

**SPILL PREVENTION AND RESPONSE PLAN**

**PROSPERITY GOLDFIELDS CORP**

## TABLE OF CONTENTS

1.0 Introduction	3
1.1 Purpose	3
1.2 Environmental Policy	3
2.0 Facilities	4
2.1 Buildings and Structures	5
2.2 Fuel Storage	7
3.0 Petroleum & Chemical Storage and Inventory	7
3.1 Petroleum Product Transfer	8
3.2 Remote Location Storage & Handling Procedures	8
4.0 Risk Assessment and Mitigation of Risk	8
5.0 Responding to Failures and Spills	9
5.1 Basic Steps	9
5.2 Chain of Command	9
5.3 Emergency Contact List	10
6.0 Taking Action	11
6.1 Preventative Measures	11
6.1.2 Responsibilities During Transport	11
6.2 Mitigative Measures	13
6.3 Spill Response Actions	
Diesel, Hydraulic Oil & Lubricating Oil	14
Gasoline and JetB Aviation Fuel	15
Propane	16
Chemicals	17
7.0 Spill Equipment	18
7.1 Spill Kits	18
8.0 Training	19

## List of Appendices

- Appendix I) Spill Report Form
- Appendix II) Maps & Figures
- Appendix III) Completing the Spill Report Form
- Appendix IV) MSDS Sheets
- Appendix V) Daily Fuel Inspection Record

## 1.0 INTRODUCTION

The Prosperity Goldfields Corp (PGC) Spill Prevention and Response Plan (SPRP) will be in effect from March 01, 2011.

This Spill Response Plan is to be posted at operational remote sites.

PGC endeavors to take every reasonable precaution toward ensuring the protection and conservation of the natural environment, the safety and health of PGC employees, sub-contractors and contractors and (protecting) the community (at large) from any harmful effects of its materials and operations.

### 1.1 PURPOSE

The overall purpose of the SPRP is to mitigate, to the fullest extent possible, the risk of environmental contamination from the accidental release of deleterious materials by providing clear procedures for their storage and handling as well as clear plans of action in the case of such a release.

Spill Response Plan will;

- promote the safe and careful use of potentially hazardous materials;
- promote the safe and effective recovery of spilled potentially hazardous materials;
- minimize the environmental impacts of spills to water or land;
- provide site-specific information on the facilities and contingencies in place;
- identify roles, responsibilities, and reporting procedures for spill events;
- provide readily accessible emergency information to cleanup crews, management and government agencies, and;
- comply with federal and territorial regulations and guidelines pertaining to the preparation of contingency plans and notification requirements in the event of an emergency or spill.

### 1.2 ENVIRONMENTAL POLICY

The present SPRP has been prepared in accordance with the commitments made in PGC's environmental policy (see Corporate and Social Responsibility Plan), which are to:

- Assess the potential environmental impacts of any new undertaking with an objective to minimize adverse impacts;
- Design and operate facilities to ensure that effective controls are in place to minimize risks to health, safety and the environment;
- Implement an emergency response plan to minimize the impacts of unforeseen events;
- Provide a professional environmental for staff to plan and direct environmental compliance programs and to assist in training and education activities;

- Provide training and resources to develop environmentally responsible employees;
- Ensure that environmental factors are included in the purchase of equipment and materials;
- Ensure that contractors operate according to the company's environmental policy and procedures;
- Comply with all applicable environmental laws and regulations;
- Communicate with employees, the public, government agencies and other stakeholders on activities involving health, safety and the environment;
- Regularly verify environmental performance and implement any required corrective action;
- Minimize the generation of hazardous, as well as non-hazardous, waste and ensure proper disposal of all waste materials;
- Implement measures to conserve natural resources such as energy and water, and;
- Rehabilitate sites in accordance with regulatory criteria and within established time-frames.

## 2.0 FACILITIES

Prosperity Goldfields Corp will operate a camp and one of drill in the Kiyuk Lake area

Drill sites are located in geologically favorable various parts of the area where small amounts of drill equipment and/or fuel may be temporarily stored for future use (small remote fuel caches).

## **2.1 BUILDINGS AND STRUCTURES**

Camps consist of varying numbers of:

- SIP panels.
- Outhouse facilities using Pacto toilets. The Pactos do not require electricity or water. Instead a flush foil is used to encapsulate the waste.
- A generator building to house a 20 kW diesel generator as well as a backup generator
- A garbage incineration area with an Inciner8 Model A200
- A helicopter landing area, and
- A natural gravel airstrip for a small fixed wing aircraft.

### Planned Camp Infrastructure Structures

- |    |   |
|----|---|
| 10 | Kevlar based fibre domes 20 ft in circumference and 12 ft in high<br>for accommodations, kitchen and office |
| 2  | SIP panel 24'x 24' building   |

### Vehicles and Heavy Equipment

- |   |                             |
|---|-----------------------------|
| 4 | Bravos                      |
| 1 | TV 6060 New Holland Tractor |
| 2 | Honda 440                   |

### Drilling Equipment

- |   |  |
|---|--|
| 1 | LF-70 diamond core drill with miscellaneous drill equipment and spares                             |
| 1 | Heat Trace Drill water supply system including pipe, water storage tanks, boiler and transfer pump |

### Air Transportation

- |   |  |
|---|--|
| 1 | small fixed wing aircraft                          |
| 1 | helicopter (Hughes 500, Jet Ranger or Long Ranger) |

## **2.2 FUEL STORAGE**

The fuel storage monitoring program is detailed in Section 6 of this plan.

All fuels, such as diesel, Jet A/B and gasoline, are stored in 205 litre (45 gal) metal drums.

## **3.0 PETROLEUM & CHEMICAL STORAGE AND INVENTORY**

The hazardous materials stored on site consist of the following substances:

- P-50 Diesel,
- Jet A and/or Jet B turbo fuel,
- Gasoline,
- Grease (mechanical lubricants),
- Hydraulic Oil,
- Engine Oil,
- Waste Oil (awaiting removal from camp for proper disposal),
- Propane,
- Other materials potentially hazardous to the safety of personnel and the environment

The Material Safety Data Sheets (MSDS) for the hazardous materials stored at the exploration camp can be found in Appendix IV.

All hazardous materials/supplies are flown into, and out of, sites. A Waste Manifest will accompany the movement of all hazardous wastes.

## **3.1 PETROLEUM PRODUCT TRANSFER**

Manual, electric and engine powered pumps, along with appropriate filtration devices, may be used for the transfer of petroleum products from their storage drums to their end-use fuel tanks. A fuel service truck will be brought to site in 2011 once the two double walled enviro-tanks are on site and established. The fuel truck will transport the fuel from the airplanes to the enviro-tanks.

Cigarette smoking, sparks, open flames and any other potential ignition sources are prohibited from any fuel storage and fuel transfer site at all times. As a general guideline, all equipment is to be turned off during refueling.

## **3.2 REMOTE LOCATION STORAGE AND HANDLING PROCEDURES**

At times, North Country Gold Corp. may establish temporary remote fuel caches for seasonal company use. Typically these caches would consist of 19 drums or less comprising Jet fuel and/or P-50. These remote fuel caches will be in accordance with CSA approved methods of storage of drummed product, and are very temporary most often used to support field

activities further afield from the camps and camp fuel caches. A spill kit will be located at each fuel cache. As well, the helicopter carries additional absorbent pads.

#### 4.0 RISK ASSESSMENT AND MITIGATION OF RISK

Following, is a list of sources:

- 1) Drummed product: Leaks or ruptures may occur. This includes drums of Jet A, Diesel, Gasoline, Waste Fuel, and Waste Oil.
- 2) Fuel cylinders: Propane, leaks may occur at the valves. All cylinders are secured at all times.
- 3) Vehicles and equipment: Wheeled vehicles and equipment, aircraft (fixed and rotary wing), snowmobiles, generators, pumps. Incidents involving leaking or dripping fuels and oils may occur due to malfunctions, impact damage, and lack of regular maintenance, improper storage, or faulty operation.

Regular inspection and maintenance in accordance with recognized and accepted standard practices at all camps and fuel caches, reduces risks associated with the categories listed above. Large fuel caches of 20 drums or more will be inspected daily.

Spill response training is provided to all personnel with particular attention to those personnel who handle fuels and other petroleum products. This training will include a presentation, “mock” spill, review of spill kit contents and their use and reporting.

Spill Kits will be located at all camps, fuel caches and drill shacks. A description of contents is listed in Section 7.0.

#### 5.0 RESPONDING TO FAILURES AND SPILLS

In the case of any spill or other environmental emergency, it is necessary to react in the most immediate, safe, and environmentally responsible manner. No spill or incident is so minor that it can be ignored and every spill must be reported.

##### 5.1 BASIC STEPS

The basic steps of the response plan are as follows:

1. Ensure the safety of all persons at all times.

2. Identify and find the spill substance and its source, and, if possible, stop the process or shut off the source.
3. Inform the on-site co-ordinator or his/her designate at once, so that he/she may take the appropriate actions. Appropriate action includes the notification of the spill to the 24 hour Spill Line and INAC Water Resource Officer, a copy of the Spill Report form can be found in Appendix I.
4. Contain the spill or environmental hazard, as per its nature.
5. Implement any necessary cleanup and/or remedial action.

## 5.2 CHAIN OF COMMAND

- 1. Immediately notify and report to the 24-Hour Spill Line at (867) 920-8130 (Fax: 867-873-6924), the INAC Water Resources Officer in Nunavut at (867) 975-4548, and Environment Canada personnel at 867-975-4644.
- 2. A Spill Report Form (Appendix II) is filled out as completely as possible before or after contacting the 24 Hour Spill Line.
- 3. Notify Quinton Hennigh, Project Manager, at (720) 938-1945.
- 

## 5.3 EMERGENCY CONTACT LIST - SPILL REPORTING AND RESPONSE

• CONTACT	• TELEPHONE NUMBER
• INAC Water Resource Officer, Iqaluit	• (867) 975-4548
• Environment Canada	• (867) 975-4644, 24 hr page (867) 766-3737
• Government of Nunavut Department of Environment	• (867) 975-5910
• Kivalliq Inuit Association	• (867) 645-5725
• DFO	• (867) 979-8007
• PGC, Quinton Hennigh Project Manager	• (720)938-1945
• Arviat RCMP	• (867) 857-0123/1111
• Nunavut Water Board	• (867) 360-6338
• Treeline Lodge Camp	• (519) 609 6057



## **6.0 TAKING ACTION**

### **6.1 PREVENTATIVE MEASURES**

The following actions illustrate a proactive approach to environmental stewardship. In addition, these actions minimize the potential for spills during fuel handling, transfer and storage:

1. Fuel transfer hoses with cam lock mechanisms are used.
2. Carefully monitor fuel content in the receiving vessel during transfer. Always have additional absorbent pads on hand while transferring fuel.
3. Clean up drips and minor spills immediately.
4. Regularly inspect drums, tanks and hoses for leaks or potential to leak and for proper storage.
5. Create fuel caches in natural depressions that are located a minimum of 31 metres from the normal high-water mark of any water body.
6. Train personnel, especially those who will be operators, in proper fuel handling and spill response procedures.

Prosperity Goldfields Corp will support the following general principles for spill prevention:

- provide up to date and accessible Material Safety Data Sheets (MSDS) for all hazardous materials;
- regularly inspect fuel/chemical storage areas and maintain on site the records of the inspections;
- provide training for with respect to approved procedures for handling hazardous materials, and procedures to clean up spills;
- encourage workers to take reasonable measures to prevent spills;
- keep drums/containers sealed or closed when not in use;
- keep storage areas secure from unauthorized access;
- segregate incompatible materials;
- ensure chemical storage areas are adequately protected from weather and physical damage, and;
- provide adequate spill response materials at storage areas.

#### **6.1.2 RESPONSIBILITIES DURING TRANSPORT**

Shipper:

- Ensures proper loading, restraint, containment and documentation, which complies with TDG guidelines
- Ensures that goods are classified and labeled appropriately. Provide placards if required
- Ensures safety at all times
- Ensures proper communication with carrier

Carrier:

- Supervises and ensures proper loading, restraint, containment and documentation which comply with all TDG regulations
- Ensures correct volumes for transport, attach placards if necessary, maintains or replaces safety marks
- Checks and delivers TDG manifest to receiver
- Ensures safety of all personnel and equipment

Receiver:

- Supervises unloading procedures
- Complies with TDG guidelines
- Ensures safety of containment facilities
- Ensures maintenance of all pumps and loading/unloading equipment on site
- Provides on-site emergency communications (telephone, radio)
- Completes regular site inspections of storages facilities
- Records all shipment manifests
- Keeps on-site inventory of all dangerous goods
- Maintains safety procedures at all times

On-Site Coordinator:

- Supervises and organizes spill containment equipment and personnel
- Reports to internal and external parties
- Ensures proper safety equipment is available
- Notifies all personnel of current hazards
- Provides adequate training for safety and materials handling
- Maintains proper safety procedures at all times
- Must be compliant with all TDG guidelines

## 6.2 MITIGATIVE MEASURES

1. First steps to take when a spill occurs:
  - Ensure your own safety and that of others around you, beginning with those nearest to the scene.
  - Control danger to human life, if necessary.
  - Identify the source of the spill.
  - Notify your supervisor, request assistance if needed.
  - Assess whether or not the spill can be readily stopped.
  - Contain or stop the spill at the source.
2. Secondary steps to take:
  - Determine status of the spill event
  - If necessary, pump fuel from a damaged and/or leaking tank or drum into a refuge container
  - Notify the 24-hour Spill Report Line
  - Complete and Fax a copy of the Spill Report Form (*Appendix I*).
  - Notify permitting authorities.
  - If possible, resume cleanup and containment.

### 6.3 SPILL RESPONSE ACTIONS

#### DIESEL FUEL, HYDRAULIC OIL, AND LUBRICATING OIL

Take action only if safety permits – stop the source flow if safe to do so and eliminate all ignition sources. Never smoke when dealing with these types of spills.

##### On Land

Build a containment berm using soil material or snow and place a plastic tarp at the foot of the berm for easy capture of the spill after all vapours have dissipated.

Remove the spill by using absorbent pads or excavating the soil, gravel or snow.

Remove spill splashed on vegetation using particulate absorbent material.

Contact regulatory agencies for approval before commencing with the removal of any soil, gravel, or vegetation.

##### On Muskeg

Do not deploy personnel and equipment on marsh or vegetation.

Remove pooled oil with sorbent pads and/or skimmer.

Flush with low pressure water to herd oil to collection point.

Burn only in localized areas, e.g., trenches, piles or windrows.

Do not burn if root systems can be damaged (low water table).

Minimize damage caused by equipment and excavation.

##### On Water

Contain spill as close to release point as possible.

Use containment boom to capture spill for recovery after vapours have dissipated.

Use absorbent pads to capture small spills.

Use skimmer for larger spills.

##### On Ice and Snow

Build a containment berm around spill using snow.

Remove spill using absorbent pads or particulate sorbent material.

The contaminated ice and snow must be scraped and shovelled into plastic buckets with lids, 205 litre drums, and/or polypropylene bags.

##### Storage and Transfer

All contaminated water, ice, snow, soil, and clean up supplies will be stored in closed, labelled containers. All containers will be stored in a well ventilated area away from incompatible materials.

##### Disposal

Any contaminated material will be shipped from site to an appropriate and approved facility. The DOE monitors the movement of hazardous wastes from generators, carriers to receivers,

through a tracking document (Waste Manifest). A Waste Manifest will accompany all movements.

### 6.3 SPILL RESPONSE ACTIONS

#### GASOLINE AND JET B AVIATION FUEL

Take action only if safety permits – stop the source flow if safe to do so and eliminate all ignition sources. Never smoke when dealing with these types of spills.

##### On Land

Build a containment berm using soil material or snow and place a plastic tarp at the foot of the berm for easy capture of the spill after all vapours have dissipated.

Remove the spill by using absorbent pads or excavating the soil, gravel or snow.

Remove spill splashed on vegetation using particulate absorbent material.

Contact regulatory agencies for approval before commencing with the removal of any soil, gravel, or vegetation.

##### On Muskeg

Do not deploy personnel and equipment on marsh or vegetation.

Remove pooled gasoline or Jet B with sorbent pads and/or skimmer.

Flush with low pressure water to herd oil to collection point.

On advice from regulatory agencies, burn only in localized areas, e.g., trenches, piles or windrows.

Do not burn if root systems can be damaged (low water table).

Minimize damage caused by equipment and excavation.

##### On Water

Contain spill as close to release point as possible.

Use containment boom to capture spill for recovery after vapours have dissipated.

Use absorbent pads to capture small spills.

Use skimmer for larger spills.

##### On Ice and Snow

Build a containment berm around spill using snow.

Remove spill using absorbent pads or particulate sorbent material.

The contaminated ice and snow must be scraped and shovelled into plastic buckets with lids, 205 litre drums, and/or polypropylene bags.

##### Storage and Transfer

All contaminated water, ice, snow, soil, and clean up supplies will be stored in closed, labelled containers. All containers will be stored in a well ventilated area away from incompatible materials.

#### Disposal

Any contaminated material will be shipped from site to an appropriate and approved facility. The DOE monitors the movement of hazardous wastes from generators, carriers to receivers, through a tracking document (Waste Manifest). A Waste Manifest will accompany all movements.

### 6.3 SPILL RESPONSE ACTIONS

#### PROPANE

Take action only if safety permits. Gases stored in cylinders can explode when ignited. Keep vehicles away from area. Never smoke when dealing with these types of spills.

#### On Land

Do not attempt to contain the propane release.

#### On Water

Do not attempt to contain the propane release.

#### On Ice and Snow

Do not attempt to contain the propane release.

#### General

It is not possible to contain vapours when released.

Water spray can be used to knock down vapours if there is no chance of ignition.

Small fires can be extinguished with dry chemical or CO<sub>2</sub>.

Personnel should withdraw immediately from area unless a small leak is stopped immediately after it has been detected.

If tanks are damaged, gas should be allowed to disperse and no recovery attempt should be made.

Personnel should avoid touching release point on containers since frost forms very rapidly. Keep away from tank ends.

#### Storage and Transfer

It is not possible to contain vapours when released.

#### Disposal

Any contaminated material will be shipped from site to an appropriate and approved facility. The DOE monitors the movement of hazardous wastes from generators, carriers to receivers, through a tracking document (Waste Manifest). A Waste Manifest will accompany all movements.

### 6.3 CHEMICAL SPILLS

- 1) Assess the hazard of the spilled material. REFER TO THE MSDS SHEETS NOW.  
Members of the emergency response team who might be susceptible in certain situations, (such as asthmatics, where fumes or airborne particles are evident), should be replaced with alternates.
- 2) Assemble the necessary safety equipment before response (e.g. latex or other protective gloves, goggles, or safety glasses, masks or breathers, etc.)
- 3) Apply absorbents to soak up liquids.
- 4) Place plastic sheeting over solid chemicals, such as dusts and powders, to prevent their disbursement by wind or investigation by birds or other mammals.
- 5) Neutralize acids or caustics. Place spilled material and contaminated cleanup supplies in an empty refuge drum and seal for disposal.
- 6) Contact the 24-Hour Spill Line. Continue through the steps outlined in Section 5.

## 7.0 SPILL EQUIPMENT

Fire extinguishers are provided in all the buildings, at the helicopter pads, the refueling area and the incinerator area, as well as any other area where flammable substances are stored and/or handled. Spill kits will be located at fuel caches, fueling stations, airstrip, and other locations where spills of hazardous substances could occur. All fuel caches with a volume greater than 4,000 litres will be stored within secondary containment.

### 7.1 SPILL KITS

Spill kits in bright blue or yellow 200 L containers include:

- basic personal protective equipment including goggles and latex gloves,
- absorbent materials including socks, pillows, pads and granular substances
- 50 Sonic bonded pads 17"x19"x3/8"
- 4 Socks 4' x 3" dia
- 1 SPHAG Sorb ¾ cu ft.
- 1 Plug-it sealing compound 500 ml
- 1 pair Nitrile gloves Large
- 2 pillows 18"x18"
- large 36"x52" lettered plastic bags for containing and transferring (for disposal) contaminated sorbent materials.

Also on-site are the following:

- 2 Rolls of absorbent matting 38"x144'
- 2 Packs (100's) of Enviro matting 16"x20"
- 4 Shovels (min)
- 6 (min) Empty 45 gal. drums for storing contaminated soil for disposal

Spill kits are located at:

- Camp fuel cache
- Helicopter/Fixed Wing fuel cache
- Drilling fuel cache
- Generator shack
- Core shack generator
- Reconnaissance caches and active drill sites

Additional sorbent materials for use at refueling sites for stoves and furnaces throughout camp are stored in the storage shelter, and at the drillers' storage and repair tent. Containment booms, absorbent materials, and extra insta-berms for use in responding to any spills are located in the storage shelter at Hayes.



A checklist of the required items for each spill response kit or equipment storage area will be provided. Spill response supplies will be checked against the lists on a quarterly basis and any deficiencies remedied immediately. The checklists will be reviewed whenever new chemicals are added to on-site activities to ensure that relevant spill cleanup supplies are present. MSDS for all the chemicals present in the vicinity of the spill kit will be kept near the kits, and will be updated as necessary to ensure that all MSDS data are up to date. The expiry dates of the MSDS will be tracked for every chemical present on site to help identify and replace those that are about to expire. MSDS are provided by the chemical suppliers. (See Appendix IV for sample MSDS).

## 8.0 TRAINING

To ensure the effectiveness of the Spill Prevention and Response Plan (SPRP), the Site Manager will be responsible for:

- evaluating the training needs of all staff and contractors in terms of spill prevention and spill clean-up, and then ensuring that all staff are given appropriate required training;
- completing an annual detailed review and update of the SPRP, with particular stress on the objectives and methods;
- ensuring that the SPRP remains up-to-date, and that updated versions are distributed to the personnel on site, and external agencies, organizations and selected qualified external responders;
- ensuring that updates to new emergency communications information (new phone numbers, changes in reporting structure, etc.) are distributed as soon as the new information becomes available;
- keeping a formal record of distribution and amendments to the SPRP;
- ensuring that emergency spill response exercises and inspections are conducted at least semiannually;
- ensuring that the results of the regular inspections are used to improve spill response practices, and improve relevant plans accordingly, and;
- completing annual internal audits of the EMS, including SPRP, and arranging for external audits of the system every three years by independent specialists.

### On-Site Personnel

A designated Emergency Response Team (ERT) consisting of on-site personnel will be established. North Country Gold Corp will ensure that the ERT is trained and present at all times. All members of the team will be trained and familiar with emergency and spill response resources, including their location and access, the SPRP, and appropriate emergency spill response methodologies. ERT training will be conducted annually to ensure that sufficient team members are present and to ensure that training is up to date.

The following training will be included:

- a review of the spill response plan and responsibilities of the ERT members;
- the nature, status, and location of fuel and chemical storage facilities;
- the on-site and off-site spill response equipment, and how to use it;
- emergency contact lists;
- desktop exercises of “worst case” scenarios, and;
- the likely causes and possible effects of spills.

All personnel and contractors at the project site will be familiar with spill reporting requirements. This will be ensured by conducting an orientation and training program on initial spill response procedures for all contractors and new personnel. Attendance will be tracked on site and re-training will be completed annually. Fuel-handling crews will be fully trained in the safe operation of the facilities, spill prevention techniques, and initial spill response. These crews will be re-trained annually; retraining schedules will be tracked on site.

The Site Manager, will ensure that records of current training are retained, employee training expiry dates are tracked, and re-training is completed in a timely manner.

#### Contractors

Where pertinent, contractors will be required to have WHMIS, TDG and OSHA training as well as undergo site-specific health and safety training. Specialist responders will be expected to have technical environmental, health and safety training specific to their role as a qualified external contractor. PGC will request proof of qualifications for the areas external contractors are intended to support. All contractors working on site will be expected to complete site-specific training to ensure they are familiar with the risk and processes at the sites.

#### Practice Drills

Prosperity Goldfields Corp is aware that without practice, no plan has value.

At least one practice drill will be held per season to give personnel a chance to practice emergency response skills. Each practice will be evaluated and a report prepared with the objective of learning where gaps and deficiencies (either in skills or physical resources) exist, and in what areas more practice is required.