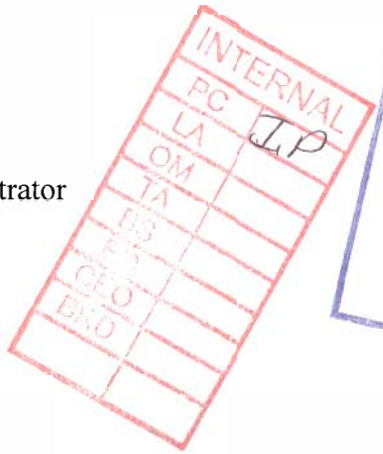
NWB 2E012

ASHTON MINING (NORTHWEST TERRITORIES) LTD.



VIA COURIER

June 19, 2001

Rita Becker, Licensing Administrator
Nunavut Water Board
P.O. Box 119
Gjoa Havent, Nunavut
X0E 1J0

Dear Ms. Becker:

RE: WATER USE PERMIT APPLICATION

Ashton Mining (Northwest Territories) Ltd. would like to establish a base camp and conduct a drill program in the Kitikmeot Region of Nunavut. Enclosed are the following two items:

- Application for a Water Use & Waste Water Disposal Permit
- Cheque for $30.00 to cover the applicable fees

In addition Ashton has submitted parallel electronic applications to the Nunavut Water Board on the Nunavut Planner website (www.planner.nunavut.ca).

If you have any questions on this matter please do not hesitate to contact me at (604) 983-7764.

Yours Truly,

ASHTON MINING (NORTHWEST TERRITORIES) LTD.

David Willis
Land Administrator

Encl. (2)

UNIT 123 - 930 WEST 1ST STREET, NORTH VANCOUVER, B.C., CANADA V7P 3N4 TEL: 604/983-7750 FAX: 604/987-7107

APPLICATION FOR A WATER USE & WASTE WATER DISPOSAL DRILL PERMIT IN THE TERRITORY OF NUNAVUT

application to:

NUNAVUT WATER BOARD
P.O. Box 119
Gjoa Haven, Nunavut
X0E 1J0

prepared by:

ASHTON MINING (NORTHWEST TERRITORIES) LTD.
Unit 123 – 930 West 1st Street
North Vancouver, British Columbia
V7P 3N4

Application Date: June 15, 2001

WATER LICENCE
APPLICATION FORM

Application for: (check one)

New X Amendment Renewal Assignment

LICENCE NO: (for NWB use only) NWB2EOIK

1. NAME AND MAILING ADDRESS OF APPLICANT/LICENSEE

Ashton Mining (Northwest Territories) Ltd.

Phone: (604) 983-7764
Fax: (604) 987-7107
e-mail:

2. ADDRESS OF CORPORATE OFFICE IN CANADA (if applicable)

Phone:
Fax:
e-mail:

3. LOCATION OF UNDERTAKING (describe and attach a topographical map, indicating the main components of the undertaking)

Kitikmeot Region of Nunavut

NTS (1:50,000) Map Sheet 86P/02, 86P/03, 86P06, 86P07

1) 406200mE 7483500mN
2) 420100mE 7483200mN
3) 419100mE 7435900mN
4) 400800mE 7436200mN
5) 401500mE 7451000mN
6) 405300mE 7451000mN

The Campsite will be located at the following UTM Point:
1) 415800mE 7477400mN

Please refer to the 1:250,000 map located in "Appendix C."

4. DESCRIPTION OF UNDERTAKING (attach plans and drawings)

Please refer to the detailed summary in "Appendix B."

5. TYPE OF UNDERTAKING (A supplementary questionnaire must be submitted with the application for undertakings listed in **"bold"**)

Industrial
Mine Development
Advanced Exploration
Exploratory Drilling & Base Camp - Please see supplemental questionnaire in "Appendix C."
Remote/Tourism Camps
Municipal

6. WATER USE

To obtain water X	To divert a watercourse
To modify the bed or bank of a watercourse	Flood control
To alter the flow of , or store, water	Other (describe):
To cross a watercourse	

7. QUANTITY OF WATER INVOLVED (litres per second, litres per day or cubic metres per year, including both quantity to be used and quality to be returned to source)

Drilling: Approximately 60,000 litres in one 24 hour period.

Camp: Approximately 400 litres in one 24 hour period

8. WASTE (for each type of waste describe: composition, quantity, methods of treatment and disposal, etc.)

Sewage X	Waste oil
Solid Waste	Greywater X
Hazardous	Sludges
Bulky Items/Scrap Metal X	Other (describe) X - Drill Waste Water

9. PERSONS OR PROPERTIES AFFECTED BY THIS UNDERTAKING (give name, mailing address and location; attach if necessary)

Land Use Permit

DIAND	Yes	No	If no, date expected _Permit Applied for on June 16, 2001
Regional Inuit Association	Yes	No	If no, date expected
Commissioner	Yes	No	If no, date expected

10. PREDICTED ENVIRONMENTAL IMPACTS OF UNDERTAKING AND PROPOSED MITIGATION MEASURES (direct, indirect, cumulative impacts, etc.)

Please refer to detailed summary in "Appendix B."

NIRB Screening	Yes	No	If no, date expected

11. CONTRACTORS AND SUB-CONTRACTORS (name, address and functions)

Please refer to summary and tables in "Appendix D."

12. STUDIES UNDERTAKEN TO DATE (list and attach copies of studies, reports, research, etc.)

Proprietary geological studies on mineral claims within the boundaries of the permit area. These studies are internal and will not be released until the assessment filing deadline.

13. THE FOLLOWING DOCUMENTS MUST BE INCLUDED WITH THE APPLICATION FOR THE REGULATORY PROCESS TO BEGIN

Supplementary Questionnaire (where applicable: see section 5) Yes No If no, date expected

Inuktitut/English Summary of Project Yes No Please Refer to "Appendix .

Application fee $30.00 (c/o of Receiver General for Canada) Yes No If no, date expected

14. PROPOSED TIME SCHEDULE

Annual (or) Multi Year

Start Date: August 1, 2001 Completion Date: August 1, 2003

Name (Print): David Willis **Title (Print):** Land Administrator

Signature:  **Date:** June 18, 2001

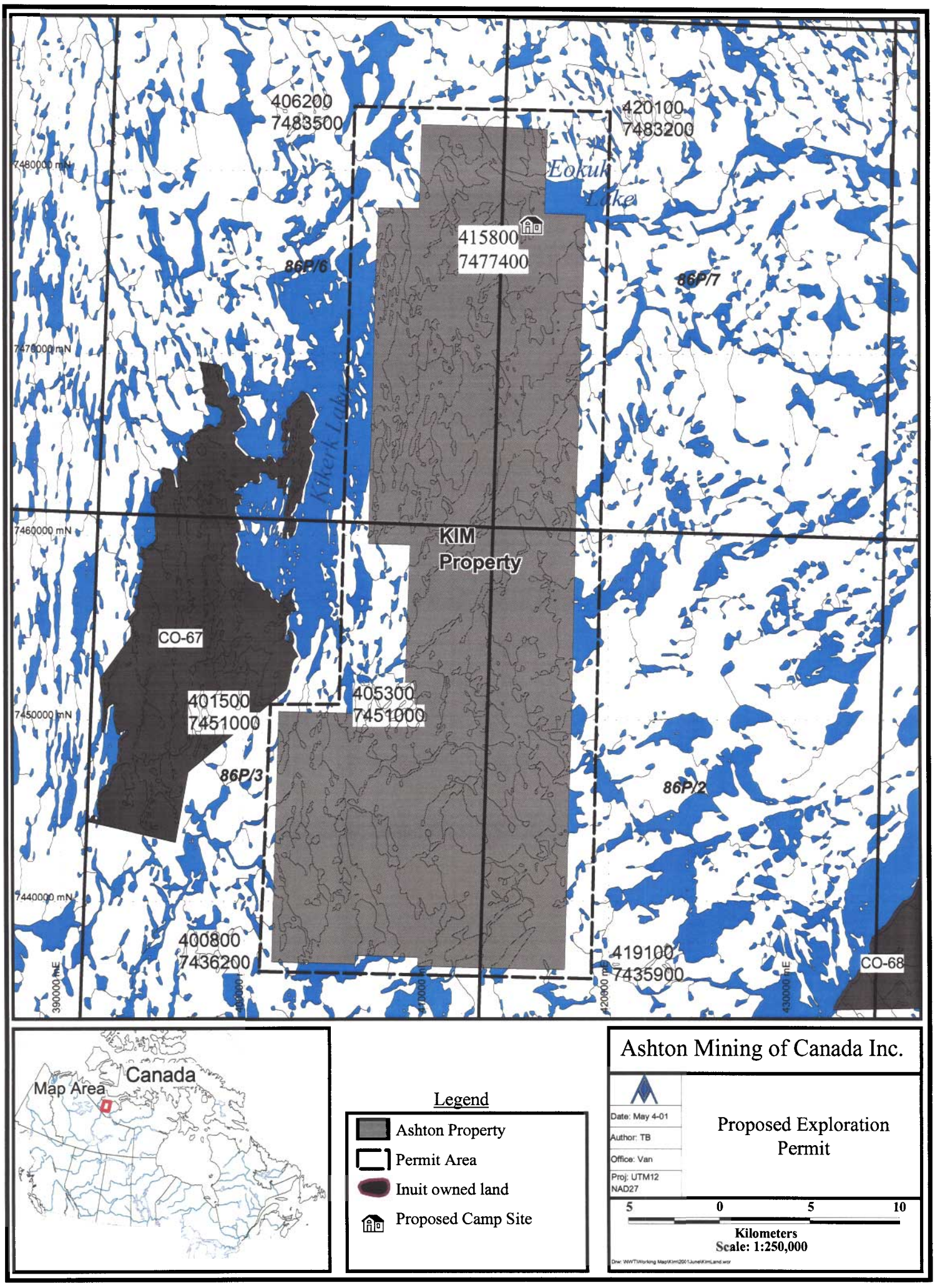
For Nunavut Water Board use only

APPLICATION FEE **Amount: $_____** **Receipt No.:**

WATER USE DEPOSIT **Amount: $_____** **Receipt No.:**

APPENDIX "A"

♦ Location Maps ♦


406200
7483500
420100
7483200
Eokuk
Lake
415800
7477400
86P/6
86P/7
Kikerk Lake
KIM
Property
CO-67
401500
7451000
405300
7451000
86P/3
86P/2
400800
7436200
419100
7435900
CO-68
7480000 mN
7470000 mN
7460000 mN
7450000 mN
7440000 mN
390000 mE
410000 mE
420000 mE
430000 mE
Canada
Map Area
Legend
Ashton Property
Permit Area
Inuit owned land
Proposed Camp Site
Ashton Mining of Canada Inc.
Date: May 4-01
Author: TB
Office: Van
Proj: UTM12
NAD27
Proposed Exploration
Permit
5
0
5
10
Kilometers
Scale: 1:250,000

APPENDIX "B"

♦ Detailed Summary ♦

Section 4.0 – Description of Undertaking

(a) The purpose of the Land Use Operation is to conduct a drilling program mineral claims held by Ashton Mining (Northwest Territories) Ltd. and establish a base camp to support these operations.

(b) A Boyles Brothers 25A heli-portable diamond drill rig will be used for drilling operations. It is anticipated that eight to ten holes of NQ sized core (2.37 inches) will be drilled from a maximum of four different setups.

(c) The camp will consist of 5 canvas prospector tents. Of these tents, 3 will be used as sleeping quarters, 1 as a kitchen, 1 as a dry tent and 1 as an office. The camp will be established on the northern shore of Eokuk Lake on the north eastern edge of the property. The camp will be supported by float/ski based twin engine Otter aircraft on a regular basis. In addition, a Bell 206 Jet Ranger helicopter will be stationed at the camp during use.

Section 10.0 – Environmental Impact

The drill rig will have a maximum footprint of $25m^2$. This includes the drill hut and the pump shack. On average the anticipated drill holes are expected to take 2 days to complete. The drill rig will use a maximum of 60,000 litres of water in a 24-hour period. Normal operation of the drill produces $0.6m^3$ or 260 kg of cuttings for every 200 meters of drilling.

The above data indicates that a 10 hole program from four setups will have a total footprint of $100m^2$ ($25m^2$ x 4 sites). Anticipated total water consumption is not expected to exceed 1,200,000 litres (60,000 litres x 20 days). Total maximum drill cuttings will not exceed 2600 kg of fines (260 kg x 9 holes).

Due to its small scale and limited use, it is anticipated that the campsite will have a minimal impact on the surrounding environment. Each tent has a footprint of approximately $20m^2$ so the total "footprint" of the campsite should not exceed $100m^2$.

As this is initially a "fly in / fly out" operation, no large scale or long-term storage of petroleum fuels will be required. In reference to section 11 the fuel required to support exploration activities will be stored at both the drill (while in operation) and campsite. All fuel will be stored at safe distances at least 30 meters away from the normal high water mark. Fuel containers will be marked with the name of the program operator Ashton Mining (Northwest Territories) Ltd.

Upon completion of the campsite's operations, all material and equipment will be removed from the site. Any lands affected by the campsite and drilling will be restored, to the most reasonable extent possible, to their original and natural state. All sumps will be restored to the natural contours of the land prior to expiry of the permit.

Section 23.0 - Fuel Spill / Containment Contingency Plan

- Fuel will be stored at safe distances and wherever possible in natural sumps away from drainage systems and bodies of water.
- All fuel cache storage sites will be monitored on a regular basis for possible spills and or leakage.
- Splash pans will be employed where practical around all machinery and during any fuel transfers.
- Ashton personnel will be instructed in spill response and cleanup procedures.
- Fuel spill cleanup equipment will be retained at each base camp and drill operation site.
- Any spill will be reported in accordance with the instructions contained within the "Spills Report, NWT 1086 (10/79)" immediately.

Should there be any material change to the facts described above relating to Ashton's Land Use Operations, Ashton will advise DIAND of these changes and, if appropriate, request permit modification

Appendix "C"

♦ Supplementary Questionnaire ♦

P.O. Box 119
Gjoa Haven, NT X0E 1J0 ᓄᓇᕗᑦ ᐃᒪᓕᕆᔨᑦ ᑲᑎᒪᔨᖏᑦ
Tel: (867) 360-6338 NUNAVUT WATER BOARD
Fax: (867) 360-6369 NUNAVUT IMALIRIYIN KATIMAYINGI

EXPLORATION/ REMOTE CAMP SUPPLEMENTARY QUESTIONNAIRE

Applicant: Ashton Mining (Northwest Territories) Ltd. **Licence No:** __
(For NWB Use Only)

ADMINISTRATIVE INFORMATION

1. Environment Manager: David Willis Tel: (604) 983-7764 Fax: (604) 987-7107
E-mail: dave.willis@ashton.ca

2. Project Manager: Jeff Ward Tel: (604) 983-7750 Fax: (604) 987-7107
E-mail: jeff.ward@ashton.ca

3. Does the applicant hold the necessary property rights? Yes

4. Is the applicant an 'operator' for another company (i.e., the holder of the property rights)? If so, please provide letter of authorization.

5. Duration of the Project
   - ○ Annual
   - ⊘ Multi Year:
   If Multi-Year indicate proposed schedule of on site activities
   Start: August 1, 2001 Completion: August 1, 2003

CAMP CLASSIFICATION

6. Type of Camp
   - ○ Mobile (self-propelled)
   - ○ Temporary
   - ⊘ Seasonally Occupied: 480 man days per year
   - ○ Permanent
   - ○ Other:_____

7. What are the design population of the camp and the maximum population expected on site at one time? What will be the fluctuations in personnel?

The camp is intended to house approximately eight people for a period of two months. Activities are usually divided between a summer program and a winter program.

8. Provide history of the site if it has been used in the past. Site has never been used by Ashton in the past.

CAMP LOCATION

9. Please describe proposed camp location in relation to biogeographical and geomorphological features, and water bodies.

The camp is to be located on the northern shore of an Eokuk Lake. It is located on a peninsula near deep water to facilitate the landing and take-off of float planes.

10. How was the location of the camp selected? Was the site previously used? Was assistance from the Regional Inuit Association Land Manager sought? Include maps and/or aerial photographs.

The site was selected based upon reconnaissance by Ashton field personnel during the summer 2000 field season.

11. Is the camp or any aspect of the project located on:

- ⊘ Crown Lands Permit Number (s)/Expiry Date: _____
- ○ Commissioners Lands Permit Number (s)/Expiry Date: _____
- ○ Inuit Owned Lands Permit Number (s)/Expiry Date: _____

12. Closest Communities (distance in km):

Kingoak (formerly Bathurst Inlet) is the closest community. It is approximately 230 kilometers away.

13. Has the proponent notified and consulted the nearby communities and potentially interested parties about the proposed work?

No.

14. Will the project have impacts on traditional water use areas used by the nearby communities? Will the project have impacts on local fish and wildlife habitats?

No.

PURPOSE OF THE CAMP

15.
- ⊘ Mining
- ○ Tourism (hunting, fishing, wildlife observation, adventure/expedition, etc.) (Omit questions # 16 to 21)
- ○Other _____ (Omit questions # 16 to 22)

16.
- ○ Preliminary site visit
- ⊘ Prospecting
- ⊘ Geological mapping
- ○ Geophysical survey
- ⊘ Diamond drilling
- ○ Reverse circulation drilling
- ○ Evaluation Drilling/Bulk Sampling (also complete separate questionnaire)
- ○ Other: _____

17. Type of deposit:

- ○ Lead Zinc
- ⊘ Diamond
- ○ Gold
- ○ Uranium
- ○ Other: _____

DRILLING INFORMATION

18. Drilling Activities

- ⊘ Land Based drilling
- ○ Drilling on ice

19. Describe what will be done with drill cuttings?

All drill cuttings will be contained in a sufficiently large, land based sump or natural depression. Cuttings can be flown out at the request of the Nunavut Water Board. All sumps will be located not less than 30 meters from the high water mark of any water body.

20. Describe what will be done with drill water?

Drill water will be stored in tanks and re-circulated while in use and any remnant water will be pumped into a sufficiently large, land based sump or natural depression. All sumps will be located not less than 30 meters from the high water mark of any body.

21. List the brand names and constituents of the drill additives to be used? Includes MSDS sheets and provide confirmation that the additives are non-toxic and biodegradable.

1) X-TRA GEL
2) Poly Drill O.B.X.
3) Poly Drill Clay Treat II

The MSDS Sheets for these "muds" are listed in "Appendix H."

22. Will any core testing be done on site? Describe.

No core testing will be done on site. All core will be flown to Yellowknife.

SPILL CONTINGENCY PLANNING

23. Does the proponent have a spill contingency plan in place? Please include for review.

Please refer to "Appendix B" – Section 6.0 of this application.

24. How many spill kits will be on site and where will they be located?

One spill kit will be located at the camp while two spill kits will be located at the drill site. One spill kit will be located near the fuel storage area while the other will be located near the drill engine. The spill kit is a 45 gallon drum containing shovels, fuel absorbent pads and 20 kilograms of granules.

25. Please describe the types, quantities, and method of storage of fuel and chemicals on site, and provide MSDS sheets.

Maximum quantities of fuel stored at the site will be:

Campsite:

1) Five 45-gallon drums of diesel
2) Two 24 gallon drums of Jet-B
3) Two 100 pound tanks of propane

Drill:

1) Five 45-gallon drums of diesel
2) Eighteen 24 gallon drums of Jet-B
3) Two 100 pound tanks of propane

Fuel will be stored at least 30 meters away from drainage systems and bodies of water, and whenever possible in natural sumps.

Please refer to "Appendix G" for the MSDS Sheets.

WATER SUPPLY AND TREATMENT

26. Describe the location of water sources.

Water for the camp and drilling activities would be drawn from local water sources in the area. Please refer to the map in Appendix "A."

27. Estimated demand (in L/day * person):

- ⦸ Domestic Use: 400 l/day (50 litres x 8 people) Water Source: Lake
- ○ Drilling Units: _____ Water Source: _____
- ○ Other: _____ Water Source: _____

28. Describe water intake for camp operations? Is the water intake equipped with a mesh screen to prevent entrapment of fish? Describe:

As stated in Section 27, minimal amounts of water will be required for the day-to day needs of the camp. This water will be drawn from the near-by lake using an electric 0.5 horsepower pump. A one-millimeter mesh screen will be used to cover the water intake and prevent aquatic life from being drawn into the system.

29. Will drinking water quality be monitored? What parameters will be analyzed and at what frequency?

As Ashton has never had a problem with the quality of drinking water in the North and this is a small-scale operation water quality will only be monitored using the senses of sight and smell.

30. Will drinking water be treated? How?

No chemical treatments of drinking water will be done however all water drawn into the system is screened.

31. Will water be stored on site?

Water will be temporarily stored in a hot water tank for use by camp personnel.

WASTE TREATMENT AND DISPOSAL

32. Describe the characteristics, quantities, treatment and disposal methods for:

⦸ Camp Sewage (blackwater)

Sewage will be deposited into a sump, which will be restored to the natural contours of the land prior to the expiry of the permit.

⦸ Camp Greywater

Camp grey water will be deposited into a sump, which will be restored to the natural contours of the land prior to the expiry of the permit.

⦸ Solid Waste

Combustible garbage will be properly stored and burned daily in a suitable container. Non-combustible garbage and debris including metal wastes will be removed from the site and flown to Yellowknife.

⦸ Bulky Items/Scrap Metal

Bulky items /Scrap Metal will be removed from the site and flown to Yellowknife.

⦸ Waste Oil/Hazardous Waste

Ashton will not generate any hazardous waste however the routine maintenance associated with generators may produce a small amount of waste oil. This oil will be contained and flown to Yellowknife.

⦸ Empty Barrels/Fuel Drums

Empty barrels will be stored then returned to Yellowknife.

○ Other:

33. Please describe incineration system if used on site. What types of wastes will be incinerated?

The incineration system consists of a 45-gallon drum with the top removed. A heavy mesh screen is placed over the opening to prevent debris or embers from escaping. This system is commonly referred to as a "burn barrel." Only camp wastes will be incinerated. This consists mainly of household/kitchen type waste such as food scraps, newspapers, old maps etc

34. Where and how will non-combustible waste be disposed of? If in a municipality in Nunavut, has authorization been granted?

All waste that is not combustible will be flown to Yellowknife.

35. Describe location (relative to water bodies and camp facilities) dimensions and volume, and freeboard for sumps (if applicable).

The sump or natural depression is located at least 30 meters from the high water mark of any water body.

36. Will leachate monitoring be done? What parameters will be sampled and analyzed, and at what frequency?

No. This is not a factor in this type of operation.

OPERATION AND MAINTENANCE

37. Have the water supply and waste treatment and disposal methods been used and proven in cold climate? What known O&M problems may occur? What contingency plans are in place?

Yes during previous drill programs and camp operations conducted under NWB and DIAND permits.

ABANDONMENT AND RESTORATION

38. Provide a detailed description of progressive and final abandonment and restoration activities at the site.

Upon completion of Ashton's drilling operations, all materials and equipment will be removed from the site and all sumps will be restored to the natural contours of the land. Any lands affected by Ashton's operations will be restored to the most reasonable extent possible, to their original state.

BASELINE DATA

39. Has or will any baseline information be collected as part of this project? Provide bibliography.
    - ○ Physical Environment (Landscape and Terrain, Air, Water, etc.)
    - ○ Biological Environment (Vegetation, Wildlife, Birds, Fish and Other Aquatic ○ Organisms, etc.)
    - ○ Socio-Economic Environment (Archaeology, Land and Resources Use, ○ Demographics, Social and Culture Patterns, etc.)
    - ○ Other:

As this is a "scout" drilling program and the campsite is temporary in nature no base line data has been collected.

REGULATORY INFORMATION

40. Do you have a copy of
    - ⊘ Article 13 - Nunavut Land Claims Agreement
    - ⊘ NWB - Water Licensing in Nunavut - Interim Procedures and Information Guide for Applicants
    - ⊘ NWB - Interim Rules of Practice and Procedure for Public Hearings
    - ⊘ NWTWB - Guidelines for the Discharge of Treated Municipal Wastewater in the NWT
    - ⊘ NWTWB - Guidelines for Contingency Planning
    - ⊘ DFO - Freshwater Intake End of Pipe Fish Screen Guideline
    - ⊘ Fisheries Act - s.35
    - ⊘ RWED - Environment Protection- Spill Contingency Regulations
    - ⊘ Canadian Drinking Water Quality Guidelines
    - ⊘ Public Health Act Camp Sanitation Regulations
    - ⊘ Public Health Act Water Supply Regulations
    - ⊘ Territorial Land Use Act and Regulations

You should consult the above document, guidelines, and legislation for compliance with existing regulatory requirements.

Appendix "D"

♦ Contractors ♦

SECTION 11.0 – OTHER PERSONNEL

Ashton is anticipating a camp of 6 to 8 people for both the winter drilling program and summer sampling programs. Personnel at the camp will mainly consist of: 1 cook, 1 helicopter pilot, 2 geologists with the balance being made up of either technicians or drillers.

The staffing of exploration programs is dependant upon the results of our geological evaluation work and the annual budget allocation for Nunavut. As a result it is relatively difficult to determine who will be working on the project a year from now.

Two tables have been provided below. The first table outlines the principle field staff for Nunavut while the second table outlines the contracting companies that are regularly used. Ashton Mining (Northwest Territories) Ltd. will be managing all field operations and, as a result, their personnel are listed in Table 1.

Table 1
Summary of Ashton Field Personnel

Name	Position	Name	Position
♦ Jeff Ward	Project Manager	♦ Jim Rooke	Lab Technician
♦ Dave Pickston	Sr. Geological Technician	♦ Andrew Berry	Project Manager
♦ Scott Jardine	Geological Technician		

Table 2
Summary of Ashton Contractors

#	Company	Address	Phone / Fax
1	Ashton Mining (NWT) Ltd.	Unit 123 – 930 West 1st Street North Vancouver, BC V7P 3N4	Ph: (604) 983-7750 Fax: (604) 987-7107
1	Discovery Mining Services	P.O. Box 2248 Yellowknife, NT X1A 2P7	Ph: (867) 920-4600 Fx: (867) 873-8332
2	Great Slave Helicopters Ltd.	Bag 7500 Yellowknife, NT X1A 2R3	Ph: (867) 873-2081 Fx: (867) 873-6087
3	Air Tindi Ltd.	Bag 1693 Yellowknife, NT X1A 2P3	Ph: (867) 669-8260 Fx: (867) 669-8247
4	First Air	Postal Service 9000 Yellowknife, NT X1A 2R3	Ph: (867) 669-6600 Fx: (867) 669 6603

Ajurnanngittunik Ihivriuqhinighaat Nunani Aturutighaat

Ashton Mining (Nunattiami) Ltd. qipliqtunik ujaraghiurvigijaujuq havaaqaqtut uvani Aviktuqhimanianni Nunavut. Ingiqtuunmik titiraqtaaqhimajut najugaghamingni initurliqarumaplutik ikuutaqtunikkut piliriarutiqarumaplutik ukunani 52-ngujunik nunamiuttanik nanminiqarumajut kivataani haffumap tahiup taijauvaktuq haffuminga Kikerk Lake.

Una initurlighaq havaarijangniaraat ikuutarnikkut talvalu najugaat ihuaqhaqtauhimajuq tahapkuat tingmijjat milvighaannik hivuuranaittumin. Tamaat iingujunin (8) inuqaqpangniaqtut talvani initurlingni atauhirmik tatqiqhiutimin uvani ukiuraangat talvalu atauhirmiktauq tatqiqhiutmin aujaraikpat. Hamna initurlighaq tallimanik (5) tupiqarniaqtut, quujaqturviqarlutiklu talvalu huanngakhautiqarlutiklu. Tamaat hamna atuqtaghaat ahu atauhirmik (1) hectare-min ungahiktiqarniaqtut.

Hamna ikuutarvighaita piliriarutighaat ilitturipkainahuarniaqtut tahapkuat ujakkat taijauvaktut qipliqtunik ittariaghaita tahaffumap maniqqap ataani. Ashton-kut ikuutarumajut ahu quliujunik (10) putunik anglikliqaqtunin 2.5 inches-ngujunik putunnuanin. Hapkuat putuit ikuutaqtauniaqtut hitamanin ilikkut ikuutarviulutik tahamani najugaanni.

Ashton-kut ilitturihimajut inmikkut tahamani nunamiutaukaffuktut tahamna nuna ilihimaplugu piutarijaat Nunavunmiuttat tamainnullu Kanatamiuttat. Nakuujumin havaaqattiarumaplutik munaqhittiarlutiklu, qajagittiarahuarlutiklu halumajumiklu havaaqarahuaqhutik pinahuaqpangniaqtut.

Non-Technical Summary of Land Use Activities

Ashton Mining (Northwest Territories) Ltd. is a diamond exploration company operating in the Territory of Nunavut. It has made an application to establish a base camp and conduct a drill program on 52 mineral claims east of Kikerk Lake.

The camp is required to support drilling activities and has been located in an area that allows for the safe landing of float planes. A total of 8 people are expected to occupy the camp for one month during the winter and one month during the summer. The camp will consist of 5 canvas prospector's tents, an outhouse and a generator. The total footprint of this area will be around 1 hectare.

The drill program is required to determine if a rock known as kimberlite exists under the ground. Ashton would like to drill a total of 10 holes each measuring 2.5 inches in diameter. These holes will be drilled at four separate locations on the property.

Ashton recognizes that it is only a tenant on land belonging to the people of Nunavut and all Canadians. As a good corporate citizen it strives to have responsible, safe and clean work practices.

APPENDIX "E"

♦ Inuktitut/English Project Summary ♦

Appendix "F"

♦ Drill Mud MSDS Sheets ♦

WESTCOAST DRILLING SUPPLIES LTD.

#6 - 2351 SIMPSON ROAD
RICHMOND, B.C. V6X 2R2

TEL: (604) 278-4954
FAX: (604) 278-4914

Serving the Drilling Industry

EMERGENCY PHONE NO. (604) 278-4954

MATERIAL SAFETY DATA SHEET

SECTION I: IDENTIFICATION OF PRODUCT

PRODUCT NAME: X-TRA GEL

CHEMICAL FAMILY: Sodium Montmorillonite

WHMIS CLASSIFICATION: Class D-2(A)

WORK PLACE HAZARD: Potential Carcinogen; contains free silica

TRANSPORTATION OF DANGEROUS GOODS (TDGR)

CLASSIFICATION: Not Dangerous Goods

PACKAGE GROUP: Not Applicable

PRODUCT IDENTIFICATION NUMBER (PIN): Not Applicable

SECTION II: HAZARDOUS INGREDIENTS

INGREDIENT	PERCENTAGE	CAS NUMBER	OSAH PEL	ACGIH TLV
Bentonite		1302-78-9	5 mg/M	Not Applicable
Quartz (Silica)		14808-60-7	10 mg/M	0.1 mg/M
Cyrstobalite		14464-46-1	10 mg/M	0.05 mg/M
Tridymite		15468-32-3	10 mg/M	0.05 mg/M

SECTION III: TOXICOLOGICAL PROPERTIES

ROUTE OF ENTRY:
[ ] skin, [ ] eye contact, [xx]inhalation, [ ] ingestion

ACUTE - SHORT TERM EXPOSURE: Cough if exposed to dust at levels higher than TLV's.

CHRONIC - LONG TERM EXPOSURE: May lead to development of silicosis or other respiratory problems if consistently exposed to free silica containing airborne bentonite.

SECTION IV: FIRST AID MEASURES

No first aid measures are suggested for Chronic (long term exposure). For acute (short term exposure) remove patient from dusty environment.

SECTION V: PHYSICAL DATA

APPEARANCE AND ODOUR:	Pale grey to buff powder or granules; odourless
DENSITY (SPECIFIC GRAVITY):	2.35
BOILING POINT:	Not Applicable
MELTING POINT:	788°C
WATER SOLUBILITY:	Insoluble; forms colloidal suspension
% VOLATILE BY VOLUME:	Not Applicable
EVAPORATION RATE:	Not Applicable
VAPOUR PRESSURE: (MM Hg)	Not Applicable
VAPOUR DENSITY: (Air = 1)	Not Applicable
Ph:	7 - 6

SECTION VI: FIRE AND EXPLOSION HAZARD DATA

FLASH POINT: Not Applicable FLAMMABLE LIMIT: Not Applicable

EXTINGUISHING MEDIA: Not Applicable

SPECIAL FIRE FIGHTING PROCEDURES: Not Applicable

UNUSUAL FIRE AND EXPLOSION HAZARDS: Not Applicable

SECTION VII: REACTIVITY DATA

STABLE [XXX] INSTABLE: [ ]

INCOMPATIBILITY (CONDITIONS TO AVOID): None

HAZARDOUS DECOMPOSITION PRODUCTS: None

HAZARDOUS POLYMERIZATION: Will not occur [xxx] May occur [ ]

SECTION VIII: PREVENTATIVE MEASURES

RESPIRATORY PROTECTION: NIOSH/MSHA approved respirators for silica bearing dust.

VENTILATION: Yes if particular; Personal air supply may be useful.

PROTECTIVE GLOVES: None required.

EYE PROTECTION: Suggest goggles.

OTHER PROTECTIVE EQUIPMENT: None required.

PRECAUTIONS TO BE TAKEN IN HANDLING AND STORAGE

Avoid breathing dust; wear an approved respirator. Practice reasonable caution and personal cleanliness. Avoid eye contact.

STEPS TO BE TAKEN IN CASE OF SPILL OR LEAK

Vacuum or sweep up if dry. Avoid flushing with water as material may become extremely slippery.

WASTE DISPOSAL METHOD

Dispose of material in a manner to prevent generating dust.

SECTION IX: PREPARATION

The information contained herein is given in good faith, but no warranty, expressed or implied is made.

Date issued: November 10, 1988
Date Revised: March 1, 1992

By: Product Safety Committee

Feuillets de transmission par télécopieur
Post-it™ Fax Note 7871B

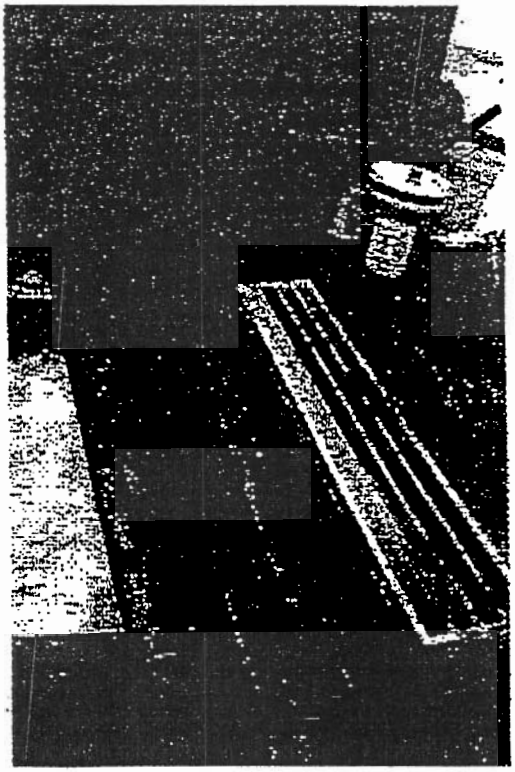
Date	# of pages / Nbre de pages ▶ 8
To / À DAKSKELTON	From / De KELLY WHITTLE
Co./Dept. / Cie/Service	Co. / Cie
Phone # / N° de tél.	Phone # / N° de tél.
Fax # / N° de télécopieur	Fax # / N° de télécopieur

POLY-DRILL O.B.X. AND 133X

Overburden and Core Drilling Fluid System

Poly-Drill O.B.X. & 133X are a second generation polymer drilling system that overcomes the shearing problems of emulsion polymers such as Easy Mud, 120L and Matex 1200. They act as cross-linked liquid viscosifiers used for cutting removal in drilling applications.

* Non-shearing clay stabilizing and core recovery system that maintains viscosity under shear.
* Includes a lubricate that reduces rod vibration and improves tube filling in broken ground.
* Maintains hole stability and hole cleaning for overburden as well as sand seams.
* Films metal surfaces to provide excellent lubrication of down hole equipment, water swivels, pressure pumps and mixing equipment.
* Assists in bore hole stabilization.
* Helps alleviate solids accumulation within drilling fluids by aiding an Enviro-Pak filtration system.
* Safe for the environment.



* Mix 1 quart of O.B.X. per 150 gallons of water while mixing tank is filling for over burden and sand, when tank is near full, then add equal amount of 133X.
* Greater viscosity can be achieved by increasing each product.
* The O.B.X. must be added to the mixing tank first.
* This cross-linked system can achieve a funnel viscosity of 45 to 50 seconds.

*Packaged in 5 gallon plastic pails (20 Liters).

POLY-DRILL DRILLING 1824 - 104 Ave., S.W. Calgary, Alberta T2W-OA8 (403) 259-5112

POLY-DRILL CLAY TREAT II

Poly-Drill Drilling Systems

Poly-Drill Clay Treat II is a specialized product designed specifically for use as a replacement for bagged potassium chloride(KcL). Clay Treat II does not contain potassium, but is composed of a sophisticated mildly cationic complex that functions much like KcL to control shale and clay activity. A 2% KcL solution contains 9,700 ppm of chloride ions, while the equivalent of Clay Treat II contains only 165 ppm of chloride ions. This significantly reduces chloride concentration and greatly lessens the environmental risks associated with the use of KcL fluids.

* Provides excellent shale and clay control without the mixing problems associated with large volumes of bagged KcL.

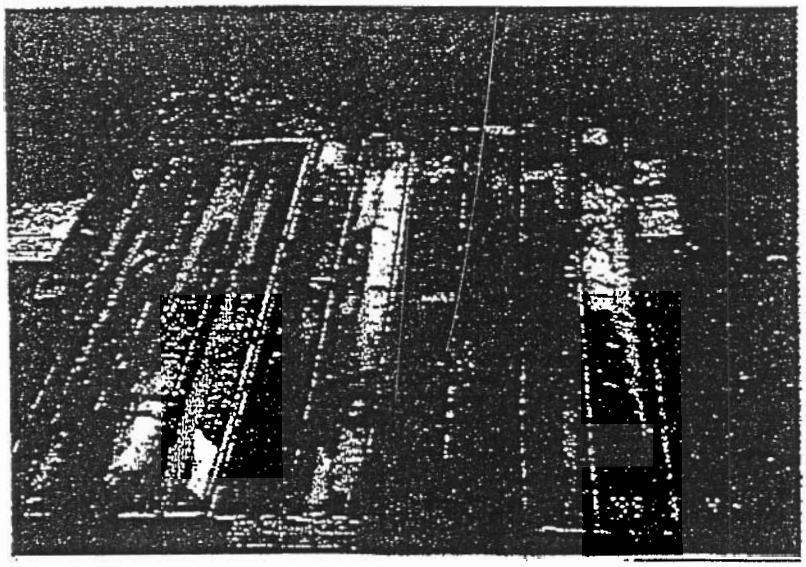
* Compatible with all polymer systems and cross-linked gels such as Poly-Drill 1330, 133X, O.B.X., and maybe used in water, brine or acid systems.

* Will not affect pH and being a non-surface active it does not adversely affect formation.

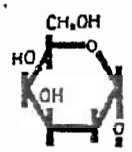
* Can be easily utilized in "on the fly systems" to eliminate pre-mixing and leftover brine disposal problems.

* Highly effective in preventing wellbore shale erosion.

* Typically applied at a concentration of 0.5 to 10 gallons per 1,000 gallons of fluid(GPT) depending on the percent of KcL being replaced, where 2 % potassium chloride functional equivalent is desired, Clay Treat II is added to fresh water at a concentration of 2 gallons per 1,000 gallons of water.



Clay Treat II has been very successful in continuous coring of kimberlite diamond samples, uranium deposits and fault seams



Poly-Drill Drilling Systems
1824 - 104 Avenue, S.W.
Calgary, Alberta, Canada
T2W-OA8
(403) 259-5112 FAX (403) 255-7185

MATERIAL SAFETY DATA SHEET / FICHE SIGNALETIQUE

Section 1—PRODUCT IDENTIFICATION

PRODUCT TRADE NAME(S): Poly Drill 133X/1330

PRODUCT DESCRIPTION: Latex polyelectrolyte

SECTION 2—COMPOSITION

A liquid polymer: Evaluation of the ingredient(s) has found no ingredient(s) hazardous as per WHMIS regulations.

SECTION 3—PHYSICAL DATA

Boiling Point: Not available
Solubility in Water: Solubility limited by solution viscosity.
Density (g/ml): 1.08 at 25° C
Appearance and Odor: Blue. Odor slight.

Specific Gravity (@ 25 Deg.C.): 1.09
pH: 8.1 (1.0% solution)
Physical State: Liquid

SECTION 4--FIRE AND EXPLOSION DATA

Flash Point (method used): (PMCC) >100 C
Conditions of flammability: Intense heat, open flame.
Hazardous combustion products: Products of incomplete hydrocarbon combustion.
Upper and Lower flammable limits: Not available
Extinguishing media: Use water spray, foam, dry chemical, or carbon dioxide.

SECTION 5—REACTIVITY

Chemical stability: Stable under normal conditions.
Hazardous Polymerization: Will not occur
Incompatible substances: Avoid strong oxidizing and reducing agents.
Hazardous decomposition products: Carbon monoxide, carbon dioxide, and products of incomplete hydrocarbon combustion.

SECTION 6—HEALTH HAZARD DATA

TOXICITY RATING: Practically non-harmful.
Routes of Exposure and Effects:
SKIN: Slight irritant: prolonged contact may cause skin irritation or dermatitis in some individuals
EYE: No effects of exposure expected with the exception of possible irritation.
INHALATION: If misted, no effects of exposure are expected.
Exposure limits: TLV-TWA: Mineral oil, mist 5 mg/m3
Carcinogenicity: None of the components of this product are listed as carcinogens by IARC and ACGIH
Sensitization of product: Not suspected to be a sensitizer.
Teratongenicity: Not available.
Mutagenicity: Not available.

SECTION 7—EMERGENCY AND FIRST AID PROCEDURES

SKIN: Wash exposed area with soap and water. If irritation or abnormalities persist, call a physician.
EYE: Immediately flush eyes with water for 15 minutes, if irritation or abnormalities persist, call a physician.
INHALATION: Remove to fresh air. If breathing becomes difficult, give oxygen and call a physician.
INGESTION: Don not induce vomiting: Call a physician immediately.

SECTION 8—HANDLING AND USE PRECTIONS

Storage requirements: keep container closed when no in use. Store in a cool dry location away from oxidizing and reducing agents.
Waste Disposal: product should be disposed of in accordance with applicable local, Provincial and Federal regulations.
Steps must be taken if product is released or spilled: clean spill areas thoroughly to avoid hazardous slippery conditions.

SECTION 9—INDUSTRIAL HYGIENE CONTROL MEASURES

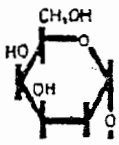
Respiratory Protection: None normally required.
Ventilation: If mist and/or vapors are present, use air purifying respirator of self-contained breathing apparatus, but this is rarely required.
Eye Protection: Safety glasses, if personally preferred
Gloves: Generally not necessary. Personal preference.

SECTION 10—TOXICOLOGICAL PROPERTIES

Environmental Effects: Not known to be harmful to aquatic life at low concentrations.
Freshwater aquatic toxicity rating: 96 hour LC50 Rainbow Trout = 160 mg/L
96 hour LC50 Salmon = 160 mg/L

SECTION 11—DEPARTMENT OF TRANSPORTATION INFORMATION

Shipping Name: Drilling Mud
Hazard Class: Not hazardous
Hazardous Substances: None
Cautionary Labeling: None required



Poly-Drill Drilling Systems
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Calgary, Alberta, Canada
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MATERIAL SAFETY DATA SHEET/FICHE SIGNALETIQUE

Section 1—PRODUCT IDENTIFICATION

PRODUCT TRADE NAME(S): Poly Drill O.B.X.
TDG Classification: Non dangerous goods

WHMIS CLASSIFICATION: Non-regulated

SECTION 2—COMPOSITION

A liquid polymer: Evaluation of the ingredient(s) has found no ingredient(s) hazardous as per WHMIS regulations.

SECTION 3—PHYSICAL DATA

Boiling Point: Not available
Solubility in Water: disperses in water(forms viscous, slippery solution).
Density (g/ml): Not available
Appearance and Odor: Brown. Odor slight.

Specific Gravity: 0.9 g/cm
pH: 3.8 (1% concentration)
Physical State: Liquid

SECTION 4—FIRE AND EXPLOSION DATA

Flash Point (method used): (PMCC) greater than 100 C.
Conditions of flammability: Very low risk.
Hazardous combustion products: None known.
Upper and Lower flammable limits: Not available.
Extinguishing media: Carbon dioxide, dry chemicals, foam, in preference to water spray

SECTION 5—REACTIVITY

Chemical stability: Stable under normal conditions.
Hazardous Polymerization: Will not occur.
Incompatible substances: Avoid strong oxidants such as liquid chlorine, concentrated oxygen, sodium or calcium hypochloride.
Hazardous decomposition products: None known

SECTION 6—HEALTH HAZARD DATA

TOXICITY RATING: *Practically non-harmful.*
Routes of Exposure and Effects:
SKIN: Slight irritant: prolonged contact may cause skin irritation or dermatitis in some individuals
EYE: No effects of exposure expected with the exception of possible irritation.
INHALATION: Due to low volatility of mineral distillates a small inhalation hazard exists.
INGESTION: can cause nausea, vomiting, cramps, diarrhea
Chronic exposure limits: None
Sensitization of product: Not suspected to be a sensitizer.
Teratongenicity: Not available.
Mutagenicity: Not available.
Carcinogenicity: None of the components of this product are listed as carcinogens by IARC and ACGIH

SECTION 7—EMERGENCY AND FIRST AID PROCEDURES

SKIN: Wash exposed area with soap and water. If irritation or abnormalities persist, call a physician.
EYE: Immediately flush eyes with water for 15 minutes, if irritation or abnormalities persist, call a physician.
INHALATION: Remove to fresh air. If breathing becomes difficult, give oxygen and call a physician.
INGESTION: Don not induce vomiting: Call a physician immediately.

SECTION 8—HANDLING AND USE PRECTIONS

Storage requirements: keep container closed when not in use. Store in a cool dry location away from oxidizing and reducing agents.
Waste Disposal: product should be disposed of in accordance with applicable local, Provincial and Federal regulations.
Steps must be taken if product is released or spilled: clean spill areas thoroughly to avoid hazardous slippery conditions.

SECTION 9—INDUSTRIAL HYGIENE CONTROL MEASURES

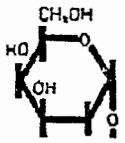
Respiratory Protection: None normally required.
Ventilation: If mist and/or vapors are present, use air purifying respirator of self-contained breathing apparatus, but this is rarely required.
Eye Protection: Safety glasses, if personally preferred
Gloves: Generally not necessary. Personal preference.

SECTION 10—TOXICOLOGICAL PROPERTIES

Environmental Effects: Not known to be harmful to aquatic life at low concentrations.
Freshwater aquatic toxicity rating: 96 hour LC50 Rainbow Trout = 160 mg/L
96 hour LC50 Salmon = 160 mg/L

SECTION 11—DEPARTMENT OF TRANSPORTATION INFORMATION

Shipping Name: Drilling Mud
Hazard Class: Not hazardous
Hazardous Substances: None
Cautionary Labeling: None required



Poly-Drill Drilling Systems
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Calgary, Alberta, Canada
T2W-OA8
(403) 259-5112 FAX (403) 255-7185

MATERIAL SAFETY DATA SHEET/FICHE SIGNALETIQUE

Section 1—PRODUCT IDENTIFICATION

PRODUCT TRADE NAME(S): Poly Drill CLAY TREAT II

SECTION 2—COMPOSITION

SECTION 3—PHYSICAL DATA

Boiling Point: 100 C
Solubility in Water: Soluble
Density (g/ml): 1.1
Appearance and Odor: Red. Characteristic slight odor.

Specific Gravity (@ 25 Deg.C.): 1.09
pH: 5.0 - 7.0 (1.0% solution)
Physical State: Liquid

SECTION 4—FIRE AND EXPLOSION DATA

Flash Point: >93.3 C
Conditions of flammability: Will burn after drying
Hazardous combustion products: Oxides of carbon and nitrogen and products of incomplete combustion.
Upper and Lower flammable limits: Not available
Extinguishing media: Use water spray, foam, dry chemical, or carbon dioxide.

SECTION 5—REACTIVITY

Chemical stability: Stable under normal conditions.
Hazardous Polymerization: Will not occur.
Incompatible substances: Avoid strong oxidizing and reducing agents.
Hazardous decomposition products: Not available.

SECTION 6—HEALTH HAZARD DATA

TOXICITY RATING: Practically non-harmful.
Routes of Exposure and Effects:
SKIN: Slight irritant: prolonged contact may cause skin irritation or dermatitis in some individuals
EYE: No effects of exposure expected with the exception of possible irritation.
INHALATION: If misted, no effects of exposure are expected.
Exposure limits: Contains trace acrylamide (SKIN). Exposure limit, TWAEV=0.03 mg/m(ONT. Reg. 654/86).
Contains traces of isopropanol. Exposure limit, TWAEV=400ppm, STEV=500ppm(ONT. Reg. 654/86).
Carcinogenicity: This product contains traces of acrylamide. Acrylamide is listed by IARC(Group 2B) and ACGIH(Group A2) as a possible human carcinogen.
Teratongenicity: Not available.
Mutagenicity: Not available.

SECTION 7—EMERGENCY AND FIRST AID PROCEDURES

SKIN: Wash exposed area with soap and water. If irritation or abnormalities persist, call a physician.
EYE: Immediately flush eyes with water for 15 minutes, if irritation or abnormalities persist, call a physician.
INHALATION: Remove to fresh air. If breathing becomes difficult, give oxygen and call a physician.
INGESTION: Don not induce vomiting: Call a physician immediately.

SECTION 8—HANDLING AND USE PRECTIONS

Storage requirements: keep container closed when no in use. Store in a cool dry location away from oxidizing and reducing agents.
Waste Disposal: product should be disposed of in accordance with applicable local, Provincial and Federal regulations.
Steps must be taken if product is released or spilled: clean spill areas thoroughly to avoid hazardous slippery conditions.

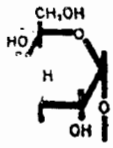
SECTION 9—INDUSTRIAL HYGIENE CONTROL MEASURES

Respiratory Protection: None normally required.
Ventilation: If mist and/or vapors are present, use air purifying respirator of self-contained breathing apparatus, but this is rarely required.
Eye Protection: Safety glasses, if personally preferred
Gloves: Generally not necessary. Personal preference.

SECTION 11—DEPARTMENT OF TRANSPORTATION INFORMATION

Shipping Name: Drilling Mud
Hazard Class: Not hazardous
Hazardous Substances: None
Cautionary Labeling: None required

Material Safety Data/Fiche signaletique



POLY-DRILL DRILLING
1824 - 104 AVENUE, S.W.
CALGARY, ALBERTA, CANADA T2W OA8
TEL. (403) 259-5112 FAX (403) 255-7185

EMERGENCY (403) 259-5112

I. PRODUCT IDENTIFICATION

Trade Name(s): Clay Treat II
WHMIS CLASSIFICATION: Non regulated
TDG Classification: Non dangerous goods TDG label N.R.
Manufacturer: Poly-Drill Drilling

II. PHYSICAL DATA

Boiling Point: 100 C
Solubility in Water: Soluble
Density(g/ml): 1.1
Appearance and Odor: Red with characteristically slight odor.

Specific Gravity(@25 Deg. C.): 1.1
pH: 5.0-7.0 (1.0% solution)
Physical state: Liquid

III. FIRE AND EXPLOSION DATA

Flash Point: >93.3 C
Conditions of flammability: Will burn after drying
Hazardous combustion products: Oxides of carbon and nitrogen and products of incomplete combustion.
Upper and Lower flammable limits: Not applicable
Extinguishing media: Use water spray, foam, dry chemical, or carbon dioxide.

IV. REACTIVITY

Stability: Stable under normal conditions
Hazardous Polymerization: Will not occur
Incompatible substances: Avoid strong oxidizing and reducing agents.
Hazardous decomposition products: Not available.

V. HEALTH HAZARD DATA

TOXICITY RATING: Practically non-harmful
Routes of Exposure and Effects:
SKIN: Slight irritant. Prolonged contact may cause skin irritation or dermatitis in some individuals.
EYE: No effects of exposure expected with the exception of possible irritation.
INHALATION: If misted, no effects of exposure expected.
Exposure limits: Contains trace acrylamide (SKIN). Exposure limit, TWAEV=0.03mg/m(ONT. Reg. 654/86).
Contains traces of isopropanol. Exposure limit, TWAEV=400ppm, STEV=500ppm(ONT. Reg 654/86).
Carcinogenicity: Product contains traces of acrylamide. Acrylamide is listed by IARC(Group 2B) and ACGIH(Group A2) as a possible human carcinogen.

VI. EMERGENCY AND FIRST AID PROCEDURES

SKIN: Wash exposed area with soap and water. If irritation or abnormalities persist, call a physician.
EYE: Immediately flush eyes with water for 15 minutes, if irritation or abnormalities persist, call a physician.
INHALATION: Remove to fresh air. If breathing is difficult, give oxygen and call a physician.
INGESTION: Do not induce vomiting. Call a physician immediately.

VII. HANDLING AND USE PRECAUTIONS

Storage requirements: Keep container closed when not in use. Store in a cool dry location away from oxidizing and reducing agents.
Waste Disposal: Product should be disposed of in accordance with applicable local, Provincial, and Federal regulations.
Steps must be taken is product is released or spilled. Clean spill areas thoroughly to avoid hazardous slippery conditions.

VII. INDUSTRIAL HYGIENE CONTROL MEASURES

Respiratory Protection: None normally required.
Ventilation: If mist and/or vapors are present, use air-purifying respirator of self-contained breathing apparatus, but rarely required.
Eye Protection: Safety glasses if personally preferred.
Gloves: Generally not necessary. Personal preference.

DEPARTMENT OF TRANSPORTATION INFORMATION

Shipping Name: Drilling Mud
Hazard Class: Not hazardous
Hazardous Substances: None
Cautionary Labeling: None required.

CLA/TREAT
PG#2

Appendix "G"

♦ Fuel MSDS Sheets ♦

Shell Canada Limited

Material Safety Data Sheet

Effective Date: 19971203

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
SYNONYMS:	WIDE BOILING RANGE AVIATION TURBINE FUEL
PRODUCT USE:	Fuel
MSDS Number:	141-012

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 Material Safety Section of Shell Canada Limited.

*A star in the product name designates a trade-mark(s) of Shell Canada Limited. Used under license by Shell Canada Products Limited.

2. COMPOSITION/INFORMATION ON INGREDIENTS

Component Name	CAS Number	% Range	WHMIS Controlled	CBI Claim No. CBI Date
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. 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. Always stay away from ends of containers due to explosive potential. Fight fire from maximum distance. 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 "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 (1998) : North American exposure limits have not been established for the product. Consult local authorities for acceptable provincial values.
Gasoline: 300 ppm, 890 mg/m3 (TLV/TWA) ACGIH
500 ppm,1480 mg/m3 (TLV/STEL) ACGIH
Benzene (skin) : 0.5 ppm, 1.6 mg/m3 (TLV/TWA)
2.5 ppm (STEL) ACGIH

Mechanical Ventilation: Make up air should always be supplied to balance air exhausted (either generally or locally). 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. 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. 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 (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:	>42 mm Hg @ 38 degrees C
Specific Gravity (Water = 1):	0
pH:	Not applicable
Flash Point:	Method Tag Closed Cup = -23 - 1 degrees C
Lower Explosion Limit:	1.4 % (vol.)
Upper Explosion Limit:	7.6 % (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/NA Number	UN1863
Proper Shipping Name	FUEL, AVIATION, TURBINE ENGINE
Hazard Class	Class 3 Flammable Liquid
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* and the MSDS contains all the information required by the *Controlled Products Regulations*.

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.
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 reissued in the ANSI Z400.1 standard format.

Shell Canada Limited

Material Safety Data Sheet

Effective Date: 19980901

Class B3 Combustible Liquid

Class D2B Other Toxic Effects - Skin Irritant

1. PRODUCT AND COMPANY IDENTIFICATION

PRODUCT:	REGULAR SULPHUR DIESEL FUEL
SYNONYMS:	Diesel
	Automotive Gas Oil
PRODUCT USE:	Fuel Solvent
MSDS Number:	322-110

MANUFACTURER
Shell Canada Limited
P.O. Box 100, Station M
400-4th Ave. S.W.
Calgary, AB Canada
T2P 2H5

TELEPHONE NUMBERS

Shell Emergency Number	1-800-661-7378
CANUTEC 24 HOUR EMERGENCY NUMBER	613-996-6666
For general information:	1-800-661-1600
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 Material Safety Section of Shell Canada Limited.

*A star in the product name designates a trade-mark(s) of Shell Canada Limited. Used under license by Shell Canada Products Limited.

2. COMPOSITION/INFORMATION ON INGREDIENTS

Component Name	CAS Number	% Range	WHMIS Controlled	CBI Claim No. CBI Date
REGULAR SULPHUR DIESEL FUEL	68476-34-6	100	Yes	

See Section 8 for Occupational Exposure Guidelines.

3. HAZARDS IDENTIFICATION

Physical Description: Liquid Lightly Coloured 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 Flush affected skin with gently flowing lukewarm water for at least 20 minutes and remove contaminated clothing while rinsing. 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	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. 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. 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. 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 (1998) : North American exposure limits have not been established for the product. Consult local authorities for acceptable provincial values.
Oil mist (mineral): 5 mg/m3 (TLV/TWA) ACGIH
10 mg/m3 (TLV/STEL) ACGIH
Recommend SHELL guideline of 125 mg/m3 for vapours (8 hour shift).

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, eitner self-contained or airline breathing apparatus, operated in positive pressure mode.

9. PHYSICAL DATA

Physical State:	Liquid
Appearance:	Lightly Coloured
Odour:	Hydrocarbon Odour
Odour Threshold:	Not available
Freezing/Pour Point:	Not available
Boiling Point:	246 - 388 degrees C
Density:	<876 kg/m3 @ 15 degrees C
Vapour Density (Air = 1):	Not available
Vapour Pressure:	Not available
pH:	Not applicable
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:	1.3 - 4.1 cSt @ 40 degrees C
Evaporation Rate (n-BuAc = 1):	Not available
Partition Coefficient (K_{ow}):	Not available
Water Solubility:	Insoluble

Other Solvents: Hydrocarbon Solvents
Formula: C10 to C22 Hydrocarbons

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**
REGULAR SULPHUR DIESEL FUEL	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. Prolonged or repeated contact may cause various forms of dermatitis including folliculitis and oil acne.

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.

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/NA Number	UN1202
Proper Shipping Name	FUEL OIL
Hazard Class	Class 3 Flammable Liquid
Packing Group	PG III
Shipping Description	FUEL OIL Class 3 UN1202 PG III

15. REGULATORY INFORMATION

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

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.
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 reissued in the ANSI Z400.1 standard format.

PROPANE

Material Safety Data Sheet

WHMIS (Pictograms)	WHMIS (Classification)	Protective Clothing	TDG (pictograms)
	A, B-1		

Section 1. Chemical Product and Company Identification

Product Name: **PROPANE**

Synonym: Propane HD-5, Propane commercial, Dimethylmethane, Propyl hydride, Liquefied Petroleum Gas (LPG), Alkane, C3H8

Supplier:
ICG PROPANE
Suite 200, 19433 96th Avenue
Surrey, BC V4N 4C4

In case of emergency:
ICG Propane Inc.
1-800-424-8807

Material Uses: Propane is used as a fuel gas, refrigerant and as a raw material for organic synthesis. The grade determines the propane content. It is supplied as pressurized liquid in tanks and cylinders.

Section 2. Composition and Information on Ingredients

Name	CAS #	% (V/V)	Exposure Limits (ACGIH) TLV-TWA (8 h)	STEL	CEILING
Propane	74-98-6	>90	4508 mg / m3, (2500 PPM - 1996 Occupational Exposure Limits)	Not applicable	Not applicable
Propylene */**	115-07-1	<5	Simple asphyxiant	Not applicable	Not applicable
Butane	106-97-8	<3	800 ppm	Not applicable	Not applicable
Ethane	74-84-0	0-5	Simple asphyxiant	Not applicable	Not applicable
Ethyl mercaptan	75-08-1	<50 ppm	0.5ppm	Not applicable	Not applicable

*Propane commercial contains more propylene
**Propylene may not be present

Supplier Recommendation: Recommends a maximum exposure level of 2500 ppm (4508 mg/m3) for 8 hours time weighted average when handling propane based on 1996 ACGIH notice of intended change for propane. Consult local authorities for acceptable exposure limits.

Other Exposure Limits: Consult local, provincial or territory authorities for acceptable exposure limits.

Section 3. Hazards Identification

Potential Health Effects: The health effects caused by exposure to propane are much less serious than it's fire and explosion risk. Propane is essentially nontoxic in concentrations less than the lower explosive limit, but at very high concentrations it is a simple asphyxiant and displaces oxygen from the breathing atmosphere. Lack of oxygen may cause dizziness, headaches, diminished awareness, faulty judgement, increasing fatigue, impaired muscular coordination progressing to convulsions, coma and death. A person working around propane in an enclosed space or in close proximity to a propane source (filling cylinders, purging lines and lighting / adjusting pilot lights, etc.) who feels "light-headed", "dizzy", "drunken" or a little intoxicated should realize this effect may be due to a dangerously high level of propane vapours (in the explosive range) and go immediately into fresh air. Direct contact with escaping gas or liquefied gas can result in freezing burns or frost bite to skin and eyes. For more information, refer to Section 11.

Section 4. First Aid Measures

Eye Contact: If the eye tissue is frozen, seek medical attention immediately; if tissue is not frozen, immediately and thoroughly flush the eyes with running water for at least 15 minutes, keeping eyelids open. If irritation, pain, swelling, or crying has occurred, get medical attention.

Skin Contact: Exposure to rapidly expanding gas or vaporizing liquid may cause frostbite (cold burns). If frostbite has occurred, do not rub the affected areas or flush them with water, but thaw frosted parts by soaking in water in order to prevent further tissue damage, do not attempt to remove frozen clothing from frostbitten areas. If frostbite has not occurred, immediately and thoroughly wash contaminated skin with soap and water.

Inhalation: Evacuate the victim to fresh air at once. If the victim is not breathing, perform mouth-to-mouth resuscitation. Administer oxygen if available. Keep the victim warm and at rest. Seek medical attention as soon as possible.

Ingestion: Since the product is a gas and that it is mostly probable that it will be inhaled more than ingested, please consider to look first at the preventive measures in case of inhalation.

Note to Physician: Monitor for respiratory distress. If cough or difficulty in breathing develops, evaluate for respiratory tract irritation, bronchitis, or pneumonitis. Monitor blood gases to assure adequate ventilation. If vital signs become abnormal or symptoms develop obtain a chest x-ray.

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PROPANE

Section 5. Fire-fighting Measures

Flammability	Class 1 - flammable gas (NFPA).	Flammable Limits	LOWER: 2.4%, UPPER: 9.5%, (B149.2M95).
Flash Points	CLOSED CUP: -104.4°C (-156°F) (NFPA).	Auto-Ignition Temperature	493 - 549°C (920 - 1020°F). (B149.2M95).
Fire Hazards in Presence of Various Substances	Extremely flammable in presence of open flames, sparks, and heat. Vapours are heavier than air and may travel considerable distance to sources of ignition and flash back. Rapid escape of vapour may generate static charge causing ignition.	Explosion Hazards in Presence of Various Substances	Can react vigorously with oxidizing materials. Severe explosion hazard when exposed to chlorine dioxide. Vapour explosion hazard indoors, outdoors or in sewers. Do not cut, weld, heat, drill or pressurize empty container.
Products of Combustion	Burns with a luminous, smoky flame. Carbon oxides (CO, CO_2), smoke and irritating fumes as products of incomplete combustion.		
Fire Fighting Media and Instructions	CAUTION This product has a low flash point. Use of water spray when fire may be inefficient. Cool containing vessels with water spray, do not use jet spray, in an effort to prevent pressure build up, auto ignition, or explosion. Small fire use dry chemical, CO_2, water spray or foam. Large fire, use water spray, fog, or foam. If tank, rail car or tank truck is involved in a fire, ISOLATE for 1600 meters (1 Mile) in all directions, also consider initial evacuation for 1600 meters (1 Mile) in all directions. Allow gas to burn if it cannot be shut off safely. If this is impossible, withdraw from area & let fire burn under controlled conditions. Withdraw immediately in case of rising sound from venting safety relief valve. For small outdoor fires, portable fire extinguishers may be used and Self Contained Breathing Apparatus may not be required. For all indoor fires, and any significant outdoor fires, SCBA is required. Respiratory and eye protection are required for fire fighting personnel. Handle damaged cylinders with extreme care.		

Section 6. Accidental Release Measures

Material Release or Spill	NAERG'96, GUIDE 115, Flammable Gas. ELIMINATE ALL IGNITION SOURCES. Ventilate closed spaces. Avoid contact. Stop leak if without risk. By forced ventilation, maintain concentration of gas below the range of explosive mixture. Remove the tank or cylinder to an open area. Leave to bleed off in the atmosphere. Use water spray to reduce vapours. Isolate area until gas has disappeared. Check with applicable jurisdiction for specific disposal requirements of spilled material and empty containers. Notify the appropriate authorities immediately.

Section 7. Handling and Storage

Handling	Keep away from heat, spark, open flames and other sources of ignition. Empty container may contain flammable/explosive residues or vapours. DO NOT reuse empty containers without commercial cleaning or reconditioning. Ground/bond line and equipment during pumping or transfer to avoid accumulation of static charge. Keep away from incompatibles such as oxidizing agents (peroxides, chlorine). Avoid inhalation of vapours and skin or eye contact with liquid. Practice good personal hygiene. Wash hands after handling and before eating. Launder work clothes frequently. Discard saturated leather goods SPECIAL PRECAUTIONS: Sludges and tank scale from propane storage tanks, trucks, rail cars, and filters/screens may contain naturally occurring radioactive material ("NORM") in the form of lead, 210. Similarly, equipment used for the transfer of propane such as product pipelines, pumps and compressors, may have detectable levels of radioactive lead 210 on inner surfaces. Workers involved in cleaning, repair or other maintenance on inner surfaces of such equipment should avoid breathing dust generated from such activities. Suitable codes of practice should be developed for these activities, detailing appropriate occupational hygiene and disposal practices.
Storage	Transport and store cylinders and tanks secured in an upright position in a ventilated space. Cylinders that are not in use must have the valves in closed position and be equipped with a protective cap or collar. Do not store with oxidizing agents, oxygen or chlorine cylinders. Transport, handle and store according to applicable Federal and Provincial regulations (i.e. CAN/CGA B149.2 Propane Installation Code and TDG regulations.)

Section 8. Exposure Controls/Personal Protection

Engineering Controls	For normal outdoor application, special ventilation is not necessary. For indoor or confined spaces, provide explosion-proof local exhaust ventilation (as per the CAN/CGA B149.2 Propane Installation Code), adequate oxygen (at least 18% by volume), and flame-proof electrical switches and lighting system. Make-up air should always be supplied to balance air removed by exhaust ventilation.
Personal Protection	
Eyes	Face shield, safety glasses or chemical splash goggles in case of splashing.
Body	Wear appropriate loose clothing with closed neck and long sleeves to prevent the skin from becoming frozen from contact with the liquid or from contact with vessels containing the liquid.
Respiratory	When exposure is likely to exceed recommended exposure limit (see section #2), use NIOSH approved respirator. Respirator should be selected based on the form and concentration of containment in air (refer to NIOSH Pocket Guide for Chemical Hazard for respirator selection). In order to determine the concentration of the containment, air sampling is recommended and should be performed by a health and safety specialist (as per the NIOSH Manual of analytical methods for method of measurement). If air sampling is not practical and concentration is unknown, use SCBA.
Hands	Wear insulated gloves to prevent frostbite.
Feet	Safety boots or shoes.

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Section 9. Physical and Chemical Properties

Physical State & Appearance	Gas at room temperature; liquid when stored under pressure.	Viscosity	Not applicable.
Colour	Colourless.	Pour Point	Not applicable.
Odour	Odourless gas in natural state at any concentration. Propane sold for fuel purposes under pressure usually has an odourant added to it. This odourant is usually a mercaptan, which has an odour similar to "rotten eggs" or "skunk". The odourant level is such that it is noticeable below the Lower Exposure Limit (LEL) of the propane. WARNING: Studies have shown that not all persons are sensitive to the skunky smell and may not be able to detect this warning device!	Softening Point	Not applicable
Odour Threshold	Odour is not an adequate warning to prevent overexposure to propane. Prolonged exposure to mercaptans can cause olfactory desensitization.	Dropping Point	Not applicable.
Boiling Point	-42°C (-44°F).	Penetration	Not applicable.
Density	0.51 Kg/L @15°C (Water = 1).	Oil/Water Dist. Coeff	Log Kow: 2.36; mobile.
Vapour Density	1.56 @ 0°C (32°F), 1.8 @ 20°C (68°F) Air = 1.	Ionicity (in water)	Not applicable.
Vapour Pressure	<10763 mmHg @ 100°F (<1435 kPa @ 38°C).	Dispersion Properties	Not available.
Volatility	Volatile.	Solubility	62ppm in water at 25°C (77°F), slightly soluble in acetone. Soluble in benzene, ether, alcohols, chloroform.

Section 10. Stability and Reactivity

Corrosivity	Non corrosive.		
Stability	The product is stable under normal handling and storage conditions.	Hazardous Polymerization	Will not occur under normal conditions.
Incompatible Substances/ Conditions to Avoid	Highly reactive with oxidizing agents (peroxides, chlorine).	Decomposition Products	Releases of Co_x, smoke and irritating fumes when heated to decomposition

Section 11. Toxicological Information

Routes of Entry	Inhalation, skin contact and eye contact.
Acute Lethality	Simple asphyxiant. LC50 (Inhalation/human): no effect for 10,000 ppm (1%) break exposure; slight dizziness in a few minutes at 100,000 ppm (10%).

Chronic or Other Toxic Effects

Dermal Route:	Low dermal penetration. Skin irritation has not been shown even with twice daily application for 12 weeks in human volunteers.
Inhalation Route:	Subchronic inhalation studies in monkeys show no evidence of organs toxicity or abnormalities.
Oral Route:	No studies were found.
Eye Irritation/inflammation:	None.
Immunotoxicity.	No studies were found.
Skin Sensitization:	No studies were found.
Respiratory Tract Sensitization:	No studies were found.
Mutagenic:	Not mutagenic in the Salmonella typhimurium/microsome assay (Ames test).
Reproductive Toxicity:	No studies were found.
Teratogenicity/Embryotoxicity:	No studies were found
Carcinogenicity (ACGIH):	Simple asphyxiant.
Carcinogenicity (IARC):	No studies were found.
Carcinogenicity (NTP):	No studies were found
Carcinogenicity (IRIS):	No studies were found
Carcinogenicity (OSHA):	No studies were found.

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Other Considerations	Acts as a simple asphyxiant – inert gas or vapour. The narcotic or intoxicated effect of a simple asphyxiant may impair a person's judgement, but it is temporary and will rapidly disappear in fresh air. Persons with anemia or other conditions of reduced oxygen-carrying capacity may be more sensitive. Propane producers and distributors may, from time to time, add small amounts of methanol to the propane to overcome water and freezing problems. Methanol may accumulate in liquid residues in propane piping and storage vessels. Please refer to a methanol Material Safety Data Sheet (MSDS) for further details concerning methanol.

Section 12. Ecological Information

Environmental Fate	Volatilizes and disperses rapidly. Volatilization is expected to be the dominant fate process.	Persistence/ Bioaccumulation Potential	Propane is readily biodegraded by soil bacteria (Microbacterium vaccae). The degradation of propane is similar to the degradation of fatty acids.
BOD5 & COD	Not available.	Products of Biodegradation	Not available.
Additional Remarks	Henry's Law constants for propane has been calculated to be 7.07x10-1 atm-m³/mole @ 25°C. These mean that propane may rapidly volatilize from water and moist soil to the atmosphere. The estimated half-life for evaporation of propane from a model river (1m deep flowing 1m/s with a wind speed of 3 m/s) and a model pond are 1.9 hrs. and 2.3 hrs., respectively.		

Section 13. Disposal Considerations

Waste Disposal	Preferred waste management priorities are: (1) incineration with energy recovery; (2) evaporation; (3) disposal at licensed waste disposal facility. Ensure that disposal or reprocessing is in compliance with government requirements and local disposal regulations.

Section 14. Transport Information

TDG Classification	Shipping name: Propane or Liquefied Petroleum Gas; UN1978 or UN 1075, Class 2.1; Label required: Flammable Gas.	Special Provisions for Transport	102 Add "SPECIAL COMMODITY" to document if in car load, container load by rail. Acceptable modes of transportation: air (cargo only), rail, road and water. Not acceptable for transport by passenger aircraft.

Section 15. Regulatory Information

Other Regulations	All components of this formulation are listed in the Domestic Substances List (DSL-Canadian) and in the Toxic Substances Control Act Inventory (TSCA-U.S.). This product is not known to contain any of the carcinogens required to be listed under OSHA hazard communication standard, 29 CFR 1910.1200 (U.S.). Not listed in EPCRA or SARA Title III, Section 313, Toxic Chemicals (40 CFR 355). Not listed in CERCLA (40 CFR 302.40). Please note that the chemical identity of some or all of the ingredients that may be listed herein is confidential business information and is being withheld as permitted by 29 CFR 1910.1200 and various State Right to Know Laws.
DSD/DPD (Europe)	2- Risk of explosion by shock, friction, fire or other sources of ignition. 13- Extremely flammable liquefied gas. 16- Explosive when mixed with oxidizing substances. 20/21- Harmful by inhalation and in contact with skin. 35- Causes severe burns.
DOT (U.S.A.) (Pictograms)	

HMIS (U.S.A.)	
Health Hazard	1
Fire Hazard	4
Reactivity	0
Personal Protection	d

NFPA (U.S.A.)

Rating
0 Insignificant
1 Slight
2 Moderate
3 High
4 Extreme

Section 16. Other Information

References: Available upon request.

Glossary

ACGIH - American Conference of Governmental Industrial Hygienists
ASTM - American Society for Testing and Materials
BOD5 - Biological Oxygen Demand in 5 days
CAN/CGA B149.2 - Propane Installation Code
CAS - Chemical Abstract Services
CEPA - Canadian Environmental Protection Act
CERCLA - Comprehensive Environmental Response, Compensation and Liability Act
CFR - Code of Federal Regulations
CHIP - Chemical Hazard Information and Packaging Approved Supply List
COD - Chemical Oxygen Demand
CPR - Controlled Products Regulation
DOT - Department of Transportation
DSCL - Dangerous Substances Classification and Labeling (Europe)
DSD/DPD - Dangerous Substance or Dangerous Preparations Directives (Europe)
DSL - Domestic Substance List
EEC/EU - European Economic Community/European Union
EINECS - European Inventory of Existing Commercial Chemical Substances
EPCRA - Emergency Planning and Community Right-to-Know Act
FDA - Food and Drug Administration
FIFRA - Federal Insecticide, Fungicide, and Rodenticide Act
HCS - Hazardous Communication System
HMIS - Hazardous Material Information System
IARC - International Agency for Research on Cancer
IRIS - Integrated Risk Information System
LD50/LC50 - Lethal Dose/Concentration kill 50%
LDLo/LCLo - Lowest Published Lethal Dose/Concentration
NAERG'96 - North American Emergency Response Guide Book (1996)
NFPA - National Fire Prevention Association

Continued on Next Page

Available in French

NIOSH - National Institute for Occupational Safety & Health
NPRI - National Pollutant Release Inventory
NTP - National Toxicology Program
OSHA - Occupational Safety & Health Administration
PEL - Permissible Exposure Limit
RCRA - Resource Conservation and Recovery Act
SARA - Superfund Amendments and Reorganization Act
SD - Single Dose
STEL - Short Term Exposure Limit (15 minutes)
TDG - Transportation Dangerous Goods (Canada)
TDLo/TCLo - Lowest Published Toxic Dose/Concentration
TLV-TWA - Threshold Limit Value - Time Weighted Average
TSCA - Toxic Substances Control Act
USEPA - United States Environmental Protection Agency
USP - United States Pharmacopoeia
WHMIS- Workplace Hazardous Material Information System

Information Contact ICG Propane Inc. 1-800-424-8807

Prepared by: Williams 99/12/09

Data entry by: Data Business Forms

To the best of our knowledge, the information contained herein is accurate. However, neither the above named supplier nor any of its subsidiaries assumes any liability whatsoever for the accuracy or completeness of the information contained herein. Final determination of suitability of any material is the sole responsibility of the user. All materials may present unknown hazards and should be used with caution. Although certain hazards are described herein, we cannot guarantee that these are the only hazards that exist.

APPENDIX "F"

♦ Additional Information ♦

Sections 15.0 to 20.0 – Environmental Impact

Due to its small scale and limited use, it is anticipated that the campsite will have a minimal impact on the surrounding environment. Each tent has a footprint of approximately $20m^2$ so the total "footprint" of the campsite should not exceed $100m^2$.

The drill rig will have a maximum footprint of $25m^2$. This includes the drill hut and the pump shack. On average the anticipated drill holes are expected to take 2 days to complete. The drill rig will use a maximum of 60,000 litres of water in a 24-hour period. Normal operation of the drill produces $0.6m^3$ or 260 kg of cuttings for every 200 meters of drilling.

The above data indicates that a 10 hole program from four setups will have a total footprint of $100m^2$ ($25m^2$ x 4 sites). Anticipated total water consumption is not expected to exceed 1,200,000 litres (60,000 litres x 20 days). Total maximum drill cuttings will not exceed 2600 kg of fines (260 kg x 9 holes).

Upon completion of the operations, all material and equipment will be removed from the site. Any lands affected by the campsite and drilling will be restored, to the most reasonable extent possible, to their original and natural state. All sumps will be restored to the natural contours of the land prior to expiry of the permit.

Ashton has been operating in the territory since 1993 and during this time there have been sightings of solitary caribou in the vicinity of the camp and the occasional heard of Musk-Oxen grazing on the mineral property. Personnel working on the project have been instructed to maintain their distance and not interfere with these animals for both their own safety and in consideration of the wildlife.

Sections 12.0 to 24.0 – Community Involvement and Regional Benefits

As this application is for a small campsite there is little opportunity for people outside of Ashton to be involved with the project. Regional benefits of this campsite and drill program are entirely dependent upon the future success of Ashton's exploration programs.