



# General Services Agency

Darlene A. Smith, Director

November 15, 1995

Mr. Scott Seery  
Senior Hazardous Materials Specialist  
Department of Environmental Health  
1131 Harbor Bay Parkway, 2nd Floor  
Alameda, California 94502

ENVIRONMENTAL  
PROTECTION  
95 NOV 16 AM 8:57

SUBJECT: ENGINEER'S HILL, SANTA RITA CORRECTIONAL FACILITY,  
DUBLIN, CALIFORNIA

Dear Mr. Seery:

Enclosed for you review is a *Health and Environmental Risk Assessment Report*, dated October 19, 1995. The report was prepared by Environmental Science & Engineering, Inc. (ESE), Alameda County GSA's consultant.

In the report, ESE states: "Based on the findings of this risk assessment, additional remedial action at the former UST site at Engineer's Hill site is not required. The presence of petroleum hydrocarbon residuals under the UST site do not pose an unreasonable risk to human health or to the environment." Alameda County GSA, therefore, requests case closure for Engineer's Hill.

If you have questions or would like to schedule a meeting to discuss this further, please call me at extension 2-9522.

Sincerely,

Rod Freitag, P.E.  
Environmental Program Manager

enclosure

cc: Jim de Vos, GSA - E&EM  
Pat Cashman, Surplus Property Authority

RDF:rdfg:\project\env\7030eh23\eh1107.doc

ALAMEDA COUNTY  
HEALTH CARE SERVICES  
AGENCY



DAVID J. KEARS, Agency Director

STID 4086

RAFAT A. SHAHID, ASST. AGENCY DIRECTOR

DEPARTMENT OF ENVIRONMENTAL HEALTH

State Water Resources Control Board

Division of Clean Water Programs

UST Local Oversight Program

80 Swan Way, Rm 200

Oakland, CA 94621

(510) 271-4530

May 3, 1994

Mr. Pete Kinney  
Alameda County General Services Agency  
4400 MacArthur Boulevard  
Oakland, CA 94619

RE: "ENGINEER'S HILL," UST 23, SANTA RITA FACILITY

Dear Mr. Kinney:

I have completed review of the April 7, 1994 Environmental Science & Engineering, Inc. (ESE) *Workplan for Additional Site Investigation, Engineer's Hill*. This review was performed in context with the body of work performed to date, as documented in the February 1, 1994 ESE *Site Assessment Report, Engineer's Hill*.

The cited ESE work plan has been accepted with the following change:

- o Proposed maximum depth of each boring is "...approximately 60 feet in nonimpacted sediments beneath the apparently dipping pebbly sand layer." As illustrated in the east-west geologic cross-section presented as Figure No. 3 of the cited February 1, 1994 ESE assessment report, the apparent dip of the noted pebbly sand layer is very approximately 25° to the west. Assuming no changes in dip or thickness, the proposed initial boring site(s) may miss encountering the upper surface of this target layer before the 60 foot depth is reached.

Therefore, boring depths should be based solely on the depth at which the pebbly sand layer is encountered and fully penetrated (assuming contamination is exclusive to this layer), or any other field evidence of the presence or absence of hydrocarbon contamination.

Please contact me at 510/271-4530 when field work is slated to begin.

Sincerely,

  
Scott O. Seery, CHMM  
Senior Hazardous Materials Specialist

cc: Rafat A. Shahid, Assistant Agency Director  
Gil Jensen, Alameda County District Attorney's Office  
Ed Laudani, Alameda County Fire Department  
Bart Miller, ESE



Environmental  
Science &  
Engineering, Inc.

FACSIMILE

DATE: 11/15/93 TIME: 10:15 AM

TO: SCOTT SEERY FROM: BART MILLER  
ALAMEDA COUNTY ESE, Inc.  
HEALTH CARE SERVICES 4090 Nelson Avenue, Ste J  
Concord, CA 94520

FAX #: (510) 569-4757 JOB #: 6-93-5073

SUBJECT: ENGINEERS HILL, SANTA RITA CORRECTIONAL FACILITY, DUBLIN, CA

Number of Pages

(Including this Cover Sheet)

1

ADDITIONAL MESSAGE:

SCOTT,

Wanted to let you know that fieldwork at the subject site  
has been scheduled for November 17th and 18th. Will begin workdays  
at 8 AM. Feel free to pay a visit.

If you have any questions, please call us immediately at (510) 685-4053.

ALAMEDA COUNTY  
HEALTH CARE SERVICES  
AGENCY

DAVID J. KEARS, Agency Director



RAFAT A. SHAHID, ASST. AGENCY DIRECTOR

STID 4086

November 4, 1993

Mr. Jim de Vos  
Alameda County General Services Agency  
4400 Mac Arthur Boulevard  
Oakland, CA 94619

DEPARTMENT OF ENVIRONMENTAL HEALTH  
State Water Resources Control Board  
Division of Clean Water Programs  
UST Local Oversight Program  
80 Swan Way, Rm 200  
Oakland, CA 94621  
(510) 271-4530

RE: "ENGINEER'S HILL," UST 23 - SANTA RITA FACILITY

Dear Mr. de Vos:

As noted during our September 15, 1993 meeting, the scope of the July 9, 1993 Environmental Science & Engineering, Inc. (ESE) work plan for the initial stages of assessment of soil and ground water in the area proximal to the subject tank has been accepted, with the following comments:

- 1) A qualitative assessment of ground water is proposed by advancing a Hydropunch sampler into the saturated zone encountered in boring EH-1, and withdrawing a ground water sample for analysis. This procedure is only acceptable as a screening tool. A permanent well network may become necessary dependant upon the depth to ground water, the presence or absence of contaminants, and the nature of penetrated sediments, among other issues. Only after the professional interpretation of collected data will the need for a well network be determined.
- 2) The Site Health and Safety Plan should reflect the location of a much closure hospital in Pleasanton, at the corner of West Las Positas and Santa Rita Road.

Please call me at 510/271-4530 when field work is slated to begin.

Sincerely,

  
Scott O. Seery, CHMM  
Senior Hazardous Materials Specialist

cc: Rafat A. Shahid, Assistant Agency Director  
Gil Jensen, Alameda County District Attorney's Office  
Jim Ferdinand, Alameda County Fire Department  
Bart Miller, ESE

Tank 23

# UNDERGROUND STORAGE TANK UNAUTHORIZED RELEASE (LEAK) / CONTAMINATION SITE REPORT

EMERGENCY <input type="checkbox"/> YES <input checked="" type="checkbox"/> NO	HAS STATE OFFICE OF EMERGENCY SERVICES REPORT BEEN FILED? <input type="checkbox"/> YES <input checked="" type="checkbox"/> NO	FOR LOCAL AGENCY USE ONLY I HEREBY CERTIFY THAT I HAVE DISTRIBUTED THIS INFORMATION ACCORDING TO THE DISTRIBUTION SHOWN ON THE INSTRUCTION SHEET ON THE BACK PAGE OF THIS FORM.
REPORT DATE 1 <u>1</u> / <u>1</u> / 9 <u>9</u> / 2 <u>2</u>	CASE #	SIGNED _____ DATE _____

REPORTED BY	NAME OF INDIVIDUAL FILING REPORT R. Stephen Willcutts, Agent for GSA	PHONE (510) 685-4053	SIGNATURE <i>R. Stephen Willcutts</i>
	REPRESENTING <input checked="" type="checkbox"/> OWNER/OPERATOR <input type="checkbox"/> REGIONAL BOARD <input type="checkbox"/> LOCAL AGENCY <input type="checkbox"/> OTHER	COMPANY OR AGENCY NAME Environmental Science & Engineering, Inc.	
	ADDRESS 4090 Nelson Ave., Suite J Concord CA 94520		

RESPONSIBLE PARTY	NAME Alameda County General Services Agency (GSA) <input type="checkbox"/> UNKNOWN	CONTACT PERSON Jim de Vos	PHONE (510) 535-6248
	ADDRESS 4400 MacArthur Blvd. Oakland CA 94619		

SITE LOCATION	FACILITY NAME (IF APPLICABLE) "Engineers Hill" Tank 2942-23	OPERATOR Alameda County GSA	PHONE (510) 535-6248
	ADDRESS Engineers Hill, Old Santa Rita Jail Dublin Alameda 94568		
	CROSS STREET Tassajara Road		

IMPLEMENTING AGENCIES	LOCAL AGENCY Alameda County Health Care Services	AGENCY NAME	CONTACT PERSON Ravi Arulanantham	PHONE (510) 271-4530
	REGIONAL BOARD San Francisco Bay Regional Water Quality Control Board		Eddie So	PHONE (415) 286-4366

SUBSTANCES INVOLVED	(1) NAME Diesel Fuel	QUANTITY LOST (GALLONS) <input checked="" type="checkbox"/> UNKNOWN
	(2)	<input type="checkbox"/> UNKNOWN

DISCOVERY/BATEMENT	DATE DISCOVERED 0 <u>5</u> / <u>1</u> / 8 <u>9</u> / 2 <u>2</u>	HOW DISCOVERED <input type="checkbox"/> TANK TEST <input type="checkbox"/> TANK REMOVAL <input checked="" type="checkbox"/> OTHER Subsurface Investigation
	DATE DISCHARGE BEGAN <input checked="" type="checkbox"/> UNKNOWN	METHOD USED TO STOP DISCHARGE (CHECK ALL THAT APPLY) <input type="checkbox"/> REMOVE CONTENTS <input type="checkbox"/> CLOSE TANK & REMOVE <input type="checkbox"/> REPAIR PIPING <input type="checkbox"/> REPAIR TANK <input type="checkbox"/> CLOSE TANK & FILL IN PLACE <input type="checkbox"/> CHANGE PROCEDURE <input type="checkbox"/> REPLACE TANK <input checked="" type="checkbox"/> OTHER Tank Removed 5/18/92
	HAS DISCHARGE BEEN STOPPED? <input checked="" type="checkbox"/> YES <input type="checkbox"/> NO IF YES, DATE 0 <u>5</u> / <u>1</u> / 8 <u>9</u> / 2 <u>2</u>	

SOURCE/ CAUSE	SOURCE OF DISCHARGE <input checked="" type="checkbox"/> TANK LEAK <input type="checkbox"/> UNKNOWN <input type="checkbox"/> PIPING LEAK <input type="checkbox"/> OTHER	CAUSE(S) <input type="checkbox"/> OVERFILL <input type="checkbox"/> CORROSION <input type="checkbox"/> RUPTURE/FAILURE <input type="checkbox"/> UNKNOWN <input type="checkbox"/> SPILL <input type="checkbox"/> OTHER
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CASE TYPE	CHECK ONE ONLY <input checked="" type="checkbox"/> UNDETERMINED <input type="checkbox"/> SOIL ONLY <input type="checkbox"/> GROUNDWATER <input type="checkbox"/> DRINKING WATER - (CHECK ONLY IF WATER WELLS HAVE ACTUALLY BEEN AFFECTED)
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CURRENT STATUS	CHECK ONE ONLY <input checked="" type="checkbox"/> NO ACTION TAKEN <input checked="" type="checkbox"/> PRELIMINARY SITE ASSESSMENT WORKPLAN SUBMITTED <input type="checkbox"/> POLLUTION CHARACTERIZATION <input type="checkbox"/> LEAK BEING CONFIRMED <input checked="" type="checkbox"/> PRELIMINARY SITE ASSESSMENT UNDERWAY <input type="checkbox"/> POST CLEANUP MONITORING IN PROGRESS <input type="checkbox"/> REMEDIATION PLAN <input type="checkbox"/> CASE CLOSED (CLEANUP COMPLETED OR UNNECESSARY) <input type="checkbox"/> CLEANUP UNDERWAY
----------------	--

REMEDIAL ACTION	CHECK APPROPRIATE ACTION(S) (SEE BACK FOR DETAILS) <input type="checkbox"/> CAP SITE (CD) <input type="checkbox"/> EXCAVATE & DISPOSE (ED) <input type="checkbox"/> REMOVE FREE PRODUCT (FP) <input type="checkbox"/> ENHANCED BIO DEGRADATION (IT) <input type="checkbox"/> CONTAINMENT BARRIER (CB) <input type="checkbox"/> EXCAVATE & TREAT (ET) <input type="checkbox"/> PUMP & TREAT GROUNDWATER (GT) <input type="checkbox"/> REPLACE SUPPLY (RS) <input type="checkbox"/> VACUUM EXTRACT (VE) <input type="checkbox"/> NO ACTION REQUIRED (NA) <input type="checkbox"/> TREATMENT AT HOOKUP (HU) <input type="checkbox"/> VENT SOIL (VS) <input checked="" type="checkbox"/> OTHER (OT) Remedial Action has not yet been initiated
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COMMENTS	2942-23 at Engineers Hill was found to be empty during site investigation work
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LOP - RECORD CHANGE REQUEST FORM

printed:  
04/01/97

Mark Out What Needs Changing and Hand to LOP Data Entry  
(Name/Address changes go to Annual Programs Data Entry)

Insp: SOS

AGENCY # : 10000      SOURCE OF FUNDS: F      SUBSTANCE: 12034  
 StID : 5540      LOC:  
 SITE NAME: Santa Rita - Engineer's Hill      DATE REPORTED : 11/19/92  
 ADDRESS : Broder Blvd      DATE CONFIRMED: 05/18/92  
 CITY/ZIP : Dublin      94568      MULTIPLE RPS : N

SITE STATUS

-----  
 CASE TYPE: S      CONTRACT STATUS: 4      PRIOR CODE:2A4      EMERGENCY RESP:  
 RP SEARCH: S      DATE COMPLETED: 01/26/95  
 PRELIMINARY ASMNT:      DATE UNDERWAY:      DATE COMPLETED:  
 REM INVESTIGATION:      DATE UNDERWAY:      DATE COMPLETED:  
 REMEDIAL ACTION:      DATE UNDERWAY:      DATE COMPLETED:  
 POST REMED ACT MON:      DATE UNDERWAY:      DATE COMPLETED:

ENFORCEMENT ACTION TYPE: 1      DATE ENFORCEMENT ACTION TAKEN: 01/26/95  
 LUFT FIELD MANUAL CONSID: 2  
 CASE CLOSED:      DATE CASE CLOSED:  
 DATE EXCAVATION STARTED :      REMEDIAL ACTIONS TAKEN: NT

RESPONSIBLE PARTY INFORMATION

-----  
 RP#1-CONTACT NAME: Jim De Vos  
 COMPANY NAME: Alameda County GSA  
 ADDRESS: 1401 Lakeside Drive  
 CITY/STATE: Oakland, Ca 94612

INSPECTOR VERIFICATION:

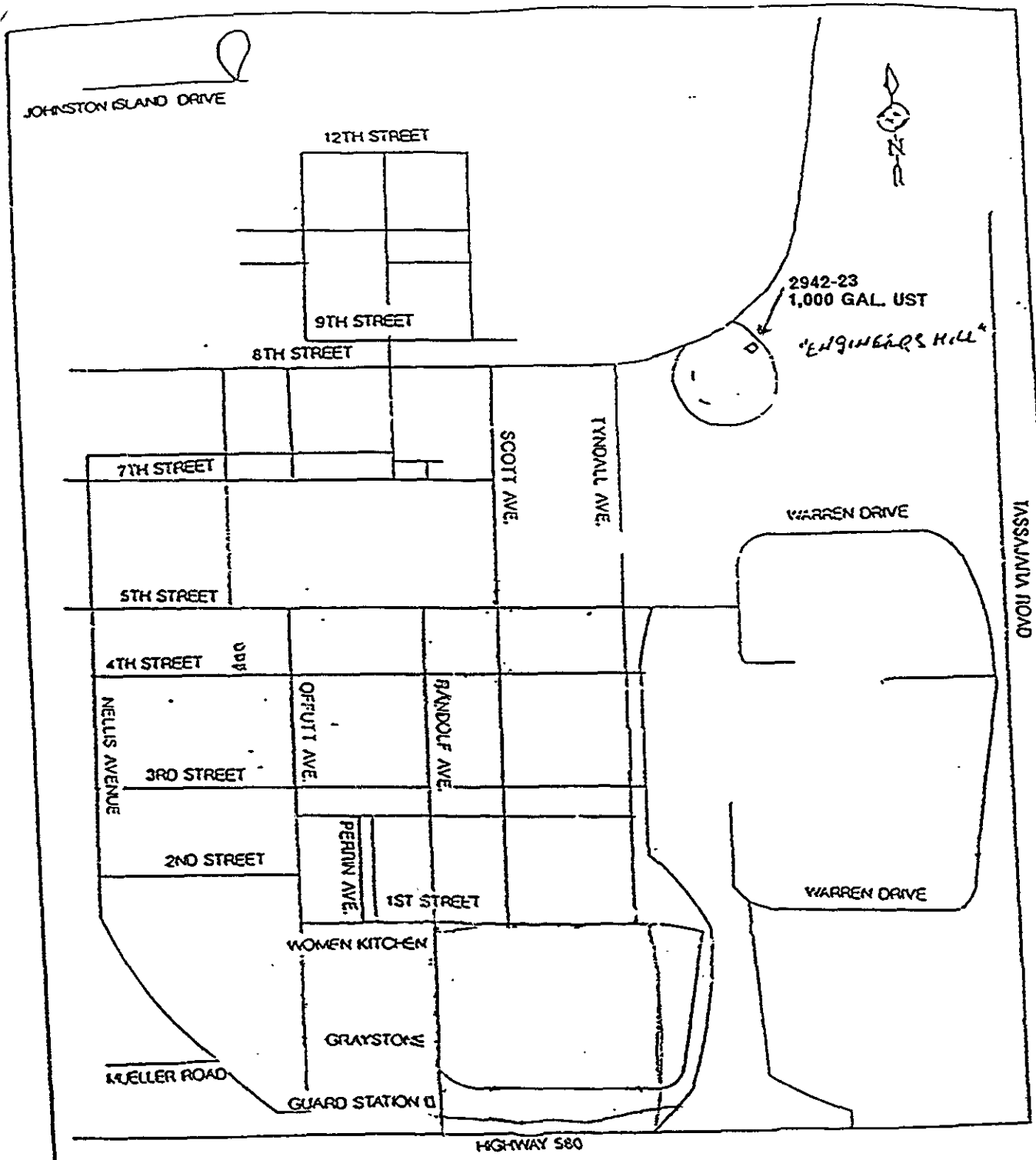
NAME \_\_\_\_\_ SIGNATURE \_\_\_\_\_ DATE \_\_\_\_\_

DATA ENTRY INPUT:

Name/Address Changes Only      Case Progress Changes

ANNPGMS \_\_\_\_\_ LOP \_\_\_\_\_ DATE \_\_\_\_\_ || LOP \_\_\_\_\_ DATE \_\_\_\_\_

*revised 4/28/97*



**Figure 2 Site Map**  
**LOCATION OF UST 2942-23**  
**AT SANTA RITA JAIL FACILITY**  
**DUBLIN, CALIFORNIA**



# General Services Agency

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Darlene Smith, Director

BUILDING MAINTENANCE DEPARTMENT  
4400 MacArthur Boulevard  
Oakland, California 94619  
Telephone (510) 535-9660  
FAX (510) 535-6245

Hilton T. Hunt  
Deputy Director, GSA - BMD

DATE: October 2, 1992

TO: Ravi Arulanantham, Environmental Health Services

FROM: Peter Kinney, Environmental Engineer  
*Peter Kinney*

SUBJECT: WORK PLAN - SRJ TANK 23 - ENGINEERS HILL

Good afternoon Ravi. You will find enclosed for your review and approval the work plan from ES&E. As soon as it is approved we will start the site work. If there are any problems, please give me a call at extension 36280. Thanks!

Enclosure

PK:je



Tank #23  
"Engineers Hill"

80 Swan Way, #200  
Oakland, CA 94621  
(415) 271-4320

white -env.health  
yellow -facility  
pink -files

# ALAMEDA COUNTY, DEPARTMENT OF ENVIRONMENTAL HEALTH

## Hazardous Materials Inspection Form

II, III

Site ID # \_\_\_\_\_ Site Name Tank #23 (Hill Top) Today's Date 5/18/92

Site Address Old Santa Rita Jail

City Dublin Zip 94 Phone \_\_\_\_\_

MAX AMT stored > 500 lbs, 55 gal., 200 cft.?

### Inspection Categories:

- I. Haz. Mat/Waste GENERATOR/TRANSPORTER
- II. Business Plans, Acute Hazardous Materials
- III. Underground Tanks

\* Calif. Administration Code (CAC) or the Health & Safety Code (HS&C)

### Comments:

1 - 100 GAL DIESEL TANK - SEVERAL HOLES IN TANK. (see yellow chalk)

Reburied is still in the ground.  
NO Petroleum odor detected

NO VISUAL SIGNS OF Soil Contamination -

SAMPLE 23W - Soil is sandy silt.

23W

### II.A BUSINESS PLANS (Title 19)

- 1. Immediate Reporting 2703
- 2. Bus. Plan Stds. 25503(b)
- 3. RR Cars > 30 days 25503.7
- 4. Inventory Information 25504(a)
- 5. Inventory Complete 2730
- 6. Emergency Response 25504(b)
- 7. Training 25504(c)
- 8. Deficiency 25505(a)
- 9. Modification 25505(b)

### II.B ACUTELY HAZ. MAT'LS

- 10. Registration Form Filed 25533(a)
- 11. Form Complete 25533(b)
- 12. RMPP Contents 25534(c)
- 13. Implement Sch. Req'd? (Y/N)
- 14. OffSite Conseq. Assess. 25524(c)
- 15. Probable Risk Assessment 25534(d)
- 16. Persons Responsible 25534(g)
- 17. Certification 25534(f)
- 18. Exemption Request? (Y/N) 25536(b)
- 19. Trade Secret Requested? 25538

### III. UNDERGROUND TANKS (Title 23)

- |   |  |
|---|--|
| General   | <input type="checkbox"/> 1. Permit Application 25284 (H&S)                                 |
|   | <input type="checkbox"/> 2. Pipeline Leak Detection 25292 (H&S)                            |
|   | <input type="checkbox"/> 3. Records Maintenance 2712                                       |
|   | <input type="checkbox"/> 4. Release Report 2651  |
|   | <input type="checkbox"/> 5. Closure Plans 2670   |
| <hr/>   |  |
| Monitoring for Existing Tanks                     | <input type="checkbox"/> 6. Method   |
|   | 1) Monthly Test  |
|   | 2) Daily Vadose<br>Semi-annual groundwater<br>One time soils                               |
|   | 3) Daily Vadose<br>One time soils<br>Annual tank test                                      |
|   | 4) Monthly Groundwater<br>One time soils   |
|   | 5) Daily Inventory<br>Annual tank testing<br>Cont pipe leak det<br>Vadose/groundwater mon. |
|   | 6) Daily Inventory<br>Annual tank testing<br>Cont pipe leak det                            |
|   | 7) Weekly Tank Gauge<br>Annual tank testing  |
|   | 8) Annual Tank Testing<br>Daily Inventory  |
|   | 9) Other _____   |
| <hr/>   |  |
| <input type="checkbox"/> 7. Precis Tank Test 2643 |  |
| Date: _____                                       |  |
| <input type="checkbox"/> 8. Inventory Rec. 2644   |  |
| <input type="checkbox"/> 9. Soil Testing . 2646   |  |
| <input type="checkbox"/> 10. Ground Water. 2647   |  |

- |  |  |
|--|--|
| New Tanks                                  | <input type="checkbox"/> 11. Monitor Plan 2632   |
|  | <input type="checkbox"/> 12. Access. Secure 2634 |
|  | <input type="checkbox"/> 13. Plans Submit 2711   |
|  | Date: _____                                      |
| <input type="checkbox"/> 14. As Built 2635 |  |
| Date: _____                                |  |

Rev 6/88

Contact: Patrick Galvin/ESE  
 Title: Sr. Engineer  
 Signature: Patrick Galvin

Inspector: Jeff Shapiro  
 Signature: Jeff Shapiro

II, III

Tank No 2942-23  
"Engineer Hill"

ALAMEDA COUNTY HEALTH CARE SERVICES AGENCY  
DEPARTMENT OF ENVIRONMENTAL HEALTH  
HAZARDOUS MATERIALS DIVISION  
80 SWAN WAY, ROOM 200  
OAKLAND, CA 94621  
PHONE NO. 415/271-4320

Project Specialist (print) Jeff Shapiro

ACCEPTED  
DEPARTMENT OF ENVIRONMENTAL HEALTH  
470 - 27th Street, 1st Floor  
Oakland, CA 94612  
Telephone: (415) 271-7337

These plans have been reviewed and found to be acceptable and essential by the Department of Environmental Health. The Department of Environmental Health has no jurisdiction over local health laws. Changes to these plans must be submitted to the Department of Environmental Health for review and approval. The professional seal of the engineer is required for issuance of any permit. The Department of Environmental Health and its staff are available to all contractors and craftsmen involved with the removal.

Any change or alterations of these plans and specifications must be submitted to this Department and to the fire and Building Inspection Department to determine if such changes meet the requirements of State and local laws. Notify this Department at least 48 hours prior to the following required inspections:

- Removal of Tank and Piping
- Sampling
- Final Inspection

Issuance of a permit to operate is dependent on compliance with accepted plans and all applicable laws and regulations.

THERE IS A FINANCIAL PENALTY FOR NOT OBTAINING THESE INSPECTIONS.

Please give a 5 day notice before tank removal. Jeff Shapiro  
4/28/90  
EPA 01 2122

UNDERGROUND TANK CLOSURE PLAN

\*\*\* Complete according to attached instructions \*\*\*

- Business Name Santa Rita Jail  
Business Owner Alameda County General Services Agency
- Site Address 5325 Broder Boulevard  
City Dublin Zip 94568 Phone (510) 551-6674
- Mailing Address Same  
City \_\_\_\_\_ Zip \_\_\_\_\_ Phone \_\_\_\_\_
- Land Owner Alameda County General Services Agency  
Address 4400 MacArthur Blvd. City, State Oakland, CA Zip 94619
- Generator name under which tank will be manifested \_\_\_\_\_  
Alameda County General Services Agency  
EPA I.D. No. under which tank will be manifested CAD 981397060

6. Contractor Environmental Science & Engineering, Inc.  
Address 4090 Nelson Avenue, Suite J  
City Concord Phone (510) 685-4053  
License Type General Engineering ID# 540544

7. Consultant Same as 6.  
Address \_\_\_\_\_  
City \_\_\_\_\_ Phone \_\_\_\_\_

8. Contact Person for Investigation

Name R. Stephen Willcutts Title Senior Staff Engineer  
Phone (510) 685-4053

9. Number of tanks being closed under this plan 1  
Length of piping being removed under this plan 0  
Total number of tanks at facility 8

10. State Registered Hazardous Waste Transporters/Facilities (see instructions).

**\*\* Underground tanks are hazardous waste and must be handled \*\*  
as hazardous waste**

a) Product/Residual Sludge/Rinsate Transporter

Name Erickson Trucking, Inc. EPA I.D. No. CAD 009 466 392  
Hauler License No. CA 019 License Exp. Date 05/92  
Address 255 Parr Boulevard  
City Richmond State CA Zip 94801

b) Product/Residual Sludge/Rinsate Disposal Site

Name Same as 10. a EPA I.D. No. \_\_\_\_\_  
Address \_\_\_\_\_  
City \_\_\_\_\_ State \_\_\_\_\_ Zip \_\_\_\_\_

c) Tank and Piping Transporter

Name Erickson Trucking, Inc. EPA I.D. No. CAD 009 466 392  
Hauler License No. CA 019 License Exp. Date 05/92  
Address 255 Parr Boulevard  
City Richmond State CA Zip 94801

d) Tank and Piping Disposal Site

Name Same as c EPA I.D. No. \_\_\_\_\_  
Address \_\_\_\_\_  
City \_\_\_\_\_ State \_\_\_\_\_ Zip \_\_\_\_\_

11. Experienced Sample Collector

Name R. Stephen Willcutts  
Company Environmental Science & Engineering, Inc.  
Address 4090 Nelson Avenue, Suite J  
City Concord State CA Zip 94520 Phone (510) 685-4053

12. Laboratory

Name Curtis & Tompkins, LTD.  
Address 2323 Fifth Street  
City Berkeley State CA Zip 94710  
State Certification No. 159

13. Have tanks or pipes leaked in the past? Yes [ ] No [X]

If yes, describe. \_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

14. Describe methods to be used for rendering tank inert

Additional of 15 pounds of dry ice for every 1,000 gallons tank capacity.

Before tanks are pumped out and inerted, all associated piping must be flushed out into the tanks. All accessible associated piping must then be removed. Inaccessible piping must be plugged.

The Bay Area Air Quality Management District (771-6000), along with local Fire and Building Departments, must also be contacted for tank removal permits. Fire departments typically require the use of explosion proof combustible gas meters to verify tank inertness. It is the contractor's responsibility to bring a working combustible gas meter on site to verify tank inertness.

15. Tank History and Sampling Information

Tank # 23		Material to be sampled (tank contents, soil, ground-water, etc.)	Location and Depth of Samples
Capacity	Use History (see instructions)		
1,000 gallons	Currently inactive. Installation date is unknown. <del>Product was diesel fuel oil.</del>	Soil	2 Samples to be collected at two feet below tank invert, at each end of tank. (approx. 12 feet below ground surface)

One soil sample must be collected for every 20 feet of piping that is removed. A ground water sample must be collected should any ground water be present in the excavation.

Excavated/Stockpiled Soil	
<b>Stockpiled Soil Volume (Estimated)</b>  15 cy	<b>Sampling Plan</b>  Collect on sample from soil stockpile and analyze as described in item 16.

Stockpiled soil must be placed on bermed plastic and must be completely covered by plastic sheeting.

16. Chemical methods and associated detection limits to be used for analyzing samples

The Tri-Regional Board recommended minimum verification analyses and practical quantitation reporting limits should be followed. See attached Table 2.

Contaminant - Sought	EPA, DHS, or Other Sample Preparation Method Number	EPA, DHS, or Other Analysis Method Number	Method Detection Limit
TPH-D	GC FID (3550)	EPA 8015M	1 ppm
BTX&E	GC FID	EPA 8020	0.005 ppm
O&G	5520 D&F	Oil & Grease	50 ppm

17. Submit Site Health and Safety Plan (See Instructions)

18. Submit Worker's Compensation Certificate copy

Name of Insurer Planet Insurance Company

19. Submit Plot Plan (See Instructions)

20. Enclose Deposit (See Instructions)

21. Report any leaks or contamination to this office within 5 days of discovery. The report shall be made on an Underground Storage Tank Unauthorized Leak/Contamination Site Report form. (see Instructions)

22. Submit a closure report to this office within 60 days of the tank removal. This report must contain all the information listed in item 22 of the instructions.

I declare that to the best of my knowledge and belief the statements and information provided above are correct and true.

I understand that information in addition to that provided above may be needed in order to obtain an approval from the Department of Environmental Health and that no work is to begin on this project until this plan is approved.

I understand that any changes in design, materials or equipment will void this plan if prior approval is not obtained.

I understand that all work performed during this project will be done in compliance with all applicable OSHA (Occupational Safety and Health Administration) requirements concerning personnel health and safety. I understand that site and worker safety are solely the responsibility of the property owner or his agent and that this responsibility is not shared nor assumed by the County of Alameda.

Once I have received my stamped, accepted closure plan, I will contact the project Hazardous Materials Specialist at least three working days in advance of site work to schedule the required inspections.

**Signature of Contractor**

Name (please type) R. Stephen Willcutts, Environmental Science & Engineering, Inc.

Signature *R. Stephen Willcutts*

Date 4/10/92

**Signature of Site Owner or Operator**

Name (please type) Jim de Vos, Alameda County General Services Agency

Signature *Jim de Vos (PL)*

Date 4-10-92

CERTIFICATE OF INSURANCE

EXHIBIT C1

SERVICE CONTRACTS

Page 1

NOTE: No other certificate forms will be accepted.

Please complete the following information:

CONTRACTOR: Environmental Science Engineering, Inc.

General Services Agency

CONTRACT TERM: April 1, 1992 to June 15, 1992

Alameda County Agency or Department

POLICY/BOND ENDORSEMENT REQUIREMENTS

Contractor's policies or bonds shall be endorsed as follows:

Name Alameda County, its Board of Supervisors, officers, agents and employees as Additional Insured/Obligees, but County is not liable to the insurance company for any premiums, costs or assessments in connection with Contractor's policy/bond, as a result of being an Additional Insured.

Provide County 30 days advance written notice of cancellation, non-renewal or reduction in limits or coverage including the name of the Contract, mailed to the following address:

GSA-BMD

Subodh Choudhry

County Department to Receive Notice(s)

Individual Coordinating Contracts

4400 MacArthur Blvd.

Oakland, CA 94619

Address

City, State, Zip

State the Contractor's policy/bond is primary insurance to any other insurance available to County with respect to any claim arising out of this contract.

Contractor is responsible for payment of insurance deductibles.

Insurance companies must have an "A.M. Best" rating of B+, V or better.

REQUIRED COVERAGES - Where "X" Appears in Box

CERTIFICATES OF INSURANCE

1. Workers' Compensation

Planet Insurance Co.  
Insurance Company(s)

a. Statutory Compensation coverage.

NWA0102557700 - 3/16/92-3/16/93

b. Employer's liability insurance with limit not less than \$100,000 per occurrence.

Policy Number(s) Policy Period (dates)

Signature of Individual authorized by Insurance Company to bind Company to coverage shown, and above endorsement requirements.

Johnson & Higgins

Name

500 W. Madison, Suite 2100

Address

Chicago, IL 60661

City, State, Zip



REQUIRED COVERAGES - Where "X" Appears in Box

CERTIFICATES OF INSURANCE

2. Comprehensive General Liability

a. Minimum Limits of Liability:  
\$1,000,000 per occurrence combined  
single limit Bodily Injury and  
Property Damage.

b. Coverages:

- Bodily Injury
- Property Damage
- Blanket Contractual
- Personal Injury
- Products/Completed Operations
- Broad Form Property Damage
- Fire Damage Legal Liability

c. Deductible not to exceed \$5,000  
per occurrence.

d. Cross Liability or Severability  
of Interests Clause in policy

e. Occurrence Form  Claims Made Form

f. IF claims made, please complete the following:  
Coverage for all prior acts? \_\_\_\_\_

If prior acts coverage is restricted, advise retroactive date of coverage:  
\_\_\_\_\_

Extended discovery provision: If Insurance Company cancels, how long is  
period of extended discovery? \_\_\_\_\_

If Contractee cancels, how long is optional coverage for extended discovery?  
\_\_\_\_\_

Percentage of annual premium cost to purchase the extended discovery?  
\_\_\_\_\_

A Certified copy of the Claims Made form must be provided

It will be a requirement of the Contract that coverage for the period of the  
contract will be maintained for a period of no less than five years after  
the expiration of the contract. If coverage for five years is not available,  
a shorter term may be negotiated.

Commerce & Industry  
Insurance Company(s)

GL3403771      3/16/92-3/16/93  
Policy Number(s) Policy Period (dates)

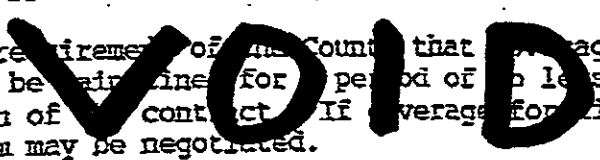
Donald J. Price  
Signature of Individual authorized by  
Insurance Company to bind Company to  
coverage shown, and above endorsement  
requirements.

Johnson & Higgins  
Name

500 W. Madison, Suite 2100  
Address

Chicago, IL 60661  
City, State, Zip

City, State, Zip



REQUIRED COVERAGES - Where "X" Appears in Box

CERTIFICATES OF INSURANCE

3. Comprehensive Automobile Liability

a. Minimum Limits of Liability: \$1,000,000 per occurrence combined single limit Bodily Injury and Property Damage.

Assigned risk insurance at available State financial responsibility limits.

b. Coverages:

- Owned Automobiles, if any
- Non-owned Automobiles
- Hired Automobiles
- Cross Liability or Severability of Interests clause in policy.

Planet Insurance Company  
Insurance Company(s)  
NKA010257800 3/16/92-3/16/93  
Policy Number(s) Policy Period (dates)

Donald A. Price  
Signature of Individual authorized by Insurance Company to bind Company to coverage shown, and above endorsement requirements.

Johnson & Higgins  
Name  
500 W. Madison, Suite 2100  
Address

Chicago, IL 60661  
City, State, Zip

4. Professional Liability

1. For professional employees licensed as a condition of employment at the beginning of contract term or hired during the contract terms, insuring against error or omission in rendering or failing to render professional services. Coverage shall continue for a minimum of five years.

a. Minimum Limits of Liability: \$1,000,000 per claim

b. Deductible not to exceed \$5,000 per claim

c. If claims made, please complete the following:

National Prof. Casualty Co.  
Insurance Company(s)  
A72961 2/16/92-2/16/93  
Policy Number(s) Policy Period (dates)

Kathryn Buehler  
Signature of Individual authorized by Insurance Company to bind Company to coverage shown, and above endorsement requirements. (Except additional insured not required.)

Direct Placement  
Name  
330 Hamilton Blvd., Suite 300  
Address  
Peoria, IL 61602  
City, State, Zip

Coverage for all prior acts? Yes X No \_\_\_\_\_

If prior acts coverage is restricted, advise retroactive date of coverage.  
2-16-90

Extended discovery provisions: If Insurance Company cancels, how long is period of extended discovery? 365 Days

If Contractee cancels, how long is optional coverage for extended discovery?  
12 Months

Percentage of annual premium cost to purchase the extended discovery?  
100%

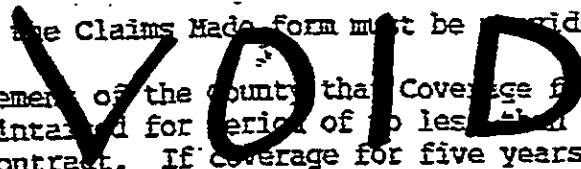
REQUIRED COVERAGES - Where "X" Appears in Box

CERTIFICATES OF INSURANCE

4. Professional Liability (continued)

A Certified copy of the Claims Made form must be provided.

It will be a requirement of the County that Coverage for the period of the contract will be maintained for a period of no less than five after the expiration of the contract. If coverage for five years is not available, a shorter term may be negotiated.



5. Bonds/Crime Insurance

1. Fidelity Insurance Bond

a. Faithful Performance Coverage of all officials, agents, and employees with access to funds received by Contractor.

b. Limits shall at least be equal to maximum County funds in contractors possession or control during contract term.

Insurance Company(s)

Policy Number(s) Policy Period (dates)

Signature of Individual authorized by Insurance Company to bind Company to coverage shown, and above endorsement requirements.

Name

Address

City, State, Zip

2. Money and Securities Policy.

a. Insurance against the disappearance, destruction or wrongful abstraction of funds on and off premises contractor.

b. Limits shall at least be equal to maximum County funds in contractors possession or control during contract term.

Insurance Company(s)

Policy Number(s) Policy Period (dates)

Signature of Individual authorized by Insurance Company to bind Company to coverage shown, and above endorsement requirements.

Name

Address

City, State, Zip

6. Other (Describe below)

Insurance Company(s)

Policy Number(s) Policy Period (dates)

Signature of Individual authorized by Insurance Company to bind Company to coverage shown, and above endorsement requirements.

REQUIRED COVERAGES - Where "X" Appears in Box

CERTIFICATES OF INSURANCE

6. Other (continued)

Name \_\_\_\_\_

Address \_\_\_\_\_

City, State, Zip \_\_\_\_\_

7. Self Insurance

Contractors self-insured for any risks shown in Sections above shall attach to contract evidence satisfactory to County of Contractor's financial ability (such as a current financial statement) to respond to losses in amounts shown above, for each risk self-insured. Contractor shall complete and sign the following statement and attach to contract.

The Contractor is self-insured for the following coverages with respect to this contract"

Worker's Compensation

Comprehensive General Liability to the limit of \$ \_\_\_\_\_

Bodily injury

Property damage

Blanket Contractual

Personal injury

Products/completed operations

Broad Form property damage

Fire damage legal liability

Comprehensive Auto Liability to the limit of \$ \_\_\_\_\_

Owned Automobiles

Non-owned Automobiles

Hired Automobiles

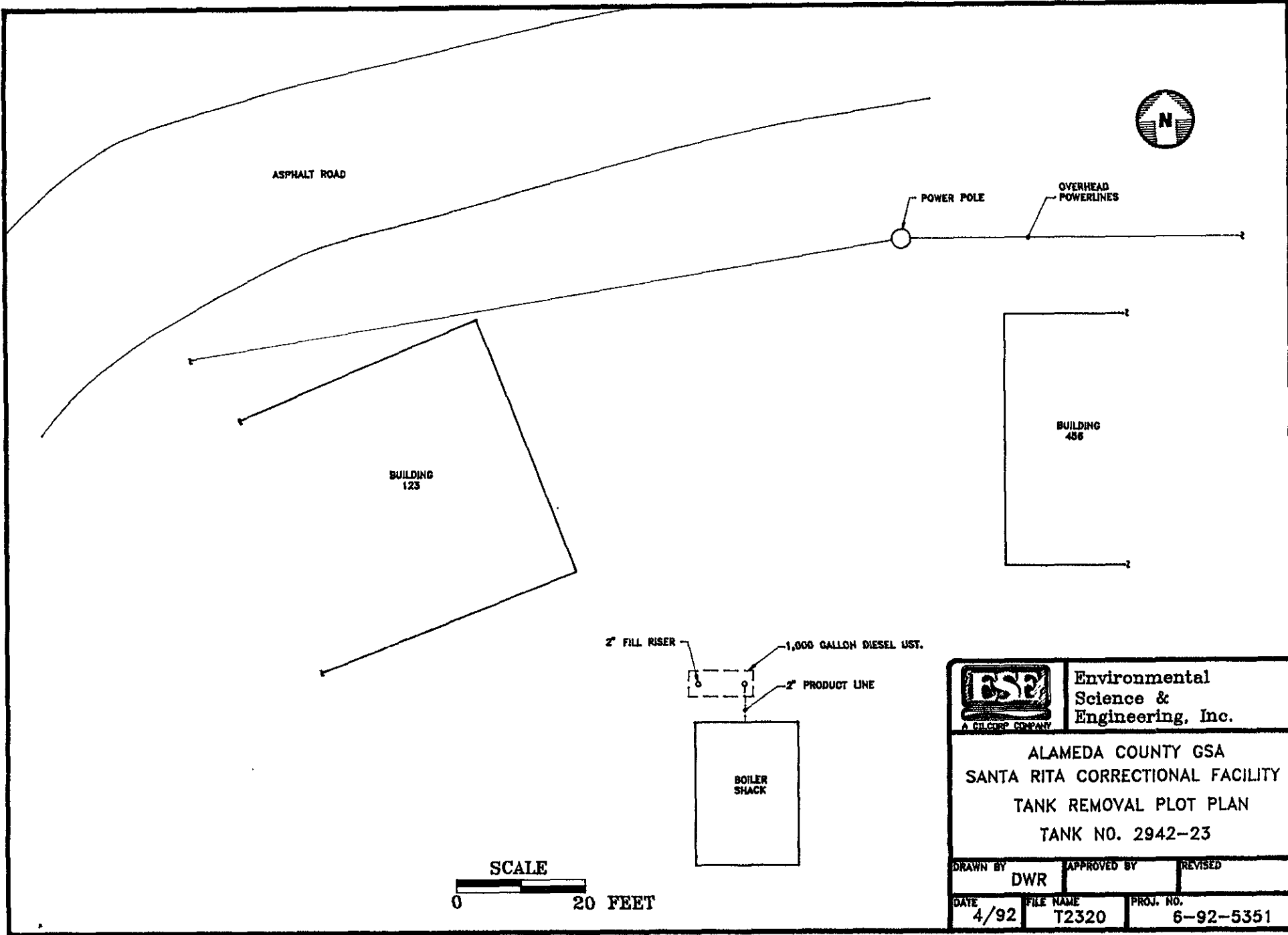
Professional Liability to the limit of \$ \_\_\_\_\_


Note: If excess insurance is needed to meet the limits required for insurances in Exhibit C, then the authorized representative of the excess insurance company(s) must sign the certificates in Exhibit C pertaining to the necessary coverages.

\_\_\_\_\_  
Signature of authorized  
representative of Contractor

\_\_\_\_\_  
Title

\_\_\_\_\_  
Date



 <small>A GILGORE COMPANY</small>	<b>Environmental Science &amp; Engineering, Inc.</b>	
	ALAMEDA COUNTY GSA SANTA RITA CORRECTIONAL FACILITY TANK REMOVAL PLOT PLAN TANK NO. 2942-23	
DRAWN BY <b>DWR</b>	APPROVED BY	REVISED
DATE <b>4/92</b>	FILE NAME <b>T2320</b>	PROJ. NO. <b>6-92-5351</b>

**HEALTH AND SAFETY PLAN**  
for  
**ALAMEDA COUNTY GENERAL SERVICES AGENCY**  
**SANTA RITA CORRECTIONAL FACILITY**  
Dublin, California

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## **1.0 GENERAL INFORMATION**

### **1.1 INTRODUCTION**

This Health and Safety Plan shall provide the safety and health requirements for general site work taking place under a contract with Alameda County General Services Agency. This Plan provides the structure for a Site-Specific Health and Safety Plan, and provides information which will apply to all Environmental Science & Engineering, Inc. (ESE) projects. Together, they comprise the Site Health and Safety Plan (HASP). This HASP will be considered complete only with an associated Site-Specific HASP.

The purpose of this HASP is to protect individuals, those working at the site, visitors, and the surrounding populace, and the environment during on site sampling and site characterization activities at petroleum hydrocarbon impacted sites. This plan includes preventive and protective measures against health hazards, fire and explosion hazards, and mechanical hazards which may exist or occur during field activities.

### **1.2 SITE INFORMATION**

The General Information section of each Site-Specific Health and Safety Plan will provide the following information:

1. Name and Location of the Site;
2. Name of Individual Preparing the Plan, and Date of Preparation;
3. Brief Site History;
4. Investigative Objective and Work Plan;
5. Proposed Dates of Investigation; and
6. Assessment of Overall Worker and Public Health Hazards.

### **1.3 REGULATORY REQUIREMENTS:**

Occupational Safety and Health Administration (OSHA) standards 29 Code of Federal Regulations (CFR) 1910 and 1926 apply to work under this site-specific HASP. Title 8 of California Code of Regulations (General Construction Safety Orders and General Safety Orders) must be complied with at California sites. Additional requirements are contained in Code of Federal Regulations title 40, Protection of the Environment.

## **2.0 PERSONNEL REQUIREMENTS**

### **2.1 ORGANIZATION**

The overall project organization as described in this document will be shown in the Site-Specific Health and Safety Plan, and will identify and show responsibilities for all key personnel, employees, and subcontractors.

### **2.2 ESE HEALTH AND SAFETY POLICY AND RESPONSIBILITY**

It is the policy of the management of ESE and also a contract requirement that a safety plan be implemented at hazardous material contamination sites to protect individuals and the environment. All ESE personnel involved in work on these sites will conform and comply with all aspects of this safety program. Each and every individual is, and therefore must regard and conduct him/herself as, a member of the safety team and adhere to the prescribed site safety plan to ensure his/her own safety as well as that of fellow workers, visitors, and the public.

### **2.3 PERSONNEL RESPONSIBILITIES**

For each site, the responsibilities of the Project Manager include:

1. Preparing an effective site safety plan for the project;
2. Categorizing and identifying for the project staff the levels of potential exposure and dangerous levels of hazardous materials possibly encountered on site;
3. Ensuring that adequate and appropriate safety training and equipment are available for project personnel; and
4. Arranging for medical examinations for specified project personnel.
5. Ensuring a qualified on-site field person is designated Site Safety Officer (SSO) and is present when work is in progress. Alternates may also be designated as needed, however, the project manager must ensure the designated (SSO) is familiar with the safety plan and his/her responsibilities.
6. Ensuring any subcontractors (i.e. drillers, excavators) get an advance copy of the Health and Safety Plan and a start-up safety briefing is scheduled.
7. Determining appropriate level of protection and exposure monitoring strategy for the project by task or phase.

Overall responsibility for safety during the site investigative activities rests with the Project Manager. To assist the Project Manager, a qualified Site Safety Officer will be appointed for each site.



The Site Safety Officer's (SSO's) responsibilities include:

1. Implementing all safety procedures and operations on site.
2. Conducting start-up safety briefing with project personnel and subcontractors. Ensure all necessary equipment and procedures are in place before start-up. Addressing any substandard conditions requiring correction prior to start up.
3. Updating equipment or procedures based upon new information gathered during the site inspection.
4. Upgrading or downgrading the levels of personal protection based upon site observations and/or measurements.
5. Determining and posting locations and routes to medical facilities and arranging emergency transportation to medical facilities (as required).
6. Controlling site entry and notifying (as required) local public emergency officers (i.e., police and fire departments) of the nature of the team's operations and making emergency telephone numbers available to all team members.
7. Ensuring that at least one member of the field team is available to stay behind and notify emergency services if the Site Safety Officer must enter an area of maximum hazard or entering this area only after notifying emergency services (police department).
8. Observing work party members for symptoms of on-site exposure or stress.
9. Arranging for the availability of on-site emergency medical care and first aid, as necessary.
10. Documenting field activities and incidents. Keeping Project Manager informed. Consulting with Health and Safety Officer as needed.

The Health and Safety Officer (HSO) is responsible for:

1. Assisting Project Manager with development of the site specific Health and Safety Plan.
2. Providing technical support during normal operations and upsets for hazard assessment, exposure monitoring, level of protection changes.
3. Reviewing and approving the site specific safety plan.

The responsibilities of all other on site personnel include:

1. Complying with all aspects of the project Safety plan, including strict adherence to the buddy system.
2. Obeying the orders of the Site Safety Officer.
3. Notifying the Site Safety Officer of hazardous or potentially hazardous incidents or working situations.

Subcontractors and other non-ESE site personnel are also responsible for complying with this plan and all applicable federal, state and local safety and environmental regulations and codes.

## **2.4 TRAINING**

All ESE site personnel working on the hazardous material contamination site investigations will have completed a safety and health training course for hazardous waste site work meeting the requirements of 29CFR1910.120 and have worked at least 3 days of supervised on the job training. The course consists of an initial 40-hour session and annual refreshers of 8 hours. Subcontractors and visitors are required to provide proof of equivalent training. The field team leader will have completed an additional 8 hours of waste site supervisory training. For each location, specific training is given by the Project Manager or Site Safety Officer to inform employees of site-specific hazards. Additionally, at least one field team member will be trained to perform cardiopulmonary resuscitation (CPR) and first aid.

## **2.5 MEDICAL MONITORING PROGRAM**

All ESE on site personnel, subcontractors, and visitors for this project will be required to have the medical examination outlined in Table 1. This examination is given annually and more often if specified by the attending physician. All medical examinations include certification by the physician of the employee's ability to wear a negative-pressure respirator and to perform strenuous work. If a person sustains an injury or contracts an illness related to work on site that results in lost work time, he must obtain written approval from a physician to regain access to the site.

## **2.6 RECORDS DOCUMENTATION**

Air monitoring data generated during the project will become part of the written record. Both medical and air monitoring data will be retained for the time period required by OSHA in various standards [29 CFR 1910.20(D)(i), 1910.20(D)(ii), 1910.1018, 1910.1025]. Training records are maintained in project files and on ESE's personal identification cards and are available for inspection at all times. Subcontractors are required to have similar documents available for inspection as required.

All personnel associated with work at a site will be required to sign a statement indicating that they have read, and will comply with the site safety plan. This signature page will also include information on their training and medical surveillance status.

Table 2.1

Medical Examination--Monitoring Program

---

Basic physical exam

Heart status and functions (EKG) baseline only except if >40

Chest X-ray (Roentgenogram posterior-anterior)

Pulmonary function--forced vital capacity, forced expiratory  
volume at 1 second and reserve volume

Blood--full SMAC Series

Hemoglobin--cell counts, protein levels

Liver function--full enzyme profile

Renal function--BUN, Creatinine, Creatine/Creatinine ratio,  
lipoprotein count and differential, uric acid

Urinalysis

Audiometry--audio spectrum response of ear

Eye--physical condition, visual acuity

Other laboratory tests may be ordered depending on actual or expected exposures and physician  
recommendations.

---

The individuals listed in the Site-Specific Plan organization chart will be certified to wear respirator  
protection in accordance with criteria from the ANSI Z88.2 and 29 CFR 1910.134.

## **3.0 HAZARD EVALUATION**

### **3.1 CHEMICAL CONTAMINANTS**

Potential site contaminants at petroleum contamination sites include gasoline, gasohol, motor oil, fuel oils (including kerosene, diesel fuel), and aviation grade gasoline. These materials may exist as free product in soil or on groundwater, and/or as contaminants to soil and water, and/or in tanks, piping, and systems. Fuel products include materials in and around storage tanks, such as gasoline, kerosene, diesel, and their derivatives, xylene, toluene, benzene, tetraethyl lead (TEL), and chlorinated solvents. The chlorinated solvents include trichloroethylene and tetrachloroethylene.

### **3.2 PHYSICAL AND MECHANICAL HAZARDS**

Activities on site may include site visits, soil gas sampling, headspace sampling, installation and sampling from monitor wells, installation of free product recovery systems, installation of groundwater recovery systems, installation of soil venting systems, installation of biological treatment systems, installation of air strippers, installation of carbon absorption units, removal of tanks, piping, and systems, and removal of contaminated soil.

Hazards associated with these activities are varied and include vehicle/pedestrian collisions, fire, collapse of excavation and trenching, handling of heavy materials and equipment operations resulting in contact and crushing type injuries, and use of air- and electrically-powered tools which may result in abrasions, contusions, lacerations, etc.

### **3.3 JOB HAZARD ANALYSIS AND RISK ASSESSMENT**

The chemical contaminants which may be present and the hazardous activities which may be performed at the site will be identified through preliminary site assessment activities, such as site visits or records search. Based on this preliminary information, initial risk assessments will be made by the Site Safety Officer, in consultation with an ESE Regional Health and Safety Officer, defining hazards (both chemical and physical) to workers and other on site personnel, the surrounding populace, and the environment.

The identities of potential hazards and resultant initial risk assessments will be included in the Hazard Evaluation section of the Site-Specific Plan, will be reviewed daily, and will be updated as necessary by the Site Safety Officer. Updated information will be communicated to all other on site personnel immediately.

### 3.4 AIR MONITORING

An air monitoring program is fundamental to the safety of on site and off site personnel. Total organic vapor (TOV) levels associated with on site activities will be monitored with a Photoionization Detection (PID) instrument (Photovac® TIP or HNU PI-101). This instrument will be the primary source of information for upgrading personal protection. Calibration and maintenance of monitoring equipment will be in accordance with manufacturer recommendations.

The Site Safety Officer, or designee, will establish daily a background TOV prior to initiating on site activities. Under most circumstances, this level can be determined by taking multiple readings at representative locations along the perimeter of the site and averaging the results of sustained measurements. (A sustained measurement is defined as the arithmetic average of six readings taken at 10-second intervals.) If, due to site conditions, it appears that perimeter readings will not yield a truly representative background level, the Site Safety Officer or an ESE Regional Health and Safety Officer will be consulted for guidance.

Decisions to upgrade personal protection will be based on sustained breathing zone TOV that exceeds background levels. Breathing zone refers to the area from the top of the shoulders to the top of the head.

Explosivity levels associated with on site activities will be monitored with an explosimeter or combustible gas meter. This will be the primary source of information for determining the potential hazard due to explosion or fire in confined spaces and other enclosed areas with little or no ventilation.

Prior to entry of any area which may contain an explosive or flammable atmosphere, the Site Safety Officer or designee will take representative readings of the suspect area. Representative readings include readings from top, middle, and lower levels of the area, and at various points at each level in larger areas. Areas in which any one reading exceeds 20% of the lower flammable limit will be considered potentially explosive, and will be vented to below 20% of the lower flammable limit before the introduction of any personnel or non-explosion proof powered equipment.

#### 4.0 PERSONAL PROTECTIVE EQUIPMENT

Personal protective equipment to be used at petroleum contamination sites will consist of several components. These components will protect the respiratory system, eyes and face, hands, feet, body, and head from a variety of chemical and physical hazards. Levels of personal protection will be categorized in accordance with the criteria described in accordance with the guidelines given in Section 3, Air Monitoring. Additional guidance for personal protective equipment can be found in the ESE Corporate Respiratory Protection Program, or can be obtained from an ESE Regional Health and Safety Officer.

Action levels for upgrading to the various protective levels and levels of personal protection required for the various tasks to be performed on each site, as well as any special site requirements, will be given in the Personal Protective Equipment section of the Site-Specific Plan.

##### **PERSONAL PROTECTIVE EQUIPMENT--LEVEL A**

1. Open-circuit, pressure-demand, self-contained breathing apparatus (SCBA);
2. Totally encapsulated suit;
3. Gloves, inner (surgical type);
4. Gloves, outer, chemical protective;
5. Boots, chemical protective, steel toe and shank; and
6. Booties, chemical protective.

##### **CRITERIA**

1. Sites known to contain hazards which:
  - a. Require the highest level of respiratory protection (as previously stated),
  - b. Will cause illness as a result of personal exposure,
  - c. Permit a reasonable determination that personal exposure could occur to any part of the body; or
2. Sites for which the Project Manager and/or Site Safety Officer make a reasonable determination that, based on the lack of information to the contrary, the site may be described as previously stated.

##### **PERSONAL PROTECTIVE EQUIPMENT--LEVEL B**

1. Open-circuit, pressure-demand SCBA;
2. Chemical protective
  - a. Overalls and long-sleeved jacket, or
  - b. Coveralls;
3. Gloves, inner (surgical type);
4. Gloves, outer, chemical protective;
5. Boots, chemical protective, steel toe and shank;  
and
6. Booties, chemical protective.

## **CRITERIA**

1. Sites known to contain hazards which:
  - a. Require the highest level of respiratory protection (as previously stated),
  - b. Will cause illness as a result of personal exposure,
  - c. Permit a reasonable determination that personal exposure to areas of the body not covered by Level B protective clothing is unlikely; and
2. Sites for which the Project Manager and/or Site Safety Officer make a reasonable determination that, based on the lack of information to the contrary, the site may be described as previously stated.

## **PERSONAL PROTECTIVE EQUIPMENT--LEVEL C**

1. Full face-piece, air-purifying respirator (high-efficiency particulate/organic vapor cartridges);
2. Emergency escape oxygen pack (carried);
3. Chemical protective (Tyvek® is the minimum protection)
  - a. Overalls and long-sleeved jacket, or
  - b. Coveralls, or
  - c. Apron;
4. Gloves, inner (surgical type) (Latex);
5. Gloves, outer, chemical protective (Nitrile);
6. Boots, chemical protective (neoprene or NBR), steel toe and shank; and
7. Booties, chemical protective (Latex).

## **CRITERIA**

1. Sites known to contain hazards which:
  - a. Do not require a level of respiratory protection greater than the level afforded by air-purifying respirators (nominal protection of 10), as previously stated;
  - b. Will cause illness as a result of personal exposure; or
  - c. Permit a reasonable determination that personal exposure to areas of the body not covered by Level C protective clothing is unlikely; and
2. Sites for which the Project Manager and/or Site Safety Officer make a reasonable determination that, based on the lack of information to the contrary, the site may be described as previously stated.

## **PERSONAL PROTECTIVE EQUIPMENT--LEVEL D**

1. Coveralls, cotton;
2. Boots/shoes, safety;
3. Safety glasses;
4. Hard hat with optional face shield (where overhead hazards exist); and
5. Air-purifying respirator (readily available).

## **CRITERIA**

Sites where the Project Manager and/or Site Safety Officer make a reasonable determination that hazards due to exposure to hazardous materials are unlikely.

## **ADDITIONAL PERSONAL PROTECTION**

In addition to personal protective equipment, field personnel having duties on or near the hazard site should have ready access to:

1. A fully stocked industrial-size first-aid kit;
2. An eyewash kit; and
3. At least 6 gallons of potable water in a pressurized container to permit decontamination in event of accidental skin or eye contact with chemicals.



## 5.0 STANDARD WORK PRACTICES

### 5.1 GENERAL SAFETY RULES:

In addition to the specific requirements of the Site-Specific Plan, common sense should prevail at all times.

The following general safety rules and practices will be in effect at the site.

1. The site will be suitably marked or barricaded as necessary to prevent unauthorized visitors, but will not hinder emergency services if needed.
2. All open holes, trenches, and obstacles will be properly barricaded in accordance with local site needs. These needs will be determined by proximity to traffic ways, both pedestrian and vehicular, and site of the hole, trench, or obstacle. If holes are required to be left open during nonworking hours, they will be adequately decked over or barricaded and sufficiently lighted.
3. Prior to conducting any digging or boring operations, underground utility locations will be identified. The site representative and local utility authorities will be contacted to provide locations of underground utility lines and product piping. All boring, excavation, and other site work will be planned and performed with consideration for underground lines.
4. Smoking and ignition sources in the vicinity of flammable or contaminated material is prohibited.
5. Drilling, boring, movement and use of cranes and drilling rigs, erection of towers, movement of vehicles and equipment, and other activities will be planned and performed with consideration for the location, height, and relative position of aboveground utilities and fixtures, including signs, lights, canopies, buildings, and other structures and construction, and natural features such as trees, boulders, bodies of water, and terrain.
6. When working in areas where flammable vapors may be present, particular care must be exercised with tools and equipment that may be sources of ignition. All tools and equipment so provided must be properly bonded and/or grounded.
7. Approved and appropriate safety equipment, as specified in this site-specific HASP, such as eye protection, hard hats, foot protection, and respirators, must be worn in areas where required by the site-specific HASP. In addition, eye protection must be worn when handling free product, contaminated soil or water, or fill dirt.
8. Beards that interfere with respirator fit are not allowed within the site boundaries. This is necessary because all site personnel may be called upon to use respirator protection in some situations, and beards do not allow for proper respirator fit.
9. No smoking, eating, or drinking will be allowed in the contaminated areas.
10. Tools and hands must be kept away from the face.
11. Personnel must shower at the end of the shift or as soon as possible after leaving the site.
12. Each sample must be treated and handled as though it were extremely toxic.
13. Tank pit excavations must be sampled cautiously, using a remote sampling device or securing samples from excavated soil, and the pit should be entered only as a last resort and only if it is properly shored or sloped. The pit may meet the criteria for a confined space, in which case any entry must be made in accordance with NIOSH recommended Confined Space Entry Procedures. No confined space entry except by written procedure approved by the Health and Safety Officer.
14. Persons with long hair and/or loose-fitting clothing that could become entangled in power equipment are not permitted in the work area.
15. Horseplay is prohibited in the work area.
16. Working while under the influence of intoxicants, narcotics, or controlled substances is prohibited.

## 5.2 WORK LIMITATIONS:

### HOURS

Work shall be limited to daylight hours and during normal weather conditions. Extremes in temperature and weather condition (i.e., wind and lightning) will restrict working hours.

### HEAT STRESS

For monitoring the body's recuperative ability toward excess heat, the following techniques will be used as a screening mechanism. Monitoring of personnel wearing protective clothing will commence when the ambient temperature is 70 degrees Fahrenheit (°F) or above. When temperatures exceed 85°F, workers will be monitored after every work period. Monitoring will include visual observations for signs of heat stress and measurement of radial pulse rate for 30 seconds at the beginning of each rest period. If the heart rate exceeds 110 beats per minute (beats/min) at the beginning of a rest period, the next work period will be shortened by 10 minutes, and the rest period stays the same. If the pulse rate is 100 beats/min at the beginning of the next rest period, the following work cycle will be shortened another 10 minutes.

Also, good hygienic standards must be maintained by frequent change of clothing and daily showering. Clothing should be permitted to dry during rest periods. If skin problems occur, consult medical personnel.

### COLD STRESS

The human body "senses" cold as a result of two factors, the air temperature and the wind velocity. Cooling of the flesh increases rapidly as wind velocity goes up. Frostbite can occur at relatively mild temperatures if wind penetrates the body insulation. For example, when the air temperature is 40°F and the wind velocity is 30 miles per hour (mph), the exposed skin would perceive an equivalent still air temperature of 13°F.

Table 5-1 illustrates windchill indices and the associated hazards to exposed flesh. Precautions will be taken to minimize exposed flesh, and layered clothing will be provided, as appropriate.

Table 5-1.

## Windchill Index

Windspeed (mph)	Actual Thermometer Reading (°F)										
	50	40	30	20	10	0	-10	-20	-30	-40	
Calm	50	40	30	20	10	0	-10	-20	-30	-40	
5		48	37	27	16	6	-5	-15	-26	-36	-47
10		40	28	16	4	-9	-21	-33	-46	-58	-70
15		36	22	9	-5	-18	-36	-45	-58	-72	-85
20		32	18	4	-10	-25	-39	-53	-67	-82	-96
25		30	16	0	-15	-29	-44	-59	-74	-88	-104
30		28	13	-2	-18	-33	-48	-63	-79	-94	-109
35		27	11	-4	-20	-35	-49	-67	-82	-98	-113
40		26	10	-6	-21	-37	-53	-69	-85	-100	-116

Source: National Safety Council, 1982.

### 5.3 ACCIDENT PREVENTION PLAN/ACCIDENT REPORTING:

The purpose of the Safety Plan is to prevent accidents and minimize the impact of an accident if one should occur.

All accidents must be reported to the Site Safety Officer immediately. Prompt reporting is essential to the prevention of future incidents in addition to the well-being of the affected individual or individuals. The Site Safety Officer will notify the Project Manager of any serious accidents. The Site Safety Officer or other key members of the field team will be trained in first aid and CPR. First aid will be administered to affected personnel under the direction of the Site Safety Officer. For serious accidents, the nearest ambulance service will be contacted for transport of injured personnel to the nearest medical facility (see Section 6.0). The Site Safety Officer will have established contact and liaison with medical authorities (see Section 6.0) whose personnel will be knowledgeable of the activities of the field team. Telephone numbers and addresses of ambulance and medical services will be posted on site.

A formal report of any OSHA-recordable accident will be filed with ESE. All reports must be received within 2 working days.

#### **5.4 WORK ZONES AND DECONTAMINATION PROCEDURES:**

Work zones will be established in accordance with guidance provided in Figure 5-1. These zones may be modified to fit applicable field conditions; however, proposed modifications must be approved by the Project Manager and Site Safety Officer prior to being implemented in the field.

Personnel decontamination will be initiated on site. Disposable clothing will be removed and stored in designated containers. If additional decontamination is necessary, based on preliminary or subsequent risk assessment by the Site Safety Officer in consultation with ESE Regional Safety and Health Officer, additional decontamination procedures will be implemented. Site specific decontamination procedures will be listed in the Site-Specific Plan.

All heavy equipment will be decontaminated on site. Water in the form of steam cleaning and/or pressure washing may be used to remove any visual contamination from drilling equipment and backhoe.

#### **5.5 SITE SECURITY AND ENTRY:**

Site security measures, including barricading, fencing, and lighting, and any special site entry procedures will be described in the Section 5 of the Site-Specific Plan.

## **6.0 EMERGENCY INFORMATION AND CONTINGENCY PLANS**

All emergency information, including phone numbers, site resources, and routes to emergency medical care, will be maintained on site in the Site-Specific Plan by each field team.

The phone list will include the following numbers:

**AMBULANCE:**

**FIRE DEPARTMENT:**

**HOSPITAL (primary):**

**HOSPITAL (secondary):**

**POISON CONTROL CENTER:**

**POLICE:**

**TOXIC WASTE AND OIL SPILL:**

**CLIENT CONTACT:**

**AGENCY CONTACT:**

**PROJECT MANAGER:**

**CORPORATE SAFETY AND HEALTH OFFICER:**

The list of site resources will include fire extinguishers, first aid equipment, eyewash units, communications (telephone), emergency personal protective equipment, spill containment equipment and materials, and any other special equipment, supplies or resources.

### **6.1 INJURY CONTINGENCY PLAN**

First aid equipment will be kept on site during all site activities. Additionally, one member of the field team will be trained in first aid. Emergency telephone numbers for ambulance and poison control will be maintained on site in a readily accessible location. Names, addresses, and routes to two emergency medical care providers (hospitals or emergency clinics) will be verified prior to any site activity, and will be listed in the Site-Specific Plan. Maps showing the location of the site, the emergency medical care providers, and hotels and restaurants (if any) used by the field team should be provided in each vehicle. In the event of an injury that cannot be treated on site, the injured person will be immediately transported to the medical provider either by support vehicle or ambulance on determination by the Site Safety Officer, Project Manager, and/or first aid provider.

## **6.2 FIRE CONTROL AND CONTINGENCY PLAN**

No smoking will be allowed during field activities. Fire extinguishers will be available at sites for use on small fires. All samples must be treated as flammable or explosive. The Site Safety Officer will have available the telephone number of the nearest fire station and local law enforcement agencies in case of a major fire emergency.

## **6.3 SPILL CONTROL AND CONTINGENCY PLAN**

In the event of a spill, the Site Safety Officer will be notified immediately. The important factors are that no personnel are overexposed to vapors, gases, or mists and that the liquid does not ignite. Waste spillage must not be allowed to contaminate any local water source. Small dikes will be erected to contain spills, if necessary, until proper disposal can be completed. Subsequent to cleanup activities, the Site Safety Officer will survey the area to ensure that no toxic or explosive vapors remain.

## **6.4 OFF SITE INCIDENT CONTINGENCY PLAN**

The Site Safety Officer will provide field team members with emergency medical care information similar to that kept on site in event of an off site emergency, such as a motor vehicle accident, food poisoning, or other injury sustained off the site.

## **6.5 COMMUNITY THREAT CONTINGENCY PLAN**

The potential for exposure to the surrounding community will be assessed in conjunction with the preliminary site assessment.

The Site Safety Officer will consult with a representative of the local emergency services agency (police or fire department, in accordance with local governmental procedures), and will outline procedures in the Site-Specific Plan to be followed in the event of an emergency threat to the surrounding populace. Situations requiring specified procedures include fire, explosion, accidental ingestion, large spills consisting of free product, and accumulation of potentially explosive vapors off site.

The Site-Specific Plan will identify individuals who will respond to reports of non-emergency community threats arising from site activities. This non-emergency response will include sampling of air, wells and ground water, and soil. Situations requiring specified procedures include small spills and presence of existing concentrations of potentially explosive vapors on site.

**APPENDIX A**

**SITE-SPECIFIC  
HEALTH & SAFETY  
INFORMATION**





A. GENERAL PROJECT INFORMATION

SITE: Santa Rita Correctional Facility DATE PREPARED: 4-08-92

LOCATION: 5325 Broder Boulevard, Dublin, California

PREPARED BY: R. Stephen Willcutts Jr., ESE

OBJECTIVE (S) AND WORKPLAN: Removal of one 1,000 gallon Diesel Fuel Oil UST.

PROPOSED DATE(S) OF ON-SITE WORK: March 23, 1992 - May 29, 1992

BRIEFING DATE(S): \_\_\_\_\_ BACKGROUND REVIEW:

COMPLETE:   x  

PRELIMINARY:   —  

-----PROJECT H.A.S.P. SUMMARY-----

LEVEL(S) OF PROTECTION: A    B    C    D   x   MIXED    MODIFIED   x  

OVERALL HAZARD ESTIMATE: HIGH    MODERATE    LOW   x   UNKNOWN   

ADDITIONAL DOCUMENTATION: TLV TABLE    FULL HASP   x   METHODS   

OTHER   

B. SITE/MATERIAL CHARACTERISTICS

MATERIAL/WASTE TYPE(S): LIQUID   x   SOLID    GAS    SLUDGE   

MATERIAL PRESENT IN: DRUMS    TANKS   x   OPEN    OTHER   

CHARACTERISTICS: IGNITABLE    CORROSIVE    TOXIC   x   REACTIVE   

RADIOACTIVE    VOLATILE    UNKNOWN    OTHER   

FACILITY TYPE: Former Correctional Facility CLOSED    OPEN   x  

FACILITY SIZE: \_\_\_\_\_

TOPOGRAPHY: Relatively flat, at an approximately 350-feet above mean sea level.

PRINCIPAL DISPOSAL METHOD AND LOCATION(S): The tank will be hauled off-site as hazardous waste by Erickson Trucking, Inc., to Erickson Environmental of Richmond, California where they will be cleaned and scrapped.

C. HAZARD EVALUATION

INSTRUCTIONS: Evaluate principal hazards expected at this site. Be specific; complete all entries.

HAZARDS

Physical: On-site hazards include physical injuries due to the proximity of workers to engine-driven heavy equipment and tools, including backhoe or other excavator, loader, mechanical tamper, crane and trucks.

Chemical: Potential chemical hazards include skin and eye contact exposure to potentially toxic concentrations of Diesel Fuel Oil.

Biological: None anticipated.

CORRECTIVE ACTIONS

Physical: Site will be inspected at start up. Identified safety hazards will be discussed at start up safety meeting and mitigated to extent feasible before start-up.

Chemical: Skin contact: Wash skin with soap and water. Eye contact: Flush with eye wash for 15 minutes.

Biological: None Anticipated

D. WORK PLAN INSTRUCTIONS

PERSONAL PROTECTION REQUIRED:

Level of protection: A \_\_\_ B \_\_\_ C \_\_\_ D x MIXED \_\_\_ MODIFICATIONS \_\_\_

For MIXED levels of protection describe areas and levels: \_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

For MODIFICATIONS identify action levels: This site will involve D level protection which includes a hard hat, gloves, steel-toe boots.

\_\_\_\_\_ ADDITIONAL PERSONAL PROTECTIVE EQUIPMENT (PPE): Goggles, respirator, etc. should be available and ready for use.

MONITORING EQUIPMENT: PID \_\_\_ FID \_\_\_ TOXIC GAS \_\_\_ OXYGEN \_\_\_

DETECTOR TUBES \_\_\_ EXPLOSIMETER \_\_\_ PERSONAL MONITOR \_\_\_

OTHER INSTRUMENTS: N/A

EQUIPMENT CALIBRATION: N/A

MONITORING STRATEGY: N/A

DECONTAMINATION PROCEDURES: If required, equipment and personnel decontamination areas will be designated by the Project Manager at the start of the project. All tools will be cleaned adequately prior to final removal from the work zone, to prevent the transfer of contamination from the work site into clean areas. Protective clothing such as Tyvek coveralls, latex gloves, boot covers, etc. will be changed on a daily basis or at the discretion of the Project Manger. All disposable protective clothing will be put into plastic bags and disposed of in a proper manner. Excavated soils will be stockpiled in an area designated by the Project Manager, until chemical analysis has been performed on representative samples.

SITE CONTROL MEASURES: Set up 25-foot perimeter with traffic cones or surveyor's tape. Visitors within perimeter to read and sign H&S plan and abide by directions of site H&S officer.

SPILL CONTAINMENT PROCEDURES: All pumpable fluids will be removed from tanks and hauled off-site as hazardous waste. Care will be taken when draining and rinsing associated tank piping. Care will be taken while rinsing tanks to prevent any spillage of residual hydrocarbons. No storage of removed product, rinsate or other hazardous fluids will be allowed. Fluids will be pumped from tanks into vacuum trucks and immediately hauled off-site.

NOTES: N/A

## E. EMERGENCY PROCEDURES

**FIRE OR EXPLOSION:** Evacuate the area and call the Fire Department at 911 immediately. All burn victims should seek medical attention immediately.

**INJURY:** Call 911 and administer first aid to victims who have severe injuries. Ensure all injured are transported to the nearest medical facility doctor.

**WEATHER:** Avoid extremes in temperature (i.e. very cold or very hot conditions)

**OTHER:**

**CHEMICAL EXPOSURE ACTIONS:**

(See Appendix B for Optional Material Safety Data Sheets)

EMERGENCY TELEPHONE NUMBERS

POLICE/FIRE/AMBULANCE: 911

POISON CONTROL: (800) 523-2222

ESE CONCORD OFFICE: (510) 685-4053

CHEMTREC: (800) 424-9300

UNDERGROUND SERVICE ALERT: (800) 642-2444

PROJECT CONTACTS

AGENCY CONTACT: Alameda County Health Care Services Agency (510) 271-4320

SITE CONTACT: Mr. Ernie Hall, Facility Supervisor (510) 551-6674

CLIENT CONTACT: Mr. Jim de Vos, Alameda County GSA (510) 535-6248

F. EMERGENCY PRECAUTIONS

PRIMARY HOSPITAL/INFIRMARY:

Name: Valley Memorial Hospital

Address: 1111 East Stanely Blvd., Livermore, CA Telephone Number: (510) 447-7000 (emergency)

Directions from site to emergency unit: Take Tassajara Road (south) to Highway 580. Take Highway 580 west.

Exit south on First Street (Highway 84). After junction with Railroad Avenue, turn left into driveway of hospital.

Remarks: See Figure A

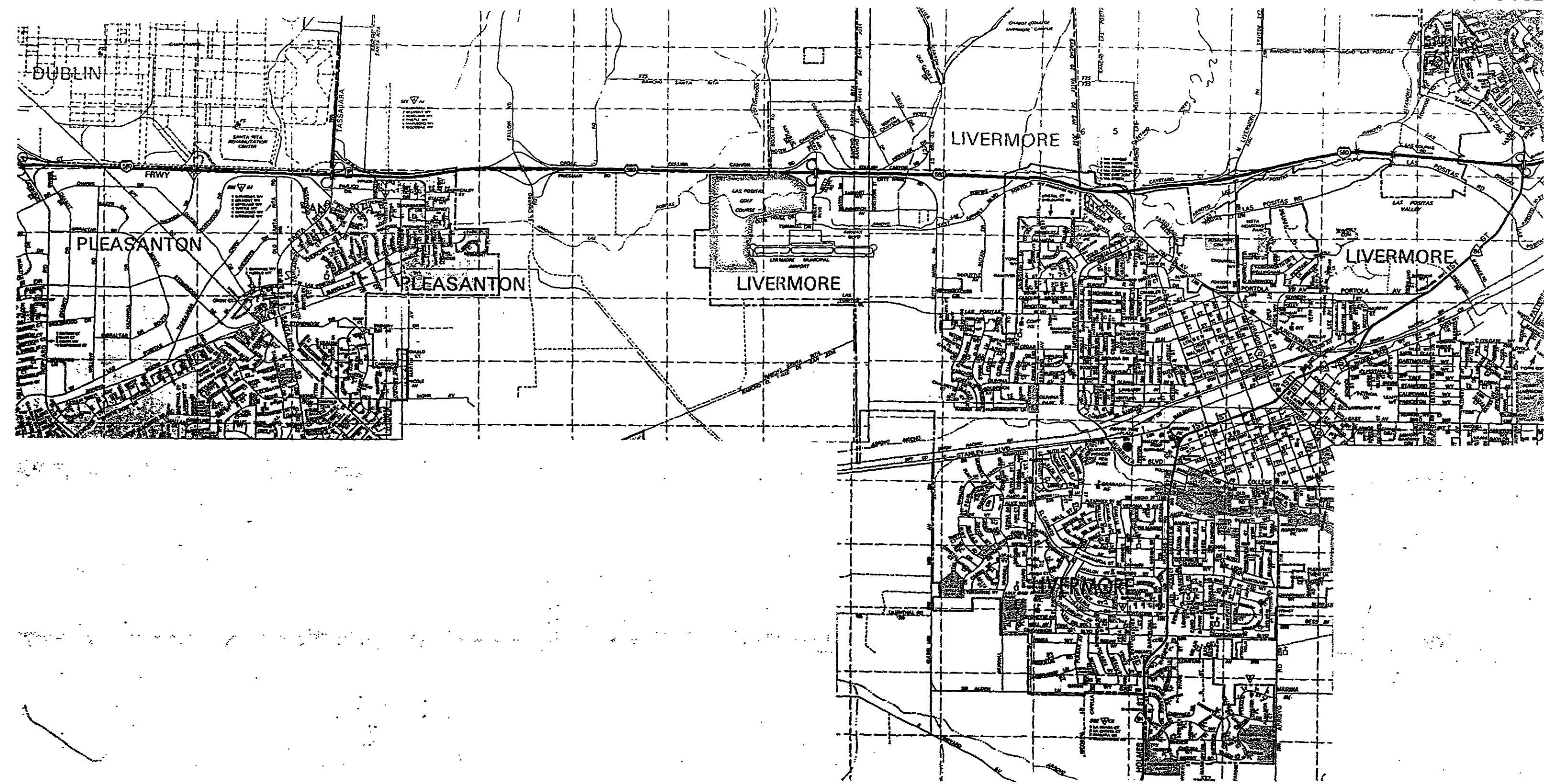


FIGURE A

**APPENDIX B**

**MATERIAL  
SAFETY DATA  
SHEETS**

MATERIAL SAFETY DATA SHEET



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<p><b>Responsible Party:</b>                  UNOCAL REFINING &amp; MARKETING DIVISION                  UNION OIL COMPANY OF CALIFORNIA                  1201 WEST 5TH STREET                  LOS ANGELES, CALIFORNIA 90017                  CONTACT FOR FURTHER INFORMATION:                  MSDS COORDINATOR 213-977-7589</p>	<p><b>Transportation Emergencies:</b>                  CHEMTREC                  (800) 424-9300 Cont. U.S.                  (202) 483-7616 (Collect)                  from Alaska &amp; Hawaii  <b>Health Emergencies:</b>                  Call LOS ANGELES POISON                  INFORMATION CENTER (24 hrs)                  (800) 356-3129</p>
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**PRODUCT IDENTIFICATION**

**PRODUCT NAME:** UNOCAL DIESEL #2  
**SYNONYMS:** UNION DIESEL #2  
**GENERIC NAME:** MID-DISTILLATE  
**CHEMICAL FAMILY:** PETROLEUM HYDROCARBON  
**DOT PROPER SHIPPING NAME:** COMBUSTIBLE LIQUID, N.O.S. (MID DISTILLATE)  
**ID NUMBER:** NA1993  
**DOT HAZARD CLASSIFICATION:** COMBUSTIBLE LIQUID

**PRECAUTIONARY WARNING**

**WARNING**  
 MAY CAUSE SEVERE SKIN IRRITATION AFTER PROLONGED OR REPEATED CONTACT. BREATHING DIESEL EXHAUST MAY CAUSE LUNG CANCER. ASPIRATION HAZARD IF SWALLOWED. CAN ENTER LUNGS AND CAUSE DAMAGE. COMBUSTIBLE. AVOID PROLONGED OR REPEATED CONTACT WITH SKIN. AVOID BREATHING EXHAUST FUMES. DO NOT TASTE OR SWALLOW. WASH THOROUGHLY AFTER HANDLING. KEEP CONTAINER CLOSED. USE WITH ADEQUATE VENTILATION. KEEP AWAY FROM HEAT, SPARKS, FLAMES OR OTHER SOURCES OF IGNITION (e.g. STATIC ELECTRICITY, PILOT LIGHTS OR MECHANICAL/ELECTRICAL EQUIPMENT). DO NOT PRESSURIZE, CUT, WELD, BRAZE, SOLDER, GRIND OR DRILL ON OR NEAR CONTAINER. "EMPTY" CONTAINER RETAINS RESIDUE (LIQUID AND/OR VAPOR) AND MAY EXPLODE IN HEAT OF A FIRE.

SECTION I - COMPONENTS	PERCENT	EXPOSURE LIMIT	UNITS	AGENCY	TYPE
<b>HAZARDOUS COMPONENTS</b>					
DIESEL OIL NO. 2 CAS #: 68476-34-6	>98	400.000	ppm	OSHA	TWA
BIPHENYL CAS #: 92-52-4	0.0 - 1.0	0.200	ppm	ACGIH	TWA
		0.200	ppm	MSHA	TWA
		0.200	ppm	OSHA	TWA
		0.200	ppm	CAL OSHA	TWA



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SECTION I - COMPONENTS	PERCENT	EXPOSURE LIMIT	UNITS	AGENCY	TYPE
NAPHTHALENE CAS #: 91-20-3	0.0 - 1.0	10.000	ppm	ACGIH	TWA
		15.000	ppm	ACGIH	STEL
		10.000	ppm	MSHA	TWA
		10.000	ppm	OSHA	TWA
		15.000	ppm	OSHA	STEL
		10.000	ppm	CAL OSHA	TWA

**OTHER COMPONENTS**

--NONE--

**THIS PRODUCT CONTAINS THE FOLLOWING CHEMICALS SUBJECT TO THE REPORTING REQUIREMENTS OF SARA 313 AND 40 CFR 372:**

	CAS NUMBER	WEIGHT %
BIPHENYL	92-52-4	0-1
NAPHTHALENE	91-20-3	0-1

**SECTION II - EMERGENCY AND FIRST AID PROCEDURES**

\*\*\*EMERGENCY\*\*\*

Have physician call LOS ANGELES POISON INFORMATION CENTER (24 hrs) (800) 356-3129

**EYE CONTACT:**

IF IRRITATION OR REDNESS DEVELOPS, MOVE VICTIM AWAY FROM EXPOSURE AND INTO FRESH AIR. FLUSH EYES WITH CLEAN WATER. IF SYMPTOMS PERSIST, SEEK MEDICAL ATTENTION.

**SKIN CONTACT:**

WIPE MATERIAL FROM SKIN, REMOVE CONTAMINATED SHOES AND CLOTHING, AND FLUSH AFFECTED AREA(S) WITH LARGE AMOUNTS OF WATER. IF SKIN SURFACE IS DAMAGED, APPLY A CLEAN DRESSING AND SEEK MEDICAL ATTENTION. IF SKIN SURFACE IS NOT DAMAGED, CLEANSE AFFECTED AREA(S) THOROUGHLY BY WASHING WITH MILD SOAP AND WATER AND, IF NECESSARY, A WATERLESS SKIN CLEANSER. IF IRRITATION OR REDNESS DEVELOPS, SEEK MEDICAL ATTENTION.

**INHALATION (BREATHING):**

IF RESPIRATORY SYMPTOMS OR OTHER SYMPTOMS OF EXPOSURE DEVELOP, MOVE VICTIM AWAY FROM SOURCE OF EXPOSURE AND INTO FRESH AIR. IF SYMPTOMS PERSIST, SEEK IMMEDIATE MEDICAL ATTENTION. IF VICTIM IS NOT BREATHING, IMMEDIATELY BEGIN ARTIFICIAL RESPIRATION. IF BREATHING DIFFICULTIES DEVELOP, OXYGEN SHOULD BE ADMINISTERED BY QUALIFIED PERSONNEL. SEEK IMMEDIATE MEDICAL ATTENTION.

**INGESTION (SWALLOWING):**

ASPIRATION HAZARD: DO NOT INDUCE VOMITING OR GIVE ANYTHING BY MOUTH BECAUSE THIS MATERIAL CAN ENTER THE LUNGS AND CAUSE SEVERE LUNG DAMAGE. IF VICTIM IS DROWSY OR UNCONSCIOUS, PLACE ON THE LEFT SIDE WITH THE HEAD DOWN. IF POSSIBLE, DO NOT LEAVE VICTIM UNATTENDED. SEEK MEDICAL ATTENTION.

**SECTION III - HEALTH HAZARDS/ROUTES OF ENTRY**

**EYE CONTACT:**

THIS MATERIAL MAY CAUSE MILD EYE IRRITATION. DIRECT CONTACT WITH THE LIQUID OR EXPOSURE TO VAPORS OR MISTS MAY CAUSE STINGING, TEARING AND REDNESS.

**SKIN CONTACT:**

THIS MATERIAL IS A SKIN IRRITANT. PROLONGED OR REPEATED CONTACT MAY CAUSE SEVERE IRRITATION INCLUDING REDNESS AND BURNING, DRYING AND CRACKING OF THE SKIN, AND SEVERE SKIN DAMAGE. NO HARMFUL EFFECTS ARE EXPECTED FROM SKIN ABSORPTION OF THIS MATERIAL.

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**SECTION III - HEALTH HAZARDS/ROUTES OF ENTRY**

PERSONS WITH PRE-EXISTING SKIN DISORDERS MAY BE MORE SUSCEPTIBLE TO THE EFFECTS OF THIS MATERIAL.

**INHALATION (BREATHING):**

WHILE THIS MATERIAL HAS A LOW DEGREE OF TOXICITY, BREATHING HIGH CONCENTRATIONS OF VAPORS OR MISTS MAY CAUSE IRRITATION OF THE NOSE AND THROAT AND SIGNS OF NERVOUS SYSTEM DEPRESSION (e.g. HEADACHE, DROWSINESS, DIZZINESS, LOSS OF COORDINATION, AND FATIGUE).

**INGESTION (SWALLOWING):**

WHILE THIS MATERIAL HAS A LOW DEGREE OF TOXICITY, INGESTION OF EXCESSIVE QUANTITIES MAY CAUSE IRRITATION OF THE DIGESTIVE TRACT AND SIGNS OF NERVOUS SYSTEM DEPRESSION (e.g. HEADACHE, DROWSINESS, DIZZINESS, LOSS OF COORDINATION, AND FATIGUE). ASPIRATION HAZARD - THIS MATERIAL CAN ENTER LUNGS DURING SWALLOWING OR VOMITING AND CAUSE LUNG INFLAMMATION AND DAMAGE.

**COMMENTS:**

DIESEL EXHAUST IS A PROBABLE HUMAN CANCER HAZARD, BUT IT HAS NOT BEEN IDENTIFIED AS A CARCINOGEN BY IARC, NTP OR OSHA.

**SECTION IV - SPECIAL PROTECTION INFORMATION****VENTILATION:**

IF CURRENT VENTILATION PRACTICES ARE NOT ADEQUATE TO MAINTAIN AIRBORNE CONCENTRATIONS BELOW THE ESTABLISHED EXPOSURE LIMITS (SEE SECTION I), ADDITIONAL VENTILATION OR EXHAUST SYSTEMS MAY BE REQUIRED. WHERE EXPLOSIVE MIXTURES MAY BE PRESENT, ELECTRICAL SYSTEMS SAFE FOR SUCH LOCATIONS MUST BE USED.

**RESPIRATORY PROTECTION:**

THE USE OF RESPIRATORY PROTECTION IS ADVISED WHEN CONCENTRATIONS EXCEED THE ESTABLISHED EXPOSURE LIMITS (SEE SECTION I). DEPENDING ON THE AIRBORNE CONCENTRATION, USE A RESPIRATOR OR GAS MASK WITH APPROPRIATE CARTRIDGES AND CANNISTERS (NIOSH APPROVED, IF AVAILABLE) OR SUPPLIED AIR EQUIPMENT.

**PROTECTIVE GLOVES:**

THE USE OF GLOVES IMPERMEABLE TO THE SPECIFIC MATERIAL HANDLED IS ADVISED TO PREVENT SKIN CONTACT AND POSSIBLE IRRITATION.

**EYE PROTECTION:**

APPROVED EYE PROTECTION TO SAFEGUARD AGAINST POTENTIAL EYE CONTACT, IRRITATION OR INJURY IS RECOMMENDED.

**OTHER PROTECTIVE EQUIPMENT:**

IT IS SUGGESTED THAT A SOURCE OF CLEAN WATER BE AVAILABLE IN THE WORK AREA FOR FLUSHING EYES AND SKIN. IMPERVIOUS CLOTHING SHOULD BE WORN AS NEEDED.

**SECTION V - REACTIVITY DATA****REACTIVITY:**

STABLE UNDER NORMAL CONDITIONS OF STORAGE AND HANDLING.

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**SECTION V - REACTIVITY DATA****CONDITIONS AFFECTING REACTIVITY:**

AVOID CONTACT WITH ANY SOURCE OF HEAT OR FLAME.

**INCOMPATIBLE MATERIALS:**

AVOID CONTACT WITH STRONG OXIDIZING AGENTS.

**HAZARDOUS DECOMPOSITION PRODUCTS:**

COMBUSTION MAY YIELD MAJOR AMOUNTS OF OXIDES OF CARBON AND MINOR AMOUNTS OF OXIDES OF SULFUR AND NITROGEN.

**HAZARDOUS POLYMERIZATION:**

WILL NOT OCCUR

**POLYMERIZATION CONDITIONS TO AVOID:**

NONE KNOWN

**SECTION VI - SPILL AND LEAK PROCEDURES** \*\*\*HIGHWAY OR RAILWAY SPILLS\*\*\*  
Call CHEMTREC (800) 424-9300 Cont. U.S.  
(Collect) (202) 483-7616 from Alaska & Hawaii

**PRECAUTIONS IN CASE OF RELEASE OR SPILL:**

COMBUSTIBLE. KEEP ALL SOURCES OF IGNITION AWAY FROM SPILL/RELEASE. STAY UPWIND AND AWAY FROM SPILL/RELEASE. ISOLATE HAZARD AREA AND LIMIT ENTRY TO AUTHORIZED PERSONNEL. STOP SPILL/RELEASE IF IT CAN BE DONE WITHOUT RISK. WEAR APPROPRIATE PROTECTIVE EQUIPMENT INCLUDING RESPIRATORY PROTECTION AS CONDITIONS WARRANT (SEE SECTION IV). PREVENT SPILLED MATERIAL FROM ENTERING SEWERS, STORM DRAINS, OTHER UNAUTHORIZED TREATMENT DRAINAGE SYSTEMS AND NATURAL WATERWAYS. DIKE FAR AHEAD OF SPILL FOR LATER RECOVERY OR DISPOSAL. SPILLED MATERIAL MAY BE ABSORBED INTO AN APPROPRIATE ABSORBENT MATERIAL. NOTIFY FIRE AUTHORITIES AND APPROPRIATE FEDERAL, STATE AND LOCAL AGENCIES. IMMEDIATE CLEANUP OF ANY SPILL IS RECOMMENDED. IF SPILL OF ANY AMOUNT IS MADE INTO OR UPON U.S. NAVIGABLE WATERS, THE CONTIGUOUS ZONE, OR ADJOINING SHORELINES, NOTIFY THE NATIONAL RESPONSE CENTER (PHONE NUMBER 800-424-8802).

**WASTE DISPOSAL METHOD:**

DISPOSE OF PRODUCT IN ACCORDANCE WITH LOCAL, COUNTY, STATE, AND FEDERAL REGULATIONS.

**SECTION VII - STORAGE AND SPECIAL PRECAUTIONS****HANDLING AND STORAGE PRECAUTIONS:**

KEEP CONTAINER(S) TIGHTLY CLOSED. USE AND STORE THIS MATERIAL IN COOL, DRY, WELL VENTILATED AREAS AWAY FROM HEAT AND ALL SOURCES OF IGNITION. POST AREA "NO SMOKING OR OPEN FLAME." BOND AND GROUND ALL EQUIPMENT WHEN TRANSFERRING FROM ONE VESSEL TO ANOTHER. STORE ONLY IN APPROVED CONTAINERS. KEEP AWAY FROM ANY INCOMPATIBLE MATERIALS (SEE SECTION V). PROTECT CONTAINER(S) AGAINST PHYSICAL DAMAGE. THE USE OF EXPLOSION-PROOF EQUIPMENT IS RECOMMENDED AND MAY BE REQUIRED (SEE APPROPRIATE FIRE CODES). DO NOT ENTER CONFINED SPACES SUCH AS TANKS OR PITS WITHOUT FOLLOWING PROPER ENTRY PROCEDURES SUCH AS ASTM D-4276. OUTDOOR OR DETACHED STORAGE IS PREFERRED. INDOOR STORAGE SHOULD MEET OSHA STANDARDS AND APPROPRIATE FIRE CODES. THE USE OF RESPIRATORY PROTECTION IS ADVISED WHEN CONCENTRATIONS EXCEED ANY ESTABLISHED EXPOSURE LIMITS (SEE SECTIONS I AND IV). WASH THOROUGHLY AFTER HANDLING. DO NOT WEAR CONTAMINATED CLOTHING OR SHOES. USE GOOD PERSONAL HYGIENE PRACTICE. "EMPTY" CONTAINERS RETAIN RESIDUE (LIQUID AND/OR VAPOR) AND CAN BE DANGEROUS. DO NOT PRESSURIZE, CUT, WELD, BRAZE, SOLDER, DRILL, GRIND OR EXPOSE SUCH CONTAINERS TO HEAT, FLAME, SPARKS OR OTHER SOURCES OF IGNITION; THEY MAY EXPLODE AND CAUSE INJURY OR DEATH. "EMPTY" DRUMS SHOULD BE COMPLETELY DRAINED, PROPERLY BUNGED AND PROMPTLY

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**SECTION VII - STORAGE AND SPECIAL PRECAUTIONS**

SHIPPED TO THE SUPPLIER OR A DRUM RECONDITIONER. ALL OTHER CONTAINERS SHOULD BE DISPOSED OF IN AN ENVIRONMENTALLY SAFE MANNER AND IN ACCORDANCE WITH GOVERNMENTAL REGULATIONS. BEFORE WORKING ON OR IN TANKS WHICH CONTAIN OR HAVE CONTAINED THIS PRODUCT, REFER TO OCCUPATIONAL SAFETY AND HEALTH ADMINISTRATION REGULATIONS, ANSI Z49.1, AND OTHER GOVERNMENTAL AND INDUSTRIAL REFERENCES PERTAINING TO CLEANING, REPAIRING, WELDING, OR OTHER CONTEMPLATED OPERATIONS.

**SECTION VIII - FIRE AND EXPLOSION HAZARD DATA**

NFPA HAZARD CLASS	HEALTH HAZARD:	0	HAZARD RANKING	FLASH POINT
	FLAMMABILITY:	2	0 = LEAST	
	REACTIVITY:	0	1 = SLIGHT	140-190 F (PMCC)
	OTHER:		2 = MODERATE	60-87 C
			3 = HIGH	
		4 = EXTREME		

**EXTINGUISHING MEDIA:**

DRY CHEMICAL, CARBON DIOXIDE, HALON, FOAM OR WATER SPRAY IS RECOMMENDED.

**UNUSUAL FIRE & EXPLOSION HAZARDS:**

THIS MATERIAL IS COMBUSTIBLE AND MAY BE IGNITED BY HEAT, SPARKS, FLAME OR OTHER SOURCES OF IGNITION (e.g. STATIC ELECTRICITY, PILOT LIGHTS, MECHANICAL/ELECTRICAL EQUIPMENT). VAPORS MAY TRAVEL CONSIDERABLE DISTANCES TO A SOURCE OF IGNITION WHERE THEY MAY IGNITE, FLASHBACK OR EXPLODE. VAPOR/AIR EXPLOSION HAZARD INDOORS/OUTDOORS OR IN SEWERS. VAPORS ARE HEAVIER THAN AIR AND MAY ACCUMULATE IN LOW AREAS. IF CONTAINER IS NOT PROPERLY COOLED, IT MAY EXPLODE IN THE HEAT OF A FIRE.

**SPECIAL FIRE FIGHTING PROCEDURES:**

WEAR APPROPRIATE PROTECTIVE EQUIPMENT INCLUDING RESPIRATORY PROTECTION AS CONDITIONS WARRANT (SEE SECTION IV). STOP SPILL/RELEASE IF IT CAN BE DONE WITHOUT RISK. MOVE UNDAMAGED CONTAINERS FROM FIRE AREA IF IT CAN BE DONE WITHOUT RISK. WATER SPRAY MAY BE USEFUL IN MINIMIZING OR DISPERSING VAPORS AND COOLING EQUIPMENT EXPOSED TO HEAT AND FLAME. AVOID SPREADING BURNING LIQUID WITH WATER USED FOR COOLING PURPOSES.

**SECTION IX - PHYSICAL DATA**

\*\*\*UNLESS OTHERWISE NOTED, VALUES ARE AT 20 C/68 F AND 760 mm Hg/1 atm.

<u>APPROX BOILING POINT</u>	<u>{AIR = 1} VAPOR DENSITY</u>	<u>{N-BUTYL ACETATE = 1} EVAPORATION RATE</u>	<u>% VOLATILE</u>
490-700 F / 232-271 C	>1	<1	98

**% SOLUBILITY IN WATER**

<0.1

**SPECIFIC GRAVITY**

0.85

**APPROX. BULK DENSITY (LB/GAL)**

7.0

**APPEARANCE**

CLEAR TO YELLOW LIQUID

**ODOR**

CHARACTERISTIC PETROLEUM

UNION OIL CO.

Product Name: UNOCAL DIESEL #2  
Product Code No: 01602

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Issue Date: 05/09/90  
Status: FINAL

SECTION X - DOCUMENTARY INFORMATION

ISSUE DATE: 05/09/90 PRODUCT CODE NO. 01602  
PREV. DATE: 12/18/89 PREV. PROD. CODE NO. N/A  
MSDS NO: N/A PREV. MSDS NO: N/A

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MATERIAL SAFETY DATA SHEET



Product Name: UNOCAL PERFORMANCE PLUS 89  
 Product Code No: 00401  
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 Issue Date: 05/04/90  
 Status: FINAL

Responsible Party:  UNOCAL REFINING & MARKETING DIVISION UNION OIL COMPANY OF CALIFORNIA 1201 WEST 5TH STREET LOS ANGELES, CALIFORNIA 90017  CONTACT FOR FURTHER INFORMATION: MSDS COORDINATOR 213-977-7589	Transportation Emergencies: CHEMTREC (800) 424-9300 Cont. U.S. (202) 483-7616 (Collect) from Alaska & Hawaii Health Emergencies: Call LOS ANGELES POISON INFORMATION CENTER (24 hrs) (800) 356-3129
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PRODUCT IDENTIFICATION

PRODUCT NAME: UNOCAL PERFORMANCE PLUS 89  
 GENERIC NAME: UNLEADED GASOLINE  
 CHEMICAL FAMILY: PETROLEUM HYDROCARBON MIXTURE  
 DOT PROPER SHIPPING NAME: GASOLINE  
 ID NUMBER: UN1203  
 DOT HAZARD CLASSIFICATION: FLAMMABLE LIQUID

PRECAUTIONARY WARNING

**DANGER**  
 EXTREMELY FLAMMABLE. VAPORS MAY EXPLODE. HARMFUL OR FATAL IF SWALLOWED. VAPOR HARMFUL. POSSIBLE CANCER HAZARD BASED ON TESTS WITH LABORATORY ANIMALS. ASPIRATION HAZARD IF SWALLOWED. CAN ENTER LUNGS AND CAUSE DAMAGE. NO SMOKING OR OPEN FLAME. KEEP AWAY FROM HEAT, SPARKS, FLAMES OR OTHER SOURCES OF IGNITION (e.g. STATIC ELECTRICITY, PILOT LIGHTS OR MECHANICAL/ELECTRICAL EQUIPMENT). VAPORS MAY BE IGNITED BY SPARK OR FLAME SOURCE MANY FEET AWAY. DO NOT OVERFILL TANK. USE ONLY WITH ADEQUATE VENTILATION. DO NOT TASTE OR SWALLOW. DO NOT BREATHE VAPOR OR MIST. DO NOT GET IN EYES, ON SKIN OR ON CLOTHING. WASH THOROUGHLY AFTER HANDLING. NEVER SIPHON BY MOUTH. FOR USE AS MOTOR FUEL ONLY. DO NOT USE FOR ANY OTHER PURPOSE. KEEP CONTAINER CLOSED. DO NOT PRESSURIZE, CUT, WELD, BRAZE, SOLDER, GRIND OR DRILL ON OR NEAR CONTAINER. "EMPTY" CONTAINER RETAINS RESIDUE (LIQUID AND/OR VAPOR) AND MAY EXPLODE IN HEAT OF A FIRE. KEEP OUT OF REACH OF CHILDREN. FAILURE TO USE CAUTION MAY CAUSE SERIOUS INJURY OR ILLNESS.

SECTION I - COMPONENTS	PERCENT	EXPOSURE LIMIT	UNITS	AGENCY	TYPE
<b>HAZARDOUS COMPONENTS</b>					
GASOLINE CAS #: 8006-61-9		300.000	ppm	ACGIH	TWA
		500.000	ppm	ACGIH	STEL
		300.000	ppm	OSHA	TWA
		500.000	ppm	OSHA	STEL
		300.000	ppm	CAL OSHA	TWA

UNION OIL CO.

Product Name: UNOCAL PERFORMANCE PLUS 89  
 Product Code No: 00401

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SECTION I - COMPONENTS	PERCENT	EXPOSURE LIMIT	UNITS	AGENCY	TYPE
BENZENE CAS #: 71-43-2	1.0 - 5.0	10.000	ppm	ACGIH	TWA
		25.000	ppm	MSHA	CEIL-SKIN
		1.000	ppm	OSHA	TWA
		5.000	ppm	OSHA	STEL
		50.000	ppm	CAL OSHA	CEIL
		25.000	ppm	CAL OSHA	EXCUR
		10.000	ppm	CAL OSHA	TWA-SKIN
TOLUENE CAS #: 108-88-3	1.0 - 9.0	100.000	ppm	ACGIH	TWA
		150.000	ppm	ACGIH	STEL
		100.000	ppm	MSHA	TWA
		100.000	ppm	OSHA	TWA
		150.000	ppm	OSHA	STEL
		200.000	ppm	CAL OSHA	EXCUR
		100.000	ppm	CAL OSHA	TWA-SKIN
500.000	ppm	CAL OSHA	CEIL-SKIN		
XYLENES CAS #: 1330-20-7	1.0 - 14.0	100.000	ppm	ACGIH	TWA
		150.000	ppm	ACGIH	STEL
		100.000	ppm	MSHA	TWA
		100.000	ppm	OSHA	TWA
		150.000	ppm	OSHA	STEL
		200.000	ppm	CAL OSHA	EXCUR
		100.000	ppm	CAL OSHA	TWA-SKIN
300.000	ppm	CAL OSHA	CEIL-SKIN		
N-HEXANE CAS #: 110-54-3		50.000	ppm	ACGIH	TWA
		500.000	ppm	MSHA	TWA
		50.000	ppm	OSHA	TWA
		50.000	ppm	CAL OSHA	TWA

OTHER COMPONENTS

--NONE--

THIS PRODUCT CONTAINS THE FOLLOWING CHEMICALS SUBJECT TO THE REPORTING REQUIREMENTS OF SARA 313 AND 40 CFR 372:

	CAS NUMBER	WEIGHT %
BENZENE	71-43-2	1-5
TOLUENE	108-88-3	1-9
XYLENES	1330-20-7	1-14
ETHYLBENZENE	100-41-4	1-5
METHYL TERT-BUTYL ETHER	1634-04-4	0-10
1,2,4-TRIMETHYLBENZENE	95-63-6	1-5

NOTE: GASOLINE IS A COMPLEX COMBINATION OF HYDROCARBONS INCLUDING A SMALL QUANTITY OF BENZENE, TOLUENE, XYLENE AND N-HEXANE.

UNION OIL CO.

Product Name: UNOCAL PERFORMANCE PLUS 89  
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**SECTION II - EMERGENCY AND FIRST AID PROCEDURES****\*\*\*EMERGENCY\*\*\***

Have physician call LOS ANGELES POISON  
INFORMATION CENTER (24 hrs) (800) 356-3129

**EYE CONTACT:**

IF IRRITATION OR REDNESS DEVELOPS, MOVE VICTIM AWAY FROM EXPOSURE AND INTO FRESH AIR. FLUSH EYES WITH CLEAN WATER. IF SYMPTOMS PERSIST, SEEK MEDICAL ATTENTION.

**SKIN CONTACT:**

WIPE MATERIAL FROM SKIN AND REMOVE CONTAMINATED SHOES AND CLOTHING. CLEANSE AFFECTED AREA(S) THOROUGHLY BY WASHING WITH MILD SOAP AND WATER AND, IF NECESSARY, A WATERLESS SKIN CLEANSER. IF IRRITATION OR REDNESS DEVELOPS AND PERSISTS, SEEK MEDICAL ATTENTION.

**INHALATION (BREATHING):**

IF RESPIRATORY SYMPTOMS OR OTHER SYMPTOMS OF EXPOSURE DEVELOP, MOVE VICTIM AWAY FROM SOURCE OF EXPOSURE AND INTO FRESH AIR. IF SYMPTOMS PERSIST, SEEK IMMEDIATE MEDICAL ATTENTION. IF VICTIM IS NOT BREATHING, IMMEDIATELY BEGIN ARTIFICIAL RESPIRATION. IF BREATHING DIFFICULTIES DEVELOP, OXYGEN SHOULD BE ADMINISTERED BY QUALIFIED PERSONNEL. SEEK IMMEDIATE MEDICAL ATTENTION.

**INGESTION (SWALLOWING):**

ASPIRATION HAZARD: DO NOT INDUCE VOMITING OR GIVE ANYTHING BY MOUTH BECAUSE THIS MATERIAL CAN ENTER THE LUNGS AND CAUSE SEVERE LUNG DAMAGE. IF VICTIM IS DROWSY OR UNCONSCIOUS, PLACE ON THE LEFT SIDE WITH THE HEAD DOWN. IF POSSIBLE, DO NOT LEAVE VICTIM UNATTENDED. SEEK MEDICAL ATTENTION.

**COMMENTS:**

NOTE TO PHYSICIANS: EXPOSURE TO HIGH CONCENTRATIONS OF THIS MATERIAL (e.g. IN ENCLOSED SPACES OR WITH DELIBERATE ABUSE) MAY BE ASSOCIATED WITH CARDIAC ARRHYTHMIAS. EPINEPHRINE AND OTHER SYMPATHOMIMETIC DRUGS MAY INITIATE CARDIAC ARRHYTHMIAS IN PERSONS EXPOSED TO THIS MATERIAL. OTHER DRUGS WITH LESS ARRHYTHMOGENIC POTENTIAL SHOULD BE CONSIDERED. IF SYMPATHOMIMETIC DRUGS ARE ADMINISTERED, OBSERVE FOR THE DEVELOPMENT OF CARDIAC ARRHYTHMIAS.

**SECTION III - HEALTH HAZARDS/ROUTES OF ENTRY****EYE CONTACT:**

THIS MATERIAL MAY CAUSE MILD EYE IRRITATION. DIRECT CONTACT WITH THE LIQUID OR EXPOSURE TO VAPORS OR MISTS MAY CAUSE STINGING, TEARING AND REDNESS.

**SKIN CONTACT:**

THIS MATERIAL MAY CAUSE MILD SKIN IRRITATION. PROLONGED OR REPEATED CONTACT MAY CAUSE REDNESS, BURNING, AND DRYING AND CRACKING OF THE SKIN. CONTACT MAY RESULT IN SKIN ABSORPTION BUT SYMPTOMS OF TOXICITY ARE NOT ANTICIPATED BY THIS ROUTE ALONE UNDER NORMAL CONDITIONS OF USE. PERSONS WITH PRE-EXISTING SKIN DISORDERS MAY BE MORE SUSCEPTIBLE TO THE EFFECTS OF THIS MATERIAL.

**INHALATION (BREATHING):**

WHILE THIS MATERIAL HAS A LOW DEGREE OF TOXICITY, BREATHING HIGH CONCENTRATIONS OF VAPORS OR MISTS MAY CAUSE FLUSHING, BLURRED VISION, NAUSEA AND SIGNS OF NERVOUS SYSTEM DEPRESSION (e.g. HEADACHE, DROWSINESS, DIZZINESS, LOSS OF COORDINATION AND FATIGUE). EXPOSURE TO HIGH CONCENTRATIONS MAY CAUSE LOSS OF CONSCIOUSNESS, CONVULSIONS, RESPIRATORY COLLAPSE AND DEATH. RESPIRATORY SYMPTOMS ASSOCIATED WITH PRE-EXISTING LUNG DISORDERS (e.g. ASTHMA-LIKE CONDITIONS) MAY BE AGGRAVATED BY EXPOSURE TO THIS MATERIAL.



UNION OIL CO.

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**SECTION III - HEALTH HAZARDS/ROUTES OF ENTRY****INGESTION (SWALLOWING):**

ASPIRATION HAZARD - THIS MATERIAL CAN ENTER LUNGS DURING SWALLOWING OR VOMITING AND CAUSE LUNG INFLAMMATION AND DAMAGE. INGESTION OF EXCESSIVE QUANTITIES OF THIS MATERIAL MAY CAUSE IRRITATION OF THE DIGESTIVE TRACT AND SIGNS OF NERVOUS SYSTEM DEPRESSION (e.g. HEADACHE, DROWSINESS, DIZZINESS, LOSS OF COORDINATION, AND FATIGUE).

**COMMENTS:**

GASOLINE IS A POSSIBLE CANCER HAZARD BASED ON ANIMAL DATA. FOLLOW-UP STUDIES SUGGEST THAT THIS MAY BE A UNIQUE EFFECT IN MALE RATS. UNLEADED GASOLINE HAS BEEN IDENTIFIED AS A POSSIBLE CARCINOGEN BY IARC. BENZENE, A COMPONENT OF THIS PRODUCT, IS A KNOWN CANCER (LEUKEMIA) HAZARD. RESULTS OF TESTS IN HUMANS HAVE SHOWN THAT EXPOSURE TO BENZENE CAN CAUSE IRREVERSIBLE CHANGES IN THE GENETIC MATERIAL (DNA) OF A CELL. THE HUMAN HEALTH CONSEQUENCES OF THESE CHANGES IS NOT FULLY UNDERSTOOD. BENZENE HAS BEEN IDENTIFIED AS A CARCINOGEN BY IARC, NTP AND OSHA. THERE IS INSUFFICIENT EVIDENCE TO SHOW THAT GASOLINE POSES ANY HAZARD RELATED TO ITS LOW BENZENE CONTENT. PERSONS WITH PRE-EXISTING HEART DISORDERS MAY BE MORE SUSCEPTIBLE TO IRREGULAR HEARTBEATS (ARRHYTHMIAS) IF EXPOSED TO HIGH CONCENTRATIONS OF THIS MATERIAL (SEE SECTION II - NOTE TO PHYSICIANS).

**SECTION IV - SPECIAL PROTECTION INFORMATION****VENTILATION:**

IF CURRENT VENTILATION PRACTICES ARE NOT ADEQUATE TO MAINTAIN AIRBORNE CONCENTRATIONS BELOW THE ESTABLISHED EXPOSURE LIMITS (SEE SECTION I), ADDITIONAL VENTILATION OR EXHAUST SYSTEMS MAY BE REQUIRED. WHERE EXPLOSIVE MIXTURES MAY BE PRESENT, ELECTRICAL SYSTEMS SAFE FOR SUCH LOCATIONS MUST BE USED.

**RESPIRATORY PROTECTION:**

THE USE OF RESPIRATORY PROTECTION IS ADVISED WHEN CONCENTRATIONS EXCEED THE ESTABLISHED EXPOSURE LIMITS (SEE SECTION I). DEPENDING ON THE AIRBORNE CONCENTRATION, USE A RESPIRATOR OR GAS MASK WITH APPROPRIATE CARTRIDGES AND CANNISTERS (NIOSH APPROVED, IF AVAILABLE) OR SUPPLIED AIR EQUIPMENT.

**PROTECTIVE GLOVES:**

THE USE OF GLOVES IMPERMEABLE TO THE SPECIFIC MATERIAL HANDLED IS ADVISED TO PREVENT SKIN CONTACT AND POSSIBLE IRRITATION.

**EYE PROTECTION:**

APPROVED EYE PROTECTION TO SAFEGUARD AGAINST POTENTIAL EYE CONTACT, IRRITATION OR INJURY IS RECOMMENDED.

**OTHER PROTECTIVE EQUIPMENT:**

IT IS SUGGESTED THAT A SOURCE OF CLEAN WATER BE AVAILABLE IN THE WORK AREA FOR FLUSHING EYES AND SKIN. IMPERVIOUS CLOTHING SHOULD BE WORN AS NEEDED.

**SECTION V - REACTIVITY DATA****REACTIVITY:**

STABLE UNDER NORMAL CONDITIONS OF STORAGE AND HANDLING.

EXTREMELY FLAMMABLE LIQUID AND VAPOR. VAPOR MAY CAUSE FLASH FIRE.

UNION OIL CO.

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**SECTION V - REACTIVITY DATA****CONDITIONS AFFECTING REACTIVITY:**

AVOID ALL POSSIBLE SOURCES OF IGNITION (SEE SECTIONS VII AND VIII).

**INCOMPATIBLE MATERIALS:**

STRONG OXIDIZING AGENTS SUCH AS CHLORINE, PERMANGANATES AND DICHROMATES MAY CAUSE FIRE OR EXPLOSION.

**HAZARDOUS DECOMPOSITION PRODUCTS:**

COMBUSTION MAY YIELD SIGNIFICANT AMOUNTS OF CARBON MONOXIDE AND SMALL AMOUNTS OF OXIDES OF SULFUR AND NITROGEN, BENZENE AND OTHER ORGANIC COMPOUNDS.

**HAZARDOUS POLYMERIZATION:**

WILL NOT OCCUR

**POLYMERIZATION CONDITIONS TO AVOID:**

NONE KNOWN

**SECTION VI - SPILL AND LEAK PROCEDURES** \*\*\*HIGHWAY OR RAILWAY SPILLS\*\*\*  
 Call CHEMTREC (800) 424-9300 Cont. U.S.  
 (Collect) (202) 483-7616 from Alaska & Hawaii

**PRECAUTIONS IN CASE OF RELEASE OR SPILL:**

EXTREMELY FLAMMABLE. KEEP ALL SOURCES OF IGNITION AND HOT METAL SURFACES AWAY FROM SPILL/RELEASE. STAY UPWIND AND AWAY FROM SPILL/RELEASE. ISOLATE HAZARD AREA AND LIMIT ENTRY TO EMERGENCY CREW. STOP SPILL/RELEASE IF IT CAN BE DONE WITHOUT RISK. WEAR APPROPRIATE PROTECTIVE EQUIPMENT INCLUDING RESPIRATORY PROTECTION AS CONDITIONS WARRANT (SEE SECTION IV). PREVENT SPILLED MATERIAL FROM ENTERING SEWERS, STORM DRAINS, OTHER UNAUTHORIZED TREATMENT DRAINAGE SYSTEMS AND NATURAL WATERWAYS. DIKE FAR AHEAD OF SPILL FOR LATER RECOVERY OR DISPOSAL. SPILLED MATERIAL MAY BE ABSORBED INTO AN APPROPRIATE ABSORBENT MATERIAL. NOTIFY FIRE AUTHORITIES AND APPROPRIATE FEDERAL, STATE AND LOCAL AGENCIES. IMMEDIATE CLEANUP OF ANY SPILL IS RECOMMENDED. IF SPILL OF ANY AMOUNT IS MADE INTO OR UPON U.S. NAVIGABLE WATERS, THE CONTIGUOUS ZONE, OR ADJOINING SHORELINES, NOTIFY THE NATIONAL RESPONSE CENTER (PHONE NUMBER 800-424-8802).

**WASTE DISPOSAL METHOD:**

DISPOSE OF PRODUCT IN ACCORDANCE WITH LOCAL, COUNTY, STATE, AND FEDERAL REGULATIONS.

**SECTION VII - STORAGE AND SPECIAL PRECAUTIONS****HANDLING AND STORAGE PRECAUTIONS:**

KEEP CONTAINER(S) TIGHTLY CLOSED. USE AND STORE THIS MATERIAL IN COOL, DRY, WELL VENTILATED AREAS AWAY FROM HEAT, DIRECT SUNLIGHT, HOT METAL SURFACES AND ALL SOURCES OF IGNITION. POST AREA "NO SMOKING OR OPEN FLAME." BOND AND GROUND ALL EQUIPMENT WHEN TRANSFERRING FROM ONE VESSEL TO ANOTHER. STORE ONLY IN APPROVED CONTAINERS. KEEP AWAY FROM ANY INCOMPATIBLE MATERIALS (SEE SECTION V). PROTECT CONTAINER(S) AGAINST PHYSICAL DAMAGE. THE USE OF EXPLOSION-PROOF EQUIPMENT IS RECOMMENDED AND MAY BE REQUIRED (SEE APPROPRIATE FIRE CODES). DO NOT ENTER CONFINED SPACES SUCH AS TANKS OR PITS WITHOUT FOLLOWING PROPER ENTRY PROCEDURES SUCH AS ASTM D-4276. OUTDOOR OR DETACHED STORAGE IS PREFERRED. INDOOR STORAGE SHOULD MEET OSHA STANDARDS AND APPROPRIATE FIRE CODES. THE USE OF RESPIRATORY PROTECTION IS ADVISED WHEN CONCENTRATIONS EXCEED ANY ESTABLISHED EXPOSURE LIMITS (SEE SECTIONS I AND IV). WASH THOROUGHLY AFTER HANDLING. DO NOT WEAR CONTAMINATED CLOTHING OR SHOES. USE GOOD PERSONAL HYGIENE PRACTICE. "EMPTY" CONTAINERS RETAIN RESIDUE (LIQUID AND/OR VAPOR) AND CAN BE DANGEROUS. DO NOT PRESSURIZE, CUT, WELD, BRAZE, SOLDER, DRILL, GRIND OR EXPOSE SUCH CONTAINERS TO HEAT, FLAME, SPARKS OR OTHER SOURCES OF IGNITION; THEY MAY EXPLODE

UNION OIL CO.

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SECTION VII - STORAGE AND SPECIAL PRECAUTIONS

AND CAUSE INJURY OR DEATH. "EMPTY" DRUMS SHOULD BE COMPLETELY DRAINED, PROPERLY BUNGED AND PROMPTLY SHIPPED TO THE SUPPLIER OR A DRUM RECONDITIONER. ALL OTHER CONTAINERS SHOULD BE DISPOSED OF IN AN ENVIRONMENTALLY SAFE MANNER AND IN ACCORDANCE WITH GOVERNMENTAL REGULATIONS. BEFORE WORKING ON OR IN TANKS WHICH CONTAIN OR HAVE CONTAINED THIS PRODUCT, REFER TO OCCUPATIONAL SAFETY AND HEALTH ADMINISTRATION REGULATIONS, ANSI Z49.1, AND OTHER GOVERNMENTAL AND INDUSTRIAL REFERENCES PERTAINING TO CLEANING, REPAIRING, WELDING, OR OTHER CONTEMPLATED OPERATIONS.

SECTION VIII - FIRE AND EXPLOSION HAZARD DATA

NFPA HAZARD CLASS	HEALTH HAZARD:	2	HAZARD RANKING	FLASH POINT
	FLAMMABILITY:	3	0 = LEAST	
	REACTIVITY:	0	1 = SLIGHT	-45 F (TCC)
	OTHER:		2 = MODERATE	
			3 = HIGH	
		4 = EXTREME		

EXTINGUISHING MEDIA:

DRY CHEMICAL, CARBON DIOXIDE, HALON, FOAM OR WATER SPRAY IS RECOMMENDED. WATER MAY BE INEFFECTIVE.

UNUSUAL FIRE & EXPLOSION HAZARDS:

THIS MATERIAL IS EXTREMELY FLAMMABLE AND MAY BE IGNITED BY HEAT, SPARKS, FLAME OR OTHER SOURCES OF IGNITION (e.g. STATIC ELECTRICITY, PILOT LIGHTS, MECHANICAL/ELECTRICAL EQUIPMENT). VAPORS MAY TRAVEL CONSIDERABLE DISTANCES TO A SOURCE OF IGNITION WHERE THEY MAY IGNITE, FLASHBACK OR EXPLODE. VAPOR/AIR EXPLOSION HAZARD INDOORS/OUTDOORS OR IN SEWERS. VAPORS ARE HEAVIER THAN AIR AND MAY ACCUMULATE IN LOW AREAS. IF CONTAINER IS NOT PROPERLY COOLED, IT MAY EXPLODE IN THE HEAT OF A FIRE.

SPECIAL FIRE FIGHTING PROCEDURES:

WEAR APPROPRIATE PROTECTIVE EQUIPMENT INCLUDING RESPIRATORY PROTECTION AS CONDITIONS WARRANT (SEE SECTION IV). STOP SPILL/RELEASE IF IT CAN BE DONE WITHOUT RISK. MOVE UNDAMAGED CONTAINERS FROM FIRE AREA IF IT CAN BE DONE WITHOUT RISK. WATER SPRAY MAY BE USEFUL IN MINIMIZING OR DISPERSING VAPORS AND COOLING EQUIPMENT EXPOSED TO HEAT AND FLAME. AVOID SPREADING BURNING LIQUID WITH WATER USED FOR COOLING PURPOSES.

SECTION IX - PHYSICAL DATA

\*\*\*UNLESS OTHERWISE NOTED, VALUES ARE AT 20 C/68 F AND 760 mm Hg/1 atm.

<u>APPROX BOILING POINT</u>	<u>(AIR = 1) VAPOR DENSITY</u>	<u>(N-BUTYL ACETATE = 1) EVAPORATION RATE</u>	<u>% VOLATILE</u>
85-430F / 29-221C	>1	<1	100
<u>% SOLUBILITY IN WATER</u>			
NEGLECTIBLE			
<u>SPECIFIC GRAVITY</u>			
0.75			
<u>APPEARANCE</u>			
CLEAR LIQUID			
<u>ODOR</u>			
GASOLINE			

UNION OIL CO.

Product Name: UNOCAL PERFORMANCE PLUS 89  
Product Code No: 00401

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Issue Date: 05/04/90  
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SECTION X - DOCUMENTARY INFORMATION

ISSUE DATE: 05/04/90 PRODUCT CODE NO. 00401  
PREV. DATE: 10/20/89 PREV. PROD. CODE NO. N/A  
MSDS NO: N/A PREV. MSDS NO: N/A

DISCLAIMER OF EXPRESSED AND IMPLIED WARRANTIES

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MATERIAL SAFETY DATA SHEET



Product Name: UNOCAL 76 LEADED REGULAR GASOLINE Page 1  
 Product Code No: 00301 Issue Date: 05/04/90  
Status: FINAL

<p><b>Responsible Party:</b></p> <p>UNOCAL REFINING &amp; MARKETING DIVISION              UNION OIL COMPANY OF CALIFORNIA              1201 WEST 5TH STREET              LOS ANGELES, CALIFORNIA 90017</p> <p>CONTACT FOR FURTHER INFORMATION:              MSDS COORDINATOR 213-977-7589</p>	<p><b>Transportation Emergencies:</b></p> <p>CHEMTREC              (800) 424-9300 Cont. U.S.              (202) 483-7616 (Collect)              from Alaska &amp; Hawaii</p> <p><b>Health Emergencies:</b>              Call LOS ANGELES POISON              INFORMATION CENTER (24 hrs)              (800) 356-3129</p>
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**PRODUCT IDENTIFICATION**

**PRODUCT NAME:** UNOCAL 76 LEADED REGULAR GASOLINE  
**SYNONYMS:** UNION 76 LEADED REGULAR GASOLINE  
**GENERIC NAME:** LEADED GASOLINE  
**CHEMICAL FAMILY:** PETROLEUM HYDROCARBON MIXTURE  
**DOT PROPER SHIPPING NAME:** GASOLINE  
**ID NUMBER:** UN1203  
**DOT HAZARD CLASSIFICATION:** FLAMMABLE LIQUID

**PRECAUTIONARY WARNING**

**DANGER**  
 EXTREMELY FLAMMABLE. VAPORS MAY EXPLODE. HARMFUL OR FATAL IF SWALLOWED. VAPOR HARMFUL. ASPIRATION HAZARD IF SWALLOWED. CAN ENTER LUNGS AND CAUSE DAMAGE. POSSIBLE CANCER HAZARD BASED ON TESTS WITH LABORATORY ANIMALS. NO SMOKING OR OPEN FLAME. KEEP AWAY FROM HEAT, SPARKS, FLAMES OR OTHER SOURCES OF IGNITION (e.g. STATIC ELECTRICITY, PILOT LIGHTS OR MECHANICAL/ELECTRICAL EQUIPMENT). VAPORS MAY BE IGNITED BY SPARK OR FLAME SOURCE MANY FEET AWAY. DO NOT OVERFILL TANK. USE ONLY WITH ADEQUATE VENTILATION. DO NOT TASTE OR SWALLOW. KEEP CONTAINER CLOSED. DO NOT BREATHE VAPOR OR MISTS. DO NOT GET IN EYES, ON SKIN, OR ON CLOTHING. WASH THOROUGHLY AFTER HANDLING. NEVER SIPHON BY MOUTH. FOR USE AS MOTOR FUEL ONLY. DO NOT USE FOR ANY OTHER PURPOSE. DO NOT PRESSURIZE, CUT, WELD, BRAZE, SOLDER, GRIND OR DRILL ON OR NEAR CONTAINER. "EMPTY" CONTAINER RETAINS RESIDUE (LIQUID AND/OR VAPOR) AND MAY EXPLODE IN HEAT OF A FIRE. KEEP OUT OF REACH OF CHILDREN. FAILURE TO USE CAUTION MAY CAUSE SERIOUS INJURY OR ILLNESS.

SECTION I - COMPONENTS	PERCENT	EXPOSURE LIMIT	UNITS	AGENCY	TYPE
<b>HAZARDOUS COMPONENTS</b>					
GASOLINE					
CAS #: 8006-61-9		300.000	ppm	ACGIH	TWA
		500.000	ppm	ACGIH	STEL
		300.000	ppm	OSHA	TWA
		500.000	ppm	OSHA	STEL

UNION OIL CO.

Product Name: UNOCAL 76 LEADED REGULAR GASOLINE  
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SECTION I - COMPONENTS	PERCENT	EXPOSURE LIMIT	UNITS	AGENCY	TYPE
		300.000	ppm	CAL OSHA	TWA
BENZENE CAS #: 71-43-2	1.0 - 5.0	10.000 25.000 1.000 5.000 50.000 25.000 10.000	ppm ppm ppm ppm ppm ppm ppm	ACGIH MSHA OSHA OSHA CAL OSHA CAL OSHA CAL OSHA	TWA CEIL-SKIN TWA STEL CEIL EXCUR TWA-SKIN
LEAD COMPOUND CAS #: NONE	0.1 GM/GAL			NOT ESTABLISHED	
TOLUENE CAS #: 108-88-3	1.0 - 15.0	100.000 150.000 100.000 100.000 150.000 200.000 100.000 500.000	ppm ppm ppm ppm ppm ppm ppm ppm	ACGIH ACGIH MSHA OSHA OSHA CAL OSHA CAL OSHA CAL OSHA	TWA STEL TWA TWA STEL EXCUR TWA-SKIN CEIL-SKIN
XYLENES CAS #: 1330-20-7	1.0 - 21.0	100.000 150.000 100.000 100.000 150.000 200.000 100.000 300.000	ppm ppm ppm ppm ppm ppm ppm ppm	ACGIH ACGIH MSHA OSHA OSHA CAL OSHA CAL OSHA CAL OSHA	TWA STEL TWA TWA STEL EXCUR TWA-SKIN CEIL-SKIN
N-HEXANE CAS #: 110-54-3		50.000 500.000 50.000 50.000	ppm ppm ppm ppm	ACGIH MSHA OSHA CAL OSHA	TWA TWA TWA TWA
OTHER COMPONENTS		--NONE--			

THIS PRODUCT CONTAINS THE FOLLOWING CHEMICALS SUBJECT TO THE REPORTING REQUIREMENTS OF SARA 313 AND 40 CFR 372:

	CAS NUMBER	WEIGHT %
BENZENE	71-43-2	1-5
LEAD COMPOUND	NONE	0.1 GM/GAL
TOLUENE	108-88-3	1-15
XYLENES	1330-20-7	1-21
ETHYLBENZENE	100-41-4	1-5
METHYL TERT-BUTYL ETHER	1634-04-4	0-11
1,2,4-TRIMETHYLBENZENE	95-63-6	1-5

NOTE: GASOLINE IS A COMPLEX COMBINATION OF HYDROCARBONS INCLUDING A SMALL QUANTITY OF BENZENE, TOLUENE, XYLENE AND N-HEXANE.

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**SECTION II - EMERGENCY AND FIRST AID PROCEDURES****\*\*\*EMERGENCY\*\*\***

Have physician call LOS ANGELES POISON  
INFORMATION CENTER (24 hrs) (800) 356-3129

**EYE CONTACT:**

IF IRRITATION OR REDNESS DEVELOPS, MOVE VICTIM AWAY FROM EXPOSURE AND INTO FRESH AIR. FLUSH EYES WITH CLEAN WATER. IF SYMPTOMS PERSIST, SEEK MEDICAL ATTENTION.

**SKIN CONTACT:**

WIPE MATERIAL FROM SKIN AND REMOVE CONTAMINATED SHOES AND CLOTHING. CLEANSE AFFECTED AREA(S) THOROUGHLY BY WASHING WITH MILD SOAP AND WATER AND, IF NECESSARY, A WATERLESS SKIN CLEANSER. IF IRRITATION OR REDNESS DEVELOPS AND PERSISTS, SEEK MEDICAL ATTENTION.

**INHALATION (BREATHING):**

IF RESPIRATORY SYMPTOMS OR OTHER SYMPTOMS OF EXPOSURE DEVELOP, MOVE VICTIM AWAY FROM SOURCE OF EXPOSURE AND INTO FRESH AIR. IF SYMPTOMS PERSIST, SEEK IMMEDIATE MEDICAL ATTENTION. IF VICTIM IS NOT BREATHING, IMMEDIATELY BEGIN ARTIFICIAL RESPIRATION. IF BREATHING DIFFICULTIES DEVELOP, OXYGEN SHOULD BE ADMINISTERED BY QUALIFIED PERSONNEL. SEEK IMMEDIATE MEDICAL ATTENTION.

**INGESTION (SWALLOWING):**

ASPIRATION HAZARD: DO NOT INDUCE VOMITING OR GIVE ANYTHING BY MOUTH BECAUSE THIS MATERIAL CAN ENTER THE LUNGS AND CAUSE SEVERE LUNG DAMAGE. IF VICTIM IS DROWSY OR UNCONSCIOUS, PLACE ON THE LEFT SIDE WITH THE HEAD DOWN. IF POSSIBLE, DO NOT LEAVE VICTIM UNATTENDED. SEEK MEDICAL ATTENTION.

**COMMENTS:**

NOTE TO PHYSICIANS: EXPOSURE TO HIGH CONCENTRATIONS OF THIS MATERIAL (e.g. IN ENCLOSED SPACES OR WITH DELIBERATE ABUSE) MAY BE ASSOCIATED WITH CARDIAC ARRHYTHMIAS. EPINEPHRINE AND OTHER SYMPATHOMIMETIC DRUGS MAY INITIATE CARDIAC ARRHYTHMIAS IN PERSONS EXPOSED TO THIS MATERIAL. OTHER DRUGS WITH LESS ARRHYTHMOGENIC POTENTIAL SHOULD BE CONSIDERED. IF SYMPATHOMIMETIC DRUGS ARE ADMINISTERED, OBSERVE FOR THE DEVELOPMENT OF CARDIAC ARRHYTHMIAS.

**SECTION III - HEALTH HAZARDS/ROUTES OF ENTRY****EYE CONTACT:**

THIS MATERIAL MAY CAUSE MILD EYE IRRITATION. DIRECT CONTACT WITH THE LIQUID OR EXPOSURE TO VAPORS OR MISTS MAY CAUSE STINGING, TEARING AND REDNESS.

**SKIN CONTACT:**

THIS MATERIAL MAY CAUSE MILD SKIN IRRITATION. PROLONGED OR REPEATED CONTACT MAY CAUSE REDNESS, BURNING, AND DRYING AND CRACKING OF THE SKIN. CONTACT MAY RESULT IN SKIN ABSORPTION BUT SYMPTOMS OF TOXICITY ARE NOT ANTICIPATED BY THIS ROUTE ALONE UNDER NORMAL CONDITIONS OF USE. PERSONS WITH PRE-EXISTING SKIN DISORDERS MAY BE MORE SUSCEPTIBLE TO THE EFFECTS OF THIS MATERIAL.

**INHALATION (BREATHING):**

WHILE THIS MATERIAL HAS A LOW DEGREE OF TOXICITY, BREATHING HIGH CONCENTRATIONS OF VAPORS OR MISTS MAY CAUSE FLUSHING, BLURRED VISION, NAUSEA AND SIGNS OF NERVOUS SYSTEM DEPRESSION (e.g. HEADACHE, DROWSINESS, DIZZINESS, LOSS OF COORDINATION AND FATIGUE). EXPOSURE TO HIGH CONCENTRATIONS MAY CAUSE LOSS OF CONSCIOUSNESS, CONVULSIONS, RESPIRATORY COLLAPSE AND DEATH. RESPIRATORY SYMPTOMS ASSOCIATED WITH PRE-EXISTING LUNG DISORDERS (e.g. ASTHMA-LIKE CONDITIONS) MAY BE AGGRAVATED BY EXPOSURE TO THIS MATERIAL.

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Issue Date: 05/04/90  
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ASPIRATION HAZARD - THIS MATERIAL CAN ENTER LUNGS DURING SWALLOWING OR VOMITING AND CAUSE LUNG INFLAMMATION AND DAMAGE. INGESTION OF EXCESSIVE QUANTITIES OF THIS MATERIAL MAY CAUSE IRRITATION OF THE DIGESTIVE TRACT AND SIGNS OF NERVOUS SYSTEM DEPRESSION (e.g. HEADACHE, DROWSINESS, DIZZINESS, LOSS OF COORDINATION, AND FATIGUE).

**COMMENTS:**

GASOLINE IS A POSSIBLE CANCER HAZARD BASED ON ANIMAL DATA. FOLLOW-UP STUDIES SUGGEST THAT THIS MAY BE A UNIQUE EFFECT IN MALE RATS. UNLEADED GASOLINE HAS BEEN IDENTIFIED AS A POSSIBLE CARCINOGEN BY IARC. BENZENE, A COMPONENT OF THIS PRODUCT, IS A KNOWN CANCER (LEUKEMIA) HAZARD. RESULTS OF TESTS IN HUMANS HAVE SHOWN THAT EXPOSURE TO BENZENE CAN CAUSE IRREVERSIBLE CHANGES IN THE GENETIC MATERIAL (DNA) OF A CELL. THE HUMAN HEALTH CONSEQUENCES OF THESE CHANGES IS NOT FULLY UNDERSTOOD. BENZENE HAS BEEN IDENTIFIED AS A CARCINOGEN BY IARC, NTP AND OSHA. THERE IS INSUFFICIENT EVIDENCE TO SHOW THAT GASOLINE POSES ANY HAZARD RELATED TO ITS LOW BENZENE CONTENT. INTENTIONAL MISUSE BY DELIBERATE INHALATION OF LEADED GASOLINE MAY RESULT IN CHANGES IN BEHAVIOR CHARACTERIZED BY IRRITABILITY, AGGRESSIVENESS AND HALLUCINATIONS; MORE SEVERE OVEREXPOSURE MAY RESULT IN TREMORS AND SEIZURES. PERSONS WITH PRE-EXISTING HEART DISORDERS MAY BE MORE SUSCEPTIBLE TO IRREGULAR HEARTBEATS (ARRHYTHMIAS) IF EXPOSED TO HIGH CONCENTRATIONS OF THIS MATERIAL (SEE SECTION II - NOTE TO PHYSICIANS).

**SECTION IV - SPECIAL PROTECTION INFORMATION****VENTILATION:**

IF CURRENT VENTILATION PRACTICES ARE NOT ADEQUATE TO MAINTAIN AIRBORNE CONCENTRATIONS BELOW THE ESTABLISHED EXPOSURE LIMITS (SEE SECTION I), ADDITIONAL VENTILATION OR EXHAUST SYSTEMS MAY BE REQUIRED. WHERE EXPLOSIVE MIXTURES MAY BE PRESENT, ELECTRICAL SYSTEMS SAFE FOR SUCH LOCATIONS MUST BE USED.

**RESPIRATORY PROTECTION:**

THE USE OF RESPIRATORY PROTECTION IS ADVISED WHEN CONCENTRATIONS EXCEED THE ESTABLISHED EXPOSURE LIMITS (SEE SECTION I). DEPENDING ON THE AIRBORNE CONCENTRATION, USE A RESPIRATOR OR GAS MASK WITH APPROPRIATE CARTRIDGES AND CANNISTERS (NIOSH APPROVED, IF AVAILABLE) OR SUPPLIED AIR EQUIPMENT.

**PROTECTIVE GLOVES:**

THE USE OF GLOVES IMPERMEABLE TO THE SPECIFIC MATERIAL HANDLED IS ADVISED TO PREVENT SKIN CONTACT AND POSSIBLE IRRITATION.

**EYE PROTECTION:**

APPROVED EYE PROTECTION TO SAFEGUARD AGAINST POTENTIAL EYE CONTACT, IRRITATION OR INJURY IS RECOMMENDED.

**OTHER PROTECTIVE EQUIPMENT:**

IT IS SUGGESTED THAT A SOURCE OF CLEAN WATER BE AVAILABLE IN THE WORK AREA FOR FLUSHING EYES AND SKIN. IMPERVIOUS CLOTHING SHOULD BE WORN AS NEEDED.

**SECTION V - REACTIVITY DATA****REACTIVITY:**

STABLE UNDER NORMAL CONDITIONS OF STORAGE AND HANDLING.

EXTREMELY FLAMMABLE LIQUID AND VAPOR. VAPOR MAY CAUSE FLASH FIRE.



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## SECTION V - REACTIVITY DATA

### CONDITIONS AFFECTING REACTIVITY:

AVOID ALL POSSIBLE SOURCES OF IGNITION (SEE SECTIONS VII AND VIII).

### INCOMPATIBLE MATERIALS:

STRONG OXIDIZING AGENTS SUCH AS CHLORINE, PERMANGANATES AND DICHROMATES MAY CAUSE FIRE OR EXPLOSION.

### HAZARDOUS DECOMPOSITION PRODUCTS:

COMBUSTION MAY YIELD SIGNIFICANT AMOUNTS OF CARBON MONOXIDE AND SMALL AMOUNTS OF OXIDES OF SULFUR AND NITROGEN, BENZENE AND OTHER ORGANIC COMPOUNDS.

### HAZARDOUS POLYMERIZATION:

WILL NOT OCCUR

### POLYMERIZATION CONDITIONS TO AVOID:

NONE KNOWN

SECTION VI - SPILL AND LEAK PROCEDURES \*\*\*HIGHWAY OR RAILWAY SPILLS\*\*\*  
 Call CHEMTREC (800) 424-9300 Cont. U.S.  
 (Collect) (202) 483-7616 from Alaska & Hawaii

### PRECAUTIONS IN CASE OF RELEASE OR SPILL:

EXTREMELY FLAMMABLE. KEEP ALL SOURCES OF IGNITION AND HOT METAL SURFACES AWAY FROM SPILL/RELEASE. STAY UPWIND AND AWAY FROM SPILL/RELEASE. ISOLATE HAZARD AREA AND LIMIT ENTRY TO EMERGENCY CREW. STOP SPILL/RELEASE IF IT CAN BE DONE WITHOUT RISK. WEAR APPROPRIATE PROTECTIVE EQUIPMENT INCLUDING RESPIRATORY PROTECTION AS CONDITIONS WARRANT (SEE SECTION IV). PREVENT SPILLED MATERIAL FROM ENTERING SEWERS, STORM DRAINS, OTHER UNAUTHORIZED TREATMENT DRAINAGE SYSTEMS AND NATURAL WATERWAYS. DIKE FAR AHEAD OF SPILL FOR LATER RECOVERY OR DISPOSAL. SPILLED MATERIAL MAY BE ABSORBED INTO AN APPROPRIATE ABSORBENT MATERIAL. NOTIFY FIRE AUTHORITIES AND APPROPRIATE FEDERAL, STATE AND LOCAL AGENCIES. IMMEDIATE CLEANUP OF ANY SPILL IS RECOMMENDED. IF SPILL OF ANY AMOUNT IS MADE INTO OR UPON U.S. NAVIGABLE WATERS, THE CONTIGUOUS ZONE, OR ADJOINING SHORELINES, NOTIFY THE NATIONAL RESPONSE CENTER (PHONE NUMBER 800-424-8802).

### WASTE DISPOSAL METHOD:

DISPOSE OF PRODUCT IN ACCORDANCE WITH LOCAL, COUNTY, STATE, AND FEDERAL REGULATIONS.

## SECTION VII - STORAGE AND SPECIAL PRECAUTIONS

### HANDLING AND STORAGE PRECAUTIONS:

KEEP CONTAINER(S) TIGHTLY CLOSED. USE AND STORE THIS MATERIAL IN COOL, DRY, WELL VENTILATED AREAS AWAY FROM HEAT, DIRECT SUNLIGHT, HOT METAL SURFACES AND ALL SOURCES OF IGNITION. POST AREA "NO SMOKING OR OPEN FLAME." BOND AND GROUND ALL EQUIPMENT WHEN TRANSFERRING FROM ONE VESSEL TO ANOTHER. STORE ONLY IN APPROVED CONTAINERS. KEEP AWAY FROM ANY INCOMPATIBLE MATERIALS (SEE SECTION V). PROTECT CONTAINER(S) AGAINST PHYSICAL DAMAGE. THE USE OF EXPLOSION-PROOF EQUIPMENT IS RECOMMENDED AND MAY BE REQUIRED (SEE APPROPRIATE FIRE CODES). DO NOT ENTER CONFINED SPACES SUCH AS TANKS OR PITS WITHOUT FOLLOWING PROPER ENTRY PROCEDURES SUCH AS ASTM D-4276. OUTDOOR OR DETACHED STORAGE IS PREFERRED. INDOOR STORAGE SHOULD MEET OSHA STANDARDS AND APPROPRIATE FIRE CODES. THE USE OF RESPIRATORY PROTECTION IS ADVISED WHEN CONCENTRATIONS EXCEED ANY ESTABLISHED EXPOSURE LIMITS (SEE SECTIONS I AND IV). WASH THOROUGHLY AFTER HANDLING. DO NOT WEAR CONTAMINATED CLOTHING OR SHOES. USE GOOD PERSONAL HYGIENE PRACTICE. "EMPTY" CONTAINERS RETAIN RESIDUE (LIQUID AND/OR VAPOR) AND CAN BE DANGEROUS. DO NOT PRESSURIZE, CUT, WELD, BRAZE, SOLDER, DRILL, GRIND OR EXPOSE SUCH CONTAINERS TO HEAT, FLAME, SPARKS OR OTHER SOURCES OF IGNITION; THEY MAY EXPLODE

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SECTION VII - STORAGE AND SPECIAL PRECAUTIONS

AND CAUSE INJURY OR DEATH. "EMPTY" DRUMS SHOULD BE COMPLETELY DRAINED, PROPERLY BUNGED AND PROMPTLY SHIPPED TO THE SUPPLIER OR A DRUM RECONDITIONER. ALL OTHER CONTAINERS SHOULD BE DISPOSED OF IN AN ENVIRONMENTALLY SAFE MANNER AND IN ACCORDANCE WITH GOVERNMENTAL REGULATIONS. BEFORE WORKING ON OR IN TANKS WHICH CONTAIN OR HAVE CONTAINED THIS PRODUCT, REFER TO OCCUPATIONAL SAFETY AND HEALTH ADMINISTRATION REGULATIONS, ANSI Z49.1, AND OTHER GOVERNMENTAL AND INDUSTRIAL REFERENCES PERTAINING TO CLEANING, REPAIRING, WELDING, OR OTHER CONTEMPLATED OPERATIONS.

SECTION VIII - FIRE AND EXPLOSION HAZARD DATA

NFPA HAZARD CLASS	HEALTH HAZARD:	2	HAZARD RANKING 0 = LEAST 1 = SLIGHT 2 = MODERATE 3 = HIGH 4 = EXTREME	FLASH POINT  -45 F (TCC)
	FLAMMABILITY:	3		
	REACTIVITY:	0		
	OTHER:			

EXTINGUISHING MEDIA:

DRY CHEMICAL, CARBON DIOXIDE, HALON, FOAM OR WATER SPRAY IS RECOMMENDED. WATER MAY BE INEFFECTIVE.

UNUSUAL FIRE & EXPLOSION HAZARDS:

THIS MATERIAL IS EXTREMELY FLAMMABLE AND MAY BE IGNITED BY HEAT, SPARKS, FLAME OR OTHER SOURCES OF IGNITION (e.g. STATIC ELECTRICITY, PILOT LIGHTS, MECHANICAL/ELECTRICAL EQUIPMENT). VAPORS MAY TRAVEL CONSIDERABLE DISTANCES TO A SOURCE OF IGNITION WHERE THEY MAY IGNITE, FLASHBACK OR EXPLODE. VAPOR/AIR EXPLOSION HAZARD INDOORS/OUTDOORS OR IN SEWERS. VAPORS ARE HEAVIER THAN AIR AND MAY ACCUMULATE IN LOW AREAS. IF CONTAINER IS NOT PROPERLY COOLED, IT MAY EXPLODE IN THE HEAT OF A FIRE.

SPECIAL FIRE FIGHTING PROCEDURES:

WEAR APPROPRIATE PROTECTIVE EQUIPMENT INCLUDING RESPIRATORY PROTECTION AS CONDITIONS WARRANT (SEE SECTION IV). STOP SPILL/RELEASE IF IT CAN BE DONE WITHOUT RISK. MOVE UNDAMAGED CONTAINERS FROM FIRE AREA IF IT CAN BE DONE WITHOUT RISK. WATER SPRAY MAY BE USEFUL IN MINIMIZING OR DISPERSING VAPORS AND COOLING EQUIPMENT EXPOSED TO HEAT AND FLAME. AVOID SPREADING BURNING LIQUID WITH WATER USED FOR COOLING PURPOSES.

SECTION IX - PHYSICAL DATA

\*\*\*UNLESS OTHERWISE NOTED, VALUES ARE AT  
 20 C/68 F AND 760 mm Hg/1 atm.

<u>APPROX BOILING POINT</u>	<u>(AIR = 1) VAPOR DENSITY</u>	<u>(N-BUTYL ACETATE = 1) EVAPORATION RATE</u>	<u>% VOLATILE</u>
85-430F / 29-221C	>1	<1	100

% SOLUBILITY IN WATER

NEGLECTIBLE

SPECIFIC GRAVITY

0.80

APPEARANCE

BRONZE COLORED LIQUID

ODOR

GASOLINE

UNION OIL CO.

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SECTION X - DOCUMENTARY INFORMATION

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PREV. DATE: 04/25/90 PREV. PROD. CODE NO. N/A  
MSDS NO: N/A PREV. MSDS NO: N/A

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