SPILL CONTINGENCY PLAN

HOPE BAY PROJECT

2004

Prepared by:

Miramar Hope Bay Ltd.

Updated
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1. INTRODUCTION

1.1 Plan Purpose

Miramar Hope Bay Ltd (MHBL) are 100% owners of the Hope Bay Belt. Extensive advanced exploration programs have been carried out on the belt from 2000 through the 2003 operating seasons. Similar activities are anticipated in 2004 and beyond as MHBL continues to advance the project to eventual production.

The project area is located approximately 175 km southwest of Cambridge Bay, 450 km west southwest of Gjoa Haven, and 60 km east of Umingmaktok, the closet community to the project area.

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 programs MHBL plans to carry out on the belt and includes wastewater, sewage treatment, fuel or chemical storage areas. This Spill Contingency Plan addresses all project areas within the Hope Bay Belt including camps at Boston and Windy Lake. The campsite on Wolverine Lake was fully decommissioned in 2001 and KIA have given full clearance at this site. The plan will be updated periodically 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, this plan will continue to apply and notification will be made to the appropriate agency(s).

An abbreviated version of the plan will be posted for all exploration staff and visitors to the MHBL's project site as part of MHBL's field orientation program.

1.2 MHBL Policy on Initiating Cleanup Activities

It is the policy of MHBL to initiate clean up activity when, in the opinion of management, MHBL is clearly associated, or likely associated with the spilled product. The guiding principles of MHBL's 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

MHBL operates the existing camps initially constructed by BHP at Boston (Aimaogaktak Lake) and Windy Lake. There are caches of fuel and other consumables at Windy Lake Camp, Wolverine Camp, North Patch and Doris Lake. A drill service area and workshop is located on the western shore of Patch Lake.

2.2 Domestic Greywater Sewage

At Boston, all domestic greywater and sewage are treated in the Rotating Biological Contactor (RBC) which treats and clarifies effluent prior to discharge on the tundra as approved by the Nunavut Water Board.

In 2000, a Rotating Biological Contactor (RBC) sewage treatment system was constructed at Windy Lake camp and was commissioned at the start of the 2001 field program. The previous latrine system remains in place as a back-up system. All greywater from the camp is also directed to the RBC, which discharges on land well away from Windy Lake. This system has been approved by the Nunavut Water Board and includes a monitoring and sampling program when operating.

2.3 Solid Waste

Combustible solid wastes generated from the camp facilities continue top be incinerated on a regular basis. Commercial incinerators are strategically located at each camp. Products such as putrescible domestic and office waste are burned. Non combustible waste such as scrap metal, non-reusable barrels, incinerator ash etc., have, as reported previously, been removed from site using backhaul flights to Yellowknife or placed on the barges returning to Hay River. MHBL has applied for an on-site Solid Waste Disposal Facility (SWDF), to be located at the Boston camp, and once approvals are in place all non-hazardous and non-combustible material, including that stored at Windy Lake will be disposed of into this facility.

Although the potential of waste rock, currently stored at Boston, 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 requirement for the continuing exploration program by MHBL consists of both bulk storage and storage in drums.

In September 2000,2001 and 2003, diesel fuel was transported to the Hope Bay belt by Northern Transportation Company Limited (NTCL) using approved fuel storage barges that can remain at site and frozen in the ice at Roberts Bay. The fuel is then pumped off and transported to the various storage facilities (by a contractor) for use in the exploration programs. It is expected that this method of fuel re-supply will continue throughout the advanced exploration phase and could continue into the operations phase, when it occurs. To facilitate this increase in fuel requirements, the following storage is available:

- As previously reported, an engineered and lined tank farm was constructed at Boston in 2001. This facility consists of six (6) by 70,000 L and two (2) by 41,000 L tanks. These tanks are filled annually during the winter program. The engineers report was previously filed with the Nunavut Water Board in 2001 and is not included with this plan.

- As of September 2001, there were eight (8) self berming enviro-tanks strategically located in the belt, two (2) of which are 75,000 Litres, four (4) are 70,000 Litres and two (2) are 50,000 litres. There are also four (4) contractor owned portable tanker/sloops, strategically located within the Hope Bay Belt, which are empty and are used in winter to transport fuel to the various storage tanks as operations dictate.

As previously reported, the construction of the tank farm and the increased number of self-berming tanks has minimized the need to store diesel fuel in 205 litre barrels. As such, this has decreased the number of used barrels on the belt and the barrels remaining are used for camp tent heating, remote drill operations or as markers for the ice strip. All bulk tanks and barrels are stored at least 30 metres above the high water mark of any water body.

In addition to diesel fuel mentioned above, Jet-B fuel and gasoline are stockpiled in 205 litre barrels at Boston and Windy Camps, and is relocated to activity areas as required. Specialized oils and greases used by the drilling contractors are strategically stored in the appropriate manner. Inventories at each site are dynamic.

The spill contingency plan and associated response equipment will be available on-site to handle potential spill incidents.

2.5 Chemicals

MHBL 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.

The waste oil burner installed at the Windy camp continues to operate and the heat generated is 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 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. SYSTEM FAILURE AND PREVENTATIVE MEASURES

3.1 Domestic Sewage

The domestic sewage treatment systems (RBC's) are designed to carry a hydraulic loading for up to 80 persons at 300 L per person per day.

Failures may occur in the domestic sewage system under the following scenarios:

- treatment system malfunction due to changes in the design load;
- power outage;
- pump failure;
- pipeline breaks, blockage
- accidental damage to the pipeline and its components;
- presence of oil and grease in the effluent;
- mechanical breakdown;
- improper maintenance; and
- subsidence of the pipeline supporting structures, where applicable.

Visual inspection of the treatment system and the pipeline will be carried out on a weekly basis. The operations manual protocols for the sewage treatment plant will be followed.

3.2 Solid Waste

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

- incinerator failure;
- power outage;
- treatment system malfunction due to changes in the design load;
- accidental damage to the incinerator and its components;
- mechanical breakdown; and

- 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 or equipment as a result of accidents.
- spills during fuel transfer from the barges to transport tanks/fuel sloops.

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

- proper storage of the 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 at the barge is undertaken during all times fuel is being pumped/transferred.

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 during the transfer or from accidental failure of containers.

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

4. 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 or system failure immediately to the On-Scene Co-ordinator 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.

- Record all information on the status of the situation. Take photographs of the site (if possible) before the clean-up and subsequent to clean-up.

5. SYSTEM MALFUNCTION RESPONSES

5.1 Domestic Sewage and Solid Waste

Any problems in the sewage treatment plant, such as improper operation, pipeline rupture, pump/power breakdown etc., will be immediately reported to the On-Scene Coordinator/Site Superintendent. Problems encountered with the incinerator will also be reported to the On-Scene Coordinator/Site Superintendent. 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 spillage occurring inside the sewage treatment system will be contained within the facility and if necessary reprocessed. Appropriate safety equipment and personal 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 a 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 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-berrn 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 (absorb 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 or 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 applicable action plan:

- If the chemical is hazardous, ensure personal protective equipment is appropriately utilized (latex gloves, eye protection, etc.) before approaching the spill (refer to Section 11 of this report)
- Use absorbent mats to soak up spilled liquids;
- Plastic sheeting can be utilized to prevent solid 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 and 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:

- Boston Camp
- bulk fuel storage and handling area
- jet-B fuel drum storage area
- generator shack (enviromat only)
- camp workshop (enviromat only)
- Procon workshop (enviromat only)

- Windy Lake Camp
- helicopter pad
- fuel storage area
- generator shack
- camp workshop (enviromat only)

- Drillers workshop and equipment area (Patch Lake)
- Operational drill site caches
- Operating drill rigs

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 1/1 6" Neoprene Pad (Drain Stop)
20- Short Pig Putty Epoxy Sticks
Splash Protection Goggles
2 - PVC Oil Resistant Gloves
1 Pkg. Polyethylene Disposable Bags (5 ml) 10 per Package
1 Shovel (Spark Proof)
1 Case T- 1 2 3" x 1 O' Absorbent Boom, 4 Booms/Case
1 Pkg. Universal Absorbent Mats, 161/2 " x 20", 100 Mats per Package
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 HBJV 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 Windy Lake Camp.

Internal Contacts:

Field Contacts:

Spill Cleanup Supervisor / On-Scene Co-ordinator:

Boston:	Jim Helyer
Phone:	*604-677-0675*
Fax:	*604-677-0666*
Email:	*None*
Windy:	*Bob Shea*
Phone:	*604-677-0636*
Fax:	*604-677-0713*
Email:	*None*

Site Superintendent:

Boston:	Al Getz
Windy:	Al Getz
Phone:	*604-677-0636/0675*
Fax:	*604-677-0713/0713*
Email:	*agetz.miramarmining.com*

Project Manager:

Boston: *Tim Canam*
Phone: *604-677-9482*
Fax: *604-677-0666*
Windy: *Darren Lindsay*
Phone: *604-677-0617*
Fax: *604-677-0705*
Email: *tcanam@miramarmining.com*
dlindsay@miramarmining.com

Emergency Response Team:

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

Office Contacts:

Exploration Manager

John Wakeford
Tel: (604) 985-2571
Fax: (604) 980-0731
E-mail: jwakeford@miramarmining.com

Manager, Environmental Affairs:

Hugh R. Wilson
Miramar Mining Corporation
Tel: (604) 985-2572
Cell: (780) 975-2550
Fax: (604) 980-0731
Tel: (780) 975-2550 (Cellular)
Fax: (780) 988-2186 (home)
Email: *hwilson@miramarmining.com*
hugh_r_wilson@hotmail.com

7.1 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 booms, absorbent pads and other equipment and materials as required.
- Take appropriate response measures.
- Continue cleanup as directed by Spill Cleanup Supervisor/Site Superintendent or until relieved.

Spill Cleanup Supervisor /On-Scene Co-ordinator:

- Report spill to Project Manager.
- Obtain GPS coordinates for all spills
- Obtain photographs of spill site before, during and subsequent to cleanup. 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 Co-ordinator/ Site Superintendent if mobilization of additional equipment from Spill Response Organization or Contractor is warranted.
- Assess whether burning is a viable cleanup measure.
- Consult with Manager, Environmental Affairs; Miramar Mining Corp.

Site Superintendent :

- Reports spill to the NWT 24-Hour Spill Report Line at (867) 920-8130.
- Contacts the Emergency Response Team if the situation requires.
- Records the time of the report, source of information and details on locations, 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.
- Ensures investigation and identifies measure to prevent similar spills.

Site Superintendent / On Scene Coordinator/ Designate:

- Ensures cleanup is completed to MHBL objectives and standards
- Provides update to the 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
- Conducts ongoing monitoring of cleanup operations leading too closeout.
- Ensures Emergency Response Team is adequately trained in spill response.
- Organizes spill response training and exercises 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.
- 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.
- Consults with the corporate insurance co-ordinator and advises on matters related to insurance.

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

Miramar Hope Bay Ltd. Contractors:

Discovery Mining Services, Yellowknife Rod Brown	Tel:	(867) 920 4600
Shell Canada, Mobile Environmental Response Steve Bassett	Tel:	(867) 874-2562
Major Midwest Drilling, Gordon Cyr	Tel:	(204) 885-7532
Kitnuna Wilf Wilcox	Tel:	(867) 983 2331
Nuna Logistics Ltd. Court Smith, John Zigarlick	Tel:	(604) 682 4667

Local Air Charter

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

Equipment and Material Suppliers:

Dupont (Fuel Dye) Ray Buckland	Tel:	(905) 821-5660
Frontier Mining (Sorbents)	Tel:	(867) 920-7617
Acklands (Sorbents)	Tel:	(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 to other centres 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 MHBL 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	Tel:	(867) 873-7654
Dept Sustainable Development, Iqaluit Gord MacKay	Tel:	(867) 979-5715
Workers Compensation Board, Yellowknife	Tel:	(867) 920 3888
Sylvester Wong, Director Prevention Services	Tel:	(867) 669-4408
Peter Bengts, Mine Safety,	Tel:	(867) 669-4408
RWED Regional Superintendent: Larry Adamson	Tel:	(867) 920-6134
RWED Cambridge Bay: Grant Corey	Tel:	(867) 983-7315
	Fax:	(867) 983-2802
RWED Kugluktuk:	Tel:	(867) 982-7251
	Fax:	(867) 982-3701
Kitikmeot Inuit Association (KIA) Jack Kaniak, Lands Manager	Tel: Fax:	(867) 982-3310 (867) 982-3311
Nunavut Water Board Philippe di Pizzo, Executive Director	Tel: Fax:	(867) 360-6338 (867) 360-6369
Bruce Stebbing, Office of the Fire Marshall Municipal & Community Affairs	Tel:	(867) 873-7030

Federal Government:

RCMP (Yellowknife)	Tel: (867) 669-1111 Fax: (867) 669-5224
RCMP (Cambridge Bay)	Tel: (867) 983-2111 Fax: (867) 983-2498
Resource Management Officer	Tel: (867) 983 7314
Indian & Northern Affairs Canada (DIAND)	Tel: (867) 975-4546
Environment Canada	Tel: (867) 920-4700
Stephanie Critch, Fisheries and Oceans	Tel: (867) 979-8007 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 2000 the onsite training program for Windy Camp personnel will be initiated 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 Regulations, the viewing of RWED spill response videos, and the field application of suitable techniques.

All MHBL 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

MHBL will conduct regular spill exercises to test the response of the Spill Response Team to manage fuel and other system failure spills.

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 Response :

- 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
- If possible, pump fuel into other appropriate tankage/containers.

Hazards:

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

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 fuel is consumed, beware of re-ignition
- where diesel fuel is running downhill, try to contain it as quickly as possible
- Rubber tires are almost impossible to extinguish, have affected vehicles removed from the danger area.

Recovery:

- Unburned diesel fuel can be soaked up by sand and peat mass, or by chemical sorbents such as Graboil or Conwed
- If practical, contaminated soil should be excavated
- Diesel fuel entering the ground can be recovered by digging sumps or trenches
- 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
- Burial at an approved site

Properties:

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

Environmental Impacts:

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

Containers:

- Transported by appropriate means available to available storage

11. ACTION PLAN FOR LUBRICATING & HYDRAULIC OIL SPILLS

Initial Spill Response:

- STOP the flow is possible
- ELIMINATE, open flame ignition sources
- CONTAIN flow of oil by dyking, barricading or blocking flow by any means available. Use earth-moving equipment if practical
- if flow has reached any natural stream, mobilize the team to deploy river boom, skimmer and sorbent booms.

Hazards:

- slightly toxic by ingestion
- Combustible

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 team and trapped people
- Use water to cool surface of tanks
- Divert the oil to an open area and let it burn off under controlled conditions
- If the fire is put out before all oil is consumed, beware of re-ignition
- Rubber tires are almost impossible to extinguish, have affected vehicles removed from the danger area

Recovery:

- Unburned lubricating and hydraulic oils can be soaked up by sand and peat moss, or by chemical sorbents, such as Graboil or Conwed
- If necessary, contaminated soil should be excavated
- Oil on water should be recovered by skimmers and sorbent booms

Disposal:

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

Properties

- Chemical composition: mixture of hydrocarbons and conventional industrial oil additives
- Generally viscous liquids, various colours
- Not soluble, floats on water

Environmental Threat:

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

Containers:

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

12. 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, baricading or blocking flow by any means available
- PREVENT antifreeze from entering any flowing streams

Hazards:

- Moderately toxic by ingestion and inhalation
- 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
- Access to spilled or recovered ethylene glycol by mammals should be prevented

Disposal:

- Incineration under controlled conditions
- Burial at an approved site