NWB Manager of Licensing

From: Kawei, Matthew [mkawei@miramarmining.com]
Sent: Thursday, March 31, 2005 3:36 PM
To: Jack Kaniak; David Hohnstein; Phyllis Beaulieu; Philippe di Pizzo
Cc: Stringer, Scott; Maloof, Terri; Lindsay, Darren; Fonseca, Debbie
Subject: 2004 windy Lake Annual Report - NWB2HOP0207

Importance: High

NWB2HOP

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Hi All:

MHBL is pleased to submit Windy Lake 2004 Annual Report to comply with Licence # NWB2HOP0207 requirements. The attached file will have the following documents:

Windy Lake 2004 Annual Report

Windy Lake Revised Progressive Spill Report;

Patch lake A&R Plan;

Patch Lake SC Plan;

→ MHBL Updated SC Plan;

Doris North Aquatic Studies Report

Doris North Project "No Net Loss" Plan- Revision 3; and

A cover letter.

Hard copies of these documents will be sent via express mail.

If further information is required, please feel free to contact Mr Scott Stringer or Matthew Kawei via email. Please acknowledge the receipt of this email.

Sincerely,

Miramar Hope Bay Limited

Matthew H Kawei

Senior Environmental Coordinator
Miramar Mining Coporation - MHBL
300-889 Harbourside Drive, North Vancouver BC V7P 3S1
Toll Free - 1-800-663-8780

Miramar Hope Bay Ltd

Standard Operating Procedure

Spill Contingency Plan

Update – July 2004

Approved By:

Position	Name	Signature	Date
Manager, Environmental Affairs	Hugh Wilson		
Human Resource Superintendent	Scott Stringer		
Site Supervisor (Representative)			
Occupational Joint Health & Safety (Co-chairperson)			
Quality Assurance			

Document Control Record

The re-issues of this document, listed below, have been reviewed and approved by Quality Assurance and Management and are authorised for use within the Miramar Hope Bay Ltd organisation.

DOCUMENT CONTROL REVISION HISTORY

Rev No	Page No	Details of Issue	Authorisation		
			Name	Initial	Date
0	All	Original Document	Hugh Wilson		Feb 2002
0	All	Conditional Approval	NWB*		Mar 2004
1	All	Review	Hugh Wilson		Mar 2004
2	All	Review to include NWB specific concerns	Matthew Kawei		May 2004

**Conditional Approval subject to revisions to the original document to include specific concerns raised by Nunavut Water Board*

Distribution List

Date	Copy #	Name	Department/Location	Type
Original copy	0	Hugh Wilson	Manager, Environmental Affairs	Electronic, pfd & doc
			Boston Camp	
			Windy Lake Camp	
			Patch Lake (Major)	
			Doris	
			Goose Lake	

Table of Contents

1 Introduction

1.1 General Description of Property

Miramar Hope Bay Ltd (MHBL) is a 100% owner 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.

2 Purpose and Scope

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 has 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. The new employee, visitor or contractor is inducted within 24 hours on his/her arrival to site.

2.1 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 stakeholders aware of our plans.

2.2 Environmental Policy

Miramar Hope Bay Limited is committed to maintaining sound environmental practices in all of its activities from exploration through to closure and land relinquishment.

To achieve this, MHBL in working with its employees and contractors will:

- Examine the potential impact to the environment of all proposed activities and take steps to minimize or where possible eliminate the impact.
- Ensure all activities are in compliance will all environmental legislation and regulations.
- On a continuous basis, determine the MHBL impact to the environment and through continuous improvement, strive to attain higher level of environmental performance.
- Maintain a high level of environmental protection by applying practices and technologies that minimise impacts and enhance environmental quality.
- Maintain dialogue with communities and other stakeholders within the area of influence of the Hope Bay Project.
- Progressively rehabilitate disturbed area, develop closure plans that can be continually improved and incorporate new technologies where practical.
- Encourage cooperative research programs with government and other stakeholders to better understand and monitor impacts associated with the Hope Bay Project.
- Train all employee and contractors to understand their environmental responsibility related to MHBL.

3 Project Facility Description

3.1 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, and Doris Lake. A drill service area and workshop is located on the western shore of Patch Lake.

3.1.1 Doris North

There are two 75,000 L above ground storage tanks (ASTs). These ASTs are double walled structures and are Underwriter's Laboratory of Canada (ULC) approved. Double walled ULC tanks are commonly known as Enviro-tanks. The ASTs are located on the rocky high ground a short distance south overlooking Doris Lake.

3.1.2 Patch Lake – Major Drilling Maintenance Shop

Major Drilling's maintenance shop is located approximately 2 km east of Windy Lake Camp on Patch Lake. There are two ULC approved 75,000 L double walled ASTs at the site.

3.1.3 Windy Lake Camp

Windy Camp is located on 400-meters of land below a rocky bluff bordering the shore of Windy Lake (see Appendix 15.2). Bulk fuel storage at Windy Lake consists of one 50,000 L double walled, ULC approved tank and two 75,000 L doubled walled, ULC approved tanks. The tanks are located in a natural berm, close proximity to each other south of the main camp.

The main fuel supply for the camp consists of six new 1,200 L doubled walled, ULC approved Tidy tanks, four of which are connected to dedicated fuel distribution lines for the majority of the accommodation and the genset shacks. This reduces the frequency of fuel handling requirements from the previous system, (some still in use), where individual 45 gallon drums are used to supply fuel for each sleeping tent.

3.1.4 Boston Camp

Boston Camp is located on a high ridge overlooking the Spyder Lake 45 km south of Windy Lake camp. A general layout area is provided in Appendix 15.1. There are eight ASTs (2 x 50,000 L and 6 x 70,000 L) bermed in an engineered secondary containment area. South of the main camp and near the Procon shop is a 50,000 L ULC approved enviro-tank.

Tidy tanks are used for fuelling ski doos and the main commendation area. Individual 45 gallon drums are used to supply fuel for the remaining sleeping and core logging tents.

3.2 Environmental Aspects and Impacts

Environmental Aspects are those MHBL activities, products or services that interact with the surrounding environment and may produce either a beneficial or an adverse impact. An Environmental Impact is the change that occurs to the environment as a result of the aspect. Information on the significance of aspects and impacts is important for setting priorities and allocating resources for managing the environmental changes through the use of engineering and other controls. The intent is to ensure that aspects and impacts are systematically identified and assessed, an action plan is implemented for controlling impacts and the effectiveness of controls is measured and reported to provide feedback for continual improvement.

An Issue Management Plan (IMP) shall be developed for each significant environmental aspect and impact associated with MHBL's operations by the end of 2004. The IMPs shall be documented in the Environmental Operating Plan that will include information on the program for addressing significant environmental aspects.

The information summarised in Appendix 15.2 for each camp is based on current knowledge and will vary over time. There are procedures in place at each location for ensuring data reported are current.

3.3 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 at Windy Lake. 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 during open water periods.

3.4 Solid Waste

Combustible solid wastes generated from the camp facilities continue to be incinerated on a regular basis. Commercial incinerators are strategically located at each camp. Products such as combustible 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. Since the practice of hauling these types of material off site is impractical, MHBL has applied for an on-site Solid Waste Disposal Facility (SWDF), to be located at the Boston camp. Once regulatory authorities grant approvals, all non-hazardous and non-combustible material, including that stored at Windy Lake will be disposed of into this facility.

3.5 Waste Rock Management

The waste rock currently stored at Boston is unlikely to produce any adverse impact to the environment. The waste runoffs would be monitored and waste rock would be disposed of in an approved location and under acceptable practices.

3.6 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 Jet B 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 three (3) 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.

3.7 Chemicals and Household detergents

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 (CaCl), sodium chloride (NaCl), 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).

3.8 Material Safety Data Sheets (MSDS)

Material Safety Data Sheets (MSDS) will be collected and kept current 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 Plan. The MSDS sheet for combustibles and hazardous products can be found in Section15.3 of this Plan.

4 System Failure Scenarios and Preventative Measures

4.1 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;
- Sewage line freezing;
- 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.

4.2 Solid Waste

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

- Incinerator failure;
- Power outage;
- Treatment system malfunction due to overloading against the design capacity;
- Accidental damage to the incinerator and its components;

- Mechanical breakdown; and
- Lack of 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.

4.3 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.

4.4 Chemicals and Household detergents

Before, any chemical/reagents or any other product that is required for use at any MHBL property be brought to site, an up-to-date copy of the MSDS sheet shall be faxed to the Logistics Coordinator at the respective site.

Any chemicals brought on site shall be stored in manufacturers approved packaging. Leaks may occur, causing minor spills of chemical product either in storage, transit, or during the transfer or from accidental failure of containers.

MHBL provides training to its staff in product handling and inspection procedures, which we believed, will result in reduced occurrences of chemical spills. As required by corporate policy and legislative requirement, employee training records will be kept and file at each respective camp.

5 Responsibilities

5.1 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.
- Initiate the in-house accident/incident report form. 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.

5.2 Emergency Response Team (Spill Cleanup Crew):

- Conduct cleanup of spills under direction of Spill Cleanup Supervisor or Senior Environmental Coordinator.
- Deploy booms, absorbent pads and other equipment and materials as required.
- Take appropriate response measures.
- Continue cleanup as directed by Spill Cleanup Supervisor or Senior Environmental Coordinator (or designates) until relieved.

5.3 Spill Cleanup Supervisor /On-Scene Co-ordinator:

- Report spill to Site Supervisor.
- Inform Senior Environmental Coordinator or designates on the progress of the cleanup.
- 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.
- In consultation with the Control Group or Action Director, decide if mobilization of additional equipment from Spill Response Organization or Contractor is warranted.
- Consult with site Senior Environmental Coordinator (or designate).

5.4 Site Supervisor (Action Director):

- Page Control Group members and establish a Control Centre.

- Allocate tasks for each member.
- Reports spill to the NWT 24-Hour Spill Report Line at (867) 920-8130.
- Contacts the Emergency Response Team if the situation requires.
- Ensures Emergency Response Team is adequately trained in spill response.
- Organizes spill response training and exercises agencies.
- Co-ordinate inspections and spill closure by Lead Agency and/or other applicable
- Liaise with NWT Spill Line, Lead Agency (DIAND) and other applicable agencies with regard to on-going cleanup activities.
- Together with the Spill Cleanup Supervisor, and Senior Environmental Coordinator decide if additional equipment and manpower is required to contain and cleanup spills.
- Notifies and provide daily updates to Human Resource Superintendent and the Manager, Environmental Affairs.
- Oversees completion and distribution of spill report within 30 days of the spill to respective regulatory authorities.
- Ensures investigation and identifies measure to prevent similar spills.

5.5 Human Resource Superintendent

- Provide resources and oversees the clean-up operation.
- Inform and provide updates to Mine General Manager.

5.6 Mine General Manager

- Provide resources for clean-up operations
- Based on the information provided, decide whether or not external (specialist) consultants are required for clean-up.
- Informs and update Vice President, Operations.

5.7 Vice President

- Informs CEO of the company.
- Responsible for dealing with external stakeholders and media.

5.8 Senior Environmental Coordinator:

- Notifies the Manager, Environmental Affairs.
- Ensures cleanup is completed to MHBL objectives and standards.
- Provide updates 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 within 30 days of the spill.
- Conducts ongoing monitoring of cleanup operations leading too closeout.

- Update, communicate and distribute Spill Contingency Plans to appropriate personnel.

5.9 Manager, Environmental Affairs

- Depending on the seriousness of the spill, notifies CEO of Miramar Mining Corporation.
- Seek advice from Corporate Legal Adviser.
- Review and approve updated Spill Contingency Plans.
- Provides advice when requested to the On-Scene Coordinator, the Spill Cleanup Supervisor and the Site Supervisor.
- 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 Supervisor and Senior Environmental Coordinator on storage and disposal options.

5.10 Legal Counsel

Advises the Vice President, Operation 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 authority and advises on matters related to insurance.

6 Initial Response at Spillage Site

Spills of chemicals, fuels and other substances may occur as isolated events or they may occur with other emergencies such as fire, explosion, natural causes or accident. The accuracy and urgency in disseminating information to your immediate supervisor and Site Supervisor is crucial to the success of the prevention or recovery process in any accident/incident.

6.1 First Responders

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

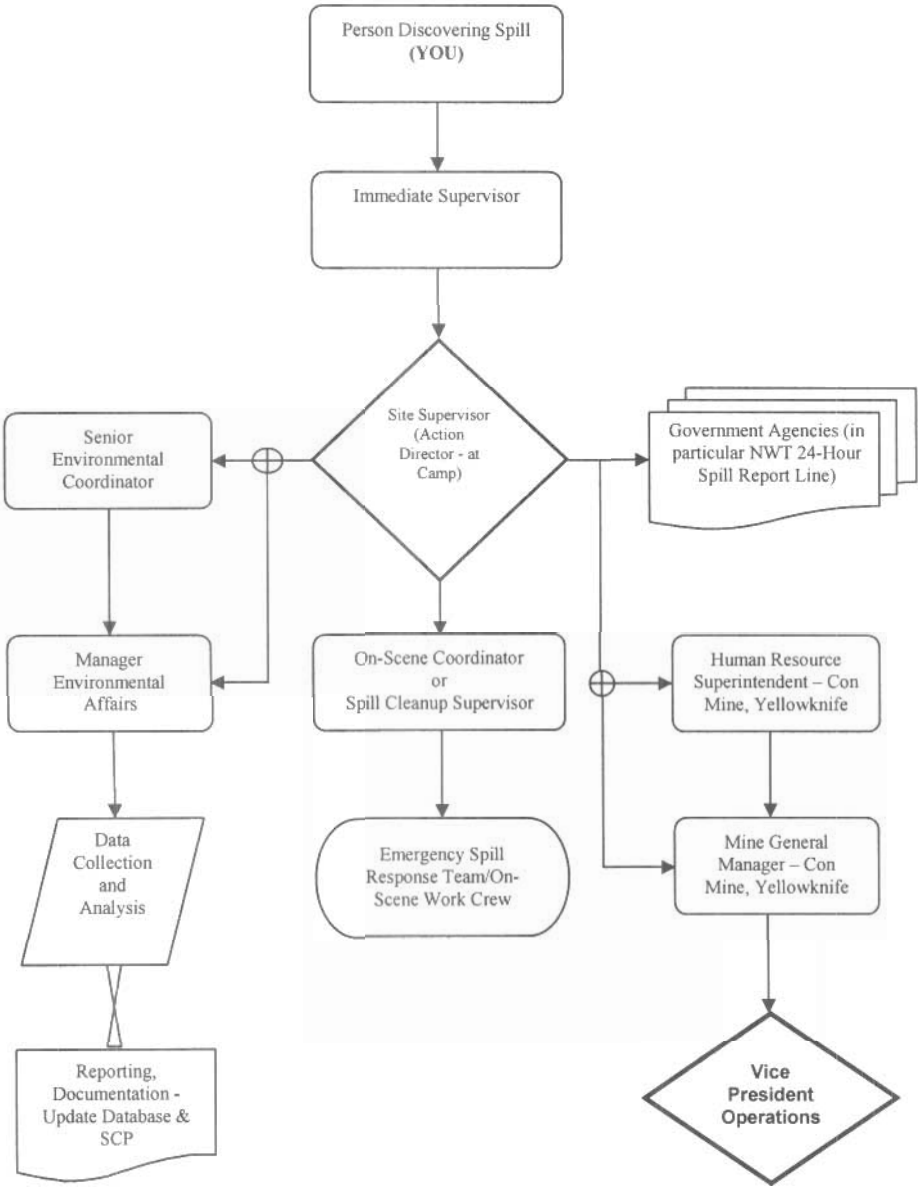
- Be alert, ensure your safety and the safety of others first.
- Assess the hazard to persons in the vicinity of the spill, leak or failure system. If the risk of gas fumes exits or if fire or explosion hazards are perceived, leave the area immediately and warn co-workers to leave also.
- Assess nature and status of the spill, leak or system failure and measures to be taken to bring the situation under control and remove any source of ignition.
- When safe to do so, stop the flow of the spilled material.
- Notify your Supervisor immediately as per Hope Bay Project Employee Handbook (Emergency Procedures – page 24-25) protocols.
- If warranted, notify on-site Medic to administer First Aid as per Hope Bay Project Employee Handbook (Medical Emergency Procedures – page 23) protocols.

- 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.

6.2 On Scene Spill 24-hours Notification Process

The key personnel involved during a spill occurrence and the reporting responsibilities are illustrated in the following chart below. The responsibilities of each of these positions are discussed in Section 5 of this Plan. Names and contact numbers are kept current at all times at the project site. Further details can be seen in Section 15.6 of this Plan.

Figure 1: Spill Notification Process within 24-hours of a spill occurrence



6.3 Person Exposed to Spilled Substance – Medical Notification Process

Any person attending a causality exposed to spilled substances shall as illustrated in Figure 2:

- Notify on-site Medic to administer First Aid, using specific on-site MediVac procedure (e.g. Emergency Information MediVac Protocol, Boston Camp, 2004 or Hope Bay Project Employee Handbook (Medical Emergency Procedures – page 23) protocols).
- Notify his/her Supervisor immediately.
- Notify Site Supervisor immediately.

Figure 2: Medical Notification Protocol when attending to an employee exposed to spilled substances