old manhole 34

STATE OF WASHINGTON
DEPARTMENT OF ECOLOGY

In the Matter of Remedial Action by: Manhole 34 Facility, Sunnyside, Washington	)))))	AGREED ORDER NO. DE-92-TC-C324

TO: Tire Centers, Inc.
c/o Larry Howell
216 S. Second Avenue
Yakima, WA 98902

and

Time Oil Co.
c/o Liam Russell
2737 West Commodore Way
Seattle, WA 98903-1164

I.

Jurisdiction

This Agreed Order ("Order") is issued pursuant to the authority of RCW 70.105D.050(1).

II.

Findings of Fact

The Department of Ecology ("Ecology") makes the following Findings of Fact, without admission of such facts by Tire Centers, Inc. or Time Oil Co. (hereinafter "Respondents").

1. Tire Centers, Inc. is the owner or operator of Sunnyside Tire Centers located at 612 Highway 12, Sunnyside, Washington, in the area within and around the intersection of Sixth Street and Highway 12 in Sunnyside, Washington wherein petroleum products have come to be located. This area of Sunnyside, Washington, is considered by Ecology to be part of the facility known as Manhole 34.

2. Time Oil Co. is the owner or operator of Jackpot Foodmart located at 600 Highway 12 in Sunnyside, Washington, in the area within and around the intersection of Sixth Street and Highway 12 in Sunnyside, Washington wherein petroleum products have come to be located. This area of Sunnyside, Washington, is considered by Ecology to be part of the facility known as Manhole 34.

3. The City of Sunnyside is a municipal government exercising jurisdiction and control over the lands within its boundaries, and responsible for maintaining the public thoroughfares, sewers and storm water/drainage systems, including Manhole 34, in the area within and around the intersection of Sixth

Street and Highway 12 in Sunnyside, Washington wherein petroleum products have come to be located.

4. In 1989 petroleum free product was discovered in and around the portion of the City of Sunnyside's sewer system served by Manhole 34. To date, free product continues to accumulate in and around this area of the sewer system.

5. The presence of free petroleum product and hazardous concentrations of petroleum product in the groundwater and soil at the facility is documented in the following reports:

> Preliminary Hydrogeologic Report, Tire Centers, Inc., March 27, 1990; by Forsgren Associates, consulting engineers.
>
> Preliminary Hydrogeologic Investigation, South Sixth Street and Yakima Valley Highway, Sunnyside, Washington, Delta Project No. 40-89-026, Delta Environmental Consultants, Inc., Rancho Cordova, California, June 22, 1989.
>
> Phase II Hydrogeologic Investigation, South Sixth Street and Highway 12, Sunnyside, Washington, Delta Project No. 40-89-026, January 2, 1990.
>
> A letter report dated April 26, 1989 from Time Oil to the Washington State Department of Ecology describing results of an environmental site investigation conducted by Time Oil personnel at the Jackpot Foodmart located at 600 Highway 12, Sunnyside, Washington.
>
> Technical Memorandum 02, a Chronological Summary of Site Activities and Conditions at sites located at 600 Yakima Valley Highway and 612 Yakima Valley Highway, Sunnyside, Washington, prepared by Shannon & Wilson, Inc., geotechnical consultants, September 5, 1991.
>
> Technical Memorandum 03, a Summary of Site Conditions, Sunnyside, Washington, prepared by Shannon & Wilson, Inc., geotechnical consultants, November 22, 1991.

Technical Memorandum 04, Generalized Geological Cross-Sections, Sunnyside, Washington, prepared by Shannon & Wilson, Inc., geotechnical consultants, December 5, 1991.

6. All of the reports, cited in paragraph 5 above, document that free petroleum product was found on the groundwater within the facility.

7. Petroleum products are defined as hazardous substances under the Model Toxics Control Act, ch. 70.105D RCW, and may pose a threat to human health and the environment.

8. The presence of free petroleum product at the facility requires an interim action to remove the free product "as soon as possible" as specified in WAC 173-340-450(3)(a).

9. Respondents desire to conduct certain emergency response actions at the Manhole 34 facility in accordance with a jointly agreed upon Scope of Work entitled the "Work Plan and Site Safety Plan for Emergency Activities at Sunnyside Washington, Manhole 34" ("SOW") and to enter into this Order with Ecology for oversight of the SOW.

10. Respondents have agreed to undertake those actions necessary to satisfy the terms and conditions of this Order.

11. In order to facilitate resolution of this emergency situation, Time Oil Co. has agreed to sign an agreement with the consultant/transporter pursuant to which Time Oil Co. will accept generator status for the limited purpose of free product removal from the Site pursuant to this Order and the SOW incorporated herein. By its acceptance of generator status for this limited

purpose, Time Oil Co. shall assume no past ownership or interest in the free product removed from the Site.

12. Attached to this Agreed Order as Exhibit A is a letter of intent from the City of Sunnyside acknowledging the City's willingness to provide in-kind services in order to facilitate performance of the SOW.

III.

Ecology Determinations

Ecology makes the following determinations, without admission of such determinations by Tire Centers, Inc. or Time Oil Co.

1. Tire Centers, Inc. is an "owner or operator," as defined at RCW 70.105D.020(6), of Sunnyside Tire Centers located at 612 Highway 12, Sunnyside, Washington, in the area within and around the intersection of Sixth Street and Highway 12 in Sunnyside, Washington. This area of Sunnyside, Washington, is considered by Ecology to be within the "facility," as defined in RCW 70.105D.020(3), known as Manhole 34.

2. Time Oil Co. is an "owner or operator," as defined at RCW 70.105D.020(6), of the Jackpot Foodmart located at 600 Highway 12, Sunnyside, Washington, in the area within and around the intersection of Sixth Street and Highway 12 in Sunnyside, Washington. This area of Sunnyside, Washington, is considered by Ecology to be within the "facility," as defined in RCW 70.105D.020(3), known as Manhole 34.

3. The substances found at Manhole 34 (referred to alternatively as the "facility" or the "Site") are "hazardous substances" as defined at RCW 70.105D.020(5).

4. Based on the presence of these hazardous substances at the facility and all factors known to Ecology, there is a release or threatened release of hazardous substances from the facility, as defined at RCW 70.105D.020(10).

5. Ecology has notified Tire Centers, Inc. of its status as a "potentially liable person" under RCW 70.105D.040.

6. Ecology has notified Time Oil Co. of its status as a "potentially liable person" under RCW 70.105D.040.

7. Pursuant to RCW 70.105D.030(1) and 70.105D.050, Ecology may require potentially liable persons to investigate or conduct other remedial actions with respect to the release or threatened release of hazardous substances, whenever it believes such action to be in the public interest.

8. Based on the foregoing facts, Ecology has determined that the presence of free petroleum product in the sewer system requires immediate interim action. It is understood that by its assumption of generator status for the limited purpose of authorizing the removal of free product from the Site in accordance with this Order and the SOW, Time Oil Co. assumes no past ownership or interest in the free product removed from the Site.

9. Also based on the foregoing facts, Ecology believes that the remedial action required by this Order, which the Respondents have agreed to undertake, is in the public interest.

IV.

Work to be Performed

Based on the foregoing Facts and Determinations, it is hereby ordered and agreed that the Respondents perform the remedial actions outlined in the SOW and the Emergency Response Schedule of Activities attached and incorporated by this reference as Exhibit B and Exhibit C to this Agreed Order and that these actions be conducted in accordance with Chapter 173-340 WAC unless otherwise specifically provided for herein.

V.

Terms and Conditions of Order

1. Definitions. Unless otherwise specified, the definitions set forth in ch. 70.105D RCW and ch. 173-340 WAC shall control the meanings of the terms used in this Order.

2. Public Notices. RCW 70.105D.030(2)(a) requires that, at a minimum, this Order be subject to concurrent public notice. Ecology shall be responsible for providing such public notice and reserves the right to modify or withdraw any provisions of this Order should public comment disclose facts or considerations which indicate to Ecology that the Order is inadequate or improper in any respect. The Respondents reserve the right to withdraw their consent to this Order in the event Ecology modifies any provision without their written consent.

3. Remedial Action Costs. The Respondents agree to pay to Ecology costs incurred by Ecology pursuant to implementation of the SOW under this Order. These costs shall include work performed

by Ecology or its contractors for investigations, remedial actions, and Order preparation, oversight and administration. Ecology costs shall include costs of direct activities; e.g., employee salary, laboratory costs, travel costs, contractor fees, and employee benefit packages; and agency indirect costs of direct activities. The Respondents agree to pay the required amount within 90 days of receiving from Ecology an itemized statement of costs that includes a summary of costs incurred, an identification of involved staff, and the amount of time spent by involved staff members on the project. A general description of work performed will be provided upon request. Itemized statements shall be prepared quarterly. Failure to pay Ecology's costs within 90 days of receipt of an itemized statement of costs may result in interest charges.

4. Designated Project Coordinators. The project coordinator for Ecology is:

John Wietfeld
Department of Ecology
Central Regional Office
106 South 6th Avenue
Yakima, Washington 98902-3387

The project coordinator for Time Oil Co. and Tire Centers, Inc. is:

Liam Russell
Time Oil Co.
2737 West Commodore Way
Seattle, WA

The alternate project coordinator for Time Oil Co. and Tire Centers, Inc. is:

Larry Howell
Tire Centers, Inc.
612 Highway 12
Sunnyside, WA

The project coordinators shall be responsible for overseeing the implementation of this Order. To the maximum extent possible, communications between Ecology and the Respondents, and all documents, including reports, approvals, and other correspondence concerning the activities performed pursuant to the terms and conditions of this Order, shall be directed through the project coordinators. Should Ecology or the Respondents change project coordinators, written notification shall be provided to Ecology or the Respondents at least three (3) calendar days prior to the change.

5. Performance. All work performed pursuant to this Order shall be under the direction and supervision, as necessary, of a professional engineer or hydrogeologist, or similar expert, with appropriate training, experience and expertise in hazardous waste site investigation and cleanup. The Respondents shall notify Ecology as to the identity of such engineer(s) or hydrogeologist(s), and of any contractors and subcontractors to be used in carrying out the terms of this Order, in advance of their involvement at the Site.

During the performance of this Agreed Order and except where necessary to abate an emergency situation, the Respondents shall not perform any remedial actions at the Manhole 34 Facility

outside that required by this Order unless Ecology concurs, in writing, with such additional remedial actions.

6. Access. To the extent Respondents exercise dominion or control over properties in the Site, Time Oil and Tire Centers authorize Ecology or any Ecology authorized representative to enter and freely move about the Site at all reasonable times for the purposes of, inter alia: inspecting records, operation logs, and contracts related to the work being performed pursuant to this Order; reviewing the progress in carrying out the terms of this Order; conducting such tests or collecting samples as Ecology or the project coordinator may deem necessary; using a camera, sound recording, or other documentary type equipment to record work done pursuant to this Order; and verifying the data submitted to Ecology by the Respondents. Prior to entering the Site, Ecology shall contact the Site Safety Officer to ensure that Ecology's presence at the Site will be consistent with the Health and Safety Plan. By signing this Agreed Order, the Respondents agree that this Order constitutes reasonable notice of access with regard to those properties over which the respective Respondents exercise dominion or control. As indicated by the attached Letter of Intent (Exhibit A, which is incorporated herein by reference), the City of Sunnyside has agreed to allow Ecology access to the Site at all reasonable times for purposes of overseeing work performed under this Order. Ecology shall allow split or replicate samples to be taken by the Respondents during an inspection unless doing so

interferes with Ecology's sampling. The Respondents shall allow split or replicate samples to be taken by Ecology.

7. Public Participation. Ecology shall maintain the responsibility for public participation at the Site. The Respondents shall help coordinate and implement public participation for the Site.

8. Retention of Records. The Respondents shall preserve in a readily retrievable fashion, during the pendency of this Order and for ten (10) years from the date of completion of the work performed pursuant to this Order, all records, reports, documents, and underlying data in their possession relevant to this Order. Should any portion of the work performed hereunder be undertaken through contractors or agents of the Respondents, then the Respondents agree to include in their contract with such contractors or agents a record retention requirement meeting the terms of this paragraph.

9. Dispute Resolution. The Respondents may request Ecology to resolve disputes which may arise during the implementation of this Order. Such requests shall be in writing and directed to the signatory to this Order. Ecology resolution of the dispute shall be binding and final. The Respondents are not relieved of any requirement of this Order during the pendency of the dispute and remain responsible for timely compliance with the terms of the Order unless otherwise provided by Ecology in writing.

10. Reservation of Rights/No Settlement. The Respondents reserve their rights against all persons and entities whether or not

party to this Agreed Order. By this Agreed Order and the actions taken pursuant to it, the Respondents do not admit, either collectively or individually, to any responsibility, liability, obligation or duty for conditions at the Site. This Order in no way obligates the Respondents collectively or individually to fund, participate in or otherwise contribute to any actions with respect to the Site other than as set forth in this Order, including the attached SOW.

This Agreed Order is not a settlement under ch. 70.105D RCW. Ecology's signature on this Order in no way constitutes a covenant not to sue or a compromise of any Ecology rights or authority. Ecology will not, however, bring an action against the Respondents to recover remedial action costs paid to and received by Ecology under this Agreed Order. In addition, Ecology will not take additional enforcement actions against the Respondents to require those remedial actions required by this Agreed Order, provided the Respondents comply with the Agreed Order.

Except as otherwise set forth herein, Ecology reserves the right, however, to require additional remedial actions at the Site should it deem such actions necessary. Ecology also reserves all rights regarding the injury to, destruction or, or loss of natural resources resulting from the releases or threatened releases of hazardous substances from the facility.

In the event Ecology determines that conditions at the Site are creating or have the potential to create a danger to the health or welfare of the people on the Site or in the surrounding area or to the environment, Ecology may order the Respondents to

stop further implementation of this Order for such period of time as needed to abate the danger.

Conversely, if the Respondents determine that conditions at the Site are creating or have the potential to create an immediate danger to the health and welfare of the people at the Site or in the surrounding area or to the environment, the Respondents have the right to cease activities at the Site without delay. The Respondents must inform Ecology of this decision within 12 hours from the time it was made. Ecology will evaluate the situation to determine the magnitude of the danger and whether or not a period of work stoppage is needed to abate the danger. Ecology will notify the Respondents when implementation of the Order shall be resumed.

11. Transference of Property. No voluntary or involuntary conveyance or relinquishment of title, easement, leasehold, or other interest in any portion of the Site shall be consummated by the Respondents without provision for continued implementation of all requirements of this Order and implementation of any remedial actions found to be necessary as a result of this Order.

Prior to transfer of any legal or equitable interest a Respondent may have in the Site or any portions thereof, the Respondent shall serve a copy of this Order upon any prospective purchaser, lessee, transferee, assignee, or other successor in such interest. At least thirty (30) days prior to finalization of any transfer, the Respondent shall notify Ecology of the contemplated transfer.

12. Compliance With Other Applicable Laws. All actions carried out by the Respondents pursuant to this Order shall be done in accordance with all applicable federal, state, and local requirements.

VI.

Satisfaction of This Order

The provisions of this Order shall be deemed satisfied when the Respondents have completed the remedial activity required by this Order, as amended by any agreed modifications.

VII.

Enforcement

1. Pursuant to RCW 70.105D.050, this Order may be enforced as follows:

   A. The Attorney General may bring an action to enforce this Order in a state or federal court.

   B. The Attorney General may seek, by filing an action, if necessary, to recover amounts spent by Ecology for oversight costs as defined herein and related to the SOW for the Site.

   C. In the event that a party to this Order refuses, without sufficient cause, to comply with any term of this Order, the party will be liable for:

      (1) up to three times the amount of any costs incurred by the state of Washington as a result of its refusal to comply; and

(2) civil penalties of up to $25,000 per day for each day it refuses to comply.

D. This Order is not appealable to the Washington Pollution Control Hearings Board. This order may be reviewed only as provided under Section 6 of ch. 70.105D RCW.

Effective date of this Order: MAY 21 1992

TIRE CENTERS, INC.

By Lary C. Howell
Pres

STATE OF WASHINGTON
DEPARTMENT OF ECOLOGY

By

TIME OIL CO.

By
Corporate Counsel

EXHIBIT A

ATTACHMENT II

STANDARD OPERATIONAL PROCEDURES - CONSTRUCTION EQUIPMENT

ATTACHMENT I

GELCO CONFINED SPACE ENTRY PERMIT

14.0 LOGS, REPORTS, AND RECORD KEEPING

The On-site Health and Safety Officer or the approved alternate will be responsible for on-site record keeping which will include - certificates of basic training, and medical surveillance, daily logs of workers and visitors present at the site, attendance lists for those attending site-specific safety sessions, accident reports, air monitoring results, and signatures of employees who have read the Health and Safety Plan.

All employees will sign the Health and Safety Plan Consent Form, which will be kept on site during work activities.

identified using an identification system or direct reading instruments. Once the material has been categorized, it will be placed in a suitable container by suitable means.

10.0 CONFINED SPACE ENTRY

No entry into confined spaces shall be permitted without the authorization of the Site Safety and Health Officer. Confined spaces shall be defined as areas which, by virtue of poor ventilation or poor access, would prevent rescue operations and contain potential hazard such as: mechanical, oxygen deficient, or enriched atmosphere, flammable/explosive atmosphere, or toxic atmosphere. A confined space may also be an excavation with depths greater than 4 feet where there exists the potential for the accumulation of gases.

Before entrance into a potential confined space, a confined space entry program shall be established with language consistent with the American National Standard for Confined Spaces (ANSI Z117.1-1989).

11.0 TRENCHING AND SHORING

Personnel entry into excavations which will create hazards with respect to collapse of dirt walls will be performed in accordance with Washington State. Trenching and Shoring requirements as detailed in WAC 296-155-650 through WAC 296-166-6650. Activities which are included in this section include sampling soil under the Manhole.

12.0 WELDING AND CUTTING PROCEDURES

Welding and cutting will not be performed.

13.0 TRAINING REQUIREMENTS

All personnel, including subcontractors, working within the Exclusion Zone and/or Decontamination Reduction Zones and as such, may be exposed to hazardous substances, health hazards, or safety hazards, shall have received a minimum of forty (40) hours of training for work on hazardous waste sites. Persons using Level B respiratory protective equipment shall receive 80 hours of training. Persons trained at the 40 or 80 hour levels shall have an annual 8 hour refresher. Supervisors shall receive an additional 8 hours of training.

Prior to start of work each day, the On-site Safety Officer or designee will discuss safety practices to be followed that day. These meetings will review the work to be accomplished, with an opportunity for questions to be asked.

Emergency Facilities and Numbers

The following information will be readily available at the site in a location known to all workers:

Hospital: Sunnyside Community Hospital
10th and Tacoma
Sunnyside, Washington
(206) 837-2101

Directions:

1. Proceed south on Sixth Street
2. Intersect and proceed east on Franklin
3. Hospital at intersection of Franklin and Tenth Street

Telephone: (206) 837-2101

Emergency Transportation (fire, police, ambulance): Fire and Emergency: 837-5000
Police:837-2000

Emergency Contacts:

National Response Center800-424-8802
EPA Region X (206) 553-1263
Center for Disease Control(404) 329-3311
(404) 329-3644

Medical Emergency(513) 421-3063

9.1.5 Emergency Decontamination

In the event that a seriously injured person is also heavily contaminated, loosely wrap the injured individual in clean plastic sheeting to prevent contamination of the inside of the vehicle.

Less severely injured individuals will have their protective clothing decontaminated and carefully cut off before transport to the hospital.

9.1.6 Follow-up and Evaluation

The On-Site Safety Officer will notify appropriate personnel as soon as possible after the emergency situation has been stabilized. If an individual is injured, the On-Site Safety Officer will file an Accident Report.

9.1.7 Spill Containment Program

In the event of a spill on-site the Emergency Coordinator will dispatch the cleanup team to don the appropriate PPE and respond to the situation. Steps will be taken to minimize travel of the contamination into other areas by use of spill containment dikes, berms, or absorbent pads. In the case of contaminated soils, effort will be made to contain the potential airborne dispersion of the toxic dusts through the user of appropriate covers. The material will then be

according to the instructions provided by the site safety officer.

7. The discovery of any condition that would suggest the existence of a situation more hazardous than anticipated should result in the evacuation of the field team and re-evaluation of the hazard and the level of protection required.

   The project manager should ensure that follow-up action is taken to correct the situation that caused the accident. An accident will be conducted by the site safety officer and kept on file.

9.1.4 Emergency Communications System

The following emergency communication systems should be followed:

1. Personnel on-site should use the "buddy system" (pairs). The team should prearrange hand signals or other emergency signals for communications in case of lack of radios or radio breakdown (see the following examples).

   - Hand gripping throat: Out of air can't breathe.
   - Gripping partner's wrist or placing both hands around waist: Leave area immediately, no debate.
   - Hands on top of head: Need assistance.
   - Thumbs up: I'm alright; I understand.
   - Thumbs down: No; negative.

2. Visual contact should be maintained between "pairs" on-site, with the team remaining in proximity to assist each other in case of emergencies.

3. When calling for help, give the following information:

- **Where** the emergency is - use cross streets or landmarks
- **Phone Number** you are calling from
- **What Happened** - type of injury
- **How Many** persons need help
- **What** is being done for the victim(s)
- **You Hang Up Last** - let the person you are calling hang up first

4. In addition, the Site Health and Safety Officer shall notify the appropriate owners Representative in any emergency situation.

9.0 EMERGENCY RESPONSE AND CONTINGENCY PLAN

9.1 Emergency Response

The purpose for this procedure is to define responsibilities and provide guidelines for emergency response in the event of a spill, a fire, or an accident (injury).

9.1.2 Emergency Organization

An Emergency Response Team will be designated for the site and will include members with training in: first aid, CPR, basic fire fighting techniques, and spill response. At least one person must be present who is trained in First Aid/CPR at all times.

An on-site supervisor, as represented by the Time Oil Co, shall be designated by the Site Health and Safety Officer as the Emergency Coordinator and will make all the decisions relative to the situation. The Emergency Coordinator will determine the need to contact appropriate agencies for assistance. In all emergency cases of fire, explosion, worker injury, or significant potential thereof, the emergency authorities listed in this plan will be contacted.

In cases where no immediate danger exists to personnel in contaminated areas, response personnel will wear at least that level of protective clothing which personnel in contaminated areas are required to wear. In a life threatening situation, lower levels of protection may be considered adequate for entry into potentially toxic environments.

In the event that an emergency develops on-site, the procedures delineated herein are to be immediately followed. Emergency conditions are considered to exist if any member of the field crew is involved in an accident or experiences any adverse exposure symptoms while on-site, or if a condition is discovered that suggests the existence of a situation more hazardous than anticipated.

9.1.3 Emergency Procedures

The following emergency procedures should be followed:

1. Air horn will signal an emergency by repeated short blasts.

2. All personnel will be accounted for at pre-designed areas.

3. Personnel will be accounted for at the pre-designed areas.

4. All personnel exiting the Exclusion Zone will proceed with all proper PPE decontamination procedures.

5. The Emergency Response Team will assess the nature of the emergency from an observation point near the edge of the exclusion zone.

6. In the event that any member of the field crew experiences any adverse exposure symptoms while on-site, the entire field crew should immediately halt work and act

contained contaminated soils before transportation.

8.1.3 Support Zone

The Support Zone consists of all uncontaminated areas where protective clothing and respirators are not required. Outside of the contamination reduction area, the support zone will be used to stage clean equipment, don protective clothing, take rest breaks, eat lunch, etc.

No contaminated equipment or personnel are allowed in this area.

8.2 Site Control

The site is delineated by yellow tape printed with "CAUTION DO NOT ENTER." A check-in and check-out system will be used so that there is control and a record of each employee and piece of equipment in each specific work area. The ultimate responsibility for the site security and control is assigned to the Health and Safety Officer. No visitors will be permitted at the site without the permission of the Health and Safety Officer.

8.2.1 Site Communications

Verbal communication will be established between the field personnel, the Site Safety Supervisor, and the field office to relay information in the event of any emergency.

A mobil phone will be in operation at all times during site activities.

8.2.2 Minimization of Contamination

Minimize personnel and equipment used in contaminated areas. Send only the required amounts of soil or water to laboratories for analysis. Do not kneel on contaminated ground, or perform any practice that increases the probability of hand-to-mouth transfer of contaminated materials (eating, drinking, chewing gum, smoking, or chewing tobacco). Use plastic drop cloths and equipment covers where appropriate.

8.2.3 Safety Equipment

Safety equipment that must be available on site at readily accessible locations include: a portable first aid kit, approved eyewash kit, stretcher, or blanket, clean water, paper cups, and 20 pound ABC fire extinguisher. Safety equipment will be located in the contamination reduction zone or support zone.

8.2.4 Smoking

Smoking will not be permitted on the site at any time.

8.2.5 Physical Hazard Control

A minimum distance of 20 feet will be maintained between overhead electric power lines and equipment such as drill rigs and backhoe buckets.

7.1.2 Equipment Decontamination

Non-disposable equipment will be decontaminated upon leaving the exclusion zones. All monitoring equipment will be cleaned at the decontamination facility. Every effort will be made to ensure sampling equipment does not become contaminated. Decontamination of sampling equipment will only occur when the equipment contacts contaminated surfaces.

When sampling equipment has been determined to be contaminated it will be decontaminated in TSP and water, rinsed in water, rinsed in distilled water, then isopropyl alcohol, n-hexane, air dried and rinsed again with distilled water. Equipment should be wrapped in foil prior to reuse. A mini decontamination must be available at the edge of the exclusion zone.

7.1.3 Heavy Equipment Decontamination

All vehicles which have entered the exclusion zone must be steam washed prior to leaving the site. The solution penetone shall be added to the water used in the steam cleaning operation to mobilize the contaminants from the equipment.

7.1.4 Disposal of Contaminated Materials

Place decontamination solutions and rinse water into labeled drums, and store on site pending testing and disposition per state Dangerous Waste Rules. Bags filled with used protective clothing will be discarded based on the test results obtained.

8.0 SITE CONTROL MEASURES

8.1 Exclusion Zones

Exclusion zones in the work areas will be established. Perimeter boundaries should be set up using warning tape, traffic cones, or other measures. Only persons authorized by the Health and Safety Officer will enter this area while work is being conducted there. At the start of work at each site, all personnel entering the Exclusion Zone will be required to wear appropriate protective clothing and respirators. Air monitoring shall be conducted to determine exposures. Once sufficient monitoring data has been collected, the level of PPE required in the Exclusion Zone for each job task may be upgraded or downgraded after review by the Health and Safety Officer.

Only those personnel who have attended hazardous waste and respirator training, and who are authorized to enter the Exclusion Zone, shall be permitted to do so. Personnel entering and existing the Exclusion Zone will be required to sign a "sign-in/sign-out" sheet.

8.1.2 Contamination Reduction Zone

A contamination reduction zone will be established outside the contaminated site areas to decontaminate equipment and personnel before leaving the site. Care will be taken to prevent the spread of contamination from this area. Drums are available to dispose of used protective clothing and decontamination fluids. A staging area will be established for the storage of

Excess exposure to noise could occur during these activities. Appropriate hearing protection (ear muffs or ear plugs) will be used if high noise levels are generated. Heavy equipment operators who have no hand contact with the contaminated material may wear leather gloves.

6.2.4 PPE Inspection, Maintenance, and Storage

All PPE shall be inspected and maintained to insure the integrity of the equipment and to assure that it is in good working order at all times. If the equipment is not in proper working order, it shall not be used and the problem shall be brought to the attention of the Site Safety and Health Officer. All PPE shall be stored in a clean, dry place in accordance with the manufacturers' suggestions.

6.2.5 Limitations During Temperature Extremes

All employees shall know of the dangers of working in a hot environment while using PPE and shall know the signs, symptoms, and treatment of heat-related disorders.

7.0 DECONTAMINATION PROGRAM

In order to assure that contaminated materials are not spread from the site, proper decontamination procedures will be employed for both equipment and personnel. Also, procedures for disposal of contaminated materials generated during the course of site operations and decontamination have been established.

When no protective clothing is specified, normal work clothing will be sufficient and no decontamination will be necessary. The protective clothing, gloves, boot covers, and respirator cartridges used during field activities will be discarded into plastic bags by personnel when existing an area deemed to be contaminated. These bags will be stored separately in drums marked with appropriate labels which identify the contents of the drums. After removal of disposable protective clothing, site personnel will undergo a two-stage decontamination of boots which will involve a detergent wash using scrub brush, followed by a spray water rinse. The liquid materials generated during this process will be poured into labels drums on a daily basis and held for storage as necessary.

7.1 Personnel Decontamination

Personnel with known or suspected contamination will decontaminate fully before eating lunch or leaving the site. Full decontamination procedures:

- Detergent wash (Alconox) and clean water rinse boots and outer gloves.
- Remove outer gloves and protective suit and deposit in labeled drum.
- Remove respirator cartridges (if end of day) and discard in plastic bag.
- Remove respirator, wash and rinse in separate buckets.
- Remove work boots and put on street shoes.
- Remove inner gloves and discard in plastic bag or drum.
- Wash hands and face; shower as soon after work shift as possible.

The Site Safety and Health Officer will oversee the repair of respiratory equipment and only those parts supplied by the manufacturer will be used to repair respirators. Only NIOSH approved respirators shall be used.

6.1.6 Respirator Storage

Respirators will be stored in plastic bags in a convenient, clean, and sanitary location. They will be protected against excessive heat or cold, dust, sunlight, moisture, and damaging chemicals. Care should be taken to assure that the face piece rests in a normal position.

6.1.7 Medical Considerations of Respirator Use

Respirators will be stored in plastic bags in a convenient, clean, and sanitary location.

6.2 Personal Protective Equipment (PPE) Program

6.2.1 Level B

Application: Where inhalation of contaminated material is probable due to obvious contamination or air monitoring results.

Wear pressure-demand, full face piece (SCBA or pressure-demand supplied-air respirator with escape SCBA, splash suits (if organic compounds are present), safety glasses, hard hart, chemically-resistant outer gloves, and chemically-resistant safety boots.

Excess exposure to noise could occur during these activities. Appropriate hearing protection (ear muffs or ear plugs) will be used if high noise levels are generated.

6.2.2 Level C

Application: Where skin contact with contaminated soil or water is probable, where inhalation of contaminated material is a possibility from visible dust emissions from site activity or wind, or if photoionization measurements greater than action levels int he breathing zone of site workers.

Wear full-face air purifying respirator equipped with combination organic vapor and HEPA cartridges, hard hats, chemically-resistant outer gloves, chemically-resistant safety boots, and splash suits.

Excess exposure to noise could occur during these activities. Appropriate hearing protection (ear muffs or ear plugs) will be used if high noise levels are generated.

6.2.3 Level D

Application: Where only skin contact with contaminated soil or water is probable.

Wear hard hats, safety glasses, chemically-resistant outer gloves, chemically resistant safety boots, and splash suits.

6.0 PERSONNEL PROTECTION

The required level of protection will be determined by the air monitoring results. Air monitoring will be conducted continuously during sampling. Level D personnel protective equipment (hard hats) will be worn at all times. Upgrading to level C (addition of Tyvek protective clothing, gloves, and respirators) will be required if air monitoring indicates results of above the action levels found in Section 4.0.

6.1 Respirator Program

6.1.1 Program Administrator

Each contractor designated health and safety officer will act as the On-site Program Administrator for the Respirator Protection Program.

6.1.2 Respirator Selection and Use

The Site Safety and Health Officer will specify the need for respiratory protection. The specification will be made on the basis of observed site conditions, observed soil or groundwater conditions, and ambient air monitoring. Additional guidance to determine respirator selection are found in Attachment III and the air monitoring action levels found in Section 4.

6.1.3 Respirator Training

Individual contractors will be responsible for assuring that all personnel are trained in the proper selection, use, and maintenance of their equipment. Training records will be kept by each contractor's Safety and Health Officer. Training will include the following topics:

6.1.4 Respirator Fit Testing

Respirator fit testing will be conducted to determine the equipment's suitability to the individual wearer. A positive/negative fit test will be conducted each time the respirator is donned. Personnel will be trained in the proper techniques to conduct this test.

An irritant smoke test will also be conducted on individuals by the Site Safety and Health Officer prior to wearing the respirator according to the protocol established in the Lead Health and Safety Standards of OSHA and WISHA.

6.1.5 Respirator Inspection

All equipment must be inspected before and after use of the user according to the procedures outlined during training. Additionally, the Site Safety and Health Officer will periodically inspect the equipment to verify its condition for use. Self-Contained breathing apparatus will be inspected by the Site Safety Officer monthly or after each use, whichever is more frequent. Records will be made of these inspections and kept on-site. All respirators will be cleaned and disinfected at the personnel decontamination area. It is the responsibility of the individual employee to clean and disinfect the equipment. Each employee will receive a respirator for their exclusive use and care.

5.0 MEDICAL SURVEILLANCE PROGRAM

A Medical Surveillance Program shall be instituted for all employees who are or may be exposed to hazardous substances, without regard to respiratory protection, at or above the established permissible or published exposure limits. In addition, any employee who is required to wear a negative pressure respirator shall be covered under the medical surveillance program. The following types of medical testing shall be conducted:

- Baseline testing prior to job assignment where employee shall be working at a hazardous waste site or site containing hazardous materials. The baseline testing shall consist of medical history questionnaire, a physical examination, a complete blood count, a blood chemistry panel, blood lead and ZPP (for lead), a urinalysis, and audiogram, and a pulmonary function test.

- Annual checkups for those routinely exposed to hazardous materials. More frequent testing shall be conducted if so determined by the examining physician.

- Additional medical testing in the event of an overexposure or change in the physical condition of an employee which may increase the risk of adverse health effects. Employees may bring to their employer's attention any changes in the work place or physical conditions and request additional medical testing. The appropriateness of medical testing will be determined by the individual parties in conjunction with the examining occupational physician.

- Medical testing at the time of termination of employment or reassignment of job function to an area where medical surveillance is not required, to detect any medical conditions which may have arisen since the baseline testing.

Physician guidelines as provided by WAC 296-62-3050, as applicable, shall be followed. Specific content of medical examinations will be determined within guidelines specified in 29 CFR 1910.120 by the examining physician. Employees will undergo examinations performed by physicians trained in occupational medicine.

All medical records will be retained by the respective contractors during the employees tenure and for a period of thirty (30) years after termination of employment. Medical records will be kept confidential. An employee may review his/her medical file upon request. A record of occupational injuries or illness will be maintained by the respective contractors. The Medical Surveillance Program will be reviewed periodically by the Certified Industrial Hygienist to ensure its effectiveness.

4.5 ACTIONS LEVELS - IN WORKER BREATHING SPACE

4.5.1 Photoionization Detector Readings

TIP reading	Level of Protection
Sustained for >1 minute	Implement colorimetric indicator tube screening 0 to 10 ppm protocol
Sustained for >1 minute	Call the On-site Safety Officer 20 ppm to 30 ppm

4.5.2 Combustible Gas Monitoring Readings

Reading	Level of Protection
Greater than 10% LEL	Suspend all spark producing activities

4.5.3 Colorimetric Indicator Tube Readings (Benzene)

Breathing Zone Reading	Level of Protection
<1 ppm required	No respiratory protective equipment
>1 ppm	Use NIOSH approved supplied-air respirators and Sample with charcoal tubes or passive dosimeter for benzene

4.5.4 Oxygen Meter Reading

>19.5% oxygen	No action necessary
<19.5% oxygen	Use NIOSH approved supplied-air respirator No entry into confined areas Departure of personnel from the work area

4.1 Employee Air Monitoring

Exposures of employees to airborne contaminants will be measured on a daily basis, using the methods outlined in Section 4.2 and 4.3. The worker which exhibits intimate contact with the hazards will be closely monitored to assure that engineering controls and personal protection have been correctly selected and used. Monitoring shall be conducted periodically when:

- Work begins on a different portion of the site
- A different type of operation is initiated
- Compounds, other than those previously identified, have been encountered

If monitoring results are found to be within the acceptable limits, as outlined in the Action Levels section, the frequency of subsequent samples may be modified by the Site Safety Officer.

PEL sampling is conducted using appropriate sampling media placed in the breathing zone of the worker. This method require laboratory analysis for exposure determination. Samples are to be analyzed by a Washington State Department of Ecology (WDOE) accredited laboratory.

4.2 Perimeter Air Monitoring

Perimeter air monitoring will be conducted before, during, and after operations at the work site to ensure that air contaminants are not released from the Exclusion Zone in significant concentrations during operations. Monitoring locations shall be established on the Exclusion Zone boundaries at the north, south, east, and west sides (approximately). This will ensure that the samples will be collected both upwind and downwind of the operations at all times. Approximate wind speed and direction from the site will be recorded in the field notebook. Perimeter air monitoring shall be conducted using real time monitoring devices to indicate the presence of any peaks. Indications of needle deflections as established in the action level tables will necessitate additional sampling.

4.3 Sampling and Analytical Methodology

Colorimetric tubes for the indicator compound benzene and gasoline will be utilized for determination of possible fugitive emissions. Equipment manufactures operation and recommendations will be followed.

4.4 Calibration Methods

The Photoionization Tip shall be calibrated to 100 ppm isobutylene daily prior to and upon completion of work and is maintained on an as needed basis. Calibration procedures are included in the unit's instruction manual and should be followed. We have chosen the Photoionization detector due to the fact that the quality of the output is very good. We have not found typical high humidity to be a factor of interference for the photoionization detector in the summer and early fall months, therefore we recommend its use.

The MSA 261 is calibrated daily with ambient oxygen and a source of combustible gas according to the manufacturer's directions. Records of calibration shall remain on-site.

degree of vigilance while moving about the site.

Equipment operators must have safety training and experience operating the equipment which they are required to use at the site and must be cognizant of the persons working around them. Equipment will be operated in compliance with the OSHA Construction Standards. All persons operating open cab heavy construction equipment must wear hearing protection. Persons working around equipment must be cognizant at all times of where the equipment is operating. Make eye contact with the operator before approaching the equipment in operation.

All Washington State Administrative Codes shall be followed as reflected in WAC 296-155, Safety Standards for Construction Work. Attachment II contains procedures for workers to follow when working in situations with the potential hazards found on-site.

3.7 Heat/Cold Stress Monitoring Program

Use of impermeable clothing such as Tyvek reduces the body's ability to utilize evaporative cooling. This may lead to heat stress. In order to minimize the effects of heat stress, appropriate work-rest cycles will be followed and water or electrolyte-rich fluids (Gatorade or equivalent) provided. Also, when temperatures exceed 70 degrees, monitoring of heart rates will be conducted, as detailed below. Due to the time of year which this work is being performed, cold stress is not anticipated to be an issue.

Each employee will check his or her own pulse rate hourly and at the beginning of each break period. Take the pulse at the wrist for 30 seconds. If the pulse rate exceeds 110 beats per minute (55 beats per 30 seconds) then reduce the work period by one-third.

Example: After an employee has worked an hour at 70°F, he checks his pulse rate. If he has a pulse rate exceeding 110 beats per minute, then he must shorten the work period by one-third. If the original time from start of work to first break was 2.5 hours, then the new work period becomes 1 hour, 40 minutes. Since one hour has already been worked, the next break will be taken in 40 minutes.

Any team member who persistently experiences symptoms of heat stress, or whose symptoms get worse, will be required to exit the Exclusion and Contamination Reduction Zones and take an extended break. Should symptoms continue to persist, the worker will be required to seek medical attention.

Good personal hygiene practices will be maintained at all times including daily showers, use of clean, dry clothes, washing before meals, etc. Any employee that notices a skin problem (i.e., rash, sores, blistering, etc.) will report it immediately to the industrial hygienist.

4.0 AIR MONITORING PLAN

Air monitoring and visual observations of the site are required to determine the effectiveness of engineering controls, to re-evaluate levels of protection and determine if site conditions have changed. Specific monitoring locations and frequencies are given below.

warning properties to indicate exposures below this range.

3.4.1 Evaluation and Control

Periodic monitoring of benzene concentrations using photoionization device will be conducted, if necessary, as directed by the Site Safety and Health Officer. Section 4.0 details exposure monitoring and action levels.

All workers involved in these actions will also supply personnel benzene expose devices and supply the analytical results prior to compensation for their services.

3.5 Potential for Lead Exposure

Tetraethyl lead is an anti-knock additive used in gasoline. It is possible that some of the petroleum products contained in the Manhole contain traces of tetraethyl lead.

Lead, especially in organic form such as tetraethyl lead, is toxic to numerous body systems. It interferes with hemoglobin synthesis in the blood, affects the peripheral nervous system, can damage the kidneys, and affects the digestive system. Lead potentially causes damage to the cardiovascular system, and affects reproductive function in both men and women.

In very high concentrations, lead poisoning can cause stomach pain, weakness, blue lines on the gums, wrist drop (a kind of paralysis), tremors, convulsions, and kidney failure. Symptoms of exposure associated with early stages of lead poisoning can cause headaches, fatigue, irritability, twitches, nervousness, sleeplessness, pains in the joints, aching muscles, poor appetite, stomach pains, constipation, and high blood pressure.

The State of Washington has established WAC 296-62-07521, which applies to all occupational exposures to lead except in the Construction Industry and Agricultural operations. It requires the employer to monitor airborne levels of lead to determine applicability of the standard. We believe that the State of Washington is likely to treat activities at this time as not construction related.

In Washington State, the permissible exposure limit for lead is 0.05 mg/m^3. The Action Level, or the concentration of airborne lead above which the employer is required to comply with WAC 296-62-07521 is 0.03 mg/m^3.

3.5.1 Evaluation and Control

As no internal services are required during this phase of the operation, lead will not be monitored.

3.6 Potential Physical Hazards

Hazardous waste site activities present a number of routine physical hazards, including danger from construction vehicles, noise, tripping and other safety hazards. Construction activities which present typical safety hazards include crane safety, avoidance of underground utilities, trenching and shoring, etc. In order to minimize these hazards, site workers must keep a high

3.3 Potential for Gasoline and Related Petroleum Product Exposure

Evaporation of gasoline, kerosene, and related petroleum products can create concern for inhalation of aromatics (xylene, ethylbenzene, toluene, and benzene), paraffins, cycloparaffins (all components of fuel oil), and other compounds. All the above materials also represent possible hazard from skin contact.

Work practices which would create a potential risk include handling the manhole contents during sampling, voiding and/or cleaning as well as handling equipment which has been emersed in the manhole fluids.

3.3.1 Evaluation and Control

Ventilation shall be conducted to insure that any potential exposures to components of petroleum products are below Washington PELs. If necessary, continuous monitoring with the portable continuous photoionization analyzer (TIP2, MICROTIP, or equivalent) will be conducted by the Site Safety and Health Officer. The TIP2 or MICROTIP is sensitive to compounds with molecular ionization potentials below 10.6 and will therefore indicate the presence of many of the petroleum compounds present. Use of this instrument may be limited by ambient humidity conditions. Since the time of the year anticipated for this work is during sunny weather conditions, this may not be a factor.

Colorimetric indicator tubes and active or passive sampling on charcoal with appropriate laboratory analysis may be used to supplement this monitoring at the discretion of the Site Safety and Health Officer.

In order to prevent skin contact, gloves which resist solvent penetration and appropriate protective clothing will be used when conditions indicate the potential for contact to occur.

The materials indicated also present a hazard through ingestion. No eating or drinking in the work areas will be permitted.

If necessary to reduce airborne exposures to dusts or vapors, the Site Health and Safety Control Officer will require the use of brush fans or respirators.

3.4 Potential for Benzene Exposure

Of all the toxic substances mentioned, benzene is one of the substances of greatest concern because of the low permissible exposure level. Typical sources of benzene are petroleum products such as gasoline products. The Washington Department of Labor and Industries (WISHA) has set a 1 ppm 8 hour Time Weighted Average (TWA) with a 5 ppm short term Permissible Exposure Limit (PEL).

Acute effects from benzene exposure are generally seen at concentrations above 5,000 ppm. Chronic exposures to approximately 10 ppm have been associated with an increased risk for leukemia, a cancer of the bone marrow; benzene therefore is considered a confirmed human carcinogen. No noticeable acute health effects occur at 10 ppm and the odor threshold for benzene is variable, but typically thought to be approximately 30 ppm. Therefore there are no

State Administrative Codes shall be followed as reflected in WAC 296-155, Safety Standards for Construction Work.

3.1 Potential For Fire and Combustible Gas Ignition

There is a serious potential for fire and volatile gas ignition within the Manholes (manholes).

3.1.1 Evaluation and Control

The area will be completely secure from all vehicular and pedestrian traffic during all operation at the Mhs. All mechanical equipment will be located at least 25 feet (ft) from the manhole during site operations.

Prior to the removal of the flammable contents within manholes, each manhole will be rendered inert with nitrogen or carbon dioxide and certified gas-free by an on-site marine chemist. The vacuum truck, as well as all other potential electrical spark generators will be located up wind of the site and all grounding procedure will be enforced during the evacuation of the manholes.

Monitoring of combustible gases within the manhole by the Site Safety and Health Officer using an MSA Model 261 or equivalent combustible gas monitor will occur prior to and continuously during work activities which could generate sparks. No open fires or smoking will be permitted during activities at the manholes. As required, NO SMOKING signs will be posted. The local COS Fire Department will be on-site for immediate access if needed.

3.2 Potential For Oxygen Deficiency and/or Asphyxiation Gases

Nitrogen is a potential asphyxiant. The asphyxiant hazard results from the simple displacement of oxygen. Rendering the atmosphere within manholes inert with nitrogen creates an environment lacking in oxygen; thus creating an environment which will not support combustion or breathing. No air purifying respiratory protection will protect against the lack of oxygen, since an air-purifying respirator cannot provide oxygen.

3.2.1 Evaluation and Control

No entry of personnel into the manholes will be required during the emergency response actions or during the internal inspection of the 12 inch diameter sewer line which will be by remote camera. If required during remedial construction activities, confined space entry will be permitted with the approval of the Site Safety and Health Officer and in accordance with the conditions as stipulated in the supplied GELCO Confined Space Entry Permit (Attachment I).

Monitoring of oxygen levels by the Site Safety and Health Officer using an MSA Model 261 or equivalent oxygen and combustible gas monitor will occur prior to entry into an area where a potential for an oxygen deficiency atmosphere exists. Levels below 19.5% will be considered oxygen deficient. Ventilation to provide an oxygenated atmosphere will be undertaken if an oxygen deficient atmosphere is detected. (See Section 4.0, Exposure Monitoring and Action Levels.)

2.0 STAFF ORGANIZATION AND RESPONSIBILITIES

The following sections describe the personnel who will be directly involved in the project and their responsibilities and authority with respect to enforcing site safety.

2.1 Program Safety and Health Coordinator (Name) _____

- Develop and coordinate site Health and Safety Plan.
- Communicate requirements to Site Safety and Health Officer.
- Respond to field requests for assistance in Health and Safety.
- Determine appropriate monitoring if necessary so that employees are not exposed to levels which exceed established Permissible Exposure Limits for hazardous substances.
- Provide site workers with information and training as required in WAC 296-62-054, Part C, Hazard Communication.
- Provide oversight of this Site-specific Health and Safety Plan.

2.2 Site Safety and Health Officer (Name) Kimberly A.L. Fenske

- Implement and enforce Health and Safety Plan and Work Plan activities in the field.
- Monitor site conditions during work activities where hazardous gases may be present.
- Record all gas monitoring analyses.
- Record any variances in conditions.
- Record any illness, disease, injury, pulmonary disorder, or death to any person on the site.
- Consult with Program Health and Safety Coordinator regarding new or unanticipated site conditions.

2.3 Site Workers, Subcontractors, and Observers

- Read and follow the Health and Safety plan and all applicable site specific Health and Safety standard operating procedures.
- Check all personal safety equipment to insure it is in good working condition prior to engaging in work activities.
- Report any accidents/illness, unsafe conditions, any unusual situations to the Site Safety and Health Officer.

3.0 HAZARD EVALUATION AND RISK ANALYSIS

The possibility of health and safety hazards due to fire and combustible gas ignition, oxygen deficiency, and airborne toxic substances exists. Skin contact with product should be avoided because certain materials may be absorbed through the skin.

Emergency response actions and the subsequent remedial construction activities present typical safety hazards which include removal of ignitable liquids from confined spaces, equipment safety, avoidance of underground utilities, remote operations of electrical equipment within a oxygen deficient atmosphere, trenching and shoring, the use of hard hats, etc. All Washington

1.1.2 Explosive Vapor Control

Prior to operations at manhole 34, a marine chemist will render manhole 34 inert by displacement of oxygen with nitrogen. An inert atmosphere will be certified by a on-site marine chemist.

1.1.3 Free Product Removal Operations

Burlington Environmental, Inc. will be contracted to provide for the removal, transportation, and final disposal of all fluids from within manhole 34. A 5000 gallon, Department of Transportation, hazardous waste carrier will be on-site during all activities. This approach will allow for the removal of petroleum products, as well as wastewater which may contain petroleum hydrocarbons, from within the manhole and provide for proper disposal as required by the Washington State Department of Ecology.

1.1.4 Location and Excavation of Manhole 37

Leingang Excavating, Inc., will be contracted to provide construction expertise as required for the location and access to manhole 37. Manhole 37 is presently unaccounted for. Demolition of road pavement and access to manhole 37 will allow for the inspection of the 12 inch diameter line which connects manhole 34 and 37; this section of line is located within the product plume at the site.

Upon recovery of manhole 37 and the removal of it's lid, the manhole will be ventilated and then rendered inert by the on-site marine chemist.

1.1.5 Internal Inspection by Remote Camera

In order to assesses the internal integrity and configuration of the 12 inch sewer line which is located between manhole 34 and 37, a remote television camera will be operated by GELCO, Inc. GELCO on-site members include Steven Jenkins, Steven Jacobsen (Foreman), and Bret Celigoy. The camera will operate within the inert atmosphere and be passed from manhole 37 to 34 or vise versa. No entry by personnel into either manhole will be required to complete this operation. A line "pig" will be passed through the line prior to the camera unit, in order to ensure passage of the unit and to provide for a "clean," recordable, run of the unit.

Upon completion of all inspection activities, and upon data validation, manhole 37 will be reconstructed to grade. Data gathered by the completion of the internal inspection will lead to an engineering solution for the cessation of product accumulation within manhole 34.

1.0 INTRODUCTION

This combined Work Plan and Health and Safety Plan applies to personnel attached to the following entities and associated with the following activities: GELCO, K. Leingang Excavating, Inc., Burlington Environmental, Inc., Shannon and Wilson, Inc., their individual subcontractors, and other on-site personnel. The plan has been prepared for the Time Oil Co and Tire Centers, Inc. emergency response actions at Manhole 34 and 37 located in Sunnyside, Washington.

Health and safety requirements are based on information known at the time of preparation and are subject to change via formal modification as conditions change. Any questions about the applicability of this plan should be addressed to Shannon and Wilson, Inc., 400 N. 34th Street, Suite 100. P.O. Box 300303, Seattle, WA 98103 (206) 632-8020. Responsibility for enforcement of this plan rests with the Shannon and Wilson, Inc.'s on-site personnel (as prime contractor). Shannon & Wilson, Inc.'s personnel on-site include Robert Colombo, Kimberly Fenske, and Shawn Williams.

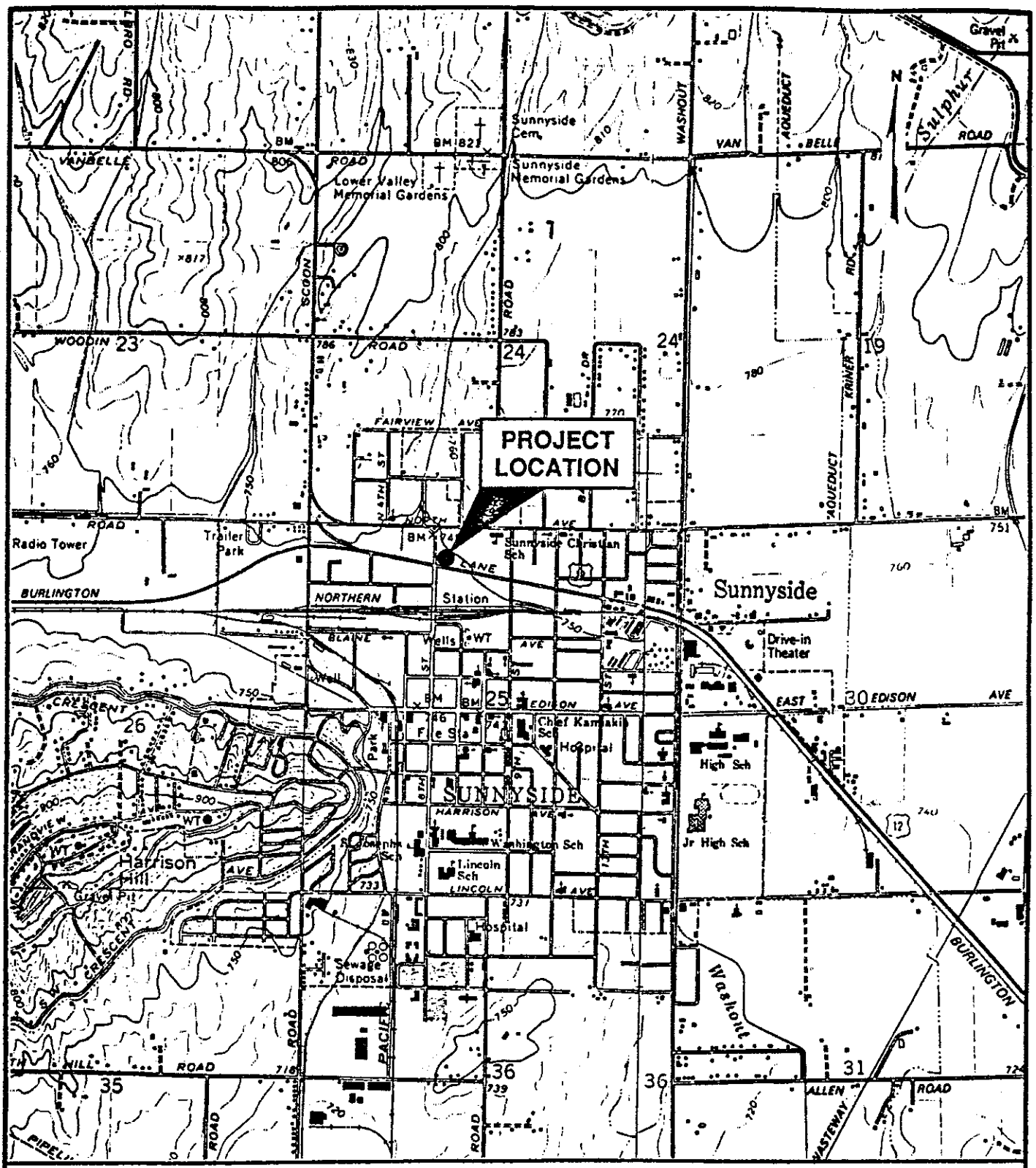
This project control document has been prepared to establish safe procedures and practices in accordance with OSHA's Safety and Health Standard 29 CFR 1910.120 for personnel engaged in hazardous waste mitigation at manhole 34 and 37 in Sunnyside, Washington.

As part of this document, each of the previously cited sub-contractors will supply their company's health and safety documentation which will be in support of this document.

1.1 Site Description, Characterization, and Order of Events

The site is located at 600 Yakima Valley Highway in Sunnyside, Washington. The site is illustrated in Figure 1, attached. This portion of the project is part of an on going investigation at the Time Oil Co and adjacent Tire Centers site. This portion of the project will concern itself with the accumulation of gasoline, as free phase separated product, in the City of Sunnyside storm sewerage system and in particular at the location denoted as Manhole 34 and it's services northward from the site. Manhole 34 is located to the southwest of the site on the east side of Sixth Street in Sunnyside, WA.

A subsurface product plume comprised of petroleum products has been documented in the area of manhole 34 and 37.



NOTE

Map adapted from USGS Sunnyside and Grandview Quadrangles, dated 1965 and 1978.

Time Oil Clean-up
600 Yakima Valley Highway No. 83
Sunnyside, Washington

VICINITY MAP
JACK-POT FOOD MART 01-069

February 1992 T-1259-01

SHANNON & WILSON, INC.
Geotechnical Consultants

FIG. 1

APPROVALS

SITE NAME: Manhole 34, Sunnyside, Washington

Shannon & Wilson, INC.:

Project Manager Robert Colombo, P.G.	206-632-8020 Phone	5-18-92 Date
Corporate Health and Safety Manager Frank W. Pita, PE, PG	206-632-8020 Phone	5-18-92 Date
Site Safety Officer Kimber A. L. Fenske	206-632-8020 Phone	5-18-92 Date

PLAN PREPARED BY: Robert Colombo

SUBCONSULTANT ON SITE:

DRAFT 01 - 05/08/92

WORK PLAN AND SITE SAFETY PLAN

FOR

EMERGENCY ACTIVITIES

AT

SUNNYSIDE WASHINGTON MANHOLE 34

by

SHANNON & WILSON, INC.
400 N. 34th STREET, SUITE 100
P.O. BOX C-30313
SEATTLE, WASHINGTON 98103

MAY 1992

DRAFT
SUBJECT TO REVISION
DATE: 5-18-92

TABLE OF CONTENTS

(Table of Contents Cont.)

(Table of Contents Cont.)

EXHIBIT B

CITY OF SUNNYSIDE

818 E. EDISON AVE. SUNNYSIDE, WASHINGTON 98944

Sunnyside, Washington

City Manager	837-3997
City Attorney	837-26
City Clerk	837-378
City Treas.	837-3782
Public Works	837-5206
Bldg. Inspector	837-4229
Fire Dept	837-3999
Police Dept.	837-2120
Recreation Dept.	837-8660

May 18, 1992

Tire Centers, Inc.
c/o Larry Howell
216 S. 2nd Avenue
Yakima, Washington 98902

Time Oil Company
c/o Fred Proby
2737 W. Commodore Way
Seattle, Washington 98903-1164

Re: City of Sunnyside/MTCA Site "Manhole 34"

Gentlemen:

Time Oil Company and Tire Centers, Inc., have entered into an agreement and agreed order to perform certain work described as "Work Plan and Site Safety Plan for Emergency Activities at Sunnyside, Washington, Manhole 34" as referred in the parties agreement and agreed order.

The City of Sunnyside will permit access to said work site in accordance with state law and municipal ordinances, and will also allow the Department of Ecology of the State of Washington access to the site at all reasonable times for purposes of overseeing work performed under the agreed order.

The City of Sunnyside will also perform necessary work to bring Manhole 37 up to grade at the conclusion of the work at the site. The City of Sunnyside will also provide necessary fire and safety personnel deemed appropriate to enable the contractors performing the scope of work to complete said work pursuant to the agreed order, being Phase I, to be completed May 20, 1992. MAK

Very truly yours,

Mark A. Kunkler,
Sunnyside City Attorney

MAK/je

Attachment V
Safety Standard Operating Procedures

The purpose of the Site Safety Standard Operating Procedures is to minimize potential safety hazards, provide a safe work place, and prevent accidents to personnel on site. Site Safety Standard Operating Procedures are implemented to control the activity of people and actual remediation, and includes mobilization, site preparation, operation closure, and demobilization. The following is a list of the general site rules. It is the responsibility of every person entering the work site to understand and abide by these rules.

1. Violation of any safety procedure or rule is grounds for immediate termination.

2. Horseplay will not be tolerated at any level.

3. Smoking, eating, chewing, and drinking will be allowed only in designated areas.

4. All lighters, matches, or spark-causing instruments will be left at the main job trailer, or in the designated smoking areas.

5. No firearms, alcohol, drugs, or explosives will be allowed on the site.

6. Loud playing of radios, cassettes, or stereos is forbidden.

7. All persons will sign at the job trailer upon entering the work site, and will sign out upon leaving.

8. The maximum speed limit at the work site is 20 mph. This will be enforced 24 hours a day and applies to all areas of the work site. Use of seat belts is mandatory.

9. Personnel entering the work zone area are required to wear a hard plastic hat. A safety chin strap must be attached to the hard hat in the Exclusion Zones and in the drum cleaning area. The hard hat must meet OSHA standards. Safety glasses are also required, and must include plastic shields to prevent foreign objects from striking the eye. Persons wearing prescription glasses will wear goggles or prescription safety glasses with side shields. Footwear will be steel-toed, leather, or rubber boots. Boots will be high enough to at least cover the ankle. It may be required during specific tasks that hand protection be worn. For this reason all personnel must have a pair of leather work gloves with them at all times. In certain locations, special protective clothing will be specified. Where this occurs, strict conformance to the rules will be required.

10. Equipment will be operated ONLY by persons properly trained and tested by company management.

11. Manual labor and equipment operation will be performed only during daylight hours, except under emergency conditions, under the direction of the Project Manager.

STANDARD OPERATING PROCEDURES
GENERAL SITE PREPARATION

Purpose

The purpose of this procedure is to provide guidelines in effort spent in preparing a site for the cleanup activity to ensure that response operations go smoothly and that worker safety is protected.

Responsibilities

Construct roadways to provide ease of access and a sound roadbed for heavy equipment and vehicles.

Arrange traffic flow patterns to ensure safe and efficient operations.

Eliminate physical hazards from the work area as much as possible, including:

- Ignition sources in flammable areas.
- Debris, holes, loose steps or flooring, protruding objects, slippery services which can cause falls, slips, and trips.
- Construct operation pads for mobile facilities and temporary structures.
- Construct processing and staging areas, and decontamination pads.
- Install all wiring and electrical equipment in accordance with the National Electrical Code.
- Relocate/reroute overhead phone lines.

STANDARD OPERATI[illegible] PROCEDURES
CONSTRUCTION DEC[illegible]TAMINATION AREA

Purpose

The purpose of this procedure is to provide guidelines for construction of decontamination area (see attached Decontamination Area Layout).

Definition of Decontamination Area (Typical)

- To provide area for personnel to remove and decontaminate personal protective equipment.
- To provide a safe wash area.
- To allow for a safe rest area during work hours adjacent to (and outside of) the Exclusion Zone.
- To provide an area to temporarily store clean (decontaminated) PPE equipment.

Site Area Preparation

- Grade a safe and level area free of all debris.
- Install an emergency shower and eye wash with a water line from a potable water supply (see attached Decontamination Area Layout).
- The base of the decontamination area will contain a catchment basin constructed of PCV-coated high tenacity polyester material.
- Construct shelves and racks for temporary storage of personal protective equipment.
- Construct a drinking water/shade and rest area (i.e., with tables, chairs).

STANDARD OPER NG PROCEDURES
LOADER/BACKHOE

Working with tools and heavy equipment is a major hazard at sites. Injuries can result from equipment hitting or running over personnel, impacts from flying objects, burns from hot objects, and damage to protective equipment such as supplied-air respirator systems. The following precautions will help preclude injuries due to such hazards:

- Train personnel in proper operating procedures.
- Install adequate on-site roads, signs, lights, and devices.
- Install appropriate equipment guards and engineering controls on tools and equipment. These include rollover protective structures, seat belts, emergency shutoff in case of rollover, and backup warning lights and signals.
- Provide equipment such as cranes, derricks, and power shovels with signs saying "Unlawful to operate this equipment within 10 feet of all power lines."
- Use equipment and tools that are intrinsically safe and not capable of sparking, and pneumatically and hydraulically driven equipment.
- When operating hydraulic tools, use fire-resistant fluid that is capable of retaining its operating characteristics at the most extreme temperatures.
- At the start of each workday, inspect brakes, hydraulic lines, light signals, fire extinguishers, fluid levels, steering, and splash protection.
- Keep all non-essential people out of the work area.
- Prohibit loose fitting clothing or loose long hair around the moving machinery.
- Keep cabs free of all non-essential items and secure all loose items.
- Do *not* exceed the rated load capacity of a vehicle

STANDARD OPERATING PROCEDURES
BULLDOZER

Working with tools and heavy equipment is a major hazard at sites. Injuries can result from equipment hitting or running over personnel, impacts from flying objects, burns from hot objects, and damage to protective equipment such as supplied-air respirator systems. The following precautions will help preclude injuries due to such hazards:

- Train personnel in proper operating procedures.
- Install adequate on-site roads, signs, lights, and devices.
- Install appropriate equipment guards and engineering controls on tools and equipment. These include rollover protective structures, seat belts, emergency shutoff in case of rollover, and backup warning lights and signals.
- Provide equipment such as cranes, derricks, and power shovels with signs saying "Unlawful to operate this equipment within 10 feet of all power lines."
- Use equipment and tools that are intrinsically safe and not capable of sparking, and pneumatically and hydraulically driven equipment.
- When operating hydraulic tools, use fire-resistant fluid that is capable of retaining its operating characteristics at the most extreme temperatures.
- At the start of each workday, inspect brakes, hydraulic lines, light signals, fire extinguishers, fluid levels, steering, and splash protection.
- Keep all non-essential people out of the work area.
- Prohibit loose fitting clothing or loose long hair around the moving machinery.
- Keep cabs free of all non-essential items and secure all loose items.
- Do *not* exceed the rated load capacity of a vehicle.

STANDARD OPERATING PROCEDURES
CRANES

Working with tools and heavy equipment is a major hazard at sites. Injuries can result from equipment hitting or running over personnel, impacts from flying objects, burns from hot objects, and damage to protective equipment such as supplied-air respirator systems. The following precautions will help preclude injuries due to such hazards:

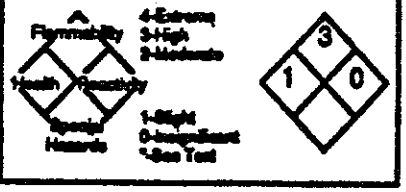
- Train personnel in proper operating procedures.
- Install adequate on-site roads, signs, lights, and devices.
- Install appropriate equipment guards and engineering controls on tools and equipment. These include rollover protective structures, seat belts, emergency shutoff in case of rollover, and backup warning lights and signals.
- Provide equipment such as cranes, derricks, and power shovels with signs saying "Unlawful to operate this equipment within 10 feet of all power lines."
- Use equipment and tools that are intrinsically safe and not capable of sparking, and pneumatically and hydraulically driven equipment.
- When operating hydraulic tools, use fire-resistant fluid that is capable of retaining its operating characteristics at the most extreme temperatures.
- At the start of each workday, inspect brakes, hydraulic lines, light signals, fire extinguishers, fluid levels, steering, and splash protection.
- Keep all non-essential people out of the work area.
- Prohibit loose fitting clothing or loose long hair around the moving machinery.
- Keep cabs free of all non-essential items and secure all loose items.
- Do *not* exceed the rated load capacity of a vehicle.

ATTACHMENT III

MATERIAL SAFETY DATA SHEETS

BP OIL

MATERIAL SAFETY DATA SHEET

24-HOUR EMERGENCY ASSISTANCE	GENERAL ASSISTANCE	NFPA FIRE HAZARD SYMBOL*
BP America (In Ohio): 800-362-8059 (Outside Ohio): 800-321-8642 CHEMTREC Assist: 800-424-9300	216-441-8124	
MSDS Number > 3699		

MANUFACTURER/SUPPLIER: BP Oil Company
ADDRESS: 200 Public Square, Cleveland, OH 44114-2375

PRODUCT IDENTIFICATION

TRADE NAME:

GASOLINE, PREMIUM UNLEADED, BLENDED, UNBRANDED

CAS NUMBER:	MIXTURE
SYNONYM(S):	GASOLINE/BLENDED; MOTOR FUEL
CHEMICAL FAMILY:	HYDROCARBON AND ALCOHOL
MOLECULAR FORMULA:	MIXTURE
MOLECULAR WEIGHT:	MIXTURE
PRODUCT CODE:	NA **HIERARCHY:** NA

PRODUCT HAZARD SUMMARY

HEALTH

DANGER!
HARMFUL OR FATAL IF SWALLOWED
ASPIRATION HAZARD IF SWALLOWED--CAN ENTER LUNGS AND CAUSE DAMAGE
VAPORS MAY BE HARMFUL
MAY BE IRRITATING TO THE SKIN, EYES AND RESPIRATORY TRACT
LONG-TERM EXPOSURE TO VAPORS HAS CAUSED CANCER IN SOME LABORATORY ANIMALS

FLAMMABILITY

DANGER!
EXTREMELY FLAMMABLE LIQUID AND VAPORS
VAPOR MAY CAUSE FLASH FIRE

REACTIVITY

STABLE

PRODUCT HEALTH HAZARD INFORMATION

INGESTION:

Aspiration into lungs may cause pneumonitis. May cause gastrointestinal disturbances. Symptoms may include irritation, nausea, vomiting and diarrhea. May cause harmful central nervous system effects. Effects may include excitation, euphoria, headache, dizziness, drowsiness, blurred vision, fatigue, tremors, convulsions, loss of consciousness, coma, respiratory arrest and death. May cause degenerative muscle damage. May also cause adverse effects of the blood, brain, heart, kidney and liver.

SKIN:

Repeated or prolonged contact may result in defatting, redness, itching, inflammation, cracking and possible secondary infection. High pressure skin injections are SERIOUS MEDICAL EMERGENCIES. Injury may not appear serious at first; within a few hours, tissue will become swollen, discolored and extremely painful (see Notes to Physician section).

EYE:

May cause irritation, redness, pain, blurred vision, lacrimation and conjunctivitis. Direct contact may cause damage to the epithelium and cornea and blurring of vision.

INHALATION:

May cause respiratory tract irritation. Exposure may cause central nervous system symptoms similar to those listed under "Ingestion" (see Ingestion section). May also cause anemia and irregular heart rhythm. Repeated or prolonged exposures may cause behavioral changes.

SPECIAL TOXIC EFFECTS:

A product of similar composition has been found to be carcinogenic to laboratory animals when given by inhalation. Also, a variety of mutagenicity assays have been conducted tha have yielded conflicting results. Persons with pre-existing liver impairment may be at an increased risk from exposure.

IARC has determined that there is limited evidence for the carcinogenicity of gasoline in experimental animals and inadequate evidence for the carcinogenicity of gasoline in humans. (IARC Class--2B).

WARNING: The use of any hydrocarbon fuel in an area without adequate ventilation may result in hazardous levels of combustion products and inadequate oxygen levels. IARC has determined that gasoline engine exhaust is possibly carcinogenic to humans.

This product contains ethanol. Exposure to ethanol may cause adverse reproductive effects. Repeated dermal or oral exposure may result in allergic skin reaction in a very small proportion of individuals.

This product contains benzene. Chronic exposure to benzene may cause blood disorders and reports have suggested a relationship between exposure to benzene and the occurrence of various types of leukemia. IARC has determined that there is sufficient evidence for the carcinogenicity of benzene in experimental animals and humans. (IARC Class--1). NTP--Know Carcinogen. ACGIH--Suspected Human Carcinogen.

FIRST AID

INGESTION:

DO NOT INDUCE VOMITING BECAUSE OF DANGER OF ASPIRATING LIQUID INTO LUNGS. Get immediate medical attention. If spontaneous vomiting occurs, monitor for breathing difficulty. Keep affected person warm and at rest.

SKIN CONTACT:

Remove contaminated clothing immediately. Wash area of contact thoroughly with soap and water. Get medical attention if irritation results. High pressure skin injections are SERIOUS MEDICAL EMERGENCIES. Get immediate medical attention.

EYE CONTACT:

Flush immediately with large amounts of water for at least 15 minutes. Eyelids should be held away from the eyeball to ensure thorough rinsing. Get medical attention if irritation results.

INHALATION:

Remove affected person from source of exposure. If not breathing, ensure open airway and institute cardiopulmonary resuscitation (CPR). If breathing is difficult, administer oxygen if available. Get immediate medical attention.

NOTES TO PHYSICIAN

INGESTION: The most important risk to assess is the extent of aspiration of the product into the lungs since an acute chemical pneumonitis can rapidly progress to respiratory failure. Gasping, coughing, and choking are presumptive evidence of aspiration. It is suggested that all patients suspected of hydrocarbon aspiration have base line chest x-rays. Immediate hospitalization should be considered for asymptomatic children with an abnormal chest x-ray, obtunded or hypoxic patients, intentional or massive ingestions, and patients with abnormal chest x-rays with clinically significant pulmonary disease.

Gastrointestinal symptoms are usually minor and pathological changes of the liver and kidney are reported to be uncommon in acute intoxications. Decontamination (induced emesis or lavage) is controversial and should be considered on the merits of each individual case; of course the usual precaution of an endotracheal tube should be considered prior to lavage.

Hydrocarbons may increase the sensitivity of the myocardium to catecholamines; electrocardiographic monitoring may be indicated and careful consideration should be given to the selection of bronchodilalators.

Acute central nervous system signs and symptoms may result from large ingestions or aspiration-induced hypoxia.

INHALATION ABUSE: Gasoline is one of the solvents used by chemical substance abusers. These patients may present with acute and/or chronic central nervous system signs or symptoms. They may also present with arrythmias.

In case of skin injection, consider prompt debridement of the wound to minimize necrosis and tissue loss.

PERSONAL PROTECTION INFORMATION

EYE PROTECTION:

Avoid eye contact with this material. Wear safety glasses or chemical goggles. Provide an eyewash station in the work area.

SKIN PROTECTION:

Prevent skin contact. Wear gloves found to be impervious under conditions of use. Additional protection may be necessary to prevent skin contact including use of apron, armcovers, face shield, boots, or full body protection. A safety deluge shower should be located in the work area.

RESPIRATORY PROTECTION:

If exposure limits are exceeded or if irritation is experienced, NIOSH approved respiratory protection should be worn. Ventilation and other forms of engineering controls are often the preferred means for controlling chemical exposures. Respiratory protection may be needed for non-routine or emergency situations.

PHYSICAL PROPERTIES

BOILING POINT: 26.670- 226.700 C (80 - 440 F)
SPECIFIC GRAVITY: 0.720- 0.740 @ 60 F
MELTING POINT: NA
% VOLATILE: 100.000 @ 437 F
VAPOR PRESSURE: 827.000 MM HG @ 100 F
EVAPORATION RATE (WATER=1): >1
VAPOR DENSITY (AIR=1): 1.240 AS VAPOR
VISCOSITY: ND
% SOLUBILITY IN WATER: < 11.000
OCTANOL/WATER PARTITION COEFFICIENT: ND
POUR POINT: ND
pH: ND
APPEARANCE/ODOR: CLEAR LIQUID WITH A STRONG HYDROCARBON ODOR.

FIRE AND EXPLOSION DATA

FLASH POINT: -37.000 C (-35 F) TCC
AUTOIGNITION TEMPERATURE: 422.000 - 444.000 C (792 - 831 F)
FLAMMABILITY LIMITS IN AIR (% BY VOL.) LOWER: 1.400
FLAMMABILITY LIMITS IN AIR (% BY VOL.) UPPER: 19.000

BASIC FIREFIGHTING PROCEDURES:

Use dry chemical, alcohol foam, all purpose AFFF or carbon dioxide to extinguish fire. Water may be ineffective but should be used to cool fire-exposed containers, structures and to protect personnel. If leak or spill has not ignited, ventilate area and use water spray to disperse gas or vapor and to protect personnel attempting to stop a leak. Use water to dilute spills and to flush them away from sources of ignition. Do not flush down public sewers or other drainage systems. Exposed firefighters must wear MSHA/NIOSH approved positive pressure self-contained breathing apparatus with full face mask and full protective clothing.

UNUSUAL FIRE AND EXPLOSION HAZARDS:

Dangerous when exposed to heat or flame. Vapors form flammable or explosive mixtures with air at room temperature. Vapor or gas may spread to distant ignition sources and flash back. Vapors may concentrate in confined areas. Runoff to sewer may cause fire or explosion hazard. Containers may explode in heat of fire. Irritating or toxic substances may be emitted upon thermal decomposition.

REACTIVITY DATA

STABILITY/INCOMPATIBILTY:

Stable under normal conditions of use. Avoid contact with strong oxidizers and alkali metals. Avoid contact with strong acids or bases.

ND = No Data
NA = Not Applicable

HAZARDOUS REACTIONS/DECOMPOSITION PRODUCTS:
Combustion may produce CO, CO2 and reactive hydrocarbons.

ENVIRONMENTAL INFORMATION

SPILL OR RELEASE TO THE ENVIRONMENT:
If your facility or operation has an "Oil or Hazardous Substance Contingency Plan", activate its procedures.

-- Take immediate steps to stop and contain the spill. Caution should be exercised regarding personnel safety and exposure to the spilled material.

-- For technical advice and assistance related to chemicals, contact CHEMTREC (800/424-9300) and your local fire department.

-- Notify the National Response Center, if required. Also notify appropriate state and local regulatory agencies, the LEPC and the Coast Guard if the release is into a waterway.

Emergency Action:
Keep unnecessary people away; isolate hazard area and deny entry. Stay upwind; keep out of low areas. (Also see Personal Protection Information section.) Isolate for 1/2 mile in all directions if tank, rail car or tank truck is involved in fire.

Spill or Leak Procedure:
Shut off ignition sources; no flares, smoking or flames in hazard area. Stop leak if you can do it without risk. Water spray may reduce vapor; but it may not prevent ignition in closed spaces. Small Spills: Take up with sand or other noncombustible absorbant material and place into containers for later disposal. Large Spills: Dike far ahead of liquid spill for later disposal.

Notification:
Clean Water Act (Oil Spills):
Any spill or release, or substantial threat of release, of this material to navigable water (virtually any surface water) sufficient to cause a visible sheen upon the water must be reported immediately to the National Response Center (800/424-8802), as required by U.S. Federal Law. Failure to report may result in substantial civil and criminal penalties. Also contact the Coast Guard and appropriate state and local regulatory agencies.

CERCLA/SARA (Chemical Spills):
The reportable quantity for this material is 200 * pound(s).

This material contains one or more constituents regulated as hazardous substances under U.S. Federal Law. Any spill or other release, or substantial threat of release, of this material to the air, water or land (unless entirely contained in the workplace) equal to or in excess of the reportable quantity must be reported immediately to the National Response Center (800/424-8802). Also contact appropriate state and local regulatory agencies. Contact the Coast Guard if spilled into navigable waterways under their jurisdiction. Failure to report may result in substantial civil and criminal penalties.

* Calculated on the basis for whichever hazardous component provides the lowest value for:

RQ / % in mixture

ND = No Data
NA = Not Applicable

WASTE DISPOSAL:

This substance, when discarded or disposed of, is not specifically listed as a hazardous waste in Federal regulations; however it could be characteristically hazardous if it is considered toxic, corrosive, ignitable, or reactive according to Federal definitions (40 CFR 261). Additionally, it could be designated as hazardous according to state regulations. This substance could also become a hazardous waste if it is mixed with or comes in contact with a hazardous waste. Check 40 CFR 261 to determine whether it is a hazardous waste. If it is a hazardous waste, regulations at 40 CFR 262, 263, 264, 268 and 270 apply. Chemical additions, processing or otherwise altering this material may make the waste management information presented in this MSDS incomplete, inaccurate or otherwise inappropriate.

The transportation, storage, treatment, and disposal of this waste material must be conducted in compliance with all applicable Federal, state, and local regulations.

SARA TITLE III INFORMATION:

Listed below are the hazard categories for the Superfund Amendments and Reauthorization Act (SARA) Section 311/312 (40 CFR 370):

Immediate Hazard: X Delayed Hazard: X Fire Hazard: X Pressure Hazard: - Reactivity Hazard: -

The product contains the following toxic chemical(s) subject to the reporting requirements of the Superfund Amendments and Reauthorization Act (SARA) Section 313 (40 CFR 372):

Component:	CAS Number:	Maximum %
Toluene	108-88-3	15.000
Xylene	1330-20-7	15.000
Benzene	71-43-2	5.000
1,2,4-Trimethylbenzene	95-63-6	5.000
Ethylbenzene	100-41-4	5.000
Cyclohexane	110-82-7	5.000

ADDITIONAL ENVIRONMENTAL REGULATORY INFORMATION:

This material contains a substance listed as a hazardous air pollutant under U.S. Federal regulations. See 40 CFR Part 61 for restrictions which may apply to its use.

This material contains a mixture of substances, some of which are listed as toxic pollutants pursuant to 40 CFR 122.21, Appendix D, Tables II/III/V. Any unusual introduction of this substance into the facility's process streams, stormwater and/or wastewater could result in the violation of U.S. Federal Law. Facilities must notify the USEPA as soon as they know, or have reason to believe, that any activity has occurred, or will occur, which would result in the discharge of a toxic pollutant which is not regulated in the facility's NPDES permit. Notification levels are described in 40 CFR 122.42(a)(1) and 122.42(a)(2). Refer to spill section for additional regulatory requirements.

There may be specific regulations at the local, regional or state level that pertain to this material.

REGULATORY INFORMATION

This product contains ingredient(s) known to the State of California to cause cancer, birth defects or other reproductive harm.

Contains Benzene. Consult OSHA Standard 1910.1028. Initial air monitoring should be conducted to determine if exposures are above 0.5 ppm action limit or 1 ppm PEL. If

exposures are above, OSHA requirements apply for training, medical surveillance, personal/protective equipment, regulated areas, etc.

SPECIAL PRECAUTIONS/SUPPLEMENTAL INFORMATION

HANDLING/STORAGE:

Store in tightly closed containers in cool, dry, isolated, well-ventilated area away from heat, sources of ignition and incompatibles. Ground lines and equipment used during transfer to reduce the possibility of static spark-initiated fire or explosion. A sensitized employee should not be exposed to the material which causes the sensitization.

Do not siphon this product by mouth. This product should be used only as a motor fuel.

EMPTY CONTAINERS:

Empty containers may contain toxic, flammable/combustible or explosive residue or vapors. Do not cut, grind, drill, weld or reuse containers unless adequate precautions are taken against these hazards.

TRANSPORTATION REQUIREMENTS

D.O.T. PROPER SHIPPING NAME (49 CFR 172.101):	GASOLINE, FLAMMABLE LIQUID UN 1203
D.O.T. HAZARD CLASS (49 CFR 172.101):	FLAMMABLE LIQUID
UN/NA CODE (49 CFR 172.101):	UN 1203
BILL OF LADING DESCRIPTION (49 CFR 172.202):	GASOLINE, FLAMMABLE LIQUID, UN 1203
D.O.T. LABELS REQUIRED (49 CFR 172.101):	FLAMMABLE LIQUID
D.O.T. PLACARDS REQUIRED (49 CFR 172.504):	FLAMMABLE

INGREDIENTS/HEALTH HAZARD INFORMATION

COMPONENT	CAS NO.	%	EXPOSURE LIMITS - REF.
Gasoline	8006-61-9	89.80-94.50	300 ppm (890 mg/M3) TLV; 500 ppm (1,480 mg/M3) STEL (ACGIH) 300 ppm (900 mg/M3) PEL; 500 ppm (1,500 mg/M3) STEL (OSHA)
Ethyl Alcohol 200 Proof	64-17-5	5.70-10	1,000 ppm (1,880 mg/M3) TLV (ACGIH) 1,000 ppm (1,900 mg/M3) PEL (OSHA)
Gasoline may contain the following:			
Toluene	108-88-3	10-15	100 ppm (377 mg/M3) TLV; 150 ppm (565 mg/M3) STEL (ACGIH) 100 ppm (375 mg/M3) PEL; 150 ppm (560 mg/M3) STEL (OSHA) 100 ppm 10-hour TWA; 200 ppm 10-minute CEIL (NIOSH)
Xylene	1330-20-7	10-15	100 ppm (434 mg/M3) TLV; 150 ppm (651 mg/M3) STEL (ACGIH) 100 ppm (435 mg/M3) PEL; 150 ppm (655 mg/M3) STEL (OSHA)

ND = No Data
NA = Not Applicable

COMPONENT	CAS NO.	%	EXPOSURE LIMITS - REF.
Benzene	71-43-2	0-5	10 ppm (32 mg/M3) TLV (ACGIH) 1 ppm PEL; 5 ppm STEL (OSHA)
1,2,4-Trimethylbenzene	95-63-6	0-5	25 ppm (123 mg/M3) TLV (ACGIH) 25 ppm (125 mg/M3) PEL (OSHA)
Ethylbenzene	100-41-4	0-5	100 ppm (434 mg/M3) TLV; 125 ppm (543 mg/M3) STEL (ACGIH) 100 ppm (435 mg/M3) PEL; 125 ppm (545 mg/M3) STEL (OSHA)
Cyclohexane	110-82-7	0-5	300 ppm (1,030 mg/M3) TLV (ACGIH) 300 ppm (1,050 mg/M3) PEL (OSHA)
Remaining components not determined hazardous and/or hazardous components present at less than 1.0% (0.1% for carcinogens).	NA	Trace	NA

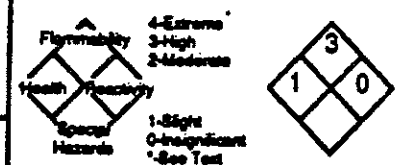
REVISION DATE: 27-nov-1991 REPLACES SHEET DATED: NA

COMPLETED BY: BP OIL HSEQ DEPARTMENT

ND = No Data
NA = Not Applicable

BP OIL

MATERIAL SAFETY DATA SHEET

24-HOUR EMERGENCY ASSISTANCE	GENERAL ASSISTANCE	NFPA FIRE HAZARD SYMBOL*
BP America (In Ohio): 800-362-8059 (Outside Ohio): 800-321-8642 CHEMTREC Assist: 800-424-9300	216-441-8124	
MSDS Number > 1050		

MANUFACTURER/SUPPLIER: BP Oil Company
ADDRESS: 200 Public Square, Cleveland, OH 44114-2375

PRODUCT IDENTIFICATION

TRADE NAME:

GASOLINE, REGULAR UNLEADED

CAS NUMBER:	MIXTURE
SYNONYM(S):	GASOLINE; MOTOR FUEL
CHEMICAL FAMILY:	HYDROCARBON
MOLECULAR FORMULA:	MIXTURE
MOLECULAR WEIGHT:	MIXTURE
PRODUCT CODE:	P 1650 **HIERARCHY:** 040.040

PRODUCT HAZARD SUMMARY

HEALTH

DANGER!
HARMFUL OR FATAL IF SWALLOWED
ASPIRATION HAZARD IF SWALLOWED--CAN ENTER LUNGS AND CAUSE DAMAGE
VAPORS MAY BE HARMFUL
MAY BE IRRITATING TO THE SKIN, EYES AND RESPIRATORY TRACT
LONG-TERM EXPOSURE TO VAPORS HAS CAUSED CANCER IN SOME LABORATORY ANIMALS

FLAMMABILITY

DANGER!
EXTREMELY FLAMMABLE LIQUID
VAPORS MAY EXPLODE

REACTIVITY

STABLE

PRODUCT HEALTH HAZARD INFORMATION

INGESTION:

MODERATELY TOXIC. Human oral LDLo = ~10-30 gms. Aspiration into lungs may cause pneumonitis. May cause gastrointestinal disturbances. Symptoms may include irritation, nausea, vomiting and diarrhea. May cause harmful central nervous system effects. Effects may include excitation, euphoria, headache, dizziness, drowsiness, blurred vision, fatigue, tremors, convulsions, loss of consciousness, coma, respiratory arrest and death.

SKIN:

PRACTICALLY NON-TOXIC. Rabbit dermal LD50 = >5 ml/kg. SLIGHTLY IRRITATING. Repeated or prolonged contact may result in defatting, redness, itching, inflammation, cracking and possible secondary infection. High pressure skin injections are SERIOUS MEDICAL EMERGENCIES. Injury may not appear serious at first; within a few hours, tissue will become swollen, discolored and extremely painful (see Notes to Physician section).

EYE:

May cause slight transient irritation.

INHALATION:

May cause respiratory tract irritation. Exposure may cause central nervous system symptoms similar to those listed under "Ingestion" (see Ingestion section). May also cause anemia and irregular heart rhythm. Repeated or prolonged exposures may cause behavioral changes.

SPECIAL TOXIC EFFECTS:

May cause adverse liver and kidney effects based on tests with laboratory animals. A product of similar composition has been found to be carcinogenic to laboratory animals when given by inhalation. Also, a variety of mutagenicity assays have been conducted th have yielded conflicting results.

IARC has determined that there is limited evidence for the carcinogenicity of gasoline in experimental animals and inadequate evidence for the carcinogenicity of gasoline in humans.

WARNING: The use of any hydrocarbon fuel in an area without adequate ventilation may result in hazardous levels of combustion products and inadequate oxygen levels. IARC has determined that gasoline engine exhaust is possibly carcinogenic to humans.

This product contains benzene. Chronic exposure to benzene may cause blood disorders and reports have suggested a relationship between exposure to benzene and the occurrence of various types of leukemia.

NOTE: This product has not been tested as a whole for all potential health effects. It may have other health hazards related to its components. See "Ingredient/Health Hazards" for additional information.

FIRST AID

INGESTION:

DO NOT INDUCE VOMITING BECAUSE OF DANGER OF ASPIRATING LIQUID INTO LUNGS. Get immediate medical attention. If spontaneous vomiting occurs, monitor for breathing difficulty.

SKIN CONTACT:

Remove contaminated clothing immediately. Wash area of contact thoroughly with soap and

water. Get medical attention if irritation persists. High pressure skin injections are SERIOUS MEDICAL EMERGENCIES. Get immediate medical attention.

EYE CONTACT:
Flush immediately with large amounts of water. Eyelids should be held away from the eyeball to ensure thorough rinsing. Get medical attention if irritation persists.

INHALATION:
Remove affected person from source of exposure. If not breathing, institute cardiopulmonary resuscitation (CPR). If breathing is difficult, ensure clear airway and give oxygen. Get medical attention.

NOTES TO PHYSICIAN

INGESTION: The most important risk to assess is the extent of aspiration of the product into the lungs since an acute chemical pneumonitis can rapidly progress to respiratory failure. Gasping, coughing, and choking are presumptive evidence of aspiration. It is suggested that all patients suspected of hydrocarbon aspiration have base line chest x-rays. Immediate hospitalization should be considered for asymptomatic children with an abnormal chest x-ray, obtunded or hypoxic patients, intentional or massive ingestions, and patients with abnormal chest x-rays with clinically significant pulmonary disease.

Gastrointestinal symptoms are usually minor and pathological changes of the liver and kidney are reported to be uncommon in acute intoxications. Decontamination (induced emesis or lavage) is controversial and should be considered on the merits of each individual case; of course the usual precaution of an endotracheal tube should be considered prior to lavage.

Hydrocarbons may increase the sensitivity of the myocardium to catecholamines; electrocardiographic monitoring may be indicated and careful consideration should be given to the selection of bronchodilalators.

Acute central nervous system signs and symptoms may result from large ingestions or aspiration-induced hypoxia.

INHALATION ABUSE: Gasoline is one of the solvents used by chemical substance abusers. These patients may present with acute and/or chronic central nervous system signs or symptoms. They may also present with arrythmias.

In case of skin injection, consider prompt debridement of the wound to minimize necrosis and tissue loss.

PERSONAL PROTECTION INFORMATION

SKIN PROTECTION:
Wear impervious gloves and protective clothing to prevent skin contact.

RESPIRATORY PROTECTION:
Use NIOSH or MSHA approved equipment when airborne exposure limits are exceeded. NIOSH/MSHA approved breathing equipment must be available for non-routine and emergency use. Ventilation may be used to control or reduce airborne concentrations.

PHYSICAL PROPERTIES

BOILING POINT: 26.670- 226.700 C (80 - 440 F)
SPECIFIC GRAVITY: 0.720- 0.740 @ 60 F
MELTING POINT: NA
% VOLATILE: 100.000 @ 437 F
VAPOR PRESSURE: 760.000 MM HG @ 100 F
EVAPORATION RATE (WATER=1): >1
VAPOR DENSITY (AIR=1): 1.200 AS VAPOR
VISCOSITY: ND
% SOLUBILITY IN WATER: NEGLIGIBLE
OCTANOL/WATER PARTITION COEFFICIENT: ND
POUR POINT: ND
pH: ND
APPEARANCE/ODOR: CLEAR LIQUID WITH A STRONG HYDROCARBON ODOR.

FIRE AND EXPLOSION DATA

FLASH POINT: -37.000 C (-35 F) TCC
AUTOIGNITION TEMPERATURE: 444.000 C (833 F)
FLAMMABILITY LIMITS IN AIR (% BY VOL.) LOWER: 1.400
FLAMMABILITY LIMITS IN AIR (% BY VOL.) UPPER: 7.600

BASIC FIREFIGHTING PROCEDURES:
Use dry chemical, foam or carbon dioxide to extinguish fire. Water may be ineffective but should be used to cool fire-exposed containers, structures and to protect personnel. If leak or spill has not ignited, ventilate area and use water spray to disperse gas or va and to protect personnel attempting to stop a leak. Use water to flush spills away from sources of ignition. Do not flush down public sewers.

UNUSUAL FIRE AND EXPLOSION HAZARDS:
Dangerous when exposed to heat or flame. Vapors form flammable or explosive mixtures with air at room temperature. Vapor or gas may spread to distant ignition sources and flash back. Vapors may concentrate in confined areas. Runoff to sewer may cause fire or explosion hazard. Containers may explode in heat of fire. Irritating or toxic substances may be emitted upon thermal decomposition. Exposed firefighters should wear MSHA/NIOSH approved self-contained breathing apparatus with full face mask and full protective equipment.

REACTIVITY DATA

STABILITY/INCOMPATIBILTY:
Stable under normal conditions of use. Avoid contact with strong oxidizers.

HAZARDOUS REACTIONS/DECOMPOSITION PRODUCTS:
Combustion may produce CO, CO2 and reactive hydrocarbons.

ENVIRONMENTAL INFORMATION

SPILL OR RELEASE TO THE ENVIRONMENT:

If your facility or operation has an "Oil or Hazardous Substance Contingency Plan", activate its procedures.

-- Take immediate steps to stop and contain the spill. Caution should be exercised regarding personnel safety and exposure to the spilled material,

-- For technical advice and assistance related to chemicals, contact CHEMTREC (800/424-9300) and your local fire department.

-- Notify the National Response Center, if required.

Emergency Action:

Keep unnecessary people away. Stay upwind; keep out of low areas. Isolate hazard area and deny entry. (Also see Personal Protection Information section.) Isolate for 1/2 mile in all directions if tank or tankcar is involved in fire.

Spill or Leak Procedure:

No flares, smoking or flames in hazard area. Stop leak if you can do it without risk. Use water spray to reduce vapors. Small Spills: Take up with sand or other noncombustible absorbent material or other sorbent known to be compatible, then flush area with water. Large Spills: Dike far ahead of spill for later disposal.

Notification:

Clean Water Act (Oil Spills):
Any spill or release, or substantial threat of release, of this material to navigable water (virtually any surface water) sufficient to cause a visible sheen upon the water must be reported immediately to the National Response Center (800/424-8802), as required by U.S. Federal Law. Failure to report may result in substantial civil and criminal penalties.

The reportable quantity for this material is 200 * pound(s).

This material contains one or more constituents regulated as hazardous substances under U.S. Federal Law. Any spill or other release, or substantial threat of release, of this material to the air, water or land (unless entirely contained in the workplace) equal to or in excess of the reportable quantity must be reported immediately to the National Response Center (800/424-8802). Failure to report may result in substantial civil and criminal penalties.

* Calculated on the basis for whichever hazardous component provides the lowest value for:

RQ / % in mixture

WASTE DISPOSAL:

This substance, when discarded or disposed of, is not specifically listed as a hazardous waste in Federal regulations; however it could be hazardous if it is considered toxic, corrosive, ignitable, or reactive according to Federal definitions (40 CFR 261). Additionally, it could be designated as hazardous according to state regulations. This substance could also become a hazardous waste if it is mixed with or comes in contact with a hazardous waste. If such contact or mixing may have occurred, check 40 CFR 261 to determine whether it is a hazardous waste. If it is a hazardous waste, regulations at 40 CFR 262, 263, and 264 apply.

The transportation, storage, treatment, and disposal of this waste material must be

conducted in compliance w. . all applicable Federal, state, nd local regulations.

SARA TITLE III INFORMATION:

Listed below are the hazard categories for the Superfund Amendments and Reauthorization Act (SARA) Section 311/312 (40 CFR 370):

Immediate Hazard: X Delayed Hazard: X Fire Hazard: X Pressure Hazard: - Reactivity Hazard: -

The product contains the following toxic chemical(s) subject to the reporting requirements of the Superfund Amendments and Reauthorization Act (SARA) Section 313 (40 CFR 372):

Component:	CAS Number:	Maximum %
Xylene	1330-20-7	10.000
Toluene	108-88-3	7.000
1,2,4-Trimethylbenzene	95-63-6	3.000
Benzene	71-43-2	2.000
Ethylbenzene	100-41-4	2.000
Cyclohexane	110-82-7	1.000

ADDITIONAL ENVIRONMENTAL REGULATORY INFORMATION:

This substance is listed as a toxic pollutant pursuant to 40 CFR 122.21, Appendix D, Table II/III. Any unusual introduction of this substance into the facility's process streams, stormwater and/or wastewater could result in the violation of U.S. Federal Law. Facilities must notify the USEPA as soon as they know, or have reason to believe, that any activity has occurred, or will occur, which would result in the discharge of a toxic pollutant which is not regulated in the facility's NPDES permit. Notification levels are described in 40 CFR 122.42(a)(1) and 122.42(a)(2). Refer to spill section for additional regulations. There may be specific regulations at the local, regional or state level that pertain to this material.

REGULATORY INFORMATION

This product contains ingredient(s) known to the State of California to cause cancer, birth defects or other reproductive harm.

SPECIAL PRECAUTIONS/SUPPLEMENTAL INFORMATION

HANDLING/STORAGE:

Store in tightly closed containers in cool, dry, isolated, well-ventilated area away from heat, sources of ignition and incompatibles. Ground lines and equipment used during transfer to reduce the possibility of static spark-initiated fire or explosion.

Empty containers may contain toxic, flammable/combustible or explosive residue or vapors. Do not cut, grind, drill, weld or reuse containers unless adequate precautions are taken against these hazards.

TRANSPORTATION REQUIREMENTS

D.O.T. PROPER SHIPPING NAME (49 CFR 172.101):	GASOLINE, FLAMMABLE LIQUID UN 1203
D.O.T. HAZARD CLASS (49 CFR 172.101):	FLAMMABLE LIQUID
UN/NA CODE (49 CFR 172.101):	UN 1203
BILL OF LADING DESCRIPTION (49 CFR 172.202):	GASOLINE, FLAMMABLE LIQUID, UN 1203
D.O.T. LABELS REQUIRED (49 CFR 172.101):	FLAMMABLE LIQUID

D.O.T. PLACARDS REQUIRED (49 CFR 172.504): FLAMMABLE

INGREDIENTS/HEALTH HAZARD INFORMATION

COMPONENT	CAS NO.	%	EXPOSURE LIMITS - REF.
Gasoline	8006-61-9	99.99-100	300 ppm (890 mg/M3) TLV; 500 ppm (1,480 mg/M3) STEL (ACGIH) 300 ppm (900 mg/M3) PEL; 500 ppm (1,500 mg/M3) STEL (OSHA)
Toluene	108-88-3	5-10	100 ppm (377 mg/M3) TLV; 150 ppm (565 mg/M3) STEL (ACGIH) 100 ppm (375 mg/M3) PEL; 150 ppm (560 mg/M3) STEL (OSHA) 100 ppm 10-hour TWA; 200 ppm 10-minute CEIL (NIOSH)
Xylene	1330-20-7	5-10	100 ppm (434 mg/M3) TLV; 150 ppm (651 mg/M3) STEL (ACGIH) 100 ppm (435 mg/M3) PEL; 150 ppm (655 mg/M3) STEL (OSHA)
Benzene	71-43-2	0-5	10 ppm (32 mg/M3) TLV (ACGIH) 1 ppm PEL; 5 ppm STEL (OSHA)

Health Hazards: Harmful or fatal if swallowed, inhaled or absorbed through the skin. Dog oral LDLo = 2,000 mg/kg. Rat LC50 = 10,000 ppm/7 hours. Aspiration hazard. Moderately irritating to the skin. May cause allergic reactions in some individuals. Severely irritating to the eye. Acute benzene poisoning causes central nervous system depression. Benzene is carcinogenic to laboratory animals when given by intubation or by inhalation. Chronic exposure affects the hematopoietic system causing blood disorders including anemia and pancytopenia. Mutagenic and clastogenic in mammalian non-mammalian test systems. Reproductive toxicant only at doses that are maternally toxic, based on tests with animals. Carcinogenic determinations: IARC has determined that there is sufficient evidence of carcinogenicity in experimental animals and humans (IARC Class--1); NTP--Known carcinogen; ACGIH--Suspected carcinogen.

1,2,4-Trimethylbenzene	95-63-6	0-5	25 ppm (123 mg/M3) TLV (ACGIH) 25 ppm (125 mg/M3) PEL (OSHA)
Ethylbenzene	100-41-4	0-5	100 ppm (434 mg/M3) TLV; 125 ppm (543 mg/M3) STEL (ACGIH) 100 ppm (435 mg/M3) PEL; 125 ppm (535 mg/M3) STEL (OSHA)
Cyclohexane	110-82-7	0-5	300 ppm (1,030 mg/M3) TLV (ACGIH) 300 ppm (1,050 mg/M3) PEL (OSHA)
Remaining components not determined hazardous and/or hazardous components present at less than 1.0% (0.1% for carcinogens).	NA	Trace	NA

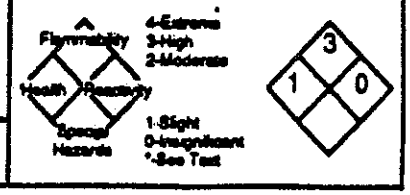
ND = No Data
NA = Not Applicable

REVISION DATE: 21-jan-1991 REPLACES SHEET DATED: 20-nov-1990
COMPLETED BY: BP OIL HSEQ DEPARTMENT

ND = No Data
NA = Not Applicable

BP OIL

MATERIAL SAFETY DATA SHEET

24-HOUR EMERGENCY ASSISTANCE	GENERAL ASSISTANCE	NFPA FIRE HAZARD SYMBOL*
BP America (In Ohio): 800-362-8059 (Outside Ohio): 800-321-8642 CHEMTREC Assist: 800-424-9300	216-441-8124	
MSDS Number > 2324		

MANUFACTURER/SUPPLIER: BP Oil Company
ADDRESS: 200 Public Square, Cleveland, OH 44114-2375

PRODUCT IDENTIFICATION

TRADE NAME:

GASOLINE, REGULAR LEADED

CAS NUMBER:	MIXTURE
SYNONYM(S):	GASOLINE; MOTOR FUEL
CHEMICAL FAMILY:	HYDROCARBON
MOLECULAR FORMULA:	MIXTURE
MOLECULAR WEIGHT:	MIXTURE
PRODUCT CODE:	P 1635 **HIERARCHY:** 040.040

PRODUCT HAZARD SUMMARY

HEALTH

DANGER!
HARMFUL OR FATAL IF SWALLOWED
ASPIRATION HAZARD IF SWALLOWED--CAN ENTER LUNGS AND CAUSE DAMAGE
VAPORS MAY BE HARMFUL
MAY BE IRRITATING TO THE SKIN, EYES AND RESPIRATORY TRACT
LONG-TERM EXPOSURE TO VAPORS HAS CAUSED CANCER IN SOME LABORATORY ANIMALS

FLAMMABILITY

DANGER!
EXTREMELY FLAMMABLE LIQUID
VAPORS MAY EXPLODE

REACTIVITY

STABLE

PRODUCT HEALTH HAZARD INFORMATION

INGESTION:

MODERATELY TOXIC. Human oral LDLo = ~10-30 gms. Aspiration into lungs may cause pneumonitis. May cause gastrointestinal disturbances. Symptoms may include irritation, nausea, vomiting and diarrhea. May cause harmful central nervous system effects. Effects may include excitation, euphoria, headache, dizziness, drowsiness, blurred vision, fatigue, tremors, convulsions, loss of consciousness, coma, respiratory arrest and death.

SKIN:

PRACTICALLY NON-TOXIC. Rabbit dermal LD50 = >5 ml/kg. SLIGHTLY IRRITATING. Repeated or prolonged contact may result in defatting, redness, itching, inflammation, cracking and possible secondary infection. High pressure skin injections are SERIOUS MEDICAL EMERGENCIES. Injury may not appear serious at first; within a few hours, tissue will become swollen, discolored and extremely painful (see Notes to Physician section).

EYE:

May cause slight transient irritation.

INHALATION:

May cause respiratory tract irritation. Exposure may cause central nervous system symptoms similar to those listed under "Ingestion" (see Ingestion section). May also cause anemia and irregular heart rhythm. Repeated or prolonged exposures may cause behavioral changes.

SPECIAL TOXIC EFFECTS:

May cause adverse liver and kidney effects based on tests with laboratory animals. A product of similar composition has been found to be carcinogenic to laboratory animals when given by inhalation. Also, a variety of mutagenicity assays have been conducted tha' have yielded conflicting results.

IARC has determined that there is limited evidence for the carcinogenicity of gasoline in experimental animals and inadequate evidence for the carcinogenicity of gasoline in humans.

WARNING: The use of any hydrocarbon fuel in an area without adequate ventilation may result in hazardous levels of combustion products and inadequate oxygen levels. IARC has determined that gasoline engine exhaust is possibly carcinogenic to humans.

This product contains benzene. Chronic exposure to benzene may cause blood disorders and reports have suggested a relationship between exposure to benzene and the occurrance of various types of leukemia.

NOTE: This product has not been tested as a whole for all potential health effects. It may have other health hazards related to its components. See "Ingredient/Health Hazards" for additional information.

FIRST AID

INGESTION:

DO NOT INDUCE VOMITING BECAUSE OF DANGER OF ASPIRATING LIQUID INTO LUNGS. Get immediate medical attention. If spontaneous vomiting occurs, monitor for breathing difficulty.

SKIN CONTACT:

Remove contaminated clothing immediately. Wash area of contact thoroughly with soap and

water. Get medical at' tion if irritation persists. h pressure skin injections are SERIOUS MEDICAL EMERGE ES. Get immediate medical atte ion.

EYE CONTACT:
Flush immediately with large amounts of water. Eyelids should be held away from the eyeball to ensure thorough rinsing. Get medical attention if irritation persists.

INHALATION:
Remove affected person from source of exposure. If not breathing, institute cardiopulmonary resuscitation (CPR). If breathing is difficult, ensure clear airway and give oxygen. Get medical attention.

NOTES TO PHYSICIAN

INGESTION: The most important risk to assess is the extent of aspiration of the product into the lungs since an acute chemical pneumonitis can rapidly progress to respiratory failure. Gasping, coughing, and choking are presumptive evidence of aspiration. It is suggested that all patients suspected of hydrocarbon aspiration have base line chest x-rays. Immediate hospitalization should be considered for asymptomatic children with an abnormal chest x-ray, obtunded or hypoxic patients, intentional or massive ingestions, and patients with abnormal chest x-rays with clinically significant pulmonary disease.

Gastrointestinal symptoms are usually minor and pathological changes of the liver and kidney are reported to be uncommon in acute intoxications. Decontamination (induced emesis or lavage) is controversial and should be considered on the merits of each individual case; of course the usual precaution of an endotracheal tube should be considered prior to lavage.

Hydrocarbons may increase the sensitivity of the myocardium to catecholamines; electrocardiographic monitoring may be indicated and careful consideration should be given to the selection of bronchodilalators.

Acute central nervous system signs and symptoms may result from large ingestions or aspiration-induced hypoxia.

INHALATION ABUSE: Gasoline is one of the solvents used by chemical substance abusers. These patients may present with acute and/or chronic central nervous system signs or symptoms. They may also present with arrythmias.

In case of skin injection, consider prompt debridement of the wound to minimize necrosis and tissue loss.

PERSONAL PROTECTION INFORMATION

SKIN PROTECTION:
Wear impervious gloves and protective clothing to prevent skin contact.

RESPIRATORY PROTECTION:
Use NIOSH or MSHA approved equipment when airborne exposure limits are exceeded. NIOSH/MSHA approved breathing equipment must be available for non-routine and emergency use. Ventilation may be used to control or reduce airborne concentrations.

PHYSICAL PROPERTIES

BOILING POINT: 26.670- 226.700 C (80 - 440 F)
SPECIFIC GRAVITY: 0.720- 0.740 @ 60 F
MELTING POINT: NA
% VOLATILE: 100.000 @ 437 F
VAPOR PRESSURE: 760.000 MM HG @ 100 F
EVAPORATION RATE (WATER=1): >1
VAPOR DENSITY (AIR=1): 1.200 AS VAPOR
VISCOSITY: ND
% SOLUBILITY IN WATER: NEGLIGIBLE
OCTANOL/WATER PARTITION COEFFICIENT: ND
POUR POINT: ND
pH: ND
APPEARANCE/ODOR: CLEAR LIQUID WITH A STRONG HYDROCARBON ODOR.

FIRE AND EXPLOSION DATA

FLASH POINT: -37.000 C (-35 F) TCC
AUTOIGNITION TEMPERATURE: 444.000 C (833 F)
FLAMMABILITY LIMITS IN AIR (% BY VOL.) LOWER: 1.400
FLAMMABILITY LIMITS IN AIR (% BY VOL.) UPPER: 7.600

BASIC FIREFIGHTING PROCEDURES:
Use dry chemical, foam or carbon dioxide to extinguish fire. Water may be ineffective but should be used to cool fire-exposed containers, structures and to protect personnel. If leak or spill has not ignited, ventilate area and use water spray to disperse gas or vapor and to protect personnel attempting to stop a leak. Use water to flush spills away from sources of ignition. Do not flush down public sewers.

UNUSUAL FIRE AND EXPLOSION HAZARDS:
Dangerous when exposed to heat or flame. Vapors form flammable or explosive mixtures with air at room temperature. Vapor or gas may spread to distant ignition sources and flash back. Vapors may concentrate in confined areas. Runoff to sewer may cause fire or explosion hazard. Containers may explode in heat of fire. Irritating or toxic substances may be emitted upon thermal decomposition. Exposed firefighters should wear MSHA/NIOSH approved self-contained breathing apparatus with full face mask and full protective equipment.

REACTIVITY DATA

STABILITY/INCOMPATIBILTY:
Stable under normal conditions of use. Avoid contact with strong oxidizers.

HAZARDOUS REACTIONS/DECOMPOSITION PRODUCTS:
Combustion may produce CO, CO2 and reactive hydrocarbons.

ENVIRONMENTAL INFORMATION

SPILL OR RELEASE TO THE ENVIRONMENT:

If your facility or operation has an "Oil or Hazardous Substance Contingency Plan", activate its procedures.

-- Take immediate steps to stop and contain the spill. Caution should be exercised regarding personnel safety and exposure to the spilled material,

-- For technical advice and assistance related to chemicals, contact CHEMTREC (800/424-9300) and your local fire department.

-- Notify the National Response Center, if required.

Emergency Action:

Keep unnecessary people away. Stay upwind; keep out of low areas. Isolate hazard area and deny entry. (Also see Personal Protection Information section.) Isolate for 1/2 mile in all directions if tank or tankcar is involved in fire.

Spill or Leak Procedure:

No flares, smoking or flames in hazard area. Stop leak if you can do it without risk. Use water spray to reduce vapors. Small Spills: Take up with sand or other noncombustible absorbent material or other sorbent known to be compatible, then flush area with water. Large Spills: Dike far ahead of spill for later disposal.

Notification:

Clean Water Act (Oil Spills):
Any spill or release, or substantial threat of release, of this material to navigable water (virtually any surface water) sufficient to cause a visible sheen upon the water must be reported immediately to the National Response Center (800/424-8802), as required by U.S. Federal Law. Failure to report may result in substantial civil and criminal penalties.

The reportable quantity for this material is 200 * pound(s).

This material contains one or more constituents regulated as hazardous substances under U.S. Federal Law. Any spill or other release, or substantial threat of release, of this material to the air, water or land (unless entirely contained in the workplace) equal to or in excess of the reportable quantity must be reported immediately to the National Response Center (800/424-8802). Failure to report may result in substantial civil and criminal penalties.

* Calculated on the basis for whichever hazardous component provides the lowest value for:

RQ / % in mixture

WASTE DISPOSAL:

This substance, when discarded or disposed of, is not specifically listed as a hazardous waste in Federal regulations; however it could be hazardous if it is considered toxic, corrosive, ignitable, or reactive according to Federal definitions (40 CFR 261). Additionally, it could be designated as hazardous according to state regulations. This substance could also become a hazardous waste if it is mixed with or comes in contact with a hazardous waste. If such contact or mixing may have occurred, check 40 CFR 261 to determine whether it is a hazardous waste. If it is a hazardous waste, regulations at 40 CFR 262, 263, and 264 apply.

The transportation, storage, treatment, and disposal of this waste material must be

conducted in compliance with all applicable Federal, state, and local regulations.

SARA TITLE III INFORMATION:

Listed below are the hazard categories for the Superfund Amendments and Reauthorization Act (SARA) Section 311/312 (40 CFR 370):

Immediate Hazard: X Delayed Hazard: X Fire Hazard: X Pressure Hazard: - Reactivity Hazard: -

The product contains the following toxic chemical(s) subject to the reporting requirements of the Superfund Amendments and Reauthorization Act (SARA) Section 313 (40 CFR 372):

Component:	CAS Number:	Maximum %
Toluene	108-88-3	4.000
Xylene	1330-20-7	4.000
Benzene	71-43-2	3.000
1,2,4-Trimethylbenzene	95-63-6	3.000
Ethylbenzene	100-41-4	1.000
Cyclohexane	110-82-7	1.000

ADDITIONAL ENVIRONMENTAL REGULATORY INFORMATION:

This substance is listed as a toxic pollutant pursuant to 40 CFR 122.21, Appendix D, Table II/III. Any unusual introduction of this substance into the facility's process streams, stormwater and/or wastewater could result in the violation of U.S. Federal Law. Facilities must notify the USEPA as soon as they know, or have reason to believe, that any activity has occurred, or will occur, which would result in the discharge of a toxic pollutant which is not regulated in the facility's NPDES permit. Notification levels are described in 40 CFR 122.42(a)(1) and 122.42(a)(2). Refer to spill section for additional regulations. There may be specific regulations at the local, regional or state level that pertain to this material.

REGULATORY INFORMATION

This product contains ingredient(s) known to the State of California to cause cancer, birth defects or other reproductive harm.

SPECIAL PRECAUTIONS/SUPPLEMENTAL INFORMATION

HANDLING/STORAGE:

Store in tightly closed containers in cool, dry, isolated, well-ventilated area away from heat, sources of ignition and incompatibles. Ground lines and equipment used during transfer to reduce the possibility of static spark-initiated fire or explosion.

Empty containers may contain toxic, flammable/combustible or explosive residue or vapors. Do not cut, grind, drill, weld or reuse containers unless adequate precautions are taken against these hazards.

TRANSPORTATION REQUIREMENTS

D.O.T. PROPER SHIPPING NAME (49 CFR 172.101):	GASOLINE, FLAMMABLE LIQUID UN 1203
D.O.T. HAZARD CLASS (49 CFR 172.101):	FLAMMABLE LIQUID
UN/NA CODE (49 CFR 172.101):	UN 1203
BILL OF LADING DESCRIPTION (49 CFR 172.202):	GASOLINE, FLAMMABLE LIQUID, UN 1203
D.O.T. LABELS REQUIRED (49 CFR 172.101):	FLAMMABLE LIQUID

D.O.T. PLACARDS REQUIRED) CFR 172.504): FLAMMABLE

INGREDIENTS/HEALTH HAZARD INFORMATION

COMPONENT	CAS NO.	%	EXPOSURE LIMITS - REF.
Gasoline	8006-61-9	99.99-100	300 ppm (890 mg/M3) TLV; 500 ppm (1,480 mg/M3) STEL (ACGIH) 300 ppm (900 mg/M3) PEL; 500 ppm (1,500 mg/M3) STEL (OSHA)
Toluene	108-88-3	0-5	100 ppm (377 mg/M3) TLV; 150 ppm (565 mg/M3) STEL (ACGIH) 100 ppm (375 mg/M3) PEL; 150 ppm (560 mg/M3) STEL (OSHA) 100 ppm 10-hour TWA; 200 ppm 10-minute CEIL (NIOSH)
Xylene	1330-20-7	0-5	100 ppm (434 mg/M3) TLV; 150 ppm (651 mg/M3) STEL (ACGIH) 100 ppm (435 mg/M3) PEL; 150 ppm (655 mg/M3) STEL (OSHA)
Benzene	71-43-2	0-5	10 ppm (32 mg/M3) TLV (ACGIH) 1 ppm PEL; 5 ppm STEL (OSHA)
1,2,4-Trimethylbenzene	95-63-6	0-5	25 ppm (123 mg/M3) TLV (ACGIH) 25 ppm (125 mg/M3) PEL (OSHA)
Ethylbenzene	100-41-4	0-5	100 ppm (434 mg/M3) TLV; 125 ppm (543 mg/M3) STEL (ACGIH) 100 ppm (435 mg/M3) PEL; 125 ppm (535 mg/M3) STEL (OSHA)
Cyclohexane	110-82-7	0-5	300 ppm (1,030 mg/M3) TLV (ACGIH) 300 ppm (1,050 mg/M3) PEL (OSHA)
Remaining components not determined hazardous and/or hazardous components present at less than 1.0% (0.1% for carcinogens).	NA	Trace	NA

Health Hazards: Harmful or fatal if swallowed, inhaled or absorbed through the skin. Dog oral LDLo = 2,000 mg/kg. Rat LC50 = 10,000 ppm/7 hours. Aspiration hazard. Moderately irritating to the skin. May cause allergic reactions in some individuals. Severely irritating to the eye. Acute benzene poisoning causes central nervous system depression. Benzene is carcinogenic to laboratory animals when given by intubation or by inhalation. Chronic exposure affects the hematopoietic system causing blood disorders including anemia and pancytopenia. Mutagenic and clastogenic in mammalian non-mammalian test systems. Reproductive toxicant only at doses that are maternally toxic, based on tests with animals. Carcinogenic determinations: IARC has determined that there is sufficient evidence of carcinogenicity in experimental animals and humans (IARC Class--1); NTP--Known carcinogen; ACGIH--Suspected carcinogen.

ND = No Data
NA = Not Applicable

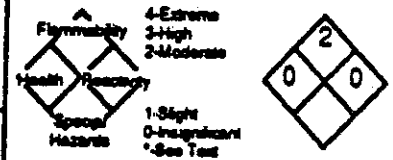
REVISION DATE: 21-jan-1991 REPLACES SHEET DATED: 20-nov-1990
COMPLETED BY: BP OIL HSEQ DEPARTMENT

NOTICE: The information presented herein is based on data considered to be accurate as of the date of preparation of this Material Safety Data Sheet. However, no warranty or representation, express or implied, is made as to the accuracy or completeness of the foregoing data and safety information, nor is any authorization given or implied to practice any patented invention without a license. In addition, no responsibility can be assumed by vendor for any damage or injury resulting from abnormal use, from any failure to adhere to recommended practices, or from any hazards inherent in the nature of the product.

ND = No Data
NA = Not Applicable

BP OIL

MATERIAL SAFETY DATA SHEET

24-HOUR EMERGENCY ASSISTANCE	GENERAL ASSISTANCE	NFPA FIRE HAZARD SYMBOL*
BP America (In Ohio): 800-362-8059 (Outside Ohio): 800-321-8642 CHEMTREC Assist: 800-424-9300	216-441-8124	
MSDS Number > AH1/CY1-2		

MANUFACTURER/SUPPLIER: BP Oil Company
ADDRESS: 200 Public Square, Cleveland, OH 44114-2375

PRODUCT IDENTIFICATION

TRADE NAME:
#2 DIESEL FUEL, UNBRANDED

CAS NUMBER: 68476-30-2
SYNONYM(S): NO. 2 DIESEL FUEL; FUEL OIL; MIDDLE DISTILLATE
CHEMICAL FAMILY: PETROLEUM HYDROCARBONS
MOLECULAR FORMULA: MIXTURE
MOLECULAR WEIGHT: NA
PRODUCT CODE: P 1420 **HIERARCHY:** 040.020

PRODUCT HAZARD SUMMARY

HEALTH
DANGER!
HARMFUL OR FATAL IF SWALLOWED
ASPIRATION HAZARD
VAPORS MAY BE HARMFUL
SKIN CANCER HAZARD BASED ON TESTS WITH LABORATORY ANIMALS
MAY BE IRRITATING TO THE SKIN, EYES AND RESPIRATORY TRACT

FLAMMABILITY
CAUTION!
COMBUSTIBLE LIQUID & VAPOR

REACTIVITY
STABLE

PRODUCT HEALTH HAZARD INFORMATION

INGESTION:
MODERATELY TOXIC. Human oral LDLo = ~10 mls. Aspiration into lungs may cause pneumonitis. May cause gastrointestinal disturbances. Symptoms may include irritation, nausea, vomiting and diarrhea. May cause harmful central nervous system effects. Effects

may include excitation, eu ria, headache, dizziness, drow ess, blurred vision, fatigue, tremors, convulsi , loss of consciousness, coma, aspiratory arrest and death.

SKIN:

PRACTICALLY NON-TOXIC. Rabbit dermal LD50 = >5 ml/kg. MODERATELY IRRITATING. Repeated or prolonged contact may result in defatting, redness, itching, inflammation, cracking and possible secondary infection. May cause allergic reactions in some individuals. Absorption from prolonged or massive skin contact may cause poisoning. High pressure skin injections are SERIOUS MEDICAL EMERGENCIES. Injury may not appear serious at first; within a few hours, tissue will become swollen, discolored and extremely painful (see Notes to Physician section).

EYE:

SLIGHTLY IRRITATING. Exposure to vapors, fumes or mists may cause irritation.

INHALATION:

May cause respiratory tract irritation. Exposure may cause central nervous system symptoms similar to those listed under "Ingestion" (see Ingestion section). Degenerative changes in the liver, kidneys and bone marrow may occur with prolonged, high concentrations. Repeated or prolonged exposures may cause behavioral changes.

SPECIAL TOXIC EFFECTS:

Products of similar composition have produced skin cancer in laboratory animals and have been positive in mutagenic test systems.

IARC has determined that diesel engine exhaust is probably carcinogenic to humans. (IARC Class--2A). Lifetime exposure to whole diesel exhaust has been shown to cause cancer in laboratory animals. NIOSH recommends that whole diesel exhaust be regarded as a potential occupational carcinogen.

WARNING: The use of any hydrocarbon fuel in an area without adequate ventilation may result in hazardous levels of combustion products and inadequate oxygen levels.

NOTE: This product has not been tested as a whole for all potential health effects. It may have other health hazards related to its components. See "Ingredient/Health Hazards" for additional information.

FIRST AID

INGESTION:

DO NOT INDUCE VOMITING BECAUSE OF DANGER OF ASPIRATING LIQUID INTO LUNGS. Get immediate medical attention. If spontaneous vomiting occurs, monitor for breathing difficulty.

SKIN CONTACT:

Remove contaminated clothing immediately. Wash area of contact thoroughly with soap and water. Get medical attention if irritation persists. High pressure skin injections are SERIOUS MEDICAL EMERGENCIES. Get immediate medical attention.

EYE CONTACT:

Flush immediately with large amounts of water for at least 15 minutes. Eyelids should be held away from the eyeball to ensure thorough rinsing. Get medical attention if irritation persists.

INHALATION:

Remove affected person from source of exposure. If not breathing, ensure open airway and institute cardiopulmonary resuscitation (CPR). If breathing is difficult, administer oxygen if available. Get medical attention.

NOTES TO PHYSICIAN

In case of ingestion, gastric lavage with activated charcoal can be used promptly to prevent absorption. Consideration should be given to the use of an intratracheal tube, to prevent aspiration. Individuals intoxicated by Diesel Fuel No. 2 should be hospitalized immediately, with acute and continuing attention to neurologic and cardiopulmonary function. Positive pressure ventilation may be necessary. After the initial episode, individuals should be followed for changes in blood variables and the delayed appearance of pulmonary edema and chemical pneumonitis. Such patients should be followed for several days or weeks for delayed effects, including bone marrow toxicity, hepatic and renal impairment. Individuals with chronic pulmonary disease will be more seriously impaired, and recovery from inhalation exposure may be complicated. In case of skin injection, prompt debridement of the wound is necessary to minimize necrosis and tissue loss.

PERSONAL PROTECTION INFORMATION

EYE PROTECTION:
Wear safety glasses or chemical goggles to prevent eye contact. Do not wear contact lenses when working with this substance. Have eye washing facilities readily available where eye contact can occur.

SKIN PROTECTION:
Wear impervious gloves and protective clothing to prevent skin contact.

RESPIRATORY PROTECTION:
NIOSH/MSHA approved breathing equipment must be available for non-routine and emergency use. Ventilation may be used to control or reduce airborne concentrations.

PHYSICAL PROPERTIES

BOILING POINT: 160.000 C (320 F) INITIAL
SPECIFIC GRAVITY: 0.840- 0.890 @ 60 F
MELTING POINT: NA
% VOLATILE: NEGLIGIBLE
VAPOR PRESSURE: 0.400 MM HG @ 68 F
EVAPORATION RATE (WATER=1): SLOWER
VAPOR DENSITY (AIR=1): 4.700
VISCOSITY: 1.900- 4.100 CST @ 100 F
% SOLUBILITY IN WATER: NEGLIGIBLE
OCTANOL/WATER PARTITION COEFFICIENT: ND
POUR POINT: < -12.220 C (10 F)
pH: NEUTRAL
APPEARANCE/ODOR: STRAW COLORED LIQUID WITH A HYDROCARBON ODOR.

FIRE AND EXPLOSION DATA

FLASH POINT: 54.400 C (130 F) MINIMUM
AUTOIGNITION TEMPERATURE: ND
FLAMMABILITY LIMITS IN AIR (% BY VOL.) LOWER: 0.700
FLAMMABILITY LIMITS IN AIR (% BY VOL.) UPPER: 5.000

ND = No Data
NA = Not Applicable

BASIC FIREFIGHTING PROCEDURES:
Use water spray, dry chemical, foam or carbon dioxide to extinguish fire. Use a water spray to cool fire-exposed containers, structures and to protect personnel. If leak or spill has not ignited, ventilate area and use water spray to disperse gas or vapor and to protect personnel attempting to stop a leak. Use water to flush spills away from sources of ignition. Do not flush down public sewers.

UNUSUAL FIRE AND EXPLOSION HAZARDS:
Irritating or toxic substances may be emitted upon thermal decomposition. Dangerous when exposed to heat or flame. Runoff to sewer may cause fire or explosion hazard. Containers may explode in heat of fire. Exposed firefighters should wear MSHA/NIOSH approved self-contained breathing apparatus with full face mask and full protective equipment.

REACTIVITY DATA

STABILITY/INCOMPATIBILTY:
Stable. Avoid contact with strong oxidizers.

HAZARDOUS REACTIONS/DECOMPOSITION PRODUCTS:
Combustion may produce CO, CO2 and reactive hydrocarbons.

ENVIRONMENTAL INFORMATION

SPILL OR RELEASE TO THE ENVIRONMENT:
If your facility or operation has an "Oil or Hazardous Substance Contingency Plan", activate its procedures.

-- Take immediate steps to stop and contain the spill. Caution should be exercised regarding personnel safety and exposure to the spilled material.

-- For technical advice and assistance related to chemicals, contact CHEMTREC (800/424-9300) and your local fire department.

-- Notify the National Response Center, if required.

Emergency Action:
Keep unnecessary people away. Stay upwind; keep out of low areas. Isolate hazard area and deny entry. (Also see Personal Protection Information section.) Isolate for 1/2 mile in all directions if tank or tankcar is involved in fire.

Spill or Leak Procedure:
No flares, smoking or flames in hazard area. Stop leak if you can do it without risk. Use water spray to reduce vapors. Small Spills: Take up with sand or other noncombustible absorbent material or other sorbent known to be compatible, then flush area with water. Large Spills: Dike far ahead of spill for later disposal.

Notification:
Any spill or release, or substantial threat of release, of this material to navigable water (virtually any surface water) sufficient to cause a visible sheen upon the water must be reported immediately to the National Response Center (800/424-8802), as required by U.S. Federal Law. Failure to report may result in substantial civil and criminal penalties.

WASTE DISPOSAL:
This substance, when discarded or disposed of, is not specifically listed as a hazardous

waste in Federal regulations; however it could be hazardous if it is considered toxic, corrosive, ignitable, or reactive according to Federal definitions (40 CFR 261). Additionally, it could be designated as hazardous according to state regulations. This substance could also become a hazardous waste if it is mixed with or comes in contact with a hazardous waste. If such contact or mixing may have occurred, check 40 CFR 261 to determine whether it is a hazardous waste. If it is a hazardous waste, regulations at 40 CFR 262, 263, and 264 apply.

The transportation, storage, treatment, and disposal of this waste material must be conducted in compliance with all applicable Federal, state, and local regulations.

SARA TITLE III INFORMATION:

Listed below are the hazard categories for the Superfund Amendments and Reauthorization Act (SARA) Section 311/312 (40 CFR 370):

Immediate Hazard: X Delayed Hazard: X Fire Hazard: X Pressure Hazard: - Reactivity Hazard: -

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ADDITIONAL ENVIRONMENTAL REGULATORY INFORMATION:

There may be specific regulations at the local, regional or state level that pertain to this material.

SPECIAL PRECAUTIONS/SUPPLEMENTAL INFORMATION

HANDLING/STORAGE:

Store in tightly closed containers in cool, dry, isolated, well-ventilated area away from heat, sources of ignition and incompatibles. Use non-sparking tools. Ground lines and equipment used during transfer to reduce the possibility of static spark-initiated fire or explosion.

Empty containers may contain toxic, flammable/combustible or explosive residue or vapors. Do not cut, grind, drill, weld or reuse containers unless adequate precautions are taken against these hazards.

TRANSPORTATION REQUIREMENTS

D.O.T. PROPER SHIPPING NAME (49 CFR 172.101):	FUEL OIL NO. 2
D.O.T. HAZARD CLASS (49 CFR 172.101):	COMBUSTIBLE LIQUID
UN/NA CODE (49 CFR 172.101):	NA 1993
BILL OF LADING DESCRIPTION (49 CFR 172.202):	FUEL OIL NO. 2, COMBUSTIBLE LIQUID NA 1993 (DISTILLATE)
D.O.T. LABELS REQUIRED (49 CFR 172.101):	NA
D.O.T. PLACARDS REQUIRED (49 CFR 172.504):	COMBUSTIBLE

INGREDIENTS/HEALTH HAZARD INFORMATION

COMPONENT	CAS NO.	%	EXPOSURE LIMITS - REF.
A distillate having a minimum viscosity of 32.6 SUS at 100 degrees F to a maximum of 37.9 SUS at 100 degrees F	68476-30-2	99.90-100	None established

REVISION DATE: 27-jul-1990 REPLACES SHEET DATED: 06-dec-1989
COMPLETED BY: BP OIL HSEQ DEPARTMENT

NOTICE: The information presented herein is based on data considered to be accurate as of the date of preparation of this Material Safety Data Sheet. However, no warranty or representation, express or implied, is made as to the accuracy or completeness of the foregoing data and safety information, nor is any authorization given or implied to practice any patented invention without a license. In addition, no responsibility can be assumed by vendor for any damage or injury resulting from abnormal use, from any failure to adhere to recommended practices, or from any hazards inherent in the nature of the product.

ND = No Data
NA = Not Applicable

ATTACHMENT IV

EQUIPMENT LISTS

Attachment IV - Equipment List

Required Equipment List

Suggested checklists are detailed below:

Safety and Emergency Equipment

(4) Red and White Stanchions for Holding Barrier Tape
(2) "NO SMOKING" signs
(2) "DANGER" signs
(1) Fire Extinguisher (10 lb. C02 type)
(1) First Aid Kit
(1) Eye Wash Kit
(1) Brush Fan if required

Monitoring Equipment

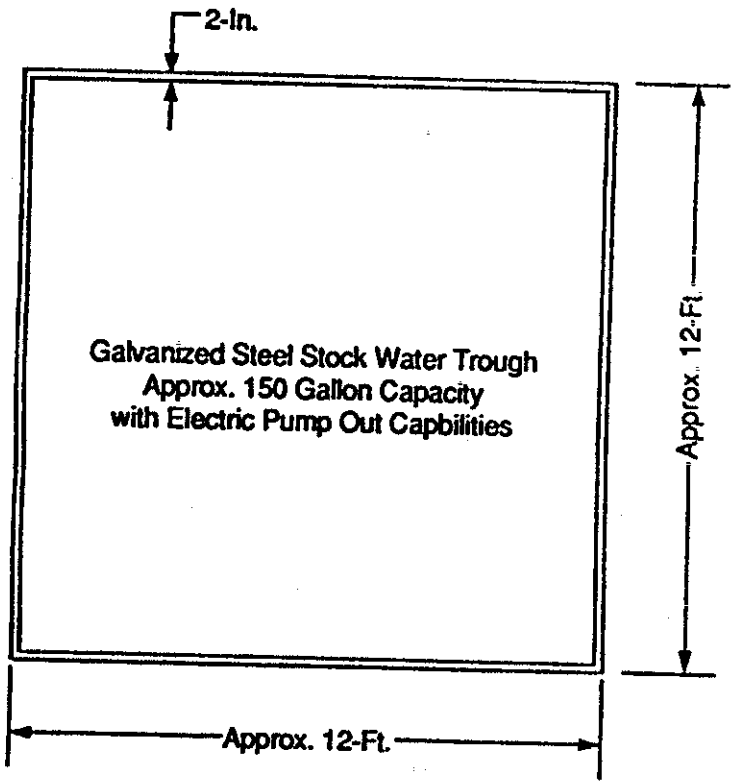
MSA 261 Combustible Gas/02 Meter or equivalent
TIP2 Photoionization Detector
Colorimetric Indicator Tubes: benzene

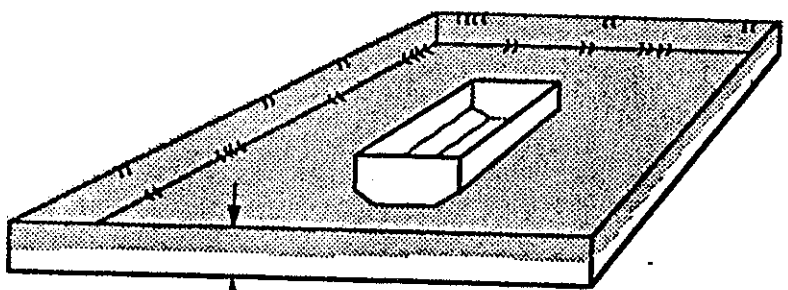
Personal Protective Equipment

Half Face - Air Purifying Respirator (APR) - Organic Vapor or High Efficiency Particulate (HEPA) Cartridge
Supplied-air respirator (if required)
Hard hat with face shield (eye goggles optional)
Tyvek Coveralls or daily change of clothing
Boot Covers
Rubber boots
Nitrile (solvent resistant)/Neoprene Gloves (optional)

Decontamination Equipment (if required)

(2) Boot and Glove Wash Buckets
(2) Scrub Brushes - Long Handled with Handling Hooks
(1) Spray Rinse applicator
(15) Plastic Bags
(3) 55-gallon drum containers with labels





NOTE

Line decontamination facility with one continuous section of 6 mil or better polyethylene sheeting.

TYPICAL DECONTAMINATION FACILITY

SHANNON & WILSON, INC.

EXHIBIT C

EMERGENCY RESPONSE -- PHASE I
Tentative Schedule of Activities
Manhole 34
Sunnyside, WA