



**FUEL MANAGEMENT AND SPILL CONTINGENCY PLAN**

**Comaplex Minerals Corp.**

**MELIADINE WEST PROJECT**

**July 2008**



MINERALS CORP

## **INITIAL SPILL RESPONSE PRIORITIES**

### **SAFETY FIRST**

#### **1. RESPOND QUICKLY**

1. Identify the spilled material.
2. Ensure safety of yourself and others.
3. Shut off ignition sources - NO SMOKING.
4. Attend to Injured.
5. Assess the severity of the spill.
6. Call for assistance.
7. **On-site Manager mobilizes Emergency Response Team.**  
Meliadine Camp: 403 451 3236(37)  
Comaplex Office: 403 265 2846  
Comaplex 24 Hr: 403 629 1432 (M. Balog, cell)
8. Keep unnecessary people out of the area.
9. Wear impervious clothing, goggles, gloves.
10. Approach spill from upwind **IF SAFE TO DO SO.**
11. Stop product flow if possible.
12. Contain and recover spill as soon as possible.
13. Notify David Ningeonagan, Water Resources Officer, Rankin Inlet  
[NingeonganD@inac-ainc.gc.ca](mailto:NingeonganD@inac-ainc.gc.ca), 867 975 2089, fx 867 645 2592  
Notify Peter Kusugak, Field Operations, Iqaluit  
[KusugakP@inac-ainc.gc.ca](mailto:KusugakP@inac-ainc.gc.ca), 867 975 4295, fx 867 979 6645

#### **2. RESPOND SAFELY**

- 1 Do not contain gasoline or aviation fuel if vapours might ignite.
- 2 Allow gasoline or aviation fuel spills to evaporate.
- 3 See Appendix A - Product Guides for further information.

#### **3. OBTAIN AND REPORT SPILL DETAILS**

NWT Spill Report Forms are in Appendix C of this spill contingency and response plan.

**Table: Reportable Spills**

Contaminant Type	TDGA Class	Reportable Spill
Explosives	1	Any amount
Compressed Gas (Flammable)	2.1	Any amount from containers greater than 100 lt
Flammable liquid	3.1, 3.2, 3.3	100 lt
Other	see Env. Prot. Act Schedule B	

Note: All releases of harmful substances regardless of quantity are immediately reportable where the release is near a water body, is near a designated sensitive environment or sensitive wildlife habitat, poses an imminent threat to human health or safety or poses an imminent threat to a listed species at risk or its critical habitat.

### **FURTHER DETAILS WITHIN THIS DOCUMENT**



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## **A - INTRODUCTION**

### **1. PURPOSE**

This Fuel Management and Spill Contingency Plan is designed to promote environmental awareness and safety, as well as facilitate the efficient cleanup of spills as the result of:

1. transportation incidents while in transit between Rankin Inlet and the Comaplex Minerals Corp. (CMF) exploration site at Meliadine Lake, and
2. spills during the course of camp and exploration operations involving the following substances:
  - P-50 Diesel
  - Jet A turbo fuel
  - Hydraulic Oil
  - Lube Oil
  - Waste Oil
  - Propane
  - other materials hazardous to the safety of personnel and the environment

Principal objectives of the Spill Contingency Plan are:

1. To provide readily accessible emergency information to cleanup crews, Meliadine project personnel, KIA, and government agencies in the event of a spill.
2. To comply with federal and territorial regulations pertaining to the preparation of contingency plans and notification requirements.
3. To promote the safe and effective recovery of spilled materials.
4. To minimize the environmental impacts of spills to water and/or land.
5. To facilitate the management of wastes according to environmental legislation.

### **2. SCOPE**

This Plan addresses the organization of the Meliadine West Gold Project spill response and related emergency measures. Alerting and notification procedures and cleanup strategies are outlined along with the duties and responsibilities of key spill response personnel. Emergency contacts are listed for CMF, CMF contractors, local government agencies, and the Nunavut Power Corporation in Rankin Inlet. Emergency response equipment is listed that is available immediately (should a spill occur) from local freighting contractors, such as M & T Enterprises and the Nunavut Power Corporation in Rankin Inlet. A supplementary document produced by our major surface contractor, Nuna Logistics / M and T Enterprises, titled "Environmental Procedures Manual, Meliadine West Portal Excavation Project" is also in effect for the surface excavation and overland re-supply components of the project.

More information in support of this Transportation Spill Contingency Plan and ensuing spill response actions, is provided in the following appendices:

- Appendix A contains summaries of physical / chemical properties and emergency response measures for hydrocarbon substances to be transported to the Meliadine exploration camp.
- Appendix B contains an up-to-date inventory of spill response equipment and kits available at various locations.
- Appendix C contains NWT Spill Report Forms that are to be used to report spills.

- Appendix D contains a fuel storage monitoring plan.
- Appendix E contains a list of basic components of a Fuel Spill Response Kit
- Appendix F contains a procedure for the operation of the main fueling station and the control of vehicular activity in the vicinity of the fueling station
- Appendix G lists conditions and equipment required for the Winter Road resupply program

CMF will be contracting out the delivery of fuel and lubricants to the exploration site. The contractors will be trained for spill response and are responsible for supplying spill kits that complement this Spill Contingency Plan. In the event of a spill the contractor is expected to implement a spill response immediately with CMF's plan serving as a back-up. Appendix G lists the specific spill equipment that must travel with fuel supply vehicles travelling between Rankin Inlet and the Meliadine Lake area bulk fuel tanks.

Comaplex was granted an amendment to its existing water license (NWB File 2BB-MEL0709) that is contingent on a number of criteria. The criteria specific to this Spill Contingency Plan are summarized in the Table 1 along with references to areas of this document that address the criteria. Additional criteria relating to Spill Contingency are detailed in the screening decision for a winter access route proposal (NIRB file 07AN063, KIA File KVRW07F02) and are also listed in the table.

### **3. SITE DESCRIPTION**

#### **3a General**

The Meliadine West Gold Project camp is located approximately 25 km north of Rankin Inlet (63° 01' 30" N latitude, 92° 10' 20" West longitude). The area is low arctic tundra with a summer active layer up to 1 m on dry exposed ridges and less than 0.5 m in the high organic humic soils under meadows. The camp with a capacity for up to 75 persons is located approximately 5 m above lake level on a peninsula surrounded on three sides by Meliadine Lake. The camp is connected via a 2 kilometer access road to an advanced exploration site where the assembly of an underground bulk sample will be completed between October of 2007 and the fall of 2008. Bulk fuel storage is provided by double walled fuel vaults in three locations – 3 X 50,000 L of P50 at camp, 3 X 50,000 L Jet A fuel approximately 200 m south of camp, and 11 X 50,000 L P-50 for exploration needs about 500 m west of camp along the access road to the underground bulk sampling site (please see Figures 1-3). Temporary fuel storage is contained within fuel bladders protected by “instaberms” adjacent to the exploration facility (Figure 3). As capacity is created within the double walled fuel vaults adjacent to the bladders, fuel is transferred to the vaults. Empty bladders are rolled up and stored on-site.

Servicing of all vehicles after October of 2007 will be conducted within the shop tents established on the Redpath services pad near the portal entrance (Figure 1). Best practices will be employed during vehicle servicing including the utilization of spill pans. The tents have shallowly buried sub-floor level liners that will contain any contaminant spills arising from vehicle maintenance. Waste oils, rags, filters and glycol will be stored in dedicated waste drums. The waste oil will be utilized as heating fuel by an authorized recipient in Rankin Inlet, Nunavut. Waste rags, filters and glycol will be stored on a dedicated lined 10 x 10 m pad just south of the exploration fuel facility (Figure 3) awaiting transport to an approved hazardous waste treatment facility.

## Table 1: Compliance Table – Spill Contingency

Notes from Amendment of Water License 2BB-MEL0709 (Previously 2BE-MEL0709) Meliadine West Exploration and Bulk Sampling Project (Nunavut Water Board decision dated August 2, 2007) and Screening Decision Report (NIRB File 07AN063, KIA File KVRW07F02) – Winter Road.

Comments (NWB File 2BB-MEL0709) Part H: Spill Contingency Planning			CMF Response - This Document	
Page	Section	NWB Comments	Page	Section/Response
10	H1	Revised <b>SPILL CONTINGENCY PLAN WITHIN 60 DAYS</b> - preventative measures and procedures to reduce spills - particular emphasis on <b>FUEL TRANSFER PROCEDURES</b> and <b>VEHICULAR ACTIVITY</b> around fuel storage tanks	11	Figure 2
11	H2	if plan not approved, additional 30 day period applies for resubmission		acknowledged
11	H3	implementation of plan upon approval		acknowledged
11	H4	further changes to plan submitted in form of an addendum, to be included in Annual Report		acknowledged
11	H5	- no chemicals, petroleum products or wastes to enter water		acknowledged
11		- sumps and fuel caches 30 m from high water mark		Figures 1-3
11		- <b>PROVIDE SECONDARY CONTAINMENT</b> for fuel storage areas		Figures 1-3
11	H6	equipment maintenance and servicing in designated areas, implement procedures to prevent spills	4	Section 3a
11	H7	regularly inspect fuel tanks and connectors for leaks, <b>WRITTEN LOG</b> , available for Inspector		system in place
11	H8	Unauthorized Discharge		acknowledged
11	H8i	employ Spill Contingency Plan		acknowledged
11	H8ii	Report Spill (Spill Line: 867.920.8130, Inspector: 867.975.4295)		acknowledged
11	H8iii	Reportable Spill - submit to Inspector, <b>within 30 days</b> , detailed report, including type, amount, location (GPS), measures taken		acknowledged
Comments (NIRB File 07AN063, KIA File KVRW07F02): Winter Road Decision			CMF Response - This Document	
Page	Comment	NIRB Comments	Page	Section/Response
2	1	Comaplex to operate in accordance with commitments made in documentation provided to NIRB		acknowledged
2	4	Comaplex to operate in accordance with all acts, regulations and guidelines		acknowledged
2	6	Update Spill Contingency Plan		this document
2	7	Ensure secondary containment measures used when transferring fuel from vehicles to storage facilities		acknowledged
2	8	Ensure transportation contractors have appropriate spill kit to address a spill of fuel from the largest Enviro tank 12,000 L)		acknowledged
2	9	Ensure contractors adopts appropriate Spill Contingency Plan		acknowledged

### **3b Camp (Figure 2)**

Camp heating fuel and generator fuel is supplied from three 50,000 litre double-walled fuel vaults (150,000 litre capacity) at the north edge of camp. A pumping station at this site is used to transfer fuel to drums that are distributed around camp by helicopter in summer and snowmobile in winter. Heating and generator fuel is transferred to 200 gallon tanks adjacent to tents that directly feed camp heaters and the generators. The fuel pumping station is operated by select, experienced Comaplex personnel only. The pumping station and associated hose and piping is inspected regularly and has been in operation since 1997 without major incident. A fuel spill kit is positioned at the pumping station.

Three 50,000 litre double-walled fuel vaults containing Jet A helicopter fuel (150,000 litre capacity) are stationed at the south-east corner of the camp away from other camp facilities. A pumping station here is powered by a gasoline generator. Helicopter pilots with appropriate training operate this facility. The station has been in operation since 1997 without major incident. A fuel spill kit is positioned at the pumping station. Variable quantities of drummed Jet B aviation fuel are also stored immediately east of the pumping station that will be contained within an “instaberm” protected facility. Drummed fuel (Jet B) is not expected to exceed 100 barrels in 2007/2008.

Camp waste oils are collected at the generator sites (Figure 2) during routine oil changes. The oil changes are conducted employing drip pans for spill control. Waste oils are transferred to designated waste oil drums located at the generator sites. When full, the drums will be transferred to the lined designated waste pad area at the main bulk fuel facility (Figure 3). The waste oils will be delivered periodically to an authorized site in Rankin Inlet where they will be combusted as heating fuel. Waste oil-stained rags and filters are also collected within dedicated drums that will be stored at the main bulk fuel facility prior to transport to a designated hazardous waste treatment centre.

### **3c Main Bulk Fuel Facility (Figure 3)**

Figure 3 shows the layout of the main bulk fuel facility. The facility consists of 11 - 50,000 litre double-walled fuel vaults (550,000 litre capacity). Temporary fuel storage is achieved utilizing fuel bladders (current capacity 150,000 litres) protected by “instaberm” secondary containment of adequate size to contain a maximum spill. Fuel is transferred from the bladders to the steel fuel vaults once capacity has been created. The bladders and associated secondary containment are returned to storage when not in use.

A fuelling area lined and bermed to contain any spills is being constructed adjacent to the facility. This will be the most active fuelling area at the site and a comprehensive procedure for the operation of the fuel station is presented as Appendix F. The pump is powered by a gasoline generator. A 60 m hose designed for bulk fuel stations in arctic conditions (Plicord Arctic Flexwing – 2 inch) links the fuelling station to the individual double-walled 50,000 litre fuel vaults. A spill kit and fire extinguishers are stationed at the fuelling station to assist in emergency situations. Only trained personnel will operate the fuelling station. An access road isolating fueling activities from other access road traffic will be constructed off the main trail between the camp and the portal area (Figure 1, 3). A clearly defined single vehicle area that is lined and graded for contaminant control, will be the location that fuelling is allowed.

Drummed gasoline for refuelling snowmobiles and one gasoline powered truck will be stored within the lined and bermed area. Gasoline will be transferred by hand pumps.

### **3d Drummed Waste Pad (Figure 3)**

Waste oils, filters, rags and other contaminants, such as glycol that are housed in dedicated storage drums will be stored on a 10 x 10 meter pad south of the access road adjacent to the main fueling area. The pad has been constructed with a sub-grade impermeable liner. Waste oils will be periodically transferred to an authorized user in Rankin Inlet. Filters, rags and glycol will be transferred to a hazardous waste treatment facility during summer shipping season.

### **3e Re-supply (Figure 4)**

Bulk supplies including fuel for the camp and exploration program are re-supplied in winter by overland surface transport from Rankin Inlet. A winter access route licensed under KIA right of way permit KVRW98F149 has traditionally been used to re-supply the exploration activities. A new license (KIA file KVRW07F02) has been granted by the KIA authorizing transport by low-PSI tracked vehicles over frozen terrane between Rankin Inlet and the exploration area. Both of these routes are shown on Figure 4. The new route includes about 6 km of municipal road, and follows mainly ATV trails between the Char River crossing and the Meliadine Lake camp (Figure 4). The route follows a height of land path minimizing river and stream crossings. It is expected to operate from early November through January when the ground is frozen and snow cover is light. The route authorized by KIA License KVRW98F149 uses a short length of municipal road within town limits before crossing the sea ice of Prairie Bay. The route then crosses tundra and freshwater ice administered by the Kivalliq Inuit Association (KIA) and then the lake ice of Meliadine Lake under federal jurisdiction. During mid-winter and spring, Comaplex will re-supply the camp using both routes as condition permit or require. The haul route distance from Rankin Inlet to the Meliadine Project exploration camp is approximately 28 km in both cases.

Another route proceeds north east from the north shore of Rankin Inlet to federal claims held in the Parallel Lake area (Figure 4) and similarly crosses lands administered by both the KIA and Indian and Northern Affairs Canada. This haul route distance is approximately 46 km and is authorized by KIA license KVRW98F149 and INAC permit N2006X0012.

Equipment required to be carried by vehicles during resupply are listed in Appendix G. Resupply is contracted to NUNA/M & T Logistics who have completed this work for years without incident. A comprehensive Spill Contingency Plan prepared by NUNA / M & T has been filed with Comaplex Minerals Corp that details training of their personnel as well as spill mitigation measures that would be employed during the winter re-supply program. This document is available on request.

### **3f Explosive Magazines (Figure 1)**

Explosive magazines are aligned adjacent to the access road between the camp and the portal area. There are 13 magazines; 3 Type 9 magazines of 2,000 kg capacity, and 10 of Type 4 magazines of 11,250 kg capacity each. The layout of magazines is in accordance with quantity-distance tables and has been reviewed by the Mining Inspector. Redpath Limited holds the permit and responsibility for the explosives and magazines. Explosives stored in the magazines are solid in nature and any soils impacted by explosive spills are easily cleaned up as they occur.



### **3f Table of Locations**

Locations of spill kits and other infrastructure are given below.

Label	ID	Spill Kit	UTM_E	UTM_N	Lat_DD	Long_DD	Lat_DMS	Long_DMS
P1	Operations Fuel Pump, Spill Kit	1	541191	6988462	63.0234	-92.1861	63,1,24	-92,11,10
P2	Aviation Fuel Pump, Spill Kit	1	542026	6988701	63.0255	-92.1696	63,1,32	-92,10,10
P3	Camp Fuel Pump, Spill Kit	1	542050	6989119	63.0292	-92.1690	63,1,45	-92,10,8
G1	Camp Generators, Spill Kit	1	542052	6989081	63.0289	-92.1689	63,1,44	-92,10,8
G2	Core Shack Generator, Spill Kit	1	541935	6988949	63.0277	-92.1713	63,1,40	-92,10,17
G3	Services Generators, Spill Kit	1	539842	6988850	63.0271	-92.2127	63,1,37	-92,12,46
G4	Ore Pad Generator		539980	6989003	63.0284	-92.2099	63,1,42	-92,12,36
G5	Main P-50 Fueling Generator		541204	6988475	63.0236	-92.1859	63,1,25	-92,11,9
G6	Boart Longyear Generator	1	541882	6988841	63.0268	-92.1724	63,1,38	-92,10,22
Mel-1	MEL-1 Camp Water Source		541909	6989204	63.0300	-92.1718	63,1,48	-92,10,18
Mel-2a	Pump Lake Water Supply - Summer		539916	6987802	63.0177	-92.2115	63,1,4	-92,12,41
Mel-2b	Pump Lake Water Supply - Winter		539993	6987565	63.0155	-92.2100	63,0,56	-92,12,36
WP	Pump Lake Pumping Station - Summer		539925	6987825	63.0179	-92.2113	63,1,4	-92,12,41
WP	Summer Drilling Pump		540107	6988790	63.0265	-92.2075	63,1,32	-92,12,50
WP	Summer Drilling Pump		539790	6988691	63.0257	-92.2138	63,1,28	-92,12,42
WP	Summer Drilling Pump		539895	6988542	63.0243	-92.2117	63,1,23	-92,12,38
WP	Summer Drilling Pump		539960	6988419	63.0232	-92.2104	63,6,23	-91,33,46
W1	Incinerator		542110	6989118	63.0292	-92.1678	63,1,45	-92,10,4
W2	Greywater sump		542046	6989057	63.0287	-92.1691	63,1,43	-92,10,9
W3	Waste Storage		542103	6989122	63.0293	-92.1679	63,1,45	-92,10,5
W4	Waste Oils and Lubricants Pad		541214	6988428	63.0231	-92.1857	63,1,23	-92,11,8
F1	Operations Fuel Vaults		541214	6988484	63.0236	-92.1857	63,1,25	-92,11,8
F1a	Operations Fuel Bladder (Temporary)		541244	6988475	63.0236	-92.1851	63,1,25	-92,11,6
F1b	Operations Fuel Bladder (Temporary)		541225	6988464	63.0235	-92.1855	63,1,24	-92,11,8
F2	Aviation Jet A Storage		542031	6988695	63.0254	-92.1695	63,1,32	-92,10,10
F3	Camp P-50 Storage		542050	6989129	63.0293	-92.1690	63,1,46	-92,10,8
F4	Services Fuel Tanks (5000 gallons)		539845	6988850	63.0271	-92.2126	63,1,37	-92,12,45
F5	Jet B drummed aviation fuel		542056	6988693	63.0254	-92.1690	63,1,31	-92,10,8
F6	Redpath Services Tent	1	539855	6988856	63.0271	-92.2124	63,1,38	-92,12,45
F7	Redpath Services Tent		541876	6988829	63.0267	-92.1725	63,1,36	-92,10,21
F8	Propane Storage		541882	6988936	63.0276	-92.1724	63,1,39	-92,10,20
F9	Tool Shed		542022	6989036	63.0285	-92.1696	63,1,43	-92,10,10
F10	Ore Pad Fuel Tank	1	539974	6988996	63.0284	-92.2100	63,1,42	-92,12,36
F11	Repath Motor Oils		539835	6988843	63.0270	-92.2128	63,1,35	-92,12,27
F11	Gasoline Drums		541186	6988458	63.0234	-92.1862	63,1,24	-92,11,10
C2	CaCl Storage		541854	6988905	63.0273	-92.1729	63,1,32	-92,11,58
E1	Magazines (center of area)		540518	6988687	63.0255	-92.1994	63,1,37	-92,12,46

Note: UTM Coordinates are NAD83,  
Zone 15

### **3.1 Spill Kits**

Spill kits in bright yellow 200 L containers include:

- basic personal protective equipment including goggles and latex gloves,

- sorbent materials including socks, pillows, pads and granular substances
- large plastic bags for containing and transferring contaminated sorbent materials.

Spill kits are located at the sites listed above and are shown of Figures 1, 2 and 3. A spill kit will be placed on the Ore Pad adjacent to the fuel tank and generator that are established there to provide power to the crusher / sample tower assembly (Figure 1). This infrastructure has not been established yet.

Additional sorbent materials for use at refueling sites for stoves and furnaces throughout camp are stored in the tool sheds at the main camp and within facilities maintained by our Contractors. A spill kit capable of managing a spill of the order of 12,100 litres is a requirement of the KIA Right of Way license KVRW07F02 for all fuel transport vehicles operating on the re-supply route. The contractor has been made aware of this obligation (Appendix G).

### **3.2 Secondary Containment / Spill Response Capacity**

All long-term bulk fuel on site is stored in double walled fuel vaults or in drums within bermed areas. Fuel capacity is increased temporarily through the use of fuel bladders protected by instaberm secondary containment of sufficient size to contain a maximum spill (Figure 2). Pumping stations in the camp have operated since 1997 without major incidents. Spill kits are stationed at all pump facilities.

Newly constructed facilities, including maintenance tents, storage tanks, and pumping stations are all protected by buried sub-grade impermeable liners (Figure 1, 2).

The largest active use vessels are the P50 tanks (1000 L) connected to stoves and furnaces for heating worker accommodations. Piping for these tanks is checked weekly during heavy use winter periods. Sorbent materials are attached to the piping on these tanks to contain drips.

Minor spills (<200 L) will be cleaned up by the deployment of sorbent materials which will be collected in barrels and stored on the lined waste storage pad at the main fuel facility (Figure 3) to await shipment to a hazardous waste facility.

Larger spills will be cleaned up by a combination of sorbent materials, and containment and collection in empty 205 L drums on site. Recovered fuels will be disposed of by incineration. Sorbent materials used in such an operation will be collected in barrels and stored on the lined pad adjacent to the operations fuel pump (Figure 2) to await shipment to a hazardous waste facility.

Containment of larger spills will be achieved by snow berms/trenches in winter and trenches/sorbent socks (in spill kits) in summer. Particular strategies for managing larger spills during re-supply are detailed in the companion Spill Contingency document filed by Nuna Logistics with Comaplex Minerals Corp.

### **3.3 Contaminated Soils**

Spill sites will be identified, monitored and treated with peat and fertilizer to enhance plant recovery where growth retardation is evident. Sites that do not respond and show sign of plant growth by the time of site abandonment will become subject to the **Abandonment and Restoration Plan**. Contaminated soils from within service tents will be stored at a safe location on the services or ore pads on impermeable liners and will be subject to the Abandonment and Restoration Plan.

### **3.4 Abandonment and Restoration Plan**

The lands that are subject to this Spill Contingency Plan are Inuit Owned Lands belonging to the Kivalliq Inuit Association and are leased to CMF for the purposes of mineral exploration and development. A recently revised **Abandonment and Restoration Plan** has been filed with KIA and Nunavut Water Board.

### **3.5 Training**

A site specific training program consistent with the scope of the current operations is being developed with Nuna Logistics and M & T Enterprises Ltd. The program will cover all components of the day to day operations of the facility and the winter re-supply of the camp. The training will include WHMIS review of dangerous goods handling and focus on safe procedures for the operation of the fuel facilities and fuel re-supply. Spill management techniques will also be incorporated into the training program.

**Figures 1 to 4 – following this page**

**1. REPORT ALL SPILLS TO (AUTHORITY TO ACTIVATE PLAN):**

**Site:** Ph./Fax 867 645 3308 (local); 403-451-3236 (3237)  
**Calgary Office:** Ph. 403 265 2846; 403-750-2560; Fax 403-232-1421  
 24 Hr Cell: 403 629 1432

The reporting requirement applies equally to all substances covered by this contingency plan; fuels, hydraulic oil, lubricants, and waste oil. All reports by telephone must be followed with a fax of the completed report form (see Appendix C) to the number indicated on the reporting form.

## 2. ALERT CMF Personnel:

- ### 3. NOTIFY AGENCIES:

KIVALLIQ INUIT ASSOCIATION      Phone: 1 867 645 2810  
 Phone: 1 867 645 2800  
 Fax: 1 867 645 2348

INDIAN AND NORTHERN AFFAIRS CANADA

Iqaluit	1 867 975 4275
Water Resources	1 867 975 4500

ENVIRONMENT CANADA	Iqaluit	1 867 975 4644
	Yellowknife	1 867 669 4725
	-24 hr. Emergency pager	1 867 920 5131

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### **Emergency Contacts**

EMO – Emergency Response (Iqaluit - 24 hr)	1 867 766 3737
EMO – Emergency Response – Rankin Inlet	1 867 645 3625
Rankin Inlet Ground Search and Rescue	1 867 645 2027
Rankin Municipality (Senior Administrator)	1 867 645 2895
RCMP – 24 HR EMERGENCY	1 867 645 1111
Rankin Inlet Health Center	1 867 645 2816
After Hours	1 867 645 3311
Midwife (no answer above)	1 867 645 4607
Rankin Inlet Fire Department	1 867 645 2525
Mine Inspector	1 800 661 0792
Ben Hubert (CMF Environmental Coordinator)	1 403 256 0017 or 1 403 256 7114

### **4. RECORD THE FACTS**

Use Spill Report Form from Appendix C

**NOTE: If the On-Scene Coordinator is not available when a spill is detected then the spill must be reported directly to NWT 24-hour spill report line without delay.**

## **C: INITIAL SPILL RESPONSE PRIORITIES**

### **SAFETY FIRST**

#### **1. RESPOND QUICKLY**

1. Identify the spilled material.
2. Ensure safety of yourself and others.
3. Shut off ignition sources - NO SMOKING.
4. Attend to Injured.
5. Assess the severity of the spill.
6. Call for assistance.
7. **On-site Manager mobilizes Emergency Response Team.**
8. Keep unnecessary people out of the area.
9. Wear impervious clothing, goggles, gloves.
10. Approach spill from upwind **IF SAFE TO DO SO.**
11. Stop product flow if possible.
12. Contain and recover spill as soon as possible.

#### **2. RESPOND SAFELY**

- 1 Do not contain gasoline or aviation fuel if vapours might ignite.
- 2 Allow gasoline or aviation fuel spills to evaporate.
- 3 See Appendix A - Product Guides for further information.

#### **3. OBTAIN AND REPORT SPILL DETAILS**

NWT Spill Report Forms are in Appendix C of this spill contingency and response plan.

## **DIESEL - P 50 - SPILL RESPONSE ACTIONS**

### **CONSIDER ACTION ONLY IF SAFETY PERMITS!**

- **ELIMINATE IGNITION SOURCES**
- **STOP SOURCE OF DIESEL IF SAFE TO DO SO**

### **ON LAND**

- Do not flush into ditches or drainage systems.
- Block entry into waterways and contain with earth, snow or other barrier.
- Remove small spills with sorbent pads.
- On tundra use peat moss and leave in place to degrade, if practical.

### **ON SNOW & ICE**

- Block entry into waterways and contain with snow or other barrier.
- Remove minor spills with sorbent pads and/or snow.
- Use ice augers and pump to recover diesel under ice.
- Slots in ice can be cut over slow moving water to contain oil.
- Burn accumulated diesel from the surface using Tiger Torches if feasible and safe to do so.

### **ON MUSKEG**

- Do not deploy personnel and equipment on marsh or vegetation.
- Remove pooled diesel with pumps and skimmers.
- Flush with low pressure water to herd diesel 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 spill containment boom to concentrate slicks for recovery.
- On small spills, use sorbent pads to pick up contained oil.
- On larger spills, use skimmer on contained slicks.
- Do not deploy personnel and equipment onto mudflats or into wetlands

### **RIVERS & STREAMS**

- Prevent entry into water, if possible, by building berm or trench.
- Intercept moving slicks in quiet areas using (sorbent) booms.
- Do not use sorbent booms/pads in fast currents and turbulent water.

### **STORAGE / TRANSFER**

- Store closed, labelled containers outside away from flammable items.
- Electrically ground containers and vehicles during transfer.

### **DISPOSAL**

- Segregate waste types.
- Place contaminated materials into marked containers.
- Consult camp manager on disposal procedures.

## **HYDRAULIC OIL SPILL RESPONSE ACTIONS**

### **CONSIDER ACTION ONLY IF SAFETY PERMITS**

- **ELIMINATE IGNITION SOURCES**
- **STOP SOURCE OF HYDRAULIC OIL IF SAFE TO DO SO**

### **ON LAND**

- Do not flush into ditches or drainage systems.
- Block entry into waterways and contain with earth, snow or other barrier.
- Remove small spills with sorbent pads.
- On tundra use peat moss and leave to degrade if feasible to do so.

### **ON SNOW & ICE**

- Block entry into waterways and contain with snow or other barrier.
- Remove minor spills with sorbent pads and/or snow.
- Use ice augers and pump when feasible to recover oil under ice.
- Burning hydraulic oil will not likely be feasible.
- Mechanical removal (scrapping) can be tried.

### **ON MUSKEG**

- Do not deploy personnel and equipment on marsh or vegetation.
- Remove pooled oil with pumps and skimmers.
- Flush with low pressure water to herd oil to collection point.
- Minimize damage caused by equipment and excavation.
- Burning is not likely possible.

### **ON WATER**

- Contain spill as close to release point as possible.
- Use spill containment boom to concentrate slicks for recovery.
- On small spills, use sorbent pads to pick up contained oil.
- On larger spills, obtain and use skimmer on contained slicks.
- Do not deploy personnel and equipment on mudflats or wetlands.
- Remove contained oil with sorbent pads and/or skimmer.

### **RIVERS & STREAMS**

- Prevent entry into water, if possible, by building berm or trench.
- Intercept moving slicks in quiet areas using (sorbent) booms.
- Do not use sorbent booms/pads in fast currents and turbulent water.

### **STORAGE / TRANSFER**

- Store closed, labeled containers outside away from flammable items.
- Drums are likely to be used for containing collected hydraulic oil.

### **DISPOSAL**

- Segregate waste types.
- Place contaminated materials into marked containers.
- Consult on camp manager on disposal procedures..



## **LUBE OIL SPILL RESPONSE ACTIONS**

### **CONSIDER ACTION ONLY IF SAFETY PERMITS**

- **ELIMINATE IGNITION SOURCES**
- **STOP SOURCE OF LUBE OIL IF SAFE TO DO SO**

### **ON LAND**

- Do not flush into ditches or drainage systems.
- Block entry into waterways and contain with earth, snow or other barrier.
- Remove small spills with sorbent pads.
- On tundra use peat moss and leave to degrade if feasible to do so.

### **ON SNOW & ICE**

- Block entry into waterways and contain with snow or other barrier.
- Remove minor spills with sorbent pads and/or snow.
- Burning is unlikely to be possible.
- Use ice augers and pump when feasible to recover oil under ice.

### **ON MUSKEG**

- Do not deploy personnel and equipment on marsh or vegetation.
- Remove pooled oil with pumps and skimmers.
- Flush with low pressure water to herd oil to collection point.
- Burning is not likely to be possible.
- Minimize damage caused by equipment and excavation.

### **ON WATER**

- Contain spill as close to release point as possible.
- Use spill containment boom to concentrate slicks for recovery.
- On small spills, use sorbent pads to pick up contained oil.
- On larger spills, obtain and use skimmer on contained slicks.
- Do not deploy personnel and equipment on mudflats or wetlands.
- Remove contained oil with sorbent pads and/or skimmer.

### **RIVERS & STREAMS**

- Prevent entry into water, if possible, by building berm or trench.
- Intercept moving slicks in quiet areas using (sorbent) booms.
- Do not use sorbent booms/pads in fast currents and turbulent water.

### **STORAGE / TRANSFER**

- Store closed, labeled containers outside away from flammable items.
- Electrically ground containers and vehicles during transfer.

### **DISPOSAL**

- Segregate waste types.
- Place contaminated materials into marked containers.
- Consult camp manager on disposal procedures.

## **WASTE OIL SPILL RESPONSE ACTIONS**

### **CONSIDER ACTION ONLY IF SAFETY PERMITS**

- **ELIMINATE IGNITION SOURCES**
- **STOP SOURCE OF WASTE OIL IF SAFE TO DO SO**

### **ON LAND**

- Do not flush into ditches or drainage systems.
- Block entry into waterways and contain with earth, snow or other barrier.
- Remove small spills with sorbent pads.
- On tundra use peat moss and leave to degrade if feasible to do so.

### **ON SNOW & ICE**

- Block entry into waterways and contain with snow or other barrier.
- Remove minor spills with sorbent pads and/or snow.
- Burning is unlikely to be possible.
- Use ice augers and pump when feasible to recover oil under ice.

### **ON MUSKEG**

- Do not deploy personnel and equipment on marsh or vegetation.
- Remove pooled oil with pumps and skimmers.
- Flush with low pressure water to herd oil to collection point.
- Burning is not likely to be possible.
- Minimize damage caused by equipment and excavation.

### **ON WATER**

- Contain spill as close to release point as possible.
- Use spill containment boom to concentrate slicks for recovery.
- On small spills, use sorbent pads to pick up contained oil.
- On larger spills, obtain and use skimmer on contained slicks.
- Do not deploy personnel and equipment on mudflats or wetlands.
- Remove contained oil with sorbent pads and/or skimmer.

### **RIVERS & STREAMS**

- Prevent entry into water, if possible, by building berm or trench. & Streams
- Intercept moving slicks in quiet areas using (sorbent) booms.
- Do not use sorbent booms/pads in fast currents and turbulent water.

### **STORAGE / TRANSFER**

- Store closed, labeled containers outside away from flammable items.
- Electrically ground containers and vehicles during transfer.

### **DISPOSAL**

- Segregate waste types
- Place contaminated materials into marked containers.
- Whenever possible suitable waste oils collected at the site will be disposed of by incineration.
- Consult camp manager on disposal procedures.

**GASOLINE SPILL RESPONSE ACTIONS**  
**CONSIDER ACTION ONLY IF SAFETY PERMITS**

**GASOLINE FORMS VAPOURS THAT CAN IGNITE AND EXPLODE NO SMOKING**

- **ELIMINATE IGNITION SOURCES**
- **STOP SOURCE OF GASOLINE IF SAFE TO DO SO**

**ON LAND**

- Block entry into waterways by diking with earth, snow or other barrier(s).
- Do not contain spill if there is any chance of igniting vapors.
- On shop floors and in work/depot yards, apply particulate sorbents.
- On tundra use peat moss and leave to degrade if feasible to do so.

**ON SNOW & ICE**

- Block entry into waterways by diking with snow or other barrier.
- Do not contain spill if there is any chance of igniting vapors.
- In work/depot yards, apply particulate sorbents.

**ON MUSKEG**

- Remove pooled gasoline with pumps, if safe to do so.
- Do not deploy personnel and equipment on marsh or vegetation.
- Low pressure flushing can be tried to disperse small spills.
- Burn CAREFULLY 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 digging.

**ON WATER**

- Contain or remove spills ONLY AFTER VAPOURS DISSIPATE.
- Use booms to protect water intakes.
- Skimming can be tried once light ends evaporate.

**STORAGE / TRANSFER**

- Store closed, labeled containers in cool, ventilated areas away from incompatible materials.
- Electrically ground containers and vehicles during transfer.

**DISPOSAL**

- Segregate waste types, if necessary.
- Place contaminated materials into marked containers.
- Consult camp manager on transportation and disposal requirements.

**JET A (AVIATION FUEL) SPILL RESPONSE ACTIONS**  
**CONSIDER ACTION ONLY IF SAFETY PERMITS**  
**AV GAS FORMS VAPOURS THAT CAN IGNITE AND EXPLODE**  
**NO SMOKING**

- **ELIMINATE IGNITION SOURCES**
- **STOP SOURCE OF JET A IF SAFE TO DO SO**

**ON LAND**

- Block entry into waterways by diking with earth, snow or other barrier(s).
- Do not contain spill if there is any chance of igniting vapors.
- On shop floors and in work/depot yards, apply particulate sorbents.
- On tundra use peat moss and leave to degrade if feasible to do so.

**ON SNOW & ICE**

- Block entry into waterways by diking with snow or other barrier.
- Do not contain spill if there is any chance of igniting vapors.
- In work/depot yards, apply particulate sorbents.

**ON MUSKEG**

- Remove pooled av gas with pumps, if safe to do so.
- Do not deploy personnel and equipment on marsh or vegetation.
- Low pressure flushing can be tried to disperse small spills.
- Burn CAREFULLY 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 digging.

**ON WATER**

- Contain or remove spills ONLY AFTER VAPOURS DISSIPATE.
- Use booms to protect water intakes.
- Skimming can be tried once light ends evaporate.

**STORAGE / TRANSFER**

- Store closed, labeled containers in cool, ventilated areas away from incompatible materials.
- Electrically ground containers and vehicles during transfer.

**DISPOSAL**

- Segregate waste types, if necessary.
- Place contaminated materials into marked containers.
- Consult camp manager on transportation and disposal procedures.

## **PROPANE RESPONSE ACTIONS**

**GAS STORED IN CYLINDERS THAT EXPLODE WHEN IGNITED!  
CONSIDER ACTION ONLY IF SAFETY PERMITS**

**KEEP ALL VEHICLES INCLUDING SNOWMOBILES AWAY FROM ACCIDENT AREA**

Refer to Product Guide in Appendix A for:

Physical/Chemical Properties

Response to Fires

First Aid

- Vapors cannot be contained when released.
- Water spray can be used to knock down vapors if there is NO chance of ignition.
- Small fires can be extinguished with dry chemical or CO.
- 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 attempt at recovery should be made.
- Personnel should avoid touching release point on containers since frost quickly forms.
- Stay clear of tank ends.

## **ACETYLENE RESPONSE ACTIONS**

**GAS STORED IN CYLINDERS THAT EXPLODE WHEN IGNITED!**

**CONSIDER ACTION ONLY IF SAFETY PERMITS**

**KEEP ALL VEHICLES INCLUDING SNOWMOBILES AWAY FROM ACCIDENT AREA**

Refer to Product Guide in Appendix A for:

Physical/Chemical Properties

Response to Fires

First Aid

- Vapors cannot be contained when released.
- Water spray can be used to knock down vapors if there is NO chance of ignition.
- Small fires can be extinguished with dry chemical or CO.
- 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 attempt at recovery should be made.
- Personnel should avoid touching release point on containers since frost quickly forms.
- Stay clear of tank ends.

## **D: SPILL RESPONSE CONTACTS**

### **Comaplex Minerals Corp. - Meliadine West Project**

<b>TITLE</b>	<b>NAME</b>	<b>OFFICE</b>	<b>FAX</b>
<b>On-Scene Coordinators</b>			
Camp Manager	Doug Dumka	1403 750 2559	1 403 232 1421
Spill Cleanup Supervisors Meliadine Camp			
	On-Site Manager	1 867 645 3308; 403-451-3236(3237)	
Comaplex Office	Mark Balog	1 403 750 2560 1 403 288 9355(H) <b>1 403 620 1432 (24hr cell)</b>	1 403 232 1421
Environmental Coordinator Ben Hubert		1 403 256 0017 1 403 256 7114 (H)	1 403 256 1228
<b>CONTRACTORS</b>			
M & T Enterprises Ltd. Rankin Inlet		1 867 645 2778	1 867 645 2590
<b>OTHERS</b>			
Nunavut Power Corp. Rankin Inlet		1 867 645 5300	1 867 645 2487.
Rankin Municipality (Senior Administrator)		1 867 645 2895	1 867 645 2146

### **EXTERNAL CONTACTS**

**CONTACT THE FOLLOWING NUMBER IMMEDIATELY:**

<b>1. GOVERNMENT 24-HOUR SPILL REPORT LINE</b>	PH. (867) 920-8130 FAX (867) 873-6924
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### **OTHER CONTACTS: PHONE**

#### **KIVALLIQ INUIT ASSOCIATION - LAND MANAGEMENT**

Tongola Sandy – president	1 867 645 2810
Luis Manzo - land use manager	1 867 645 2810

**EMO            1 867 645 5042 (1 867 645 3789 after working hours)**

#### **GOVERNMENT OF CANADA**

RCMP - Rankin Inlet	1 867 645 2822
DIAND - Rankin Inlet - Henry Kablalik	1 867 645 2831
Environmental Protection, Environment Canada	1 867 920 6060
Hazardous Materials Officer	1 867 669 4729
Hazardous Materials Specialist	1 867 669 4728

Fisheries & Oceans:	Rankin Inlet	1 867 645 2871
	Iqaluit	1 867 979 6274
<b>LOCAL TRANSPORTATION</b>		
Helicopters		
CUSTOM HELICOPTERS	Staff House	1 867 645 3885
	Hanger	1 867 645 3939
Air Lines - Scheduled		
	First Air - Dispatch	1 867 873 8021
	Calm Air	1 867 645 2900
	Kivalliq Air	1 877 855 1500
Bombardier	Kowmuk's Taxi	1 867 645 3034
Neighbouring Sites	Nunavut Power Corp.- Rankin Inlet	1 867 645 5300
<b>EQUIPMENT SUPPLIERS</b>		
Frontier Mining, Yellowknife (spill kits etc)		1 867 920 7617
Acklands – Yellowknife (spill kits etc)		1 867 873 4100



## **E: DUTIES AND RESPONSIBILITIES**

The roles and responsibilities of CMF personnel, contractors, and Government are described on the following pages.

### **CMF and CONTRACTOR PERSONNEL**

Spill Observer - anyone on haul route, at fuel cache, camp, or drill site at any time

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

#### **On-Scene Coordinator (OSC) - CMF Meliadine Camp Manager**

- Immediately reports the spill to NWT 24-Hour Spill Report Line at (403) 920-8130.
- Records the time of the report, source of information and details on location, size, type of spill as well as any other information available on the spill report form.
- Oversees the cleanup operation until it is satisfactorily completed.
- Together with the Spill Cleanup Supervisor, decides if additional equipment is required to contain and clean up spills.
- Notifies government agencies, CMF Site Manager, CMF Project Manager and Environmental Coordinator on spill details.
- Oversees completion and distribution of Spill Report. Ensures investigation identifies measures to prevent similar spills in future.
- Ensures Response Team is adequately trained in spill response.
- Organizes training courses for spill response teams.

#### **Spill Clean Up Supervisors**

- Supervise spill cleanup crew.
- Assist in initial and ongoing response efforts.
- With work crew, take initial action to seal off the source and contain spill.
- Continue actions until relieved or supplemented by other Supervisor.
- Decide with On-Scene Coordinator if mobilization of additional equipment from Spill Response Organization or Contractor is warranted.
- Assess whether burning is a viable clean up measure; consult with regulatory authorities at spill site.

#### **Spill Cleanup Crew (Emergency Response Team)**

- conduct cleanup of spills under direction of Spill Cleanup Supervisor(s).
- Deploy booms, sorbents and other equipment and materials as required.
- Take appropriate response measures.
- Continue cleanup as directed by Spill Cleanup Supervisor until relieved.

**Project Manager, Meliadine West Gold Project**

- Responsible for all communication with the media.
- Ensures that all press releases are accurate and in accordance with company policy.
- Makes financial decisions on major expenses during large spill response.
- Initiates Mutual Aid Agreements if proper response requires outside assistance.

**Environmental Coordinator**

- Provides cleanup advice to the On-Scene Coordinator and Spill Cleanup Supervisor.
- Assists the Project Manager in the preparation of press releases.
- Develops safe and effective spill management and prevention practices.
- Provides advice to the Spill Cleanup Supervisor of storage and disposal options.
- Updates and distributes Contingency Plan.
- Ensures that there is follow up reports prepared on the spill event, clean up and environmental impacts.

## **F: EXTERNAL RESOURCES - contractors and consultants**

### **CMF Fuel Haul Contractors**

- Ensure that their best effort is made to maintain spill equipment which shall be available and be applied to a spill incident on site when required.
- Initiates cleanup in the absence of CMF personnel, however caused.
- Reports all spills immediately to the CMF On-Scene Coordinator (OSC) or Camp Manager
- Responsible for the training of their personnel on spill response.
- Develops and maintains company specific contingency plans for the CMF Meliadine West Gold Project which conforms to this CMF Spill Contingency Plan and related policies.

### **Environmental Consultants**

- Provide advice to CMF on spill response strategies, counter measure technologies, impact assessments and post spill monitoring and site rehabilitation.

### **Neighbouring Operations**

- Supply spill response equipment, materials and manpower, as required, when requested to do so.

## **EXTERNAL RESOURCES - Kivalliq Inuit Association and Nunavut Water Board**

### **KIA**

The Meliadine West Gold exploration program is carried out on Inuit Owned Land administered and managed by the KIA who has issued land use permits to CMF for the exploration activities. Inspectors from KIA routinely inspect land use sites for compliance to terms and conditions of permits. While KIA receives data from spills reported to the NWT Spill Line, it is expected that all spills on Inuit Owned Land be reported directly to KIA. The same form as used for the Spill Line may be used for reporting to KIA.

### **Nunavut Water Board**

The Nunavut Water Board issues water licenses under the Nunavut Land Claims Agreement and the Nunavut Waters and Nunavut Surface Rights Tribunal Act. Conditions of the water license usually include the authorized limits of water use, sources of water use, effluent discharge limits, monitoring and reporting requirements. As well, licenses require that Spill Contingency Plans be submitted for approval. Enforcement of the provisions of the water license is carried out by Inspectors from the Water Resources Division (Department of Indian and Northern Affairs). Periodic inspections are conducted by water license inspectors.

## **EXTERNAL RESOURCES - GOVERNMENT**

### **Department of Indian and Northern Affairs (DIAND)**

The Northern Affairs program of DIAND administers the Territorial Lands Act and Regulations. Through this legislation land use permits are issued. One of the conditions of land use permits is the requirement to report all spills to a 24 hour government run report line (403-920-8130). Land Use

Permits may also address matters of environmental conservation and protection including waste disposal, sources of borrow materials, open pit mining, road alignments, land reclamation and closure requirements. Enforcement of the provisions of the land use permits is carried out by the Operations Division of DIAND through Resource Management Officers located at the District Offices.

Inspection of CMF project activities located on Crown Land by Resource Management Officers is conducted periodically.

#### **Environment Canada (EC)**

The Environmental Protection and Conservation Service of Environment Canada administers the Canadian Environmental Protection Act (CEPA) and Section 36 of the Fisheries Act. For the latter this specifies that unless authorized by regulation, any effluents discharged into fish bearing water must be non-toxic. EC is responsible for providing environmental advice to federal and territorial government agencies and for the preservation and enhancement of environmental quality.

#### **Department of Fisheries and Oceans (DFO)**

The Department of Fisheries and Oceans (DFO) administers the habitat protection provisions of the Fisheries Act. This includes provisions for prohibiting the blocking of fish passageways and the destruction of fish habitat. DFO applies a Habitat Management Policy whereby the objective is to achieve a no net loss of fish habitat. On occasion, DFO Inspectors visit spill sites to investigate possible impacts to fish habitat.

## **G: REFERENCES**

BHP Diamonds Inc. Transportation Spill Contingency Plan. January 1997.

Department of Transportation. Environmental Guidelines for the Construction, Maintenance and Closure of Winter Roads in the Northwest Territories. Prepared by Stanley Associates Engineering Ltd. 1993.

Northwest Territories Water Board. Guidelines for Contingency Planning. 1987.

WMC International Ltd., Emergency Management System Plan, August 2001.

## **ACKNOWLEDGMENTS**

CMF gratefully acknowledges the use of the WMC International Ltd's Emergency Management System Plan that was based fundamentally on BHP Diamonds Inc. Transportation Spill Contingency Plan.

## **APPENDIX A**

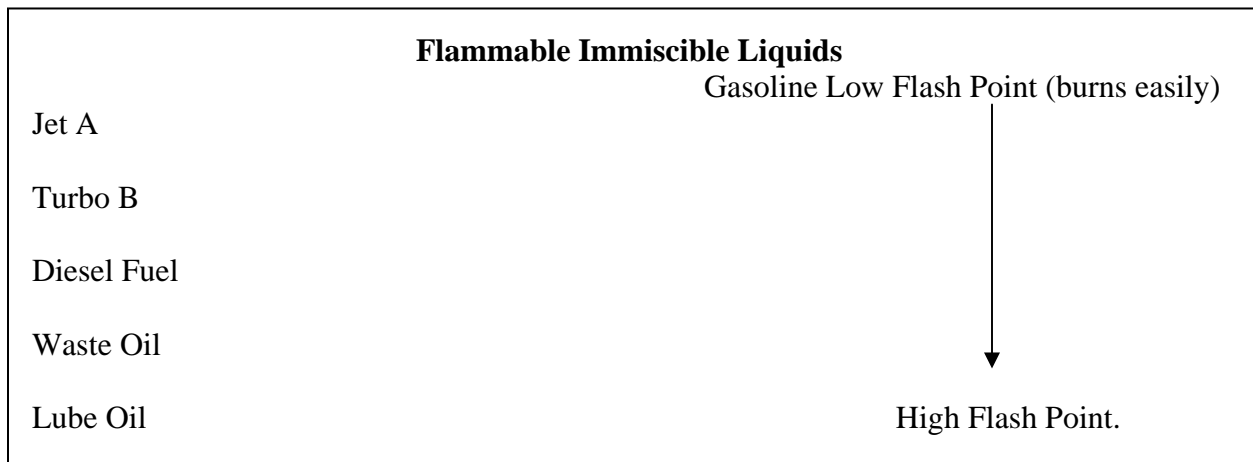
### **PRODUCT GUIDES**

The materials included in this Plan can generally be divided into two categories:

- flammable immiscible liquids
- flammable compressed gases

#### **1 Flammable Immiscible Liquids**

These substances are all hydrocarbon-based and will ignite under certain conditions. Gasoline and aviation fuel pose the greatest fire (and safety) hazard and usually cannot be recovered when spilled on water. The remaining materials generally do not pose a hazard at ambient temperatures. They are all insoluble, float unless mixed into the water column and can be recovered when safety allows.



# **DIESEL**

## **TYPICAL PHYSICAL AND CHEMICAL PROPERTIES**

APPEARANCE: Clear, yellow or red

ODOUR: Petroleum

SOLUBILITY: Insoluble

VAPOUR

DENSITY: Will sink to ground levels

FLASH POINT: 40EC (minimum)

POUR POINT: -50 to -6EC

VISCOSITY: Not viscous

SPECIFIC

GRAVITY: Floats on water (0.8 - 0.9)

## **SAFETY MEASURES**

### **WARNINGS**

- Vapors are heavier than air and form easily at high temperatures.
- Empty containers can contain explosive vapors.
- Toxic gases form upon combustion.
- Eye contact causes irritation.
- Material can accumulate static charges.
- Inhalation of vapors can cause irritation of the respiratory tract, headache, vomiting, and unconsciousness.

### **PERSONAL PROTECTION**

- Always wear impervious, chemical-resistant clothing, gloves, footwear, and goggles; nitrile, Viton and PVC are suitable materials (**DO NOT USE NATURAL RUBBER or NEOPRENE.**)
- Wear full-face organic vapor cartridge respirator where oxygen is adequate, otherwise wear positive pressure SCBA.

### **PRECAUTIONS**

- Monitor for explosive atmosphere.
- Avoid contact with strong oxidizers, such as nitric acid, sulphuric acid, chlorine, ozones, peroxides.
- Eliminate ignition sources.
- Restrict access and work upwind of spill.

### **RESPONSE TO FIRES**

#### **CONSIDER ACTION ONLY IF SAFETY PERMITS!**

- Wear SCBA in confined areas.
- Shut off fuel supply.
- Extinguish fire with CO<sub>2</sub>, dry chemical, alcohol foam or water fog.
- Use water to cool containers exposed to fire.

### **RESPONSE TO SPILLS**

#### **CONSIDER ACTION ONLY IF SAFETY PERMITS!**

#### **ON LAND**

- **ELIMINATE IGNITION SOURCES.**
- Do not flush into ditch/drainage systems.

- Block entry into waterways.
- Contain spill by diking with earth, snow or other barrier.
- Remove minor spills with peat moss and/or sorbent pads.
- Remove large spills with pumps or vacuum equipment.

#### **ON WATER**

- Use booms to contain and concentrate spill.
- Remove spill using sorbent, skimmer or vacuum truck.
- Protection booming can be considered for water intakes.

#### **STORAGE & TRANSFER**

- Store closed, labelled containers in cool, ventilated areas away from incompatible materials.
- Electrically ground containers and vehicles during transfer.

#### **DISPOSAL**

- Segregate waste types.
- Place contaminated materials into marked containers.
- Consult with environmental authorities during final disposal.

#### **FIRST AID**

##### **EYES**

- Flush eyes immediately with fresh, warm water (NOT HOT WATER) for 20 minutes while holding the eyelids open.
- Remove contact lenses, if exposed to vapors or liquid.
- Get prompt medical attention.

##### **SKIN**

- Remove and launder contaminated clothing.
- Wash skin thoroughly with soap and water.
- Get medical attention.
- Discard saturated leather articles.

##### **INHALATION**

- Move victim to fresh air.
- Perform artificial respiration if victim not breathing.
- Provide oxygen if victim is having difficulty breathing.
- Get prompt medical attention.

##### **INGESTION**

- DO NOT INDUCE VOMITING; if victim is conscious; give milk or water to drink. If vomiting begins, keep victim's head below hips to prevent aspiration.
- **Get prompt medical attention.**



# **HYDRAULIC OIL**

## **TYPICAL PHYSICAL AND CHEMICAL PROPERTIES**

APPEARANCE: Straw-yellow liquid

ODOUR: Petroleum

SOLUBILITY: Generally insoluble

VAPOUR

DENSITY: Few vapors emitted

FLASHPOINT: 215EC

POUR POINT -25EC

VISCOSITY: Medium (265cSt @ 15EC )

SPECIFIC

GRAVITY: Floats on water (0.9)

## **SAFETY MEASURES**

### **WARNINGS**

- Vapors are heavier than air but are unlikely to form.
- Toxic gas can form in fire and at high temperatures.
- CO, CO<sub>2</sub>, and dense smoke are produced upon combustion.
- Oil mist or vapor from hot oil can cause irritation of the eyes, nose, throat and lungs.

### **PERSONAL PROTECTION**

- Always wear impervious, chemical-resistant clothing, gloves, footwear, and goggles; PVC, Nitrile, and Viton are suitable materials (**DO NOT USE NATURAL RUBBER**).
- Use of organic vapor cartridge respirator is highly unlikely.

### **PRECAUTIONS**

- Avoid excessive heat, which can cause formation of vapors.
- Avoid contact with strong oxidizers, such as nitric acid, sulphuric acid, chlorine, ozones, peroxides.
- Eliminate ignition sources.
- Restrict access and work upwind of spill.

### **RESPONSE TO FIRES**

#### **CONSIDER ACTION ONLY IF SAFETY PERMITS!**

- Wear SCBA and eye protection when responding to fires.
- Shut off fuel supply.
- Extinguish fire with CO<sub>2</sub>, dry chemical, alcohol foam or water fog.  
NOTE: Water or foam may cause frothing.
- Use water to cool containers exposed to fire.

### **RESPONSE TO SPILLS**

#### **CONSIDER ACTION ONLY IF SAFETY PERMITS!**

#### **ON LAND**

- Prevent additional discharge of oil.
- Do not flush into ditch/drainage systems.
- Block entry into waterways.
- Contain spill by diking with earth, snow or other barrier.
- Remove minor spills with peat moss and/or sorbent pads.

- Remove large spills with pumps or vacuum equipment. Spill can also be mechanically removed if oil is too viscous to be pumped.

#### **ON WATER**

- Use booms to contain and concentrate spill.
- Remove spill using sorbent, skimmer or vacuum truck.
- Protection booming can be considered for water intakes/marinas.

#### **STORAGE & TRANSFER**

- Store closed, labelled containers in cool, ventilated areas away from incompatible materials.

#### **DISPOSAL**

- Segregate waste types.
- Place contaminated materials into marked containers.
- Consult with environmental authorities during final disposal.

#### **FIRST AID**

##### **EYES**

- Flush eyes immediately with fresh, warm water (NOT HOT WATER) for 20 minutes while holding the eyelids open.
- Remove contact lenses, if exposed to vapors or liquid.
- Get prompt medical attention.

##### **SKIN**

- Remove and launder contaminated clothing.
- Wash skin thoroughly with soap and water.
- Get medical attention.
- Discard saturated leather articles.

##### **INHALATION**

- Move victim to fresh air.
- Perform artificial respiration if victim not breathing.
- Provide oxygen if victim is having difficulty breathing.
- Get prompt medical attention.

##### **INGESTION**

- DO NOT INDUCE VOMITING; if victim is conscious; give milk or water to drink. If vomiting begins, keep victim's head below hips to prevent aspiration.
- Get prompt medical attention.

# **LUBE OIL**

## **TYPICAL PHYSICAL AND CHEMICAL PROPERTIES**

APPEARANCE: Amber liquid	FLASHPOINT: 190 to 220EC
ODOUR: Petroleum	POUR POINT: -35 to -400EC
SOLUBILITY: Generally insoluble	VISCOSITY: Medium (255cSt @15EC )
VAPOUR	SPECIFIC
DENSITY: Few vapors emitted	GRAVITY: Floats on water (0.9)

## **SAFETY MEASURES**

### **WARNINGS**

- Vapors are heavier than air but are unlikely to form.
- Toxic gas can form in fire and at high temperatures.
- CO, CO<sub>2</sub>, and dense smoke are produced upon combustion.
- Oil mist or vapor from hot oil can cause irritation of the eyes, nose, throat and lungs.

### **PERSONAL PROTECTION**

- Always wear impervious, chemical-resistant clothing, gloves, footwear, and goggles; nitrile, PVC and Viton are suitable materials. **(DO NOT USE NATURAL RUBBER.)**
- Use of organic vapor cartridge respirator is highly unlikely.

### **PRECAUTIONS**

- Avoid excessive heat, which can cause formation of vapors.
- Avoid contact with strong oxidizers, such as nitric acid, sulphuric acid, chlorine, ozones, peroxides.
- Eliminate ignition sources.
- Restrict access and work upwind of spill.

### **RESPONSE TO FIRES**

#### **CONSIDER ACTION ONLY IF SAFETY PERMITS!**

- Wear SCBA and eye protection when responding to lube oil fires.
- Shut off fuel supply.
- Extinguish fire with CO<sub>2</sub>, dry chemical, alcohol foam or water fog.  
NOTE: Water or foam may cause frothing.
- Use water to cool containers exposed to fire.

### **RESPONSE TO SPILLS**

#### **CONSIDER ACTION ONLY IF SAFETY PERMITS!**

#### **ON LAND**

- Prevent additional discharge of oil.
- Do not flush into ditch/drainage systems.
- Block entry into waterways.
- Contain spill by diking with earth, snow or other barrier.
- Remove minor spills with sorbent and/or peat moss.

- Remove large spills with pumps or vacuum equipment. Spill can also be mechanically removed if oil is too viscous to be pumped.

### **ON WATER**

- Use booms to contain and concentrate spill.
- Remove spill using sorbent, skimmer or vacuum truck.
- Protection booming can be considered for water intakes.

### **STORAGE & TRANSFER**

- Store closed, labelled containers in cool, ventilated areas away from incompatible materials.

### **DISPOSAL**

- Segregate waste types.
- Place contaminated materials into marked containers.
- Consult with environmental authorities during final disposal.

### **FIRST AID**

#### **EYES**

- Flush eyes immediately with fresh, warm water (NOT HOT WATER) for 20 minutes while holding the eyelids open.
- Remove contact lenses, if exposed to vapors or liquid.
- Get prompt medical attention.

#### **SKIN**

- Remove and launder contaminated clothing.
- Wash skin thoroughly with soap and water.
- Get medical attention.
- Discard saturated leather articles.

#### **INHALATION**

- Move victim to fresh air.
- Perform artificial respiration if victim not breathing.
- Provide oxygen if victim is having difficulty breathing.
- Get prompt medical attention.

#### **INGESTION**

- DO NOT INDUCE VOMITING; if victim is conscious; give milk or water to drink. If vomiting begins, keep victim's head below hips to prevent aspiration.
- Get prompt medical attention.

## **WASTE OIL**

### **TYPICAL PHYSICAL AND CHEMICAL PROPERTIES**

APPEARANCE: Black to brown liquid

ODOUR: Petroleum

SOLUBILITY: Generally insoluble

VAPOUR

DENSITY: Few vapors emitted

FLASHPOINT: 100 to 200EC

POUR POINT: -30 to -400EC

VISCOSITY: Medium (200 - 300 cSt)

SPECIFIC

GRAVITY: Floats on water (0.9)

### **SAFETY MEASURES**

#### **WARNINGS**

- Vapors are heavier than air but are unlikely to form.
- Toxic gas can form in fire and at high temperatures.
- CO, CO<sub>2</sub>, and dense smoke are produced upon combustion.

#### **PERSONAL PROTECTION**

- Always wear impervious, chemical-resistant clothing, gloves, footwear, and goggles; nitrile, PVC and Viton are suitable materials (**DO NOT USE NATURAL RUBBER.**)
- Use of organic vapor cartridge respirator is highly unlikely.

#### **PRECAUTIONS**

- Avoid excessive heat, which can cause formation of vapors.
- Avoid contact with strong oxidizers, such as nitric acid, sulphuric acid, chlorine, ozones, peroxides.
- Eliminate ignition sources.
- Restrict access and work upwind of spill.

#### **RESPONSE TO FIRES**

##### **CONSIDER ACTION ONLY IF SAFETY PERMITS!**

- Wear SCBA and eye protection when responding to lube oil fires.
- Shut off fuel supply.
- Extinguish fire with CO<sub>2</sub>, dry chemical, alcohol foam or water fog.

NOTE: Water or foam may cause frothing.

- Use water to cool containers exposed to fire.

#### **RESPONSE TO SPILLS**

##### **CONSIDER ACTION ONLY IF SAFETY PERMITS!**

##### **ON LAND**

- Prevent additional discharge of oil.
- Do not flush into ditch/drainage systems.
- Block entry into waterways.
- Contain spill by diking with earth, snow or other barrier.
- Remove minor spills with peat moss and/or sorbent pads.
- Remove large spills with pumps or vacuum equipment. Spill can also be mechanically removed if oil is too viscous to be pumped.

**ON WATER**

- Use booms to contain and concentrate spill.
- Remove spill using sorbent, skimmer or vacuum truck.
- Protection booming can be considered for water intakes.

**STORAGE & TRANSFER**

- Store closed, labelled containers in cool, ventilated areas away from incompatible materials.

**DISPOSAL**

- Segregate waste types.
- Place contaminated materials into marked containers.
- Consult with environmental authorities during final disposal.

**FIRST AID****EYES**

- Flush eyes immediately with fresh, warm water (NOT HOT WATER) for 20 minutes while holding the eyelids open.
- Remove contact lenses, if exposed to vapors or liquid.
- Get prompt medical attention.

**SKIN**

- Remove and launder contaminated clothing.
- Wash skin thoroughly with soap and water.
- Get medical attention.
- Discard saturated leather articles.

**INHALATION**

- Move victim to fresh air.
- Perform artificial respiration if victim not breathing.
- Provide oxygen if victim is having difficulty breathing.
- Get prompt medical attention.

**INGESTION**

- DO NOT INDUCE VOMITING; if victim is conscious; give milk or water to drink. If vomiting begins, keep victim's head below hips to prevent aspiration.
- Get prompt medical attention.

# **GASOLINE**

## **TYPICAL PHYSICAL AND CHEMICAL PROPERTIES**

APPEARANCE: Colorless liquid (can be dyed)

ODOUR: Gasoline/Petroleum

SOLUBILITY: Insoluble

VAPOUR

DENSITY: Will sink to ground levels

FLASH POINT: -50EC

FREEZING PT: -60EC

VISCOSITY: Not viscous (< 1 cSt)

SPECIFIC

GRAVITY: Floats on water (0.7 - 0.8)

## **SAFETY MEASURES**

### **WARNINGS**

- **Vapors form instantaneously, and are heavier than air.**
- Empty containers can contain explosive vapors.
- Vapors can travel to distant sources of ignition and flash back.
- Eye contact causes irritation.
- Material can accumulate static charges.
- Inhalation of vapors can cause irritation of the respiratory tract, headache, vomiting, and unconsciousness.

### **PERSONAL PROTECTION**

- Always wear impervious, chemical-resistant clothing, gloves, footwear, and goggles; nitrile, Viton and PVC are suitable materials (**DO NOT USE NATURAL RUBBER or NEOPRENE.**)
- Wear full-face organic vapor cartridge respirator where oxygen is adequate; otherwise wear positive pressure SCBA, if circumstances warrant.

### **PRECAUTIONS**

- Monitor for explosive atmosphere.
- Avoid contact with strong oxidizers, such as nitric acid, sulphuric acid, chlorine, ozones, peroxides.
- Eliminate ignition sources.
- Restrict access and work upwind of spill.

### **RESPONSE TO FIRES**

#### **CONSIDER ACTION ONLY IF SAFETY PERMITS!**

- Wear SCBA in confined areas.
- Shut off fuel supply.
- Extinguish fire with CO<sub>2</sub>, dry chemical, alcohol foam or water fog.
- Use water to cool containers exposed to fire.

### **RESPONSE TO SPILLS**

#### **CONSIDER ACTION ONLY IF SAFETY PERMITS!**

##### **ON LAND**

- **ELIMINATE IGNITION SOURCES.**
- Do not flush into ditch/drainage systems.
- Block entry into waterways.

- Contain spill by diking with earth, snow or other barrier.
- Remove minor spills with peat moss and/or sorbent pads.
- Cover pools with foam to prevent vapor evolution if gasoline presents a fire hazard; otherwise allow vapors to dissipate.

#### **ON WATER**

- **ELIMINATE IGNITION SOURCES.**
- **DO NOT ATTEMPT TO CONTAIN OR REMOVE SPILLS.**
- Protection booming can be considered for water intakes.

#### **STORAGE & TRANSFER**

- Store closed, labelled containers in cool, ventilated areas away from incompatible materials.
- Electrically ground containers & vehicles during transfer.

#### **DISPOSAL**

- Place contaminated materials into segregated marked containers.
- Consult with environmental authorities during final disposal.

#### **FIRST AID**

##### **EYES**

- Flush eyes immediately with fresh, warm water (NOT HOT WATER) for 20 minutes while holding the eyelids open.
- Remove contact lenses, if exposed to vapors or liquid.
- Get prompt medical attention.

##### **SKIN**

- Remove and launder contaminated clothing.
- Wash skin thoroughly with soap and water.
- Get medical attention.
- Discard saturated leather articles.

##### **INHALATION**

- Move victim to fresh air.
- Perform artificial respiration if victim not breathing.
- Provide oxygen if victim is having difficulty breathing.
- Get prompt medical attention.

##### **INGESTION**

- **DO NOT INDUCE VOMITING;** if victim is conscious; give milk or water to drink. If vomiting begins, keep victim's head below hips to prevent aspiration.
- Get prompt medical attention.



# **JET A**

## **TYPICAL PHYSICAL AND CHEMICAL PROPERTIES**

APPEARANCE: White or pale yellow liquid  
ODOUR: Gasoline/Petroleum  
SOLUBILITY: Negligible  
VAPOUR  
DENSITY: Will sink to ground levels

FLASH POINT: -20 to - 250EC  
FREEZING PT: -50EC  
VISCOSITY: Not viscous (<7 cSt)  
SPECIFIC  
GRAVITY: Floats on water (0.75 0.8)

## **SAFETY MEASURES**

### **WARNINGS**

- Vapors instantaneously form, and are heavier than air.
- Low-lying areas can trap explosive vapors.
- Vapors can travel to distant sources of ignition and flash back.
- Eye contact causes irritation.
- Material can accumulate static charges.
- Inhalation of vapors can cause irritation of the respiratory tract, headache, vomiting, and unconsciousness.

### **PERSONAL PROTECTION**

- Always wear impervious, chemical-resistant clothing, gloves, footwear, and goggles; nitrile and Viton are suitable protective materials (**DO NOT USE NATURAL RUBBER, NEOPRENE, OR PVC**).
- Wear full-face organic vapor cartridge respirator where oxygen is adequate; otherwise wear SCBA, if circumstances warrant.

### **PRECAUTIONS**

- Monitor for explosive atmosphere.
- Avoid contact with strong oxidizers, such as nitric acid, sulphuric acid, chlorine, ozone, peroxides.
- Eliminate ignition sources.
- Restrict access and work upwind of spill.

### **RESPONSE TO FIRES**

#### **CONSIDER ACTION ONLY IF SAFETY PERMITS!**

- Wear SCBA in confined areas.
- Shut off fuel supply.
- Extinguish fire with CO<sub>2</sub>, dry chemical, AFFF foam or water fog.
- Use water to cool containers exposed to fire.

### **RESPONSE TO SPILLS**

#### **CONSIDER ACTION ONLY IF SAFETY PERMITS!**

##### **ON LAND**

- **ELIMINATE IGNITION SOURCES.**

- Block entry into waterways; do not flush into ditch/drain systems.
- Contain spill by diking with earth, snow or other barrier.
- Remove minor spills with sorbent or explosion-proof pump.
- Cover pools with foam to prevent vapor evolution if avgas presents a fire hazard; otherwise allow vapors to dissipate.

## **ON WATER**

- **ELIMINATE IGNITION SOURCES.**
- **Contain or remove spills ONLY AFTER VAPOURS DISSIPATE.**
- Protection booming can be considered for water intakes.
- Recover slicks using skimmer and sorbent, if volumes warrant.

## **STORAGE & TRANSFER**

- Store closed, labelled containers in cool, ventilated areas away from incompatible materials.
- Electrically ground containers & vehicles during transfer.

## **DISPOSAL**

- Place contaminated materials in segregated, marked containers.
- Consult with environmental authorities during final disposal.

## **FIRST AID**

### **EYES**

- Flush eyes immediately with fresh, warm water (NOT HOT WATER) for 20 minutes while holding the eyelids open.
- Remove contact lenses, if exposed to vapors or liquid.
- Get prompt medical attention.

### **SKIN**

- Remove and launder contaminated clothing.
- Wash skin thoroughly with soap and water.
- Get medical attention.
- Discard saturated leather articles.

### **INHALATION**

- Move victim to fresh air.
- Perform artificial respiration if victim not breathing.
- Provide oxygen if victim is having difficulty breathing.
- Get prompt medical attention.

### **INGESTION**

- **DO NOT INDUCE VOMITING;** if victim is conscious; give milk or water to drink. If vomiting begins, keep victim's head below hips to prevent aspiration.
- Get prompt medical attention.

# **PROPANE**

## **TYPICAL PHYSICAL AND CHEMICAL PROPERTIES**

APPEARANCE: Colorless gas

ODOUR: Natural gas odor

SOLUBILITY: Insoluble

VAPOUR

DENSITY: Will sink to ground levels

FLASH POINT: -104EC

FREEZING PT: -190 EC

VISCOSITY: n/a

SPECIFIC

GRAVITY: Liquid floats on water

## **SAFETY MEASURES**

### **WARNINGS**

- Vapors form instantaneously, and are heavier than air.
- Vapors can travel to distant sources of ignition and flash back.
- Eye contact causes irritation.
- Material can accumulate static charges.
- Inhalation of vapors can cause irritation of the respiratory tract, headache, vomiting, and unconsciousness.

### **PERSONAL PROTECTION**

- Always wear impervious, chemical-resistant clothing, gloves, footwear, and goggles; nitrile and Viton are suitable protective materials (**DO NOT USE NATURAL RUBBER, NEOPRENE, OR PVC**).
- Avoid frostbite burn to skin and eyes from contact with propane.
- Wear full-face organic vapor cartridge respirator where oxygen is adequate, otherwise wear positive pressure SCBA.

### **PRECAUTIONS**

- Monitor for explosive atmosphere.
- Avoid contact with strong oxidizers, such as nitric acid, sulphuric acid, chlorine, ozones, peroxides.
- Eliminate ignition sources.
- Restrict access and work upwind of spill.

### **RESPONSE TO FIRES**

#### **CONSIDER ACTION ONLY IF SAFETY PERMITS!**

- Wear SCBA in confined areas.
- Shut off fuel supply.
- Extinguish fire with CO<sub>2</sub>, dry chemical, alcohol foam or water fog.
- Use water to cool containers exposed to fire.

## **RESPONSE TO GAS RELEASES**

### **CONSIDER ACTION ONLY IF SAFETY PERMITS!**

#### **ON LAND**

- **ELIMINATE IGNITION SOURCES.**
- **DO NOT ATTEMPT TO CONTAIN OR REMOVE SPILLS**

#### **ON WATER**

- **ELIMINATE IGNITION SOURCES.**
- **DO NOT ATTEMPT TO CONTAIN OR REMOVE SPILLS.**

## **STORAGE & TRANSFER**

- It is not possible to collect released material.

## **DISPOSAL**

- Consult with environmental authorities if the disposal of any contaminated materials is required.

## **FIRST AID**

### **EYES**

- Flush eyes immediately with fresh, warm water (NOT HOT WATER) for 20 minutes while holding the eyelids open.
- Remove contact lenses, if exposed to vapors or liquid.
- Get prompt medical attention.

### **SKIN**

- Remove and launder contaminated clothing.
- Wash skin thoroughly with soap and water.
- Get medical attention.
- Discard saturated leather articles.

### **INHALATION**

- Move victim to fresh air.
- Perform artificial respiration if victim not breathing.
- Provide oxygen if victim is having difficulty breathing.
- Get prompt medical attention.

### **INGESTION**

- **DO NOT INDUCE VOMITING;** if victim is conscious; give milk or water to drink. If vomiting begins, keep victim's head below hips to prevent aspiration.
- Get prompt medical attention

## **ACETYLENE**

### **TYPICAL PHYSICAL AND CHEMICAL PROPERTIES**

APPEARANCE: Colorless gas

ODOUR: Garlic - like

SOLUBILITY: Slightly soluble

VAPOUR

DENSITY: Will sink to ground levels

FLASH POINT: -18EC

FREEZING PT: -82EC

VISCOSITY n/a

SPECIFIC

GRAVITY: (0.6) Liquid floats on water

### **SAFETY MEASURES**

#### **WARNINGS**

- Vapors form instantaneously, and are heavier than air.
- Empty containers can contain explosive vapors.
- Vapors can travel to distant sources of ignition and flash back.
- Eye contact causes irritation.
- Material can accumulate static charges.
- Inhalation of vapors can cause irritation of the respiratory tract, headache, vomiting, and unconsciousness.

#### **PERSONAL PROTECTION**

- Always wear impervious, chemical-resistant clothing, gloves, footwear, and goggles; nitrile and Viton are suitable protective materials (**DO NOT USE NATURAL RUBBER, NEOPRENE, OR PVC**).
- Wear full-face organic vapor cartridge respirator where oxygen is adequate, otherwise wear positive pressure SCBA.

#### **PRECAUTIONS**

- Monitor for explosive atmosphere.
- Avoid contact with strong oxidizers, such as nitric acid, sulphuric acid, chlorine, ozones, peroxides.
- Eliminate ignition sources.
- Restrict access and work upwind of spill.

#### **RESPONSE TO FIRES**

##### **CONSIDER ACTION ONLY IF SAFETY PERMITS!**

- Wear SCBA in confined areas.
- Shut off fuel supply.
- Extinguish fire with CO<sub>2</sub>, dry chemical, alcohol foam or water fog.
- Use water to cool containers exposed to fire.

## **RESPONSE TO GAS RELEASES**

### **CONSIDER ACTION ONLY IF SAFETY PERMITS!**

#### **ON LAND**

- **ELIMINATE IGNITION SOURCES.**
- **DO NOT ATTEMPT TO CONTAIN OR REMOVE RELEASES**

#### **ON WATER**

- **ELIMINATE IGNITION SOURCES.**
- **DO NOT ATTEMPT TO CONTAIN OR REMOVE RELEASES**

## **STORAGE & TRANSFER**

- Store closed, labelled containers in cool, ventilated areas away from incompatible materials
- Electrically ground containers & vehicles during transfer.

## **DISPOSAL**

- Consult with environmental authorities if the disposal of any contaminated materials is required.

## **FIRST AID**

### **EYES**

- Flush eyes immediately with fresh, warm water (NOT HOT WATER) for 20 minutes while holding the eyelids open.
- Remove contact lenses, if exposed to vapors or liquid.
- Get prompt medical attention.

### **SKIN**

- Remove and launder contaminated clothing.
- Wash skin thoroughly with soap and water.
- Get medical attention.
- Discard saturated leather articles.

### **INHALATION**

- Move victim to fresh air.
- Perform artificial respiration if victim not breathing.
- Provide oxygen if victim is having difficulty breathing.
- Get prompt medical attention.

### **INGESTION**

- **DO NOT INDUCE VOMITING;** if victim is conscious; give milk or water to drink. If vomiting begins, keep victim's head below hips to prevent aspiration.
- Get prompt medical attention.

## **APPENDIX B**

### **RESPONSE EQUIPMENT INVENTORY**

During the exploration phase of the project, spills occurring along the transportation route will be remedied by the appropriate personnel depending on the party responsible for the spill, the location of the spill, and the extend of the environmental threat. Larger spills will involve the coordination of CMF personnel (including the Emergency Response Team), contractors, and CMF Mutual Aid Partners. For the purposes of listing response equipment, the equipment will be listed by contractor and site.

#### **Mobile Equipment**

From **M and T Enterprises (867 645 2778)**

Equipment *located in Rankin Inlet that can be used for spill countermeasures includes:*

- 1 740 Champion grader
- 1 BW 75 compactor
- 1 Cat 950 loader
- 1 Cat 966 loader
- 1 Cat D5 dozer
- 1 Cat D6D dozer
- 9 tandem dump trucks
- 1 trash pump
- 1 backhoe
- 1 tractor and end dump
- 1 Cat 966 loader
- 1 Cat D3 dozer
- 1 Cat D6E dozer
- 1 Cat D8K dozer
- 1 5000 gal. skid mounted storage tank

From **Nunavut Power Corporation (645 5300)**

Spill equipment available:

- fuel sorbent material
- pumps and hoses
- night operating equipment (portable generator light stand and cords)
- winter clean up equipment (chain saw)
- hand tools (shovels, rakes, wrenches)
- safety equipment

From **Municipality of Rankin Inlet (645 2525)** contact **Fire Department (645 2895)**

Heavy Equipment available:

- portable lighting
- dump truck
- bull dozer
- snow plow
- fire truck.
- front end loader
- backhoe
- grader
- vacuum truck

#### **Mutual Aid Partners**

In the event of a major spill requiring additional resources, equipment and manpower will be made available through mutual aid agreements with the Canadian Coast Guard Emergency Response Officer (1 867 874 5559), the Hamlet of Rankin Inlet (1 867 645 2525) and the Nunavut Power Corporation (1 867 645 5300).

### **Canadian Coast Guard (CCG) - Rankin Inlet Inventory**

Material from the CCG inventory at Rankin INLET is available on a cost recovery basis and will be made available on request to the Nunavut EMO representative who will be billed by CCG for material consumed and who will then recover costs from CMF accordingly.

1500' X 24" oil containment boom

6 boom towing devices

6 5/8" tow lines X 100' c/w snap hooks

6 anchoring devices

6 Danforth anchors (22 lbs)

6 3/8" X 75' trip lines

6 trip line marker buoys type mb40

8 bales disposable boom (8" X 10' X 4 lengths per bale)

9 bales sorbent pads (18" X 18" X 3/8" X 100 pads)

10 sorbent rolls (36" X 150' X 3/8")

5 boxes of oil snare

2 1000 gal. portatanks

1 Spate pump

2 lengths 3" oil resistant suction hose - 50' each.

2 lengths oil resistant discharge hose - 50' each.

1 TDS-118 light medium oil skimmer c/w diesel power pack

1 spare parts kit for TDS-118 skimmer

1 4Kva diesel generator

1 16' aluminum boat

1 25 hp outboard motor

2 3000 psi portable high pressure washer

2 sets portable lights (each set has 3 X 500 watt halogen lamps, spare bulbs, 100" ext. cord and carrying case)

2 coils 1/4" polypropylene rope (1200')

2 coils 1/2" polypropylene rope (600')

2 coils 5/8" polypropylene rope (600')

72 pair disposable coveralls

120 pair work gloves

12 hard hat liners

40 dust / mist disposable masks

40 pairs assorted rain gear

20 pair safety glasses

20 safety vests

20 pair sunglasses

2 20' steel ISO containers

1 tool box



## **APPENDIX C**

**NUNAVUT SPILL REPORT FORMS**  
**(next page)**

**1 867 920 8130 24 Hr Report Line**

## **APPENDIX D**

### **FUEL STORAGE MONITORING PLAN**

The fuel storage monitoring plan will consist of the following daily and weekly inspections conducted by CMF personnel that have been trained in the use of fuel pumping equipment and fuel spill response.

The following inspections will be conducted and recorded on a weekly basis:

1. All tanks, lines, pumps, hoses, valves and fittings will be inspected for leaks or damage.
2. Ensure proper fuel only is dispensed into the correct tanks and barrels for use in the camp and associated exploration work.
3. Ensure that the "No Smoking" signs posted in the area of the fuel tanks are always clearly visible.
4. Ensure that all personnel on site abide by the "No Smoking" rule within the distances outlined in the regulations for fuel tanks.
5. Ensure all spill response equipment and PPE (Personal Protection Equipment) is clearly visible and easily accessed.
6. Fuel levels in all primary tanks checked and compared against the fuel dispensed from each primary tank for each week.
7. Outer tanks checked for fuel leakage from the primary tank.
8. Spill response equipment checked.
9. PPE checked.

## **Appendix E**

### **Basic Contents of Fuel Spill Response Kit**

1. Absorbent pads or sheets, socks, and granular material
2. Disposable protective gloves
3. Disposable protective coveralls.
4. Sorbent containment and disposal bags\

## **APPENDIX F: OPERATING PROCEDURE FOR BULK FUEL OIL PUMPING STATIONS (DIESEL)**

This section applies to the operation of the P-50 fuel oil tanks, piping and dispensers. One of the Operator's primary objectives is the delivery of clean, water free P-50 fuel oil. Dirty or contaminated P-50 Fuel Oil can lead to failure in vehicle engines. The operator must ensure that the P-50 Fuel Oil delivered to consumers is free from dirt and contamination.

Personnel must always remember that they are dealing with extremely flammable products. The need to follow safety guidelines and proper operating procedures cannot be repeated often enough.

Unsafe conditions and procedures must be reported and corrected immediately. .

### **Safety Guideline**

The following safety guidelines must be followed at all times and by all people around the Bulk Fuel Storage Facility (includes Fueling Station and Generator Shed):

- .1 The Bulk Fuel Storage Facility must be kept clean at all times. Leaks must be reported and corrected immediately.
- .2 Smoking is not permitted in or around the Bulk Fuel Storage Facility. Lighters, open flames, photoflashes, non-explosion proof flashlights and electrical appliances or tools are not permitted in the Bulk Fuel Storage Facility compound. (i.e. either within the tankage area or adjacent to or within the Fueling Station and Generator Shed).
- .3 All vehicle motors must be turned off before they are fuelled. This applies to all trucks, mobile heavy equipment, snowmobiles and all terrain vehicles.. This also applies to the Diesel Fuel Oil delivery vehicles which are being loaded/unloaded.
- .4 Fuel shall not be poured into open top containers. Fuel shall only be dispensed into CSA approved fuel containers .
- .5 Fire extinguishers must be located close to the fuel dispenser at all times. Operators must be familiar with the location and operation of the fire extinguisher.

### **System Start-up – General To All Systems**

- . 1 **Turn on Fueling Station lights.**  
Start up portable fueling generator in the Generator Shed to turn on power to Fueling Station lights (Does not apply to Camp Fueling Station). Clear snow, as required, from in front of the Generator Shed.
- .2 **Clear snow**  
Clear snow as required along the access road to the Fueling Station, which houses Bulk Tank Fuel Hose Reel, Dispenser Reel and Pump and any accumulated drifts on the on and off ramps. Clear snow, as required, from in front of the Fueling Station, including the rear access panel for the Bulk Tank Fuel Hose on the Fueling Station.

.3 **Perform an inspection**

Perform an inspection at initial startup, checking for safety and accessibility of the access road and ramps and any signs of strains to piping, loose connections, and damage at the Fueling Station and Generator Shed. Ensure that the Diesel Fuel nozzle at the end of the Diesel Fuel Dispensing hose in the Fueling Station is in the closed position.

.4 **Connect Hoses**

At the rear of Fueling Station, unreel Bulk Tank Fuel Hose and connect the dry disconnect coupler at the end of the fuel hose to the adapter (coupler) marked 'Empty' on the bulk tank. When secured, rotate the lever on the dry disconnect coupler to the 'On' position. Check for leaks and resecure as required.

## **P-50 Fuel Oil Dispensing**

.1 Perform the **system startup tasks**.

.2 The vehicle to be filled shall be aligned in front of the Fueling Station between the **"One Vehicle Only"** signs, the motor **turned off** and the shift lever placed in "Park" position. The portable container to be filled shall rest on a firm level surface.

.3 Ensure that there are **no vehicles within a six (6) metre radius** of the fill pipe of the vehicle being filled shall have the motor **turned off**.

.4 Set Diesel **Fuel meter to zero (0)**.

.5 **Turn Diesel Fuel pump on** by depressing the **green 'ON'** button on the power switch mounted on the side of the Fueling Station. **Check for leaks**, and if observed, immediately shut off the pump by depressing the **red 'OFF'** button on the power switch and locate / fix leak before turning the pump back on.

.6 **Unreel and secure the grounding wire** near the Diesel Fuel dispensing hose. Secure the grounding wire to vehicle or tank using the alligator clip. **Unreel the Diesel Fuel dispensing hose**. Remove the cap on fill opening of the tank to be filled. **Ensure that nozzle is clean**, then place Diesel Fuel nozzle in fill opening of tank.

.7 Squeeze handle of Diesel Fuel nozzle to allow fuel to enter the tank. **NEVER wedge open the lever of the discharge nozzle; this is illegal.** Prepare to close off the nozzle as the tank fills up. Do not overfill; always leave some free space in container or tank to permit expansion. (For example, if filling an empty 205L diesel-oil drum, do not fill beyond 200L).

.8 Shut off and remove the nozzle when the tank is full, ensuring that drippage from the nozzle is minimized at all times. Reinstall cap on the tank fill opening. Reel the hose and nozzle back onto the hose reel and place the clean nozzle in the 5gal pail.

.9 Reel the grounding wire back onto the wire reel.

.10 Read and record meter reading on the fuel log sheet located in the Fueling Station..

- .11 Perform shut down tasks.

### **System Shut Down – General To All Systems**

- .1 **Close the current supply tank valve at the Bulk Tank** by rotating the lever on the dry disconnect coupler to the 'Off' position. (If camp is being shut down, disconnect the hose from the Bulk Tank and reel the hose back onto the hose reel and resecure rear access panel.)
- .2 **Shut off Diesel Fuel pump** by depressing the red 'OFF' / 'Reset' button on the power switch mounted on the side of the Fueling Station. Ensure Fueling Station door is closed and properly secured.
- .3 **Shut off the portable generator** in the Generator Shed. Ensure Generator shed door is closed and properly secured. (Does not apply to Camp Fueling Station).

## **Appendix G WINTER ROAD RESUPPLY EQUIPMENT AND CONDITIONS**

**Re: KIA File KVRW07F02, NIRB File 07AN063 – Winter Road Decision**

**Comaplex continues to review the following conditions and will submit a revised plan by October 26, 2007 if necessary.**

- 7 The Proponent must **ensure that secondary containment measures are used when transferring fuel** and any hazardous materials from vehicles to storage facilities.
- 8 The Proponent shall ensure that the transportation contractor for the winter road (Nuna / M&T Services Ltd.) has **an appropriate spill kit to address a spill of fuel from the largest-sized Enviro tank (12,000L).**
- 9 The Proponent shall ensure that the transportation contractor for the winter road (Nuna / M&T Services Ltd.) has an **appropriate spill contingency plan** to address the possibility of any spills along the winter road.

**Re: Government of Nunavut Comments NIRB File #07AN063 (letter dated Aug. 23, 2007)**

- Speed on winter roads should not exceed: 30 km/hr for fully loaded vehicles; 50 km/hr for empty vehicles
- Trucks should carry at least 10 square meters of polyethylene material (for lining a trench or depression), a spark-proof shovel and oil absorbent blankets or squares.
- Trucks should carry reliable radio and /or satellite phone communications
- Trucks should carry sufficient response equipment for the safe removal of fuel from an overturned tanker (such as hatch cone covers, hoses etc).
- In general, proponents should be fully prepared to deal with spills resulting from vehicle accidents along the road, in a timely and efficient manner.