



**WESTERN  
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January 15, 1999

57201248

Mr. John Rutherford  
Desert Petroleum  
P.O. Box 1601  
Oxnard, California 93032  
(805) 644-6784 FAX (805) 654-0720

Dear Mr. Rutherford:

The following report documents the Fourth Quarter 1998 collection and certified laboratory analysis of groundwater samples from five monitoring wells and three water recovery wells associated with former Desert Petroleum Station #793.

## **1.0 SITE LOCATION AND DESCRIPTION**

Former Desert Petroleum #793 is a non-active service station, located on the northwest corner of the intersection of Park Boulevard and Hampel Street at 4035 Park Blvd., Oakland, California (Figure 1). The site is located in projected section 32; T1S; R3W; MDB&M at an approximate elevation of 210 feet above mean sea level (Figure 2).

## **2.0 LOCAL GEOLOGY**

### ***2.1 Geomorphology***

The site is located on the western slope of the Berkeley Hills. The Berkeley Hills are a northwest-southeast trending range within the Coastal Range Province of California. Erosion of the Coastal Ranges has filled the valleys within and bordering the Coastal Range with sequences of gravels, silts, sands, and clays.

## **2.2 Stratigraphy**

The native soil from surface to 13 feet below ground surface (BGS) consists of dark brown silty clay. The dark brown clay is underlain by light brown stiff clay that includes subrounded to rounded metavolcanic gravel. This clay extends to approximately 23 feet BGS at the northwest corner of the site. A fine to medium sand, clayey sand, and silty sand underlies the gravel and clay.

## **3.0 COLLECTION AND ANALYSIS OF GROUNDWATER SAMPLES, November 24, 1998.**

WEGE and LTT (Lawrence Tank Testing) personnel could not conduct the 2<sup>nd</sup> Quarter Groundwater sampling of the site. A new fence without a gate, was placed around the site making entry impossible without removing portions of the fence. After phone conversations with Desert Petroleum and Mr. Toni Razzi (new owner of the site) it was determined that neither Desert nor Mr. Razzi had any involvement with the placement of the new fence and a WEGE sample crew was allowed to temporarily dismantle a portion of the fence to gain access to the onsite wells. A WEGE technician removed a portion of the new fence and constructed a gate for entry by vehicles, on September 16, 1998. The 3<sup>rd</sup> Quarter Groundwater sampling occurred that day.

The fourth quarter sampling occurred on November 24, 1998. Water samples were collected from monitor wells MW1, RS-2, RS-5, and RS-6 located on-site and RS-7 located in the center of Brighton Avenue to the northeast of the site (Figure 3). Water samples were also collected from two of the three on-site water recovery wells (R1 and R2). R3 only contained water in the bottom cap of the casing and was not representative of site conditions, see Table 1. Appendix A contains QA/QC, details, methods, procedures, abbreviations, and acronyms used in sampling and analysis.

### **3.1 Depth to Water Measurements**

Depth to water was measured at all monitor wells and the three on-site water recovery wells. The depth to water measurements were made using a product/water interface probe. Measurements are referenced to surveyed elevation at the top of casing at each well. Table 1 shows the elevation of groundwater with respect to mean sea level for all monitor wells through November 24, 1998.

### **3.2 Purging of Monitor Wells**

Lawrence Tank Testing, using a truck mounted vacuum lift pump and one-inch diameter PVC tubing purged the monitor wells of three volumes of water. The specific volume of water removed from each well is recorded on the well sampling data sheets (Appendix B).

### ***3.3 Collection and Certified Analysis of Groundwater Samples***

After purging, the wells were allowed to recover to at least 80% of their original well volumes. A groundwater sample was then collected from each well with a disposable polyethylene bailer and decanted, with no headspace, into two 40 ml VOA vials containing 0.5 ml HCL acid as a preservative. North State Environmental Laboratories analyzed all water samples for concentrations of TPH-G, BTEX, and MTBE using EPA methods 5030/8015M/8020 (Appendix C). Method 8020 presence of MTBE was verified with EPA Method 8260; this first time occurrence of MTBE is associated with the upgradient wells MW-1 and RS-2. Previous sample results showed all wells below laboratory lower detection limits for MTBE using standard methods and the September 1998 samples from all wells were also analyzed for the Fuel Oxygenants using EPA Method 8260. All wells tested below laboratory lower detection limits.

Fuel Oxygenants	Laboratory Lower Detection Limits
Ethanol	500 ug/L
Methyl-t-Butyl Ether (MTBE)	1 ug/L
Di Isopropyl Ether (DIPE)	5 ug/L
Tertiary Butyl Alcohol (TBA)	5 ug/L
Ethyl t Butyl Ether (ETBE)	5 ug/L
t-Amyl Methyl Ether (TAME)	1 ug/L

### ***3.4 Disposition of Waste Water***

The wastewater generated from the purging of the monitor wells during sampling was contained on-site in labeled 55 gallon DOT approved drums. The drummed wastewater was removed from the site and transported to a recycling facility, by Evergreen Environmental Services on January 11, 1999, see Appendix D.

## **4.0 RESULTS OF QUARTERLY GROUNDWATER MONITORING**

### ***4.1 Groundwater Gradient and Flow Direction***

Figure 4 shows the groundwater elevation gradients and flow direction that were derived from the depth to water measurements of the on-site monitor wells on November 24, 1998. The groundwater elevation has dropped between 0.5 and 2.5 feet in the monitor wells on the site and R1. Groundwater elevation has elevated in the on-site recovery wells R1 and R2 between 2 and 3 feet. And groundwater elevation has remained in the off-site well RS7, since the previous quarterly monitoring round on September 16, 1998. (Table 1 and charts).

The current flow direction is west and northwest. The hydraulic gradient averages 0.04 feet/linear foot downgradient from the overexcavated area at the site (Figure 4). The current flow direction and hydraulic gradient are consistent with previous determinations by WEGE.

#### **4.2 Results of Certified Analysis of Groundwater Samples**

The results of the certified analyses of groundwater samples collected on November 24, 1998 are shown in Table 1 and Figure 3. Copies of the laboratory reports are included as Appendix C of this report.

~~TPH-G~~ concentrations in water samples from the five monitor wells and three recovery wells ranged from a maximum of ~~89,000 ug/l~~ at monitor wells RS-5 to just above the laboratory lower detection limits (50 ug/l) in well MW1 of 52 ug/L. ~~Benzene~~ concentrations ranged from a maximum of ~~5,300 ug/l~~ in well RS-5 to less than laboratory detection limits (0.5 ug/l) in well RS, RS-2.

Analysis for Oxygenant ~~Methyl-t-Butyl Ether (MTBE)~~, was confirmed with EPA Method 8260 for samples MW1 and RS-2 at ~~11 and 15 ug/L~~ respectively. All other wells were below laboratory lower detection limits. During the September 16, 1998 all Fuel Oxygenants; MTBE, Di-isopropyl Ether (DIPE), tertiary Butyl Alcohol (TBA), Ethyl-t-Butyl Ether (ETBE) and t-Amyl Methyl Ether (TAME) was confirmed with EPA Method 8260. These analytes were below laboratory lower detection limits Figure 3 shows the areal distribution of the hydrocarbon plume in groundwater as determined from groundwater samples collected from the monitor wells on non certified results from the Soil Probe Surveys.

#### **5.0 LIMITATIONS**

This report is based upon the following:

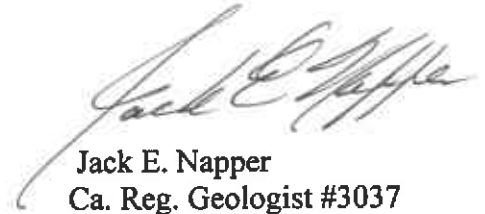
- A. The observations of field personnel.
- B. The results of laboratory analyses performed by a state certified laboratory.
- C. Referenced documents.
- D. Our understanding of the regulations of the State of California, Alameda County and the City of Oakland.
- E. Changes in groundwater conditions can occur due to variations in rainfall, temperature, local and regional water use, and local construction practices.
- F. In addition, variations in the soil and groundwater conditions could exist beyond the points explored in this investigation.

State Certified Laboratory analytical results are included in this report. This laboratory follows EPA and State of California approved procedures; however, WEGE is not responsible for errors in these laboratory results. Western Geo-Engineers is a corporation under California Registered Geologist #3037 and/or Contractors License #513857. The services performed by Western Geo-Engineers have been conducted in a manner consistent with the level of care and skill ordinarily exercised by members of our profession currently practicing under similar conditions in the State of California and the Oakland area. Our work and/or supervision of remediation and/or abatement operations, active or preliminary, at this site is in no way meant to imply that we are owners or operators of this site. Known or suspected contamination of soil and/or groundwater must be reported to the appropriate agencies in a timely manner. No other warranty, expressed or implied, is made.

Sincerely,



George Converse  
Geologist



Jack E. Napper  
Ca. Reg. Geologist #3037

cc: Mr. Tom Peacock, Alameda County Health (510) 567-6774  
Mr. Leroy Griffin, Oakland Fire Dept.



TABLE 1

GROUNDWATER ELEVATIONS AND CERTIFIED ANALYTICAL LABAORATAORY RESULTS FROM WATER SAMPLES  
 DESERT PETROLEUM, INC. SITE #793  
 4035 PARK BOULEVARD, OAKLAND, CALIFORNIA

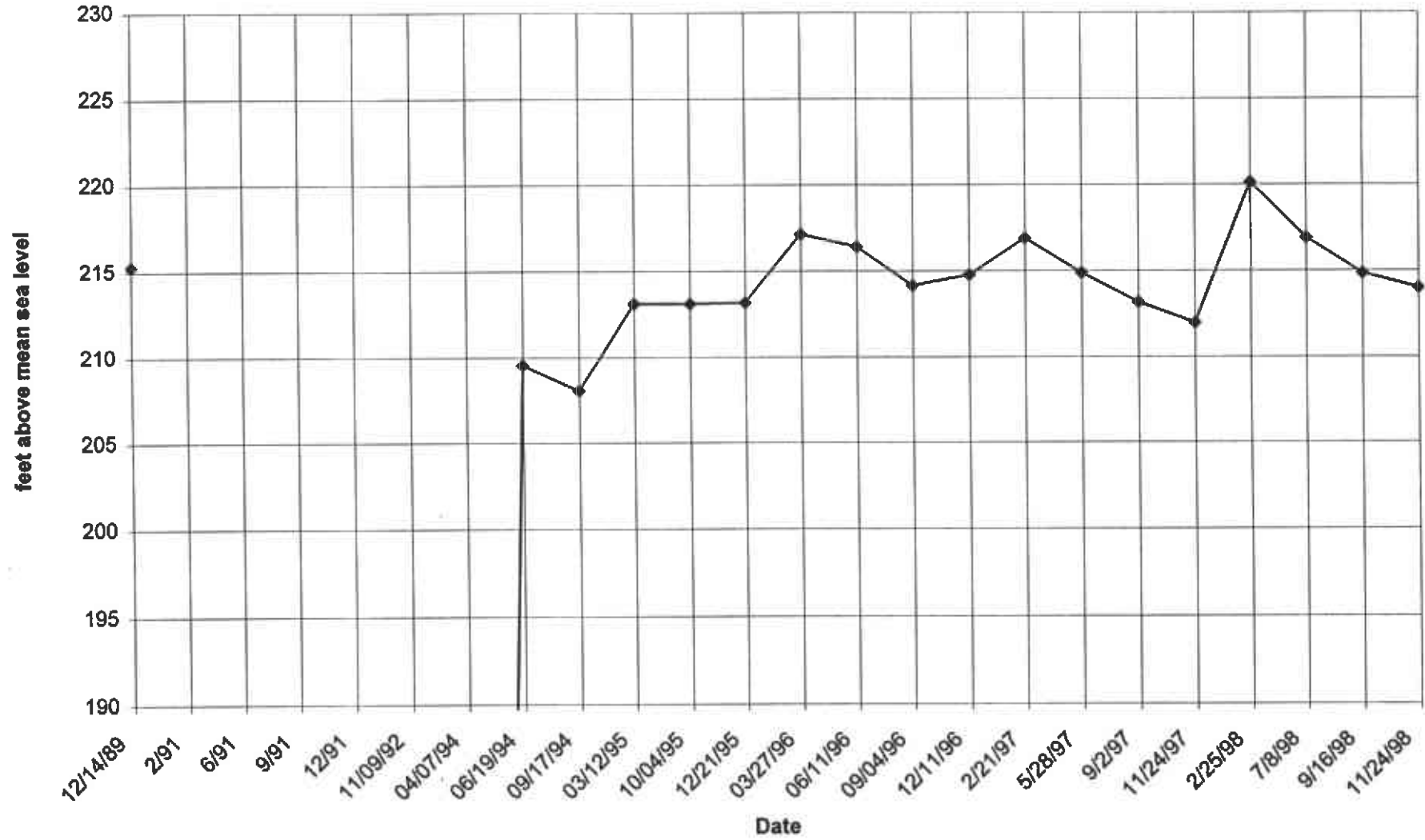
ID#	(All concentrations in parts per billion [ug/L, ppb]) (AMSL = Above mean sea level)									
	DATE SAMPLED	WELL CASING ELEVATION (FEET AMSL)	DEPTH TO GROUND WATER (FEET)	GROUND WATER ELEVATION (FEET AMSL)	TPH-G  (UG/L)	BENZENE  (UG/L)	TOLUENE  (UG/L)	ETHYL- BENZENE  (UG/L)	XYLENES  (UG/L)	MTBE  (UG/L)
RS-2	06/19/94	227.19	10.89	216.3	140	9.2	34	4.3	24.0	
RS-2	03/12/95	227.19	5.26	221.93	ND	ND	ND	ND	ND	
RS-2	10/04/95	230.43	15.05	215.38	ND	ND	ND	ND	ND	
RS-2	12/21/95	230.43	9.95	220.48	< 50	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5
RS-2	03/27/96	230.43	6.28	224.15	< 50	< 0.5	< 0.5	< 0.5	< 2	< 50
RS-2	06/11/96	230.43	8.00	222.43	< 50	1.2	2.8	< 0.5	< 2	< 50
RS-2	09/04/96	230.43	9.89	220.54	< 50	< 0.5	< 0.5	< 0.5	< 2	< 5
RS-2	12/11/96	230.43	8.38	222.05	< 50	< 0.5	< 0.5	< 0.5	< 1	6
RS-2	2/21/97	230.43	6.96	223.47	< 50	< 0.5	< 0.5	< 0.5	< 1	< 0.5*
RS-2	5/28/97	230.43	10.02	220.41	< 50	3	3	< 0.5	< 1	< 0.5*
RS-2	9/2/97	230.43	11.46	218.97	< 50	< 0.5	< 0.5	< 0.5	< 1	< 0.5*
RS-2	11/24/97	230.43	10.43	220	< 50	< 0.5	1	< 0.5	3	< 0.5*
RS-2	2/25/98	230.43	3.57	226.86	< 50	< 0.5	< 0.5	< 0.5	< 1	< 0.5*
RS-2	7/8/98	230.43	8.83	221.6	< 50	< 0.5	< 0.5	< 0.5	< 1	< 1*
RS-2	9/16/98	230.43	10.60	219.83	< 50	< 0.5	< 0.5	< 0.5	< 1	< 1*
RS-2	11/24/98	230.43	13.27	217.16	140	2.8	19	2.6	3.3	15*

TABLE 1  
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4035 PARK BOULEVARD, OAKLAND, CALIFORNIA

ID#	(All concentrations in parts per billion [ug/L, ppb]) (AMSL = Above mean sea level)									
	DATE SAMPLED	WELL CASING ELEVATION (FEET AMSL)	DEPTH TO GROUND WATER (FEET)	GROUND WATER ELEVATION (FEET AMSL)	TPH-G (UG/L)	BENZENE (UG/L)	TOLUENE (UG/L)	ETHYL-BENZENE (UG/L)	XYLENES (UG/L)	MTBE (UG/L)
RS-5	12/14/89	241.26	25.97	215.29	57000	3100	4300	670	3400	
RS-5	2/91									
RS-5	6/91									
RS-5	9/91									
RS-5	12/91									
RS-5	11/09/92	98.99	20.73	78.26	50000	650	4800	1100	15000	
RS-5	04/07/94	98.99	18.16	80.83	27000	5000	8700	550	2800	
RS-5	06/19/94	227.65	18.11	209.54	20000	2100	5300	470	2500	
RS-5	09/17/94	227.65	19.63	208.02	9300	230	340	110	700	
RS-5	03/12/95	227.65	14.54	213.11	93000	6400	2000	19000	10000	
RS-5	10/04/95	230.64	17.53	213.11	16000	420	2100	320	1800	
RS-5	12/21/95	230.64	17.47	213.17	48000	3500	9200	840	4800	56
RS-5	03/27/96	230.64	13.51	217.13	68000	4900	18000	1700	11000	< 3000
RS-5	06/11/96	230.64	14.25	216.39	66000	6300	20000	2100	12000	< 3000
RS-5	09/04/96	230.64	16.50	214.14	31000	2100	11000	1100	6800	400
RS-5	12/11/96	230.64	15.88	214.76	85000	7000	21000	1800	8900	570
RS-5	2/21/97	230.64	13.76	216.88	sh 100000	5000	22000	1700	7300	<0.5*
RS-5	5/28/97	230.64	15.77	214.87	52000	4500	19000	2100	10000	<0.5*
RS-5	9/2/97	230.64	17.47	213.17	38000	2200	9400	1300	5800	<0.5*
RS-5	11/24/97	230.64	18.67	211.97	45000	4000	16000	1900	9700	<0.5*
RS-5	2/25/98	230.64	10.53	220.11	160000	2700	31000	5300	28000	<0.5*
RS-5	7/8/98	230.64	13.75	216.89	45000	2800	12000	2000	8500	<10*
RS-5	9/16/98	230.64	15.80	214.84	49000	1400	7500	1700	8600	<5*
RS-5	11/24/98	230.64	16.64	214	89000	5300	15000	2800	13000	<10

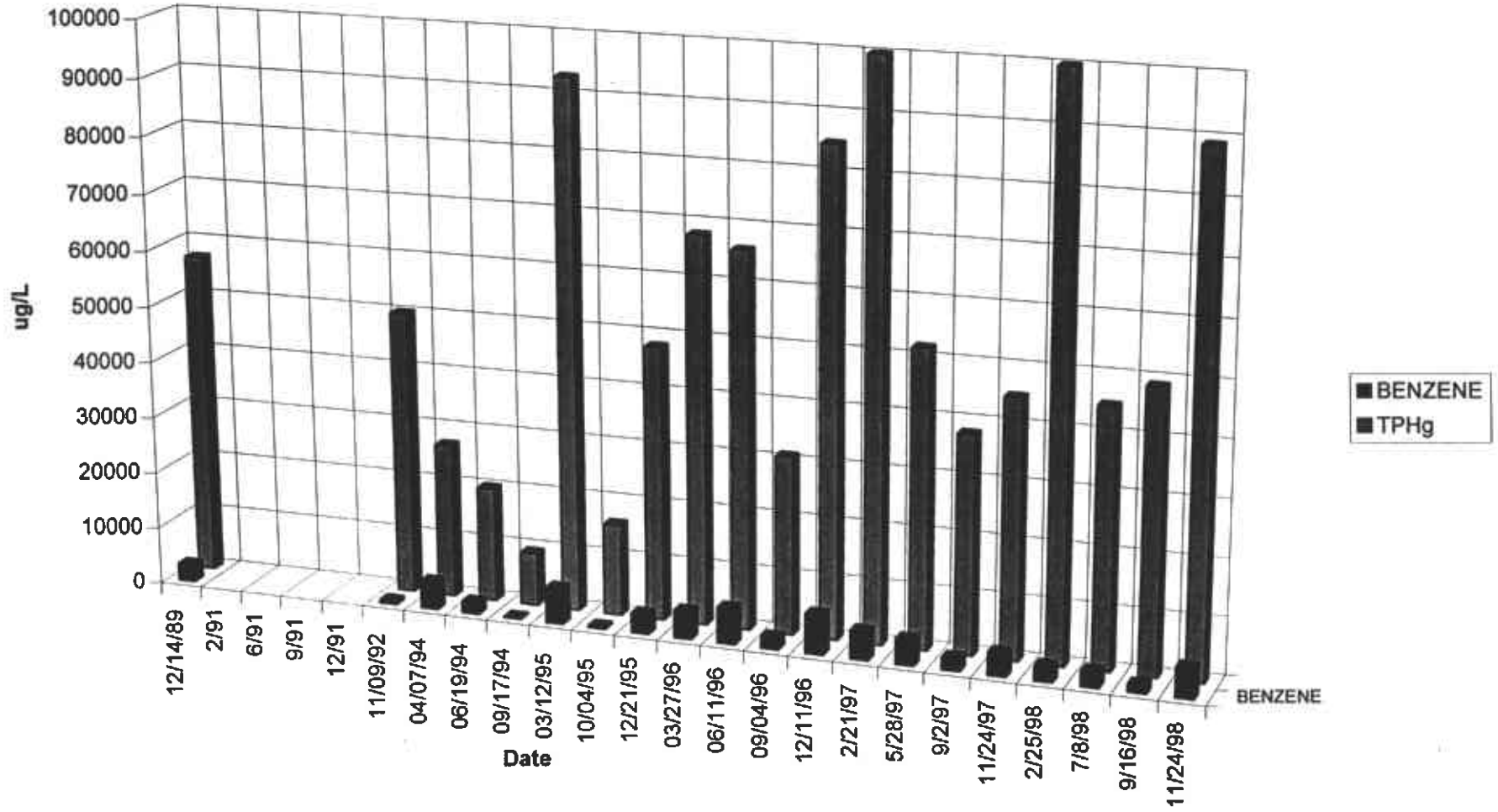


### RS-5 Groundwater Elevation



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RS-5

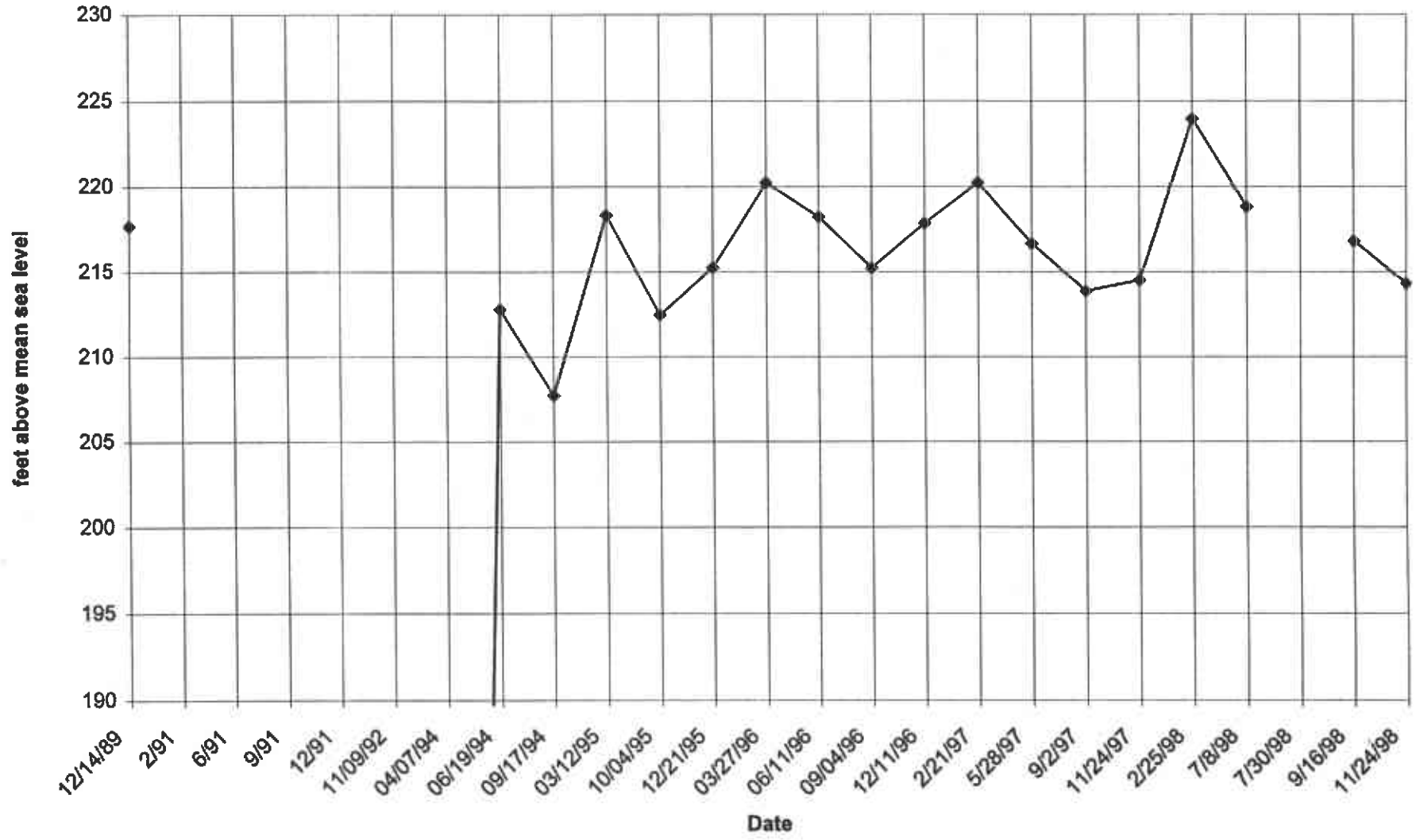


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DESERT PETROLEUM, INC. SITE #793  
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ID#	(All concentrations in parts per billion [ug/L, ppb]) (AMSL = Above mean sea level)									
	DATE SAMPLED	WELL CASING ELEVATION (FEET AMSL)	DEPTH TO GROUND WATER (FEET)	GROUND WATER ELEVATION (FEET AMSL)	TPH-G (UG/L)	BENZENE (UG/L)	TOLUENE (UG/L)	ETHYL-BENZENE (UG/L)	XYLENES (UG/L)	MTBE (UG/L)
RS-6	12/14/89	240.23	22.52	217.71	11000	1400	1700	160	860	
RS-6	2/91		FLOATING PRODUCT							
RS-6	6/91				95000	4200	4200	650	3700	
RS-6	9/91		FLOATING PRODUCT							
RS-6	12/91				64000	3700	2300	730	4100	
RS-6	11/09/92	99.27	19.43	79.84	19000	1600	710	500	1600	
RS-6	04/07/94	99.27	14.42	84.85	16000	1200	1300	290	1100	
RS-6	06/19/94	227.22	14.45	212.77	23000	1300	2200	590	2200	
RS-6	09/17/94	227.22	19.52	207.7	24000	630	790	250	1100	
RS-6	03/12/95	227.22	8.90	218.32	3200	450	13	82	230	
RS-6	10/04/95	230.22	17.78	212.44	3700	170	250	38	290	
RS-6	12/21/95	230.22	14.98	215.24	3100	120	30	16	150	58
RS-6	03/27/96	230.22	10.00	220.22	6900	180	440	79	360	< 300
RS-6	06/11/96	230.22	12.00	218.22	7400	220	150	30	100	<1000
RS-6	09/04/96	230.22	15.00	215.22	1400	68	2.6	7.7	9.2	14
RS-6	12/11/96	230.22	12.36	217.86	1800	39	16	10	18	< 0.5
RS-6	2/21/97	230.22	10.00	220.22	2100	71	85	25	40	< 0.5*
RS-6	5/28/97	230.22	13.56	216.66	1700	34	12	11	16	< 0.5*
RS-6	9/2/97	230.22	16.35	213.87	940	34	71	9	55	< 0.5*
RS-6	11/24/97	230.22	15.72	214.5	490	9	6	1	7	< 0.5*
RS-6	2/25/98	230.22	6.26	223.96	1400	22	47	5	52	< 0.5*
RS-6**	7/8/98	230.22	11.41	218.81	1500	83	9	84	2	<10*
RS-6	7/30/98	230.22			<50	<0.5	<0.5	<0.5	<1	
RS-6	9/16/98	230.22	13.42	216.8	990	23	<0.5	<0.5	<1	<1*
RS-6	11/24/98	230.22	15.91	214.31	3400	5.3	<0.5	<0.5	14	<0.5

### RS-6 Groundwater Elevation



RS-6

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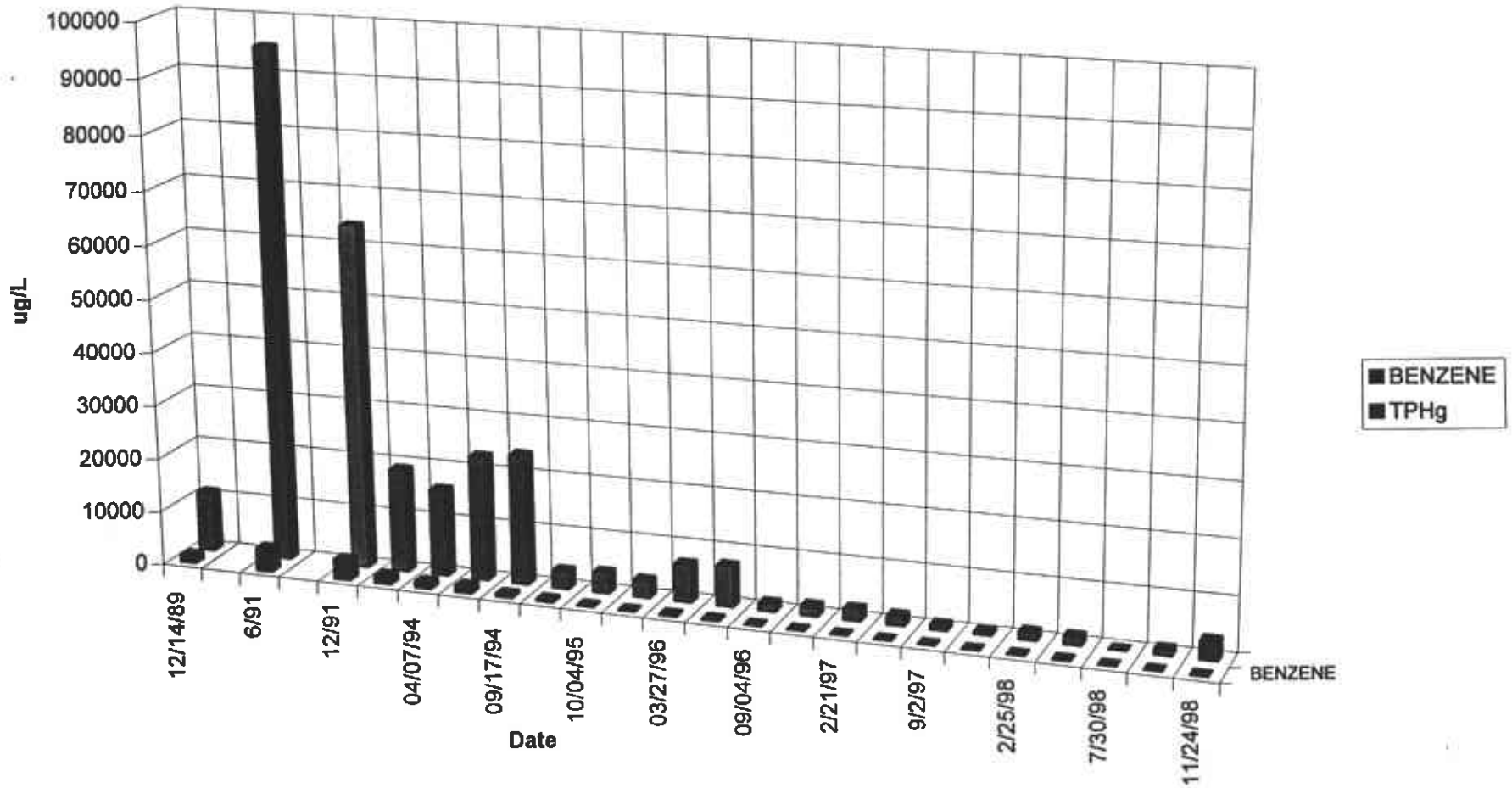
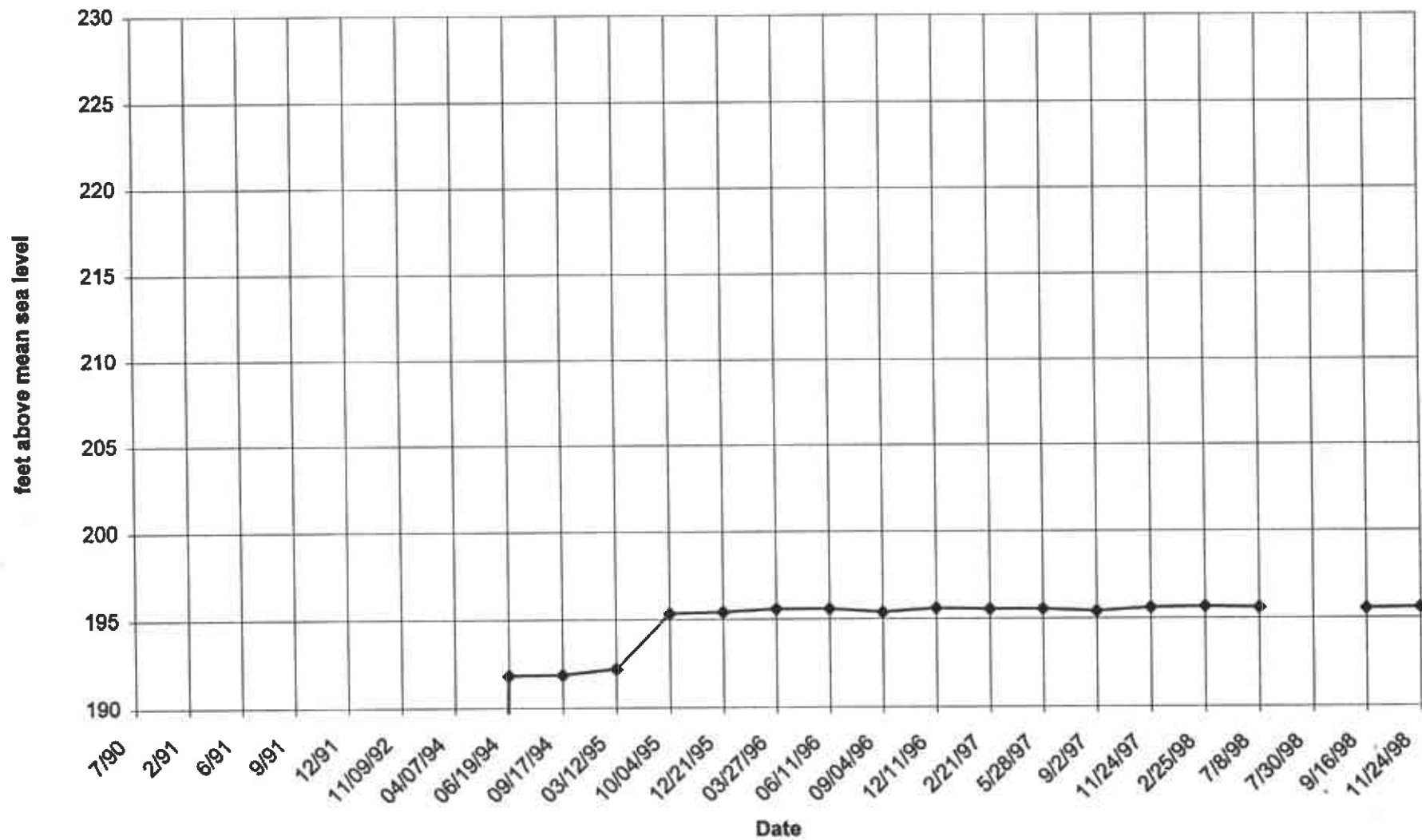


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	DATE SAMPLED	WELL CASING ELEVATION (FEET AMSL)	DEPTH TO GROUND WATER (FEET)	GROUND WATER ELEVATION (FEET AMSL)	TPH-G (UG/L)	BENZENE (UG/L)	TOLUENE (UG/L)	ETHYL-BENZENE (UG/L)	XYLENES (UG/L)	MTBE (UG/L)
RS-7	7/90				5600000	24000	210000	50000	740000	
RS-7	2/91				FLOATING PRODUCT					
RS-7	6/91				FLOATING PRODUCT					
RS-7	9/91				FLOATING PRODUCT					
RS-7	12/91				270000	11000	22000	2000	13000	
RS-7	11/09/92	67.88	4.62	63.26	81000	12000	16000	1900	13000	
RS-7	04/07/94	67.88	4.03	63.85	74000	16000	16000	1400	8500	
RS-7	06/19/94	195.92	4.07	191.85	83000	22000	19000	1500	9500	
RS-7	09/17/94	195.92	4.05	191.87	270000	13000	15000	2100	1100	
RS-7	03/12/95	195.92	3.72	192.2	35000	5100	560	6300	3600	
RS-7	10/04/95	199.35	4.03	195.32	96000	14000	14000	1300	7000	
RS-7	12/21/95	199.35	3.95	195.4	70000	9300	12000	860	5600	210
RS-7	03/27/96	199.35	3.80	195.55	64000	8900	14000	1100	8300	< 3000
RS-7	06/11/96	199.35	3.79	195.56	65000	12000	17000	1600	9700	<5000
RS-7	09/04/96	199.35	3.99	195.36	20000	4900	2100	670	4400	100
RS-7	12/11/96	199.35	3.78	195.57	17000	4400	7500	570	4600	180
RS-7	2/21/97	199.35	3.82	195.53	93000	31000	47000	3800	23000	<0.5*
RS-7	5/28/97	199.35	3.82	195.53	52000	12000	8200	2000	11000	<0.5*
RS-7	9/2/97	199.35	3.96	195.39	28000	6100	2800	950	3800	<50
RS-7	11/24/97	199.35	3.76	195.59	18000	4300	5900	600	2900	<0.5*
RS-7	2/25/98	199.35	3.70	195.65	13000	4300	7100	1100	5800	<0.5*
RS-7**	7/8/98	199.35	3.76	195.59	45000	10000	3400	2000	8000	<10*
RS-7	7/30/98	199.35			72000	12000	2100	2000	9100	
RS-7	9/16/98	199.35	3.83	195.52	5000	6500	160	<2.5	500	<5*
RS-7	11/24/98	199.35	3.77	195.58	11000	1100	1100	500	2100	<0.5

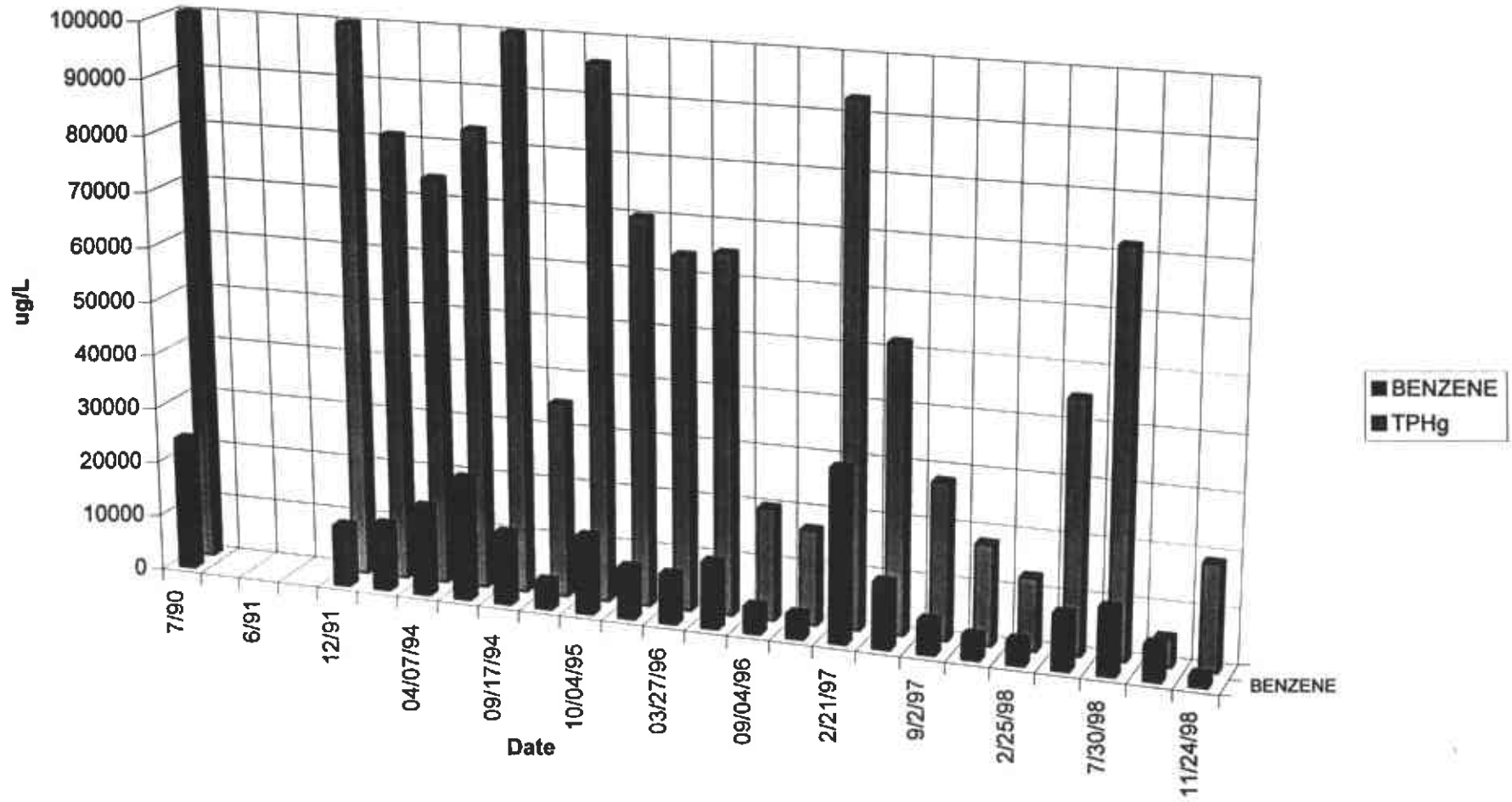
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### RS-7 Groundwater Elevation



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RS-7



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TABLE 1

GROUNDWATER ELEVATIONS AND CERTIFIED ANALYTICAL LABAORATAORY RESULTS FROM WATER SAMPLES  
 DESERT PETROLEUM, INC. SITE #793  
 4035 PARK BOULEVARD, OAKLAND, CALIFORNIA

ID#	(All concentrations in parts per billion [ug/L, ppb]) (AMSL = Above mean sea level)									
	DATE SAMPLED	WELL CASING ELEVATION (FEET AMSL)	DEPTH TO GROUND WATER (FEET)	GROUND WATER ELEVATION (FEET AMSL)	TPH-G  (UG/L)	BENZENE  (UG/L)	TOLUENE  (UG/L)	ETHYL- BENZENE  (UG/L)	XYLENES  (UG/L)	MTBE  (UG/L)
RECOVERY 1	09/04/96	230.73	15.00	215.73	1800	1100	3	29	< 10	< 30
RECOVERY 1	12/11/96	230.73	10.30	220.43	<50	<0.5	< 0.5	< 0.5	< 1	4
RECOVERY 1	2/21/97	230.73	11.88	218.85	2500	670	9	3	13	<0.5*
RECOVERY 1	5/28/97	230.73	14.03	216.7	24000	4300	36	2000	370	<0.5*
RECOVERY 1	9/2/97	230.73	14.98	215.75	4400	320	6	340	72	20
RECOVERY 1	11/24/97	230.73	14.06	216.67	100	39	1	18	10	<0.5
RECOVERY 1	2/25/98	230.73	8.93	221.8	1200	400	8	13	150	<0.5
RECOVERY 1	7/8/98	230.73	11.36	219.37	68	14	< 0.5	< 0.5	< 1	<1*
RECOVERY 1	9/16/98	230.73	13.30	217.43	16000	3400	92	< 0.5	410	<1*
RECOVERY 1	11/24/98	230.73	10.72	220.01	340	19	1.6	35	9.7	<0.5
RECOVERY 2	09/04/96	230.68	13.44	217.24	14000	7600	<10	170	190	<100
RECOVERY 2	12/11/96	230.68	12.42	218.26	488	300	1	< 0.5	30	16
RECOVERY 2	2/21/97	230.68	10.50	220.18	5700	2100	5	2	10	3*
RECOVERY 2	5/28/97	230.68	13.10	217.98	36000	14000	63	260	220	<0.5*
RECOVERY 2	9/2/97	230.68	14.16	216.52	30000	12000	330	1000	790	47
RECOVERY 2	11/24/97	230.68	14.71	215.97	41000	15000	830	1500	4200	<0.5*
RECOVERY 2	2/25/98	230.68	7.39	223.29	800	400	<0.5	<0.5	15	<0.5*
RECOVERY 2	7/8/98	230.68	11.27	219.41	290	31	< 0.5	1	< 1	2*
RECOVERY 2	9/16/98	230.68	13.73	216.95	6600	11000	24	<0.5	35	<1*
RECOVERY 2	11/24/98	230.68	11.67	219.01	6100	<0.5	36	<0.5	21	<0.5

TABLE 1  
GROUNDWATER ELEVATIONS AND CERTIFIED ANALYTICAL LABAORATAORY RESULTS FROM WATER SAMPLES  
DESERT PETROLEUM, INC. SITE #793  
4035 PARK BOULEVARD, OAKLAND, CALIFORNIA

ID#	(All concentrations in parts per billion [ug/L, ppb]) (AMSL = Above mean sea level)										
	DATE SAMPLED	WELL CASING ELEVATION (FEET AMSL)	DEPTH TO GROUND WATER (FEET)	GROUND WATER ELEVATION (FEET AMSL)	TPH-G (UG/L)	BENZENE (UG/L)	TOLUENE (UG/L)	ETHYL-BENZENE (UG/L)	XYLENES (UG/L)	MTBE (UG/L)	
RECOVERY 3	09/04/96	230.32	9.90	220.42	<50	<0.5	<0.5	<0.5	<2	<5	
RECOVERY 3	12/11/96	230.32	8.18	222.14	<50	<0.5	<0.5	<0.5	<1	5	
RECOVERY 3	2/21/97	230.32	6.76	223.56	340	35	59	8	54	<0.5*	
RECOVERY 3	5/28/97	230.32	9.98	220.34	<50	<0.5	<0.5	<0.5	<1	<0.5*	
RECOVERY 3	9/2/97	230.32	10.86	219.46	<50	4	<0.5	<0.5	<1	<0.5*	
RECOVERY 3	11/24/97	230.32	11.20	219.12	not enough water to sample. No sample						
RECOVERY 3	2/25/98	230.32	3.42	226.9	<50	<0.5	<0.5	<0.5	<1	<0.5*	
RECOVERY 3	7/8/98	230.32	8.78	221.54	140	<0.5	<0.5	4	24	<1*	
RECOVERY 3	9/16/98	230.32	10.38	219.94	<50	<0.5	<0.5	<0.5	<1	<1*	
RECOVERY 3	11/24/98	230.32	11.12	219.2	not enough water to sample. No sample						

ND BELOW LABORATORY DETECTION LIMITS  
TPH-G TOTAL PETROLEUM HYDROCARBONS AS GASOLINE  
\* MTBE results confirmed by EPA Method 8260 (GC/MS)  
\*\* LAB REPORT HAD RS-6 AND RS-7 MISLABELED, RESAMPLE ON 7/30/98 CONFIRMED.

18

*-WEGE-*

DESERT STATION #793  
4035 Park Blvd.  
Oakland, California

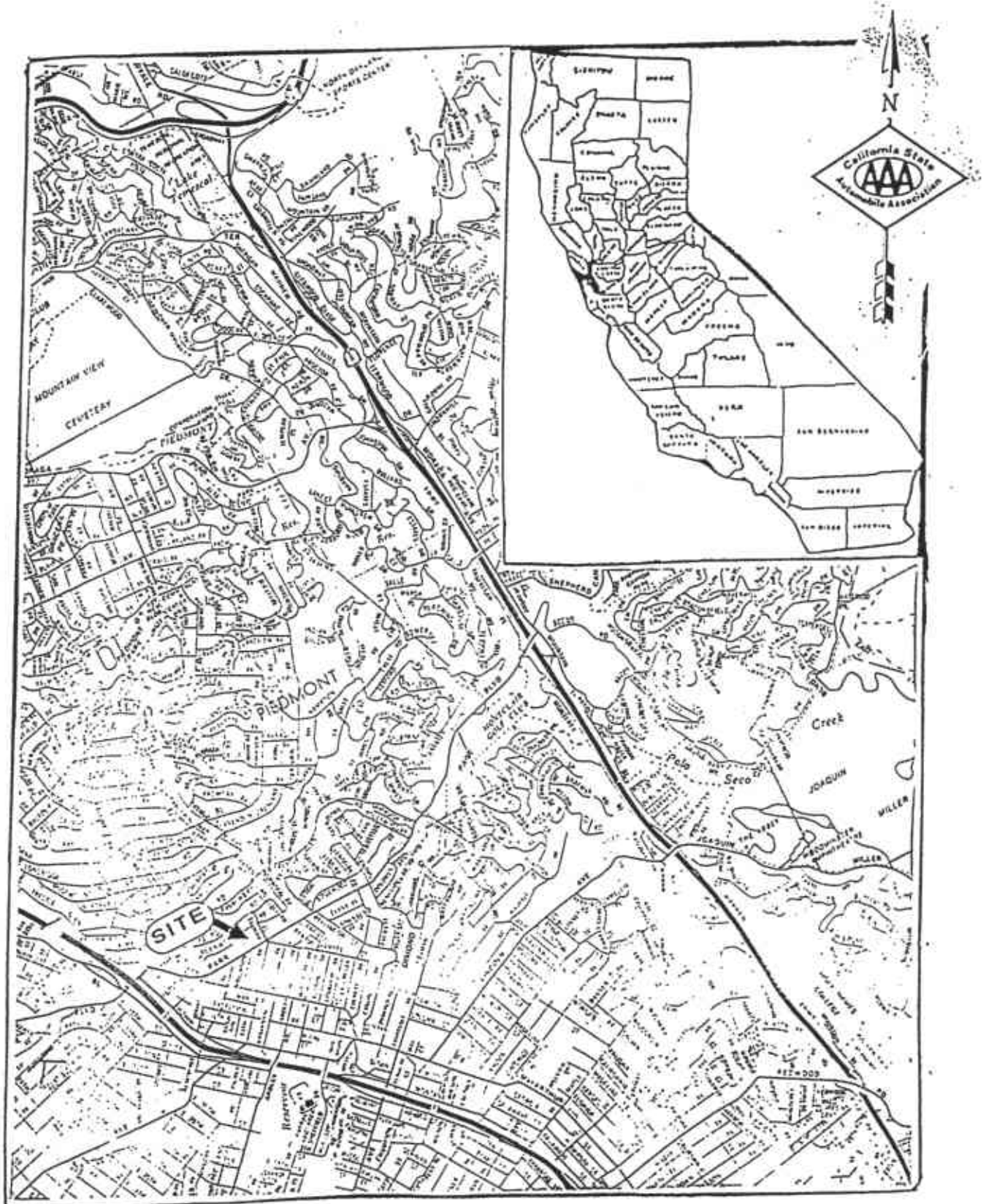


FIGURE 1

Location (AAA Map)

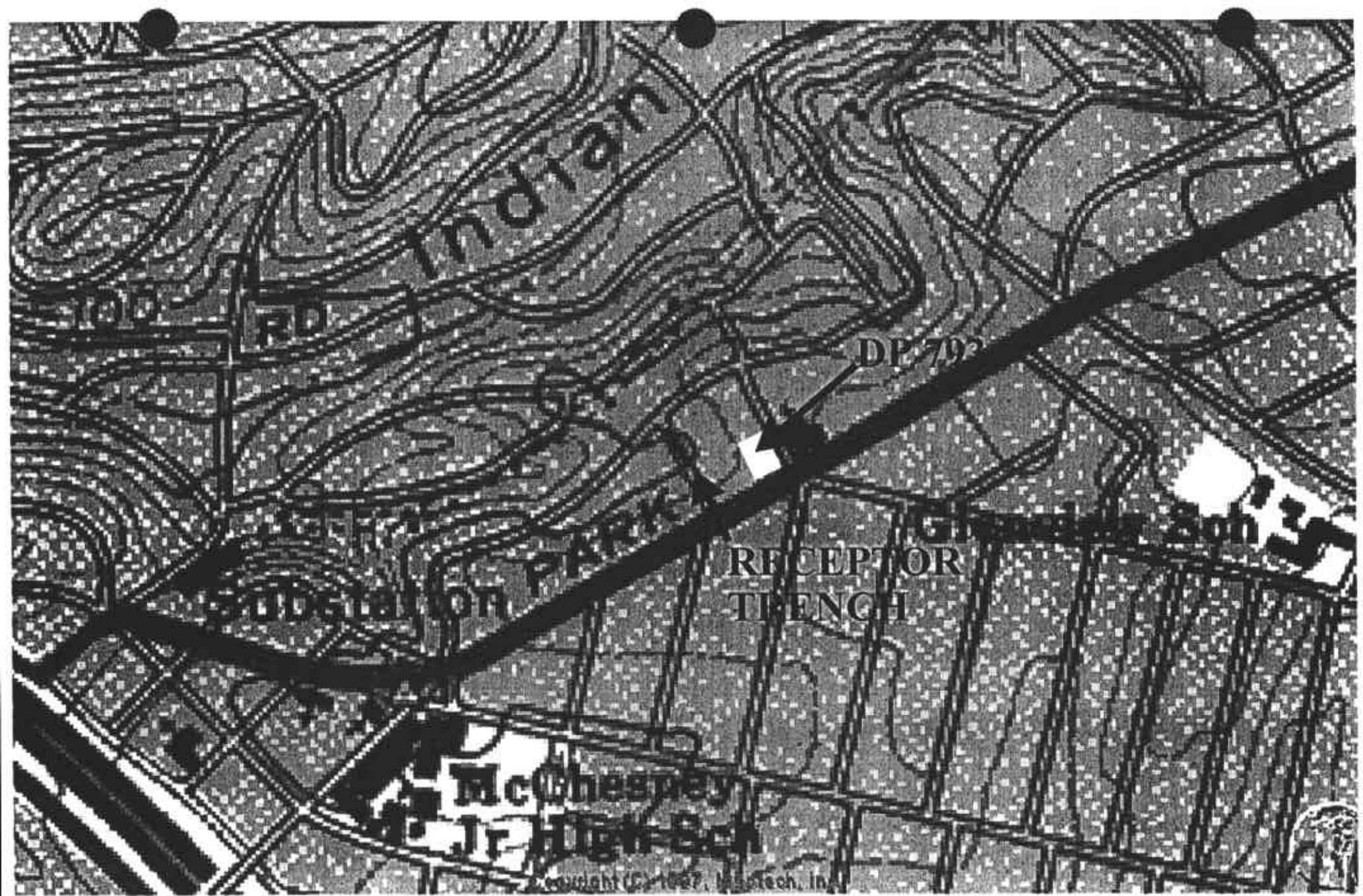




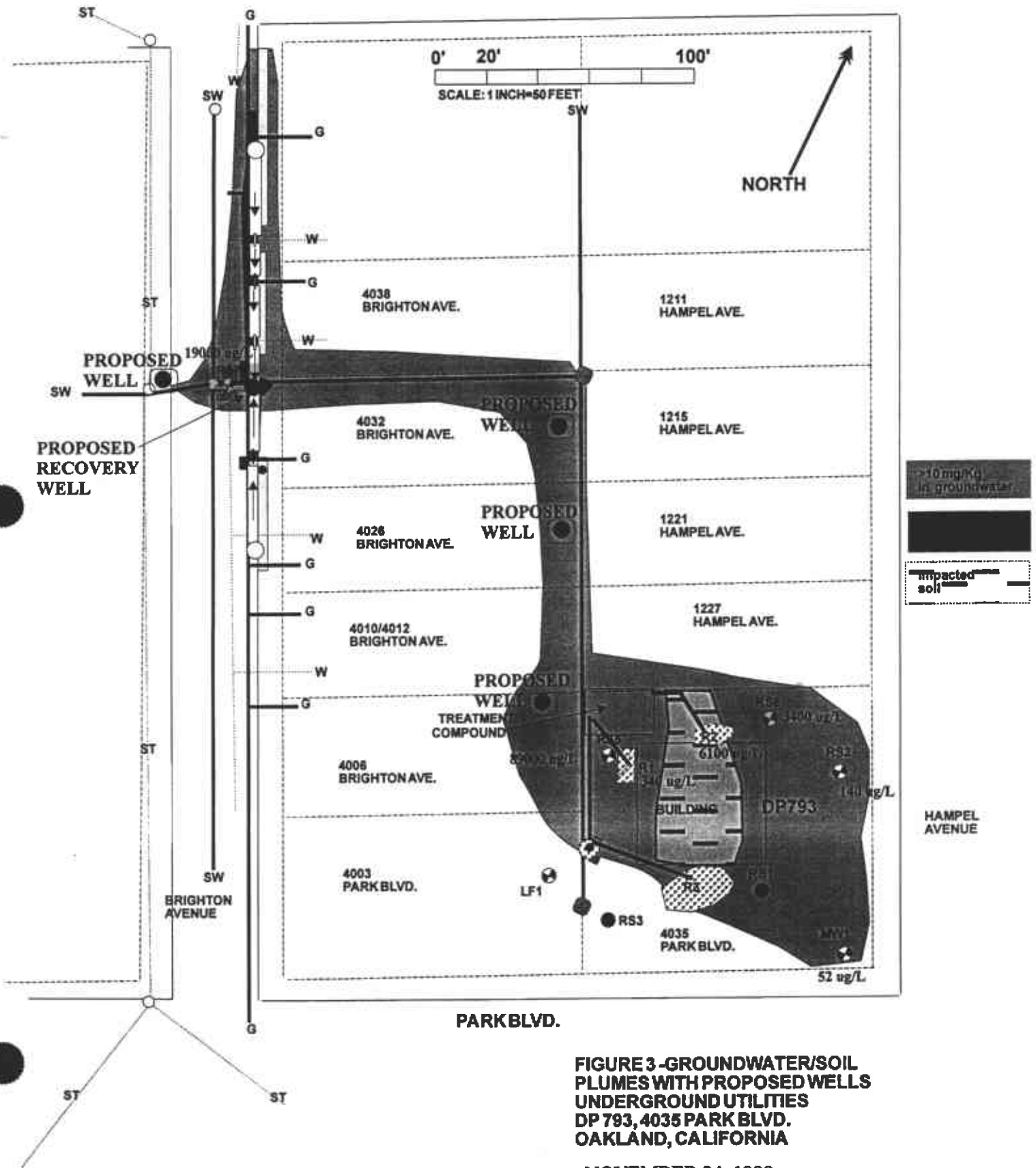
FIGURE 2  
PORTION OF OAKLAND EAST 7.5 MINUTE USGS TOPOGRAPHIC MAP



**UNDERGROUND UTILITIES**

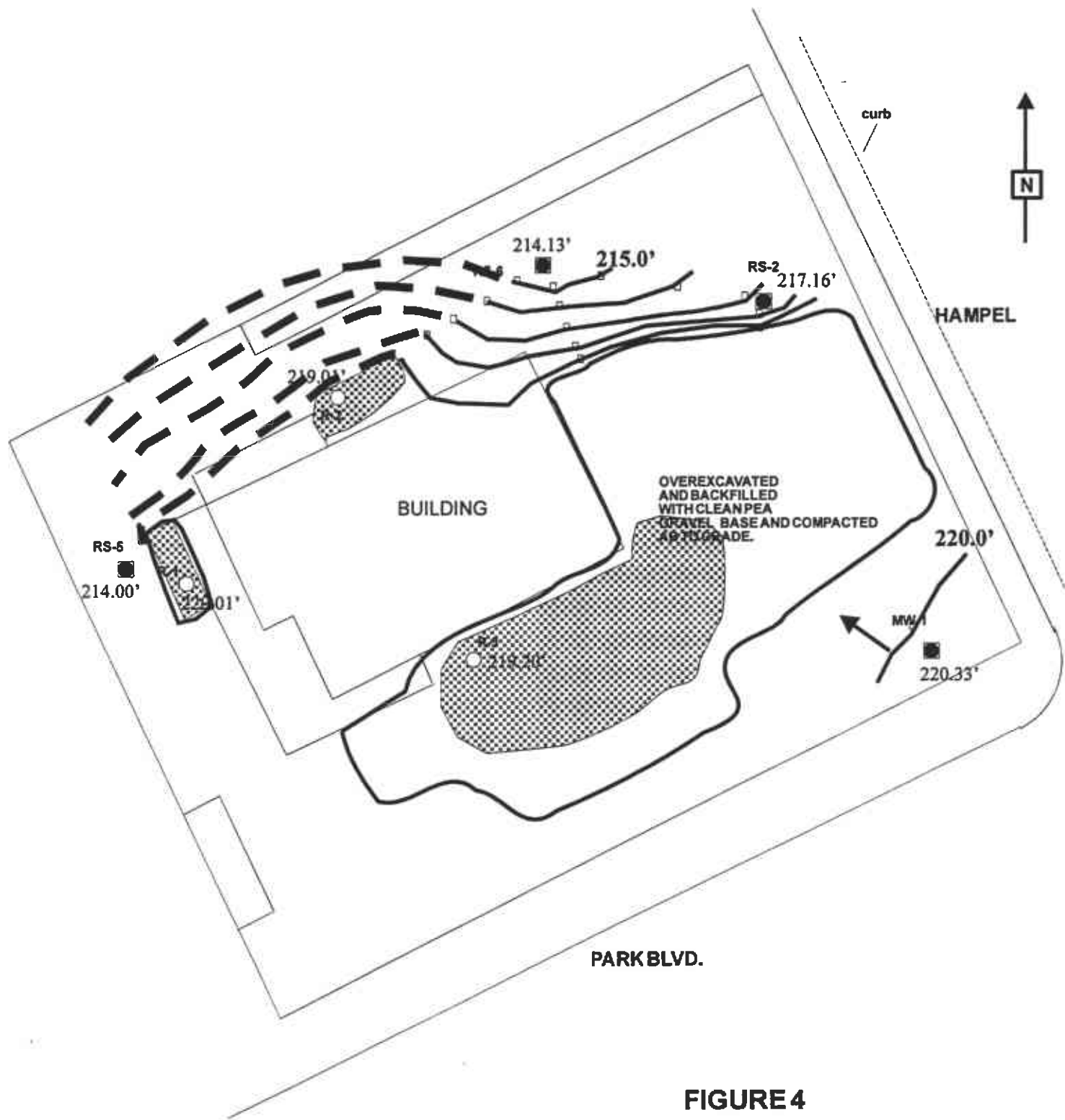
- G NATURAL GAS UTILITY
- W WATER UTILITY
- SW SEWER UTILITY
- ST STORMWATER UTILITY

-  PROPOSED GROUNDWATER/REMEDIAL ACTION MONITOR WELLS
-  RECOVERY TRENCHES WITH PROJECTED FLOW DIRECTION



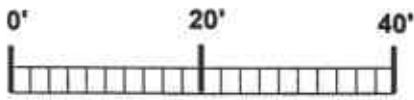
**FIGURE 3-GROUNDWATER/SOIL PLUMES WITH PROPOSED WELLS UNDERGROUND UTILITIES DP 793, 4035 PARK BLVD. OAKLAND, CALIFORNIA**

NOVEMBER 24, 1998



**FIGURE 4**

GROUNDWATER ELEVATION  
CONTOUR INTERVAL EQUALS  
ONE FOOT. ELEVATIONS ARE  
MEASURED IN FEET AMSL



SCALE: 1" = 20'.

**GROUNDWATER ELEVATION GRADIENTS  
AND FLOW DIRECTION ON: NOVEMBER 24, 1998**

**DESERT PETROLEUM STATION #793  
4035 PARK BLVD..  
OAKLAND, CALIFORNIA 94602**

# *APPENDIX A*

*QA/QC  
METHODS  
&  
PROCEDURES*

## APPENDIX A

### METHODS AND PROCEDURES, QA/QC

This Appendix documents the specific methods, procedures, and materials used to collect and analyze groundwater samples and monitoring the vapor recovery system.

#### Gauging and Measuring Monitor Wells.

Prior to sampling a well, WEGE personnel obtain two measurements: the depth to groundwater and the product thickness using a battery powered depth to water-product interface probe and or by using a specially designed bailer. The probe is lowered into the well casing until the instrument signals that the top of water has been reached. The distance from the top of water to the top of casing is read from the tape calibrated in 0.01 foot intervals for accuracy to 0.01 foot, that is attached to the probe. The measured distance is subtracted from the established elevation at the top of casing to determine the elevation of groundwater with respect to mean sea level. The probe is washed with TSP and rinsed in distilled water before each measurement. WEGE has designed and built bailers that will collect a sample of the contents of a well to show the exact thickness of any floating product.

#### Purging Standing Water from Monitor Wells

Bailers, pneumatic or electric sample pumps, or vacuum pump tanks or trucks may be used. The usual amount of water removed is three well volumes. The water collected during purging is either safely stored onsite for later disposition, transported to an approved onsite or offsite sewer discharge system, or an approved onsite. If no product is present, WEGE personnel purge the well. This is accomplished by removing groundwater from the well until the water quality parameters (temperature, pH, and conductivity) stabilize, or until the well is emptied of water. Periodic measurements of groundwater temperature, pH, and conductivity were taken with a Hydac Monitor or other meter and recorded along with the volume of groundwater removed from the well. Purging is done by one or more methods singularly or in combination.

#### Collection of Water Sample for Analysis

The well is allowed to recover after purging and a groundwater sample is collected. A fresh bailer is used to collect enough water for the requirements of the laboratory for the analyses needed or required. The water samples are decanted from the bailer into the appropriate number and size containers. These containers are furnished pre-cleaned to exact EPA protocols, with and without preservatives added, by the analytical laboratory or a chemical supply company. The bottles are filled, with no headspace, and then capped with plastic caps with teflon liners.



The vials or bottles containing the groundwater samples are labeled with site name, station, date, time, sampler, and analyses to be performed, and documented on a chain of custody form. They were placed in ziplock bags and stored in a chest cooled to 4C with ice. The preserved samples are chain of custody delivered to the chosen laboratory.

### Analytical Results

TPH is the abbreviations used for Total Petroleum Hydrocarbons used by the laboratories for water and soil analyses. The letter following TPH indicates a particular distinction or grouping for the results. The letters "g", "d", "k", or "o" indicate gasoline, diesel, kerosene, or oil, respectively, ie TPH-d for diesel range TPH.

BTEX or MTBE are acronyms or abbreviations used for Benzene, Toluene, Ethylbenzene and all of the Xylenes (BTEX) and Methyl- Tertiary-Butyl-Ether (MTBE), respectively. MBTEX is the designation for the above five compounds.

The less than symbol, <, used with a "parts per value" indicates the lower detection limit for a given analytical result and the level, if present, of that particular analyte is below or less than that lower detection limit.

Other abbreviations commonly used are ppm, ppb, mg/Kg, ug/Kg, ml/l and ul/l are parts per million, parts per billion, milligrams per kilogram, micrograms per kilogram, milliliters per liter, microliters per liter, respectively.

### Chain of Custody Documentation

All water samples that are collected by WEGE and transported to a certified analytical laboratory are accompanied by chain-of- custody (COC) documentation. This documentation is used to record the movement and custody of a sample from collection in the field to final analysis and storage. Samples to be analyzed at the certified laboratory were logged on the COC sheet provided by the laboratory. The same information provided on the sample labels (site name, sample location, date, time, and analysis to be performed) is also noted on the COC form. Each person relinquishing custody of the sample set signs the COC form indicating the date and time of the transfer to the recipient. A copy of the COC follows the samples or their extracts throughout the laboratory to aid the analyst in identifying the samples and to assure analysis within holding times.

*APPENDIX B*

*FIELD NOTES*

# WELL SAMPLING DATA SHEET

SITE <i>02-793</i>	DATE <i>11-24-98</i>	TIME <i>0735</i>
WELL <i>MW-1</i>	SAMPLED BY. <i>BROADWAY</i>	
WELL ELEVATION		
PRODUCT THICKNESS		
DEPTH TO WATER <i>12.24</i>	DTB <i>18.31</i>	
FLUID ELEVATION		
BAILER TYPE <i>Disposable Bailer</i>		
PUMP <i>LTT DAVID</i>		

6  
16  
36  
96

WELL PURGING RECORD				
TIME	VOLUME REMOVED	TEMP.	pH	COND.
<i>0755</i>	<i>1 Bailer</i>	<i>72.0</i>	<i>7.86</i>	<i>1.89</i>
<i>0757</i>	<i>3 gal</i>	<i>72.6</i>	<i>7.63</i>	<i>1.72</i>
<i>0801</i>	<i>.5</i>	<i>73.0</i>	<i>7.56</i>	<i>1.77</i>
<i>0803</i>	<i>.5</i>	<i>73.4</i>	<i>7.42</i>	<i>1.73</i>
<i>0805</i>	<i>.5</i>	<i>72.9</i>	<i>7.43</i>	<i>1.74</i>

FINAL VOLUME PURGED	<i>4.5 gal</i>
TIME SAMPLED	<i>0807</i>
SAMPLE ID.	<i>MW-1</i>
SAMPLE CONTAINERS	<i>40cc VOA's</i>
ANALYSIS TO BE RUN	<i>TPHg BTEX / MTBE</i>
LABORATORY	<i>NSF</i>
NOTES:	<i>1st Bailer</i>

# WELL SAMPLING DATA SHEET

SITE <i>DR-793</i>	DATE <i>11-24-98</i>	TIME <i>0842</i>
WELL <i>R-2</i>	SAMPLED BY. <i>BROADWAY</i>	
WELL ELEVATION		
PRODUCT THICKNESS		
DEPTH TO WATER	<i>13.27</i>	- DTB <i>16.8</i>
FLUID ELEVATION		
BAILER TYPE <i>Disposable Bailer</i>		
PUMP <i>LTT David</i>		

WELL PURGING RECORD				
TIME	VOLUME REMOVED	TEMP.	pH	COND.
<i>0844</i>	<i>1 Bailer</i>	<i>65.5</i>	<i>7.06</i>	<i>2.59</i>
<i>47</i>	<i>16 gal</i>	<i>65.9</i>	<i>6.61</i>	<i>3.18</i>
<i>49</i>	<i>5</i>	<i>67.1</i>	<i>6.60</i>	<i>3.26</i>
<i>50</i>	<i>5</i>	<i>67.2</i>	<i>6.62</i>	<i>3.26</i>

FINAL VOLUME PURGED	<i>17 gal</i>
TIME SAMPLED	<i>0851</i>
SAMPLE ID.	<i>R-2</i>
SAMPLE CONTAINERS	<i>20/40cc VOA's</i>
ANALYSIS TO BE RUN	<i>TP11g BTEX/MTBE</i>
LABORATORY	<i>NSE</i>
NOTES:	<i>1st Bailer Clear No Odor</i>

# WELL SAMPLING DATA SHEET

SITE <i>02-793</i>	DATE <i>11-24-98</i>	TIME <i>0904</i>
WELL <i>RS-5</i>	SAMPLED BY. <i>BROADWAY</i>	
WELL ELEVATION		
PRODUCT THICKNESS		
DEPTH TO WATER <i>16.64</i>	DTB <i>39.20</i>	
FLUID ELEVATION		
BAILER TYPE <i>Disposable Bailer</i>		
PUMP <i>LTT David</i>		

WELL PURGING RECORD				
TIME	VOLUME REMOVED	TEMP.	pH	COND.
<i>0905</i>	<i>1 Bailer</i>	<i>69.7</i>	<i>6.80</i>	<i>2.55</i>
<i>0916</i>	<i>40 gal</i>	<i>69.2</i>	<i>7.11</i>	<i>2.54</i>
<i>0918</i>	<i>.5</i>	<i>69.5</i>	<i>7.00</i>	<i>2.49</i>
<i>0920</i>	<i>.5</i>	<i>69.0</i>	<i>6.83</i>	<i>2.54</i>
<i>0922</i>	<i>.5</i>	<i>68.9</i>	<i>6.80</i>	<i>2.54</i>
<del><i>0922</i></del>				

FINAL VOLUME PURGED <i>gal</i>
TIME SAMPLED <i>0925</i>
SAMPLE ID. <i>RS-5</i>
SAMPLE CONTAINERS <i>20/40cc VOA's</i>
ANALYSIS TO BE RUN <i>TP11g BTEX/MTBE</i>
LABORATORY <i>USE</i>
NOTES: <i>1st Bailer Clear some particulate Strong odor</i>

# WELL SAMPLING DATA SHEET

SITE <i>DA-793</i>	DATE <i>11-24-98</i>	TIME <i>08:25</i>
WELL <i>R5-6</i>	SAMPLED BY. <i>BROADWAY</i>	
WELL ELEVATION		
PRODUCT THICKNESS		
DEPTH TO WATER <i>15.91</i>	DTB <i>34.02</i>	
FLUID ELEVATION		
BAILER TYPE <i>Disposable Bailer</i>		
PUMP <i>LTT DAVID</i>		

WELL PURGING RECORD				
TIME	VOLUME REMOVED	TEMP.	pH	COND.
<i>0826</i>	<i>1 Bailer</i>	<i>67.5</i>	<i>7.04</i>	<i>2.83</i>
<i>0833</i>	<i>20 gal</i>	<i>66.2</i>	<i>7.11</i>	<i>2.91</i>
<i>0835</i>	<i>.5</i>	<i>67.8</i>	<i>6.90</i>	<i>2.90</i>
<i>0837</i>	<i>.2</i>	<i>67.7</i>	<i>6.92</i>	<i>2.89</i>

FINAL VOLUME PURGED <i>21 gal</i>
TIME SAMPLED <i>0838</i>
SAMPLE ID. <i>R5-6</i>
SAMPLE CONTAINERS <i>70/40cc VORs</i>
ANALYSIS TO BE RUN <i>TPHg BTEX /MTBE</i>
LABORATORY <i>USE</i>
NOTES: <i>1st Bailer CLEAR No Odor</i>
<i>Well empty @ 20gals</i>

# WELL SAMPLING DATA SHEET

SITE <i>DR-993</i>	DATE <i>11-24-98</i>	TIME <i>0946</i>
WELL <i>RS-7</i>	SAMPLED BY. <i>BROADWAY</i>	
WELL ELEVATION		
PRODUCT THICKNESS		
DEPTH TO WATER	<i>3.77</i>	DTB <i>7.0</i>
FLUID ELEVATION		
BAILER TYPE <i>Disposable Bailer</i>		
PUMP <i>LTT David</i>		

WELL PURGING RECORD				
TIME	VOLUME REMOVED	TEMP.	pH	COND.
<i>0947</i>	<i>1 Bailer</i>	<i>68.8</i>	<i>7.14</i>	<i>2.85</i>
<i>0949</i>	<i>6 gal</i>	<i>67.5</i>	<i>7.15</i>	<i>2.14</i>
<i>0950</i>	<i>.5</i>	<i>66.7</i>	<i>6.92</i>	<i>2.12</i>
<i>0952</i>	<i>.5</i>	<i>66.8</i>	<i>6.90</i>	<i>2.13</i>

FINAL VOLUME PURGED	<i>7 gal</i>
TIME SAMPLED	<i>0953</i>
SAMPLE ID.	<i>RS-7</i>
SAMPLE CONTAINERS	<i>20/40cc VOA's</i>
ANALYSIS TO BE RUN	<i>TPHg BTEX/MTBE</i>
LABORATORY	<i>USE</i>
NOTES:	<i>1st Bailer slightly turbid w/ particulate slight odor</i>

# WELL SAMPLING DATA SHEET

SITE <i>DA-793</i>	DATE <i>11-24-98</i>	TIME <i>0927</i>
WELL <i>R-1</i>	SAMPLED BY. <i>BROADWAY</i>	
WELL ELEVATION		
PRODUCT THICKNESS		
DEPTH TO WATER <i>10.72</i>	DTB <i>16.92</i>	
FLUID ELEVATION		
BAILER TYPE <i>Disposable Bailer</i>		
PUMP <i>LTT David</i>		

WELL PURGING RECORD				
TIME	VOLUME REMOVED	TEMP.	pH	COND.
<i>0928</i>	<i>1 Bailer</i>	<i>69.5</i>	<i>7.37</i>	<i>1.38</i>
<i>0931</i>	<i>25 gal</i>	<i>69.7</i>	<i>7.16</i>	<i>1.38</i>
<i>0933</i>	<i>.5</i>	<i>69.2</i>	<i>7.15</i>	<i>1.40</i>

FINAL VOLUME PURGED <i>25.5 gal</i>
TIME SAMPLED <i>0934</i>
SAMPLE ID. <i>R-1</i>
SAMPLE CONTAINERS <i>20/40cc VORs</i>
ANALYSIS TO BE RUN <i>TPHg BTEX/MTBE</i>
LABORATORY <i>NSE</i>
NOTES: <i>1st Bailer CLEAR No Odor</i>



# WELL SAMPLING DATA SHEET

SITE <i>0A-993</i>	DATE <i>11-24-98</i>	TIME <i>0810</i>
WELL <i>RS-2</i>	SAMPLED BY. <i>BROADWAY</i>	
WELL ELEVATION		
PRODUCT THICKNESS		
DEPTH TO WATER	<i>11.67</i>	DTB <i>18.40</i>
FLUID ELEVATION		
BAILER TYPE <i>Disposable Bailer</i>		
PUMP <i>LTT DAVID</i>		

WELL PURGING RECORD				
TIME	VOLUME REMOVED	TEMP.	pH	COND.
<i>0812</i>	<i>1 Bailer</i>	<i>67.5</i>	<i>7.56</i>	<i>2.26</i>
<i>0814</i>	<i>14 gal</i>	<i>68.3</i>	<i>7.00</i>	<i>3.22</i>
<i>0816</i>	<i>.5</i>	<i>70.0</i>	<i>6.92</i>	<i>3.38</i>
<i>0818</i>	<i>.5</i>	<i>70.1</i>	<i>6.93</i>	<i>3.37</i>

FINAL VOLUME PURGED	<i>15 gal</i>
TIME SAMPLED	<i>0820</i>
SAMPLE ID.	<i>RS-2</i>
SAMPLE CONTAINERS	<i>2/40cc VOA's</i>
ANALYSIS TO BE RUN	<i>TPHg BTEX /MTBE</i>
LABORATORY	<i>NSE</i>
NOTES:	<i>1st Bailer slightly cloudy No odor</i>

# WELL SAMPLING DATA SHEET

SITE <i>0A-993</i>	DATE <i>11-24-98</i>	TIME <i>0856</i>
WELL <i>R-3</i>	SAMPLED BY. <i>BROADWAY</i>	
WELL ELEVATION		
PRODUCT THICKNESS		
DEPTH TO WATER <i>11.12</i>	DTB <i>11.74</i>	
FLUID ELEVATION		
BAILER TYPE <i>Disposable Bailer</i>		
PUMP <i>LTT DAVID</i>		

WELL PURGING RECORD				
TIME	VOLUME REMOVED	TEMP.	pH	COND.
<i>0857</i>	<i>1 Bailer</i>	<i>68.6</i>	<i>7.16</i>	<i>3.37</i>
<i>0859</i>	<i>2 gal</i>	<i>No Water</i>		
<i>1001</i>	<i>0</i>	<i>No Water</i>		

FINAL VOLUME PURGED	<i>gal</i>
TIME SAMPLED	<i>No Sample</i>
SAMPLE ID.	<i>R-3</i>
SAMPLE CONTAINERS	<i>2/40cc VORs</i>
ANALYSIS TO BE RUN	<i>TPHg BTEX/MTBE</i>
LABORATORY	<i>USE</i>
NOTES:	<i>1st Bailer Clear No odor</i>
	<i>Well empty @ 2 gals waited for recharge</i>
	<i>Rechecked R-3 @ 1200 PM No residual recharge</i>



# North State Environmental Analytical Laboratory

Phone: (415) 588-9652 Fax: (415) 588-1950

Chain of Custody / Request for Analysis

Lab Job No.: \_\_\_\_\_ Page \_\_\_\_ of \_\_\_\_

Client: <i>Western Geo-Engineers</i>	Report to: <i>Same</i>	Phone: <i>530-668-5300</i>	Turnaround Time
Mailing Address: <i>1386 E. BEARER ST. Woodland, CA 95776-6003</i>	Billing to: <i>Same</i>	Fax: <i>530-662-0273</i>	
		PO# / Billing Reference:	Date:
			Sampler: <i>BROADWAY</i>

Project / Site Address: <i>DP 793 / 4035 PARK BLVD OAKLAND</i>					Analysis Requested								Comments/Hazards
Sample ID	Sample Type	Container No. / Type	Pres.	Sampling Date / Time	<i>MTBE</i>	<i>MTBE</i>							
<i>MW-1</i>	<i>H<sub>2</sub>O</i>	<i>2/VORS</i>	<i>HCL</i>	<i>11-24-98/0807</i>	<i>MTBE</i>	<i>MTBE</i>							
<i>RS-2</i>				<i>0820</i>									
<i>RS-5</i>				<i>0925</i>									
<i>RS-6</i>				<i>0839</i>									
<i>RS-7</i>				<i>0953</i>									
<i>R-1</i>				<i>0934</i>									
<i>R-2</i>				<i>0851</i>									
<i>R-3</i>													

Relinquished by: <i>Stephen Z. Broadway</i>	Date: <i>11/24/98</i> Time: <i>1416</i>	Received by: <i>[Signature]</i>	Lab Comments
Relinquished by: <i>[Signature]</i>	Date: <i>11/25/98</i> Time: <i>10:05</i>	Received by: <i>[Signature]</i>	
Relinquished by:	Date: Time:	Received by:	



*APPENDIX C*

*LABORATORY  
RESULTS*



# North State Environmental Analytical Laboratory

Phone: (415) 588-9652 Fax: (415) 588-1950

98-1087

Chain of Custody / Request for Analysis

Lab Job No.: \_\_\_\_\_ Page \_\_\_\_ of \_\_\_\_

Client: <i>Western Geo-Engineers</i>	Report to: <i>Same</i>	Phone: <i>530-668-5300</i>	Turnaround Time
Mailing Address: <i>1386 E. BEAMER ST. WOODLAND, CA 95776-6003</i>	Billing to: <i>Same</i>	Fax: <i>530-662-0273</i>	
		PO# / Billing Reference:	Date:
		Sampler: <i>BROADWAY</i>	

Project / Site Address: <i>DP 793 / 4035 PARK BLVD OAKLAND</i>					Analysis Requested								Comments/Hazards
Sample ID	Sample Type	Container No. / Type	Pres.	Sampling Date / Time	<i>ATPAG BTEX</i>	<i>MTBE</i>							
<i>1 MW-1</i>	<i>H<sub>2</sub>O</i>	<i>2/VOAS</i>	<i>HCL</i>	<i>11-24-98/0801</i>									
<i>2 RS-2</i>				<i>0820</i>									
<i>3 RS-5</i>				<i>0925</i>									
<i>4 RS-6</i>				<i>0839</i>									
<i>5 RS-7</i>				<i>0953</i>									
<i>6 R-1</i>				<i>0934</i>									
<i>7 R-2</i>				<i>0851</i>									
<del><i>R-3</i></del>													

Relinquished by: <i>Stephen Z Broadway</i>	Date: <i>11/24/98</i> Time: <i>14:16</i>	Received by: <i>[Signature]</i>	Lab Comments
Relinquished by: <i>[Signature]</i>	Date: <i>11/25/98</i> Time: <i>10:05</i>	Received by: <i>[Signature]</i> <small>JSE LABS</small>	
Relinquished by:	Date: Time:	Received by:	



North State Environmental  
Chemical Waste Disposal · Trucking · Consulting

# C E R T I F I C A T E O F A N A L Y S I S

Lab Number: 98-1587  
Client: Western Geo-Engineers  
Project: DP 793 / 4035 Park Blvd, Oakland

Date Reported: 12/11/98

Gasoline, BTEX and MTBE by Methods 8015M and 8020

Analyte	Method	Result	Unit	Date Sampled	Date Analyzed
Sample: 98-1587-01 Client ID: MW-1				11/24/98	WATER
Gasoline	8015M	52	ug/L		12/09/98
Benzene	8020	2.3	ug/L		
Ethylbenzene	8020	ND			
MTBE	8020	*11	ug/L		
Toluene	8020	5.2	ug/L		
Xylenes	8020	5.4	ug/L		
Sample: 98-1587-02 Client ID: RS-2				11/24/98	WATER
Gasoline	8015M	140	ug/L		12/09/98
Benzene	8020	2.8	ug/L		
Ethylbenzene	8020	2.6	ug/L		
MTBE	8020	*15	ug/L		
Toluene	8020	19	ug/L		
Xylenes	8020	3.3	ug/L		
Sample: 98-1587-03 Client ID: RS-5				11/24/98	WATER
Gasoline	8015M	89000	ug/L		12/09/98
Benzene	8020	5300	ug/L		
Ethylbenzene	8020	2800	ug/L		
MTBE	8020	ND<10	ug/L		
Toluene	8020	15000	ug/L		
Xylenes	8020	13000	ug/L		



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## C E R T I F I C A T E O F A N A L Y S I S

Lab Number: 98-1587  
Client: Western Geo-Engineers  
Project: DP 793 / 4035 Park Blvd, Oakland

Date Reported: 12/11/98

Gasoline, BTEX and MTBE by Methods 8015M and 8020

Analyte	Method	Result	Unit	Date Sampled	Date Analyzed
Sample: 98-1587-04 Client ID: RS-6				11/24/98	WATER
Gasoline	8015M	3400	ug/L		12/09/98
Benzene	8020	5.3	ug/L		
Ethylbenzene	8020	ND			
MTBE	8020	ND			
Toluene	8020	ND			
Xylenes	8020	14	ug/L		
Sample: 98-1587-05 Client ID: RS-7				11/24/98	WATER
Gasoline	8015M	19000	ug/L		12/09/98
Benzene	8020	2100	ug/L		
Ethylbenzene	8020	500	ug/L		
MTBE	8020	ND			
Toluene	8020	1100	ug/L		
Xylenes	8020	2100	ug/L		
Sample: 98-1587-06 Client ID: R-1				11/24/98	WATER
Gasoline	8015M	340	ug/L		12/09/98
Benzene	8020	19	ug/L		
Ethylbenzene	8020	35	ug/L		
MTBE	8020	ND			
Toluene	8020	1.6	ug/L		
Xylenes	8020	9.7	ug/L		





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C E R T I F I C A T E O F A N A L Y S I S

Lab Number: 98-1587  
Client: Western Geo-Engineers  
Project: DP 793 / 4035 Park Blvd, Oakland

Date Reported: 12/11/98

Gasoline, BTEX and MTBE by Methods 8015M and 8020

Analyte	Method	Result	Unit	Date Sampled	Date Analyzed
Sample: 98-1587-07	Client ID: R-2			11/24/98	WATER
Gasoline	8015M	6100	ug/L		12/09/98
Benzene	8020	ND			
Ethylbenzene	8020	ND			
MTBE	8020	ND			
Toluene	8020	36	ug/L		
Xylenes	8020	21	ug/L		



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## CERTIFICATE OF ANALYSIS

Quality Control/Quality Assurance

Lab Number: 98-1587  
Client: Western Geo-Engineers  
Project: DP 793 / 4035 Park Blvd, Oakland

Date Reported: 12/11/98

Gasoline, BTEX and MTBE by Methods 8015M and 8020

Analyte	Method	Reporting Limit	Unit	Blank	MS/MSD Recovery	RPD
Gasoline	8015M	50	ug/L	ND	114	2
Benzene	8020	0.5	ug/L	ND	80	4
Ethylbenzene	8020	0.5	ug/L	ND	92	4
Toluene	8020	0.5	ug/L	ND	74	3
Xylenes	8020	1.0	ug/L	ND	89	3
MTBE	8020	0.5	ug/L	ND	75	3

ELAP Certificate NO:1753

Reviewed and Approved

John A. Murphy, Laboratory Director

Page 4 of 4



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## C E R T I F I C A T E O F A N A L Y S I S

Lab Number: 98-1160  
Client: Western Geo-Engineers  
Project: DP#793

Date Reported: 09/30/98

Gasoline and BTEX by Methods 8015M and 8020

Analyte	Method	Result	Unit	Date Sampled	Date Analyzed
Sample: 98-1160-01 Client ID: MW1				09/16/98	WATER
Gasoline	8015M	ND			09/25/98
Benzene	8020	ND			
Ethylbenzene	8020	ND			
MTBE	8020	ND			
Toluene	8020	ND			
Xylenes	8020	ND			
Sample: 98-1160-02 Client ID: RS-2				09/16/98	WATER
Gasoline	8015M	ND			09/25/98
Benzene	8020	ND			
Ethylbenzene	8020	ND			
MTBE	8020	ND			
Toluene	8020	ND			
Xylenes	8020	ND			
Sample: 98-1160-03 Client ID: R-3				09/16/98	WATER
Gasoline	8015M	ND			09/25/98
Benzene	8020	ND			
Ethylbenzene	8020	ND			
MTBE	8020	ND			
Toluene	8020	ND			
Xylenes	8020	ND			



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# C E R T I F I C A T E O F A N A L Y S I S

Lab Number: 98-1160  
Client: Western Geo-Engineers  
Project: DP#793

Date Reported: 09/30/98

Gasoline and BTEX by Methods 8015M and 8020

Analyte	Method	Result	Unit	Date Sampled	Date Analyzed
Sample: 98-1160-04 Client ID: R-2				09/16/98	WATER
Gasoline	8015M	6600	ug/L		09/25/98
Benzene	8020	11000	ug/L		
Ethylbenzene	8020	ND			
MTBE	8020	ND			
Toluene	8020	24	ug/L		
Xylenes	8020	35	ug/L		
Sample: 98-1160-05 Client ID: RS-5				09/16/98	WATER
Gasoline	8015M	49000	ug/L		09/25/98
Benzene	8020	1400	ug/L		
Ethylbenzene	8020	1700	ug/L		
MTBE	8020	ND<2.5	ug/L		
Toluene	8020	7500	ug/L		
Xylenes	8020	8600	ug/L		
Sample: 98-1160-06 Client ID: R1				09/16/98	WATER
Gasoline	8015M	16000	ug/L		09/25/98
Benzene	8020	3400	ug/L		
Ethylbenzene	8020	ND			
MTBE	8020	ND			
Toluene	8020	92	ug/L		
Xylenes	8020	410	ug/L		



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# C E R T I F I C A T E O F A N A L Y S I S

Lab Number: 98-1160  
Client: Western Geo-Engineers  
Project: DP#793

Date Reported: 09/30/98

Gasoline and BTEX by Methods 8015M and 8020

Analyte	Method	Result	Unit	Date Sampled	Date Analyzed
Sample: 98-1160-07 Client ID: RS6				09/16/98	WATER
Gasoline	8015M	990	ug/L		09/25/98
Benzene	8020	23	ug/L		
Ethylbenzene	8020	ND			
MTBE	8020	ND			
Toluene	8020	ND			
Xylenes	8020	ND			
Sample: 98-1160-08 Client ID: RS7				09/16/98	WATER
Gasoline	8015M	5000	ug/L		09/25/98
Benzene	8020	6500	ug/L		
Ethylbenzene	8020	ND<2.5	ug/L		
MTBE	8020	ND<2.5	ug/L		
Toluene	8020	160	ug/L		
Xylenes	8020	500	ug/L		



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## CERTIFICATE OF ANALYSIS

Quality Control/Quality Assurance

Lab Number: 98-1160  
Client: Western Geo-Engineers  
Project: DP#793

Date Reported: 09/30/98

Gasoline and BTEX by Methods 8015M and 8020

Analyte	Method	Reporting Limit	Unit	Blank	MS/MSD Recovery	RPD
Gasoline	8015M	50	ug/L	ND	101	5
Benzene	8020	0.5	ug/L	ND	108	17
Ethylbenzene	8020	0.5	ug/L	ND	104	15
Toluene	8020	0.5	ug/L	ND	102	15
Xylenes	8020	1.0	ug/L	ND	116	18
MTBE	8020	0.5	ug/L	ND	122	12

ELAP Certificate NO:1753

Reviewed and Approved

John A. Murphy, Laboratory Director

Page 4 of 4



North State Environmental  
Chemical Waste Disposal · Trucking · Consulting

# C E R T I F I C A T E O F A N A L Y S I S

Job Number: 98-1160  
Client : Western Geo-Engineers  
Project : DP#793

Date Sampled : 09/16/98  
Date Analyzed: 09/25/98  
Date Reported: 09/30/98

## Volatile Organics by GC/MS Method 8260

Laboratory Number	98-1160-01	98-1160-02	98-1160-03	98-1160-04	98-1160-05	98-1160-06
Client ID	MW1	RS-2	R-3	R-2	RS-5	R1
Matrix	WATER	WATER	WATER	WATER	WATER	WATER
Analyte	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L
Ethanol	ND<500	ND<500	ND<500	ND<500	ND<2500	ND<500
Methyl-t-Butyl Ether	ND<1	ND<1	ND<1	ND<1	ND<5	ND<1
Di-isopropyl Ether	ND<5	ND<5	ND<5	ND<5	ND<25	ND<5
tertiary Butyl Alcohol	ND<5	ND<5	ND<5	ND<5	ND<25	ND<5
Ethyl-t-Butyl Ether	ND<5	ND<5	ND<5	ND<5	ND<25	ND<5
t-Amyl Methyl Ether	ND<1	ND<1	ND<1	ND<1	ND<5	ND<1
SUR-Dibromofluoromethane	107% Rec	111% Rec	112% Rec	108% Rec	104% Rec	106% Rec
SUR-Toluene-d8	105% Rec	103% Rec	100% Rec	101% Rec	105% Rec	103% Rec
SUR-4-Bromofluorobenzene	109% Rec	109% Rec	103% Rec	109% Rec	110% Rec	110% Rec



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C E R T I F I C A T E O F A N A L Y S I S

Job Number: 98-1160  
Client : Western Geo-Engineers  
Project : DP#793

Date Sampled : 09/16/98  
Date Analyzed: 09/25/98  
Date Reported: 09/30/98

Volatile Organics by GC/MS Method 8260

Laboratory Number	98-1160-07	98-1160-08
Client ID	RS6	RS7
Matrix	WATER	WATER
Analyte	ug/L	ug/L
Ethanol	ND<500	ND<2500
Methyl-t-Butyl Ether	ND<1	ND<5
Di-isopropyl Ether	ND<5	ND<25
tertiary Butyl Alcohol	ND<5	ND<25
Ethyl-t-Butyl Ether	ND<5	ND<25
t-Amyl Methyl Ether	ND<1	ND<5
SUR-Dibromofluoromethane	120% Rec	107% Rec
SUR-Toluene-d8	103% Rec	106% Rec
SUR-4-Bromofluorobenzene	110% Rec	109% Rec





North State Environmental  
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C E R T I F I C A T E O F A N A L Y S I S

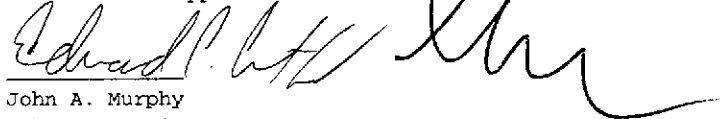
Job Number: 98-1160  
Client : Western Geo-Engineers  
Project : DP#793

Date Sampled : 09/16/98  
Date Analyzed: 09/25/98  
Date Reported: 09/30/98

Volatile Organics by GC/MS Method 8260  
Quality Control/Quality Assurance Summary

Laboratory Number	98-1160	MS/MSD	RPD
Client ID	Blank	Recovery	
Matrix	WATER	WATER	
Analyte	Results ug/L	%Recoveries	
Ethanol	ND<500		
Methyl-t-Butyl Ether	ND<1		
Di-isopropyl Ether	ND<5		
tertiary Butyl Alcohol	ND<5		
Ethyl-t-Butyl Ether	ND<5		
t-Amyl Methyl Ether	ND<1		
1,1-Dichloroethene	ND<1	170	9
Benzene	ND<1	105	2
Trichloroethene	ND<1	95	4
Toluene	ND<1	100	10
Chlorobenzene	ND<1	108	5
SUR-Dibromofluoromethane	94 % Rec	104/108	4
SUR-Toluene-d8	100% Rec	96/102	6
SUR-4-Bromofluorobenzene	100% Rec	86/92	7

Reviewed and Approved

  
John A. Murphy  
Laboratory Director



# North State Environmental Analytical Laboratory

Phone: (415) 588-9652 Fax: (415) 588-1950

98-1160

Chain of Custody / Request for Analysis

Lab Job No.: \_\_\_\_\_ Page \_\_\_\_ of \_\_\_\_

Client: <i>Desert Petroleum</i>	Report to: <i>George Converse</i>	Phone: <i>530 668 5300</i>	Turnaround Time
Mailing Address: <i>WEGE 1386 E. BEAVER ST Woodland, CA 95776-6003</i>	Billing to: <i>Desert Petroleum P.O. Box 1601 OXNARD, CA 93032</i>	Fax:	
		PO# / Billing Reference:	Date:
			Sampler:

Project / Site Address: <i>DP #793</i>					Analysis Requested								Comments/Hazards
Sample ID	Sample Type	Container No. / Type	Pres.	Sampling Date / Time	<i>TPH</i>	<i>MRE</i>	<i>Pyrene</i>						
<i>MW1</i>	<i>H<sub>2</sub>O</i>	<i>4 VOAS</i>	<i>HCL</i>	<i>9/16/98 / 0924</i>									
<i>RS-2</i>				<i>1020</i>									
<i>R-3</i>				<i>12:55</i>									
<i>R-2</i>				<i>11:07</i>									
<i>RS-5</i>				<i>11:55</i>									
<i>R1</i>				<i>12:17</i>									
<i>RS 6</i>				<i>10:50</i>									
<i>RS 7</i>				<i>13:16</i>									

Relinquished by: <i>Stephen L. Broadway</i>	Date: <i>9/16/98</i> Time: <i>17:30</i>	Received by: <i>Jack E. Steffen</i>	Lab Comments
Relinquished by: <i>Jack E. Steffen</i>	Date: <i>9/18/98</i> Time: <i>11:00</i>	Received by: <i>Rob</i>	
Relinquished by: <i>Rob</i>	Date: <i>9/18/98</i> Time: <i>12:35</i>	Received by: <i>David W. [Signature]</i>	

*APPENDIX D*

*PURGED WATER  
REMOVAL*

**NON-HAZARDOUS WASTE MANIFEST**

1. Generator's US EPA ID No. \_\_\_\_\_  
2. Page 1 of 1  
3. Document Number  
**NH- No 1394**

4. Generator's Name and Mailing Address  
**Desert Petroleum**  
**PoBox 1601 Oxnard, CA**  
Generator's Phone **93032**

EES 19

5. Transporter Company Name  
**EVERGREEN ENVIRONMENTAL SERVICES**

7. Transporter Phone  
**800-972-5284**

8. Designated Facility Name and Site Address  
**Evergreen Oil, Inc.**  
**6880 Smith Avenue**  
**Newark, CA 94560**

9. US EPA ID Number  
**CAD982413262**  
10. Facility's Phone  
**510-795-4401**

11. Waste Shipping Name and Description  
a. **Non-Hazardous waste, liquid Water and oil**  
b.

12. Containers No.	Type	13. Total Quantity	14. Unit Wt/Vol
001	TT	115	G

15. Special Handling Instructions and Additional Information  
Profile # \_\_\_\_\_  
Do not ingest  
Wear protective clothing  
In case of emergency call: CHEMTREC 800-424-9300  
DOT ERG 171  
**Job location / 4037 Park Blvd Oakland CA**

Handling Codes for Wastes Listed Above	
11a.	11b.

Invoice: **733661**  
Sales Order: **96384102**

GENERATOR  
TRANSPORTER  
FACILITY

16. Generator Certification  
Printed/Typed Name  
**Stephen Broadway**

Signature  
*Stephen Broadway*  
Month Day Year  
**1 4 99**

17. Transporter Certification  
Printed/Typed Name  
**Tom L. Powell**

Signature  
*Tom L. Powell*  
Month Day Year  
**1 4 99**

18. Discrepancy Indication Space

19. Facility Certification  
Printed/Typed Name

Signature  
Month Day Year