RO-409

ERI

**ENVIRONMENTAL RESOLUTIONS, INC.**

JAN 11 2002

# TRANSMITTAL

TO: Ms. Eva Chu
Alameda County Health Care Services Agency
Department of Environmental Health
1131 Harbor Bay Parkway, Suite 250
Alameda, California 94502-6577

DATE: January 7, 2002
PROJECT NUMBER: 223503T5
SUBJECT: Tosco Service Station 1156,
4276 MacArthur Boulevard,
Oakland, California.

FROM: Paul D. Blank
TITLE: Project Manager

WE ARE SENDING YOU:

| COPIES | DATED | DESCRIPTION |
|---|---|---|
| 1 | January 4, 2001 | Supplemental Evaluation of Soil and Groundwater and Site Conceptual Model |

THESE ARE TRANSMITTED as checked below:

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| [ ] For review and comment | [ ] Approved as submitted | [ ] Resubmit ___ copies for approval |
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| [X] For your files | [ ] For distribution to regulatory agencies | |

REMARKS: At the request of Tosco Corporation (Tosco), a subsidiary of Phillips Petroleum Company, Environmental Resolutions, Inc. (ERI) is forwarding one copy of the above-referenced document directly to your office. Please call me at (415) 382-5988 with any questions or comments.

Paul D. Blank, Project Manager

cc: Mr. Dave DeWitt, Phillips 66 Company
Mr. James Yoo, Alameda County Public Works Agency, Water Resources Section
Ms. Jolanta Uchman, California Regional Water Quality Control Board, San Francisco Bay Region
ERI Project File 223503T5

RO-409

ENVIRONMENTAL RESOLUTIONS, INC.

January 4, 2002
ERI 223503.R02

JAN 11 2002

Mr. Dave DeWitt
Phillips 66 Company
2000 Crow Canyon Place, Suite 400
San Ramon, California 94583

Subject: Supplemental Evaluation of Soil and Groundwater and Site Conceptual Model, Tosco Service Station 1156, 4276 MacArthur Boulevard, Oakland, California.

Mr. DeWitt:

At the request of Tosco Corporation (Tosco), a subsidiary of Phillips Petroleum Company, Environmental Resolutions, Inc. (ERI) performed an environmental investigation at the subject site, and prepared a site conceptual model (SCM). ERI performed the work in response to a letter from the Alameda County Health Care Services Agency (the County), dated March 8, 2000 (Attachment A). The purpose of the work was to evaluate the lateral extent of dissolved hydrocarbons previously detected in groundwater beneath the site, and to evaluate the potential sources of, receptors to, and transport mechanisms for petroleum hydrocarbons in the subsurface.

## BACKGROUND

### Site Description

The site is located on the southeastern corner of MacArthur Boulevard and High Street in Oakland, California, as shown on the Site Vicinity Map (Plate 1). Properties in the vicinity of the site are occupied by commercial and residential developments.

The locations of the former underground storage tanks (USTs), associated piping and dispensers, existing USTs and dispensers, existing groundwater monitoring wells, and other site features are shown on the Generalized Site Plan (Plate 2). The site is currently operated as a gasoline service station.

### Previous Environmental Work

Tosco initiated environmental assessment activities at the site in 1998. Previous environmental work completed at the site includes:

- Compliance soil sampling during removal of two 10,000-gallon, single-walled gasoline USTs, one 280-gallon single walled steel used-oil UST, and associated product lines and dispensers (ERI, 1998);
- Excavation and disposal of approximately 1,350 tons of soil and backfill from the new and former gasoline and used-oil UST cavities and product trenches (ERI, 1998);

- Installation of four on-site groundwater monitoring wells (MW1 through MW4) (ERI, 1999); and,
- Ongoing quarterly groundwater monitoring and sampling.

The results of previous environmental investigations indicate that petroleum hydrocarbons are present in soil and groundwater beneath the site.

## PRESENT INVESTIGATION

### Scope of Work

ERI previously submitted a *Work Plan for Supplemental Evaluation of Soil and Groundwater* (Work Plan), dated August 28, 2000, to the County. The County approved the Work Plan in a letter dated September 18, 2000 (Attachment A). As proposed in the Work Plan, ERI drilled three soil borings (MW5 through MW7) and installed groundwater monitoring wells in the respective borings. ERI obtained a well installation permit from the Alameda County Public Works Agency and an encroachment permit from the City of Oakland Engineering Services Department prior to performing the field work. Copies of the permits are provided in Attachment B. ERI performed field work in general accordance with ERI's Work Plan, and in accordance with a site-specific Health and Safety Plan that was kept on site during field operations, and ERI's field protocol (Attachment C).

In addition to the work proposed in the Work Plan, and at the request of Tosco, ERI installed a tank pit well within the backfill of the UST cavity. No permit was required for the work. The purpose of tank pit well installation was to facilitate future groundwater extraction from the UST cavity as an interim remedial action.

ERI also conducted an underground utility survey and a groundwater receptor survey. The purpose of these tasks was to identify potential preferred migration pathways and sensitive receptors near the site.

### UST Cavity Well Installation

On July 17, 2001, ERI installed tank pit well TP1 by driving a 4-inch diameter open-bottom slotted casing by hand into the pea gravel backfill of the UST cavity, while concurrently extracting the pea gravel from inside the casing with vacuum provided by a truck-mounted vacuum pump. The casing was advanced until native soil was encountered at approximately 13 feet below ground surface (bgs). A 3-inch diameter closed-bottom slotted casing was installed within the 4-inch casing. The location of well TP1 is shown on Plate 2.

### Soil Borings

On August 29, 2001, ERI's geologist observed Woodward Drilling Company, Inc. (Woodward) of Rio Vista, California, drill three 8-inch diameter soil borings (MW5 through MW7). Soil samples were collected from the borings during drilling at approximately 5-foot intervals. Borings MW5 through MW7 were advanced to approximately 25 feet bgs.

ERI's geologist identified the soil samples collected from the soil boring using visual and manual methods, and classified the samples according to the Unified Soil Classification System (USCS) (Attachment D). Descriptions of the materials encountered are presented on the Boring Logs (Attachment D).

Soil cuttings generated during drilling activities were temporarily stockpiled on site and covered with plastic sheeting pending appropriate disposal by Tosco. ERI collected one composite soil sample (four brass sleeves) from the stockpile for laboratory analysis to be used in evaluating disposal options.

**Monitoring Well Construction, Surveying, Development, and Sampling**

On August 29, 2001, ERI observed Woodward construct groundwater monitoring wells MW5 through MW7 in borings MW5 through MW7, respectively. The locations of the wells are shown on Plate 2. The well construction details are shown on the Boring Logs (Attachment D).

In September 2001, Morrow Surveying of West Sacramento, California, a California-licensed land surveyor, surveyed the new well locations relative to a permanent datum and top of casing (TOC) elevations relative to mean sea level.

On October 3, 2001, Gettler-Ryan, Inc. (GRI), under direct contract to Tosco, developed newly-installed groundwater monitoring wells MW5 through MW7, and monitored and sampled wells MW1 through MW7. GRI's field procedures, field notes, and laboratory analysis reports are included in their *Fourth Quarter Event of October 3 and 5, 2001 - Groundwater Monitoring & Sampling Report*, dated November 12, 2001. Cumulative groundwater monitoring and sampling data from that report are provided in Attachment E. Tosco and GRI were responsible for proper storage and disposal of waste water generated during well development and purging.

**Analytical Methods - Soil Samples**

ERI submitted soil samples collected from borings MW5 through MW7 for laboratory analysis to Sequoia Analytical Laboratories, Inc. (Sequoia) a California state-certified laboratory, under Chain-of-Custody protocol. Select soil samples were analyzed for total petroleum hydrocarbons as gasoline (TPHg) using EPA Method 8015M; and benzene, toluene, ethylbenzene, total xylenes (BTEX) and methyl tertiary butyl ether (MTBE) using EPA Method 8020. The laboratory analysis reports and Chain-of-Custody records are provided in Attachment F.

ERI submitted the composite soil sample collected from the soil stockpile generated during drilling activities to Sequoia, under Chain-of-Custody protocol, for laboratory analysis of TPHg, BTEX, and MTBE using the EPA Methods referenced above, and total lead using EPA Method 6010A.

**Soil Stockpile Disposal**

Approximately 1.45 tons of soil cuttings were generated during drilling activities at the site. Manley & Sons Trucking, Inc. of Sacramento, California, under direct contract to Tosco, transported the soil to the Forward, Inc. landfill in Manteca, California, for disposal. The soil disposal confirmation is provided in Attachment H.

**Groundwater Extraction from UST Cavity**

Subsequent to the installation of TP1, Tosco initiated regular purging of groundwater from the backfill of the UST cavity. Onyx Industrial Services (Onyx), under direct contract to Tosco, purges the UST cavity by inserting a hose into TP1 and applying a vacuum provided by a 5,000-gallon capacity vacuum truck. Between July 31 and December 28, 2001, Onyx extracted approximately 41,000 gallons of hydrocarbon-impacted groundwater from the UST cavity and approximately 600 gallons of hydrocarbon-impacted groundwater from monitoring well MW1. Onyx transports the extracted groundwater to the Tosco Refinery in Rodeo, California, for treatment and disposal.

**Underground Utility Survey**

To locate buried utility lines, ERI mapped the locations and identities of utility vaults on the site and in the adjacent streets and sidewalks. In addition, ERI obtained maps of utility locations, and information regarding utility depth, trend, and backfill type of underground sanitary sewer, storm sewer, telephone, water, gas, and electric lines from the City, Pacific Bell, Pacific Gas & Electric, and the East Bay Municipal Utilities District for the intersection of MacArthur Boulevard and High Street in Oakland, California.

**Groundwater Receptor Survey**

ERI performed a groundwater receptor survey, which included a search of well records held by the California Department of Water Resources (DWR) and a search of the GeoTracker® database, to identify wells within a one-half mile radius of the site. The GeoTracker® database is maintained by the California State Water Resources Control Board.

On October 5, 2001, ERI performed a field receptor survey with in a one-half mile radius of the site. ERI's representative visually surveyed all properties within the one-half mile radius for the existence of wells, surface water-bodies, and potentially sensitive environmental habitats. In addition, ERI attempted to find evidence of the existence of the eight wells identified during the searches of the GeoTracker® and DWR databases.

## RESULTS OF INVESTIGATION

The results of laboratory analyses of soil samples collected from borings MW5 through MW7 are summarized in Table 1. The results of laboratory analyses of groundwater samples collected from newly-installed wells MW5 through MW7 are included in the cumulative groundwater monitoring and sampling data provided in Attachment E.

ERI's underground utility survey revealed buried sanitary sewer, storm sewer, telephone, water, gas, and electric lines beneath and in the vicinity of the site. The deepest underground utility appears to be the storm sewer line located beneath MacArthur Boulevard at approximately 4-6 feet bgs. The locations, typical depths, and typical backfill materials of the utility lines are shown on Plate 3.

# SITE CONCEPTUAL MODEL

## Summary of Site Conditions

### Site Geology and Hydrogeology

The site is underlain by Recent alluvial deposits (CDMG, 1973). Borings logged during the installation of groundwater monitoring wells MW1 through MW7 indicate that the site and vicinity are underlain by mixtures of sand, silt, and clay to a depth of 31.5 feet bgs, the maximum depth explored. The boring logs for wells MW1 through MW7 are provided in Attachment D. Cross sections A-A' (Plate 4) and B-B' (Plate 5) depict ERI's interpretation of the soil stratigraphy. ERI interprets a gradual change from mostly clay to mostly silty clay at approximately 10 to 25 feet bgs. The locations of cross sections A-A' and B-B' are shown on Plate 2.

The saturated zone encountered beneath and in the vicinity of the site consists of an unconfined water table aquifer that extends to the maximum depth explored (approximately 31.5 feet bgs). The depth to groundwater measurements from the monitoring wells range seasonally between approximately 2 and 10 feet bgs. Cumulative groundwater monitoring data are provided in Attachment E. The groundwater flow direction has been consistently toward the west with the hydraulic gradient ranging from 0.05 to 0.1 (the average hydraulic gradient over 10 groundwater monitoring events is 0.07). The direction of historical groundwater flow is shown on the Groundwater Flow Direction Rose Diagram (Plate 6).

### Distribution of Residual Hydrocarbons

Cumulative results of laboratory analyses and locations of soil samples collected during environmental assessment activities are provided in Table 1 and Attachment G. It appears that the impacted soil is concentrated in the vicinity of the former used-oil and former gasoline USTs, although residual hydrocarbons were also detected beneath product lines and dispensers. Based on the data, residual hydrocarbons in soil are delineated to the west and southwest by B2 (well MW2) and MW5. Residual hydrocarbons are not well defined toward the north, east, or southeast; however, these directions are upgradient and crossgradient, and generally uphill from the site. It is unlikely that residual hydrocarbons migrated aggressively in these directions.

### Distribution of Dissolved Hydrocarbons in Groundwater

Based on the cumulative groundwater monitoring and sampling data, dissolved hydrocarbons are present in groundwater beneath and downgradient of the site. Cumulative results of laboratory analyses of groundwater samples collected from groundwater monitoring wells MW1 through MW7 are provided in Attachment E. Isoconcentration maps showing the concentrations of dissolved gasoline hydrocarbons (quantified as TPHg) and MTBE detected in groundwater samples collected during the fourth quarter 2001 groundwater monitoring and sampling event are shown on Plates 7 and 8, respectively. Dissolved hydrocarbons in groundwater beneath and in the vicinity of the site remain undelineated toward the west and south. Graphs showing hydrocarbon concentrations versus time and depth-to-water data for monitoring wells MW1 through MW4 are presented in Hydrographs 1 through 4, respectively.

## Source Identification and Transport Mechanisms

### Source Identification

The distribution of petroleum hydrocarbons in soil and groundwater indicates that the former used-oil UST and the former gasoline UST system (including dispensers and piping) were the probable primary sources of hydrocarbons in the subsurface. These primary sources have been removed. Hydrographs 1 through 4 indicate that dissolved hydrocarbon concentrations in the on-site wells have remained relatively stable since well installation in 1999. It does not appear that there has been a release from the new gasoline UST system; therefore, ERI concludes that no primary source of hydrocarbons remains at the site.

The residual hydrocarbons in soil described above are identified as the secondary source of dissolved hydrocarbons in groundwater.

### Transport Mechanisms

ERI identified two transport mechanisms for migration of petroleum hydrocarbons in the subsurface: dissolution of residual hydrocarbons in vadose sediment and unsaturated flow, and advective transport of dissolved hydrocarbons. Residual hydrocarbons in vadose-zone soil can dissolve into soil moisture in the vadose sediment, which can subsequently flow to the water table. Dissolution can also occur in phreatic groundwater when the water table is sufficiently high. Groundwater containing dissolved hydrocarbons will migrate in response to the natural hydraulic gradient within the water-table aquifer.

Based on cumulative groundwater monitoring data and the results of ERI's underground utility survey, it is ERI's opinion that it is possible that utility trenches located in the vicinity of the site provide potential preferential pathways for groundwater flow. The data indicate groundwater may intersect utility trenches during periods when the water table is high. However, the groundwater surface is typically lower then the reported depth of buried utilities, and therefore the potential for groundwater flow through utility trenches is low.

## Groundwater Receptor Survey

The GeoTracker® database search revealed four public water supply wells, owned by the East Bay Regional Park District (Park District), within the search radius. ERI contacted the Park District to verify the existence, location, depth, and uses of the four wells revealed during the database search. The representatives from the Park District have no knowledge or records of any wells located in this area and indicated that the wells may belong to the East Bay Municipal Utility District (EBMUD). ERI contacted the EBMUD; however, EBMUD has no knowledge or records of any wells located in this area.

The DWR database revealed four water supply wells, belonging to Mills College, within the search radius. ERI contacted Mills College to verify the existence, location, depth, and uses of the four wells. A representative from Mills College indicated that all wells associated with Mills College had been destroyed approximately ten years ago and that Mills College is now connected to a municipal water supply. The DWR search also revealed a well located at 3397 Arkansas Street, approximately 880 feet outside of the search radius.

No wells, surface water-bodies, or potentially sensitive environmental habitats were identified during ERI's field receptor survey. In an attempt to locate the nearest potential groundwater receptor, ERI approached the residence at the 3397 Arkansas Street address, even though it is located approximately 880 feet outside the search radius, and received no response. The results of ERI's groundwater receptor survey are provided in Attachment I.

**Plume Stability**

ERI evaluates the stability of the dissolved hydrocarbon plume based on concentration trends and plume size. Hydrographs 1 through 4 depict relatively stable concentrations of TPHg and MTBE in groundwater in the on-site wells. Concentrations fluctuate through time, perhaps due to groundwater level or other factors, but remain generally within the same order-of-magnitude. The dissolved concentration trends do not indicate an ongoing release or subsequent releases of hydrocarbons to the subsurface since well installation. In terms of concentration, ERI considers the dissolved hydrocarbon plume to be stable.

Presently, insufficient data exist to evaluate whether the plume is stable in terms of size. Dissolved hydrocarbons in groundwater beneath the site remain undefined toward the west and south, as shown on Plates 7 and 8.

**Summary of Remedial Efforts**

Environmental remediation efforts at the site have included:

- Removal of approximately 1,350 tons of hydrocarbon-impacted soil and backfill from the UST cavity and product line trenches (ERI, 1998), including remedial excavation of impacted soil from the vicinity of the former used-oil UST. Based on the results of laboratory analyses of soil samples collected from the excavated soil, approximately 51 pounds of hydrocarbons were removed from the subsurface.

- Extraction of approximately 36,000 gallons of hydrocarbon-impacted groundwater from the UST cavity.

## DOCUMENT DISTRIBUTION

ERI recommends copies of this report be forwarded to:

Ms. Eva Chu
Alameda County Health Care Services Agency
Department of Environmental Health Services
1131 Harbor Bay Parkway, Suite 250
Alameda, California 94502-6577

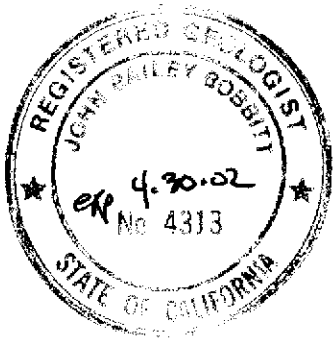
Ms. Jolanta Uchman
California Region Water Quality Control Board
San Francisco Bay Region
1515 Clay Street, Suite 1400
Oakland, California 94612

Please call Mr. Paul D. Blank, ERI's project manager for the site, at (415) 382-5988 with any questions regarding this report.

Sincerely,
Environmental Resolutions, Inc.

Robert A. Saur
Senior Staff Geologist

John B. Bobbitt
R.G. 4313



Attachments: References

Table 1: Results of Laboratory Analysis of Soil Samples

Plate 1: Site Vicinity Map
Plate 2: Generalized Site Plan
Plate 3: Underground Utility Map
Plate 4: Cross-Section A-A'
Plate 5: Cross-Section B-B'
Plate 6: Groundwater Flow Direction Rose Diagram
Plate 7: TPHg Concentrations in Groundwater (October 3, 2001)
Plate 8: MTBE Concentrations in Groundwater (October 3, 2001)

Hydrograph 1: Well MW1: Concentrations and Depth-to-Water vs. Time
Hydrograph 2: Well MW2: Concentrations and Depth-to-Water vs. Time
Hydrograph 3: Well MW3: Concentrations and Depth-to-Water vs. Time
Hydrograph 4: Well MW4: Concentrations and Depth-to-Water vs. Time

Attachment A: Regulatory Correspondence
Attachment B: Permits
Attachment C: Field Protocol
Attachment D: Unified Soil Classification System, Symbol Key, and Boring Logs
Attachment E: Cumulative Groundwater Monitoring and Sampling Data
Attachment F: Laboratory Analysis Reports and Chain-of-Custody Records
Attachment G: Soil Sample Locations and Analytical Results
Attachment H: Soil Disposal Confirmation
Attachment I: Results of Groundwater Receptor Survey

## REFERENCES

California Department of Water Resources. September 1975. California Ground Water. Bulletin 118

California Division of Mines and Geology. 1964 (reprinted 1973) Geologic Map of California, Weed Sheet.

Environmental Resolutions, Inc. August 24, 1998. Underground Storage Tank and Associated Piping and Dispenser Replacement Report. ERI 223532.R01.

Environmental Resolutions, Inc. October 11, 1999. Evaluation of Soil and Groundwater at Tosco 76 Service Station 1156, 4276 MacArthur Boulevard, Oakland, California. ERI 223503.R01.

Environmental Resolutions, Inc. August 28, 2000. Work Plan for Supplemental Evaluation of Soil and Groundwater at Tosco 76 Service Station 1156, 4276 MacArthur Boulevard, Oakland, California. ERI 223503.W02.

Gettler-Ryan, Inc. (GRI). November 12, 2001. Fourth Quarter Event of October 3 and 5, 2001 Groundwater Monitoring & Sampling Report, Tosco 76 Service Station #1156, 4276 MacArthur Boulevard, Oakland, California. G-R Job #180225.

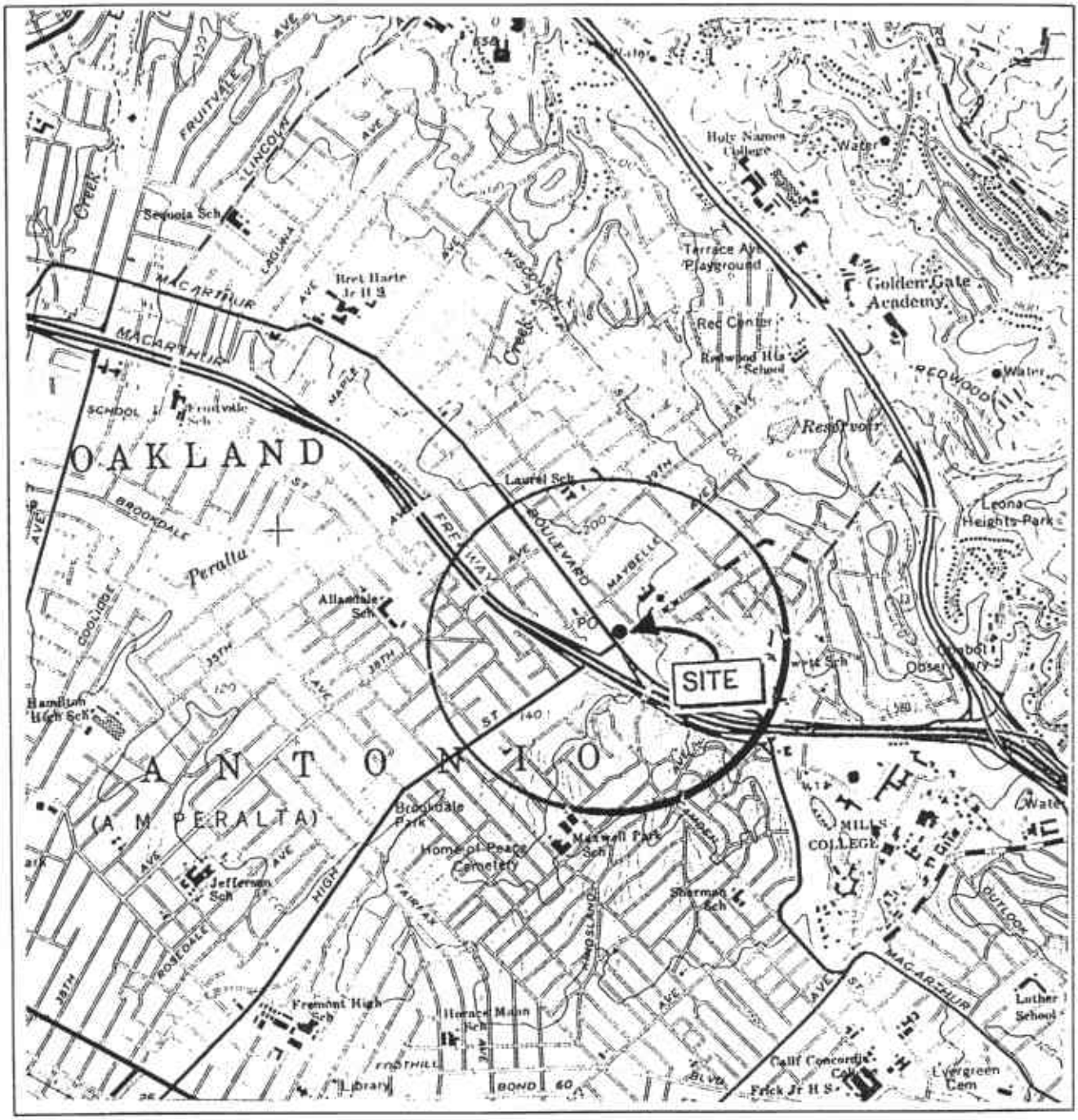
United States Geological Survey (USGS). 1980. 7.5-Minute Topographic Quadrangle Map, Oakland West, California.

**TABLE 1**
**RESULTS OF LABORATORY ANALYSIS OF SOIL SAMPLES**
Tosco Service Station 1156
4276 MacArthur Boulevard
Oakland, California


| Sample Designation | Sample Depth (feet bgs) | Date Sampled | TPHg | B | T | E | X | MTBE | Lead |
|---|---|---|---|---|---|---|---|---|---|
| | | | <.....ppm.....> | | | | | | |
| **Soil Boring Samples** | | | | | | | | | |
| S-5-MW5 | 5 | 8/29/01 | <1.0 | <0.0050 | <0.0050 | <0.0050 | <0.0050 | <0.0050 | NA |
| S-5-MW6 | 5 | 8/29/01 | <1.0 | <0.0050 | <0.0050 | <0.0050 | <0.0050 | <0.0050 | NA |
| S-5-MW7 | 5 | 8/29/01 | <1.0 | <0.0050 | <0.0050 | <0.0050 | <0.0050 | <0.0050 | NA |
| S-10-MW7 | 10 | 8/29/01 | <5.0 | 0.18 | <0.025 | 0.085 | 0.34 | <0.25 | NA |
| **Soil Stockpile Sample** | | | | | | | | | |
| S-SP1-(1-4) | NA | 8/29/01 | <1.0 | 0.0051 | <0.0050 | 0.0075 | 0.031 | 0.062/0.025a | <5.5 |

Notes:

S-5-MW5 = Soil sample-depth-boring MW5.
S-SP1-(1-4) = Composited stockpiled soil sample-stockpile number-sample sleeve numbers.
TPHg = Total petroleum hydrocarbons as gasoline analyzed using EPA Method 8015M.
BTEX = Benzene, toluene, ethylbenzene, and total xylenes analyzed using EPA Method 8020.
MTBE = Methyl tertiary butyl ether analyzed using EPA Method 8020.
Lead = Total lead analyzed using EPA Method 6010A.
bgs = Below ground surface.
ppm = Parts per million.
NA = Not applicable/Not analyzed.
a = MTBE analyzed using EPA Method 8260B.




N

*APPROXIMATE SCALE*

0 1/2 1

*MILE*

Source: U.S.G.S. 7.5 minute topographic quadrangle map Oakland East, California (Photorevised 1980)

ERI ENVIRONMENTAL RESOLUTIONS, INC.

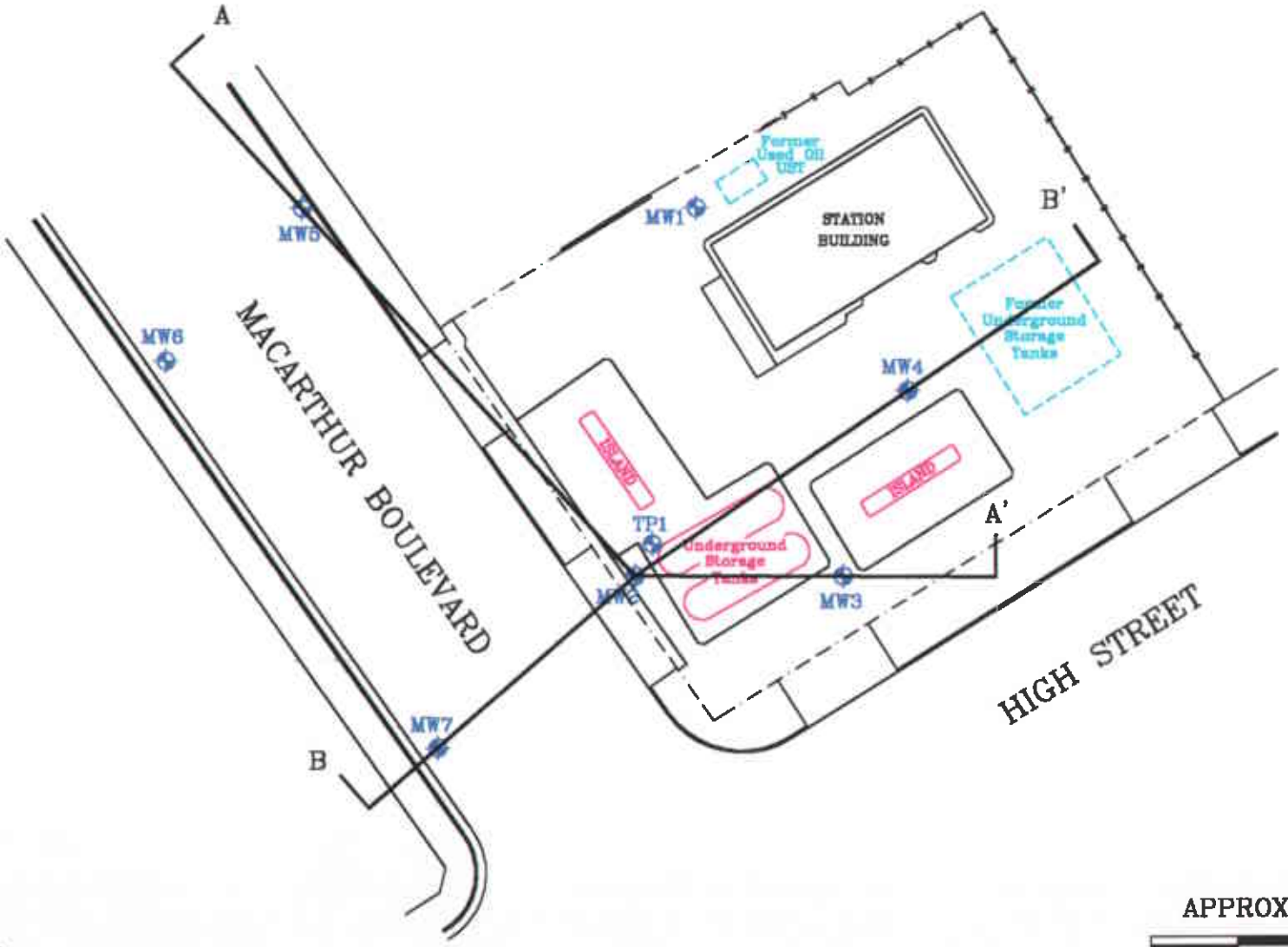
**PROJECT** ERI 2235

# SITE VICINITY MAP

TOSCO 76 SERVICE STATION 1156
4276 MacArthur Boulevard
Oakland, California

**PLATE**

1




SOURCE: Modified from a map provided by MORROW SURVEYING

FN 2235003A

ERI ENVIRONMENTAL RESOLUTIONS, INC.

# GENERALIZED SITE PLAN

TOSCO 76 SERVICE STATION 1156
4276 MacArthur Boulevard
Oakland, California

EXPLANATION

MW7 Groundwater Monitoring Well

B B' Cross Section Location

TP1 Tank Pit Backfill Well

PROJECT NO. 2235

PLATE 2

December 18, 2001


| Utility | Depth | Typical Backfill |
|---|---|---|
| Water | 2'–3' | Native |
| Sanitary Sewer | 2'–3' | Unknown |
| Storm Sewer | 4'–6' | Unknown |
| Electric | 2'–3' | Sand |
| Gas | 2'–3' | Sand |
| Telephone | 3' | Unknown |

SOURCE: Modified from a map provided by MORROW SURVEYING

FN 2235003A

ERI ENVIRONMENTAL RESOLUTIONS, INC.

# UNDERGROUND UTILITY MAP

TOSCO 76 SERVICE STATION 1156
4276 MacArthur Boulevard
Oakland, California

EXPLANATION

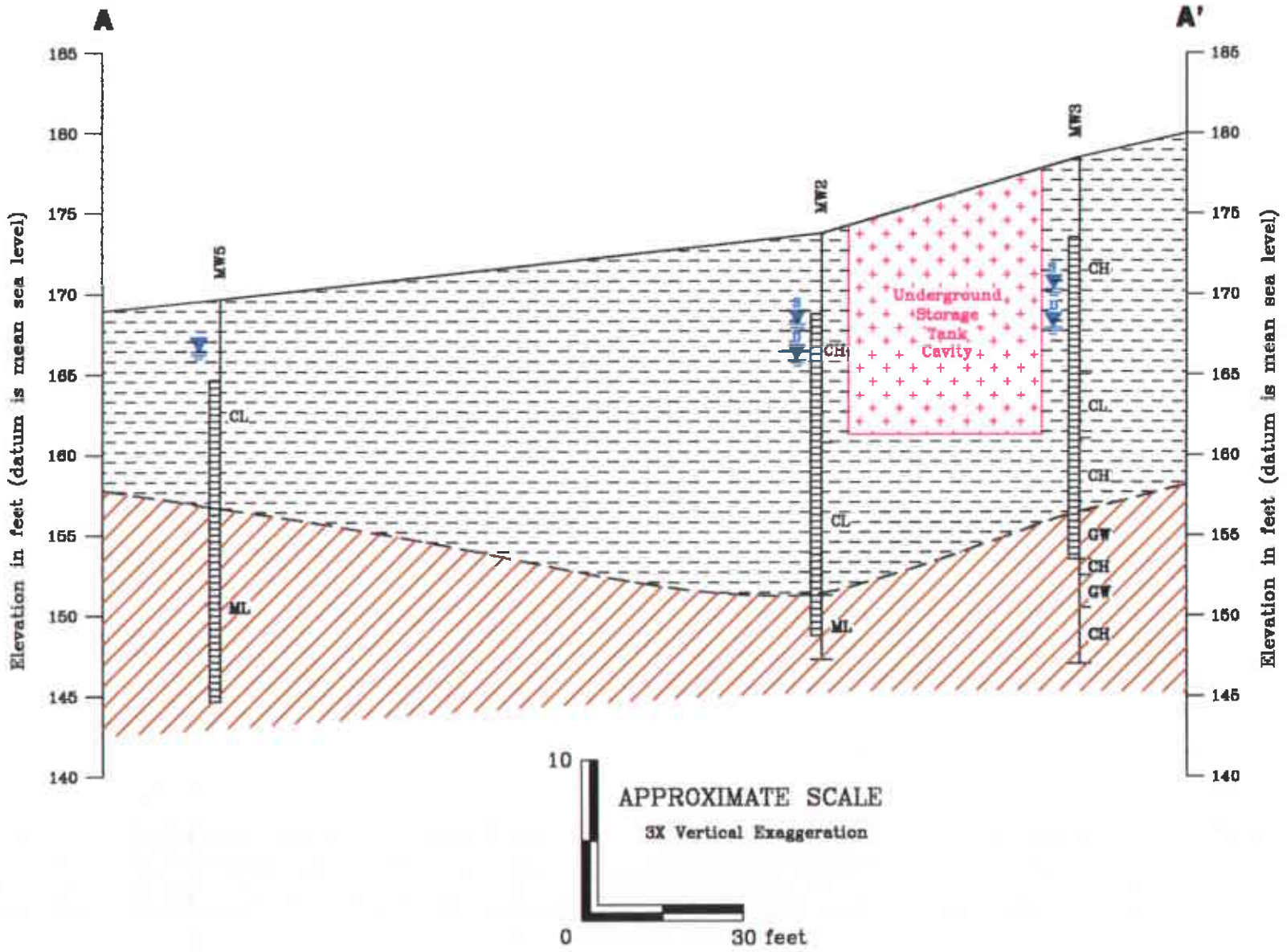
MW7 Groundwater Monitoring Well

TP1 Tank Pit Backfill Well

**PROJECT NO.** 2235

**PLATE** 3

December 10, 2021

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ERI ENVIRONMENTAL RESOLUTIONS, INC.

# CROSS SECTION A-A'

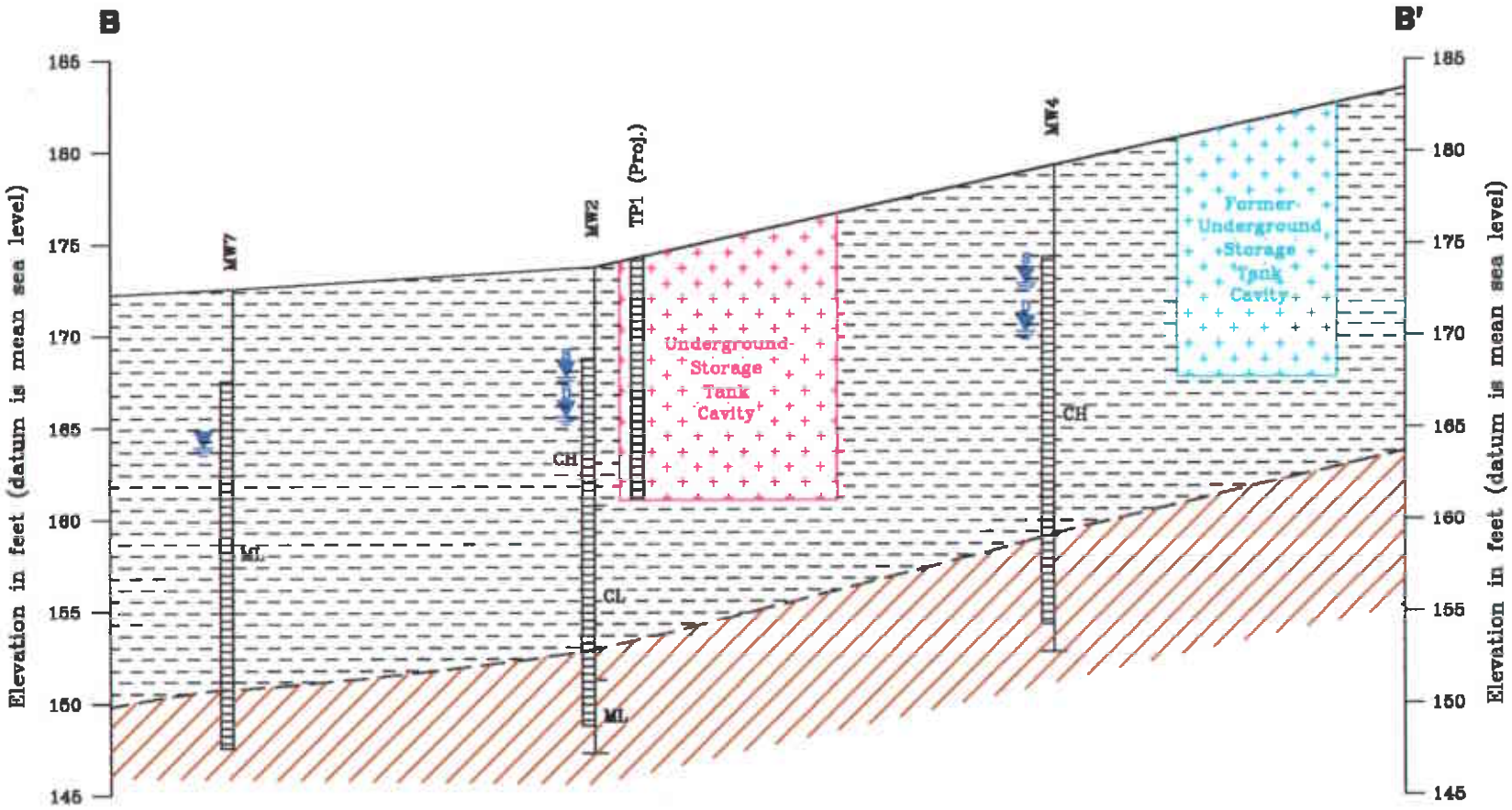
TOSCO SERVICE STATION 1156
4276 MacArthur Boulevard
Oakland, California

EXPLANATION

- Shallowest groundwater level
- Deepest groundwater level
- Static groundwater (10/3/01)
- Mostly Clay
- Tank Pit Backfill
- Mostly Silty Clay

**PROJECT NO.** 2235

**PLATE** 4




10

APPROXIMATE SCALE

3X Vertical Exaggeration

0 30 feet

FN 2235XSBB

ENVIRONMENTAL RESOLUTIONS, INC.

# CROSS SECTION B-B'

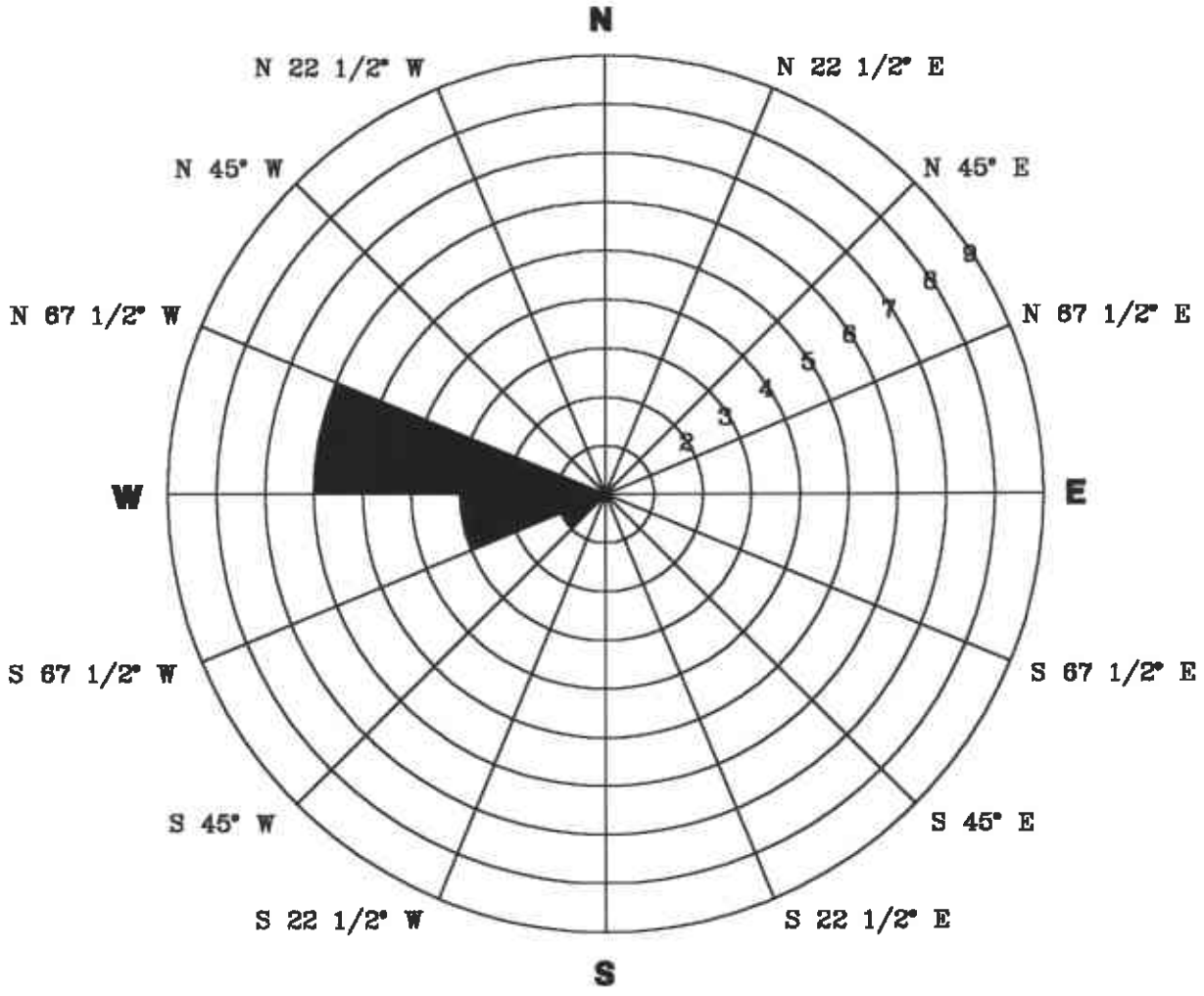
TOSCO SERVICE STATION 1156
4276 MacArthur Boulevard
Oakland, California

EXPLANATION

- Shallowest groundwater level
- Deepest groundwater level
- Static groundwater (10/3/01)
- Mostly Clay
- Mostly Silty Clay
- Tank Pit Backfill

**PROJECT NO.** 2235

**PLATE** 5




FN 2235 ROSE

## EXPLANATION

**N** Compass Direction

10 Data Points Shown

Rose diagram developed by evaluating the groundwater gradient direction from the quarterly monitoring data. Each circle on the rose diagram represents the number of monitoring events that the gradient plotted in that 22 1/2 degree sector.

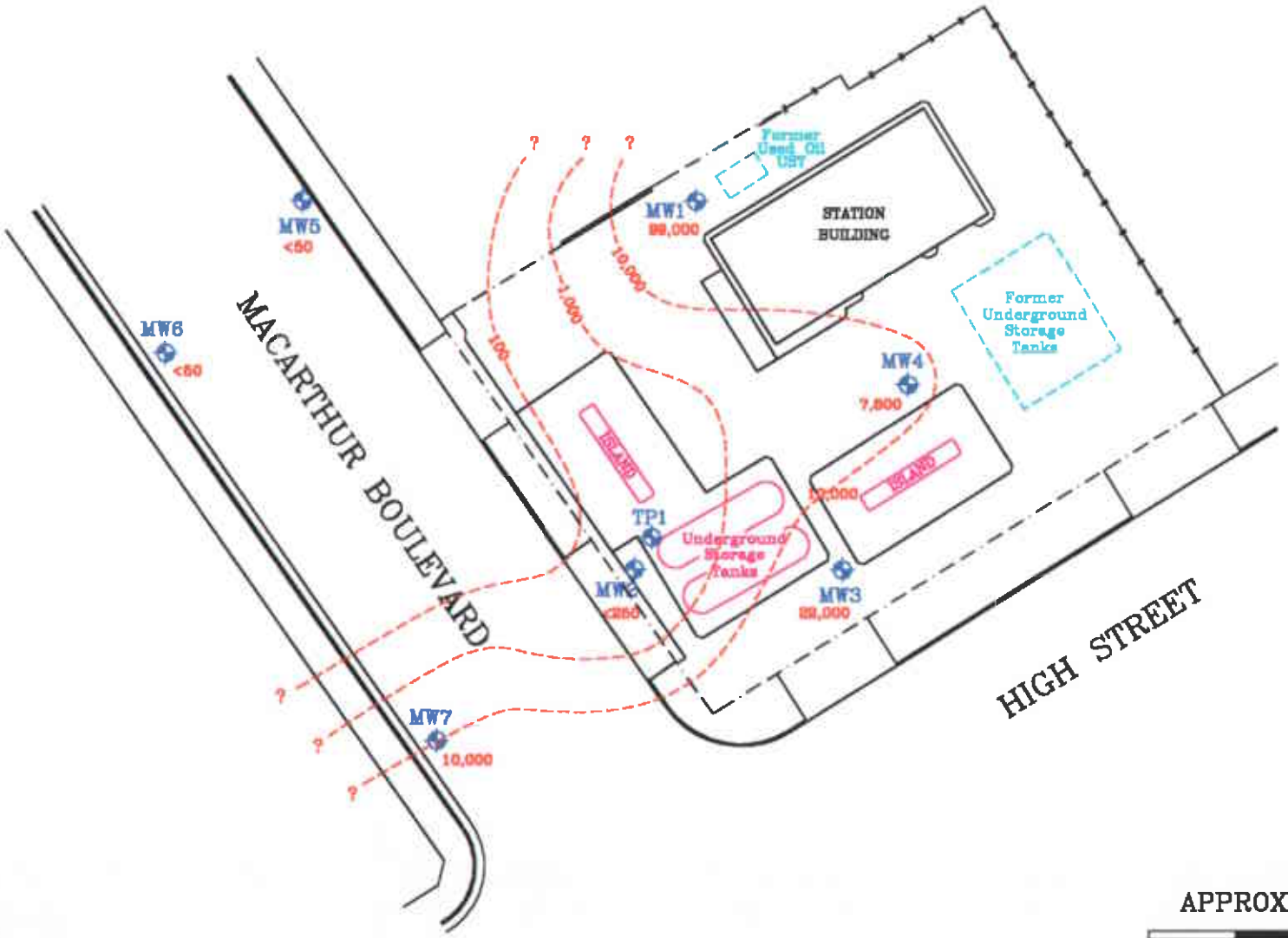
ENVIRONMENTAL RESOLUTIONS, INC.

# GROUNDWATER FLOW DIRECTION ROSE DIAGRAM

TOSCO 76 SERVICE STATION 1156
4276 MacArthur Boulevard
Oakland, California

**PROJECT NO.** 2235

**PLATE** 6

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ERI ENVIRONMENTAL RESOLUTIONS, INC.

## TPHg IN GROUNDWATER
**(October 3, 2001)**

TOSCO 76 SERVICE STATION 1156
4276 MacArthur Boulevard
Oakland, California

EXPLANATION

MW7 Groundwater Monitoring Well

99,000 TPHg Concentration (ppb)

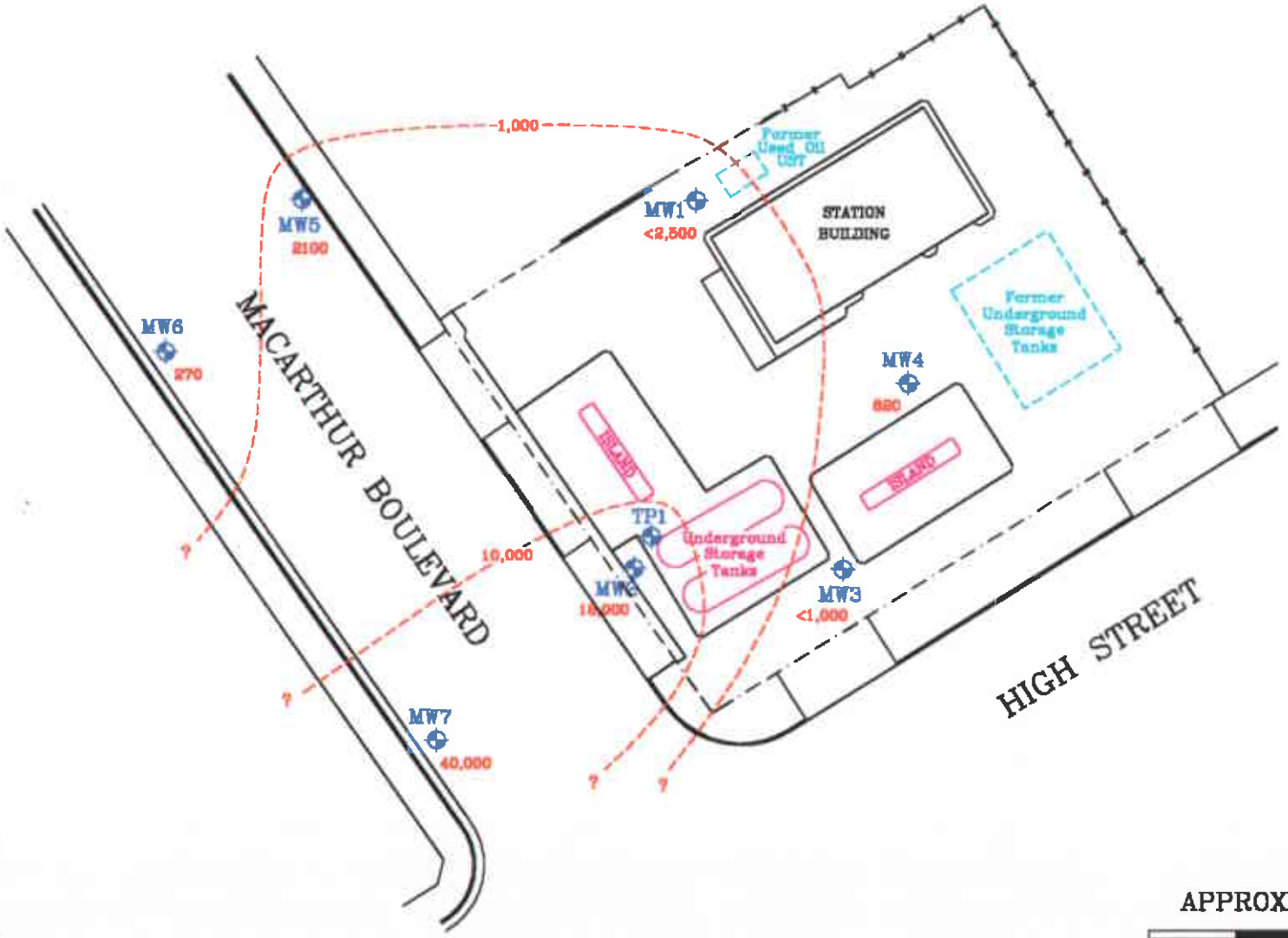
10,000 Line of Equal TPHg Concentration (ppb)

TP1 Tank Pit Backfill Well

**PROJECT NO.** 2235

**PLATE** 7

December 18, 2001

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ENVIRONMENTAL RESOLUTIONS, INC.

# MTBE IN GROUNDWATER
**(October 3, 2001)**

TOSCO 76 SERVICE STATION 1156
4276 MacArthur Boulevard
Oakland, California

EXPLANATION

MW7 Groundwater Monitoring Well

40,000 MTBE Concentration (ppb)

10,000 Line of Equal MTBE Concentration (ppb)

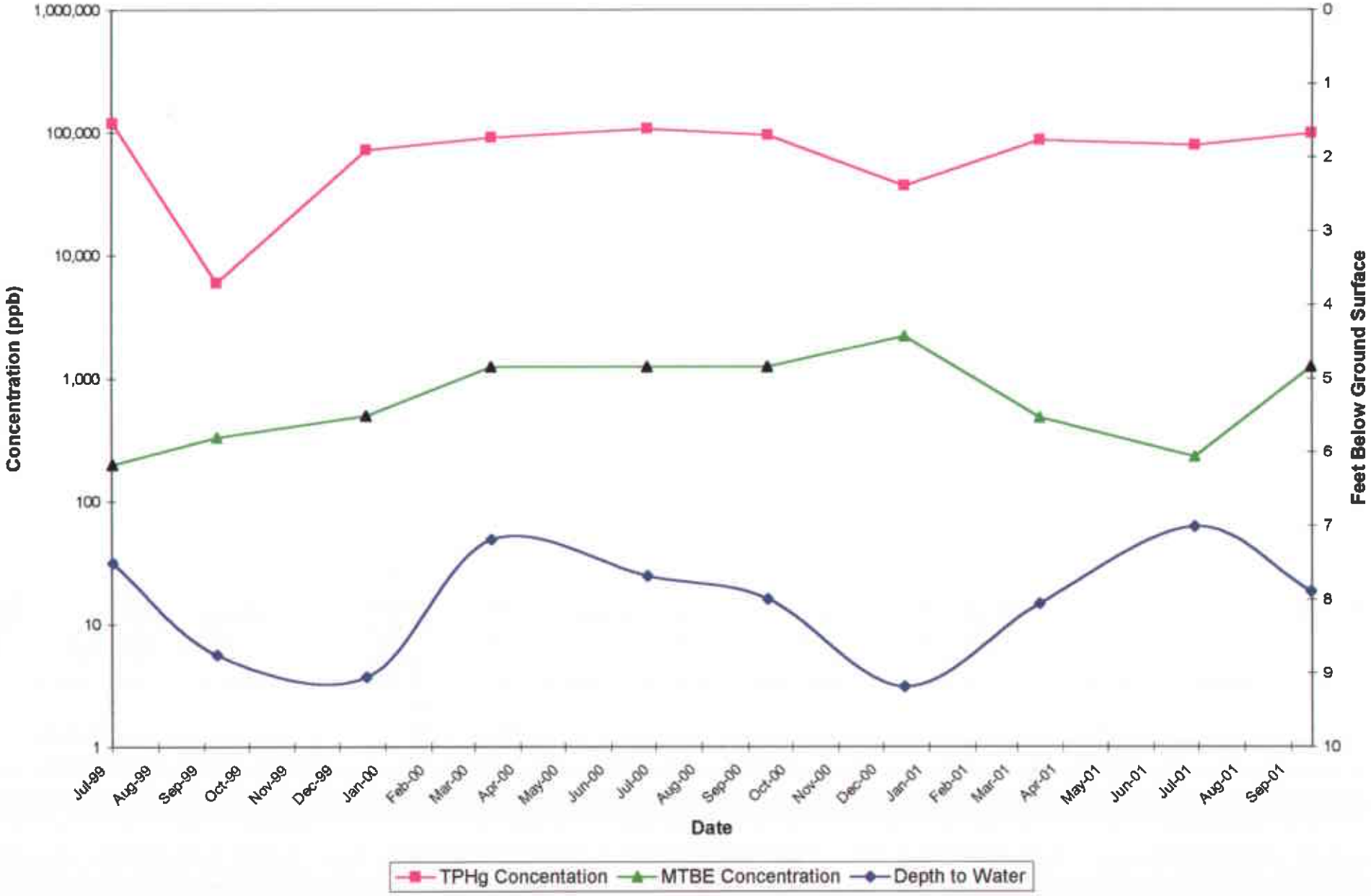
TP1 Tank Pit Backfill Well

**PROJECT NO.** 2235

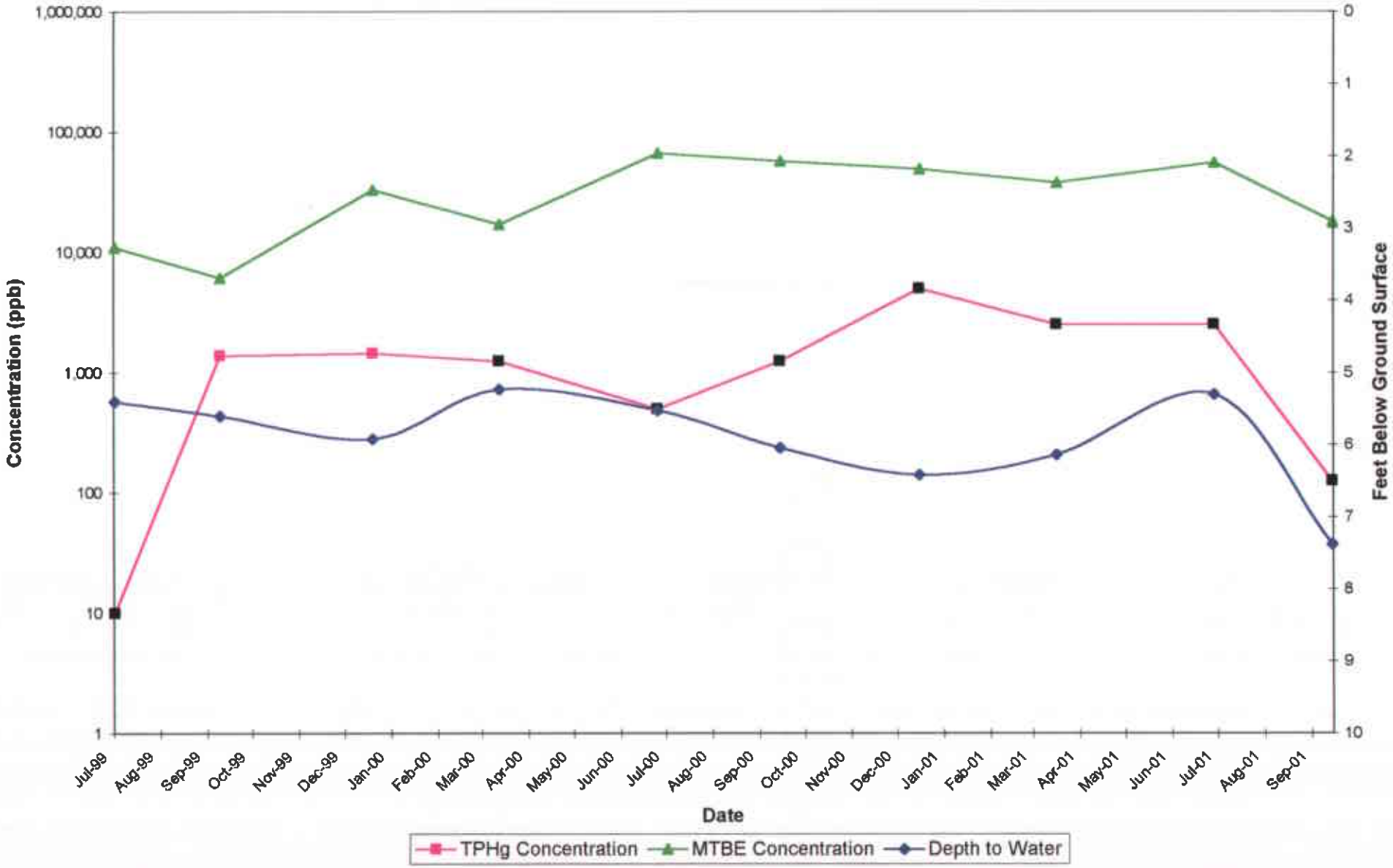
**PLATE** 8

December 18, 2001

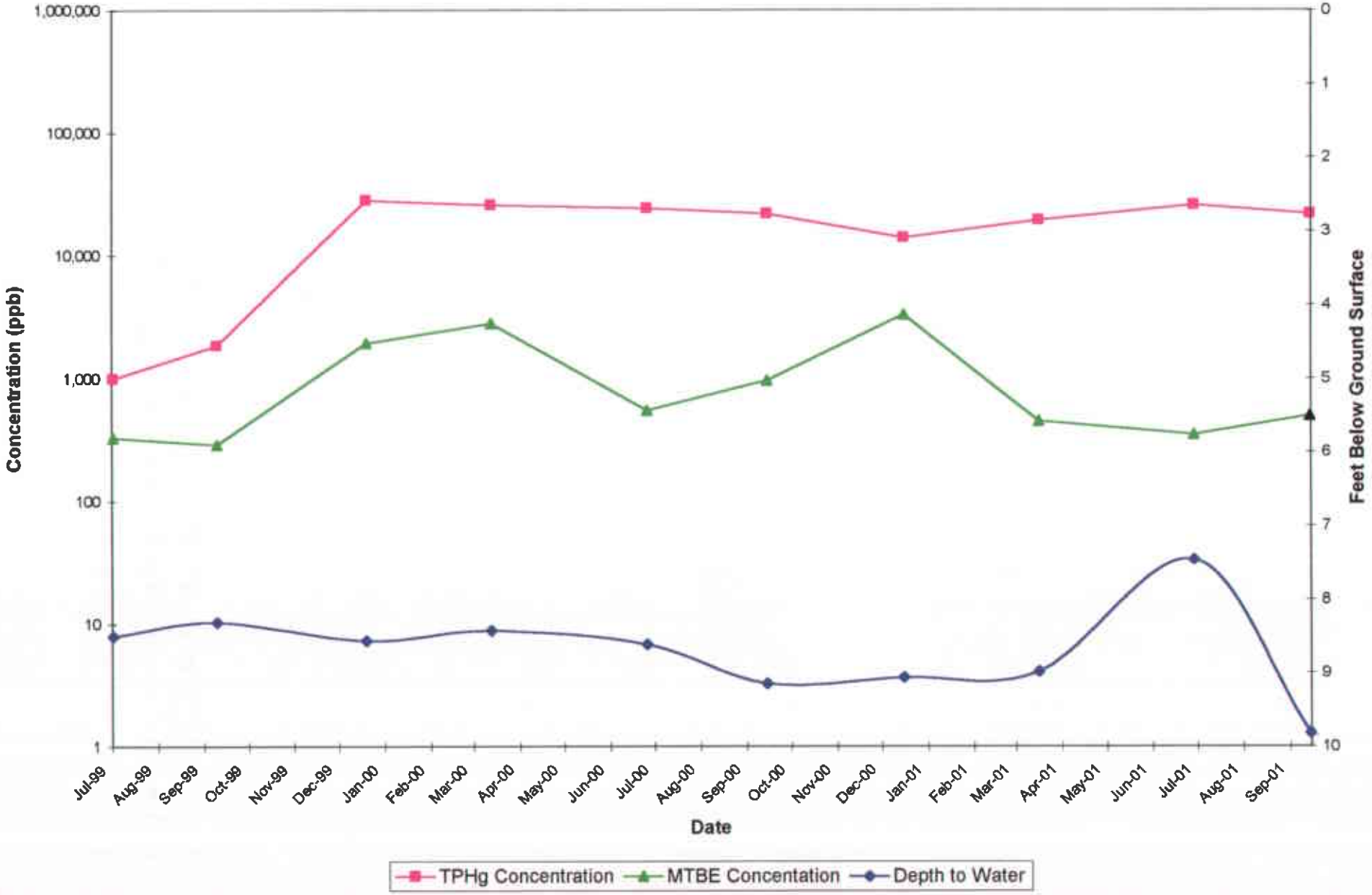
**HYDROGRAPH 1**
**Well MW1: Concentrations and Depth-to-Water vs. Time**
**Tosco Service Station 1156**
**Oakland, California**



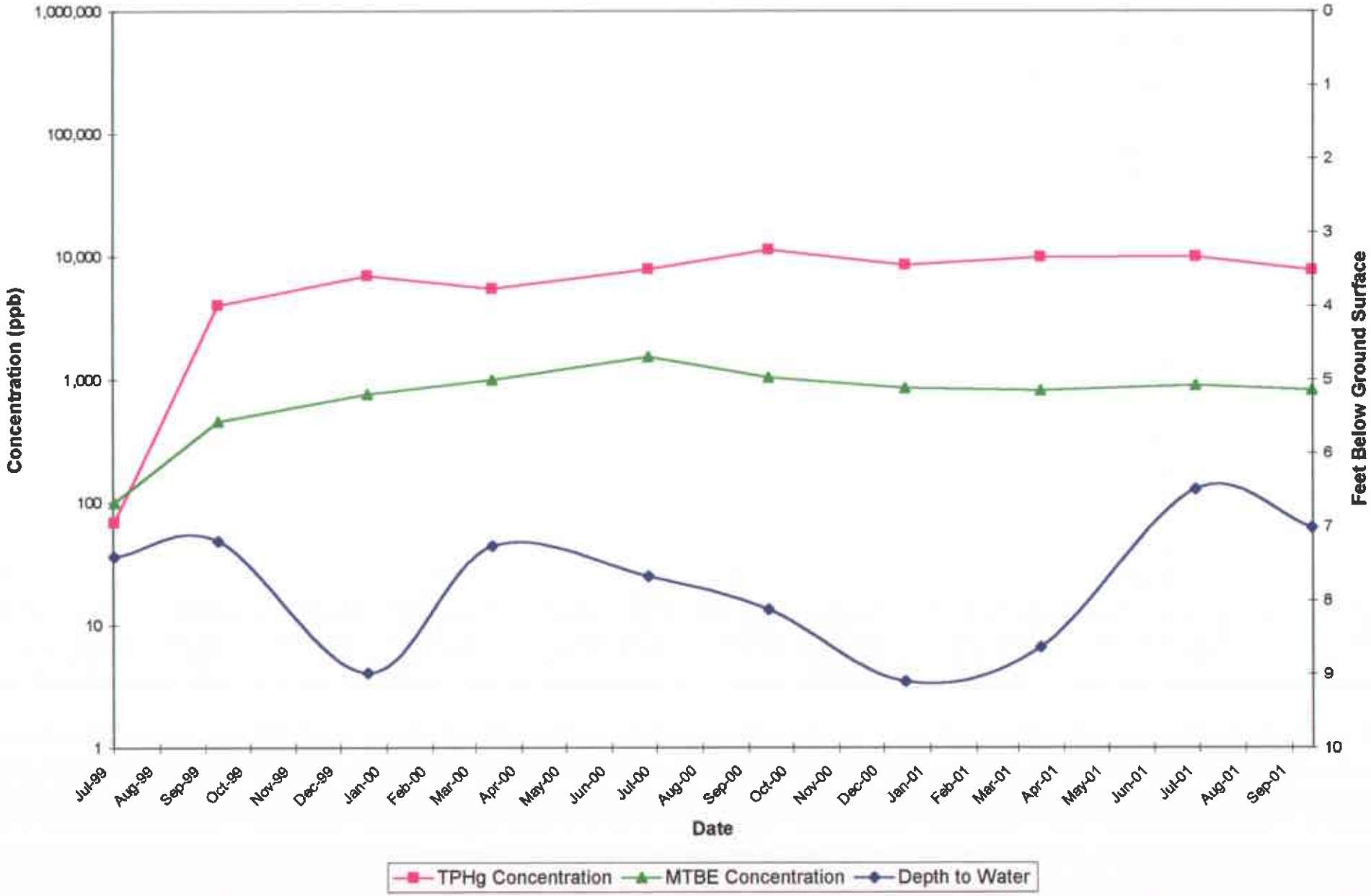
**HYDROGRAPH 2**
**Well MW2: Concentrations and Depth-to-Water vs. Time**
**Tosco Service Station 1156**
**Oakland, California**



**HYDROGRAPH 3**
**Well MW3: Concentrations and Depth-to-Water vs. Time**
**Tosco Service Station 1156**
**Oakland, California**



**HYDROGRAPH 4**
**Well MW4: Concentrations and Depth-to-Water vs. Time**
**Tosco Service Station 1156**
**Oakland, California**



# ATTACHMENT A

# REGULATORY CORRESPONDENCE

AGENCY
DAVID J. KEARS, Agency Director

ENVIRONMENTAL HEALTH SERVICES
ENVIRONMENTAL PROTECTION (LOP)
1131 Harbor Bay Parkway, Suite 250
Alameda, CA 94502-6577
(510) 567-6700
FAX (510) 337-9335

StID 1163

March 8, 2000

Mr. Dave DeWitt
Tosco
P.O. Box 5155
San Ramon, CA 94583

RE: **Offsite Monitoring Wells for 76 Service Station #1156, at 4276 MacArthur Blvd., Oakland, CA**

Dear Mr. DeWitt:

I have completed review of Gettler-Ryan Inc.'s February 2000 *First Quarter 2000 Groundwater Monitoring Well and Sampling Report* prepared for the above referenced site. That report summarized the groundwater sampling event in January 2000. Laboratory analytical results identified up to 33,100 ppb MTBE in Well MW-2.

There appears to be an increase in MTBE concentration in groundwater samples from Wells MW-2, MW-3, and MW-4. At this time, an offsite investigation is required to delineate the extent of the MTBE plume. A workplan for this phase of investigation is due within 90 days of the date of this letter, **or by June 12, 2000.**

If you have any questions, I can be reached at (510) 567-6762.

eva chu
Hazardous Materials Specialist

new due date 8-31-00
• need SCM also

DBO 7-21-00 via phone call

76ss1156-5

| Post-it™ Fax Note 7671 | Date | # of pages ▶ |
|---|---|---|
| To Glenn M. | From Dave DeWitt | |
| Co./Dept. | Co. | |
| Phone # | Phone # | |
| Fax # | Fax # | |

ALAMEDA COUNTY
**HEALTH CARE SERVICES**
AGENCY
DAVID J. KEARS, Agency Director



ENVIRONMENTAL HEALTH SERVICES
ENVIRONMENTAL PROTECTION
1131 Harbor Bay Parkway, Suite 250
Alameda, CA 94502-6577
(510) 567-6700
FAX (510) 337-9335

StID 1163

September 18, 2000

Mr. Dave DeWitt
Tosco
P.O.Box 5155
San Ramon, CA 94583

**RE: Work Plan Approval for 76 SS #1156 at 4276 MacArthur, Oakland, CA**

Dear Mr. DeWitt:

I have completed review of Environmental Resolutions, Inc.'s August 2000 *Work Plan for Supplemental Evaluation of Soil and Groundwater* prepared for the above referenced site. The proposal to install three off-site groundwater monitoring wells to evaluate the lateral extent of the contaminant plume is acceptable.

Field work should commence within 60 days of the date of this letter, or **by November 20, 2000.** Please provide 72 hours advance notice of field activities. If you have any questions, I can be reached at (510) 567-6762.

eva chu
Hazardous Materials Specialist

c: Paul Blank, ERI, 73 Digital Drive, Suite 100, Novato, CA 94949-5791

76ss1156-7

# ATTACHMENT B

# PERMITS

# ALAMEDA COUNTY PUBLIC WORKS AGENCY

WATER RESOURCES SECTION
399 ELMHURST ST. HAYWARD CA. 94544-1395
PHONE (510) 670-5554 MARLON MAGALLANES/FRANK CODD (510) 670-5783
FAX (510)782-1939

## DRILLING PERMIT APPLICATION

FOR APPLICANT TO COMPLETE

LOCATION OF PROJECT Tosco 76 Service Station 1156
4276 Mac Arthur Blvd
Oakland, CA

CLIENT
Name Tosco Marketing Co Attn: Dave DeWitt
Address 2000 Crow Canyon Pl Phone 925-277-2584
City San Ramon Ste 400 Zip 94583

APPLICANT
Name Environmental Resolutions Inc Attn: Rob Saur
Fax 415-382-1856
Address 73 Digital Dr Ste 100 Phone 415-382-3591
City Novato Zip 94949

TYPE OF PROJECT

| | | | |
|---|---|---|---|
| Well Construction | | Geotechnical Investigation | |
| Cathodic Protection | ☐ | General | ☐ |
| Water Supply | ☐ | Contamination | ☐ |
| Monitoring | X | Well Destruction | ☐ |

PROPOSED WATER SUPPLY WELL USE

| | | | |
|---|---|---|---|
| New Domestic | ☐ | Replacement Domestic | ☐ |
| Municipal | ☐ | Irrigation | ☐ |
| Industrial | ☐ | Other | ☐ |

DRILLING METHOD:

| | | | | | |
|---|---|---|---|---|---|
| Mud Rotary | ☐ | Air Rotary | ☐ | Auger | X |
| Cable | ☐ | Other | ☐ | | |

DRILLER'S NAME Woodward Drilling Co.
DRILLER'S LICENSE NO 710079

WELL PROJECTS
Drill Hole Diameter 8 in. Maximum Depth 20 ft.
Casing Diameter 2 in. Owner's Well Number MW6
Surface Seal Depth 4 ft.

GEOTECHNICAL PROJECTS
Number of Borings _____ Maximum
Hole Diameter _____ in. Depth _____ ft.

ESTIMATED STARTING DATE 7/16/01 8/28/01
ESTIMATED COMPLETION DATE 7/16/01 8/28/01

I hereby agree to comply with all requirements of this permit and Alameda County Ordinance No. 73-68.

APPLICANT'S SIGNATURE Rob Saur DATE 6/8/01
PLEASE PRINT NAME Rob Saur

FOR OFFICE USE
PERMIT NUMBER W01-448
WELL NUMBER _____
APN _____

PERMIT CONDITIONS
Circled Permit Requirements Apply

A. GENERAL
1. A permit application should be submitted so as to arrive at the ACPWA office five days prior to proposed starting date.
2. Submit to ACPWA within 60 days after completion of permitted original Department of Water Resources Well Completion Report.
3. Permit is void if project not begun within 90 days of approval date

B. WATER SUPPLY WELLS
1. Minimum surface seal thickness is two inches of cement grout placed by tremie.
2. Minimum seal depth is 50 feet for municipal and industrial wells or 20 feet for domestic and irrigation wells unless a lesser depth is specially approved

C. GROUNDWATER MONITORING WELLS INCLUDING PIEZOMETERS
1. Minimum surface seal thickness is two inches of cement grout placed by tremie.
2. Minimum seal depth for monitoring wells is the maximum depth practicable or 20 feet.

D. GEOTECHNICAL
Backfill bore hole by tremie with cement grout or cement grout/sand mixture. Upper two-three feet replaced in kind or with compacted cuttings

E. CATHODIC
Fill hole anode zone with concrete placed by tremie

F. WELL DESTRUCTION
See attached requirements for destruction of shallow wells. Send a map of work site. A different permit application is required for wells deeper than 45 feet

G. SPECIAL CONDITIONS

NOTE: One application must be submitted for each well or well destruction. Multiple borings on one application are acceptable for geotechnical and contamination investigations.

APPROVED [signature] DATE 6-8-01

Rev.6 -5-00

# ALAMEDA COUNTY PUBLIC WORKS AGENCY

WATER RESOURCES SECTION
399 ELMHURST ST. HAYWARD CA. 94544-1395
PHONE (510) 670-5554 MARLON MAGALLANES/FRANK CODD (510) 670-5783
FAX (510)782-1939

## DRILLING PERMIT APPLICATION

### FOR APPLICANT TO COMPLETE

LOCATION OF PROJECT Tosco 76 Service Station 1156
4276 MacArthur Blvd
Oakland, CA

CLIENT
Name Tosco Marketing Co. Attn: Dave DeWitt
Address 2000 Crow Canyon Place Phone 925-277-2384
City San Ramon State CA Zip 94583

APPLICANT
Name Environmental Resolutions Inc Attn: Rob Saur
Fax 415-382-1856
Address 73 Digital Dr Ste 100 Phone 415-382-3591
City Novato Zip 94949

TYPE OF PROJECT

| | | | |
|---|---|---|---|
| Well Construction | | Geotechnical Investigation | |
| Cathodic Protection | ☐ | General | ☐ |
| Water Supply | ☐ | Contamination | ☐ |
| Monitoring | ☒ | Well Destruction | ☐ |

PROPOSED WATER SUPPLY WELL USE

| | | | |
|---|---|---|---|
| New Domestic | ☐ | Replacement Domestic | ☐ |
| Municipal | ☐ | Irrigation | ☐ |
| Industrial | ☐ | Other | ☐ |

DRILLING METHOD:

| | | | | | |
|---|---|---|---|---|---|
| Mud Rotary | ☐ | Air Rotary | ☐ | Auger | ☒ |
| Cable | ☐ | Other | ☐ | | |

DRILLER'S NAME Woodward Drilling Co.
DRILLER'S LICENSE NO 710079

WELL PROJECTS
Drill Hole Diameter 8 in. Maximum
Casing Diameter 2 in. Depth 20 ft.
Surface Seal Depth 4 ft. Owner's Well Number MW7

GEOTECHNICAL PROJECTS
Number of Borings _____ Maximum
Hole Diameter _____ in. Depth _____ ft.

ESTIMATED STARTING DATE ~~7/16/01~~ 8/28/01
ESTIMATED COMPLETION DATE ~~7/16/01~~ 8/28/01

I hereby agree to comply with all requirements of this permit and Alameda County Ordinance No. 73-68.

APPLICANT'S SIGNATURE [signature] DATE 6/8/01
PLEASE PRINT NAME Rob Saur

Rev.6-5-00

### FOR OFFICE USE

PERMIT NUMBER WO1-449
WELL NUMBER _____
APN _____

### PERMIT CONDITIONS
Circled Permit Requirements Apply

A. GENERAL
1. A permit application should be submitted so as to arrive at the ACPWA office five days prior to proposed starting date.
2. Submit to ACPWA within 60 days after completion of permitted original Department of Water Resources Well Completion Report
3 Permit is void if project not begun within 90 days of approval date

B. WATER SUPPLY WELLS
1. Minimum surface seal thickness is two inches of cement grout placed by tremie.
2. Minimum seal depth is 50 feet for municipal and industrial wells or 20 feet for domestic and irrigation wells unless a lesser depth is specially approved

C. GROUNDWATER MONITORING WELLS INCLUDING PIEZOMETERS
1. Minimum surface seal thickness is two inches of cement grout placed by tremie.
2. Minimum seal depth for monitoring wells is the maximum depth practicable or 20 feet

D. GEOTECHNICAL
Backfill bore hole by tremie with cement grout or cement grout/sand mixture. Upper two-three feet replaced in kind or with compacted cuttings.

E. CATHODIC
Fill hole anode zone with concrete placed by tremie

F. WELL DESTRUCTION
See attached requirements for destruction of specific wells. Send a map of work site. A different permit application is required for wells deeper than 45 feet

G. SPECIAL CONDITIONS

NOTE: One application must be submitted for each well or well destruction. Multiple borings on one application are acceptable for geotechnical and contamination investigations.

APPROVED [signature] DATE 6-8-01

# ALAMEDA COUNTY PUBLIC WORKS AGENCY

WATER RESOURCES SECTION
399 ELMHURST ST. HAYWARD CA. 94544-1395
PHONE (510) 670-5554 MARLON MAGALLANES/FRANK CODD (510) 670-5783
FAX (510)782-1939

## DRILLING PERMIT APPLICATION

FOR APPLICANT TO COMPLETE

LOCATION OF PROJECT Tosco 76 Service Station 1156
4276 Mac Arthur Blvd
Oakland, CA

CLIENT
Name Tosco Marketing Co Attn: Dave DeWitt
Address 2000 Crow Canyon Place Phone 925-277-2384
City San Ramon Ste 400 Zip 94583

APPLICANT
Name Environmental Resolutions Inc Attn: Rob Saur
Fax 415-382-1856
Address 23 Digital Dr Ste 100 Phone 415-382-3591
City Novato Zip 94949

TYPE OF PROJECT

| Well Construction | | Geotechnical Investigation | |
|---|---|---|---|
| Cathodic Protection | ☐ | General | ☐ |
| Water Supply | ☐ | Contamination | ☐ |
| Monitoring | ☒ | Well Destruction | ☐ |

PROPOSED WATER SUPPLY WELL USE

| | | | |
|---|---|---|---|
| New Domestic | ☐ | Replacement Domestic | ☐ |
| Municipal | ☐ | Irrigation | ☐ |
| Industrial | ☐ | Other | ☐ |

DRILLING METHOD:

| | | | | | |
|---|---|---|---|---|---|
| Mud Rotary | ☐ | Air Rotary | ☐ | Auger | ☒ |
| Cable | ☐ | Other | ☐ | | |

DRILLER'S NAME Woodward Drilling Co.
DRILLER'S LICENSE NO. 710079

WELL PROJECTS
Drill Hole Diameter 8 in. Maximum Depth 20 ft.
Casing Diameter 2 in. Owner's Well Number MW5
Surface Seal Depth 4 ft.

GEOTECHNICAL PROJECTS
Number of Borings _____ Maximum
Hole Diameter _____ in. Depth _____ ft.

ESTIMATED STARTING DATE ~~6/28/01~~ 8/28/01.
ESTIMATED COMPLETION DATE ~~6/28/01~~ 8/28/01

I hereby agree to comply with all requirements of this permit and Alameda County Ordinance No. 73-68.

APPLICANT'S SIGNATURE Rob Saur DATE 6/8/01
PLEASE PRINT NAME Rob Saur

FOR OFFICE USE
PERMIT NUMBER W01-450
WELL NUMBER
APN

PERMIT CONDITIONS
Circled Permit Requirements Apply

A. GENERAL
1. A permit application should be submitted so as to arrive at the ACPWA office five days prior to proposed starting date.
2. Submit to ACPWA within 60 days after completion of permitted original Department of Water Resources Well Completion Report.
3. Permit is void if project not begun within 90 days of approval date

B. WATER SUPPLY WELLS
1. Minimum surface seal thickness is two inches of cement grout placed by tremie
2. Minimum seal depth is 50 feet for municipal and industrial wells or 20 feet for domestic and irrigation wells unless a lesser depth is specially approved

C. GROUNDWATER MONITORING WELLS INCLUDING PIEZOMETERS
1. Minimum surface seal thickness is two inches of cement grout placed by tremie.
2. Minimum seal depth for monitoring wells is the maximum depth practicable or 20 feet

D. GEOTECHNICAL
Backfill bore hole by tremie with cement grout or cement grout/sand mixture. Upper two-three feet replaced in kind or with compacted cuttings.

E. CATHODIC
Fill hole anode zone with concrete placed by tremie

F. WELL DESTRUCTION
See attached requirements for destruction of shallow wells. Send a map of work site. A different permit application is required for wells deeper than 45 feet

G. SPECIAL CONDITIONS

NOTE: One application must be submitted for each well or well destruction. Multiple borings on one application are acceptable for geotechnical and contamination investigations.

APPROVED [signature] DATE 6-8-01

Rev.6 -5-00

Recording Requested by:
CITY OF OAKLAND

When Recorded Mail to:
City of Oakland
Community & Economic
Development Agency
Building Services Division,
Engineering Information
250 Frank H. Ogawa Plaza, 2nd Floor
Oakland, CA 94612

TAX ROLL PARCEL NUMBER
(ASSESSOR'S REFERENCE NUMBER)

| 030 | 1981 | 150 | |
|---|---|---|---|
| MAP | BLOCK | PARCEL | SUB |

Address: 4266 MACARTHUR BLVD.

*Space Above for Recorder's Use Only*

MINOR ENCROACHMENT PERMIT AND AGREEMENT

TOSCO MARKETING COMPANY, the lessee of certain real property described in the Grant Deed number 2000302565, dated October 6, 2000, commonly known as 4266 MacArthur Blvd., Oakland, Alameda County, California is hereby granted a Conditional Revocable Permit to encroach into the public right-of-way of MacArthur Blvd. to install three monitoring wells. The location of said encroachment shall be as delineated in Exhibit 'A' attached hereto and made a part hereof. Tosco Marketing Company was authorized by the owners of said property, William and Carola Munich, to obtain the encroachment permit (see Exhibit 'B').

The permittee agrees to comply with and be bound by the conditions for granting an Encroachment Permit attached hereto and made a part hereof.

This agreement shall be binding upon the undersigned, the present owners of the property described above, and their successors in interest thereof.

In witness whereof, I have set my signature this 13 day of July, 2001.

TOSCO MARKETING COMPANY

David J. Camille

NAME: David J. Camille

TITLE: Regional Env. Coor. Manager.

*Below for Official Use Only*

**CITY OF OAKLAND**

Dated: _____

By: _____
CALVIN N. WONG
*Director of Building Services*
For:
WILLIAM E. CLAGGETT
*Executive Director,*
*Community & Economic Development Agency*

Office of ...ng and Building

# EXCAVATION PERMIT

## TO EXCAVATE IN STREETS OR OTHER SPECIFIED WORK

CIVIL ENGINEERING



| PERMIT NUMBER | | SITE ADDRESS/LOCATION |
|---|---|---|
| X010 [2712] | | 4266 MACARTHUR BL |
| APPROX. START DATE | APPROX. END DATE | 24-HOUR EMERGENCY PHONE NUMBER (Permit not valid without 24-Hour number) |
| CONTRACTOR'S LICENSE # AND CLASS 710079 | | CITY BUSINESS TAX # |

ATTENTION:

1) State law requires that the contractor/owner call *Underground Service Alert (USA)* two working days before excavating. This permit is not valid unless applicant has secured an inquiry identification number issued by USA. The USA telephone number is 1 (800) 642-2444. UNDERGROUND SERVICE ALERT (USA) #: _____

2) **48 hours prior to starting work, YOU MUST CALL (510) 238-3651 TO SCHEDULE AN INSPECTION.**

OWNER/BUILDER

I hereby affirm that I am exempt from the Contractor's License Law for the following reason (Sec. 7031.5 Business and Professions Code: Any city or county which requires a permit to construct, alter, improve, demolish, or repair any structure, prior to its issuance, also requires the applicant for such permit to file a signed statement that he is licensed pursuant to the provisions of the Contractor's License law Chapter 9 (commencing with Sec. 7000) of Division 3 of the Business and Professions Code, or that he is exempt therefrom and the basis for the alleged exemption. Any violation of Section 7031.5 by any applicant for a permit subjects the applicant to a civil penalty of not more than $500):

☐ I, as an owner of the property, or my employees with wages as their sole compensation, will do the work, and the structure is not intended or offered for sale (Sec. 7044, Business Professions Code: The Contractor's License Law does not apply to an owner of property who builds or improves thereon, and who does such work himself or through his own employees, provided that such improvements are not intended or offered for sale. If however, the building or improvement is sold within one year of completion, the owner-builder will have the burden of proving that he did not build or improve for the purpose of sale).

☐ I, as owner of the property, am exempt from the sale requirements of the above due to: (1) I am improving my principal place of residence or appurtenances thereto, (2) the work will be performed prior to sale, (3) I have resided in the residence for the 12 months prior to completion of the work, and (4) I have not claimed exemption on this subdivision on more than two structures more than once during any three-year period. (Sec. 7044 Business and Professions Code).

☐ I, as owner of the property, am exclusively contracting with licensed contractors to construct the project, (Sec. 7044, Business and Professions Code: The Contractor's License Law does not apply to an owner of property who builds or improves thereon, and who contracts for such projects with a contractor(s) licensed pursuant to the Contractor's License law).

☐ I am exempt under Sec. _____, B&PC for this reason _____

WORKER'S COMPENSATION

☐ I hereby affirm that I have a certificate of consent to self-insure, or a certificate of Worker's Compensation Insurance, or a certified copy thereof (Sec. 3700, Labor Code).

Policy # _____ Company Name _____

☐ I certify that in the performance of the work for which this permit is issued, I shall not employ any person in any manner so as to become subject to the Worker's Compensation Laws of California (not required for work valued at one hundred dollars ($100) or less).

NOTICE TO APPLICANT: If, after making this Certificate of Exemption, you should become subject to the Worker's Compensation provisions of the Labor Code, you must forthwith comply with such provisions or this permit shall be deemed revoked. This permit is issued pursuant to all provisions of Title 12 Chapter 12.12 of the Oakland Municipal Code. It is granted upon the express condition that the permittee shall be responsible for all claims and liabilities arising out of work performed under the permit or arising out of permittee's failure to perform the obligations with respect to street maintenance. The permittee shall, and by acceptance of the permit agrees to defend, indemnify, save and hold harmless the City, its officers and employees, from and against any and all suits, claims, or actions brought by any person for or on account of any bodily injuries, disease or illness or damage to persons and/or property sustained or arising in the construction of the work performed under the permit or in consequence of permittee's failure to perform the obligations with respect to street maintenance. This permit is void 90 days from the date of issuance unless an extension is granted by the Director of the Office of Planning and Building.

I hereby affirm that I am licensed under provisions of Chapter 9 of Division 3 of the Business and Professions Code and my license is in full force and effect (if contractor), that I have read this permit and agree to its requirements, and that the above information is true and correct under penalty of law.

X Robert A. Heun ERT — 7-24-01

Signature of Permittee ☐ Agent for ☐ Contractor ☐ Owner — Date

| DATE STREET LAST RESURFACED | SPECIAL PAVING DETAIL REQUIRED? ☐ YES ☐ NO | HOLIDAY RESTRICTION? (NOV 1 - JAN 1) ☐ YES ☐ NO | LIMITED OPERATION AREA? (7AM-9AM & 4PM-6PM) ☐ YES ☐ NO |
|---|---|---|---|
| ISSUED BY | | DATE ISSUED 7-24-01 | |

# ATTACHMENT C

# FIELD PROTOCOL

## FIELD PROTOCOL

Site Safety Plan

Field work is performed by ERI personnel in accordance with a site safety plan (SSP) developed for the site. The SSP describes the basic safety requirements for the subsurface investigation and the drilling of soil borings at the work site. The SSP is applicable to personnel and subcontractors of ERI. Personnel at the site are informed of the contents of the SSP before work begins. A copy of the SSP is kept at the work site and is available for reference by appropriate parties during the work. The ERI geologist acts as the Site Safety Officer.

Soil Borings and Sampling

Prior to drilling of borings and construction of wells, ERI acquires necessary permits from the appropriate agency(ies). ERI also contacts Underground Service Alert (USA) and a private utility locator before drilling to help locate public utility lines at the site. ERI observes the driller hand-probe and hand-auger boring locations to a depth of approximately 5 feet bgs and a diameter greater than the soil boring diameter before drilling to reduce the risk of damaging underground structures.

Soil borings are drilled with a B-57 (or similar) drill rig equipped with 8-inch diameter, hollow-stem augers. Auger flights and sampling equipment are steam-cleaned before use to minimize the possibility of crosshole contamination. The rinsate is containerized and stored on site. ERI will coordinate with Tosco for appropriate recycling or disposal of the rinsate.

Drilling is performed under the observation of a field geologist, and the earth materials in the borings are identified using visual and manual methods, and classified as drilling progresses using the Unified Soil Classification System. Soil borings are drilled to approximately 10 to 15 feet below the uppermost zone of saturation or 5 feet into any competent clay layer (aquitard) encountered beneath the water-bearing zone. If an aquitard is encountered, the boring is terminated and backfilled with bentonite before installing a groundwater monitoring well.

During drilling, soil samples are collected at 5-foot intervals, obvious changes in lithology, and just above the groundwater surface. Samples are collected with a California-modified, split-spoon sampler equipped with laboratory-cleaned brass sleeves. Samples are collected by advancing the auger to a point just above the sampling depth and driving the sampler into the soil. The sampler is driven 18 inches with a standard 140-pound hammer repeatedly dropped 30 inches. The number of blows required to drive the sampler each successive 6-inch interval is counted and recorded to give an indication of soil consistency.

Soil samples are monitored with a photoionization detector (PID), which measures hydrocarbon concentrations in the ambient air or headspace above the soil sample. Field instruments such as the PID are useful for indicating relative levels of hydrocarbon vapors, but do not detect concentrations of hydrocarbons with the same precision as laboratory analyses. Soil samples selected for possible chemical analyses are sealed promptly with Teflon® tape, and plastic caps. The samples are labeled and placed in iced storage for transport to the laboratory. Chain-of-Custody Records are initiated by the geologist in the field, updated throughout handling of the samples, and sent with the samples to the laboratory. Copies of these records are in our report. Cuttings generated during drilling are placed on

plastic sheeting and covered and left at the site. ERI coordinates with Tosco for the soil to either be treated on site or removed to an appropriate recycling or disposal facility.

Monitoring Well Construction

Monitoring wells are constructed in borings using thread-jointed, 2-inch inner diameter, Schedule 40 polyvinyl chloride (PVC) casing. No chemical cements, glues, or solvents are used in well construction. The screened portion of each well consists of factory-perforated casing with 0.020-inch wide slots. If unconfined aquifer conditions exist, the well screen is installed from the total depth of each well to approximately 10 feet above the uppermost water-bearing unit. If confined conditions exist, the uppermost water-bearing unit is screened exclusively. Unperforated casing is installed from the top of each screen to the ground surface. The annular space in the well is packed with number 3 sand to approximately 1 to 2 feet above the slotted interval. A bentonite plug is added above the sand pack to prevent cement from entering the well pack. The remaining annulus is backfilled to grade with a slurry of Portland cement.

The monitoring wells are protected with a traffic-rated steel utility box equipped with a galvanized sheet steel skirt. The box has a watertight seal to protect against surface-water infiltration. The design of this box discourages vandalism and reduces the possibility of accidental disturbance of the well.

# ATTACHMENT D

# UNIFIED SOIL CLASSIFICATION SYSTEM, SYMBOL KEY, AND BORING LOGS

# UNIFIED SOIL CLASSIFICATION SYSTEM

| MAJOR DIVISIONS | | LTR | DESCRIPTION |
|---|---|---|---|
| COARSE GRAINED SOILS | GRAVEL AND GRAVELLY SOILS | GW | Well-graded gravels or gravel sand mixtures, little or no fines |
| | | GP | Poorly-graded gravels or gravel sand mixture, little or no fines |
| | | GM | Silty gravels, gravel-sand-clay mixtures |
| | | GC | Clayey gravels, gravel-sand-clay mixtures |
| | SAND AND SANDY SOILS | SW | Well-graded sands or gravelly sands, little or no fines |
| | | SP | Poorly-graded sands or gravelly sands, little or no fines |
| | | SM | Silty sands, sand-silt mixtures |
| | | SC | Clayey sands, sand-clay mixtures |
| FINE GRAINED SOILS | SILTS AND CLAYS LL<50 | ML | Inorganic silts and very fine-grained sands, rock flour, silty or clayey fine sands or clayey silts with slight plasticity |
| | | CL | Inorganic clays of low to medium plasticity, gravelly clays, sandy clays, silty clays, lean clays |
| | | OL | Organic silts and organic silt-clays of low plasticity |
| | SILTS AND CLAYS LL>50 | MH | Inorganic silts, micaceous or diatomaceous fine-grained sandy or silty soils, elastic silts |
| | | CH | Inorganic clays of high plasticity, fat clays |
| | | OH | Organic clays of medium to high plasticity |
| HIGHLY ORGANIC SOILS | | Pt | Peat and other highly organic soils |

DEPTH THROUGH WHICH SAMPLER IS DRIVEN

RELATIVELY UNDISTURBED SAMPLE

MISSED SAMPLE

GROUNDWATER LEVEL OBSERVED FROM FIRST WET SOIL SAMPLE IN BORING

STATIC GROUNDWATER LEVEL

OVM — ORGANIC VAPOR METER READING IN PARTS PER MILLION

PID — PHOTO-IONIZATION DETECTOR READING IN PARTS PER MILLION

WELL DESIGN

SAND PACK

BENTONITE ANNULAR SEAL

NEAT CEMENT ANNULAR SEAL

BLANK PVC

MACHINE-SLOTTED PVC

S-10 — SAMPLE LOCATION

NR — NOT RECORDED

NA — NOT ANALYZED

BLOW/FT. REPRESENTS THE NUMBER OF BLOWS OF A 140-POUND HAMMER FALLING 30 INCHES TO DRIVE THE SAMPLER THROUGH THE LAST 12 INCHES OF AN 18-INCH OR 24-INCH PENETRATION.

DASHED LINES SEPARATING UNITS ON THE LOG REPRESENT APPROXIMATE BOUNDARIES ONLY. ACTUAL BOUNDARIES MAY BE GRADUAL. LOGS REPRESENT SUBSURFACE CONDITIONS AT THE BORING LOCATION AT THE TIME OF DRILLING ONLY.

ENVIRONMENTAL RESOLUTIONS, INC.

**PROJECT** 2235

**UNIFIED SOIL CLASSIFICATION SYSTEM AND LOG OF BORINGS SYMBOL KEY**

TOSCO 76 SERVICE STATION 1156
4276 MacArthur Boulevard
Oakland, California

**ATTACHMENT** D

ENVIRONMENTAL RESOLUTIONS, INC.

Project No.: 2235 Boring: B1/MW1 Plate: APPENDIX
Site: Tosco 76 Service Station 1156 Date: 7/16/99
Drill Contractor: Woodward Drlling
Sample Method: Split Spoon Geologist: MARK S. DOCKUM
Drill Rig: B57 Bore Hole Diameter: 8" Signature:
Location: 10 Feet North of Northwestern Corner of Station Registration: R.G. 4412
Logged by: Dylan Crouse

| DEPTH (ft) | BLOW COUNTS | PID/OVM (ppm) | USCS | GEOLOGIC DESCRIPTION |
|---|---|---|---|---|
| | | | | 2 1/2" asphalt |
| | | | CH | Clay, grayish green, very moist, high plasticity |
| | | | SP | Sand, fine-grained, grayish green, moist, no plasticity, black staining |
| 5 | 39 | 253 | | |
| | | | CH | Clay, grayish green, very moist, high plasticity |
| 10 | 27 | 87 | | |
| | | | ML | Silty sand, fine-grained sand, black, very moist, no plasticity, (65% silt, 35% sand) |
| | | | | Clay, with some sand, medium-grained, light olive brown, medium plasticity, wet |
| 15 | 36 | 222 | | |
| | | | CL | |
| 20 | 37 | 22 | | sandy clay, strong brown, (40% sand, 60% clay) |
| | | ▼ | | yellow orange, high plasticity, very moist |
| 25 | 33 | 9 | | |
| | | | | Total depth at 26.5 feet. Groundwater encountered at 23'7". |

WELL DESIGN

Casing Diameter: 2" Slot Size: 010 , Sand Size: 2/12 , Grout: Portland I/II

FN: 22358001

ENVIRONMENTAL RESOLUTIONS, INC.

Project No.: 2235 Boring: B2/MW2 Plate: APPENDIX
Site: Tosco 76 Service Station 1156 Date: 7/16/99
Drill Contractor: Woodward Drilling
Sample Method: Split Spoon Geologist: MARK S. DOCKUM
Drill Rig: B57 Bore Hole Diameter: 8" Signature:
Location: 2 Feet EAst of Southernmost Driveway Registration: R.G. 4412
Along MacArthur Boulevard Logged by: Dylan Crouse

| DEPTH (ft) | BLOW COUNTS | PID/OVM (ppm) | SAMPLE | COLUMN | USCS | GEOLOGIC DESCRIPTION | WELL DESIGN |
|---|---|---|---|---|---|---|---|
| | | | | | | 4" asphalt | |
| | | | | | | Clay, dark greenish gray, mottled redish orange, some coarse-grained sand, slightly damp, high plasticity, (35% sand, 65% clay) | |
| 5 | 11 | 20 | | | CH | | |
| 10 | 18 | 0 | | | | 15% fine gravels up to 0.5", 20% sand, medium-grained, damp | |
| | | | | | | Silty clay, orange brown, mottled green gray, (35% silt, 65% clay), moist, medium plasticity | |
| 15 | 21 | 130 | | | CL | | |
| 20 | 29 | 20 | | | | gravelly clay, light yellowish brown, (40% fine gravel, 60% clay), medium plasticity, very moist, black staining | |
| | | ▼ | | | | | |
| | | | | | ML | Sandy clay, trace of silt, yellowish brown, wet, medium plasticity, (35% sand, 15% silt, 50% clay) | |
| 25 | 45 | 18 | | | | | |
| | | | | | | Total depth at 26.5 feet. Groundwater encountered at 23' 6". | |

Casing Diameter: 2" Slot Size: 010 , Sand Size: 2/12 , Grout: Portland I,II

FN: 22350002

ENVIRONMENTAL RESOLUTIONS, INC.

Project No.: 2235 Boring: B3/MW3 Plate: APPENDIX
Site: Tosco 76 Service Station 1156 Date: 7/16/99
Drill Contractor: Woodward Drilling
Sample Method: Split Spoon Geologist: MARK S. DOCKUM
Drill Rig: B57 Bore Hole Diameter: 8" Signature:
Location: Approximately 15' South West of Southern-most Dispenser Island Parallel to High Street Registration: R.G. 4412
Logged by: Dylan Crouse

| DEPTH (ft) | BLOW COUNTS | PID/OVM (ppm) | USCS | GEOLOGIC DESCRIPTION |
|---|---|---|---|---|
| | | | | 4 1/2" asphalt |
| | | | | Clay, dark yellowish brown, mottled, trace of medium-grained sand, slightly damp, high plasticity, (15% sand, 85% clay) |
| 5 | 18 | 235 | CH | brown, mottled gray, dry |
| 10 | 33 | 265 | | staining, trace of coarse gravel and rootlets (15% gravel, 85% clay), slightly damp |
| | | | | Sandy clay, greenish gray, mottled, orange, some medium-grained sand, slight plasticity, caliche present, (35% sand, 65% clay) |
| 15 | 25 | 81 | CL | |
| | | | | Clay, strong brown, slight mottling, trace of medium-grained sand, 20% sand, high plasticity, black staining, 80% clay |
| 20 | 36 | 9 | CH | |
| | | | | Gravel, yellowish brown, wet |
| | | | GW | |
| 25 | 25 | 0 | CH | Clay, trace of medium-grained sand, yellowish brown, very moist, high plasticity, (15% sand) |
| | | | GW | Gravel, orange, slight plasticity, wet |
| | | | | Clay, yellowish brown, moist, high plasticity |
| 30 | 22 | 0 | CH | |
| | | | | Total depth at 31.5 feet.<br>Groundwater encountered at 23.3 feet.<br>Static groundwater at 12 feet. |

WELL DESIGN

Casing Diameter: 2" Slot Size: .010 , Sand Size: 2/12 , Grout: Portland I,II

FN: 22359003

ENVIRONMENTAL RESOLUTIONS, INC.

Project No.: 2235 Boring: B4/MW4 Plate: APPENDIX
Site: Tosco 76 Service Station 1156 Date: 7/16/99
Drill Contractor: Woodward Drilling
Sample Method: Split Spoon Geologist: MARK S. DOCKUM
Drill Rig: B57 Bore Hole Diameter: 8" Signature:
Location: 18 Feet North of Southernmost Dispenser Island Parallel High Street Registration: R.G. 4412
Logged by: Dylan Crouse

| DEPTH (ft) | BLOW COUNTS | PID/OVM (ppm) | SAMPLE | COLUMN | USCS | GEOLOGIC DESCRIPTION | WELL DESIGN |
|---|---|---|---|---|---|---|---|
| | | | | | | 4 1/2" asphalt | |
| | | | | | | Clay, greenish gray, mottled, orange slightly damp, high plasticity | |
| 5 | 17 | 309 | | | | | |
| 10 | 22 | 253 | | | CH | trace of medium-grained sand, slightly moist | |
| 15 | 19 | 4 | | | | moist | |
| 20 | 28 | 4 | | | | brownish yellow, black staining, 20% gravel, 20% medium-grained sand, moist | |
| | | ▼ | | | | brown, mottled, olive yellow, moist, black staining | |
| 25 | 36 | 0 | | | | | |
| | | | | | | Total depth at 26.5 feet. Groundwater encountered at 23.6 feet. | |

Casing Diameter: 2" Slot Size: 010 , Sand Size: 2/12 , Grout: Portland I,II

PN: 2235R004

ENVIRONMENTAL RESOLUTIONS, INC.

Project No.: 2235 Boring: MW5 Plate: Attachment
Site: Tosco 76 Service Station 1156 Date: 8/29/01
Drill Contractor: Woodward Drilling Company, Inc.
Sample Method: Split Spoon Geologist: JOHN B. BOBBITT
Drill Rig: BK-81 Bore Hole Diameter: 8" Signature:
Location: Eastern side of MacArthur Boulevard approximately 40 feet north of site Registration: R.G. 4313
Logged by: Rob Saur

| DEPTH (ft) | BLOW COUNTS | PID/OVM (ppm) | SAMPLE | COLUMN | USCS | GEOLOGIC DESCRIPTION | WELL DESIGN |
|---|---|---|---|---|---|---|---|
| | | | | | | 6" Concrete | |
| 5 | 23 | 8.3 ▽ | | | CL | CLAY WITH SAND AND TRACE OF GRAVEL: greenish gray, moist, high plasticity, fine-grained sand, fine-grained poorly-sorted subangular gravel. | |
| 10 | 27 | 7.7 | | | | SANDY CLAY: orange brown, moist, low plasticity, fine-grained sand. | |
| 15 | 57 | 11.2 | | | ML | SANDY SILT: orange brown, moist, low plasticity, fine-grained sand. | |
| 20 | 30 | | | | | | |
| 25 | 38 | 7.7 | | | | light brown, wet. | |
| | | | | | | Boring Terminated at 25 feet.<br>Boring converted to groundwater monitoring well.<br>Groundwater encountered at 6 feet. | |

Casing Diameter: 2" Slot Size: 0.020 , Sand Size: #3 , Grout: Portland Cement

FN: 22350005

ENVIRONMENTAL RESOLUTIONS, INC.

Project No.: 2235 Boring: MW6 Plate: Attachment
Site: Tosco 76 Service Station 1156 Date: 8/29/01
Drill Contractor: Woodward Drilling Company, Inc.
Sample Method: Split Spoon Geologist: JOHN B. BOBBITT
Drill Rig: BK-81 Bore Hole Diameter: 8" Signature:
Location: Western side of MacArthur Boulevard Registration: R.G. 4313
approx. 30 feet north of Shell station Logged by: Rob Saur

| DEPTH (ft) | BLOW COUNTS | PID/OVM (ppm) | SAMPLE | COLUMN | USCS | GEOLOGIC DESCRIPTION | WELL DESIGN |
|---|---|---|---|---|---|---|---|
| | | | | | | 6" Concrete | |
| 5 | 24 | 10.6 | ▽ | | | CLAYEY SILT: greenish gray, very moist, medium plasticity. | |
| 10 | 19 | 10.0 | | | ML | light brown, trace of fine-grained sub-angular sand (approx. 5%). | |
| 15 | 24 | 6.0 | | | | CLAYEY SILT WITH SAND: light brown, fine-grained sub-angular sand (approx. 15%). | |
| 20 | 48 | 7.7 | | | SM | SAND WITH SILT: orange brown, wet, medium-grained well-sorted well-rounded sand. | |
| 25 | 50/5" | | | | | Boring terminated at 25 feet.<br>Boring converted to groundwater monitoring well.<br>Groundwater encountered at 5.5 feet. | |

Casing Diameter: 2" Slot Size: 0.020 , Sand Size: #3 , Grout: Portland Cement

FN: 22369006

ENVIRONMENTAL RESOLUTIONS, INC.

Project No.: 2235 Boring: MW7 Plate: Attachment
Site: Tosco 76 Service Station 1156 Date: 8/29/01
Drill Contractor: Woodward Drilling Company, Inc.
Sample Method: Split Spoon Geologist: JOHN B. BOBBITT
Drill Rig: BK-81 Bore Hole Diameter: 8" Signature:
Location: Western side of MacArthur Boulevard Registration: R.G. 4313
approx. 40 feet north of High Street Logged by: Rob Saur

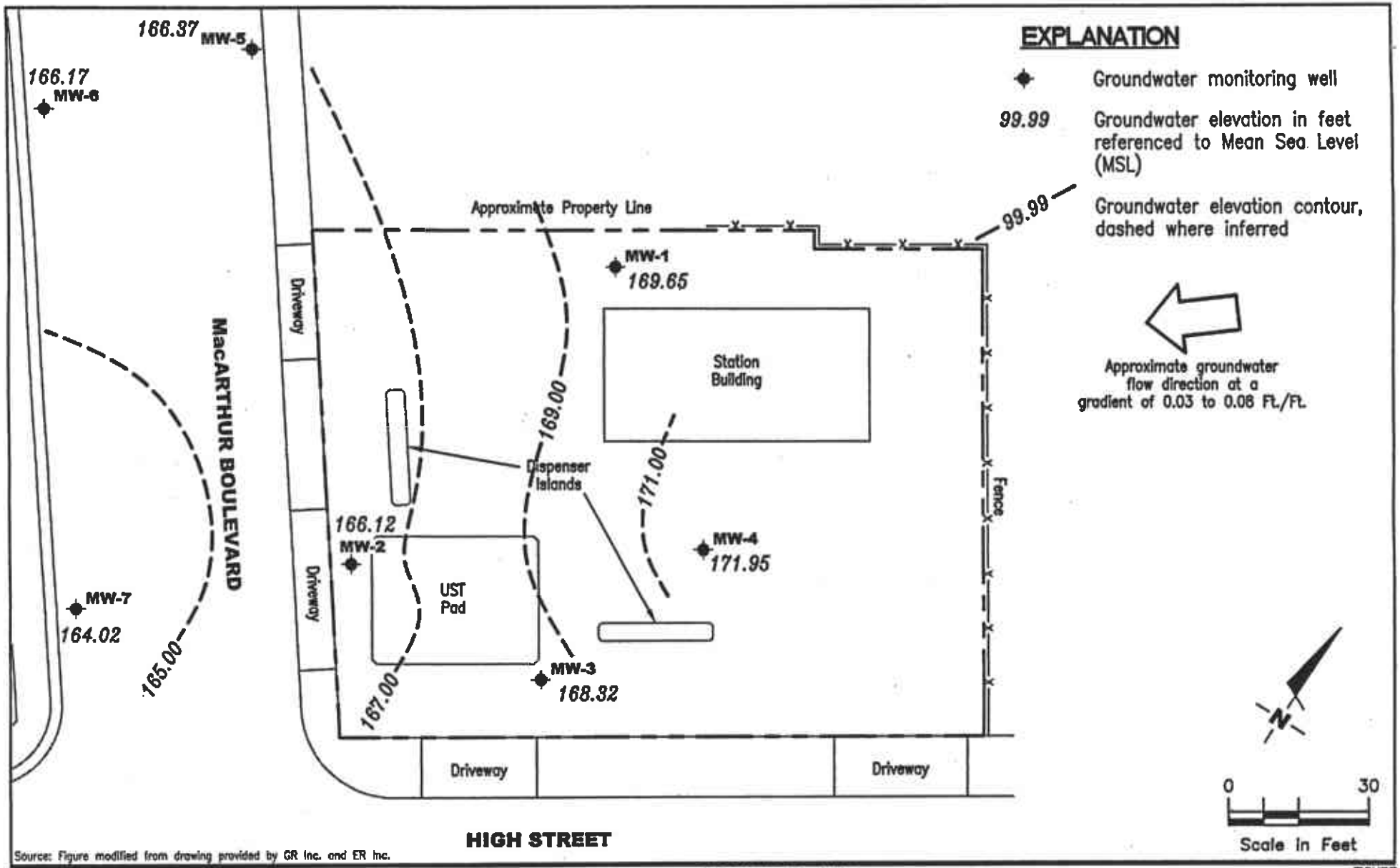
| DEPTH (ft) | BLOW COUNTS | PID/OVM (ppm) | SAMPLE | COLUMN | USCS | GEOLOGIC DESCRIPTION | WELL DESIGN |
|---|---|---|---|---|---|---|---|
| | | | | | | 6" Concrete | |
| 5 | 50/5" | 25 | | | | SANDY SILT: brown with bluish green mottling, moist, low plasticity, 40% fine-grained sand. | |
| 10 | 36 | 236 | | | | | |
| 15 | 35 | 8.9 | ▽ | | ML | light brown, wet. | |
| 20 | 25 | 57 | | | | | |
| 25 | 50/5" | 19.3 | | | | reddish brown, 30% medium-grained sand. | |
| | | | | | | Boring terminated at 25 feet.<br>Boring converted to groundwater monitoring well.<br>Groundwater encountered at 15 feet. | |

Casing Diameter: 2" Slot Size: 0.020 , Sand Size: #3 , Grout: Portland Cement

FN: 22360007

# ATTACHMENT E

# CUMULATIVE GROUNDWATER MONITORING AND SAMPLING DATA




Source: Figure modified from drawing provided by GR Inc. and ER Inc.

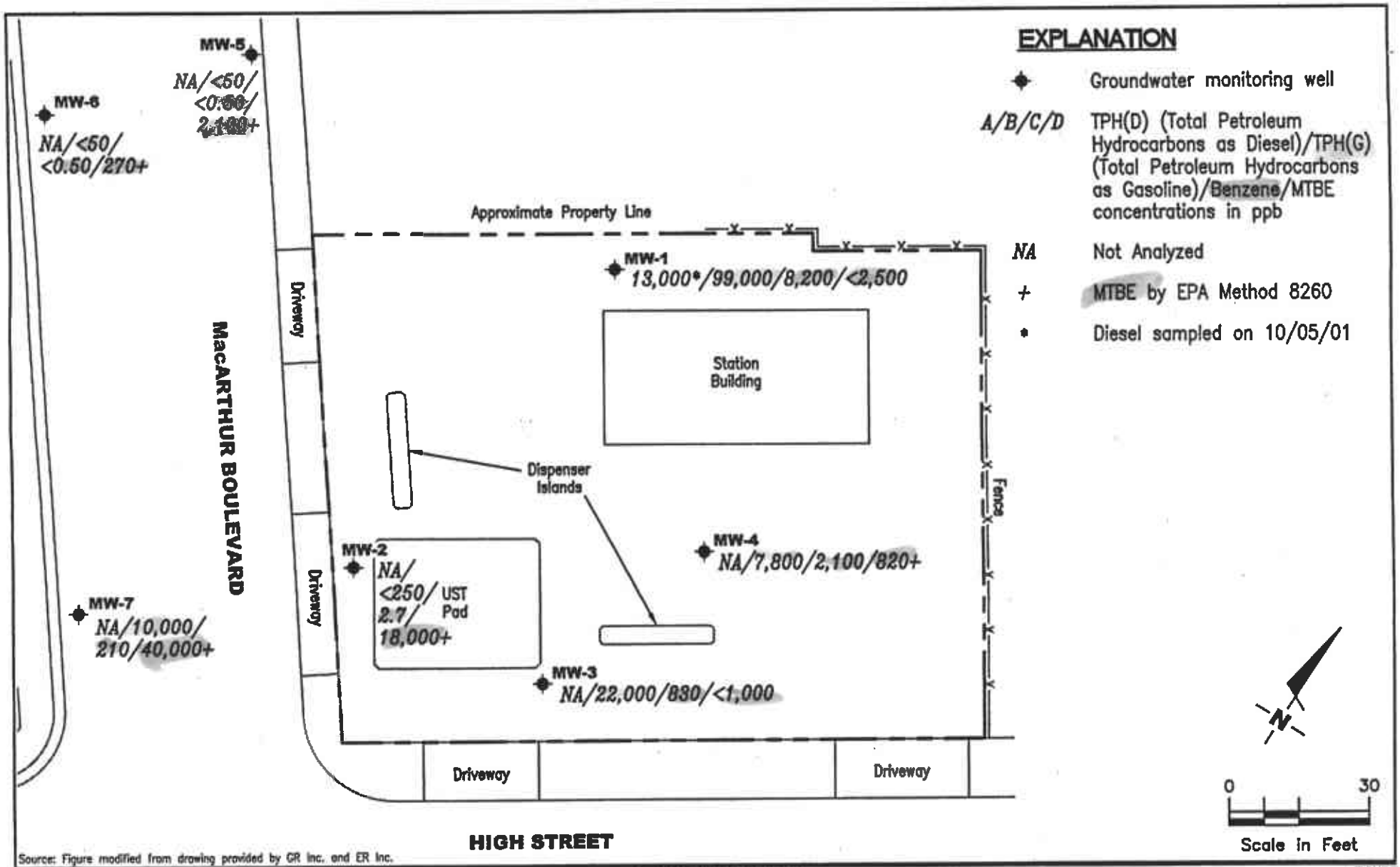
GETTLER - RYAN INC.
6747 Sierra Ct., Suite J
Dublin, CA 94568
(925) 551-7555

**POTENTIOMETRIC MAP**
Tosco 76 Service Station #1156
4276 MacArthur Boulevard
Oakland, California

FIGURE
1

| PROJECT NUMBER | REVIEWED BY | DATE | REVISED DATE |
|---|---|---|---|
| 180225 | | October 3, 2001 | |

FILE NAME: P:\Enviro\Tosco\1156\001-1156.DWG | Layout Tab: Plot4




Source: Figure modified from drawing provided by GR Inc. and ER Inc.

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Dublin, CA 94568
(925) 551-7555

**CONCENTRATION MAP**
Tosco 76 Service Station #1156
4276 MacArthur Boulevard
Oakland, California

FIGURE
2

| PROJECT NUMBER | REVIEWED BY | DATE | REVISED DATE |
|---|---|---|---|
| 180225 | | October 3, 2001 | |

FILE NAME: P:\Enviro\Tosco\1156\G01-1156.DWG | Layout Tab: Con4

# Table 1

## Groundwater Monitoring Data and Analytical Results

Tosco 76 Service Station #1156
4276 MacArthur Boulevard
Oakland, California

| WELL ID/ TOC* | DATE | DTW (ft.) | S.I. (ft. bgs) | GWE (msl) | Product Thickness (ft.) | TPH-D (ppb) | TPH-G (ppb) | B (ppb) | T (ppb) | E (ppb) | X (ppb) | MTBE (ppb) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| MW-1 | | | | | | | | | | | | |
| 174.86 | 07/20/99[5] | 7.50 | 5.0-25.0 | 167.36 | -- | 16,000[2] | 120,000 | 11,000 | 27,000 | 3,300 | 18,000 | ND[1] |
| | 09/28/99 | 8.75 | | 166.11 | <0.01 | 2,410[2] | 6,020[6] | 1,030 | 1,040 | 68.5 | 412 | 321/333[3] |
| | 01/07/00 | 9.05 | | 165.83** | 0.02 | 7,870[2,4] | 72,700[6] | 7,410 | 13,900 | 2,070 | 9,620 | ND[1] |
| | 03/31/00 | 7.18 | | 167.68 | 0.00 | 3,600[2] | 92,000[6] | 10,000 | 23,000 | 3,200 | 14,000 | ND[1] |
| | 07/14/00 | 7.68 | | 167.18 | 0.00 | 8,580[2] | 108,000[6] | 8,250 | 18,700 | 3,750 | 17,800 | ND[1] |
| | 10/03/00 | 7.99 | | 166.87 | 0.00 | 9,260[2] | 96,000[6] | 8,760 | 20,000 | 3,350 | 15,600 | ND[1] |
| | 01/03/01 | 9.18 | | 165.68 | 0.00 | 11,000[8] | 37,000[6] | 5,800 | 13,000 | 1,700 | 8,100 | 2,200 |
| | 04/04/01 | 8.05 | | 166.81 | 0.00 | 14,000[8] | 86,900[6] | 7,780 | 18,500 | 2,470 | 11,800 | [1]ND/481[3] |
| | 07/17/01 | 7.01 | | 167.85 | 0.00 | 2,200[8] | 79,000[6] | 5,600 | 11,000 | 2,800 | 12,000 | [1]ND/230[3] |
| **177.54** | **10/03/01** | **7.89** | | **169.65** | **0.00** | **--** | **99,000[6]** | **8,200** | **18,000** | **3,000** | **16,000** | **<2,500** |
| | **10/05/01** | **7.91** | | **169.63** | **0.00** | **13,000[2]** | **--** | **--** | **--** | **--** | **--** | **--** |
| MW-2 | | | | | | | | | | | | |
| 173.01 | 07/20/99 | 5.40 | 5.0-25.0 | 167.61 | -- | -- | ND[1] | ND[1] | ND[1] | ND[1] | ND[1] | 4,500/11,000[3,4] |
| | 09/28/99 | 5.60 | | 167.41 | 0.00 | -- | 1,390[6] | 124 | ND[1] | 62.9 | 43.1 | 5,280/6,150[3] |
| | 01/07/00 | 5.92 | | 167.09 | 0.00 | -- | 1,450[6] | 99.0 | ND[1] | 23.8 | 16.0 | 33,100 |
| | 03/31/00 | 5.23 | | 167.78 | 0.00 | -- | ND[1] | 42 | ND[1] | ND[1] | ND[1] | 17,000 |
| | 07/14/00 | 5.52 | | 167.49 | 0.00 | -- | ND[1] | 44.7 | ND[1] | ND[1] | ND[1] | 66,500 |
| | 10/03/00 | 6.04 | | 166.97 | 0.00 | -- | ND[1] | 56.7 | ND[1] | ND[1] | ND[1] | 57,500 |
| | 01/03/01 | 6.42 | | 166.59 | 0.00 | -- | ND[1] | ND[1] | ND[1] | ND[1] | ND[1] | 49,000 |
| | 04/04/01 | 6.14 | | 166.87 | 0.00 | -- | ND[1] | ND[1] | ND[1] | ND[1] | ND[1] | 38,700/37,800[3] |
| | 07/17/01 | 5.30 | | 167.71 | 0.00 | -- | ND[1] | ND[1] | ND[1] | ND[1] | ND[1] | 65,000/56,000[3] |
| **173.50** | **10/03/01** | **7.38** | | **166.12** | **0.00** | **--** | **<250** | **2.7** | **<2.5** | **<2.5** | **<2.5** | **14,000/18,000[3]** |

# Table 1

## Groundwater Monitoring Data and Analytical Results

Tosco 76 Service Station #1156
4276 MacArthur Boulevard
Oakland, California

| WELL ID/ TOC* | DATE | DTW (ft.) | S.I. (ft. bgs) | GWE (msl) | Product Thickness (ft.) | TPH-D (ppb) | TPH-G (ppb) | B (ppb) | T (ppb) | E (ppb) | X (ppb) | MTBE (ppb) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **MW-3** | | | | | | | | | | | | |
| 178.44 | 07/20/99 | 8.50 | 5.0-25.0 | 169.94 | -- | -- | 1,000 | 76 | 52 | 79 | 76 | 330 |
| | 09/28/99 | 8.31 | | 170.13 | 0.00 | -- | 1,860[6] | 174 | 95.4 | 71.8 | 135 | 443/288[3] |
| | 01/07/00 | 8.56 | | 169.88 | 0.00 | -- | 28,400[6] | 2,450 | 3,090 | 1,560 | 3,910 | 1,940 |
| | 03/31/00 | 8.42 | | 170.02 | 0.00 | -- | 26,000[6] | 1,300 | 2,900 | 2,600 | 3,500 | 2,800 |
| | 07/14/00 | 8.61 | | 169.83 | 0.00 | -- | 24,500[6] | 1,850 | 2,630 | 2,750 | 3,900 | 548 |
| | 10/03/00 | 9.14 | | 169.30 | 0.00 | -- | 22,000[6] | 1,910 | 2,020 | 2,400 | 2,680 | 965 |
| | 01/03/01 | 9.06 | | 169.38 | 0.00 | -- | 14,000[6] | 1,600 | 1,100 | 2,300 | 1,400 | 3,300 |
| | 04/04/01 | 8.98 | | 169.46 | 0.00 | -- | 19,600[6] | 1,150 | 1,470 | 2,100 | 1,820 | 1,050/450[3] |
| | 07/17/01 | 7.46 | | 170.98 | 0.00 | -- | 26,000[6] | 1,500 | 2,100 | 2,100 | 3,400 | [1]ND/350[3] |
| **178.13** | **10/03/01** | **9.81** | | **168.32** | **0.00** | **--** | **22,000[6]** | **830** | **1,900** | **1,700** | **3,000** | **<1,000** |
| **MW-4** | | | | | | | | | | | | |
| 179.10 | 07/20/99 | 7.40 | 5.0-25.0 | 171.70 | -- | -- | 69 | 2.7 | 0.77 | ND | 7.1 | 100 |
| | 09/28/99 | 7.19 | | 171.91 | 0.00 | -- | 4,050[6] | 1,250 | 72.0 | 51.3 | 133 | 416/459[3] |
| | 01/07/00 | 8.98 | | 170.12 | 0.00 | -- | 7,010[6] | 2,260 | 167 | 271 | 276 | 764 |
| | 03/31/00 | 7.26 | | 171.84 | 0.00 | -- | 5,500[6] | 1,800 | 230 | 330 | 400 | 1,000 |
| | 07/14/00 | 7.67 | | 171.43 | 0.00 | -- | 7,940[6] | 2,810 | 332 | 450 | 247 | 1,530 |
| | 10/03/00 | 8.12 | | 170.98 | 0.00 | -- | 11,400[6] | 3,110 | 437 | 519 | 816 | 1,040 |
| | 01/03/01[7] | 9.10 | | 170.00 | 0.00 | -- | 8,600[6] | 2,500 | 340 | 480 | 960 | 850 |
| | 04/04/01 | 8.63 | | 170.47 | 0.00 | -- | 9,950[6] | 2,380 | 126 | 416 | 725 | 1,140/819[3] |
| | 07/17/01 | 6.49 | | 172.61 | 0.00 | -- | 10,000[6] | 2,300 | 110 | 410 | 800 | 1,200/900[3] |
| **178.96** | **10/03/01** | **7.01** | | **171.95** | **0.00** | **--** | **7,800[6]** | **2,100** | **85** | **380** | **390** | **580/820[3]** |
| **MW-5** | | | | | | | | | | | | |
| **169.18** | **10/03/01[10]** | **2.81** | **--** | **166.37** | **0.00** | **--** | **<50** | **<0.50** | **<0.50** | **<0.50** | **<0.50** | **1,800/2,100[3]** |

# Table 1

## Groundwater Monitoring Data and Analytical Results

Tosco 76 Service Station #1156
4276 MacArthur Boulevard
Oakland, California

| WELL ID/ TOC* | DATE | DTW (ft.) | S.I. (ft. bgs) | GWE (msl) | Product Thickness (ft.) | TPH-D (ppb) | TPH-G (ppb) | B (ppb) | T (ppb) | E (ppb) | X (ppb) | MTBE (ppb) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **MW-6** | | | | | | | | | | | | |
| **169.04** | **10/03/01[10]** | **2.87** | **--** | **166.17** | **0.00** | **--** | **<50** | **<0.50** | **<0.50** | **<0.50** | **<0.50** | **200/270[3]** |
| **MW-7** | | | | | | | | | | | | |
| **171.64** | **10/03/01[10]** | **7.62** | **--** | **164.02** | **0.00** | **--** | **10,000[9]** | **210** | **<50** | **<50** | **800** | **35,000/40,000[3]** |
| **Trip Blank** | | | | | | | | | | | | |
| TB-LB | 07/20/99 | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| | 09/28/99 | -- | | -- | -- | -- | ND | ND | ND | ND | ND | ND |
| | 01/07/00 | -- | | -- | -- | -- | ND | ND | ND | ND | ND | ND |
| | 03/31/00 | -- | | -- | -- | -- | ND | ND | ND | ND | ND | ND |
| | 07/14/00 | -- | | -- | -- | -- | ND | ND | ND | ND | ND | ND |
| | 10/03/00 | -- | | -- | -- | -- | ND | ND | ND | ND | ND | ND |
| | 01/03/01 | -- | | -- | -- | -- | ND | ND | ND | ND | ND | ND |
| | 04/04/01 | -- | | -- | -- | -- | ND | ND | ND | ND | ND | ND |
| | 07/17/01 | -- | | -- | -- | -- | ND | ND | ND | ND | ND | ND |
| | **10/03/01** | **--** | | **--** | **--** | **--** | **<50** | **<0.50** | **<0.50** | **<0.50** | **<0.50** | **<5.0** |
| | **10/05/01** | **--** | | **--** | **--** | **--** | **<50** | **<0.50** | **<0.50** | **<0.50** | **<0.50** | **<5.0** |

# Table 1
## Groundwater Monitoring Data and Analytical Results
Tosco 76 Service Station #1156
4276 MacArthur Boulevard
Oakland, California

**EXPLANATIONS:**

Groundwater monitoring data and laboratory analytical results prior to September 28, 1999, were compiled from reports prepared by Environmental Resolutions, Inc.

TOC = Top of Casing
DTW = Depth to Water
(ft.) = Feet
S.I. = Screen Interval
(ft. bgs) = Feet Below Ground Surface
GWE = Groundwater Elevation
(msl) = Mean sea level

TPH-D = Total Petroleum Hydrocarbons as Diesel
TPH-G = Total Petroleum Hydrocarbons as Gasoline
B = Benzene
T = Toluene
E = Ethylbenzene
X = Xylenes
MTBE = Methyl tertiary butyl ether

(ppb) = Parts per billion
ND = Not Detected
-- = Not Measured/Not Analyzed

* TOC elevations were resurveyed in September 2001, by Morrow Surveying. TOC elevations are based on City of Oakland Benchmark No. 3967, (Elevation = 174.40 feet, msl).

** GWE has been corrected due to the presence of free product; correction factor: [(TOC - DTW) + (Product Thickness x 0.77)].

1 Detection limit raised. Refer to analytical reports.

2 Laboratory report indicates unidentified hydrocarbons C9-C24.

3 MTBE by EPA Method 8260.

4 Laboratory analyzed sample past EPA recommended holding time.

5 Total Recoverable Petroleum Oil was ND.

6 Laboratory report indicates gasoline C6-C12.

7 This sample was originally analyzed within holding time. Re-analysis for confirmation or dilution was performed past the recommended holding time.

8 Laboratory report indicates unidentified hydrocarbons <C16.

9 Laboratory report indicates weathered gasoline C6-C12.

10 Well development performed.

# Table 2

**Groundwater Analytical Results**
Tosco 76 Service Station #1156
4276 MacArthur Boulevard
Oakland, California

| WELL ID | DATE | ETHANOL (ppb) | TBA (ppb) | MTBE (ppb) | DIPE (ppb) | ETBE (ppb) | TAME (ppb) | 1,2-DCA (ppb) | EDB (ppb) | HVOCs (ppb) | SVOCs (ppb) |
|---|---|---|---|---|---|---|---|---|---|---|---|
| MW-1 | 07/20/99 | -- | -- | 11,000[3] | -- | -- | -- | -- | -- | ND[1] | ND[2] |
| | 09/28/99 | -- | ND[6] | 333 | ND[6] | ND[6] | ND[6] | -- | -- | ND[4] | ND[5] |
| | 01/07/00 | -- | -- | -- | -- | -- | -- | -- | -- | ND[7,8] | ND[9] |
| | 03/31/00 | -- | -- | -- | -- | -- | -- | -- | -- | --[11] | ND[10] |
| | 07/14/00 | -- | -- | -- | -- | -- | -- | -- | -- | ND[12] | ND[13] |
| | 10/03/00 | -- | -- | -- | -- | -- | -- | -- | -- | ND[15] | ND[14] |
| | 01/03/01 | -- | -- | -- | -- | -- | -- | -- | -- | ND[15] | ND[16] |
| | 04/04/01 | ND[6] | ND[6] | 481 | ND[6] | ND[6] | ND[6] | ND[6] | ND[6] | ND[17] | ND[18] |
| | 07/17/01 | ND[6] | ND[6] | 230 | ND[6] | ND[6] | ND[6] | ND[6] | ND[6] | ND[20] | ND[19] |
| MW-2 | 09/28/99 | -- | ND[6] | 6,150 | ND[6] | ND[6] | ND[6] | -- | -- | -- | -- |
| | 04/04/01 | ND[6] | ND[6] | 37,800 | ND[6] | ND[6] | ND[6] | ND[6] | ND[6] | -- | -- |
| | 07/17/01 | ND[6] | ND[6] | 56,000 | ND[6] | ND[6] | ND[6] | ND[6] | ND[6] | -- | -- |
| | **10/03/01** | -- | -- | **18,000** | -- | -- | -- | -- | -- | -- | -- |
| MW-3 | 09/28/99 | -- | ND[6] | 288 | ND[6] | ND[6] | 8.80 | -- | -- | -- | -- |
| | 04/04/01 | ND[6] | ND[6] | 450 | ND[6] | ND[6] | ND[6] | ND[6] | ND[6] | -- | -- |
| | 07/17/01 | ND[6] | ND[6] | 350 | ND[6] | ND[6] | ND[6] | ND[6] | ND[6] | -- | -- |
| MW-4 | 09/28/99 | -- | ND[6] | 459 | ND[6] | ND[6] | ND[6] | -- | -- | -- | -- |
| | 04/04/01 | ND[6] | ND[6] | 819 | ND[6] | ND[6] | ND[6] | ND[6] | ND[6] | -- | -- |
| | 07/17/01 | ND[6] | ND[6] | 900 | ND[6] | ND[6] | ND[6] | ND[6] | ND[6] | -- | -- |
| | **10/03/01** | -- | -- | **820** | -- | -- | -- | -- | -- | -- | -- |
| MW-5 | **10/03/01** | -- | -- | **2,100** | -- | -- | -- | -- | -- | -- | -- |

# Table 2

**Groundwater Analytical Results**
Tosco 76 Service Station #1156
4276 MacArthur Boulevard
Oakland, California

| WELL ID | DATE | ETHANOL (ppb) | TBA (ppb) | MTBE (ppb) | DIPE (ppb) | ETBE (ppb) | TAME (ppb) | 1,2-DCA (ppb) | EDB (ppb) | HVOCs (ppb) | SVOCs (ppb) |
|---|---|---|---|---|---|---|---|---|---|---|---|
| MW-6 | 10/03/01 | -- | -- | 270 | -- | -- | -- | -- | -- | -- | -- |
| MW-7 | 10/03/01 | -- | -- | 40,000 | -- | -- | -- | -- | -- | -- | -- |

# Table 2
## Groundwater Analytical Results
Tosco 76 Service Station #1156
4276 MacArthur Boulevard
Oakland, California

**EXPLANATIONS:**

Groundwater laboratory analytical results prior to September 28, 1999, were compiled from reports prepared by Environmental Resolutions, Inc.

| | | |
|---|---|---|
| TBA = Tertiary butyl alcohol | TAME = Tertiary amyl methyl ether | (ppb) = Parts per billion |
| MTBE = Methyl tertiary butyl ether | EDB = 1,2-Dibromoethane | ND = Not Detected |
| DIPE = Di-isopropyl ether | HVOCs = Halogenated Volatile Organic Compounds | -- = Not Analyzed |
| ETBE = Ethyl tertiary butyl ether | SVOCs = Semi-Volatile Organic Compounds | |

[1] All HVOCs were ND except for Chlorobenzene at 12 ppb; 1,2-Dichlorobenzene (1,2-DCB) at 3.9 ppb; 1,1-Dichloroethane (1,1-DCA) at 2.0 ppb; 1,2-Dichloroethane (1,2-DCA) at 20 ppb; cis-1,2-Dichloroethene (cis-1,2-DCE) at 3.6 ppb and 1,2-Dichloropropane (1,2-DCP) at 0.92 ppb.

[2] All SVOCs were ND except for Benzyl alcohol at 37 ppb; 2,4-Dimethylphenol at 140 ppb; 2-Methylnaphthalene at 240 ppb; 4-Methylphenol at 27 ppb and Naphthalene at 600 ppb.

[3] Laboratory analyzed sample past EPA recommended holding time.

[4] All HVOCs were ND except for Benzene at 6,130 ppb; Ethylbenzene at 1,590 ppb; Naphthalene at 534 ppb; Toluene at 11,900 ppb; 1,2,4-Trimethylbenzene at 1,240 ppb; 1,3,5-Trimethylbenzene at 318 ppb and Total Xylenes at 7,360 ppb.

[5] All SVOCs were ND (with a raised detection limit) except for 2,4-Dimethylphenol at 13.6 ppb; 2-Methylnaphthalene at 87.4 ppb; 2-Methylphenol at 26.4; 4-Methylphenol at 35.6 and Naphthalene at 292 ppb.

[6] Detection limit raised. Refer to analytical reports.

[7] All HVOCs were ND (with a raised detection limit) except for Benzene at 8,380 ppb; Ethylbenzene at 2,380 ppb; Naphthalene at 1,050 ppb; n-Propylbenzene at 371 ppb; Toluene at 17,600 ppb; 1,2,4-Trimethylbenzene at 2,210 ppb; 1,3,5-Trimethylbenzene at 597 ppb and Total Xylenes at 10,800 ppb.

[8] EPA Method 8260 for HVOCs.

[9] All SVOCs were ND (with a raised detection limit) except for 2-Methylnaphthalene at 315 ppb and Naphthalene at 615 ppb.

[10] All SVOCs were ND except for Bis(2-ethylhexyl)phthalate at 10 ppb; 1,2-DCB at 6.2 ppb; 2-Methylnaphthalene at 73 ppb; 2-Methylphenol at 31 ppb; 4-Methylphenol at 18 ppb and Naphthalene at 140 ppb. Laboratory report indicates all SVOCs were analyzed outside the EPA recommended holding time.

[11] Laboratory did not analyze for HVOCs.

[12] All HVOCs were ND (with a raised detection limit) except for Tetrachloroethene at 334 ppb.

[13] All SVOCs were ND (with a raised detection limit) except for 2-Methylnaphthalene at 300 ppb and Naphthalene at 690 ppb.

[14] All SVOCs were ND (with a raised detection limit) except for Benzoic acid at 362 ppb; Bis(2-ethylhexyl)phthalate at 51.6 ppb; 2-Methylnaphthalene at 98.1 ppb; 4-Methylphenol at 28.9 ppb and Naphthalene at 361 ppb.

[15] All HVOCs were ND (with a raised detection limit).

[16] All SVOCs were ND (with a raised detection limit) except for 2-Methylnaphthalene at 180 ppb and Naphthalene at 400 ppb.

[17] All HVOCs were ND except for cis-1,2-DCA at 3.4 ppb; 1,2-DCA at 5.7 ppb; Chlorobenzene at 5.6 ppb and 1,2-DCB at 4.6 ppb.

[18] All SVOCs were ND except for Benzoic acid at 28 ppb; Bis(2-ethylhexyl)phthalate at 55 ppb; 2-Methylnaphthalene at 78 ppb and Naphthalene at 490 ppb.

**EXPLANATIONS:** (cont)

[19] All SVOCs were ND except for Bis(2-ethylhexyl)phthalate at 400 ppb; 1,2-DCB at 18 ppb; 2,4-Dimethylphenol at 16 ppb; 2-Methylnaphthalene at 290 ppb; 2-Methylphenol at 47 ppb; 4-Methylphenol at 25 ppb; Naphthalene at 740 ppb and N-Nitrosodimethylamine at 7.7 ppb.

[20] Volatile Organic Compounds (VOCs) by EPA Method 8021B were ND with a raised detection limit.

**ANALYTICAL METHODS:**

EPA Method 8260 for Oxygenate Compounds
EPA Method 8010 for HVOCs
EPA Method 8270 for SVOCs

# ATTACHMENT F

# LABORATORY ANALYSIS REPORTS AND CHAIN-OF-CUSTODY RECORDS

**Sequoia Analytical**

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19 September, 2001

Paul Blank
ERI
73 Digital Dr. Suite 100
Novato, CA 94949

RE: TOSCO
Sequoia Report: P109015

Enclosed are the results of analyses for samples received by the laboratory on 09/04/01 15:50. If you have any questions concerning this report, please feel free to contact me.

Sincerely,

Angelee Cari

Angelee Cari
Client Services Representative

CA ELAP Certificate #2374

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| | | |
|---|---|---|
| ERI | Project: TOSCO | |
| 73 Digital Dr. Suite 100 | Project Number: 1156, Oakland | **Reported:** |
| Novato CA, 94949 | Project Manager: Paul Blank | 09/19/01 14:04 |

## ANALYTICAL REPORT FOR SAMPLES

| Sample ID | Laboratory ID | Matrix | Date Sampled | Date Received |
|---|---|---|---|---|
| S-5-MW5 | P109015-01 | Soil | 08/29/01 09:30 | 09/04/01 15:50 |
| S-5-MW6 | P109015-05 | Soil | 08/29/01 12:05 | 09/04/01 15:50 |
| S-5-MW7 | P109015-10 | Soil | 08/29/01 14:45 | 09/04/01 15:50 |
| S-10-MW7 | P109015-11 | Soil | 08/29/01 14:50 | 09/04/01 15:50 |
| S-SP1-(1-4) | P109015-15 | Soil | 08/29/01 16:00 | 09/04/01 15:50 |

Sequoia Analytical - Petaluma

Angelee Cari

Angelee Cari, Client Services Representative

*The results in this report apply to the samples analyzed in accordance with the chain of custody document. This analytical report must be reproduced in its entirety.*

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|---|---|---|
| ERI | Project: TOSCO | |
| 73 Digital Dr. Suite 100 | Project Number: 1156, Oakland | **Reported:** |
| Novato CA, 94949 | Project Manager: Paul Blank | 09/19/01 14:04 |

## Total Petroleum Hydrocarbons as Gasoline and BTEX by EPA 8015M/8020M

### Sequoia Analytical - Petaluma

| Analyte | Result | Reporting Limit | Units | Dilution | Batch | Prepared | Analyzed | Method | Notes |
|---|---|---|---|---|---|---|---|---|---|
| **S-5-MW5 (P109015-01) Soil Sampled: 08/29/01 09:30 Received: 09/04/01 15:50** | | | | | | | | | |
| Gasoline (C6-C12) | ND | 1.0 | mg/kg | 1 | 1090037 | 09/05/01 | 09/05/01 | EPA 8015M/8020M | |
| Benzene | ND | 0.0050 | " | " | " | " | " | " | |
| Toluene | ND | 0.0050 | " | " | " | " | " | " | |
| Ethylbenzene | ND | 0.0050 | " | " | " | " | " | " | |
| Xylenes (total) | ND | 0.0050 | " | " | " | " | " | " | |
| Methyl tert-butyl ether | ND | 0.050 | " | " | " | " | " | " | |
| *Surrogate: a,a,a-Trifluorotoluene* | | *102 %* | *65-135* | | " | " | " | " | |
| *Surrogate: 4-Bromofluorobenzene* | | *101 %* | *65-135* | | " | " | " | " | |
| **S-5-MW6 (P109015-05) Soil Sampled: 08/29/01 12:05 Received: 09/04/01 15:50** | | | | | | | | | |
| Gasoline (C6-C12) | ND | 1.0 | mg/kg | 1 | 1090037 | 09/05/01 | 09/05/01 | EPA 8015M/8020M | |
| Benzene | ND | 0.0050 | " | " | " | " | " | " | |
| Toluene | ND | 0.0050 | " | " | " | " | " | " | |
| Ethylbenzene | ND | 0.0050 | " | " | " | " | " | " | |
| Xylenes (total) | ND | 0.0050 | " | " | " | " | " | " | |
| Methyl tert-butyl ether | ND | 0.050 | " | " | " | " | " | " | |
| *Surrogate: a,a,a-Trifluorotoluene* | | *106 %* | *65-135* | | " | " | " | " | |
| *Surrogate: 4-Bromofluorobenzene* | | *96.5 %* | *65-135* | | " | " | " | " | |
| **S-5-MW7 (P109015-10) Soil Sampled: 08/29/01 14:45 Received: 09/04/01 15:50** | | | | | | | | | |
| Gasoline (C6-C12) | ND | 1.0 | mg/kg | 1 | 1090037 | 09/05/01 | 09/05/01 | EPA 8015M/8020M | |
| Benzene | ND | 0.0050 | " | " | " | " | " | " | |
| Toluene | ND | 0.0050 | " | " | " | " | " | " | |
| Ethylbenzene | ND | 0.0050 | " | " | " | " | " | " | |
| Xylenes (total) | ND | 0.0050 | " | " | " | " | " | " | |
| Methyl tert-butyl ether | ND | 0.050 | " | " | " | " | " | " | |
| *Surrogate: a,a,a-Trifluorotoluene* | | *105 %* | *65-135* | | " | " | " | " | |
| *Surrogate: 4-Bromofluorobenzene* | | *96.8 %* | *65-135* | | " | " | " | " | |

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|---|---|---|
| ERI | Project: TOSCO | |
| 73 Digital Dr. Suite 100 | Project Number: 1156, Oakland | **Reported:** |
| Novato CA, 94949 | Project Manager: Paul Blank | 09/19/01 14:04 |

## Total Petroleum Hydrocarbons as Gasoline and BTEX by EPA 8015M/8020M

### Sequoia Analytical - Petaluma

| Analyte | Result | Reporting Limit | Units | Dilution | Batch | Prepared | Analyzed | Method | Notes |
|---|---|---|---|---|---|---|---|---|---|
| **S-10-MW7 (P109015-11) Soil Sampled: 08/29/01 14:50 Received: 09/04/01 15:50** | | | | | | | | | |
| Gasoline (C6-C12) | ND | 5.0 | mg/kg | 5 | 1090037 | 09/05/01 | 09/05/01 | EPA 8015M/8020M | |
| **Benzene** | **0.18** | 0.025 | " | " | " | " | " | " | |
| Toluene | ND | 0.025 | " | " | " | " | " | " | |
| **Ethylbenzene** | **0.085** | 0.025 | " | " | " | " | " | " | |
| **Xylenes (total)** | **0.34** | 0.025 | " | " | " | " | " | " | |
| Methyl tert-butyl ether | ND | 0.25 | " | " | " | " | " | " | |
| *Surrogate: a,a,a-Trifluorotoluene* | | *102 %* | *65-135* | | " | " | " | " | |
| *Surrogate: 4-Bromofluorobenzene* | | *102 %* | *65-135* | | " | " | " | " | |
| **S-SP1-(1-4) (P109015-15) Soil Sampled: 08/29/01 16:00 Received: 09/04/01 15:50** | | | | | | | | | |
| Gasoline (C6-C12) | ND | 1.0 | mg/kg | 1 | 1090037 | 09/05/01 | 09/05/01 | EPA 8015M/8020M | |
| **Benzene** | **0.0051** | 0.0050 | " | " | " | " | " | " | |
| Toluene | ND | 0.0050 | " | " | " | " | " | " | |
| **Ethylbenzene** | **0.0075** | 0.0050 | " | " | " | " | " | " | |
| **Xylenes (total)** | **0.031** | 0.0050 | " | " | " | " | " | " | |
| **Methyl tert-butyl ether** | **0.062** | 0.050 | " | " | " | " | " | " | |
| *Surrogate: a,a,a-Trifluorotoluene* | | *104 %* | *65-135* | | " | " | " | " | |
| *Surrogate: 4-Bromofluorobenzene* | | *97.7 %* | *65-135* | | " | " | " | " | |

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| ERI | Project: TOSCO | |
| 73 Digital Dr. Suite 100 | Project Number: 1156, Oakland | **Reported:** |
| Novato CA, 94949 | Project Manager: Paul Blank | 09/19/01 14:04 |

## Total Metals by EPA 6000/7000 Series Methods

### Sequoia Analytical - Petaluma

| Analyte | Result | Reporting Limit | Units | Dilution | Batch | Prepared | Analyzed | Method | Notes |
|---|---|---|---|---|---|---|---|---|---|
| **S-SP1-(1-4) (P109015-15) Soil Sampled: 08/29/01 16:00 Received: 09/04/01 15:50** | | | | | | | | | |
| Lead | ND | 5.5 | mg/kg | 1 | 1090090 | 09/06/01 | 09/12/01 | EPA 6010B | |

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| Novato CA, 94949 | Project Manager: Paul Blank | 09/19/01 14:04 |

## Volatile Organic Compounds by EPA Method 8260B

### Sequoia Analytical - Petaluma

| Analyte | Result | Reporting Limit | Units | Dilution | Batch | Prepared | Analyzed | Method | Notes |
|---|---|---|---|---|---|---|---|---|---|
| **S-SP1-(1-4) (P109015-15) Soil Sampled: 08/29/01 16:00 Received: 09/04/01 15:50** | | | | | | | | | |
| **Methyl tert-butyl ether** | **0.025** | 0.0050 | mg/kg | 1 | 1090167 | 09/12/01 | 09/12/01 | EPA 8260B | |
| *Surrogate: Dibromofluoromethane* | | *88.0 %* | *80-120* | | " | " | " | " | |

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| | | |
|---|---|---|
| ERI | Project: TOSCO | |
| 73 Digital Dr. Suite 100 | Project Number: 1156, Oakland | **Reported:** |
| Novato CA, 94949 | Project Manager: Paul Blank | 09/19/01 14:04 |

## Total Petroleum Hydrocarbons as Gasoline and BTEX by EPA 8015M/8020M - Quality Control

## Sequoia Analytical - Petaluma

| Analyte | Result | Reporting Limit | Units | Spike Level | Source Result | %REC | %REC Limits | RPD | RPD Limit | Notes |
|---|---|---|---|---|---|---|---|---|---|---|
| **Batch 1090037 - EPA 5030, soils** | | | | | | | | | | |
| **Blank (1090037-BLK1)** | | | | Prepared & Analyzed: 09/05/01 | | | | | | |
| Gasoline (C6-C12) | ND | 1.0 | mg/kg | | | | | | | |
| Benzene | ND | 0.0050 | " | | | | | | | |
| Toluene | ND | 0.0050 | " | | | | | | | |
| Ethylbenzene | ND | 0.0050 | " | | | | | | | |
| Xylenes (total) | ND | 0.0050 | " | | | | | | | |
| Methyl tert-butyl ether | ND | 0.050 | " | | | | | | | |
| *Surrogate: a,a,a-Trifluorotoluene* | *0.620* | | " | *0.600* | | *103* | *65-135* | | | |
| *Surrogate: 4-Bromofluorobenzene* | *0.608* | | " | *0.600* | | *101* | *65-135* | | | |
| **LCS (1090037-BS1)** | | | | Prepared & Analyzed: 09/05/01 | | | | | | |
| Gasoline (C6-C12) | 5.15 | 1.0 | mg/kg | 5.50 | | 93.6 | 65-135 | | | |
| Benzene | 0.0846 | 0.0050 | " | 0.0660 | | 128 | 65-135 | | | |
| Toluene | 0.406 | 0.0050 | " | 0.397 | | 102 | 65-135 | | | |
| Ethylbenzene | 0.0895 | 0.0050 | " | 0.0920 | | 97.3 | 65-135 | | | |
| Xylenes (total) | 0.493 | 0.0050 | " | 0.461 | | 107 | 65-135 | | | |
| Methyl tert-butyl ether | 0.141 | 0.050 | " | 0.105 | | 134 | 65-135 | | | |
| *Surrogate: a,a,a-Trifluorotoluene* | *0.625* | | " | *0.600* | | *104* | *65-135* | | | |
| *Surrogate: 4-Bromofluorobenzene* | *0.626* | | " | *0.600* | | *104* | *65-135* | | | |
| **Matrix Spike (1090037-MS1)** | | **Source: P109015-05** | | Prepared & Analyzed: 09/05/01 | | | | | | |
| Gasoline (C6-C12) | 5.16 | 1.0 | mg/kg | 5.50 | ND | 92.8 | 65-135 | | | |
| Benzene | 0.0728 | 0.0050 | " | 0.0660 | ND | 110 | 65-135 | | | |
| Toluene | 0.433 | 0.0050 | " | 0.397 | ND | 109 | 65-135 | | | |
| Ethylbenzene | 0.0952 | 0.0050 | " | 0.0920 | ND | 103 | 65-135 | | | |
| Xylenes (total) | 0.521 | 0.0050 | " | 0.461 | ND | 113 | 65-135 | | | |
| Methyl tert-butyl ether | 0.131 | 0.050 | " | 0.105 | ND | 125 | 65-135 | | | |
| *Surrogate: a,a,a-Trifluorotoluene* | *0.629* | | " | *0.600* | | *105* | *65-135* | | | |
| *Surrogate: 4-Bromofluorobenzene* | *0.594* | | " | *0.600* | | *99.0* | *65-135* | | | |

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| | | |
|---|---|---|
| ERI | Project: TOSCO | |
| 73 Digital Dr. Suite 100 | Project Number: 1156, Oakland | **Reported:** |
| Novato CA, 94949 | Project Manager: Paul Blank | 09/19/01 14:04 |

## Total Petroleum Hydrocarbons as Gasoline and BTEX by EPA 8015M/8020M - Quality Control

## Sequoia Analytical - Petaluma

| Analyte | Result | Reporting Limit | Units | Spike Level | Source Result | %REC | %REC Limits | RPD | RPD Limit | Notes |
|---|---|---|---|---|---|---|---|---|---|---|
| **Batch 1090037 - EPA 5030, soils** | | | | | | | | | | |
| **Matrix Spike Dup (1090037-MSD1)** | | **Source: P109015-05** | | Prepared & Analyzed: 09/05/01 | | | | | | |
| Gasoline (C6-C12) | 5.10 | 1.0 | mg/kg | 5.50 | ND | 91.7 | 65-135 | 1.17 | 20 | |
| Benzene | 0.0747 | 0.0050 | " | 0.0660 | ND | 113 | 65-135 | 2.58 | 20 | |
| Toluene | 0.449 | 0.0050 | " | 0.397 | ND | 113 | 65-135 | 3.63 | 20 | |
| Ethylbenzene | 0.0979 | 0.0050 | " | 0.0920 | ND | 106 | 65-135 | 2.80 | 20 | |
| Xylenes (total) | 0.532 | 0.0050 | " | 0.461 | ND | 115 | 65-135 | 2.09 | 20 | |
| Methyl tert-butyl ether | 0.122 | 0.050 | " | 0.105 | ND | 116 | 65-135 | 7.11 | 20 | |
| *Surrogate: a,a,a-Trifluorotoluene* | *0.640* | | " | *0.600* | | *107* | *65-135* | | | |
| *Surrogate: 4-Bromofluorobenzene* | *0.596* | | " | *0.600* | | *99.3* | *65-135* | | | |

Sequoia Analytical

1455 McDowell Blvd, North Ste D
Petaluma, CA 94954
(707) 792-1865
FAX (707) 792-0342
www.sequoialabs.com

| | | |
|---|---|---|
| ERI | Project: TOSCO | |
| 73 Digital Dr. Suite 100 | Project Number: 1156, Oakland | **Reported:** |
| Novato CA, 94949 | Project Manager: Paul Blank | 09/19/01 14:04 |

## Total Metals by EPA 6000/7000 Series Methods - Quality Control

### Sequoia Analytical - Petaluma

| Analyte | Result | Reporting Limit | Units | Spike Level | Source Result | %REC | %REC Limits | RPD | RPD Limit | Notes |
|---|---|---|---|---|---|---|---|---|---|---|
| **Batch 1090090 - EPA 3050B** | | | | | | | | | | |
| **Blank (1090090-BLK1)** | | | | Prepared: 09/06/01 Analyzed: 09/12/01 | | | | | | |
| Lead | ND | 7.5 | mg/kg | | | | | | | |
| **LCS (1090090-BS1)** | | | | Prepared: 09/06/01 Analyzed: 09/12/01 | | | | | | |
| Lead | 45.6 | 7.5 | mg/kg | 50.0 | | 91.2 | 80-120 | | | |
| **Matrix Spike (1090090-MS1)** | | Source: P109006-01RE1 | | Prepared: 09/06/01 Analyzed: 09/12/01 | | | | | | |
| Lead | 55.0 | 6.9 | mg/kg | 46.3 | 11 | 95.0 | 75-125 | | | |
| **Matrix Spike Dup (1090090-MSD1)** | | Source: P109006-01RE1 | | Prepared: 09/06/01 Analyzed: 09/12/01 | | | | | | |
| Lead | 49.6 | 6.1 | mg/kg | 41.0 | 11 | 94.1 | 75-125 | 10.3 | 35 | |

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| | | |
|---|---|---|
| ERI | Project: TOSCO | |
| 73 Digital Dr. Suite 100 | Project Number: 1156, Oakland | **Reported:** |
| Novato CA, 94949 | Project Manager: Paul Blank | 09/19/01 14:04 |

## Volatile Organic Compounds by EPA Method 8260B - Quality Control

### Sequoia Analytical - Petaluma

| Analyte | Result | Reporting Limit | Units | Spike Level | Source Result | %REC | %REC Limits | RPD | RPD Limit | Notes |
|---|---|---|---|---|---|---|---|---|---|---|
| **Batch 1090167 - EPA 5030 soils** | | | | | | | | | | |
| **Blank (1090167-BLK1)** | | | | Prepared & Analyzed: 09/12/01 | | | | | | |
| Methyl tert-butyl ether | ND | 0.0050 | mg/kg | | | | | | | |
| *Surrogate: Dibromofluoromethane* | *0.0440* | | " | *0.0500* | | *88.0* | *80-120* | | | |
| **Blank (1090167-BLK2)** | | | | Prepared & Analyzed: 09/17/01 | | | | | | |
| Methyl tert-butyl ether | ND | 0.0050 | mg/kg | | | | | | | |
| *Surrogate: Dibromofluoromethane* | *0.0436* | | " | *0.0500* | | *87.2* | *80-120* | | | |
| **LCS (1090167-BS1)** | | | | Prepared & Analyzed: 09/12/01 | | | | | | |
| Methyl tert-butyl ether | 0.0525 | 0.0050 | mg/kg | 0.0500 | | 105 | 76-124 | | | |
| *Surrogate: Dibromofluoromethane* | *0.0440* | | " | *0.0500* | | *88.0* | *80-120* | | | |
| **LCS (1090167-BS2)** | | | | Prepared & Analyzed: 09/17/01 | | | | | | |
| Methyl tert-butyl ether | 0.0528 | 0.0050 | mg/kg | 0.0500 | | 106 | 76-124 | | | |
| *Surrogate: Dibromofluoromethane* | *0.0436* | | " | *0.0500* | | *87.2* | *80-120* | | | |
| **Matrix Spike (1090167-MS1)** | | Source: P109091-03 | | Prepared & Analyzed: 09/17/01 | | | | | | |
| Methyl tert-butyl ether | 0.126 | 0.0050 | mg/kg | 0.125 | ND | 101 | 76-124 | | | |
| *Surrogate: Dibromofluoromethane* | *0.112* | | " | *0.125* | | *89.6* | *80-120* | | | |
| **Matrix Spike Dup (1090167-MSD1)** | | Source: P109091-03 | | Prepared & Analyzed: 09/17/01 | | | | | | |
| Methyl tert-butyl ether | 0.126 | 0.0050 | mg/kg | 0.125 | ND | 101 | 76-124 | 0.00 | 35 | |
| *Surrogate: Dibromofluoromethane* | *0.113* | | " | *0.125* | | *90.4* | *80-120* | | | |

Sequoia Analytical

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| | | |
|---|---|---|
| ERI | Project: TOSCO | |
| 73 Digital Dr. Suite 100 | Project Number: 1156, Oakland | **Reported:** |
| Novato CA, 94949 | Project Manager: Paul Blank | 09/19/01 14:04 |

## Notes and Definitions

| | |
|---|---|
| DET | Analyte DETECTED |
| ND | Analyte NOT DETECTED at or above the reporting limit |
| NR | Not Reported |
| dry | Sample results reported on a dry weight basis |
| RPD | Relative Percent Difference |

# TOSCO


☐ 819 Striker Ave., Suite 8 • Sacramento, CA 95834 • (916) 921-9600 FAX (916) 921-0100
☐ 1404 N. Wiget Lane • Walnut Creek, CA 94598 • (925) 988-9600 FAX (925) 988-9673
☐ 1455 McDowell Blvd. North, Suite D • Petaluma, CA 94954 • (707) 792-1865 FAX (707) 792-0342
☐ 1551 Industrial Road • San Carlos, CA 94070 • (650) 232-9600 FAX (650) 232-9612


| | |
|---|---|
| Consultant Company: ERI | Project Name: 223503T5 |
| Address: 73 Digital Dr Ste 100 | TOSCO Engineer (required) Dave DeWitt |
| City: Novato State: CA Zip Code: 94949 | |
| Telephone: 415-382-7105 FAX #: 415-382-1856 | Site #, City, State: [illegible] 1156, Oakland, CA |
| Report To: Paul Blank Sampler: Rob Saur | QC Data: ☒ Level D (Standard) ☐ Level C ☐ Level B ☐ Level A |

**Turnaround Time:** ☒ 10 Work Days ☐ 5 Work Days ☐ 3 Work Days ☐ 2 Work Days ☐ 1 Work Day ☐ 2-8 Hours

**CODE:** ☐ Misc. ☐ Detect. ☐ Eval. ☐ Remed. ☐ Demol. ☐ Closure

☐ Drinking Water ☐ Waste Water ☐ Other

Analyses Requested

| Client Sample I.D. | Date/Time Sampled | Matrix Desc. | # of Cont. | Cont. Type | Sequoia's Sample # | TPH (EPA 8015 Mod. Gas) | BTEX (EPA 8020) | MTBE (EPA 8020) | TPH (EPA 8015 Mod. Diesel) | Volatile Organics (EPA 8260) | MTBE Confirmation (EPA 8260) | Comments |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1. S-5-MW5 | 8/29/01 930 | Soil | 1 | Brass Sleeve | P109[illegible]-01 | X | X | X | | | X | |
| 2. S-10-MW5 | 935 | | | | 02 | | | | | | | Hold |
| 3. S-15-MW5 | 940 | | | | 03 | | | | | | | Hold |
| 4. S 24 -MW5 | 950 | | | | 04 | | | | | | | Hold |
| 5. S-5-MW6 | 1205 | | | | 05 | X | X | X | | | X | |
| 6. S-10-MW6 | 1210 | | | | 06 | | | | | | | Hold |
| 7. S-15-MW6 | 1215 | | | | 07 | | | | | | | Hold |
| 8. S-20-MW6 | 1220 | | | | 08 | | | | | | | Hold |
| 9. S-24-MW6 | 1225 | | | | 09 | | | | | | | Hold |
| 10. | | | | | | | | | | | | |

COOLER CUSTODY SEALS INTACT ☐ NOT INTACT ☐

COOLER TEMPERATURE 5.1 °C

| | | | | | |
|---|---|---|---|---|---|
| Relinquished By: [signature] | Date: 8/30/01 | Time: 1100 | Received By: [signature] | Date: 8-30-01 | Time: 1100 |
| Relinquished By: | Date: | Time: | Received By: | Date: | Time: |
| Relinquished By: | Date: | Time: | Received By: | Date: | Time: |

Were Samples Received in Good Condition? ☐ Yes ☐ No Samples on Ice? ☐ Yes ☐ No Method of Shipment_____ Page ___ of ___

To be completed upon receipt of report:
1) Were the analyses requested on the Chain of Custody reported? ☐ Yes ☐ No If no, what analyses are still needed? _____
2) Was the report issued within the requested turnaround time? ☐ Yes ☐ No If no, what was the turnaround time? _____

Approved by: _____ Signature: _____ Company: _____ Date: _____

Pink - Client
Yellow - Sequoia
White - Sequoia

NY 002595

# TOSCO


☐ 819 Striker Ave., Suite 8 • Sacramento, CA 95834 • (916) 921-9600 FAX (916) 921-0100
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☐ 1551 Industrial Road • San Carlos, CA 94070 • (650) 232-9600 FAX (650) 232-9612


| | |
|---|---|
| Consultant Company: ERI | Project Name: 22350375 |
| Address: 73 Digital Dr. Ste 100 | TOSCO Engineer (required) Dave DeWitt |
| City: Novato State: CA Zip Code: 94949 | |
| Telephone: 415-382-9105 FAX #: 415-382-1856 | Site #, City, State: 4115, Oakland, CA |
| Report To: Paul Blank Sampler: Rob | QC Data: ☒ Level D (Standard) ☐ Level C ☐ Level B ☐ Level A |

Turnaround Time: ☒ 10 Work Days ☐ 5 Work Days ☐ 3 Work Days ☐ 2 Work Days ☐ 1 Work Day ☐ 2-8 Hours

CODE: ☐ Misc. ☐ Detect. ☐ Eval. ☐ Remed. ☐ Demol. ☐ Closure

☐ Drinking Water ☐ Waste Water ☐ Other

Analyses Requested

| Client Sample I.D. | Date/Time Sampled | Matrix Desc. | # of Cont. | Cont. Type | Sequoia's Sample # | TPH (EPA 8015 Mod. Gas) | BTEX (EPA 8020) | MTBE (EPA 8020) | TPH (EPA 8015 Mod. Diesel) | Volatile Organics (EPA 8260) | MTBE Confirmation (EPA 8260) | Total Lead EPA 6010 | | Comments |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1. S-5-MW7 | 8/29/01 1445 | Soil | 1 | brass Sleeve | 108015-10 | X | X | X | | | X | | | |
| 2. S-10-MW7 | 1450 | | | | 11 | X | X | X | | | X | | | |
| 3. S-15-MW7 | 1455 | | | | 12 | | | | | | | | | Hold |
| 4. S-20-MW7 | 1500 | | | | 13 | | | | | | | | | Hold |
| 5. S-24-MW7 | 1505 | | | | 14 | | | | | | | | | Hold |
| 6. S-SP1-(1-4) | 1600 | | 4 | | 15 | X | X | X | | | X | | | Composite |
| 7. | | COOLER CUSTODY SEALS INTACT ☐ | | | | | | | | | | | | |
| 8. | | NOT INTACT ☐ | | | | | | | | | | | | |
| 9. | | COOLER TEMPERATURE 3.1 °C | | | | | | | | | | | | |
| 10. | | | | | | | | | | | | | | |

| | | | | | |
|---|---|---|---|---|---|
| Relinquished By: Rob Sullivan | Date: 8/30/01 | Time: 1000 | Received By: | Date: 8-30-01 | Time: 1100 |
| Relinquished By: | Date: | Time: | Received By: | Date: | Time: |
| Relinquished By: | Date: | Time: | Received By: | Date: | Time: |

Were Samples Received in Good Condition? ☐ Yes ☐ No Samples on Ice? ☐ Yes ☐ No Method of Shipment_____ Page ___ of ___

To be completed upon receipt of report:

1) Were the analyses requested on the Chain of Custody reported? ☐ Yes ☐ No If no, what analyses are still needed? _____

2) Was the report issued within the requested turnaround time? ☐ Yes ☐ No If no, what was the turnaround time? _____

Approved by: _____ Signature: _____ Company: _____ Date: _____

White Canary Yellow Pink Client

# ATTACHMENT G

# SOIL SAMPLE LOCATIONS AND ANALYTICAL RESULTS

TABLE 1
SAMPLE ANALYSIS RESULTS OF SOIL AND GROUNDWATER
Tosco (Union) 76 Service Station 1156
4276 MacArthur Boulevard
Oakland, California


| Sample # | Depth | Date | TEPHd | TPPHg | B | T | E | X | TRPH | TTLC Lead | SVOC's | HVOC's |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| FUEL USTS - SOIL | | | | | | | | | | | | |
| S-6-T1N | 6.0 | 3/23/98 | NA | 1,200 | 0.90 | ND | 14 | 100 | NA | 6.8 | NA | NA |
| S-9.5-T1S | 9.5 | 3/23/98 | NA | 590 | 1.5 | ND | 5.6 | 33 | NA | NA | NA | NA |
| S-7-T2S | 7.0 | 3/23/98 | NA | 670 | 1.0 | 0.74 | 6.8 | 51 | NA | NA | NA | NA |
| S-6-T2N | 6.0 | 3/23/98 | NA | 83 | ND | ND | 0.15 | 0.41 | NA | NA | NA | NA |
| DISPENSERS - SOIL | | | | | | | | | | | | |
| S-2-D1 | 2.0 | 4/9/98 | NA | ND | ND | ND | ND | ND | NA | NA | NA | NA |
| S-3-D2 | 3.0 | 4/9/98 | NA | 16 | ND | ND | ND | 0.13 | NA | NA | NA | NA |
| S-3-D3 | 3.0 | 4/9/98 | NA | 590 | 1.6 | 15 | 18 | 99 | NA | 110* | NA | NA |
| S-3-D4 | 3.0 | 4/9/98 | NA | ND | ND | ND | ND | 0.070 | NA | NA | NA | NA |
| PRODUCT LINES - SOIL | | | | | | | | | | | | |
| S-3-PL1 | 3.0 | 4/9/98 | NA | 160 | ND | ND | ND | 8.4 | NA | NA | NA | NA |
| S-3.5-PL2 | 3.5 | 4/9/98 | NA | 63 | ND | ND | ND | 0.45 | NA | NA | NA | NA |
| USED - OIL UST - SOIL | | | | | | | | | | | | |
| S-6.5-T3S | 6.5 | 3/23/98 | 78,000 | 130 | 0.55 | 1.3 | 1.2 | 11 | 8,400 | 7.2 | ND | ND** |
| S-4.5-T3W | 4.5 | 4/9/98 | 2.3 | 5.0 | ND | 0.066 | ND | 0.011 | ND | ND | ND | ND |
| S-3-T3S | 3.0 | 4/9/98 | ND | 1.6 | 0.043 | ND | 0.0091 | ND | ND | ND | ND | ND |
| S-6-T3S | 6.0 | 4/9/98 | 560 | 81 | 0.64 | 1.4 | 1.1 | 5.9 | 360 | ND | ND*** | ND |
| FUEL UST CAVITY- WATER | | | | | | | | | | | | |
| W-7.5-T2 | 7.5 | 3/23/98 | NA | 41,000 | ND | 400 | 770 | 8,900 | NA | NA | NA | NA |
| STOCKPILE | | | | | | | | | | | | |
| SP-1-(1-4) | NA | 4/3/98 | NA | 15 | 0.024 | 0.034 | 0.024 | 0.069 | NA | 16 | NA | NA |
| SP-1-(5-8) | NA | 4/3/98 | NA | 3.2 | 0.013 | ND | ND | 0.014 | NA | 12 | NA | NA |
| SP-2-(1-4) | NA | 4/3/98 | NA | 13 | 0.076 | ND | 0.019 | 0.060 | NA | 5.0 | NA | NA |
| SP-2-(5-8) | NA | 4/3/98 | NA | 42 | 0.19 | ND | 0.11 | 0.60 | NA | 5.4 | NA | NA |
| SP-2-(9-12) | NA | 4/3/98 | NA | 15 | 0.19 | ND | 0.034 | 0.092 | NA | ND | NA | NA |
| SP-2-(13-16) | NA | 4/3/98 | NA | 41 | 0.66 | 0.61 | 0.42 | 2.2 | NA | ND | NA | NA |
| SP-2-(17-20) | NA | 4/3/98 | NA | 10 | 0.036 | 0.027 | 0.013 | 0.058 | NA | ND | NA | NA |
| SP-3-(1-4) | NA | 4/9/98 | 290 | 12 | 0.13 | 0.027 | 0.094 | 0.53 | 570 | 30 | ND | ND |
| SP-4-(A-10) | NA | 4/9/98 | NA | 19 | 0.0076 | 0.058 | 0.068 | 0.40 | NA | 10 | NA | NA |

**TABLE 1**
**SAMPLE ANALYSIS RESULTS OF SOIL AND GROUNDWATER**
Tosco (Union) 76 Service Station 1156
4276 MacArthur Boulevard
Oakland, California


| Sample # | Depth | Date | TEPHd | TPPHg | B | T | E | X | TRPH | TTLC Lead | SVOC's | HVOC's |
|---|---|---|---|---|---|---|---|---|---|---|---|---|

Notes:
Soil results (S) in milligrams per kilogram (mg/kg) unless otherwise noted.
Water results (W) in micrograms per liter (ug/L).

| | | |
|---|---|---|
| ug/kg | = | rograms per liter |
| TEPHd | = | s as diesel analyzed using modified EPA method 8015. |
| TPPHg | = | s gasoline analyzed using modified EPA method 8015. |
| BTEX | = | Total Xylenes analyzed using EPA method 8020. |
| TRPH | = | carbons analyzed using EPA method 5520 E&F. |
| TTLC Lead | = | on of lead analyzed using EPA method 6010. |
| STLC Lead | = | tion of lead analyzed using EPA method 6010. |
| SVOC's | = | ounds analyzed using EPA method 8270. |
| HVOC's | = | mpounds analyzed using EPA method 8010. |
| NA | = | lyzed/Not Applicable |
| ND | = | Not detected |
| * | = | sis: STLC Lead = 8.0 mg/L |
| ** | = | cis-1,2-Dichloroethene = 56 ug/kg |
| *** | = | thalene = 580 ug/kg; Naphthalene = 500 ug/kg |

Additional Analyses:

Sample S-6.5-T3S analyzed for TTLC Cadmium = ND; Chromium = 50 mg/kg; Nickel = 64 mg/kg; Zinc = 52 mg/kg using EPA method 6010.

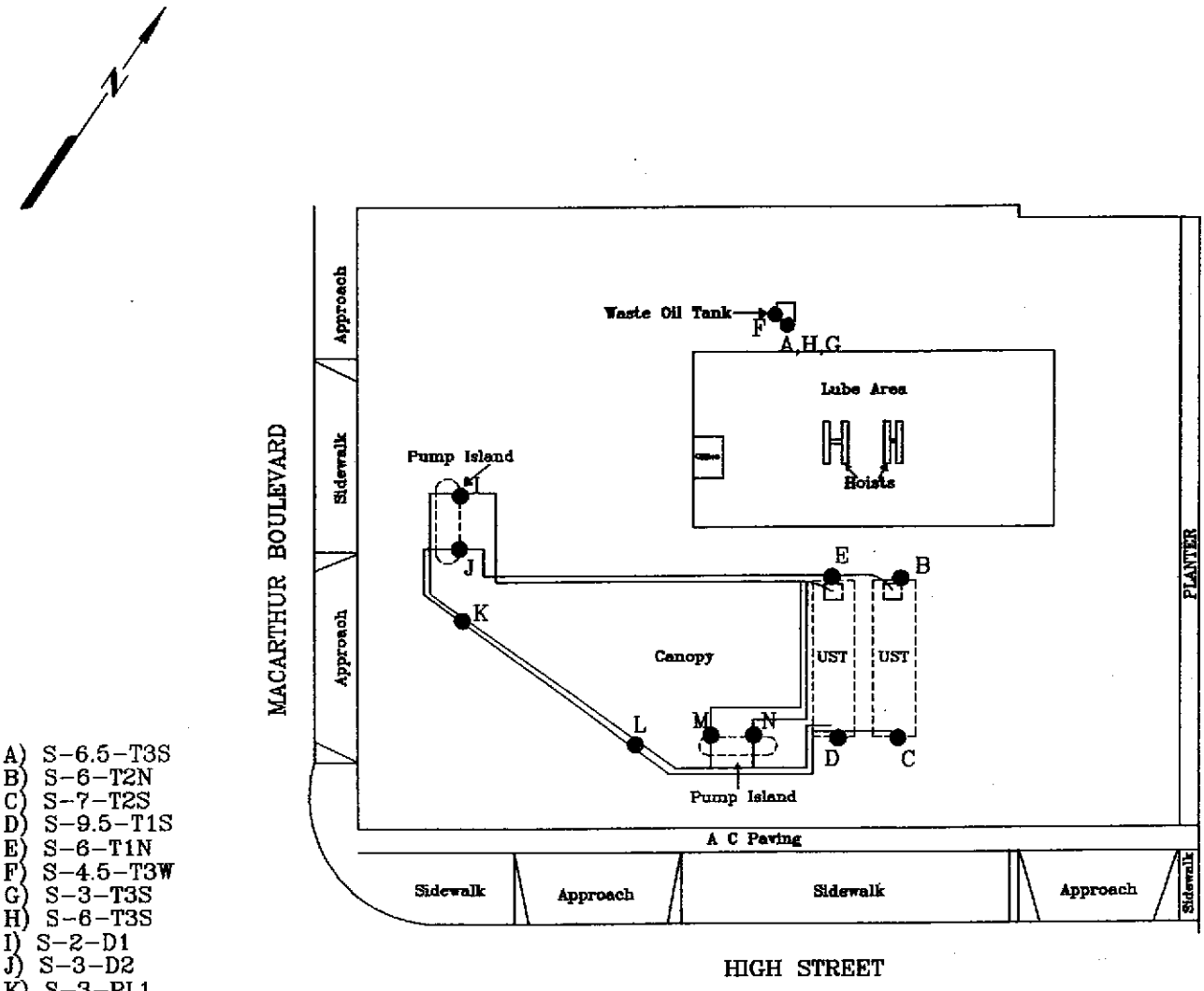
Sample S-4.5-T3W analyzed for TTLC Cadmium = ND; Chromium = 22 mg/kg; Nickel = 70 mg/kg; Zinc = 22 mg/kg using EPA method 6010.

Sample S-3-T3S analyzed for TTLC Cadmium = ND; Chromium = 37 mg/kg; Nickel = 34 mg/kg; Zinc = 34 mg/kg using EPA method 6010.

Sample S-6-T3S analyzed for TTLC Cadmium = ND; Chromium = 27 mg/kg; Nickel = 25 mg/kg; Zinc = 27 mg/kg using EPA method 6010.

Sample SP-3-(1-4) analyzed for TTLC Cadmium = ND; Chromium = 35 mg/kg; Nickel = 40 mg/kg; Zinc = 42 mg/kg using EPA method 6010.

Sample W-7.5-T2 analyzed for methyl tertiary butyl ether = 1,800 ug/L using EPA method 8020.




A) S-6.5-T3S
B) S-6-T2N
C) S-7-T2S
D) S-9.5-T1S
E) S-6-T1N
F) S-4.5-T3W
G) S-3-T3S
H) S-6-T3S
I) S-2-D1
J) S-3-D2
K) S-3-PL1
L) S-3.5-PL2
M) S-3-D3
N) S-3-D4

Source: Modified from a map provided by Tosco

FN 22350002

## EXPLANATION

N
● Soil Sample

APPROXIMATE SCALE

0 30 60 FEET

COPY

ERI ENVIRONMENTAL RESOLUTIONS, INC.

# GENERALIZED SITE PLAN

TOSCO (UNION) 76 SERVICE STATION 1156
4276 MacArthur Boulevard
Oakland, California

PROJECT NO. 2235

PLATE 2

October 22, 1997

**TABLE 1**
**ANALYTICAL RESULTS of SOIL SAMPLES**
**(TEPHd, TPPHg, TRPH, MTBE, 5-CAM Metals)**
Tosco 76 Service Station 1156
4276 MacArthur Boulevard
Oakland, California

| Sample Number | Plate Call-out | Date Sampled | TEPHd | TRPH | TPPHg | MTBE | B | T | E | X | 5-CAM METALS | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | | | | | Pb | Cd | Cr | Ni | Zn |
| | | | <.....ppm.....> | | | | | | | | | | | | |
| **Soil - Borings** | | | | | | | | | | | | | | | |
| S-10.5-B1 | MW1 | 7/16/99 | 140 | 73 | 6,800 | ND* | 2.6 | 25 | 110 | 470 | NA | NA | NA | NA | NA |
| S-10.5-B2 | MW2 | 7/16/99 | NA | NA | ND | ND | ND | ND | ND | ND | NA | NA | NA | NA | NA |
| S-10.5-B3 | MW3 | 7/16/99 | NA | NA | 16 | 0.36 | 0.32 | 0.43 | 0.28 | 1.8 | NA | NA | NA | NA | NA |
| S-10.5-B4 | MW4 | 7/16/99 | NA | NA | 22 | 0.71 | 1.1 | 0.32 | 0.46 | 1.3 | NA | NA | NA | NA | NA |
| S-20.5-B4 | MW4 | 7/16/99 | ND | ND | ND | ND | ND | ND | 0.0069 | NA | NA | NA | NA | NA | NA |
| **Soil-Stockpiles** | | | | | | | | | | | | | | | |
| Comp SP1-(1-4) | — | 7/16/99 | 19 | NA | 58 | ND* | 0.074 | 0.20 | 0.52 | 3.7 | 26 | ND | 23 | 28 | 41 |

Notes:

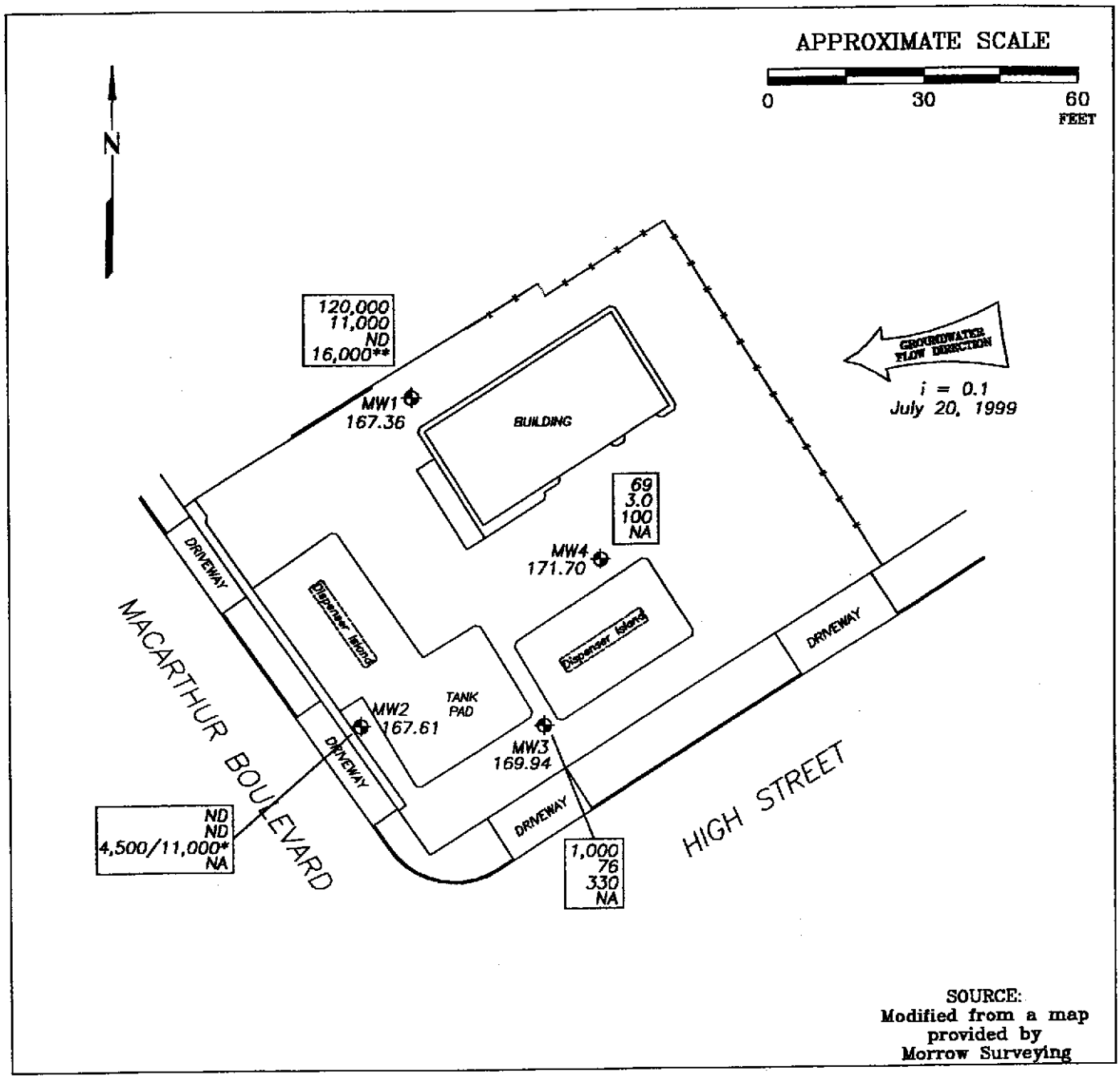
| | | |
|---|---|---|
| TPPHg | = | Total purgeable petroleum hydrocarbons as gasoline analyzed using EPA Method 8015/8020 modified. |
| TEPHd | = | Total extractable petroleum hydrocarbons as diesel analyzed using EPA Method 3550/8015 modified. |
| TRPH | = | Total recoverable petroleum hydrocarbons as oil analyzed using EPA Method 5520 E&F. |
| ppm | = | Parts per million. |
| S-10.5-B1 | = | Soil Sample-depth in feet-Boring 1. |
| Comp SP1-(1-4) | = | Stock Pile 1, 1 through 4 composite samples. |
| ND | = | Not detected at or above laboratory reporting limit. |
| NA | = | Not Analyzed. |
| MTBE | = | Methyl tertiary butyl ether analyzed using EPA Method 8015/8020 modified . |
| BTEX | = | Benzene, toluene, ethylbenzene, and total xylenes analyzed using EPA Method 8015/8020 modified. |
| 5-CAM Metals | = | California Assessment Manual Metals analysis performed using EPA Method 6010 A. |
| * | = | Elevated laboratory method detction limit. |

**TABLE 2**
**ANALYTICAL RESULTS OF SOIL SAMPLES**
**(HVOCs and SVOCs)**
Tosco 76 Service Station 1156
4276 MacArthur Boulevard
Oakland, California

| Sample Number | Plate Call-out | Date Sampled | HVOCS | | | SVOCs | |
|---|---|---|---|---|---|---|---|
| | | | Chlorobenzene | 1,2-Dichlorobenzene | 1,4-Dichlorobenzene | 2-Methylnaphthalene | Naphthalene |
| | | | <.....ppm.....> | | | | |
| **Soil - Borings** | | | | | | | |
| S-10.5-B1 | MW1 | 7/16/99 | 0.70 | 0.87 | 0.38 | 12 | 6.4 |
| S-10.5-B2 | MW2 | 7/16/99 | NA | NA | NA | NA | NA |
| S-10.5-B3 | MW3 | 7/16/99 | NA | NA | NA | NA | NA |
| S-10.5-B4 | MW4 | 7/16/99 | NA | NA | NA | NA | NA |
| S-20.5-B4 | MW4 | 7/16/99 | NA | NA | NA | NA | NA |
| **Soil-Stockpiles** | | | | | | | |
| Comp SP1-(1-4) | ---- | 7/16/99 | ND | 0.077 | ND | ND | ND |

Notes:

| | | |
|---|---|---|
| ppm | = | Parts per million. |
| S-10.5-B4 | = | Soil Sample-depth in feet-Boring 4. |
| Comp SP1-(1-4) | = | Stock Pile 1, 1 through 4 composite samples. |
| HVOCs | = | Halogenated volatile organic compounds analyzed using EPA Method 8010. |
| SVOCs | = | Semi-volatile organics compounds analyzed using EPA Method 8270. |
| ND | = | Not detected at or above laboratory reporting limit. |
| Plate call out | = | MW1 (Monitoring Well 1). |
| --- | = | Not applicable. |
| NA | = | Not Analyzed. |




SOURCE:
Modified from a map provided by Morrow Surveying

FN 2235002A

## EXPLANATION

MW4 ◆ Groundwater Monitoring Well

171.70 Groundwater Elevation Relative to Mean Sea Level

i = Interpreted Groundwater Gradient

Analytical results for Toluene, Ethylbenzene, and Total Xylenes are presented in Table 2.

Groundwater Concentrations in ppb.
Sampled July 20, 1999

| | |
|---|---|
| 120,000 | Total Purgeable Petroleum Hydrocarbons as Gasoline |
| 11,000 | Benzene |
| ND | Methyl Tertiary Butyl Ether (MTBE) |
| 16,000 | Total Extractable Petroleum Hydrocarbons as Diesel |
| ND | Not Detected At or Above the Laboratory Method Detection Limit |
| NA | Not Analyzed |
| * | MTBE confirmed using EPA Method 8260 |
| ** | Total Recoverable Petroleum Hydrocarbons, Halogenated Volatile Organic Compounds, and Semivolatile Organic Compounds Analytical Results are presented in Table 2 |
| ppb | Parts Per Billion |

ERI ENVIRONMENTAL RESOLUTIONS, INC.

# GENERALIZED SITE PLAN

TOSCO 76 SERVICE STATION 1156
4276 MacArthur Boulevard
Oakland, California

PROJECT NO. 2235

PLATE 2

September 9, 1999

# ATTACHMENT H

# SOIL DISPOSAL CONFIRMATION

MANLEY & SONS TRUCKING, INC.
ROCK
SAND
DEMO
FILL DIRT
TOP SOIL
CAL T 172034
(916) 381-6864

*Hazardous Waste Hauler (Registration #2843)*

8896 Elder Creek Rd. • Sacramento, CA 95828 • FAX (916) 381-1573

# Disposal Confirmation

Request for Transportation Received: 10/5/01

## Consultant Information

| | |
|---|---|
| Company: | ERI |
| Contact: | Rob Saur |
| Phone: | 415-382-3591 |
| Fax: | 415-382-1856 |

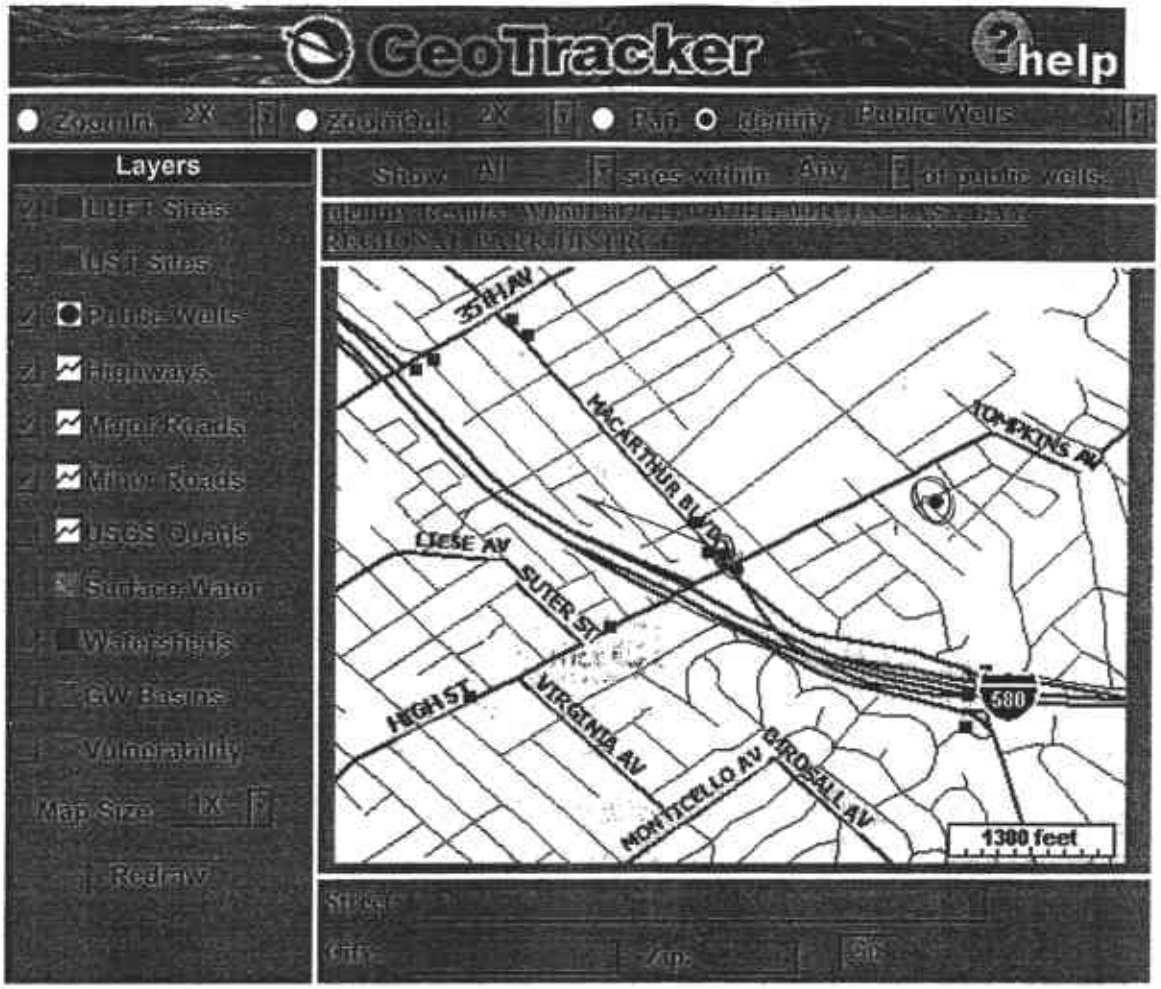
## Site Information

| | |
|---|---|
| Station #: | Tosco #1156 |
| Street Address: | 4276 MacArthur Blvd. |
| City, State, ZIP: | Oakland, CA |
| Customer: | Tosco |
| Environmental Engineer: | |
| Fax: | |
| Material Description: | Soil |
| Estimated Quantity: | 5 Tons |
| Service Requested Date: | 10/5/01 |
| Disposal Facility: | Forward Landfill |
| Contact: | Brad Bonner |
| Phone: | 209-982-4298 |
| Approval #: | 1202 |
| Date of Disposal: | 10/8/01 |
| Actual Tonnage | 1.45 Tons |
| Transporter: | Manley & Sons Trucking, Inc. |
| Contact: | Glenell Forbes |
| Phone: | 916 381-6864 |
| Fax: | 916 381-1573 |
| Invoice: | 50005 |
| Date of Invoice: | 10/11/01 |

Fax To: Consultant Engineer Unocal

# ATTACHMENT I

# RESULTS OF GROUNDWATER RECEPTOR SURVEY




Contact Site Administrator | Road Maps by ETAK

Well and LUFT site positions are approximate. Locational accuracy will improve as state agencies and responsible parties obtain and report new information.

## Regulatory History

**TOSCO UNION 76 (OAKLAND)**
4276 MACARTHUR BLVD
OAKLAND , CA 94602
(Show this Site on Map)

**Regional Board - Case #: 01-2474**
SAN FRANCISCO BAY RWQCB (REGION 2) - (CTH)
**Local Agency (lead agency) - Case #: 1163**
ALAMEDA DEPT OF ENVIR. HEALTH - (UNK)

| Water System Name | Water System ID | Well Name | Common Well Name | Dist To LUFT |
|---|---|---|---|---|
| EAST BAY REGIONAL PARK DISTRCT | 0707641 | 0707641-001GEN | LPA REPORTED PRIMARY SOURCE | 1615 Feet |
| EAST BAY REGIONAL PARK DISTRCT | 0707642 | 0707642-001GEN | LPA REPORTED PRIMARY SOURCE | 1615 Feet |
| EAST BAY REGIONAL PARK DISTRCT | 0707643 | 0707643-001GEN | LPA REPORTED PRIMARY SOURCE | 1615 Feet |
| EASY BAY REGIONAL PARK DISTRCT | 0707644 | 0707644-001GEN | LPA REPORTED PRIMARY SOURCE | 1615 Feet |

Geotracker Home | Site/Facility Finder | Case Finder | MTBE/Case Reports

01-1292

Job #1607. Mills College, Oakland.
Well #

LOG OF WELL.

| | | | |
|---|---|---|---|
| Yellow cementy clay | | 20 | feet |
| Loose gravel, some water | 20 to | 24 | " |
| Yellow cementy gravel | 24 " | 36 | " |
| Blue cementy gravel | 36 " | 44 | " |
| Yellow cementy gravel | 44 " | 52 | " |
| Yellow gravel | 52 " | 72 | " |
| Cementy gravel, yellow | 72 " | 84 | " |
| Yellow clay with gravel | 84 " | 120 | " |
| Blue clay | 120 " | 138 | " |
| Yellow clay with gravel | 138 " | 140 | " |
| Sticky yellow clay | 140 " | 180 | " |
| Red clay with gravel, (Dry) | 180 " | 188 | " |
| Yellow sandy clay | 188 " | 213 | " |
| Yellow cement gravel | 213 " | 224 | " |
| Hard cement gravel, dry | 224 " | 232 | " |
| Yellow sandy clay | 232 " | 288 | " |
| Yellow sandy clay with gravel, dry | 288 " | 330 | " |
| Brown sticky clay | 330 " | 347 | " |
| Brown cement gravel | 347 " | 352 | " |

352 feet of 12" No. 12 Red Hard Double Steel Casing including Starter 20 feet long with No. 10 Shoe. 30 feet of machine perforations.

| | | |
|---|---|---|
| Extra Perforations | 24' to | 42' |
| " " | 42 " | 70 |
| " " | 70 " | 100 |

Final Clearing of well to 338 ft.

01-1291

25/3W-3

Kiva Well, Mills College.
Bored by H. W. Norman,
Foreman, John Reiber.

## LOG OF WELL.

| | | | |
|---|---|---|---|
| Dark soil | | 8 | feet |
| Cement gravel | 8 | to25 | " |
| Loose rock & gravel | 25 | " 50 | " |
| Yellow clay | 50 | " 80 | " |
| Gray clay | 80 | " 98 | " |
| Cement gravel | 98 | "115 | " |
| Yellow clay | 115 | "125 | " |
| Cement gravel | 125 | "135 | " |
| Water gravel | 135 | "145 | " |
| Red cement gravel | 145 | "165 | " |
| Yellow clay | 165 | "175 | " |
| Cement gravel | 175 | "200 | " |
| Yellow clay | 200 | "214 | " |
| Water gravel | 214 | "220 | " |
| Sandy clay | 220 | "240 | " |
| Fine sand | 240 | "250 | " |
| Yellow sandy clay | 250 | "280 | " |
| Cement gravel | 280 | "306 | " |
| Fine sand & water gravel | 306 | "319 | " |
| Yellow clay | 319 | "338 | " |
| Sand & gravel | 338 | "351 | " |
| Yellow clay | 351 | "354 | " |

237 ft. 12" No. 12 R. H. Double casing, including starter and shoe. 126 ft. 10" No. 14 R. H. Dbl. Casing inc. Shoe
42 feet of maching perforations, 10" Casing.
Perforated 25' to 51' - 12" Casing.
" 80' " 90' - 12" "
" 125' " 145' - 12" "
" 197' " 237' - 12" "

Work done by H. W. Norman, Cut-Rate Well Borer,
I WILL SAVE YOU MONEY.

01-1290

25/3W-3

## LOG OF WELL.

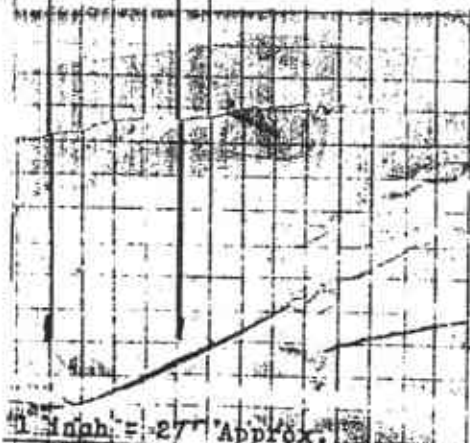
| | | | |
|---|---|---|---|
| Soil & a little rock | | | 10 feet |
| Brown clay | 10 | to 19 | " |
| Yellow clay | 19 | " 32 | " |
| Hard cement gravel | 32 | " 39 | " |
| Hard yellow clay | 39 | " 48 | " |
| Hard yellow clay & rock | 48 | " 51 | " |
| Hard yellow clay & grit | 51 | " 95 | " |
| (Small layer of gravel at 95') | | | |
| Hard yellow clay & grit | 95 | " 127 | " |
| Cement gravel | 127 | " 128 | " |
| Hard yellow clay & grit | 128 | " 200 | " |
| Sandy formation | 200 | " 202 | " |
| Hard yellow clay | 202 | " 206 | " |
| Hard sandy formation | 206 | " 218 | " |
| Sand | 218 | " 242 | " |
| Yellow clay, rock & gravel | 242 | " 255 | " |
| Gravel | 255 | " 261 | " |
| Hard yellow clay | 261 | " 262 | " |
| Gravel | 262 | " 266 | " |
| Hard yellow clay | 266 | " 279 | " |
| Sandy clay | 279 | " 288 | " |
| Sand | 288 | " 293 | " |
| Gravel | 293 | " 303 | " |
| Yellow clay | 303 | " 324 | " |

324'+ 12" No. 12 Double Casing
258'+ 16" No. 12 Double Casing

## CASING IN WELL.

258 feet 16" No. 12 Red Hard Double Steel casing, including 30 feet of machine perforations (Chisel between 1/16" & 1/8") and 5/8" x 6" Steel Shoe.

324 feet 12" No. 12 Red Hard Double Steel Casing, including 30 feet of machine perforations (Chisel between 1/16" & 1/8") and 5/8" x 6" Steel Shoe.



1 Inch = 27' Approx.

Work done by J. M. Ough,
1201 - East Twelfth Street,
Oakland, California.

Foreman, William Kessler.

Well finished April 11 - 1930.

REGION

COUNTY

NEAR

STATE OF CALIFORNIA
DEPARTMENT OF WATER RESC.....

01-1289

DWR No. 2S/3W-3N B.&M.

OTHER Nos.

# WELL LOG

LOCATION MILLS COLLEGE JOB on 54th Avenue

OWNER ADDRESS

DRILLED BY ADDRESS

DRILLING METHOD GRAVEL PACKED DATE COMPLETED

SIZE OF CASING DEPTH STRUCK WATER AT

PERFORATIONS SIZE No.

WATER LEVEL BEFORE PERFORATING AFTER

TEST DATA: DISCHARGE G. P. M. DRAWDOWN FT. HOURS RUN

OTHER DATA AVAILABLE: WATER LEVEL RECORD ANALYSIS

SURFACE ELEV. DATUM SOURCE OF INFORMATION

| DEPTH | ELEV. OF BOTTOM OF STRATUM | MATERIAL | THICKNESS | SP. YIELD % |
|---|---|---|---|---|
| 0 - 6 | | Black adobe | | |
| 6 - 9 | | Hard brown clay | | |
| 9 - 24 | | Hard yellow clay | | |
| 24 - 29 | | Hard yellow clay small rock mix in with clay | | |
| 29 - 50 | | Hard yellow clay | | |
| 50 - 53 | | Soft coarse gravel some water in it | | |
| 53 -66 | | Hard yellow clay | | |
| 66 - 82 | | Hard gravel and mix with clay no water | | |
| 82 - 87 | | Soft dirty fine gravel | | |
| 87 - 91 | | Hard cement clay and gravel | | |
| 91 - 98 | | Hard brown clay | | |
| 98 - 101 | | Soft brown sandy sediment | | |
| 101 - 117 | | Hard Gravel mix with clay no water in | | |
| 117 - 127 | | Hard brown clay | | |
| 127 - 136 | | Hard cement gravel mix with clay | | |
| 136 - 141 | | Hard yellow clay | | |
| 141 - 164 | | Hard cement gravel mix with clay | | |
| 164 - 169 | | Hard yellow clay | | |
| 169 - 187 | | Hard blue clay | | |
| 187 - 190 | | Hard yellow clay | | |
| 190 - 207 | | Hard blue clay | | |
| 207 - 208 | | Hard yellow sand | | |
| 208 - 225 | | Hardyellow clay | | |
| 225 - 236 | | Hard blue clay | | |
| 236 - 243 | | Hard brown clay | | |
| 243 - 261 | | Hard gray sandy clay | | |
| 261 - 277 | | Soft yellow sand some water | | |
| 277 - 281 | | Hard gray sandy clay | | |
| 281 - 292 | | Soft yellow clay | | |

FOR FIELD COPIES USE ALTERNATE LINES

LOG OBTAINED BY DATE SHEET 1 OF

FORM 263.