

# **SPILL CONTINGENCY PLAN**

## **BACK RIVER PROJECT**

**2004**

Prepared by:  
**Back River Joint Venture**

**Miramar Bathurst Resources Ltd.**

Updated  
January – 2004

## **1. INTRODUCTION**

### **1.1 Plan Purpose**

Miramar Bathurst resources Ltd. and Kinross Gold Corporation, collectively referred to as the JV when Miramar Bathurst Resources Ltd. agreed to a sixty percent buy in over the next two years by spending 25 million on exploration. Advanced exploration programs have been carried out over the previous years. Similar activities are anticipated in 2004 and beyond as the JV continues to advance the project to eventual production.

The project area is located approximately 160 km east of Kinross' recently closed Lupin mine and 512 km northeast of Yellowknife at approximately 107°W Longitude and 65°N Latitude (Figure 1). The properties are located within National Topographic System ("NTS") 1:50,000 scale map sheets 76G/3, 9, 10, 13, 14, and 76J/11, 12.

This document is a review and analysis of the preparedness for events, which may occur due to unforeseen circumstances. The plans and predetermined lines of response detail actions to be taken in the event of unintentional materials release during the ongoing exploration program the JV plans to conduct in the area and includes wastewater, sewage treatment, fuel or chemical storage areas. This report addresses all project areas within the George Lake area including the camp. The plan will be updated yearly and would address any significant changes in operating plans, should they occur.

This contingency plan is a living document, and would be amended as required, to accommodate change. It first describes the main facilities to be operated as a component of the ongoing exploration drilling programs, followed by contingency measures to support them. On site activity is planned to run from approximately January to September of each year, due mainly to access limitations. Should operations extend beyond these times, and if operational scenarios change, notification will be made to the appropriate agency.

A copy of the plan will be posted for all exploration staff and visitors to the JV project site as part of the JV's field orientation program.

### **1.2 JV Policy on Initiation Cleanup activities**

It is the policy of the JV to initiate clean up activity when, in the opinion of management, the JV is clearly associated, or likely associated with the spilled product. The guiding principles of the JV Spill Contingency Plan is to comply with existing regulations to ensure protection of the environment, and to keep employees, government officials and the public aware of our plans.

## **2. PROJECT FACILITY DESCRIPTION**

### **2.1 EXISTING Facilities and Previous Work**

The JV acquired existing camps constructed by Kit resources. The main operating camp is at Goose Lake with another old and now smaller camp at George Lake. The camps will be upgraded either by maintenance done on existing tent frames or adding new weatherhaven type structures. Both camps will be rehabilitated to the extent needed for this year's exploration program. The emergency/survival weatherhaven skid mounted shelters will be dragged or lifted back to the nearest camp when the exploration program is finished for the year. With the amount of drilling going on it in this area it could mean that a prefabricated service building will have to be constructed for maintenance on the drills and rebuilds of broken machines.

### **2.2 Domestic Greywater Sewage**

Both the George Lake camp and Goose Lake camp are handling their sewage and Greywater the same way. The sewage is placed in a Shorted trench under an outhouse, this will continue until the exploration either develops a mine or all interest in the property is gone, at which time the outhouse will be burned and the trench covered. If the interest increases to do more exploration then a Rotating Biological Contractor (RCB) will have to set up for Greywater and sewage handling. Right now the Greywater is discharged to a Greywater sump which is limed every fall and allowed to evaporate or leach into the surrounding tundra.

### **2.3 Solid Waste**

Combustible solid wastes generated from the camp facilities have been incinerated. Commercial incinerators are strategically located at each Goose Lake camp while George Lake still uses a burning barrel. Products such as putrescible domestic and office waste are burned. Non combustible waste such as scrap metal, non-reusable barrels, incinerator ash etc. have for the most part been removed from site using back-haul flights to Yellowknife.

Although the potential of waste rock, currently stored at George Lake core storage or Goose Lake core storage, to be acid producing is unlikely, any such waste would be disposed of in an approved location and under acceptable practices.

## **2.4 Fuel Storage**

Diesel fuel is required to generate power on-site, heat buildings and to fuel mobile equipment. The diesel fuel storage for the continuing exploration program by the JV consists of storage in 205 litre drums.

When the fuel contract is signed the barrels in Yellowknife will be filled for shipment and the remainder sent to Yellowknife from Edmonton. Immediately after the ice strip is opened at Goose Lake the Hercules will start hauling in supplies and fuel. By the time Goose Lake has 100,000 litres of diesel, 41,000 litres of Jet B, 4,000 litres of gasoline, and 200 100 pound bottles of propane, the airstrip will be ready at George Lake. The yearly requirement at George Lake for 2004 is, 148,000 litres of diesel, 41,000 litres Jet B, 4,000 litres gasoline, and 200 100 pound bottles of propane. The last few trips back to Yellowknife will take back all the barrels already emptied and the other non-combustible solids for the landfill. The remainder will be backhauled in 2005.

We are presently looking into the feasibility of constructing enviro-tanks in the Back River Project to cut down on the number of barrels and lessen the possibility of a leaking container. No matter how many bulk tank we have we will need barrels for camp tent heating, remote drill operations or as markers for the ice strip. All barrels are located at least 30 metres above the high water mark of any water body. Despite having bulk storage for diesel we will always have sealed barrels of Jet B fuel for the helicopter, making sure there is no contamination. It also makes it easier to strategically relocate the Jet B to an activity area as required. Specialized oils and greases used by the drilling contractors are strategically stored in the appropriate manner. Inventories at each site are dynamic.

## **Chemicals**

The JV 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 are waste oil, hydraulic oil, lubricating oils, calcium hypochlorite, grease and ethylene glycol.

A waste oil burner will be installed at both George Lake camp and the Goose Lake camp and the heat generated will be used to heat some of the administration tents. Waste oil and oil from filters not used in the waste oil-burner mentioned above; will continue to be used as incinerator fuel. This eliminates the need to remove the waste oil from the project area, resulting in considerable cost savings. Drained spent oil filters will be stored in drums for removal from the site for disposal at an authorized disposal facility or could be cleaned and incinerated. There are no reagents used on the site at this time. Calcium Chloride (commonly called Rock Salt) is added to the fresh water to form a brine solution that acts as antifreeze when drilling in permafrost conditions. Calcium Chloride does not require any special treatment and is of minimal environmental concern. Explosive products, when on-site, will be stored in appropriate facilities at designated explosives storage site(s).

Material Safety Data Sheets (MSDS) will be collected and kept at the site for all chemicals and fuel products brought on site. Appropriate storage and handling of these products will be undertaken. The action plans for spills of diesel fuel, lubricating and hydraulic oils and ethylene glycol are also included at the end of this report.

### **3.0 SYSTEM FAILURE AND PREVENTATIVE MEASURES**

#### **3.1 Domestic Sewage**

There is little chance of having a problem with sewage under an outhouse as the structure covers the trench and each year the sewage generated during the summer is frozen into the esker during the winter. The Grey-water being pumped into a sump can be inviting to wildlife prior to evaporation or leaching away so each fall lime should be added to neutralize any biologically active materials.

Visual inspection of the pipeline will be carried out on a weekly basis. The operations manual for Grey-water treatment will be followed.

#### **3.2 Solid Waste**

Failures may occur in the handling of solid waste in the following modes:

- Incinerator at Goose lake fails;
- Power outage;
- Wildlife start coming to the Grey-water sump;
- Accidental damage to the incinerator and its components, or the waste oil heater;
- Mechanical breakdown;
- Improper maintenance.

Visual inspection of the incinerator and its combustion products will be carried out on a regular basis. The operations manual protocols for the incinerator will be followed.

### **3.3 Fuel**

Fuel spills could potentially occur from:

- Fuel storage containment (tanks, barrels) leaks;
- Spills during drum transport from aircraft to fuel storage area; and
- Spills from vehicles of equipment as a result of accidents;
- Spills during fuel transfer from barrels to equipment or heaters.

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

- Proper storage of barrels;
- Regular inspections of the storage facilities and barrels;
- Staff training in proper fuel handling procedures;
- Spill response training for personnel associated with fuel handling;
- Immediate cleanup of minor spills; and
- Maintaining fuel storage cache for emergencies.

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 the equipment.

### **3.4 Chemicals**

Any chemicals brought on site are stored in manufacturers approved packaging. Leaks may occur, causing minor spills of chemical product in storage. More likely a leak will occur during the transfer of chemicals or from accidental failure of containers.

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

## **3. Initial Actions**

In the event of any leak, spill or system failure, steps taken by company personnel at the spill site are as follows:

- Be alert, ensure your safety and the safety of others first;
- Assess the hazard to persons in the vicinity of the spill or leak;
- Assess nature and status of the spill, leak or system failure and measures to be taken to bring the situation under control;
- When safe to do so, stop the flow of the spilled material;
- Report the spill, leak of container, immediately to the On-Scene Coordinator so that person can ensure that the responsible regulator is notified by contacting the NWT 24-Hour Spill Line at (867) 920-8130 or fax (867) 873-6924;
- Resume safe, effective actions to contain, stop the flow of spilled product or clean up the incident; and
- Record all information on the status of the situation. Take photographs of the site (if possible) before the clean up and after the clean up has been completed.

## **4. SYSTEM MALFUNCTION RESPONSES**

### **5.1 Domestic sewage and Solid waste**

Any problems with the sewage disposal system such as the outhouse being blown over, power going off, material cave in under the outhouse running out of room etc., will be immediately reported to the On-Scene Coordinator/Site Superintendent. Problems encountered with the incinerator at Goose Lake camp will also be reported to the On-Scene Coordinator/Site Superintendent. At George Lake it will be the delivery pipe to the Greywater sump freezing up or the sump filling with ice and blocking the outflow or the sump overflowing, etc.,. The On-Scene Coordinator/Site Superintendent will refer to the Operation and Maintenance Manual and take appropriate action.

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 back-up pump will be put on-line. Any Grey water drainage problems will be processed as quickly as possible to minimize the chance of a spill within the accommodation facility. However, if necessary, appropriate safety equipment and personnel protective clothing will be available to site personnel.

### **5.2 Fuel Spill**

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 On-Scene 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: and
- Contain the spill and the source if possible;
- Take photographs of the spill site before and after the clean up.

Further information on the handling of fuel spills is detailed in section 10 of this report.

### **5.2.1 Fuel Spills on Land**

Fuel spills on land (gravel, rock, soil, vegetation) can be contained by:

- Constructing temporary berms and deploying absorbents;
- Stains on rock can be soaked up with absorbent mats. The mats should be placed in empty drums for storage prior to incineration; and
- Contaminated soil and vegetation, where appropriate, be disposed of at an approved facility.

### **5.2.2 Fuel Spills on Snow**

Snow can be an effective natural absorbent for spilled fuel:

- Temporary berms can be made from snow by compacting it and spraying with water to create an ice barrier or lining the snow with plastic;
- The snow-fuel mixture can be scraped up and stored in a lined area or in drums for future disposal; and
- Mark or stake the area effected by the spill so that the site can be revisited and re-evaluated once the snow has melted.

### **5.2.3 Fuel Spills on Water**

It is important to immediately limit the area of the spill on water. Booms can be drawn in to encircle spilled fuel. The absorbent mats are hydrophobic (absorbs hydrocarbons and repel water).

- Deploy booms to contain the spill area. Boom effectiveness will be limited by winds, waves and other factors; and
- Use absorbent mats and similar materials to capture small spills on water.

### **5.2.4 Fuel Spills on Ice**

Where a spill occurs on ice, snow can be compacted around the edge of the spill to serve as a berm. The ice provides a good barrier to any seepage of fuel into the water, but the contaminated snow/ice must be scraped up as soon as possible.

- Permission may be given from the government to burn off fuel (contact the NWT 24 Hour Spill Line). Remaining contaminated snow can be placed in drums in a lined berm (on land):



### **5.3 Chemical Spills**

Assess the hazard of the spilled material by referring to the relevant MSDS sheet and application action plan:

- If the chemical is hazardous, ensure personnel protective equipment is appropriate utilized (latex gloves, eye protection, etc.) before approaching the spill;
- Use absorbent mats to soak up spilled liquids;
- Plastic sheeting can be utilized to prevent chemicals from being blown around;
- Neutralize acids or caustics; and
- Place spilled material, absorbents, and rags in an open-top drum for storage and ultimate disposal of at an approved location.

## **6. RESPONSE EQUIPMENT**

### **6.1 General Equipment**

Heavy equipment used in exploration drilling operations will be available on-site for emergency use to respond to spill incidents. Helicopters and fixed-wing aircraft could also be available. Presently, the facilities are well equipped to respond to emergencies or spills.

### **6.2 Spill Kits**

Complete spill kits are located as follows:

- Goose Lake Camp;
  - Barrel storage facility;
  - Jet B storage facility;
  - Generator shack;
  - Core logging workshop; and
  - Accommodations.
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- George Lake Camp;
  - Barrel storage facility;
  - Jet B storage facility;
  - Generator Shack;
  - Core logging workshop; and
  - Accommodations.
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- Alltrack support vehicle;
  - Operating drill rigs; and
  - Re-fueling cat trains.

The following Items are contained in each Spill Kit:

- 1 – 45 gal, 16 Gauge Open Top Drum, c/w Bolting Ring & gasket;
- 1 - 48" x 48" x 1/16" Neoprene Pad (drain Stop);
- 20 – Short Putty Epoxy Sticks;
- 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 1/2" x 20", 100 Mats per Package; and
- 1 – Roll – Oil only absorbent mats 150' x 33":

### **6.3 Mobile Environmental Response Unit**

A mobile Environmental Response Unit is believed to be available to the JV from a major fuel supplier (Shell) in Yellowknife or Cambridge Bay (for phone number, see Contractors in Section 7 ). This unit can be transported to the site from Cambridge Bay in less than three hours weather permitting.

## **7. RESPONSE ORGANIZATION**

The members of the Spill Response Team and their duties are listed below for the Back River Project.

### **Internal Contacts:**

#### **Field Contacts:**

#### **Spill Cleanup Supervisor / On-Scene Coordinator:**

Goose Lake camp:	to be provided when available
Phone:	to be provided when available
Fax:	to be provided when available

George Lake camp:	to be provided when available
Phone:	to be provided when available
Fax:	to be provided when available

#### **Site Superintendent:**

Goose Lake camp:	to be provided when available
Phone:	to be provided when available
Fax:	to be provided when available
E-Mail	to be provided when available

George Lake camp:	to be provided when available
Phone:	to be provided when available
Fax:	to be provided when available
E-Mail	to be provided when available

**Project Manager:**

Goose Lake camp:	to be provided when available
George Lake camp:	to be provided when available
Phone:	to be provided when available
Fax:	to be provided when available
E-Mail	to be provided when available

**Emergency Response Team:**

Approximately 10 personnel will be available on-site to assist with spill response activities.

**Office Contact:**

Exploration Manager:	John Wakeford
Telephone:	604-985-2572
Fax:	604-980-0731
E-Mail:	<a href="mailto:jwakeford@miramarmining.com">jwakeford@miramarmining.com</a>

Manager, Environmental Affairs:	Hugh Wilson
	Miramar Mining Corporation
Telephone:	(604) 985-2572
Fax:	(604) 980-0731
Telephone:	(780) 975-2550 (cellular)
Fax:	(780) 988-2188 (home)
E-Mail:	<a href="mailto:hwilson@miramarmining.com">hwilson@miramarmining.com</a>
	<a href="mailto:Hugh_r_wilson@hotmail.com">Hugh_r_wilson@hotmail.com</a>

**Responsibilities****All Employees (First Responders):**

- Identify the source of the spill;
- Assess the initial severity of the spill and any safety concerns;
- Report all spills immediately to Supervisor;
- Determine the size of the spill and stop or contain it, if possible;
- Participate in spill response as member of cleanup crew.

**Emergency response Team (Spill Cleanup Crew):**

- Conduct cleanup of spills under direction of Spill Cleanup Supervisor/Site Superintendent;
- Deploy boom, absorbent pads and other equipment and materials as required;
- Take appropriate measures;
- Continue cleanup as directed by Spill Cleanup Supervisor/Site Superintendent or until relieved.

**Spill cleanup Supervisor /On Scene Coordinator:**

- Repot spill to Project Manager;
- Obtain GPS coordinates for all spills;
- Obtain photographs of spill site before clean up starts if possible and after the cleanup has been completed. Take pictures of undisturbed area beside the spill area for a comparison. If spill occurs on snow, stake or otherwise identify the affected area so that it can be evaluated once the snow melts;
- Assist in initial and ongoing response efforts;
- Supervise emergency response team;
- With work crew, take initial action to remove the source and contain spill;
- Continue actions until relieved by other personnel;
- Decide with On-Scene Coordinator/Site Superintendent if mobilization of additional equipment from Spill Response Organization or Contractor is warranted;
- Assess whether burning is a viable cleanup measure; and
- Consult with Manager, Environmental Affairs, Miramar Mining Corporation.

**Site Superintendent:**

- Reports spill to the NWT 24-Hour Spill Report Line at (867) 920-8130;
- Contact the Emergency Response Team if the situation requires;
- Records the time of the report, source of information and details on location, size, type of spill and any other information and details on the spill report form;
- Together with the Spill Cleanup Supervisor, and Project Manager decide if additional equipment and manpower is required to contain and cleanup spills;

- Notifies Exploration Manager and the Manager, Environmental Affairs;
- Oversees completion and distribution of spill report; and
- Ensures investigation and identifies measure to prevent similar spills.

### **Site Superintendent**

- Ensures cleanup is completed to JV objectives and standards;
- Provides update to Manager, environmental Affairs;
- Ensures that copies of all spill reports and follow-up reports are submitted to Nunavut Water Board and Kitikmeot Inuit Association;
- Liaise with NWT Spill Line, Lead Agency (DIAND) and other applicable agencies with regard to on-going cleanup activities;
- Co-ordinate inspections and spill closure by Lead Agency and/or other applicable agency;
- Conducts ongoing monitoring of cleanup operations leading to close-out;
- Ensures Emergency Response Team is adequately trained in spill response; and
- Organizes spill response training and exercises approved by regulating agencies.

### **Manager, Environmental Affairs/Designate**

- updates and distributes Spill Contingency Plans;
- Provides advice when requested to the Exploration Manager, the On-Scene Coordinator, the Spill Cleanup Supervisor and the Site Superintendent;
- Assists in developing effective spill management and prevention practices; and
- Provides advice, when requested, to the On-Scene Coordinator, the Spill Cleanup Supervisor and the Site Superintendent on storage and disposal options.

## **Legal Counsel**

Advises the Exploration Manager and the Manager, Environmental Affairs on matters related to:

- Legislative authority of various government agencies;
- Questions of due diligence;
- Costs/fines and liabilities, including penalties associated with regulations; and
- Consults with the corporation coordinator and advises on matter related to insurance.

**Additional assistance may be obtained as necessary from the following organizations:**

**Potential Back River Joint Venture Contractors: (Actual contractor contacts will be named when chosen)**

Discovery Mining Services, Yellowknife Rod Brown	Telephone (867) 920-4600
Shell Canada, Mobile Environmental Response Steve Bassett	Telephone (867) 874-2562
Major Midwest drilling, Gordon Cyr	Telephone (204) 885-7532
Kitnuna Wilf Wilcox	Telephone (867) 983-2331
Nuna Logistics Ltd. Court Smith, John Zigarick	Telephone (867) 682-4667

## **Potential Local Air Charter**

Air Tindi, Dispatch	Telephone (867) 669-8218
NWT Air (First Air), dispatch	Telephone (867) 669-6645
First Air Dispatch	Telephone (867) 669-6682
Nunasi Helicopters, Martin Knutsen	Telephone (867) 873-3306
Kitikmeot-Great Slave Helicopters	Telephone (867) 873-2081
Summit Air, Jamie Tate	Telephone (867) 667-7327 Cellular (867) 333-1503

## **Potential Equipment and Material Suppliers:**

Dupont (Fuel Dye) Ray Buckland	Telephone (905) 821-5660
Frontier Mining (Sorbents) Acklands (sorbents)	Telephone (867) 920-7617 Telephone (867) 873-4100 Pager: (867) 920-5359

## **8. REPORTING PROCEDURES**

The spill Response team must be notified immediately of any spill. Communication on-site will be via radio and other centers by satellite phone. The Site Superintendent or designate will ensure that each spill is reported to the NWT 24-Hour Spill Report Line at (867) 920-8130 and that a Northwest Territories Spill Report Form is filled out as completely as possible. It is the intention of the JV to report all spills over 25 litres and to maintain an inventory of all spills less than 25 litres, which can be viewed by any Inspector/agency representative.

### **Other contacts which may be of some assistance:**

#### **Nunavut/NWT**

Resources, Wildlife & Economic development (RWED) Environmental Protection Services	Telephone: (867) 873-7654
Dept. Sustainable Development, Iqaluit Earl Baddaloo, Donna Kenneally	Telephone: (867) 979-5076
Workers Compensation Board, Yellowknife Sylvester Wong, Director Prevention services Peter Bengts, Mine Safety	Telephone: (867) 920-3888 Telephone: (867) 669-4408 Telephone: (867) 669-4408
RWED Regional Superintendent; Larry Anderson RWED Cambridge Bay; Grant Corey	Telephone: (867) 920-6134 Telephone: (867) 983-7315 Fax: (867) 983-2802
RWED Kugluktuk	Telephone: (867) 982-7251 Fax: (867) 982-3701
Kitikmeot Inuit Association (KIA) Jack Kaniak, Lands Manager	Telephone: (867) 982-3310 Fax; (867) 982-3311
Nunavut Water Board Philippe di Pizzo, Executive Director	Telephone: (867) 360-6338 Fax: (867) 360-6369
Bruce Stebbing, Office of the Fire Marshall	Telephone: (867) 873-7030

## **Federal Government:**

RCMP (Yellowknife)	Telephone: (867) 669-1111 Fax: (867) 669-5224
RCMP (Cambridge Bay)	Telephone: (867) 983-2111 Fax: (867) 983-2498
Resource Management Officer	Telephone: (867) 983-7314
Indian & Northern Affairs Canada (DIAND)	Telephone: (867) 975-4546
Environment Canada	Telephone: (867) 920-4700
Margaret Keast, Fisheries and Oceans	Telephone: (867) 979-8000 Fax: (867) 989-8039

## **9. TRAINING AND SPILL EXERCISES**

### **9.1 Training**

All members of the Spill Response Team will be trained and be familiar with the spill response equipment, including their location and access, the Spill Contingency Plan and appropriate spill response methodologies. During 2004 the onsite-training program for the Back River Project will be initiated at each camp at the start of the field program. The training program includes the dissemination of information regarding the Spill Contingency Plan, the NT environmental Protection and Spill regulation, the viewing of RWED spill response videos, and the field application of suitable techniques.

All JV personnel will be familiar with spill reporting requirements.

Fuel handling crews will be fully trained in the safe operation of these facilities, spill prevention techniques and initial spill response. Similarly, the staff involved in wastewater treatment operations will be trained in the safe and effective operation of these facilities.

### **9.2 Spill Exercises**

The JV will conduct regular spill exercises to test the response of the Spill Response Team to manage fuel and other system failures.

Reports will be made by the Site Superintendent or designate, noting the response time, personnel, and problems or deficiencies encountered. These reports will be used to evaluate the ability to respond to spills and determine areas necessary for improvement.



## 10. ACTION PLAN FOR SPILL OF DIESEL FUEL

### Initial Spill Responses:

- **STOP** the flow if possible;
- **CONTAIN** flow of oil by dyking, barricading or blocking flow by any means available. Use earth moving equipment if practical;
- **ELIMINATE**, open flame ignition sources;
- If flow has reached any natural stream, mobilize team to deploy river boom, and sorbent booms; and
- If possible, pump fuel into other appropriate tankage/containers.

### Hazards:

- Flammable
- Slightly toxic by ingestion, highly toxic if aspired

### Action for Fire:

- Use carbon dioxide, dry chemical, foam, or water spray (fog), although water may spread the fire;
- Use fog streams to protect rescue teams and trapped people;
- Use water to cool surface of tanks;
- Divert the diesel fuel to an open area and let it burn off under controlled conditions;
- If the fire is put out before all diesel is consumed, beware of re-ignition;
- Where diesel fuel is running downhill, try to contain it as quickly as possible; and
- Rubber tires are almost impossible to extinguish, have affected vehicles removed from the danger zone.

### Recovery:

- Unburned diesel fuel can be soaked up by sand and peat moss, or by chemical sorbents such as Grabil or Conwed;
- If practical, contaminated soil should be excavated;
- Diesel fuel entering the ground should be recovered by digging sumps or trenches; and
- Diesel fuel on a water surface should be recovered by skimmers or sorbent booms. (See Section on Recovery of Oil Spills)

### Disposal:

- Incineration under controlled conditions; and
- Burial at an approved site.

### Properties:

- Chemical composition mixture of hydrocarbons in the range C9 to C18;
- Clear, oily liquid; and
- Not soluble, floats on water

Environmental Threat:

- Moderately toxic to fish and other aquatic organisms;
- Harmful to waterfowl; and
- May create visual film on water and shorelines.

Containers:

- Transported by appropriate methods to acceptable storage, (typically 205 litre drums); and
- Bulk transportation and storage.

## 11. ACTION PLAN FOR ETHYLENE GLYCOL (ANTIFREEZE) SPILL

Initial Spill response:

- **STOP** the flow at source if possible;
- **ELIMINATE** open flame ignition sources;
- **CONTAIN** flow of liquid by dyking, barricading or blocking flow by any means available; and
- **PREVENT** antifreeze from entering any flowing streams

Hazards:

- Moderately toxic by ingestion and inhalation; and
- Flammable.

Action for Fire:

- Use carbon dioxide, dry chemical, foam or water spray (fog);

Recovery:

- Ethylene glycol antifreeze can be soaked up by peat moss or by commercial sorbents such as Hazorb; and
- Access to spilled or recovered ethylene glycol by mammals should be prevented.

Disposal:

- Incineration under controlled conditions; and
- Burial at an approved site.