

**ENVIRONMENTAL PROCEDURE PLAN FOR  
EXPLORATION AND REMOTE CAMPS**

**Shear Minerals Ltd.**

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## **ENVIRONMENTAL PROCEDURE PLAN FOR EXPLORATION AND REMOTE CAMPS**

The following Environmental Procedures have been developed for Shear Minerals Ltd. These principles form the guiding basis for the Environmental Operating Procedures that apply to all of our exploration activities within Nunavut Territory.

- Environmental management is an integral component of our exploration programs and is the responsibility of all program personnel.
- The potential environmental impact of our activities will be assessed and minimized.
- Environmental standards and quality of work will be continuously improved and maintained in conjunction with effective exploration.
- All relevant government laws and regulations for the protection of the environment will be known and complied with.
- All contractors and employees will be informed of our Environmental Policy and their designated environmental responsibilities.
- Effective communication and close liaison will be maintained with nearby communities and regulatory authorities.
- Exploration activities will be conducted with due regard for the protection of wildlife, flora and sites of natural, cultural and historical significance.
- Programs will be established to recycle and conserve resources.

### **ENVIRONMENTAL PROCEDURES**

#### **INTRODUCTION**

Shear Minerals Ltd. is committed to continuous improvement and to attaining high standards in environmental performance.

Exploration activities generally have a very low degree of impact upon the environment. We work in remote and relatively pristine areas, with particularly sensitive ecosystems and challenging environmental and climactic conditions. We must be diligent and innovative in the management of our activities to ensure minimal impact to the environment.

#### **1. PLANNING**

Exploration programs will be carefully planned to minimize disturbance and effectively manage environmental risks.

##### **Risk Assessment**

The activities associated with the proposed exploration program will be assessed for

environmental risks and impacts. Variables such as topography, climate, fauna, vegetation and stakeholders must be considered. Procedures and/or processes will be implemented to manage and mitigate the identified environmental risks and impacts.

### **Emergency Preparedness**

A Spill Contingency Plan has been established for exploration programs and remote camp locations. The plan includes contingencies for probable environmental emergencies as a result of natural occurrences and/or as a result of program activities.

### **Expenditure / Budget**

Activities such as site clearance surveys, environmental training, and rehabilitation will be included in the program budget. These are a genuine program costs and must be treated as such. Good environmental planning and management will minimize environmental damage.

### **Due Diligence**

The environmental status of land will be reviewed prior to acquisition and any potential environmental liabilities recognized. This may involve discussions with landholders or joint venture partners, on-site inspections, reviewing maps, photographs and previous reports of the area. This process will be continued during the life of the program and will include mapping or photographing of possible sensitive sites.

### **Legislative Requirements**

All relevant legislation will be known, communicated and complied with.

### **Approvals**

Stakeholders of the land to be explored will be identified. Relevant approvals from stakeholders and regulatory authorities will be obtained.

### **Responsibilities and Accountabilities**

Environmental responsibilities will be assigned and communicated to all members of the program team. This includes employees and contractors. Contractor responsibilities will be outlined in the environmental schedule of the contract. The primary responsibility for protecting the environment from impacts related to program activities is assigned to the Program Supervisor.

### **Induction and Training**

Field employees and contractors will be made aware of relevant regulations, approved permits and licences and areas that have been identified as sensitive, for example known wildlife dens, migratory routes and archaeological finds.

### **Contractors**

Preference will be given to contractors who display high standards of environmental management and performance.

### **Closure Planning**

The short term and long term environmental implications of our activities must be considered and plans developed to eliminate or mitigate these impacts upon program closure.

## **2. STAKEHOLDERS**

A stakeholder is an individual or group (i.e. landholder, local group, regulatory authority, community, etc.) concerned with or potentially affected by our exploration activities. Stakeholders will be identified for each program. Regular communication will be maintained with these stakeholders for the duration of the program, and afterwards in some cases. Any agreement made with stakeholders should be documented.

### **Cultural and Heritage Issues**

Cultural objects, remains and sites of spiritual, archaeological, anthropological or historical significance will be protected.

- Surveys may be required to identify sites of sacred, heritage and cultural significance. The results of these surveys must be documented.
- Any additional sites encountered during exploration will be left undisturbed and reported to the appropriate authority.
- Any discussions with local communities or traditional owners should be documented.

## **3. FLORA AND FAUNA**

All reasonable care will be taken to avoid interference with rare or endangered species of native flora or fauna.

### **Flora**

- All reasonable care will be taken to avoid unnecessary impacts to flora and to mitigate required impacts.

### **Fauna**

- Hunting is prohibited.
- Firearms and domestic animals are not permitted unless special permission has been obtained from the Exploration Manager.

## **4. AIRBORNE OPERATIONS**

Our exploration activities require airborne support due to the remote locations. Additionally, due to the lack of serviceable airstrips in the region, this support involves aircraft equipped for off-strip operations (float planes, helicopters). These types of aircraft have a minimal potential impact upon the environment.

### **Fuel**

Aviation fuel at exploration operations is contained in 205 litre steel drums for ease of handling. These drums are stored horizontally on the ground with the bungs positioned at the mid-way point. This storage method prevents contact of surface water with the bungs and possible contamination of the fuel and keeps the bung seals submerged in fuel which prevents the seals from drying out and leaking.

- Fuel drums will be stored at the required distance from any surface water source (e.g. lake, stream, pond, etc.)
- Remote fuel storage locations (e.g. outside of camp) will be plotted on a suitable topographic map and the GPS positions will be recorded. An updated inventory of the fuel used will be maintained.

- Regular visual inspections will be conducted of all fuel caches
- Empty or otherwise no longer required fuel drums will be retrieved from all locations. Empty drums will be returned to the fuel supplier for recycling.
- Full fuel drums will not be stored remotely for more than one year.
- Fuel storage locations will have a suitable spill response kit.
- Refueling locations will have a suitable fire extinguisher.

## **5. LAND DISTURBANCE**

All necessary permits and permissions will be obtained prior to conducting any land disturbance. Great care will be taken to avoid and/or minimize land disturbance such as earthmoving and vegetation clearing. When clearing is unavoidable, it must be carried out in a manner that does not promote erosion. Whenever possible, areas that are naturally free of vegetation will be selected for logistical support sites (e.g. campsite, heli-pad).

### **Geochemical Sampling**

When taking soil samples, areas naturally free of vegetation (frost boils) will be selected whenever possible. When this is not possible the organic layer and any topsoil should be put to one side and replaced after the sample is collected.

## **6. DRILLING OPERATIONS**

### **Drill Sites**

- Select sites to minimize damage to the environment.
- Sites should be as small as practicable but include enough area for fire protection.
- Avoid locating drill sites on steep slopes.

### **Sumps**

- Natural depressions will be used in preference to excavation.
- Ensure the number and size of sumps is adequate to contain all potential drilling fluids.
- Sumps should be positioned down slope of drill collars to ensure run-off flows into the sump.
- If excavation is required, the organic layer and any topsoil should be stockpiled separately for replacement during backfilling.
- Excavated sumps should be marked until they have been backfilled.
- Excavated sumps should be allowed to dry out (by evaporation) prior to backfilling.

### **Drilling Fluids**

- Drilling fluids will be contained in sumps or by another suitable and approved method (e.g. tank).
- Fluids will be disposed of according to regulations.

### **Groundwater**

- If encountered, artesian water flow will be controlled to prevent erosion of the ground surface and the silting of watercourses,

### **Waste**

- Receptacles will be provided for rubbish at drill sites. No waste of any description will litter the site.

- Food waste will be removed from drill sites daily.
- Waste will be disposed of according to regulations and land use permits.

### **Drilling on Ice**

Drilling fluids and cuttings will be contained to prevent contact with the ice surface or water. Cuttings will be disposed of on land in a natural depression or excavated sump or otherwise in accordance with the land use permit. Fluids will be recirculated, stored in tanks and as necessary will be disposed of in a sump.

### **Spill Prevention**

Methods will be implemented for the handling and care of petroleum products, drilling additives, etc. so as to prevent accidental spillage of these materials. Drip pans will be placed under leaking equipment and, if practicable, the leaks will be repaired as soon as possible.

### **Core Splitting/Cutting**

Core will be split using a mechanical splitter. If core is to be cut then wastewater from core sawing will be controlled to prevent erosion of the ground surface and the silting of watercourses. Where practicable, it should be contained and recycled through the core saw. All cuttings and unwanted core off-cuts or pieces will be contained and disposed of by burial or otherwise disposed of according to regulations.

### **Capping of Drill Holes**

- All holes will be temporarily plugged immediately upon completion, using whatever safe means available (e.g. rocks), to eliminate any hazard to wildlife.
- Prior to, or on completion of the program, all open holes will be plugged with a proper down-hole plug and the area above the plug filled in.
- If later relocation of the hole is not required, casing will be removed whenever possible.
- Remaining casing will be cut off to ground level or below and capped.
- Any excess drill chips will be poured back down the hole.
- Any holes with flowing water will be permanently sealed unless written instruction from the relevant authority indicates otherwise.

## **7. CAMP SITE SELECTION AND DESIGN**

To prevent disruption to flora and fauna, camps, wherever possible, will be located in naturally clear areas, not on migration routes (e.g. esker trails) and at the required distance from any surface water.

To mitigate potential impacts, decisions regarding site selection and the type of structures and facilities to be established must consider the following criteria:

- Number of people to be accommodated.
- Duration of the camp.
- Activities to be undertaken at the camp.
- The time of year.
- Land use permit stipulations.

### **Fire Protection and Prevention**

- Fire regulations will be observed at all times and permits obtained if necessary.
- The use of open fires will be avoided. Fires will only be used for general garbage disposal and will be contained in an excavated pit or in a steel container, such as an

empty fuel drum. Embers should be buried or transported from site to an approved landfill location.

- Personnel will be advised that disposing of cigarettes onto the ground is prohibited.
- Additional precautions such as prohibiting smoking and open flames will be implemented for areas of greater risk.

## **8. WATER MANAGEMENT**

Precautions will be taken throughout our operations to prevent direct or indirect pollution of watercourses.

- Used water will be contained in excavated sumps or natural depressions. Water flow will be controlled to prevent erosion of the ground surface and the silting of watercourses.
- Proposed potable water should be tested for water quality.

## **9. HAZARDOUS MATERIALS**

Whenever possible, the use of hazardous materials will be avoided. Other methods or non-hazardous substitutes will be employed.

- Exploration sites will have procedures in place for the storage, handling and disposal of hazardous materials.
- Whenever a substance is taken from its primary container and placed into a secondary container, the secondary container will be adequately labeled as to its contents.
- Material Safety Data Sheets (MSDS's) will be available for all hazardous materials on site.
- Fuels, oils and chemicals must be properly contained and stored at a minimum distance of 130 metres away from surface water unless expressly authorized by a land use permit or in writing by an inspector.
- Bulk tanks of fuel will be equipped with secondary containment that is capable of holding 110% of the primary tank.
- Flammable materials will be stored in cleared areas or in metal storage cabinets that is segregated from combustible material.
- Disposal of hazardous materials will occur off-site at an authorized facility.

### **Spill Response**

- Spills will be cleaned up promptly.
- All spills will be reported internally to the appropriate company representatives.
- All governmental reporting requirements will be adhered to.
- Spill kits or absorbent material will be available at all fuel storage locations and remote areas with machinery activity (e.g. drill-sites).

## **10. WASTE MANAGEMENT**

### **General (domestic and personal) Waste**

All foreign material introduced to an area by employees or contractors will be collected and removed from the site to an approved landfill site. All domestic and personal waste shall be managed in accordance with local health requirements.

General garbage will be incinerated. General garbage that is designated for shipment can be incinerated to reduce bulk unless otherwise contradicted by government regulations. Food wastes will not be stored on site; it will be incinerated and shipped off site. Incineration will be conducted within an approved container (e.g. modified steel drum). The garbage generated during on-the-ground work on the mineral claims will be returned to the base of operations for proper disposal. Food-waste must be removed from remote locations on a daily basis. Food must be removed from remote locations whenever the locations are unoccupied.

Sewage will be bagged and shipped off site for disposal.

Wastewater (greywater) from kitchen or showering facilities will be directed to sumps designed to prevent discharge of particulate material. The sumps will be located at the required distance from any surface waters. The sump will be located outside the main shelter and be covered to prevent animals from accessing the pit. Biodegradable soaps and detergents are to be used at all times.

### **Recycling**

Recycling programs should be initiated whenever practicable.

## **11. REHABILITATION**

All reasonable steps will be undertaken to return the land surface to its' original form, and to promote healthy re-vegetation and sustainable natural development.

At the completion of exploration in an area, an inspection will be made to assess whether all rubbish has been removed, all drill holes have been capped, and excavations have been backfilled.

Regardless of location, the following steps are to be taken to aid natural rehabilitation of drill sites, camp sites, excavations, etc as soon as practicable after exploration is complete:

- Remove rubbish and waste material. Fill in all holes, trenches, and sumps with the stockpiled subsoil and compact it.
- Backfill excavations with the stockpiled subsoil and topsoil.
- Cap all drill holes.

## **12. REPORTING AND RECORDS MANAGEMENT**

### **Incident Reporting and Investigation**

Any significant environmental incident must be promptly reported and adequately investigated.

Authorities must be notified as per regulations.

Examples of environmental incidents resulting from activities are:

- Hazardous materials spill.
- Bush fire.
- Damage to a heritage, cultural or sacred site.
- Contamination of surface or ground water,
- Significant erosion requiring major rehabilitation.