Baffinland Iron Mines Corporation

SPILL CONTINGENCY PLAN

BAF-PH1-830-P16-0036

Rev 1

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Index of Major Changes/Modifications in Revision 1

Item No.	Description of Change	Relevant Section
1	Updated distribution list	Table A
2	Provide reference to approved Type B Water Licence - 8BC-MRY1416 – *issued* August 6, 2014	Section 1.1
3	Provide reference to NIRB The amended Project Certificate No. 005 Amendment – *issued* May 28, 2014	Section 1.1
	Illustrative modifications made to Spill Response Diagram	Table 2.1
4	Description of new construction works – Milne Port Soil Landfarm and Contaminated Snow Containment Facility	Section 4.1
5	Added – Training Requirements	Section 5
6	Updated fuel inventories (current as of January 2015)	Table 5.1
7	Updated maximum fuel storage capacity (based on 2015 Work Plan)	Table 5.2
8	Updated information pertaining to Explosives Transportation and Storage	Section 6.2
9	Updated quantities of explosives stored onsite in 2014	Table 6.1
10	Added - Scenario 4: Spills During Crushing Operations	Section 6.4
11	Added – Reporting Requirements	Section 7
12	Updated to reflect spill kits locations and supplies	Appendix B
13	Updated to include list and photos of MRT Response Truck Supplies	Appendix B
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15	Updated to include Dyno Nobel Emergency Response Assistance Plan	Appendix E

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This Plan is required for use in conjunction with Baffinland's Emergency Response Plan - Doc. 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	

Baffinland Iron Mines Corporation

SUSTAINABLE DEVELOPMENT POLICY

At Baffinland Iron Mines Corporation, we are committed to conducting all aspects of our business in accordance with the principles of sustainable corporate responsibility and always with the needs of future generations in mind. Everything we do is underpinned by our responsibility to protect the environment, to operate safely and fiscally responsibly and to create authentic relationships. We expect each and every employee, contractor, and visitor to demonstrate a personal commitment to this policy through their actions. We will communicate the Sustainable Corporate Policy to the public, all employees and contractors and it will be reviewed and revised as necessary on an annual basis.

These four pillars form the foundation of our corporate responsibility strategy:

Health and Safety
Environment
Investing in our Communities and People
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 from the very earliest of planning stages. Why? Because our people are our greatest asset. Nothing is as important as their health and safety.

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 and awareness. We allow our workers and contractors the right to stop any work if and when they see something that is not safe.

2.0 ENVIRONMENT

We employ a balance of the best scientific and traditional Inuit knowledge to safeguard the environment.

We apply the principles of pollution prevention 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 pioneering new processes and more sustainable practices.

We understand the importance of closure planning. We ensure that an effective closure strategy is in place at all stages of project development and that progressive reclamation is undertaken as early as possible to reduce potential long-term environmental and community impacts.

3.0 INVESTING IN OUR COMMUNITIES AND PEOPLE

We respect human rights and the dignity of others. We honour and respect the unique culture, values and traditions of the Inuit people.

We contribute to the social, cultural and economic development of sustainable communities adjacent to our operations.

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.

4.0 TRANSPARENT GOVERNANCE

We will take steps to understand, evaluate and manage risks on a continuing basis, including those that impact the environment, employees, contractors, local communities, customers and shareholders.

We 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 environmental, safety, health, socio-economic commitments and set annual targets and objectives.

We conduct all activities in compliance with the highest applicable legal requirements and internal standards

We strive to employ our shareholder's capital effectively and efficiently. We demonstrate honesty and integrity by applying the highest standards of ethical conduct.

Tom Paddon
President and Chief Executive Officer
September 2011

Baffinland
Iron Mines Corporation

Mary River Project
Health, Safety and Environment Policy

The Baffinland Iron Mines Corporation (BIMC) Mary River Project Health, Safety and Environment Policy 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 goal.

The Mary River Project implements 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 Environment 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.
- Rehabilitation of disturbed lands to a safe, acceptable, and localized state.

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

- All injuries, occupational illnesses and environmental impacts can be prevented.
- Employee involvement and active contribution is essential and required.
- Management is responsible 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 Mary River Project has no higher priority than the health and safety of all people working on our behalf and the responsible management of the environment. In ensuring our overall profitability and business success every Baffinland and business partner employee working at one of our work sites is required to adhere to this policy.

Tom Peddon
President and Chief Executive Officer
March 2013

1 INTRODUCTION

1.1 PURPOSE AND SCOPE

As required by Baffinland Iron Mine Corporation's (Baffinland) Type A Water Licence No. 2AM-MRY1325 *issued* June 10, 2013 (Type A Water Licence) in association with its recently approved Type B Water Licence No. 8BC-MRY1416 – Amendment No. *issued* August 6, 2014 (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 recently received Nunavut Impact Review Board (NIRB) the amended Project Certificate No. 005 – *issued* May 28, 2014, 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) (Doc. BAF-PH1-830-P16-0007).

This Spill Contingency Plan (Rev.01) supersedes the preceding revision (Rev. 00), *issued* March 31, 2014.

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 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, Ammonium Nitrate and small quantities of lubricants and oils.

Baffinland requires all site personnel to be trained on the specific procedures required for spill response initiation and reporting. All employees 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 leaky or discharging hose to a level higher than the product level inside the tank, or transferring fuel 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, Doc. No. 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:

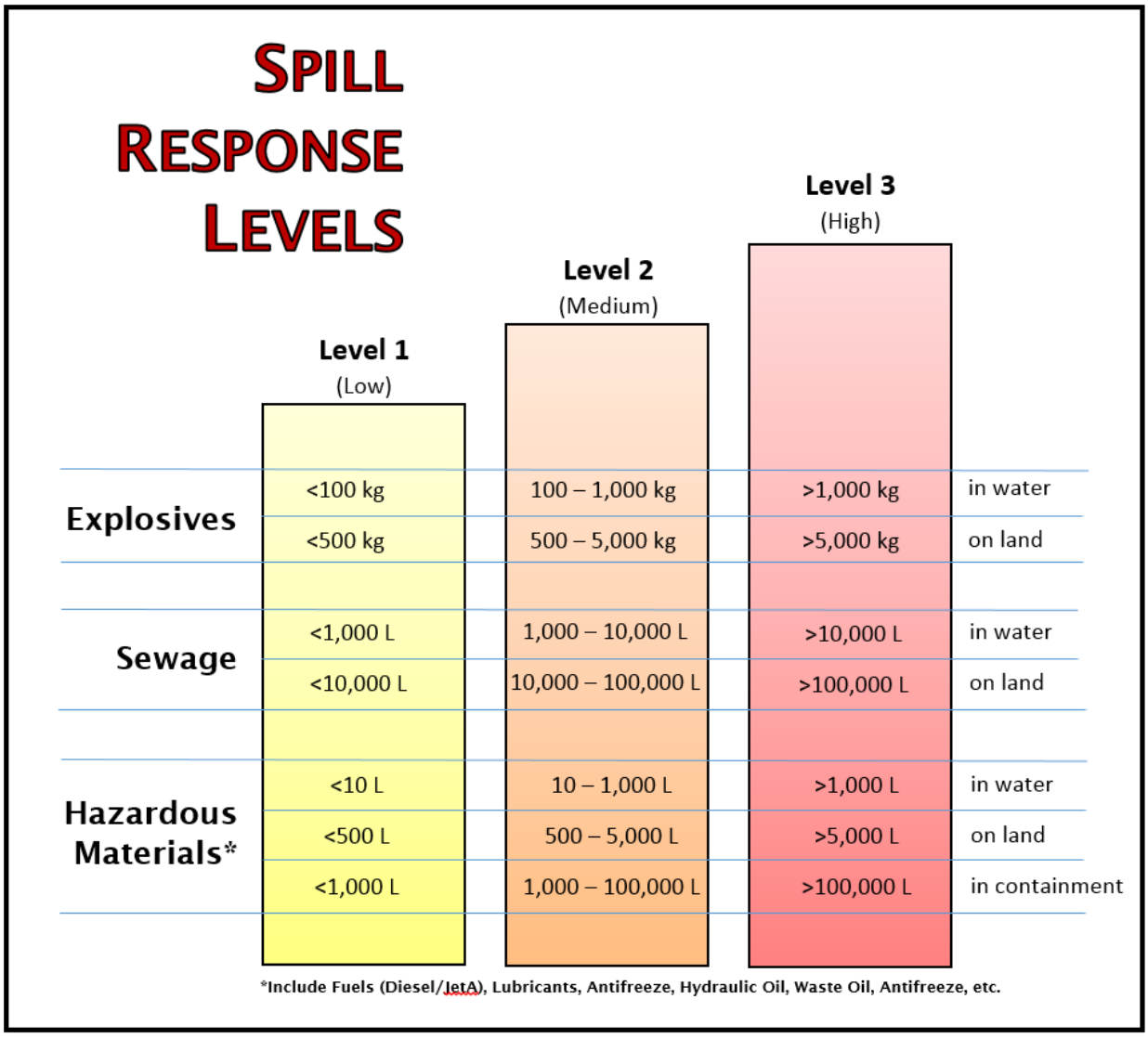
- Some threat to public safety; and/or
- Moderate environmental impact to receiving environment

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 fuel 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 l 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. Additional contaminated snow storage sites will be identified at Milne Port and the Mine Site in preparation for the 2014 Work Plan. 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 becoming oiled or contaminated, by preventing animals from entering the contaminated area after 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 will be worn by all personnel using equipment, as per manufactures instructions, and that the minimum will include the use 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 contacting spills off the surface of waters (if applicable).

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 shall 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 shall be consulted and approval 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)	Qimugjuk Building, Iqaluit	1-867-979-7279	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	1-888-447-7143	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 Milne Port Landfarm and Contaminated Snow Containment Facility (Landfarm Facility) (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 - Doc. No. BAF-PH1-830-P16-0011.

Used sorbent material is burned in the site incinerators as per incinerator standard operating procedures and contaminated snow and soil 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 was constructed in Milne Port in August 2014. The larger (3,383 m^3) west cell (landfarm) was constructed for the containment and biotreatment of hydrocarbon contaminated soil. Treated soils that meet 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 during the summer months. Monitoring will be completed to ensure compliance with prescribed water quality guideline criteria

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 Emergency Response (Mine Rescue Team (MRT)) shall also receive sufficient training to effectively respond to accidental releases of a hazardous material. Emergency and spill response training shall be developed and implemented throughout the lifecycle of Project activities and mining operations 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; and
- Participation in training requirements subject to the direction of the Chief Mines Inspector;
- 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 height or in confined spaces, handling and transferring hazardous/controlled substances, 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 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 plans 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 a simulated emergency situation in an informal setting to elicit constructive discussion as the participants examine and resolve problems based on the plan. These exercises shall be routinely performed during the MRT training 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 shall be performed at a minimum of twice annually. Deficiencies and competencies identified during functional drills are documented, complied 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 shall 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 mobile 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 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 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 site construction and other activities as anticipated during 2014.

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, concrete additives, lubricants, oils and oily water. These materials are planned to be utilized daily during the construction activities, 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 Appendix A. 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 2015 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 5.1 - On-site Fuel Volumes

Location	Current Fuel Volumes On-site	Fuel Type	Total Fuel Inventory
Milne Port	1.3 ML	Jet- A	26.3 ML
	25.0 ML	Diesel	
Mine Site	67,000 L	Jet- A	1.6 ML
	1.5 ML	Diesel	
Steensby Inlet	1,664 Barrels @ 205 L	Jet- A	495,280 L
	752 Barrels @ 205 L	Diesel	

*Note: Currently on-site January 2015.

In 2014, fuel dispensing systems were installed and commissioned at Milne Port and the Mary River Mine Site. At Milne Port the dispensing systems included two prefabricated fuel dispensing modules: the Arctic diesel Fuel Module, and the Jet-A1 Fuel Module. Both modules are insulated and heated 40 ft ISO shipping containers, complete with piping, fuel transfer equipment, temperature corrected delivery systems, electrical and control components, and code compliant fire suppression systems.

At the Mary River Mine Site one prefabricated Arctic diesel fuel dispensing module was installed. The module is an insulated and heated 40 ft ISO shipping container, complete with piping, fuel transfer equipment, temperature corrected delivery system, electrical and control components, and code compliant fire suppression system.

Table 5.2 – Maximum Fuel Storage Capacity for 2015 Work Plan

Location	2015 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	1,664 x 205 L drums	Jet- A	495,280 L
	752 x 205 L drums	Diesel	

Baffinland has constructed and continues to operate its fuel storage/dispensing 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 Response Plan governs marine spills and the OPEP - Doc. No. 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 Construction Environmental Protection Plan (CEPP) 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 vehicles 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 Construction Environmental Protection Plan (CEPP) 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	10,000L
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. So 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 potential for impact to water body and to 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 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/valving 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 water body 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 complete spill, seal the leak where feasible, contain and recover oil spill on ground using dykes and 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 treatment is achieved, the content of the reservoir is normally pumped by a vacuum truck to be discharged elsewhere. Therefore a vacuum truck is available in the area. In case of a spill of non-treated wastewater (sewage), the slick would be pumped using the vacuum truck. The piping would be repaired and the content of the truck would be discharged back in the oily water treatment 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 Doc. No. BAF-PHI-830-0013.

6.2 Explosives Transport and Storage

For an overview of on-hand quantities of explosives during 2014, refer to Table 6-3. For the location of the explosives storage facilities at Milne Port, and the Mine Site, see the site layout drawings in Appendix A. 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) is shall not be stored outside at any time. At any time, AN shall only be withdrawn from the containers when required by plant production. It 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 garages when not in use in the mine.

Small spills shall be scooped up with non-sparking shovels and placed in bags, transported to magazine site at km 105.5, to be stored until ready for disposal in blast holes. Large spills will be dealt with on an individual basis depending upon size of spill. Efforts shall be made to contain spills and an area will be secured before clean-up begins. This may involve pumping of large spills into a tanker or scooping up product with shovels.

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 (2014)

Material	Purpose	Total Quantities 2014	Storage Type	Max. Quantity at Site at any time
Pre-Packaged Explosives	Explosive agent	1,200,000 kg	Magazines and Seacans	800,000 kg
Ammonium Nitrate	Polymer	2,200,000 kg	20,000 kg per seacan	5,000,000 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 are recorded on a spill report and all tote bags are inspected regularly by the explosives contractor.

Limited AN is expected to be used to produce explosives emulsion however it will be transported to various project areas, therefore the greatest potential for an AN spill will occur is during transport. One major opportunity exists for a spill to occur during transport which is as a result of an accident on the Tote Road.

Description of Incident	**Explosives transport truck rolls over or collides with another vehicle or object. Transport container 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 body and 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. Booms and other spill control devices will be deployed 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 facilitation of a significant rupture of the sea can magazine the AN is being transported in. Even this would pose little chance of contamination 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 the 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 D. Clean-up shall be completed by employees licensed to handle explosives and the contaminated material will be handled and disposed of in a designated area until they are shipped off-site.

SCENARIO 2: SPILL OF EMULSION

Emulsion materials are acutely toxic to aquatic life. Release of emulsions to receiving water could have adverse impacts on aquatic life and fish. Therefore, emulsion material is stored in either the form of pre-paged explosives in an explosives magazine or at the emulsion plant where spills can be contained 100% within the confines of the building. Spills in confined areas are cleaned by employees 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 Environmental Supervisor. If a spill exceeds reportable quantities, notification shall be made under the spill reporting regulations applicable in Nunavut.

SCENARIO 3: SPILL OF PRE-PACKAGED EMULSION DURING TRANSPORT

Given the precautions taken in the design of the storage facilities and the suitability of containers used for storage and transport, major spills are most likely to be caused by traffic accidents involving the pre-packaged explosives transport truck. If such an accident occurs, explosive material will be recovered by employees licensed to handle explosives and the contaminated material will be handled and disposed of in a designated area until they are 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 body and 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 (though unlikely). Once the spill has been contained thee emulsion 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. Booms and other spill control devices will be deployed downstream and emulsions will be collected and removed from the water body. Recovered material will be stored in a dedicated containment area before 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 hoselines. Given the hydrophobic nature of emulsion explosives, releases to the surrounding environment are unlikely to be absorbed into a waterway and are effectively mitigated by trained personnel filling the blast holes.

Description of Incident	Emulsion spilled whist loading pre-packaged emulsion in blast holes.
Potential Causes	Faulty packaging, operator error.
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	No expected to migrate
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) with Membrane Bio Reactor units (MBR). Steensby Port is expected to have limited to no activity occurring on site in 2015. 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 the RBC reservoir or MBR tank. A pipe is accidently dislodged and non-treated wastewater escape the reservoir.
Potential Causes	Pipe or mechanical failure, human error.
Product Spilled	Raw sewage
Maximum Volume Spilled	80,000 L
Estimated Time to Spill Entire Volume	60 minutes
Immediate Receiving Medium	Milne Port
Most Probable Direction of Spill Migration	Milne Inlet
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 water body)
Estimated Emergency Spill Response Time	15 minutes after spill is identified.
Spill Response Procedures	Report Spill, Contain with berm or sump/ditch. Direct spill to the desired location and suck up spill with a vacuum truck. Put recovered sewage in a pond or return to the sewage treatment plant. 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 has accidently being dislodged and non-treated wastewater escapes the reservoir
Product Spilled	Raw sewage
Maximum Volume Spilled	72,000 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. That local depression dries in the summer and intercepts the maximum spilled volume.
Distance and Direction to Closest Body of Water	200 m
Resources to Protect	One stream 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 water body)
Emergency Spill Response Time	15 minutes after spill
Spill Response Procedures	A vacuum truck is available at the Mine Site. In case of a spill of non-treated wastewater (sewage), the slick would be pumped using the vacuum truck. The piping would be repaired. Put recovered sewage in a pond or return to the sewage treatment plant. 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 site to one of the permanent WWTF
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 waterways
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	Immediate if driver is not injured; up to 60 minutes for MRT Team to arrive.
Spill Response Procedures	Spillage is contained. Impacted soils (if any) is left to naturally attenuate or excavated for disposal in landfarm. Possibly cover impacted area with fresh soil. Dispose of residual sewage in PWSP or discharge back to MBR.

6.4 LUBRICANTS AND OILS

Lubricants and machinery oils will be used on site throughout the course of construction and operations. Lubricants and oils have the ability to contaminate waterways and soils if exposed to the environment. That being said 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 will be readily available.

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 (1,000L totes) within a seacan container. When lubricants or oils are required, a 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 1,000L could potentially occur. The likelihood of this occurring is minimal as all equipment operators will be trained in proper lubricant and oil transfer procedures. In the unlikely event that a tote is punctured, the operator will identify the puncture immediately and immediately proceed with 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 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 contingency plan utilizing the spill kit kept in the vicinity. 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 processed in the Milne Port Landfarm Facility.

SCENARIO 2: SPILL DURING EQUIPMENT ROLLOVER

It is possible that the equipment carrying a lubricant or oil container could rollover or has a collision causing a spill of the entire 1 m^3 container. In the event that this occurs it 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 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 water body)
Estimated Emergency Spill Response Time	15 – 60 minutes
Spill Response Procedures	If the driver is not injured, he will act as a first responder and immediately initiate the spill contingency plan as defined in section 6 utilizing the spill kit kept in the vicinity. 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 processed in Milne Port Landfarm Facility. In the event a spill occurs in a water body the lubricants and oils will be contain and recovered downriver 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 forklift driver 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 vicinity. Once the spill is contained the content of the reservoir 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 the pump 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 this spill occurs in a building it will be contained as all buildings are fully lined and no contaminants will be able reach 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. 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 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. A spill kit is located at the crusher area and shall be maintained at all times. The spill kit contains absorbent pads and booms accessible for quick spill response.

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 water body)
Estimated Emergency Spill Response Time	5 – 15 minutes
Spill Response Procedures	Hydraulic fluid 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 contaminate 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 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 provided to by the Responsible departments are responsible for providing spill reports to Baffinland's Environment Department through Baffinland's Incident Reporting System; however, all external reporting requirements to 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 for site personnel. Departments responsible for the spill is 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.

Appendix A -
Current Site Layouts (2015) for Milne Port and Mary River Mine

H349000-2000-00-015-0021

MILNE INLET

AANDC NUNAVUT LEASE 47H/16-1-2
SHIPLOADER
ORE DOCK
MOORING BUOY
SEALIFT BARGE LANDING AREA
RAMP TO BEACH
LAYDOWN AREA
FUEL TANK FARM
ORE STOCKPILE SETTLING PONDS
EFFLUENT DISCHARGE LOCATION N 7976341 E 503639
HAZARDOUS WASTE BERMS
LAYDOWN AREA
EXISTING HTO CABIN
FUTURE AIRSTRIP
SERVICES AREA PAD
SITE FACILITIES, INCLUDING:
- MAINTENANCE BUILDING x 2
- EXTEND WELDING SHOP BUILDING
- WORKSHOP OFFICE BUILDING
- TOROMONT MAINTENANCE BUILDING
- TRUCKWASH

POWER GENERATORS
INCINERATOR HAZARDOUS WASTE BERM
POLISHING WASTE STABILIZATION POND
EXISTING HAZARDOUS WASTE BERM
ORE STOCKPILE PAD
MATRIX CAMP
CAMP INFRASTRUCTURE PAD
SITE FACILITIES, INCLUDING:
- EXTEND ACCOMMODATION COMPLEX
- EMERGENCY RESPONSE OFFICE
- EMERGENCY RESPONSE GARAGE
- UPGRADE SEWAGE TREATMENT PLANT
- UPGRADE POTABLE WATER TREATMENT PLANT
- WASTE MANAGEMENT FACILITY

TRAILER CAMP TO BE REMOVED 2015
ADDITIONAL LAYDOWN AREA
LAND FARM
ROCK QUARRY N0.1 BOUNDARY
POTABLE WATER SUPPLY
CONCRETE BATCH PLANT , CRUSHER AND STOCKPILE
FUTURE POLISHING WASTE STABILIZATION POND
TOTE ROAD
EXTENT OF QUARRY Q1
PERMITTED OPEN BURN PIT AREA
KM2 PLANNED BORROW AREAS

PHILLIPS CREEK

MILNE PORT
MINE SITE

KEYPLAN

FOR INFORMATION

NOTES:

1. TOPOGRAPHY PROVIDED BY TERRAPOINT CANADA INC.
2. COORDINATE GRID IS SHOWN IN UTM (NAD83) ZONE 17 AND IS IN METRES.
3. DRAINAGE WILL BE DIVERTED AROUND NEW LAYDOWN AREAS AND PADS.

0 50 100 150 200 250
SCALE IN METRES

LEGEND:

- WATER
- QUARRY
- COMMERCIAL LEASE
- AANDC LEASE 47H/16-1-2
- RIVER/STREAM/DRAINAGE
- ROAD
- PROJECT DEVELOPMENT AREA
- PLANNED BORROW AREAS

REV.	ISSUE FOR	AUTH. BY	DATE
C	ISSUE FOR USE	S.M.	T.M. 2014-12-10
B	ISSUE FOR USE	C.L.	T.M. 2014-10-31
A	ISSUE FOR USE	C.L.	A.G. 2014-06-19

ISSUE AUTHORIZATION

HATCH™

DESIGNED BY C. LEISTNER DATE 2014-10-20	DRAWN BY J. BAJAGIC DATE 2014-10-20
CHECKED BY S. POTTER DATE 2014-10-20	DISCIP. ENGR. A. GRZEGORCZYK DATE 2014-10-20
PROJ. DES. COORD. T. THERTELL DATE 2014-10-20	PROJ. ENGR. J. CLELAND DATE 2014-06-19
PROJ. MGR. J. CLELAND DATE 2014-06-19	

Baffinland

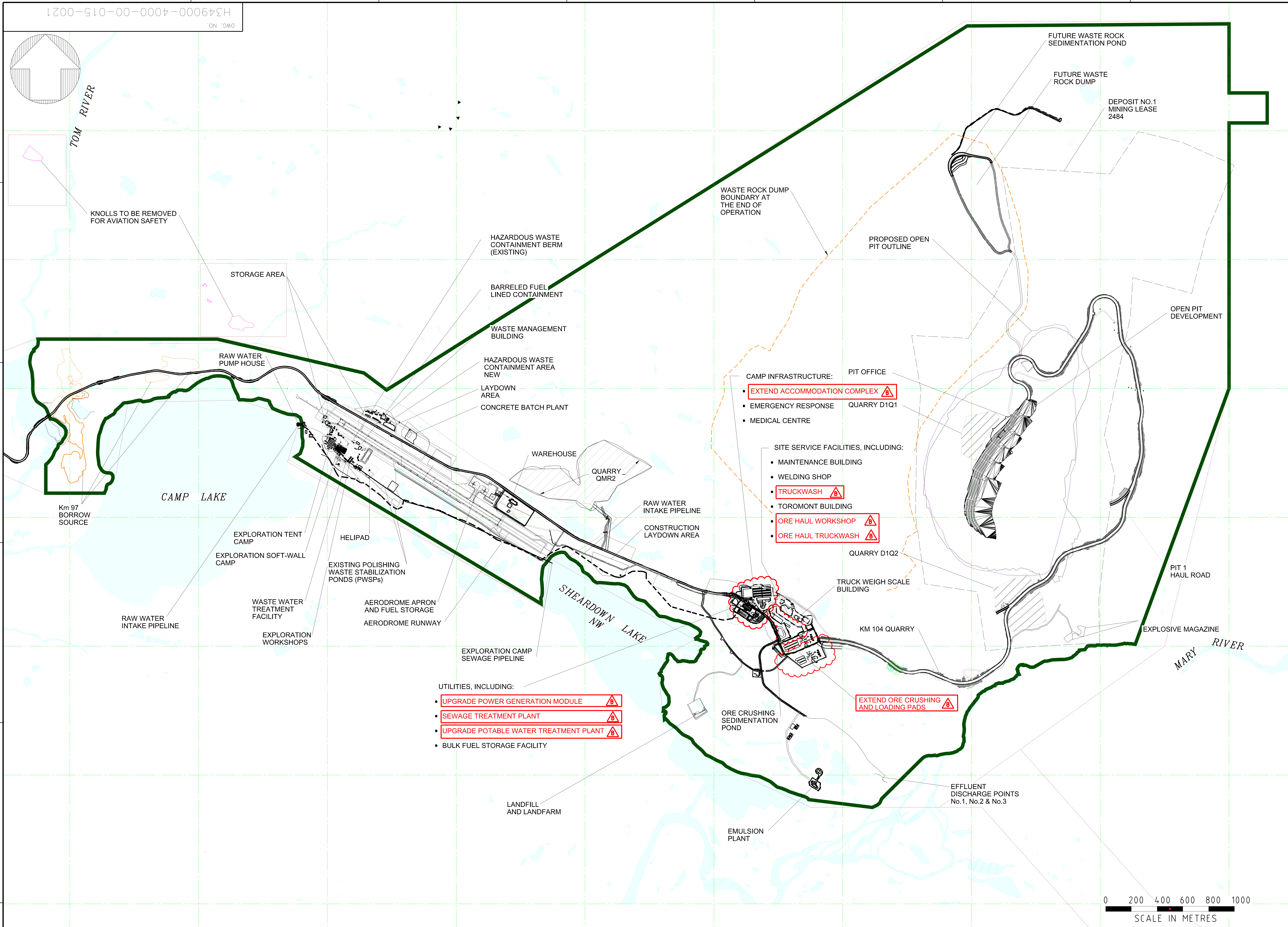
MARY RIVER PROJECT

MILNE PORT
INFRASTRUCTURE FOOTPRINT
WORK PLAN 2015

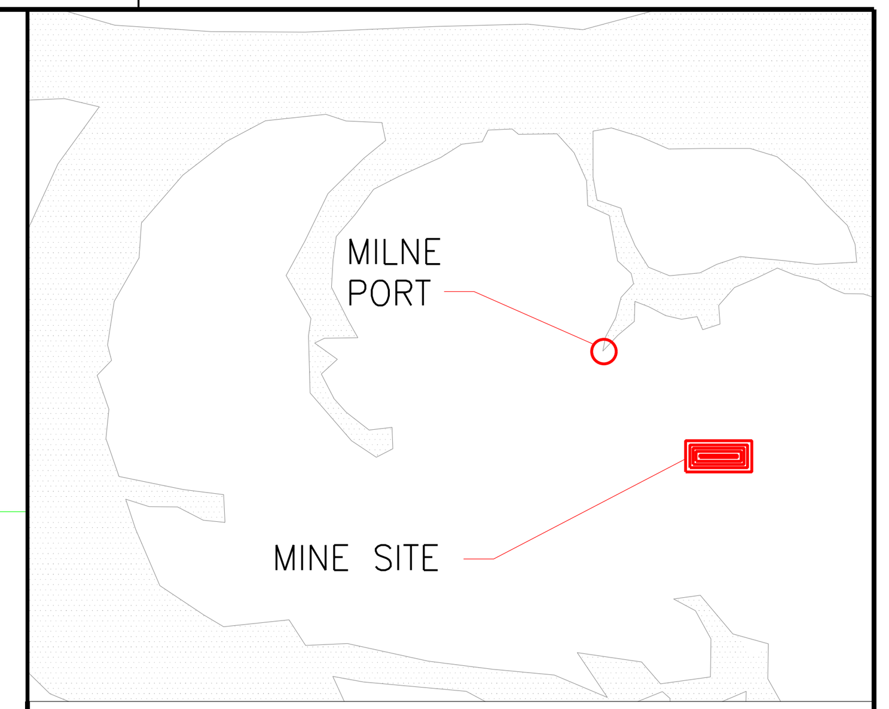
SCALE 1:5000 OR AS NOTED

DWG. NO. H349000-2000-00-015-0021

REV. C



DWG. NO.
H349000-4000-00-015-0021
TOM RIVER
KNOLLS TO BE REMOVED FOR AVIATION SAFETY
STORAGE AREA
HAZARDOUS WASTE CONTAINMENT BERM (EXISTING)
BARRELED FUEL LINED CONTAINMENT
WASTE MANAGEMENT BUILDING
HAZARDOUS WASTE CONTAINMENT AREA NEW
LAYDOWN AREA
CONCRETE BATCH PLANT
RAW WATER PUMP HOUSE
WAREHOUSE
QUARRY QMR2
RAW WATER INTAKE PIPELINE
CONSTRUCTION LAYDOWN AREA
CAMP LAKE
Km 97 BORROW SOURCE
EXPLORATION TENT CAMP
EXPLORATION SOFT-WALL CAMP
HELIPAD
EXISTING POLISHING WASTE STABILIZATION PONDS (PWSPs)
WASTE WATER TREATMENT FACILITY
RAW WATER INTAKE PIPELINE
EXPLORATION WORKSHOPS
AERODROME APRON AND FUEL STORAGE
AERODROME RUNWAY
SHEARDOWN LAKE NW
EXPLORATION CAMP SEWAGE PIPELINE
UTILITIES, INCLUDING:
• UPGRADE POWER GENERATION MODULE
• SEWAGE TREATMENT PLANT
• UPGRADE POTABLE WATER TREATMENT PLANT
• BULK FUEL STORAGE FACILITY
LANDFILL AND LANDFARM
FUTURE WASTE ROCK SEDIMENTATION POND
FUTURE WASTE ROCK DUMP
DEPOSIT NO.1 MINING LEASE 2484
WASTE ROCK DUMP BOUNDARY AT THE END OF OPERATION
PROPOSED OPEN PIT OUTLINE
OPEN PIT DEVELOPMENT
CAMP INFRASTRUCTURE:
• EXTEND ACCOMMODATION COMPLEX
• EMERGENCY RESPONSE
• MEDICAL CENTRE
PIT OFFICE
QUARRY D1Q1
SITE SERVICE FACILITIES, INCLUDING:
• MAINTENANCE BUILDING
• WELDING SHOP
• TRUCKWASH
• TOROMONT BUILDING
• ORE HAUL WORKSHOP
• ORE HAUL TRUCKWASH
QUARRY D1Q2
TRUCK WEIGH SCALE BUILDING
KM 104 QUARRY
PIT 1 HAUL ROAD
EXPLOSIVE MAGAZINE
MARY RIVER
ORE CRUSHING SEDIMENTATION POND
EXTEND ORE CRUSHING AND LOADING PADS
EFFLUENT DISCHARGE POINTS No.1, No.2 & No.3
EMULSION PLANT
0 200 400 600 800 1000
SCALE IN METRES



KEYPLAN

FOR INFORMATION

NOTES:

1. TOPOGRAPHY PROVIDED BY TERRAPOINT CANADA INC.
2. COORDINATE GRID IS SHOWN IN UTM (NAD83) ZONE 17 AND IS IN METRES.
3. DRAINAGE WILL BE DIVERTED AROUND NEW LAYDOWN AREAS AND PADS.

LEGEND:

- WATER
- QUARRY
- ROAD
- PLANNED BORROW AREA
- EXISTING ROCK QUARRY
- RIVER/STREAM/DRAINAGE
- RAW WATER INTAKE PIPELINE
- COMMERCIAL LEASE
- PROJECT DEVELOPMENT AREA

REV.	ISSUE FOR	AUTH. BY		DATE
B	ISSUE FOR USE	S.M.	T.M.	2014-12-10
A	ISSUE FOR USE	C.L.	A.G.	2014-10-31

ISSUE AUTHORIZATION

HATCH

DESIGNED BY C. LEISTNER DATE 2014-10-21	DRAWN BY J. BAJAGIC DATE 2014-10-21
CHECKED BY S. POTTER DATE 2014-10-21	DISCIP. ENGR. A. GRZEGORCZYK DATE 2014-10-21
PROJ. DES. COORD. T. THERTELL DATE 2014-10-21	PROJ. ENGR. J. CLELAND DATE 2014-10-21
PROJ. MGR. J. CLELAND DATE 2014-10-21	

Baffinland

MARY RIVER PROJECT

MINE SITE INFRASTRUCTURE FOOTPRINT WORK PLAN 2015

SCALE 1:15000 OR AS NOTED

DWG. NO. H349000-4000-00-015-0021

REV. B

ORIGINAL SHEET SIZE: ISO A1 (841 x 594)

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Appendix B -
Emergency Spill Kit Supplies and Locations and Emergency Response Truck Inventory

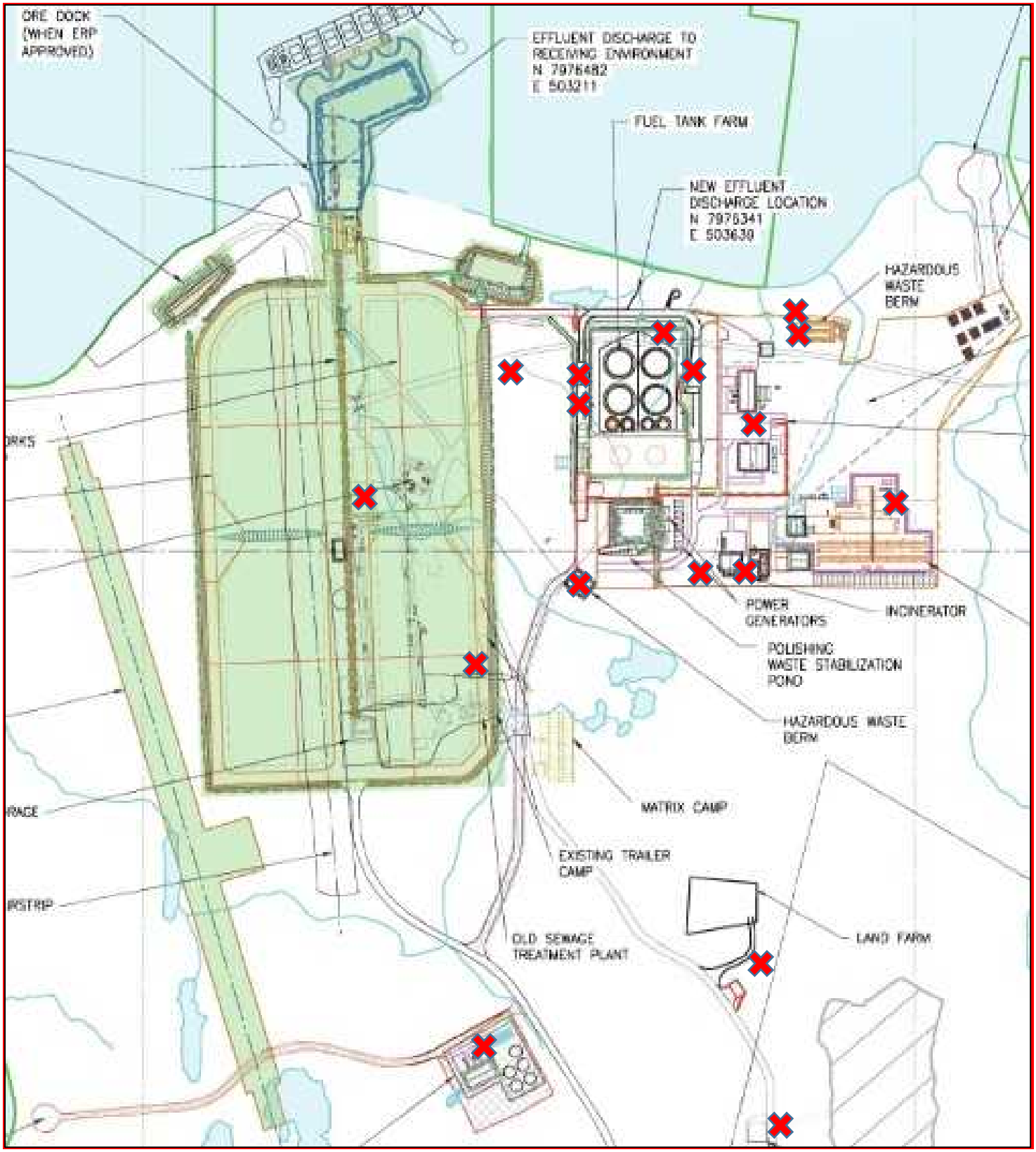
APPENDIX B: 2015 Emergency Spill Kit Supplies

Kit No./Details	Contents	Quantity
1 **20 GALLON LAB PACK** Absorbs up to 18 Gallons Lab Pack Container	Sorbent Pads (19” x 17” x 3/8”) Sorbent Socks (3” x 4ft) Sorbent Pillows Nitrile Gloves (pair) Disposal Bag Epoxy Putty	20 5 4 2 3 1
2 **PORTABLE RESPONSE KIT** Absorbs up to 65 Gallons Durable Yellow Rollout Container 2 convenient sizes - 64 Gallon 96 Gallon	Sorbent Pads (19” x 17” x 3/8”) Sorbent Socks (3” x 4ft) Xsorb (6 quart) Hand broom/dust pan Nitrile Gloves (pair) Disposal Bag Disposable Coveralls Drain Cover Splash resistant goggles	150 6 1 1 2 4 2 2 2
3 **SPILL CHEST** Absorbs up to 170 Gallons Heavy duty plastic Yellow Container Can be moved with a forklift	Sorbent Pads (19” x 17” x 3/8”) Sorbent Socks (3” x 4ft) Sorbent Booms (5” x 10ft) Sorbent Pillows (15” x 9ft) Sorbent Roll (38” x 144ft) Nitrile Gloves (pair) Disposal Bag Epoxy Putty Barricade Tape (roll)	100 8 4 16 1 2 4 1 1

APPENDIX B: 2015 Emergency Spill Kit Supplies

Kit No./Details	Contents	Quantity
4 **HEAVY DUTY DRUM KIT** Absorbs up to 75 Gallons Heavy duty plastic Yellow Container Drum sizes include 65 & 94 US gallons or an economy 45 gallon steel drum	Sorbent Pads (19” x 17” x 3/8”)	100
	Sorbent Booms (5” x 10ft)	4
	Xsorb (6 quart)	1
	Nitrile Gloves (pair)	2
	Disposal Bag	4
	Disposable Coveralls	2
	Drain Cover	1
	Splash resistant goggles	2
5 **EXTRA LARGE DRUM KIT** Absorbs up to 120 Gallons Heavy duty plastic Yellow Container	Sorbent Pads (19” x 17” x 3/8”)	300
	Sorbent Socks (4ft)	8
	Sorbent Socks (8ft)	8
	Sorbent Pillows (large)	12
	Sorbent Pillows (small)	8
	Plug Putty	2
	Drain Cover	7
	Disposal Bag (roll)	1
	Disposable Coveralls	2
	Barrier Tape (roll)	1
	Granular Absorbent (12.5kg)	1

APPENDIX B: 2015 Emergency Spill Kit Locations – Milne Port



✖ = Spill Kit Location

DWG. NO. H349000-4000-00-015-0015

TOM RIVER

CAMP LAKE

SHEARDOWN NW LAKE

MARY RIVER

CAMP INFRASTRUCTURE

SITE UTILITIES

SITE SERVICES FACILITIES

TRUCK WEIGH SCALE BUILDING

ORE CRUSHING AND LOADING

FUTURE

POLISHING WASTE STABILIZATION POND (PWSP)

QUARRY QMR2

QUARRY D1Q1

QUARRY D1Q2

PIT OFFICE

OPEN PIT DEVELOPMENT

HAZARDOUS WASTE CONTAINMENT BERM

OLD INCINERATOR

TEMPORARY INCINERATOR LOCATION

CONCRETE BATCH PLANT

BARRELED FUEL CONTAINMENT

BULK FUEL STORAGE FACILITY(BLADDER FARM)

EXPLORATION CAMP FACILITIES

WASTE WATER TREATMENT FACILITY

POLISHING WASTE STABILIZATION PONDS (PWSP'S)

EXISTING LANDFILL ROAD

EXISTING LANDFILL

FUTURE EMULSION PLANT

0 200 400 600 800 1000

SCALE IN METRES

MILNE PORT

MINE SITE

KEYPLAN

FOR PERMITTING

NOTES:

1. TOPOGRAPHY PROVIDED BY TERRAPOINT CANADA INC.
2. COORDINATE GRID IS SHOWN IN UTM (NAD83) ZONE 17 AND IS IN METRES.
3. CONTOURS ARE IN METRES. CONTOUR INTERVAL IS 1.5 METRES.
4. AS-CONSTRUCTED INFORMATION PROVIDED BY GENIVAR IN 2008.

LEGEND:

- WATER
- QUARRY
- LAYDOWN AREA (CONSTRUCTION PHASE)
- EXISTING BORROW AREA (IOL COMMERCIAL LEASE)
- EXISTING ROCK QUARRY (IOL COMMERCIAL LEASE)
- ROAD
- RIVER/STREAM/DRAINAGE
- PROJECT DEVELOPMENT AREA
- BAFFINLAND'S COMMERCIAL LEASE ON INUIT OWNED LAND
- RAW WATER INTAKE PIPELINE
- SPILL KIT LOCATION

Baffinland Iron Mines Corporation

MARY RIVER PROJECT

MARY RIVER MINE SITE
SPILL CONTINGENCY
FIGURE 2

SCALE	DWG. NO.	REV.
1:15000 OR AS NOTED	H349000-4000-00-015-0015	A

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2015 Emergency Response Truck/ Spill Response Supplies

Material	Qt.	Unit
PPE AND SAFETY EQUIPMENT		
leather gloves	6	pair
rubber gloves	6	pair
chest waders	4	pair
tyvek coveralls	1	case
Life Jackets	10	ea.
Danger No Trespassing Tape	1	roll
Danger No Trespassing Signs	5	ea.
Full Body Safety Harness	4	ea.
Air Monitoring Equipment	1	ea.
ABSORPTION AND NEUTRALIZATION		
hydrocarbon pads	7	bale
universal pads	3	bale
5" x 10' hydrocarbon booms (4 booms per bale)	7	bale
CONTAINMENT		
Spill containment trays	6	ea.
Closed top steel/plastic 205 litres drums	2	ea.
20L Empty Pails with Lids	6	ea.
Collapsible bladder tank 3800 litres	1	ea.
Collapsible bladder tank 57000 litres	1	ea.
Quatrex bags	10	ea.
6-mil drum liners	1	roll
Roll-off Liner	2	ea.
Plug'n'Dyke	1	Pail
Floating booms	4	case
10'x10' Porta-Tank	1	ea.
TOOLS & OTHER SUPPLIES		
rakes	2	ea.
shovels - Aluminum	4	ea.
scoops	2	ea.
flashlights	2	ea.
duct tape	6	roll
Hatchet	1	ea.
6 lb Sledge hammer	1	ea.
Side Cutters	2	ea.
Knives w/sheaths	3	ea.
Cable cutter (hammer type)	1	ea.
Bolt cutter	1	ea.
10-inch Tin Snip	1	ea.

Material	Qt.	Unit
Dustpan Skimmer	1	ea.
15 lb. Boom anchors	12	ea.
3" Hammer union	1	ea.
Cable cum-along	1	ea.
Large Funnel	1	ea.
12' Tape Measure	1	ea.
Generator	1	ea.
Trash Pump	1	ea.
Double floodlights w/stands	2	ea.
Extension cords 50ft	2	ea.
20 Gauge wire mesh 36"x1"	2	roll
Stovepipe Wire	1	roll
200' rope	1	ea.
1 1/4" Nylon Rope	20	ea.
6' Length 4" PVC Pipe	4	ea.
25' Length 2" Suction Hose w/ Camlocks	2	ea.
2" x 30" Suction Hose 5 - 2"x6" Nipples	1	ea.
2" Hammer Unions 3 - 2" Collars	1	ea.
2" gate valve	1	ea.
2" Tee	1	ea.
3"x8"x XH Nipple	3	ea.
4"x3" Swedge	6	ea.
3"x2" Swedge	4	ea.
5/16" Clevis	20	ea.
4" Hose Floats	4	ea.
Wind sock	1	ea.
Map	1	ea.

APPENDIX B: MRT Emergency Response Truck

Right Side:

Left Side:

Appendix C -
2015 MSDS Inventory

APPENDIX C: 2015 MSDS Inventory

Product Name Name	Manufacturer
Air1 Diesel Exhaust Fluid	Yara Belle Plaine, Inc
Antiseptic Skin Cleanser	Canadian Custom Packaging Company
HERTEL PLUS DISINFECTANT	Lavo Inc.
Sulphuric Acid 93%	Benson Chemicals Ltd.
PROPANE	EXXONMOBIL CHEMICAL COMPANY
Regular Gasoline	Irving Oil Refining G.P.
NO. 1 DIESEL FUEL	Exxon Mobil Corporation
Methanol	INTERSTATE CHEMICAL CO
Ammonium Nitrate	CAROLINA BIOLOGICAL SUPPLY COMPANY
Shell Rotella T Triple Protection 15W-40	Shell Canada Products
AeroShell Grease 7	Shell Canada Products
Safe -T-Brake	Kleen-Flo Tumbler Industries Ltd
EP61 GLASS & SURFACE CLEANER	AVMOR
FRIENDLY AIR	Dustbane Products Limited
CITRANET LEMON LAUND.POWD.DET.	NORCHEM DIVISON DE AVMOR
TIP TOP SOLUTION STL-RF	REMA TIP TOP AG
TIP TOP SOLUTION HL-T	REMA TIP TOP AG
International Thinner-Eqpt Cleaner	International Paint Limited
International Thinner-Eqpt Cleaner	International Paint Limited
Interplus 356 Aluminium Part A	International Paint Limited
Interplus 356 Part B	International Paint Limited
Interthane 990 Base Light Part A	International Paint Limited
INTERTHANE 990 PART B	International Paint Limited
Loctite 7063 - GERMAN	Henkel AG & Co. KGaA
Loctite 7063	Henkel Limited
Loctite 7063 - FRENCH	Henkel Technologies France SAS
Loctite 586 - GERMAN	Henkel AG & Co. KGaA
404 Quick Set Instant Adhesive	Henkel Corporation
SmokeCheck	HSI Fire & Safety Group
LPS ChainMate	LPS Laboratories, a division of Illinois Tool Works
LePage PL9000 Heavy Duty Construction Adhesive	Henkel Canada Corporation
LOCTITE 242 THREADLOCKER	Henkel Corporation
Toner WorkCentre 7525, WorkCentre 7530, WorkCentre 7535, WorkCentre 7545, WorkCentre 7556	Xerox Corporation
Drum Cartridge for WorkCentre 7525, WorkCentre 7530, WorkCentre 7535, WorkCentre 7545, WorkCentre 7556	Xerox Corporation

Expo White Board (Care) Cleaner, Expo White Board (Care) Cleaning Wipes	Newell Rubbermaid, Inc. (Sanford L.P.)
Health Saver Brand Eye Wash Sterile, Buffered, Saline, Isotonic - Blue Label	Niagara Pharmaceuticals Inc
EP70 WASHROOM CLEANER	AVMOR
LPS 3 (Aerosol)	LPS LABORATORIES
XIRTEC 11 GRY Low VOC PVC Plastic Pipe Cement	IPS Corporation
Uvex Clear Lens Cleaner	UVEX SAFETY, INC.
MAGIC FOG-BE-GONE LENS CLEANING ANTI-STAT, ANTI-FOG FLUID	MAGIC SAFETY PRODUCTS
Formazin Turbidity Standard, 4000 FNU	Hach Company
SUPER DOUCET MOUSSE	Groupe Savon Olympic Inc.
SBS 40 Medicated Skin Cream	Deb USA, Inc.
3V PRIMER (PVC & CPVC Primer)	SLUYTER CO LTD
Lock-De-Icer	Kleen-Flo Tumbler Industries Ltd
Black Dashboard Cleaner	Kleen-Flo Tumbler Industries Ltd
Anti-seize Sealing Compound	Kleen-Flo Tumbler Industries Ltd
# OMC99290 & OMC99291 OFFICE MAX DUSTER 10OZ	EXPONENT MICROPORT INC.
DOW CORNING 736 HEAT RESISTANT/SEALANT	Dow Corning Corporation
DOW CORNING 732 MULTI -PURPOSE SEALANT CLEAR	Dow Corning Corporation
DEVCON Flexane High Performance Putty - KIT	ITW Polymers Adhesives, North America
CLEANER BLEND 300	ITW Polymers Adhesives, North America
LEPAGE PRES-TITE CONTACT CEMENT	Henkel Canada Corporation
Fleetcool Ethylene Glycol (50/50 Prediluted Heavy Duty Antifreeze/Coolant)	Cummins Filtration
MOBIL JET OIL II	Imperial Oil Downstream
LOCTITE 565 PST PIPE SEALANT h PTFE THREAD SEALANT	Henkel Electronic Materials LLC
LOCTITE 510 known as LOCTITE 510 GASKET ELIMINAT	Henkel Canada Corporation
262 Threadlocker Permanent Strength	Henkel Canada Corporation
LOCTITE 262 THREADLOCKER HIGH STRENGTH	Henkel Canada Corporation
LPS 2 (Aerosol)	LPS LABORATORIES
LPS 1	LPS LABORATORIES
LOCTITE SUPERFLEX RED HIGH TEMP RTV V Silicone Adhesive Sealant Silicone Adhesive Sealant	Henkel Canada Corporation
Quickstix 268 Threadlocker High Strength	Henkel Canada Corporation
660 Quick Metal Retaining Compound	Henkel Canada Corporation
CONSAV 1GL 5600 Floor Paint Safety Yellow	Rust-Oleum Corporation
JET A/A-1 AVIATION TURBINE FUEL	Petro-Canada
MASTERS PRO-DOPE	G.F. THOMPSON CO. LTD.
Master Appliance Ultratane Butane Fuel (Petroleum Gases, Liquefied)	Master Appliance Corporation
LPS QB Duster	LPS Laboratories, a division of Illinois Tool Works
Worthington Petroleum Based Soldering Flux	WORTHINGTON CYLINDER CORPORATION

WD-40 Specialist Penetrant	WD-40 Products (Canada) LTD.
All Season Windshield Washer	Recochem Inc.
Shell Tellus S4 VX 32	Shell Canada Products
Shell Spirax S6 AXRME 75W-90	Shell Canada Products
ICWB LSPR 12PK CAUTION BLUE MARK	Rust-Oleum Corporation
Bulab 5361P	Buckman Laboratories of Canada, Ltd.
BASICS Pressurized Duster	Falcon Safety Products, Inc
3M Windo-Weld Super Fast Urethane PN 08608, 08609	3M - Automotive Aftermarket
3M AUTO BEDDING AND GLAZING COMPOUND (BLACK) PN 08509	3M - Automotive Aftermarket
Eberhard Faber Dry Erase Markers	Sanford, L.P.
Berol, Expo Low Odor , Expo Click, Expo Original, Eberhard Faber - Dry Erase Markers, Sharpie Whiteboard Markers	Sanford, L.P.
EXPO 2000	Dustbane Products Limited
Molykote 55 O-Ring Grease	Dow Corning Corporation
DOW CORNING 832 MULTI-SURFACE ADHESIVE SEALANT, OFF-WHITE	Dow Corning Corporation
OFF! DeepWoods Spray Insect Repellent 5	S.C. Johnson and Son, Limited
LYSOL Brand III All Purpose Cleaner 4 in 1 - Trigger - (All Scents, All Sizes)	Reckitt Benckiser (Canada) Inc.
KRYLON Industrial TOUGH COAT Fluorescent Acrylic Enamel, Electric Green Fluorescent	THE SHERWIN-WILLIAMS COMPANY- KRYLON Products Group
KRYLON Industrial QUIK-MARK Water-Based Inverted Marking Paint, Chalk-Line Clear	THE SHERWIN-WILLIAMS COMPANY- KRYLON Products Group
WINDEX MULTI-SURFACE DISINFECTANT TOUCH-UP CLEANER - FRESH SCENT	S.C. Johnson and Son, Limited
WINDEX MULTI-SURFACE CLEANER - VINEGAR	S.C. Johnson and Son, Limited
PRECISION SYNTHETIC MOLY	Petro-Canada Lubricants Inc.
PRECISION XL RAIL CURVE GREASE	Petro-Canada Lubricants Inc.
HYDREX EXTREME	Petro-Canada Lubricants Inc.
HEAVY DUTY SYNTHETIC BLEND ATF	Petro-Canada Lubricants Inc.
DURON-E SYNTHETIC 5W-40	Petro-Canada Lubricants Inc.
PC FAST ORANGE LOTION WITH PUMICE 3.78 L	ITW Permatex Canada
prDry Hands – Skin Protection Gel	URSULA RATH GMBH
PURELL Instant Hand Sanitizer	GOJO Industries, Inc.
PURELL Alcohol Hand Sanitizing Wipes	GOJO Industries, Inc.
PURELL Advanced Moisturizing Foam Hand Rub	GOJO Industries, Inc.
TRAXON E SYNTHETIC CD-50	Petro-Canada Lubricants Inc.
TRAXON E SYNTHETIC 75W-90	Petro-Canada Lubricants Inc.
Shell Corena S4 R 46	Shell Canada Products
Shell Air Tool Oil S2 A 32	Shell Canada Products
Shell Air Tool Oil S2 A 100	Shell Canada Products

Sharpie Fine Point Marker, Sharpie Ultra Fine Point Marker, Sharpie Extra Fine Marker, Sharpie Chisel Tip Marker, Sharpie Twin Tip Marker, Super Sharpie Marker, Super Sharpie Twin Tip Marker, Sharpie Mini Fine Point Marker, Sharpie Micro Marker	Newell Rubbermaid, Inc. (Sanford L.P.)
NEW RAPID TAP PASTE	Relton Corporation
pr88 – The Wash-Off Hand Protection	URSULA RATH GMBH
Shell Omala S4 GX 150	Shell Canada Products
Shell Gadus S2 V220 2	Shell Canada Products
Shell Gadus S5 V100 2	Shell Canada Products
Shell Gadus S5 U100KD 1	Shell Canada Products
Shell Gadus S2 V30KXD 1	Shell Canada Products
Shell Donax TC Multiseason	Shell Canada Products
STOKO GEL FREE	Evonik Stockhausen, LLC
STOKO GEL Instant Hand Sanitizer	Evonik Stockhausen, LLC
EL 2007 Non-Flammable Duster Aerosol	Sprayon Products
Spray Nine 4L	ITW Permatex
Shell Spirax S3 TLV	Shell Canada Products
CAT FINAL DRIVE AND AXLE OIL SYNTH (FDAO-SYN)	Exxon Mobil Corporation
Monitor Cleaning Wipes, 100ct SKU 775488 (model 16982) [STP08002]	Kleinmann GmbH
CONSTANT CHLOR PLUS BRIQUETTES	Arch Chemicals, Inc.
PGP Comet Deoderizing Cleanser with Chlorinol	Procter & Gamble Professional
CLOROX DISINFECTING WIPES1 – FRESH SCENT	The Clorox Company
Belkin Air Duster 10/12 oz r134a	Kleen Concepts
Armor All Original Protectant	The Armor All/STP Products Company
Braze Core Silver, Copper, Tin, Zinc	Lucas Milhaupt, Inc.
Shell Spirax S6 ATF A295	Shell Canada Products
KEYSTONE ANTIBACTERIAL LIQUID HAND SOAP	Ecolab Inc.

Appendix D -
NT-NU Spill Report

NT-NU SPILL REPORT

OIL, GASOLINE, CHEMICALS AND OTHER HAZARDOUS MATERIALS

NT-NU 24-HOUR SPILL REPORT LINE
TEL: (867) 920-8130
FAX: (867) 873-6924
EMAIL: spills@gov.nt.ca

REPORT LINE USE ONLY

A	REPORT DATE: MONTH – DAY – YEAR	REPORT TIME	☐ ORIGINAL SPILL REPORT, OR	REPORT NUMBER -
B	OCCURRENCE DATE: MONTH – DAY – YEAR	OCCURRENCE TIME	☐ UPDATE # TO THE ORIGINAL SPILL REPORT	
C	LAND USE PERMIT NUMBER (IF APPLICABLE) IOL - Commercial Lease: Q13C301	WATER LICENCE NUMBER (IF APPLICABLE) 2AM-MRY1325 Type "A"		
D	GEOGRAPHIC PLACE NAME OR DISTANCE AND DIRECTION FROM THE NAMED LOCATION Mary River Mine Site, Baffin Island, NU	REGION ☐ NWT ☒ NUNAVUT ☐ ADJACENT JURISDICTION OR OCEAN		
E	LATITUDE DEGREES MINUTES SECONDS	LONGITUDE DEGREES MINUTES SECONDS		
F	RESPONSIBLE PARTY OR VESSEL NAME Baffin Iron Mines Corp.	RESPONSIBLE PARTY ADDRESS OR OFFICE LOCATION 2275 Middle Road East, Suite 300, ON L6H 0C3		
G	ANY CONTRACTOR INVOLVED	CONTRACTOR ADDRESS OR OFFICE LOCATION		
H	PRODUCT SPILLED	QUANTITY IN LITRES, KILOGRAMS OR CUBIC METRES	U.N. NUMBER	
	SECOND PRODUCT SPILLED (IF APPLICABLE)	QUANTITY IN LITRES, KILOGRAMS OR CUBIC METRES	U.N. NUMBER	
I	SPILL SOURCE	SPILL CAUSE	AREA OF CONTAMINATION IN SQUARE METRES	
J	FACTORS AFFECTING SPILL OR RECOVERY	DESCRIBE ANY ASSISTANCE REQUIRED	HAZARDS TO PERSONS, PROPERTY OR EQUIPMENT	
K	ADDITIONAL INFORMATION, COMMENTS, ACTIONS PROPOSED OR TAKEN TO CONTAIN, RECOVER OR DISPOSE OF SPILLED PRODUCT AND CONTAMINATED MATERIALS			

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

REPORT LINE USE ONLY					
N	RECEIVED AT SPILL LINE BY	POSITION Station operator	EMPLOYER	LOCATION CALLED Yellowknife, NT	REPORT LINE NUMBER (867) 920-8130
LEAD AGENCY ☐ EC ☐ CCG ☐ GNWT ☐ GN ☐ ILA ☐ INAC ☐ NEB ☐ TC			SIGNIFICANCE ☐ MINOR ☐ MAJOR ☐ UNKNOWN		FILE STATUS ☐ OPEN ☐ CLOSED

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

Appendix E - Dyno Nobel Baffin Island Inc. – Emergency Response Assistance Plan

BAFFIN ISLAND

DYNO

Dyno Nobel

Baffin Island

EMERGENCY RESPONSE ASSISTANCE PLAN

DYNO NOBEL Baffin Island INC.
EMERGENCY RESPONSE ASSISTANCE PLAN
Emergency Response Notification

1. In the event of an emergency Mary river Site Security/MRT will be notified first at:

Radio:

- Radio Channel: EMERGENCY and or SS TAC (Site Services/Security)
- Call "Code 1, Code 1, Code 1"
- State Name
- Emergency Details
- Location
- **Phone:**
- Security 647-253-0596 Ext 6047

2. Dyno Nobel Baffin island on site plant will be contacted at:
   (647) 253 0596. Ext 6067
3. Off-Site notification:

	NAME	HOME	CELL
1.	NFLD Hardrok (24hr emergency)	(709) 754-4900	
2.	Jim Kasemets	(709) 632-4007	(709) 632-4007
3.	Roland Walsh	(709) 699-8987	(709) 765-6031
4.	Mark Gillis	(709) 634-2993	(709) 640-7969
5.	Mike Christie	N/A	(902) 221-7694
6.	Kevin McDonald	(902) 341-2181	(902) 848-6849

Revision and Distribution

An updated copy of this ERAP must be kept in the following locations. Revisions to this ERAP must be reviewed and signed-off on by all who possess a copy:

Emulsion Plant Office	Mary River Site Security
DNBI Pick-ups – LTP040 & LTP043	Mary River MRT
DNBI Loader – LDR020	NHR Office – Corner Brook, NL
Emulsion Trucks – RC913 & RC914	NHR Office – St. John's, NL

Contents

EMERGENCY ACTION

Fire

Fire not involving explosives or ammonium nitrate (AN)

In the event of a fire not involving explosives or ammonium nitrate, Mary River Site Security will be notified of a "CODE ONE" on either the "Emergency" or "SS TAC" channel, or by phone at (647) 253-0596 ext. 6047**.** Fires which do not involve explosives or ammonium nitrate will be extinguished using normal fire-fighting procedures.

Fire involving explosives or AN

No attempt will be made to fight fires involving explosives or equipment containing explosive residue (AN included). The plant will be shut down and evacuated to the muster station (shown in Appendix C). After a verified head count all individuals will evacuate and blockade the main gate as shown on map to ensure no one enters. When all employees are out of harm's way, personnel will call a "CODE 1" on radio channel "Emergency" or "SS TAC" or call Security by phone at 647-253-0596 (extension number 6047).

The procedure for plant site evacuation is given in the Plant Evacuation Procedures section (page 6). In all cases, keep away from the gases and smoke released by the fire.

Detonation

In the event of a detonation at the plant, the emergency plan will go into effect immediately, starting with complete evacuation of the plant site. See page 6 of this ERAP.

Lightning

If lightning approaches the plant, remove all personnel to the main gate until all clear. See page 6 of this ERAP. If lightning approaches while the explosives truck is in pit, the truck should return to plant, time permitting, and follow the evacuation procedure. If there is no time to return to plant, leave the truck in the pit and notify the pit supervisor. Evacuate all pit personnel from the pit until the lightning passes.

Spills

Ammonium Nitrate

Ammonium nitrate for use at the Mary River Project is stored in containers in two locations; the KM 97 laydown and smaller quantities at the 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. No AN is stored outside at any time. AN is only withdrawn from the containers when required by plant production. It is loaded directly into the AN Handling Module of the plant to minimize any exposure of the product to the environment (See Appendix C)

Small spills will be swept up with plastic dust pan and broom and emptied in plastic cans marked AN only, to be either recycled in the plant or disposed of in blast holes. Large spills will be dealt with on an individual basis depending upon size of spill. Efforts will be made to contain spill and area will be secured before clean up begins.

Emulsion

Emulsion is stored in a single, 36,000 kg capacity tank within the emulsion loading garage (see the site plan in Appendix C). Smaller quantities may be stored in the two bulk emulsion trucks (10,000 kg capacity each) which are parked in the garages when not in use in the mine.

Small spills will be scooped up with non-sparking shovels and placed in bags, transported to magazine site at KM 105.5, to be stored until ready for disposal in blast holes. Large spills will be dealt with on an individual basis depending upon size of spill. Efforts will be made to contain spills and an area will be secured before clean-up begins. This may involve pumping of large spills into a tanker or scooping up product with shovels.

Oils, fuels, etc.

Methods of spill containment in all fuel/lubricant storage areas within the plant are is use to ensure spills are adequately contained before they occur. However, in the event of a spill outside of the designated storage areas, spills will be diked and absorbent pads used to collect the spill. Residual product not capable of being reused will be contained, collected with adequate amounts of soil absorbent to solidify the material and render it inert.

PLANT EVACUATION PROCEDURES

Evacuation

In the event that a fire involving explosives/AN, or a detonation occurring at the plant, the site must be immediately evacuated. Personnel must report to the muster point (noted on the site plan in Appendix C) where a head-count is to be conducted. When all personnel are accounted for, personnel must proceed to the main gate.

A "Code 1" alert must be broadcast on radio channel "Emergency" or "SS TAC" as soon as it is safe to do so. After repeating "code one, code one, code one", state your name, location and nature of the emergency. Indicate that there is a fire/detonation at the emulsion plant and no firefighting measures are to be taken. Security will re-broadcast this message to ensure all personnel on site are aware. Inbound or outboard air traffic must be halted or redirected.

As the landfill area is within the danger radius of a fire/detonation at the plant, plant personnel should sweep the landfill on their way out the emulsion plant road to ensure all personnel are clear of this area.

Guarding

The road to the emulsion plant must be guarded at the location given on the overall site plan in Appendix C. **NO ONE IS PERMITTED TO RE-ENTER THE AREA UNTIL AN "ALL-CLEAR" IS GIVEN.** If BIM employees are required to stand guard, Dyno Nobel Baffin Island (DNBI) employees will provide direction.

Response

It is the responsibility of Dyno Nobel Baffin Island management to direct the emergency response to a fire involving explosives/detonation at the plant. If no management personnel are on site, this will be coordinated through by the most senior DNBI employee on site. As previously stated, **the only response to a fire involving explosives/detonation**

at the plant is evacuation of the plant and guarding of all access points until the danger has passed.

RESOURCES

Milne Inlet - Port Site Complex			
For Outside caller - Main line # 647-253-0598 then Dial the Extension			
Name	**Position/Department**	**Phone Number**	**Internal Ext**
MRT	MRT	647-253-0598	4219
Health and Safety Coordinator	Health and Safety	647-253-0598	4122

Mary River			
For Outside caller - Dial 647-253-0596 +ext.			
Name	**Position/Department**	**Phone Number**	**Internal Ext**
Security Lead	Scarlet Security	(647) 253-0596	6047
MRT	MRT	(647) 2	6020
Environment Manager	Environment	(647) 253-0596	6016
Health and Safety Superintendent	Health and Safety	(647) 253-0596	6006

Outside resources include:

Emergency Services Dispatch	(867) 979-5662
R.C.M.P	1 (800) 979-1111
CANUTEC	(613) 996-6666
NRCAN Explosives Regulatory Division	(613) 948-5200
Environment Canada	1 (866) 283-2333

APPENDIX A: FIRE FIGHTING INFORMATION

MATERIAL	RECOMMENDED FIRE-FIGHTING METHODS	SPECIAL CONSIDERATION
Ammonium Nitrate - 83% solution colourless	Use flooding amounts of water in early stages of fire. Keep upwind. This is an oxidizing agent which supports combustion and is an explosive hazard if heated under confinement that allows high pressure buildup. Evacuate to designated area if fire cannot be controlled.	Toxic oxides of nitrogen are given off during combustion. Fire-fighters require positive pressure self-contained breathing apparatus. Avoid contaminating with organic materials.
Ammonium Nitrate Prill - odourless white to light tan crystalline solid	Use flooding amounts of water in early stages of fire. Keep upwind. This is an oxidizing agent which supports combustion and is an explosive hazard if heated under confinement that allows high pressure buildup. Evacuate to designated area if fire cannot be controlled.	Toxic oxides of nitrogen are given off during combustion. Fire-fighters require positive pressure self-contained breathing apparatus. Avoid contaminating with organic materials. Many powdered metals such as Al, Sb, Si, Cd, Cr, Co, Cu, Fe, Pb, Mg, Mn, Ni, Sn Zn and brass react violently and explosively with fused AN below 200 degrees C. Sensitivity to detonation increases when heated.
N-17	Flash Point: Not applicable Extinguishing Media: Not applicable	Wear self-contained breathing apparatus and protective clothing. No unusal fire explosion hazard.
L-2 Clear to pale yellow liquid. Very little if any odor.	Use water, CO_2, or Dry chemical	Fire fighters must be equipped to prevent breathing vapors or fumes of combustion. Highly toxic gases may result from exposure to fire or high temperatures.

APPENDIX A: FIRE FIGHTING INFORMATION

MATERIAL	RECOMMENDED FIRE-FIGHTING METHODS	SPECIAL CONSIDERATION
Citric Acid Odourless, white or opaque crystals	Use water, Dry chemical, Alcohol or carbon dioxide	When heated to decomposition, citric acid emits acrid smoke. Fire fighters must wear self-contained breathing apparatus with full piece operated in positive pressure mode.
Fuel Oil (No. 2 diesel) dyed or pale yellow liquid with petroleum odour	Use water spray to cool fire exposed surfaces and to protect personnel. Shut off fuel from fire. Use foam, dry chemical or water spray to extinguish fire. Avoid spraying water directly into storage container due to danger of boilover.	Avoid strong oxidizing agents.
5168D Emulsifier dark viscous liquid with hydrocarbon odour Sodium Thiocyanate Colourless crystals with slight ammoniacal odour	Use carbon dioxide or dry chemicals on small fires. Use foam (alcohol, polymer or ordinary) and water spray for large fires. Use dry chemical, water spray, water fog, carbon dioxide, foam or sand/earth to extinguish fire.	May form oxides of nitrogen upon thermal decomposition. Positive pressure self-contained breathing apparatus is required for fire-fighters. Contact with strong acids or oxidizing agents or combustion may generate toxic concentrations of sulphur dioxide, oxides of nitrogen, cyanides or hydrogen sulphide.
Sodium Nitrite white or slightly yellow solid	Apply aqueous film forming foam (AFFF) according to manufactures instructions or water in the form of fog for large fires. Use carbon dioxide or dry chemical media for small fires.	Thermal decomposition products include toxic oxides of nitrogen. Sodium nitrite promotes combustion. May explode if heated above 537 degrees Celsius.
Acetic Acid clear colourless liquid with sharp vinegar odour	Use water spray, dry chemical, carbon dioxide or alcohol foam to extinguish fire. Eliminate all nearby sources of ignition since flammable hydrogen gas will be liberated upon contact with some active metals.	Avoid alkalis, oxidizing or reducing materials and nitric acid.

APPENDIX A: FIRE FIGHTING INFORMATION

MATERIAL	RECOMMENDED FIRE-FIGHTING METHODS	SPECIAL CONSIDERATION
Nitric Acid water white to slightly yellow liquid with nitrogen dioxide odour	Use an all purpose type AFFF foam according to manufacturers instructions. Carbon dioxide or dry chemical media for small fires. If only water is available, use it in the form of a fog.	Combustibles can have an increased flammability after contact with nitric acid. Nitric acid reacts with metals to liberate flammable hydrogen gas. Toxic oxides of nitrogen may also be liberated.
Caustic Soda, Anhydrous Odourless, white granular solid	Do not use water, foam, Carbon Dioxide, Dry Chemical. Use media appropriate for surrounding fire and or materials. Remove containers from fire zone wherever possible.	Avoid direct contact of this product with water as this can cause a violent exothermic reaction. Use self-contained breathing apparatus and protective clothing.
Ethylene Glycol Colourless liquid with mild odour	Extinguish fire with water fog, carbon dioxide or dry chemical. Direct application of water or foam into container may cause violent frothing and boilover.	Never use welding or cutting torch on or near drum (even empty or with small residue) because product can ignite spontaneously.

APPENDIX B: ENVIRONMENTAL RELEASE PROCEDURES

MATERIAL	SPILL AND LEAK PROCEDURES	WASTE DISPOSAL
Ammonium Nitrate - 83% solution colourless	- Prevent spills from entering water courses. Contain by dyking with earth or other inert material. Allow to freeze. Shovel into clean, non-combustible container. Wash remaining trace residues with water. Wear rubber gloves and chemical goggles to minimize contact with the skin and eyes. - Refer to Ekati Spill Contingency plan – section V page 55 for details on procedures for spills resulting from fuelling of equipment at fuel stations.	- Dispose of recovered material in approved landfill or other waste disposal facility.
Ammonium Nitrate Prill - odourless white to light tan crystalline solid	- Remove source of heat and ignition. Sweep or shovel spill into a clean, non-combustible container. Wash remaining trace residues with water. Wear rubber gloves and safety glasses to minimize contact with skin and eyes.	- Re-use if possible or dispose of as is in approved facility. Otherwise, dissolve in large amount of water. Add soda ash and mix and neutralize with 6M HCl to produce neutralized sludge. Sludge can then be buried in approved landfill. Sludge incineration requires scrubbing capability for oxides of nitrogen.
N-17 Clear to light blue liquid, sharp vinegar odor	Wear appropriate protective clothing and respiratory protection. Contain spills and avoid discharging into sewer or streams. Neutralize small spills with soda ash or lime. Absorb with vermiculite or other inert material.	- Re-use if possible, otherwise dispose of in approved landfill or other waste disposal facility
Citric Acid Odourless, white or opaque crystals	Sweep up material and place in tightly closed container in a cool, dry and well ventilated area. Avoid discharge into sewer and surface water. Spills to waterways will cause PH depression.	In accordance with Provincial and Federal regulations

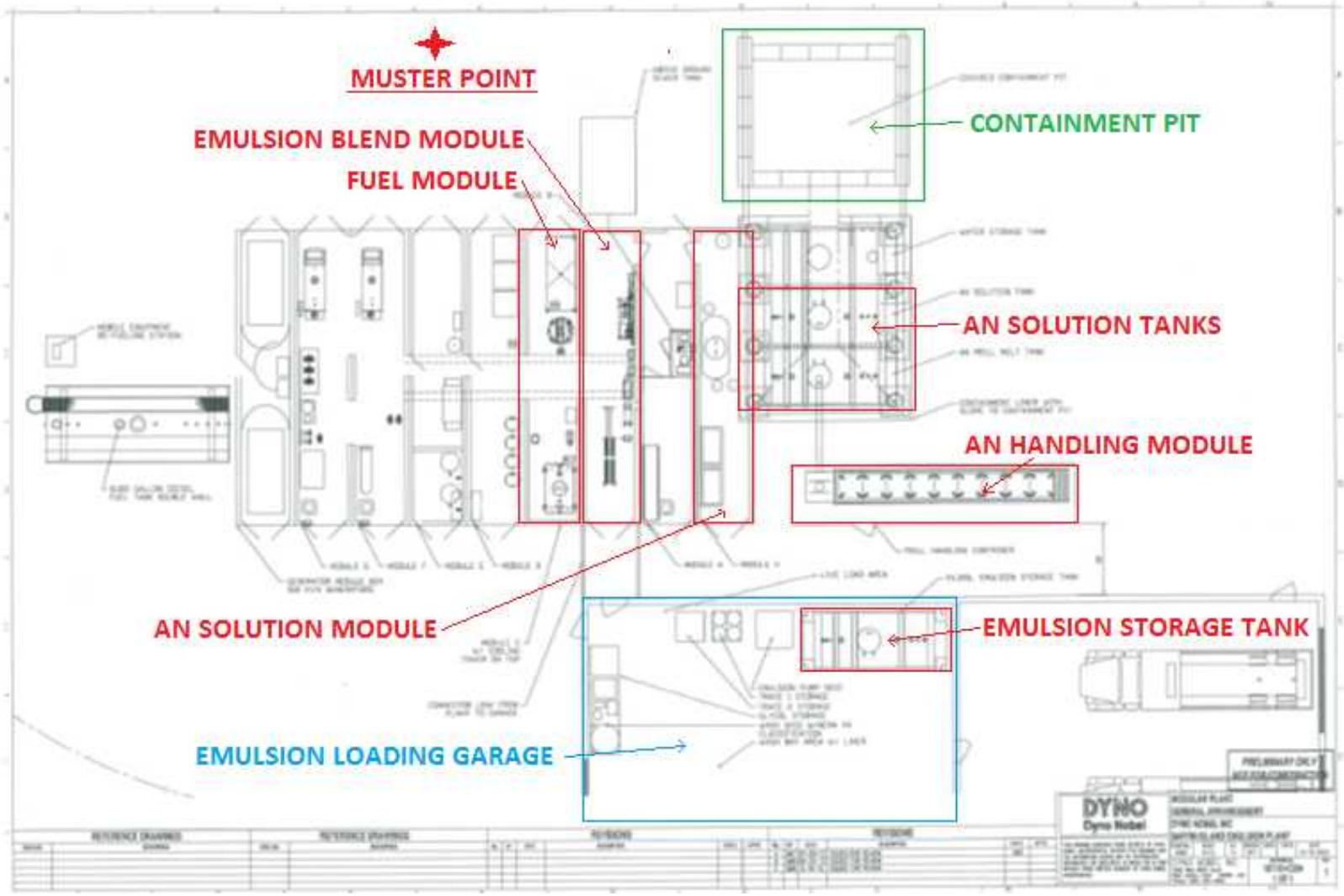
APPENDIX B: ENVIRONMENTAL RELEASE PROCEDURES

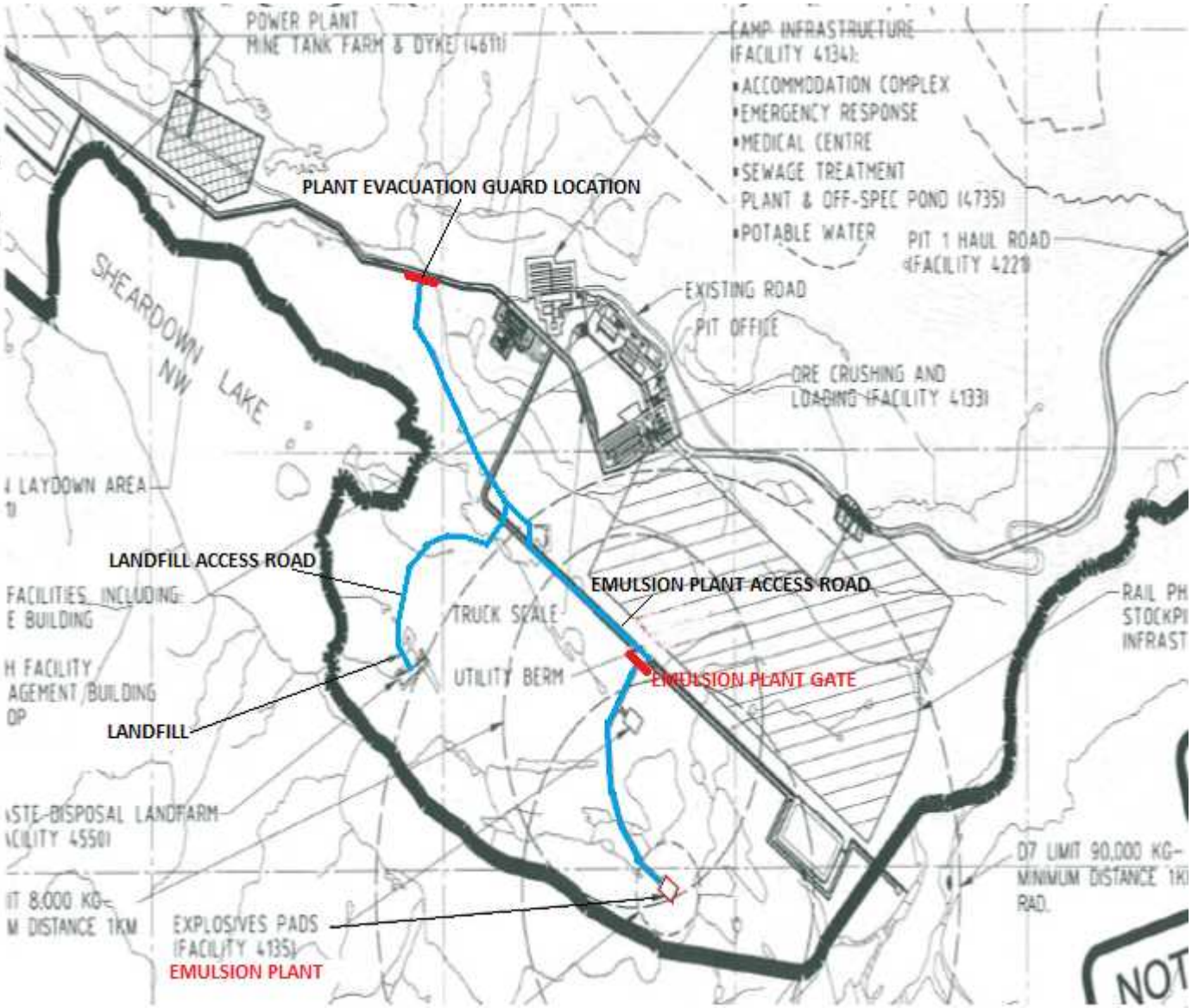
MATERIAL	SPILL AND LEAK PROCEDURES	WASTE DISPOSAL
L-2 Clear to pale yellow liquid. Very little if any odor	Wear appropriate chemical resistant clothing including rubber gloves, rubber boots. Contain spill and keep out of sewer, storm draines, surface water and soil. Keep away from incompatible materials.	- Dispose of recovered material in approved landfill or other waste disposal facility. Check with Provincial and Federal regulation.
Fuel Oil (No. 2 diesel dyed or pale yellow liquid with petroleum odour.	- Eliminate any source of ignition. Prevent spills from entering water courses. Contain with sand or earth. Recover with pump or inert adsorbent material into clean container. Wear safety glasses and rubber gloves to prevent contact with the eyes and skin.	- Dispose of recovered material in approved landfill or other waste disposal facility.
5168D Emulsifier dark viscous liquid with hydrocarbon odour	- Contain with sand or earth. Recover with inert adsorbent material and transfer into clean container. Wear chemical goggles and rubber gloves to prevent contact with the eyes and skin. Wash area with suitable detergent and rinse with water.	- Dispose of recovered material in approved landfill or other waste disposal facility.
Sodium Thiocyanate Colourless crystals with slight ammoniacal odour	- Sweep or shovel spill into a clean container. Prevent spills from entering any water courses. Wash remaining trace residues with water. Wear rubber gloves and chemical goggles to minimize contact with skin and eyes.	- Dispose of recovered material in approved landfill or other waste disposal facility.
Sodium Nitrite white or slightly yellow solid	- Sweep or shovel into clean, non-combustible drum. Remove any flammable materials and sources of ignition. Flush remaining trace residues with water. Wear chemical goggles and rubber gloves to minimize contact with the eyes and skin.	- Dispose of recovered material in approved landfill or other waste disposal facility.

APPENDIX B: ENVIRONMENTAL RELEASE PROCEDURES

MATERIAL	SPILL AND LEAK PROCEDURES	WASTE DISPOSAL
Acetic Acid clear colourless liquid with sharp vinegar odour	- Eliminate any source of ignition. Prevent spills from entering water courses. Contain with sand, earth or other inert adsorbent material. Transfer into clean, non-combustible container. Wash remaining trace residues with water. Wear chemical goggles and rubber gloves to prevent contact with the eyes and skin.	- Neutralize with soda ash or lime. Dispose of recovered material in approved landfill or other waste disposal facility.
Nitric Acid water white to slightly yellow liquid with nitrogen dioxide odour	- Eliminate any source of ignition. Prevent spills from entering water courses. Contain with sand, earth or other inert adsorbent material. Transfer into clean, non-combustible container. Wash remaining trace residues with water. Wear chemical goggles and rubber gloves to prevent contact with the eyes and skin.	- Neutralize with soda ash or lime. Dispose of recovered material in approved landfill or other waste disposal facility.
Caustic Soda, Anhydrous Odourless, white granular solid	- Sweep or shovel into clean, non-combustible drum. Neutralize the area carefully with weak acid to PH of 6 to 9. Neutralization is expected to be exothermic. Effervescence may result.	Neutralize the area carefully with weak acid to PH of 6 to 9. - Dispose of recovered material in approved landfill or other waste disposal facility
Ethylene Glycol Colourless liquid with mild odour	- Prevent spills from entering water courses. Contain with sand, earth or other inert adsorbent material. Transfer into clean, non-combustible container. Wash remaining trace residues with water. Wear chemical goggles and rubber gloves to prevent contact with the eyes and skin.	- Dispose of recovered material in approved landfill or other waste disposal facility.

APPENDIX C: EMULSION PLANT LAYOUT




POWER PLANT
MINE TANK FARM & DYKE (4611)
CAMP INFRASTRUCTURE
(FACILITY 4134):
•ACCOMMODATION COMPLEX
•EMERGENCY RESPONSE
•MEDICAL CENTRE
•SEWAGE TREATMENT
PLANT & OFF-SPEC POND (4735)
•POTABLE WATER
PLANT EVACUATION GUARD LOCATION
PIT 1 HAUL ROAD
(FACILITY 4221)
EXISTING ROAD
PIT OFFICE
ORE CRUSHING AND
LOADING (FACILITY 4133)
SHEARDOWN
NW
LAKE
LAYDOWN AREA
LANDFILL ACCESS ROAD
EMULSION PLANT ACCESS ROAD
FACILITIES INCLUDING
E BUILDING
TRUCK SCALE
UTILITY BERM
EMULSION PLANT GATE
LANDFILL
STE DISPOSAL LANDFARM
EXPLOSIVES PADS
(FACILITY 4135)
EMULSION PLANT