SCHEDULE E – FALCONBRIDGE "IN-HOUSE" ENVIRNMENTAL COMPLIANCE FORMS

Exploration

ENVIRONMENTAL CHECKLIST

Property Name: _____

Province: _____ **Project #:** _____

Lat: _____ **° N Long** _____ **° W** **NTS** _____

Township: _____ **County:** _____

 # Claims: _____ **Land Area:** _____ **hectares**

1. The property has been examined in the field by: _____

   Date: _____

Please check the appropriate box and underlined spaces, circle the appropriate words and elaborate in spaces or on the last page.	Yes	No	Unsure
2. Are there any mining operations on the property? Check whether active _____, inactive _____, or previous___.	☐	☐	☐
a) have any surface structures <u>not</u> been removed or secured?	☐	☐	☐
b) are there mine tailings deposited on the surface? If so, elaborate.	☐	☐	☐
c) are there any shafts or mine openings? If so, are they capped or fenced? _____	☐	☐	☐
d) are there any waste rock/ore stock piles on the property (estimate tonnes and % sulphide content)?	☐	☐	☐
e) are there any other waste disposal sites?	☐	☐	☐
f) is there any water seepage from old workings?	☐	☐	☐

	g)	have any of the old workings or waste disposal sites not been approved by the appropriate Government authority (e.g. MOE, MNDM)?	☐	☐	☐
3.		Are there any old exploration shafts, trenches, or mine openings that may require rehabilitation? Indicate number, size and depth of trenches.	☐	☐	☐
4		Are there any diamond drill sites or drill access roads which may require clean-up? Are there any drill holes making water? Do they need to capped or cemented?	☐	☐	☐
			Yes	No	Unsure
5		Are there any fuel drums, garbage dumps, wire, buried tanks, PCB's, chemicals, unidentified barrels/containers or other waste? Are there any abandoned camp sites?	☐	☐	☐
6.		Are there any roads with stream crossings which may contravene any Government regulations related to lakes, streams or rivers?	☐	☐	☐
		Are there any safety hazards such as damaged or decaying bridges, culverts, etc?	☐	☐	☐
7.		Are there water courses on the property? Rivers _____, Streams _____, Lakes _____, Ponds, _____, Swamps_____, Beaver dams/ponds ___. (Check those present.)	☐	☐	☐
8		Are there any water sensitivities/liabilities?	☐	☐	☐
	a)	are there any water courses on or near the property containing fish or providing fish habitat?	☐	☐	☐
	b)	are there any water contamination on or near the property such as streams crossings _____, visual seeps from tailings ___, underground workings _____, drill holes ____ vegetation damage or other _____? (Check those present.)	☐	☐	☐
	c)	are there known water quality sample results that exceed Government limits?	☐	☐	☐

9.	Are there houses _____, cottages _____, farms _____, water wells ___, septic fields __, camp sites ___, or recreation areas __ on the property or outside but within 1 km of property boundaries (re loss of enjoyment claims, noise, dust, visual, effluent contamination)?	☐	☐	☐
10.	Are there known mineral occurrences of sulphides _____ arsenides _____, chlorides ____, or radioactive minerals _____? Are they surface showings ___ or buried _____?	☐	☐	☐
11.	Are there any known potential environmental problems on adjacent properties?	☐	☐	☐
12.	Are there other environmental sensitivities such as native rights, archeological sites, virgin forest, proposed parks, wilderness areas, wildlife refuge, trails, rights-of-way or other public concerns?	☐	☐	☐

Please elaborate on any "yes" answers and describe any other environmental problems:

If there are environmental problems, what is your plan of action or recommendation?

For additional comments, please attach a memo. If possible, please attach photographs of any significant environmental problems.

Attachments: Memo _____ Previous Reports _____ Maps _____
Sample Results _____ Photos _____

Completed by: _____ Date: _____

Please submit checklist to the Property Department. If further action is required, Property will send copies to the Environment and Geology Departments.

June 1991

Note: For openings such as mine shafts, trenches, pits and excavations etc., please provide estimates of dimensions.

NORANDA INC. / FALCONBRIDGE LIMITED

ENVIRONMENTAL COMPLIANCE FORM
CAMP SITES

Please use ink

Project Name & Number: _____ Work Permit #: _____

Dates Camp in Use: _____

Type of Camp: _____ Contractor: _____
(Geology, Geophysics, Drilling, Fly-in, etc.)

Location of Camp (attach map): _____

Field Geologist/Geophysicist Responsible for Program: _____

Geologist/Geotechnician Responsible For Site Inspections: _____

Reclamation Complete _____ Further Work Required _____

I, _____ certify that this camp was operated according to Noranda Inc. / Falconbridge Limited exploration guidelines and has met all terms and conditions of all government permits.

_____ _____
Contractor's Signature Date

I, _____ certify that this camp site was inspected by me on the _____ of _____, 19 ___, after the camp had been vacated, and that to the best of my knowledge all Noranda Inc. / Falconbridge Limited and government permit standards have been met.

_____ _____
Site Inspector's Signature Date

COMMENTS: _____

_____

Attachments (Photos are mandatory - described, initialled and dated):
Photos: _____ Field Notes: _____ Maps: _____ Other: _____

Signatures:

_____ _____
Geologist in charge of program (in field) Date

_____ _____
Project, Senior Project or Senior Geologist (if applicable) Date

_____ _____
Regional Manager (mandatory) Date

FALCONBRIDGE LIMITED
EXPLORATION

ENVIRONMENTAL COMPLIANCE FORM
DRILL SITE

HOLE NO.: _____

Property:
Project Number: _____ ; Project Name: _____

Land Status:
☐ public: _____; ☐ private: _____
(owner name)

Authorization (permit):
☐ MER: _____; ☐ MENVIQ: _____ ☐ Lands/Forest: _____
☐ Other: _____; if private: authorization letter/ ?

Contractor:
Name: _____; Dates drilled: _____

Location:
NTS: _____; Township: _____; Rg: _____; Lot: _____
UTM zone: _____; _____N; _____E
Claim #: _____; Line: _____; Station: _____

General Description:
Site on: ☐ land; ☐ lake
Access by: ☐ land; ☐ airborne
If by land, elaborate on access road. (indicate camp site, stream crossing, and others) (attach map)

_____

_____

_____

_____

_____

Date Completed: _____

Responsability:

Geologist responsible for drill program: _____

Geologist/Geotechnician responsible for site inspections:
_____

I, _____ certify that all drilling procedures were done according to Falconbridge Limited guidelines and have met all terms and conditions of all government permits and that the site was left in a clean condition, in compliance with all Noranda and government work permit standards.

_____ _____
Contractor's Signature Date

I, _____ certify that I inspected the drill site and access road on the _____ of _____, 19 ____, after the drill had been removed, and that to the best of my knowledge all Falconbridge Limited and government permit standards have been met.

_____ _____
Site Inspector's Signature Date

COMMENTS:
_____

_____

_____

Attachments: Photos _____ Field Notes: _____ Maps: _____Sketches: _____ Other: _____ None: _____

Date Completed: _____

DRILL SITE INSPECTION CHECKLIST

HOLE No.: _____

Overall appearance of the drill site clean _____ unclean _____

Comments: _____

Drill collar

casing left	yes _____	no _____
capped	yes _____	no _____
making water	yes _____	no _____
damaged	yes _____	no _____
picket with aluminum tag affixed	yes _____	no _____
casing pulled/date _____	yes _____	no _____
hole cemented/date _____	yes _____	no _____
drill cuttings	comments _____	
were drilling additives used?	yes _____	no _____
were oil licks used (absorbent carpeting)?	yes _____	no _____

Debris left (specify/circle) (amount/area/severity etc.)

metal, wire, rods, cans, cable	comments _____
fuel drums	comments _____
containers from oil, kutwell, grease	comments _____
tools, machine parts	comments _____
core boxes	comments _____
plastic tarps	comments _____
burlap, work gloves, clothing	comments _____
garbage bags	comments _____
food containers/wrappers	comments _____
absorbent padding/mud	comments _____
other comments	comments _____

Spills (collar and water supply) (amount/area/severity etc.)

oil -	yes _____	no _____	comments _____
fuel	yes _____	no _____	comments _____
grease	yes _____	no _____	comments _____
mud	yes _____	no _____	comments _____

All reportable spills

authorities notified?	yes _____	no. _____
Falconbridge	yes _____	no. _____
MENVIQ	yes _____	no. _____
MER	yes _____	no. _____

Fire pit (collar and water supply)

applicable	yes _____	no. _____
all contents burnt	yes _____	no. _____
contents remaining unburnt:		
wire	yes _____	no. _____
cans	yes _____	no. _____
foil	yes _____	no. _____
other	yes _____	no. _____

Specify _____

Water

Date Completed: _____

proximity of collar to running water or lake _____
approximate slope of ground _____
condition of sump or berm _____
would silt clay run off into water
if heavy rain occurred yes _____ no. _____ Uncertain _____

Should the site be re-examined when snow
has melted, water level lower etc.? yes _____ no. _____ Uncertain _____
Suggested date: _____

DATE OF INSPECTION - first _____ second _____ other _____

INSPECTED BY - first _____ second _____ other _____

FURTHER CLEANUP REQUIRED no ____ yes ____ by contractor ____ by Falconbridge _____

ADDITIONAL COMMENTS: on access road, stream crossings, composites:

_____

_____

_____

_____

_____

_____

Signatures:

_____ _____
Geologist in charge of program (in field) Date

_____ _____
Project or Senior Project Geologist
(if applicable) Date

_____ _____
District Geologist/Manager (mandatory) Date

Date Completed: _____

APPENDIX D

MATERIAL SAFETY DATA SHEETS (MSDS'S)

-JET B AVIATION FUEL
-DIESEL FUEL
-GASOLINE
-PROPANE GAS
-CALCIUM CHLORIDE (CaCl)

Shell Canada Limited

Material Safety Data Sheet

Effective Date: 2002-08-14
Supersedes: 2001-01-08

Class B2 Flammable Liquid

Class D2B Other Toxic Effects - Skin Irritant

Class D2A Other Toxic Effects - Carcinogen

1. PRODUCT AND COMPANY IDENTIFICATION

PRODUCT:	**SHELL JET B WITH ANTI-ICING ADDITIVE**
SYNONYMS:	WIDE BOILING RANGE AVIATION TURBINE FUEL PLUS ANTI ICING ADDITIVE
PRODUCT USE:	Fuel
MSDS Number:	141-020

MANUFACTURER	**TELEPHONE NUMBERS**	
Shell Canada Limited	**Shell Emergency Number**	1-800-661-7378
P.O. Box 100, Station M	**CANUTEC 24 HOUR EMERGENCY NUMBER**	613-996-6666
400-4th Ave. S.W.		
Calgary, AB Canada	For general information:	1-800-661-1600
T2P 2H5	For MSDS information:	403-691-3982
	(From 7:30 to 4:30 Mountain Time)	403-691-2220

This MSDS was prepared by the Toxicology and Product Stewardship Section of Shell Canada Limited.

*An asterisk in the product name designates a trade-mark(s) of Shell Canada Limited, used under license by Shell Canada Products.

2. COMPOSITION/INFORMATION ON INGREDIENTS

Component Name	CAS Number	% Range	WHMIS Controlled
Naphtha (Petroleum), Full-range Reformed	68919-37-9	>95	Yes
Benzene	71-43-2	0.5 - 1.5	Yes

See Section 8 for Occupational Exposure Guidelines.

3. HAZARDS IDENTIFICATION

Physical Description: Liquid Bright Clear Typical Gasoline Odour

Routes of Exposure: Exposure may occur via inhalation, ingestion, skin absorption and skin or eye contact.

Hazards:

Flammable Liquid.
Irritating to skin.
Contains Benzene.
May cause cancer.
Vapours are moderately irritating to the eyes.
Vapours are moderately irritating to the respiratory passages. The liquid when accidently aspirated into the lungs can cause a severe inflammation of the lung.
Excessive exposure to benzene may cause leukemia in man.

Handling: Eliminate all ignition sources.
Wear suitable gloves and eye protection.
Bond and ground transfer containers and equipment to avoid static accumulation.
Avoid prolonged exposure to vapours.
Empty containers are hazardous, may contain flammable / explosive dusts, liquid residue or vapours. Keep away from sparks and open flames.

For further information on health effects, see Section 11.

4. FIRST AID

Eyes: Flush eyes with water for at least 15 minutes while holding eyelids open. If irritation occurs and persists, obtain medical attention.

Skin: Wash contaminated skin with mild soap and water for 15 minutes. If irritation occurs and persists, obtain medical attention.

Ingestion: DO NOT INDUCE VOMITING! OBTAIN MEDICAL ATTENTION IMMEDIATELY. Guard against aspiration into lungs by having the individual turn on to their left side. If vomiting occurs spontaneously keep head below hips to prevent aspiration of liquid into the lungs.

Inhalation: Remove victim from further exposure and restore breathing, if required. Obtain medical attention.

Notes to Physician: The main hazard following accidental ingestion is aspiration of the liquid into the lungs producing chemical pneumonitis. If more than 2.0 mL/kg has been ingested, vomiting should be induced with supervision. If symptoms such as loss of gag reflex, convulsions or unconsciousness occur before vomiting, gastric lavage with a cuffed endotracheal tube should be considered.

5. FIRE FIGHTING MEASURES

Extinguishing Media: Dry Chemical
Carbon Dioxide
Foam
Water Fog

Firefighting Instructions:	Extremely flammable. Vapour forms a flammable/explosive mixture with air between upper and lower flammable limits. Vapours may travel along ground and flashback along vapour trail may occur. Flashback may occur along vapour trail. Do not use water except as a fog. Use water to cool fire exposed containers. Product will float and can be reignited on surface of water. Containers exposed to intense heat from fires should be cooled with water to prevent vapour pressure buildup which could result in container rupture. Container areas exposed to direct flame contact should be cooled with large quantities of water as needed to prevent weakening of container structure. Do not enter confined fire space without adequate protective clothing and an approved positive pressure self-contained breathing apparatus. Always stay away from ends of containers due to explosive potential. Fight fire from maximum distance.
Hazardous Combustion Products:	A complex mixture of airborne solid, liquid, particulates and gases will evolve when this material undergoes pyrolysis or combustion. Carbon dioxide, carbon monoxide and unidentified organic compounds may be formed upon combustion.

6. ACCIDENTAL RELEASE MEASURES

Issue warning "Flammable". Eliminate all ignition sources. Handling equipment must be grounded. Isolate hazard area and restrict access. Try to work upwind of spill. Avoid direct contact with material. Saturated clothing should be immediately removed to avoid flammability hazard. Wear appropriate breathing apparatus (if applicable) and protective clothing. Stop leak only if safe to do so. Dike and contain land spills; contain water spills by booming. Use water fog to knock down vapours; contain runoff. For large spills remove by mechanical means and place in containers. Absorb residue or small spills with absorbent material and remove to non-leaking containers for disposal. Recommended materials: Clay or Sand . Flush area with water to remove trace residue. Dispose of recovered material as noted under Disposal Considerations. Notify appropriate environmental agency(ies).

7. HANDLING AND STORAGE

Handling:	Extremely flammable. Avoid excessive heat, sparks, open flames and all other sources of ignition. Fixed equipment as well as transfer containers and equipment should be grounded to prevent accumulation of static charge. Vapours are heavier than air and will settle and collect in low areas and pits, displacing breathing air. Extinguish pilot lights, cigarettes and turn off other sources of ignition prior to use and until all vapours are gone. Vapours may accumulate and travel to distant ignition sources and flashback. Do not cut, drill, grind, weld or perform similar operations on or near containers. Empty containers are hazardous, may contain flammable/explosive dusts, residues or vapours. Do not pressurize drum containers to empty them. Never siphon by mouth. Wash with soap and water prior to eating, drinking, smoking, applying cosmetics or using toilet facilities. Launder contaminated clothing prior to reuse. Use good personal hygiene.
Storage:	Use explosion-proof ventilation to prevent vapour accumulation. Keep container tightly closed.

8. EXPOSURE CONTROLS / PERSONAL PROTECTION

THE FOLLOWING INFORMATION, WHILE APPROPRIATE FOR THIS PRODUCT, IS GENERAL IN NATURE. THE SELECTION OF PERSONAL PROTECTIVE EQUIPMENT WILL VARY DEPENDING ON

THE CONDITIONS OF USE.

OCCUPATIONAL EXPOSURE LIMITS (Current ACGIH TLV/TWA unless otherwise noted):

North American exposure limits have not been established for the product. Consult local authorities for acceptable provincial values.
Recommend SHELL guideline of 125 mg/m3 for vapours (8 hour shift).
Gasoline: 300 ppm (STEL: 500 ppm)
Benzene (skin) : 0.5 ppm (STEL: 2.5 ppm)

Mechanical Ventilation: Use explosion-proof ventilation as required to control vapour concentrations. Concentrations in air should be maintained below lower explosive limit at all times or below the recommended threshold limit value if unprotected personnel are involved. Make up air should always be supplied to balance air exhausted (either generally or locally). For personnel entry into confined spaces (i.e. bulk storage tanks) a proper confined space entry procedure must be followed including ventilation and testing of tank atmosphere.

PERSONAL PROTECTIVE EQUIPMENT:

Eye Protection: Chemical safety goggles and/or full face shield to protect eyes and face, if product is handled such that it could be splashed into eyes. Provide an eyewash station in the area.

Skin Protection: Impervious gloves (viton, nitrile) should be worn at all times when handling this material. In confined spaces or where the risk of skin exposure is much higher, impervious clothing should be worn. Safety showers should be available for emergency use.

Respiratory Protection: If exposure exceeds occupational exposure limits, use an appropriate NIOSH-approved respirator. Use a NIOSH-approved chemical cartridge respirator with organic vapour cartridges or use a NIOSH-approved supplied-air respirator. For high airborne concentrations, use a NIOSH-approved supplied-air respirator, either self-contained or airline breathing apparatus, operated in positive pressure mode.

9. PHYSICAL DATA

Physical State:	Liquid
Appearance:	Bright Clear
Odour:	Typical Gasoline Odour
Odour Threshold:	Not available
Freezing/Pour Point:	<-51 degrees C
Boiling Point:	60 - 260 degrees C
Density:	750 - 801 kg/m3 @ 15 degrees C
Vapour Density (Air = 1):	Not available
Vapour Pressure (absolute):	>42 mm Hg @ 38 degrees C
pH:	Not applicable
Flash Point:	Method Tag Closed Cup <1 degrees C
Lower Explosion Limit:	1 % (vol.)
Upper Explosion Limit:	7 % (vol.)
Autoignition Temperature:	Not available
Viscosity:	Not available
Evaporation Rate (n-BuAc = 1):	Not available
Partition Coefficient (K_{ow}):	Not available
Water Solubility:	Insoluble

Other Solvents: Hydrocarbon Solvents

10. STABILITY AND REACTIVITY

Chemically Stable:	Yes
Hazardous Polymerization:	No
Sensitive to Mechanical Impact:	No
Sensitive to Static Discharge:	Yes
Hazardous Decomposition Products:	Thermal decomposition products are highly dependent on combustion conditions.
Incompatible Materials:	Avoid contact with strong oxidizing agents and acids.
Conditions of Reactivity:	Avoid excessive heat, open flames and all ignition sources.

11. TOXICOLOGICAL INFORMATION

Ingredient (or Product if not specified)	**Toxicological Data**
Naphtha (Petroleum), Full-range Reformed	LD50 Oral Rat >28 mL/kg
Benzene	LD50 Oral Rat = 930 - 5600 mg/kg
	LC50 Inhalation Rat = 13700 ppm for 4 hours

Routes of Exposure:	Exposure may occur via inhalation, ingestion, skin absorption and skin or eye contact.
Irritancy:	This product is expected to be irritating to skin but is not predicted to be a skin sensitizer.
Chronic Effects:	Prolonged and repeated contact with skin can cause defatting and drying of the skin resulting in skin irritation and dermatitis. Prolonged exposure to high vapour concentration can cause headache, dizziness, nausea, blurred vision and central nervous system depression. Prolonged and repeated exposure may cause serious injury to blood forming organs, resulting in anemia and similar conditions.
Pre-existing Conditions:	Pre-existing eye, skin and respiratory disorders may be aggravated by exposure to this product.
Carcinogenicity and Mutagenicity:	This product contains benzene. Epidemiological studies indicate that long term inhalation of benzene vapour can cause leukaemia in man. Benzene has also produced chromosomal aberrations in peripheral blood lymphocytes. Carcinogenic hazard.

12. ECOLOGICAL INFORMATION

Environmental Effects:	Do not allow product or runoff from fire control to enter storm or sanitary sewers, lakes, rivers, streams, or public waterways. Block off drains and ditches. Provincial regulations require and federal regulations may require that environmental and/or other agencies be notified of a spill incident. Spill area must be cleaned and restored to original condition or to the satisfaction of authorities. May be harmful to aquatic life. May cause physical fouling of aquatic organisms.
Biodegradability:	Not readily biodegradable. Potential for bioaccumulation.

13. DISPOSAL CONSIDERATIONS

Waste management priorities (depending on volumes and concentration of waste) are: 1. recycle (reprocess), 2. energy recovery (cement kilns, thermal power generation), 3. incineration, 4. disposal at a licenced waste disposal facility. Do not attempt to combust waste on-site. Incinerate at a licenced waste disposal site with approval of environmental authority.

14. TRANSPORTATION INFORMATION

Canadian Road and Rail Shipping Classification:

UN Number	UN1863
Proper Shipping Name	FUEL, AVIATION, TURBINE ENGINE
Hazard Class	Class 3 Flammable Liquids
Packing Group	PG II
Shipping Description	FUEL, AVIATION, TURBINE ENGINE Class 3 UN1863 PG II

15. REGULATORY INFORMATION

This product has been classified in accordance with the hazard criteria of the *Controlled Products Regulations (*CPR*)* and the MSDS contains all the information required by the CPR.

WHMIS Class:	Class B2 Flammable Liquid Class D2B Other Toxic Effects - Skin Irritant Class D2A Other Toxic Effects - Carcinogen
DSL/NDSL Status:	This product, or all components, are listed on the Domestic Substances List, as required under the Canadian Environmental Protection Act. This product and/or all components are listed on the U.S. EPA TSCA Inventory.
Other Regulatory Status:	No Canadian federal standards.

16. ADDITIONAL INFORMATION

LABEL STATEMENTS

Hazard Statement :	Flammable Liquid. Irritating to skin. Contains Benzene. May cause cancer.
Handling Statement:	Eliminate all ignition sources. Wear suitable gloves and eye protection. Bond and ground transfer containers and equipment to avoid static accumulation. Avoid prolonged exposure to vapours. Empty containers are hazardous, may contain flammable / explosive dusts, liquid residue or vapours. Keep away from sparks and open flames.
First Aid Statement :	Wash contaminated skin with soap and water. Flush eyes with water. If overcome by vapours remove to fresh air. Do not induce vomiting. Obtain medical attention.

Revisions: This MSDS has been reviewed and updated.
Changes have been made to:
Section 14

Shell Canada Limited

Material Safety Data Sheet

Effective Date: 2002-11-06
Supersedes: 2002-08-14

Class B3 Combustible Liquid

Class D2B Other Toxic Effects - Skin Irritant

1. PRODUCT AND COMPANY IDENTIFICATION

PRODUCT:	**LOW SUL. DIESEL FUEL MARKED CP -43 - GEN. ELECTRICITY**
SYNONYMS:	Diesel
	Automotive Gas Oil
PRODUCT USE:	Fuel Solvent
MSDS Number:	329-143

MANUFACTURER	**TELEPHONE NUMBERS**	
Shell Canada Limited	**Shell Emergency Number**	1-800-661-7378
P.O. Box 100, Station M	**CANUTEC 24 HOUR EMERGENCY NUMBER**	613-996-6666
400-4th Ave. S.W.		
Calgary, AB Canada	For general information:	1-800-661-1600
T2P 2H5	For MSDS information:	403-691-3982
	(From 7:30 to 4:30 Mountain Time)	403-691-2220

This MSDS was prepared by the Toxicology and Product Stewardship Section of Shell Canada Limited.

*An asterisk in the product name designates a trade-mark(s) of Shell Canada Limited, used under license by Shell Canada Products.

2. COMPOSITION/INFORMATION ON INGREDIENTS

Component Name	**CAS Number**	**% Range**	**WHMIS Controlled**
Fuels, Diesel, No. 2	68476-34-6	>99	Yes

See Section 8 for Occupational Exposure Guidelines.

3. HAZARDS IDENTIFICATION

Physical Description: Liquid Red Colour Hydrocarbon Odour

Routes of Exposure: Exposure may occur via inhalation, ingestion, skin absorption and skin or eye contact.

Hazards:

Combustible Liquid.
Irritating to skin.
Vapours are moderately irritating to the eyes.
Vapours are moderately irritating to the respiratory passages. The liquid when accidently aspirated into the lungs can cause a severe inflammation of the lung.

Handling: Eliminate all ignition sources.
Avoid prolonged exposure to vapours.
Wear suitable gloves and eye protection.
Bond and ground transfer containers and equipment to avoid static accumulation.
Empty containers are hazardous, may contain flammable / explosive dusts, liquid residue or vapours. Keep away from sparks and open flames.

For further information on health effects, see Section 11.

4. FIRST AID

Eyes: Flush eyes with water for at least 15 minutes while holding eyelids open. If irritation occurs and persists, obtain medical attention.

Skin: Wash contaminated skin with mild soap and water for 15 minutes. If irritation occurs and persists, obtain medical attention.

Ingestion: DO NOT INDUCE VOMITING! OBTAIN MEDICAL ATTENTION IMMEDIATELY. Guard against aspiration into lungs by having the individual turn on to their left side. If vomiting occurs spontaneously keep head below hips to prevent aspiration of liquid into the lungs. Do not give anything by mouth to an unconscious person.

Inhalation: Remove victim from further exposure and restore breathing, if required. Obtain medical attention.

Notes to Physician: The main hazard following accidental ingestion is aspiration of the liquid into the lungs producing chemical pneumonitis. If more than 2.0 mL/kg has been ingested, vomiting should be induced with supervision. If symptoms such as loss of gag reflex, convulsions or unconsciousness occur before vomiting, gastric lavage with a cuffed endotracheal tube should be considered.

5. FIRE FIGHTING MEASURES

Extinguishing Media: Dry Chemical
Carbon Dioxide
Foam
Water Fog

Firefighting Instructions: Container areas exposed to direct flame contact should be cooled with large quantities of water as needed to prevent weakening of container structure. Caution - Combustible. Vapour forms a flammable/explosive mixture with air between upper and lower flammable limits. Vapours may travel along ground and flashback along vapour trail may occur. Do not use water except as a fog. Product will float and can be reignited on surface of water. Containers exposed to intense heat from fires should be cooled with water to prevent vapour pressure buildup which could result in container rupture. Do not enter confined fire space without adequate protective clothing and an approved positive pressure self-contained breathing apparatus.

Hazardous Combustion Products: A complex mixture of airborne solid, liquid, particulates and gases will evolve when this material undergoes pyrolysis or combustion. Carbon dioxide, carbon monoxide and unidentified organic compounds may be formed upon combustion.

6. ACCIDENTAL RELEASE MEASURES

Issue warning "Combustible". Eliminate all ignition sources. Isolate hazard area and restrict access. Handling equipment must be grounded. Try to work upwind of spill. Avoid direct contact with material. Wear appropriate breathing apparatus (if applicable) and protective clothing. Stop leak only if safe to do so. Dike and contain land spills; contain water spills by booming. Use water fog to knock down vapours; contain runoff. Absorb residue or small spills with absorbent material and remove to non-leaking containers for disposal. Recommended materials: Clay or Sand Flush area with water to remove trace residue. Dispose of recovered material as noted under Disposal Considerations. Notify appropriate environmental agency(ies).

7. HANDLING AND STORAGE

Handling: Combustible. Avoid excessive heat, sparks, open flames and all other sources of ignition. Fixed equipment as well as transfer containers and equipment should be grounded to prevent accumulation of static charge. Vapours are heavier than air and will settle and collect in low areas and pits, displacing breathing air. Extinguish pilot lights, cigarettes and turn off other sources of ignition prior to use and until all vapours are gone. Vapours may accumulate and travel to distant ignition sources and flashback. Do not cut, drill, grind, weld or perform similar operations on or near containers. Empty containers are hazardous, may contain flammable/explosive dusts, residues or vapours. Do not pressurize drum containers to empty them. Wash with soap and water prior to eating, drinking, smoking, applying cosmetics or using toilet facilities. Launder contaminated clothing prior to reuse. Use good personal hygiene.

Storage: Store in a cool, dry, well ventilated area, away from heat and ignition sources. Keep container tightly closed.

8. EXPOSURE CONTROLS / PERSONAL PROTECTION

THE FOLLOWING INFORMATION, WHILE APPROPRIATE FOR THIS PRODUCT, IS GENERAL IN NATURE. THE SELECTION OF PERSONAL PROTECTIVE EQUIPMENT WILL VARY DEPENDING ON THE CONDITIONS OF USE.

OCCUPATIONAL EXPOSURE LIMITS (Current ACGIH TLV/TWA unless otherwise noted):

North American exposure limits have not been established for the product. Consult local authorities for acceptable provincial values.
Diesel fuel, as total hydrocarbons: 100 mg/m3

Mechanical Ventilation: Concentrations in air should be maintained below lower explosive limit at all times or below the recommended threshold limit value if unprotected personnel are involved. Make up air should always be supplied to balance air exhausted (either generally or locally). For personnel entry into confined spaces (i.e. bulk storage tanks) a proper confined space entry procedure must be followed including ventilation and testing of tank atmosphere.

PERSONAL PROTECTIVE EQUIPMENT:

Eye Protection:	Chemical safety goggles and/or full face shield to protect eyes and face, if product is handled such that it could be splashed into eyes. Provide an eyewash station in the area.
Skin Protection:	Impervious gloves (viton, nitrile) should be worn at all times when handling this material. In confined spaces or where the risk of skin exposure is much higher, impervious clothing should be worn. Safety showers should be available for emergency use.
Respiratory Protection:	If exposure exceeds occupational exposure limits, use an appropriate NIOSH-approved respirator. Use a NIOSH-approved chemical cartridge respirator with organic vapour cartridges or use a NIOSH-approved supplied-air respirator. For high airborne concentrations, use a NIOSH-approved supplied-air respirator, either self-contained or airline breathing apparatus, operated in positive pressure mode.

9. PHYSICAL DATA

Physical State:	Liquid
Appearance:	Red Colour
Odour:	Hydrocarbon Odour
Odour Threshold:	Not available
Freezing/Pour Point:	Varies with region and season
Boiling Point:	150 - 380 degrees C
Density:	<876 kg/m3 @ 15 degrees C
Vapour Density (Air = 1):	Not available
Vapour Pressure (absolute):	Not available
pH:	Not available
Flash Point:	Method Pensky-Martens CC >40 degrees C
Lower Explosion Limit:	1 % (vol.)
Upper Explosion Limit:	6 % (vol.)
Autoignition Temperature:	250 degrees C
Viscosity:	1.4 - 4.1 cSt @ 40 degrees C
Evaporation Rate (n-BuAc = 1):	Not available
Partition Coefficient (K_{ow}):	Not available
Water Solubility:	Insoluble

10. STABILITY AND REACTIVITY

Chemically Stable:	Yes
Hazardous Polymerization:	No
Sensitive to Mechanical Impact:	No
Sensitive to Static Discharge:	Yes
Hazardous Decomposition Products:	Thermal decomposition products are highly dependent on combustion conditions.
Incompatible Materials:	Avoid strong oxidizing agents.
Conditions of Reactivity:	Avoid excessive heat, open flames and all ignition sources.

11. TOXICOLOGICAL INFORMATION

Ingredient (or Product if not specified) Toxicological Data

Fuels, Diesel, No. 2	LD50 Oral Rat >5000 mg/kg LD50 Dermal Rabbit >2000 mg/kg

Routes of Exposure:	Exposure may occur via inhalation, ingestion, skin absorption and skin or eye contact.
Irritancy:	This product is expected to be irritating to skin but is not predicted to be a skin sensitizer.
Chronic Effects:	Prolonged and repeated contact with skin can cause defatting and drying of the skin resulting in skin irritation and dermatitis. Prolonged exposure to high vapour concentration can cause headache, dizziness, nausea, blurred vision and central nervous system depression.
Pre-existing Conditions:	Pre-existing eye, skin and respiratory disorders may be aggravated by exposure to this product.
Carcinogenicity and Mutagenicity:	The International Agency for Research on Cancer (IARC) considers that this product is not classifiable as to its carcinogenicity to humans. Middle distillates have caused skin cancers in laboratory animals when applied repeatedly and left in place between applications. This effect is believed to be caused by the continuous irritation of the skin. Good personal hygiene should be maintained to avoid this risk. The American Conference of Governmental Industrial Hygienists (ACGIH) has classified this product as A3 - confirmed animal carcinogen with unknown relevance to humans.

12. ECOLOGICAL INFORMATION

Environmental Effects:	Do not allow product or runoff from fire control to enter storm or sanitary sewers, lakes, rivers, streams, or public waterways. Block off drains and ditches. Provincial regulations require and federal regulations may require that environmental and/or other agencies be notified of a spill incident. Spill area must be cleaned and restored to original condition or to the satisfaction of authorities. May cause physical fouling of aquatic organisms.
Biodegradability:	Not readily biodegradable. Potential for bioaccumulation.

13. DISPOSAL CONSIDERATIONS

Waste management priorities (depending on volumes and concentration of waste) are: 1. recycle (reprocess), 2. energy recovery (cement kilns, thermal power generation), 3. incineration, 4. disposal at a licenced waste disposal facility. Do not attempt to combust waste on-site. Incinerate at a licenced waste disposal site with approval of environmental authority.

14. TRANSPORTATION INFORMATION

Canadian Road and Rail Shipping Classification:

UN Number	UN1202
Proper Shipping Name	DIESEL FUEL
Hazard Class	Class 3 Flammable Liquids
Packing Group	PG III
Shipping Description	DIESEL FUEL Class 3 UN1202 PG III

15. REGULATORY INFORMATION

This product has been classified in accordance with the hazard criteria of the *Controlled Products Regulations (*CPR*)* and the MSDS contains all the information required by the CPR.

WHMIS Class:	Class B3 Combustible Liquid Class D2B Other Toxic Effects - Skin Irritant
DSL/NDSL Status:	This product, or all components, are listed on the Domestic Substances List, as required under the Canadian Environmental Protection Act. This product and/or all components are listed on the U.S. EPA TSCA Inventory.
Other Regulatory Status:	No Canadian federal standards.

16. ADDITIONAL INFORMATION

LABEL STATEMENTS

Hazard Statement :	Combustible Liquid. Irritating to skin.
Handling Statement:	Eliminate all ignition sources. Avoid prolonged exposure to vapours. Wear suitable gloves and eye protection. Bond and ground transfer containers and equipment to avoid static accumulation. Empty containers are hazardous, may contain flammable / explosive dusts, liquid residue or vapours. Keep away from sparks and open flames.
First Aid Statement :	Wash contaminated skin with soap and water. Flush eyes with water. If overcome by vapours remove to fresh air. Do not induce vomiting. Obtain medical attention.
Revisions:	This MSDS has been reviewed and updated. Changes have been made to: Section 8 Section 14 Section 11

Shell Canada Limited

Material Safety Data Sheet

Effective Date: 2002-08-14
Supersedes: 2001-01-08

Class B2 Flammable Liquid

Class D2A Other Toxic Effects - Carcinogen

1. PRODUCT AND COMPANY IDENTIFICATION

PRODUCT:	**PREMIUM UNLEADED GASOLINE**
SYNONYMS:	Automotive Fuel Petrol
PRODUCT USE:	Fuel
MSDS Number:	231-001

MANUFACTURER	**TELEPHONE NUMBERS**	
Shell Canada Limited	**Shell Emergency Number**	1-800-661-7378
P.O. Box 100, Station M	**CANUTEC 24 HOUR EMERGENCY NUMBER**	613-996-6666
400-4th Ave. S.W.		
Calgary, AB Canada	For general information:	1-800-661-1600
T2P 2H5	For MSDS information:	403-691-3982
	(From 7:30 to 4:30 Mountain Time)	403-691-2220

This MSDS was prepared by the Toxicology and Product Stewardship Section of Shell Canada Limited.

*An asterisk in the product name designates a trade-mark(s) of Shell Canada Limited, used under license by Shell Canada Products.

2. COMPOSITION/INFORMATION ON INGREDIENTS

Component Name	**CAS Number**	**% Range**	**WHMIS Controlled**
Gasoline, Natural	8006-61-9	80 - 100	Yes
Benzene	71-43-2	<1.5	Yes

See Section 8 for Occupational Exposure Guidelines.

3. HAZARDS IDENTIFICATION

Physical Description: Liquid Clear Typical Gasoline Odour

Routes of Exposure: Exposure may occur via inhalation, ingestion, skin absorption and skin or eye contact.

Hazards:

Flammable Liquid.
Contains Benzene.
May cause cancer.
Vapours are moderately irritating to the eyes.
Ingestion may result in vomiting. Avoid aspiration of vomitus into lungs as small quantities may result in aspiration pneumonitis.
May be absorbed by skin contact. Prolonged immersion in liquid may lead to chemical burns.
Vapours are moderately irritating to the respiratory passages. The liquid when accidently aspirated into the lungs can cause a severe inflammation of the lung.
Excessive exposure to benzene may cause leukemia in man.

Handling: Eliminate all ignition sources.
Wear suitable gloves and eye protection.
Bond and ground transfer containers and equipment to avoid static accumulation.
Avoid prolonged exposure to vapours.
Empty containers are hazardous, may contain flammable / explosive dusts, liquid residue or vapours. Keep away from sparks and open flames.

For further information on health effects, see Section 11.

4. FIRST AID

Eyes: Flush eyes with water for at least 15 minutes while holding eyelids open. If irritation occurs and persists, obtain medical attention.

Skin: Wash contaminated skin with mild soap and water for 15 minutes. If irritation occurs and persists, obtain medical attention.

Ingestion: DO NOT INDUCE VOMITING! OBTAIN MEDICAL ATTENTION IMMEDIATELY. Guard against aspiration into lungs by having the individual turn on to their left side. If vomiting occurs spontaneously keep head below hips to prevent aspiration of liquid into the lungs.

Inhalation: Remove victim from further exposure and restore breathing, if required. Obtain medical attention.

Notes to Physician: The main hazard following accidental ingestion is aspiration of the liquid into the lungs producing chemical pneumonitis. If more than 2.0 mL/kg has been ingested, vomiting should be induced with supervision. If symptoms such as loss of gag reflex, convulsions or unconsciousness occur before vomiting, gastric lavage with a cuffed endotracheal tube should be considered.

5. FIRE FIGHTING MEASURES

Extinguishing Media: Dry Chemical
Carbon Dioxide
Foam
Water Fog

Firefighting Instructions: Extremely flammable. Do not enter confined fire space without adequate protective clothing and an approved positive pressure self-contained breathing apparatus. Do not use water except as a fog. Product will float and can be reignited on surface of water. Containers exposed to intense heat from fires should be cooled with water to prevent vapour pressure buildup which could result in container rupture. Container areas exposed to direct flame contact should be cooled with large quantities of water as needed to prevent weakening of container structure. Vapour forms a flammable/explosive mixture with air between upper and lower flammable limits. Vapours may travel along ground and flashback along vapour trail may occur.

Hazardous Combustion Products: Carbon dioxide, carbon monoxide and unidentified organic compounds may be formed upon combustion.

6. ACCIDENTAL RELEASE MEASURES

Issue warning "Flammable". Eliminate all ignition sources. Isolate hazard area and restrict access. Handling equipment must be grounded. Try to work upwind of spill. Avoid direct contact with material. Wear appropriate breathing apparatus (if applicable) and protective clothing. Stop leak only if safe to do so. Dike and contain land spills; contain water spills by booming. Use water fog to knock down vapours; contain runoff. Absorb residue or small spills with absorbent material and remove to non-leaking containers for disposal. Recommended materials: Clay or Sand Flush area with water to remove trace residue. Dispose of recovered material as noted under Disposal Considerations.

7. HANDLING AND STORAGE

Handling: Extremely flammable. Fixed equipment as well as transfer containers and equipment should be grounded to prevent accumulation of static charge. Avoid all direct contact with this material. Avoid prolonged or repeated inhalation of vapours. Vapours may accumulate and travel to distant ignition sources and flashback. Do not cut, drill, grind, weld or perform similar operations on or near containers. Do not use as a cleaning solvent. Never siphon by mouth. Empty containers are hazardous, may contain flammable/explosive dusts, residues or vapours. Launder contaminated clothing prior to reuse. Wash with soap and water prior to eating, drinking, smoking, applying cosmetics or using toilet facilities.

Storage: Store in a cool, dry, well ventilated area, away from heat and ignition sources. Protect against physical damage to containers.

8. EXPOSURE CONTROLS / PERSONAL PROTECTION

THE FOLLOWING INFORMATION, WHILE APPROPRIATE FOR THIS PRODUCT, IS GENERAL IN NATURE. THE SELECTION OF PERSONAL PROTECTIVE EQUIPMENT WILL VARY DEPENDING ON THE CONDITIONS OF USE.

OCCUPATIONAL EXPOSURE LIMITS (Current ACGIH TLV/TWA unless otherwise noted):

Gasoline: 300 ppm (STEL: 500 ppm)
Benzene (skin) : 0.5 ppm (STEL: 2.5 ppm)
Skin Notation: The occupational exposure limit is based on the fact that skin and/or eye is a major route of exposure through absorption.

Mechanical Ventilation: For personnel entry into confined spaces (i.e. bulk storage tanks) a proper confined space entry procedure must be followed including ventilation and testing of tank atmosphere. Concentrations in air should be maintained below lower explosive limit at all times or below the recommended threshold limit value if unprotected personnel are involved. Make up air should always be supplied to balance air exhausted (either generally or locally). Use explosion-proof ventilation as required to control vapour concentrations.

PERSONAL PROTECTIVE EQUIPMENT:

Eye Protection: Chemical safety goggles and/or full face shield to protect eyes and face, if product is handled such that it could be splashed into eyes. Provide an eyewash station in the area.

Skin Protection: Impervious gloves should be worn at all times when handling this product. PVC or nitrile rubber gloves are recommended. In confined spaces or where the risk of skin exposure is much higher, impervious clothing should be worn. Safety showers should be available for emergency use.

Respiratory Protection: If exposure exceeds occupational exposure limits, use an appropriate NIOSH-approved respirator. Use a NIOSH-approved chemical cartridge respirator with organic vapour cartridges. For high airborne concentrations, use a NIOSH-approved supplied-air respirator, either self-contained or airline breathing apparatus, operated in positive pressure mode.

9. PHYSICAL DATA

Physical State:	Liquid
Appearance:	Clear
Odour:	Typical Gasoline Odour
Odour Threshold:	<0.25 ppm
Freezing/Pour Point:	Not available
Boiling Point:	35 - 215 degrees C
Density:	750 - 850 kg/m3 @ 15 degrees C
Vapour Density (Air = 1):	3.5
Vapour Pressure (absolute):	Not available
pH:	Not applicable
Flash Point:	Method Tag Closed Cup -30 degrees C
Lower Explosion Limit:	1 % (vol.)
Upper Explosion Limit:	7.6 % (vol.)
Autoignition Temperature:	280 degrees C
Viscosity:	<1 cSt @ 38 degrees C
Evaporation Rate (n-BuAc = 1):	Not available
Partition Coefficient (K_{ow}):	200
Water Solubility:	Insoluble
Other Solvents:	Hydrocarbon Solvents
Formula:	C4 - C11

10. STABILITY AND REACTIVITY

Chemically Stable:	Yes
Hazardous Polymerization:	No
Sensitive to Mechanical Impact:	No
Sensitive to Static Discharge:	Yes

Incompatible Materials:	Avoid contact with strong oxidizing agents and acids.
Conditions of Reactivity:	Avoid excessive heat, open flames and all ignition sources.

11. TOXICOLOGICAL INFORMATION

Ingredient (or Product if not specified)	Toxicological Data
Gasoline, Natural	LD50 Oral Rat = 18800 mg/kg LD50 Dermal Rabbit >8000 mg/kg
Benzene	LD50 Oral Rat = 930 - 5600 mg/kg LC50 Inhalation Rat = 13700 ppm for 4 hours

Routes of Exposure:	Exposure may occur via inhalation, ingestion, skin absorption and skin or eye contact.
Irritancy:	Based on testing with similar materials, this product is not expected to be a primary skin irritant after exposure of short duration, would not be a skin sensitizer and would not be irritating to the eye.
Chronic Effects:	Prolonged and repeated contact with skin can cause defatting and drying of the skin resulting in skin irritation and dermatitis. Prolonged exposure to high vapour concentration can cause headache, dizziness, nausea, blurred vision and central nervous system depression. Prolonged and repeated exposure may cause serious injury to blood forming organs, resulting in anemia and similar conditions.
Carcinogenicity and Mutagenicity:	According to the International Agency for Research on Cancer (IARC) this product is considered to be possibly carcinogenic to humans. Epidemiological studies indicate that long term inhalation of benzene vapour can cause leukaemia in man. Benzene has also produced chromosomal aberrations in peripheral blood lymphocytes.

12. ECOLOGICAL INFORMATION

Environmental Effects:	Do not allow product or runoff from fire control to enter storm or sanitary sewers, lakes, rivers, streams, or public waterways. Block off drains and ditches. Provincial regulations require and federal regulations may require that environmental and/or other agencies be notified of a spill incident. Spill area must be cleaned and restored to original condition or to the satisfaction of authorities. May be harmful to aquatic life. Fish Toxicity: 5 to 40 ppm | 96 hr TLm | Rainbow Trout | Freshwater
Biodegradability:	Not readily biodegradable. Potential for bioaccumulation. Rapid volatilization.

13. DISPOSAL CONSIDERATIONS

Waste management priorities (depending on volumes and concentration of waste) are: 1. recycle (reprocess), 2. energy recovery (cement kilns, thermal power generation), 3. incineration, 4. disposal at a licenced waste disposal facility. Do not attempt to combust waste on-site. Incinerate at a licenced waste disposal site with approval of environmental authority.

14. TRANSPORTATION INFORMATION

Canadian Road and Rail Shipping Classification:

UN Number	UN1203
Proper Shipping Name	GASOLINE
Hazard Class	Class 3 Flammable Liquids
Packing Group	PG II
Additional Information	Marine Pollutant
Shipping Description	GASOLINE Class 3 UN1203 PG II Marine Pollutant

15. REGULATORY INFORMATION

This product has been classified in accordance with the hazard criteria of the *Controlled Products Regulations (*CPR*)* and the MSDS contains all the information required by the CPR.

WHMIS Class:	Class B2 Flammable Liquid Class D2A Other Toxic Effects - Carcinogen
DSL/NDSL Status:	This product, or all components, are listed on the Domestic Substances List, as required under the Canadian Environmental Protection Act. This product and/or all components are listed on the U.S. EPA TSCA Inventory.
Other Regulatory Status:	No Canadian federal standards.

16. ADDITIONAL INFORMATION

LABEL STATEMENTS

Hazard Statement :	Flammable Liquid. Contains Benzene. May cause cancer.
Handling Statement:	Eliminate all ignition sources. Wear suitable gloves and eye protection. Bond and ground transfer containers and equipment to avoid static accumulation. Avoid prolonged exposure to vapours. Empty containers are hazardous, may contain flammable / explosive dusts, liquid residue or vapours. Keep away from sparks and open flames.
First Aid Statement :	Wash contaminated skin with soap and water. Flush eyes with water. If overcome by vapours remove to fresh air. Do not induce vomiting. Obtain medical attention.
Revisions:	This MSDS has been reviewed and updated. Changes have been made to: Section 2 Section 5 Section 8

MATERIAL SAFETY DATA SHEET

SECTION I – PRODUCT INFORMATION

Product Name: Propane
Trade Name: LPG (Liquefied Petroleum Gas)
Chemical Formula: C3H8
WHIMIS Classification: Class A – Compressed Gas
Class B, Division I – Flammable Gas

Supplier:

Business:

Non Medical Emergency:

Uses and Occurrence: Propane is commonly used as fuel for heating, cooking, automobiles, forklift trucks, crop drying and welding and cutting operations. Propane is used in industry as a refrigerant, solvent and as a chemical feedstock.

CEPA: CANADIAN ENVIRONMENTAL PROTECTION ACT

All components of this product are either on the Domestic Substances List (DSL) or are exempt.

SECTION II – HAZARDOUS INGREDIENTS

Components	**CAS Registry No.**	**Proportion of Product**	**LC50**	**LD50**
Propane	74986	95% - 98%	N/A	N/A
Ethane	74840	3% - 5%	N/A	N/A
Butane	791068	1% - 3%	N/A	N/A
Iso-Butane	75285	0.1% - 0.3%	N/A	N/A
Methane	74828	0.1% - 0.2%	N/A	N/A

Note: Composition given is typical for Grade 1 Propane; exact composition will vary from shipment to shipment.

- Explanation for change – HD5 refers to American specification, Grade 1 is Canadian equivalent in CGSB 3.14 Standard

SECTION III – CHEMICAL AND PHYSICAL DATA

Form: While stored under pressure – liquid and/or vapor
Boiling Point: -42 ^{o}C atm
Freezing Point: -188 ^{o}C
Evaporation Rate: Rapid (Gas at Normal Ambient Conditions)
Vapor Pressure: 1,013 (kPa) @ 26.0 ^{o}C
Vapor Density: 1.52 (Air = 1)
Coefficient of Water/Oil Distribution: Not available
PH: Not available
Soluble in Water: 6.1% by Volume @ 17.8 ^{o}C and 753 mmHg

Specific Gravity: 0.51 (Water = 1)
Appearance: Colorless liquid and vapor while stored under pressure.
Colorless and odorless gas in natural state at any concentration.
Commercial propane has an odorant added which is commonly ethyl mercaptan which has an odor similar to boiling cabbage or rotten eggs.
Odor Threshold: 4800 PPM
See Note 1 - Odorants

SECTION IV – FIRE OR EXPLOSION HAZARD DATA

Flash Point: -103.4 ^{o}C **Method**: Closed Cup
Flammable Limits: Lower 2.4%, Upper 9.5%
Auto Ignition Temperature: 432 ^{o}C
Products Evolved Due to Heat or Combustion: Carbon monoxide can be produced when primary and secondary airs are deficient while combustion is taking place.
Fire and Explosive Hazards: Explosive air-vapor mixtures may form if allowed to leak to atmosphere.
Sensitivity to Impact: No
Sensitivity to Static Discharge: Yes

Fire Extinguishing Precautions: Use water spray to cool exposed cylinders or tanks. Do not extinguish fire unless the source of the escaping gas that is fuelling the fire can be turned off. Fire can be extinguished with carbon dioxide and/or dry chemical (BC). Container metal shells require cooling with water to prevent flame impingement and the weakening of metal. If weakening, the area must be evacuated. If gas has not ignited, liquid and vapor may be dispersed by water spray or flooding.
Special Fire Fighting Equipment: Protective clothing, hose monitors, fog nozzles, self contained breathing apparatus.

SECTION V – REACTIVITY DATA

Stability: Stable
Conditions to Avoid: Keep separate fro oxidizing agents. Gas explodes spontaneously when mixed with chlorine dioxide.
Incompatibility: Remove sources of ignition and observe distance requirements for storage tanks from combustible material, drains, and openings to buildings.
Hazardous Decomposition Products: Deficient primary and secondary air can produce carbon monoxide.
Hazardous Polymerization: Will not occur.

SECTION VI – TOXICOLOGICAL PROPERTIES OF MATERIAL

ACUTE EXPOSURE:

Eyes: As a gas, none, Liquid causes "cold burns'.
Respiratory System: Little physiological effect at concentrations below 10.000 PPM. Higher concentrations may cause dizziness and unconsciousness due to asphyxiation. ***SEE NOTE 2 – ASPHYXIANT.***
Chronic Exposure: There are not reported effects from long-term low-level exposure.
Other: Liquid can cause burns and frostbite if in direct contact with skin.
Sensitization Properties: Skin – unknown, **Respiratory** – unknown.
Carcinogenicity: Not determined. ***SEE NOTE 3 (NORM).***

MEDIAN LETHAL DOSE:
Oral: Not applicable for gas.
Inhalation: Not determined.
Dermal: Not applicable for gas.
Other: Not determined.
IRRITATION INDEX:
Skin: No appreciable effect (gas).
Eyes: No appreciable effect (gas).
Symptoms of Exposure: Above 10,000 PPM – dizziness, stupor, unconsciousness. ***SEE NOTE 2 attached.*** American Conference of Governmental Industrial Hygienists (ACGIH) classifies propane as an asphyxiate; there is no recommended "Threshold Limit Value" (TLV).
Teratogenicity: Not determined.
Mutagenicity: Not determined.

SECTION VII – OCCUPATION CONTROL PROCEDURES

Eyes: Safety glasses, goggles, or face shield required when transferring product.
Skin: Insulated gloves if contact with liquid or liquid cooled equipment is expected. Wear gloves and long sleeves when transferring product.
Inhalation: In atmosphere, where the concentration of propane would reduce oxygen level below 18% in inhaled air, self contained breathing apparatus required. ***SEE NOTE 3 – (NORM).***
Ventilation: Explosion proof ventilation equipment required in confined spaces.

SECTION VIII – EMERGENCY AND FIRST AID PROCEDURES

FIRST AID:
Eyes: Should eye contact with liquid occur, flush eyes with lukewarm water for 15 minutes. Obtain immediate medical care.
Skin: In case of "Cold Burn" from contact with liquid, immediately place affected area in lukewarm water and keep at this temperature until circulation returns. If fingers or hands are frostbitten, have the victim hold his hand next to his body such as under the armpit. Obtain immediate medical care.

SPILL OR LEAK:
Eliminate leak if possible.
Eliminate source of ignition.
Ensure cylinder is upright.
Disperse vapors with hose streams using fog nozzles, watch for low area, as propane is heavier than air and can settle in low areas. Remain upwind of leak, keep people away.
Prevent vapor and/or liquid from entering into sewers, basements or confined areas.

SECTION 1X – TRANSPORTATION, HANDLING AND STORAGE

- Transport and store cylinders and tanks secured in an upright position in a ventilated space, away from ignition sources (so relief valve is in contact with vapor space of cylinder or tank).
- Cylinders that are not in use must have the valves in the closed position and be equipped with a protective cap or guard.
- Do not store with oxidizing agents, oxygen or chlorine cylinders.
- Transport, handle and store according to applicable federal and provincial regulations (CGA B149.2). ***SEE NOTE 4 – MAGNETIC RESIDUES.***

TDG Classification: 2.1 (gas)
TDG Shipping Name: Liquid Petroleum Gas (Propane)
TDG Special Provisions: 56, 90, and 102
PIN UN: 1075

SECTION X – PREPARTATION INFORMATION

Prepared by: Propane Gas Association of Canada
(403) 543-6500

Date prepared: April 2004

This information is in addition to the information supplied on the MSDS and forms a part of the MSDS by reference to note numbers indicated:

NOTE 1 ODOURANTS:

Odorants are not completely effective warning agents in all cases.
Certain odorants are polar and/or chemically reactive and may be depleted by reaction or absorption.
Sensitivity to odorants differs from person to person and may decrease with age or impaired physical conditions such as colds or respiratory allergies.
Prolonged exposure to odorants can create desensitization to the odor.

NOTE 2 ASPHYXIANT AND NARCOTIC EFFECTS OR PROPANE:

LPG's can displace air and can act as an asphyxiant. Lack of oxygen may cause dizziness, headaches, diminished awareness, faulty judgment, increase in fatigue and impaired muscular co-ordination. If these symptoms are identified while working in close proximity to propane that is released, go immediately into a fresh air environment.

LPG's are anaesthetic gases within the upper explosive limits and higher concentrations. A person working around propane in an enclosed space or in close proximity to a propane source such as filling cylinders, purging lines, investigating leaks, etc. who feels light-headed, dizzy, drunken, sleepy, or intoxicated should go immediately into fresh air. This narcotic effect may impair a person's judgment temporarily but will rapidly disappear in fresh air.

NOTE 3 NATURALLY OCCURRING RADIOACTIVE MATERIAL (NORM):

Sludges and tank scale from propane storage tanks, bulk delivery truck tanks, railway tank cars, and fuel filters and strainers screens may contain Naturally Occurring Radioactive Material (NORM) in the form of lead 210.

Equipment used for the transfer of propane such as propane piping and hoses, pumps and compressors may have detectable levels of radioactive lead 210 on inner surfaces.

Workers involved in cleaning, repair or maintenance on inner surfaces of such equipment should avoid breathing dust generated from such activities. Suitable codes of practice should be developed for the activities, detailing appropriate occupational hygiene and disposal practices.

NOTE 4 MAGNETIC RESIDUES IN PROPANE:

Magnetic residues generated in automotive fuel tanks from "mill scale" or corrosion processes may impair the operation of magnetic gauges and electronic solenoid valves.

Collection of gross amounts of solid residues can affect the proper operation of lock offs, mixers, pressure release valves, etc.

Solid residues could contain NORM (see note 3).

MSDS Material Safety Data Sheet

From: Mallinckrodt Baker, Inc.
222 Red School Lane
Phillipsburg, NJ 08865

Mallinckrodt CHEMICALS J.T.Baker

24 Hour Emergency Telephone: 908-859-2151
CHEMTREC: 1-800-424-9300

National Response in Canada
CANUTEC: 613-996-6666

Outside U.S. and Canada
Chemtrec: 703-527-3887

NOTE: CHEMTREC, CANUTEC and National Response Center emergency numbers to be used only in the event of chemical emergencies involving a spill, leak, fire, exposure or accident involving chemicals.

All non-emergency questions should be directed to Customer Service (1-800-582-2537) for assistance.

CALCIUM CHLORIDE DIHYDRATE

1. Product Identification

Synonyms: Calcium Chloride, CalPlus™
CAS No.: 10043-52-4 (Anhydrous); 10035-04-8 (Dihydrate)
Molecular Weight: 147.01
Chemical Formula: CaCl2 . 2H2O
Product Codes:
J.T. Baker: 1332, 1335, 1336, 5566, 5831
Mallinckrodt: 3191, 3620, 4113, 4160, 4616, 4836, 4842, 4866, 6006, 7722

2. Composition/Information on Ingredients

Ingredient	CAS No	Percent	Hazardous
Calcium Chloride	10043-52-4	99 - 100%	Yes

3. Hazards Identification

Emergency Overview

WARNING! CAUSES IRRITATION TO SKIN, EYES AND RESPIRATORY TRACT. HARMFUL IF SWALLOWED OR INHALED.

J.T. Baker SAF-T-DATA(tm) Ratings (Provided here for your convenience)

Health Rating: 1 - Slight

Flammability Rating: 0 - None
Reactivity Rating: 0 - None
Contact Rating: 2 - Moderate
Lab Protective Equip: GOGGLES; LAB COAT
Storage Color Code: Orange (General Storage)

Potential Health Effects

Inhalation:
Granular material does not pose a significant inhalation hazard, but inhalation of dust may cause irritation to the respiratory tract, with symptoms of coughing and shortness of breath.
Ingestion:
Low toxicity material but ingestion may cause serious irritation of the mucous membrane due to heat of hydrolysis. Large amounts can cause gastrointestinal upset, vomiting, abdominal pain.
Skin Contact:
Solid may cause mild irritation on dry skin; strong solutions or solid in contact with moist skin may cause severe irritation, even burns.
Eye Contact:
Hazard may be either mechanical abrasion or, more serious, burns from heat of hydrolysis and chloride irritation.
Chronic Exposure:
No information found.
Aggravation of Pre-existing Conditions:
No information found.

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4. First Aid Measures

Inhalation:
Remove to fresh air. If not breathing, give artificial respiration. If breathing is difficult, give oxygen. Get medical attention.
Ingestion:
Induce vomiting immediately as directed by medical personnel. Never give anything by mouth to an unconscious person. Get medical attention.
Skin Contact:
Wipe off excess material from skin then immediately flush skin with plenty of water for at least 15 minutes. Remove contaminated clothing and shoes. Get medical attention. Wash clothing before reuse. Thoroughly clean shoes before reuse.
Eye Contact:
Immediately flush eyes with plenty of water for at least 15 minutes, lifting lower and upper eyelids occasionally. Get medical attention immediately.

Note to Physician:
Oral ingestion may cause serum acidosis.

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5. Fire Fighting Measures

Fire:
Not considered to be a fire hazard.
Explosion:
Not considered to be an explosion hazard.
Fire Extinguishing Media:

Use any means suitable for extinguishing surrounding fire.
Special Information:
In the event of a fire, wear full protective clothing and NIOSH-approved self-contained breathing apparatus with full facepiece operated in the pressure demand or other positive pressure mode.

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6. Accidental Release Measures

Ventilate area of leak or spill. Wear appropriate personal protective equipment as specified in Section 8. Spills: Sweep up and containerize for reclamation or disposal. Vacuuming or wet sweeping may be used to avoid dust dispersal. Small amounts of residue may be flushed to sewer with plenty of water.

---

7. Handling and Storage

Keep in a tightly closed container, stored in a cool, dry, ventilated area. Protect against physical damage. Moist calcium chloride and concentrated solutions can corrode steel. When exposed to the atmosphere, calcium chloride will absorb water and form a solution. Containers of this material may be hazardous when empty since they retain product residues (dust, solids); observe all warnings and precautions listed for the product.

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8. Exposure Controls/Personal Protection

Airborne Exposure Limits:
None established.
Ventilation System:
A system of local and/or general exhaust is recommended to keep employee exposures as low as possible. Local exhaust ventilation is generally preferred because it can control the emissions of the contaminant at its source, preventing dispersion of it into the general work area. Please refer to the ACGIH document, *Industrial Ventilation, A Manual of Recommended Practices*, most recent edition, for details.
Personal Respirators (NIOSH Approved):
For conditions of use where exposure to dust or mist is apparent and engineering controls are not feasible, a particulate respirator (NIOSH type N95 or better filters) may be worn. If oil particles (e.g. lubricants, cutting fluids, glycerine, etc.) are present, use a NIOSH type R or P filter. For emergencies or instances where the exposure levels are not known, use a full-face positive-pressure, air-supplied respirator. WARNING: Air-purifying respirators do not protect workers in oxygen-deficient atmospheres.
Skin Protection:
Wear protective gloves and clean body-covering clothing.
Eye Protection:
Use chemical safety goggles and/or full face shield where dusting or splashing of solutions is possible. Maintain eye wash fountain and quick-drench facilities in work area.
Other Control Measures:
Maintain good housekeeping in work area. Dust deposits on floors and other surfaces may pick up moisture and cause the surfaces to become slippery and present safety hazards.

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9. Physical and Chemical Properties

Appearance:
Coarse white powder or mixture of coarse white powder and medium sized granules.
Odor:

Odorless.
Solubility:
Freely soluble in water with heat liberation.
Density:
0.835
pH:
8 - 9 Aqueous solution
% Volatiles by volume @ 21C (70F):
0
Boiling Point:
> 1600C (> 2912F)
Melting Point:
ca. 260C (ca. 500F)
Vapor Density (Air=1):
No information found.
Vapor Pressure (mm Hg):
No information found.
Evaporation Rate (BuAc=1):
No information found.

---

10. Stability and Reactivity

Stability:
Stable under ordinary conditions of use and storage. Substance will pick up moisture from the air and go into solution if exposed in open containers.
Hazardous Decomposition Products:
Emits toxic chlorine fumes when heated to decomposition. May form hydrogen chloride in presence of sulfuric or phosphoric acids or with water at elevated temperatures.
Hazardous Polymerization:
Will not occur.
Incompatibilities:
Methyl vinyl ether, water, zinc, bromine trifluoride, mixtures of lime and boric acid, barium chloride, and 2-furan percarboxylic acid. Metals will slowly corrode in aqueous calcium chloride solutions. Aluminum (and alloys) and yellow brass will be attacked by calcium chloride.
Conditions to Avoid:
Incompatibles.

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11. Toxicological Information

For calcium chloride anhydrous: oral rat LD50: 1000 mg/kg; investigated as a mutagen, tumorigen.

--------\Cancer Lists\----------

Ingredient	---NTP Carcinogen--- Known	Anticipated	IARC Category
Calcium Chloride (10043-52-4)	No	No	None

---

12. Ecological Information

Environmental Fate:
Based on available information for Calcium Chloride anhydrous, this material will not biodegrade or bioaccumulate.
Environmental Toxicity:
Based on data for Calcium Chloride anhydrous, the LC50/96-hour values for fish are over 100 mg/l.

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13. Disposal Considerations

Whatever cannot be saved for recovery or recycling should be managed in an appropriate and approved waste disposal facility. Processing, use or contamination of this product may change the waste management options. State and local disposal regulations may differ from federal disposal regulations. Dispose of container and unused contents in accordance with federal, state and local requirements.

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14. Transport Information

Not regulated.

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15. Regulatory Information

--------\Chemical Inventory Status - Part 1\---------------------------------

Ingredient	TSCA	EC	Japan	Australia
Calcium Chloride (10043-52-4)	Yes	Yes	Yes	Yes

--------\Chemical Inventory Status - Part 2\---------------------------------

Ingredient	Korea	--Canada-- DSL	NDSL	Phil.
Calcium Chloride (10043-52-4)	Yes	Yes	No	Yes

--------\Federal, State & International Regulations - Part 1\----------------

Ingredient	-SARA 302- RQ	TPQ	------SARA 313------ List	Chemical Catg.
Calcium Chloride (10043-52-4)	No	No	No	No

--------\Federal, State & International Regulations - Part 2\----------------

Ingredient	CERCLA	-RCRA- 261.33	-TSCA- 8(d)
Calcium Chloride (10043-52-4)	No	No	No

Chemical Weapons Convention: No TSCA 12(b): No CDTA: No
SARA 311/312: Acute: Yes Chronic: No Fire: No Pressure: No
Reactivity: No (Pure / Solid)

RAINBOW PROJECT FUEL MANAGEMENT AND SPILL RESPONSE PLAN-AUG 04

Camp Location	:	61°19.33' N/98° 29.75'W (map attached, Appendix A) (West side of Cullaton Lake, NTS 65G07/08) 148 miles/240 km west of Arviat 235 miles/380 km northwest of Churchill 382 miles/615 km north of Thompson 231 miles/ 372 km southwest of Rankin Inlet
Project Geologists	: : :	Nic Fenner, Tel (450) 972-2845, Cell (514) 974-2845 Robert Banville, Tel (450) 972-2844, Cell (514)2493941 Gord Maxwell, Tel (450) 972-2942, Cell (514) 702-5399
Camp Telephone Number	**:**	**1-613-980-0232 (Globestar Satellite Phone) Camp Manager: Tom Collet**
Spill Team Leaders	**:**	**Tom Collet and/or the Project Geologist**
Cullaton Lake Airstrip Owner:		**Barrick Gold Corporation (Letter Agreement in Place to use airstrip facilities for fuel storage)(On Mining Lease 3019) Contact, Land Manager: Cy Wilsey (Barrick) Tel: (801) 990-3795, Fax: (801) 366-9242 or Contact: Paul Bruger Tel: (807) 964-1657**

NORANDA/FALCONBRIDGE MONTREAL EXPLORATION OFFICE (450) 668-2112 (CONTACT JAMIE ROBERTSON, ROBIN ADAIR OR GORDON MAXWELL)

NORANDA/FALCONBRIDGE CRISIS MANAGEMENT 24HR HOTLINE (416) 368-7373

NWT/NUNAVUT 24 HOUR SPILL REPORT LINE (867) 920-8130

Regional Emergency Contact Numbers:

Arviat Health Centre	**(867) 857-2374**
Rankin Inlet Health Centre	**(867) 645-2171**
Churchill Health Centre	**(204) 675-8318**
Thompson Hospital	**(204) 677-2381**
Calm Air Medivac(Thompson)	**(204) 778-7088**
Keewatin Air Medivac(Rankin,24hrs)	**(867) 645-4455**
RCMP Arviat	**(867) 857-2822**
DIAND Water Resources Inspector	**(867) 979-4298**

The Rainbow Field Project will be conducted from a helicopter supported remote field camp base located on the west side of Cullaton Lake, immediately north of Barrick Gold Corporation's Mining Lease Number 3019 in Nunavut, and approximately 1km NW of the Abandoned Cullaton Lake Airstrip (61°19' N/98° 30'W). The camp will be supplied and supported using Barrick's Abandoned Cullaton Lake Airstrip.

Due to the remote location of the project it will be necessary to supply the exploration project fuel needs via charter aircraft through the abandoned Cullaton Lake Airstrip. The following fuel types will be supplied to the exploration project between July and September 30th, 2004:

- Cylindered 50KG Propane Gas (heating and camp cooking purposes)
- Drummed 50 gal Jet B (helicopter and aircraft refueling purposes)
- Drummed 50 gal Diesel and Gasoline (camp generator, quad and drill refueling purposes)

A maximum of 40 drummed fuel containers will be maintained at the project site at any one time during the camp and drilling operations (refer to Schedule A for location maps of the fuel storage sites). The majority of the fuels will be located at the Cullaton Lake Airstrip (The project geologist (team leader) and camp manager will be responsible for managing the fuel supplies.

All fuels will be supplied by chartered aircraft from Churchill or Thompson in Manitoba. The following lists the fuel suppliers and aircraft companies to be used for fuel deliveries:

Churchill Marine Tank Farm	:	1-204-675-2426 (contact Bruce Andrews)
Calm Air Cargo (Thompson)	:	1-204-778-6471 (contact Hugh Condon)
Calm Air Base (Churchill)	:	1-204-675-8858 (contact Rose)
Skyward Aviation (Thompson)	:	1-204-677-8046 (contact Burt Livingston)

Falconbridge and Noranda are subscribers to the **PDAC E3 manual** (http://private.e3mining.com/index). Details regarding spill management are available in this manual. A copy of this manual is attached as Appendix B, and a copy is available in the field office tent, **everyone in camp must be aware of this manual its location, and must review it's contents prior to project start-up.**

Appropriate spill kits must be present and accessible at all times in close vicinity of all fuels. During refuelling from drums and once a drum has been unsealed for refuelling purposes they must be placed within a fuel berm to prevent leakage or spillage. All fuel berms must be approved to contain fuels and be in a satisfactory condition to contain a potential spill.

All fuel storage sites and transition areas will be audited by the Project Leader/Project Geologist or his designated representative every 2 weeks from commencement of the field operations and delivery of the first fuels to the project site. These audits are above and beyond normal completion of Environmental Compliance Forms and Checklists as outlined in the Noranda/Falconbridge Corporate Environmental Health and Safety Guidelines and Reporting. Copies of these forms are attached at the end of this document (Appendix E).

GENERAL NOTES REGARDING DEALING AND HANDLING OF FUELS

These notes and guidelines listed below are extracted from the Noranda and Falconbridge Field Handbook. It is mandatory for all field crew to be in possession of this manual. Please also refer to the **PDAC E3 manual (Appendix B)** for more detailed notes on fuel spill management:

- Do everything possible to prevent spills in the first place. Spills are not necessarily sudden releases of large amounts of material, but may be a slow dripping of fluid over long periods that may still add up to a considerable quantity. Where possible, design secondary containment.
- What is legally defined as a spill varies from jurisdiction to jurisdiction depending on the quantity and material. It is best to err on the safe side and report any spill where you are uncertain of the legal status.
- It is legally imperative that spills are reported promptly - that is immediately - and not waiting for a response from your supervisor if you cannot contact them immediately. Do not wait, as spills reported as soon as one hour after occurrence have been considered by government agencies as reported too late.
- The first priority should be to stop the spill getting worse, as long as this can be done safely.
- Do not attempt to clean up a spill until you have ascertained that you know the correct method to be used and it is safe to do so considering the conditions of the location, the material split and the equipment on hand.
- Do not attempt to clean up the spill unless you have clear instructions from a government agency or from within the company as to how it should be cleared up or you have specific training on that type of spill.
- Before disposing of the results of a spill cleanup, ensure that the disposal site is suitable and legal for the specific material. Some jurisdictions may also have legally mandated on-site storage or transport requirements.
- It is impossible in this small manual to cover all the possible types of spills that may need treating, as a result, this manual should not be considered an instruction manual for spill management. Please refer to the **PDAC E3 manual (Appendix B)** for this purpose.
- Prior to operations in any camp or site, there should have been a review of what materials are going to be on site, what hazards they represent, and what equipment and actions are required to mitigate any spills of the specific substances. The spill response/reporting plan will follow the **PDAC E3 manual (Appendix B).**
- In addition, it must be ensured that proper spill kits are available at all sites where spills may occur.
- Static charges caused by pumping potentially explosive liquid (e.g. gasoline) can result in an explosion if not properly electrically grounded.

TABLE 1: SPILL KIT MANDATORY EQUIPMENT (4 SUCH KITS ARE LOCATED ON SITE, ONCE A DRILL IS ON SITE SUCH A KIT WILL BE LOCATED AT THE MACHINE SITE

Component	Total needed for each fuel storage, transition or drill site	Comments
Round-nosed shovel	2	To manually remove contaminated materials.
45-gallon drum (205 litres)	3 (1 with supplies, other empty)	To temporarily store contaminated soil/ absorbents.
Plastic bags (thick)	4 (one for each drum, one spare)	To line the 45-gallon drum to prevent leakage during transport.
Absorbent pads	2 boxes or pails	**For minor spill and final clean-up of larger spill.** **Required under leaking piece of equipment and at water pump site.**
Absorbent rolls	1 roll	To use pro-actively as trap for oil leaking from drill (day-to-day).
Neoprene Gloves	2 pairs	To handle corrosive materials; acid, grease and fuels.
Goggles or Glasses	2 pairs	Eye protection against contact with contaminant.
Full clothing	2	To handle corrosive materials; acid, grease and fuels.
Peat Moss	2 bags	To absorb contaminants on still water (pond, sump pump) or when spilled product is confined.
Pig-tails and floating booms	5-6	Absorbing sausage-shaped rolls for land and water containment of spills

FUEL HANDLING AND SUPPLY POLICY – RAINBOW PROJECT

1. **All fuel orders will be placed with the approval of the Project Geologist (Team Leader).**
2. **Fuel storage onsite should be minimised as is practically possible without compromising the environment, field safety and operations.**
3. **Spill kits and berms must be located at the airstrip unloading sites as well as at all fuel storage sites (drill locations, campsite and other fuel caches).**
4. **The main Fuel Storage Site for the project will be the Cullaton Lake Airstrip, a maximum of 40 Jet B fuel drums will be located here, two fuel spill kits will be located at all times at this storage site. A berm will be used when refuelling at the airstrip and at the camp generator. Fuel absorbent rolls must present at the drill sites for use while refuelling.**

For emergency land spill response, absorbents and response equipment call Rocky Mountain Environmental Limited at Tel: (604) 275-1346 or 1-888-677-4556

RAINBOW PROJECT SPILL RESPONSE PLAN

The following summarizes the Spill Response Plan. For details on each component of the plan please refer to the PDAC E3 Spill Management Manual (Appendix B).

In the event of a fuel spill the following personnel will compose the Spill Response Team:

Spill Response Team Leaders:	**1. Tom Collet (Camp Manager) and The Project Geologist On-Site**
Spill Response Team:	**2. First Person On-Scene** **3. Fred Keats (Falconbridge/Noranda EHS Officer and Prospector), alternate Andre Dunford** **4. Brian Rowsell (Prospector/Field and Camp Assistant), alternate Craig Scott**

The Spill Response Leaders will be the sole contact during the spill incident and will coordinate the spill response efforts. In summary the following steps should be followed:

- **The "First Person on-Scene" should assess the severity of the spill, identify the source and dependant on the size of the spill stop and contain it as soon as possible using the appropriate spill kits and clean up material.**
- **As soon as practically possible the Spill Response Team Leaders should be informed and if necessary the Spill Response Team should be mobilised to the site and commence spill containment and clean up immediately. The Spill Response Team Leaders will direct management of the spill using the PDAC E3 Spill Management Guidelines (Appendix B) and the NWT Spill Response Form Appendix C. If unsure**

at any time of the severity of the spill the NWT Spill Report Line should be contacted at 867-920-8130.

- **The Spill Response Team Leaders should immediately notify the appropriate Nunavut Regional Authorities, and the Regional Exploration Manager to facilitate further action if necessary.**
- **The Team Leader should submit a Report Outlining the Incident, including the time, date, material spilled, cause and description of the spill. A diagram and .photograph of the sight should be collected and included with this report. At no point in the event of a spill should any communications be made directly with the media, all interactions with the media should be directed through the Spill Response Team Leader and Dale Coffin, Director of External Communications (Tel: 1-416-982-7161). The NWT Spill Report Form must be completed in addition to the internal company report (a copy of this form is attached in Appendix C).**
- **At all times during the spill incident it is mandatory to follow and refer to the PDAC E3 Spill Management Manual and Guidelines (Attached as Appendix B). The Spill Response Team will review this manual prior to field operations.**
- **Material Safety Data Sheets are included at the end of this document in Appendix D.**

APPENDIX A – PROJECT LOCATION DIAGRAMS

Figure 1: Regional Location of the Rainbow Project, Field Camp at Cullaton Lake

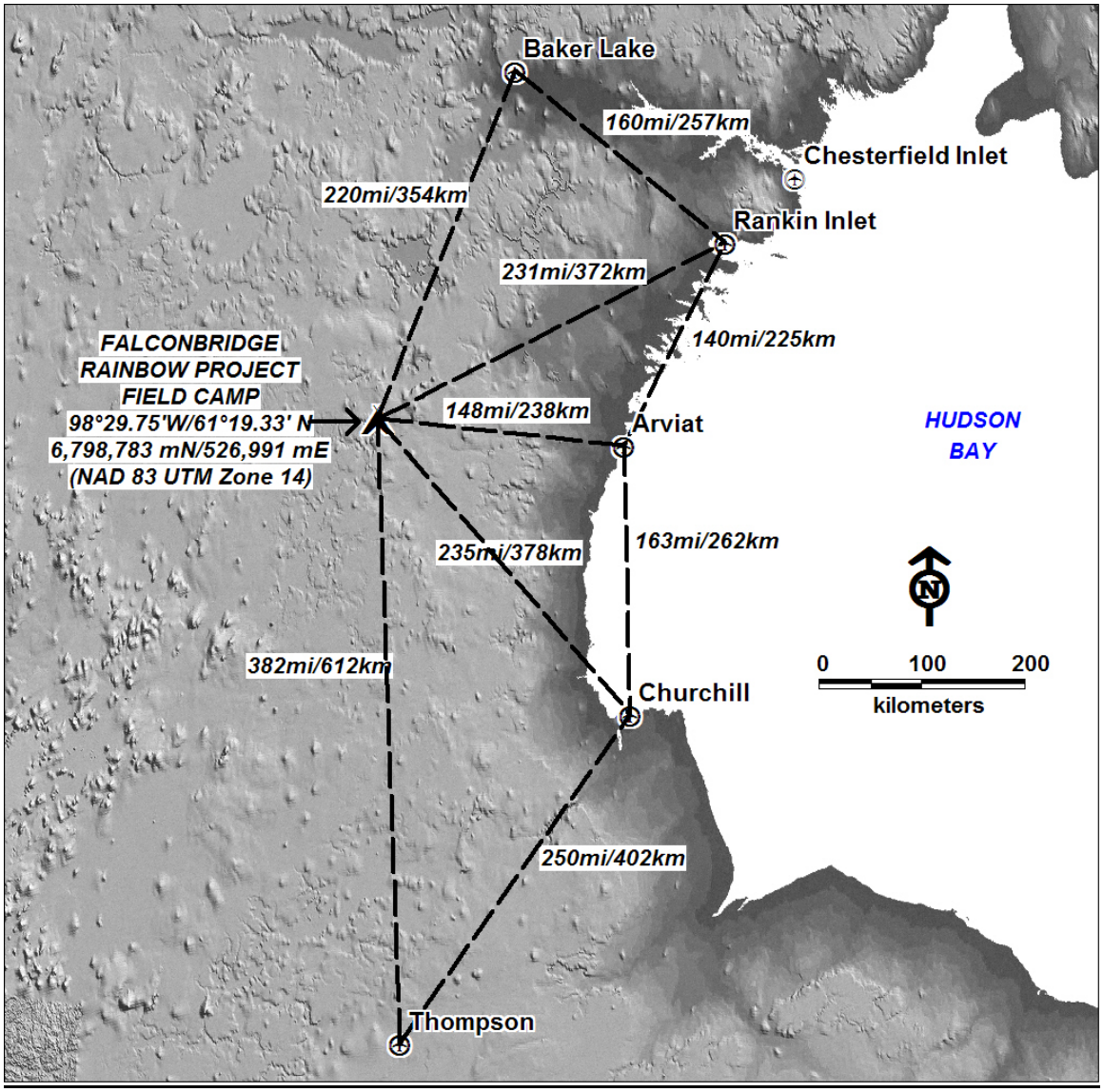
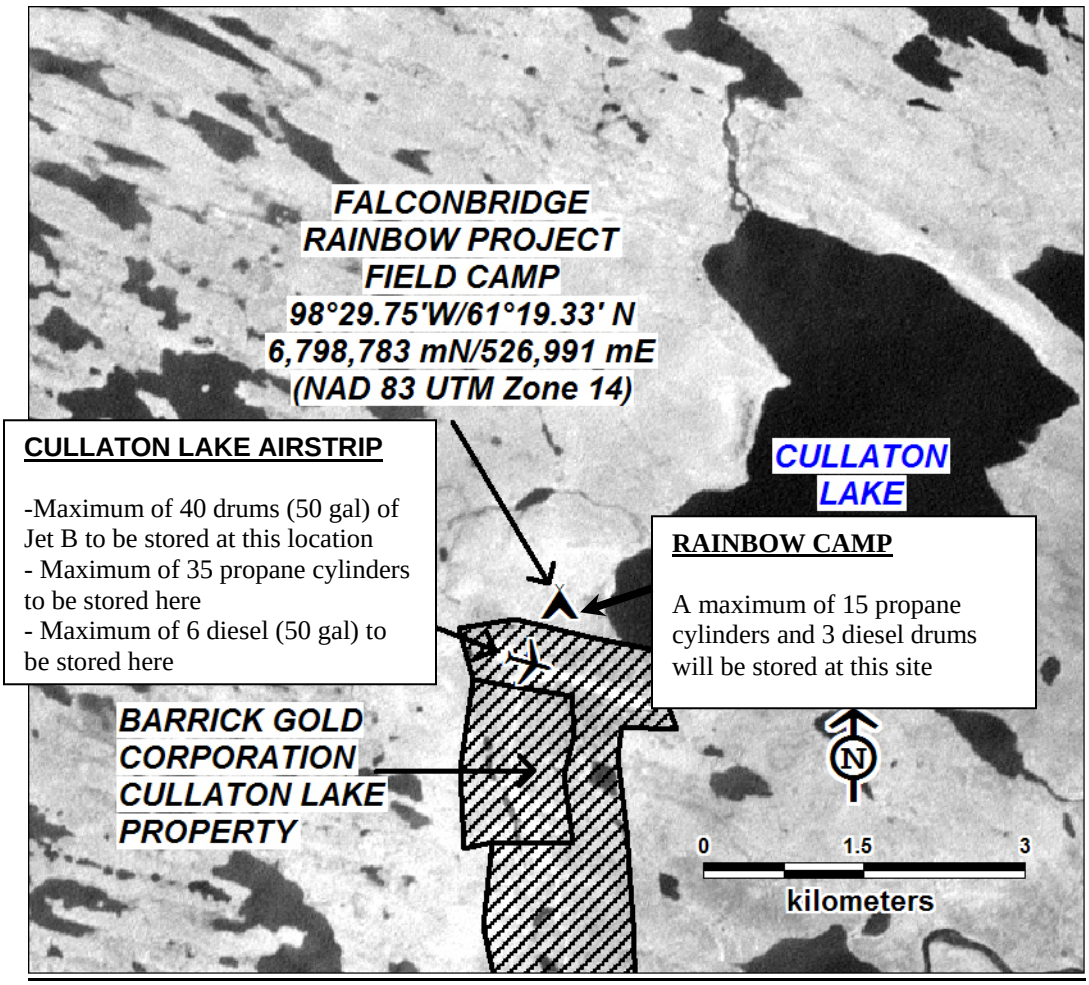


Figure 2: Detailed Location of the Rainbow Project, Field Camp at Cullaton Lake

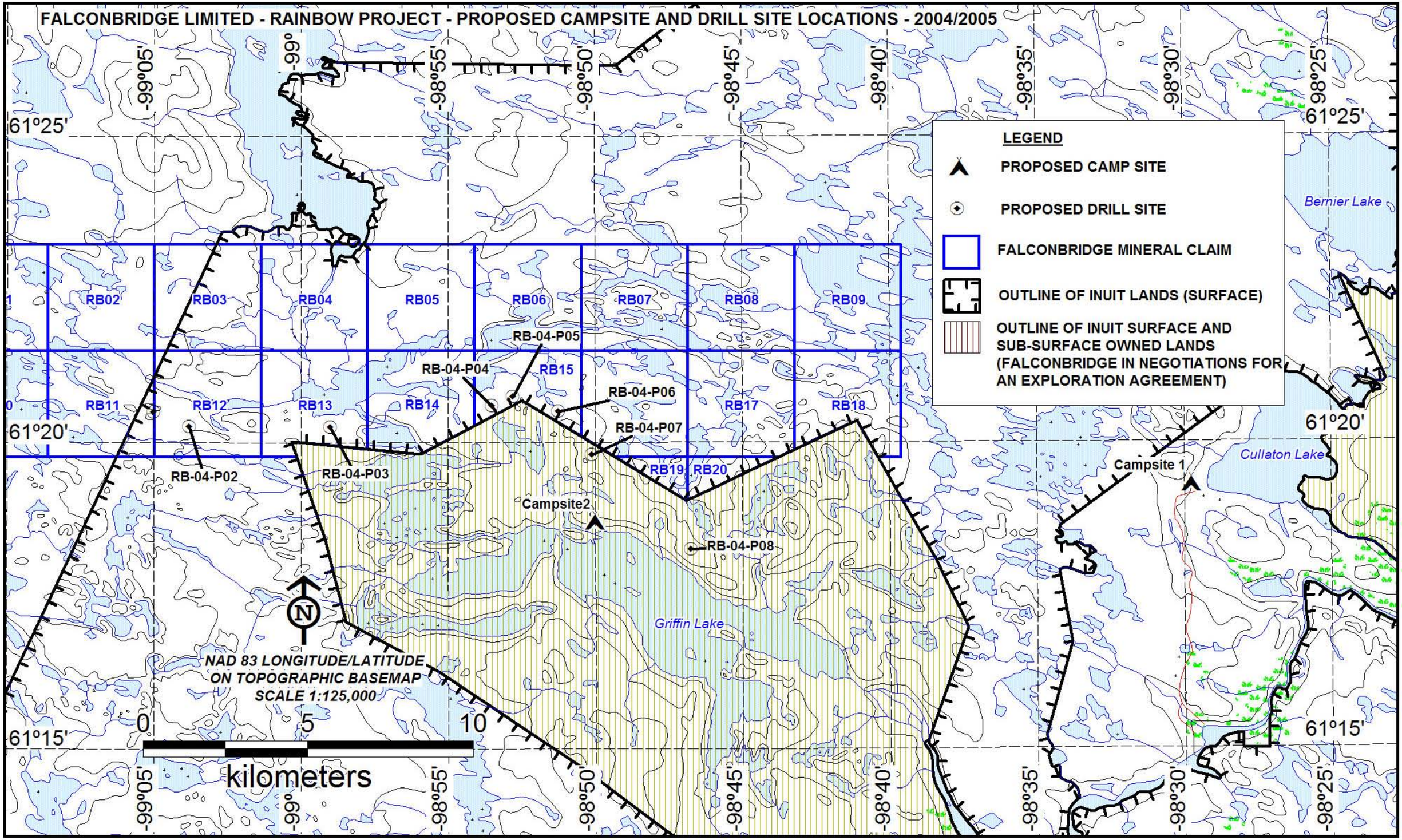


APPENDIX C DRILL-SITE LOCATIONS

Cautionary Note:

Attached to this page is a diagram showing potential diamond drill-hole locations. The final location of the diamond drill-holes will not be know until completion of the appropriate field work and is based on results. The map attached shows the approximate locations.

It is anticipated the Major Midwest Drilling Ltd will be contracted to carry out drilling on the Rainbow Project, part of their contractual obligations is to conform to the Fuel Management and Response Plan, in addition to their "in-house" Emergency Response Plan. Copies of these plans can be obtained from the drill contractor on request.


FALCONBRIDGE LIMITED - RAINBOW PROJECT - PROPOSED CAMPSITE AND DRILL SITE LOCATIONS - 2004/2005
LEGEND
PROPOSED CAMP SITE
PROPOSED DRILL SITE
FALCONBRIDGE MINERAL CLAIM
OUTLINE OF INUIT LANDS (SURFACE)
OUTLINE OF INUIT SURFACE AND SUB-SURFACE OWNED LANDS (FALCONBRIDGE IN NEGOTIATIONS FOR AN EXPLORATION AGREEMENT)
RB02
RB03
RB04
RB05
RB06
RB07
RB08
RB09
RB11
RB12
RB13
RB14
RB15
RB17
RB18
RB19
RB20
RB-04-P02
RB-04-P03
RB-04-P04
RB-04-P05
RB-04-P06
RB-04-P07
RB-04-P08
Campsite2
Campsite 1
Griffin Lake
Bernier Lake
Cullaton Lake
61°25'
61°20'
61°15'
-99°05'
-99°
-98°55'
-98°50'
-98°45'
-98°40'
-98°35'
-98°30'
-98°25'
N
NAD 83 LONGITUDE/LATITUDE
ON TOPOGRAPHIC BASEMAP
SCALE 1:125,000
0
5
10
kilometers

APPENDIX C

NWT/NUNAVUT SPILL REPORT FORM

Northwest Territories

NWT SPILL REPORT

(Oil, Gas, Hazardous Chemicals or other Materials)

24 – Hour Report Line
Phone: (867) 920-8130
Fax: (867) 873-6924

A Report Date and Time	B Date and Time of spill (if known)	C ☐ Original Report ☐ Update no._____	Spill Number

D Location and map coordinates (if known) and direction (if moving)

E Partly responsible for spill

F Product(s) spilled and estimated quantities (provide metric volumes/weights if possible)

G Cause of spill

H Is spill terminated? ☐ yes ☐ no	I If spill is continuing, give estimated rate	J Is further spillage possible? ☐ yes ☐ no	K Extent of contaminated area (in square meters if possible)

L Factors effecting spill or recovery (weather conditions, terrain, snow cover, etc.)	M Containment (natural depression, dikes, etc.)

N Action, if any, taken or proposed to contain, recover, clean up or dispose of product(s) and contaminated materials

O Do you require assistance? ☐ no ☐ yes, describe:	P Possible hazards to person, property, or environment; eg: fire, drink water, fish or wildlife

Q Comments or recommendations

FOR SPILL LINE USE ONLY

Lead agency

Spill significance

Lead Agency contact and time

.....

.....

.....

Is this file now closed? ☐ yes ☐ no

Reported by	Position. Employer, Location	Telephone
Reported to	Position. Employer, Location	Telephone