

<b>SPILL CONTINGENCY PLAN</b>	<b>SECTION: ACTION PLANS</b>
Ulu Exploration Project	<b>SUBJECT:ETHYLENE GLYCOL/ANTIFREEZE</b>

#### **ENVIRONMENTAL THREAT**

- low to moderate toxicity for fish and other aquatic organisms;
- attractive smell and taste to some mammals, and toxic by ingestion.

#### **CONTAINERS**

- transported and stored in steel drums or cubes (which are a self-contained unit with an 8 drum capacity).

#### **SUPPLIER**

- DOW Chemical of Canada Ltd., Van Waters & Rogers Ltd.
- SEE ATTACHED MSDS FOR ADDITIONAL INFORMATION

<b>SPILL CONTINGENCY PLAN</b>	<b>SECTION: ACTION PLANS</b>
Ulu Exploration Project	<b>SUBJECT: AMMONIUM NITRATE/FUEL OIL; ANFO</b>

In the event of a **AMMONIUM NITRATE/FUEL OIL** spill or where there is reasonable likelihood of a spill occurring, the following action plan is to be initiated.

#### 24 HOUR SPILL REPORT LINE (867) 920-8130 INITIAL SPILL RESPONSE

- Notify the Project Manager or designate immediately via radio, phone or in person and initiate the response team. **Spill reported via 24 hour emergency spill line**, above;
- **STOP** the spill of ANFO at the source if possible;
- evacuate all non-essential personnel from the area and ensure the health and safety of those remaining;
- **ELIMINATE** all possible sources of ignition;
- **PREVENT** ANFO from contacting water;
- if ANFO does contact water, **CONTAIN** solution to as small an area as possible. Consider dyking with sand or snow to minimize travel;
- **ISOLATE** area of spill preferably by roping off affected area.
- A detailed spill report shall be submitted as per Section 2.3

#### HAZARDS

- may explode under confinement or high temperatures and friction;
- avoid contact with strong oxidizers (ie: Lead Nitrate)
- flammable;
- combustion products are toxic and may include hydrocarbons, oxides of carbon and nitrogen;
- low toxicity.

#### ACTION FOR FIRE

- for fires involving large quantities of ANFO, evacuate and **Do Not Attempt** to fight fires;
- for fires involving small quantities of ANFO, use large amounts of water to extinguish, control runoff;
- ANFO may detonate in fire, under severe impact or confinement.

#### RECOVERY

- spills of ANFO on dry surfaces can simply be shovelled into containers;
- spills of ANFO on wet surfaces or exposed to rain should be shovelled into waterproof containers as soon as possible to minimize the quantity of ammonium nitrate being dissolved;
- ANFO, or a resulting ammonium nitrate solution, **must not be allowed** access to any flowing stream;
- sorbents such as peat moss, Conwed or Graboil should be used to recover any oil emanating from the ANFO spill; snow may be used during the winter months under freezing conditions.
- soil heavily contaminated with ammonium nitrate should be excavated for incineration if the affected groundwater threatens to travel to an adjacent flowing stream.

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#### **DISPOSAL**

- ANFO recovered from a spill may be used in the mine;
- ammonium nitrate solutions and soil containing ammonium nitrate should be disposed of within the mill tailings system or directly in the tailings pond;
- sorbents used to recover the oil may be incinerated under controlled conditions or buried at an approved site;
- ANFO can be disposed of by detonation or incineration under knowledgeable supervision.

#### **PROPERTIES**

- comprised of 94% prilled ammonium nitrate ( $\text{NH}_4\text{NO}_3$ ) and 6% No.2 fuel oil, trade name: Amex II
- small porous pellets coated with oil, may be dyed with bright colours (yellow), odour of fuel oil;
- ammonium nitrate is Very Soluble in water; the oil is not soluble and will float;
- strong oxidizing agent;
- flammable.

#### **ENVIRONMENTAL CONCERNS**

- ammonium nitrate is moderately toxic to fish and other aquatic organisms at low concentrations. Toxicity increases with increased pH and temperature of the water.
- being very water soluble, the ammonium nitrate in the anfo can readily dissolve and enter the natural surface or ground water streams.

#### **CONTAINERS**

- ANFO is transported and stored in 25 kg polyethylene bags at the main explosives magazine.

#### **SUPPLIER**

- Explosives Limited (Calgary, Alberta)
- CIL
- SEE ATTACHED MSDS FOR ADDITIONAL INFORMATION

**APPENDIX I**  
**CONTACT LISTING**

24 Hour Emergency  
Nursing Station  
Deanna Taylor (IFA Level 3).....Ulu Tel: (604) 759-0604  
Also available by walkie-talkie

Project Manager  
David Stevenson.....Ulu Tel: (604) 759-0605  
Ulu Fax: (604) 759-0607  
Also available by walkie-talkie  
Office: (807) 346-1668  
Home: (705) 267-5757

Building and Maintenance Supervisor.....Ulu Tel: (604) 759-0602  
Wayne Kirkham/Peter Lenz  
Also available by walkie-talkie

Mine Captain  
TBA.....TBA  
Also available by walkie-talkie

Underground Shift Supervisor  
TBA.....TBA  
Also available by walkie-talkie

Senior Geologist  
TBA.....(604) 759-0603  
Also available by walkie-talkie

Senior Engineer  
TBA.....TBA  
Also available by walkie-talkie

Mechanical Supervisor  
TBA.....TBA  
Also available by walkie-talkie

Environmental Coordinator  
Gordon Stewart, Gartner Lee Ltd.....(867) 873-4453, ext. 26

It shall be the responsibility of the Project Manager or his designate to notify the Company President.

## TELEPHONE LISTING

GOVERNMENT AGENCIES	TELEPHONE	FACSIMILE
24 HOUR SPILL REPORT LINE GNWT – Dept. of Renewable Resources	(867) 920-8130	(867) 873-6924
NUNAVUT WATER BOARD	(867) 360-6338	(867) 360-6369
<b>GOVERNMENT NWT – Department of Renewable Resources</b>		
<u>Environmental Protection Division</u>		
Mr. Ken Hall; Manager Env. Prot. Mr. Harvey Gaukel; Hazmat Specialist	(867) 920-6476 (867) 873-7654	(867) 873-0221
<u>Wildlife Management Division</u>		
Wildlife Biologist	(867) 920-6190	(867) 873-0293
<b>GOVERNMENT OF CANADA</b>		
<u>Indian and Northern Affairs Canada</u>		
<u>Land Use and Water Use</u>		
Regulatory Approvals, Water Resources	(867) 669-2650	(867) 669-2716
Land Use; Reg. Manager, Land	(867) 669-2763	(867) 669-2731
NUNAVUT District Office; Iqaluit (Water)	(867) 979-4407	(867) 979-6445
Environment Canada Environmental Protection Branch	(867) 669-4728	(867) 873-8185
DFO Fisheries Habitat Biologist (Iqaluit)	(867) 979-8007	(867) 979-8039
<b>OTHERS</b>		
Kitikmeot Inuit Association, Kugluktuk	(867) 982-3310	(867) 982-3311
Kugluktuk Hunters and Trapper Assoc.	(867) 982-4908	(867) 982-4047

## ADDITIONAL COMMUNICATIONS

### High Lake

High Lake Camp can be contacted by:  
Telephone TBA  
Fax TBA

### **EMERGENCY CONTACTS**

Dupont ..... 905-821-5660  
EMERGENCY RESPONSE CENTRE (24 HOUR)..... 1-800-387-2122  
Chemtrec ..... 1-800-424-9300  
Conweb & Oil Snare Canadian Industries Ltd ..... 780-465-0221  
Alberta Oil Spill Consultants (Booms, sorbents, skimmers) ..... 780-451-0585

**TABLE 1**  
**PETROLEUM AND CHEMICAL PRODUCTS INVENTORY**  
**MAJOR COMPONENTS**

Fuel Type	No. of liters	No. of containers	Capacity
Diesel *		13	2 – 1,325,000 liter (350,000 gal) tanks
P-40	581,572		11 – 53,000 liter (14,000 gal) tanks
P-50	130,137		
Aviation Gas	21,730**	106**	205 liters (45 gal)
Propane	2,500**	25**	37.3 kg (100 lbs)
Other	2,000**	20**	37.3 kg (100 lbs)

\* Dip test performed September 04, 2002

\*\* Amounts uncertain

TABLE 2

**HEAVY EQUIPMENT INVENTORY  
WOLFDEN RESOURCES INC.  
ULU EXPLORATION PROJECT, NUNAVUT**

Type & Number	Size & Ground Pressure	Proposed Use
2 water trucks	5 ton chassis Empty 3.07 PSI Loaded 13.25 PSI	Watering pads and roads
4 pick-up trucks	Ford F350 Empty 17.69 PSI Loaded 35.38 PSI	Supervision, moving people & moving light freight
1 Tractor & low boy		Moving equipment & freight
1 Picker truck	Five ton	Installing culverts & handling light freight
2 Bulldozers	1-Cat D8N 14.6 PSI 1-Cat Dh6 8.82 PSI	Piling, leveling sand & sand loading ore later
3 Rock trucks	3-Cat 769C Empty-124 PSI Loaded-356 PSI	Hauling sand & later ore
2 Graders	1-Cat 14G 26.11 PSI 1-Cat 120G	Grading roads, pads, airstrip and later winter road
1 Loader/Forklift	Cat 966D 25.18 PSI	Freight handling & loading trucks
1 Commander	Loaded 9.0 PSI	Moving freight
1 Flat bed	Ford 3 ton	Moving freight
1 Bus	48 passenger	Moving passengers & freight
1 Lube & fuel truck	5 ton chassis Empty 3.07 PSI Loaded 13.25 PSI	Fueling rolling stock
1 Backhoe	Cat 311	Miscellaneous digging
1 Rubber tired dozer	Cat 824C	Pushing sand and waste
1 Road packer	Cat	Packing roads and pads
2 Loaders	Cat 988D Cat 930	Moving & loading sand & waste
1 Forklift	JCB	Moving freight
1 Tractor	Kubota	Moving people and freight
3 Jumbo drills	Atlas Copco twin-boom Tamrock twin-boom Tamrock single-boom	Drilling underground
1 Scissor lift	Getman	High work underground
4 Scooptrams	1 Wagner 3.5 cu. yd. 1 Wagner 2.0 cu. yd. 1 Elphinstone 7.5 cu. yd. 1 Wagner 7.5 cu. yd.	Mucking underground
2 Underground trucks	1 Wagner 44 ton 1 JDT 26 ton	Moving muck from underground



**TABLE 3**

**SPILL CONTAINMENT/RECOVERY MATERIALS**

Spill containment/recovery materials located at the Ulu Project within the "Emergency Spill Response Van" container (SeaContainer #9) contains the following inventory:

- 3 Shovels;
- 2 Roll Poly; 4mL, 500 ft.;
- 1 Crate of floordry; (50) 20kg bags;
- 4 booms, 11 ft.;
- 1 Pump; 2" Honda;
- 1 Safety approved 2 gallon gas container;
- 2 20 ft. 2" hoses;
- 10 45 gallon drums (no lids) for collection of contaminated materials;
- 1 100 ft. rope;
- 2 fire extinguishers;
- 1 4 lb sledge;
- 1 Box, dust masks

In addition to the above, the on-site Lupin warehouse maintains a supply of the smaller items such as floordry, absorbent pads, shovels, dust masks. If additional equipment is required during a clean-up procedure warehouse issues are readily available.

## REFERENCES

- Contingency Plan, Ulu Exploration Project, Nunavut, Echo Bay Mines Ltd., October 2001
- Guidelines For Spill Contingency Planning Northwest Territories Water Board, 1987
- Contingency Planning And Spill Reporting In The NWT A Guide To The New Regulations; unauthorized, GNWT
- Guidelines For The Preparation of Hazardous Material Spill Contingency Plans; Environmental Protection, W&N Region, Report No. CP(EP) ENR90-91-4 March 1990
- Oil And Toxic Material Spill Contingency Plan Echo Bay Mines Ltd., 1984, updated annually
- Contingency Plan; Echo Bay Mines Ltd. December, 2000; Revised - Awaiting approval
- Polaris Operations Contingency Plan; Cominco Ltd, Polaris , N.W.T.; June 1994
- Guidelines For Preparing Spill Contingency Plans For Winter Road Operations In The Northwest Territories; E. Paquin, GNWT; D. Stendahl, NAP/INAC; D. Tilden, EPS/DOE; October 1983
- The Environmental Protection Act of The Northwest Territories; Spill Contingency Planning and Reporting Regulations, Registered July 22, 1993 S BHP Ekati<sup>TM</sup> Diamond Mine Spill and General Contingency Plan, 1999.