populations along the shipping route, Agnico Eagle will provide updates and identify adaptive management measures in consultation with the Kivalliq Inuit Association and the Hunters and Trappers Organizations of the Kivalliq communities. Agnico Eagle will continue to report the observations annually to the Nunavut Impact Review Board (NIRB).

SECTION 5 • SAFETY OF PERSONS USING SMALL BOATS IN THE SHIPPING ROUTE

The most likely areas where interactions may occur between vessels are:

1. Melvin Bay, particularly in the access passage;
2. Where the ship is transiting through the near shore islands and reefs; and
3. The area between Marble Island and the near shore islands.

Subject to ship and human safety considerations, mitigation measures to safeguard the safety of those in small boats will include the following:

- Agnico Eagle will consult with the community members mooring or beaching their boats in Melvin Bay on the shipping activities that can be expected over the ice free shipping season. Protocols will be developed to minimize the interaction between tug-barge or ship and small boats;
- Tugs-barges and ships will travel at a slow speed (2 knots or less) when transiting through the near shore islands and reefs to reduce the wake and not compromise the safety of people travelling in small boats along the shipping route;
- Tugs-barges or ships would only travel through the near shore islands and reefs when there is good visibility or adjust their speed according to the conditions. This would allow the ship and the small boats to be in visual contact;
- Tugs-barges or ships will restrict themselves to the recommended shipping route thereby not surprising any small boat travelling outside the shipping route;
- The ship will sound its horn if a small boat seems unaware of its presence.

SECTION 6 • IDENTIFIABLE THIRD PARTY LIABILITIES

Agnico Eagle and its shipping contractors will carry third party liability insurance. Identifiable third party liabilities related to shipping may include (but are not limited to):

- Hamlet of Rankin Inlet, in the event of spill in Melvin Bay that adversely impacts the marine environment;
- Hunters and trappers, should a ship or tanker run aground and adversely impact the marine environment by spilling fuel or other chemicals into the marine environment;
- Hunters and trappers, should a vessel collide with a large marine mammal such as a whale along a shipping route; and,
- Small boat owners, should a ship or tanker collide with a small boat in the shipping route.

Mitigations for possible third party liabilities are identified in Section 11 of this Plan (Hazard Identification Analysis of Marine Routes).

SECTION 7 • ON BOARD WASTE MANAGEMENT

The six (6) annexes of MARPOL promote the elimination of deliberate, negligent or accidental discharge of ship-source pollutants into the marine environment (see also Transport Canada 2009). The list of harmful ship-source discharges includes: oil, noxious liquid substances and dangerous chemicals, sewage, garbage and air pollution. Canadian laws and regulations mirror the MARPOL annexes and conventions.

Agnico Eagle will contract vessels that meet applicable environmental requirements in addition to being reliable and having a superior safety record.

7.1 Sewage

Vessels are to have an approved sewage treatment plant meeting Canadian standards. Holding tanks with the capacity for all grey and treated sewage while in port are expected to be part of the ship's infrastructure. Agnico Eagle will advise ships that disposal of waste water into the environment must follow relevant regulations and is to be avoided within 50 km of Rankin Inlet.

7.2 Solid Waste

Solid waste materials are to be incinerated on board. Modern incinerators operating at very high combustion temperatures are expected on all vessels. These will be capable of incinerating food and other domestic waste, residual oil separated from bilge water, waste oil, and sludge. Ash from incineration will be taken for treatment, recycling, and/or disposal in a certified waste management facility.

The design and operation of shipboard incinerators in Canada are specified under the IMO Marine Environmental Pollution Committee 76 (40), Annex V. Standard specifications for shipboard incinerators allow for the incineration of solid wastes approximating in composition to household waste and liquid wastes arising from the operation of the ship, e.g., domestic waste, cargo-associated waste, maintenance waste, operational waste, cargo residues, and fishing gear. Operating temperatures are similar to those for the incinerators at the Meliadine site, and flue gases are cooled rapidly to limit the *in vivo* formation of dioxins.

Tugs will remain on site for the duration of the shipping season. Their waste will be incinerated and the ash will be shipped to a certified waste management facility for treatment, recycling, and/or disposal.

Hazardous waste will be shipped to a certified waste management facility for treatment, recycling, and/or disposal.

SECTION 8 • BALLAST WATER MANAGEMENT

Ballast water is essential to control trim, list, draught, stability, and/or stresses on a vessel. The *Ballast Water Regulations* came into force on June 3, 2021, and are intended to outline proper management and treatment of ballast water to minimize the probability of introduction of harmful aquatic organisms and pathogens from vessels' ballast water while also protecting the safety of vessels. The Regulations apply to the management of any quantity of ballast water that may be released from a vessel.

The Regulations repeal the *Ballast Water Control and Management Regulations* and:

- (a) Apply to Canadian vessels everywhere and all vessels in waters under Canadian jurisdiction;
- (b) Impose requirements based on the vessel's length, its ballast water capacity, its date of construction, and its area of operation; and
- (c) Maintain foundational requirements from the former regulations that can still be applied to the amended regime, such as reporting requirements.

Vessels to which the Regulations apply are divided into four groups:

1. **International vessels:** Vessels that operate internationally will be required to be in compliance with the International Convention for the Control and Management of Ship's Ballast Water and Sediments (Convention) regime, which requires that vessels:

- Have on board and implement an approved vessel-specific Ballast Water Management Plan (BWMP);
- Be surveyed and carry a Ballast Water Management Certificate;
- Meet a performance standard that limits the number of organisms capable of reproducing in order to reduce the risk of aquatic species invasions (vessels are expected to use a Ballast Water Management System (BWMS) to meet the performance standard);
- Record ballast water operations and maintain a Ballast Water Record Book on board; and
- Be subject to inspections in ports or offshore terminals to ensure compliance.

These vessels will also be subject to some former provisions that remain relevant and are not part of the Convention regime:

- To flush otherwise-empty ballast tanks with open ocean water in order to reduce the risk posed by any residual ballast water and sediments;
- To exchange and flush ballast tanks in addition to meeting the performance standard when traveling to Canadian fresh waters (from outside of waters under Canadian jurisdiction, the Great Lakes and the high seas);
- To conduct any exchange or flushing operation in waters at least 2,000 metres deep, whenever possible; and

- to report on the provenance and management of ballast water released in Canada.
- The Regulations will require all vessels on international voyage to comply with the Convention's requirements. The Convention requires vessels traveling internationally and built on or after September 8, 2017 to meet the performance standard when the vessel is launched. Conversely, as per the Convention, vessels built before September 8, 2017 will be required to meet the performance standard using a phased-in approach from 2019 to 2024.
2. **Domestic and Great Lakes vessels:** These vessels include those that operate exclusively in waters under Canadian jurisdiction, as well as those that operate there and at United States Great Lakes ports and/or on the high seas. To address the spread of species within Canada, domestic and Great Lakes vessels will be required to comply with the same applicable requirements as vessels in Group 1 above. However, those vessels constructed in or after 2009 will have until September 8, 2024 to come into compliance with the performance standard, while those vessels constructed before 2009 will have until September 8, 2030 to come into compliance.
 3. **Non-party vessels (e.g., United States vessels)** that transit through Canadian waters of the Great Lakes Basin without loading or unloading ballast water (other than ballast water necessary for the purpose of ensuring the safety of the vessel on a voyage between non-Canadian ports) will be exempt from the Regulations.

Vessels of Non-parties: The Convention requires Canada to apply the requirements of the Convention to vessels of non-parties to ensure that no favourable treatment is given to such vessels. The Convention's requirements include the development of approved ballast water management plans for meeting the Convention's performance standard wherever ballast water is discharged - even if the ballast is ultimately discharged into waters of non-parties. The Regulations therefore require that vessels that load or discharge ballast water in Canada hold and keep on board a document of compliance issued by, or on behalf of, their flag state that certifies that the vessel meets the requirements of the Convention.

4. **Vessels subject to the equivalent compliance regime:** The Convention allows Canada to establish equivalent compliance requirements for certain international pleasure craft, and search and rescue craft that carry less than eight cubic metres of ballast water and are less than 50 metres in length. The Regulations will do so for these vessels by giving effect to the IMO guidelines for equivalent compliance. For reasons of practicality and feasibility, the Regulations will also allow vessels less than 50 metres in length, as well as non-self-propelled vessels with a gross tonnage of less than 3,000 tons, to follow the equivalent compliance regime if they operate exclusively in waters under Canadian jurisdiction, or in those waters and on the high seas. Equivalent compliance refers to a set of methods and best practices approved by the IMO that allows vessel owners to determine how best to manage ballast water on board their vessel, as installing and operating BWMS and meeting all of the requirements under the Regulations is not always feasible.

Agnico Eagle expects to hire shipping companies that use domestic vessels active in the coastal trade and operate almost exclusively in waters under Canadian jurisdiction. However, it is the shipping company's responsibility to ensure that all relevant requirements within the *Ballast Water Regulations* are adhered to. Agnico Eagle will require contracted vessels to provide an approved copy of their BWMP.

8.1 Ballast Water Exchange

The exchange of ballast water in deep ocean areas or open seas offers a means of limiting the probability of harmful aquatic organisms and pathogens being transferred to the marine environment via vessel ballast water. If it is necessary to take on and discharge ballast water in the same port to facilitate safe cargo operations, care will be taken to avoid unnecessary discharge of ballast water that has been taken up in another port as this could introduce harmful aquatic organisms.

The *Ballast Water Regulations* implement the Ballast Water Management Convention (BWMC) in Canada, an international treaty adopted by the IMO, which entered into force on September 8, 2017.

The D-1 and D-2 standards are part of the https://en.wikipedia.org/wiki/Ballast_Water_Management_Convention BWMC and aim to address the control and management of ballast water:

- **D-1 Standard:** The D-1 standard of the BWMC relates to ballast water exchange. It specifies the requirements for conducting ballast water exchange, also known as "open-ocean exchange." Ballast water exchange involves replacing ballast water taken on in one location with water from the open ocean, typically beyond 200 nautical miles from the nearest land and in waters of sufficient depth. The purpose of D-1 is to minimize the number of living organisms carried in ballast water.
- **D-2 Standard:** The D-2 standard of the BWMC sets the requirements for ballast water treatment systems. It specifies the performance criteria for such systems to ensure that they effectively treat ballast water to remove or kill organisms and pathogens. Ballast water treatment systems must meet the criteria outlined in the D-2 standard to be considered compliant with the Convention.

All vessels must conform to at least the D-1 (exchange) standard. The requirements for compliance with the D2 standard of ballast water treatment systems were phased in over a period of time based on the ship's [International Oil Pollution Prevention](#) (IOPP) renewal survey schedule. The specific deadlines for compliance with the D-2 standard depend on the ship's construction date:

- **For new ships:** New ships constructed on or after September 8, 2017, are required to comply with the D-2 standard at the time of delivery.
- **For existing ships:** Existing ships (those constructed before September 8, 2017) are required to comply with the D-2 standard at the time of their first IOPP renewal survey that occurs after

September 8, 2019. This means that existing ships needed to install and operate ballast water treatment systems by the time of their first IOPP renewal survey after the specified date.

The specific compliance deadlines may vary depending on the ship's individual circumstances and survey schedule, but the goal of the BWMC is to ensure that all ships eventually meet the D-2 standard to minimize the environmental impact of ballast water discharge. Shipowners and operators are encouraged to consult with relevant authorities and organizations to understand and meet the compliance requirements of the BWMC.

Vessels take on ballast water in segregated chambers for the main purpose of stabilizing the vessels by adding the weight of the water and maintaining a specified draught. Vessels laden with dry cargo or fuel will take on less ballast water than empty vessels. As all ships on the inward voyage to Chesterfield Inlet will be laden, they will have a minimum of ballast water. However, on the outward journey, these vessels will take on ballast water.

The vessels servicing Agnico Eagle will in all likelihood not voyage more than 200 nautical miles from shore and will not exchange ballast water outside waters of Canadian jurisdiction. It remains the responsibility of the shipping companies to ensure that ballast water exchange standards for all vessels meet the provisions of the Convention standards and the Ballast Water Regulations no later than September 2024 or September 2030, depending on when they were built.

SECTION 9 • SAFETY

Safety is a top priority for Agnico Eagle. It begins with all personnel (e.g., Agnico Eagle, contract employees, and contractors) wearing the appropriate personal protection equipment suitable for the task at hand and for the weather conditions at the time. Secondly, personnel must understand the hazards associated with the task, the safe procedures in carrying it out, and how not to place oneself in harm's way. Accident prevention will be supported by a proactive program to identify and correct potential hazards before an accident occurs.

Agnico Eagle or contract supervisors will ensure that the interactions between ship and shore are carried out with the safety and the health of the employees first in mind.

SECTION 10 • HAZARD IDENTIFICATION ANALYSIS OF MARINE ROUTES

Hazard, likelihood, severity and risk are defined as follows:

- **Hazard:** Anything that has the potential to cause harm.
- **Likelihood:** The probability/chance of harm occurring as a result of exposure to a hazard.
- **Severity:** The level of harm that may occur as a result of exposure to or contact with a hazard.
- **Risk:** The likelihood of harm occurring combined with the potential severity to produce a level of risk or risk rating.

No major hazards were identified along the shipping and tug-barge routes under normal conditions. Electronic charts combined with electronic navigation aids for the shipping routes ensure the vessel remains on course where bathymetry and physical hazards are known.

Out of the ordinary events have been identified that could increase the level of hazard and necessitate associated mitigation measures:

- Mechanical failure occurring on the ship or tug thereby placing it or other vessels and infrastructure in jeopardy in the shipping route;
- Tug-barge or ship running aground due to a navigational error or mechanical failure;
- Loss or damage to sea cans in heavy seas;
- Barge tow line breaking in heavy seas;
- Collision of tug-barge or ship carrying dry cargo and fuel to Itivia Harbour through the access passage;
- Tug-barge or ship sinking upon hitting ice; and
- Tug-barge or ship colliding with a small boat.

The access passage deserves special attention as:

- Dry cargo for Agnico Eagle and the hamlet and fuel for Agnico Eagle could be unloaded at the same time; and
- The access passage is 150 m wide at its narrowest point and, although two-way traffic is theoretically possible, it raises the risk of collisions and groundings even in calm conditions. To reduce the risk, it is best that a single tug-barge or ship be in the access passage at any one time.

SECTION 11 • RISK ANALYSIS OF MARINE ROUTES

All ships, tugs and tankers use electronic charts and other electronic navigational aids to provide safety in transit, reduce the risk of accidents, and remain within the recommended shipping route presently in use for the annual sea lift to Rankin Inlet and other Kivalliq communities. For an extra measure of safety, weather warnings are updated regularly. Also, shipping companies contracted by Agnico Eagle commonly sail in Hudson Bay and to Rankin Inlet and are aware of its marine hazards.

The potential severity of shipping hazards cannot be changed in most circumstances, what can be reduced is their likelihood. This is possible through the application of mitigation measures. And the level of risk can be defined as the likelihood of harm posed by a hazard combined with its potential severity. The objective is to reduce the risk as low as practically possible through the use of mitigation measures. Residual risk is the amount of risk that remains after mitigation measures have been applied. And those having the highest potential residual risk would be aggressively managed.

The following mitigation/safety measures will be implemented subject to ship and human safety considerations:

- Where available, electronic navigation aids be used in all instances;
- Ship speeds in open water remain less than 14 knots in the absence of marine mammals, and once within the barrier islands and reefs near Rankin Inlet, 2 knots or less;
- Shipping is only carried out during the ice free season. Should ice be encountered, the vessel will either sail around it at a reduced speed or proceed slowly through the ice;
- Tug-barge or ship will remain within recommended shipping routes ;
- Fuel tankers and the fuel tanker barges will be double hulled;
- Tug-barge operations will proceed when there is good visibility from the anchor point of the ships to the barge at Itivia Harbour and/or adjust their speed according to the conditions;
- Traffic through the access passage will be coordinated to avoid conflicts and ensure safety. Communication between tugs will coordinate movement through the access passage;
- Agnico Eagle will provide emergency response equipment and materials as outlined in the OPEP if necessary. Tug or ship will also provide their own emergency response equipment.
- Crews will follow standard operating procedures and adherence to these will be monitored; and
- Tug-barge or ship crews are to be trained for responses to hazards that can normally be expected in northern waters.
- In the event of bad weather, communication will be held with the vessel for the decision to proceed with the offloading (of cargo/fuel). The offloading or holding of the materials on the ship is at the discretion of the contracted shipping companies in the event of bad weather.

Appendix D outlines the methodology used in the risk analysis of the transportation routes and how various mitigation measures reduced the risk level.

SECTION 12 • SOCIO-ECONOMIC IMPACT OF SHIPPING

Shipping may impact socio-economic activities in Rankin Inlet. Itivia Harbour is jointly used by the Hamlet of Rankin Inlet and Agnico Eagle during the ice free shipping season. Mitigation measures will be employed to minimize socio-economic effects:

- Communication between tugs will coordinate movement through the access passage and use of the Designated Hamlet Landing Beach during lightering operations to avoid conflicts and ensure safety;
- Agnico Eagle has a separate cargo storage area from the community.

Positive socio-economic effects will arise from the increased number of dry cargo and fuel tankers coming to the community. The crews of these ships will in all likelihood come ashore when the boat is anchored and contribute to the local economy through the:

- Use of restaurants, hotels and stores in the community;
- Purchase of local Inuit art; and
- Guided tours to the barrens for fishing and wildlife experiences.

Agnico Eagle does not believe that shipping activities related to the Meliadine Mine will result in an increased demand on local public service providers (i.e., fire, police, ambulance, medical, and maintenance) in Rankin Inlet. In most circumstances, emergency response will be undertaken by Agnico Eagle personnel and/or the ship's crew. Agnico Eagle personnel and the Master of the ship will be responsible for security matters related to the shipping-related activities.

SECTION 13 • PUBLIC AND MEDIA COMMUNICATIONS

When an environmental emergency occurs, the public will be provided with timely and accurate information as to the nature of the incident, the steps being taken to correct the problem, and, if necessary, what citizens should do to protect themselves. This information is intended to protect the overall community well being, to ensure cooperation from interested parties, and to reduce the spread of concern or alarm through the dissemination of inaccurate information.

A coordinated response and media communications is preferred in an emergency situation. However each stakeholder involved in an emergency event may provide its own media communications and designated spokespersons. The lead government Agency is expected to act as the official spokesperson for the response, with support provided by Agnico Eagle and other stakeholders as required.

Transport Canada guidelines will be followed in the event of an emergency situation to ensure proper authorities are informed without delay so that appropriate action may be taken when:

- Any incident occurs involving the loss, or likely loss, of dangerous goods into the marine environment; or
- Any incident occurs giving rise to pollution or threat of pollution to the marine environment; or
- Any oil pollution incident occurs involving the loading or unloading of oil to or from tanker-to-tanker and from tanker to the OHF.

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APPENDIX A • MARINE SHIPPING ROUTE

APPENDIX B • SPILL RISK ASSESSMENT

APPENDIX C • MARINE ENVIRONMENTAL MANAGEMENT PLAN (MEMP)

APPENDIX D • REVISED MARINE ENVIRONMENTAL BASELINE

APPENDIX E • RISK ANALYSIS OF MARINE TRANSPORTATION ROUTES
