



Environmental  
Science &  
Engineering, Inc.

October 5, 1993

Mr. Jim de Vos  
Alameda County General  
Services Agency  
4400 MacArthur Boulevard  
Oakland, California 94619

**SUBJECT: THIRD QUARTER 1993 GROUND WATER MONITORING REPORT  
FORMER USED OIL TANK, ALCOPARK FACILITY  
165 13TH STREET, OAKLAND, CALIFORNIA  
ESE PROJECT NO. 6-92-5413**

Dear Mr. de Vos:

Environmental Science & Engineering, Inc. (ESE) was contracted by Alameda County General Services Agency (GSA) to perform quarterly ground water monitoring of one well (MW-6) located adjacent to the location of a former underground used oil storage tank. This monitoring program was initiated based on the results obtained from soil and ground water samples collected during the used oil tank removal (ESE, 1992). This report presents an overview of the site history for the former used oil tank and the findings and conclusions of the third quarter 1993 monitoring event.

### **BACKGROUND**

The County of Alameda owned and operated one 550-gallon used oil underground storage tank at the subject facility. ALCOPARK, a county-owned parcel, is located on Jackson Street between 12th and 13th Streets in Oakland, California (see Figure 1 - Location Map and Figure 2 - Ground Water Elevations). The tank, which was of single-walled, carbon steel construction, was located in the basement of this facility.

In February 1992, ESE coordinated and performed oversight of the evacuation and removal of the used oil tank from the site (ESE, 1992). The tank removal activities were witnessed by Alameda County Health Care Services (ACHCS) and Oakland Fire Department inspectors. It was observed that the lowermost portion of the tank was in contact with

Mr. Jim de Vos  
October 5, 1993  
Page 2

ground water. The tank was inspected by ESE upon its removal and while no holes were observed, corrosion was observed along the bottom portion of the tank. Piping from remote fills was capped, grouted and abandoned in place. ESE collected two soil samples from the side walls of the excavation at a depth immediately above the static water in the tank pit. After the removal of 60-gallons of ground water from the pit, a ground water sample was collected.

Total Petroleum Hydrocarbons as Gasoline (TPH-G), Total Petroleum Hydrocarbons as Diesel (TPH-D), Oil and Grease (O&G), Semi-Volatile Organic Compounds (semi-VOCs) and Halogenated Volatile Organic compounds (HVOs) were not detected in the soil samples collected from the used oil pit. However, Total Xylenes were detected in one sample at a concentration of 6.8 milligrams per Kilogram (mg/Kg) or parts per million (ppm).

Table 1 - Analytical Results: Ground Water Samples presents a summary of ground water analytical data collected during the tank removal activities. TPH-G, TPH-D (characterized as Kerosene) and Benzene were detected in the ground water sample collected from the tank pit at concentrations shown on Table 1. The semi-VOCs, Phenol, 2-Methylphenol, 4-Methylphenol and Napthalene were detected in the ground water sample at concentrations shown on Table 1. The HVOs Trichlorofluoromethane, 1,1-Dichloroethene (DCE), 1,1,1-Trichloroethane (TCA) and Tetrachloroethene (PCE) were detected in the ground water sample at concentrations shown on Table 1. O&G was not detected in the ground water sample. The metals Cadmium, Chromium, Lead, Nickel and Zinc detected in soil and ground water samples collected from the tank pit were below Total Threshold Limit Concentration (TTLC) and Soluble Threshold Limit Concentration (STLC) values respectively.

In October 1992 ESE installed ground water monitoring well MW-6, approximately four feet downgradient of the former used oil tank (ESE, 1993). TPH-G, Benzene, Toluene, Ethylbenzene and Total Xylenes (BTEX), O&G, and HVOs were not detected in the soil sample collected from MW-6 at a depth of 6.5 feet bgs, collected immediately above the occurrence of the ground water table. TPH-D at a concentration of 1 mg/Kg was detected in the soil sample from a depth of 6.5 feet bgs in MW-6 (Table 1). TPH-G, TPH-D, O&G and Ethylbenzene were not detected in the ground water sample collected from well MW-6. Benzene, Toluene, Total Xylenes and the HVO compounds Chloroform, PCE, and TCA were detected in the ground water sample collected from well MW-6 at concentrations shown on Table 1.

## GROUND WATER MONITORING

On September 8, 1993, ESE measured the depth to water in well MW-6 and in wells MW-1, MW-4 and MW-5 (located at 13th and Jackson Streets) using an electric water level probe. Depth to water measurements are presented on Figure 2. Subsequent to measuring the depth to water, well MW-6 was purged and ground water samples were collected.

Ground water samples were collected subsequent to purging four well-casing volumes of ground water from well MW-6 using a disposable polyethylene bailer. The ground water sampling data form is included as Appendix A. During the well purging process conductivity, temperature and pH of the purge water was monitored by ESE. Once the temperature, conductivity and pH of the ground water had stabilized, the ground water sample was collected from well MW-6. The ground water sample was collected by lowering a new disposable polyethylene bailer into the well using new disposable nylon cord. The filled bailer was then retrieved, emptied, then filled again. The ground water from this bailer was then decanted into four 40-milliliter glass vials and three one-liter bottles. The sample containers contained appropriate preservatives as defined by the Tri-Regional Board Staff Recommendations for Preliminary Evaluation and Investigation of Underground Storage Tank Sites (San Francisco Bay Regional Water Quality Control Board, 1990). The samples were then labeled and placed on ice in a cooler for transport under chain of custody to Sequoia.

## RESULTS

### Ground Water Flow

The ground water gradient beneath the site was calculated from depth to water measurements from well MW-1, MW-4, MW-5 and MW-6. Wells MW-1, MW-4 and MW-5 are located at the corner of 13th and Jackson Street at the ALCOPARK facility (Figure 2). Ground water elevation data and a graphical presentation of ground water elevations on September 8, 1993 is presented on Figure 2. Ground water flow beneath the site on September 8, 1993 was towards the east at a gradient of 0.005 foot per foot.

### Ground Water Samples

The ground water sample collected on September 8, 1993, from well MW-6 was analyzed for O&G, TPH-G, TPH-D, BTEX, and HVOs by Standard Method 5520, and EPA Methods 8015 modified, 8015, 8020 and 8010, respectively. Laboratory analytical reports with chain of custody documentation for the ground water sample are presented as Attachment B. Ground water analytical data is summarized on Table 1.

TPH-G, TPH-D, O&G and BTEX were not detected in the ground water sample collected from well MW-6. HVO compounds: Chloroform, PCE, and TCA were detected in the ground water sample collected from well MW-6 at concentrations of 0.52 ug/L, 1.4 ug/L, and 1.3 ug/L, respectively.

### CONCLUSIONS AND RECOMMENDATIONS

- ESE has performed four consecutive quarters of ground water monitoring activities for the well (MW-6) located adjacent to the former used oil tank. Ground water flow beneath the site has been consistently towards the east to southeast. Since this monitoring program was initiated (November 1992), none of the compounds detected in the ground water samples collected from well MW-6 have exceeded primary Maximum Contaminant Levels (MCLs) for drinking water as defined by the United States Environmental Protection Agency (EPA) or by California State Department of Health Services (DHS).
- ESE recommends that this case be closed by the Regional Water Quality Control Board, and that no further action be taken for the former used oil tank.

### REFERENCES

- Environmental Science & Engineering, Inc. (ESE), 1992a, Report of Waste Oil Tank Removal, Alcopark Facility, 165-13th Street, Oakland, California, April 22, 1992.
- Environmental Science & Engineering, Inc. (ESE), 1993, Report of Findings, Subsurface Investigation for Former Used Oil Tank, Alcopark Facility, 165 13th Street, Oakland, California, January 6, 1993.
- San Francisco Bay Regional Water Quality Control Board (RWQCB), 1990, Tri-Regional Board Staff Recommendations for Preliminary Evaluation and Investigation of Underground Storage Tank Sites, August, 1990.

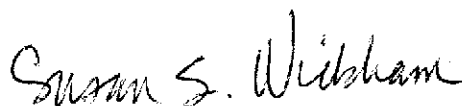
Mr. Jim de Vos  
October 5, 1993  
Page 5

.....

Our professional services have been performed using that degree of care and skill ordinarily exercised under similar circumstances by other hydrogeologists and engineers practicing in this field. No other warranty, express or implied, is made as to the professional advice in this report.

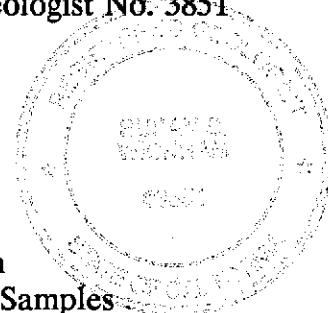


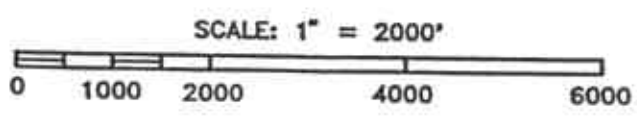
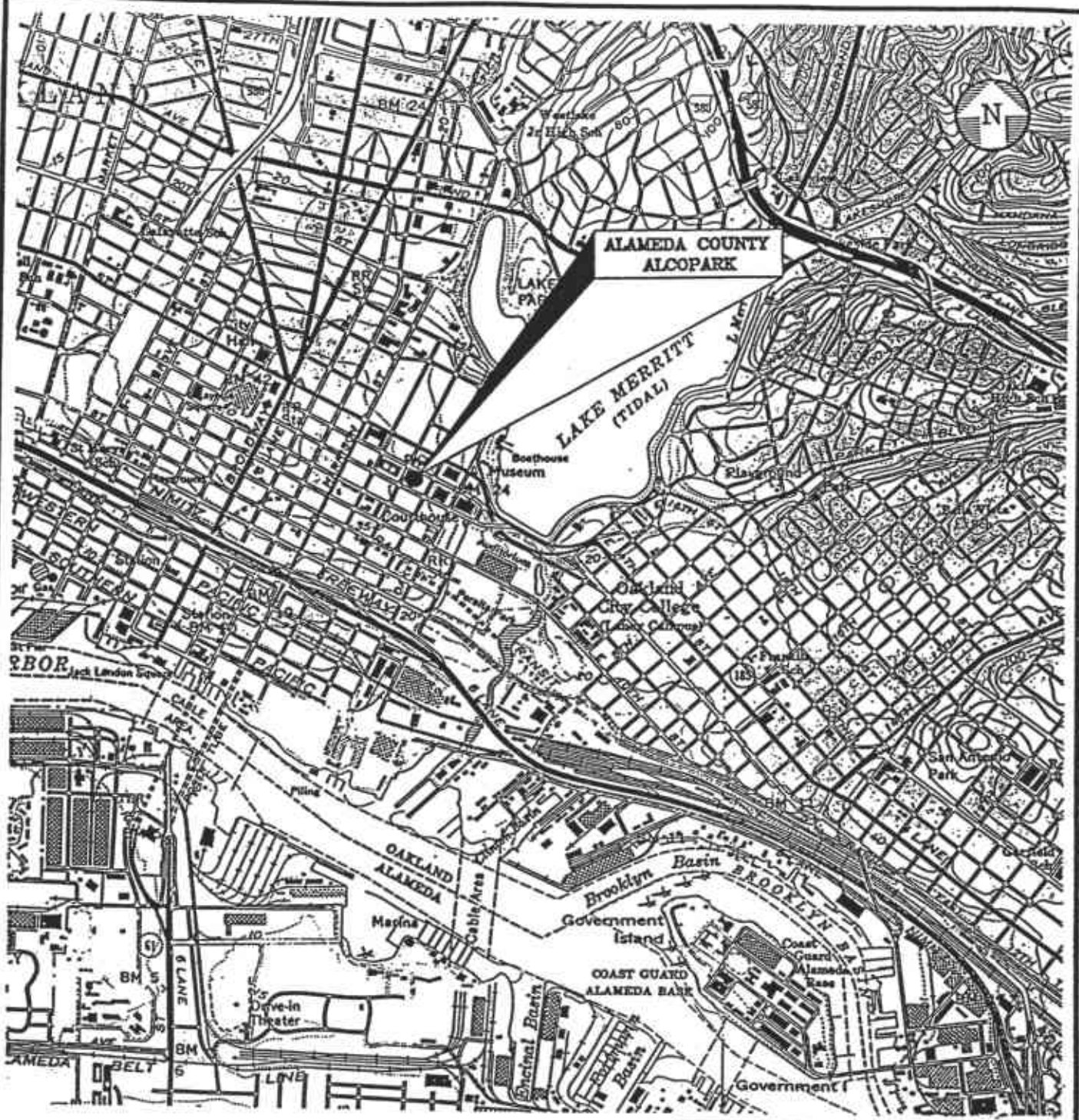
Michael K. Edmonson  
Project Geologist



Susan S. Wickham  
Senior Geologist  
California Registered Geologist No. 3851

Attachments:      Figures (2)  
                          Table (1)  
                          Attachment A - Ground Water Sampling Data Form  
                          Attachment B - Analytical Reports: Ground Water Samples



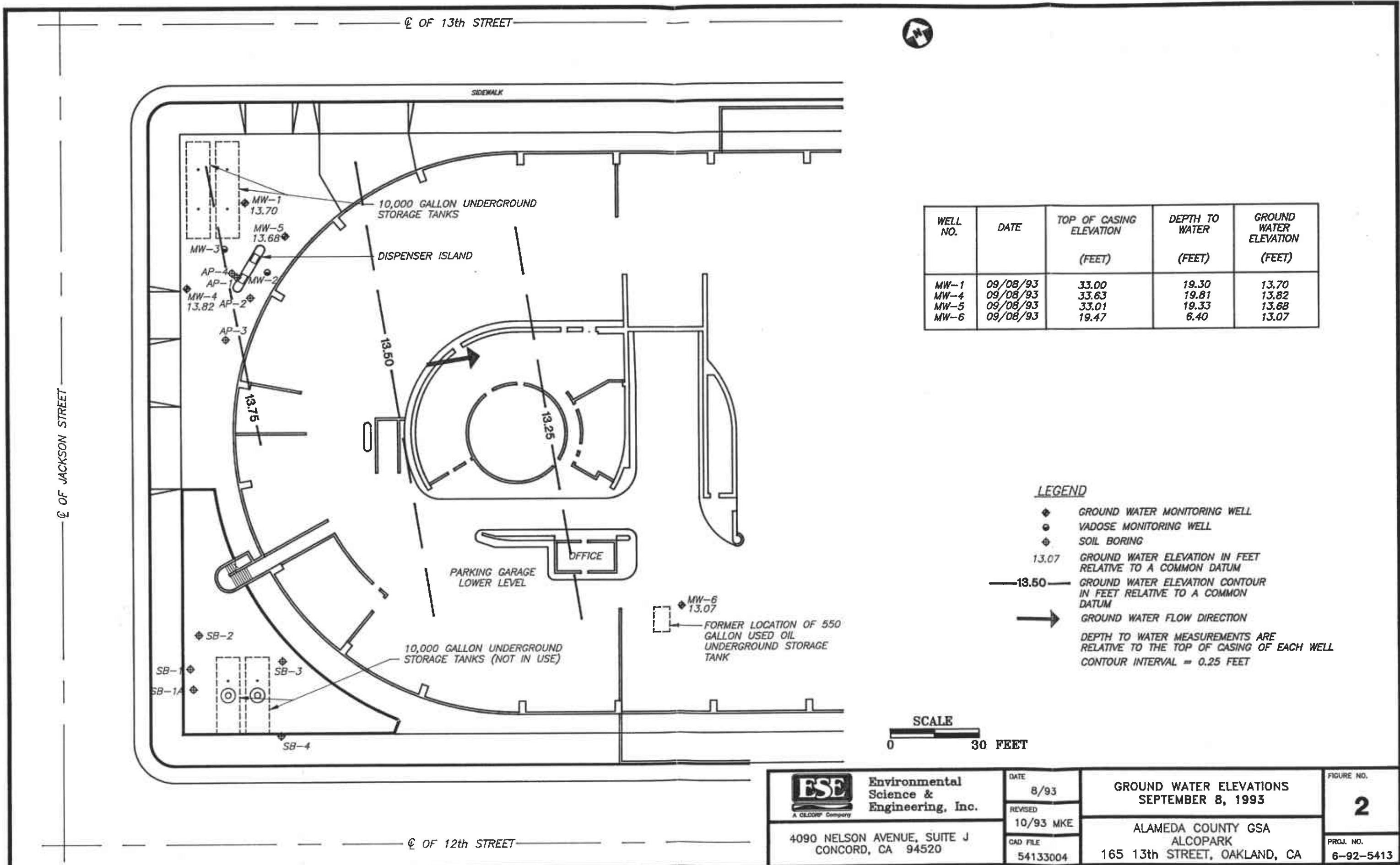


Environmental  
Science &  
Engineering, Inc.

ALAMEDA COUNTY  
ALCOPARK  
OAKLAND, CALIFORNIA

FIGURE 1  
LOCATION MAP

|                 |                       |                        |
|-----------------|-----------------------|------------------------|
| DRAWN BY<br>DWR | APPROVED BY           | REVISED                |
| DATE<br>10/91   | FILE NAME<br>F2TOP010 | PROJ. NO.<br>6-90-6042 |



| WELL NO. | DATE     | TOP OF CASING ELEVATION (FEET) | DEPTH TO WATER (FEET) | GROUND WATER ELEVATION (FEET) |
|----------|----------|--------------------------------|-----------------------|-------------------------------|
| MW-1     | 09/08/93 | 33.00                          | 19.30                 | 13.70                         |
| MW-4     | 09/08/93 | 33.63                          | 19.81                 | 13.82                         |
| MW-5     | 09/08/93 | 33.01                          | 19.33                 | 13.68                         |
| MW-6     | 09/08/93 | 19.47                          | 6.40                  | 13.07                         |

**LEGEND**

- ◆ GROUND WATER MONITORING WELL
- VADOSE MONITORING WELL
- ⊕ SOIL BORING
- 13.07 GROUND WATER ELEVATION IN FEET RELATIVE TO A COMMON DATUM
- 13.50— GROUND WATER ELEVATION CONTOUR IN FEET RELATIVE TO A COMMON DATUM
- ➔ GROUND WATER FLOW DIRECTION
- DEPTH TO WATER MEASUREMENTS ARE RELATIVE TO THE TOP OF CASING OF EACH WELL
- CONTOUR INTERVAL = 0.25 FEET



|                                                                                            |                       |                                                            |                                                                |
|--------------------------------------------------------------------------------------------|-----------------------|------------------------------------------------------------|----------------------------------------------------------------|
| <b>BSE</b><br>Environmental Science & Engineering, Inc.<br><small>A GOLDER Company</small> | DATE<br>8/93          | <b>GROUND WATER ELEVATIONS</b><br><b>SEPTEMBER 8, 1993</b> | FIGURE NO.<br><b>2</b>                                         |
|                                                                                            | REVISION<br>10/93 MKE |                                                            | ALAMEDA COUNTY GSA<br>ALCOPARK<br>165 13th STREET, OAKLAND, CA |
| 4090 NELSON AVENUE, SUITE J<br>CONCORD, CA 94520                                           |                       | CAD FILE<br>54133004                                       |                                                                |

☐ OF JACKSON STREET

☐ OF 13th STREET

☐ OF 12th STREET

TABLE 1

ANALYTICAL RESULTS: GROUND WATER SAMPLES

ALCOPARK FACILITY  
165 13TH STREET  
OAKLAND, CALIFORNIA

| Sample ID | Date Collected | TPH-G (µg/L) | TPH-D (µg/L) | O&G (mg/L) | Benzene (µg/L) | Toluene (µg/L) | Ethylbenzene (µg/L) | Total Xylenes (µg/L) | HVOs (µg/L) | Semi-VOCs (µg/L) | Metals (µg/L) |
|-----------|----------------|--------------|--------------|------------|----------------|----------------|---------------------|----------------------|-------------|------------------|---------------|
| Tank Pit  | 02/13/92       | 2,800        | 19,000*      | <5         | 52             | 200            | 40                  | 310                  | a           | b                | c             |
| MW-6      | 11/05/92       | <50          | <50          | <5         | 1.0            | 0.79           | <0.5                | 2.7                  | d           | --               | --            |
| MW-6      | 02/04/93       | <50          | <50          | <5         | 0.66           | <0.5           | <0.5                | <0.5                 | e           | --               | --            |
| MW-6      | 05/10/93       | <50          | <50          | <5         | <0.5           | <0.5           | <0.5                | <0.5                 | f           | --               | --            |
| MW-6      | 09/08/93       | <50          | <50          | <5         | <0.5           | <0.5           | <0.5                | <0.5                 | g           | --               | --            |

NOTES:

- TPH-G = Total Petroleum Hydrocarbons as Gasoline
- TPH-D = Total Petroleum Hydrocarbons as Diesel
- O&G = Oil and Grease
- HVOs = Halogenated Volatile Organic compounds
- Semi-VOCs = Semi-Volatile Organic Compounds
- Metals = Cadmium, Chromium, Lead, Nickel and Zinc
- < = less than listed detection limit
- = not analyzed
- ug/L = micrograms per Liter
- mg/L = milligrams per Liter
- a = Trichlorofluoromethane, 110; 1,1-Dichloroethane, 5.5; 1,1,1-Trichloroethene, 320; Tetrachloroethene, 75.
- b = Phenol, 102; 2-Methylphenol, 90; 4-Methylphenol, 120; Naphthalene, 30.
- c = Lead, 5.7; Nickel, 70; Zinc, 270.
- d = Chloroform, 0.54; Tetrachloroethene, 1.7; 1,1,1-Trichloroethane, 8.3.
- e = Tetrachloroethene, 1.1; 1,1,1-Trichloroethane, 3.2.
- \* = characterized as Kerosene
- f = Chloroform, 0.52; Tetrachloroethene, 1.1; 1,1,1-Trichloroethane 1.6.
- g = Chloroform, 0.52; Tetrachloroethene, 1.4; 1,1,1-Trichloroethane, 1.3.



**ATTACHMENT A**  
**GROUND WATER SAMPLING DATA FORM**



Environmental  
Science &  
Engineering, Inc.

**SAMPLE COLLECTION LOG**

PROJECT NAME: Alameda  
PROJECT NO.: 6-925-5413  
DATE: Sept 8, 93

SAMPLE LOCATION I.D.: MW-6  
SAMPLER: Karl Marsden  
PROJECT MANAGER: Mike E.

**CASING DIAMETER**

2"   
4"   
Other \_\_\_\_\_

**SAMPLE TYPE**

Ground Water   
Surface Water \_\_\_\_\_  
Treat. Influent \_\_\_\_\_  
Treat. Effluent \_\_\_\_\_  
Other \_\_\_\_\_

**WELL VOLUMES PER UNIT**

| Well Casing I.D. (inches) | Gal/Ft. |
|---------------------------|---------|
| 2.0                       | 0.1632  |
| 4.0                       | 0.6528  |
| 6.0                       | 1.4690  |

DEPTH TO PRODUCT: 0 (ft.) PRODUCT THICKNESS: 0 (ft.) MINIMUM PURGE VOLUME  
DEPTH TO WATER: 6.5 (ft.) WATER COLUMN: 11.14 (ft.) (3 6.4 WCA) 7.7 (gal)  
DEPTH OF WELL: 12.57 (ft.) WELL CASING VOLUME: 1.5 (gal) ACTUAL VOLUME PURGED: 8.2 (gal)

| TIME | Volume (GAL) | pH (Units) | E.C. (Micromhos) | Temperature (F°) | Turbid. (NTU) | Other |
|------|--------------|------------|------------------|------------------|---------------|-------|
|      | 0            | 7.49       | 0.59             | 68.2°            | /             | Silty |
|      | 2            | 7.52       | 0.55             | 66.9°            | /             |       |
|      | 4            | 7.31       | 0.52             | 66.7°            | /             |       |
|      | 6            | 7.29       | 0.52             | 66.1°            | /             |       |

**INSTRUMENT CALIBRATION**

pH/COND./TEMP.: TYPE Hidac 9 UNIT # 9009 DATE: 7/14 TIME: 8am BY: CV  
TURBIDITY: TYPE \_\_\_\_\_ UNIT # \_\_\_\_\_ DATE: \_\_\_\_\_ TIME: \_\_\_\_\_ BY: \_\_\_\_\_

**PURGE METHOD**

Displacement Pump \_\_\_\_\_ Other \_\_\_\_\_  
Bailer (Teflon/PVC/SS) \_\_\_\_\_  Submersible Pump

**SAMPLE METHOD**

Bailer (Teflon/PVC/SS) \_\_\_\_\_ Dedicated \_\_\_\_\_  
 Bailer (Disposable) \_\_\_\_\_ Other \_\_\_\_\_

**SAMPLES COLLECTED**

| SAMPLE      | ID          | TIME        | DATE          | LAB   | ANALYSES |
|-------------|-------------|-------------|---------------|-------|----------|
| DUPLICATE   | <u>MW-6</u> | <u>1600</u> | <u>9-8-93</u> | _____ | _____    |
| SPLIT       | _____       | _____       | _____         | _____ | _____    |
| FIELD BLANK | _____       | _____       | _____         | _____ | _____    |

COMMENTS: \_\_\_\_\_  
\_\_\_\_\_

SAMPLER: Karl Marsden PROJECT MANAGER: Mike E.  
4090 Nelson Avenue, Suite J Concord, CA 94520 Phone (510) 685-4053 Fax (510) 685-5323

**ATTACHMENT B**

**ANALYTICAL REPORT: GROUND WATER SAMPLE**



# SEQUOIA ANALYTICAL

1900 Bates Avenue • Suite LM • Concord, California 94520  
(510) 686-9600 • FAX (510) 686-9689

|                                           |                                         |                        |
|-------------------------------------------|-----------------------------------------|------------------------|
| Environmental Science & Engineering, Inc. | Client Project ID: #6-92-5413/Alco Park | Sampled: Sep 8, 1993   |
| 4090 Nelson Ave., Ste J                   | Sample Matrix: Water                    | Received: Sep 9, 1993  |
| Concord, CA 94520                         | Analysis Method: EPA 5030/8015/8020     | Reported: Sep 21, 1993 |
| Attention: Mike Edmonson                  | First Sample #: 309-0545                |                        |

## TOTAL PURGEABLE PETROLEUM HYDROCARBONS with BTEX DISTINCTION

| Analyte                | Reporting Limit<br>µg/L | Sample I.D.<br>309-0545<br>MW-6 |
|------------------------|-------------------------|---------------------------------|
| Purgeable Hydrocarbons | 50                      | N.D.                            |
| Benzene                | 0.5                     | N.D.                            |
| Toluene                | 0.5                     | N.D.                            |
| Ethyl Benzene          | 0.5                     | N.D.                            |
| Total Xylenes          | 0.5                     | N.D.                            |
| Chromatogram Pattern:  |                         | --                              |

### Quality Control Data

|                                                 |         |
|-------------------------------------------------|---------|
| Report Limit Multiplication Factor:             | 1.0     |
| Date Analyzed:                                  | 9/18/93 |
| Instrument Identification:                      | HP-2    |
| Surrogate Recovery, %:<br>(QC Limits = 70-130%) | 96      |

Purgeable Hydrocarbons are quantitated against a fresh gasoline standard.  
Analytes reported as N.D. were not detected above the stated reporting limit.

SEQUOIA ANALYTICAL

  
Karen L. Enstrom  
Project Manager



# SEQUOIA ANALYTICAL

1900 Bates Avenue • Suite LM • Concord, California 94520  
(510) 686-9600 • FAX (510) 686-9689

|                                                                                                                       |                                                                                                                                    |                                                                         |
|-----------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------|
| Environmental Science & Engineering, Inc.<br>4090 Nelson Ave., Ste J<br>Concord, CA 94520<br>Attention: Mike Edmonson | Client Project ID: #6-92-5413/Alco Park<br>Sample Matrix: Water<br>Analysis Method: EPA 3510/3520/8015<br>First Sample #: 309-0545 | Sampled: Sep 8, 1993<br>Received: Sep 9, 1993<br>Reported: Sep 21, 1993 |
|-----------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------|

## TOTAL EXTRACTABLE PETROLEUM HYDROCARBONS

| Analyte                  | Reporting Limit<br>$\mu\text{g/L}$ | Sample I.D.<br>309-0545<br>MW-6 |
|--------------------------|------------------------------------|---------------------------------|
| Extractable Hydrocarbons | 50                                 | N.D.                            |


Chromatogram Pattern: --

### Quality Control Data

|                                     |         |
|-------------------------------------|---------|
| Report Limit Multiplication Factor: | 1.0     |
| Date Extracted:                     | 9/15/93 |
| Date Analyzed:                      | 9/17/93 |
| Instrument Identification:          | HP-3B   |

Extractable Hydrocarbons are quantitated against a fresh diesel standard.  
Analytes reported as N.D. were not detected above the stated reporting limit.

SEQUOIA ANALYTICAL

  
Karen L. Enstrom  
Project Manager



# SEQUOIA ANALYTICAL

1900 Bates Avenue • Suite LM • Concord, California 94520  
(510) 686-9600 • FAX (510) 686-9689

Environmental Science & Engineering, Inc.  
4090 Nelson Ave., Ste J  
Concord, CA 94520  
Attention: Mike Edmonson

Client Project ID: #6-92-5413/Alco Park  
Matrix Descript: Water  
Analysis Method: SM 5520 B&F (Gravimetric)  
First Sample #: 309-0545

Sampled: Sep 8, 1993  
Received: Sep 9, 1993  
Extracted: Sep 14, 1993  
Analyzed: Sep 15, 1993  
Reported: Sep 21, 1993

## TOTAL RECOVERABLE PETROLEUM OIL

| Sample Number | Sample Description | Oil & Grease<br>mg/L<br>(ppm) |
|---------------|--------------------|-------------------------------|
| 309-0545      | MW-6               | N.D.                          |

Detection Limits:

5.0

Analytes reported as N.D. were not present above the stated limit of detection.

SEQUOIA ANALYTICAL

  
Karen L. Enstrom  
Project Manager



# SEQUOIA ANALYTICAL

1900 Bates Avenue • Suite LM • Concord, California 94520  
(510) 686-9600 • FAX (510) 686-9689

|                                           |                                         |                        |
|-------------------------------------------|-----------------------------------------|------------------------|
| Environmental Science & Engineering, Inc. | Client Project ID: #6-92-5413/Alco Park | Sampled: Sep 8, 1993   |
| 4090 Nelson Ave., Ste J                   | Sample Descript: Water, MW-6            | Received: Sep 9, 1993  |
| Concord, CA 94520                         | Analysis Method: EPA 5030/8010          | Analyzed: Sep 16, 1993 |
| Attention: Mike Edmonson                  | Lab Number: 309-0545                    | Reported: Sep 21, 1993 |

## HALOGENATED VOLATILE ORGANICS (EPA 8010)

| Analyte                           | Detection Limit<br>µg/L | Sample Results<br>µg/L |
|-----------------------------------|-------------------------|------------------------|
| Bromodichloromethane.....         | 0.50                    | N.D.                   |
| Bromoform.....                    | 0.50                    | N.D.                   |
| Bromomethane.....                 | 1.0                     | N.D.                   |
| Carbon tetrachloride.....         | 0.50                    | N.D.                   |
| Chlorobenzene.....                | 0.50                    | N.D.                   |
| Chloroethane.....                 | 1.0                     | N.D.                   |
| 2-Chloroethylvinyl ether.....     | 1.0                     | N.D.                   |
| <b>Chloroform.....</b>            | <b>0.50</b>             | <b>0.86</b>            |
| Chloromethane.....                | 1.0                     | N.D.                   |
| Dibromochloromethane.....         | 0.50                    | N.D.                   |
| 1,3-Dichlorobenzene.....          | 0.50                    | N.D.                   |
| 1,4-Dichlorobenzene.....          | 0.50                    | N.D.                   |
| 1,2-Dichlorobenzene.....          | 0.50                    | N.D.                   |
| 1,1-Dichloroethane.....           | 0.50                    | N.D.                   |
| 1,2-Dichloroethane.....           | 0.50                    | N.D.                   |
| 1,1-Dichloroethene.....           | 0.50                    | N.D.                   |
| cis-1,2-Dichloroethene.....       | 0.50                    | N.D.                   |
| trans-1,2-Dichloroethene.....     | 0.50                    | N.D.                   |
| 1,2-Dichloropropane.....          | 0.50                    | N.D.                   |
| cis-1,3-Dichloropropene.....      | 0.50                    | N.D.                   |
| trans-1,3-Dichloropropene.....    | 0.50                    | N.D.                   |
| Methylene chloride.....           | 5.0                     | N.D.                   |
| 1,1,2,2-Tetrachloroethane.....    | 0.50                    | N.D.                   |
| <b>Tetrachloroethene.....</b>     | <b>0.50</b>             | <b>1.4</b>             |
| <b>1,1,1-Trichloroethane.....</b> | <b>0.50</b>             | <b>1.3</b>             |
| 1,1,2-Trichloroethane.....        | 0.50                    | N.D.                   |
| Trichloroethene.....              | 0.50                    | N.D.                   |
| Trichlorofluoromethane.....       | 0.50                    | N.D.                   |
| Vinyl chloride.....               | 1.0                     | N.D.                   |

Analytes reported as N.D. were not present above the stated limit of detection.

SEQUOIA ANALYTICAL

  
 Karen L. Enstrom  
 Project Manager



# SEQUOIA ANALYTICAL

1900 Bates Avenue • Suite LM • Concord, California 94520  
(510) 686-9600 • FAX (510) 686-9689


|                                                                                                                       |                                                                                       |                        |
|-----------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------|------------------------|
| Environmental Science & Engineering, Inc.<br>4090 Nelson Ave., Ste J<br>Concord, CA 94520<br>Attention: Mike Edmonson | Client Project ID: #6-92-5413/Alco Park<br>Matrix: Water<br>QC Sample Group: 309-0545 | Reported: Sep 21, 1993 |
|-----------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------|------------------------|

## QUALITY CONTROL DATA REPORT

| ANALYTE                  | Benzene        | Toluene    | Ethyl-Benzene | Xylenes    | Diesel    | Oil & Grease |
|--------------------------|----------------|------------|---------------|------------|-----------|--------------|
|                          | <b>Method:</b> | EPA 8020   | EPA 8020      | EPA 8020   | EPA 8020  | EPA 8015     |
| <b>Analyst:</b>          | J.F.           | J.F.       | J.F.          | J.F.       | K.Wimer   | K.Wimer      |
| <b>Conc. Spiked:</b>     | 20             | 20         | 20            | 60         | 300       | 5000         |
| <b>Units:</b>            | µg/L           | µg/L       | µg/L          | µg/L       | µg/L      | mg/L         |
| <b>LCS Batch#:</b>       | 3LCS091793     | 3LCS091793 | 3LCS091793    | 3LCS091793 | BLK091593 | BLK091493    |
| <b>Date Prepared:</b>    | 9/17/93        | 9/17/93    | 9/17/93       | 9/17/93    | 9/15/93   | 9/14/93      |
| <b>Date Analyzed:</b>    | 9/17/93        | 9/17/93    | 9/17/93       | 9/17/93    | 9/17/93   | 9/15/93      |
| <b>Instrument I.D.#:</b> | HP-5           | HP-5       | HP-5          | HP-5       | HP-3B     | N/A          |
| <b>LCS % Recovery:</b>   | 134            | 121        | 112           | 110        | 97        | 87           |
| <b>Control Limits:</b>   | 70-130         | 70-130     | 70-130        | 70-130     | 80-120    | 75-125       |

| MS/MSD                                    | Batch #: | 3090517 | 3090517 | 3090517 | 3090517 | BLK091593 | BLK091493 |
|-------------------------------------------|----------|---------|---------|---------|---------|-----------|-----------|
| <b>Date Prepared:</b>                     |          | 9/17/93 | 9/17/93 | 9/17/93 | 9/17/93 | 9/15/93   | 9/14/93   |
| <b>Date Analyzed:</b>                     |          | 9/17/93 | 9/17/93 | 9/17/93 | 9/17/93 | 9/17/93   | 9/15/93   |
| <b>Instrument I.D.#:</b>                  |          | HP-5    | HP-5    | HP-5    | HP-5    | HP-3B     | N/A       |
| <b>Matrix Spike % Recovery:</b>           |          | 115     | 110     | 105     | 103     | 97        | 87        |
| <b>Matrix Spike Duplicate % Recovery:</b> |          | 125     | 115     | 115     | 112     | 101       | 93        |
| <b>Relative % Difference:</b>             |          | 8.3     | 4.4     | 9.1     | 8.4     | 3.7       | 7.1       |

SEQUOIA ANALYTICAL

  
Karen L. Enstrom  
Project Manager

**Please Note:**

The LCS is a control sample of known, interferent free matrix that is analyzed using the same reagents, preparation and analytical methods employed for the samples. The LCS % recovery data is used for validation of sample batch results. Due to matrix effects, the QC limits for MS/MSD's are advisory only and are not used to accept or reject batch results.





# SEQUOIA ANALYTICAL

1900 Bates Avenue • Suite LM • Concord, California 94520  
(510) 686-9600 • FAX (510) 686-9689

Environmental Science & Engineering, Inc. Client Project ID: #6-92-5413/Alco Park  
4090 Nelson Ave., Ste J Matrix: Water  
Concord, CA 94520  
Attention: Mike Edmonson QC Sample Goup: 309-0545

Reported: Sep 21, 1993

## QUALITY CONTROL DATA REPORT

| ANALYTE:          | 1,1-Dichloro-ethene | Trichloroethene | Chloro-benzene |
|-------------------|---------------------|-----------------|----------------|
| Method:           | EPA 8010            | EPA 8010        | EPA 8010       |
| Analyst:          | K.Niill             | K.Niill         | K.Niill        |
| Conc. Spiked:     | 10                  | 10              | 10             |
| Units:            | µg/L                | µg/L            | µg/L           |
| LCS Batch#:       | LCS091693           | LCS091693       | LCS091693      |
| Date Prepared:    | 9/16/93             | 9/16/93         | 9/16/93        |
| Date Analyzed:    | 9/16/93             | 9/16/93         | 9/16/93        |
| Instrument I.D.#: | HP-5890/7           | HP-5890/7       | HP-5890/7      |
| LCS % Recovery:   | 100                 | 100             | 93             |
| Control Limits:   | 70-130              | 70-130          | 70-130         |

| MS/MSD Batch #:                    | 3090533   | 3090533   | 3090533   |
|------------------------------------|-----------|-----------|-----------|
| Date Prepared:                     | 9/16/93   | 9/16/93   | 9/16/93   |
| Date Analyzed:                     | 9/16/93   | 9/16/93   | 9/16/93   |
| Instrument I.D.#:                  | HP-5890/7 | HP-5890/7 | HP-5890/7 |
| Matrix Spike % Recovery:           | 100       | 110       | 95        |
| Matrix Spike Duplicate % Recovery: | 110       | 110       | 95        |
| Relative % Difference:             | 9.5       | 0.0       | 0.0       |

**Please Note:**

The LCS is a control sample of known, interferent free matrix that is analyzed using the same reagents, preparation and analytical methods employed for the samples. The LCS % recovery data is used for validation of sample batch results. Due to matrix effects, the QC limits for MS/MSD's are advisory only and are not used to accept or reject batch results.

SEQUOIA ANALYTICAL

Karen L. Enstrom  
Project Manager

TAT = 10 d

CHAIN OF CUSTODY RECORD

DATE Sept. 993 PAGE 1 OF 1

PROJECT NAME Alca Park

ADDRESS Oakland

PROJECT NO. 6-92-5413

SAMPLED BY Paul Marsden

LAB NAME Saguora



Environmental Science & Engineering, Inc.

1825 Nelson Avenue  
Suite 1  
Livermore, CA 94550

Phone (510) 685-1073

Fax (510) 685-5323

| SAMPLE # | DATE   | TIME | LOCATION |
|----------|--------|------|----------|
| 11W-6    | 9-8-93 | 1600 | Oakland  |

ANALYSES TO BE PERFORMED

| TPH-G 9015 | BTEX 9010 | HIC 9010 | OCG 9010 | TPH-D 9015 |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
|------------|-----------|----------|----------|------------|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|
| X          | X         | X        | X        | X          |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |

MATRIX

MATRIX

NUMBER OF CONTAINERS

REMARKS (CONTAINER, SIZE, ETC.)

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|
|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |

6 21, 100's 4 100's

3090545 A-F

Hold Trip Blank  
as per Mike Edmonson  
9/14/93

RELINQUISHED BY: (signature)

RECEIVED BY: (signature)

date time

TOTAL NUMBER OF CONTAINERS

Signature: Paul Marsden

Signature: Melissa Cressure

9/9/93 8:35 am

REPORT RESULTS TO: Mike E.

SPECIAL SHIPMENT REQUIREMENTS

INSTRUCTIONS TO LABORATORY (handling, analyses, storage, etc.):

SAMPLE RECEIPT

CHAIN OF CUSTODY SEALS

REC'D GOOD COND'TN/COLD

CONFORMS TO RECORD