WESTERN GEO-ENGINEERS
CALIF CONTRACTOR # 513857 A CORPORATION
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June 18, 1997

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 Second Quarter 1997 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 SITE LOCATION AND DESCRIPTION

Former Desert Petroleum #793 is a non-active service station, located on the northwest corner of the intersection of Park Blvd. 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 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 surrounded 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 COLLECTION AND ANALYSIS OF GROUNDWATER SAMPLES, 5/28/97

WEGE and LTT (Lawrence Tank Testing) personnel conducted a quarterly groundwater monitoring round at the site on May 28, 1997. 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 the three on-site water recovery wells (R1-R3). See Appendix A for 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 (R1-R3). The depth to water measurements were made using a product/water interface probe. Measurements were made from the 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 on December 11, 1996.

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 A).

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 B). The presence of MTBE was verified with EPA Method 8260.

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 will be removed from the site and transported to a recycling facility by Evergreen Environmental Services.

4 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 from on-site monitor wells on May 28, 1997. The groundwater elevation has increased by an average of approximately 2.0 feet in the monitor wells since the previous quarterly monitoring round on February 21, 1994 (Table 1).

The current flow direction is to north and northwest. The hydraulic gradient averages 0.11 feet/linear foot downgradient from the overexcavated area at the site (Figure 4). The current flow direction and hydraulic gradient is consistent with previous gradient determinations by WEGE.

4.2 Results of Certified Analysis of Groundwater Samples

The results of the certified analyses of groundwater samples collected on May 28, 1997 are shown in Table 1 and Figure 3. Copies of the laboratory reports are included as Appendix B of this report. TPH-G concentrations in water samples from the five monitor wells and three recovery wells ranged from a maximum of 52,000 ug/l at monitor wells RS-5 and RS-7 to less than laboratory detection limits (50 ug/l) in monitor wells MW1 and RS-2 and water recovery well R-3. Benzene concentrations ranged from a maximum of 14,000 ug/l in water recovery well R-2 to less than laboratory detection limits (0.5 ug/l) in water recovery well R-3.

MTBE was confirmed to be below laboratory lower detection limits in all wells sampled less 0.5 ug/l. Figure 3 shows the areal distribution of TPH-G, BTEX, and MTBE in groundwater in ug/l as determined from groundwater samples collected from the monitor wells on May 28, 1997. An overall decrease in the groundwater concentrations in all of the wells is most likely associated with plume stability and decreases in groundwater.

5 RECOMMENDATIONS

Starting with this report, Biannual sampling with biannual reporting will commence, see Appendix C - March 4, 1997 letter from Alameda County.

ok

6 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 L. Converse
Geologist

Jack E. Napper
Ca. Reg. Geologist #3037

cc: Ms. Jennifer Eberlie, HMS, and Alameda County Health (510) 271-4530

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

(All concentrations in parts per billion [ug/L, ppb])
(AMSL = Above mean sea level)

WELL ID#	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-1	12/14/89	240	24.25	215.75	19000	2600	2700	200	1200	
RS-1	12/90				15000	3500	330	170	760	
RS-1	2/91				6900	910	200	39	540	
RS-1	6/91				1600	56	180.000	12	26	
RS-1	9/91				4100	730	7.6	5.1	24	
RS-1	12/91				8300	950	160	71	190	
RS-1	11/09/92	100.18	17.05	83.13	1700	730	9.6	16	14	
RS-1	04/07/94	100.18	13	87.18	860	84	12	16	110	
RS-1	06/19/94	228.15	13.37	214.78	1400	150	12	52	87	
RS-1	09/17/94	228.15	16.33	211.82	310	30	1.8	2.8	3.9	
RS-1	03/12/95	228.15	4.66	223.49	ND	ND	ND	ND	ND	
RS-1		DESTROYED BY OVER-EXCAVATION OF UST-DISPENSER AREAS (8/14/95								
RS-1		REPLACED WITH MW-1 9/5/95.								
MW-1	10/04/95	232.57	12.38	220.19	ND	ND	ND	ND	ND	
MW-1	12/21/95	232.57	13.4	219.17	< 50	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5
MW-1	03/27/96	232.57	5.53	227.04	< 50	< 0.5	< 0.5	< 0.5	< 2	< 50
MW-1	06/11/96	232.57	9.02	223.55	< 50	< 0.5	< 0.5	< 0.5	< 2	< 50
MW-1	09/04/96	232.57	11.84	220.73	< 50	< 0.5	< 0.5	< 0.5	< 2	< 5
MW-1	12/11/96	232.57	12.98	219.59	< 50	< 0.5	0.9	< 0.5	< 1	< 0.5
MW-1	2/21/97	232.57	9.5	223.07	< 50	< 0.5	0.9	< 0.5	< 1	< 0.5*
MW-1	5/28/97	232.57	11.18	221.39	< 50	3	3	< 0.5	< 1	< 0.5*
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-5	12/14/89	241.26	25.97	215.29	57000	3100	4300	670	3400	
RS-5	2/91					FLOATING PRODUCT				
RS-5	6/91					FLOATING PRODUCT				
RS-5	9/91					FLOATING PRODUCT				
RS-5	12/91					FLOATING PRODUCT				

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(All concentrations in parts per billion [ug/L, ppb])
(AMSL = Above mean sea level)

WELL ID#	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	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	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-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	8.9	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	[illegible]	[illegible]	1700	[illegible]	[illegible]	[illegible]	16	< 0.5*
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	

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(All concentrations in parts per billion [ug/L, ppb])
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WELL ID#	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	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*
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 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	217.58	36000	14000	63	260	220	<0.5*
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*

ND BELOW LABORATORY DETECTION LIMITS
TPH-G TOTAL PETROLEUM HYDROCARBONS AS GASOLINE
* MTBE results confirmed by EPA Method 8260 (GC/MS)

-WEGE-

DESERT STATION #793
4035 Park Blvd.
Oakland, California

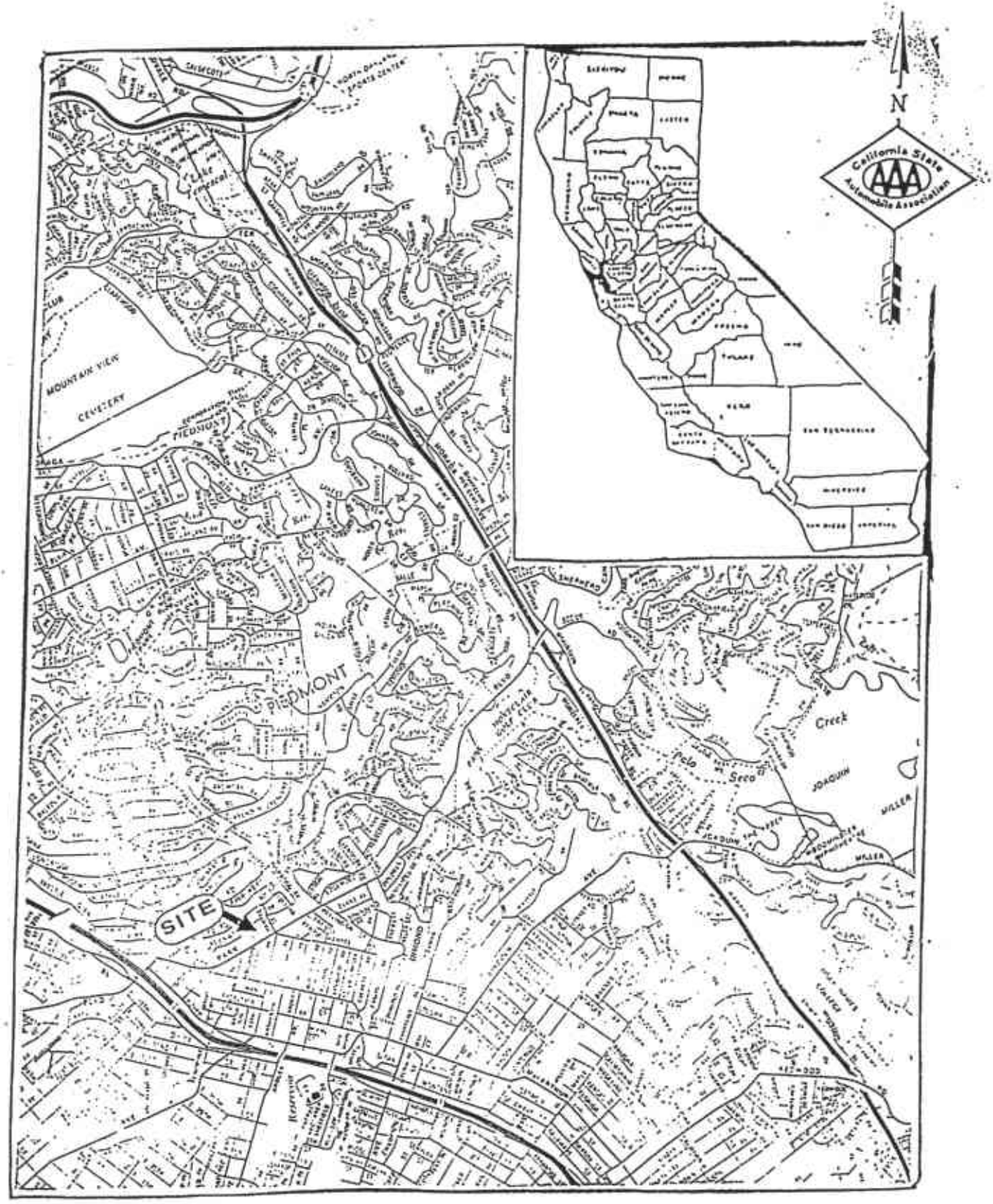

FIGURE 1

Location (AAA Map)

-WEGE- WESTERN GEO-ENGINEERS

DESERT STATION #793
4035 Park Blvd.
Oakland, California

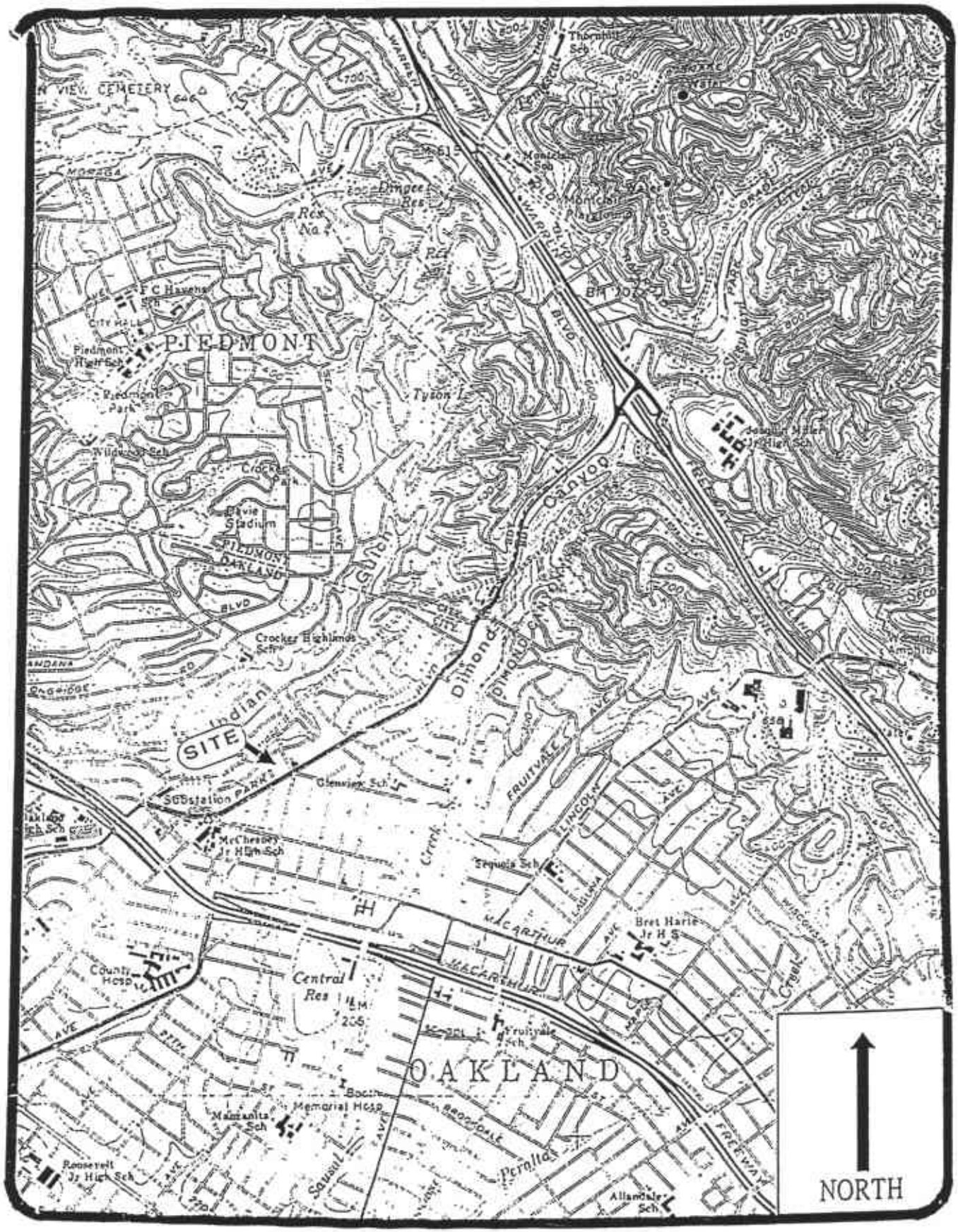

FIGURE 2, USGS TOPOGRAPHIC MAP

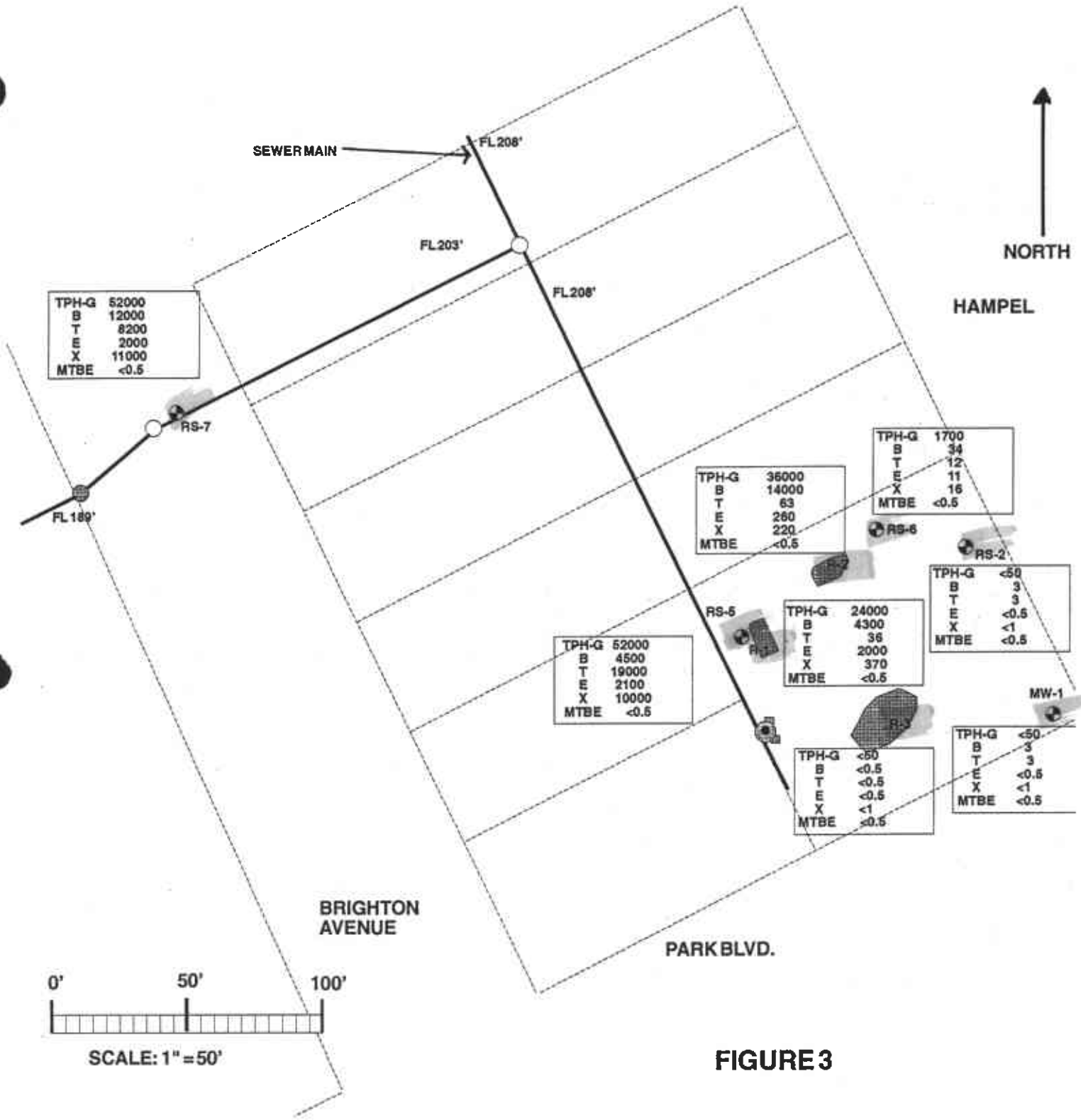

FIGURE 3

EXPLANATION

MW-1 ● MONITOR WELL LOCATION WITH ID# AND GROUNDWATER ANALYTICAL RESULTS. ALL CONCENTRATIONS IN UG/L.

TPH-G = TOTAL PETROLEUM HYDROCARBONS AS GASOLINE
B = BENZENE
T = TOLUENE
E = ETHYLBENZENE
X = XYLENES
MTBE = METHYL tertiary-BUTYL ETHER

R-1 INJECTION/RECOVERY TRENCHES AND RECOVERY WELLS

ANALTICAL RESULTS FROM GROUND WATER SAMPLES COLLECTED FROM MONITOR WELLS ON 2/21/97

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

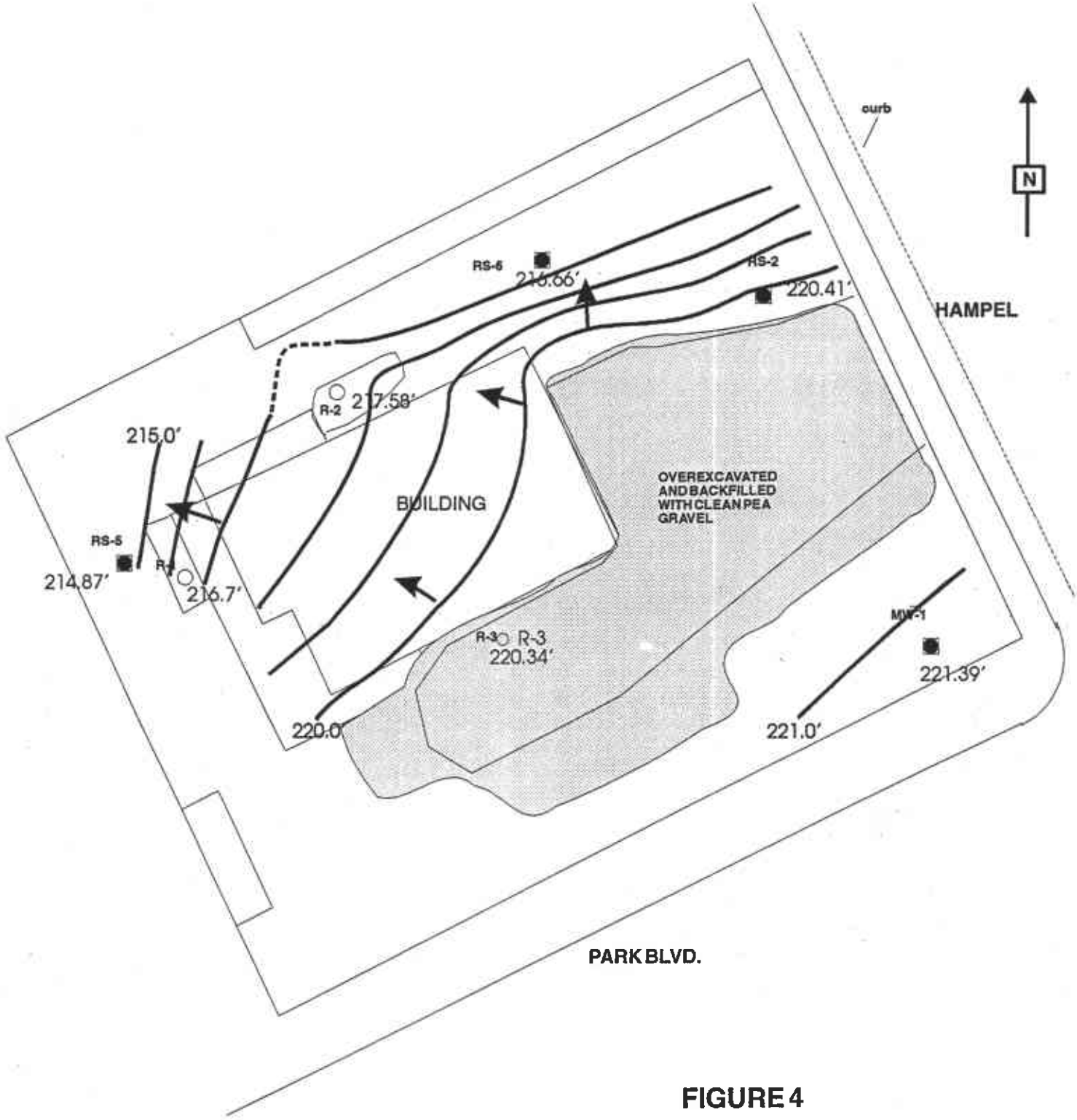

FIGURE 4

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

0' 20' 40'

SCALE: 1" = 20'.

GROUNDWATER ELEVATION GRADIENTS AND FLOW DIRECTION ON: May 28, 1997

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

APPENDIX A

Appendix A
Methods and Procedures
QA/QC

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

Gauging and Measuring Monitor Wells

Prior to sampling a well, WEGE personnel obtain three measurements:

1. the depth to groundwater (DTW);
2. the product thickness using a battery powered depth to water-product interface probe and/or by using a specially designed bailer;
3. the total depth of casing, to calculate the total water volume in the well.

The DTW-product interface probe is lowered into the well casing until the instrument signals when the top of free phase floating product (if present) and/or the top of water is reached. The distance from the top of free phase floating product and/or water to the top of casing is read from the tape that is attached to the probe. The probe is then lowered to the bottom of the well and the tape is read again. The tape is calibrated in 0.01-foot intervals for accuracy to 0.01 foot. 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 and the difference between the top of groundwater and the base of the well is noted to establish water volume in the well. The probe and tape is washed with TSP (Tri Sodium Phosphate) 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. Some of the abbreviations used in water sampling and or measuring or monitoring are: BGS, Below Ground Surface; DTW, Depth to Water (from surface reference i.e. usually TOC); TOC, Top of Casing; MSL, Mean Sea Level; AMSL and BMSL, Above and Below MSL; BS, Below Surface; TOW, Top of Water; TSP, Tri Sodium Phosphate.

Purging Standing Water from Monitor Wells

If no product is present, WEGE personnel purge the well by removing groundwater 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 are 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. Bailers, pneumatic or electric sample pumps, or vacuum pump tanks or trucks may be used. The usual amount of water removed is three borehole volumes, unless otherwise stated.

$$BV = (7.48/4) \times (CD2+P\ (BD2-CD)\ 2) \times (WD-GW)$$

BV borehole volume (gallons)
CD casing diameter (feet)
GW depth to groundwater (feet)
BD borehole diameter (feet)
WD well depth (feet)
P porosity of the gravel pack, 25%

Table of Common Boring and Casing Diameters

Boring diameter inches	Casing diameter inches	Volume gallons/ foot	3 Volumes X (WD-GW) gallons /foot
4	1	0.042	0.126
6	1	0.082	0.246
6	2	0.173	0.519
8	2	0.277	0.831
8	4	0.671	2.013
10	2	0.572	1.716
10	4	0.844	2.532

EXAMPLE: An 8 inch boring with 2 inch casing requires removal of 0.831 gallons of water per foot of water column.

The water collected during purging is either safely stored on- site in 55 gallon DOT 17H drums for later disposition, transported to an approved on-site/off-site treatment facility or to a sewer discharge system.

Collection of Water Sample for Analysis

The well is allowed to recover, to at least 80% after purging, if practical, before the groundwater sample is collected.

$$\text{Percent Recovery} = (1 - \frac{\text{Residual drawdown}}{\text{Maximum drawdown}}) \times 100.$$

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 4 °C with ice. The preserved samples are COC (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, i.e. TPH-d for diesel ranges 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 combination of the above five compounds.

Laboratory lower detection limits unless otherwise noted, due to matrix interference or elevated concentrations of target compounds, are as follows:

TPHg	50 ug/L	MTBE	0.5 ug/L
Benzene	0.5 ug/L	Toluene	0.5 ug/L
Ethyl Benzene	0.5 ug/L	Total Xylenes	1.0 ug/L

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.

Copies of the COC documentation are included with the laboratory results in Appendix B of the sampling report.

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: Desert Petroleum	Report to: Western GeoEngineers	Phone:	Turnaround Time
Mailing Address: 1336 I Street Woodland C.A. 95776	Billing to: Same ←	Fax:	
		PO# / Billing Reference:	Date: 5 30 97
			Sampler: Matt Pencil

Project / Site Address: DF 793 Oakland C.A. 4035 Park Blvd

Analysis Requested

Sample ID	Sample Type	Container No. / Type	Pres.	Sampling Date / Time	TPH/BTEX	MTBE						Comments/Hazards
MW 1	H_2O	2/VOAs	HCL	5-29-97/ 9:30	✓	✓						
RS-2	"	"	"	9:54	✓							
RS-6	"	"	"	10:19	✓							
R-2	"	"	"	10:40	✓							
RS-5	"	"	"	11:09	✓							
R-1	"	"	"	11:13	✓	✓						
R-3	"	"	"	11:26	✓	✓						
RS-7	"	"	"	11:41	✓	✓						

Relinquished by: Matt Pencil	Date: 5-30-97	Time: 9:40	Received by: NSE	Lab Comments
Relinquished by:	Date:	Time:	Received by:	
Relinquished by:	Date:	Time:	Received by:	

WESTERN GEO-ENGINEERS
1386 EAST BEAMER
WOODLAND, CALIFORNIA
(916) 668-5300, FAX (916)

WELL SAMPLING DATA SHEET

SITE DP 793	DATE 5-28-97	TIME 9:16
WELL MW-1	SAMPLED BY. mp	

WELL ELEVATION
PRODUCT THICKNESS
DEPTH TO WATER DTW: 11.18 DTB: 18.32
FLUID ELEVATION
BAILER TYPE disposable bailer
PUMP David LTT

WELL PURGING RECORD

TIME	VOLUME REMOVED	TEMP.	pH	COND.
9:21	1st bailer	72.7	9.02	.48 X1000
9:23	2 gal	70.5	8.55	.34
9:25	2	69.5	8.31	.31
9:26	1	69.1	8.19	.29
9:27		68.6	8.07	.29
9:28		69.2	8.10	.30
9:29		70.1	8.15	.30

FINAL VOLUME PURGED 6 3/4 gal
TIME SAMPLED 9:30
SAMPLE ID. MW-1
SAMPLE CONTAINERS 2 VOAs
ANALYSIS TO BE RUN TPHg/BTEX/MTBE
LABORATORY NES
NOTES: 1st bailer clear No odor

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WESTERN GEO-ENGINEERS
1386 EAST BEAMER
WOODLAND, CALIFORNIA
(916) 668-5300, FAX (916)

WELL SAMPLING DATA SHEET

SITE DP 793	DATE 5-28-97	TIME 9:35
WELL RS-2	SAMPLED BY. mp	

WELL ELEVATION
PRODUCT THICKNESS
DEPTH TO WATER DTW: 10.02 DTB: 18.40
FLUID ELEVATION
BAILER TYPE disposable bailer
PUMP David LTT

WELL PURGING RECORD

TIME	VOLUME REMOVED	TEMP.	pH	COND.
9:36	1st bailer	70.9	7.43	.78 X1000
9:42	16 gal	70.8	7.38	.75
9:47		72.0	7.36	.73
9:49		70.5	7.35	.71
9:51		69.5	7.34	.70
9:52		69.8	7.35	.71
		Sampled		

FINAL VOLUME PURGED 17 1/2 gal
TIME SAMPLED 9:54
SAMPLE ID. RS-2
SAMPLE CONTAINERS 2 VOAs
ANALYSIS TO BE RUN TPHg/BTEX/MTBE
LABORATORY WES
NOTES: 1st bailer clear with black things floating No odor

WESTERN GEO-ENGINEERS
1386 EAST BEAMER
WOODLAND, CALIFORNIA
(916) 668-5300, FAX (916)

WELL SAMPLING DATA SHEET

SITE DP 793	DATE 5-28-97	TIME 9:59
WELL RS-6	SAMPLED BY. mp	

WELL ELEVATION
PRODUCT THICKNESS
DEPTH TO WATER DTW: 13.56 DTB: 34.02
FLUID ELEVATION
BAILER TYPE disposable bailer
PUMP David LTT

WELL PURGING RECORD

TIME	VOLUME REMOVED	TEMP.	pH	COND.
9:59	1st bailer	70.7	7.41	.49 X1000
10:09	25 gal	72.4	7.54	.51
10:11		69.9	7.50	.50
10:13	10	70.4	7.50	.50
10:15		69.8	7.49	.49
10:16		70.0	7.50	.49
10:18		70.2	7.50	.49

FINAL VOLUME PURGED 36 3/4 gal
TIME SAMPLED 10:19
SAMPLE ID. RS-6
SAMPLE CONTAINERS 2 voas
ANALYSIS TO BE RUN TPHg/BTEX/MTBE
LABORATORY NES
NOTES: 1st bailer clear No odor

WESTERN GEO-ENGINEERS
1386 EAST BEAMER
WOODLAND, CALIFORNIA
(916) 668-5300, FAX (916)

WELL SAMPLING DATA SHEET

SITE DP 793	DATE 5-28-97	TIME 10:26
WELL R-2	SAMPLED BY. mp	

WELL ELEVATION
PRODUCT THICKNESS
DEPTH TO WATER DTW: 13.10 DTB: 16.80
FLUID ELEVATION
BAILER TYPE disposable bailer
PUMP David LTT

WELL PURGING RECORD

TIME	VOLUME REMOVED	TEMP.	pH	COND.
10:27	1st bailer	72.8	7.63	.52 X1000
10:34	16 gal	69.9	7.59	.53
10:36		67.2	7.52	.52
10:37		66.1	7.49	.51
10:38		66.0	7.50	.51
10:39		66.2	7.50	.51
		Sampled		

FINAL VOLUME PURGED 17 1/2 gal
TIME SAMPLED 10:40
SAMPLE ID. R-2
SAMPLE CONTAINERS 2 VOAs
ANALYSIS TO BE RUN TPHg/BTEX/MTBE
LABORATORY NES
NOTES: 1st bailer clear No odor

WESTERN GEO-ENGINEERS
1386 EAST BEAMER
WOODLAND, CALIFORNIA
(916) 668-5300, FAX (916)

WELL SAMPLING DATA SHEET

SITE DP 793	DATE 5-28-97	TIME 10:46
WELL RS-5	SAMPLED BY. mp	

WELL ELEVATION
PRODUCT THICKNESS
DEPTH TO WATER DTW: 15.27 DTB: 39.20
FLUID ELEVATION
BAILER TYPE disposable bailer
PUMP Davit LTT

WELL PURGING RECORD

TIME	VOLUME REMOVED	TEMP.	pH	COND.
10:47	1st bailer	72.2	7.80	.34 X1000
11:04	45 gal	75.0	7.81	.36
11:05		73.5	7.77	.36
11:06		74.2	7.78	.36
11:07		75.0	7.76	.36
11:08		74.8	7.76	.36
		Sample		

FINAL VOLUME PURGED 46 1/2 gal
TIME SAMPLED 11:09
SAMPLE ID. RS-5
SAMPLE CONTAINERS 2 VOAs
ANALYSIS TO BE RUN TPHg/BTEX/MTBE
LABORATORY NES
NOTES: 1st bailer clear No odor

WESTERN GEO-ENGINEERS
1386 EAST BEAMER
WOODLAND, CALIFORNIA
(916) 668-5300, FAX (916)

WELL SAMPLING DATA SHEET

SITE DP 793	DATE 5-28-97	TIME 10:51
WELL R-1	SAMPLED BY. mp	

WELL ELEVATION
PRODUCT THICKNESS
DEPTH TO WATER DTW: 14.03 DTB: 16.92
FLUID ELEVATION
BAILER TYPE disposable bailer
PUMP Davis LTT

WELL PURGING RECORD

TIME	VOLUME REMOVED	TEMP.	pH	COND.
10:52	1st bailer	72.3	8.02	.31 X1000
11:08	13 gal	72.6	7.86	.46
11:09		71.0	7.73	.45
11:10		70.4	7.58	.47
11:11		70.5	7.62	.46
11:12		71.2	7.65	.46
			Sampled	

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FINAL VOLUME PURGED 14 1/2 gal
TIME SAMPLED 11:13
SAMPLE ID. R-1
SAMPLE CONTAINERS 2 VOAs
ANALYSIS TO BE RUN TPHg/BTEX/MTBE
LABORATORY WES
NOTES: 1st bailer clear No odor

WESTERN GEO-ENGINEERS

1386 EAST BRAMER
WOODLAND, CALIFORNIA
(916) 668-5300, FAX (916)

WELL SAMPLING DATA SHEET

SITE DP 793	DATE 5-28-97	TIME 11:17
WELL R-3	SAMPLED BY. mp	

WELL ELEVATION
PRODUCT THICKNESS
DEPTH TO WATER DTW: 9.98 DTB: 11.25
FLUID ELEVATION
BAILER TYPE disposable bailer
PUMP David LTT

WELL PURGING RECORD

TIME	VOLUME REMOVED	TEMP.	pH	COND.
11:18	1st bailer	78.2	7.74	.67 X1000
11:21	20 gal	76.7	7.56	.69
11:22		74.4	7.55	.66
11:23		74.2	7.55	.65
11:24		74.6	7.56	.65
11:25		75.2	7.56	.65
			Sampled	

FINAL VOLUME PURGED 21 1/2 gal
TIME SAMPLED 11:26
SAMPLE ID. R-3
SAMPLE CONTAINERS 2 VOAs
ANALYSIS TO BE RUN TPHg/BTEX/MTBE
LABORATORY NES
NOTES: 1st bailer clear No odor

WESTERN GEO-ENGINEERS
1386 EAST BEAMER
WOODLAND, CALIFORNIA 95695
(916) 668-5300, FAX (916) 662-0273

WELL SAMPLING DATA SHEET

SITE QP 793	DATE 5.28.97	TIME 11:36
WELL RS-7	SAMPLED BY. MP	
WELL ELEVATION		
PRODUCT THICKNESS		
DEPTH TO WATER DTW: 3.82	DTB: 7.0	
FLUID ELEVATION		
BAILER TYPE disposable bailer		
PUMP David LIT		

WELL PURGING RECORD

TIME	VOLUME REMOVED	TEMP.	pH	COND.
11:37	1st bail	80.0	7.46	.51 x1000
11:39	6 gal	76.1	7.68	.48
11:41		74.7	7.69	.47
11:42		75.2	7.70	.47
11:43		75.4	7.71	.47
		75.4	7.71	.47
		Sampled		

FINAL VOLUME PURGED 7½ gal
TIME SAMPLED 11:44
SAMPLE ID. RS-7
SAMPLE CONTAINERS 2 voas
ANALYSIS TO BE RUN TPHg/BTEX MTBE
LABORATORY NSE
NOTES: 1st Bailer clear No odor

APPENDIX B

North State Environmental
Chemical Waste Disposal · Trucking · Consulting

June 12, 1997
Mr. George Converse
Western Geo-Engineers
1386 East Beamer Street
Woodland, CA 95776

Dear George:

Please find enclosed the revised reports for your project DP 793 4035 Park Blvd., Oakland, CA.

We have revised them to reflect the Gasoline levels shown in the diluted runs used for quantification of the BTEX components. As I told you by phone, these samples are of unusual composition, being very high in BTEX concentrations relative to the total Gasoline Range Hydrocarbons. This is common in water samples that have run through soil that has gasoline contamination. The wave front is enriched in BTEX compounds.

The high dilutions required to quantitate the BTEX compounds in these samples did not give linear results for Gasoline. These samples require that the Gasoline and BTEX results be calculated from the same runs. Thank you for bringing these anomalous results to our attention. They should have been caught on second party review. Please be assured that we will take every possible step to make sure that no repetition of this error occurs.

Please discard the original COAs that went out in the mail on 6/12/97 and replace them with the revised ones. Thank you for your help.

Please call me if you have any questions.

Respectfully,

John A. Murphy

P.O.Box 5624 • South San Francisco, California 94083 • 415-588-2838 FAX 588-1950

North State Environmental
Chemical Waste Disposal · Trucking · Consulting

CERTIFICATE OF ANALYSIS

Lab Number: 97-456
Client: Western Geo-Engineers
Project: DP 793 4035 Park Blvd., Oakland, CA

Date Reported: 06/09/97

Gasoline,BTEX and MTBE by Methods 8015M and 8020

Analyte	Method	Result	Unit	Date Sampled	Date Analyzed
Sample: 97-456-01 Client ID: MW-1					WATER
Gasoline	8015M	ND		05/28/97	06/02/97
Benzene	8020	3	ug/L		
Ethylbenzene	8020	ND			
MTBE	8020	*ND			
Toluene	8020	3	ug/L		
Xylenes	8020	ND			
Sample: 97-456-02 Client ID: RS-2					WATER
Gasoline	8015M	ND		05/28/97	06/02/97
Benzene	8020	3	ug/L		
Ethylbenzene	8020	ND			
MTBE	8020	*ND			
Toluene	8020	3	ug/L		
Xylenes	8020	ND			
Sample: 97-456-03 Client ID: RS-6					WATER
Gasoline	8015M	1700	ug/L	05/28/97	06/02/97
Benzene	8020	34	ug/L		
Ethylbenzene	8020	11	ug/L		
MTBE	8020	*ND			
Toluene	8020	12	ug/L		
Xylenes	8020	16	ug/L		

* Confirmed by GC/MS Method 8260

P.O.Box 5624 • South San Francisco, California 94083 • 415-588-2838 FAX 588-1950

North State Environmental
Chemical Waste Disposal · Trucking · Consulting

CERTIFICATE OF ANALYSIS

Lab Number: 97-456
Client: Western Geo-Engineers
Project: DP 793 4035 Park Blvd., Oakland, CA

Date Reported: 06/09/97

Gasoline,BTEX and MTBE by Methods 8015M and 8020

Analyte	Method	Result	Unit	Date Sampled	Date Analyzed
Sample: 97-456-04 Client ID: R-2					WATER
Gasoline	8015M	36000	ug/L	05/28/97	06/02/97
Benzene	8020	14000	ug/L		
Ethylbenzene	8020	260	ug/L		
MTBE	8020	*ND			
Toluene	8020	63	ug/L		
Xylenes	8020	220	ug/L		
Sample: 97-456-05 Client ID: RS-5					WATER
Gasoline	8015M	52000	ug/L	05/28/97	06/02/97
Benzene	8020	4500	ug/L		
Ethylbenzene	8020	2100	ug/L		
MTBE	8020	*ND			
Toluene	8020	19000	ug/L		
Xylenes	8020	10000	ug/L		
Sample: 97-456-06 Client ID: R-1					WATER
Gasoline	8015M	24000	ug/L	05/28/97	06/02/97
Benzene	8020	4300	ug/L		
Ethylbenzene	8020	2000	ug/L		
MTBE	8020	*ND			
Toluene	8020	36	ug/L		
Xylenes	8020	370	ug/L		

* Confirmed by GC/MS Method 8260

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North State Environmental
Chemical Waste Disposal · Trucking · Consulting

CERTIFICATE OF ANALYSIS

Lab Number: 97-456
Client: Western Geo-Engineers
Project: DP 793 4035 Park Blvd., Oakland, CA

Date Reported: 06/09/97

Gasoline,BTEX and MTBE by Methods 8015M and 8020

Analyte	Method	Result	Unit	Date Sampled	Date Analyzed
Sample: 97-456-07 Client ID: R-3					WATER
Gasoline	8015M	ND		05/28/97	06/02/97
Benzene	8020	ND			
Ethylbenzene	8020	ND			
MTBE	8020	*ND			
Toluene	8020	ND			
Xylenes	8020	ND			
Sample: 97-456-08 Client ID: RS-7					WATER
Gasoline	8015M	52000	ug/L	05/28/97	06/02/97
Benzene	8020	12000	ug/L		
Ethylbenzene	8020	2000	ug/L		
MTBE	8020	*ND			
Toluene	8020	8200	ug/L		
Xylenes	8020	11000	ug/L		

* Confirmed by GC/MS Method 8260

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North State Environmental
Chemical Waste Disposal · Trucking · Consulting

CERTIFICATE OF ANALYSIS

Quality Control/Quality Assurance

Lab Number: 97-456
Client: Western Geo-Engineers
Project: DP 793 4035 Park Blvd., Oakland, CA

Date Reported:06/09/97

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	90	5
Benzene	8020	.005	ug/L	ND	95	8
Ethylbenzene	8020	.005	ug/L	ND	88	4
Toluene	8020	.005	ug/L	ND	98	6
Xylenes	8020	.010	ug/L	ND	88	2
MTBE	8020	.005	ug/L	ND	89	7

ELAP Certificate NO:1753
Reviewed and Approved

John A.Murphy,Laboratory Director

P.O.Box 5624 • South San Francisco, California 94083 • 415-588-2838 FAX 588-1950

97-456

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: Desert Petroleum	Report to: Western GeoEngineers	Phone:	Turnaround Time
Mailing Address: 1386 E Beamer Woodland C.A. 95776	Billing to: same ←	Fax:	
		PO# / Billing Reference:	Date: 5-30-97
			Sampler: Matt Penich

Project / Site Address: DP 793 Oakland C.A. 4035 Park Blvd.

	Sample ID	Sample Type	Container No. / Type	Pres.	Sampling Date / Time	Analysis Requested: TPHg/BTEX	MTBE	Comments/Hazards
1	MW 1	H_2O	2/VOAS	HCL	5-28-97/ 9:30	✓	✓	
2	RS-2				9:54	✓	✓	
3	RS-6				10:19	✓	✓	
4	R-2				10:40	✓	✓	
5	RS-5				11:09	✓	✓	
6	R-1				11:13	✓	✓	
7	R-3				11:26	✓	✓	
8	RS-7				11:44	✓	✓	

Relinquished by: Matt Penich	Date: 5-30-97 Time: 9:40	Received by: NSE		Lab Comments
Relinquished by:	Date: 5/30/97 Time: 11:25	Received by:		
Relinquished by:	Date: Time:	Received by:		