

Appendices

Appendix A

MATERIAL SAFETY DATA SHEET

Health - 1
Fire - 4
Reactivity - 0
SP-3 ST G/F



NATURAL GAS

MSDS No. 06656400 WHMIS/ENGLISH

1.0 CHEMICAL PRODUCT AND COMPANY IDENTIFICATION

PRODUCT NAME: NATURAL GAS

MANUFACTURER/SUPPLIER:

Amoco Canada Petroleum Company, Ltd.
240 - 4 Avenue S. W.
P. O. Box 200, Station M
Calgary, Alberta T2P 2H8
CANADA

EMERGENCY HEALTH INFORMATION:
1 (800) 447-8735

EMERGENCY SPILL INFORMATION:
1 (613) 996-6666 CANUTEC (Canada)

OTHER PRODUCT SAFETY
INFORMATION:
1 (312) 856-3907 (USA)

2.0 COMPOSITION/INFORMATION ON INGREDIENTS

Component	CAS#	Range % by Wt.
Natural gas (predominantly methane and ethane)	68410-63-9	100
Methane	74-82-8	70-100
Hydrogen sulfide	7783-06-4	<20 ppm

(See Section 8.0, "Exposure Controls/Personal Protection", for exposure guidelines)

3.0 HAZARDS IDENTIFICATION

EMERGENCY OVERVIEW: Warning! Extremely flammable. Compressed gas. High vapor concentrations can cause headaches, dizziness, drowsiness, and nausea, and may lead to unconsciousness. At very high concentrations, can displace the normal air and cause suffocation from lack of oxygen.

POTENTIAL HEALTH EFFECTS:

EYE CONTACT: No significant health hazards identified.

SKIN CONTACT: No significant health hazards identified.

INHALATION: High vapor concentrations can cause headaches, dizziness, drowsiness, and nausea,

and may lead to unconsciousness. At very high concentrations, can displace the normal air and cause suffocation from lack of oxygen. See "Toxicological Information" section (Section 11.0).

INGESTION: No significant health hazards identified.

4.0 FIRST AID MEASURES

EYE: Flush eyes with plenty of water.

SKIN: Wash exposed skin with soap and water.

INHALATION: If worker is overcome, rescuer must wear supplied-air respirator to remove worker to uncontaminated area. Give artificial respiration if not breathing. Give oxygen if breathing is difficult. Get immediate medical attention.

INGESTION: Not applicable.

5.0 FIRE FIGHTING MEASURES

FLASHPOINT: -306°F(-188°C)

UEL: 15.0%

LEL: 5.0%

AUTOIGNITION TEMPERATURE: 1000°F (538°C) (approximate)

FLAMMABILITY CLASSIFICATION: Compressed gas. Extremely flammable.

EXTINGUISHING MEDIA: Stop flow of gas if possible; if not, allow to burn. Agents approved for Class B hazards (e.g., dry chemical, carbon dioxide, foam, steam) or water fog.

UNUSUAL FIRE AND EXPLOSION HAZARDS: Extremely flammable vapor/air mixtures form. Extinguishment of fire before source of vapor is shut off can create an explosive mixture in air.

FIRE-FIGHTING EQUIPMENT: Firefighters should wear full bunker gear, including a positive pressure self-contained breathing apparatus.

PRECAUTIONS: Keep away from sources of ignition (e.g., heat and open flames).

HAZARDOUS COMBUSTION PRODUCTS: Burning can produce carbon monoxide and/or carbon dioxide and other harmful products.

6.0 ACCIDENTAL RELEASE MEASURES

Remove or shut off all sources of ignition. Use appropriate protective equipment. Increase ventilation if possible. Wear respirator and spray with water to disperse vapors.

7.0 HANDLING AND STORAGE

HANDLING: Do not cut, puncture, or weld on or near this container. Ground and bond all lines and equipment.

STORAGE: Outside storage is recommended. Store in cool, dry, well-ventilated area. Store away from heat, ignition sources, and open flame in accordance with applicable regulations.

8.0 EXPOSURE CONTROLS / PERSONAL PROTECTION

EYE: None required; however, use of eye protection is good industrial practice.

SKIN: None required; however, use of protective gloves/clothing is good industrial practice.

INHALATION: Use with adequate ventilation. If ventilation is inadequate, use supplied- air respirator.

ENGINEERING CONTROLS: Control airborne concentrations below the exposure guidelines.

EXPOSURE GUIDELINES:

Component	CAS#	Exposure Limits
Natural gas (predominantly methane and ethane)	68410-63-9	ACGIH TLV-TWA: simple asphyxiant
Methane	74-82-8	ACGIH TLV-TWA: simple asphyxiant
Hydrogen sulfide	7783-06-4	ACGIH TLV-TWA: 10 ppm ACGIH TLV-STEL: 15 ppm

9.0 CHEMICAL AND PHYSICAL PROPERTIES

APPEARANCE AND ODOR: Gas. Colorless.

pH: Not determined.

VAPOR PRESSURE: 300-600 psig (in pipeline)

VAPOR DENSITY: 0.55-0.6

BOILING POINT: Not determined.

MELTING POINT: Not determined.

SOLUBILITY IN WATER: Negligible, below 0.1%.

SPECIFIC GRAVITY (WATER=1): Not determined.

10.0 STABILITY AND REACTIVITY

STABILITY: Burning can be started easily.

CONDITIONS TO AVOID: Keep away from ignition sources (e.g. heat, sparks, and open flames).

MATERIALS TO AVOID: Avoid chlorine, fluorine, and other strong oxidizers.

HAZARDOUS DECOMPOSITION: None identified.

HAZARDOUS POLYMERIZATION: Will not occur.

11.0 TOXICOLOGICAL INFORMATION

ACUTE TOXICITY DATA:

EYE IRRITATION: Testing not conducted. See Other Toxicity Data.

SKIN IRRITATION: Testing not conducted. See Other Toxicity Data.

DERMAL LD50: Testing not conducted. See Other Toxicity Data.

ORAL LD50: Testing not conducted. See Other Toxicity Data.

INHALATION LC50: Testing not conducted. See Other Toxicity Data.

OTHER TOXICITY DATA: Specific toxicity tests have not been conducted on this product. Our hazard evaluation is based on information from similar products, the ingredients, technical literature, and/or professional experience.

This material is an asphyxiant. Asphyxiants may reduce the oxygen concentration in the air to dangerous levels. Symptoms of lack of oxygen include increased depth and frequency of breathing, air hunger, dizziness, headache, nausea or loss of consciousness.

No component of this product at levels greater than 0.1% is identified as a carcinogen by ACGIH or the International Agency for Research on Cancer (IARC). No component of this product present at levels greater than 0.1% is identified as a carcinogen by the U.S. National Toxicology Program (NTP) or the U.S. Occupational Safety and Health Act (OSHA).

12.0 ECOLOGICAL INFORMATION

Ecological testing has not been conducted on this product by Amoco.

13.0 DISPOSAL INFORMATION

Vent vapor at a safe location. Insure dissipation of gas below the lower explosive limit. Consult local ordinances for compliance.

14.0 TRANSPORTATION INFORMATION

Canadian Transportation of Dangerous Goods

Shipping Name Natural Gas
Hazard Class 2.1
UN Number UN1971
Packing Group X

INTERNATIONAL INFORMATION:**U.S. DEPT OF TRANSPORTATION**

Shipping Name Not determined.

Sea (IMO/IMDG)

Shipping Name Not determined.

Air (ICAO/IATA)

Shipping Name Not determined.

European Road/Rail (ADR/RID)

Shipping Name Not determined.

15.0 REGULATORY INFORMATION

CANADA INVENTORY (DSL): All of the components of this product are listed on the DSL.

WHMIS Controlled Product Classification: B1,

U.S. INVENTORY (TSCA): Listed on inventory.

EC INVENTORY (EINECS/ELINCS): In compliance.

JAPAN INVENTORY (MITI): Listed on inventory.

AUSTRALIA INVENTORY (AICS): Listed on inventory.

KOREA INVENTORY (ECL): Not determined.

PHILIPPINE INVENTORY (PICCS): Not determined.

16.0 OTHER INFORMATION**Prepared by:**

Environment, Health and Safety Department

Issued: May 30, 1997

Supersedes: July 18, 1994

This material safety data sheet and the information it contains is offered to you in good faith as accurate. We have reviewed any information contained in this data sheet which we received from sources outside our company. We believe that information to be correct but cannot 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 and to comply with all applicable laws and regulations. No statement made in this data sheet shall be construed as a permission or recommendation for the use of any product in a manner that might infringe existing patents. No warranty is made, either express or implied.

MATERIAL SAFETY DATA SHEET

Section 1 - CHEMICAL PRODUCT AND COMPANY IDENTIFICATION

Elf Atochem North America
2000 Market Street
Philadelphia, PA 19103

Customer Service:
1-800-628-4453 Business Hours
Information:
1-800-628-4453 Business Hours

EMERGENCY TELEPHONE NUMBERS:

CHEMTREC: (800) 424-9300 (24 hours) or (202) 483-7616

MEDICAL: Rocky Mountain Poison Control Center
(303) 623-5716 (24 hours)

NAME USED ON LABEL: SPOTLEAK 1009

CHEMICAL NAME: Butyl and Propyl Mercaptan Blend
CHEMICAL FAMILY: Alkyl Mercaptan

Section 2 - COMPOSITION/INFORMATION ON INGREDIENTS

Identity	CAS No.	Typical %	OSHA Hazard
tertiary Butyl Mercaptan	75-66-1	78	Y
iso-Propyl Mercaptan	75-33-2	16	Y
n-Propyl Mercaptan	107-03-9	6	Y

TSCA Inventory Status:

The ingredient(s) of this product are all on the TSCA Inventory list.

The substance(s) marked with a Y in the OSHA Hazard column above, are those identified as hazardous chemicals under the criteria of the OSHA Hazard Communication Standard (29 CFR 1910.1200).

Section 3 - HAZARDS IDENTIFICATION

EMERGENCY OVERVIEW:

Clear, colorless liquid, gas-like odor

DANGER!

EXTREMELY FLAMMABLE LIQUID AND VAPOR
VAPOR MAY CAUSE FLASH FIRE
MAY CAUSE EYE IRRITATION
MAY CAUSE ALLERGIC SKIN REACTION

MSDS CODE: 001009
PRODUCT: SPOTLEAK 1009
ELF ATOCHEM NORTH AMERICA, INC.

Date: 04/16/96
Page: 1 of 10

MATERIAL SAFETY DATA SHEET

Section 3 - HAZARDS IDENTIFICATION

MAY CAUSE RESPIRATORY TRACT IRRITATION
MAY BE HARMFUL IF SWALLOWED

POTENTIAL HEALTH EFFECTS:

t-Butyl Mercaptan

Inhalation and skin contact are expected to be the primary routes of occupational exposure to t-butyl mercaptan. As with other low molecular weight mercaptans, t-butyl mercaptan has a strong objectionable odor that may cause nausea, headache, or dizziness, especially when exposure occurs in a confined area or a leak situation without adequate ventilation or breathing protection. t-Butyl mercaptan is considered, on the basis of single exposure animal tests, to be no more than slightly toxic after skin contact, practically non-toxic after inhalation, and slightly irritating to eyes. Although allergic skin reactions have not been reported in humans, information from animal studies indicates that repeated skin contact with this material may cause allergic skin reactions in susceptible individuals.

Isopropyl Mercaptan: CAS# 75-33-2

Inhalation and skin contact are expected to be the primary routes of occupational exposure to isopropyl mercaptan. As with other low molecular weight mercaptans, isopropyl mercaptan has a strong objectionable odor that may cause nausea, headache, or dizziness, especially when exposure occurs in a confined area or a leak situation without adequate ventilation or breathing protection. The vapors of isopropyl mercaptan can be irritating to the eyes, nasal and respiratory tract and, with extreme overexposure, may cause a sense of coldness at the extremities, rapid heartbeat, cyanosis and respiratory paralysis.

Section 4 - FIRST AID MEASURES

IF IN EYES:

Immediately flush with plenty of water. Get medical attention if irritation persists.

IF ON SKIN:

Immediately wash with soap and plenty of water. Remove contaminated clothing and shoes. Get medical attention. Wash clothing before reuse. Destroy contaminated shoes. Thoroughly clean shoes before reuse.

IF SWALLOWED:

Induce vomiting as directed by medical personnel. Get medical

MATERIAL SAFETY DATA SHEET

Section 4 - FIRST AID MEASURES

attention. NEVER GIVE ANYTHING BY MOUTH TO AN UNCONSCIOUS PERSON.

IF INHALED:

Remove to fresh air. If not breathing, give artificial respiration. If breathing is difficult, give oxygen. Get medical attention immediately.

Section 5 - FIRE FIGHTING MEASURES

Flash Point (Test Method): <-32°C/0°F(TCC)
Autoignition Temperature: NE
Flammable Limits: Upper: NE
Lower: NE

EXTINGUISHING MEDIA:

Carbon dioxide, dry chemical, alcohol foam

SPECIAL FIRE FIGHTING PROCEDURES:

Fire fighters and others who may be exposed to products of combustion should wear full fire fighting turn-out gear (full Bunker Gear) and self-contained breathing apparatus (pressure demand NIOSH approved or equivalent. Fire fighting equipment should be thoroughly decontaminated after use.

Use water spray to cool containers exposed to fire. Do NOT use a solid stream of water. A solid stream of water can spread fire. Fight fire from a protect location - EXPLOSION HAZARD. Use water spray to dilute vapors and wash them from air.

FIRE AND EXPLOSION HAZARDS:

When burned, hazardous products of combustion, including oxides of sulfur, carbon monoxide and carbon dioxide can occur. Heated material can form flammable and explosive vapors with air. Avoid breathing fumes from fire exposed material. Dike and collect water used to fight fire.

Section 6 - ACCIDENTAL RELEASE MEASURES

IF A SPILL OR LEAK OCCURS:

Ventilate the area and remove all ignition sources. Contain the spill by building a dike using absorbent material. Neutralize spill with household bleach solution. Do not use solid bleach as fire or violent reaction can occur. Using non-sparking tools, collect the liquid and solid absorbent into a drum approved for waste disposal. Collect the liquid and solid absorbent into a drum approved for waste disposal.

MATERIAL SAFETY DATA SHEET

Section 6 - ACCIDENTAL RELEASE MEASURES

Flush area with water.

Section 7 - HANDLING & STORAGE

HANDLING:

Keep away from heat, sparks and flame.
Keep from contact with strong oxidizing agents, strong alkalies.
This product forms pyrophoric iron sulfides on contact with steel.
Keep container tightly closed. Empty container may contain hazardous residues.
Use only with adequate ventilation.
Avoid breathing vapor.
Avoid contact with eyes.
Avoid prolonged or repeated contact with skin.
Wash thoroughly after handling.
Use grounding and bonding connection when transferring material to prevent static discharges, fire or explosion.
Use spark resistant tools.
Use explosion proof equipment.
Do not cut, grind or weld on or near containers - explosion hazard.

STORAGE:

Store in cool well ventilated area.

Section 8 - EXPOSURE CONTROLS & PERSONAL PROTECTION

ENGINEERING CONTROLS:

Investigate engineering techniques to reduce exposures. Provide ventilation if necessary to minimize exposure. Dilution ventilation acceptable, but local mechanical exhaust ventilation preferred, if practical, at sources of air contamination such as open process equipment. Consult ACGIH ventilation manual or NFPA Standard 91 for design of exhaust systems.

EYE PROTECTION:

Where eye contact may be likely, wear chemical goggles and have eye flushing equipment available.

SKIN PROTECTION:

Minimize skin contamination by following good industrial practice. Wearing rubber gloves is recommended. Wash hands and contaminated skin thoroughly after handling.

RESPIRATORY PROTECTION:

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Section 8 - EXPOSURE CONTROLS & PERSONAL PROTECTION

Avoid breathing vapors. Use NIOSH approved respiratory protection equipment appropriate to the material and/or its components a full facepiece is recommended where airborne exposure limits are exceeded. Consult respirator manufacturer to determine appropriate type equipment for given application. Observe respirator use limitations specified by NIOSH or the manufacturer. For emergency and other conditions where exposure limit may be significantly exceeded, use an approved full face positive-pressure, self-contained breathing apparatus or positive-pressure airline with auxiliary self-contained air supply. Respiratory protection programs must comply with 29 CFR 1910.134.

AIRBORNE EXPOSURE GUIDELINES:

	TWA	OSHA PEL STEL	CEILING	TWA	ACGIH TLV STEL	CEILING
	-----	-----	-----	-----	-----	-----
tertiary Butyl Mercaptan	NE	NE	NE	NE	NE	NE
iso-Propyl Mercaptan	NE	NE	NE	NE	NE	NE
n-Propyl Mercaptan	NE	NE	NE	NE	NE	NE

Section 9 - PHYSICAL & CHEMICAL DATA

Boiling Point, C: 60-70
 Freezing Point, C: NE
 Specific Gravity: 0.812@15.5/15.5°C
 Vapor Pressure @ 20 C: 6.6psia@100
 Vapor Density: 3.0
 air=1
 Evaporation Rate: NE
 Butyl acetate=1
 % Volatiles: 100
 Solubility in Water: Negligible
 Appearance and Odor:
 Clear, colorless liquid, gas-like odor

Section 10 - STABILITY & REACTIVITY

STABILITY:

This material is chemically stable under specified conditions of storage, shipment and/or use. See HANDLING AND STORAGE section of

MATERIAL SAFETY DATA SHEET

Section 10 - STABILITY & REACTIVITY

this MSDS for specified conditions. Avoid flames, welding arcs, potential ignition sources, or other high temperature sources which induce thermal decomposition.

INCOMPATIBILITY:

Contact with strong oxidizing agents, strong alkalis may result in rapid energy release.

HAZARDOUS DECOMPOSITION PRODUCTS:

Carbon oxides, sulfur oxides, hydrogen sulfides can be liberated at high temperatures.

HAZARDOUS POLYMERIZATION:

Does not occur.

Section 11 - TOXICOLOGICAL INFORMATION

t-Butyl Mercaptan CAS# 75-66-1

Data from laboratory studies conducted by Elf Atochem North America, Inc. and from the scientific literature on t-butyl mercaptan are summarized below.

Single exposure (acute) studies indicate:

Oral - Slightly Toxic to Rats (LD50 4,729 mg/kg)

Dermal - No More Than Slightly Toxic to Rabbits (LD50 >2,000 mg/kg)

Inhalation - Practically Non-Toxic to Rats (4-hr LC50 >81.9- 98.2 mg/l)

Eye Irritation - Slightly Irritating to Rabbits

Skin Irritation - Non-irritating to Rabbits (4-hr exposure)

In rodents, acute poisoning by t-butyl mercaptan produced a pattern of central nervous system depression, muscular paralysis, and tremors. Skin allergy was observed in guinea pigs following repeated skin application. Following repeated inhalation exposures to t-butyl mercaptan at levels of 201, 1086 and 1990 ppm for 6 hr/day for 2-weeks, the only effect noted in rats was a mild to moderate liver effect (hypertrophy) in animals exposed to 1990 ppm. Repeated exposure of rats to t-butyl mercaptan for a longer period (13-weeks) at lower concentrations (9, 97 and 196 ppm) produced mild kidney effects (proximal tubular nephrosis) in males, only. No birth defects were noted in rats and mice exposed to t-butyl mercaptan by inhalation during pregnancy, even at 195 ppm, a level which produced maternal toxic effects in rats. t-Butyl mercaptan produced no genetic changes in a standard test using bacteria, and both positive and negative responses have been reported in assays using animal cells.

MATERIAL SAFETY DATA SHEET

Section 11 - TOXICOLOGICAL INFORMATION

Isopropyl Mercaptan CAS# 75-33-2

Data from laboratory studies conducted by Elf Atochem North America, Inc. on isopropyl mercaptan are summarized below.

Single exposure (acute) studies indicate:

Oral - Slightly Toxic to Rats (LD50 Estimated to be between 2,000 and 5,000 mg/kg)

Dermal - No More Than Slightly Toxic to Rabbits (LD50 >2,000 mg/kg)

Inhalation - Practically Non-Toxic to Rats (4-hr LC50 >18.44 mg/l)

Eye Irritation - Practically Non-irritating to Rabbits

DOT Skin Corrosion - Non-corrosive to Rabbits (4-hr exposure)

Acute effects in rats during exposure to sublethal vapor concentrations of 18.44 mg/l or less for 4-hours were attributed to the irritant nature of the vapors.

Section 12 - ECOLOGICAL INFORMATION

ECOTOXICOLOGICAL INFORMATION

Ecotoxicological Information: No data are available.

Chemical Fate Information: No data are available.

Section 13 - DISPOSAL CONSIDERATIONS

Incineration is the recommended method for disposal observing all local, state, and federal regulations.

Section 14 - TRANSPORT INFORMATION

DOT PROPER SHIPPING NAME:

Flammable Liquid, NOS

TECHNICAL SHIPPING NAME:

Butyl Mercaptan, Isopropyl Mercaptan

DOT HAZARD CLASS: 3

UN NUMBER: 1993

PACKING GROUP: II

MATERIAL SAFETY DATA SHEET

Section 14 - TRANSPORT INFORMATION

PRODUCT RQ (LBS):

DOT Miscellaneous Info:
Marine pollutant

Section 15 - REGULATORY INFORMATION

SARA HAZARD CLASSIFICATION

Immediate (Acute) Health:	yes
Delayed (Chronic) Health:	no
Sudden Release of Pressure:	no
Reactive:	no
Fire:	yes

SARA Title III, Section 302:

This product does not contain any chemicals currently on the Extremely Hazardous Substance List, Section 302, SARA Title III, above the OSHA de minimis concentration.

SARA Title III, Section 313:

This product does not contain any chemicals currently on the Toxic Chemical List, Section 313, SARA Title III, above the OSHA de minimis concentration.

CERCLA RQ

This product does not contain any chemicals currently listed with a CERCLA RQ above the OSHA de minimis concentration.

California Proposition 65:

This product does not contain any chemicals currently listed on the California List of known Carcinogens.

California Proposition 65:

This product does not contain any chemicals currently listed on the California List of known Reproductive Toxins.

Pennsylvania Right-to-Know
Hazardous Substance List

This product does not contain any chemicals currently on the Pennsylvania Hazardous Substance List, above the OSHA de minimis concentration.

Pennsylvania Right-to-Know
Environmental Hazardous Substance List

This product does not contain any chemicals currently on the

MATERIAL SAFETY DATA SHEET

Section 15 - REGULATORY INFORMATION

Pennsylvania Environmental Hazardous Substance List, above the OSHA de minimis concentration.

Pennsylvania Right-to-Know

Special Hazardous Substance List

This product does not contain any chemicals currently on the Pennsylvania Special Hazardous Substance List, above the OSHA de minimis concentration.

Massachusetts Right-to-Know

This product does not contain any chemicals currently on the Massachusetts Hazardous Substance List, above the OSHA de minimis concentration.

New Jersey Right-to-Know

This product does not contain any chemicals currently on the New Jersey Hazardous Substance List, above the OSHA de minimis concentration.

Section 16 - OTHER

Legend

N/A - Not Applicable

NE - Not Established

NJTSN - New Jersey Trade Secret Number

Spotleak is a registered trademark of Elf Atochem, North America, Inc.

Issued: 04/16/96 Rev: 0
Supersedes: / /

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MATERIAL SAFETY DATA SHEET

Section 16 - OTHER

expressly disclaims any and all liability as to any results obtained or arising from any use of the product or reliance on such information.

Appendix C



Minnesota Department of Natural Resources

Natural Heritage and Nongame Research Program, Box 25

500 Lafayette Road

St. Paul, Minnesota 55155-40__

Phone: (651) 296-7863 Fax: (651) 296-1811 E-mail: sarah.hoffmann@dnr.state.mn.us

October 13, 2003

Helen T. Dijkstra
Barr Engineering Company
4700 W. 77th Street
Minneapolis, MN 55435

RECEIVED

OCT 15 2003

BARR
ENGINEERING CO.

Re: Request for Natural Heritage information for vicinity of proposed Scott County Utility Corridor
NHNR Contact #: ERDB 20040253

County	Township (N)	Range (W)	Sections
Scott	114	22	5,7,8
Scott	114	23	1,2,11,12
Scott	115	22	7-11,16,18-21,28-30,32
Scott	115	23	12-14,23-26,35,36

Dear Ms. Dijkstra,

The Minnesota Natural Heritage database has been reviewed to determine if any rare plant or animal species or other significant natural features are known to occur within an approximate one-mile radius of the area indicated on the map enclosed with your information request. Based on this review, there are 30 known occurrences of rare species or natural communities in the area searched (for details, see enclosed database printout and explanation of selected fields). Following are specific comments for **only those elements that may be impacted** by the proposed project. Rare feature occurrences not listed below are not anticipated to be affected by the proposed project.

- The portion of the utility corridor within T115N R22W Sections 10 & 11 is within an area that has been identified by the Minnesota County Biological Survey as a "Site of High Biodiversity Significance". "Sites of Biodiversity Significance" are areas with varying levels of native biodiversity that may contain high quality native plant communities, rare plants, rare animals, and/or animal aggregations. Biodiversity significance is evaluated on the basis of the number of rare species, the quality of the native plant communities, size of site, and context within the landscape. This particular site contains Dry Prairie, Dry Oak Savanna, Oak Woodland-Brushland, and Emergent Marsh native plant communities and several special concern species including Rhombic-Petaled Evening Primrose (*Oenothera rhombipetala*), Plains Pocket Mouse (*Perognathus flavescens*), and Gopher Snake (*Pituophis catenifer*) have been documented within the site (see the enclosed maps for details). We recommend that in project development, alternatives be sought which will avoid impacts to this ecologically significant site.

The Natural Heritage database is maintained by the Natural Heritage and Nongame Research Program, a unit within the Division of Ecological Services, Department of Natural Resources. It is continually updated as new information becomes available, and is the most complete source of data on Minnesota's rare or otherwise significant species, natural communities, and other natural features. Its purpose is to foster better understanding and protection of these features.

DNR Information: 651-296-6157 • 1-888-646-6367 • TTY: 651-296-5484 • 1-800-657-3929

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Because our information is not based on a comprehensive inventory, there may be rare or otherwise significant natural features in the state that are not represented in the database. A county-by-county survey of rare natural features is now underway, and has been completed for Scott County. Our information about natural communities is, therefore, quite thorough for that county. However, because survey work for rare plants and animals is less exhaustive, and because there has not been an on-site survey of all areas of the county, ecologically significant features for which we have no records may exist on the project area.

The enclosed results of the database search are provided in two formats: index and full record. To control the release of locational information which might result in the damage or destruction of a rare element, both printout formats are copyrighted.

The index provides rare feature locations only to the nearest section, and may be reprinted, unaltered, in an Environmental Assessment Worksheet, municipal natural resource plan, or report compiled by your company for the project listed above. If you wish to reproduce the index for any other purpose, please contact me to request written permission. Copyright notice for the index should include the following disclaimer:

“Copyright (year) State of Minnesota, Department of Natural Resources. This index may be reprinted, unaltered, in Environmental Assessment Worksheets, municipal natural resource plans, and internal reports. For any other use, written permission is required.”

The full-record printout includes more detailed locational information, and is for your personal use only. **If you wish to reprint the full-record printouts for any purpose, please contact me to request written permission.**

Please be aware that review by the Natural Heritage and Nongame Research Program focuses only on *rare natural features*. It does not constitute review or approval by the Department of Natural Resources as a whole. If you require further information on the environmental review process for other wildlife-related issues, you may contact your Regional Environmental Assessment Ecologist, Wayne Barstad, at (651) 772-7940.

An invoice for the work completed is enclosed. You are being billed for map and database search and staff scientist review. Please forward this invoice to your Accounts Payable Department. Thank you for consulting us on this matter, and for your interest in preserving Minnesota's rare natural resources.

Sincerely,



Sarah D. Hoffmann
Endangered Species Environmental Review Coordinator

encl: Database search results
Rare Feature Database Print-Outs: An Explanation of Fields
Natural Communities and Rare Species Map: Scott County
Invoice

cc: Wayne Barstad

Table C-1 Plant Species Found in Native Vegetation Remnants

Plant Community Name	Common Name	Latin Name
Dry Oak Savanna (Southeast) Barrens Subtype		
	bur oak	<i>Quercus macrocarpa</i>
	northern pin oak	<i>Quercus ellipsoidalis</i>
	leadplant	<i>Amorpha canescens</i>
	prairie willow	<i>Salix humilis</i>
	prairie rose	<i>Rosa arkansana</i>
Emergent Marsh		
	river bulrush	<i>Scirpus fluviatilis</i>
	cattails	<i>Typha spp.</i>
	lake sedge	<i>Carex lacustris</i>
	wild rice	<i>Zizania aquatica</i>
	bur reed	<i>Sparganium eurycarpum</i>
	bluejoint grass	<i>Calamagrostic canadensis</i>
	rice cut grass	<i>Leersia oryzoides</i>
	broad-leaved arrowhead	<i>Sagittaria latifolia</i>
	water plantain	<i>Alisma subcordatum</i>
	sweetflag	<i>Acorus calamus</i>
	water parsnip	<i>Sium suave</i>
	wild mint	<i>Mentha arvensis</i>
	American water-horehound	<i>Lycopus americanus</i>
Lowland Hardwood Forest		
	basswood	<i>Tilia americana</i>
	black ash	<i>Fraxinus nigra</i>
	green ash	<i>Fraxinus pennsylvanica</i>
	American elm	<i>Ulmus americana</i>
	hackberry	<i>Celtis occidentalis</i>
	bur oak	<i>Quercus macrocarpa</i>
	sugar maple	<i>Acer saccharum</i>
	cleavers	<i>Galium spp.</i>
	Virginia waterleaf	<i>Hydrophyllum virginianum</i>
	wood nettle	<i>Laportea canadensis</i>
	eastern narrowleaf sedge	<i>Dcarex amphibola</i>
Maple-Basswood Forest (Big Woods)		
	sugar maple	<i>Acer saccharum</i>
	basswood	<i>Tilia americana</i>
	red oak	<i>Quercus rubra</i>
	slipery elm	<i>Ulmus rubra</i>
	green ash	<i>Fraxinus pennsylvanica</i>
	black ash	<i>Fraxinus nigra</i>
	American elm	<i>Ulmus americana</i>
	ironwood	<i>Ostrya virginiana</i>
	bitternut hickory	<i>Carya coridformis</i>
	bladder-nut	<i>Staphylea trifolia</i>

Plant Community Name	Common Name	Latin Name
	pagoda dogwood	<i>Cornus alternifolia</i>
	red-berried elder	<i>Sambucus pubens</i>
	gooseberries	<i>Ribes spp.</i>
	anemone	<i>Isopyrum biternatum</i>
	toothwort	<i>Dentaria laciniata</i>
	white trout-lily	<i>Erythronium albidum</i>
	Virginia waterleaf	<i>Hydrophyllum virginianum</i>
Oak Forest (Big Woods) Mesic Subtype		
	red oak	<i>Quercus rubra</i>
	white oak	<i>Quercus alba</i>
	northern pin oak	<i>Quercus ellipsoidalis</i>
	bur oak	<i>Quercus macrocarpa</i>
	basswood	<i>Tilia americana</i>
	sugar maple	<i>Acer saccharum</i>
	ironwood	<i>Ostrya virginiana</i>
	bitternut hickory	<i>Carya coridformis</i>
	black cherry	<i>Prunus serotina</i>
	big-toothed aspen	<i>Populus grandidentata</i>
	gooseberries	<i>Ribes spp.</i>
	honestwort	<i>Cryptotaenia canadensis</i>
	lopseed	<i>Phryma leptostachya</i>
	sweet cicely	<i>Osmorhiza claytonii</i>
	white snakeroot	<i>Eupatorium rugosum</i>
Oak Woodland-Brushland (Big Woods)		
	pin oak	<i>Quercus ellipsoidalis</i>
	bur oak	<i>Quercus macrocarpa</i>
	white oak	<i>Quercus alba</i>
	paper birch	<i>Betula papyrifera</i>
	eastern red cedar	<i>Juniperus visginiiana</i>
	quaking aspen	<i>Populus tremuloides</i>
	basswood	<i>Tilia americana</i>
	big-toothed aspen	<i>Populus grandidentata</i>
	American hazel	<i>Corylus americana</i>
	chokecherry	<i>Prunus virginiana</i>
	prickly ash	<i>Zanthoxylum americanum</i>
	smooth sumac	<i>Rhus glabra</i>
	gray dogwood	<i>Cornus racemosa</i>
	hog-peanut	<i>Amphicarpaea bracteata</i>
	chining bedstraw	<i>Galium concinnum</i>
	Pennsylvania sedge	<i>Carex pensylvanica</i>
Wet Meadow		
	lake sedge	<i>Carex lacustris</i>
	tussock sedge	<i>Carex stricta</i>
	bluejoint grass	<i>Calamagrostis canadensis</i>
	bur reed	<i>Sparganium eurycarpum</i>
	cattails	<i>Typha spp.</i>

Plant Community Name	Common Name	Latin Name
	hardstem bulrush	<i>Scirpus acutus</i>
	aquatic sedge	<i>Carex aquatilis</i>
	red-osier dogwood	<i>Cornus stolonifera</i>
	pussy willow	<i>Salix discolor</i>
	swamp-loosestrife	<i>Lysimachia thysiflora</i>
	spotted joe-pye weed	<i>Eupatorium maculatum</i>
	northern marsh fern	<i>Thelypteris palustris</i>
	American water-horehound	<i>Lycopus americanus</i>

Table C-2 Wildlife Species Found in Minnesota Valley

Common Name	Latin Name	Oak savanna and dry prairie uplands ²	Floodplain forest and low prairie or meadow ²	Marsh and open water ²
Oposum, Shrews, Moles				
Virginia oposum	<i>Didelphis virginiana</i>	r	r	
masked shrew	<i>Sorex cinereus</i>		u	
arctic shrew	<i>Sorex arcticus</i>		r	
pigmy shrew	<i>Microsorex hoyi</i>		r	
shorttail shrew	<i>Blarina brevicauda</i>	r	c	u
eastern mole	<i>scalopus aquaticus</i>	u	u	
starnose mole	<i>Condylura cristata</i>		r	
Bats				
little brown myotis	<i>Myotis lucifugus</i>		c	
keen myotix	<i>Myotis keenii</i>		r	
silver-haried bat	<i>Lasionycteris noctivagagns</i>		r	
eastern pipistrel	<i>Pipistrellus subflavus</i>		r	
big brown bat	<i>Eptesicus fuscus</i>		c	
red bat	<i>Lasiurus borealis</i>		c	c
hoary bat	<i>Lasiurus cinereus</i>		c	
Rabbits, Rodents				
eastern cottontail	<i>Sylvilagus floridanus</i>	c	a	u
whitetail jackrabbit	<i>Lepus townsendii</i>	u		
woodchuck	<i>Marmota monax</i>	a	c	
richardson ground squirrel	<i>Citellus richardsoni</i>		u	
thirteen-lined ground squirrel	<i>Citellus tridecemlineatus</i>	c	u	
Franklin ground squirrel	<i>Citellus franklinii</i>	u	u	
eastern chipmunk	<i>Tamias striatus</i>	a	c	
eastern gray squirrel	<i>sciurus carolinensis</i>	c	c	
eastern fox squirrel	<i>Sciurus carolinensis</i>		c	
red squirrel	<i>Tamiasciurus hudsonicus</i>		c	
southern flying squirrel	<i>Glaucomys volns</i>		u	
plains pocket gopher	<i>Geomys bursarius</i>	a		
plains pocket mouse	<i>Perognathus flavescens</i>	u		
beaver	<i>Castor canadensis</i>			c
western harvest mouse	<i>Reithrodontomys megalotis</i>	r		
deer mouse	<i>Peromyscus maniculatus</i>	u		
white-footed mouse	<i>Peromyscus leucopus</i>	c	c	
Gapper's red-backed vole	<i>Clethrionomys gapperi</i>		u	
meadow vole			u	
muskrat	<i>Ondatra zibethica</i>			a
Norway rat	<i>Rattus norvegicus</i>	u		
house mouse	<i>Mus musculus</i>	u		
meadow jumping mouse	<i>Zapus hudsonicus</i>	r	c	

Common Name	Latin Name	Oak savanna and dry prairie uplands ²	Floodplain forest and low prairie or meadow ²	Marsh and open water ²
Coyote/Fox				
coyote	<i>Canis latrans</i>	r		
red fox	<i>Vulpes fulva</i>	c	u	
gray fox	<i>Urocyon cinereoargenteus</i>	u		
Raccoon, Weasel, Skunk, Otter				
Raccoon	<i>Procyon lotor</i>		c	c
ermine/shorttail weasel	<i>Mustela ermina</i>		u	
least weasel	<i>Mustela rixosa</i>	u		
longtail weasel	<i>Mustela frenata</i>		u	
mink	<i>Mustela vision</i>			u
badger	<i>Taxidea taxus</i>	r		
spotted skunk	<i>Spilogale putoris</i>	u	u	
striped skunk	<i>Mephitis mephitis</i>	c	c	
river otter	<i>Lutra canadensis</i>			r
Deer				
whitetail deer	<i>Odocoileus virginianus</i>	c	a	c
Reptiles and Amphibians				
Turtles				
snapping turtle	<i>Chelydra serpentina</i>		c	
map turtle	<i>Graptemys geographica</i>			r
false map turtle	<i>Graptemys pseudogeographica</i>			c
painted turtle	<i>Chrysemys picta</i>	u	c	c
Blanding's turtle	<i>Emydoidea blandingi</i>		r	r
smooth softshell	<i>Trionyx muticus</i>			c
spiny softshell	<i>Trionyx spiniferus</i>			u
Lizards and Snakes				
prairie skink	<i>Eumeces septentrionalis</i>		u	
northern water snake	<i>Nerodia sipedon</i>		c	c
brown (DeKay's) snake	<i>Storeria occipitomaculata</i>		u	u
redbelly snake	<i>Storeria occipitomaculata</i>		u	
common garter snake	<i>Thamnophis sirtalis</i>	c	a	a
plains garter snake	<i>Thamnophis radix</i>	c	c	c
western hognose snake	<i>Heterodon nasicus</i>	c	u	
racer	<i>Coluber constrictor</i>	u		
smooth green snake	<i>Opheodrys vernalis</i>		u	
fox snake	<i>Elaphe vulpina</i>	u	c	c
gopher snake	<i>Pituophis melanoleucus</i>	c	u	
milk snake	<i>Lampropeltis triangulum</i>		u	
Salamanders				
mudpuppy	<i>Necturus maculosus</i>			u
eastern newt	<i>Notophthalmus viridescens</i>		u	u
blue-spotted salamander	<i>Ambystoma laterale</i>		r	

Common Name	Latin Name	Oak savanna and dry prairie uplands ²	Floodplain forest and low prairie or meadow ²	Marsh and open water ²
tiger salamander	<i>Ambystoma trigrinum</i>		c	
Toads and Frogs				
American toad	<i>Bufo americanus</i>	c	c	c
spring peeper	<i>Hyla crucifer</i>		c	c
gray tree frog	<i>Hyla versicolor</i>		c	
striped chorus frog	<i>Pseudacris triseriata</i>		c	c
green frog	<i>Rana clamitans</i>			c
wood frog	<i>Rana sylvatica</i>		c	
northern leopard frog	<i>Rana pipiens</i>	u	a	a
Birds				
American crow	<i>Corvus brachyrhynchos</i>		unspecified	
American goldfinch	<i>Carduelis tristis</i>		unspecified	
American kestrel	<i>Falco sparverius</i>		unspecified	
American robin	<i>Turdus migratorius</i>		unspecified	
Bald eagle	<i>Haliaeetus leucocephalus</i>		unspecified	
Barn swallow	<i>Hirundo rustica</i>		unspecified	
Belted kingfisher	<i>Megaceryle alcyon</i>		unspecified	
Black-capped chickadee	<i>Poecile atricapilla</i>		unspecified	
Blue jay	<i>Cyanocitta cristata</i>		unspecified	
Brown-headed cowbird	<i>Molothrus ater</i>		unspecified	
Canada goose	<i>Branta canadensis</i>		unspecified	
Common nighthawk	<i>Chordeiles minor</i>		unspecified	
Cooper's hawk	<i>Accipiter cooperii</i>		unspecified	
Downy woodpecker	<i>Picoides pubescens</i>		unspecified	
Eastern bluebird	<i>Sialia sialis</i>		unspecified	
Eastern phoebe	<i>Sayornis phoebe</i>		unspecified	
European starling	<i>Sturnus vulgaris</i>		unspecified	
Great blue-heron	<i>Ardea herodias</i>		unspecified	
Great egret	<i>Casmerodius albus</i>		unspecified	
Hairy woodpecker	<i>Picoides villosus</i>		unspecified	
Hermit thrush	<i>Catharus guttatus</i>		unspecified	
House sparrow	<i>Passer domesticus</i>		unspecified	
House wren	<i>Troglodytes aedon</i>		unspecified	
Killdeer	<i>Charadrius vociferus</i>		unspecified	
Marsh wren	<i>Cistothorus palustris</i>		unspecified	
Mourning dove	<i>Zenaida macroura</i>		unspecified	
Northern Cardinal	<i>Cardinalis cardinalis</i>		unspecified	
Northern flicker	<i>Colaptes auratus</i>		unspecified	
Northern Parula	<i>Parula americana</i>		unspecified	
Purple finch	<i>Carpodacus purpureus</i>		unspecified	
Purple martin	<i>Progne subis</i>		unspecified	
Red-headed woodpecker	<i>Melanerpes erythrocephalus</i>		unspecified	

Common Name	Latin Name	Oak savanna and dry prairie uplands²	Floodplain forest and low prairie or meadow²	Marsh and open water²
Red-tailed hawk	<i>Buteo jamaicensis</i>		unspecified	
Red-winged blackbird	<i>Agelaius phoeniceus</i>		unspecified	
Ring-billed gull	<i>Larus delawarensis</i>		unspecified	
Rock dove	<i>Columba livia</i>		unspecified	
Savannah sparrow	<i>Passerculus sandwichensis</i>		unspecified	
Song sparrow	<i>Melospiza melodia</i>		unspecified	
Turkey Vulture	<i>Coragyps atratus</i>		unspecified	
White-breasted nuthatch	<i>Sitta carolinensis</i>		unspecified	
Wild turkey	<i>Meleagris gallopavo</i>		unspecified	
Yellow warbler	<i>Dendroica petechia</i>		unspecified	
Yellow-bellied sapsucker	<i>Sphyrapicus varius</i>		unspecified	

¹ From MN Valley National Wildlife Refuge data, bird data from previous Barr project

² a = abundant, c = common, u = uncommon, r = rare

Table C-3 Potential Wetlands Summary

Project Identification No.	Approximate Cowardin Classification ¹	Field Determination ²	Acres
4	PUBG	W	5.6
6	PEMF	W	2.0
12	PEMB/C	W	3.2
16	PFOBd	PW	0.6
17	PEMB/C	W	1.4
24	PEMA/B	W	0.4
25	PEMB/C/F	W	3.0
26	PUBH/EMB	W	3.3
27	PABG	W	0.7
28	PUBG	W	1.3
30	PEMB	PW	4.5
32	PEMB	W	1.0
185	PEMB	W	6.1
201	PEMB	PW	0.0
215	Undetermined	PW	10.2
221	PEMB	W	2.2
222	PEMB	W	3.9
223	PEMB	PW	2.2
225	PEMB/C	W	0.8
228	PEMB	PW	1.1
230	PEMB	PW	0.6
231	PEMB	PW	0.2
237	PEMB	PW	0.4
239	PEMA	PW	0.4
240	PEMA	PW	1.3
252	PEMB/C	W	0.9
253	PEMB/C	W	0.4
258	PEMA	PW	0.7
260	PEMC	W	0.4
313	PEMB/C	W	NA
401	PEMA	PW	2.0
402	PEMC	W	1.5
403	PEMB	PW	0.2
404	PEMB	PW	2.3
405	PEMA	PW	0.3
406	PEMB	PW	0.4
407	PEMA	PW	0.1

Project Identification No.	Approximate Cowardin Classification ¹	Field Determination ²	Acres
408	PEMB	PW	0.4
409	PEMB	PW	0.3
410	PEMC	W	2.4
411	PEMA	PW	0.5

¹ Cowardin et al., 1979. Classifications of Wetlands and Deepwater Habitats of the United States

² W = Wetland, PW = Probable wetland

Appendix D



MINNESOTA HISTORICAL SOCIETY
STATE HISTORIC PRESERVATION OFFICE

November 3, 2003

Helen Dijkstra
Barr Engineering Company
4700 West 77th Street
Minneapolis MN 55435-4803

RE: Potential Utility Corridor Along County Highway 15, 17, 83 or 42
Scott County
SHPO Number: 2004-0206

Dear Ms. Dijkstra:

Based on the Section-Township-Range project location information included in your letter of 1 October 2003, I have completed data searches of the MN State Historic Preservation Office databases of recorded archaeological sites and history/architecture sites. Enclosed are printouts from these searches, each printout page is for an individual township. Please be aware that the archaeological site location information is confidential and should not be published in any public documents.

Additional historic properties and archaeological sites may be present, but not yet included in the SHPO inventory. Submittal of your project to our office for review, including photographs of any affected buildings/structures built before 1950 and detailed maps of the project's area of impact, will insure that potential historic sites and the probability of archaeological sites are evaluated.

Please also note that this comment letter **does not** address the requirements of Section 106 of the National Historic Preservation Act of 1966 and 36CFR800, Procedures of the Advisory Council on Historic Preservation for the protection of historic properties. If this project is considered for federal assistance, or requires a federal permit or license, it should be submitted to our office with reference to the assisting federal agency.

If any further information is needed, please feel free to contact me at (651) 296-5462, or by email at sarah.jordan-beimers@mnhs.org.

Sincerely,

Sarah Jordan Beimers
Review and Compliance Associate

Enclosures