



Environmental
Science &
Engineering, Inc.

September 2, 1993

ESE Project No. 6-92-5413

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

SUBJECT: Second Quarter 1993 Ground Water Monitoring Report, Former Used Oil Tank, ALCOPARK Facility, 165 13th Street, Oakland, California

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 second 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 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 (TTL) 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 May 10, 1993, ESE measured the depth to water in well MW-6. On July 7, 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 July 7, 1993 is presented on Figure 2. Ground water flow beneath the site on July 7, 1993 was towards the southeast at a gradient of 0.0041 foot per foot.

Ground Water Samples

The ground water sample collected on May 10, 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, 1.1 ug/L, and 1.6 ug/L, respectively.

CONCLUSIONS AND RECOMMENDATIONS

- None of the compounds detected in the ground water sample collected from well MW-6, during the May sampling event, 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 continuing the monitoring of well MW-6 for one additional quarter as typically required by regulatory agencies for ground water investigations. At the end of that time, ESE will evaluate the data and make recommendations for further activities to be performed in pursuit of case closure.

REFERENCES

- Environmental Science & Engineering, Inc., 1992a, Report of Waste Oil Tank Removal, Alcopark Facility, 165-13th Street, Oakland, California, April 22, 1992.
- Environmental Science & Engineering, Inc., 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, 1990, Tri-Regional Board Staff Recommendations for Preliminary Evaluation and Investigation of Underground Storage Tank Sites, August, 1990.

Mr. Jim de Vos
September 2, 1993
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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.



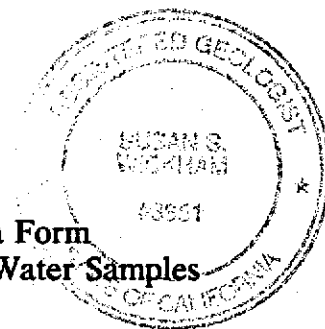
Michael K. Edmonson
Project Geologist

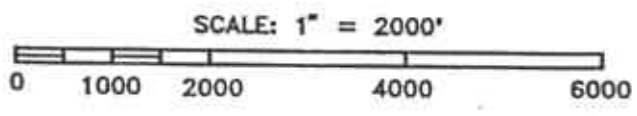



Susan S. Wickham
Senior Geologist
California Registered Geologist No. 3851

Attachments:

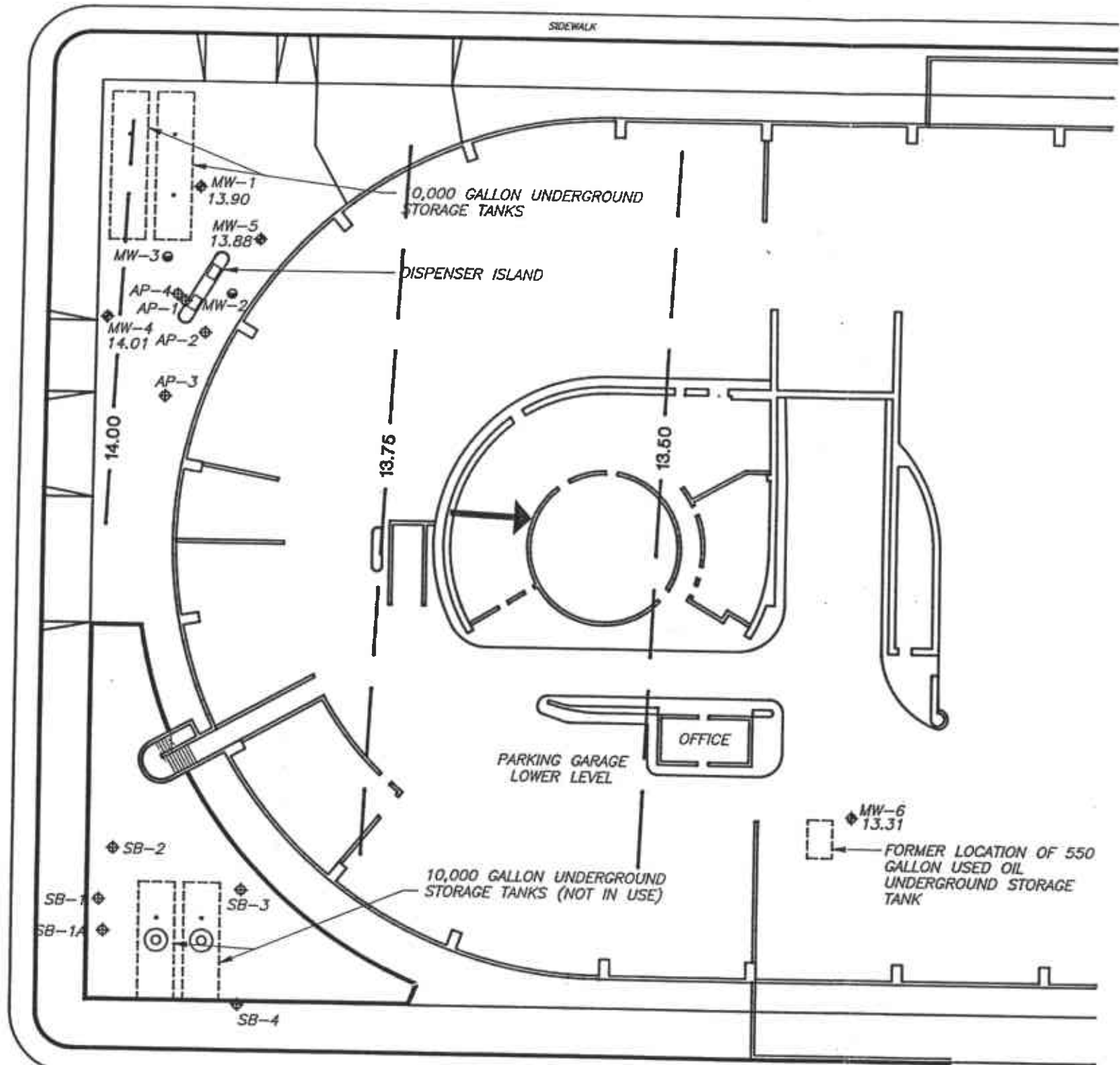
- Figures (2)
- Table (1)
- Attachment A - Ground Water Sampling Data Form
- Attachment B - Analytical Reports: Ground Water Samples





		Environmental Science & Engineering, Inc.
ALEMEDA COUNTY ALCOPARK OAKLAND, CALIFORNIA		
FIGURE 1 LOCATION MAP		
DRAWN BY DWR	APPROVED BY	REVISID
DATE 10/91	FILE NAME F2TOP010	PROJ. NO. 6-90-6042

☐ OF 13th STREET



WELL NO.	DATE	TOP OF CASING ELEVATION (FEET)	DEPTH TO WATER (FEET)	GROUND WATER ELEVATION (FEET)
MW-1	07/07/93	33.00	19.10	13.90
MW-4	07/07/93	33.63	19.62	14.01
MW-5	07/07/93	33.01	19.13	13.88
MW-6	07/07/93	19.47	6.16	13.31

LEGEND

- ◆ GROUND WATER MONITORING WELL
- VADOSE MONITORING WELL
- ◇ SOIL BORING
- 13.31 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



☐ OF JACKSON STREET

☐ OF 12th STREET

	DATE	8/93	GROUND WATER ELEVATIONS JULY 7, 1993	FIGURE NO. 2
	REVISED			
4090 NELSON AVENUE, SUITE J CONCORD, CA 94520	CAD FILE	54133004	ALAMEDA COUNTY GSA ALCOPARK 165 13th STREET, OAKLAND, CA	PROJ. NO. 6-92-5413

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)	Ethyl-benzene (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	--	--

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; Napthalene, 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.

APPENDIX A
GROUND WATER SAMPLING DATA FORM



Environmental
Science &
Engineering, Inc.

SAMPLE COLLECTION LOG

PROJECT NAME: Alco Park
PROJECT NO.: 6-92-5413
DATE: May 10, 93

SAMPLE LOCATION I.D.: MW-6
SAMPLER: Raul Thorsden
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.)
DEPTH TO WATER: 6.12 (ft.)
DEPTH OF WELL: 18.58 (ft.)

PRODUCT THICKNESS: 0 (ft.)
WATER COLUMN: 12.46 (ft.) (3 or 4 WCV): 6.09 (gal)
WELL CASING VOLUME: 2.23 (gal) ACTUAL VOLUME PURGED: 8 (gal)

TIME	Volume (GAL)	pH (Units)	E.C. (Micromhos) X1000	Temperature (F°)	Turbid. (NTU)	Other
<u>11:36</u>	<u>0</u>	<u>7.71</u>	<u>.61</u>	<u>69.5°</u>	<u>NA</u>	<u>Silty/Brown.</u>
<u>11:42</u>	<u>2</u>	<u>7.54</u>	<u>.57</u>	<u>66.7°</u>		
<u>11:48</u>	<u>4</u>	<u>7.35</u>	<u>.60</u>	<u>66.1°</u>		
<u>11:50</u>	<u>6</u>	<u>7.19</u>	<u>.59</u>	<u>65.8°</u>		

INSTRUMENT CALIBRATION

pH/COND./TEMP.: TYPE Hydec 9 UNIT# _____ DATE: 5/10/93 TIME: 11:15 am BY: PM.
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
	<u>MW-6</u>	<u>1200</u>	<u>5/10/93</u>	<u>Sagwa</u>	_____
DUPLICATE	_____	_____	_____	_____	_____
SPLIT	_____	_____	_____	_____	_____
FIELD BLANK	_____	_____	_____	_____	_____

COMMENTS: _____

SAMPLER: Raul Thorsden PROJECT MANAGER: Mike E.

APPENDIX 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. 4090 Nelson Ave., Ste J Concord, CA 94520 Attention: Michael Edmonson	Client Project ID: #6925413, Alcopark Sample Matrix: Water Analysis Method: EPA 5030/8015/8020 First Sample #: 305-0396	Sampled: May 10, 1993 Received: May 10, 1993 Reported: May 21, 1993
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TOTAL PURGEABLE PETROLEUM HYDROCARBONS with BTEX DISTINCTION

Analyte	Reporting Limit µg/L	Sample I.D. 305-0396 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:	5/17/93
Instrument Identification:	HP-5
Surrogate Recovery, %: (QC Limits = 7-13%)	126

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. 4090 Nelson Ave., Ste J Concord, CA 94520 Attention: Michael Edmonson	Client Project ID: #6925413, Alcopark Sample Matrix: Water Analysis Method: EPA 3510/3520/8015 First Sample #: 305-0396	Sampled: May 10, 1993 Received: May 10, 1993 Reported: May 21, 1993
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TOTAL EXTRACTABLE PETROLEUM HYDROCARBONS

Analyte	Reporting Limit µg/L	Sample I.D. 305-0396 MW-6
Extractable Hydrocarbons	50	N.D.

Chromatogram Pattern: --

Quality Control Data

Report Limit Multiplication Factor:	1.0
Date Extracted:	5/13/93
Date Analyzed:	5/19/93
Instrument Identification:	HP-3A

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

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Karen L. Enstrom
Project Manager



SEQUOIA ANALYTICAL

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Environmental Science & Engineering, Inc.	Client Project ID: #6925413, Alcopark	Sampled: May 10, 1993
4090 Nelson Ave., Ste J	Sample Descript: Water, MW-6	Received: May 10, 1993
Concord, CA 94520	Analysis Method: EPA 5030/8010	Analyzed: May 11, 1993
Attention: Michael Edmonson	Lab Number: 305-0396	Reported: May 21, 1993

HALOGENATED VOLATILE ORGANICS (EPA 8010)

Analyte	Detection Limit µg/L	Sample Results 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.
Chloroform.....	0.50	0.52
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.
Tetrachloroethene.....	0.50	1.1
1,1,1-Trichloroethane.....	0.50	1.6
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.

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Project Manager



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

Client Project ID: #6925413, Alcopark
Matrix Descript: Water
Analysis Method: SM 5520 B&F (Gravimetric)
First Sample #: 305-0396

Sampled: May 10, 1993
Received: May 10, 1993
Extracted: May 17, 1993
Analyzed: May 18, 1993
Reported: May 21, 1993

TOTAL RECOVERABLE PETROLEUM OIL

Sample Number	Sample Description	Oil & Grease mg/L (ppm)
305-0396	MW-6	N.D.

Detection Limits:

5.0

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

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

Client Project ID: #6925413, Alcopark
Matrix: Water

QC Sample Group 305-0396

Reported: May 21, 1993

QUALITY CONTROL DATA REPORT

ANALYTE	Benzene	Toluene	Ethyl-Benzene	Xylenes	Diesel	Oil and Grease
Method:	EPA 8020	EPA 8020	EPA 8020	EPA 8020	EPA 8015	SM 5520
Analyst:	J.F.	J.F.	J.F.	J.F.	K.Wimer	D.Newcomb
Conc. Spiked:	20	20	20	60	300	100
Units:	µg/L	µg/L	µg/L	µg/L	µg/L	mg/L
LCS Batch#:	3LCS051793	3LCS051793	3LCS051793	3LCS051793	BLK051593	BLK051793
Date Prepared:	5/17/93	5/17/93	5/17/93	5/17/93	5/15/93	5/17/93
Date Analyzed	5/17/93	5/17/93	5/17/93	5/17/93	5/18/93	5/17/93
Instrument I.D.#:	HP-5	HP-5	HP-5	HP-5	HP-3B	N/A
LCS % Recovery:	106	100	96	98	120	87
Control Limits:	70-130	70-130	70-130	70-130	80-120	80-120

MS/MSD Batch #:	3050396	3050396	3050396	3050396	BLK051593	BLK051793
Date Prepared:	5/17/93	5/17/93	5/17/93	5/17/93	5/15/93	5/17/93
Date Analyzed	5/17/93	5/17/93	5/17/93	5/17/93	5/15/93	5/17/93
Instrument I.D.#:	HP-5	HP-5	HP-5	HP-5	HP-3B	N/A
Matrix Spike % Recovery:	125	120	120	122	120	87
Matrix Spike Duplicate % Recovery:	120	120	115	117	120	93
Relative % Difference:	4.1	0.0	4.2	4.2	0.0	6.0
Method Blank:	N.D.	N.D.	N.D.	N.D.	N.D.	N.D.

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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.



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

Client Project ID: #6925413, Alcopark
Matrix: Water
QC Sample Group: 305-0396

Reported: May 21, 1993

QUALITY CONTROL DATA REPORT

ANALYTE	1,1-Dichloro ethene	Trichloro ethene	Chloro benzene
---------	---------------------	------------------	----------------

Method:	EPA 8010	EPA 8010	EPA 8010
Analyst:	K.Nill	K.Nill	K.Nill
Conc. Spiked:	10	10	10
Units:	µg/L	µg/L	µg/L
LCS Batch#:	LCS 051193	LCS 051193	LCS 051193
Date Prepared:	5/11/93	5/11/93	5/11/93
Date Analyzed	5/11/93	5/11/93	5/11/93
Instrument I.D.#:	HP589016	HP589016	HP589016
LCS % Recovery:	100	110	96
Control Limits:	70-130%	70-130%	70-130%

MS/MSD Batch #:	3050292	3050292	3050292
Date Prepared:	5/11/93	5/11/93	5/11/93
Date Analyzed	5/11/93	5/11/93	5/11/93
Instrument I.D.#:	HP589016	HP589016	HP589016
Matrix Spike % Recovery:	110	110	99
Matrix Spike Duplicate % Recovery:	100	99	93
Relative % Difference:	9.5	11	6.3
Method Blank:	N.D.	N.D.	N.D.

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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.

