HORNBY BAY EXPLORATION LIMITED

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Spill Contingency Plan
For the Mouse Lake Exploration Project
Located South of Kugluktuk, Nunavut

Prepared by D. Bent
June 15, 2005

1.0 INTRODUCTION

1.1 Purpose of Plan

The purpose of this Spill Contingency Plan is to provide a plan of action for all spills of hazardous materials that may occur within the Mouse Lake project area or at the camp located at Mouse Lake, Nunavut (Crown Land; Latitude: 67° 05.973' N; Longitude: 114° 44.198' W). This Spill Contingency Plan defines the responsibilities of key personnel and outlines procedures to effectively and efficiently contain and recover spills of hazardous materials.
The exploration program for 2005 will be supported by float plane and helicopter and will include the operation of a diamond drill. Therefore, the principal hazardous materials on site will be JetB and P-50 diesel. Lesser amounts of gasoline, propane, lubricants and drill additives are also considered in the plan.

1.2 Hornby Bay Exploration Limited Environmental Policy

It is the policy of Hornby Bay Exploration Limited to fully comply with all applicable *Acts* and Regulations to ensure the protection of the environment of Nunavut. Hornby Bay Exploration Limited shall cooperate with other groups committed to protecting the environment and shall ensure that our employees, regulatory authorities and the public are informed on the policies and procedures we have developed to help protect the environment of Nunavut.

2.0 SITE DESCRIPTION

2.1 General

This spill contingency plan covers the principal storage and refueling facility at the Mouse Lake camp as well as the fuel handling at the widely separated drill sites within the exploration property. Refueling of the generator, camp heating and propane supply for cooking are also considered under the plan.

2.2 Petroleum Storage and Transport

All fuel supplies for the project are delivered by Twin Otter either directly from Yellowknife or via Kugluktuk.
The principal fuel cache is located immediately east of the Mouse Lake camp in a flat, elevated area in excess of 100 meters from the high water mark. A list of smaller caches (14 – 19 drums) in the area of proposed work has been forwarded to the Environmental Officer in Kugluktuk in accordance with Clause 31(1)(k) of the Land Use Permit.
The JetB, P-50 and unleaded gasoline is contained in new 205 l drums supplied directly by Shell and stamped with the Company's name. Each drum is inspected immediately upon delivery to the cache site to ensure that there has been no damage during transport. The initial fuel haul for the 2005 program includes approximately 900 drums JetB, 400 drums P-50, 3 drums unleaded gasoline and 8 cylinders of propane.
There is a separate, floored tent for storage of lubricants and drill additives.

3.0 Potential Spill Incidents and Preventative Measures

3.1 Orientation and Training

All field personnel, upon arriving at the camp will be given a project orientation. This will include:
. notification of the location of all fuels and applicable MSDS sheets.
. notification of the location, and use of fuel spill kits and supplies
. notification of the location of ancillary equipment - shovels, pails, plastic bags, etc
. instruction in the use of all equipment and supplies.
. instruction in the reporting of incidents.
. instruction in the clean-up and proper storage / disposal of contaminated materials

3.2 Leakage from Stored Drums

Drum Storage -Incident
Fuel may leak from improperly sealed drums or damaged drums

Consequences
A fuel spill could occur. This would be a maximum of 205 liters.

Preventive Measures
The fuel cache is inspected daily by trained personnel.
All personnel are instructed to routinely monitor fuel drums and report any problems. Fuel from any suspect drum is immediately pumped to a spare, empty drum.
A fuel spill kit is kept at the fuel cache
A 227 liter capacity spill prevention tray is available for containment of drum contents in emergency cases

3.3 Refueling of Aircraft

Electric fuel pumps are used to refuel the helicopter. Electric fuel pumps are used to refuel the fixed wing aircraft on rare occasions (normally refuel at airports).

Refueling Procedure
Aircrews complete all refueling of their equipment. They are trained in the proper procedures of this operation, and are made aware of the location of fuel spill kit and extra absorbent pads, spill kits and spill trays.

Aircraft Refueling Equipment - Incident
During refueling a hose could break, spring a leak, fall out of the receptacle, or an overfilling of the tank could occur. These failures could result in fuel being spilled at the refueling site.

Consequences

Limited fuel spills could occur, possibly resulting in puddles of fuel.

Preventive Measures
Refueling equipment is routinely examined for integrity by aircrew.

Refueling will be completed only by trained personnel who are aware of emergency shut-off procedures.
Aircrew will constantly monitor refueling process.
Helicopters will be refueled at the fuel cache. This cache is located in excess of 100 m from the ordinary high water mark of any lake or stream.
A spill kit, with additional absorbent pads is stored at the fuel cache.
Refueling of fixed wing aircraft will be constantly monitored by the aircrew.
Spill management material will be readily available to the aircrew, including a spill kit and spill prevention tray.

3.4 Refueling of Diamond Drill Equipment

Hand pumps (wobble) pumps are used to transfer diesel fuel from 205 liter drums to supply tanks directly connected to the drill motor.

Diamond Drill Equipment Refueling - Incident
During refueling a hose could break, spring a leak, fall out of the receptacle, or an overfilling of the tank could occur. These failures could result in fuel being spilled at the drill site.

Consequences
Limited fuel spills could occur, possibly resulting in puddles of fuel.

Preventive Measures
Refueling equipment should be routinely examined for integrity.
Refueling will be completed only by trained personnel who are aware of emergency shut-off procedures.
Drill crew will constantly monitor refueling process.
A spill kit, with additional absorbent pads is stored at the drill site.
Absorbent pads are kept under all open drums, or drums in use at a drill site.
A 227 liter spill prevention tray is available in emergency

3.5 Refueling of Camp Generator, Camp Stoves, Incinerator

Hand (wobble) pumps are used to transfer diesel fuel from 205 I drums to fuel tanks, or drums connected to diesel fired heating stoves.

Camp Equipment Refueling - Incident
During refueling a hose could break, spring a leak, fall out of the receptacle, or an overfilling of the tank could occur. These failures could result in minor amounts of fuel being spilled.

Consequences
Limited fuel spills could occur, possibly resulting in puddles of fuel.

Preventive Measures
Refueling equipment should be routinely examined for integrity.
Refueling will be completed only by trained personnel who are aware of emergency shut-off procedures.
Camp attendant will constantly monitor refueling process.
Absorbent pads are kept under all open drums, or drums in use. Taps for supply lines to diesel fired heating stoves are wrapped with a sorbent pad.
Sorbent pads are kept beneath the generator.

3.5 List of On-Site Spill Containment Equipment

Spill Kits
A minimum of three spill kits will be maintained, one at the main fuel cache, a second at the diamond drill site, and a third mobile unit for use at secondary caches. These drums will contain sphagnum adsorbents, absorbent pads, gloves, coveralls and containers for the disposal of contaminated material. A 227 liter spill prevention tray will accompany each of the spill kits for emergency use in the case of a major breach of the integrity of a fuel drum

Sorbent Pads
Sorbent pads or rolls will be kept in good supply. These will be stored where fuels are being used.

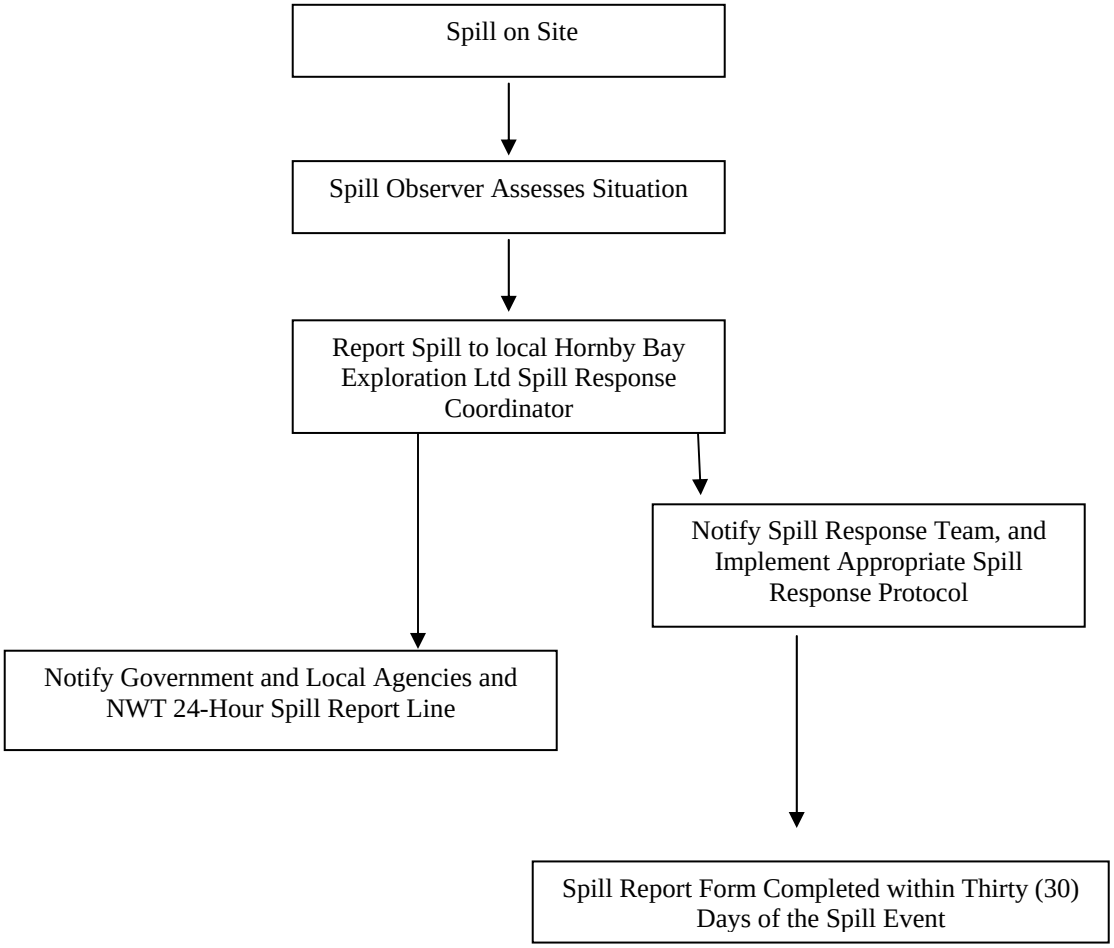
Hand Tools
These will be stored for the removal of contaminated material, or the construction of small containment berms.

Plastic Pails and Bags
A sufficient quantity of 20 liter plastic pails and 20 liter plastic sample bags will be stored for the disposal of contaminated material.

4.0 Spill Response Plan

4.1 Events Chart

The following is a flow chart to illustrate the sequence of events in the event of a hazardous material spill incident during the exploration program.



4.2 Spill Response Team

David Bent, or his Designate, will serve as the Spill Response Coordinator for Hornby Bay Exploration Ltd in the event of a POL spill. He will appoint and train appropriate personnel to make up the Response Team, which will normally consist of the following personnel:

Spill Response Coordinator: David Bent (or Designate)

Site Personnel: Will generally vary from 1-3 people throughout the season

The responsibilities of the Spill Response Coordinator are as follows:

1. Assume complete authority over the spill scene and coordinate all personnel involved.
2. Evaluate spill situation and develop overall plan of action.
3. Activate the Mouse Lake Spill Response Plan.
4. Immediately report the spill to the NWT 24-Hour Spill Report Line **(867) 920-8130**, and the Environmental Protection Officer in Kugluktuk
5. Obtain additional spill response resources from the town of Kugluktuk if not available on site for spill response.
6. Provide regulatory agencies with information regarding the status of the clean up activities.
7. Act as a spokesperson on behalf of Hornby Bay Exploration Limited with regulatory agencies, the public and the media; and
8. Prepare and submit a report on the spill incident to regulatory agencies within 30 days of the event.

4.3 Critical Contacts

Table 1 – Spill Response Plan Emergency Contacts

CONTACT	TELEPHONE NUMBER
INAC (Iqaluit) - Constantine Bodykevich INAC (Iqaluit) - Scott Stewart INAC (Kitikmeot)	(867) 975-4298, Fax (867) 979- 6445 (867) 975-4289 Fax (867) 979- 6445 (867) 982- 4306
HBE (Mouse Lake) – David Bent HBE (Toronto) – George Bell	001- (881) 621- 421821 (416) 368-0114 Fax (416) 368- 0198
Environment Canada (Iqaluit)- Sid Bruinsma Environment Canada (Iqaluit)- Colette Spagnuolo	(867) 975-4644, Fax (867) 975- 4594 (867) 975-4639
Environment Canada (Kugluktuk)- J. Morrison	(867) 983- 2222
KIA (Kugluktuk) – Jack Kaniak	(867) 982- 3310 Fax (867) 982- 3311
Nunavut Water Board (Goa Haven)	(867) 793- 2140 or (867) 360- 6338

4.4 SPILL REPORTING PROCEDURE

The on-site Coordinator must be notified immediately of any spill either by satellite phone, radio, or in person.

The following is the spill reporting procedure:

1. Report immediately to the 24-Hour Spill Report Line Phone (867) 920-8130, Fax (867) 873-6924;
2. Report immediately to the INAC Inspector in Iqaluit at 867-975-4298;
3. Notify the Environment Protection Officer in Kugluktuk; and
4. Fill out the NWT Spill Report Form within thirty (30) days of the spill event occurring.

5.0 Action Plans

5.1 Initial Action

The instructions to be followed by the first person on the spill scene are as follows:

1. Always be alert and consider your safety first;
2. If possible, estimate the volume of material that has been spilled;
3. Assess the hazard of people in the vicinity of the spill;
4. If possible, and safety permits, attempt to stop the release of product to minimize potential for environmental impacts;
5. Immediately report the spill to the On Scene Coordinator; and
6. Resume any effective action to contain, mitigate, or terminate the flow of the spilled material.

The following are instructions to be followed in the response to various types of spills:

5.2 Remedial Measures: Fuel Spills

If possible, and safety permits, stop the flow of product which is occurring and eliminate all ignition sources. ***Smoking is prohibited during all spill response activities***.

5.2.1 Spill on Soil, Gravel, Rock, or Vegetation

Build a containment berm using soil material or snow and place a plastic tarp at the foot of the berm for easy capture of the spill after all vapors have dissipated.
Remove the spill by using absorbent pads or excavating the soil, gravel or snow.
Remove spill splashed on vegetation using particulate absorbent material.
If soil, gravel, or vegetation are to be removed from the site, B & J Fly Fishing Adventures shall contact regulatory agencies for approval before commencing with the removal.

5.2.2 Spill on Water

Use containment boom to capture spill for recovery after vapors have dissipated.
Use absorbent pads to capture small spills. Use a petroleum skimmer for larger spills.

5.2.3 Spill on Ice and Snow

Build a containment berm around spill using snow.
Remove spill using absorbent pads or particulate sorbent material.
The contaminated ice and snow must be scraped and shoveled into plastic buckets with lids, 20 liter pails, and/or polypropylene bags.

5.2.4 Storage and Transfer

All contaminated water, ice, snow, soil, and clean up supplies will be stored in closed, labeled containers. All containers will be stored in a well ventilated area away from incompatible materials.

5.2.5 Disposal

Ensure contact with Federal and Nunavut regulatory agencies to identify appropriate disposal methods before disposing of contaminated material.

5.3 TRAINING PROGRAM FOR SPILL RESPONSE

All personnel working on the Mouse Lake project will be trained in the safe storage and transfer of fuels and other hazardous materials in order to prevent spills. All personnel on site will also be trained for initial spill response in the event of a spill. Annual refresher exercises will be conducted to review the procedures of this Spill Contingency Plan.

Appendix I

Material Safety Data Sheet

SECTION 1 PRODUCT AND COMPANY IDENTIFICATION

CHEVRON and TEXACO REGULAR UNLEADED GASOLINES

Product Number(s): CPS201000 [See Section 16 for Additional Product Numbers]
Synonyms: Calco Regular Unleaded Gasoline, Chevron Regular Unleaded Gasoline, Texaco Unleaded Gasoline
Company Identification
Chevron Products Company
Marketing, MSDS Coordinator
6001 Bollinger Canyon Road
San Ramon, CA 94583
United States of America

Transportation Emergency Response
CHEMTREC: (800) 424-9300 or (703) 527-3887
Health Emergency
ChevronTexaco Emergency Information Center: Located in the USA. International collect calls accepted. (800) 231-0623 or (510) 231-0623
Product Information
Technical Information: (510) 242-5357

SPECIAL NOTES: This MSDS applies to: all motor gasoline.

SECTION 2 COMPOSITION/ INFORMATION ON INGREDIENTS

COMPONENTS	CAS NUMBER	AMOUNT
Gasoline	86290-81-5	100 %volume
Benzene	71-43-2	0.1 - 4.9 %volume
Toluene (methylbenzene)	108-88-3	1 - 17 %volume
Ethyl benzene	100-41-4	0.1 - 3 %volume
Xylene (contains o-, m-, & p- xylene isomers in varying amounts)	1330-20-7	1 - 15 %volume
Butane	106-97-8	1 - 12 %volume
Heptane	142-82-5	1 - 4 %volume
Hexane	110-54-3	1 - 5 %volume
Cyclohexane	110-82-7	1 - 3 %volume
Methylcyclohexane	108-87-2	1 - 2 %volume
Pentane, 2,2,4-trimethyl- (Isooctane)	540-84-1	1 - 13 %volume
Naphthalene	91-20-3	0.1 - 2 %volume

Ethanol	64-17-5	0 - 10 %volume
Methyl tert-butyl ether (MTBE)	1634-04-4	0 - 15 %volume
Tertiary amyl methyl ether (TAME)	994-05-8	0 - 17 %volume
Ethyl tert-butyl ether (ETBE)	637-92-3	0 - 18 %volume

Motor gasoline is considered a mixture by EPA under the Toxic Substances Control Act (TSCA). The refinery streams used to blend motor gasoline are all on the TSCA Chemical Substances Inventory. The appropriate CAS number for refinery blended motor gasoline is 86290-81-5. The product specifications of motor gasoline sold in your area will depend on applicable Federal and State regulations.

SECTION 3 HAZARDS IDENTIFICATION

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EMERGENCY OVERVIEW

- EXTREMELY FLAMMABLE LIQUID AND VAPOR. VAPOR MAY CAUSE FLASH FIRE
- HARMFUL OR FATAL IF SWALLOWED - MAY CAUSE LUNG DAMAGE IF SWALLOWED
- VAPOR HARMFUL
- CAUSES EYE AND SKIN IRRITATION
- LONG-TERM EXPOSURE TO VAPOR HAS CAUSED CANCER IN LABORATORY ANIMALS
- KEEP OUT OF REACH OF CHILDREN
- TOXIC TO AQUATIC ORGANISMS

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IMMEDIATE HEALTH EFFECTS

Eye: Contact with the eyes causes irritation. Symptoms may include pain, tearing, reddening, swelling and impaired vision.

Skin: Contact with the skin causes irritation. Skin contact may cause drying or defatting of the skin. Contact with the skin is not expected to cause an allergic skin response. Symptoms may include pain, itching, discoloration, swelling, and blistering. Not expected to be harmful to internal organs if absorbed through the skin.

Ingestion: Because of its low viscosity, this material can directly enter the lungs, if swallowed, or if subsequently vomited. Once in the lungs it is very difficult to remove and can cause severe injury or death.

Inhalation: The vapor or fumes from this material may cause respiratory irritation. Symptoms of respiratory irritation may include coughing and difficulty breathing. Breathing this material at concentrations above the recommended exposure limits may cause central nervous system effects. Central nervous system effects may include headache, dizziness, nausea, vomiting, weakness, loss of coordination, blurred vision, drowsiness, confusion, or disorientation. At extreme exposures, central nervous system effects may include respiratory depression, tremors or convulsions, loss of consciousness, coma or death.

DELAYED OR OTHER HEALTH EFFECTS:

Reproduction and Birth Defects: This material is not expected to cause birth defects or other harm to the developing fetus based on animal data.

Cancer: Prolonged or repeated exposure to this material may cause cancer. Gasoline has been classified as a Group 2B carcinogen (possibly carcinogenic to humans) by the International Agency for Research on Cancer (IARC).

Whole gasoline exhaust has been classified as a Group 2B carcinogen (possibly carcinogenic to humans) by the International Agency for Research on Cancer (IARC).

Contains benzene, which has been classified as a carcinogen by the National Toxicology Program (NTP) and a Group 1 carcinogen (carcinogenic to humans) by the International Agency for Research on Cancer (IARC). Contains ethylbenzene which has been classified as a Group 2B carcinogen (possibly carcinogenic to humans) by the International Agency for Research on Cancer (IARC). Contains naphthalene, which has been classified as a Group 2B carcinogen (possibly carcinogenic to humans) by the International Agency for Research on Cancer (IARC). See Section 11 for additional information. Risk depends on duration and level of exposure.

SECTION 4 FIRST AID MEASURES

Eye: Flush eyes with water immediately while holding the eyelids open. Remove contact lenses, if worn, after initial flushing, and continue flushing for at least 15 minutes. Get medical attention if irritation persists.
Skin: Wash skin with water immediately and remove contaminated clothing and shoes. Get medical attention if any symptoms develop. To remove the material from skin, use soap and water. Discard contaminated clothing and shoes or thoroughly clean before reuse.
Ingestion: If swallowed, get immediate medical attention. Do not induce vomiting. Never give anything by mouth to an unconscious person. If swallowed, get medical attention. Do not induce vomiting. Never give anything by mouth to an unconscious person.
Inhalation: Move the exposed person to fresh air. If not breathing, give artificial respiration. If breathing is difficult, give oxygen. Get medical attention if breathing difficulties continue.
Note to Physicians: Ingestion of this product or subsequent vomiting may result in aspiration of light hydrocarbon liquid, which may cause pneumonitis.

SECTION 5 FIRE FIGHTING MEASURES

See Section 7 for proper handling and storage.

FIRE CLASSIFICATION:
OSHA Classification (29 CFR 1910.1200): Flammable liquid.

NFPA RATINGS: Health: 1 Flammability: 3 Reactivity: 0

FLAMMABLE PROPERTIES:
Flashpoint: (Tagliabue Closed Cup ASTM D56) < -45 °C (< -49 °F)
Autoignition: > 280 °C (> 536 °F)
Flammability (Explosive) Limits (% by volume in air): Lower: 1.4 Upper: 7.6 (Typical)

EXTINGUISHING MEDIA: Dry Chemical, CO2, AFFF Foam or alcohol resistant foam if >15% volume polar solvents (oxygenates).

PROTECTION OF FIRE FIGHTERS:
Fire Fighting Instructions: Use water spray to cool fire-exposed containers and to protect personnel. For fires involving this material, do not enter any enclosed or confined fire space without proper protective equipment, including self-contained breathing apparatus.
Combustion Products: Highly dependent on combustion conditions. A complex mixture of airborne solids, liquids, and gases including carbon monoxide, carbon dioxide, and unidentified organic compounds will be evolved when this material undergoes combustion.

SECTION 6 ACCIDENTAL RELEASE MEASURES

Protective Measures: Eliminate all sources of ignition in the vicinity of the spill or released vapor. If this material is released into the work area, evacuate the area immediately. Monitor area with combustible gas indicator.
Spill Management: Stop the source of the release if you can do it without risk. Contain release to prevent further contamination of soil, surface water or groundwater. Clean up spill as soon as possible, observing precautions in Exposure Controls/Personal Protection. Use appropriate techniques such as applying non-combustible absorbent materials or pumping. All equipment

used when handling the product must be grounded. A vapor suppressing foam may be used to reduce vapors. Use clean non-sparking tools to collect absorbed material. Where feasible and appropriate, remove contaminated soil. Place contaminated materials in disposable containers and dispose of in a manner consistent with applicable regulations.
Reporting: Report spills to local authorities and/or the U.S. Coast Guard's National Response Center at (800) 424-8802 as appropriate or required. This material is covered by EPA's Comprehensive Environmental Response, Compensation and Liability Act (CERCLA) Petroleum Exclusion. Therefore, releases to the environment may not be reportable under CERCLA.

SECTION 7 HANDLING AND STORAGE

Precautionary Measures: READ AND OBSERVE ALL PRECAUTIONS ON PRODUCT LABEL. This product presents an extreme fire hazard. Liquid very quickly evaporates, even at low temperatures, and forms vapor (fumes) which can catch fire and burn with explosive violence. Invisible vapor spreads easily and can be set on fire by many sources such as pilot lights, welding equipment, and electrical motors and switches. Do not store in open or unlabeled containers. Use only as a motor fuel. Do not use for cleaning, pressure appliance fuel, or any other such use. Never siphon gasoline by mouth.
Do not get in eyes, on skin, or on clothing. Do not taste or swallow. Do not breathe vapor or fumes. Wash thoroughly after handling. Keep out of the reach of children.
Unusual Handling Hazards: WARNING! Do not use as portable heater or appliance fuel. Toxic fumes may accumulate and cause death.
General Handling Information: Avoid contaminating soil or releasing this material into sewage and drainage systems and bodies of water.
Static Hazard: Electrostatic charge may accumulate and create a hazardous condition when handling this material. To minimize this hazard, bonding and grounding may be necessary but may not, by themselves, be sufficient. Review all operations which have the potential of generating and accumulating an electrostatic charge and/or a flammable atmosphere (including tank and container filling, splash filling, tank cleaning, sampling, gauging, switch loading, filtering, mixing, agitation, and vacuum truck operations) and use appropriate mitigating procedures. For more information, refer to OSHA Standard 29 CFR 1910.106, 'Flammable and Combustible Liquids', National Fire Protection Association (NFPA 77, 'Recommended Practice on Static Electricity', and/or the American Petroleum Institute (API) Recommended Practice 2003, 'Protection Against Ignitions Arising Out of Static, Lightning, and Stray Currents'. Improper filling of portable gasoline containers creates danger of fire. Only dispense gasoline into approved and properly labeled gasoline containers. Always place portable containers on the ground. Be sure pump nozzle is in contact with the container while filling. Do not use a nozzle's lock-open device. Do not fill portable containers that are inside a vehicle or truck/trailer bed.
General Storage Information: DO NOT USE OR STORE near heat, sparks, flames, or hot surfaces . USE AND STORE ONLY IN WELL VENTILATED AREA. Keep container closed when not in use.

Container Warnings: Container is not designed to contain pressure. Do not use pressure to empty container or it may rupture with explosive force. Empty containers retain product residue (solid, liquid, and/or vapor) and can be dangerous. Do not pressurize, cut, weld, braze, solder, drill, grind, or expose such containers to heat, flame, sparks, static electricity, or other sources of ignition. They may explode and cause injury or death. Empty containers should be completely drained, properly closed, and promptly returned to a drum reconditioner or disposed of properly.

SECTION 8 EXPOSURE CONTROLS/PERSONAL PROTECTION

GENERAL CONSIDERATIONS:
Consider the potential hazards of this material (see Section 3), applicable exposure limits, job activities, and other substances in the work place when designing engineering controls and selecting personal protective equipment. If engineering controls or work practices are not adequate to prevent exposure to harmful levels of this material, the personal protective equipment listed below is recommended. The user should read and understand all instructions

and limitations supplied with the equipment since protection is usually provided for a limited time or under certain circumstances.

ENGINEERING CONTROLS:
Use process enclosures, local exhaust ventilation, or other engineering controls to control airborne levels below the recommended exposure limits.

PERSONAL PROTECTIVE EQUIPMENT
Eye/Face Protection: No special eye protection is normally required. Where splashing is possible, wear safety glasses with side shields as a good safety practice.
Skin Protection: No special protective clothing is normally required. Where splashing is possible, select protective clothing depending on operations conducted, physical requirements and other substances in the workplace. Suggested materials for protective gloves include: Chlorinated Polyethylene (or Chlorosulfonated Polyethylene), Nitrile Rubber, Polyurethane, Viton.
Respiratory Protection: Determine if airborne concentrations are below the recommended occupational exposure limits for jurisdiction of use. If airborne concentrations are above the acceptable limits, wear an approved respirator that provides adequate protection from this material, such as: Air-Purifying Respirator for Organic Vapors.
When used as a fuel, this material can produce carbon monoxide in the exhaust. Determine if airborne concentrations are below the occupational exposure limit for carbon monoxide. If not, wear an approved positive-pressure air-supplying respirator.
Use a positive pressure air-supplying respirator in circumstances where air-purifying respirators may not provide adequate protection.

Occupational Exposure Limits:

Component	Agency	TWA	STEL	Ceiling	Notation
Benzene	ACGIH	.5 ppm (weight)	2.5 ppm (weight)	--	Skin A1
Benzene	OSHA SRS	1 ppm (weight)	5 ppm (weight)	--	--
Benzene	OSHA Z-2	10 ppm (weight)	--	25 ppm (weight)	--
Butane	ACGIH	800 ppm (weight)	--	--	--
Cyclohexane	ACGIH	100 ppm (weight)	--	--	--
Cyclohexane	OSHA Z-1	1050 mg/m3	--	--	--
Ethanol	ACGIH	1000 ppm (weight)	--	--	A4
Ethanol	OSHA Z-1	1900 mg/m3	--	--	--
Ethyl benzene	ACGIH	100 ppm (weight)	125 ppm (weight)	--	A3
Ethyl benzene	OSHA Z-1	435 mg/m3	--	--	--
Ethyl tert-butyl ether (ETBE)	ACGIH	5 ppm (weight)	--	--	--
Heptane	ACGIH	400 ppm (weight)	500 ppm (weight)	--	--
Heptane	OSHA Z-1	2000 mg/m3	--	--	--
Hexane	ACGIH	50 ppm (weight)	--	--	Skin
Hexane	OSHA Z-1	1800 mg/m3	--	--	--
Methyl tert-butyl ether (MTBE)	ACGIH	50 ppm (weight)	--	--	A3

Methyl tert-butyl ether (MTBE)	CVX	--	50 ppm	--	--
Methylcyclohexane	ACGIH	400 ppm (weight)	--	--	--
Methylcyclohexane	OSHA Z-1	2000 mg/m3	--	--	--
Naphthalene	ACGIH	10 ppm	15 ppm	--	A4 Skin
Naphthalene	OSHA Z-1	50 mg/m3	--	--	--
Pentane, 2,2,4-trimethyl- (Isooctane)	ACGIH	300 ppm (weight)	--	--	--
Pentane, 2,2,4-trimethyl- (Isooctane)	OSHA Z-1	2350 mg/m3	--	--	--
Tertiary amyl methyl ether (TAME)	ACGIH	20 ppm (weight)	--	--	--
Tertiary amyl methyl ether (TAME)	CVX	--	50 ppm	--	--
Toluene (methylbenzene)	ACGIH	50 ppm (weight)	--	--	Skin A4
Toluene (methylbenzene)	OSHA Z-2	200 ppm (weight)	--	300 ppm (weight)	--
Xylene (contains o-, m-, & p- xylene isomers in varying amounts)	ACGIH	100 ppm (weight)	150 ppm (weight)	--	A4
Xylene (contains o-, m-, & p- xylene isomers in varying amounts)	OSHA Z-1	435 mg/m3	--	--	--

Refer to the OSHA Benzene Standard (29 CFR 1910.1028) and Table Z-2 for detailed training, exposure monitoring, respiratory protection and medical surveillance requirements before using this product.

SECTION 9 PHYSICAL AND CHEMICAL PROPERTIES

Attention: the data below are typical values and do not constitute a specification.

Color: Colorless to yellow
Physical State: Liquid
Odor: Petroleum odor
pH: Not Applicable
Vapor Pressure: 5 psi - 15 psi (Typical) @ 37.8 °C (100 °F)
Vapor Density (Air = 1): 3 - 4 (Typical)
Boiling Point: 37.8 °C (100°F) - 204.4°C (400°F) (Typical)
Solubility: Insoluble in water; miscible with most organic solvents.
Freezing Point: Not Applicable
Melting Point: Not Applicable
Specific Gravity: 0.7 g/ml - 0.8 g/ml @ 15.6 °C (60.1°F) (Typical)
Viscosity: <1 SUS @ 37.8 °C (100°F)

SECTION 10 STABILITY AND REACTIVITY

Chemical Stability: This material is considered stable under normal ambient and anticipated storage and handling conditions of temperature and pressure.
Incompatibility With Other Materials: May react with strong acids or strong oxidizing agents, such as chlorates, nitrates, peroxides, etc.
Hazardous Decomposition Products: None known (None expected)
Hazardous Polymerization: Hazardous polymerization will not occur.

SECTION 11 TOXICOLOGICAL INFORMATION

IMMEDIATE HEALTH EFFECTS
Eye Irritation: The Draize eye irritation mean score in rabbits for a 24-hour exposure was: 0/110.
Skin Irritation: For a 4-hour exposure, the Primary Irritation Index (PII) in rabbits is: 4.8/8.0.
Skin Sensitization: This material did not cause skin sensitization reactions in a Buehler guinea pig test.
Acute Dermal Toxicity: LD50: >3.75g/kg (rabbit).

Acute Oral Toxicity: LD50: >5 ml/kg (rat)
Acute Inhalation Toxicity: 4 hour(s) LD50: >20000mg/m3 vapor (rat).
Subchronic Effects: Exposure of rats for 13 weeks (6 hr/day for 5 days/week) to the light ends of gasoline (up to 20,000 mg/m3) resulted in minimal responses of toxicity. There were no indications of neurotoxicity based morphological, functional and biochemical indices. There was also no evidence of immunotoxicity in the rats. However, when rats were exposed to gasoline vapor containing ethanol up to 20,000 mg/m3 there was evidence of both humoral immune suppression and mild astrogliosis. **Reproduction and Birth Defects:** Exposure of rats to the light ends of gasoline at up to 20,000 mg/m3 had generally no impact upon reproductive abilities and did not cause birth defects.
Genetic Toxicity: Gasoline was not mutagenic, with or without activation, in the Ames assay (Salmonella typhimurium), Saccharamyces cerevisesae, or mouse lymphoma assays. In addition, point mutations were not induced in human lymphocytes. Gasoline was not mutagenic when tested in the mouse dominant lethal assay. Administration of gasoline to rats did not cause chromosomal aberrations in their bone marrow cells. Inhalation exposure of rats to the light ends of gasoline caused increased sister chromatid exchange in their peripheral white blood cells but did not cause an increase in micronucleated red blood cells in their bone marrow.
ADDITIONAL TOXICOLOGY INFORMATION:
Gasolines are highly volatile and can produce significant concentrations of vapor at ambient temperatures. Gasoline vapor is heavier than air and at high concentrations may accumulate in confined spaces to present both safety and heath hazards. When vapor exposures are low, or short duration and infrequent, such as during refueling and tanker loading/unloading, neither total hydrocarbon nor components such as benzene are likely to result in any adverse health effects. In situations such as accidents or spills where exposure to gasoline vapor is potentially high, attention should be paid to potential toxic effects of specific components. Information about specific components in gasoline can be found in Sections 2, 8 and 15 of this MSDS. More detailed information on the health hazard of specific gasoline components can be obtained calling the ChevronTexaco Emergency Information Center (see Section 1 for phone numbers).
Pathological misuse of solvents and gasoline, involving repeated and prolonged exposure to high concentrations of vapor is a significant exposure on which there are many reports in the medical literature. As with other solvents, persistent abuse involving repeated and prolonged exposures to high concentrations of vapor has been reported to result in central nervous system damage and eventually, death. In a study in which ten human volunteers were exposed for 30 minutes to approximately 200, 500 or 1000 ppm concentrations of gasoline vapor, irritation of the eyes was the only significant effect observed, based on both subjective and objective assessments.
Lifetime inhalation of wholly vaporized unleaded gasoline at 2056 ppm has caused increased liver tumors in female mice and kidney cancer in male rats. In their 1988 review of carcinogenic risk from gasoline, The International Agency for Research on Cancer (IARC) noted that, because published epidemiology studies did not include any exposure data, only occupations where gasoline exposure may have occurred were reviewed. These included gasoline service station attendants and automobile mechanics. IARC also noted that there was no opportunity to separate effects of combustion products from those of gasoline itself. Although IARC allocated gasoline a final overall classification of Group 2B, i.e. possibly carcinogenic to humans, this was based on limited evidence in experimental animals plus supporting evidence including the presence in gasoline of benzene. The actual evidence for carcinogenicity in humans was considered inadequate.
To explore the health effects of workers potentially exposed to gasoline vapors in the marketing and distribution sectors of the petroleum industry, the American Petroleum Institute sponsored a cohort mortality study (Publication 4555), a nested case-control study (Publication 4551), and an exposure assessment study (Publication 4552). Histories of exposure to gasoline were reconstructed for cohort of more than 18,000 employees from four companies for the time period between 1946 and 1985. The results of the cohort mortality study indicated that there was no increased mortality from either kidney cancer or leukemia among marketing and marine distribution employees who were exposed to gasoline in the petroleum industry, when compared to the general population. More importantly, based on internal comparisons, there was no association between mortality from kidney cancer or leukemia and various indices of gasoline exposure. In particular, neither duration of employment, duration of exposure, age at first exposure, year of first exposure, job category, cumulative exposure, frequency of peak exposure, nor average intensity of exposure had any effect on kidney cancer or leukemia mortality. The

results of the nested case-control study confirmed the findings of the original cohort study. That is, exposure to gasoline at the levels experienced by this cohort of distribution workers is not a significant risk factor for leukemia (all cell types), acute myeloid leukemia, kidney cancer or multiple myeloma.

SECTION 12 ECOLOGICAL INFORMATION

ECOTOXICITY
96 hour(s) LC50: 8.3 mg/l (Cyprinodon variegatus)
96 hour(s) LC50: 1.8 mg/l (Mysidopsis bahia)
48 hour(s) LC50: 3.0 mg/l (Daphnia magna)
96 hour(s) LC50: 2.7 mg/l (Oncorhynchus mykiss)
This material is expected to be toxic to aquatic organisms. The bulk of the available literature on gasoline relates to the environmental impact of monoaromatic (BTEX) and diaromatic (naphthalene, methylnaphthalenes) constituents. In general, non-oxygenated gasoline exhibits some short-term toxicity to freshwater and marine organisms, especially under closed vessel or flow-through exposure conditions in the laboratory. The components which are the most prominent in the water soluble fraction and cause aquatic toxicity, are also highly volatile and can be readily biodegraded by microorganisms.

Gasoline studies have been conducted in the laboratory under a variety of test conditions with a range of fish and invertebrate species. An even more extensive database is available on the aquatic toxicity of individual aromatic constituents. The majority of published studies do not identify the type of gasoline evaluated, or even provide distinguishing characteristics such as aromatic content or presence of lead alkyls. As a result, comparison of results among studies using open and closed vessels, different ages and species of test animals and different gasoline types, is difficult.

ENVIRONMENTAL FATE
This material is expected to be readily biodegradable. Following spillage, the more volatile components of gasoline will be rapidly lost, with concurrent dissolution of these and other constituents into the water. Factors such as local environmental conditions (temperature, wind, mixing or wave action, soil type, etc), photo-oxidation, biodegradation and adsorption onto suspended sediments, can contribute to the weathering of spilled gasoline.

The aqueous solubility of non-oxygenated unleaded gasoline, based on analysis of benzene, toluene, ethylbenzene+xylenes and naphthalene, is reported to be 112 mg/l. Solubility data on individual gasoline constituents also available.

SECTION 13 DISPOSAL CONSIDERATIONS

Use material for its intended purpose or recycle if possible. This material, if it must be discarded, may meet the criteria of a hazardous waste as defined by US EPA under RCRA (40 CFR 261) or other State and local regulations. Measurement of certain physical properties and analysis for regulated components may be necessary to make a correct determination. If this material is classified as a hazardous waste, federal law requires disposal at a licensed hazardous waste disposal facility.

SECTION 14 TRANSPORT INFORMATION

The description shown may not apply to all shipping situations. Consult 49CFR, or appropriate Dangerous Goods Regulations, for additional description requirements (e.g., technical name) and mode-specific or quantity-specific shipping requirements.

DOT Shipping Description: GASOLINE,3,UN1203,II

IMO/IMDG Shipping Description: GASOLINE,3,UN1203,II,FLASH POINT SEE SECTION 5

ICAO/IATA Shipping Description: GASOLINE, 3, UN1203, II

SECTION 15 REGULATORY INFORMATION

EPCRA 311/312 CATEGORIES: 1. Immediate (Acute) Health Effects: YES
2. Delayed (Chronic) Health Effects: YES
3. Fire Hazard: YES
4. Sudden Release of Pressure Hazard: NO
5. Reactivity Hazard: NO

REGULATORY LISTS SEARCHED:

01-1=IARC Group 1	03=EPCRA 313
01-2A=IARC Group 2A	04=CA Proposition 65
01-2B=IARC Group 2B	05=MA RTK
02=NTP Carcinogen	06=NJ RTK
	07=PA RTK

The following components of this material are found on the regulatory lists indicated.

Benzene	01-1, 02, 03, 04, 05, 06, 07
Butane	05, 06, 07
Cyclohexane	03, 05, 06, 07
Ethanol	05, 06, 07
Ethyl benzene	01-2B, 03, 05, 06, 07
Gasoline	01-2B, 07
Heptane	05, 06, 07
Hexane	03, 05, 06, 07
Methyl tert-butyl ether (MTBE)	03, 05, 06, 07
Methylcyclohexane	05, 06, 07
Naphthalene	01-2B, 03, 04, 05, 06, 07
Pentane, 2,2,4-trimethyl- (Isooctane)	05, 06, 07
Toluene (methylbenzene)	03, 04, 05, 06, 07
Xylene (contains o-, m-, & p- xylene isomers in varying amounts)	03, 05, 06, 07

CERCLA REPORTABLE QUANTITIES(RQ)/EPCRA 302 THRESHOLD PLANNING QUANTITIES(TPQ):

Component	Component RQ	Component TPQ	Product RQ
Benzene	10 lbs	None	186 lbs
Butane	100 lbs	None	725 lbs
Cyclohexane	1000 lbs	None	34188 lbs
Ethanol	100 lbs	None	1934 lbs
Ethyl benzene	1000 lbs	None	34964 lbs
Gasoline	100 lbs	None	107 lbs
Heptane	100 lbs	None	3644 lbs
Hexane	5000 lbs	None	129149 lbs
Methyl tert-butyl ether (MTBE)	1000 lbs	None	7513 lbs
Methylcyclohexane	100 lbs	None	4278 lbs
Naphthalene	100 lbs	None	4000 lbs

Pentane, 2,2,4-trimethyl- (Isooctane)	1000 lbs	None	6270 lbs
Toluene (methylbenzene)	1000 lbs	None	5480 lbs
Xylene (contains o-, m-, & p- xylene isomers in varying amounts)	100 lbs	None	649 lbs

CHEMICAL INVENTORIES:
All components comply with the following chemical inventory requirements: DSL (Canada), EINECS (European Union), KECI (Korea), TSCA (United States).

WHMIS CLASSIFICATION:
Class B, Division 2: Flammable Liquids
Class D, Division 2, Subdivision A: Very Toxic Material - Carcinogenicity
Class D, Division 2, Subdivision B: Toxic Material - Skin or Eye Irritation

SECTION 16 OTHER INFORMATION

NFPA RATINGS: Health: 1 Flammability: 3 Reactivity: 0

(0-Least, 1-Slight, 2-Moderate, 3-High, 4-Extreme, PPE:- Personal Protection Equipment Index recommendation, *- Chronic Effect Indicator). These values are obtained using the guidelines or published evaluations prepared by the National Fire Protection Association (NFPA) or the National Paint and Coating Association (for HMIS ratings).
Additional Product Number(s): CPS201023, CPS201054, CPS201055, CPS201075, CPS201090, CPS201105, CPS201106, CPS201120, CPS201121, CPS201122, CPS201126, CPS201128, CPS201131, CPS201136, CPS201141, CPS201142, CPS201148, CPS201153, CPS201158, CPS201161, CPS201162, CPS201168, CPS201181, CPS201185, CPS201186, CPS201188, CPS201216, CPS201217, CPS201218, CPS201236, CPS201237, CPS201238, CPS201266, CPS201267, CPS201268, CPS201277, CPS201278, CPS201279, CPS201286, CPS201287, CPS201289, CPS201296, CPS201297, CPS201298, CPS201849, CPS201850, CPS201855, CPS201856, CPS201857, CPS204000, CPS204001, CPS204002, CPS204003, CPS204010, CPS204011, CPS204022, CPS204023, CPS204046, CPS204047, CPS204070, CPS204071, CPS204088, CPS204089, CPS204104, CPS204105, CPS204116, CPS204117, CPS204140, CPS204141, CPS204164, CPS204165, CPS204188, CPS204189, CPS204200, CPS204201, CPS204212, CPS204213, CPS204224, CPS204225, CPS204248, CPS204249, CPS204272, CPS204273, CPS204290, CPS204291, CPS204322, CPS204323, CPS204324, CPS204350, CPS204352, CPS204354, CPS204356, CPS204358, CPS204359, CPS204364, CPS204365, CPS204370, CPS204371, CPS204376, CPS204377, CPS204382, CPS204383, CPS204388, CPS204389, CPS204394, CPS204395, CPS204400, CPS204401, CPS204406, CPS204407, CPS204412, CPS204413, CPS204418, CPS204419, CPS204424, CPS204425, CPS204430, CPS204431, CPS204436, CPS204437, CPS204442, CPS204446, CPS204450, CPS204454, CPS204458, CPS204462, CPS204466, CPS204467, CPS204484, CPS204485, CPS204502, CPS204503, CPS204520, CPS204521, CPS204538, CPS204539, CPS204556, CPS204557, CPS204574, CPS204575, CPS204592, CPS204593, CPS204610, CPS204611, CPS204628, CPS204629, CPS204646, CPS204647, CPS204664, CPS204665, CPS204682, CPS204690, CPS204691, CPS204696, CPS204697, CPS204702, CPS204703, CPS204708, CPS204709, CPS204721, CPS204722, CPS204727, CPS204728, CPS241765
REVISION STATEMENT: This revision updates the following sections of this Material Safety Data Sheet: 1, 2, 8, 11, 14, 15.
Revision Date: 06/25/2004

ABBREVIATIONS THAT MAY HAVE BEEN USED IN THIS DOCUMENT:

TLV - Threshold Limit Value	TWA - Time Weighted Average
STEL - Short-term Exposure Limit	PEL - Permissible Exposure Limit
	CAS - Chemical Abstract Service Number
ACGIH - American Conference of Government Industrial Hygienists	IMO/IMDG - International Maritime Dangerous Goods Code
API - American Petroleum Institute	MSDS - Material Safety Data Sheet
CVX - ChevronTexaco	NFPA - National Fire Protection Association (USA)
DOT - Department of Transportation (USA)	NTP - National Toxicology Program (USA)
IARC - International Agency for Research on Cancer	OSHA - Occupational Safety and Health Administration

Prepared according to the OSHA Hazard Communication Standard (29 CFR 1910.1200) and the ANSI MSDS Standard (Z400.1) by the ChevronTexaco Energy Research & Technology Company, 100 Chevron Way, Richmond, California 94802.

The above information is based on the data of which we are aware and is believed to be correct as of the date hereof. Since this information may be applied under conditions beyond our control and with which we may be unfamiliar and since data made available subsequent to the date hereof may suggest modifications of the information, we do not assume any responsibility for the results of its use. This information is furnished upon condition that the person receiving it shall make his own determination of the suitability of the material for his particular purpose.