Baffinland Iron Mines Corporation

SPILL CONTINGENCY PLAN

BAF-PH1-830-P16-0036

Rev 2

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Index of Major Changes/Modifications in Revision 2

Item No.	Description of Change	Relevant Section
1	Updated distribution list	Table A
2	Updated Sustainable Development Policy (2015)	Section A
3	Updated Health Safety and Environment Policy (2015)	Section A
4	Provide reference to Amended Type A Water Licence 2AM-MRY1325 – Amendment No. 1, Issued July 21, 2015	Section 1.1
5	Updated fuel inventories (current as of January 2016	Table 5.1
6	Updated to include Project infrastructure	Section 6.1
7	Updated to reflect spill kits locations and supplies	Appendix B
8	Updated to reflect 2016 site MSDS inventory	Appendix C

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This Plan is required for use in conjunction with Baffinland's Emergency Response Plan (BAF-PH1-830-P16-0007). Table A provides a list of external contacts to which this Plan shall be distributed. Additional copies of this Plan may be obtained from:

Baffinland Iron Mines Corporation
2275 Upper Middle Road East, Suite 300
Oakville, ON L6H 0C3
Tel: (416) 364-8820
Fax: (416) 364-0193

Table A: External Distribution List for the Spill Contingency Plan

Department of Environment - Environmental Protection Division PO Box 1000 Station 1870 Iqaluit, NU X0A 0H0 Tel: (867) 975-4644, (867)-222-1925 Fax: (867) 975-4594	**Department of Fisheries and Oceans** - Central and Arctic Region 520 Exmouth Street Sarnia, ON N7T 8B1 Tel: (519) 383-1813, (866) 290-3731 Fax: (519) 464-5128
Qikiqtani Inuit Association Igluvut Building, 2nd floor PO Box 1340 Iqaluit, NU X0A 0H0 Tel: (867) 975-8400, 1-800-667-2742 Fax: (867) 979-3238	**AANDC** - Nunavut Regional Office Qimugjuk Building PO Box 2200 Iqaluit, NU X0A 0H0 Tel: (867) 975-4500 Fax: (867) 975-4560
AANDC - Water Resources Division Qimugjuk Building PO Box 100 Iqaluit, NU X0A 0H0 Tel: (867) 975-4550 (Water Resources Manager) Fax: (867) 975-4560	**Mittimatalik Hunters and Trappers Organization** PO Box 189 Pond Inlet, NU X0A 0S0 Tel: (867) 899-8856 Fax: (867) 899-8095
Nunavut Impact Review Board PO Box 1360 Cambridge Bay, NU X0B 0C0 Tel: (867) 983-2574, (866) 233-3033 Fax: (867) 983-2594	**Nunavut Water Board** PO Box 119 Gjoa Haven, NU X0B 1J0 Tel: (867) 360-6338 Fax: (867) 360-6369
Hamlet of Pond Inlet PO Box 180 Pond Inlet, NU X0A 0S0 Tel: (867) 899-8934 Fax: (867) 899-8940	

SUSTAINABLE DEVELOPMENT POLICY

At Baffinland Iron Mines Corporation (Baffinland), we are committed to conducting all aspects of our business in accordance with the principles of sustainable development & corporate responsibility and always with the needs of future generations in mind. Baffinland conducts its business in accordance with the Universal Declaration of Human Rights and ArcelorMittal's Human Rights Policy which applies to all employees and affiliates globally.

Everything we do is underpinned by our responsibility to protect the environment, to operate safely and fiscally responsibly and with utmost respect for the cultural values and legal rights of Inuit. We expect each and every employee, contractor, and visitor to demonstrate courageous leadership in personally committing to this policy through their actions. The Sustainable Development and Human Rights Policy is communicated to the public, all employees and contractors and it will be reviewed and revised as necessary on a regular basis. These four pillars form the foundation of our corporate responsibility strategy:

1. Health and Safety
2. Environment
3. Upholding Human Rights of Stakeholders
4. Transparent Governance

1.0 HEALTH AND SAFETY

- We strive to achieve the safest workplace for our employees and contractors; free from occupational injury and illness, where everyone goes home safe everyday of their working life. Why? Because our people are our greatest asset. Nothing is as important as their health and safety. Our motto is "Safety First, Always".
- We report, manage and learn from injuries, illnesses and high potential incidents to foster a workplace culture focused on safety and the prevention of incidents.
- We foster and maintain a positive culture of shared responsibility based on participation, behaviour, awareness and promoting active courageous leadership. We allow our employees and contractors the right to stop any work if and when they see something that is not safe.

2.0 ENVIRONMENT

- Baffinland employs a balance of the best scientific and traditional Inuit knowledge to safeguard the environment.
- Baffinland applies the principles of pollution prevention, waste reduction and continuous improvement to minimize ecosystem impacts, and facilitate biodiversity conservation.
- We continuously seek to use energy, raw materials and natural resources more efficiently and effectively. We strive to develop more sustainable practices.

- Baffinland ensures that an effective closure strategy is in place at all stages of project development to ensure reclamation objectives are met.

3.0 UPHOLDING HUMAN RIGHTS OF STAKEHOLDERS

- We respect human rights, the dignity of others and the diversity in our workforce. Baffinland honours and respects the unique cultural values and traditions of Inuit.
- Baffinland does not tolerate discrimination against individuals on the basis of race, colour, gender, religion, political opinion, nationality or social origin, or harassment of individuals freely employed.
- Baffinland contributes to the social, cultural and economic development of sustainable communities in the North Baffin Region.
- We honour our commitments by being sensitive to local needs and priorities through engagement with local communities, governments, employees and the public. We work in active partnership to create a shared understanding of relevant social, economic and environmental issues, and take their views into consideration when making decisions.
- We expect our employees and contractors, as well as community members, to bring human rights concerns to our attention through our external grievance mechanism and internal human resources channels. Baffinland is committed to engaging with our communities of interest on our human rights impacts and to reporting on our performance.

4.0 TRANSPARENT GOVERNANCE

- Baffinland will take steps to understand, evaluate and manage risks on a continuing basis, including those that may impact the environment, employees, contractors, local communities, customers and shareholders.
- Baffinland endeavours to ensure that adequate resources are available and that systems are in place to implement risk-based management systems, including defined standards and objectives for continuous improvement.
- We measure and review performance with respect to our safety, health, environmental, socio-economic commitments and set annual targets and objectives.
- Baffinland conducts all activities in compliance with the highest applicable legal & regulatory requirements and internal standards.
- We strive to employ our shareholder's capital effectively and efficiently and demonstrate honesty and integrity by applying the highest standards of ethical conduct.

4.1 FURTHER INFORMATION

Please refer to the following policies and documents for more information on Baffinland's commitment to operating in an environmentally and socially responsible manner:

Health, Safety and Environment Policy
Workplace Conduct Policy
Inuktitut in the Workplace Policy

Site Access Policy
Hunting and Fishing (Harvesting) Policy
Annual Report to Nunavut Impact Review Board
ArcelorMittal Canada Sustainability and Corporate Responsibility Report

If you have questions about Baffinland's commitment to upholding human rights, please direct them to contact@baffinland.com.

Brian Penney
Chief Executive Officer
March 2016

Baffinland Iron Mines Corporation

HEALTH, SAFETY AND ENVIRONMENT POLICY

This Baffinland Iron Mines Corporation Policy on Health, Safety and Environment is a statement of our commitment to achieving a safe, healthy and environmentally responsible workplace. We will not compromise this policy for the achievement of any other organizational goals.

We implement this Policy through the following commitments:

- Continual improvement of safety, occupational health and environmental performance
- Meeting or exceeding the requirements of regulations and company policies
- Integrating sustainable development principles into our decision-making processes
- Maintaining an effective Health, Safety and Environmental Management System
- Sharing and adopting improved technologies and best practices to prevent injuries, occupational illnesses and environmental impacts
- Engaging stakeholders through open and transparent communication.
- Efficiently using resources, and practicing responsible minimization, reuse, recycling and disposal of waste.
- Reclamation of lands to a condition acceptable to stakeholders.

Our commitment to provide the leadership and action necessary to accomplish this policy is exemplified by the following principles:

- As evidenced by our motto “Safety First, Always” and our actions Health and safety of personnel and protection of the environment are values not priorities.
- All injuries, occupational illnesses and environmental impacts can be prevented.
- Employee involvement and active contribution through courageous leadership is essential for preventing injuries, occupational illnesses and environmental impacts.
- Working in a manner that is healthy, safe and environmentally sound is a condition of employment.
- All operating exposures can be safeguarded.
- Training employees to work in a manner that is healthy, safe and environmentally sound is essential.
- Prevention of personal injuries, occupational illnesses and environmental impacts is good business.
- Respect for the communities in which we operate is the basis for productive relationships.

We have a responsibility to provide a safe workplace and utilize systems of work to meet this goal. All employees must be clear in understanding the personal responsibilities and accountabilities in relation to the tasks we undertake.

The health and safety of all people working at our operation and responsible management of the environment are core values to Baffinland. In ensuring our overall profitability and business success every Baffinland and business partner employee working at our work sites is required to adhere to this Policy.

Brian Penney
Chief Executive Officer
March 2016

1 INTRODUCTION

1.1 PURPOSE AND SCOPE

As required by Baffinland Iron Mines Corporation's (Baffinland) Type A Water Licence No. 2AM-MRY1325 Amendment No. 1 (Type A Water Licence) and Type B Water Licence No. 2BE-MRY1421 (Type B Water Licence) for the Mary River Project (Project), a review of Project Environmental Management and Monitoring Plans (EEMPs) was completed. This Spill Contingency Plan (Plan) was updated to meet the requirements of the Type A and B water licences.

Further and continual modifications and revisions to this Plan shall be completed based on future work scope modifications, emergency and spill response procedures, and associated approvals. Updates to this Plan shall be completed in accordance to the terms and conditions of Baffinland's Water Licences, QIA Commercial Lease – Q13C301, *issued* September 6, 2013, the amended Project Certificate No. 005 – issued May 28, 2014 by the Nunavut Impact Review Board (NIRB), and any subsequent requirements which may be issued.

The purpose of this Plan is to identify the potential for an accidental release (spill) of a hazardous material to the environment (land, ice, or fresh water) throughout the lifecycle of the Project. This Plan provides spill scenarios and identifies protocols for their prevention, response to, and recovery. This Plan is required for use in conjunction with Baffinland's Emergency Response Plan (ERP) (BAF-PH1-830-P16-0007).

Baffinland's ERP identifies potential environmental, health and safety emergencies that could arise during the construction and operation phases of the Mary River Project. The ERP establishes the framework for responding to these situations and applies to all aspects of the Mary River Project. All Baffinland employees and contractors are required to comply with the requirements of the ERP.

The ERP also defines Baffinland's organizational roles and responsibilities, internal and external contact information, training, resources, and reporting requirements, to which all project personnel are directed.

1.2 APPROACH TO SPILL RESPONSE

A spill is defined as the release of a hazardous product out of its containment and into the environment. Such releases result in potential hazards to humans, vegetation, water resources, fish and wildlife which vary in severity, depending on several factors including the nature of the material, quantity spilled, location and season. Diesel and Jet Fuel (Arctic Diesel/ P50 and JetA) are the primary products at risk for potential releases to the environment. As a result, additional levels of spill response have been developed for these products. Other products with the potential for release include sewage water,

calcium chloride flakes, concrete additives, anti-freeze, methanol, lubricants, oils and ammonium nitrate. (AN)

Baffinland requires all site personnel to be trained on the specific procedures required for spill response initiation and reporting. All site personnel must comply with the following procedure upon initiation of a spill involving a regulated substance:

1. Immediately warn other personnel working near the spill area;
2. Evacuate the area if the health and safety of personnel is threatened;
3. In the absence of danger, and before the spill response team arrives at the scene, take any safe and reasonable measure to stop, contain and identify the nature of the spill; and
4. Notify the Environmental Supervisor, who will initiate spill response operations.

Upon initiation of spill response, as determined by the Environmental Supervisor, the following procedure shall be completed by the spill response team:

Source Control – If safe to do so, reduce or stop the flow of product. This may include simple actions such as turning off a pump, closing a valve, or sealing a puncture with something nearby (e.g., a rag, piece of wood, tape), raising a leaking or discharging hose to a level higher than the product level inside the tank, or transferring the product from leaking containers.

Contain and Control the Free Product – If safe to do so, prevent or minimize the spread of the spilled product. Accumulate/concentrate spilled product in an area to facilitate recovery. Barriers positioned down-gradient of the spill will slow or stop the progression of the spill. Barriers can consist of absorbent booms, dykes, berms, or trenches (dug in the ground or in ice).

Protection – Evaluate the risk of the impacted area to the surrounding environment. Protect sensitive ecosystems and natural resources at risk by isolating the area and/or diverting the spilled material away from sensitive receptors. Protection may be achieved by the effective use of various types of barriers.

Spill Clean-up – Recover and contain as much free product as possible.

Report the Spill – Provide basic information such as date and time of the spill, type and amount of product discharged, photographic records, location and approximate size of the spill, actions already taken to stop and contain the spill, meteorological conditions and any perceived threat to human health or the environment. Reports shall be completed as per Baffinland's Incident Investigation Form (BAF-PH1-810-FOR-0005).

2 LEVELS OF EMERGENCY SPILL RESPONSE

To effectively manage emergency response, Baffinland has adopted a tiered emergency classification scheme. Each level of emergency, based on the significance of the event, requires varying degrees of response, effort and support. The impact on normal business operations will also differ as will the requirements for investigation and reporting. The ERP details each level of emergency; however, emergency spill response classifications are defined by the following three levels:

Level 1 (Low) – Minor accidental release of a deleterious substance with:

- No threat to public safety; and/or
- Negligible environmental impact to receiving environment.

Level 2 (Medium) – Major accidental release of a deleterious substance with:

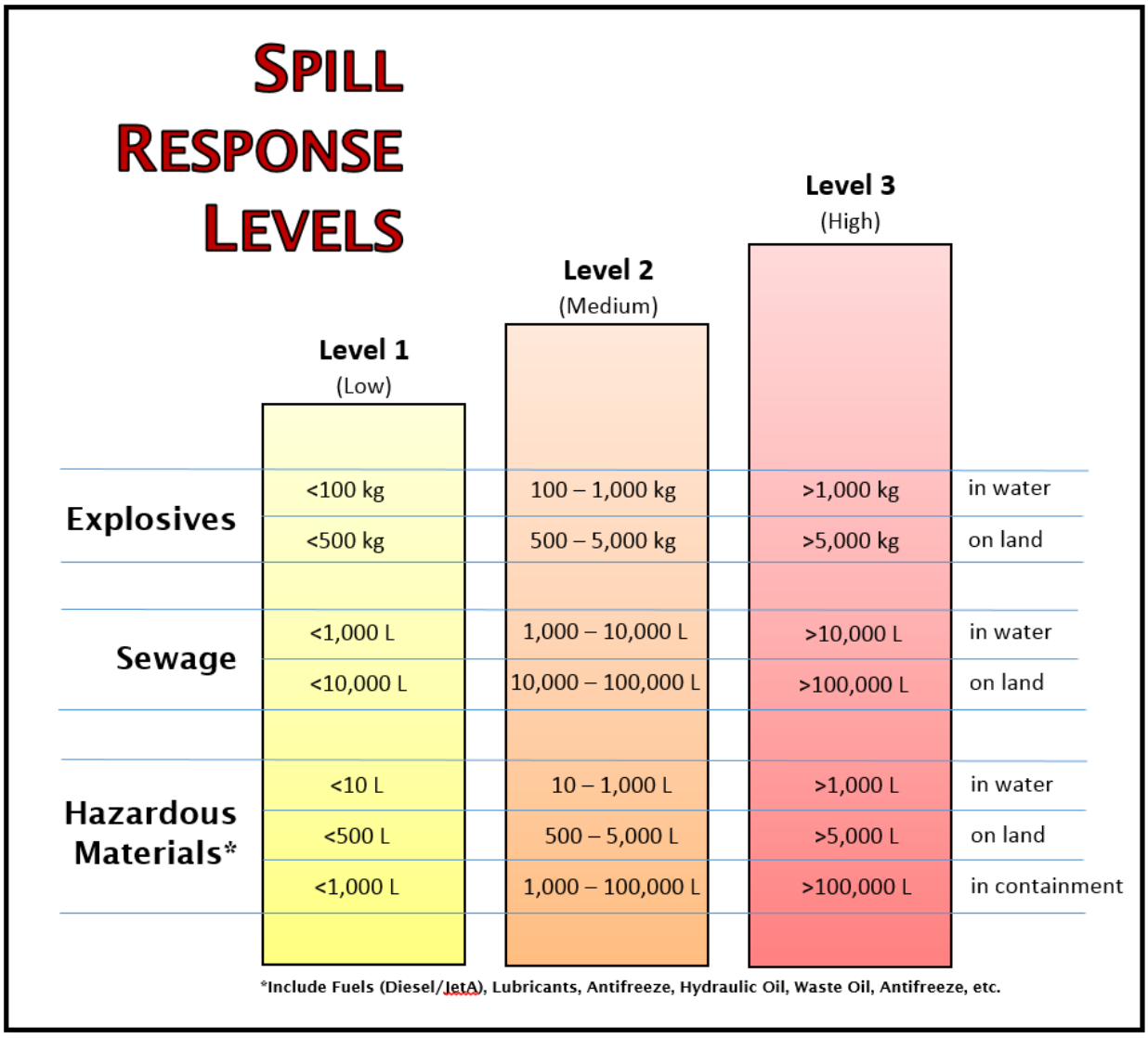
- Some threat to public safety; and/or
- Moderate environmental impact to receiving environment

Level 3 (High) – Uncontrolled hazard which:

- Jeopardizes project personnel safety: and/or
- Significant environmental impacts to receiving environment

Emergency response levels are determined by the specific substance released, quantity spilled, receiving environment impacted, and risk to human health. This assessment also includes specific consideration given to spills occurring within engineered secondary containment. The following matrix provides guidance for Project personnel with regard to the level of response that is assigned to spill classifications.

FIGURE 2.1: EMERGENCY SPILL RESPONSE LEVELS



3 EMERGENCY SPILL RESPONSE PROCEDURES

3.1 SPILLS ON LAND

Response to spills on land will include the general procedures detailed in the Emergency Response Plan.

The main spill control techniques involve the use of two types of barriers: dykes and trenches. Barriers should be placed down gradient (down-slope) from the source of the spill, and as close as possible to the source of the spill. Barriers slow the progression of the spill and also serve as containment to allow recovery of the spill.

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

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

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

3.2 SPILLS ON FRESH WATER

Responses to spills on fresh water include the general procedures previously detailed. Various containment, diversion and recovery techniques are discussed in the following sections. The following elements must be considered when conducting response operations:

- Type of water body or water course (lake, stream, river);
- Water depth and surface area;
- Wind speed and direction;
- Type of shoreline; and
- Seasonal considerations (open-water, freeze-up, break-up, frozen).

Containment of a fuel slick on water requires the deployment of mobile floating booms to intercept, control, contain and concentrate (i.e., increase thickness) the floating oil. For a large lake, typically, one end of the boom is anchored to shore while the other is towed by a boat and use to circle the diesel fuel slick and return it close to shore for recovery using a skimmer. Reducing the surface area of the slick increases its thickness and thereby improves recovery. Mechanical recovery equipment (i.e., skimmers and oil/water separators) will be mobilized to site if required.

If fuel is spilled in a smaller water body such as a small lake or pond, it may not be possible to deploy booms using a boat. In this case, measures are taken to protect sensitive and accessible shoreline (spills resulting from traffic incidents). The fuel slick is monitored to determine the direction of migration. In the absence of strong winds the oil will likely flow towards the discharge of the lake. Measures are taken to block and concentrate the oil slick at the lake discharge using booms where it will subsequently be recovered using a portable skimmer, a vacuum, or sorbent materials.

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

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

3.3 Spills on Snow and Ice

In general, snow and ice will slow the movement of hydrocarbons. The presence of snow may also hide the fuel slick and make it more difficult to follow its progression. Snow is generally a good natural sorbent, as hydrocarbons have a tendency to be soaked up by snow through capillary action.

However, the use of snow as absorbent material is to be limited as reasonably practical. Snow and frozen ground also prevent hydrocarbons from migrating down into soil or at least slow the migration process. Ice prevents seepage of fuel into the underlying water body.

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

Free-product is recovered by using a vacuum, a pump, or sorbent materials. Contaminated snow and ice is scraped up manually or using heavy equipment depending on volumes. The contaminated snow and ice is placed in containers or within lined berms on land. The contaminated water and product will be treated on site utilizing available oily water treatment systems. Free phase product that is recovered will be utilized as a source of fuel on site if possible or shipped offsite for processing.

3.4 Wildlife Protection Procedures

When required, the following audible and visual techniques shall be used to prevent wildlife from interacting with spilled product or a contaminated area(s) following a spill:

- Pyrotechnics, i.e. shell crackers, screamers, propane cannons for shore based spills;
- Visual scare tactics, i.e.: helicopters, emergency response vessels or other water vessels;
- Broadcast sounds, i.e. Breco Bird Scarer designed to float with an oil spill; and
- Exclusion, i.e. netting applied in smaller contaminated areas such as settling or evaporation ponds.

To minimize environmental impact, these devices are most effective when initiated immediately.

The size of the spill and location in relation to sensitive wildlife areas must be assessed at the time of the event as to correctly apply the appropriate level of deterrence. Only workers trained in the safe and proper use of certain hazing equipment will be permitted to haze wildlife. Personal protective equipment (PPE) will be worn by all personnel using deterrent equipment, as per manufactures instructions, with the minimum PPE requirements consisting of eye and ear protection. Other workers in the vicinity of such devices should also use ear protection or remain a safe distance away. Hazing through the use of pyrotechnics should not be used too close to dry vegetation or flammable spill materials due to fire hazard.

Hazing should be administered in such a way as to prevent wildlife from entering an area where they may become endangered. It is also important to ensure that hazing efforts do not cause already contaminated animals to scatter away before they are able to receive treatment. Techniques should be applied as soon as possible to prevent wildlife from interacting with spilled product or contaminated areas and becoming oiled or contaminated..

All emergency response vessels shall be equipped with deterrent devices to ensure timely response in case of a spill occurrence off-shore. To prevent habituation, variation of hazing techniques will be used such as changing the location, appearance and types of hazing or using a combination of hazing techniques.

Efforts shall be made to collect alive or dead oiled wildlife. In the event of a spill occurring in or around a water body, shorelines and beaches shall be inspected for contaminated wildlife to be collected.

Emergency Response vessels shall be equipped with dip-nets, large plastic collecting bags for dead wildlife, and cardboard boxes or cloth bags for live oiled wildlife. To ensure that live oiled wildlife are dealt with humanely, capture and handling of wildlife shall only be done by trained individuals. Gloves shall be worn when handling contaminated wildlife (leather gloves for raptors and mammals, latex/rubber gloves for ducks and small shorebirds). Wildlife will be kept individually within cloth bags or ventilated cardboard boxes and label the date and time animal was found, name of finder, location and name of species, if known. Wildlife treatment facilities will then be contacted for advisement on treatment. All contaminated wildlife will be held in a warm quiet place until treatment. The Canadian Wildlife Services (CWS) will be consulted to determine the most humane treatment method (i.e. rehabilitation or euthanasia) to be implemented for live oiled wildlife.

For wildlife mortalities, all carcass are required to be bagged and labelled individually. The date and time animal was found, name of finder, location and name of species, if known shall be documented. CWS is required to be consulted and approval shall be obtained prior to disposing of any dead wildlife. Contact information for experts in bird hazing and bird exclusion, oiled bird rehabilitation, and, permits needed to haze, salvage, hold and clean, or euthanize birds, are provided in Table 3.1.

TABLE 3.1: EMERGENCY CONTACTS IN CASE OF SPILLS AFFECTING WILDLIFE

Name	Location	Phone Number	Purpose
Canadian Wildlife Services (CWS) Prairie and Northern Region	Environment Canada Room 200, 4999 98 Avenue Edmonton, AB T6B 2X3	1-780-951-8700	Providing information on migratory bird resource and species at risk (under CWS jurisdiction) in the area of a spills (this includes damage assessment and restoration planning after the event); Minimizing the damage to birds by deterring unoiled birds from becoming oiled; and Ensuring the humane treatment of captured migratory birds and species at risk by determining appropriate response and treatment strategies (i.e. Euthanasia or cleaning and rehabilitation).
Nunavut Emergency Management	P.O. Box 1000, Station 700 Iqaluit, NU X0A 0H0	1-800-693-1666	Responsible for developing territorial emergency response plans, coordinating general emergency operations at the territorial and regional levels, and supporting community emergency response operations.
International Bird Rescue	International	1-888-447-1743	Wildlife rehabilitation specialists, that manage various aspects of wildlife response.

4 DISPOSAL OF CONTAMINATED MATERIAL

Quatrex bags, overpack drums, or other appropriate containers as approved by the Environmental Department are used to contain and transport contaminated soil for treatment. Depending on the nature of the spilled contaminant (hydrocarbon based spills), the soil may be treated for remediation at Baffinland's Landfarm and Contaminated Snow Containment Facility (Landfarm Facility) at Milne Port

(refer to Section 4.1 below). Soil, contaminated from the spill of other hazardous chemicals will be treated as a hazardous waste and shipped off-site to a licensed facility for treatment and disposal. For additional information, refer to Baffinland's Hazardous Materials and Hazardous Waste Management Plan (BAF-PH1-830-P16-0011).

Used sorbent material is burned in the site incinerators as per incinerator standard operating procedures and contaminated snow from sewage releases are disposed of in site Polishing and Waste Stabilizations Ponds for treatment during the summer months.

4.1 Milne Port Soil Landfarm and Contaminated Snow Containment Facility

A soil landfarm and contaminated snow containment facility consisting of two geomembrane lined containment cells. The larger (3,383 m^3) west cell (landfarm) was constructed for the containment and bio treatment of hydrocarbon contaminated soils. Treated soils that meet the appropriate criteria will be used as landfill cover material or other purposes only upon approval.

The smaller (929 m^3) east cell was constructed for the containment of hydrocarbon contaminated snow collected during the winter months for treatment of the contaminated water during the summer months using an on-site oily-water separator. During treatment, monitoring will be completed to ensure compliance with prescribed water quality guideline criteria outlined in Baffinland's Type A Water Licence.

5 Training Requirements

Emergency spill response training subject to the requirements of this Plan shall be completed in conjunction with Baffinland's ERP, whereby Baffinland's Emergency Response lead, with support from the Environmental Manager/Superintendents, will identify Project training needs and the resources required to provide the necessary skills to personnel tasked with duties in emergency and spill response. Circumstantially, emergency spill responses often occur in parallel with emergency responses (i.e. an overturned fuel tanker accident along the tote road not only causes imminent hazards to site personnel, but also to the surrounding environment); to facilitate efficient response to overall emergency response and preparedness, project personnel trained to respond to Health and Safety emergencies (Mine Rescue Team (MRT)) shall also receive sufficient training to effectively respond to accidental releases of hazardous materials. Emergency and spill response training shall be developed and implemented throughout the lifecycle of Project to ensure the following requirements are fulfilled:

- Meets or exceeds the requirements of NWT/Nunavut Mines Health and Safety Regulations;
- Enables responders to competently operate the equipment employed for emergency and spill response purposes; and

- Includes practices, drills and full scale exercises for responding to the types of emergencies that are reasonably predictable for the operation.

5.1 QUALIFICATIONS

All active MRT members must obtain:

- Certification within 12 months, by a physician or by a nurse in charge of a nursing station, to be fit to work in breathing apparatus under arduous conditions;
- A valid mine rescue certificate issued by the chief inspector;
- A valid standard first aid certificate;
- Participation in training requirements subject to the direction of the Chief Mines Inspector; and
- Emergency Spill Response training; land based response training programs in addition to those completed as part of Baffinland's Oil Pollution Emergency Plan (OPEP) - Doc. No. BAF-PHI-830-0013.

5.2 TRAINING CONTENT

Emergency response personnel, as members of the MRT, have response requirements which may include administering first aid, firefighting, performing work at heights or in confined spaces, handling and transferring hazardous/controlled substances, and working in/around water. Each of these demands must be supported with adequate training that will allow members to safety and effectively conduct their tasks.

Additional training requirements may be provided for specific roles within the emergency response plan and for specific functions to be performed during an emergency response including:

- Aircraft Rescue Fire Fighting (ARFF) training;
- Incident command training;
- Cold water rescue and boat operators safety; and
- Boom Deployment.

5.3 DRILLS AND EXERCISES

While drills and exercises can be used for training purposes, their primary function for this plan is to provide the means of testing the adequacy of the plan's provisions and the level of readiness of response personnel.

The Emergency Response Trainer and Environmental Manager/Superintendents are responsible for coordinating the development of and assisting in conducting drills and exercises. The following types of drills and exercises shall be practiced:

5.3.1 Tabletop Exercises

Tabletop exercises shall be completed to involve presenting to key emergency personnel simulated emergency situations in informal settings to elicit constructive discussions as the participants examine and resolve problems based on the Plan. These exercises shall be routinely performed during MRT training sessions conducted throughout the year.

5.3.2 Functional Drills

Functional drills are practical exercises designed to evaluate the capability of personnel to perform a specific function (i.e. communications, first aid, and spill response). Functional drills are required to be performed at a minimum of twice annually. Deficiencies and competencies identified during functional drills are documented, and used as effective development tools in the preparation of response procedures required for full-scale exercises.

5.3.3 Full-Scale Exercises

Full scale exercises are intended to evaluate the operational capability of Baffinland's emergency response and preparedness. Full-Scale Exercises are required to be conducted annually with sufficient notice to allow for the preparation of effective emergency response procedures and to identify and correct deficiencies in advance.

5.4 Preparation

Preparation for emergency and spill response exercises will vary depending on the type and scope involved; however, planning for these events shall include:

- Plan review and identification of possible problem areas;
- Establishing objectives;
- Identifying resources to be involved including personnel;
- Develop exercise scenarios, a major sequence of events list, and expected action checklists; and
- Assigning and training controllers and evacuators.

Baffinland has committed to engaging local community representatives, the Government of Nunavut and the Canadian Coast Guard as applicable in training drills and exercises.

All scenarios shall be realistic and based upon current operating conditions. The primary event (i.e. fire, spill, etc.) shall be determined based on the objective of the exercise, and completed in accordance with the prescribed regulatory requirements.

Emergency Response trucks are maintained at both the Milne Port and the Mine Site for immediate response to all emergencies. The Emergency Response trucks are equipped with a comprehensive list of response equipment which include, back-up power supply, hydraulic power tools, fire-fighting and spill response equipment, containment and medical response supplies. In the event of an emergency, the Emergency Response Trucks are immediately deployed carrying the necessary equipment responders will require upon arriving at the accident scene. For the complete Emergency Response Truck inventory, refer to Appendix B.

6 POTENTIAL SPILL ANALYSIS

To prepare for emergency spill response, potential spill analysis was conducted on various worst-case scenarios. The exercise serves to identify potential risk areas, as well as to determine the fate of spilled products and their environmental effects. This section examines spill scenarios as they relate to the types of Project activities planned for 2016.

Several types of materials have been identified as capable of causing environmental, health, and safety concerns should a spill occur while being transported, used, stored and/or handled. These include: fuel, explosives, untreated sewage and effluent, emulsion (ammonium nitrate-diesel), lubricants, oils and oily water. These materials are planned to be utilized daily during Project operations, often in sufficiently large quantities, warranting the evaluation of potential spill scenarios. All other hazardous materials, chemicals or wastes are handled/used/stored in smaller quantities and packaged/transported in small containers that limit the magnitude of the spills that can occur.

6.1 FUEL SPILLS ON LAND

Fuel represents the greatest volume of hazardous material located on site. For locations of the tank farms, temporary fuel depots and approximate spill kit locations at each of the Project sites, refer to **Error! Reference source not found.**. Table 5.1 provides fuel quantities currently stored on site. Table 5.2 provides maximum fuel storage capacities.

At least two bulk fuel deliveries are planned for the 2016 sealift. At the onset of the shipping season, 45 ML of arctic diesel and 2ML of Jet A fuel will be delivered to fill the tanks at the Milne tank farm. *Note: Actual fuel inventory will depend on fuel delivery considerations.

Table 6.1 - On-site Fuel Volumes

Location	Current Fuel Volumes On-site	Fuel Type	Total Fuel Inventory
Milne Port	1.7 ML	Jet- A	35.5 ML
	33.8 ML	Diesel	
Mine Site	104,196 L	Jet- A	1.5 ML
	1.4 ML	Diesel	
Steensby Inlet	1,200 Barrels @ 205 L	Jet- A	400,160 L
	752 Barrels @ 205 L	Diesel	

*Note: Currently on-site December 2015.

At Milne Port the fuel dispensing systems consist of two prefabricated fuel dispensing modules: the Arctic diesel Fuel Module, and the Jet-A1 Fuel Module, located on the east and west side of the tank farm, respectively. Both modules are insulated and heated 40 foot ISO shipping containers, complete with piping, fuel transfer equipment, temperature corrected delivery systems, electrical and control components, and code compliant fire suppression systems.

One prefabricated diesel fuel dispending module was installed within engineered secondary containment to facilitate the fueling of Ore Haul Trucks leaving Milne Port. The prefabricated diesel dispensing module is comprised of heated 20 foot ISO shipping container, with a 50,000 L double-walled diesel storage supply tank with fuel transfer equipment.

At the Mary River Mine Site, the fuel dispensing system consists of one prefabricated Arctic diesel fuel dispensing module located on the west side of the tank farm. The module is an insulated and heated 40 foot ISO shipping container, complete with piping, fuel transfer equipment, temperature corrected delivery system, electrical and control components, and code compliant fire suppression system.

Table 6.2 – Maximum Fuel Storage Capacity for 2016 Work Plan

Location	2016 Max. Tank Fuel Capacity	Fuel Type	Total Storage Capacity
Milne Port	3 x 750,000 L	Jet- A	48.25 ML
	3 x 12 ML and 2 x 5 ML	Diesel	
Mine Site	4 x 0.5 ML	Diesel	2.2 ML
	2 x 50,000 L and 1 x 75,000 L (at Aerodrome)	Jet -A	
Steensby Inlet	1,200 x 205 L drums	Jet- A	400,160 L
	752 x 205 L drums	Diesel	

Baffinland has constructed and continues to operate its fuel storage/dispensing facilities in accordance with applicable guidelines and regulations such as the CCME "Environmental Code of Practice for Aboveground and Underground Storage Tank Systems Containing Petroleum and Allied Petroleum Products (2003)", Storage Tank Systems for Petroleum Products and Allied Petroleum Products Regulations (Canadian Environmental Protection Act, 1999 SOR/2008-197 June 12, 2008) and National Fire Code of Canada as provided in Part D, Item 25 of Baffinland's Type A Water Licence. At all Project sites, drummed fuel is placed within engineered lined containment areas.

All bulk fuel storage areas are equipped with spill kits for emergency response (see Appendix A for locations). Each spill kit contains the appropriate type, size and quantity of equipment for the volume/type of product present in the storage location as well as the environment likely to be affected by a spill (i.e., ground, river, lake or ocean). Refer to Appendix B for a list of emergency and spill response.

Standard Operating Procedures (SOP's) have been developed for each method of fuel storage and transfer. Proper containment and emergency response equipment shall be provided to meet or exceed regulatory requirements.

The ERP and SCP govern land-based and freshwater operations, the Spill at Sea Management Plan (BAF-PH1-830-P16-0042) governs marine spills and the OPEP - (BAF-PHI-830-0013) defines ship to shore fuel transfers procedures and protocols at Milne Port.

6.1.1 Potential Fuel Spill Scenarios

The tank farms located at Milne Port and the Mine Site are constructed in an impermeable secondary containment structure (lined and bermed containment area). The construction is in compliance with building codes and best practices for tank farm facilities. The low point of the containment area is fitted with a sump and pumping system for capture/disposal of runoff in this secondary containment area. The same pumping system is used to recover large spills, should they occur. The secondary containment will be designed to a capacity to contain the complete volume of the largest tank, as well as 10% of the volume of all the remaining tanks.

Due to the capacities of the secondary containments, fuel spills outside these containment areas are unlikely to occur. Adequate procedures (site wide application) and work instructions (task specific) are in place as well as the Environmental Protection Plan (EPP) to deal with equipment and machinery entering and exiting the tank farms as well as dealing with contamination resulting from traffic in and out of the secondary containment areas.

SCENARIO 1: TANK FARM AREA SPILL

Description of Incident	Rupture or spill from 10ML tank into containment area
Potential Causes	Tank or associated equipment failure. This may include failure as a result of human error, mechanical failure, inadequate maintenance, geotechnical issues, sabotage, etc...
Product Spilled	Diesel or Jet Fuel.
Maximum Volume Spilled	10ML
Estimated Time to Spill Entire Volume	1 hour
Immediate Receiving Medium	Lined containment area
Most Probable Direction of Spill Migration	The fuel will flow into the sump of the containment area.
Distance and Direction to Closest Body of Water	N/A
Resources to Protect	Must ensure fuel does not breach/overtop containment
Emergency Response Level	Level 3 (high) – Refer to ERP
Estimated Emergency Spill Response Time	20 minutes
Spill Response Procedures	If the spill is still occurring the hole/breach will be plugged or stopped if possible. The lined containment will be inspected to ensure that it is safely containing the spill; if not it will be reinforced with temporary berms. The spill will be collected via a vacuum truck and deposited in a suitable site – either an intact fuel tank or, if necessary, the oily water treatment facility.

SCENARIO 2: DAY TANK/TEMPORARY STORAGE AREA SPILL

All stand-alone day storage facilities, whether temporary (construction period) or permanent (mine pit), will be double-walled iso-tanks. There are approximately 30 double-walled day tanks at Milne Port and Mine Site camps with a capacity ranging from 5,000L to 20,000L. The iso-tanks will be contained in a restricted area so as to avoid collision from mobile equipment and placed such that they should not be damaged as a result of works.

Detailed procedures (site-wide application) and work instructions (task-specific) are in place, along with the EPP to deal with refuelling operations. The most likely source of spills is during refuelling or refilling of the day tanks with fuel. Only personnel trained in proper refuelling will have access to these tanks. The fuel transfer operation will be halted whenever a leak is detected; all dispensing will be done with auto shut off fuel dispensers, and drip trays will be utilized during all fuel transfers. In light of the robust nature of the Day Tanks and their built in secondary containment, and the use of proper refuelling techniques and drip trays, fuel spills are unlikely to occur. In the event that a spill does occur, a spill kit, containing adequate supplies given the volume of the tank it accompanies, will be available in close proximity. Given the volume of these tanks, access to readily available spill clean-up materials and trained personnel, it is anticipated that staff will be able to identify, contain and mitigate any potential spills in an effective and time sensitive manner. The table below details the most severe incident that could occur.

Description of Incident	Puncture or rupture of Iso-tank
Potential Causes	Equipment failure due to faulty manufacturing or collision with mobile equipment.
Product Spilled	Diesel fuel.
Maximum Volume Spilled	20, 000 L
Estimated Time to Spill Entire Volume	10 minutes
Immediate Receiving Medium	Soil or surrounding environment. It is important to note that no iso-tank will be located within 100m of a water body.
Most Probable Direction of Spill Migration	As iso-tanks will be utilized around the Project, the direction of spill migration will depend on the specific location. That said iso tanks will be placed on relatively flat laydown areas, where the potential flow of spills will be more readily managed.
Distance and Direction to Closest Body of Water	Varies
Resources to Protect	Varies
Emergency Response Level	Level 2 (medium) or 3 (high) – Refer to ERP (depends on quantity and whether there is a potential to impact nearby water bodies and/or public safety)
Estimated Emergency Spill Response Time	15 minutes
Spill Response Procedures	In the event that both walls of an iso-tank is ruptured and a spill occurs the emergency spill response team will be immediately notified. Personnel in the immediate area will act as first responders making every effort to plug the puncture point. Temporary berms, ditches, trenches and sumps will be set up downstream of the spill. The downstream wall of trenches will be lined with plastic material to ensure that exposed soil does not come in contact with the fuel. Absorbent material will be utilized where required. Once the spill has been contained it will be sucked up by a vacuum truck and brought to an appropriate storage/treatment facility. If necessary, contaminated soil will be removed and brought to the Milne Port landfarm for treatment. New, uncontaminated soil will be laid down in the exposed area.

SCENARIO 3: TOTE ROAD ACCIDENT TANKER TRUCK SPILL

Description of Incident	**Spill of the contents of a tanker truck or fuel re-supply truck to ground or stream. Spill occurs in an isolated area along the Tote Road between Milne Port and Mary River.**
Potential Causes	Human error, vehicle mechanical failure, traffic accident, poor weather or visibility.
Product Spilled	1. Tote Road: Diesel fuel, Jet-A Fuel 2. Ice Road: Diesel fuel
Maximum Volume Spilled	20 000 to 50 000 L (content of a tanker truck) This would require the rupture of the tanker.
Estimated Time to Spill Entire Volume	Spillage can be limited depending on severity of incident/accident 10 minutes to 48 hours – depending on severity of rupture or piping/valves associated with the tanker truck.
Immediate Receiving Medium	Soil, streams, lakes
Most Probable Direction of Spill Migration	Varies with specific location of spill
Distance and Direction to Closest Body of Water	1. Tote Road - Downstream and into Phillips Creek; the road between Mary River and Milne Port follows Phillips Creek, and crosses many streams (that discharge into Phillips Creek) over a distance of approximately 50 km. Phillips Creek eventually discharges into the ocean at Milne Port. 2. Ice Road – depends on location of accident
Resources to Protect	1. Tote Road: Streams, Phillips Creek and the ocean via Milne Inlet. 2. Ice Road: various water ways and lakes along the ice road
Emergency Response Level	Level 2 (medium) or 3 (high) – Refer to ERP (depends on quantity and whether there is potential for impact to nearby water bodies and to public safety)
Estimated Emergency Spill Response Time	60 minutes after spill is reported to site personnel (assuming worst case scenario where the truck driver is injured and cannot commence spill response procedures).
Spill Response Procedures	1. Contain and recover diesel slick downriver and protect shorelines using sorbent booms. Collect free-product for temporary storage. Clean-up soiled shorelines. If the response crew arrives before the tanker/fuel truck has released all its contents, seal the leak where feasible, contain and recover oil spill on ground using dykes, trenches and spill berms. If the truck driver is not injured, he will act as a first responder and immediately initiate the Spill Contingency Plan as defined in Section 2 using the spill kit kept in the fuel trucks. 2. Once the initial cleanup is completed, free product captured during response, as well as product still contained within the tanker/fuel truck bulk tank(s) is pumped using a vacuum truck to be discharged at an approved facility/containment berm. Oily water captured during the response would be pumped into a vacuum truck and transported to a containment facility for treatment using the oily-water separator unit. Impacted soils (if any) would be excavated and placed within the contaminated soil treatment area (landfarm).

SCENARIO 4: MARINE RESUPPLY SPILL – MILNE PORT

Refer to Milne Port OPEP (BAF-PHI-830-0013).

6.2 EXPLOSIVES TRANSPORT AND STORAGE

For an overview of quantities of explosives during 2015, refer to Table 6-1. For the location of the explosives storage facilities at Milne Port, and the Mine Site, see the site layout drawings in **Error! Reference source not found.**. For additional information pertaining to the material information, onsite storage locations and handling procedures of Ammonium Nitrate (AN), Dyno Nobel Baffin Island Inc. has prepared an Emergency Response Assistance Pan which has been provided in Appendix F.

6.2.1 AMMONIUM NITRATE STORAGE AND HANDLING

AN for use at the Mary River Project is stored in containers in two locations; the KM 97 laydown and smaller quantities at the Mine Site Dyno Nobel emulsion plant. The AN prill is stored in 1,000 kg tote bags, 20 of which are stored double-stacked in each of the 20' containers. AN (in any amount) shall not be stored outside at any time and shall only be withdrawn from the containers when required by plant production. AN is loaded directly into the AN Handling Module of the plant to minimize any exposure of the product to the environment.

6.2.2 EMULSION STORAGE AND HANDLING

Emulsion is stored in a single, 36,000 kg capacity tank within the emulsion loading garage at the Dyno Nobel Emulsion Plant. Smaller quantities may be stored in the two bulk emulsion trucks (10,000 kg capacity each) which are parked in the garage when not in use.

Small spills shall be scooped up with non-sparking shovels, placed in bags and stored at the magazine site at km 105.5 until the spilled emulsion can be disposed of in blast holes. Large spills will be dealt with on an individual basis depending upon the size of the spill. Efforts shall be made to contain spills and secure the surrounding area before clean-up begins. The clean-up of large spills may involve pumping spilled emulsion into tanks or totes and/or scooping up product with shovels and storing it approved containers/bags.

In addition, smaller quantities of AN emulsion pre-packaged explosives will be used to begin development of the quarry sites. Pre-packaged AN emulsions pose minimal risk to the environment given the hydrophobic nature of the emulsion explosives.

TABLE 6.1: Quantities of Explosives Stored Onsite (December 2015)

Material	Purpose	Total Quantities 2015	Storage Type	Max. Quantity at Site at any time
Pre-Packaged Explosives	Explosive agent	716,519 kg	Magazines and Seacans	800,000 kg
Ammonium Nitrate	Polymer	1,874,000kg	20,000 kg per seacan	2,000,000 kg

6.2.3 Potential Spill Scenarios Related to Explosives

Scenario 1: Spill of Ammonium Nitrate

AN dissociates readily in water to form ammonia, which in its un-ionized form, is toxic to aquatic organisms and fish. Storage on land, away from water sources largely eliminates the risk of ammonia losses to water bodies.

All partially full, contaminated or ripped bags of prill, spilled prill and used empty bags are collected and stored in a dedicated contained location for reuse on site or shipment off site for disposal. Spills within the storage facility are completely contained and will be cleaned up by personnel trained in explosives management. All spills will be recorded on a spill report and all tote bags will be inspected regularly by the explosives contractor.

AN is expected to be used to produce explosives emulsion onsite and will be transported to various project areas. Therefore the greatest potential for an AN spill to occur is during transport along the Tote Road due to mechanical failure, weather conditions or human error.

Description of Incident	**Explosives transport truck rolls over or collides with another vehicle or object. Transport container(s) as well as individual tote bags rupture resulting in a spill.**
Potential Causes	Collision, poor driving conditions or visibility, equipment error, operator error.
Product Spilled	AN
Maximum Volume Spilled	1 tonne
Estimated Time to Spill Entire Volume	Instantaneous
Immediate Receiving Medium	Depending on the location either on land or in a water body.
Most Probable Direction of Spill Migration	Depending on location
Distance and Direction to Closest Body of Water	Depending on location
Resources to Protect	Nearby water bodies
Emergency Response Level	Level 1 (low) or Level 2 (medium) – Refer to ERP (depends on quantity and whether there is potential for impact to water bodies and/or to public safety)
Estimated Emergency Spill Response Time	15 – 60 minutes
Spill Response Procedures	a) In the event that a spill occurs on land the emergency response team will be contacted immediately. If the driver is unharmed he will act as the spill response first responder. All spilled prills will be contained, with the use of berms if required. Once the spill has been contained the prills will be cleaned up be a trained crew and transported and stored in a dedicated contained location until they can be shipped off site. b) In the event that a spill occurs in water the emergency response team will be contacted immediately. Spill containment devices (i.e. diking and/or pumping water into bladder(s)) will be constructed downstream and undissolved prills will be removed from the water body. Recovered material will be stored in a dedicated containment area before it can be shipped off site.

For an AN spill to occur during transportation this would require the explosives transport truck to be in a major collision. In addition to the breakage of individual AN prill tote bag this would also require the sea can magazine the AN is being transported in to rupture as well. Even if both the tote bags and sea can magazine ruptured, the spill would pose little chance of contamination to the surrounding environment unless deposited directly into a stream/water body. This will not be an issue during the winter months and if the spill occurs on land, either the driver or response team will be able to quickly and effectively mitigate the spill before any contamination is likely to occur.

Accidental spills of ammonium nitrate from an explosives truck shall be immediately cleaned-up, reported to the Environmental Supervisor, and logged as required by regulations. A copy of a Standard Nunavut Spills Report Form is provided in Appendix D. Clean-up shall be completed by employees licensed to handle explosives and the contaminated material will be handled and stored in a designated area until the contaminated material can be shipped off-site.

Scenario 2: Spill of Emulsion

Emulsion materials are acutely toxic to aquatic life and therefore could have adverse impacts on fish and other aquatic life if released to surrounding water bodies and streams. Because of this, emulsion material is stored in either the form of pre-packaged explosives in an explosives magazine or at the emulsion plant where spills can be completely contained within the confines of the plant. Spills within the emulsion plant would be cleaned up by employees and contractors licensed to handle explosives. Clean-up materials will be segregated in an appropriate area; incompatible materials will not be stored together, pursuant to material MSDSs and WSCC regulations.

In the event of an emulsion spill, a spill report will be completed by the explosives contractor with the support of the Environment Department. If a spill exceeds reportable quantities, notification shall be made under the spill reporting regulations applicable to Nunavut.

Scenario 3: Spill of Pre-packaged Emulsion during Transport

Given the precautions taken in the design of the explosives storage facilities and the suitability of containers used for storage and transport, major spills are most likely to be caused by traffic accidents during the transportation of the pre-packaged explosives by transport truck. If such an accident occurs, explosive materials will be recovered by employees or contractors licensed to handle explosives and the contaminated material will be handled and disposed of in a designated area until it can be shipped off-site.

Description of Incident	**Emulsion transport truck rolls over or collides with another vehicle or object. Transport container as well as pre-packaged explosives.**
Potential Causes	Collision, poor driving conditions or visibility, equipment error, operator error.
Product Spilled	AN emulsion
Maximum Volume Spilled	10,000 L
Estimated Time to Spill Entire Volume	Instantaneous
Immediate Receiving Medium	Depending on the location either on land or in a water body.
Most Probable Direction of Spill Migration	Depending on location
Distance and Direction to Closest Body of Water	Depending on location
Resources to Protect	Nearby water bodies
Emergency Response Level	Level 2 (medium) or Level 3 (high) – Refer to ERP (depends on quantity and whether there is potential for impact to water bodies and to affect public safety)
Estimated Emergency Spill Response Time	15 – 60 minutes
Spill Response Procedures	a) In the event that a spill occurs on land the emergency response team will be contacted immediately. If the driver is unharmed he/she will act as the spill response first responder. All spilled prills will be contained, with the use of berms if required (though unlikely). Once the spill has been contained the emulsion will be cleaned up by a trained crew and stored in a dedicated contained location until the cleanup materials can be shipped off site. b) In the event that a spill occurs in water the emergency response team will be contacted immediately. Spilled materials will be contained and recovered using booms and other spill control devices. Recovered material will be stored in a dedicated containment area until it can be shipped off site.

SCENARIO 4: SPILL OF EMULSION DURING BLAST HOLE LOADING

Emulsion spills are unlikely to occur during blast hole loading given the nature of emulsion explosives. Pre-packaged explosives are in self-contained tubes that are simply dropped into the hole. Emulsion from the emulsion plant is pumped into blast holes via hose lines on the emulsion pump truck.

Description of Incident	Emulsion spilled while loading emulsion in blast holes.
Potential Causes	operator error, mechanical failure or malfunction
Product Spilled	AN emulsion
Maximum Volume Spilled	<10 kg
Estimated Time to Spill Entire Volume	Instantaneous
Immediate Receiving Medium	Land
Most Probable Direction of Spill Migration	Not expected to migrate due to its high viscosity
Distance and Direction to Closest Body of Water	Depending on location
Resources to Protect	Nearby water bodies
Emergency Response Level	Level 1 (low) – Refer to ERP
Estimated Emergency Spill Response Time	5 minutes
Spill Response Procedures	In the event that a spill occurs on land the blasting technician will respond. The spilled emulsion will immediately be cleaned up and stored in a dedicated contaminated explosives area until it can be shipped off site.

6.3 UNTREATED SEWAGE

The Mine Site and Milne Port are equipped with a dedicated wastewater treatment facility (WWTF) (refer to Baffinland's Fresh Water Supply, Sewage and Wastewater Management Plan - Doc. No. BAF-PH1-830-P16-0010) equipped with Membrane Bio Reactor unit (MBR). Steensby Port is expected to have limited to no activity occurring on site in 2016. Sewage produced at Steensby Port will be treated using a latrine system or transported to Milne Port or the Mine Site for treatment.

6.3.1 POTENTIAL SPILLS SCENARIOS RELATED TO SEWAGE

SCENARIO 1: SEWAGE SPILL AT MILNE PORT

Description of Incident	Spill from MBR holding tank.
Potential Causes	Pipe or mechanical failure, human error.
Product Spilled	Raw sewage
Maximum Volume Spilled	48,000 L
Estimated Time to Spill Entire Volume	60 minutes
Immediate Receiving Medium	Milne Port
Most Probable Direction of Spill Migration	Milne Port or nearby stream east of camp pad.
Distance and Direction to Closest Body of Water	150 m
Resources to Protect	Milne Port
Emergency Response Level	Level 1 (low) or 2 (medium) – Refer to ERP (depends on quantity and whether there is potential for impact to a nearby water body and to public safety)
Estimated Emergency Spill Response Time	15 minutes after spill is identified.
Spill Response Procedures	Contain with berms or sumps/ditches. Direct spill to the desired location and remove free sewage with a vacuum truck. Transport recovered sewage to PWSP or return to the sewage treatment plant for treatment. Resurface area with fresh soil.

SCENARIO 2: MINE SITE SEWAGE SPILL

Description of Incident	Spill from the RBC reservoir or MBR tank.
Potential Causes	A pipe becoming dislodged and non-treated wastewater escaping the reservoir.
Product Spilled	Raw sewage
Maximum Volume Spilled	48,000 L
Estimated Time to Spill Entire Volume	60 minutes
Immediate Receiving Medium	Soil
Most Probable Direction of Spill Migration	Downstream and into a local depression east of the MBR wastewater treatment facility. This local depression dries up in the summer and intercepts the maximum spilled volume.
Distance and Direction to Closest Body of Water	200 m
Resources to Protect	One stream (to West of MBR) and Sheardown Lake.
Emergency Response Level	Level 1 (low) or 2 (medium) – Refer to ERP (depends on quantity and whether there is potential for impact to a water body and/or to public safety)
Emergency Spill Response Time	15 minutes after spill
Spill Response Procedures	Contain with berms or sumps/ditches. Direct spill to the desired location and remove free sewage with a vacuum truck. Transport recovered sewage to PWSP or return to the sewage treatment plant for treatment. Resurface area with fresh soil.

SCENARIO 3: SEWAGE TRANSPORT TRUCK SPILL

Description of Incident	Spill from the tanker truck transporting raw sewage from one of the temporary camp sites to permanent WWTP at Milne Port or the Mine Site.
Potential Causes	Road accident
Product Spilled	Raw sewage
Maximum Volume Spilled	10,000 L
Estimated Time to Spill Entire Volume	Depends on severity of accident and damage sustained by the tanker truck
Immediate Receiving Medium	Soil
Distance and Direction to Closest Body of Water	Depends on location of accident
Resources to Protect	Soil and nearby lakes, rivers and streams
Emergency Response Level	Level 1 (low) or 2 (medium) – Refer to ERP (depends on quantity and whether there is potential for impact to water body and /or to public safety)
Estimated Emergency Spill Response Time	Immediate if driver is not injured; up to 60 minutes for MRT Team to arrive.
Spill Response Procedures	Report spill and contain with berms or sumps/ditches. Direct spill to the desired location and remove free sewage with a vacuum truck. Impacted soils (if any) is left to naturally attenuate or excavated for disposal in landfarm. Possibly cover impacted area with fresh soil. Transport recovered sewage to PWSP or return to the sewage treatment plant for treatment.

6.4 LUBRICANTS AND OILS

Lubricants and machinery oils will be used on site throughout the life of the Project. Lubricants and oils have the ability to contaminate waterways and soils if exposed to the environment. However, the risk of a lubricant or oil spill on site is expected to be minimal. Lubricants and oils shall be handled by trained

staff following proper procedures and guidelines. Lubricants are stored and transported in small quantities. In the event of a spill, appropriate spill response equipment and procedures, as outlined in this plan, will be readily available and utilized to minimize the impact of the spill.

6.4.1 Potential Spill Scenarios Related to Lubricants and Oils

Scenario 1: Containment puncture during transport

The most likely spill scenario to occur with regards to lubricants and oils is a puncture of an individual storage unit during transport. Lubricants and oils are typically stored in 1 m^3 containers (1,000 L totes) within a seacan container. When lubricants or oils are required, single totes are removed from the seacan with a forklift. In the event that the container is punctured by the forklift a maximum spill volume of 1,000 L could potentially occur. The likelihood of this occurring is minimal as all equipment operators will be trained in proper lubricant and oil transfer procedures (i.e. use of spotter). In the unlikely event that a tote is punctured, the operator will identify the puncture and will immediately proceed to contain the spill and implement mitigation procedures.

Description of Incident	**Lubricant or oil container is punctured by a forklift during transport**
Potential Causes	Operator error. Equipment failure.
Product Spilled	Lubricant or oil.
Maximum Volume Spilled	1,000 L
Estimated Time to Spill Entire Volume	5 minutes
Immediate Receiving Medium	Land
Most Probable Direction of Spill Migration	Depends on area
Distance and Direction to Closest Body of Water	Depends on area
Resources to Protect	Any nearby water bodies.
Emergency Response Level	Level 1 (low) or 2 (medium) – Refer to ERP (depends on quantity and whether there is potential for impact to a nearby water body)
Estimated Emergency Spill Response Time	>5 minutes
Spill Response Procedures	If the forklift driver is not injured, he will act as a first responder and immediately initiate the spill response utilizing the spill kit kept in the work area. The spill will be contained through the use of temporary berms and ditches until it can be vacuumed up and transported to the oily water treatment plant or an appropriate storage facility. Any contaminated soil will be removed and transported to the Milne Port Landfarm Facility for remediation.

SCENARIO 2: SPILL DURING EQUIPMENT ROLLOVER

It is possible that the mobile equipment carrying a container lubricant or oil could rollover or have a collision causing a spill of the entire 1 m^3 tote. In the event that this occurs, the spill will be managed the same way as detailed above. The event of a rollover is unlikely given the safe driving procedures, speed limits, road signage and training procedures in place. In addition to this all lubricant and oil containers will be securely fastened inside the vehicle in which they are being transferred, when applicable, making a spill unlikely.

Description of Incident	**Spill during equipment rollover**
Potential Causes	Operator error. Equipment failure. Poor visibility or adverse weather. Collision.
Product Spilled	Lubricant or oil.
Maximum Volume Spilled	1,000 L
Estimated Time to Spill Entire Volume	instantaneous
Immediate Receiving Medium	Land
Most Probable Direction of Spill Migration	Depends on area
Distance and Direction to Closest Body of Water	Depends on area
Resources to Protect	Any nearby water bodies.
Emergency Response Level	Level 1 (low) or 2 (medium) – Refer to ERP (depends on quantity and whether there is potential for impact to a nearby water body)
Estimated Emergency Spill Response Time	15 – 60 minutes
Spill Response Procedures	If the driver is not injured, he will act as the first responder and immediately initiate the Spill Contingency Plan as defined in Section 6, utilizing the spill kit kept in the work area or on the mobile equipment. The spill will be contained through the use of temporary berms and ditches until it can be vacuumed up and transported to the oily water treatment plant or an appropriate storage facility. Any contaminated soil will be removed and transported to Milne Port Landfarm Facility for treatment. In the event a spill occurs in a water body the lubricants and oils will be contain and recovered downstream as described in Section 2, with shorelines protected using sorbent booms. All free-product will be collected for temporary storage and soiled shorelines cleaned-up. If the mobile equipment operator is not injured, he will act as a first responder and immediately initiate the Spill Contingency Plan as defined in Section 1.2 utilizing the spill kit kept in the work area or on the mobile equipment. Once the spill is contained contaminated water and recoverable free product will be pumped up by a vacuum truck to be discharged to the oily water treatment plant.

SCENARIO 3: SPILLS DURING TRANSFER

It is possible that a minor spill may occur during the transfer of lubricants or oil to equipment. This will most likely be the result of equipment failure, such as pumps or hoses, or operator error.

As proper maintenance procedures will be in place to reduce the chance of equipment malfunctions, along with proper training procedures it is unlikely a spill will occur in this event. Additionally, the use of spill trays is mandatory during all oil and lubricant transfers.

Description of Incident	Spill during transfer
Potential Causes	Operator error. Pump failure. Hose failure.
Product Spilled	Lubricant or oil.
Maximum Volume Spilled	1,000 L
Estimated Time to Spill Entire Volume	5 – 15 minutes
Immediate Receiving Medium	Land
Most Probable Direction of Spill Migration	Depends on location
Distance and Direction to Closest Body of Water	Depends on location
Resources to Protect	Nearby water bodies.
Emergency Response Level	Level 1 (low) or 2 (medium) – Refer to ERP (depends on quantity and whether there is potential for impact to water body)
Estimated Emergency Spill Response Time	5 -15 minutes
Spill Response Procedures	If the spill occurs in a building it will be contained as all buildings are fully lined or equipped with concrete floors, preventing any contaminants from reaching the natural environment. The spill will be cleaned up by qualified personnel and disposed of as a hazardous material. If a spill occurs during transfer all transfer activities will be halted immediately and clean-up of the spill with the available spill kit will commence. The spill will be contained using berms, ditches, sumps and booms where necessary. The downstream wall of trenches will be lined with plastic material to ensure unexposed soil does not come in contact with the lubricant or oils. Absorbent material will be utilized where required. Once the spill has been contained it will be sucked up by a vacuum truck and brought to an appropriate storage/treatment facility. If necessary contaminated soil will be removed and brought to the Milne Port landfarm for treatment. New soil will be laid down in the exposed area.

SCENARIO 4: SPILLS DURING CRUSHING OPERATIONS

It is possible that spills will occur during crushing operations at the Mine Site Ore Crushing Pad. This will most likely be the result of equipment failure such as ruptured hoses or a rupture to the oil reservoir.

Preventative maintenance, in addition to proper equipment warm-up procedures will reduce the likelihood of spills. Several spill kits are located at the crusher area and shall be maintained at all times. The spill kits are equipped with absorbent pads, booms, and PPE to effectively respond to a spill.

Description of Incident	Release of Hydraulic Fluid from Cone Crusher
Potential Causes	Hose failure. Rupture of oil reservoir
Product Spilled	Lubricant Oil
Maximum Volume Spilled	600 L
Estimated Time to Spill Entire Volume	5 minutes

Immediate Receiving Medium	Land
Most Probable Direction of Spill Migration	Ore pad is a level surface of medium to fine grain gravel/crushed ore
Distance and Direction to Closest Body of Water	Depends on location - > 31 m
Resources to Protect	Nearby water bodies - > 31 m
Emergency Response Level	Level 1 (low) or 2 (medium) – Refer to ERP (depends on quantity and whether there is potential for impact to nearby water bodies)
Estimated Emergency Spill Response Time	5 – 15 minutes
Spill Response Procedures	Hydraulic fluid/oil will spill to the medium – fine gravel/crushed iron ore ground surface below the ore crusher, at the ore pad. In the event of a release of lubricant fluid from the cone-crusher tank, (max volume of 600L) all crushing activities will be halted immediately and clean-up of the spill with available spill kit(s) will commence. The spill will be contained using absorbent booms where necessary. The ore crushing pad is a level surface of medium – fine grain gravel/ore fines, therefore contaminant migration is not of great concern. Absorbent material (pads) will be also be used where required. When the spill is contained, the layer of contaminated gravel/crushed ore fines will be excavated and brought to an appropriate storage facility or to the Milne Port Landfarm Facility as required. New gravel will then be placed over the exposed area.

7 REPORTING REQUIREMENTS

Internal spill reports are written by the department responsible for the spill and are provided to the Environment Department through Baffinland's Incident Reporting System. However, all external reporting requirements for Regulatory agencies shall be provided by the Environment Department.

Table 7.1 provides guidance pertaining to spill reporting and and associated clean-up procedures for site personnel. Departments responsible for the spill are required to complete clean-up activities using resources as required. In the event of a Level 2 or 3 spill response, initial assistance and resources shall be provided by the MRT.

TABLE 7-1: General Spill Reporting and Clean-up Requirements

Spill on Land		
Volume	**Required Documentation**	**Spill Clean-up**
Less than 1 L	Verbal or email report	Environment Department will advise if needed.
Greater than 1 litre and less than 100 litres	- Photos of Spill and Clean-up - Baffinland Incident Investigation Report	Spills greater than 30 litres will have an Environmental Monitor present to advise clean-up efforts.
Greater than 100 L	- Photos of Spill and Clean-up - Baffinland Incident Investigation Report - NT-NU Spill Report - Notification to regulators and the Spill Line	Environmental Superintendent or his/her designate will lead and advise clean-up efforts.
Spill on Water Body or Watercourse		
Volume	**Required Documentation**	**Spill Clean-up**
Any volume	- Photos of Spill and Clean-up - Baffinland Incident Investigation Report - NT-NU Spill Report - Notification to regulators and the Spill Line	Environmental Superintendent or his/her designate will lead and advise clean-up efforts.