FINAL REPORT

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8.0 ACCIDENTS AND MALFUNCTIONS

Accidents and malfunctions are considered unplanned events. In contrast to regular Project operations and procedures, accidents and malfunctions can involve temporary non-compliance with applicable criteria. The assessment focuses on those events that are considered credible in the context of the Project. The EIS does not intend to address all conceivable abnormal occurrences, but rather, to address only those scenarios that have a reasonable probability of occurring (considering the specific aspects of site conditions and Project design) and that may have an environmental effect or consequence.

8.1 ACCIDENT AND MALFUNCTION SCENARIOS

Table 8.1-1 lists the identified potential accident and malfunction scenarios, together with a description of the circumstances, the materials potentially released, the proposed management features and possible remediation activities, if required. The identified accident and malfunction scenarios include:

Terrestrial and Freshwater Environments

- On-site spill of fuels, lubricants, chemicals or hazardous material;
- Facility fire and explosion; and
- Off-site transportation accidents with spillage of fuels, chemicals or hazardous material;

Marine Environment

- Spill at marine terminal involving release into the marine environment of fuel, oil, chemicals or hazardous materials;
- Fire on board;
- Failure to properly exchange ballast water;
- Damage to fishing gear; and
- Vessel collision and/or grounding involving spill of fuel, chemicals and hazardous material.

An assessment of the potential effects of the above listed scenarios has been conducted and documented in table format (Table 8.1-1). For each scenario, Table 8.1-1 provides:

- an overview of the circumstances involved that lead to and/or characterize the scenario;
- the type and quantities of materials potentially released or spilled in the scenario; and
- the mitigation and management measures in place and/or to be established to avoid the occurrence of the scenario or to minimize its environmental effects.

The table also provides a conclusion as to whether or not the scenario is considered to lead to significant adverse environmental effects and/or the likelihood of the scenario to occur.

Table 8.1-1: Malfunction and Accident Scenarios

Scenario	Project Phase & Component (MT-Marine Terminal; SH-Shipping/Vessel Transport; IM-Inter Modal LP-Logistics Park; RR-Rail/Road)	Description	Conclusion
1. On-site release or spill of equipment fuel, lubricants or other chemicals or hazardous materials	Construction: MT,IM, LP, RR Operation: MT,IM, LP, RR Decommissioning: MT,IM, LP, RR	**Overview of circumstances:** Spills may occur • at the storage locations from ruptured fuel lines; • from vehicle and/or tanker truck accidents; • during refuelling and maintenance operations; • as consequence of an on-site rail accidents (derailing of rail cars; container slips off and cracks open) • during container (un)loading (container slips out of crane and cracks open) **Materials released and quantities:** • Fuels (e.g., diesel, gasoline); • Other potentially hazardous materials used on-site: engine coolants, waste oil, hydraulic fluids, de-icing compound; • Potentially hazardous materials contained in shipping containers (content to be declared as per shipping policy/regulations); • Quantities limited to maximum volume of one container (about 120 m^3), size of individual on-site fuel storage tanks (90,000 L), fuel tanker truck (up to 60,000 L), equipment tanks (around 500L); **Management features (Construction, Operation, Decommissioning):** • No storage of vessel fuel on-site; no refuelling of vessels at the terminal; • On-site storage of equipment fuel, lubricants, and other potentially hazardous materials in designated and properly designed places and in limited volumes; • Fuel storage methods to conform to all applicable regulatory requirements; • Site surface water management system with shut off valve, retention capacity, and effluent quality monitoring station; • Operating Plans and EMPs, following applicable regulations, to prescribe detailed protocols for management of fuels, lubricants, hazardous materials (e.g., safe storage practices, spill prevention, regulatory compliance, and containment measures as per Material Safety Data Sheets (MSDSs)). • Operating Plans to prescribe designated areas for storage of shipping containers containing potentially hazardous materials; handling protocols; training of personnel; continuously updated hazardous materials inventory; • Emergency response planning to prescribe on-site response equipment, personnel and training; responsibilities; emergency response measures; communication and reporting; coordination with local/regional response teams; • Contaminated soil and/or water remediation to the appropriate standards; • MITI to actively work with local industry and municipalities to coordinate individual emergency response capabilities and develop regional response protocols.	The proposed facility is not a storage facility for fuels and/or hazardous materials. The stored volumes of these substances are limited to the operational needs of the Facility and the quantities potentially contained in individual shipping containers. Given these limited volumes of materials that could be spilled, the environmental management, inspection, and emergency response planning and management features that will be in-place, significant adverse environmental effects are not likely to occur. .
2. Facility fire and explosions	Construction: MT,IM, LP Operation: MT,IM, LP Decommissioning: MT,IM, LP	**Overview of circumstances:** • The most obvious locations for fire potential will be; vehicles, fuel storage facilities and buildings, and mechanical shops. • From an environmental impact perspective, the most critical of these is the fuel storage where there may be sufficient fuel to sustain a fire event for long periods of time; or where fires may lead to explosions of fuel tanks. • Fires involving stored containers may cause release of potentially hazardous substances or explosions; **Materials released and quantities:** • Products of combustion will be smoke and carbon particulates. • Fires involving containers transferred at MIT may release potentially hazardous substances (see Scenario 1). Duration of fire will be limited to several hours except in the case of a fuel depot, which could burn for longer times. **Management features:** • Fire fighting water supply and hydrant systems at the MIT site to be developed in consultation with local fire chief and in accordance with building code and all other applicable standards; • Fire detection and protection systems will be provided in critical locations such as fuel and lubricant storage tanks. • Emergency response planning to prescribe on-site response equipment, personnel and training; responsibilities; emergency response measures; communication and reporting; coordination with local/regional response teams; • Establishment of “Fire Safe “operating procedures. • MITI to actively work with local industry and municipalities to coordinate individual emergency response capabilities; **Remedial action:** • The emergency response procedure will be implemented immediately upon the detection of a fire. • Fire fighting equipment and an emergency response vehicle equipped with fire fighting equipment will be deployed immediately.	Facility fire at MIT does not present any abnormal environmental hazard or risk beyond any other location. Fire surveillance, response measures, adequate crew training, coordination with local emergency response services will mitigate the extent of the fire damage. Significant adverse environmental effects are unlikely to occur.

Table 8.1-1: Malfunction and Accident Scenarios

Scenario	Project Phase & Component (MT-Marine Terminal; SH-Shipping/Vessel Transport; IM-Inter Modal LP-Logistics Park; RR-Rail/Road)	Description	Conclusion
3. Off-site accident (rail or road) with spillage of fuel and/or hazardous material .	Construction: RR Operation: RR Decommissioning: RR	**Overview of circumstances:** This event considers a traffic accident along the road and/ or rail line that will service the MIT site. Such an event could result in personal injury and/or the spillage of fuel and hazardous material: • rail accident could lead to de-railing of rail cars, containers slipping off cars and containers opening • if accident happen near water course, fuels and/or hazardous materials could enter water course and affect downstream environments and water users **Materials released and quantities:** • In the case of a fuel delivery vehicle licensed in NS, the materials are gasoline and diesel fuel in quantities up to 60,000 L. • If the road/rail accident causes leaks/or ruptures in one or more of the shipping containers, the spill/release could involve various substances in liquid, gaseous and solid form of various quantities up to container volumes. **Management features:** • All transportation by MITI in accordance with Transport Canada's Transport of Dangerous Goods Act and its regulations; • Fuel bulk carrier operation on NS public highways requires licensed operators. • MITI will contract only certified and licensed carriers for hauling containers to and from the terminal. • Emergency response planning specifically for rail and road routes and associated water crossings; response plan to prescribe response equipment, personnel and training; responsibilities; emergency response measures; emergency access points; communication and reporting; coordination with local/regional response teams; • Contaminated soil and/or water remediation to the appropriate standards; • Specific emergency response plan subjects for rail segment bypassing (i.e., within catchment area of Grant Lake): o Frequent inspection of rail bed (erosion; and proper functioning of drainage features); o Provision of adequate storage capacity within drainage ditch system running parallel to rail track to provide for temporary retention/containment in case of a spill; o Identification and provision of emergency access points; o In case of a spill, and as part of the emergency response, clean up and site remediation: monitoring of downstream water quality (ground and surface water potentially entering Grant Lake); o Co-ordination with local response services; o Contingency plan for provision of alternate supply of potable water to local communities; • MITI to actively work with local industry and municipalities to coordinate individual emergency response capabilities and develop regional response protocols; • MITI to actively support community of Mulgrave to develop a drinking water source protection plan involving risk identification and management measures. **Remedial action:** • Contaminated soil and/or water will be remediated to the appropriate standards.	Given the limited volumes involved and the implementation of emergency response plans, adverse environmental effects are not expected to be significant. A spill associated with simultaneous spillage from several shipping containers upstream of Grant Lake could have significant effects on the water supply of the Town of Mulgrave. However, given the proposed rail- and site-specific emergency response planning, such significant effect is unlikely to occur.

Table 8.1-1: Malfunction and Accident Scenarios

Scenario	Project Phase & Component (MT-Marine Terminal; SH-Shipping/Vessel Transport; IM-Inter Modal LP-Logistics Park; RR-Rail/Road)	Description	Conclusion
4. Marine: Release or spill of fuel, oil or other chemicals and /or hazardous materials at marine terminal	Construction: MT Operation: MT Decommissioning: MT	**Overview of circumstances:** This event considers: • Accidental discharge of miscellaneous oils in association with routine maintenance operations on the STS gantry cranes; • Accidental release of potentially hazardous substances from leaks or ruptures of containers during loading/unloading with spills into marine environment. **Materials released and quantities:** • Lubricating oils, hydraulic oils or cleaning fluids etc.; quantities less than 100 L. • Potentially hazardous materials contained in shipping containers (content to be declared as per shipping policy/regulations); quantities limited to maximum volume of one container (about 120 m^3); **Management features:** • No vessel fuelling operations are planned at the MIT terminal; therefore, there is no opportunity for vessel fuel oil spill at dockside. • Marine terminal /dockside with sealed surfaces and drainage with retention capacity and shut off valves at discharge points to capture and contain spilled materials; • Operating Plans and EMPs specific to the marine terminal and the potential for impacts on marine environment to include: o protocols routine inspection and maintenance of crane equipment o protocols for spill prevention and identification of leakages and unloading/loading of leaking containers o following applicable regulations, to prescribe detailed protocols for management of fuels, lubricants, hazardous materials within the marine terminal and near water (e.g., safe storage practices, spill prevention, regulatory compliance, and containment measures as per Material Safety Data Sheets (MSDSs)). o designated areas for storage of shipping containers containing potentially hazardous materials; handling protocols; training of personnel; continuously updated hazardous materials inventory, and containment measures as per Material Safety Data Sheets (MSDSs); • Emergency response planning to prescribe response equipment specific to the marine terminal/dock side (e.g., containment booms, oil absorbent materials), personnel and training; responsibilities; emergency response measures; communication and reporting; coordination with local/regional response teams; • Co-ordination with local response services; **Remedial action:** • Emphasis will be on prevention and immediate containment. Subsequently contaminated shoreline segments and sediments will be remediated to the appropriate standards; recovered product to be disposed in approved manner.	The petroleum products will float on the surface of the water however will be prone to dispersion by wave action. Minor spills can be readily attended by containment and application of absorption materials. Larger spills will need a similar but increased effort to mitigate. Such practices are effective and are in very common use throughout the region to deal with such spills. Environmental effects are not expected to be significant. Given the uncertainty with respect to chemical characteristics of other substances that could be released/spilled through leakages /breaking open of a shipping container, the significance of such events is unknown. However, given the safety record of container loading/unloading facilities, the occurrence of an event with significant consequences for the environment is considered highly unlikely.
6. Fire on board of vessel	Construction: MT, SH Operation: MT, SH Decommissioning: Not applicable	**Overview of circumstances:** • This event considers the possibility of fire on board any of the container vessels at or near the MIT; • Fire on board of a container vessel is not a common event; • The fuel for the vessels docking at MIT, bunker “C” and MDO, requires an open flame to start and fires are not easily sustained. **Materials released and quantities:** • Products of combustion of a steel hulled vessel with a partial load of fuel; Bunker C and Marine Diesel fuel (MDO) such as smoke and particulates, carbon dioxide , carbon monoxide. **Management features:** • In the case of fire on board, the ship operator’s fire response protocol will govern actions. • All ships are equipped with fire fighting system operated by trained crews. • Positioning of fire water mains and fire fighting equipment at the marine terminal / dock side readily available for ship use. **Remedial action:** • NA	Shipboard fire that cannot be controlled by the ship’s crew supported by shore based fire fighting resources is considered unlikely.

Table 8.1-1: Malfunction and Accident Scenarios

Scenario	Project Phase & Component (MT-Marine Terminal; SH-Shipping/Vessel Transport; IM-Inter Modal LP-Logistics Park; RR-Rail/Road)	Description	Conclusion
7. Marine: Failure to properly exchange ballast water	Construction: SH Operation: SH Decommissioning: Not applicable	**Overview of circumstances:** • Typically, vessels are expected to arrive at the MIT fully loaded so that the release of ballast water is not an issue. Instead of releasing ballast water, vessels are likely to take up ballast water at the terminal after unloading and prior to departure. • For vessels destined for MIT, which are sailing under ballast water and intending to pick up containers at MIT, the Canadian Ballast Water Control and Management Regulations require the vessel operator to exchange ballast water at sea, which in this case would be while in transit through the Atlantic. Should the vessel be unable to exchange ballast water at sea, e.g., due to weather and/or safety considerations or failure of the on-board ballast water pump system, ballast originating outside of the Strait of Canso may be discharged in Canadian waters outside of prescribed exchange zones or at the MIT terminal (ballast water will be discharged as part of the normal loading procedure as the vessel takes on cargo). **Materials released and quantities:** • Ballast water; potentially several thousand tonnes originating from outside of Strait of Canso **Management features:** • Ballast exchanges are mandated by the International Maritime Organization (IMO) ballast water guidelines and the Canadian Ballast Water Control and Management Regulations under the Canada Shipping Act. The implementation of these guidelines and regulations are the responsibility of the shipper. • In accordance with the regulations, vessel operators must carry a ballast water management plan on board. The plan must specify such aspects as: o Ballast water management processes to be used and procedures to be followed; o Procedures to be followed for co-ordinating ballast water management with Canadian authorities; o Detailed description of the on-board ballast water system and the system's design specifications; o On-board responsible officer; o Ballast water reporting form and reporting requirements. • The implementation of the ballast water management plan is the responsibility of the vessel operator; • In accordance with the Canadian Ballast Water Control and Management Regulations, if exceptional circumstances (equipment failure, weather/ safety considerations) prevent a proper ballast water exchange, Transport Canada is to be notified as soon as possible by the vessel. The Minister of Transport determines in consultation with the master of the ship mitigation measures prior to the discharge / exchange of ballast water in Canadian waters. This will involve considerations of the nature of the ballast water, the likelihood of introduction of harmful aquatic organisms, safety and environmental conditions, and may result in decisions such as ballast water retention, discharge at sea in an alternate exchange zone, treatment prior to discharge etc. • Compliance monitoring as part of Transport Canada's routine ship inspections; • MITI to stipulate in its policies to vessel operators using MIT that they must comply with the Canadian Ballast Water Control and; upon request, provide MITI with a copy of the completed ballast water reporting form). **Remedial action:** NA	The likelihood of exceptional circumstances to arise that prevent the proper ballast water exchange is considered low. Existing Transport Canada regulations are considered to provide effective procedures for the implementation, monitoring and reporting of ballast water exchange and for the determination of mitigation measures for discharge/exchange under exceptional circumstances.
8. Marine: Damage to fishing gear	Construction: SH Operation: SH Decommissioning: Not applicable	**Overview of circumstances:** • This event considers potential damage to fishing gear, buoys, and lobster traps by vessels approaching the MIT terminal. • Such fishing gear could be damaged, dislocated or lost. **Materials released and quantities:** • Not applicable **Management features:** • Vessels will transit at slow speed along pre-established routes that will be made known to the local fishers. • Coordination of a designated ship route to and from the MIT terminal to the inbound / outbound shipping lanes in the Strait of Canso with all stakeholders • If warranted, establishment of a Community Liaison Committee that includes a local representatives of the fishing community for an on-going dialogue on navigation and coordination of vessel operations; • MITI to make arrangements with a local fishers association to process, administer and pay damage claims on their behalf. **Remedial action:** • Implementation of MITI claims processing and compensation policy	There is some risk of container vessels damaging stationary fishing gear. Arrangements between shippers and fishers elsewhere in the province function quite effectively to compensate fishers for loss of fishing gear in case of accidental damage or loss. With the implementation of similar policies, effects on the local fishing community are not expected to be significant.

Table 8.1-1: Malfunction and Accident Scenarios

Scenario	Project Phase & Component (MT-Marine Terminal; SH-Shipping/Vessel Transport; IM-Inter Modal LP-Logistics Park; RR-Rail/Road)	Description	Conclusion
9. Marine: Vessel collision and/or involving spill of chemicals and hazardous material	Construction: SH Operation: SH Decommissioning: Not applicable	**Overview of circumstances:** • This event considers the accidental collision with the wharf at the MIT or grounding of a shipping vessel destined for or departing from MIT. • Vessel collisions within Strait of Canso involving pollution incidents are rare events (as per Transport Canada Safety Board only 31 incidents/accidents have occurred over the last 10 years ranging from grounding to Man Overboard and Equipment/ Machinery Malfunction; Transport Canada Safety Board person. Comm.. in Jacques Whitford 2004) • Accidents with support and service vessels are considered to be too small to cause a significant environmental effect. • Grounded vessels could represent a navigational obstacle and hazard for other ships using the area. **Materials released and quantities:** • Except in the case of a total vessel break up, no materials will be discharged. • With the increased use of double-hulled vessels, safety has improved as the exterior hull can be ruptured without jeopardizing the integrity of safe vessel operations. • Discharge of vessel cargo (containers) is not likely; during approach/departure, vessels will be manoeuvring at low speed (<10 knots). • Vessel fuel tanks are positioned in safe locations within the interior of the ship. In any event, the bunker "C" product requires heating to allow the fuel to move easily. In the worst case event of the vessel sinking, the bunker "C" would stay contained within the fuel tanks or leave slowly. The cool water temperature would not permit the bunker "C" to migrate easily and far, if at all. On the other hand, it is possible, that oil would rise (e.g., through tank vents) and sheen on the surface of the water. • The Marine Diesel Oil (MDO- Petroleum Distillate Fuel) would flow in the case of a tank rupture or if it escapes through tank vents. In the worst-case scenario, about 100 tons of the MDO fuel would be discharged to the environment and sheen on the surface. In calm seas this can be contained by booms and collected by absorbent materials. In the more likely case of rough seas causing the hypothetical accident, dispersal of the MDO would be extensive particularly in the wave zone near the shoreline. The MDO like all diesel fuel oils will evaporate quickly. The spilled material and any contaminated materials may be hazardous to animal/aquatic life. **Management features:** • Vessel traffic in the Strait of Canso is managed by Canadian Coast Guard's, Strait of Canso and Eastern Approaches Vessel Traffic Services Zone which is operated by the Marine Communications and Traffics Services (MCTS) Division (known as Canso Traffic); • All container vessels approaching/departing MIT are required to report to the MCTS centre for traffic clearance prior to entering, departing, conducting certain manoeuvres, or proceeding following a breakdown within a vessel traffic services zone; • All container vessels will be under the jurisdiction of the Canadian Coast Guard and subject to mandatory pilotage requirements; • MIT to permit only reputable ship operators to dock at MIT. • MIT to contribute to enforcement of strict communications, approach speed, and docking procedures with tug assist as may be necessary. • As part of its policies, MITI will require vessel owner's/operators to maintain and enforce spill prevention and emergency plans. • EMPs will be developed and implemented including spill prevention and emergency response protocols related to vessel accidents at or near the MIT dockside; • MITI to actively work with local industry, municipalities, Canso Traffic and Transport Canada to coordinate individual emergency response capabilities and develop regional response protocols; • Navigation of the container vessels is the responsibility of the ship's captain and the pilot. Grounding of a container vessel approaching or departing from the MIT is considered an unlikely event. The approach / departure route to MIT provides for easy navigation, as it is fairly wide and with no navigational obstacles (e.g., shoals; ship wrecks etc). Should grounding occur, this would be immediately reported to Canso Traffic and Transport Canada. The ship operator would be responsible for proper marking the ship as "not able to manoeuvre/grounded". If warranted, Canso Traffic and Transport Canada will inform other ship operators in the area of the new (temporary) obstacle. If required, the agencies would ensure the proper demarcation of the location by day and night. **Remedial action:** • Maximize product recovery for reuse or recycling. Use approved treatment, transporters, and disposal sites in compliance with all applicable laws. • Recovered product to be disposed in approved manner. • Notification of marine community of grounded vessel/navigational hazard; (temporary) demarcation of ship and location (if below water); grounded vessels removed (towed into deeper waters / harbour)	Canso Traffic services and modern vessels equipped with advanced communications, radar, weather forecasting, and navigational equipment operated by certified crews do not present a significant hazard for accidental dock collision and or grounding. Navigation route between main shipping channel and MIT is without particular obstacles or other navigational issues and will be defined in consultation with TC and communicated to the local fishing community and boat operators. The likelihood of such an accident to occur is considered to be extremely low.

8.2 ASSESSMENT OF POTENTIAL ENVIRONMENTAL EFFECTS

Table 8.2-1 summarizes which VECs could potentially be affected by the identified scenarios from Section 8.1 without taking into account mitigation such as environmental management planning, spill prevention planning, and emergency response planning.

Table 8.2-1 Malfunctions and Accidents – Potentially Affected VECs

Accident and Malfunction Scenarios VECs	On-site release/spill of fuels, lubricants, chemical or hazardous material	On-site Facility Fire	Rail & Road: off-site accident (road/rail) with spillage of fuel, chemicals and/or hazardous material	Marine: spills of fuel, chemicals, or hazardous materials	Marine: Fire on board	Marine: Failure to properly exchange ballast water	Marine: Damage to fishing gear	Marine: Vessel collision/grounding; release of fuel, oil, chemicals, hazardous materials
BIOPHYSICAL ENVIRONMENT								
Soils and Sediments	●	●	●					
Atmospheric Environment								
Air Quality		●			●			
Noise								
Oceanography								
Bathymetry								●
Tides and currents								●
Sediment transports								●
Groundwater								
Groundwater Flow and Quantity								
Groundwater Quality	●		●					
Surface water (freshwater environment)								
Hydrology								
Quality	●	●	●		●			
Marine Environment								
Marine Habitat	●			●	●	●		●
Marine Fish	●			●	●	●		●
Marine Mammals	●			●	●	●		●
Marine Birds	●			●	●	●		●
Marine Species at Risk	●			●	●	●		●
Freshwater Environment								
Freshwater Habitat	●		●					
Freshwater Biota	●		●					
Freshwater Species at Risk	●		●					
Terrestrial Environment								
Vegetation and Habitat	●		●					

Table 8.2-1 Malfunctions and Accidents – Potentially Affected VECs

Accident and Malfunction Scenarios VECs	On-site release/spill of fuels, lubricants, chemical or hazardous material	On-site Facility Fire	Rail & Road: off-site accident (road/rail) with spillage of fuel, chemicals and/or hazardous material	Marine: spills of fuel, chemicals, or hazardous materials	Marine: Fire on board	Marine: Failure to properly exchange ballast water	Marine: Damage to fishing gear	Marine: Vessel collision/grounding; release of fuel, oil, chemicals, hazardous materials
Birds (incl. Breeding and Migratory Birds)	●		●					
Mammals	●		●					
Wetlands	●		●					
Terrestrial (and wetland) Species at Risk	●		●					
SOCIO-ECONOMIC ENVIRONMENT								
Public Health and Safety	●	●	●	●	●			●
Demographics								
First Nations Communities	●	●	●	●	●		●	●
Economy, Labour Force, Education and Business								
Traditional Use of Land and Resources								
Existing and Planned Land Uses								
Commercial Fisheries and Aquaculture	●		●	●		●	●	●
Physical Infrastructure (incl. Transportation)								
Municipal and Social Services Infrastructure								
Emergency Services Infrastructure	●	●	●	●	●	●	●	●
Visual Aesthetics								
Heritage Resources								

8.3 MITIGATION

The Project will be designed and operated consistent with all applicable engineering, navigation and environmental management practices and within the applicable regulatory framework to avoid accidents and malfunctions. In the event that such upset conditions occur, responses will be in compliance with the applicable laws and regulations.

Mitigation measures will be in place to avoid and /or minimize and remediate adverse effects. These measures will be specified in component-specific operational plans and environmental

management plans (e.g., specific to marine terminal, intermodal area, logistics park and rail transportation, road transportation). They will address such issues as:

- Emergency preparedness;
- Emergency response/ response plans
- Spill prevention;
- Containment;
- Clean up/ site remediation;
- Maintenance and monitoring;
- Responsibilities;
- Training;
- QA/QC; and
- Reporting.

Mitigation and management measures applicable to specific malfunction and accident scenarios (Table 8.1-1) will be developed as part of the overall efforts on environmental management and health and safety planning discussed in Section 2.9. The MITI approach to emergency preparedness includes the following components:

- MIT will develop contingency plans that are location- and operation-specific and will take into account site-specific conditions and sensitivities. They will be developed on the basis of such guidelines as the *Emergency Preparedness and Response (*Canadian Standards Association publication, CAN/CSA-Z731-03) as well as regulator input.
- MITI has engaged a consultant to prepare a security, safety and emergency response plan. This will include everything from the setup of an emergency command post to the trunk radio system to communicate with province-wide emergency workers. This plan will specify the number and type of equipment to be supplied;
- MITI will have a Joint Occupational Health and Safety committee which will assure under NS statute that a sufficient number of MITI employees are trained in Emergency First Aid and CPR. This will allow the sick and injured to be treated until the 911 EHS ambulance arrives;
- MITI will have available portable pumps which will allow seawater to be pumped onto any fire on the terminal. This will control the fire until the local fire department and their mutual aid partners, if necessary, arrive; and
- The local fire departments will respond to any hazardous material spill, as they have developed experience since the early 1960's in the area with MITI's industrial neighbours such as the Newpage (Stora Enso) chemical pulp mill, Statia Oil storage facility and Sable Energy natural gas fractionation plant.
- As part of its emergency response planning and procedures, MITI will promptly contain and clean up spills or leaks, such as those from machinery or storage tanks. For this purpose, absorbents and booms will be available on-site for quick containment and recovery. The emergency response plan will define communication procedures and will stipulate that spills be reported to the provincial 24-hour environmental emergencies reporting system (Maritime Provinces 1-800-565-1633; Newfoundland and Labrador 1-800-563-9089).

An example of a representative Table of Contents for an emergency response plan is provided in Appendix 8.0-A This plan has been developed by SSA, a partner of MITI, for the container

terminal at East Side of Harbour Island, Seattle, USA.

8.4 CONCLUSION

A series of potential malfunction and accident scenarios have been identified that are considered to have a reasonable probability of occurring during the life of the Project. These scenarios are associated with potential adverse effects on VECs related to the terrestrial, marine and socio-economic environment. A comprehensive set of measures have been identified to plan for and respond to any of these accident and malfunction scenarios. This includes comprehensive facility-specific emergency response planning by MITI as well as actively working with local industry and municipalities to coordinate individual emergency response capabilities. As the Canso Strait area is the heartland of heavy industrial activity in Nova Scotia, there exists a substantial body of knowledge regarding the means by which to respond to various industrial unplanned events. This body of knowledge will be available to draw upon as required.

Most of the identified malfunctions and accident scenarios are considered to represent events associated with one or more of the following characteristics:

- Substances involved are commonly used on construction sites, their characteristics are well known;
- Quantities of released contaminants are small;
- Adverse effects remain localized and are reversible;
- Circumstances are generally well understood;
- Proven technologies are available for effective containment, clean up and remediation; and
- Project-specific operation, environmental management and contingency plans have been proven to provide adequate and effective management tools.

All other identified malfunctions and accident scenarios are considered rare events given the operational and management circumstances. Vessel-based container transport, container loading/unloading marine facilities, as well as road and rail haul of shipping containers are part of routine logistics operations performed all over the world and with low accident rates.

Based on the above, and assuming the implementation of all identified mitigation and management measures, significant adverse environmental effects of malfunctions and accidents are not likely to occur.

8.5 REFERENCES

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