#### DIESEL - P50 - SPILL RESPONSE ACTIONS

#### CONSIDER ACTION ONLY IF SAFETY PERMITS!

Refer to Product Guide below for: Physical/Chemical Properties Response to Fires First Aid

- 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.

25

#### **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.

#### DIESEL P50

#### TYPICAL PHYSICAL AND CHEMICAL PROPERTIES

APPEARANCE: White or Pale Yellow liquid; may FLASH POINT: 40° C

be dyed.

ODOUR: Petroleum FREEZING PT: -50° C

SOLUBILITY: Negligible VISCOSITY: Not viscous (1.8 cSt)

VAPOUR SPECIFIC

DENSITY: Will sink to ground levels GRAVITY: Floats on water (0.85)

#### **SAFETY MEASURES**

#### **WARNINGS**

- In warm temperatures, vapours form instantaneously, and are heavier than air.
- Eye contact causes irritation.
- inhalation of vapours 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 vapour 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.

#### A-2. Flammable Gases

These substances are all hydrocarbon-based and will easily ignite under virtually any conditions. This ease of ignition renders these substances extremely dangerous to deal with, and extreme caution is required when dealing with these substances.

#### **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 below for: Physical/Chemical Properties Response to Fires First Aid

- Vapours cannot be contained when released.
- Water spray can be used to knock down vapours if there is NO chance of ignition.
- Small fires can be extinguished with dry chemical or CO.
- 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**

#### TYPICAL PHYSICAL AND CHEMICAL PROPERTIES

APPEARANCE: Colourless Gas FLASH POINT: -18° C ODOUR: Garlic - like FREEZING PT: -82° C

SOLUBILITY: Slightly soluble VISCOSITY: n/a

VAPOUR SPECIFIC

DENSITY: Will sink to ground levels GRAVITY: (0.6) Liquid floats on water

#### **SAFETY MEASURES**

#### WARNINGS

- Vapours form instantaneously, and are heavier than air.
- Empty containers can contain explosive vapours.
- Vapours can travel to distant sources of ignition and flash back.
- Eye contact causes irritation.
- · Material can accumulate static charges.
- inhalation of vapours 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 vapour 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

#### 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 below for:
Physical/Chemical Properties
Response to Fires
First Aid

- Vapours cannot be contained when released.
- Water spray can be used to knock down vapours if there is NO chance of ignition.
- Small fires can be extinguished with dry chemical or CO.
- 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.

#### PROPANE

## TYPICAL PHYSICAL AND CHEMICAL PROPERTIES

APPEARANCE: Colourless Gas FLASH POINT: -104° C
ODOUR: Natural Gas odour FREEZING PT: -190° C

SOLUBILITY: Insoluble VISCOSITY: n/a

VAPOUR SPECIFIC

DENSITY: Will sink to ground levels GRAVITY: Liquid floats on water

#### SAFETY MEASURES

#### WARNINGS

- Vapours form instantaneously, and are heavier than air.
- Vapours can travel to distant sources of ignition and flash back.
- Eye contact causes irritation.
- Material can accumulate static charges.
- inhalation of vapours 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 vapour 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.

#### **WASTE OIL**

#### TYPICAL PHYSICAL AND CHEMICAL PROPERTIES

APPEARANCE: Black to brown liquid FLASH POINT: 100 to 200° C
ODOUR: Petroleum FREEZING PT: -30 to -400° C
SOLUBILITY: Generally insoluble VISCOSITY: Medium (200-300cSt)

VAPOUR

SPECIFIC

DENSITY: Few vapours emitted GRAVITY: Floats on water (0.9)

#### SAFETY MEASURES

#### **WARNINGS**

- Vapours 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 vapour from hot oil can cause irritation of the eyes and respiratory tract.

#### 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).
- Use of organic vapour cartridge respirator is highly unlikely.

#### **PRECAUTIONS**

- Avoid excessive heat, which can cause formation of vapours.
- 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 waste 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.

# IV. SPILL RESPONSE CONTACTS

Cumberland Resources Ltd., Meadowbank Project

TITLE	NAME	OFFICE	FAX
Corporate Office Vancouver			
President	Kerry Curtis	(604) 608-2557	(604) 608-2559
On-Scene Coordinators			
Camp Manager	Jeff Kellner	(604) 608-2557	(604) 608-2559
Project Manager	Gord Davidson	(604) 608-2557	(604) 608-2559
Senior Project Geologist	Roger March	(604) 608-2557	(604) 608-2559
Contractors			
Fuel Transportation Manager	Peter Tapatai	(867) 793-2703	(867) 793-2988

## V. LOCAL TRANSPORTATION

Air Lines - Scheduled

Calm Air (867) 793-2873

Skyward Aviation (867) 793-2703

Helicopters

Custom Helicopters (Rankin Inlet)

Staff House (867) 645-3885 Hanger (867) 645-3939

Overland Transportation - Delta Foremost

Peter's Expediting (867) 793-2703

# VI. EQUIPMENT SUPPLIERS

Frontier Mining - Yellowknife (867) 920-7617 spill kits & various absorbents

Acklands - Yellowknife (867) 873-4100 spill kits & various absorbents

# VII. INTERNAL RESOURCES - CUMBERLAND RESOURCES LTD.

## Senior Management - President, Senior Vice President

- Responsible for all communication with the media
- Ensures that all press releases are accurate and in accordance with company policy
- Coordinates and exercises overall direction to Spill Response Team in the case of a major spill

## Project Manager, Senior Project Geologist

- Project Manager, or in his or her absence, the Senior Project Geologist is responsible for the in-field operation of the Spill Response Team.
- Assists senior management in the preparation of news releases
- Updates and distributes Contingency Plan
- Ensures that there are follow up reports prepared on the spill event, clean-up and environmental impacts

#### Camp Manager

- Develops safe and effective spill management and prevention practices
- Responsible for management and regular inspection of fuel storage facilities at Meadowbank camp

#### **Environmental Consultant**

Provides advisory services to the Spill Response Team as well as management

# Legal Counsel

- · Advises senior management and the project manager as requested on issues related to:
  - Legislative authority of various government agencies
  - Questions of due diligence
  - · Costs/fines and liabilities, regulations including penalties associated with regulations
  - · Consults with the corporate insurance coordinator and advises senior management on matters related to insurance

#### **Board of Directors**

 Establishes corporate environmental policy based on the recommendations of senior management

#### VIII. 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 (867-920-8130). 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 Cumberland 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. Environment Canada officials have in the past laid charges in the NWT under the Fisheries Act for spills of oil and other hazardous material.

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 operates under a Habitat Management Policy whereby the objective is to achieve a net gain of fish habitat within the NWT. On occasion DFO Inspectors visit spill sites to investigate possible impacts to fish habitat.

# IX. REFERENCES

WMC International Limited Transportation Spill Contingency Plan - Meliadine West Project. August, 1998.

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.

#### **ACKNOWLEDGMENTS**

Cumberland Resources Ltd. gratefully acknowledges the use of the Transportation Spill Contingency Plans developed initially by BHP Diamonds Inc. and subsequently by WMC International which was used as the model and template in developing this plan for the Meadowbank Gold Project. The generosity of WMC International in providing their document is greatly appreciated.

#### APPENDIX A - INVENTORY OF SPILL RESPONSE KITS

Cumberland Resources uses "Sphag Sorb" for spill response kits. This product is composed of dried and filtered spaghnum moss which has the ability to absorb oils without absorbing water. Once used, Sphag Sorb can be safely disposed of in conventional land fill facilities since all oils will continue to be held within the capillaries of the peat moss until they naturally decompose. In addition, this product will not leach contaminants in land fill sites. For disposal of material from smaller spills, Sphag Sorb is ideal for incineration.

Spill Response Kits are located near the fuel storage facilities at both fuel storage sites at the Meadowbank Project. These response kits consist of the following equipment:

- 1 Case containing 30 Sphag Sorb pads (SS-PAD). Each pad can absorb approximately 5 - 7 litres of contaminant. These pads are to be used for cleaning up minor spills.
- 1 ECP Emergency Spill Response Kit containing the following:
  - 1 72"X36"X33" safety yellow polyethylene containment kit with decals
  - 1 40 cu. ft. activated Sphag Sorb
  - 1 22 SS 14 Sphag Sorb pillow
  - 1 4 litres Plug It emergency seal
  - 2 pairs rubber gloves
  - 1 pair chemical goggles
  - 5 disposal bags
  - 1 waterproof flashlight
- 2 shovels
- 2 rakes
- 2 waterproof flashlights

Appendix B - Risk Assessment, Preventative Measures, and Contingency Plans

Potential Problem	Preventative Measure	Contingency Plan
Fuel Spill from Fuel Vaults in Camp	<ul> <li>Fuel vaults are double-walled.</li> <li>Risk of leakage from vault outlet reduced by not using gravity feed. Portable electric pumps are required to fill from fuel vaults.</li> <li>Fuel vaults are to be inspected weekly to ensure there are no leaks in inner tank.</li> </ul>	For fuel spills during fueling to or from fuel vaults:  1. Follow instructions as outlined in Section II of this Contingency Plan.0  For fuel leakage from fuel vaults:  1. Attempt to localize and control the leak.  2. Pump the contents of the fuel vault into the spare fuel vault.  3. Follow instructions as outlined in Section II of this Contingency Plan for isolating and disposing of fuel.  4. To ensure safety, depending on the severity of the spill, notification follows the procedure laid out in this contingency plan with the appropriate personnel contacted - External and Internal.
Delta Mishap - General	<ul> <li>Peter's Expediting is expected to enforce a safe operating code for all Delta operators delivering fuel to the Meadowbank camp.</li> <li>Strict rules of the road are enforced: no drinking is allowed on our around the transportation route.</li> </ul>	Driver knows what to do:  1. Major freight carriers (i.e. Peter's Expediting) should have a contingency plan.  2. Cumberland will provide each vehicle that will haul fuel with a copy of this contingency plan.  3. Each driver should have a roll of plastic, shovel, absorbent material, metal buckets and knife in order to contain small spills.

 Drivers should be required to complete checklists and document all matters that require servicing & repair; mechanics should carry out the work as appropriate. Clear lines of communication:

 To ensure safety, depending on the severity of the spill, notification follows the procedure laid out in this contingency plan with the appropriate personnel contacted - External and Internal.

Response team knows what to do:

- Freight carriers have to demonstrate to Cumberland adequate spill response experience and training.
- Cumberland Emergency
   Response Team receives
   training as new members are
   added.

Approvals are obtained to burn spilled and recovered fuels at previously selected disposal sites - usually borrow pits.

# Appendix C - NWT Spill Report Forms



# N.W.T. SPILL 1. EPORT (Oil, Gas, Hazardous Chemicals or 24

00-1001 9040, Dapperson, Dapperson, Darri

A Report date and time  δ'3° /የ"ህን'3 %'/」4"በ"3J ÞԺ'ԿÞՈՐԻΔ"	B Date and time of spill (if known) איביאל אראבארא איביאר אראיא נביראראראריטיין ניאראראריטיין	Original report /プトーペイ DorbD/Dイー Update no.  Dorb/D4745 (A)C
D Location and map coordinates (if known) and dire		
Party responsible for spill		
Product(s) spilled and estimated quantities (provide provide product(s) spilled and estimated quantities (provide provide product(s) spilled and estimated quantities (provide provide product(s) spilled and estimated quantities (provide product(s) spilled and estimated quantities (provide product(s) spilled and estimated quantities (provide provide product(s) spilled and estimated quantities (provide provide		
G P/ da: 4CDC		
Is spill terminated?   If spill is continuing.   If spill is continu		~ 200 dulle 9000040 (p.) Johra 94, 5. July
Factors affecting spill or recovery (weather condition of the spirit of	ons, terrain, snow cover, etc.)  ۵۵-۷-۷-۷-۵  ۵۵-۷-۷-۷-۷  ۵۵-۷-۷-۷-۷  ۵۵-۷-۷-۷-۷	Containment (natural depression, dykes, etc.)  b % / d _ % ^ Ab ^ P - d J ^ A ^ C ~ / L < ^ ( \own C \ A / \omega \ A' \ A
N Action, if any, taken or proposed to contain, recover \$60-700, \$60-70000 \$60-7000 \$60-7000 \$60-7000 \$60-7000 \$60-7000 \$60-7000 \$60-70000	er, clean up or dispose of product(s) and contaminate ፈርዑ/ፕበርዕ <sub>ዉ</sub> /ኑሩ, ኔግሬግናዕርዕ <sub>ዉ</sub> /ኑሩ, ነጋ <sup>ነ</sup> ሬግኒግርዕሮ ዕተኖጋ	ed materials ΔΓCDσđ <sup>a</sup> ζ <sup>°</sup> ዕልፈ <sup>a</sup> (ዕልፈ <sup>°</sup> ነ <sup>°</sup> σ <sup>°</sup> ) ላ <sup>°</sup> Lu <b>ዕለ^ΛD</b> ፈ <sup>°</sup> .
Do you require assistance? Δεταζονα στα από γες, describe: Δεταζονα από από από από από από από από από απ	Possible hazards to persons, p	property, or environment; eg: fire, drinking water, fish or wildlife שרא ארבי ביא פרחגר איבי - בריג פראים באררער פראים בארארער בארים ארבים ארבים ארבים אינים אינים אינים אינים אינים
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		Lead Agency  Δ%baΔ%PDrn. Ar bArr bLr%%PD
		Spill significance
		Lead Agency contact and time Δግሎ ሲያመር የተመደመው የተመደ
		Is this file now closed? □ yes/Δ C*a Do bababc* □ no/d*b
Position, Emplo	oyer, Location Δታራኄ Δ°6aΔታግበጊ. aΓ	Telephone
Reported to Position, Emplo	yer, Location Δλε <sup>*</sup> , Δ <sup>®</sup> baΔλ <sup>®</sup> Πλ. aΓ	Telephone

# **APPENDIX D - LOAD MANIFEST**

	APPENDIX D - LOAD MANIFEST		
	AND RESOURCE ANK PROJECT	S LTD.	DATE:
		LOAD MANIFEST FOI	RM
	YPE: D DEPARTURE D ARRIVAL	<del></del>	OWNER FROM: TO:
SUPPLY LIS	ST		
		VOLUN	MES
FUEL	P-50 GASOLINE JET-B/A PROPANE ACETELENE		
SALT CORE/BOXI CORE RACI GRAVEL LUMBER DRILL SUPI OTHER	KS		
		TOTAL	WEIGHT:
DRIVER/AS	SISTANT:		

# Appendix E - Fuel Storage Monitoring Plan

The fuel storage monitoring plan will consist of the following daily and weekly inspections conducted by Cumberland 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 daily basis:

- All tanks, lines, pumps, hoses, valves and fittings will be inspected for leaks or damage
- Ensure proper fuel only is dispensed into the correct tanks and barrels for use in the camp and associated exploration work sites.
- Ensure that the "No Smoking" signs posted in the area of the fuel tanks are always clearly visible.
- Ensure that all personnel on site abide by the "No Smoking" rule within the distances outlined in the regulations for fuel tanks.
- Ensure that all fuel pumping and spill response equipment is clearly visible and easily accessed.

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

- Fuel levels in all primary tanks checked and compared against the fuel dispensed from each primary tank for each week.
- Outer tanks checked for fuel leakage from the primary tank.
- Spill response equipment checked.
- 4. Pumping equipment checked.