Application for a General Water License – Nunavut Water Board

Submitted by: Shamus Duff
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N6A 5B7

Contents:

General Water Licence Application
(Application for a new Water Licence)

Document Date: May 2016

Application Submission Date: ___03/15/2016___
Month/Day/Year

P.O. BOX 119
GJOA HAVEN, NUNAVUT
XOB 1J0
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kNK5 wmoEp5 vtmpq
NUNAVUT IMALIRIYIN KATIMAYIT
NUNAVUT WATER BOARD
OFFICE DES EAUX DU NUNAVUT

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GENERAL WATER LICENCE APPLICATION
(APPLICATION FOR NEW WATER LICENCE)

The applicant is referred to the NWB's Guide 4: *Guide to Completing and Submitting a Water Licence Application for a New Licence* for more information about this application form.

LICENCE NO: (for NWB use only)	
1. APPLICANT (PROPOSED LICENSEE) CONTACT INFORMATION (name, address) Dr. Gordon Osinski, Department of Earth Sciences, University of Western Ontario, 1151 Richmond Street, London, ON, N6A 5B7 Phone: (519) 661-4208 Fax: 519) 661-3198 e-mail: gosinski@uwo.ca	**2. APPLICANT REPRESENTATIVE CONTACT INFORMATION** if different from Block 1 (name, address) Shamus Duff, Department of Earth Sciences, University of Western Ontario, 1151 Richmond Street, London, ON, N6A 5B7 Phone: (519) 661-2111 ext. 80370 Fax: (519) 661-3198 e-mail: sduff8@uwo.ca (Attach authorization letter.)
3. NAME OF PROJECT (including the name of the project location) **Geological and Geomorphological Studies of the Devon Island Impact Structure**	
4. LOCATION OF UNDERTAKING **Project Extents** NW: Latitude: (75° 25'59"N) Longitude: (89°57'13"W) NE: Latitude: (75°19'23"N) Longitude: (89°34'37"W) SE: Latitude: (75°19'37"N) Longitude: (89°22'27"W) SW: Latitude: (75°26'01"N) Longitude: (89°56'12"W) **Camp Location(s)** Latitude: (75° 23'59"N) Longitude: (89°31'20"W)	
5. MAP - Attach a topographical map, indicating the main components of the undertaking. NTS Map Sheet No.: 058H07 Map Name: Haughton Dome Map Scale: 1:250 000	
6. NATURE OF INTEREST IN THE LAND - Check any of the following that are applicable to the proposed undertaking (at least one box under the 'Surface' header must be checked). **Sub-surface**	

☐ Mineral Lease from Nunavut Tunngavik Incorporated (NTI)
Date (expected date) of issuance: _____ Date of expiry: _____

☐ Mineral Lease from Indian and Northern Affairs Canada (INAC)
Date (expected date) of issuance: _____ Date of expiry: _____

Surface

☐ Crown Land Use Authorization from Indian and Northern Affairs Canada (INAC)
Date (expected date) of issuance: _May 2016__ Date of expiry: _August 15, 2016____

☐ Inuit Owned Land (IOL) Authorization from Kitikmeot Inuit Association (KIA)
Date (expected date) of issuance: _____ Date of expiry: _____

☐ IOL Authorization from Kivalliq Inuit Association (KivIA)
Date (expected date) of issuance: _____ Date of expiry: _____

X IOL Authorization from Qikiqtani Inuit Association (QIA)
Date (expected date) of issuance: 01/05/2016 Date of expiry: 31/12/2016

☐ Commissioner's Land Use Authorization
Date (expected date) of issuance: _____ Date of expiry: _____

X Other: Scientific Research Permit from Nunavut Research Institute (NRI)
Date (expected date) of issuance: 01/05/2016 Date of expiry: 31/12/2016

Name of entity(s) holding authorizations:
____Dr. Gordon R. Osinski_____

7. NUNAVUT PLANNING COMMISSION (NPC) DETERMINATION

Indicate the land use planning area in which the project is located.

x North Baffin
☐ South Baffin
☐ Akunniq
☐ Keewatin
☐ Sanikiluaq
☐ West Kitikmeot

Is a land use plan conformity determination required?

X Yes ☐ No

If Yes, indicate date issued and attach copy __expected May 2016_____
If No, provide written confirmation from NPC confirming that a land use plan conformity review is not required.

8. NUNAVUT IMPACT REVIEW BOARD (NIRB) DETERMINATION

Is an Article 12 Part 4 screening determination required?

X Yes ☐ No

If Yes, indicate date issued and attach copy ___expected May 2016_____
If No, provide written confirmation from NIRB confirming that a screening determination is not required.

9. DESCRIPTION OF UNDERTAKING – List and attach plans and drawings or project proposal.

See attached project description and map.

10. OPTIONS – Provide a brief explanation of the alternative methods or locations that were considered to carry out the project.

The Haughton Impact Crater is a unique scientific site due to how well preserved it is; no other locations were considered for the project because of this.

11. CLASSIFICATION OF PRIMARY UNDERTAKING - Indicate the primary classification of undertaking by checking one of the following boxes.

- ☐ Industrial
- ☐ Agricultural
- ☐ Mining and Milling (includes exploration/drilling/exploration camps)
- ☐ Conservation
- ☐ Municipal (includes camps/lodges)
- ☐ Recreational
- ☐ Power
- ✔ Miscellaneous (describe below):

Geological research

See Schedule II of *Northwest Territories Waters Regulations* for Description of Undertakings.

Information in accordance with applicable Supplemental Information Guidelines (SIG) must be submitted with a New Water Licence Application. Indicate which SIG(s) are applicable to your application.

- ☐ Hydrostatic Testing
- ☐ Tannery
- **X** Tourist / Remote Camp
- ☐ Landfarm & On-Site Storage of Hydrocarbon Contaminated Soil
- ☐ Onshore Oil and Gas Exploration Drilling
- ☐ Mineral Exploration / Remote Camp
- ☐ Advanced Exploration
- ☐ Mine Development
- ☐ Municipal
- ☐ General Water Works
- ☐ Power

12. WATER USE - Check the appropriate box(s) to indicate the type(s) of water use(s) being applied for.

- ✔ To obtain water for camp/ municipal purposes
- ☐ To obtain water for industrial purposes
- ☐ To divert a watercourse
- ☐ To cross a watercourse
- ☐ To modify the bed or bank of a watercourse
- ☐ To alter the flow of, or store water
- ☐ Flood control
- ☐ Other: _____

13. QUANTITY AND QUALITY OF WATER INVOLVED - For each type of water use indicated in Block 12, provide the source of water, the quality of the water source and available capacity, the estimated quantity to be used in cubic meters per day, method of extraction, as well as the quantities and qualities of water to be returned to source.

Name of water source(s) (show location(s) on map):
The Haughton River (see map for location)

Describe the quality of the water source(s) and the available capacity:
Water at this source is fresh and should require only filtration for consumption.

Provide the overall estimated quantity of water to be used: 0.1 m^3/day

Provide the estimated quantity(s) of water to be used from each source:
All water will be collected from the Haughton River. Approximately 2 m^3 will be used in total.

Indicate the estimated quantities to be used for each purpose (camp, drilling, etc.)
All water collected will be used for camp purposes (consumption, cooking, cleaning)

Describe the method of extraction(s):
Water will be collected in jugs

Estimated quantity(s) of water returned to source(s) None

Describe the quality of water(s) returned to source(s): N/A

14. **WASTE** – Check the appropriate box(s) to indicate the types of waste(s) generated and deposited.

- ✔ Sewage
- ✔ Solid Waste
- ☐ Hazardous
- ☐ Bulky Items/Scrap Metal
- ☐ Animal Waste
- ☐ Waste oil
- ✔ Greywater
- ☐ Sludges
- ☐ Contaminated soil and/or water
- ☐ Other (describe): _____

15. **QUANTITY AND QUALITY OF WASTE INVOLVED** – For each type of waste indicated in Block 14, describe its composition, quantity in cubic meters/day, method of treatment and method of disposal.

Type of Waste	Composition	Quantity Generated	Treatment Method	Disposal Method
Sewage	Human waste	12 kg/day	Combustible material will be incinerated in a can.	Transport all remaining waste to PCSP for disposal.
Solid Waste	Garbage, food waste, etc.	4 kg/day	Incineration of all combustible garbage in a can.	Transport all non-combustible garbage to PCSP for disposal.
Greywater	Dishwater, cooking, etc.	10 L/day	Greywater will be disposed of in a sump.	Greywater will be disposed of in a sump.

16. OTHER AUTHORIZATIONS – In addition to the sub-surface and surface land use authorizations provided in Block 6, indicate any other authorizations required in relation to the proposed undertaking. For each provide the following:

Authorization: Scientific Research Permit

Administering Agency: Nunavut Research Institute

Project Activity: Scientific Research

Date (expected date) of issuance: April 2012 Date of expiry: August 15, 2012

17. PREDICTED ENVIRONMENTAL IMPACTS OF UNDERTAKING AND PROPOSED MITIGATION MEASURES - Describe direct, indirect, and cumulative impacts related to water and waste.

No environmental impacts are envisaged due to this research. Everything possible will be done to ensure this is the case. Much of the research will be on foot with minimal disturbance to the local environment. All waste will either be flown out or burned on site in a safe, clean manner.

18. WATER RIGHTS OF EXISTING AND OTHER USERS OF WATER

Provide the names, addresses and nature of use for any known persons or properties that may be adversely affected by the proposed undertaking, including those that hold licences for water use in precedent to the application, domestic users, in-stream users, authorized waste depositors, owners of property, occupiers of property, and/or holders of outfitting concessions, registered trapline holders, and holders of other rights of a similar nature.

Advise the Board if compensation has been paid and/or agreement(s) for compensation have been reached with any existing or other users.

Devon Island is uninhabited so there will be no adverse effects due to this project.

19. INUIT WATER RIGHTS

Advise the Board of any substantial affect of the quality, quantity or flow of waters flowing through Inuit Owned Land (IOL), and advise the Board if negotiations have commenced or an agreement to pay compensation for any loss or damage has been reached with one or more Designated Inuit Organization (DIO).

N/A

20. CONSULTATION – Provide a summary of any consultation meetings including when the meetings were held, where and with whom. Include a list of concerns expressed and measures to address concerns.

N/A

21. SECURITY INFORMATION

Provide an estimate of the total financial security for final reclamation equal to the total outstanding reclamation liability for land and water combined sufficient to cover the highest liability over the life of the undertaking. Estimates of reclamation costs must be based on the cost of having the necessary reclamation work done by a third party contractor if the operator defaults. The estimate must also

include contingency factors appropriate to the particular work to be undertaken.

Where applicable, the financial security assessment should be prepared in a manner consistent with the principals respecting mine site reclamation and implementation found in the *Mine Site Reclamation Policy for Nunavut,* Indian and Northern Affairs Canada, 2002.

N/A

22. FINANCIAL INFORMATION

Provide a statement of financial responsibility.

If the applicant is a business entity, provide a list of the officers of the company.

If the applicant is a business entity attach a copy of the Certificate of Incorporation or evidence of registration of the company name.

N/A

23. STUDIES UNDERTAKEN TO DATE - List and attach copies of studies, reports, research, etc.

N/A

24. PROPOSED TIME SCHEDULE – Indicate the proposed start and completion dates for each applicable phase of development (construction, operation, closure, and post closure).

Construction
Proposed Start Date: _____ (month/year) Proposed Completion Date: _____ (month/year)

Operation
Proposed Start Date: July/2016 (month/year) Proposed Completion Date: August/2016 (month/year)

Closure
Proposed Start Date: _____ (month/year) Proposed Completion Date: _____ (month/year)

Post - Closure
Proposed Start Date: _____ (month/year) Proposed Completion Date: _____ (month/year)

For each applicable phase of development indicate which season(s) activities occur.

Construction
☐ Winter ☐ Spring ☐ Summer ☐ Fall ☐ All season

Operation
☐ Winter ☐ Spring ✔ Summer ☐ Fall ☐ All season

Closure
☐ Winter ☐ Spring ☐ Summer ☐ Fall ☐ All season

Post - Closure
☐ Winter ☐ Spring ☐ Summer ☐ Fall ☐ All season

25. PROPOSED TERM OF LICENCE

Number of years (maximum of 25 years): <1 year

Requested Date of Issuance: ___June/2016____ (month/year) Requested Expiry Date: __September/2016__ (month/year)

(The requested date of issuance must be at least three (3) months from the date of application for a type B water licence and at least one (1) year from the date of application for a type A water licence, to allow for processing of the water licence application. These timeframes are approximate and do not account for the time to complete any pre-licensing land use planning or development impact requirements, time for the applicant to prepare and submit a water licence application in accordance with any project specific guidelines issued by the NWB, or the time for the applicant to respond to requests for additional information. See the NWB's *Guide 5: Processing Water Licence Applications* for more information)

26. ANNUAL REPORTING – If not using the NWB's *Standardized Form for Annual Reporting*, provide details regarding the content of annual reports and a proposed outline or template of the annual report.

We will use the NWB's *Standardized Form for Annual Reporting.*

27. CHECKLIST – The following must be included with the application for the water licensing process to begin.

Written confirmation from the NPC confirming that NPC's requirements regarding land use plan conformity have been addressed.

☐ Yes X No If no, date expected _____May 2016_____

Written confirmation from the NIRB confirming that NIRB's requirements regarding development impact assessment have been addressed.

☐ Yes X No If no, date expected _____May 2016_____

Completed General Water Licence Application form.

X Yes ☐ No If no, date expected _____

Information addressing Supplemental Information Guideline (SIG), where applicable (see Block 11)

☐ Yes X No If no, date expected _____N/A_____

English Summary of Application.

X Yes ☐ No If no, date expected _____

Inuktitut and/or Inuinnaqtun Summary of Application.

X Yes ☐ No If no, date expected _____

Application Fee of $30.00 CDN (Payee Receiver General for Canada).

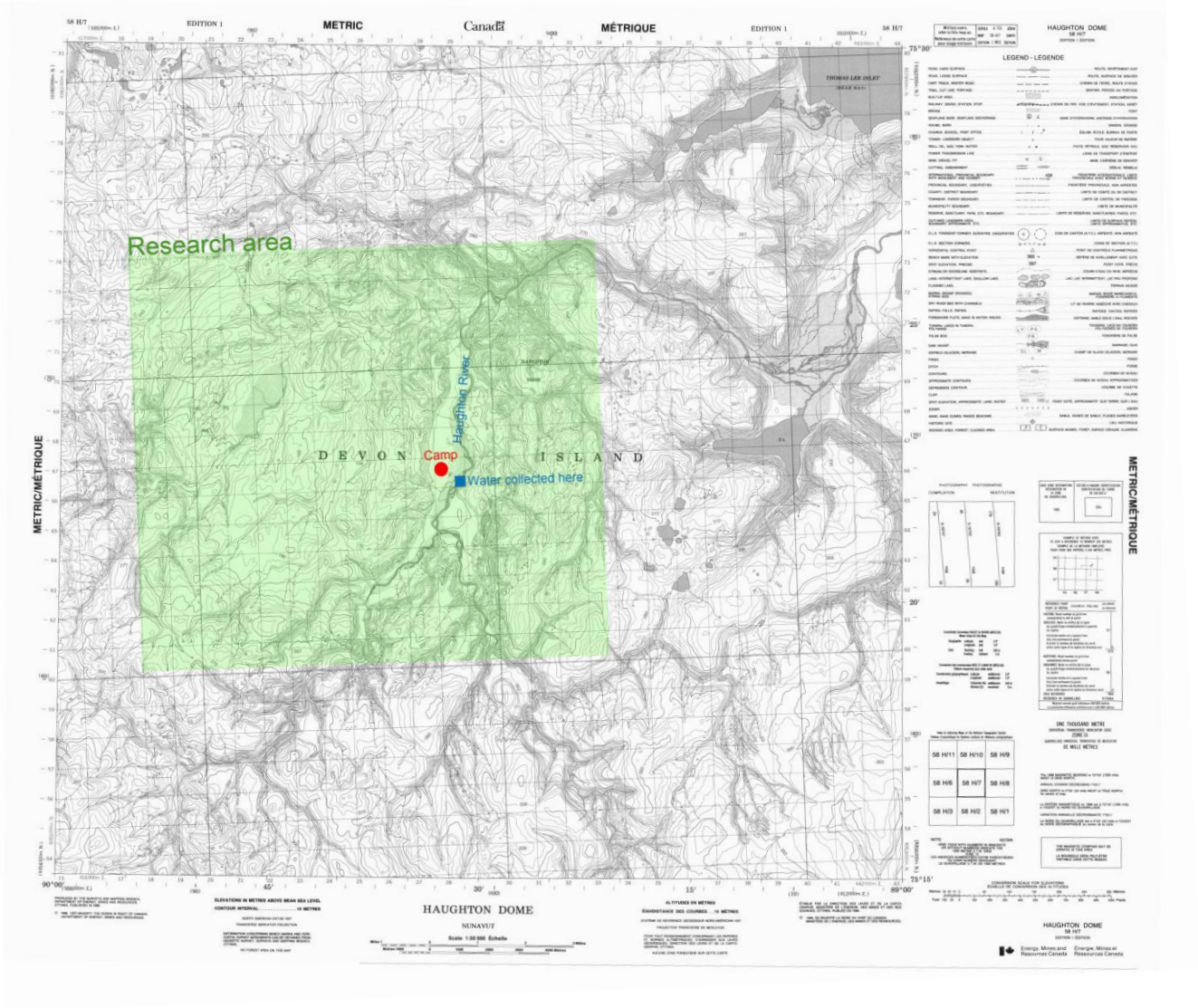
X Yes ☐ No If no, date expected _____

Water Use Fee Deposit of $30.00 CDN (Payee Receiver General for Canada). The actual water use fee will be calculated by the NWB based upon the amount of water authorized for use in accordance with the Regulations at the time of issuance of the licence.

X Yes ☐ No If no, date expected _____

28. SIGNATURE

Gordon Osinski	Associate Professor		March. 15, 2016
Name (Print)	**Title (Print)**	**Signature**	**Date**


Research area
Haughton River
Camp
Water collected here
D E V O N
I S L A N D
METRIC
MÉTRIQUE
Canada
LEGEND - LEGENDE
HAUGHTON DOME
NUNAVUT
METRIC/MÉTRIQUE

MSDS Safety Information

TOP

FSC: 9130 **NIIN:** 00−148−7104 **MSDS Date:** 04/09/1987 **MSDS Num:** BPBRW

Submitter: D DG **Tech Review:** 06/25/1999 **Status CD:** C

Product ID: 00351 UNLEADED REGULAR GASOLINE **MFN:** 01

Article: N **Kit Part:** N

Responsible Party **Cage:** 38431

Name: TEXACO INC.

Box: 509

City: BEACON **State:** NY **Zip:** 12508−0509

Country: US

Info Phone Number: 914−831−3400 EXT 204

Emergency Phone Number: 914−831−3400 EXT 204

Preparer's Name: R. T. RICHARDS

Proprietary Ind: N Review Ind: Y

Published: Y Special Project CD: N

Contractor Summary

TOP

Cage: 38431 **Name:** DIGITAL CONTROL SYSTEMS INC

Address: 3160 GRAND MARAIS E

City: WINDSOR, N8W 4W5 **State:** ON **Zip:** 00000

Country: CN **Phone:** NONE

Cage: 7B131 **Name:** TEXACO INC

Address: UNKNOWN **Box:** 509

City: BEACON **State:** NY **Zip:** 12508−0509

Country: US **Phone:** 914−831−3400

Item Description Information

TOP

Item Manager:

Item Name: GASOLINE,AUTOMOTIVE

Specification Number: VV−V−00169A Type/Grade/Class: CL A,B,C,D,E;GR PREM

Unit of Issue: GL Quantitative Expression:

UI Container Qty: X Type of Container: BULK

Ingredients

TOP

Cas: 71−43−2 Code: M RTECS #: CY1400000 Code: M

Name: **BENZENE (SARA III)**

% Text: 1−3.99 Environmental Wt:

Other REC Limits: NONE SPECIFIED

OSHA PEL:	1PPM/5STEL;1910.1028	Code: M	OSHA STEL:		Code:
ACGIH TLV:	10 PPM; A2; 9192	Code: M	ACGIH STEL:	N/P	Code:
EPA Rpt Qty:	10 LBS		DOT Rpt Qty:	10 LBS	

Ozone Depleting Chemical: N

Cas: 108−88−3 Code: M RTECS #: XS5250000 Code: M

Name: **TOLUENE (SARA III)**

% Text: 4−10.99 Environmental Wt:

Other REC Limits: NONE SPECIFIED

OSHA PEL:	200 PPM/150 STEL	Code: M	OSHA STEL:		Code:
ACGIH TLV:	50 PPM; 9293	Code: M	ACGIH STEL:	N/P	Code:
EPA Rpt Qty:	1000 LBS		DOT Rpt Qty:	1000 LBS	

Ozone Depleting Chemical: N

Cas: 100−41−4 Code: M RTECS #: DA0700000 Code: M

Name: **ETHYL BENZENE (SARA III)**

% Text: 1−3.99 Environmental Wt:

Other REC Limits: NONE SPECIFIED

OSHA PEL:	100 PPM/125 STEL	Code: M	OSHA STEL:		Code:
ACGIH TLV:	100 PPM/125STEL 9192	Code: M	ACGIH STEL:	N/P	Code:
EPA Rpt Qty:	1000 LBS		DOT Rpt Qty:	1000 LBS	

Ozone Depleting Chemical: N

Cas: 1330−20−7 Code: M RTECS #: ZE2100000 Code: M

Name: **XYLENES (O−,M−,P− ISOMERS) (SARA III)**

% Text: 4−10.99 Environmental Wt:

Other REC Limits: NONE SPECIFIED

OSHA PEL:	100 PPM/150 STEL	Code: M	OSHA STEL:		Code:
ACGIH TLV:	100 PPM/150STEL;9192	Code: M	ACGIH STEL:	N/P	Code:
EPA Rpt Qty:	1000 LBS		DOT Rpt Qty:	1000 LBS	

Ozone Depleting Chemical: N

Cas: 95−63−6 Code: M RTECS #: DC3325000 Code: M

Name: **1,2,4−TRIMETHYLBENZENE (SARA III)**

% Text: 1−3.99 Environmental Wt:

Other REC Limits: NONE SPECIFIED

OSHA PEL:	25 PPM	Code: M	OSHA STEL:		Code:
ACGIH TLV:	25 PPM; 9192	Code: M	ACGIH STEL:	N/P	Code:

EPA Rpt Qty: DOT Rpt Qty:

Ozone Depleting Chemical: N

Cas: 1634−04−4 Code: M RTECS #: KN5250000 Code: M

Name: **METHYL TERT−BUTYL ETHER (SARA III)**

% Text: 0−10 Environmental Wt:

Other REC Limits: NONE SPECIFIED

OSHA PEL: NOT ESTABLISHED Code: M OSHA STEL: Code:

ACGIH TLV: NOT ESTABLISHED Code: M ACGIH STEL: N/P Code:

EPA Rpt Qty: 1 LB DOT Rpt Qty: 1 LB

Ozone Depleting Chemical: N

========== Health Hazards Data ==========

TOP

LD50 LC50 Mixture ORAL LD50 (RAT) = 18.75 ML/KG

Route Of Entry Inds − Inhalation: YES Skin: YES Ingestion: NO

Carcinogenicity Inds − NTP: YES IARC: YES OSHA: YES

Health Hazards Acute And Chronic

ACUTE: EYES−CAUSES SLIGHT−MODERATE EYE IRRITATION. SKIN−MODERATELY IRRITATING. CHRONIC: RECENT STUDIES WITH LABORATORY ANIMALS HAVE SHOWN THAT GASOLINE VAPORS CAUSE KIDNEY DAMAGE & KIDNEY CANCER IN RA TS & LIVER CANCER IN MICE.

Explanation Of Carcinogenicity

PRODUCT CONTAINS BENZENE WHICH IS LISTED AS A CARCINOGEN BY NTP, IARC AND OSHA.

Signs And Symptions Of Overexposure

RESPIRATORY SYSTEM: MAY CAUSE DIZZINESS, IRRITATION OF EYES, NOSE AND THROAT, VOMITING, BLUISH COLOR OF THE SKIN AND CNS EFFECTS.

Medical Cond Aggravated By Exposure

NONE SPECIFIED BY MANUFACTURER.

First Aid

EYES: FLUSH WITH WATER FOR 15 MINUTES. SKIN: WASH EXPOSED AREA WITH SOAP AND WATER. INGESTION: DO NOT INDUCE VOMITING. MAY CAUSE CHEMICAL PNEUMONITIS. CALL A PHYSICIAN. INHALATION: SHOULD SYMPTOMS NOT ED UNDER EXPOSURE OCCUR, REMOVE TO FRESHAIR. IF NOT BREATHING, GIVE ARTIFICIAL RESPIRATION. (REMOVE GASOLINE−SOAKED CLOTHING)

Spill Release Procedures

ELIMINATE ALL IGNITION SOURCES INCLUDING INTERNAL COMBUSTION ENGINES AND POWER TOOLS. VENTILATE AREA. AVOID BREATHING VAPORS. USE SCBA OR SUPPLIED−AIR MASK FOR LARGE SPILLS IN CONFINED AREAS. CONTAIN SPILL IF POSSIBLE. REMOVE WITH INERT ABSORBENT.

Neutralizing Agent

NONE SPECIFIED BY MANUFACTURER.

Waste Disposal Methods

PREVENT WASTE FROM CONTAMINATING SURROUNDING ENVIRONMENT. DISCARD ANY PRODUCT, RESIDUE, DISPOSAL CONTAINER OR LINER IN ACCORDANCE WITH ALL FEDERAL, STATE AND LOCAL REGULATIONS.

Handling And Storage Precautions

TRANSPORT, HANDLE AND STORE IN ACCORDANCE WITH OSHA REGULATION 1910.106 AND APPLICABLE D.O.T. REGULATIONS.

Other Precautions

DANGER! EXTREMELY FLAMMABLE. HARMFUL OR FATAL IF SWALLOWED. MAY BE FATAL IF INHALED; MAY CAUSE IRRITATION. MAY BE HARMFUL IF ABSORBED THROUGH THE SKIN. KEEP AWAY FROM HEAT, SPARKS AMD FLAMES. AVOID BR EATHING VAPORS. FOR USE AS MOTOR FUEL.

========== Fire and Explosion Hazard Information ==========

TOP

Flash Point Method: COC

Flash Point:		Flash Point Text:	−40F,−40C
Autoignition Temp:		Autoignition Temp Text:	N/A
Lower Limits:	1.4 %	Upper Limits:	7.6 %

Extinguishing Media

DRY CHEMICAL, FOAM, CARBON DIOXIDE.

Fire Fighting Procedures

WATER MAY BE INEFFECTIVE ON FLAMES, BUT SHOULD BE USED TO COOL FIRE−EXPOSED CONTAINERS. IF A SPILL OR LEAK HAS NOT IGNITED, USE WATER SPRAY TO DISPERSE VAPORS.

Unusual Fire/Explosion Hazard

FLOWING GASOLINE CAN BE IGNITED BY SELF−GENERATED STATIC ELECTRICITY; USE ADEQUATE GROUNDING. CARBON MONOXIDE & CARBON DIOXIDE MAY BE FORMED ON BURNING IN AIR.

========== Control Measures ==========

TOP

Respiratory Protection

SCBA OR SUPPLIED AIR RESPIRATORY PROTECTION REQUIRED FOR ENTRY INTO TANKS, VESSELS, OR OTHER CONFINED SPACES CONTAINING GASOLINE.

Ventilation

ADEQUATE TO MEET PERMISSIBLE CONCENTRATIONS.

Protective Gloves

NITRILE, TEFLON, VITON

Eye Protection

CHEMICAL−TYPE GOGGLES, FACE SHIELD

Other Protective Equipment

PROTECTIVE CLOTHING SUCH AS UNIFORMS, COVERALLS OR LAB COATS SHOULD BE WORN.

Work Hygienic Practices

LAUNDER OR DRY CLEAN WHEN SOILED.

Supplemental Safety and Health

WARNING STATEMENT: DANGER! EXTREMELY FLAMMABLE. HARMFUL OR FATAL IF SWALLOWED.

Physical/Chemical Properties

TOP

HCC: F1

NRC/State LIC No: N/R

Net Prop WT For Ammo:

Boiling Point:

B.P. Text: >90F,>32C

Melt/Freeze Pt:

M.P/F.P Text: NOT GIVEN

Decomp Temp:

Decomp Text: N.A.

Vapor Pres: >−350 MMHG

Vapor Density: 3 − 4.0

Volatile Org Content %:

Spec Gravity: 0.7 − .78

VOC Pounds/Gallon:

PH: N.A.

VOC Grams/Liter:

Viscosity: N/P

Evaporation Rate & Reference: N.D.

Solubility in Water: SLIGHT

Appearance and Odor: LIGHT STRAW TO LIGHT RED LIQUID

Percent Volatiles by Volume: 100 %

Corrosion Rate: N.A.

Reactivity Data

TOP

Stability Indicator: YES

Stability Condition To Avoid: HEAT, SPARKS, FLAME AND OTHER SOURCES OF IGNITION.

Materials To Avoid: STRONG OXIDIZERS

Hazardous Decomposition Products: TOXIC LEVELS OF CARBON MONOXIDE, CARBON DIOXIDE, IRRITATING ALDEHYDES AND KETONES.

Hazardous Polymerization Indicator: NO

Conditions To Avoid Polymerization NONE. WILL NOT OCCUR.

:

Toxicological Information

TOP

Toxicological Information: N/P

Ecological Information

TOP

Ecological: N/P

MSDS Transport Information

TOP

Transport Information: N/P

Regulatory Information

TOP

Sara Title III Information: N/P

Federal Regulatory Information: N/P

State Regulatory Information: N/P

========== Other Information ==========

TOP

Other Information: N/P

==========

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MSDS Safety Information

TOP

FSC:	MSDS Date:	MSDS Num:
9150	05/12/1994	BXRGJ
Submitter:	**LIIN:**	**Tech Review:**	**Status CD:**
N EN	00N021986	04/28/1995	C

Product ID: **MFN:**

01817 HAVOLINE MOTOR OIL 10W−30 02

Article: **Kit Part:**

N N

Cage:

Responsible Party OTTJ3

Name:

TEXACO LUBRICANTS CO

Box:

4427

City: **State:** **Zip:**

HOUSTON TX 77210−4427

Country:

US

Info Phone Number:

914−831−3400

Emergency Phone Number:

800−424−9300 (CHEMTREC)

Preparer's Name:

N/P

Proprietary Ind:

N Review Ind: N

Published: Y Special Project CD: N

Contractor Summary

TOP

Cage: **Name:**

59595 TEXACO INC CORPORATE HQ

Address: **Box:**

2000 WESTCHESTER AVE N/K

City: **State:** **Zip:**

WHITE PLAINS NY 10604

Country: **Phone:**

US 914−253−4000

Cage: **Name:**

OTTJ3 TEXACO LUBRICANTS

Address: **Box:**

4164 E INNSLAKE DR 4427

City: **State:** **Zip:**

GLEN ALLEN VA 23060

Country: **Phone:**

US 804−527−4311

Ingredients

TOP

Cas: 25103−54−2 M X

Code: RTECS #: Code:

Name: **ZINC O,O−BISISODECYL DITHIOPHOSPHATE. % WT:0.10−0.99**

% Text: SEE ING Environmental Wt:

Other REC Limits: N/K

OSHA PEL:

N/K (FP N) Code: M OSHA STEL: Code:

ACGIH TLV: N/K (FP N) Code: M ACGIH STEL: N/P Code:

EPA Rpt Qty: DOT Rpt Qty:

Ozone Depleting Chemical:

Cas: X 9999999ZZ M

Code: RTECS #: Code:

Name: **SUPDAT:MATERIALS HAZARDOUS. DISPOSAL MUST BE I/A/W FEDERAL, STATE AND LOCAL REGULATIONS (FP N).**

% Text: N/K Environmental Wt:

Other REC Limits: N/K

OSHA PEL:

NOT APPLICABLE Code: M OSHA STEL: Code:

ACGIH TLV: NOT APPLICABLE Code: M ACGIH STEL: N/P Code:

EPA Rpt Qty: DOT Rpt Qty:

Ozone Depleting Chemical:

Cas: X 9999999ZZ M

Code: RTECS #: Code:

Name: **RESP PROT:CONCENTRATION OF CONTAMINANT OR OXYGEN CONTENT IS UNKNOWN.**

% Text: N/K Environmental Wt:

Other REC Limits: N/K

OSHA PEL:

NOT APPLICABLE Code: M OSHA STEL: Code:

ACGIH TLV: NOT APPLICABLE Code: M ACGIH STEL: N/P Code:

EPA Rpt Qty: DOT Rpt Qty:

Ozone Depleting Chemical:

Cas: X 9999999ZZ M

Code: RTECS #: Code:

Name: **HYGIENE PRACT:LAUNDERED OR DRY−CLEANED.**

% Text: N/K Environmental Wt:

Other REC Limits: N/K

OSHA PEL:

NOT APPLICABLE Code: M OSHA STEL: Code:

ACGIH TLV: NOT APPLICABLE Code: M ACGIH STEL: N/P Code:

EPA Rpt Qty: DOT Rpt Qty:

Ozone Depleting Chemical:

Cas: X X

Code: RTECS #: Code:

Name: **ALKENYLSUCCINIMIDE DISPERSANT**

% Text: 3−9.99 Environmental Wt:

Other REC Limits: N/K

OSHA PEL:

N/K (FP N) Code: M OSHA STEL: Code:

ACGIH TLV: N/K (FP N) Code: M ACGIH STEL: N/P Code:

EPA Rpt Qty: DOT Rpt Qty:

Ozone Depleting Chemical:

Cas: 64742−65−0 M PY8038501 M

Code: RTECS #: Code:

Name: **MINERAL OIL, PETROLEUM DISTILLATES, SOLVENT−DEWAXED HEAVY PARAFFINIC (SEVERE SOLVENT−REFINING AND/OR (ING 2)**

% Text: SEE ING

Environmental Wt:

Other REC Limits: N/K

OSHA PEL:

N/K (FP N)

Code: M OSHA STEL: Code:

ACGIH TLV: N/K (FP N)

Code: M ACGIH STEL: N/P Code:

EPA Rpt Qty:

DOT Rpt Qty:

Ozone Depleting Chemical:

N

Cas: X 9999999ZZ M

Code: RTECS #: Code:

Name: **ING 1:HYDROTREATMENT); (SEVERELY SOLVENT REFINED, SOLVENT−DEWAXED HEAVY PARAFFINIC PETROLEUM DISTILLATES). % WT:50−64.99**

% Text: N/K

Environmental Wt:

Other REC Limits: N/K

OSHA PEL:

NOT APPLICABLE

Code: M OSHA STEL: Code:

ACGIH TLV: NOT APPLICABLE

Code: M ACGIH STEL: N/P Code:

EPA Rpt Qty:

DOT Rpt Qty:

Ozone Depleting Chemical:

Cas: 64742−56−9 M PY8039501 M

Code: RTECS #: Code:

Name: **MINERAL OIL, PETRO DISTILLATES, SOLVENT−DEWAXED LIGHT PARAFFINIC (SEV SOLV−REFINING AND/OR HYDROTREATMENT−); (ING 4)**

% Text: SEE ING

Environmental Wt:

Other REC Limits: N/K

OSHA PEL:

300 PPM Code: M OSHA STEL: Code:

ACGIH TLV: 300 PPM Code: M ACGIH STEL: N/P Code:

EPA Rpt Qty: DOT Rpt Qty:

Ozone Depleting Chemical:

N

Cas: X 9999999ZZ M

Code: RTECS #: Code:

Name: ING 3:(SOLVENT DEWAXED LIGHT PARAFFINIC PETROLEUM DISTILLATE). WT:20−34.99.

% Text: N/K Environmental Wt:

Other REC Limits: N/K

OSHA PEL:

NOT APPLICABLE Code: M OSHA STEL: Code:

ACGIH TLV: NOT APPLICABLE Code: M ACGIH STEL: N/P Code:

EPA Rpt Qty: DOT Rpt Qty:

Ozone Depleting Chemical:

========== Health Hazards Data ==========

TOP

LD50 LC50 Mixture

LD50:(ORAL,RAT) >5 G/KG

Route Of Entry Inds − Inhalation:YES Skin:YES Ingestion:YES

Carcinogenicity Inds − NTP:NO IARC:NO OSHA:NO

Health Hazards Acute And Chronic

ACUTE:EYES:MAY CAUSE MINIMAL IRRIT, EXPERIENCED AS TEMP DISCOMFORT. SKIN:BRIEF CONT IS NOT IRRIT. PRLNGD CONT, AS W/CLTHG WETTED W/MATL, MAY CAUSE DEFAT OF SKIN/IRRIT, SEEN AS LOC REDNESS W/POSS MILD DISCOMFORT. INHAL:VAPS/MIST, IN EXCESS OF PEL CONC/IN UNUSUALLY HIGH CONC GENERATED FROM SPRAYING, (EFTS OF OVEREXP)

Explanation Of Carcinogenicity

NOT RELEVANT.

Signs And Symptions Of Overexposure

HLTH HAZ:HEATING MATL/AS FROM EXPOS IN POORLY VENTILATED AREAS/CONFINED SPACES, MAY CAUSE IRRIT OF NOSE & THROAT, HDCH, NAUS, & DROW. INGEST:IF MORE THAN SEVERAL MOUTHFULS ARE SWALLOWED, ABDOM DISCOMF ORT, NAUS, & DIARR MAY OCCUR. CHRONIC:USED GASOLINE MOTOR OILS HAVE BEEN SHOWN TO CAUSE SKIN CANCER WHEN RPTDLY (SUPDAT)

Medical Cond Aggravated By Exposure

BECAUSE OF ITS DEFATTING PROPERTIES, PROLONGED & REPEATED SKIN CONTACT MAY AGGRAVATE AN EXISTING DERMATITIS (SKIN CONDITION).

First Aid

EYES:FLUSH W/PLENTY OF WATER FOR @ LEAST 15 MINS. GET MED ATTN IF IRRIT PERSISTS. SKIN:WASH W/PLENTY OF SOAP & WATER FOR SEVERAL MINS. GET MED ATTN IF IRRIT DEVELOPS/PERSISTS. INGEST:IF MORE/SEVERAL M OUTHFULS OF MATL ARE SWALLOWED, GIVE 2 GLASSES OF WATER (16 OZ). GET MED ATTN. INHAL:IF IRRIT, HDCH, NAUS/DROW OCCURS, REMOVE TO FRESH AIR. GET MED ATTN IF BRTHG BECOMES DFCLT/RESP IRRIT PERSISTS.

Spill Release Procedures

VENTILATE ARA. AVOID BRTHG VAP. WEAR APPROP PERSONAL PROT EQUIP, INCLDG APPROP RESP PROT. CNTN SPILL IF POSS. WIPE UP/ABSORB ON SUITABLE MATL & SHOVEL UP. PVNT ENTRY INTO SEWERS & WATERWAYS. AVOID CON T W/SKIN, EYES OR CLTHG.

Neutralizing Agent

NONE SPECIFIED BY MANUFACTURER.

Waste Disposal Methods

PROD HAS BEEN EVALUATED FOR RCRA CHARACT & DOES NOT MEET CRITERIA OF HAZ WASTE IF DISCARDED IN ITS PURCHASED FORM. UNDER RCRA, IT IS RESPONSIBILITY OF USER OF PROD TO DETERM @ TIME OF DISP, WHETHER PR OD MEETS RCRA CRITERIA FOR HAZ WASTE. THIS(SUPDAT)

Handling And Storage Precautions

MIN FEASIBLE HNDLG TEMPS SHOULD BE MAINTAINED. PERIODS OF EXPOS TO HIGH TEMPS SHOULD BE MINIMIZED. WATER CONTAM SHOULD BE AVOIDED.

Other Precautions

REMOVE & DRY−CLEAN/LAUNDER CLTHG SOAKED/SOILED W/MATL BEFORE REUSE. DRY CLEANING OF CONTAMD CLTHG MAY BE MORE EFTIVE THAN NORMAL LAUNDERING. INFORM INDIVIDUALS RESPONSIBLE FOR CLEANING OF POTNTL HAZAR DS ASSOC W/HNDLG CONTMD CLTHG.

========== Fire and Explosion Hazard Information ==========

TOP

Flash Point Method:

COC

Flash Point:

Flash Point Text: 400F,204C

Autoignition Temp:

Autoignition Temp Text: N/A

Lower Limits: N/K

Upper Limits: N/K

Extinguishing Media

USE WATER SPRAY, DRY CHEMICAL, FOAM, OR CARBON DIOXIDE TO EXTING FLAMES.

Fire Fighting Procedures

USE NIOSH/MSHA APPROVED SCBA & FULL PROTECTIVE EQUIPMENT (FP N). USE WATER SPRAY TO COOL FIRE−EXPOSED CNTNRS. WATER OR FOAM MAY CAUSE FROTHING.

Unusual Fire/Explosion Hazard

NONE.

========== **Control Measures** ========== TOP

Respiratory Protection

AIRBORNE CONC SHOULD BE KEPT TO LOWEST LEVS POSS. IF VAP, MIST/DUST IS GENERATED & OCCUP EXPOS LIM OF PROD, OR ANY COMPONENT OF PROD, IS EXCEEDED, USE APPROP NIOSH/MSHA APPRVD AIR PURIFYING/AIR SUPPLI ED RESP AFTER DETERMG AIRBORNE (ING 8)

Ventilation

ADEQUATE TO MEET COMPONENT OCCUP EXPOS LIMS.

Protective Gloves

IMPERVIOUS GLOVES (FP N).

Eye Protection

ANSI APPRVD CHEM WORKERS GOGGLES (FP N).

Other Protective Equipment

ANSI APPRVD EMERGENCY EYE WASH DELUGE SHOWER (FP N).

Work Hygienic Practices

WORKERS SHOULD WASH EXPOS SKIN SEVERAL TIMES SEVERAL TIMES DAILY W/SOAP WATER. SOILED CLTHG SHOULD BE (ING 9)

Supplemental Safety and Health

EXPLO HAZ:MAY ALSO BE RELEASED. EFTS OF OVEREXP:APPLIED TO MOUSE SKIN W/OUT ANY EFFORT TO REMOVE MATL BETWEEN APPLIC. THERE IS NO EVID OF CASUAL RELATIONSHISP BETWEEN SKIN CANCER IN HUMANS & EXPOS TO USED MOTOR OIL. WASTE DISP METH:IS BECAUSE PROD USES, TRANSFORMATIONS, MIXS, PROCESSES, ETC MAY RENDER RSLTG (ING 7)

Physical/Chemical Properties

TOP

HCC:

NRC/State LIC No:

Net Prop WT For Ammo:

Boiling Point: B.P. Text: N/K

Melt/Freeze Pt: M.P/F.P Text: N/K

Decomp Temp: Decomp Text: N/K

Vapor Pres: N/K Vapor Density: N/K

Volatile Org Content %: Spec Gravity: 0.8816(WATER=1)

VOC Pounds/Gallon:

PH: N/A

VOC Grams/Liter: Viscosity: N/P

Evaporation Rate & Reference: NOT KNOWN

Solubility in Water: NOT KNOWN

Appearance and Odor: BRIGHT AND CLEAR LIQUID, ADDITIVE ODOR.

Percent Volatiles by Volume: N/K Corrosion Rate: N/K

Reactivity Data

TOP

Stability Indicator:

YES

Stability Condition To Avoid: NONE SPECIFIED BY MANUFACTURER.

Materials To Avoid: STRONG OXIDIZERS.

Hazardous Decomposition Products: TOX LEVS OF CO, CO*2. IRRIT ALDEHYDES KETONES; COMBUS PRODS OF NITROGEN, SULFUR, CALCIUM, ZINC/PHOSPHOROUS(SUPDAT)

Hazardous Polymerization Indicator: NO

Conditions To Avoid Polymerization NOT RELEVANT.

:

========== **Toxicological Information** ========== TOP

Toxicological Information:

N/P

========== **Ecological Information** ========== TOP

Ecological:

N/P

========== **MSDS Transport Information** ========== TOP

Transport Information:

N/P

========== **Regulatory Information** ========== TOP

Sara Title III Information:

N/P

Federal Regulatory Information: N/P

State Regulatory Information: N/P

========== **Other Information** ========== TOP

Other Information:

N/P

==========

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MATERIAL SAFETY DATA SHEET FOR ODORIZED PROPANE

1. Chemical Product and Company Identification

Product Name: Odorized Commercial Propane

Chemical Name: Propane

Chemical Family: Paraffinic Hydrocarbon

Formula: C3H8

Synonyms: Dimethylmethane, LP-Gas, Liquefied Petroleum Gas (LPG), Propane, Propyl Hydride

Name & Address:	Transportation Emergency Number:	Emergency Number: For Routine Info, Call:

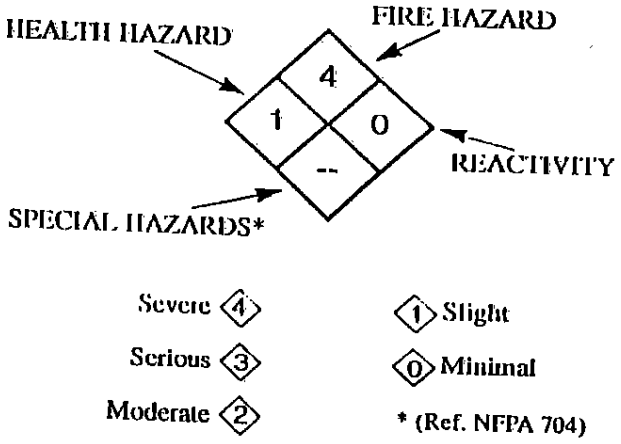
2. Composition/Information on Ingredients

INGREDIENT NAME /CAS NUMBER	PERCENTAGE	OSHA PEL	ACGIH TLV
Propane/74-98-6	87.5-100		
Ethane/74-84-0	0-5.0		Simple asphyxiant
ylene/115-07-1	0-10.0	1,000 ppm	Simple asphyxiant
Butanes/various	0-2.5		Simple asphyxiant
Ethyl Mercaptan/75-08-1	16-25 ppm	0.5 ppm	0.5 ppm

3. Hazards Identification

EMERGENCY OVERVIEW

DANGER! Flammable liquefied gas under pressure. Keep away from heat, sparks, flame, and all other ignition sources. Vapor replaces oxygen available for breathing and may cause suffocation in confined spaces. Use only with adequate ventilation. Odor may not provide adequate warning of potentially hazardous concentrations. Vapor is heavier than air. Liquid can cause freeze burn similar to frostbite. Do not get liquid in eyes, on skin, or on clothing. Avoid breathing of vapor. Keep container valve closed when not in use.



POTENTIAL HEALTH EFFECTS INFORMATION

ROUTES OF EXPOSURE:

Inhalation: Asphyxiant. It should be noted that before suffocation could occur, the lower flammability limit of propane in air would be exceeded, possibly causing both an oxygen-deficient and explosive atmosphere. Exposure to concentrations 10% may cause dizziness. Exposure to atmospheres containing 8%-10% or less oxygen will bring about unconsciousness without warning, and so quickly that the individuals cannot help or protect themselves. Lack of sufficient oxygen may cause serious injury or death.

Eye Contact: Contact with liquid can cause freezing of tissue.

Skin Contact: Contact with liquid can cause frostbite.

[Skin Absorption]: None.

[Ingestion]: Liquid can cause freeze burn similar to frostbite. Ingestion not expected to occur in normal use.

CHRONIC EFFECTS: None.

MEDICAL CONDITIONS AGGRAVATED BY OVEREXPOSURE: None.

OTHER EFFECTS OF OVEREXPOSURE: None.

CARCINOGENICITY: Propane is not listed by NTP, OSHA or IARC.

4. First Aid Measures

INHALATION: Persons suffering from lack of oxygen should be removed to fresh air. If victim is not breathing, administer artificial respiration. If breathing is difficult, administer oxygen. Obtain prompt medical attention.

EYE CONTACT: Contact with liquid can cause freezing of tissue. Gently flush eyes with lukewarm water. Obtain medical attention immediately.

SKIN CONTACT: Contact with liquid can cause frostbite. Remove saturated clothes, shoes and jewelry. Immerse affected area in lukewarm water not exceeding 105° F. Keep immersed. Get prompt medical attention.

INGESTION: If swallowed, get immediate medical attention.

NOTES TO PHYSICIAN: None.

5. Fire-Fighting Measures

FLASH POINT: -156° F (-104° C) **AUTOIGNITION:** 842° F (432° C)

IGNITION TEMPERATURE IN AIR: 920-1120° F

FLAMMABLE LIMITS IN AIR BY VOLUME: Lower: 2.15% Upper: 9.6%

EXTINGUISHING MEDIA: Dry chemical, CO^2, water spray or fog for surrounding area. Do not extinguish fire until propane source is shut off.

SPECIAL FIRE-FIGHTING INSTRUCTIONS: Evacuate personnel from danger area. Immediately cool container with water spray from maximum distance, taking care not to extinguish flames. If flames are accidentally extinguished, explosive re-ignition may occur. Where water is abundant and immediate, the fire should be allowed to burn while the container and area are cooled and the flow of propane is shut off. Where water is scarce, compare the risk of allowing the area to continue to heat from the fire and the alternative of extinguishing the fire without shutting off the propane flow, which may allow for the propane to accumulate and re ignite explosively.

UNUSUAL FIRE AND EXPLOSION HAZARDS: Propane is easily ignited. It is heavier than air; therefore, it can collect in low areas where an ignition source can be present. Pressure in a container can build up due to heat and container may rupture if pressure relief devices should fail to function. Propane released from a properly functioning relief valve on an overheated container can also become ignited.

HAZARDOUS COMBUSTION PRODUCTS: None.

6. Accidental Release Measures

STEPS TO BE TAKEN IF MATERIAL IS RELEASED OR SPILLED: Evacuate the immediate area. Eliminate any possible sources of ignition and provide maximum ventilation. Shut off source of propane, if possible. If leaking from container, or valve, contact your supplier.

7. Handling and Storage

HANDLING PRECAUTIONS: Propane vapor is heavier than air and can collect in low areas that are without sufficient ventilation. Leak-check system with a leak detector or solution, never with flame. Make certain the container service valve is shut off prior to connecting or disconnecting. If container valve does not operate properly, discontinue use and contact supplier. Never insert an object (e.g. wrench, screwdriver, pry bar, etc.) into pressure relief valve or cylinder valve cap openings. Do not drop or abuse cylinders. Never strike an arc on a gas container or make a container part of an electrical circuit. See "16. OTHER INFORMATION" for additional precautions.

STORAGE PRECAUTIONS: Store in a safe, authorized location (outside, detached storage is preferred) with adequate ventilation. Specific requirements are listed in NFPA 58, *Standard for the Storage and Handling of Liquefied Petroleum Gases.* Isolate from heat and ignition sources. Containers should never be allowed to reach temperature exceeding 125° F (52° C). Isolate from combustible materials. Provide separate storage locations for other compressed and flammable gases. Propane containers should be separated from oxygen cylinders, or other oxidizers, by a minimum distance of 20 feet, or by a barrier of combustible material at least 5 feet high having a fire rating of at least 1/2 hour. Full and empty cylinders should be segregated. Store cylinders in upright position, or with pressure relief valve in vapor space. Do not drop or abuse cylinders. Keep container valve closed and plugged or capped when not in use. Install protective caps when cylinders are not connected for use. Empty containers retain some residue and should be treated as if they were full.

8. Exposure Controls/Personal Protection

ENGINEERING CONTROLS

Ventilation: Provide ventilation adequate to ensure propane does not reach a flammable mixture.

RESPIRATORY PROTECTION (SPECIFY TYPE)

General Use: None.

Emergency Use: If concentrations are high enough to warrant supplied-air or self-contained breathing apparatus, then the atmosphere may be flammable (See Section 5). Appropriate precautions must be taken regarding flammability.

PROTECTIVE CLOTHING: Avoid skin contact with liquid propane because of possibility of freeze burn. Wear gloves and protective clothing which are impervious to the product for the duration of the anticipated exposure.

EYE PROTECTION: Safety glasses are recommended when handling cylinders.

OTHER PROTECTIVE EQUIPMENT: Safety shoes are recommended when handling cylinders.

9. Physical and Chemical Properties

BOILING POINT: @ 14.7 psia = -44° F

SPECIFIC GRAVITY OF VAPOR (Air = 1) at 60° F: 1.50

SPECIFIC GRAVITY OF LIQUID (Water = 1) at 60° F: 0.504

VAPOR PRESSURE: @ 70° F = 127 psig
@ 105° F = 210 psig

EXPANSION RATIO (From liquid to gas @ 14.7 psia): 1 to 270

SOLUBILITY IN WATER: Slight, 0.1 to 1.0%

APPEARANCE AND ODOR: A colorless and tasteless gas at normal temperature and pressure. An odorant (ethyl mercaptan) has been added to provide a strong unpleasant odor. Should a propane-air mixture reach the lower limits of flammability, the ethyl mercaptan concentration will be approximately 0.5 ppm in air.

ODORANT WARNING: Odorant is added to aid in the detection of leaks. One common odorant is ethyl mercaptan, CAS No. 75-08-01. Odorant has a foul smell. The ability of people to detect odors varies widely. Also, certain chemical reactions with material in the propane system, or fugitive propane gas from underground leaks passing through certain soils, can reduce the odor level. No odorant will be 100% effective in all circumstances. If odorant appears to be weak, notify propane supplier immediately.

10. Stability and Reactivity

STABILITY: Stable.

Conditions to Avoid: Keep away from high heat, strong oxidizing agents and sources of ignition.

REACTIVITY:

Hazardous Decomposition Products: Under fire conditions, fumes, smoke, carbon monoxide, aldehydes and other decomposition products. When used as an engine fuel, incomplete combustion can cause carbon monoxide, a toxic gas.

Hazardous polymerization: Will not occur.

11. Toxicological Information

Propane is non-toxic and is a simple asphyxiant, however, it does have slight anesthetic properties and higher concentrations may cause dizziness.

[IRRITANCY OF MATERIAL]: None.

[SENSITIZATION TO MATERIAL]: None

[REPRODUCTIVE EFFECTS]: None

[TERATOGENICITY]: None

[MUTAGENICITY]: None

[SYNERGISTIC MATERIALS]: None

12. Ecological Information

No adverse ecological effects are expected. Propane does not contain any Class I or Class II ozone-depleting chemicals (40 CFR Part 82). Propane is not listed as a marine pollutant by DOT (49 CFR Part 171).

13. Disposal Considerations

WASTE DISPOSAL METHOD: Do not attempt to dispose of residual or unused product in the container. Return to supplier for safe disposal.

Residual product within process system may be burned at a controlled rate, if a suitable burning unit (flare stack) is available on site. This shall be done in accordance with federal, state and local regulations.

14. Transport Information

DOT SHIPPING NAME: Liquefied Petroleum Gas
IDENTIFICATION NUMBER: UN 1075
IMO SHIPPING NAME: Propane
IMO IDENTIFICATION NUMBER: UN 1978

HAZARD CLASS: 2.1 (Flammable Gas)
PRODUCT RQ: None **SHIPPING LABEL(S):** Flammable gas
PLACARD (WHEN REQUIRED): Flammable gas
SPECIAL SHIPPING INFORMATION: Container should be transported in a secure, upright position in a well-ventilated vehicle.

15. Regulatory Information

The following information concerns selected regulatory requirements potentially applicable to this product. Not all such requirements are identified. Users of this product are responsible for their own regulatory compliance on a federal, state [provincial] and local level.

U.S. FEDERAL REGULATIONS

EPA Environmental Protection Agency

CERCLA Comprehensive Environmental Response, Compensation and Liability Act of 1980 (40 CFR Parts 117 and 302)

Reportable Quantity (RQ): None

SARA Superfund Amendment and Reauthorization Act

- SECTION 302/304: Requires emergency planning on threshold planning quantities (TPQ) and release reporting based on reportable quantities (RQ) of EPA's extremely hazardous substances (40 CFR Part 355).

  Extremely Hazardous Substances: None

  Threshold Planning Quantity (TPQ): None

- SECTIONS 311/312: Require submission of material safety data sheets (MSDSs) and chemical inventory reporting with identification of EPA-defined hazard classes (40 CFR Part 370). The hazard classes for this product are:

  IMMEDIATE: No PRESSURE: Yes

  DELAYED: No REACTIVITY: No FLAMMABLE: Yes

• SECTION 313: Requires submission of annual reports of release of toxic chemicals that appear in 40 CFR Part 372.

Propane does not require reporting under Section 313.

40 CFR PART 68 Risk Management for Chemical Accidental Release

T Toxic Substance Control Act

Propane is listed on the TSCA inventory.

OSHA Occupational Safety and Health Administration

29 CFR 1910.119: Process Safety Management of Highly Hazardous Chemicals.

FDA Food and Drug Administration

21 CFR 184.1655: Generally recognized as safe (GRAS) as a direct human food ingredient when used as a propellant, aerating agent and gas.

16. Other Information

SPECIAL PRECAUTIONS: Use piping and equipment adequately designed to withstand pressure to be encountered.

NFPA 58 *Standard for the Storage and Handling of Liquefied Petroleum Gases* and OSHA 29 CFR 1910.10 require that all persons employed in handling LP-gases be trained in proper handling and operating procedures, which the employer shall document. Contact your propane supplier to arrange for the required training. Allow only trained and qualified persons to install and service propane containers and systems.

WARNING: Be aware that with odorized propane the intensity of ethyl mercaptan stench (its odor) may fade due to chemical oxidation (in the presence of rust, air or moisture), adsorption or absorption. Some people have nasal perception problems and may not be able to smell the ethyl mercaptan stench. Leaking propane from underground gas lines may lose its odor as it passes through certain soils. While ethyl mercaptan may not impart the warning of the presence of propane in every instance, it is generally effective in a majority of situations. Familiarize yourself, your employees and customers with this warning, and other facts associated with the so-called "odor-fade" phenomenon. If you do not already know all the fa[illegible], contact your propane supplier for more information about odor, electronic gas alarms and other safety considerations a[illegible]iated with the handling, storage and use of propane.

ISSUE INFORMATION

Issue Date:_____

This material safety data sheet and the information it contains is offered to you in good faith as accurate. This Supplier does not manufacture this product but is a supplier of the product independently manufactured by others. Much of the information contained in this data sheet was received from sources outside our Company. To the best of our knowledge this information is accurate, but this Supplier does not guarantee its accuracy or completeness. Health and safety precautions in this data sheet may not be adequate for all individuals and/or situations. It is the user's obligation to evaluate and use this product safely, comply with all applicable laws and regulations and to assume the risks involved in the use of this product.

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Prepared by
NATIONAL PROPANE GAS ASSOCIATION
1600 Eisenhower Lane, Suite 100, Lisle, Illinois 60532
Phone 630/515-0600
Printed in U.S.A.

The purpose of this bulletin is to set forth general safety practices for the installation, operation, and maintenance of LP-gas equipment. It is not intended to be an exhaustive treatment of the subject, and should not be interpreted as precluding other procedures which would enhance safe LP-gas operations. Issuance of this bulletin is not intended to nor should it be construed as an undertaking to perform services on behalf of any party either for their protection or for the protection of third parties. The National Propane Gas Association assumes no liab[illegible] for reliance on the contents of this bulletin.

Issued 12/96

Spill Contingency Plan

Project: Geological and Geomorphological Studies of the Devon Island Impact Structure
Date Prepared: March 01 2016.
Prepared by: Dr. G. R. Osinski, University of Western Ontario (full contact information below).

The University of Western Ontario will establish a temporary field camp along the Haughton River Valley within the Haughton impact structure, Devon Island, Nunavut. The following types of fuel will be used on site: aviation fuel (Jet-B, stored in standard 205L sealed fuel drums), gasoline (stored in standard 205L sealed fuel drums ands CSA approved 19L jerry cans) and propane (stored in CSA approved 50 lb pressurized cylinders). This document outlines the organization of the response, the plan for initial response, reporting procedures in the event of a spill, and spill kits maintained on site.

Response Organization:

The first person on the site will (1) assess the spill situation, (2) immediately contact the Camp Manager (Dr. G. R. Osinski) and provide all information about the spill. Upon receiving this information, the Camp Manager will recommend a course of action according to the following procedure:

(1) Evaluate the scale of the spill.
(2) Activate the initial response plan.
(3) Assemble a spill response team and directs them in implementing the spill response plan including containment, recovery, remediation, and disposal operations.
(4) Inform the Polar Continental Shelf Project (PSCP) Resolute Bay as soon as possible to report the spill and provide initial incident details.
(5) Gather relevant information and submits a detailed spill report to the applicable regulatory agencies no later than thirty (30) days after the initial reporting of the spill.

Initial response plan:

The first person at the site will first ensure their own personal safety and those near the site. Next he/she will notify the Camp Manager about the spill.

Gasoline

If possible, and safety permits, stop the flow and eliminate ignition sources. Gasoline forms vapours that can ignite and explode. No smoking is permitted when responding to a gasoline spill. Use particulate sorbent material to soak up the spill. All contaminated water, snow/ice, soils, clean up supplies, and absorbent materials will be stored in closed, labeled containers. The containers will be stored in ventilated areas away from incompatible materials. Electrically ground all containers and transporting equipment.

***The* University *of* Western Ontario**
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Telephone: 1-519-661-4208 • Telephone (cell, 24 hours): 1-519-437-9251 • Fax: 1-519-661-3198 • E-mail: gosinski@uwo.ca

Aviation Fuel

If possible and safety permits, stop the flow and eliminate ignition sources. Aviation fuel forms vapors that can ignite and explode, so no smoking is permitted when responding to an aviation fuel spill. Use particulate sorbent material to soak up the spill. All contaminated water, snow/ice, soils, clean up supplies, and absorbent materials will be stored in closed, labeled containers. The containers will be stored in ventilated areas away from incompatible materials. Electrically ground all containers and transporting equipment.

Propane

If possible and safety permits, eliminate all ignition sources. No smoking is permitted when responding to a propane release. Do not attempt to contain or remove release. No disposal is required, as it cannot be contained once it has been released.

Reporting Procedure:

(1) Fill out the "SPILL REPORT" form as completely as possible before making the report.
(2) Report IMMEDIATELY to Yellowknife using the 24-hour Spill Report Line (1-867-920-8130).
(3) Where FAX is available, follow up by sending a copy of the Spill Report to fax # 1-867-873-6924.
(4) DIAND's Water Resources Inspector (1-867-975-4298) and INAC (Peter Kusugak, 1-867-975-4295 or 24-hour Emergencies Pager, 1-867-222-1984) should also be notified.

Spill Kits:

We will have spill kits available in the field camp. Each kit will be inspected by the Camp Manager on a regular basis to ensure it contains the following:

- 1 package of 10 disposable 5 mil polyethylene bags.
- 10 lb. Bag of particulate.
- 1 bail of 17' x 19' x absorbent sheets (100 sheets/bail).
- 2 PVC oil resistant gloves.
- 2 respirators.
- 2 pairs of splash protective goggles.

Contacts:

DIAND Water Resources: 1-867-975-4298.
Environment Canada 1-867-975-4636.
INAC Environment and Contaminants 1-867-975-4295, 24-hour Emergencies Pager, 1-867-222-1984.