ALTON GEOSCIENCE
THE RESULTS TEAM

file

November 17, 1992

Mr. Rich Mueller
City of Pleasanton Fire Department
P.O. Box 520
Pleasanton, California 94566-0802

30-0065

Subject: 4th Quarter 1992 Ground Water Monitoring and Sampling Report
Former Mobil Station 04-H6J
1024 Main Street
Pleasanton, California

Dear Mr. Feldman:

In accordance with our agreement, enclosed is the fourth quarter, 1992, Ground Water Monitoring and Sampling Report for former Mobil Station 04-H6J, 1024 Main Street, Pleasanton, California (Figure 1). Alton Geoscience has conducted ground water monitoring and sampling at the site since April 16, 1990. The project background is presented in Appendix A.

FIELD ACTIVITIES

On October 27, 1992, Alton Geoscience performed ground water monitoring and sampling of Wells MW-1, MW-4, MW-6 and MW-9. Monitoring and sampling of the wells was performed in accordance with requirements and procedures of the California Regional Water Quality Control Board, San Francisco Bay Region (RWQCB), and local regulatory agencies. Wells MW-3, MW-7 and MW-8 were dry. Well MW-5 was determined to contain insufficient water to sample. MW-2 was found to contain free-floating hydrocarbons using an interface probe. Approximately 1 ounce of free-floating hydrocarbons were removed from MW-2 by hand bailing. Water samples were analyzed for total petroleum hydrocarbons quantified as gasoline (TPH-G), and benzene, toluene, ethylbenzene, and total xylenes (BTEX).

Alton Geoscience ground water monitoring and sampling protocol and field survey forms are presented in Appendix B. The official laboratory reports and chain of custody record are presented in Appendix C.

DISCUSSION OF RESULTS

Analytical results for this and previous ground water monitoring and sampling events are summarized in Table 1. A ground water elevation contour map, based on fluid level measurements collected October 27, 1992, is shown in Figure 2.

5870 Stoneridge Drive, Suite 6
Pleasanton, California 94588
(510) 734-8134 • FAX (510) 734-8420

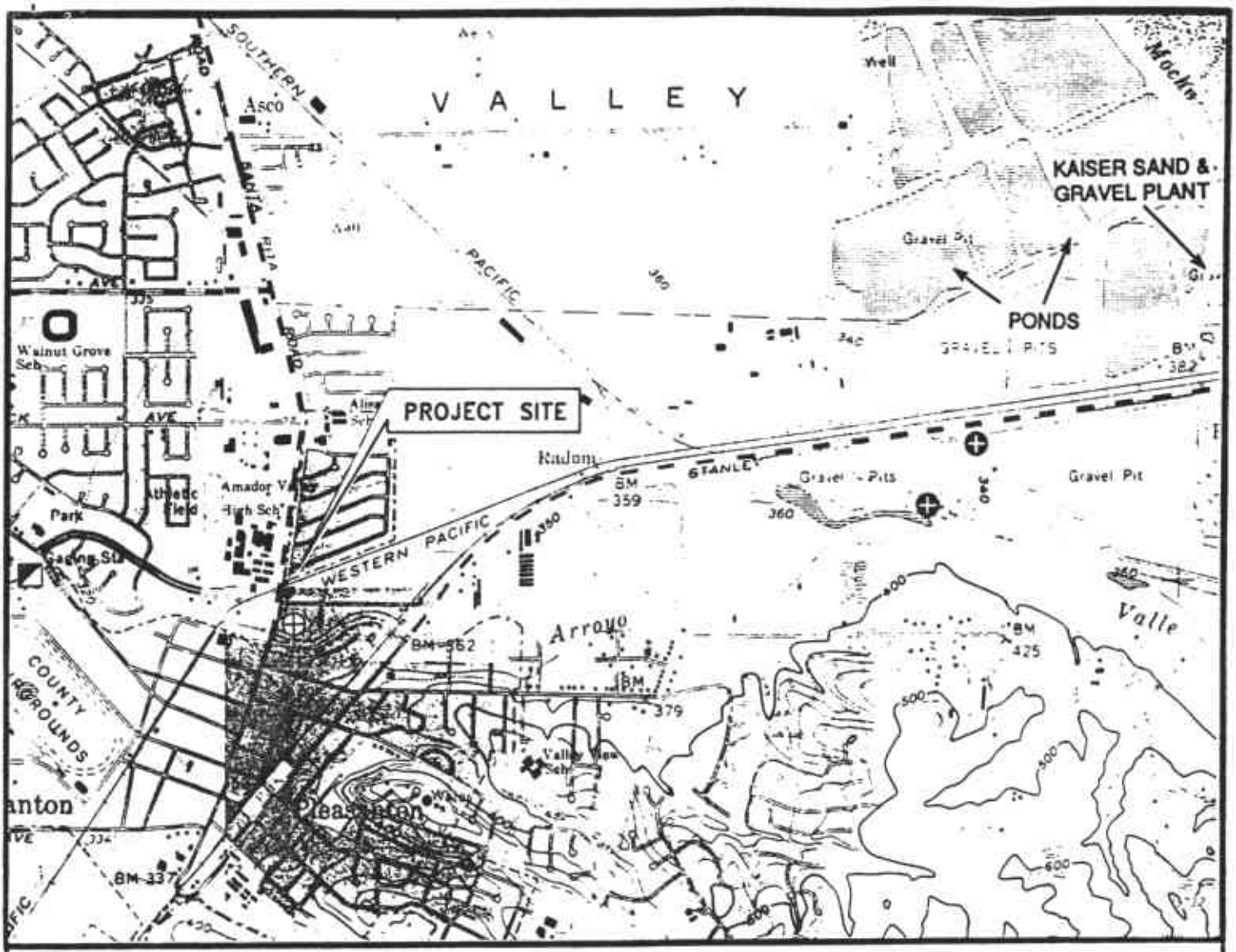
Previous investigations indicated the presence of two water bearing zones beneath the site. The shallower zone, in which Monitoring Wells MW-3, MW-5, MW-7, and MW-8 are completed, has been intermittently dry since August 1991. Historically, monitoring of these wells has indicated significant fluctuations in ground water levels. Results of ground water monitoring and sampling indicate the following:

- The apparent ground water gradient direction for the October 27, 1992, monitoring event is southeasterly.
- TPH-G ranging from 850 to 13,000 parts per billion (ppb) was detected in Wells MW-1, MW-4, MW-6, and MW-9; MW-9 contained the highest concentration.
- Benzene was detected in Wells MW-1, MW-4, MW-6, and MW-9 at 320, 440, 27, and 2,400 ppb, respectively.

ALTON GEOSCIENCE

Dale P. Swain
Staff Scientist

Dennis Maslonkowski, R.G. 5299
Senior Hydrogeologist



Source: U.S.G.S. Map
Dublin/Livermore
Quadrangles
California
7.5 Minute Series

SITE VICINITY MAP

Former Mobil Station 04-H6J
1024 Main Street
Pleasanton, California

ALTON GEOSCIENCE
Pleasanton, California

Project No. 31-0065

FIGURE 1

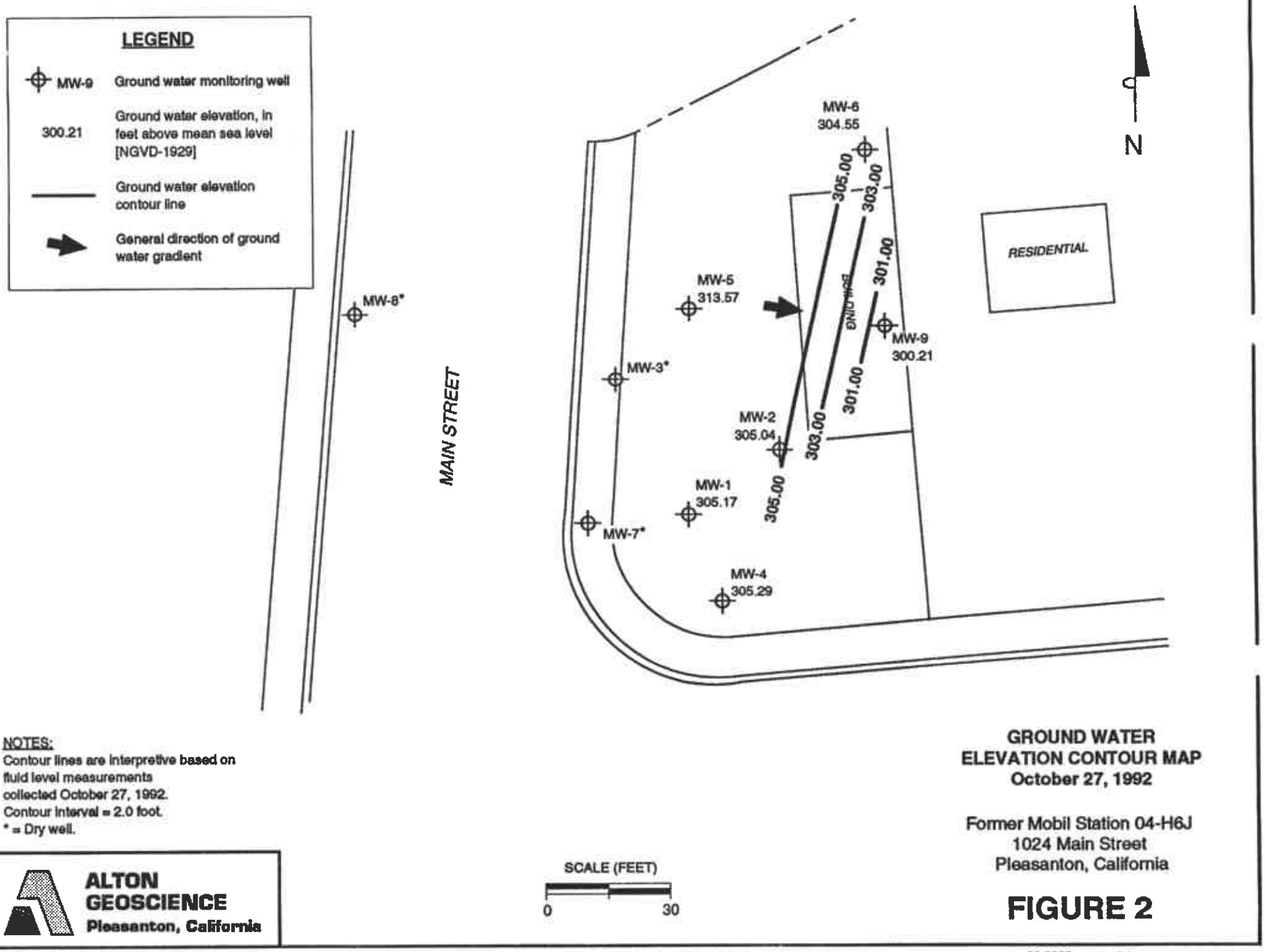

LEGEND
MW-9
Ground water monitoring well
300.21
Ground water elevation, in feet above mean sea level [NGVD-1929]
Ground water elevation contour line
General direction of ground water gradient
MW-8*
MAIN STREET
MW-6
304.55
305.00
303.00
301.00
RESIDENTIAL
MW-5
313.57
MW-9
300.21
MW-3*
MW-2
305.04
303.00
301.00
305.00
MW-1
305.17
MW-7*
MW-4
305.29
N
NOTES:
Contour lines are interpretive based on fluid level measurements collected October 27, 1992.
Contour interval = 2.0 foot.
* = Dry well.
SCALE (FEET)
0
30
ALTON GEOSCIENCE
Pleasanton, California
GROUND WATER ELEVATION CONTOUR MAP
October 27, 1992
Former Mobil Station 04-H6J
1024 Main Street
Pleasanton, California
FIGURE 2
30-0065 11/11/92

TABLE 1
Results of Ground Water Monitoring and Sampling
Former Mobil Service Station No. 10-H6J
1024 Main Street Pleasanton, California
Project No 30-065-05

Concentrations in parts per billion (ppb)

SAMPLE ID	DATE OF SAMPLING	CASING ELEVATION	DEPTH TO WATER	GROUND WATER ELEVATION	PRODUCT THICKNESS	TPH-G	TPH-D	B	T	E	X	1,2-DCE	Organic Lead	Total Lead	LAB
MW-1	04/16/90	348.03	21.60	326.43	0.00	3600	---	73	13	3	180	45	ND<10	---	SAL
MW-1	10/18/90	348.03	43.18	304.85	0.00	5000	ND<1000	700	360	170	480	54	---	---	SAL
MW-1	08/06/91	348.03	38.65	309.38	0.00	2600	---	310	340	110	340	ND<25	---	ND<5.0	SAL
MW-1	01/08/92	348.03	38.68	309.35	0.00	2400	---	270	370	18	340	14	ND<50		SAL
MW-1	04/30/92	348.03	39.93	308.10	0.00	1300	---	150	120	12	160	4.3	---	---	SEQ
MW-1	07/31/92	348.03	43.05	304.98	0.00	ND<50	---	ND<0.5	ND<0.5	ND<0.5	ND<0.5	---	---	---	SEQ
MW-1	10/27/92	348.03	42.86	305.17	0.00	2700	---	320	310	84	310	---	---	---	SEQ
MW-2	04/16/90	348.45	45.27	303.18	0.00	64000	---	5500	7600	1900	7600	200	ND<10	---	SAL
MW-2	10/18/90	348.45	43.18	305.27	0.00	63000	10000	6800	9100	2400	11000	460	---	---	SAL
MW-2	08/06/91	348.45	39.19	309.26	0.00	160000	---	16000	25000	4300	19000	330	---	330	SEQ
MW-2	01/08/92	348.45	39.40	309.07	0.02	NOT SAMPLED DUE TO PRESENCE OF FREE PRODUCT									NA
MW-2	04/30/92	348.45	40.50	307.95	0.00	71000	---	9200	19000	3700	15000	420	---	---	SEQ
MW-2	07/31/92	348.45	43.64	304.93	0.15	NOT SAMPLED DUE TO PRESENCE OF FREE PRODUCT									NA
MW-2	10/27/92	348.45	43.53	304.92	TRACE	NOT SAMPLED DUE TO PRESENCE OF FREE PRODUCT									NA
MW-3	04/16/90	347.97	21.60	326.37	0.00	2100	---	32	56	31	170	117	ND<10	---	SAL
MW-3	10/18/90	347.97	14.28	333.69	0.00	110	ND<1000	3	3	1	5	2	---	---	SAL
MW-3	08/06/91	347.97	33.19	314.78	0.00	INSUFFICIENT WATER FOR SAMPLE COLLECTION									NA
MW-3	01/08/92	347.97	32.36	315.61	0.00	680	---	8.9	26	8.5	72	5.7	---	---	SEQ
MW-3	04/30/92	347.97	33.15	314.82	0.00	INSUFFICIENT WATER FOR SAMPLE COLLECTION									NA
MW-3	07/31/92	347.97	DRY	---	---	---	---	---	---	---	---	---	---	---	NA
MW-3	10/27/92	347.97	DRY	---	---	---	---	---	---	---	---	---	---	---	NA
MW-4	10/18/90	348.07	43.18	304.91	0.00	9600	2000	180	500	200	1200	9	---	---	SAL
MW-4	08/06/91	348.07	38.65	309.42	0.00	8600	---	320	420	220	650	ND<25	---	ND<5.0	SEQ
MW-4	01/08/92	348.07	38.65	309.42	0.00	3400	---	600	680	220	1100	9.2	ND<50	---	SEQ
MW-4	04/30/92	348.07	39.88	308.19	0.00	7200	---	650	1200	210	1200	ND<50	---	---	SEQ
MW-4	07/31/92	348.07	43.07	305.00	0.00	3800	---	320	340	120	360	---	---	---	SEQ
MW-4	10/27/92	348.07	42.78	305.29	0.00	9000	---	440	750	190	900	---	---	---	SEQ
MW-5	10/18/90	347.97	INACCESSABLE	---	0.00	---	---	---	---	---	---	---	---	---	NA
MW-5	08/06/91	347.97	34.25	313.72	0.00	INSUFFICIENT WATER FOR SAMPLE COLLECTION									NA
MW-5	01/08/92	347.97	34.22	313.75	0.00	INSUFFICIENT WATER FOR SAMPLE COLLECTION									NA
MW-5	04/30/92	347.97	DRY	---	---	---	---	---	---	---	---	---	---	---	NA
MW-5	07/31/92	347.97	34.41	313.56	0.00	INSUFFICIENT WATER FOR SAMPLE COLLECTION									NA
MW-5	10/27/92	347.97	34.40	313.57	0.00	INSUFFICIENT WATER FOR SAMPLE COLLECTION									NA
MW-6	10/18/90	348.23	43.60	304.63	0.00	3000	ND<1000	1300	150	120	85	140	---	---	SAL
MW-6	08/06/91	348.23	39.07	309.16	0.00	1600	---	220	10	5.2	14	8.3	---	ND<5.0	SEQ
MW-6	01/08/92	348.23	39.18	309.05	0.00	370	---	81	3.9	4.5	2.9	5.4	ND<50	---	SEQ
MW-6	04/30/92	348.23	40.46	307.77	0.00	610	---	180	8.4	6.8	3.3	7.0	---	---	SEQ
MW-6	07/31/92	348.23	43.61	304.62	0.00	9400	---	1500	1500	370	1100	---	---	---	SEQ
MW-6	10/27/92	348.23	43.68	304.55	0.00	850	---	27	ND<0.5	6	10	---	---	---	SEQ

TABLE 1
Results of Ground Water Monitoring and Sampling
Former Mobil Service Station No. 10-H6J
1024 Main Street Pleasanton, California
Project No 30-065-05

Concentrations in parts per billion (ppb)

SAMPLE ID	DATE OF SAMPLING	CASING ELEVATION	DEPTH TO WATER	GROUND WATER ELEVATION	PRODUCT THICKNESS	TPH-G	TPH-D	B	T	E	X	1,2-DCE	Organic Lead	Total Lead	LAB
MW-7	10/18/90	347.90	9.26	338.64	0.00	ND<50	ND<1000	0.3	0.5	ND<0.3	0.8	ND<0.5	---	---	SAL
MW-7	08/06/91	347.90	24.20	323.70	0.00	INSUFFICIENT WATER FOR SAMPLE COLLECTION									NA
MW-7	01/08/92	347.90	23.79	324.11	0.00	220	---	7.6	1.7	ND<0.3	0.55	---	---	---	SEQ
MW-7	04/30/92	347.90	24.40	323.50	0.00	INSUFFICIENT WATER FOR SAMPLE COLLECTION									NA
MW-7	07/31/92	347.90	DRY	---	---	---	---	---	---	---	---	---	---	---	NA
MW-7	10/27/92	347.90	DRY	---	---	---	---	---	---	---	---	---	---	---	NA
MW-8	10/18/90	348.90	11.30	337.60	0.00	900	ND<1000	3	5	7	62	ND<0.5	---	---	SAL
MW-8	08/06/91	348.90	28.60	320.30	0.00	INSUFFICIENT WATER FOR SAMPLE COLLECTION									NA
MW-8	01/08/92	348.90	DRY	---	---	---	---	---	---	---	---	---	---	---	NA
MW-8	04/30/92	348.90	DRY	---	---	---	---	---	---	---	---	---	---	---	NA
MW-8	07/31/92	348.90	12.04	336.86	0.00	270 *	---	ND<0.5	ND<0.5	ND<0.5	1.3	---	---	---	SEQ
MW-8	10/27/92	348.90	DRY	---	---	---	---	---	---	---	---	---	---	---	NA
MW-9	02/04/92	348.53	43.54	304.99	0.00	16000	---	3000	740	1200	2500	68	---	ND<5.0	SEQ
MW-9	04/30/92	348.53	42.83	305.70	0.00	5600	---	1000	120	410	350	ND<50	---	---	SEQ
MW-9	07/31/92	348.53	47.36	301.17	0.00	9300	---	1800	1900	620	940	---	---	---	SEQ
MW-9	10/27/92	348.53	48.32	300.21	0.00	13000	---	2400	1600	680	1100	---	---	---	SEQ

EXPLANATION OF ABBREVIATIONS:

TPH-G :total petroleum hydrocarbons quantified as gasoline
TPH-D :total petroleum hydrocarbons quantified as diesel
B :benzene
T :toluene
E :ethylbenzene
X :total xylenes

ND :not detected at or above reported detection limit
--- :not applicable/not analyzed
* :reported by laboratory as non gasoline mixture
1,2-DCE :1,2-Dichloroethane
SAL :Superior Analytical Laboratories
SEQ :Sequoia Analytical

APPENDIX A

PROJECT BACKGROUND

PROJECT BACKGROUND

March 1989: A soil gas survey was conducted by Target Environmental Services (TES). Hydrocarbon vapors were detected in soil near the existing pump islands.

October 1989: Balch Petroleum removed three underground fuel storage tanks and an underground waste oil tank. Analysis of soil samples collected from the western boundary of the fuel tank cavity detected between 890 parts per million (ppm) and 2,400 ppm total petroleum hydrocarbons as gasoline (TPH-G). Following removal of the tanks approximately 260 yards of hydrocarbon-affected soil were excavated, sampled, aerated onsite, and subsequently removed for disposal.

June 1, 1990: Alton Geoscience submitted a site investigation report. Eight exploratory soil borings were drilled, three of which were subsequently converted to Monitoring Wells MW-1, MW-2, and MW-3. The geology of the site indicates the presence of two aquifers, separated by a difference in ground water elevations of approximately 20 feet. The highest hydrocarbon concentrations were detected in soil samples collected between 25 and 45 feet below grade with up to 3,500 ppm TPH-G.

January 15, 1991: Alton Geoscience submitted a supplemental site investigation report. Five additional monitoring wells MW-4 through MW-8 were installed. Two water bearing zones were encountered within 50 feet below grade (fbg), and appeared to be separated vertically and laterally by a less permeable clay. The ground water gradient of the upper water bearing zone was directed towards the northeast, and the lower to the northwest. Aquifer testing was performed on both water bearing zones. Adsorbed-phase hydrocarbons appeared limited to the vicinity of the former pump islands and north-northeast of the former underground fuel storage tanks.

August, 1991: Alton Geoscience supervised Earth Technology Corporation during a geotechnical survey using cone penetrometer test (CPT) methods and ground water sampling using a hydropunch tool. Nine CPT soundings were conducted and eight water samples collected. CPT results were used to help define the stratigraphy beneath the site. Results of CPT soundings and hydropunch sampling are summarized in the Alton Geoscience report dated July 31, 1992.

October 24 and 25, 1991: Alton Geoscience supervised Balch Petroleum during trenching operations beneath the location of the former pump islands. Analysis of soil samples collected during the excavation revealed the presence of hydrocarbon-affected soil. Approximately 100 yards of soil were excavated and stockpiled onsite.

August to November 1991: Alton Geoscience continuously monitored ground water levels from several wells using a data logger. Significant changes in ground water elevations were observed. Significant fluctuations in ground water elevations have been noted by Zone 7 in Monitoring Well 3S/1E 16P 5, located approximately 250 feet south of the site.

January 8, 1992: Trenches excavated by Balch Petroleum in October 1991 were backfilled by Balch Petroleum.

January 29 and 30, 1992: Alton Geoscience supervised Clear Heart Construction during drilling of MW-9 (SB-14) and SB-15 inside the former station building.

March 2 and 3, 1992: Alton Geoscience performed two constant rate pumping tests on MW-1 and MW-2. Pumping test results are presented in Alton Geoscience report dated July 31, 1992.

July 31, 1992: Alton Geoscience submitted Supplemental Site Investigation: Assessment and Remedial Investigation of Hydrocarbon-Affected Soil and Ground Water. The report concluded that adsorbed-phase hydrocarbons apparently originated from elbow junctions of the former product lines south of the western dispenser island and north of the former fuel tank cavity and possibly from the former fuel tanks. The migration of hydrocarbons in the vadose zone appears to have been controlled by lenses of coarser sediments within silty clays. The extent of dissolved-phase hydrocarbons in either the upper or lower aquifers has not been defined, however, liquid-phase hydrocarbons appear to be limited to the vicinity of MW-2.

APPENDIX B

ALTON GEOSCIENCE GENERAL FIELD PROCEDURES FOR MONITORING WELL SAMPLING AND FIELD SURVEY FORMS

ALTON GEOSCIENCE GENERAL FIELD PROCEDURES FOR MONITORING WELL SAMPLING

Monitoring wells were inspected for the presence of free product using an electronic interface probe prior to purging. Before sampling, wells were purged of 3 to 4 casing volumes of water or until pH, temperature, and electroconductivity stabilized. Ground water samples were collected by lowering a 2-inch-diameter bottom-fill disposable polyethylene bailer below the air/water interface in the well. The samples were carefully transferred from the bailer to zero-headspace 40-milliliter and 1-liter glass containers fitted with Teflon-sealed caps. 40-milliliter samples were inverted to ensure entrapped air was not present. Each sample was labeled with sample number, well number, date, and sampler's initials, and remained on ice prior to and during transport to a California-certified laboratory for analysis. The samples were handled in accordance with proper chain of custody documentation. The purged water was pumped into barrels prior to disposal or recycling at an appropriate waste disposal facility.

APPENDIX C

ANALYTICAL METHODS, OFFICIAL LABORATORY REPORTS, AND CHAIN OF CUSTODY RECORD

ANALYTICAL METHODS, OFFICIAL LABORATORY REPORTS, AND CHAIN OF CUSTODY RECORD

This appendix includes copies of the official laboratory reports and chain of custody record for soil and ground water samples selected for laboratory analysis.

Laboratory analyses were performed by Sequoia Analytical, a California-certified laboratory (California Certification No. 1271).

Chemical analyses of soil and ground water samples were performed using standard test methods of the United States Environmental Protection Agency (EPA) and the California Department of Health Services (Cal-DHS).

Chain of custody protocol was followed for all samples. The chain of custody form(s) accompanies the samples from the sampling locality to the laboratory, providing a continuous record of possession prior to actual analysis.

SEQUOIA ANALYTICAL

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

Alton Geoscience	Client Project ID:	Mobil #04-H6J / #30-0065-10	Sampled:	Oct 27, 1992
5870 Stoneridge Drive, Suite 6	Sample Matrix:	Water	Received:	Oct 28, 1992
Pleasanton, CA 94588	Analysis Method:	EPA 5030/8015/8020	Reported:	Nov 3, 1992
Attention: Dennis Maslonkowski	First Sample #:	210-0931		

TOTAL PURGEABLE PETROLEUM HYDROCARBONS with BTEX DISTINCTION

Analyte	Reporting Limit µg/L	Sample I.D. 210-0931 MW-6	Sample I.D. 210-0932 MW-1	Sample I.D. 210-0933 MW-4	Sample I.D. 210-0934 MW-9
Purgeable Hydrocarbons	50	850	2,700	9,000	13,000
Benzene	0.5	27	320	440	2,400
Toluene	0.5	N.D.	310	750	1,600
Ethyl Benzene	0.5	6.0	84	190	680
Total Xylenes	0.5	10	310	900	1,100
Chromatogram Pattern:		Gasoline	Gasoline	Gasoline	Gasoline

Quality Control Data

Report Limit Multiplication Factor:	10	1.0	10	20
Date Analyzed:	10/30/92	10/29/92	10/29/92	10/29/92
Instrument Identification:	HP-4	HP-2	HP-2	HP-2
Surrogate Recovery, %: (QC Limits = 70-130%)	102	126	122	105

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

SEQUOIA ANALYTICAL

Scott A. Chieffo
Project Manager

SEQUOIA ANALYTICAL

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

Alton Geoscience
5870 Stoneridge Drive, Suite 6
Pleasanton, CA 94588
Attention: Dennis Maslonkowski

Client Project ID: Mobil #04-H6J / #30-0065-10
First Sample #: 210-0931

Reported: Nov 3, 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	64
Matrix Spike % Recovery:	100	100	100	106
Conc. Matrix Spike Dup.:	20	20	20	63
Matrix Spike Duplicate % Recovery:	100	100	100	105
Relative % Difference:	0.0	0.0	0.0	1.5

Laboratory blank contained the following analytes: None Detected

SEQUOIA ANALYTICAL

Scott A. Chieffo
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

Mobil Chain of Custody

SEQUOIA ANALYTICAL

Redwood City: (415) 364-9600
Concord: (510) 686-9600
Sacramento: (916) 921-9600

Consulting Firm Name: Alton GeoScience	Site SS #: 04-HGJ	Phase of Work:
Address: 5870 Stoneridge DR #6	Mobil Site Address: 1024 Main St., Pleasanton	☐ A. Emrg. Response
City: Pleasanton State: Ca Zip Code: 94588	Mobil Engineer: Edgar Hoepker	☐ B. Site Assessment
Telephone: (510) 734-8134 FAX #: 734-8420	Consultant Project #: 30-0065-10	☐ C. Remediation
Project Contact: Dennis Maslonkoski Sampled by: Larry Buenvenida	Sequoia's Work Order Release #:	☒ D. Monitoring
		☐ E. OGC/Claims

Turnaround Time: ☒ Standard TAT (5 - 10 Working Days)
☐ Other _____

Analyses Requested

Client Sample I.D.	Date/Time Sampled	Matrix Description	# of Containers	Sequoia's Sample #	TPH Gas/BTEX	TPH Diesel	TRPH by I.R. EPA 418.1	Oil & Grease EPA 413.2				Comments
1. MW-6	10/27/92 / 1230 (1312)	W	3		X				2100	93	AC	
2. MW-1	/ 1312									932	AC	
3. MW-4	/ 1340									933	AC	
4. MW-9	/ 1441									934	AC	
5.												
6.												
7.												
8.												
9.												
10.												

Relinquished By: Larry Buenvenida	Date: 10/27/92	Time: 1530	Received By: [redacted]	Date: 10/28/92	Time: 1530
Relinquished By:	Date:	Time:	Received By:	Date:	Time:
Relinquished By:	Date:	Time:	Received By:	Date:	Time: