Fd : 92-7025-1921

Environmental Science & Engineering, Inc.

A CILCORP Company

April 19, 1993

ESE Project No. 6-92-5393

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

SUBJECT: **Report of Findings, Subsurface Investigation for Underground Storage Tanks at Jackson and 12th Streets, ALCOPARK Facility, 165 13th Street, Oakland, California**

Dear Mr. de Vos:

Environmental Science & Engineering, Inc. (ESE) was contracted by Alameda County General Services Agency (ACGSA) to perform a subsurface investigation in the vicinity of two underground storage tanks (USTs) located at Jackson and 12th Streets in Oakland, California. This investigation was conducted to assess soil and ground water quality in the vicinity of the USTs as part of UST closure activities. This report presents an overview of the site history and the findings and conclusions of the subsurface investigation.

BACKGROUND

The County of Alameda General Services Agency owned and operated two 10,000-gallon USTs at the corner of Jackson and 12th Streets at the ALCOPARK Facility. ALCOPARK, a county owned parcel, is located on Jackson Street between 12th and 13th Streets in Oakland, California (see Figure 1 - Partial Site Plan and Figure 2 - Site Plan). The USTs previously stored gasoline for the purpose of refueling county operated vehicles. The USTs have not been in service since the installation of two 10,000-gallon USTs at the corner of Jackson and 13th Street at the ALCOPARK Facility. The two USTs are secured to a concrete slab situated about 23.5 -feet below ground surface (bgs).

4090 Nelson Avenue, Suite J Concord, CA 94520 Phone (510) 685-4053 Fax (510) 685-5323

SUBSURFACE INVESTIGATION

On October 13, 1992 ESE supervised the attempted drilling of boring SB-1A. Due to difficult drilling conditions, drilling was terminated at a depth of 14-feet bgs. Boring SB-1A was subsequently backfilled with a cement grout. On October 27 and 28, 1992 ESE supervised the drilling of four soil borings SB-1, SB-2, SB-3 and SB-4 (Figure 1). Soil borings SB-3 and SB-4 were located adjacent to and in a presumed downgradient to crossgradient direction of the USTs. Soil Boring SB-2 was located adjacent to the remote fill fuel pipeline, used to transport fuel from fill ports located at the sidewalk of Jackson Street to the USTs. Soil boring SB-1 was located between the remote fill pipeline and the USTs. The ground water flow direction for this site was determined from measured ground water elevations in three wells (MW-1, MW-4 and MW-5) located at the ALCOPARK facility at the intersection of 13th and Jackson Streets (Figure 2).

The drilling was performed by Soils Exploration Services, Inc. (SES) of Vacaville, California. SES used a small track-mounted rig due to limited space. Soil samples were collected from the borings at approximate five-foot intervals. Soil samples were collected by driving a split-spoon sampler, lined with brass sleeves, 18-inches through the center of and ahead of the hollow stem augers. The samplers were driven by dropping a 140-pound hammer 30-inches onto rods attached to the top of the sampler. The number of blows required to drive the sampler each six-inch interval were noted and appear on the geologic boring log (Appendix A). The ends of one brass sleeve from each sample interval were covered with Teflon-lined plastic end caps, which were sealed to the brass sleeve with duct tape, labeled and placed on ice. The soil samples were transported under chain of custody to Sequoia Analytical (Sequoia) of Concord, California. A portion of the soil sample from the upper sample interval was sealed in a new ziploc® bag for approximately 15 minutes to allow for the volatilization of any volatile organic compounds (VOCs) present in the soil. After approximately 15-minutes the sample was screened for VOCs using a photoionization detector (PID). The PID readings appear on the geologic boring log (Appendix A). The soil beneath the site is described as Silty Sand and Sand.

At the base of boring SB-1, a Hydropunch® sampler was pushed ahead of the augers into undisturbed soil to a depth of 24-feet bgs. The sheath surrounding the Hydropunch® was retracted to allow ground water to flow into the teflon lined sample chamber. The sample chamber was allowed to remain exposed to the subsurface for approximately 30 minutes. The sample chamber was periodically checked, and at the end of 30 minutes no ground water had entered the sample chamber. The borehole was then deepened to a depth of 24-feet bgs. A ground water sample was collected from water that had entered the augers. The ground water sample was collected by inserting a new disposable polyethylene bailer into the augers using nylon cord. Ground water samples collected from borings SB-2

through SB-4 were also collected in this manner. All ground water samples were contained in glass vials containing hydrochloric acid (a preservative). The samples were labeled and placed on ice and under chain of custody documentation immediately upon collection. It was noted during drilling that ground water occurred at a depth of about 22.5 feet bgs.

All drilling equipment was cleaned between use in each borehole by steam cleaning. The soil sampler was cleaned between each use using an Alconox and tap water solution followed by tap water rinse. All rinse water was contained in 55-gallon drums and stored onsite pending proper disposal.

RESULTS

Soil Samples
Soil samples were analyzed for Total Petroleum Hydrocarbons as Gasoline and Benzene, Toluene, Ethylbenzene and Total Xylenes (BTEX) by EPA Methods 8015 and 8020, respectively. Laboratory analytical reports with chain of custody documentation for the soil samples are presented as Attachment B. Table 1 - Analytical Data: Soil Samples presents a summary of the laboratory analytical data.

TPH-G and BTEX were not detected in the soil samples analyzed from borings SB-3 and SB-4, or in the sample collected at a depth of 15-feet bgs in boring SB-2. TPH-G was detected at concentrations up to 6.3 milligrams per Kilogram (mg/Kg) or parts per million (ppm) in the soil samples collected at depths of 21.5-feet bgs and 22-feet bgs in borings SB-1 and SB-2, respectively. Benzene, at concentrations up to 0.41 mg/Kg, was detected in the soil samples from boring SB-1 at depths of 15-feet bgs and 21.5-feet bgs and from boring SB-2 at a depth of 22-feet bgs.

Ground Water Samples
Ground water samples were analyzed by TPH-G and BTEX by EPA Methods 8015 and 8020, respectively. Laboratory analytical reports with chain of custody documentation for the ground water samples are presented as Attachment C. Table 2 - Analytical Data: Ground Water Samples presents a summary of the laboratory analytical data.

TPH-G and BTEX were not detected in the ground water sample collected from boring SB-4. TPH-G was detected in the ground water sample collected from borings SB-1, SB-2 and SB-3 at concentrations of 51,000 micrograms per Liter (ug/L) or parts per billion (ppb), 8,200 ug/L, and 72 ug/L, respectively. Benzene was detected in the ground water samples from borings SB-1, SB-2 and SB-3 at concentrations of 2,400 ug/L, 560 ug/L, and 0.71 ug/L, respectively.

CONCLUSIONS AND RECOMMENDATIONS

- Concentrations of TPH-G in soil samples analyzed as part of this investigation are below action levels. However, due to the concentrations of petroleum hydrocarbons detected in the ground water samples, a unit of impacted soil in the vicinity of the USTs and or their associated piping may exist in the subsurface and may act as a source for the petroleum hydrocarbons in ground water. Probable locations for this potential petroleum hydrocarbon source would be directly beneath the USTs on top of the concrete slab and/or beneath the fuel pipelines that join the USTs to remote fill ports.

- Concentrations of Benzene in ground water samples from borings SB-1 and SB-2 exceed State of California Department of Health Services (DHS) Maximum Concentration Levels (MCLs) for Benzene in drinking water (1 ug/L). Since the concentration of Benzene in ground water at the site exceeds DHS MCLs, further investigation and remedial activities will be required.

- ESE recommends conducting additional investigative activities at the site in the vicinity of the USTs. ESE recommends installing a minimum of three to four monitoring wells surrounding the USTs, to determine the lateral extent of petroleum hydrocarbons in ground water.

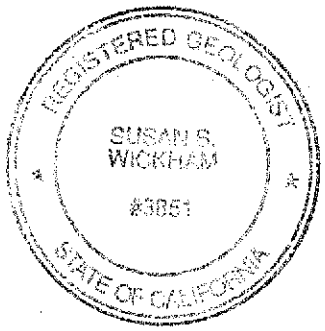
• • • • •

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.

If you have any questions regarding the material presented in this report, please do not hesitate to contact the undersigned at (510) 685-4053.

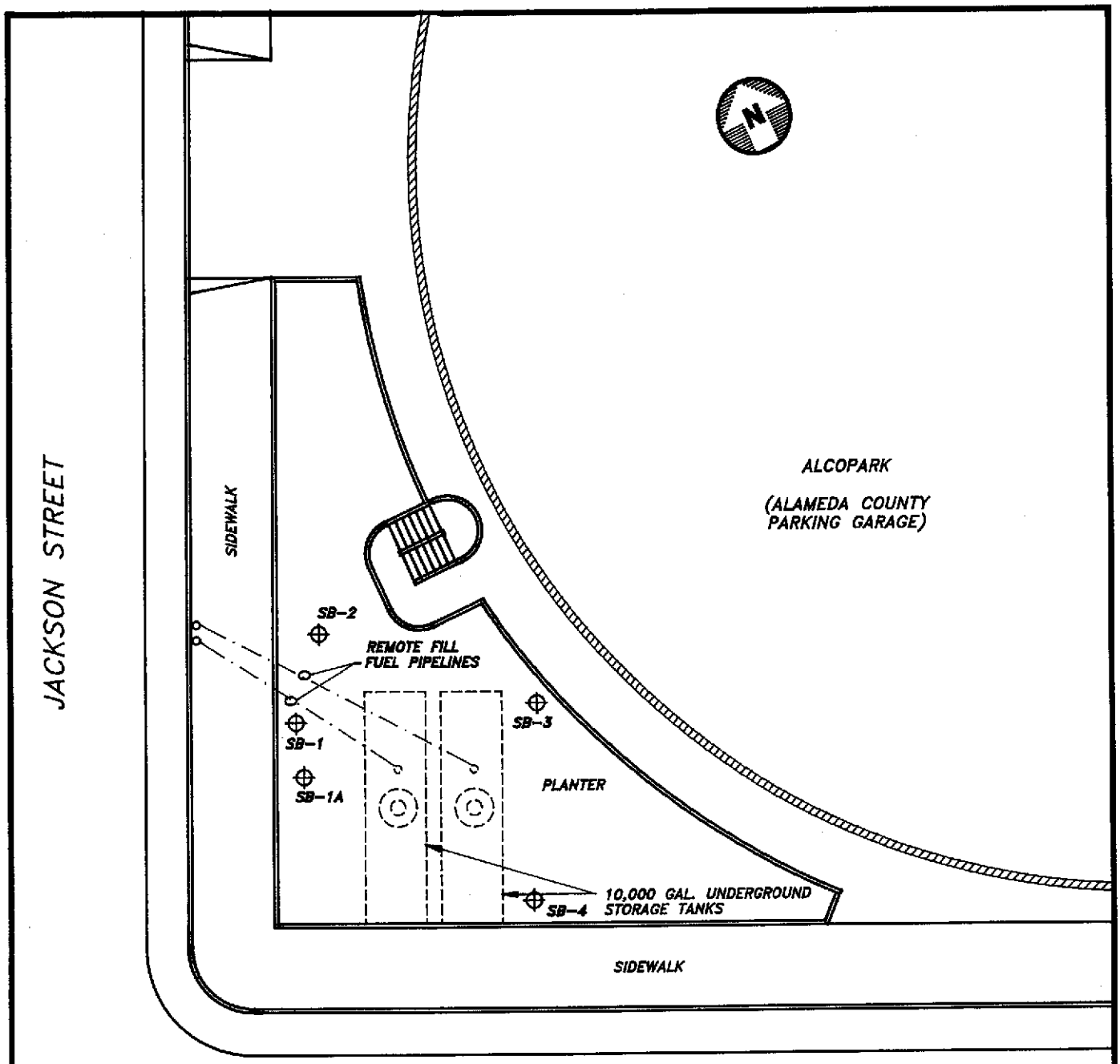
Michael K. Edmonson
Project Geologist

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



Attachments:

Figures (2)
Attachment A - Geologic Boring Log
Attachment B - Analytical Reports: Soil Samples
Attachment C - Analytical Reports: Ground Water Samples



LEGEND

SB-1 ⊕ Soil Boring

o Remote fill ports

SCALE

0 20 FEET

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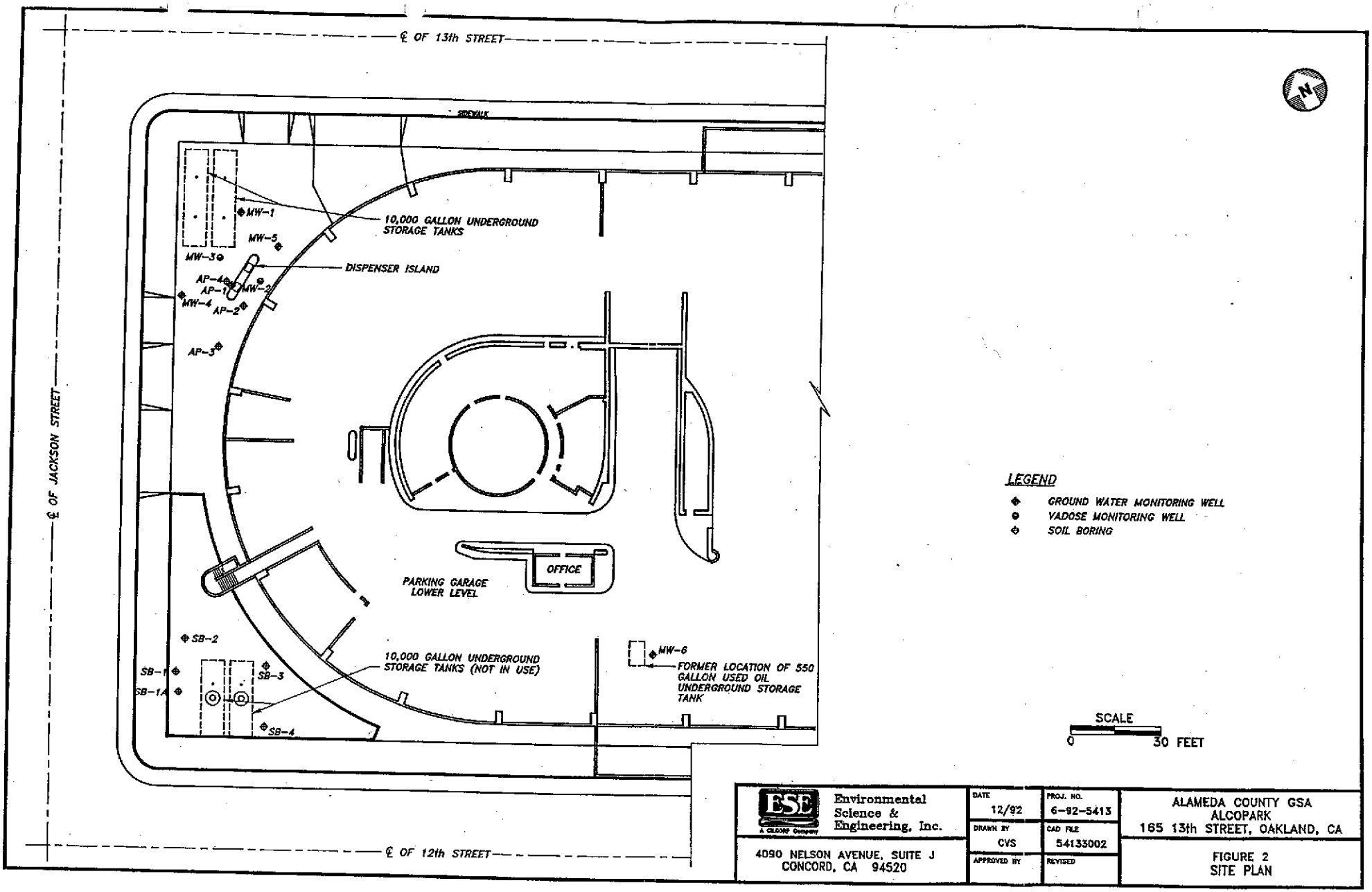
ALAMEDA COUNTY G.S.A.
ALCOPARK FACILITY
OAKLAND, CALIFORNIA

FIGURE 1
PARTIAL SITE PLAN

DRAWN BY	APPROVED BY	REVISED
CVS		1/93 DWR

DATE	FILE NAME	PROJ. NO.
9/92	53932001	6-92-5393



ESE A CH2M HILL Company — Environmental Science & Engineering, Inc.	DATE 12/92	PROJ. NO. 6-92-5413	ALAMEDA COUNTY GSA ALCOPARK 165 13th STREET, OAKLAND, CA
4090 NELSON AVENUE, SUITE J CONCORD, CA 94520	DRAWN BY CVS	CAD FILE 54133002	FIGURE 2 SITE PLAN
	APPROVED BY	REVISED	

TABLE 1

ANALYTICAL DATA: SOIL SAMPLES

ALAMEDA COUNTY ALCOPARK
12TH AND JACKSON STREETS
OAKLAND, CALIFORNIA

Soil Borings	Sample Depth (feet)	Date	TPH-G (mg/Kg)	Benzene (mg/Kg)	Toluene (mg/Kg)	Ethyl-benzene (mg/Kg)	Total Xylenes (mg/Kg)
SB-1	15	10/27/92	<1	0.019	0.019	0.011	0.042
SB-1	21.5	10/27/92	6.3	0.41	0.68	0.10	0.70
SB-2	15	10/27/92	<1	<0.005	<0.005	<0.005	<0.005
SB-2	22	10/27/92	1.8	0.21	0.19	0.034	0.20
SB-3	15	10/28/92	<1	<0.005	<0.005	<0.005	<0.005
SB-3	22	10/28/92	<1	<0.005	<0.005	<0.005	<0.005
SB-4	15	10/28/92	<1	<0.005	<0.005	<0.005	<0.005
SB-4	22	10/28/92	<1	<0.005	<0.005	<0.005	<0.005

NOTES:

TPH-G = Total Petroleum Hydrocarbons as Gasoline (TPH-G)
mg/Kg = milligrams per kilogram or parts per million (ppm)
< = less than listed detection limit

TABLE 2

ANALYTICAL DATA: GROUND WATER SAMPLES

ALAMEDA COUNTY ALCOPARK
12TH AND JACKSON STREETS
OAKLAND, CALIFORNIA

Boring	Date	TPH-G (µg/L)	Benzene (µg/L)	Toluene (µg/L)	Ethyl-benzene (µg/L)	Total Xylenes (µg/L)
SB-1	10/27/92	51,000	2,400	9,400	1,400	8,400
SB-2	10/27/92	8,200	560	930	360	620
SB-3	10/28/92	72	0.71	<0.5	0.5	2.4
SB-4	10/28/92	<50	<0.5	<0.5	<0.5	<0.5

NOTES:

TPH-G = Total Petroleum Hydrocarbons as Gasoline (TPH-G)
µg/L = micrograms per liter or parts per billion (ppb)
< = less than listed detection limit

APPENDIX A

GEOLOGIC BORING LOGS

Environmental Science & Engineering, Inc.

BORING LOG AND WELL COMPLETION SUMMARY

SB-1

Page 1 of 1

WELL COMPLETION

Completion Depth:

Size/Type	From	To

Casing:
Screen:
Filter:
Seal:

Well Cap or Box:

Project Name: ALCOPARK Project No: 6-92-5393
Location: 12th and Jackson Streets
Oakland, California

Driller: Soils Exploration Services, Inc.
Method: Hollow Stem Auger
Hole Diameter: 8 in. O.D. Total Depth: 24 Feet
Ref. Elevations: NA
Logged By: Kerry Lefever

Dates:
Start: 10-27-92
Finish: 10-27-92

Depth (ft)	Lithologic Description	USC	Graphic Log: Sample/Blows	Graphic Log: Lithology	Graphic Log: Well Installation	Vapor	Remarks: Water, drilling/completion, summary, sample type
0	SANDY SILT (FILL)	FILL					Boring backfilled with cement
	SILTY SAND; orange-brown, dense, moist, 10-20% fines, fine grained sand.	SM					
5							
10							
15	SILTY SAND; brown to green-grey, dense, moist, fine grained sand, no odor.		18 21 25			15	
20	SAND; green-grey, fine grained sand, wet at 22.5 feet.	SP	18 35 50 50 21 45 50			55 100	▼ Ground Water @ 22.5 Feet Hydropunch failed. Ground Water sample collected within borehole.
25							Total Depth = 24 Feet
	SILTY SAND; brown, fine grained sand.						

REGISTERED GEOLOGIST
SUSAN E. WICKHAM
#3851
STATE OF CALIFORNIA

Environmental Science & Engineering, Inc.
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BORING LOG AND WELL COMPLETION SUMMARY

SB-2

Page 1 of 1

WELL COMPLETION

Completion Depth:

Size/Type	From	To
Casing:		
Screen:		
Filter:		
Seal:		

Well Cap or Box:

Project Name: ALCOPARK Project No: 6-92-5393
Location: 12th and Jackson Streets
Oakland, California

Driller: Soils Exploration Services, Inc.
Method: Hollow Stem Auger
Hole Diameter: 8 In. O.D. Total Depth: 24 Feet
Ref. Elevations: NA
Logged By: Kerry Lefever

Dates:
Start: 10-27-92
Finish: 10-27-92

Depth (ft)	Lithologic Description	USC	Graphic Log: Sample/Blows	Graphic Log: Lithology	Graphic Log: Well Installation	Vapor	Remarks: Water, drilling/completion, summary, sample type
0	SANDY SILT (FILL)	FILL					Boring backfilled with cement
	SILTY SAND; orange-brown, very dense, moist, 10-20% fines, fine grained sand.	SM					
5		SM	20, 38, 44			2	
10	As above, dry.	SM	11, 17, 36			0	
15	As above, moist.	SM	12, 22, 28			0	
20	SAND; green-grey, very dense, fine grained sand, no odor, wet at 22.5 feet.	SP	21, 32, 47, 12, 26, 50			3, 15	Ground Water @ 22.5 Feet Ground Water sample collected within borehole. Total Depth = 24 Feet
25							

REGISTERED GEOLOGIST
SUSAN S. WICKHAM
#3851
STATE OF CALIFORNIA

Environmental Science & Engineering, Inc.
A CILCORP Company

BORING LOG AND WELL COMPLETION SUMMARY

SB-3

Page 1 of 1

WELL COMPLETION

Completion Depth:

Size/Type	From	To
Casing:		
Screen:		
Filter:		
Seal:		

Well Cap or Box:

Project Name: ALCOPARK Project No: 6-92-5393
Location: 12th and Jackson Streets
Oakland, California

Driller: Soils Exploration Services, Inc.
Method: Hollow Stem Auger
Hole Diameter: 8 in. O.D. Total Depth: 24 Feet
Ref. Elevations: NA
Logged By: Kerry Lefever

Dates:
Start: 10-28-92
Finish: 10-28-92

Depth (ft)	Lithologic Description	USC	Graphic Log: Sample/Blows	Graphic Log: Lithology	Graphic Log: Well Installation	Vapor	Remarks: Water, drilling/completion, summary, sample type
0	SANDY SILT (FILL)	FILL					Boring backfilled with cement
	SILTY SAND; orange-brown, medium dense, moist, fine grained sand.	SM					
5			26 40 43			2	
		SM					
10	As above.		12 20 24			2	
		SM					
15	As above, brown to grey-green, odor.		16 18 28			4	
		SM					
20	As above.		18 22 24 16 18 22			4 2	
		SM					
25							Ground Water sample collected within borehole. Total Depth = 24 Feet

REGISTERED GEOLOGIST
SUSAN S. BURNHAM
#3851
STATE OF CALIFORNIA

Environmental Science & Engineering, Inc.

A CILCORP Company

BORING LOG AND WELL COMPLETION SUMMARY

SB-4

Page 1 of 1

WELL COMPLETION

Completion Depth:

Size/Type	From	To
Casing:		
Screen:		
Filter:		
Seal:		

Well Cap or Box:

Project Name: ALCOPARK Project No: 6-92-5393

Location: 12th and Jackson Streets
Oakland, California

Driller: Soils Exploration Services, Inc.
Method: Hollow Stem Auger
Hole Diameter: 8 in. O.D. Total Depth: 24 Feet
Ref. Elevations: NA
Logged By: Kerry Lefever

Dates:
Start: 10-28-92
Finish: 10-28-92

Depth (ft)	Lithologic Description	USC	Graphic Log: Sample/Blows	Graphic Log: Lithology	Graphic Log: Well Installation	Vapor	Remarks: Water, drilling/completion, summary, sample type
0	SANDY SILT (FILL)	FILL					Boring backfilled with cement
		SM					
5	SILTY SAND; orange-brown, very dense, moist, fine grained sand.		19, 27, 33			6	
		SM					
10	As above.		12, 16, 20			4	
		SM					
15	As above, brown to grey-green, odor.		12, 16, 22			3	
		SM					
20	As above, grey-green.		10, 18, 24, 8, 16, 18			3, 3	
25							Ground Water sample collected within borehole. Total Depth = 24 Feet

REGISTERED GEOLOGIST
BRIAN S. WICKHAM
#3851
STATE OF CALIFORNIA

UNIFIED SOIL CLASSIFICATION SYSTEM (USC)

MAJOR DIVISIONS			GROUP SYMBOLS	DESCRIPTION	GRAPHIC LOG
COARSE GRAINED SOILS: 50% or more retained on the No. 200 sieve.	GRAVELS: More than half of coarse fraction retained on the No. 4 sieve.	Clean sands	GW	Well-graded gravels, gravel-sand mixtures, little or no fines.	
			GP	Poorly-graded gravels, gravel-sand mixtures, little or no fines.	
		Gravels with fines	GM	Silty gravels, gravel-sand mixtures.	
			GC	Clayey gravels, gravel-sand-clay mixtures.	
	SANDS: More than half of coarse fraction passing the No. 4 sieve.	Clean sands	SW	Well-graded sands, gravelly sands, little or no fines.	
			SP	Poorly-graded sands, gravelly sands, little or no fines.	
		Sands with fines	SM	Silty sands, sand-silt mixtures.	
			SC	Clayey sands, sand clay mixtures.	
FINE GRAINED SANDS: More than 50% passing the No. 200 sieve.	SILTS AND CLAYS	Liquid Limit below 50%	ML	Inorganic silts and very fine sands.	
			CL	Inorganic clays, gravelly clays, sandy clays, lean clays.	
			OL	Organic silts and organic clays.	
			MH	Inorganic silts, micaceous or diatomaceous fine sandy or silty soils, elastic silts.	
		Liquid Limit 50% and above	CH	Inorganic fat clays.	
			OH	Organic clays or organic silts.	
Highly organic soils			Pt	Peat, organic content greater than 60%.	

BEDROCK

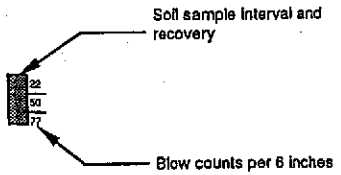
Sandstone		Metamorphics	
Shale		Volcanics	
Siltstone			

WELL INSTALLATION

SYMBOL	DESCRIPTION
	Bentonite/cement grout
	Bentonite Pellets
	Sand
	Screen section of well or piezometer
	Blank section of well or piezometer with centralizer
	Traffic rated well box with locking water-tight cap

See log for details of installation.

LEGEND



Vapor

Field Photolonization detector reading in parts per million (ppm). See remarks on log for background readings and comments.

ESE A EXCOR COMPANY
Environmental Science & Engineering, Inc.
4090 Nelson Avenue, Suite J
Concord, CA 94520
(415) 685-4053

LEGEND TO LOGS

DRAWN BY	DATE	FILE NAME
CVS	3/91	LEGEND

APPENDIX B

ANALYTICAL REPORTS: SOIL SAMPLES

SEQUOIA ANALYTICAL

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

Environmental Science & Engineering, Inc.	Client Project ID:	Alcopark/ #6-92-5393	Sampled:	Oct 27, 1992
4090 Nelson Ave., Suite J	Sample Matrix:	Soil	Relogged:	Oct 30, 1992
Concord, CA 94520	Analysis Method:	EPA 5030/8015/8020	Reported:	Nov 10, 1992
Attention: Mike Edmonson	First Sample #:	210-1030		

TOTAL PURGEABLE PETROLEUM HYDROCARBONS with BTEX DISTINCTION

Analyte	Reporting Limit mg/kg	Sample I.D. 210-1030 SB-1@15'	Sample I.D. 210-1031 SB-2 @15'	Sample I.D. 210-1032 SB-3 @15'	Sample I.D. 210-1033 SB-4 @15'
Purgeable Hydrocarbons	1.0	N.D.	N.D.	N.D.	N.D.
Benzene	0.005	0.019	N.D.	N.D.	N.D.
Toluene	0.005	0.019	N.D.	N.D.	N.D.
Ethyl Benzene	0.005	0.011	N.D.	N.D.	N.D.
Total Xylenes	0.005	0.042	N.D.	N.D.	N.D.
Chromatogram Pattern:		--	--	--	--

Quality Control Data

Report Limit Multiplication Factor:	1.0	1.0	1.0	1.0
Date Analyzed:	11/6/92	10/30/92	10/30/92	10/30/92
Instrument Identification:	HP-2	HP-4	HP-4	HP-4
Surrogate Recovery, %: (QC Limits = 70-130%)	99	104	105	103

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	Client Project ID:	Alcopark / #6-92-5393	Sampled: 10/27&10/28/92
4090 Nelson Ave., Suite J	Sample Matrix:	Soil	Received: Oct 29, 1992
Concord, CA 94520	Analysis Method:	EPA 5030/8015/8020	Reported: Nov 9, 1992
Attention: Michael Edmonson	First Sample #:	210-0977	

TOTAL PURGEABLE PETROLEUM HYDROCARBONS with BTEX DISTINCTION

Analyte	Reporting Limit mg/kg	Sample I.D. 210-0977 SB-1@21.5'	Sample I.D. 210-0978 SB-2@22'	Sample I.D. 210-0981 SB-3@22'	Sample I.D. 210-0982 SB-4@22'
Purgeable Hydrocarbons	1.0	6.3	1.8	N.D.	N.D.
Benzene	0.005	0.41	0.21	N.D.	N.D.
Toluene	0.005	0.68	0.19	N.D.	N.D.
Ethyl Benzene	0.005	0.10	0.034	N.D.	N.D.
Total Xylenes	0.005	0.70	0.20	N.D.	N.D.
Chromatogram Pattern:		Gasoline	Gasoline	--	--

Quality Control Data

Report Limit Multiplication Factor:	2.5	1.0	1.0	1.0
Date Analyzed:	10/30/92	10/30/92	10/29/92	10/29/92
Instrument Identification:	HP-4	HP-4	HP-4	HP-4
Surrogate Recovery, %: (QC Limits = 70-130%)	100	103	100	99

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
4090 Nelson Ave., Suite J
Concord, CA 94520
Attention: Michael Edmonson

Client Project ID: Alcopark / #6-92-5393

QC Sample Group: 2100977-984

Reported: Nov 9, 1992

QUALITY CONTROL DATA REPORT

ANALYTE	Benzene	Toluene	Ethyl-Benzene	Xylenes
Method:	EPA 8015/8020	EPA 8015/8020	EPA 8015/8020	EPA 8015/8020
Analyst:	J.F.	J.F.	J.F.	J.F.
Reporting Units:	mg/kg	mg/kg	mg/kg	mg/kg
Date Analyzed:	Oct 29, 1992	Oct 29, 1992	Oct 29, 1992	Oct 29, 1992
QC Sample #:	Matrix Blank	Matrix Blank	Matrix Blank	Matrix Blank
Sample Conc.:	N.D.	N.D.	N.D.	N.D.
Spike Conc. Added:	0.40	0.40	0.40	1.2
Conc. Matrix Spike:	0.40	0.40	0.40	1.3
Matrix Spike % Recovery:	100	100	100	108
Conc. Matrix Spike Dup.:	0.40	0.40	0.40	1.3
Matrix Spike Duplicate % Recovery:	100	100	100	108
Relative % Difference:	0.0	0.0	0.0	0.0

Quality Assurance Statement: All standard operating procedures and quality control requirements have been met.

SEQUOIA ANALYTICAL

Karen L. Enstrom
Project Manager

% Recovery:	Conc. of M.S. - Conc. of Sample / Spike Conc. Added	x 100
Relative % Difference:	Conc. of M.S. - Conc. of M.S.D. / (Conc. of M.S. + Conc. of M.S.D.) / 2	x 100

SEQUOIA ANALYTICAL

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

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

Client Project ID: Alcopark/ #6-92-5393

QC Sample Group: 2101030-33

Reported: Nov 10, 1992

QUALITY CONTROL DATA REPORT

ANALYTE	Benzene	Toluene	Ethyl-Benzene	Xylenes
Method:	EPA 8015/8020	EPA 8015/8020	EPA 8015/8020	EPA 8015/8020
Analyst:	J.F.	J.F.	J.F.	J.F.
Reporting Units:	mg/Kg	mg/Kg	mg/Kg	mg/Kg
Date Analyzed:	Nov 6, 1992	Nov 6, 1992	Nov 6, 1992	Nov 6, 1992
QC Sample #:	Matrix Blank	Matrix Blank	Matrix Blank	Matrix Blank
Sample Conc.:	N.D.	N.D.	N.D.	N.D.
Spike Conc. Added:	0.40	0.40	0.40	1.2
Conc. Matrix Spike:	0.36	0.39	0.40	1.2
Matrix Spike % Recovery:	90	98	100	98
Conc. Matrix Spike Dup.:	0.38	0.40	0.41	1.2
Matrix Spike Duplicate % Recovery:	95	100	103	102
Relative % Difference:	5.4	2.5	2.5	4.2

Quality Assurance Statement: All standard operating procedures and quality control requirements have been met.

SEQUOIA ANALYTICAL

Karen L. Enstrom
Project Manager

% Recovery:	Conc. of M.S. - Conc. of Sample / Spike Conc. Added	x 100
Relative % Difference:	Conc. of M.S. - Conc. of M.S.D. / (Conc. of M.S. + Conc. of M.S.D.) / 2	x 100

CHAIN OF CUSTODY RECORD

DATE 10/27/92 PAGE 1 OF

PROJECT NAME ALCOPARK

ADDRESS 1651 13th St (12th & Jackson) OAKLAND

PROJECT NO. 6-92-5393

SAMPLED BY KERRY LEFEVER

LAB NAME

ESE Environmental Science & Engineering, Inc.
4080 Nelson Avenue Suite J Concord, CA 94520
(415) 685-4053 Fax (415) 685-5023

SAMPLE #	DATE	TIME	LOCATION	TPH-G (8015)	BTEX (8020)								MATRIX	NUMBER OF CONTAINERS	REMARKS (CONTAINER, SIZE, ETC.)
													MATRIX		
SB-1@15'	10/27/92	1005	Alcopark	X	X	Mike 10-30-92 Analyze							SOIL	1	BRASS RING 2101030
SB-1@21.5'		1100	Corner @	X	X			2100977						1	
SB-2@5'		1500	12th & Jackson	H	H									1	
SB-2@10'		1530		H	H	Mike 10-30-92								1	
SB-2@15'		1600		X	H	Analyze								1	1031
SB-2@22'		1640		X	X			2100978						1	
SB-1		1345		X	X			2100979					WATER	4	VOAs
SB-2		1710		X	X			2100980					WATER	4	VOAs

RELINQUISHED BY: (signature)	RECEIVED BY: (signature)	date	time
1. Kerry Lefever		10-29-92	8:00
2.		10/29/92	3:45pm
3.			
4.			
5.			

14 TOTAL NUMBER OF CONTAINERS

REPORT RESULTS TO: MIKE EDMONSON

SPECIAL SHIPMENT REQUIREMENTS

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

X = Analyze U = VOAs

Standard Turnaround time

SAMPLE RECEIPT

CHAIN OF CUSTODY SEALS	
REC'D GOOD CONDTN/COLD	
CONFORMS TO RECORD	

TE 10/28/92 PAGE 1 OF 1

CHAIN OF COUSTODY RECORD

ESE Environmental Science & Engineering, Inc.
A CILCORP Company
4090 Nelson Avenue
Suite J
Concord, CA 94520
(415) 685-4053
Fax (415) 685-5323

ROJECT NAME ALCOPARK
ADDRESS 165 13th STREET
OAKLAND
ROJECT NO. 6-92-5393
MPLED BY KERRY LEFEVER
B NAME

SAMPLE #	DATE	TIME	LOCATION	TPH-G (8015)	BTEX (8020)									MATRIX	NUMBER OF CONTAINERS	REMARKS (CONTAINER, SIZE, ETC.)
SB-3@5'	10/28/92	1000	ALCOPARK	H	H									SOIL	1	BRASS RING
SB-3@10'	↓	1030	12th & JACKSON	H	H									↓	1	↓
SB-3@15'		1110		X (H)	X (H)	10-30-92 Analyze									1	2101032
SB-3@22'		1200		X	X	2100981									1	
SB-4@5'		1525		H	H										1	
SB-4@10'		1555		H	H										1	
SB-4@15'		1620		X (H)	X (H)	10-30-92 ANALYZE									1	↓ 1033
SB-4@22'		1645		X	X	2100982								↓	1	↓
SB-3		1245		X	X	2100983AD								WATER	4	VOAS
SB-4	↓	1715	↓	X	X	2100984AD								WATER	4	VOAS

RELINQUISHED BY: (signature)	RECEIVED BY: (signature)	date	time
1. Kerry Lefever	[signature]	10-29-92	8:00
2. [signature]	[signature]	10/29/92	3:45pm
3.			
4.			
5.			

TOTAL NUMBER OF CONTAINERS 16

REPORT RESULTS TO: MIKE EDMONSON

SPECIAL SHIPMENT REQUIREMENTS

SAMPLE RECEIPT

CHAIN OF CUSTODY SEALS	
REC'D GOOD CONDTN/COLD	
CONFORMS TO RECORD	

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

X = Analyze H = Hold Standard Turnaround Time

APPENDIX C

ANALYTICAL REPORTS: GROUND WATER SAMPLES

SEQUOIA ANALYTICAL

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

Environmental Science & Engineering	Client Project ID:	Alcopark / #6-92-5393	Sampled: 10/27&10/28/92
4090 Nelson Ave., Suite J	Sample Matrix:	Water	Received: Oct 29, 1992
Concord, CA 94520	Analysis Method:	EPA 5030/8015/8020	Reported: Nov 9, 1992
Attention: Michael Edmonson	First Sample #:	210-0977	

TOTAL PURGEABLE PETROLEUM HYDROCARBONS with BTEX DISTINCTION

Analyte	Reporting Limit µg/L	Sample I.D. 210-0977 SB-1	Sample I.D. 210-0978 SB-2	Sample I.D. 210-0983 SB-3	Sample I.D. 210-0984 SB-4
Purgeable Hydrocarbons	50	51,000	8,200	72	N.D.
Benzene	0.5	2,400	560	0.71	N.D.
Toluene	0.5	9,400	930	N.D.	N.D.
Ethyl Benzene	0.5	1,400	360	0.50	N.D.
Total Xylenes	0.5	8,400	620	2.4	N.D.
Chromatogram Pattern:		Gasoline	Gasoline	Gasoline	--

Quality Control Data

Report Limit Multiplication Factor:	100	10	1.0	1.0
Date Analyzed:	10/29/92	10/29/92	10/29/92	10/29/92
Instrument Identification:	HP-4	HP-4	HP-4	HP-4
Surrogate Recovery, %: (QC Limits = 70-130%)	104	106	99	100

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
4090 Nelson Ave., Suite J
Concord, CA 94520
Attention: Michael Edmonson

Client Project ID: Alcopark / #6-92-5393

QC Sample Group: 2100977-984

Reported: Nov 9, 1992

QUALITY CONTROL DATA REPORT

ANALYTE	Benzene	Toluene	Ethyl-Benzene	Xylenes
Method:	EPA 8015/8020	EPA 8015/8020	EPA 8015/8020	EPA 8015/8020
Analyst:	J.F.	J.F.	J.F.	J.F.
Reporting Units:	µg/L	µg/L	µg/L	µg/L
Date Analyzed:	Oct 29, 1992	Oct 29, 1992	Oct 29, 1992	Oct 29, 1992
QC Sample #:	Matrix Blank	Matrix Blank	Matrix Blank	Matrix Blank
Sample Conc.:	N.D.	N.D.	N.D.	N.D.
Spike Conc. Added:	20	20	20	60
Conc. Matrix Spike:	20	20	20	66
Matrix Spike % Recovery:	100	100	100	110
Conc. Matrix Spike Dup.:	20	20	20	65
Matrix Spike Duplicate % Recovery:	100	100	100	108
Relative % Difference:	0.0	0.0	0.0	1.5

Quality Assurance Statement: All standard operating procedures and quality control requirements have been met.

SEQUOIA ANALYTICAL

Karen L. Enstrom
Project Manager

% Recovery:	Conc. of M.S. - Conc. of Sample / Spike Conc. Added	x 100
Relative % Difference:	Conc. of M.S. - Conc. of M.S.D. / (Conc. of M.S. + Conc. of M.S.D.) / 2	x 100

ESE — Environmental Science & Engineering, Inc.
4090 Nelson Avenue, Suite J, Concord, CA 94520
(415) 685-4053 Fax (415) 685-5323

CHAIN OF CUSTODY RECORD

DATE 10/27/92 PAGE 1 OF ____

PROJECT NAME: ALCOPARK

ADDRESS: 165 13th St (12th & Jackson) OAKLAND

PROJECT NO. 6-92-5393

SAMPLED BY: KERRY LEFEVER

LAB NAME: ____

SAMPLE #	DATE	TIME	LOCATION	TPH-G (8015)	BTEX (8020)	ANALYSES TO BE PERFORMED (other)	MATRIX	NUMBER OF CONTAINERS	REMARKS (CONTAINER, SIZE, ETC.)
SB-1@15'	10/27/92	1005	Alcopark	~~X~~	X	Mike 10-30-92 Analyze	SOIL	1	BRASS RING 2101030
SB-1@21.5'	↓	1100	Corner @	X	X	2100977	↓	1	↓
SB-2@5'		1500	12th & Jackson	H	H			1	
SB-2@10'		1530	↓	H	H			1	
SB-2@15'		1600		~~X~~	~~X~~ H	Mike 10-30-92 Analyze		1	1031
SB-2@22'		1640		X	X	2100978	↓	1	↓
SB-1		1345		X	X	2100979AD	WATER	4	VOAS
SB-2	↓	1710	↓	X	X	2100980AD	WATER	4	VOAS

RELINQUISHED BY: (signature)	RECEIVED BY: (signature)	date	time
1. Kerry Lefever	[signature]	10-29-92	8:00
2. [signature]	[signature]	10/29/92	3:45 pm
3.			
4.			
5.			

TOTAL NUMBER OF CONTAINERS: 14

REPORT RESULTS TO: MIKE EDMONSON

SPECIAL SHIPMENT REQUIREMENTS:

SAMPLE RECEIPT

CHAIN OF CUSTODY SEALS	
REC'D GOOD CONDTN/COLD	
CONFORMS TO RECORD	

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

X = Analyze H = Hold Standard Turnaround time

CHAIN OF CUSTODY RECORD

DATE 10/28/92 PAGE 1 OF 1

PROJECT NAME ALCOPARK
ADDRESS 1651 3RD STREET
OAKLAND
PROJECT NO. 6-92-5393
SAMPLED BY KERRY LEFEVER
LAB NAME

ESE A DAMES & MOORE Company
Environmental Science & Engineering, Inc.
4090 Nelson Avenue
Suite J
Concord, CA 94520
(415) 685-4053
Fax (415) 685-5323

SAMPLE #	DATE	TIME	LOCATION	TPH-G (8015)	BTEX (8020)	ANALYSES TO BE PERFORMED	MATRIX	NUMBER OF CONTAINERS	REMARKS (CONTAINER, SIZE, ETC.)
SB-3@5'	10/28/92	1000	ALCOPARK	H	H		SOIL	1	BRASS RING
SB-3@10'		1030	12TH & JACKSON	H	H			1	
SB-3@15'		1110		X	X	Analyze 10-30-92		1	210032
SB-3@22'		1200		X	X	2100981		1	
SB-4@5'		1525		H	H			1	
SB-4@10'		1555		H	H			1	
SB-4@15'		1620		X	X	Analyze 10-30-92		1	1033
SB-4@22'		1645		X	X	2100982		1	
SB-3		1245		X	X	2100983AD	WATER	4	VOAS
SB-4		1715		X	X	2100984AD	WATER	4	VOAS

RELINQUISHED BY: (signature)	RECEIVED BY: (signature)	date	time
Kerry Lefever		10-29-92	8:00
	Suzan Nguyen	10/29/92	3:45pm

16 TOTAL NUMBER OF CONTAINERS

REPORT RESULTS TO: MIKE EDMONSON

SPECIAL SHIPMENT REQUIREMENTS

SAMPLE RECEIPT

CHAIN OF CUSTODY SEALS	
REC'D GOOD CONDTN/COLD	
CONFORMS TO RECORD	

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

X = Analyze H = Hold Standard Turnaround Time

General Services Agency

Darlene Smith, Director

BUILDING MAINTENANCE DEPARTMENT
4400 MacArthur Boulevard
Oakland, California 94619
Telephone (510) 535-6200
FAX (510) 535-6245

Hilton T. Hunt, Deputy Director
GSA-Building Maintenance Department

December 17, 1993

Mr. Thomas F. Peacock
Supervising Hazardous Materials Specialist
Division of Hazardous Materials
Department of Environmental Health
80 Swan Way, Room 350
Oakland, CA 94621

Subject: CURRENT STATUS AND FUTURE COMPLIANCE REQUIREMENTS, ALCOPARK FACILITY, 165 13TH STREET, OAKLAND, CALIFORNIA

Dear Tom:

First of all, thank you for meeting with me on November 22, 1993. I appreciate your continued cooperation and suggestions. I feel that our demonstrated team approach will help both organizations to reach our common objectives in the most efficient manner. Below is a summary of our November 22, 1993 discussion and our December 15, 1993 telephone conversation:

I. **Waste Oil Underground Storage Tank (UST) Closure Request** - It is the policy of San Francisco Regional Water Quality Control Board that **only sites are closed** not individual UST's or wells. Therefore, the regulators are considering Alcopark facility as one site. Our October 15, 1993 request for closure of waste oil monitoring well MW-6 can not be granted. Since the County has demonstrated four consecutive quarters that the groundwater samples taken from MW-6 have not exceeded Primary Maximum Contaminated Levels for drinking water, Environmental Health is in agreement that the County can suspend monitoring of well MW-6 and can lock up this well. The County will suspend monitoring and plans no further action.

II. **Benzene Contamination at Corner of 13th & Jackson** - After reviewing the attached plots of the eight quarters of observed benzene groundwater levels for wells MW-1, MW-5 and MW-4, the corresponding observed direction of the groundwater gradient, and the site soils characterization study that was done, the following conclusions were reached:

A. Since there is no correlation between the observed groundwater TPH-Gasoline and Benzene levels, the observed contamination is due to "old" gasoline. Since the operational tanks are being continuously monitored for leaks and none have been reported, the contamination is not coming from these tanks or from current operation at the active Alcopark gasoline filling station. Since the observed Benzene Concentration levels in groundwater shows a pattern that strongly suggests, when tied into the site characterization study done for the corner of 12th and Jackson, that observed Benzene groundwater contamination is coming upgradient of the Alcopark facility. Therefore, Environmental Health, at this time, will not require the County to install additional monitoring wells or soil borings.

The County requested that the groundwater monitoring of MW-1, MW-4 and MW-5 be suspended. For the time being, Environmental Health will not require quarterly monitoring of the three wells MW-1, MW-4 and MW-5.

B. From a comprehensive search of the records by Environmental Health, the most likely groundwater contamination source is the State of California Office Building located across the street and upgradient of Alcopark. There are currently three UST's located on the site that have been abandoned since 1989. Since they are abandoned, there is no environmental monitoring to confirm or identify that groundwater contamination is coming from this site. Environmental Health is actively pursuing the State of California to come into compliance with these tanks or remove them.

If the contamination source can be discovered, the County can sue the guilty party and recover our clean-up cost associated with identifying this problem. These recoverable costs are as follows:

Groundwater Monitoring @ 13th & Jackson	$20,250
Removal of Waste Oil Tank & Monitoring	$30,561
Site Assessment - 12th & Jackson	$ 9,010
Site Characterization - 13th & Jackson	$20,645
Future Groundwater Monitoring Expense	$14,000
TOTAL RECOVERABLE COSTS	**$94,466**

Thus, the County appreciates Environmental Health taking the lead to discover the source of the Benzene groundwater contamination.

III. **UST Removal 12th and Jackson** - After reviewing the April 19, 1993 Site Characterization Report for the two UST's located at the corner of 12th and Jackson, the following conclusions were reached:

A. This report again shows that the concentration of TPH-Gasoline in the soil samples is below action level but that the upgradient groundwater samples show concentrations of Benzene exceeding MCL's whereas the downgradient samples are below MCL levels. These results are consistent with the groundwater results at the opposite corner, 13th and Jackson as discussed above and again support the case that this groundwater contamination is coming from a source upgradient of Alcopark.

B. The County will explore the option to close these two UST's in place.

C. Environmental Health will not require the County to do additional soil borings or install groundwater monitoring wells.

D. Since closure of these two UST's is part of an on going site closure, the County only needs to submit closure plans. No new permits are required; thus saving the County $900.

I would appreciate a written confirmation for our records that the above represents our understanding of County's future actions to be taken at Alcopark. Therefore, I would appreciate your prompt acknowledgement by signing both original copies of this letter. Please keep one for your records and return one to me. Again, thank you for your continued cooperation and assistance.

Sincerely,

Andy

Andrew B. Garcia
Environmental Project Manager

cc: Mr. Jim de Vos - attachment

Agree and Concur with the above.

12-23-93
Date

Thomas Peacock
Thomas Peacock

Enlosure

ABG:abg:C:\WP51\HZM00331
917001, 917002, 917007-8, 927025 Bldg. #1921

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

RAFAT A. SHAHID, ASST. AGENCY DIRECTOR

DEPARTMENT OF ENVIRONMENTAL HEALTH
State Water Resources Control Board
Division of Clean Water Programs
UST Local Oversight Program

1131 HARBOR BAY PKWY., #250
ALAMEDA CA 94502-6577
(510)567-6700

OCT 04

File: 94-7069
Bldg 1921

September 27, 1994
STID# 3909

G.S.A. Alameda County
ATTN: Jim De Voss
4400 MacArthur Blvd.
Oakland, CA 94519

Re: 165 - 13th St., Oakland, CA 94612

Dear Jim De Voss:

This office has received and reviewed a Final Report documenting the Closure and Abandonment in place of underground storage tanks at the above facility. The report was dated August 10, 1994 and was by GeoStrategies Inc. This letter is to confirm that this Department does not require further action investigating or monitoring contamination at this site at this time. It is now believed that contamination presently in the groundwater at this site is from an off site source. A likely source has been located and investigation should begin soon at that site. You will be kept informed of any information necessary for you concerning the above site.

If you have any questions concerning this site please call this office at 567-6700. Thank you. Note that our phone and location have changed.

Sincerely,

Thomas F. Peacock, Supervising HMS
Hazardous Material Division

cc: Edgar Howell, Chief - Files
Andy Garcia, 1401 Lakeside Dr., 11th Fl., Oakland, CA 94612

7027

PSI Information To Build On
Engineering • Consulting • Testing

RECEIVED
MAR 0 1 1999
COUNTY OF ALAMEDA-GSA
Technical Services
Department

February 25, 1999

Mr. Rod Freitag, P.E.
Environmental Program Manager
County of Alameda
Engineering & Environmental Management Department
1401 Lakeside Drive, 11th Floor
Oakland, CA 94612

RE: Final Report, Soil and Groundwater Investigation
Former Alcopark Fueling Facility, Oakland, California

Dear Mr. Freitag:

As requested, Professional Service Industries is transmitting one unbound copy of the Final Report for the Soil and Groundwater Investigation for the Former Alcopark Fueling Facility at 12th Street and Jackson Street, Oakland, California. In accordance with your instructions, PSI is also transmitting a copy of the report to the Alameda County Health Care Services Agency. Please call me with any comments or questions on this report at (510) 785-1111.

Sincerely,

Timothy R. O'Brien, RG/CEG/CHG
Senior Geologist

Enclosure

cc: Eva Chu, Alameda County Health Care Services Agency

FINAL REPORT
SOIL AND GROUNDWATER INVESTIGATION
FORMER ALCOPARK FUELING FACILITY
12TH STREET AND JACKSON STREET
OAKLAND, CALIFORNIA

prepared for

COUNTY OF ALAMEDA
GENERAL SERVICES AGENCY
1401 Lakeside Drive
Oakland, California

prepared by

Professional Service Industries, Inc.
1320 West Winton Avenue
Hayward, California 94545
(510) 785-1111

February 25, 1999
575-9G004

TABLE OF CONTENTS

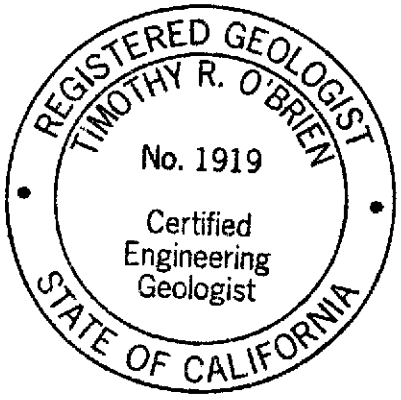
STATEMENT OF LIMITATIONS AND PROFESSIONAL CERTIFICATION

Information provided in this report, prepared by Professional Service Industries, Inc. (PSI), is intended exclusively for the use of County of Alameda, General Services Agency, for the evaluation of subsurface conditions as it pertains to the subject site. The professional services provided have been performed in accordance with practices generally accepted by other geologists, hydrologists, hydrogeologists, engineers, and environmental scientists practicing in this field. No other warranty, either expressed or implied, is made. As with all subsurface investigations, there is no guarantee that the work conducted will identify any or all sources or locations of contamination.

This report is issued with the understanding that Alameda GSA is responsible for ensuring that the information contained herein is brought to the attention of the appropriate regulatory agency. This Workplan has been reviewed by a geologist who is registered in the State of California and whose signature and license number appear below.

Frank R. Poss
Senior Hydrogeologist

Timothy R. O'Brien, RG/CEG/CHG
Senior Geologist



1. INTRODUCTION

Professional Service Industries, Inc. (PSI) has been retained by the County of Alameda General Services Agency (Alameda GSA) to investigate soil and groundwater conditions at the Former Alcopark Fueling Facility located at the northeast corner of 12th and Jackson Streets in Oakland, California. The site location is presented on Figure 1.

Ms. Eva Chu of the Alameda County Health Care Services Agency (ACHCSA) requested additional delineation of soil and groundwater contamination identified in a previous study (ESE, 1993). PSI prepared a workplan to perform the investigation (PSI, 1999). The workplan was approved by ACHCSA with the provision additional analysis of a soil sample be performed to provide data for a Tier 2 Risk Based Corrective Action study, if needed (ACHCSA, 1999a).

1.1 PROJECT GOALS

The project goals consist of the following:

- Estimate the groundwater flow direction and depth.
- Delineate the extent of impacted soil and groundwater at the site.
- Determine the site conditions relative to evaluation of the site as a "Low Risk" site as determined by RWQCB guidance documents (RWQCB, 1996).

1.2 SCOPE OF WORK

The scope of work consisted of the following tasks:

- Prepare a site specific site health and safety plan and this workplan.
- Mark the drilling locations and notify Underground Service Alert 72 hours prior to initiating drilling activities.
- Drill three Geoprobe direct push soil borings to obtain soil and groundwater samples. Use a PID to screen the soil samples collected in the borings.

- Transport soil and groundwater samples to McCampbell Analytical Services of Pacheco, California, a California State certified laboratory.

- Analyze soil and groundwater samples for Total Petroleum Hydrocarbons as Gasoline (TPH-G) by EPA Method 8015M; Benzene, Toluene, Ethylbenzene, Total Xylenes (BTEX); and Methyl Tertiary Butyl Ether (MTBE) by EPA Method 8020. EPA Method 8260 was used to confirm the existence of MTBE in the samples collected in Boring SB-6.

- ACHCSA requested one soil sample be analyzed for bulk density, total organic carbon, porosity, and water content (ACHCSA, 1999a).

- Evaluate the site conditions with respect to site closure concerns.

- Prepare a report summarizing the findings of the investigation and an evaluation of the suitability of the site for administrative closure.

1.3 SITE BACKGROUND

Alameda GSA closed two 10,000 gallon USTs in-place at the site in 1994. The USTs previously stored gasoline. The tanks had not been used since the early 1980s (GSA, 1999). Soil and groundwater samples collected in support of in-place closure indicated low concentrations of petroleum hydrocarbons in soil and measurable concentrations of petroleum hydrocarbons in groundwater (ESE, 1993). The analytical data collected in the soil and groundwater sample event is presented in Table 1-1. The previously drilled boring locations are presented on Figure 2.

2. PRE-FIELD IMPLEMENTATION ACTIVITIES

2.1 SOIL BORINGS

The rationale for selection of the soil boring locations is presented in Section 3.1. Prior to drilling the soil borings, the following tasks were performed:

- A Drilling Permit from the Alameda County Public Works Agency, and a Street Use Permit from the City of Oakland Public Works Agency were obtained.
- A site specific health and safety plan was prepared.
- The Alameda GSA, ACHCSA, and Alameda Public Works representatives were notified of the site activity schedule.
- The borehole locations were marked and Underground Service Alert was informed of the planned drilling activities. A private utility locating company was also contracted to clear the soil boring locations.

2.1.1 Soil Boring Permit Application

In accordance with drilling requirements in Alameda County, a drilling permit was submitted to the Alameda County Public Works Department. Alameda County Public Works was informed of the drilling schedule to allow grout inspection. A copy of the drilling permit is included in Appendix A.

A street use permit was obtained from the City of Oakland Public Works Department to allow drilling a soil boring in the public street. A copy of the street use permit is included in Appendix A.

2.1.2 Site Specific Health and Safety Plan

A site-specific health and safety plan was prepared in compliance with 29 CFR 1910.120. The plan addressed hazardous materials and physical hazards that might be encountered during field activities at the site.

2.1.3 Utility Clearance

PSI marked the drilling locations with white paint and contacted Underground Service Alert (USA) to identify subsurface utilities in the areas of investigation. In addition, the boring locations were cleared by a private underground utility locating service.

2.1.4 Groundwater Flow Direction

Groundwater flow direction has been estimated through interpretation of nearby groundwater conditions, a topographic map, and contaminant distribution patterns. A north-northeast groundwater flow direction was calculated at the Alcopark UST facility located at 13th and Jackson Streets approximately 300 feet from the subject site (PSI, 1998).

Interpretation of the groundwater flow direction from the United States Geological Survey map titled, *Oakland West,* is consistent with the measurement. Review of the previously detected contaminant's aerial location with respect to the probable source areas is also consistent with the calculated measurement.

3. SUBSURFACE INVESTIGATION

The soil and groundwater investigation was performed on February 10, 1999. Three soil borings were drilled to collect soil and groundwater samples.

3.1 SOIL BORINGS

The soil borings were drilled to investigate the soil and groundwater conditions at the site. The information collected in this investigation builds on the information collected previously (ESE, 1994). The borings were advanced far enough to allow collection of grab groundwater samples. The soil borings were advanced to a depth of approximately 25 feet below ground surface (bgs).

Boring SB-5 was drilled upgradient of the USTs and remote fill lines. Borings SB-6 and SB-7 were drilled downgradient of the USTs. The boring locations are presented on Figure 2.

Fisch Environmental Services of Valley Springs, California provided drilling services. The borings were drilled by the direct push GeoProbe drilling technique. Soil borings were logged by a PSI geologist using the Unified Soil Classification System (USCS). The work was performed under the supervision of a State of California Registered Geologist.

Samples were collected in two-foot long plastic sample liners. A portion of each soil sample was placed in a plastic bag, labeled, and the soil gas concentration of volatile compounds allowed to equilibrate. PID measurements were collected by piercing the bag with the PID's steel probe. The PID measurements were recorded on the boring logs. Soil boring logs are presented in Appendix A.

3.1.1 Soil Sample Collection

One soil sample was collected from each soil boring for the chemical analyses described in Section 4.0. Samples for chemical analysis were selected based on field measured PID readings; the soil sample interval containing the highest concentration of total VOCs were selected for submittal to the analytical laboratory. In this investigation, no measurable soil gas concentration was observed so samples from the capillary fringe were collected for chemical analysis.

Soil samples submitted to the analytical laboratory were collected by cutting the interval for chemical analysis out of the plastic liners they were collected in and capping the ends with Teflon sheeting, plastic end caps, and duct tape. Samples were labeled using a permanent marking pen identifying the sampler, boring name, sample collection depth, time, and date. Collected samples were placed in a cooler containing ice and maintained under chain of custody protocol.

3.1.1.1 Chemical Analysis of Soil Samples

Soil samples were chemically analyzed for the contaminants suspected of existing at that location. Because the USTs stored gasoline, samples were analyzed for TPH-G, BTEX, and MTBE. As requested by ACHCSA, the soil sample collected from Boring SB-6 was analyzed by EPA Method 8260 and total lead (ACHCSA, 1999b).

3.1.2 Grab Groundwater Sampling

Upon encountering groundwater in the borings, grab groundwater samples were collected. The grab groundwater samples were collected using disposable polyethylene tubing equipped with a check valve lowered through the drill stem to collect groundwater samples. Samples were stored in a cooler containing ice and maintained under chain of custody protocol.

3.1.2.1 Chemical Analysis of Groundwater Samples

Groundwater samples were chemically analyzed for the contaminants suspected of existing at that location. Because the USTs stored gasoline, samples were analyzed for TPH-G, BTEX, and MTBE. As requested by ACHCSA, the groundwater sample collected from Boring SB-6 was analyzed by EPA Method 8260 (ACHCSA, 1999b).

3.1.3 Groundwater Elevation Measurements

Depth to groundwater was measured from the ground surface in each soil boring. The depth to water is recorded on the boring logs. Groundwater at the site exists in a confined condition. Groundwater was not encountered in the soil borings until a depth of 25 feet was reached. Groundwater rose to a depth of 18 feet bgs when allowed to equilibrate.

Upon collection of the groundwater samples, the borings were grouted with neat cement. Grout inspection was scheduled with the ACHCSA and Alameda County Public Works Agency. Ms. Eva Chu of ACHCSA was on-site during drilling and sampling activities.

3.1.4 Decontamination Procedures

To minimize the possibility of contaminant cross-contamination between sampling locations most of the sampling equipment used was disposable. To further minimize the possibility of cross-contamination, all re-usable sampling equipment was cleaned with a non-phosphate detergent and rinsed twice with deionized water prior to use at a new sampling location. Sampling equipment included:

- Stainless-steel sample barrel and tubes
- Drilling equipment
- Groundwater sampling equipment and sounders

4. LABORATORY ANALYSIS PROGRAM

The soil and groundwater samples collected in this investigation were submitted to McCampbell Analytical Services of Pacheco, California. McCampbell Analytical is a State of California, Department of Health Services certified hazardous waste laboratory. A summary of the analytical methods is presented below. Soil and groundwater samples were analyzed for the following constituents by the indicated methods:

- Total Petroleum Hydrocarbons as Gasoline (TPH-G) in accordance with Environmental Protection Agency (EPA) Method 8015-m.
- BTEX and MTBE by EPA Method 8020.
- MTBE and other fuel oxygenates by EPA Method 8260 (for soil and groundwater samples from Boring SB-6).
- Total Lead by EPA Method 6010 (for soil sample from Boring SB-6)

Rationale for selection of chemical analyses for specific samples is presented in Sections 3.1.1.1 and 3.1.2.1. Groundwater sample containers were supplied by the laboratory; new soil sample containers were supplied by the drilling contractor. In addition to the chemical analyses listed above, one soil sample from the unsaturated zone was selected from Boring SB-5 for the following parameters by the indicated methods;

- Moisture (Water) Content by American Society for Testing and Material (ASTM) Method E3173.
- Fractional Organic Content by ASTM 2974c and Total Organic Carbon by EPA 415.1.
- Bulk Density by laboratory calculation method.
- Porosity by laboratory calculation method.
- Unsaturated Porosity (Air Filled Void Space) by laboratory calculation method.

4.1 ANALYTICAL RESULTS DISCUSSION

Soil and groundwater samples were collected and chemically analyzed in accordance with the approved work plan for the investigation. The data are summarized in Table 1-1. Laboratory reports are presented in Appendix B.

4.1.1 Soil Analysis Discussion

No detectable concentration of TPH-G was detected in any of the soil samples collected in this investigation. No BTEX or MTBE was detected in the soil samples collected from Borings SB-5 or SB-7. Low concentrations of BTEX were detected in the soil sample from Boring SB-6. No detectable concentration of total lead was reported in the sample analyzed for lead from Boring SB-6. Six oxygenates were analyzed by EPA Method 8260; no detectable concentration of the oxygenates was reported.

Contaminants were detected only in the soil sample collected from Boring SB-6, which was the closest boring to the former USTs' location. The lack of MTBE is consistent with the information on the date of the USTs' closure. In the sample analyzed by EPA Method 8260, only petroleum related hydrocarbons were reported.

4.1.2 Groundwater Analysis Discussion

A low concentration of TPH-G was detected in the groundwater sample collected from Boring SB-6. Trace or low concentrations of BTEX compounds were detected from all three grab groundwater samples. No MTBE was detected in any of the groundwater samples. Six oxygenates were analyzed by EPA Method 8260. No detectable concentration of the oxygenates was reported.

It is noted that MTBE was reported in the EPA Method 8020 analysis of the sample collected from Boring SB-6, however, the EPA Method 8260 analysis of the sample did not report measurable MTBE. EPA Method 8260 is considered a more reliable analytical method to quantify MTBE and other oxygenates when the presence of TPH-G exists in the sample matrix (LLNL, 1998). The detection of MTBE by the EPA Method 8020 is considered a false-positive misidentification.

Significant concentrations of contaminants were detected only in the groundwater sample collected from Boring SB-6, which was the closest boring to the former USTs' location. As stated in Section 4.1.1, the lack of MTBE is consistent with the information on the date of the USTs' closure. In the sample analyzed by EPA Method 8260, only petroleum related hydrocarbons were reported.

4.2 FATE AND TRANSPORT OF DETECTED SITE CONTAMINANTS

The primary transport mechanisms for petroleum hydrocarbons in the subsurface is advection, dispersion, and diffusion. Because the contaminants detected at the site are reactive, the concentration of a plume will be reduced by adsorption, chemical reactions, and biological transformation (EPA, 1991).

Historical case analyses of petroleum hydrocarbon plumes show the practical limits to groundwater plume migration. In general, average TPH plume lengths rarely exceed about 250 feet and benzene concentrations in plumes decrease more rapidly than other fuel hydrocarbons (LLNL, 1995b).

5. CONCLUSIONS

Based on the information presented in this report, the following conclusions have been reached:

- Site soils consists of silt and sand mixtures. Groundwater exists in a confined condition approximately 25 feet bgs.

- Groundwater flow direction measured at a nearby site is to the north-northeast under a hydraulic gradient of approximately 0.007 foot per foot.

- Petroleum hydrocarbon contamination exists in a localized area at the site. The contamination exists in the area of Boring SB-6. The downgradient extent of the petroleum has not been defined but is not likely to extend past the Alcopark parking structure based on review of published literature (LLNL, 1995b).

- No MTBE was detected in this investigation. This finding is consistent with the information on the closure date of the USTs.

Based on the results of PSI's soil and groundwater investigation presented in this report, PSI does not recommend additional investigation of the former Alcopark USTs. This recommendation is based on the lack of MTBE in site soil or groundwater, and published guidance which recommends natural bioremediation of low concentration spills (RWQCB, 1996).

REFERENCES

ACHCSA, 1999a, Workplan Approval for Former Alcopark Fueling Facility, prepared by Ms. Eva Chu, January 27.

ACHCSA, 1999b, Personnel Communication between Ms. Eva Chu of ACHCSA and Mr. Timothy O'Brien of PSI concerning additional laboratory analysis request, February 10.

ESE, 1993, Subsurface Investigation for USTs at Jackson and 12th Streets, 165 13th Street, Oakland, California, prepared for Alameda County General Services Agency, April 19.

EPA, 1989, Seminar Publication, Transport and Fate of Contaminants in the Subsurface, prepared for Technology Transfer, September.

EPA, 1991, Seminar Publication, Site Characterization for Subsurface Remediation, prepared for Technology Transfer, November.

GSA, 1999, Request For Proposal (RFP) for Groundwater Services, January 8.

LLNL, 1995a, Recommendations to Improve the Cleanup Process for California's Leaking Underground Fuel Tanks, October 16.

LLNL, 1995b, California Leaking Underground Fuel Tank Historical Case Analyses, November 16.

LLNL, 1998, An Evaluation of MTBE Impacts to California Groundwater Resources, prepared for California State Water Resources Control Board, June 11.

PSI 1998, Groundwater Monitoring Report, Third Quarter, 1998, Alcopark Fueling Facility, prepared for Alameda GSA, August 12.

RWQCB, 1996, Supplemental Instruction to State Water Board December 8, 1995 Interim Guidance on Required Cleanup at Low Risk Fuel Sites, January 5.

USGS, 1980, Oakland West, California, topographic map.

TABLE 1-1
SUMMARY OF ANALYTICAL DATA
FORMER ALCOPARK FUELING FACILITY
12TH and JACKSON STREETS, OAKLAND, CA

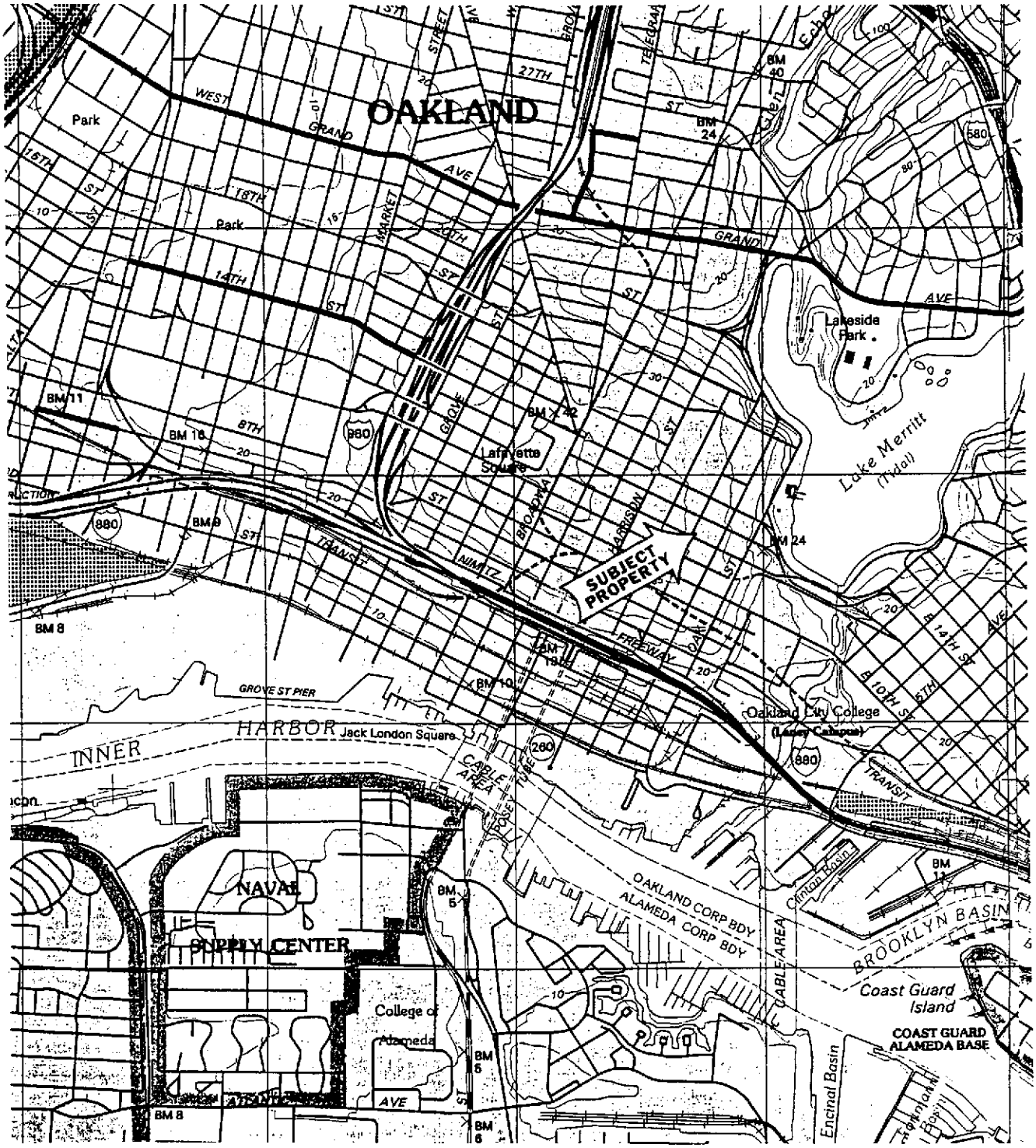
					All concentrations in mg/kg (PPM).					
Soil Boring	Sample Depth	Date	Matrix	TPH-G	MTBE	Benzene	Toluene	Ethylbenzene	Xylenes	Lead
SB-1	15	10/27/92	Soil	<1	NA	0.019	0.019	0.011	0.042	NA
SB-1	21.5	10/27/92	Soil	6.3	NA	0.41	0.68	0.1	0.70	NA
SB-2	15	10/27/92	Soil	<1	NA	<0.005	<0.005	<0.005	<0.005	NA
SB-2	22	10/27/92	Soil	1.8	NA	0.21	0.19	0.034	0.20	NA
SB-3	15	10/28/92	Soil	<1	NA	<0.005	<0.005	<0.005	<0.005	NA
SB-3	22	10/28/92	Soil	<1	NA	<0.005	<0.005	<0.005	<0.005	NA
SB-4	15	10/28/92	Soil	<1	NA	<0.005	<0.005	<0.005	<0.005	NA
SB-4	22	10/28/92	Soil	<1	NA	<0.005	<0.005	<0.005	<0.005	NA
SB-5	25	2/10/99	Soil	<1	<0.005	<0.005	<0.005	<0.005	<0.005	NA
SB-6	25	2/10/99	Soil	<1	<0.005	0.047	0.022	0.024	0.026	<3.0
SB-7	25	2/10/99	Soil	<1	<0.005	<0.005	<0.005	<0.005	<0.005	NA
					All concentrations in mg/l (PPM).					
Soil Boring	Sample Depth	Date	Matrix	TPH-G	MTBE	Benzene	Toluene	Ethylbenzene	Xylenes	Lead
SB-1	NA	10/27/92	Groundwater	51	NA	2.4	9.4	1.4	8.4	NA
SB-2	NA	10/27/92	Groundwater	8.2	NA	0.56	0.93	0.36	0.62	NA
SB-3	NA	10/28/92	Groundwater	0.072	NA	0.00071	<0.0005	0.0005	0.0024	NA
SB-4	NA	10/28/92	Groundwater	<0.050	NA	<0.0005	<0.0005	<0.0005	<0.0005	NA
SB-5	25	2/10/99	Groundwater	<0.050	<0.005	0.00063	0.00076	<0.0005	0.00067	NA
SB-6	25	2/10/99	Groundwater	5.0	<0.015	0.58	0.58	0.16	0.87	NA
SB-7	25	2/10/99	Groundwater	<0.050	<0.005	<0.0005	0.0011	<0.0005	0.0020	NA

Notes:
TPH-G denotes Total Petroleum Hydrocarbons as Gasoline.
MTBE denotes Methyl Tert Butyl Ether.
mg/kg denotes milligrams per kilogram (ppm).
< denotes less than detection limit.
NA denotes Not Analyzed.
Sample Depth reported in feet below ground surface.
Data collected in 1992 from ESE Report of Findings dated April 19, 1993 prepared for Alameda GSA.

TABLE 1-2
SUMMARY OF SOIL PROPERTY DATA
FORMER ALCOPARK FUELING FACILITY
12TH and JACKSON STREETS, OAKLAND, CA

Soil Boring	Sample Depth (ft. bgs)	Date	Matrix	Moisture Content (weight %)	Bulk Density (Grams/cc)	Porosity (Volume % Porosity)	Air Filled Void Space (% Porosity)	Fractional Organic Content (weight %)	Total Organic Carbon (mg/kg)
SB-5	5	2/10/99	Soil	13	1.8	42	19	2.3	1150

Notes:
ft. bgs denotes feet below ground surface.
Grams/cc denotes grams per cubic centemeter.
Moisture Content by ASTM E3173.
Fractional Organic Content by ASTM 2974c.
Total Organic Carbon by EPA Method 415.1
Bulk Density, Porosity, and Air Filled Void Space by laboratory method.



Environmental Geotechnical Construction
Consulting • Engineering • Testing

1320 West Winton
Hayward, CA 94545
510-785-1111
Fax 510-785-1192

FIGURE 1 - SITE LOCATION MAP

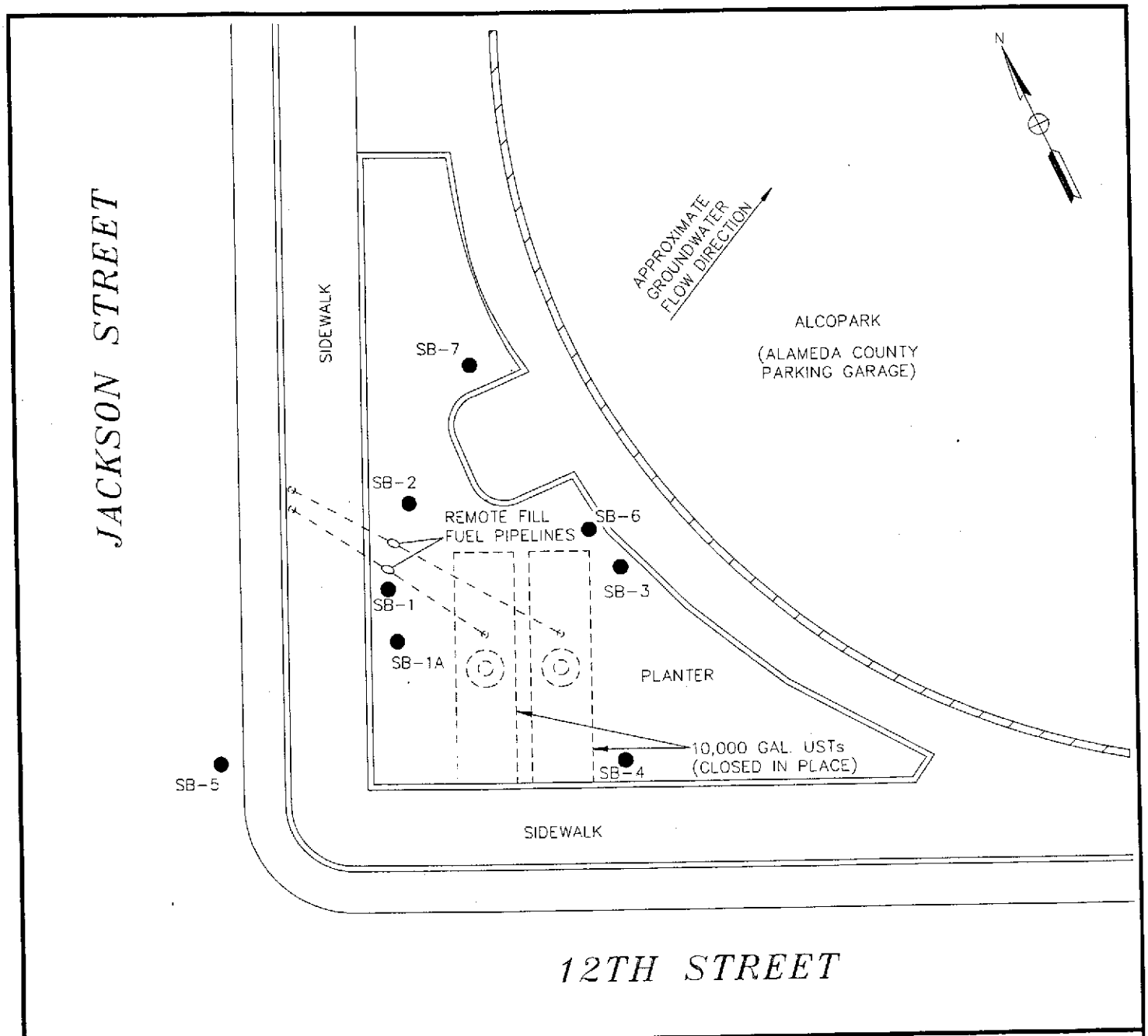
Former Alcopark Fueling Facility
Jackson and 12th Streets
Oakland, California

PROJECT NO.:
9G004

SOURCE:
USGS Topographic Maps
Oakland West, CA
Oakland East, CA

DATE:
Photorevised 1993

N



LEGEND

SB-1 ● SOIL BORING

○ REMOTE FILL PORTS

0 10 20

SCALE IN FEET

NOTE:
SITE MAP FROM ESE REPORT OF FINDINGS, DATED APRIL 19, 1993.

psi ENVIRONMENTAL GEOTECHNICAL CONSTRUCTION
CONSULTING • ENGINEERING • TESTING

SITE PLAN
FORMER ALCOPARK FUELING FACILITY
12TH AND JACKSON STREETS
OAKLAND, CALIFORNIA
PROJECT NUMBER: 575-9G004

DATE: 1/21/99	CKD BY:	FIGURE NO.: 2
FILE NO: 9G004-2		DRAWN BY: S.BOWERS

APPENDIX A

DRILLING PERMIT
SOIL BORING LOGS
CITY OF OAKLAND STREET PERMIT

96204

ALAMEDA COUNTY PUBLIC WORKS AGENCY

WATER RESOURCES SECTION
951 TURNER COURT, SUITE 300, HAYWARD, CA 94545-2651
PHONE (510) 670-5575 ANDREAS GODFREY FAX (510) 670-5262
(510) 670-5248 ALVIN KAN

DRILLING PERMIT APPLICATION

FOR APPLICANT TO COMPLETE

LOCATION OF PROJECT Northeast corner of intersection of 12th Street and Jackson Street, Oakland, CA

California Coordinates Source _____ Accuracy = _____ ft.
CCN _____ ft. CCE _____ ft.
APN _____

CLIENT
Name Alameda Co. General Services Agency
Address 1401 Lakeside Dr. Phone 510 208 9522
City Oakland, CA Zip 94612

APPLICANT
Name Professional Service Industries Fax 510 785 1192
Address 1370 W. Winton Ave. Phone 510 785 1111
City Hayward, CA Zip _____

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 ☒ Direct Push (Geoprobe)

DRILLER'S LICENSE NO. C57 683865

WELL PROJECTS
Drill Hole Diameter _____ in. Maximum
Casing Diameter _____ in. Depth _____ ft.
Surface Seal Depth _____ ft. Number _____

GEOTECHNICAL PROJECTS
Number of Borings 3 Maximum
Hole Diameter 2 in. Depth 25 ft.

ESTIMATED STARTING DATE 2/5/99
ESTIMATED COMPLETION DATE 2/5/99

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

APPLICANT'S SIGNATURE _____ DATE 1/29/99

FOR OFFICE USE

PERMIT NUMBER 99WR041
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 work the original Department of Water Resources Water Well Drillers Report or equivalent for well projects, or drilling logs and location sketch for geotechnical projects.
(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 with compacted cuttings or heavy bentonite and upper two feet with compacted material. In areas of known or suspected contamination, tremied cement grout shall be used in place of compacted cuttings.

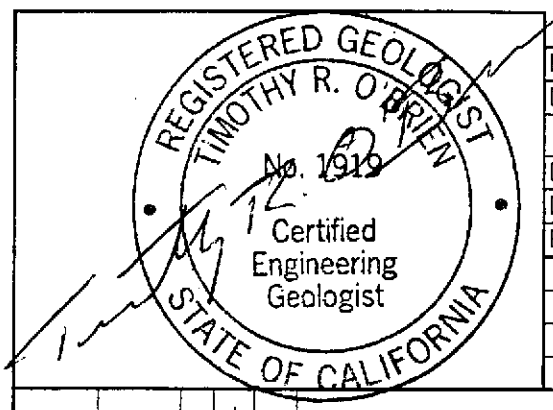
E. CATHODIC
Fill hole above anode zone with concrete placed by tremie.

F. WELL DESTRUCTION
See attached.

G. SPECIAL CONDITIONS

APPROVED Andreas Godfrey DATE 2/1/99

SOIL BORING LOG



BORING NO: SB-5	
SHEET 1 OF 2	
PROJECT NAME: Former Alcopark Fueling Stn.	PROJECT NO: 575-9G004
DATE: 2/10/99	
DRILLING COMPANY:	FISCH ENVIRONMENTAL
DRILLING METHOD:	DIRECT PUSH - GEOPROBE
BORING DIMENSIONS:	2 INCH DIAMETER DEPTH: 25 FT

GROUNDWATER LEVELS

DATE	COMMENTS	DEPTH BGS
2/10/99	INITIAL	25 FT
2/10/99	STABILIZED	8 FT

DEPTH (FEET)	SAMPLE NO.	RECOVERY (IN)	SAMPLE INTERVAL	BLOW COUNT	DESCRIPTION	PID (PPM)	USCS	REMARKS
1					Sand with some silt, fine to medium grained sand, brown, moist, no odor.		SP	Concrete pavement surface.
5		18				0		
10		20				0		
15		19			Silty sand, fine to medium grained sand, greenish-gray, moist, no odor.	0	SM	
18								moisture increase to very moist.
19		19						
20						0		
					Log continues downward			

REVIEWED BY: TIM O'BRIEN

LOGGED BY: SCOTT A. BOWERS

SOIL BORING LOG

BORING NO:	SB-5
SHEET	2 OF 2
PROJECT NAME:	Former Alcopark Fueling Stn.
PROJECT NO:	575-9G004
DATE:	2/10/99
DRILLING COMPANY:	FISCH ENVIRONMENTAL
DRILLING METHOD:	DIRECT PUSH - GEOPROBE
BORING DIMENSIONS:	2 INCH DIAMETER
DEPTH:	25 FT

GROUNDWATER LEVELS

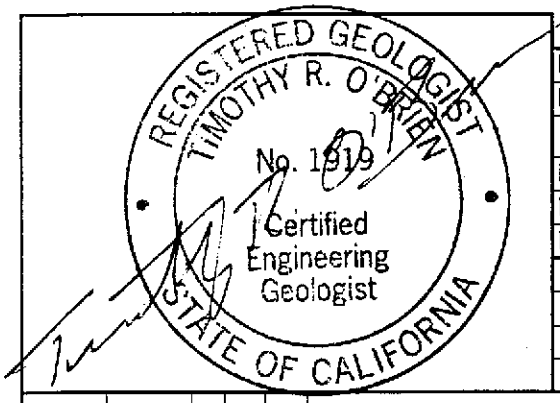
DATE	COMMENTS	DEPTH BGS

DEPTH (FEET)	SAMPLE NO.	RECOVERY (IN)	SAMPLE INTERVAL	BLOW COUNT	DESCRIPTION	PID (PPM)	USCS	REMARKS
					Silty sand as described above.			
21								
22								
23								
24		24				0		Groundwater encountered
25								Total Depth = 25 feet.
26								Boring terminated at depth sufficient for investigation.
27								Groundwater encountered at 25 feet below ground surface.
28								Boring grouted with neat cement.
29								
30								
31								
32								
33								
34								
35								
36								
37								
38								
39								
40								

REVIEWED BY: TIM O'BRIEN

LOGGED BY: SCOTT A. BOWERS

SOIL BORING LOG



BORING NO: SB-6	
SHEET 1 OF 2	
PROJECT NAME: Former Alcopark Fueling Stn.	PROJECT NO: 575-9G004
DATE: 2/10/99	
DRILLING COMPANY:	FISCH ENVIRONMENTAL
DRILLING METHOD:	DIRECT PUSH - GEOPROBE
BORING DIMENSIONS:	2 INCH DIAMETER DEPTH: 25 FT

GROUNDWATER LEVELS

DATE	COMMENTS	DEPTH BGS
2/10/99	INITIAL	25 FT
2/10/99	STABILIZED	18 FT

DEPTH (FEET)	SAMPLE NO.	RECOVERY (IN)	SAMPLE INTERVAL	BLOW COUNT	DESCRIPTION	PID (PPM)	USCS	REMARKS
					Sand with some silt, fine to medium grained sand, brown,		SP	Soil surface.
1					moist, no odor.			
2								
3								
4								
5		20				0		
6								
7								
8								
9								
10		24				0		
11								
12								
13								
14								
15		21			Silty sand, fine to medium grained sand, greenish-gray, moist,	0	SM	
16					no odor.			
17								
18								moisture increase to very moist.
19		20						
20						0		
					Log continues downward			

REVIEWED BY: TIM O'BRIEN

LOGGED BY: SCOTT A. BOWERS

SOIL BORING LOG

BORING NO:	SB-6
SHEET	2 OF 2
PROJECT NAME: Former Alcopark Fueling Stn.	PROJECT NO: 575-9G004
DATE: 2/10/99	
DRILLING COMPANY:	FISCH ENVIRONMENTAL
DRILLING METHOD:	DIRECT PUSH - GEOPROBE
BORING DIMENSIONS:	2 INCH DIAMETER DEPTH: 25 FT

GROUNDWATER LEVELS

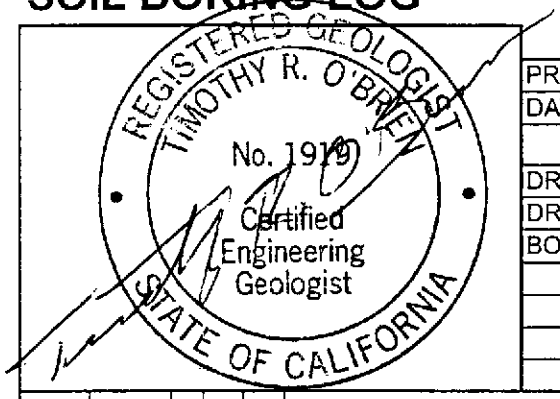
DATE	COMMENTS	DEPTH BGS

DEPTH (FEET)	SAMPLE NO.	RECOVERY (IN)	SAMPLE INTERVAL	BLOW COUNT	DESCRIPTION	PID (PPM)	USCS	REMARKS
					Silty sand as described above.			
21								
22								
23								
24		24				0		Groundwater encountered
25								Total Depth = 25 feet.
26								Boring terminated at depth sufficient for investigation.
27								Groundwater encountered at 25 feet below ground surface.
28								Boring grouted with neat cement.
29								
30								
31								
32								
33								
34								
35								
36								
37								
38								
39								
40								

REVIEWED BY: TIM O'BRIEN

LOGGED BY: SCOTT A. BOWERS

SOIL BORING LOG



BORING NO: SB-7	
SHEET 1 OF 2	
PROJECT NAME: Former Alcopark Fueling Stn.	PROJECT NO: 575-9G004
DATE 2/10/99	
DRILLING COMPANY:	FISCH ENVIRONMENTAL
DRILLING METHOD:	DIRECT PUSH - GEOPROBE
BORING DIMENSIONS:	2 INCH DIAMETER DEPTH: 25 FT

GROUNDWATER LEVELS

DATE	COMMENTS	DEPTH BGS
2/10/99	INITIAL	25 FT
2/10/99	STABILIZED	17 FT

DEPTH (FEET)	SAMPLE NO.	RECOVERY (IN)	SAMPLE INTERVAL	BLOW COUNT	DESCRIPTION	PID (PPM)	USCS	REMARKS
					Sand with some silt, fine to medium grained sand, brown,		SP	Soil surface.
1					moist, no odor.			
2								
3								
4								
5		18				0		
6								
7								
8								
9								
10		20				0		
11								
12								
13								
14								
15		19						
					Silty sand, fine to medium grained sand, greenish-gray, moist,	0	SM	
16					no odor.			
17								
18								moisture increase to very moist.
19		19						
20						0		
					Log continues downward			

REVIEWED BY: TIM O'BRIEN

LOGGED BY: SCOTT A. BOWERS

SOIL BORING LOG

BORING NO:	SB-7
SHEET	2 OF 2
PROJECT NAME:	Former Alcopark Fueling Stn.
PROJECT NO:	575-9G004
DATE	2/10/99
DRILLING COMPANY:	FISCH ENVIRONMENTAL
DRILLING METHOD:	DIRECT PUSH - GEOPROBE
BORING DIMENSIONS:	2 INCH DIAMETER
DEPTH:	25 FT

GROUNDWATER LEVELS

DATE	COMMENTS	DEPTH BGS

DEPTH (FEET)	SAMPLE NO.	RECOVERY (IN)	SAMPLE INTERVAL	BLOW COUNT	DESCRIPTION	PID (PPM)	USCS	REMARKS
					Silty sand as described above.			
21								
22								
23								
24		24				0		Groundwater encountered
25								Total Depth = 25 feet.
26								Boring terminated at depth sufficient for investigation.
27								Groundwater encountered at 25 feet below ground surface.
28								Boring grouted with neat cement.
29								
30								
31								
32								
33								
34								
35								
36								
37								
38								
39								
40								

REVIEWED BY: TIM O'BRIEN

LOGGED BY: SCOTT A. BOWERS

CITY OF OAKLAND
Office of Planning and Building

960014

EXCAVATION PERMIT

TO EXCAVATE IN STREETS OR OTHER SPECIFIED WORK

CIVIL ENGINEERING

1200 JACKSON ST.

PERMIT NUMBER X9900087	SITE ADDRESS/LOCATION West side of Jackson Street approx. 40 ft. north of 12th Street
APPROX. START DATE 2/5/99 / APPROX. END DATE 2/5/99	24-HOUR EMERGENCY PHONE NUMBER (Permit not valid without 24-Hour number) 510 785 1111
CONTRACTOR'S LICENSE # AND CLASS 716703 A, C57, Haz	CITY BUSINESS TAX # 283185

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 see attached

☐ 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.

Signature of Permittee ☐ Agent for ☐ Contractor ☐ Owner — Date 2/1/99

DATE STREET LAST RESURFACED 92	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 M. Miller		DATE ISSUED 2/1/99	

APPENDIX B

LABORATORY REPORT

McCAMPBELL ANALYTICAL INC.
110 Second Avenue South, #D7, Pacheco, CA 94553
Telephone : 925-798-1620 Fax : 925-798-1622
http://www.mccampbell.com E-mail: main@mccampbell.com

Professional Service Industries 1320 West Winton Avenue Hayward, CA 94545	Client Project ID: #575-9G004; Former Alcopark Fueling Station	Date Sampled: 02/10/99
		Date Received: 02/10/99
	Client Contact: Tim O'Brien	Date Extracted: 02/10/99
	Client P.O:	Date Analyzed: 02/10/99

02/17/99

Dear Tim:

Enclosed are:

1). the results of 7 samples from your **#575-9G004; Former Alcopark Fueling Station** project,

2). a QC report for the above samples

3). a copy of the chain of custody, and

4). a bill for analytical services.

All analyses were completed satisfactorily and all QC samples were found to be within our control limits. If you have any questions please contact me. McCampbell Analytical Laboratories strives for excellence in quality, service and cost. Thank you for your business and I look forward to working with you again.

Yours truly,

Edward Hamilton, Lab Director

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	Client P.O:	Date Analyzed: 02/12-0/17/99

Gasoline Range (C6-C12) Volatile Hydrocarbons as Gasoline*, with Methyl tert-Butyl Ether* & BTEX*

EPA methods 5030, modified 8015, and 8020 or 602; California RWQCB (SF Bay Region) method GCFID(5030)

Lab ID	Client ID	Matrix	TPH(g)+	MTBE	Benzene	Toluene	Ethylben-zene	Xylenes	% Recovery Surrogate
03221	SB-5-25	S	ND	ND	ND	ND	ND	ND	103
03222	SB-6-25	S	ND	ND	0.047	0.022	0.024	0.026	100
03223	SB-7-25	S	ND	ND	ND	ND	ND	ND	96
03224	WSB-5	W	ND,i	ND	0.63	0.76	ND	0.67	104
03225	WSB-6	W	5000,a,i	63	580	580	160	870	104
03226	WSB-7	W	ND	ND	ND	1.1	ND	2.0	103
Reporting Limit unless otherwise stated; ND means not detected above the reporting limit		W	50 ug/L	5.0	0.5	0.5	0.5	0.5	
		S	1.0 mg/kg	0.05	0.005	0.005	0.005	0.005	

* water and vapor samples are reported in ug/L, wipe samples in ug/wipe, soil and sludge samples in mg/kg, and all TCLP and SPLP extracts in ug/L

cluttered chromatogram; sample peak coelutes with surrogate peak

+The following descriptions of the TPH chromatogram are cursory in nature and McCampbell Analytical is not responsible for their interpretation: a) unmodified or weakly modified gasoline is significant; b) heavier gasoline range compounds are significant(aged gasoline?); c) lighter gasoline range compounds (the most mobile fraction) are significant; d) gasoline range compounds having broad chromatographic peaks are significant; biologically altered gasoline?; e) TPH pattern that does not appear to be derived from gasoline (?); f) one to a few isolated peaks present; g) strongly aged gasoline or diesel range compounds are significant; h) lighter than water immiscible sheen is present; i) liquid sample that contains greater than ~5 vol. % sediment; j) no recognizable pattern.

DHS Certification No. 1644

Edward Hamilton, Lab Director

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		Date Received: 02/10/99
	Client Contact: Tim O'Brien	Date Extracted: 02/11/99
	Client P.O:	Date Analyzed: 02/11-02/12/99

Volatile Organics By GC/MS

EPA method 8260

Lab ID	03222
Client ID	SB-6-25
Matrix	S

Compound	Concentration*	Compound	Concentration*
Acetone [b]	ND<30	Ethylbenzene	13
Benzene	28	Hexachlorobutadiene	ND
Bromobenzene	ND	Iodomethane	ND
Bromochloromethane	ND	Isopropylbenzene	ND
Bromodichloromethane	ND	p-Isopropyl toluene	ND
Bromoform	ND	Methyl butyl ketone [d]	ND
Bromomethane	ND	Methylene Chloride [e]	ND<10
n-Butyl benzene	ND	Methyl ethyl ketone [f]	ND
sec-Butyl benzene	ND	Methyl isobutyl ketone [g]	ND
tert-Butyl benzene	ND	Methyl tert-Butyl Ether (MTBE)	---
Carbon Disulfide	ND	Napthalene	ND
Carbon Tetrachloride	ND	n-Propyl benzene	ND
Chlorobenzene	ND	Styrene [k]	ND
Chloroethane	ND	1,1,1,2-Tetrachloroethane	ND
2-Chloroethyl Vinyl Ether [c]	ND	1,1,2,2-Tetrachloroethane	ND
Chloroform	ND	Tetrachloroethene	ND
Chloromethane	ND	Toluene [l]	10
2-Chlorotoluene	ND	1,2,3-Trichlorobenzene	ND
4-Chlorotoluene	ND	1,2,4-Trichlorobenzene	ND
Dibromochloromethane	ND	1,1,1-Trichloroethane	ND
1,2-Dibromo-3-chloropropane	ND	1,1,2-Trichloroethane	ND
Dibromomethane	ND	Trichloroethene	ND
1,2-Dichlorobenzene	ND	Trichlorofluoromethane	ND
1,3-Dichlorobenzene	ND	1,2,3-Trichloropropane	ND
1,4-Dichlorobenzene	ND	1,2,4-Trimethylbenzene	ND
Dichlorodifluoromethane	ND	1,3,5-Trimethylbenzene	ND
1,1-Dichloroethane	ND	Vinyl Acetate [m]	ND
1,2-Dichloroethane	ND	Vinyl Chloride [n]	ND
1,1-Dichloroethene	ND	Xylenes, total [o]	15
cis-1,2-Dichloroethene	ND		
trans-1,2-Dichloroethene	ND		
1,2-Dichloropropane	ND		
1,3-Dichloropropane	ND		
2,2-Dichloropropane	ND	**Comments:**	
1,1-Dichloropropene	ND	**Surrogate Recoveries (%)**	
cis-1,3-Dichloropropene	ND	Dibromofluoromethane	101
trans-1,3-Dichloropropene	ND	Toluene-d8	97
Ethylene dibromide	ND	4-Bromofluorobenzene	88

*water and vapor samples are reported in ug/L, soil and sludge samples in ug/kg, wipes in ug/wipe and all TCLP / SPLP extracts in ug/L
Reporting limits unless otherwise stated: water samples 1.0 ug/L; vapor samples 0.5 ug/L; solid and sludge samples 5 ug/kg; wipes 0.2ug/wipe ND means not detected above the reporting limit; N/A means analyte not applicable to this analysis
(b) 2-propanone or dimethyl ketone; (c) (2-chloroethoxy) ethene; (d) 2-hexanone; (e) dichloromethane; (f) 2-butanone; (g) 4-methyl-2-pentanone or isopropylacetone; (h) lighter than water immiscible sheen is present; (i) liquid sample that contains greater than ~5 vol. % sediment; (j) sample diluted due to high organic content; (k) peaks present in this carbon range do not match the pattern of our standard for this analyte; (l) methylbenzene; (m) acetic acid ethenyl ester; (n) chloroethene; (o) dimethylbenzenes.

DHS Certification No. 1644 Edward Hamilton, Lab Director

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		Date Received: 02/10/99
	Client Contact: Tim O'Brien	Date Extracted: 02/16-02/17/99
	Client P.O:	Date Analyzed: 02/16-02/17/99

Volatile Organics By GC/MS

EPA method 8260

Lab ID	03225
Client ID	WSB-6
Matrix	W

Compound	Concentration*	Compound	Concentration*
Acetone [b]	ND<30	Ethylbenzene	140
Benzene	570	Hexachlorobutadiene	ND<15
Bromobenzene	ND<15	Iodomethane	ND<15
Bromochloromethane	ND<15	Isopropylbenzene	ND<15
Bromodichloromethane	ND<15	p-Isopropyl toluene	ND<15
Bromoform	ND<15	Methyl butyl ketone [d]	ND<15
Bromomethane	ND<15	Methylene Chloride [e]	ND<55
n-Butyl benzene	ND<15	Methyl ethyl ketone [f]	ND<15
sec-Butyl benzene	ND<15	Methyl isobutyl ketone [g]	ND<15
tert-Butyl benzene	ND<15	Methyl tert-Butyl Ether (MTBE)	---
Carbon Disulfide	ND<15	Napthalene	ND<15
Carbon Tetrachloride	ND<15	n-Propyl benzene	ND<15
Chlorobenzene	ND<15	Styrene [k]	ND<15
Chloroethane	ND<15	1,1,1,2-Tetrachloroethane	ND<15
2-Chloroethyl Vinyl Ether [c]	ND<15	1,1,2,2-Tetrachloroethane	ND<15
Chloroform	ND<15	Tetrachloroethene	ND<40
Chloromethane	ND<15	Toluene [l]	520
2-Chlorotoluene	ND<15	1,2,3-Trichlorobenzene	ND<15
4-Chlorotoluene	ND<15	1,2,4-Trichlorobenzene	ND<15
Dibromochloromethane	ND<15	1,1,1-Trichloroethane	ND<15
1,2-Dibromo-3-chloropropane	ND<15	1,1,2-Trichloroethane	ND<15
Dibromomethane	ND<15	Trichloroethene	ND<15
1,2-Dichlorobenzene	ND<15	Trichlorofluoromethane	ND<15
1,3-Dichlorobenzene	ND<15	1,2,3-Trichloropropane	ND<15
1,4-Dichlorobenzene	ND<15	1,2,4-Trimethylbenzene	130
Dichlorodifluoromethane	ND<15	1,3,5-Trimethylbenzene	27
1,1-Dichloroethane	ND<15	Vinyl Acetate [m]	ND<15
1,2-Dichloroethane	ND<15	Vinyl Chloride [n]	ND<15
1,1-Dichloroethene	ND<15	Xylenes, total [o]	790
cis-1,2-Dichloroethene	ND<15		
trans-1,2-Dichloroethene	ND<15		
1,2-Dichloropropane	ND<15		
1,3-Dichloropropane	ND<15		
2,2-Dichloropropane	ND<15	**Comments:i**	
1,1-Dichloropropene	ND<15	**Surrogate Recoveries (%)**	
cis-1,3-Dichloropropene	ND<15	Dibromofluoromethane	119
trans-1,3-Dichloropropene	ND<15	Toluene-d8	101
Ethylene dibromide	ND<15	4-Bromofluorobenzene	92

*water and vapor samples are reported in ug/L, soil and sludge samples in ug/kg, wipes in ug/wipe and all TCLP / SPLP extracts in ug/L
Reporting limits unless otherwise stated: water samples 1.0 ug/L; vapor samples 0.5 ug/L; solid and sludge samples 5 ug/kg; wipes 0.2ug/wipe ND means not detected above the reporting limit; N/A means analyte not applicable to this analysis
(b) 2-propanone or dimethyl ketone; (c) (2-chloroethoxy) ethene; (d) 2-hexanone; (e) dichloromethane; (f) 2-butanone; (g) 4-methyl-2-pentanone or isopropylacetone; (h) lighter than water immiscible sheen is present; (i) liquid sample that contains greater than ~5 vol. % sediment; (j) sample diluted due to high organic content; (k) peaks present in this carbon range do not match the pattern of our standard for this analyte; (l) methylbenzene; (m) acetic acid ethenyl ester; (n) chloroethene; (o) dimethylbenzenes.

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	Client Contact: Tim O'Brien	Date Extracted: 02/11-02/17/99
	Client P.O:	Date Analyzed: 02/11-02/17/99

Oxygenated Volatile Organics By GC/MS

EPA method 8260 modified

Lab ID	03222	03225			Reporting Limit	
Client ID	SB-6-25	WSB-6				
Matrix	S	W			S	W
Compound	Concentration*				ug/kg	ug/L
Di-isopropyl Ether (DIPE)	ND	ND<15			5.0	1.0
Ethyl tert-Butyl Ether (ETBE)	ND	ND<15			5.0	1.0
Methyl-tert Butyl Ether (MTBE)	ND	ND<15			5.0	1.0
tert-Amyl Methyl Ether (TAME)	ND	ND<15			5.0	1.0
Ethanol	ND	---			5000	---
tert-Butanol	ND	ND<75			25	5.0
Surrogate Recoveries (%)						
Dibromofluoromethane	101	119				
Comments:		j,i				

* water samples are reported in ug/L, soil and sludge samples in ug/kg, wipes in ug/wipe and all TCLP / STLC / SPLP extracts in ug/L

ND means not detected above the reporting limit; N/A means surrogate not applicable to this analysis

(h) lighter than water immiscible sheen is present; (i) liquid sample that contains greater than ~5 vol. % sediment; (j) sample diluted due to high organic content

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		Date Received: 02/10/99
	Client Contact: Tim O'Brien	Date Extracted: 02/10/99
	Client P.O:	Date Analyzed: 02/11/99

Lead*

EPA analytical methods 6010/200.7, 239.2+

Lab ID	Client ID	Matrix	Extraction °	Lead*	% Recovery Surrogate
03222	SB-6-25	S	TTLC	ND	101
Reporting Limit unless otherwise stated; ND means not detected above the reporting limit		S	TTLC	3.0 mg/kg	
		W	TTLC	0.005 mg/L	
		---	STLC,TCLP	0.2 mg/L	

* soil and sludge samples are reported in mg/kg, wipe samples in ug/wipe, and water samples and all STLC / SPLP / TCLP extracts in mg/L

+Lead is analysed using EPA method 6010 (ICP)for soils, sludges, STLC & TCLP extracts and method 239.2 (AA Furnace) for water samples

° EPA extraction methods 1311(TCLP), 3010/3020(water,TTLC), 3040(organic matrices,TTLC), 3050(solids,TTLC); STLC - CA Title 22

surrogate diluted out of range; N/A means surrogate not applicable to this analysis

& reporting limit raised due matrix interference

i) liquid sample that contains greater than ~2 vol. % sediment; this sediment is extracted with the liquid, in accordance with EPA methodologies and can significantly effect reported metal concentrations.

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	Client Contact: Tim O'Brien	Date Extracted: 02/10/99
	Client P.O:	Date Analyzed: 02/10-02/12/99

Analytical methods			**Moisture**	**Bulk Density**	**Porosity**	**Air Filled Void Space**	**Fractional Organic Content**
			ASTM E3173	#	&	&	ASTM 2974c
Lab ID	Client ID	Matrix	Weight %	Grams / cc	Vol % Porosity	Vol % Porosity	Weight %
03220	SB5-5	S	13	1.8	42	19	2.3
Reporting Limit or Method Accuracy unless otherwise stated; ND means not detected above the reporting limit		S	± 2%	± 0.1g/cc	± 2%	± 2%	± 0.3%

calculated

& calculated volume percentage assuming that the specific gravity of soil is 2.65 grams/cc.

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QC REPORT FOR HYDROCARBON ANALYSES

Date: 02/12/99-02/13/99 Matrix: WATER

Analyte	Concentration (mg/L) Sample (#02760)	MS	MSD	Amount Spiked	% Recovery MS	MSD	RPD
TPH (gas)	0.0	103.4	102.2	100.0	103.4	102.2	1.1
Benzene	0.0	10.1	9.8	10.0	101.0	98.0	3.0
Toluene	0.0	10.4	10.1	10.0	104.0	101.0	2.9
Ethyl Benzene	0.0	10.6	10.5	10.0	106.0	105.0	0.9
Xylenes	0.0	32.0	31.0	30.0	106.7	103.3	3.2
TPH(diesel)	0.0	154	168	150	103	112	9.0
TRPH (oil & grease)	N/A	N/A	N/A	N/A	N/A	N/A	N/A

% Rec. = (MS - Sample) / amount spiked x 100

RPD = (MS - MSD) / (MS + MSD) x 2 x 100

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QC REPORT FOR HYDROCARBON ANALYSES

Date: 02/12/99-02/13/99 Matrix: SOIL

Analyte	Concentration (mg/kg) Sample (#98802)	MS	MSD	Amount Spiked	% Recovery MS	MSD	RPD
TPH (gas)	0.000	2.396	2.446	2.03	118	120	2.1
Benzene	0.000	0.216	0.216	0.2	108	108	0.0
Toluene	0.000	0.232	0.232	0.2	116	116	0.0
Ethylbenzene	0.000	0.218	0.222	0.2	109	111	-1.8
Xylenes	0.000	0.648	0.656	0.6	108	109	1.2
TPH(diesel)	0	269	270	300	90	90	0.4
TRPH (oil and grease)	0.0	20.0	23.7	20.8	96	114	16.9

% Rec. = (MS - Sample) / amount spiked x 100

RPD = (MS - MSD) / (MS + MSD) x 2 x 100

McCAMPBELL ANALYTICAL INC.
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QC REPORT FOR VOCs (EPA 8240/8260)

Date: 02/11/99-02/12/99 Matrix: WATER

Analyte	Concentration (ug/kg,u Sample		Amount Spiked	% Recovery		RPD
	MS	MSD		MS	MSD	
1,1-Dichloroethe	0	123	128	100	123	128	4.0
Trichloroethene	0	86	84	100	86	84	2.4
EDB	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Chlorobenzene	0	99	95	100	99	95	4.1
Benzene	0	118	114	100	118	114	3.4
Toluene	0	110	103	100	110	103	6.6

% Rec. = (MS - Sample) / amount spiked x 100

RPD = (MS - MSD) / (MS + MSD) x 2 x 100

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QC REPORT FOR VOCs (EPA 8240/8260)

Date: 02/16/99-02/17/99 Matrix: WATER

Analyte	Concentration (ug/kg,u Sample		Amount Spiked	% Recovery		RPD
	MS	MSD		MS	MSD	
1,1-Dichloroethe	0	121	123	100	121	123	1.6
Trichloroethene	0	83	86	100	83	86	3.6
EDB	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Chlorobenzene	0	93	95	100	93	95	2.1
Benzene	0	113	113	100	113	113	0.0
Toluene	0	101	102	100	101	102	1.0

% Rec. = (MS - Sample) / amount spiked x 100

RPD = (MS - MSD) / (MS + MSD) x 2 x 100

McCAMPBELL ANALYTICAL INC.
110 2nd Avenue South, #D7, Pacheco, CA 94553
Tele: 925-798-1620 Fax: 925-798-1622

QC REPORT FOR VOCs (EPA 8240/8260)

Date: 02/11/99-02/12/99 Matrix: SOIL

Analyte	Concentration (ug/kg,u Sample (#98802)	MS	MSD	Amount Spiked	% Recovery MS	MSD	RPD
1,1-Dichloroethe	0	85	100	100	85	100	16.2
Trichloroethene	0	82	93	100	82	93	12.6
EDB	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Chlorobenzene	0	94	102	100	94	102	8.2
Benzene	0	98	109	100	98	109	10.6
Toluene	0	96	112	100	96	112	15.4

% Rec. = (MS - Sample) / amount spiked x 100

RPD = (MS - MSD) / (MS + MSD) x 2 x 100

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QC REPORT FOR ICP and/or AA METALS

Date: 02/11/99-02/12/99 Matrix: SOIL

Extraction: TTLC

Analyte	Concentration (mg/kg,mg/L) Sample	MS	MSD	Amount Spiked	% Recovery MS	MSD	RPD
Total Lead	0.0	4.87	4.81	5.0	97	96	1.1
Total Cadmium	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Total Chromium	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Total Nickel	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Total Zinc	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Total Copper	0.00	4.87	4.83	5.0	97	97	0.9
DISTLC Lead	N/A	N/A	N/A	N/A	N/A	N/A	N/A

% Rec. = (MS - Sample) / amount spiked x 100

RPD = (MS - MSD) / (MS + MSD) x 2 x 100

Alpha Analytical Laboratories Inc. • 860 Waugh Lane, H-1, Ukiah, California 95482
(707) 468-0401

CHEMICAL EXAMINATION REPORT

McCampbell Analytical, Inc.
110 2nd Avenue South #D7
Pacheco, CA 94553-5560
Attn: Ed Hamilton

Date Printed: 2/23/99
Page: 1

Batch Number	Receipt Date	Client	Client P.O.	Send Via
99-0212-021	02/12/99 10:45	MCCLAB	13968	Mail

Batch 99-0212-021 consisted of 1 Sample and 1 Test

	METHOD	EXTRACTED	TEST DATE	RESULT	UNITS	POL	DILUTION
Sample 1 585-S, # 03220 P.S.I.							
Sample Type: Soil Sampled by:			Sampled: 2/10/99				
Total Organic Carbon	415.1		2/22/99	1150	mg/kg	5	

POL - Practical Quantitation Limit ND - None Detected
* - Indicates Detection Limit altered due to Sample Dilution

NOTES:

Bruce L. Gove
Laboratory Director

Date Printed: 2/23/99

Centrum Analytical Laboratories, Inc.

290 TENNESSEE STREET
REDLANDS, CA 92373

(909) 798-9336 • (800) 798-9336
FAX (909) 793-1559

1396BxPSI 16

Centrum Job #

Chain of Custody Record

Page_____of_____

Project No.:	Project Name:
575-96004	Former Alcopark Fueling Station
Project Manager:	**Phone:** / **Fax:**
Tim O'Brien	(510) 785-1111 / (510) 785-1192
Client Name: (Company)	**Address:**
P.S.I.	1320 W. Winton Ave, Hayward, 94544

Analyses Requested

Centrum ID (Lab use only)	Sample ID (As it should appear on report)	Date sampled	Time sampled	Sample matrix	Site location	Containers: # and type	GCMS 8260 8240 8010 524.2	8080: Pesticides PCBs Pest/PCB	8015M: Diesel Fuel Screen	8015M: Gasoline 8020 Gas/BTEX + MTBE	418.1 (TRPH)	Semivolatiles: 8270 625	Metals: TTLC(CAM) PP RCRA	Lead Only	pH TDS TSS Conductivity COD	Flashpoint Fluoride Hex Chrome	T.O.C. only	Bulk density, TOC, porosity, H2O content
	SB5-5	2/10/99	845	S		1 sleeve							SVS		ND		X	X
	~~SB5-10~~		~~910~~															X
	SB-5-25		1010							X								
	SB-6-25		1205				X			X				X				
	SB-7-25		1350	↓		↓				X								
+5	WSB-5		1030	W		6 VOAs				X								
+5	WSB-6		1220				X			X								
+2	WSB-7	↓	1410	↓		↓				X								

Turn-around time

- ☐ 24 Hr. RUSH*
- ☐ 48 Hr. RUSH*
- ☒ Normal TAT

* Requires prior approval, additional charges apply

Remarks/ Special Instructions

S.D.

HOLD

03224
03224
03222
03225
03224
03225
03226

Relinquished by: (Sampler's Signature)	Date	Time	Relinquished by:	Date	Time
	2/10/99	1615			
Received by:	Date	Time	Received by:	Date	Time
			Relinquished by:	Date	Time
			Received for Laboratory by: Dina A Butler	Date 2/10	Time 6pm

The delivery of samples and the signature on this chain of custody form constitutes authorization to perform the analyses specified above under the Terms and Conditions set forth on the back hereof.

To be completed by laboratory personnel:

Samples chilled? ☐ Yes ☐ No

Custody seals? ☐ Yes ☐ No

All sample containers intact? ☐ Yes ☐ No

☐ Courier ☐ UPS/Fed Ex ☐ Hand carried

Sample Disposal

- ☐ Client will pick up
- ☐ Return to client
- ☐ Lab disposal fee $5

Laboratory Notes: Include 7 oxygenates in 8260 scan on sample SB-6-25

Sample Locator No.

White Copy - Original (Accompanies Samples)

Yellow Copy - Centrum Files

Pink Copy - Client Copy