

#### 5.1.3. Emergency Response Team

Members of the Emergency Response Team will be provided a higher level of training to allow for safe and adequate response. This includes:

- All information given as part of the Role Specific Training;
- Fire extinguishers and water pump locations and use;
- Details of the Spill Action Plan and the Fire Action Plan; and
- Identify, evaluate and mitigate the hazards posed by any spilled product by using appropriate PPE (personal protective equipment).

#### 5.2. Testing

Emergency response exercises will be conducted on a regular basis to validate on site capabilities, practice the internal and external notification processes and evaluate the management of the response through the decisions and actions of the team participating in the exercise(s).

A spills drill is to be held under the Environment and Site Superintendent's direction providing practical training for each personnel rotation at the start of each season, at each field operation. This drill must include a familiarization of all onsite personnel on their responsibilities including what to do in case of a spill. The drill must also include a hands-on scenario where the Emergency Response Team utilizes equipment to deal with the spill scenario. The drill may be broken down into two or more sessions to ensure adequate coverage.

Records of this testing are to be kept on file and posted to provide access for those who were unable to attend.



#### 6. MATERIALS TRANSPORT AND STORAGE

#### 6.1. Fuel Storage

Diesel fuel is required during the 2015 Site Preparation Activities to generate power on-site, heat buildings and to fuel mobile equipment. Diesel fuel at Goose Camp will be stored in double-walled tanks (up to 75,000L ULC-approved) situated within a lined secondary berm. Diesel fuel at the MLA will be stored within double-walled tanks (up to 100,000L ULC-approved) within Arctic-grade manufactured instaberms or similar product.

Anticipated maximum fuel supplies for 2015 are as follows:

 Table 5
 Estimate of Fuel Supplies for 2015 Site Preparation Activities

Fuel	Quantity	Location
Diesel – Envirotanks	500,000L	Coose Comp
(75,000 L tanks)		Goose Camp
Diesel – Envirotanks	Up to 600,000L	MLA
(100,000 L tanks)		IVILA

#### 6.2. Domestic Greywater, Sewage and Contact Water

Greywater from the kitchen and shower facilities will be screened for coarse particles (e.g. food), and released to a sump for settling, after which it will be released to the environment. Sewage will be dealt with using a Pacto toilet system with incineration of the waste generated.

Contact water is water that collects within the fuel secondary containment berms. This water will be transferred out of each containment once the depth of water is equal, or greater, than 10 cm and treated using oil/water separator. Post treatment, the contact water will be contained within a dedicated berm/tank system and tested for compliance with current water license thresholds. If in compliance with current thresholds of the water license it will be released to the environment.

#### 6.3. Solid Waste

Combustible solid wastes generated from the camp activities will be incinerated. Products such as putrescible domestic and office waste will be burned. Noncombustible wastes such as scrap metal, non-reusable barrels, incinerator ash, etc., will be placed in mega-bags and removed from site using backhaul flights to Yellowknife. Hazardous solid waste for backhaul will sealed in drums for transport to Yellowknife.

Although the potential for quarry material to be acid generating is unlikely, any such waste would be disposed of in an approved location in accordance with accepted standard practices.



#### 6.4. Chemicals

Sabina is committed to the safe and proper handling of waste materials to ensure minimal environmental impact and land disturbance. Waste chemicals that require special attention and handling include waste oil, hydraulic oil, lubricating oil, calcium chloride, grease, and ethylene glycol.

Waste oil is used to either heat the warehouse, or to fuel the incinerator at Goose camp. If not used to fuel heaters or the incinerator, waste oil and oil from filters will be back-hauled for appropriate disposal. Drained spent oil filters will be stored in drums for removal from the site for disposal at an authorized disposal facility.

There are minimal quantities of reagents such as dilute HCl (<5L), concentrated HNO<sub>3</sub> (vials of <10mL), and other materials on site for geological testing and environmental sample preservation.

Explosive products, when on-site, will be stored in appropriate secured facilities at designated explosives storage site(s).

Fire extinguishers and dust suppression is also used on site as needed. The fire extinguishers are stored in appropriate facilities. Small quantities of various household chemicals are on site for domestic use.

Material Safety Data Sheets (MSDS) will be available and kept at the site for all chemicals and fuel products. Appropriate storage and handling of all products will be undertaken.



# 7. EMERGENCY RESPONSE EQUIPMENT

Important information will be posted conspicuously throughout the Project area, including:

- Location of emergency response equipment (first aid kits, PPE, fire protection equipment, spill response kits) and details of proper use;
- Location of Muster Points and First Aid Stations;
- Lists of personnel trained in emergency response procedures (first aid, fire suppression, spill response);
- Outlines of Emergency Response Procedures; and
- Emergency contact lists.

#### 7.1. Fire Protection Equipment

All work areas will be equipped with proper fire protection equipment and signage will be posted where required. The inspection, and if necessary, testing and maintenance of all firefighting equipment will be conducted by a qualified person at least once a month during the active season.

All precautions necessary will be taken to prevent fire hazards when working, i.e.:

- Flammable substances will be managed in accordance with best practices, Hazardous Materials Management Plan, Waste Management Plan and Explosives Management Plan;
- All areas will be kept clear of any accumulation of material to enhance safe access and egress in case of emergency;
- Scrap, paper, rags etc. will be disposed by placing them in proper containers with lids secured;
   and
- Oil and grease spills will be cleaned up immediately.

Smoke and carbon monoxide detectors will be located throughout the camp area.

Air horns and/or sirens will be posted by all building exits for use in alerting others in camp of an emergency situation. Air horn signals will be:

- 1 long blast = fire;
- 2 short blasts = wildlife; and
- 3 short blasts = medical emergency.

#### 7.2. Spill Response Equipment

Available heavy equipment and aircraft will be used as appropriate for emergency use to respond to spill incidents.

Appropriately equipped spill response kits, additional on-site spill response equipment and MSDS sheets will be strategically located, as listed in Table 6.



Reserve spill response equipment such as booms, socks and pads will be available for response to larger spill incidents, or to replenish materials used in the smaller equipment spill kits. Spill kits will be inspected routinely and restocked after use.

# 7.3. Spill Kits

Table 6Location of Spill Kits

Goose Camp	MLA
Tank Farm	Fuel storage area
Drummed Fuel Storage	
Generator Buildings	
Coreshack	
Drum Crusher	
Incinerator	
Helipad Area	
Dock	
Each Diamond Drill	
South Quonset	
Shop North Quonset	

Table 7Goose Spill Kit Contents

Quantity	Item(s)
1	45 gal, 16 Gauge Open Top Drum, c/w Bolting Ring & Gasket
20	Short Putty Epoxy Sticks
1	48" x 48" x 1/16" Neoprene Pad (Drain Stop)
1	Splash Protective Goggles
1	Pkg Polyethylene Disposable Bags (5 ml) 10 per Package
1	Shovel (Spark Proof)
1	Case T-123" x 10' Absorbent Boom, 4-Booms/Case;
1	Pkg. – Universal absorbent Mats, 16 ½" x 20", 100 Mats per Package
1	Roll – Oil only absorbent mats 150' x 33"

Table 8MLA Spill Kit Contents

Quantity	Item(s)
1	Oil containment boom 300 meters – 24 Inch Fence type
4	Anchor kits for anchoring boom in place
4	Towing bridal for oil boom
4	Spill response unit – X Large Land
4	Overpack spill kit
50	12 kg. Bags granular absorbent
6	0.5m X 0.5m x 15 cm Arctic mini berm for under fittings
6	1m x 1m x 15 cm Arctic mini berm for under fittings
1	1500 Gallon Portable Tank
25	Bales Sorbent Pads
25	Bales Absorbent booms



1	Aluminium workboat with outboard engine, equipped with towing post and related
	equipment for boom deployment
1	Skimmer and diesel driven power pack, suitable for recovery of distillates – Capacity 7.5
	tonnes per hour
12	Rakes for beach cleaning
12	Perforated shovels for sorbent recovery
12	Pitch forks with screens for sorbent and debris recovery
12	Approved flotation devices
1	Minimum 10 ton sand stockpile for spill berming operations

#### **Mobile Response Unit**

A mobile Environmental Response Unit is available to Sabina from a major fuel supplier (Shell) in Yellowknife or Cambridge Bay. This unit can be transported to the site from Cambridge Bay in less than three hours, weather permitting.

#### 7.4. First Aid and Medical Equipment

First aid kits will be strategically located in vehicles and all Project sites. They will be stored in marked areas, readily accessible to responders.

Additional medical equipment will be located at the onsite Medical Clinic.

#### 7.5. Communication Systems

The primary means of onsite communication will be the phone system, hand-held radios, and vehicle radios. The primary means of external communication will be the phone system along with email.

Backup power sources and replacement batteries will be available to ensure continuous operation of communication systems. SAT phones provide backup communications capability should other systems be inoperable due to power outages.

In an emergency situation the "CAMP" radio channel will be used. Once an emergency call is given over the radio, all work must stop and radio silence is initiated. The CAMP channel will be used as the Emergency Channel.

Members of the ERT will be on-call for emergency situations 24 hours a day.

Emergency contact information is provided in Section 3.



#### 8. SPILL RESPONSE PROCEDURE

A spill is defined as the discharge of a hazardous product out of its containment and into the environment. Potential hazards to humans, vegetation, water resources, fish and wildlife vary in severity, depending on several factors including nature of the material, quantity spilled, location and season. Fuel is the main product that may be spilled and cause and impact, therefore spill response procedures focus on this hazardous material. Other chemicals that may be spilled include sewage water, and small quantities of lubricants and oils.

All site personnel are briefed on the procedures to be followed to report a spill and initiate spill response. The first person to notice a spill must take the following steps:

- Immediately warn other personnel working near the spill area;
- Evacuate the area if the health and safety of personnel is threatened;
- Notify their supervisor or onsite management, who will initiate the spill response operations;
- 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.

The following details the steps to be taken in the event of a spill. Steps are listed in order of importance; however, circumstances and conditions may alter the order of these steps to meet a specific situation.

#### 8.1. Source Control

Reduce or stop the flow of product without endangering anyone. This may involve very simple actions such as turning off a pump, closing a valve, sealing a puncture hole with almost anything handy (e.g., a rag, a piece of wood, tape, etc.), raising a leaky or discharging hose at a level higher than the product level inside the tank, or transferring fuel from leaking containers.

#### 8.2. Control of Free Product

Prevent or limit the spread of the spilled material. 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).

#### 8.3. Protection

Evaluate the potential dangers of the spill in order to protect sensitive ecosystems and natural resources. Block or divert the spilled material away from sensitive receptors. This can also be achieved by using various types of barriers.

#### 8.4. Clean up the Spill

Recover and containerize as much free product as possible. Recover and containerize/treat contaminated soil, water, and snow. Pressure-wash contaminated bedrock surfaces, shorelines, ice and recover as much as possible oily water for containerization and/or treatment.



#### 8.5. 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.

#### 8.6. Response by Spill Location

#### Spills on Land

Response to spills on land will include the general procedures previously detailed. The main spill control techniques involve the use of two types of barriers: dykes and trenches. Barriers should be placed downgradient (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 fuel and also serve as containment to allow for recovery.

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 fuel. 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.

The use of large quantities of absorbent materials to recover larger volumes of fuel should be avoided. Large volumes of free-product should be recovered, as much as possible, by using vacuum systems and/or pumps, and containerized. 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

#### **Spills on Water**

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

- Type of waterbody or watercourse (lake, ocean, stream, river);
- Water depth and surface area;
- Wind speed and direction;
- Resonance and range of tides;
- Type of shoreline; and
- Seasonal considerations (open-water, freeze-up, break-up, frozen).



Containment of an oil slick on the ocean requires the deployment of mobile floating booms to intercept, control, contain and concentrate (i.e., increase thickness) the floating oil. One end of the boom is anchored to shore while the other is towed by a boat or other means and used to circle the oil 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 oil is spilled in a lake it may not be possible to deploy booms using a boat. In this case, measures are taken to protect sensitive and accessible shoreline. The oil 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) is used to stop and concentrate moving oil for collection while allowing water to continue to flow unimpeded. In the case of floating oil, in a stream, heading for a culvert (i.e., at a road crossing) a culvert block is used to stop and concentrate moving oil for collection while allowing water to continue to flow unimpeded. In both cases oil 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.

#### Spills on Snow and Ice

In general, snow and ice will slow the movement of hydrocarbons. The presence of snow may also hide the oil 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 a sorbent material is to be limited as much as possible. 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 water.

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 plastic lined berms on land. If required, a contaminated snow storage site is to be located in close proximity to one of the four (4) main work sites to facilitate inspection and monitoring, in an area which is still easily accessible once it is time to remove the snow (i.e., spring or summer), and at least 30 m away from any body of water or ditch. Once enough snow has melted, the oily water is removed from



the storage and processed through an oil-water separator that would be mobilized to site. Hydrocarbons recovered will be burned in the camp incinerator or shipped off-site for processing.

#### 8.7. Response by Material Spilled

#### **Fuel**

Detection of leaks will be using two methods - a fuel inventory reconciliation and inspection. A weekly reconciliation of storage volumes will be completed and a spill response will be initiated in the event of any unexplained loss over five or more weeks.

Weekly inspections will be conducted to ensure either there has not been a leak or that the conditions of the area could result in a leak. These inspections will include the fuel drums and storage containers, secondary containment sumps and associated spill containment devices, any pumps and product-handling equipment, and an overfill protection devices. These inspections will be recorded to include who completed the inspections, areas included in the visual inspection and any deficiencies noted.

Fuel spills, leaks at storage facilities or vehicle accidents will be handled by following these steps:

- Identify the source of the leak or spill;
- Contact the Environmental Coordinator/Site Superintendent;
- Stop leaks from tank or barrel by;
- Turning off valves;
- Utilizing patching kits to seal leaks;
- Placing plastic sheeting at the foot of the tank or barrel to prevent seepage into the ground;
- Contain the spill and the source if possible; and
- Take photographs of the spill site before and after the clean-up.

Small spills will be cleaned up by removing the contaminated soil and storing it in empty 205 L drums for backhaul and disposal at an approved hazardous waste disposal site. Should a large spill occur, cleanup and disposal efforts will be coordinated as necessary with the appropriate authorities and agencies.

Further information on the handling of fuel spills is detailed in Appendix A.

#### **Domestic Sewage, Solid Waste and Contact Water**

Any problems with the sewage disposal system, incinerator or other waste disposal procedure will be immediately reported to the Operations Superintendent.

In the event of a power failure, the stand by generator will be put into operation as soon as possible. Similarly, in the case of a pump failure, the backup pump will be put on-line. Any greywater drainage problems will be addressed as quickly as possible to minimize the chance of a spill. As necessary, appropriate safety equipment and personal protective clothing will be available to site personnel involved in handling the situation.



#### Chemical

Assess the hazard of the spilled material by referring to the relevant MSDS sheet. Each response will vary based on the material. If the chemical is hazardous, ensure personnel protective equipment is utilized (latex gloves, eye protection, etc.) before approaching the spill. As chemicals are only used in extremely small quantities on site use absorbent mats to soak up spilled liquids and place in appropriate container for treatment and/or disposal.

#### **Disposal**

Appropriate disposal, as directed by the Environmental Manager, for any recovered product and contaminated soil, water or absorbent clean up material is regulated and must be authorized by the agency investigating the incident. Obtain approval from all appropriate government agencies before disposal. A hazardous waste generator number has been acquired and used by the expeditor when disposing of camp waste.

Fuel contaminated soil can be remediated at camp through incineration or alternatively, the contaminated soil can be flown out to Yellowknife for disposal at an approved disposal/treatment facility.

Any non-reusable recovered product, contaminated soil and clean up material, which cannot be incinerated, will be stored in containers and returned to camp prior to disposal.



#### 9. MEDICAL EMERGENCY PROCEDURE

#### 9.1. Onsite Medical Assistance

If the worker is injured but does not require immediate medical assistance or transportation:

- Provide immediate First Aid;
- Make arrangement with supervisor, or other personnel if needed, for transportation of the injured worker to the onsite Medical Clinic;
- Ensure worker's supervisor is informed of the injury to the worker and that they are being transported to the Medical Clinic;
- Worker is to remain at the Medical Clinic until the supervisor arrives; and
- The Principal Medical Aide Designee who treated the patient is responsible for filling out the appropriate forms and reports.

If a worker is injured and immediate medical assistance or medi-vac transportation is required:

- Provide immediate First Aid;
- Call, or send someone else to notify of need for medical assistance;
- Contact the Principal Medical Aide Designee via the hand held VHF radio on "CAMP" Channel;
- Call: Medic-Medic-Medic and provide the following information:
  - "My name is \_\_\_\_\_\_; I am located at \_\_\_\_\_\_. (State worker's name) has been injured and requires immediate medical assistance." Describe the nature of the injury. Await confirmation that the message was received.
- Once an emergency call is given over the radio, all work must stop and radio silence is initiated. The CAMP channel will be used as the Emergency Channel.
- Stay at the scene;
  - o Maintain contact with the Principal Medical Aide Designee if possible;
  - Render First Aid;
  - Post a spotter for direction;
  - o If needed, send an escort vehicle to meet the Principal Medical Aide Designee en-route;
- Hand over the care of the patient to the Principal Medical Aide Designee when they arrive and provide assistance;
- The Principal Medical Aide Designee to assume control over the injured worker and further medical response. The Principal Medical Aide Designee will decide on the need for mobilization and transport; and
- Logistics and Camp Supervisor to be on standby for instructions regarding medevac, runway preparation, lighting, clearing etc.

#### 9.2. Medevac Procedure

If a medical emergency is declared by the Principal Medical Aide Designee, the following will be executed:

- Logistics will be contacted via radio on CAMP Channel, and will be provided the required medical information by the Principal Medical Aide Designee, or their designate;
- Logistics will contact Cambridge Bay Heath Center (867-983-4500) and inform on-duty nurse of emergency;



#### \*Important: A doctor must be receiving to initiate the Medevac

- If Cambridge Bay Health Center is unavailable, Logistics will call Stanton Hospital in Yellowknife (1-800-661-0867) and inform on-duty nurse of emergency; and
- Provide the following information to the on-duty nurse:

Company	Sabina Gold & Silver Corp.
Project	Back River Project
Camp No.	778-372-2741
Patient Location	Latitude: 65° 32′ 42″N
	Longitude: 106° 25′ 43″W
Medicare/Health #	May need to be given at a later time.
# Of Injured Persons	
Patient Information	What happened?
Condition:	Conscious or Unconscious?
History	Any other known medical conditions
Age of Patient	
Time of Accident	

- Doctor from Cambridge Bay Health Center will contact a doctor in Yellowknife with the injury details and that they are initiating a Medevac;
- Await a call from Cambridge Bay doctor who will provide the name of the receiving doctor in Yellowknife;
- Call Air Tindi to request a Medevac Plane and provide them with the name of the receiving doctor and a brief incident description;
- Air Tindi Paramedics will call back to have complete incident details; request any medical equipment that is necessary;
- Principal Medical Aid Designee to continue to update Logistics with patient's status and vitals;
- If a medevac is initiated, Logistics to get direction from Air Tindi as to the estimated time of arrival (ETA); and
- Logistics to notify the Principal Medical Aide Designee of ETA for the medevac.

#### **Secondary Contacts**

If Air Tindi cannot be reached, contact:

- Arctic Sunwest 867-669-9789; or
- Northern Air Support 1-250-765-0100.

#### **Compromised Air Transportation**

Should air transport be unavailable due to weather or daylight hours, the patient will remain on site at the onsite medical clinic until air support can be provided.



#### In Case of Death

- Do not move the body unless it could be destroyed by other events happening at the time (e.g. a fire);
- Cover the body;
- Contact supervisor; and
- Supervisor to call the RCMP, Company directors, Mines Inspectors.

#### 10. AIR EMERGENCY PROCEDURE

As soon as an air emergency is identified the Project Air Traffic Controller or security personnel will notify the Operations Superintendent who will assess the need for additional emergency response resources.

In the event of a helicopter or plane crash:

- The Operations Superintendent will contact the RCMP who will establish access and traffic control;
- Medical response procedures will be initiated (Section 9);
- If required, fire response procedures will be initiated (Section 11);
- Emergency response personnel will not move debris associated with the wreckage, unless it inhibits passenger rescue;
- The RCMP/Coroner will be responsible for dealing with fatalities; and
- Following the emergency response, the Operations Superintendent will direct the Emergency Response Team in the investigation and cleanup of the crash site.

# 11. FIRE / EXPLOSION PROCEDURE

If a fire is discovered:

- Sound the alarm;
- Where it is safe to do so, onsite personnel will take immediate steps to extinguish small fires. All workers will be trained in use of fire extinguishers.
- If it is safe to do so, shut off equipment, warn others and use the planned escape route; and
- In the event of a fire all workers must report to the primary muster point, if this is not possible report to the secondary muster point.

#### When approaching a fire:

- Always seek help before approaching;
- Before approaching, be sure to check the extinguisher is charged, and complete a visual inspection for any obvious signs of deterioration to the extinguisher or low pressure;
- Always ensure you keep the fire in front of you and that you have a means of escape. Stay
  upwind of the fire;
- Use the PASS method when operating a fire extinguisher:
  - Pull the pin at the top of the extinguisher. The pin releases a locking mechanism that will allow you to discharge the extinguisher.



- O Aim at the base of the fire, not the flames. This is important in order to put out the fire, you must extinguish the fuel. Spraying the fire directly could cause it to spread.
- Squeeze the lever/nozzle slowly. This will release the extinguishing agent in the extinguisher. If the handle is released, the discharge will stop.
- Sweep from side to side. Using a sweeping motion, move the fire extinguisher back and forth until the fire is completely out, or until all expellant is used.
- Operate the extinguisher from a safe distance, several feet away and then move towards the fire once it starts to diminish;
- Never use a class A extinguisher on an electrical fire;
- Do not hesitate to leave the area if the fire continues to grow;
- Once the fire is out, don't walk away immediately. Watch the area for a few minutes in case it re-ignites;
- Replace the fire extinguisher with a recharged one; and
- Bring the discharged fire extinguishers to the warehouse for recharging.

For emergencies associated with explosives, procedures outlined in the supplier's Explosives Management and Emergency Response plans will be initiated. This information will be available in later revisions of this SCERP.

#### 12. EVACUATION PROCEDURE

The need to evacuate part of or the entire Project site may result from:

- Extreme weather events;
- Seismic activity;
- Tundra fire;
- Toxic gas release;
- Hazardous material spill; and
- Extended power outage during winter conditions.

#### If an evacuation is required:

- All personnel will be under the direction of the Operations Superintendent;
- All employees will report to the designated Muster Point;
- Supervisors will perform a count of personnel to ensure all are accounted for and call the Operations Superintendent with the message "All persons account for";
- The Operations Superintendent will coordinate airplane/helicopter support as required and handle telephone notifications and inquiries;
- The Operations Superintendent will have the site helicopters stand-by and await instructions. If needed for fighting fires, the Operations Superintendent will ask to have the Bambi basket ready;
- The situation will be accessed, and personnel will be given instructions for which areas have been cleared and can be used as shelter; and
- If required, personnel will be evacuated to Cambridge Bay, Kugluktuk or Yellowknife, where
  accommodation and any further transport arrangements will be handled by the Operations
  Superintendent.



#### 13. SPILL POTENTIAL ANALYSIS

#### **13.1.** Fuel

Fuel spills could potentially occur from:

- Fuel storage containment leaks;
- Spills during transport from aircraft/barge to fuel storage area;
- Spills from vehicles or equipment as a result of accidents; and
- Spills during fuel transfer from tanks to equipment or heaters.

Spills occurring during fuel handling, transfer or storage operations will be minimized by:

- Secondary containment;
- Inspections of the storage facilities;
- Inventory tracking;
- Staff training in proper fuel handling procedures;
- Spill response training for personnel associated with fuel handling;
- Immediate cleanup of minor spills;
- Enclosing spigots on fuel containers with absorbent mat to collect any slow drips; and
- Fuel line walkers will be used to monitor the fittings etc during fuel transfers.

The potential for spills affecting surface waters is low, as fuel storage and transfer points are located away from watercourses and lakes. Close inspection of fuel transfer activities will be undertaken during all times while fuel is being pumped/transferred to equipment. Secondary containment will be used at all refueling points and storage areas.

#### 13.2. Domestic Sewage and Solid Waste

Waste from the kitchen and Pacto systems will be transported to the incinerator in a small trailer, with virtually no risk of spillage. The greywater lines will be routinely inspected for leaks and repaired as necessary. The screens at the greywater sump will be cleaned of debris daily.

#### 13.3. Solid Waste

Failures may occur in the handling of solid waste through the following situations:

- Incinerator at Goose Camp fails;
- Accidental damage to the incinerator and it components, or the heaters and/or their fuel supplies;
- Mechanical breakdown; and
- Improper maintenance.



Visual inspection of the incinerator and its combustion products will be carried out frequently, typically in the normal course of operation. The incinerator will be operated according to the manufacturer's instructions.

#### 13.4. Chemicals

Any chemicals brought on site are stored in manufacturers' supplied packaging. Although unlikely, leaks may occur resulting in minor spills of chemical product in storage. It is more likely a leak will occur during the transfer of chemicals or from accidental failure of containers.

Sabina provides training to its staff in product handling and inspection procedures, which we feel, will result in reduced occurrences of chemical spills.

#### 13.5. Overland Transport

The following table identifies possible incidents which may occur along the winter and/or all-weather road, the consequences of that incident and the preventative measures to be implemented.

**Table 8** Summary of Potential Incidents and Preventative Measures along Transportation corridors

Incident	Description	Consequences	Preventative measures
Refueling	Refueling hose	Puddles of fuel over	All refueling will occur in area 30 m or
of vehicles	could break,	limited area	greater from waterways in designated
	spring a leak,	Hose breaks at	areas
	overfilling of	equipment and sprays a	Personnel will be aware of emergency
	equipment tank,	large amount of fuel over	shut-off valves and trained in spills
	spillage from gas	a larger area	response
	storage tank	"slick" flows steadily	Spill Kit available
		from equipment	Refueling occur within containment
			and/or absorbent material in place
Vehicle	Vehicles could	Puddles of fuel over	Vehicles will stop a minimum of 31 m
storage	leak fuel while in	limited area to the entire	from waterways.
and	operation or	contents of a tank being	Vehicles parked on ice will have
operation	during a stop	discharged	absorbent material placed underneath
	along route		Personnel will be trained in spills
			response
			Spill Kit available
Fuel	Fuel being	Puddles of fuel over	Regular visual inspection will occur to
containers	brought to the	limited area to the entire	ensure tanks are not leaking
leaking	vehicles could	contents of a tank being	Personnel will be trained in spills
	leak fuel while in	discharged	response.
	operation or		Spill Kit available
	during a stop		
	along route		



Incident	Description	Consequences	Preventative measures
Vehicle	Accident on road	This worst case scenario	Safe road corridor will flagged
accident	that involves	could result in a tank of	Speed limits will be in effect
	equipment going	fuel and any materials	Transportation of Dangerous Goods
	off	being transported spilling	manifest if necessary
	road/overturning	entire contents over a	Coordination and communication
		large area	between the cat-haul and camps will be
			maintained
			Camp personnel will be ready to
			mobilize in case of accident
			Spill kit available with cat-haul and on-
			site
Fuel	Fuel storage	Puddles of fuel over	All storage will occur in area 30 m from
storage	tanks leak/spill	limited area	waterways
leakage	and contents are		Double-walled tanks with insta-berms
and/or spill	spilled		Personnel will be aware of emergency
			shut-off valves and trained in spills
			response
			Spill Kit available
			Regular monitoring and inventory
			tracking will occur at these
			remote/temporary fuel storage areas

#### 13.6. Fire Prevention

The most serious spill incident would involve fire and a hydrocarbon-based fuel source. In order to minimize the risk of fire, **No Smoking** and **Flammable** signs will be posted as needed at storage areas and with the cat-haul train along with a dry chemical fire extinguisher. Workers will be trained in the use of the fire extinguisher and be instructed of the risk caused by electrical and open flame fire hazards near fuel.



#### 14. RECORD KEEPING AND REPORTING

All spills and emergency incidents are to be reported to the Operations Superintendent or their designated representative. It is their responsibility to notify Sabina headquarters staff and external parties as outlined in the roles and responsibilities of this SCERP.

An internal log of incidents resulting in an emergency response will be kept and maintained. Each record will include date, location, nature of emergency situation, factors leading to emergency situation, details of response, any negative impact, status of cleanup, and corrective actions taken.

Training records for emergency response personnel and records of emergency response exercises will be kept.

A record will document all significant changes that have been incorporated in the SCERP subsequent to the most recent annual review. The record will include the names of the persons who made and approved the change, as well as the date of the approval.

Documentation will be maintained in accordance with Sabina's standard operating procedures.

To assist with internal tracking a Sabina Spill Form is included in Appendix B.

Reportable spills, as identified in this SCERP, are to be externally reported to the NWT/Nunavut Spill Response Line. The Operations Superintendent will ensure spills are reported externally as required. The Spill response form (Appendix B) is to be completed for all externally reported spills and forwarded to the NWT/Nunavut Spill Response Centre within the required 24 hour reporting period. The Manager, Site Operations, or their designate, will notify Sabina Headquarters senior management of any reportable spills as listed below.

Any spill, or incident that may likely result in a spill, of an amount equal to or greater than the amount listed in the table below shall be promptly externally reported. Spills adjacent to or into a surface water or ground water access will be externally reported regardless of quantity.

Spills within secondary containment will be reported and included in the internal log. In the situation that the spill within the containment is above the thresholds noted below, an external report to the NWT/Nunavut Spills will be submitted if the spill exceeds 40% capacity of the secondary containment.



# **External Reporting Volumes**

TDGA Class	Description of Contaminant	Amount Spilled
1	Explosives	Any amount
2.1	Compressed gas (flammable)	Any amount of gas from containers with a capacity greater than 100 litres
2.2	Compressed gas (non-corrosive, non-flammable)	Any amount of gas from containers with a capacity greater than 100 litres
2.3	Compressed gas (toxic)	Any amount
2.4	Compressed gas (corrosive)	Any amount
3.1, 3.2, 3.3	Flammable liquid	100 litres
4.1	Flammable solid	25 kg
4.2	Spontaneously combustible solids	25 kg
4.3	Water reactant solids	25 kg
5.1	Oxidizing substances	50 litres or 50 kg
5.2	Organic Peroxides	1 litre or 1 kg
6.1	Poisonous substances	5 litres or 5 kg
6.2	Infectious substances	Any amount
7	Radioactive	Any amount
8	Corrosive substances	5 litres or 5 kg
9.1 (in part)	Miscellaneous products or substances,	50 litres or 50 kg
9.2	Environmentally hazardous	1 litre or 1 kg
9.3	Dangerous wastes	5 litres or 5 kg
9.1 (in part)	PCB mixtures of 5 or more parts per million	0.5 litres or 0.5 kg
None	Other contaminants	100 litres or 100 kg



## Appendix A. Procedure In The Event Of A Spill

#### Priority 1 – Identify spill source and assess hazard

- Ensure safety of all people in the area.
- Find the source, type and extent of spill
- Assess hazards from the spill
- Check for fire and explosion risk:
  - Extinguish all ignition sources in the area
  - Move machinery only if safe to do so or shut down if necessary
  - Isolate all live equipment to prevent sparks and enforce no smoking by site personnel
- Raise alarm and close off affected area

#### Priority 2 – Stop flow of spill

- Ensure that any necessary safety equipment (PPE) is worn prior to prior to working at the spill site.
- Stop flow at source of spill
- Leak containment requires the planned use of absorbent pads, drip buckets, drip pans, or impermeable geo-membrane secondary containment berms to catch any slow or unexpected leaks.
- Larger spills require attempts to limit the spread of the spill. Prevent movement using sorbent material, berms to form a barrier
- If the spill occurs on ice, attempts should be made to stop the spill from reaching ice-free ground.

#### Priority 3 – Notify Operations Superintendent (OS)

- Notify the OS as soon as possible after ensuring the safety of all personnel and attempting to stop the flow and limit spread. Provide as much information as possible about the source, material, amount, fire risk, injuries etc.
- OS will report spill to Nu/NWT Spill Reporting Line, notify Sabina headquarters contacts and ensure any further notifications are made depending on the type and extent of spill.

#### Priority 4 – Spill Containment

- For all spills, use absorbents to contain and soak up the fuel
- Prevent spread of fuel by using booms and berms
- It may be possible to contain the fuel using absorbent materials or by building small berms and dams
- Response operations should not be commenced in the affected area until it is safe.

#### Priority 5 – Spill Recovery and Cleanup

If the spill has been successfully been contained then spill clean-up can start

The OS is to monitor spill clean-up and coordinate clean-up operations

The OS is to complete the Spill Report form and submit to authorities and Sabina headquarter contacts (using Spill Report Form)

- Recover as much fuel as possible
- If possible pump directly into 205L drums. Ensure that the drums are in good shape and available near the spill site
- Absorbent pads should be spread on any remaining fuel that cannot be pumped or manually removed
- Fuel soaked absorbents must be picked up and placed in plastic bags or 205L empty drums
- Contaminated snow can be stored in 205L drums with tops removed. Allow snow to melt and decant off fuel.
- Any drums containing a mixture of fuel and snow or water are likely to freeze. To prevent drums from splitting use only drums in good condition and do not fill to top.
- Drums containing recovered fuel or water, used absorbents should be stored in secondary containment areas.
- Disposal should be by approved methods and facilities as per OS instructions.

#### Notes:

- As much fuel as possible should be removed immediately after the spill. The use of dispersants and burning at the site is not allowed, and a large scale cleanup operation may cause more environmental damage that the fuel itself.
- The health and safety of personnel is the first priority in the case of a fuel spill. Emergency spill response actions should not be undertaken in extreme weather conditions or during periods of darkness, unless the situation has been fully assessed by the CM and PM
- Personnel should ensure they are aware of the location and content of the spill kits
- Spill Response Classification:
  - Minor spills less than 10L easily contained
  - o Moderate spills less than 500 L contain and clean-up by on-site personnel
  - Major spills more than 500L cannot be contained on-site and will require external assistance to clean-up.



# Appendix B. NWT/NU Spill Report and Sabina Internal Spill Report



### **SABINA INTERNAL SPILL REPORT FORM**

This form is to be used for internal documentation of spills of any petroleum product, chemical, ethylene glycol (antifreeze), or other hazardous material. See recent Spill Contingency Plan for reporting thresholds and structure. Once complete file with the Operations Superintendent.

Report Date and Time:			Spill Date and Time: Spill occurred					
			Spill observed					
Spill Location					Describ	e Locati	ion:	
Goose	U Othe	er (e.g. Drill, Bo	ulder Pond)					
George Coordinates	(Lat/Lona o	or UTM):						
	1200, 20119	•		1	1	<i>(</i> , )	<u> </u>	
Product(s) Spilled:	Jet fuel	Diesel (P50)	Gasoline	AvGas	Oil	(type)	Antifreeze	Other (describe)
Quantity (L or kg):								
Personnel Involved:		Sabina	☐ Co	ntractor	□ v	isitor/	Other	
Cause of Spil	<i>I</i> :							
, ,								
Containment	:/Cleanup N	Neasures Takei	า:					
Factors Affec	ting Spill o	r Recovery (we	ather, snow	, ground	conditio	ns, etc.):		
Additional A	Additional Action Required:							
Additional Comments:								
	Name		Employer			Signati	ure	
Reported by:								
Reported to:			1			Ì		

# APPENDIX D WASTE MANAGEMENT PLAN



# Back River Project Comprehensive Waste Management Plan 2015 Site Preparation Activities

October 2014



# **Table of Contents**

1. IN	NTRODUCTION AND BACKGROUND	
1.1	Purpose	
1.2	Sabina Social and Environmental Policy	
	,	
3. O	ONGOING AND PROPOSED SITE PREPARATION ACTIVITIES	2
3.1	Description of Ongoing Activities	4
3.2	Description of Proposed Site Preparation Activities	
3.	3.2.1 Goose Property	5
3.	3.2.2 Temporary Laydown Area	6
4. R	ROLES AND RESPONSIBILITIES	
4.1	All Employees	8
4.2	Environmental Superintendent and Coordinator	۶
4.3	Operations Superintendent	
4.5	Operations superintenaent	
5. U	JNDERSTANDING WASTE AND WASTEWATER STREAMS	
6. W	NASTE CLASSIFICATION AND MANAGEMENT	9
6.1	Non-Hazardous Waste Management	9
6.2	Hazardous Waste	10
6.3	Contact Water Management	10
6.4	Waste Quantities	10
7. W	NASTE MANAGEMENT INFRASTRUCTURE	11
7.1	Incinerator Guidelines	11
7.2	Temporary Waste Storage Facilities	12
	, ,	
8. TF	RAINING REQUIREMENTS	13
9 RI	REVIEW OF WASTE MANAGEMENT PLAN	13



#### 1. INTRODUCTION AND BACKGROUND

#### 1.1 Purpose

The purpose of this Comprehensive Waste Management Plan (WMP) is to outline Sabina Gold & Silver Corp.'s (Sabina) plan for managing non-hazardous wastes, recyclables and treated sewage during the 2015 Site Preparation Activities at the Back River Project.

The goal of any waste management plan is to reduce and prevent impacts to the environment. Managing wastes and working responsibly will also ensure personnel safety while involved in the 2015 Site Preparation Activities.

Sabina conducts waste management under the following guidance:

- Wherever and whenever possible, Sabina and its employees will work toward the 3Rs reduce, reuse and recycle;
- Sabina is committed to considering additional best management practices and alternatives to
  hazardous products; and if an appropriate method and/or substitute is identified then it will be
  incorporated into exploration activities;
- Every effort will be made to purchase products from suppliers with programs and policies of return for used containers and/or unused product where available and economically feasible to do so; and
- Compliance with company policies, legislation and terms and conditions of water licenses and land use permits.

With this guidance, Sabina understands the steps of waste management to include:

- Understand waste streams;
- Reduce amount generated;
- Separate;
- Safe handling/transportation and disposal; and
- Incineration.

The WMP is dynamic and will be updated at least annually to address any significant changes in operating procedures, should they occur.

A copy of the Plan will be available at each of Sabina's exploration camps and headquarters office.

#### 1.2 Sabina Social and Environmental Policy

Sabina is committed to environmentally responsible and socially acceptable exploration and mining practices. We are dedicated to creating and maintaining a safe environment for both the land we occupy and the people that drive its success. The company's philosophy is to conduct its operations to protect not only the environment, but the health and safety of its employees and the public as well.



Sabina also subscribes to the principles of sustainable development in mining. While exploration and mining cannot occur without an impact on the surrounding natural environment and communities, our responsibility is to limit negative environmental and social effects and to enhance positive effects.

To achieve these goals, Sabina is committed to:

- Seeking to be environmental leaders in the mining community by integrating responsible environmental management as an essential component of all business decisions;
- Comply with all applicable laws, regulations and standards; uphold the spirit of the law and
  where laws do not adequately protect the environment, apply standards that minimize any
  adverse environmental effects resulting from its operations;
- Communicate openly with employees, the regulatory community and the public on environmental issues and address concerns pertaining to potential hazards and impacts;
- Assess the potential effects of operations and integrate protective measures into the planning
  process to prevent or reduce impacts to the environment and on public health and safety;
- Take appropriate corrective actions should unexpected environmental impacts occur. This will also include taking appropriate action to prevent reoccurrence of these impacts.
- Provide adequate resources, personnel and training so that all employees are aware of and able to support implementation of the environmental and social policy;
- Conduct and support research and programs that improve understanding of the local environment, conserve resources, minimize waste, improve processes, and protect the environment.
- Working with the appropriate local regulators and agencies, maximize benefits to the affected communities and residents;
- Balance all decisions with best management practices, scientific principles and traditional knowledge.



#### 2. ONGOING AND PROPOSED SITE PREPARATION ACTIVITIES

Activities planned for 2015 are divided into two groups, ongoing activities and proposed activities. The following sections describe each group.

Ongoing activities include:

- Goose Camp operations;
- Exploration and support activities; and
- Ice-based airstrip.

Proposed site preparation activities include:

- Ice road and associated water use;
- All-weather airstrip extension;
- Rascal Lake outflow stream realignment;
- Construction and use of a 6km all –weather road and associated crossings; and
- Quarry development and operation; and
- Staging of a Temporary Laydown Area (TLA) at the site of the proposed MLA.

#### 2.1 Description of Ongoing Activities

#### **Goose Exploration Camp**

During site preparation activities for the Back River Property, it is anticipated that the existing Goose Exploration Camp (Goose Camp) will be used for ongoing exploration, engineering and baseline studies, and other site preparation activities.

#### **Operation of Goose Camp**

The Goose Camp will be utilized as a base for the aforementioned activities. No changes to the current camp accommodations are proposed.

#### **Resupply of Goose Camp**

The resupply of the Goose Camp and associated activities will take place utilizing all-weather and/or ice-based airstrips. No changes to the current resupply methodology are proposed.

#### **Diesel Fuel Resupply and Storage**

Additional fuel may be required for the proposed site preparation activities; this fuel will be supplied via aircraft and stored in the existing Goose Camp fuel storage area.



Arctic-grade diesel fuel will be used by motor vehicles and mining equipment on the site. Limited quantities of propane and gasoline will be used in maintenance facilities for smaller motorized equipment and machinery. All fuel to be used during the 2015 site preparation activities will be stored within the existing 75,000 L tanks, within secondary containment. The Goose Camp fuel storage currently includes six 75,000 L tanks in tertiary containment and seven 75,000 L tanks that will require installation of a lined containment area, if used in 2015.

#### **Explosives and Ammonium Nitrate Storage**

Prepackaged explosives will continue to be delivered by air transport, sited and stored in accordance with legislative requirements and best management practices. Two magazines are currently located at Goose Camp; it is anticipated that additional magazines may be required.

#### **Exploration and Study Support**

Ongoing exploration and scientific studies to support the permitting and engineering phases will continue onsite. These may include geological mapping, drilling, geophysics, environmental baseline studies, and engineering studies. These activities, although based out of Goose Camp, may occur over the entire Project area.

#### **Ice-based Airstrip**

An ice-based airstrip on Goose Lake will be required for the delivery of equipment and materials necessary for site preparation activities. The ice-strip, which has been constructed in previous seasons on Goose Lake, will be built to Transportation Canada regulations and standards. No additional water use is currently anticipated for this activity.

#### 2.2 Description of Proposed Site Preparation Activities

#### 2.2.1 Goose Property

#### Ice Roads and Water Use

Ice roads, totalling approximately 6 km in length, will be required to connect and access the proposed quarries and explosives storage locations at the Goose Property. To support this work, water for construction will be necessary. It is estimated that 120 m3/day of water will be required to build and maintain this access during ice road operations. In the open water season, an estimated 70 m3/day of this total volume will be used for dust suppression and compaction of placed construction materials.

#### **Quarries**

A total estimated volume of 550,000 m<sup>3</sup> of quarried material will be required to complete the outlined site preparation activities. Two quarries have been identified for use: the existing quarry next to the airstrip and a new quarry located within the footprint of the future Umwelt open pit. Up to 550,000 m<sup>3</sup> of rock will be required to support site preparation activities, and this material will be extracted from one or both of these quarries. As such, Sabina is seeking approval to extract up to 550,000 m<sup>3</sup> of rock



from each of the existing quarry and the proposed Umwelt quarry. The total volume of rock extracted from one or both quarries, however, will not exceed 550,000 m3.

Only geochemically and physically suitable material will be developed, and handled per current quarry management plans.

#### **All-weather Airstrip Extension**

The current airstrip will be extended to allow for servicing passenger and cargo aircraft. This airstrip will serve as the main air access to the Goose Property throughout the life of the Project. The all-weather airstrip will be designed to Transport Canada standard TP 312 Aerodrome Standards and Recommended Practices (2005). The airstrip will be approximately 1,524 m long and 45 m wide.

#### **Rascal Lake Outflow Stream Realignment**

One of the Rascal Lake outflows currently intersects the extended airstrip footprint. A realignment of the natural watercourse will be required to divert the water currently flowing from Rascal Lake directly to Goose Lake, to flow via Gander Pond to Goose Lake. This realignment will require the construction of two berms to divert 100% of the flow from Rascal Lake through Gander Pond to discharge into a nearby area of Goose Lake. Berm construction material will be sourced from an approved quarry source.

#### **All-weather Road and Associated Water Crossings**

The proposed road alignment at the Goose Property will be constructed as an all-weather road. This road alignment, totaling approximately 5 km in length, is required to access the existing rock quarry, the new Umwelt quarry, and the extended all-weather airstrip.

The all-weather road will be constructed with run-of-quarry rock placed directly onto the tundra to preserve the permafrost. A layer of graded surfacing material will be placed to provide a protective trafficking layer. Construction materials will consist of geochemically suitable rock sourced from the existing quarry and/or Umwelt quarry.

Stream flow through the road alignment will be conveyed using appropriately sized culverts.

#### 2.2.2 Temporary Laydown Area

A TLA will be staged at the site of the future MLA location. Activities will include the offloading of two barges containing materials, equipment, and fuel for future use; these materials will be stored at the TLA. Explosives magazines will also be offloaded to the TLA and stored empty for 2015.

Arrival and offloading of the barges and staging of the TLA will occur in the open-water season of 2015 over a period of approximately 25 days. The barges will come from a western route, either from the Lower Mainland or from Hay River.



#### **Material Storage and Access**

An estimated laydown area of up to 1 ha will be required to store equipment, materials and fuel for future Project works. With the exception of large preassembly and modular equipment, materials arriving at the TLA will be housed in sea containers. The equipment and materials will be placed on dunnage or swamp mats to protect the permafrost.

The TLA will be accessed from the barge landing area using swamp mats provisionally placed directly onto the tundra to preserve the permafrost. Once the equipment and fuel are stored, the swamp mats along this corridor will be removed and transported offsite with the outgoing barges.

To facilitate these efforts, personnel (10-14 staff) will be shuttled on a daily basis from the Goose Camp to the TLA. Minimal temporary structures (e.g. tents) will be used at the TLA site; these may include a first aid room, lunch room, and restrooms (pactos). Food, water, and waste will be temporarily stored and removed periodically. Local measures will be implemented to minimize wildlife attraction to the TLA.

#### **Diesel Fuel Supply and Storage**

Sabina will require 600,000 L of diesel fuel for future site preparation; this fuel will be shipped to the MLA (via barge) and stored in land-based steel tanks at the TLA. The tertiary containment for fuel tanks will be Arctic-grade manufactured instaberms or similar product. These will be placed on a stable foundation of interlocking swamp mats that will remain for the duration of the facility.

The capacity of each berm will be equal to the volume of the largest tank plus 10% of the volume of the remaining tanks or 110% volume of the largest tank, whichever is greater. In calculating the volume, the footprint of the smaller tanks is subtracted. The above basis is consistent with the document entitled Design Rationale for Fuel Storage and Distribution Facilities published by the Department of Public Works of the Northwest Territories (GNWT 2006; refer to Section 4.6 of these guidelines). The design of these containment products will be based on Arctic installation and industry storage standards. Fuel transfer will incorporate hoses and pumps within tertiary containment. Transfer methodology is described in the attached Oil Pollution Emergency Plan (OPEP).



#### 3. ROLES AND RESPONSIBILITIES

#### 3.1 All Employees

- Place all waste in properly marked containers; and
- Encourage and participate in general good housekeeping within camp boundaries and buildings.

#### 3.2 Environmental Superintendent and Coordinator

- Periodically ensure waste management containers and methods are followed;
- Assist operations Superintendent with tracking, monitoring and reporting as per terms and conditions of permits and licenses;
- Co-ordinate any inspections by applicable agencies; and
- Update and distribute the WMP as needed.

#### 3.3 Operations Superintendent

- Responsible for the overall management of waste as per the WMP;
- Ensures all staff are instructed on the WMP;
- Ensures all legal requirements, including the completion of waste manifests, are filed prior to any shipment;
- Record backhaul volumes for non-hazardous waste;
- Conduct ongoing monitoring as required as per terms and conditions of permits and licenses;
   and
- Summarizes and reports waste management as per terms and conditions of permits and licenses, or as required by Sabina Senior Management.

#### 4. UNDERSTANDING WASTE AND WASTEWATER STREAMS

This Plan covers wastes generated as a result of the 2015 Site Preparation and Exploration activities outlined in Section 0. Wastes considered include those generated through the operation and maintenance of facilities such as:

- Generators and Heavy Equipment used oil, antifreeze, used absorbent pads, greases, lubricants, batteries, scrap metal, empty fuel drums
- Camp (kitchen, offices and sleeping quarters) recyclables, food, wood, cardboard, plastic, rubber, glass, batteries, solvents, scrap metal, empty fuel drums, sewage, greywater, construction debris, paint; and
- Fuel storage contact water from within berm, used absorbent pads, scrap metal, empty fuel drums.



#### 5. WASTE CLASSIFICATION AND MANAGEMENT

It is important that wastes are sorted and safely handled and disposed of. Whenever practical waste is sorted at the source and divided into the following categories:

#### 1. Non-hazardous

- a. Combustible
  - i. Domestic food wastes
  - ii. Paper
  - iii. Cardboard
  - iv. Lumber scraps
  - v. Domestic refuse
  - vi. Damaged bulk containers
- b. Non-combustible
  - i. Recyclables
  - ii. Reusables
  - iii. For disposal

#### 2. Hazardous.

Non-hazardous waste includes food, sewage, wood, cardboard, plastic, rubber, glass scrap metal and empty fuel drums. Hazardous waste includes used oil, oil filters, used absorbent pads, paint, chemicals, batteries and used grease. The following outlines management of non-hazardous materials on site. Hazardous materials will be managed in accordance with the Hazardous Materials Management Plan (HMMP).

#### 5.1 Non-Hazardous Waste Management

Non-hazardous wastes are identified below with a description of how they will be separated on site, sorted and disposed:

- Combustible wastes will be incinerated on site per guidance from "Technical Document for Batch Waste Incineration", Environment Canada (March 2009). This includes kitchen waste, pacto sewage waste, cardboard, wood. The waste ash will be stored and backhauled to Yellowknife for disposal.
- Recyclable and Reusable wastes will be collected, sorted and stored until they can be backhauled to Yellowknife for inclusion in their recycling program. This includes plastic and aluminum drink containers, printer cartridges, metal containers, plastics (#1 thru #6).
- Non-combustible inert waste will be sorted and stored on site until backhaul to Yellowknife for inclusion in recycling programs and/or disposal in municipal landfill as appropriate. This includes glass containers, paint cans and batteries.
- Non-combustible waste disposed on site Greywater is currently collected by drainage pipes and gathered in an open tub (up to 500-gallon (1,893 litre) capacity) and then pumped by a