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PROGRESS REPORT

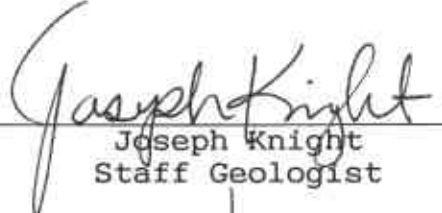
Desert Petroleum Incorporated  
Former Station No. 793  
4035 Park Boulevard  
Oakland, CA 94602

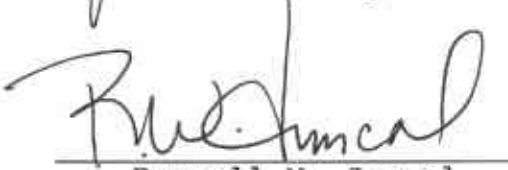
prepared for:

Desert Petroleum Incorporated  
2060 Knoll Drive  
Ventura, CA 93003

for submittal to:

Alameda County Health Department  
Hazardous Waste Division  
80 Swan Way, Room 200  
Oakland, CA 94621

  
Joseph Knight  
Staff Geologist

  
Russell W. Juncal  
CA Registered Geologist No. 3864

April 10, 1991



PROGRESS REPORT

COPY

~~Riverfront Oil~~ Beacon  
Desert Petroleum Incorporated  
Former Station No. 793  
4035 Park Boulevard  
Oakland, CA 94602

01-0170

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CALIFORNIA REGIONAL WATER  
APR 15 1991  
QUALITY CONTROL BOARD

April 10, 1991

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## 1.0 INTRODUCTION

The former Desert Petroleum Station No. 793 is located at 4035 Park Boulevard in the City of Oakland, Alameda County, California (Figures 1 and 2). The station, which has been leased to Mr. Jason Golpad, most recently operated under the name of J & M's Beacon Service Station. No gasoline is being dispensed from the station at present. This report presents a summary of work performed during the first quarter of 1991 and the planned activities during the coming quarter.

## 1.1 Site Description

Site Location: Former Beacon Gas/Desert Petroleum  
Station 793  
890 South Pacific Coast Highway  
Laguna Beach, CA

Site Owner: Desert Petroleum Incorporated  
4035 Park Boulevard  
Oakland, CA 94602

Contact Person: John Rutherford  
2060 Knoll Drive, Suite 100  
Ventura, CA 93303  
(805) 644-6794

The station is located at the intersection of Park Boulevard and Hampel Road in a predominantly residential neighborhood (Figure 2). It is on the flank of a hill which slopes approximately 10 degrees to the west. The ground surface of the station itself is fairly level due to grading and a deck which is located at the western corner of the station (Figure 2). Based on the U.S.G.S. topographic map of the area, the surface elevation of the station is approximately 100 feet above mean sea level (MSL).

Improvements at the station consist of a building, two pump islands, a waste oil tank, and three underground fuel storage tanks (Figure 2). The underground fuel storage tanks consist of an 8,000 gallon tank for regular leaded gasoline, a 10,000 gallon tank for regular unleaded gasoline and an 8,000 gallon tank for super unleaded gasoline. The age of the tanks is unknown, but is thought to be approximately 20 years. They are steel and were relined approximately four years ago. When the tanks were relined, the associated piping was also replaced.

## 1.2 Previous Work

On Thursday, November 30, 1989, Mr. Ariu Levi of the Alameda County Health Department notified Desert Petroleum that gasoline was detected in a sewerline on Brighton Avenue. The product appeared to be entering the line through a crack in the bottom of the sewer manway. Desert Petroleum subsequently reconstructed and audited tank inventories and sales records. The audit indicated overages on all tanks.

On Friday, December 1, 1989, Mr. Jason Golpad, the site operator, was contacted by Desert Petroleum and advised to test the fuel tanks and associated lines using an approved testing company and system.

On Wednesday, December 6, 1989, the underground storage tanks were tested. The results of these tests were inconclusive. The tank tester advised that additional testing would be required for conclusive results. Further testing was not considered worthwhile and the tanks were emptied to prevent any possible further release of product.

On Thursday, December 7, 1989 all fuel was removed from the underground storage tanks. However, the retail fueling facility had already been closed on December 5. The supply lines were pressure tested by Walton Engineering. The regular leaded and super unleaded lines passed but the regular unleaded supply line did not. Further investigation on this date verified a 1/2 inch hole in the unleaded supply line beneath the eastern pump island. Also on Thursday, December 7, 1989, an ultrasound investigation was conducted to determine the location of the sewer lines. Figure 2 shows the location of sewer lines both on-site and off-site. In addition, an on-site soil gas investigation was conducted. The results of the soil gas investigation indicate the site to be largely unimpacted by petroleum hydrocarbons. There was one hot spot associated with the pump islands and some contamination associated with the sewer line located in the western corner of the property.

On Friday, December 8, 1989, Desert Petroleum filed an Unauthorized Release Report. Drilling permits for site assessment were obtained from the Alameda County Flood Control and Water Conservation District, Zone 7. Underground Service Alert was notified and asked to locate lines on and near the site and around the sewer on Brighton Avenue (USA work order 334-954).

On December 11, 12, and 13, 1989, the drilling and sampling of six soil borings was initiated in order to assess possible contamination beneath the site. The sample results from each boring showed low levels of petroleum hydrocarbons beneath the site. Details of this work was presented in the Remediation Service International (RSI) January 1990 report.

RSI's S.A.V.E. system was installed on the site on December 13, 14 and 15. This unit is a four cylinder industrial internal combustion engine which uses gasoline vapors as fuel. Vapors are supplied to the extent possible by extraction from soil gas. In the event that insufficient vapors are available from the soil and groundwater, the gasoline vapor influent from extraction wells may be combined with propane or natural gas to achieve necessary fuel levels for engine operation. Vapors and water are extracted from the soil by placing a partial vacuum on extraction wells RS-1, RS-5 and RS-6.

On July 24, 1990, WaterWork Corporation advanced two soil borings along the sewer line behind the station (Figure 2). These borings were installed to investigate the possibility that hydrocarbons were being preferentially transported along the route of the municipal sewer. Using a hand auger, sample DPOSS1 was collected from a depth of 3.5 feet below grade. The sample was analyzed for benzene, toluene, ethylbenzene, xylenes (BTEX) and total purgeable hydrocarbon (TPHG). No hydrocarbons were detected. A sample from the second soil boring (DPOSS2), which was sampled at 5 feet below grade, showed low concentrations of aromatic hydrocarbons.

On July 25, 1990, WaterWork conducted a pump test of well RS-5 at a rate of 1.1 gpm for 495 min. The results of this pump test is discussed in section 5.0 Groundwater Remediation Alternatives January 1990 report.

On Tuesday, August 21, 1990, WaterWork Corporation sampled two additional soil borings downgradient of the sewerline behind the station. The soil boring locations are shown on Figure 2. Boring DPO-SB1 was sampled at 5 feet below grade. Boring DPO-SB2 was sampled at 5, 10, 15 and 20 feet below grade to establish the vertical profile of hydrocarbon concentration down to the water table. The samples were analyzed for oil and grease and BTEX/TPHG. The laboratory analysis of the soil sample from DPO-SB1 indicate high levels of aromatic (BTEX) and nonaromatic gasoline hydrocarbons. No oil and grease hydrocarbons were detected. Water was encountered at approximately 10 feet below grade in boring SB1. Although not collected in a manner which would yield a sample characteristic of the formation water, a grab sample of water which flowed into the boring was taken. These qualitative results are shown on Table 2. The groundwater samples from DPO-SB1 show significant levels of aromatic (BTEX) and other purgeable hydrocarbons and 42 ppm of oil and grease hydrocarbons.

One additional boring, DP-SB3, was extended on September 19, 1990, behind the apartment complex to determine the lateral extent of the hydrocarbon contamination (Figure 2). This boring was sampled at 15 feet below grade. The sample was analyzed for BTEX/TPH as gasoline. Laboratory results from DP-SB3 indicates levels of xylenes slightly above the detection limit. No other hydrocarbon constituents were detected.

## 2.0 QUARTERLY ACTIVITIES

### 2.1 Vapor Extraction System

RSI S.A.V.E. vapor extraction/treatment system operated for 610.1 hours during the period of December 1, 1990 through January 24, 1991. Operations were terminated during the month of January for several reasons: (1) the product vapor recovery rate declined significantly, (2) treatment system operations are restricted to day light hours only. With the recent appearance of free product in three of the wells, the system will be restarted in the 2nd quarter. It appears that the hydrocarbon vapor extraction rates are limited by the formation permeability. System pulsing will be considered in future operations in order to optimize operational efficiency. System performance during the quarter is summarized in Appendix I.

### 2.2 Groundwater Monitoring/Sampling

Groundwater monitoring/sampling for the first quarter of 1991 was conducted on February 15 (Table 1). Monitoring data collected indicate the groundwater gradient is toward the west at a magnitude of 0.094 foot per foot or 496 feet per mile (Figure 3). *ok Is Is-west not consistent. It wgs south.* This gradient is consistent with observations presented in earlier reports. The monitoring data also show free product in wells RS-5, RS-6 and RS-7. The appearance of free product in three wells may be due to the discontinuation of vapor extraction and suggests the formation is only yielding product slowly. Free product was removed by bailing approximately 15-20 gallons of product and water from each of these wells. Monitoring well RS-1 was purged by extracting approximately four well volumes (casing/sand pack). The purged groundwater was placed in 55 gallon drums (DHS Approved) and remains on site. This groundwater will be treated using the SAVE unit upon approval by Mr. Paul Smith of the Alameda County Health Department.

Subsequent to purging, (RS-1 was sampled) using a bailer with a bottom emptying device. This water sample was transported to Applied Analytical to be analyzed for BTEX/TPHG by EPA method 8015/8020.

Laboratory results from RS-1 indicate benzene (910 ppb), toluene (200 ppb), ethylbenzene (30 ppb), xylenes (540 ppb) and total petroleum hydrocarbons as gasoline (6900 ppb) (Table 2). The laboratory report and chain-of-custody documentation is shown in Appendix II. The next quarterly sampling round will be conducted in June 1991.

### 3.0 ANTICIPATED ACTIVITIES DURING COMING QUARTER

Activities for the next quarter are expected to include: (1) the drilling of two additional groundwater extraction wells in accordance with our January 8, 1991 Report; (2) the installation of groundwater pumps in extraction wells RS5, RS6, RS8 (proposed), and RS9 (proposed) (3) the re-activation of the vapor extraction system, and, (4) quarterly groundwater monitoring and sampling. Scheduling of activities 1 and 2 for the next quarter are pending the approval of our January 8, 1991 Remedial Action Plan by Alameda County Environmental Health Department.



Table 1  
Well Elevation  
Desert Petroleum-Oakland

Well #	Elevation* (MSL)	Depth to Water	Water Elevation
<b>07/25/90</b>			
RS1	100.18	14.0	86.18
RS5	99.44	19.415	80.025
RS7	67.88	4.16	63.72
<b>12/20/90</b>			
RS1	100.18	17.17	83.01
RS5	99.44	21.0	78.44
RS7	67.88	4.12	63.7
<b>02/15/91</b>			
RS1	100.18	8.95	91.23
RS5	99.44	20.69	78.75
RS6	99.25	16.87	82.38
RS7	67.88	4.05	63.83

\* MSL Elevation is based on assumption that arbitrary datum is 100 feet above MSL (Oakland East Quad)

Table 2  
Desert Petroleum-Oakland  
Laboratory Analysis-Water  
(in ppb)

Date	Sample ID	B	T	E	X	TPHG
12/14/89	RS-1	2,600	2,700	200	1,200	19,000
	RS-5	3,100	4,300	670	3,400	57,000
	RS-6	1,400	1,700	160	860	11,000
07/18/90	RS-7	24,000	210,000	50,000	740,000	5,600,000
08/21/90	DP-SB1-W	110,000	130,000	13,000	73,000	740,000
12/20/90	RS-1	3,500	330	170	760	15,000
02/15/91	RS-1	910	200	39	540	6,900
	RS-5	-----	Free Product	Present	-----	-----
	RS-6	-----	Free Product	Present	-----	-----
	RS-7	-----	Free Product	Present	-----	-----

Note: ppb = Parts Per Billion  
 B = Benzene  
 T = Toluene  
 E = Ethylbenzene  
 X = Xylenes  
 TPHG = Total Petroleum Hydrocarbons as Gasoline  
 NA = Not Analyzed

# WATERWORK

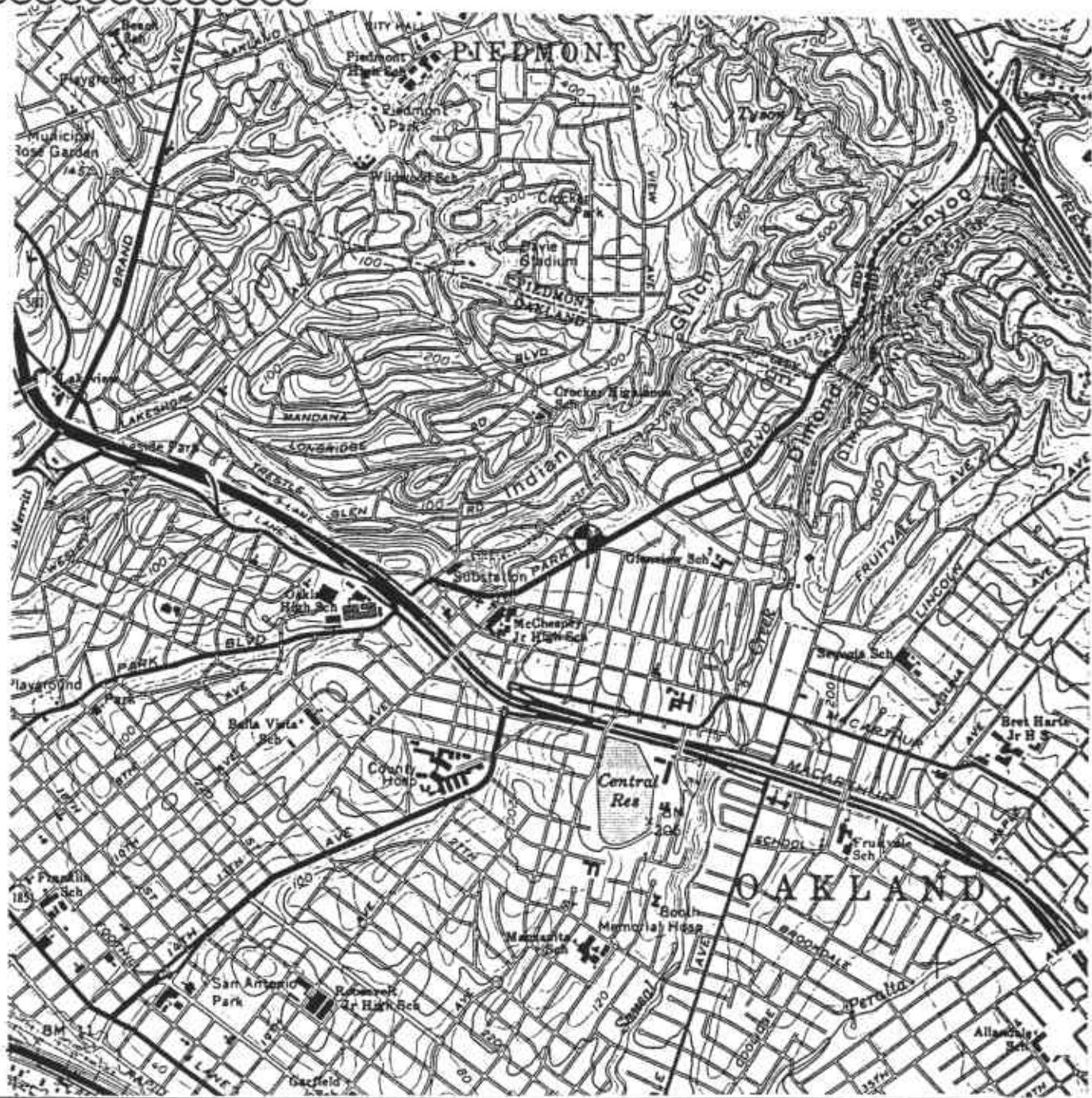


FIGURE 1

LEGEND



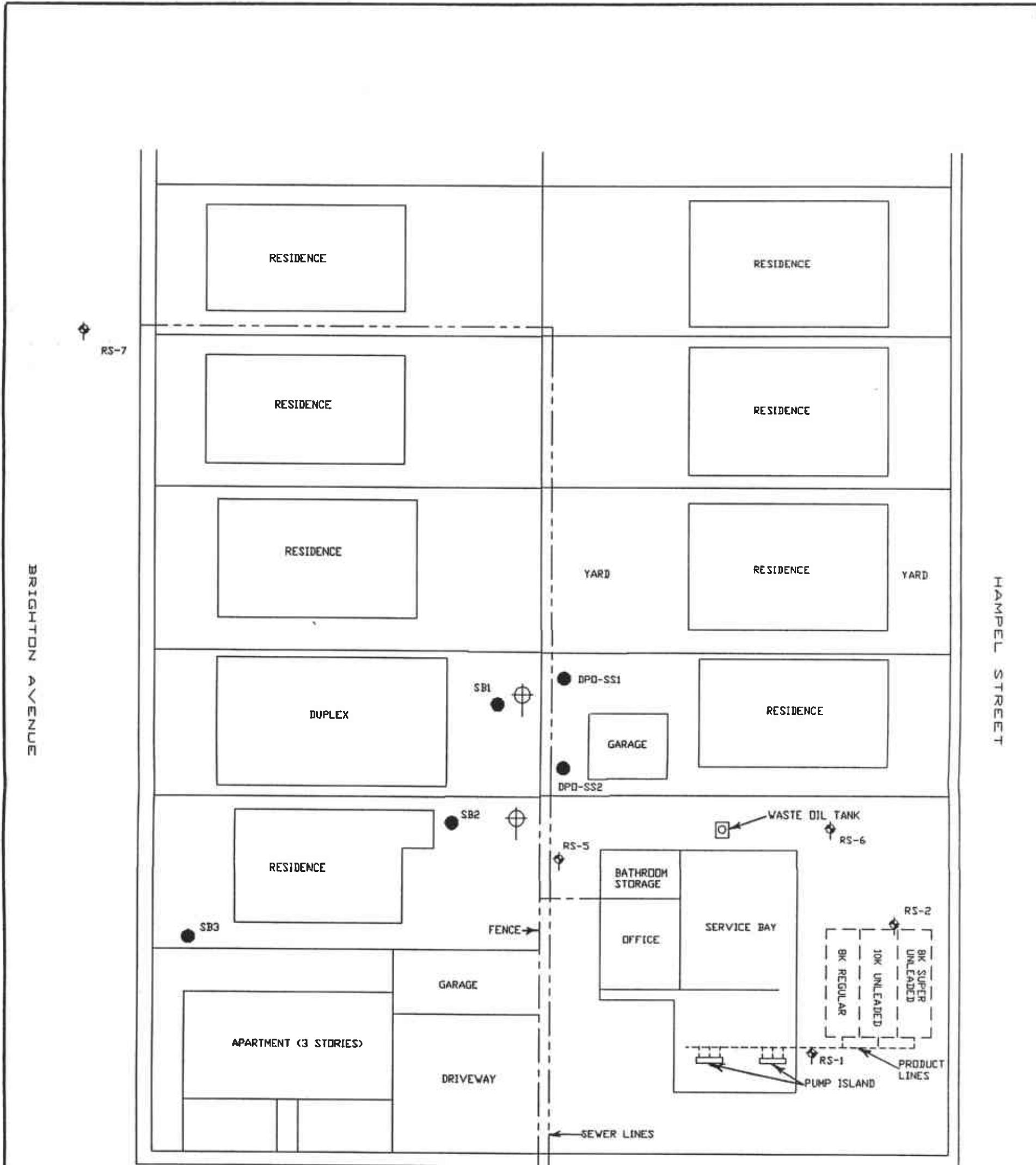
SITE LOCATION

SITE LOCATION MAP  
 DESERT PETROLEUM SS #793  
 4035 PARK BOULEVARD  
 OAKLAND, CA



SCALE IN FEET





HAMPPEL STREET

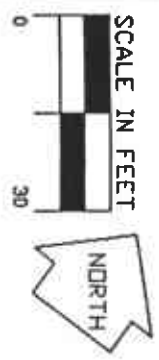
BRIGHTON AVENUE

MEDIAN PARK BOULEVARD MEDIAN

RS-1 = MW-1

LEGEND

- SB2 WATERWORK SOIL BORING
- ⊕ RS-7 MONITORING WELL
- ⊕ EXTRACTION WELL (PROPOSED)

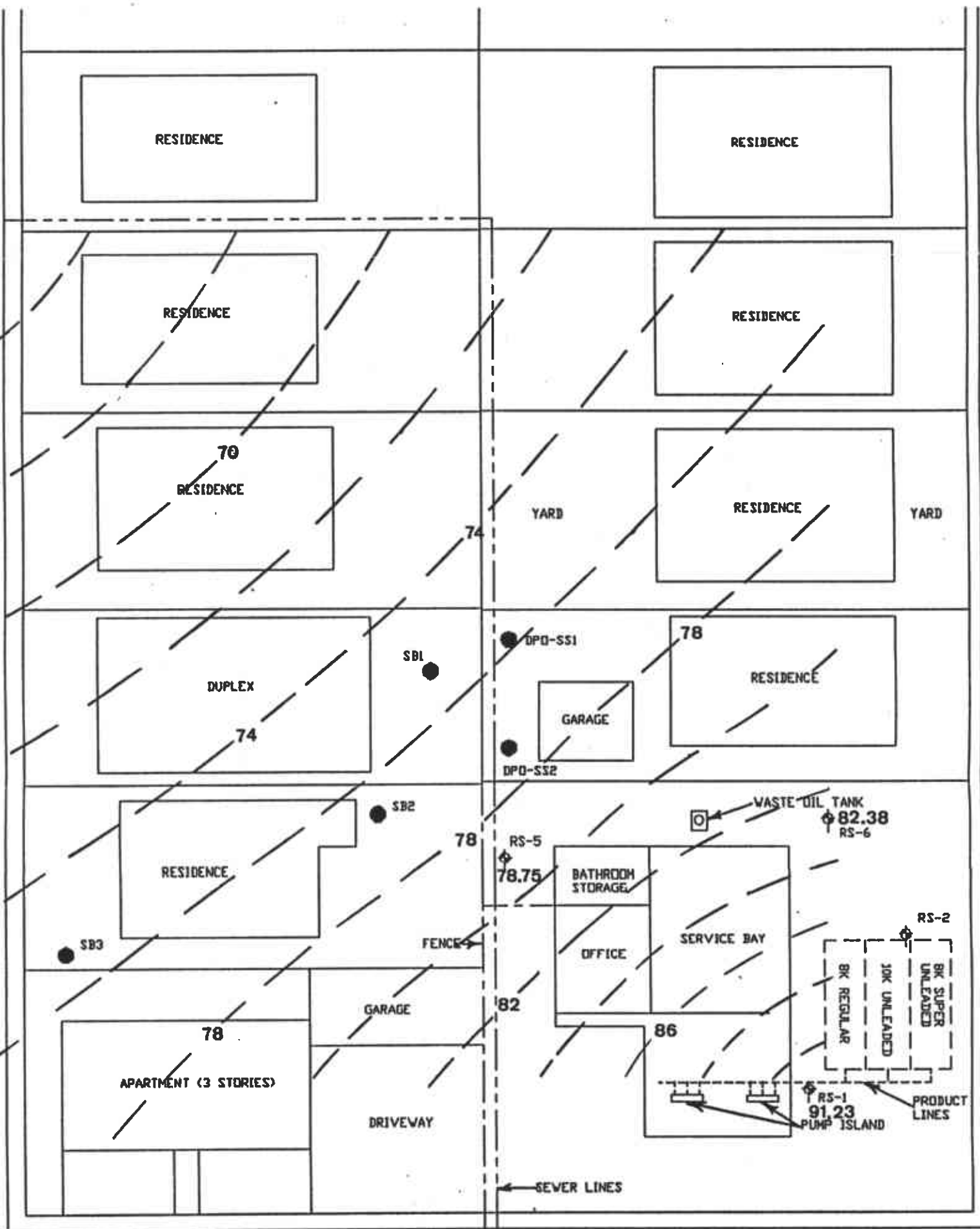


SITE PLAN  
 DESERT PETROLEUM SS#793  
 4035 PARK BOULEVARD  
 OAKLAND, CA

FIGURE 2

BRIGHTON AVENUE

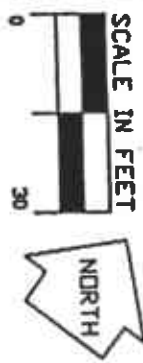
HAMPEL STREET



**LEGEND**

- SB2 WATERWORK SOIL BORING
- ◆ RS-7 MONITORING WELL
- 78.75 GROUNDWATER ELEVATION
- 02-15-915 CONTOUR INTERVAL = 20

MEDIAN PARK BOULEVARD MEDIAN



GROUNDWATER GRADIENT MAP  
DESERT PETROLEUM SS#793  
4035 PARK BOULEVARD  
OAKLAND, CA

FIGURE 3

793  
OAKLAND

S.A.V.E. SYSTEM PERFORMANCE DATA

SUMMARY TABLE

PROJECT LOCATION: DESERT PETROLEUM, INC. STATION #793

page 1 of 3

MONTH			DEC 89	JAN 90	FEB 90	MAR 90	APR 90	MAY 90
GROUNDWATER	SPRAY AERATOR WATER IN	GALLONS						
		TPH-PPM*						
	SPRAY AERATOR WATER OUT	GALLONS						
		TPH-PPM*						
VAPOR	RECOVERED VAPORS FROM WELLS	SCFM*	21.2	28.9	34.9	36.3	21.3	22.2
		TPH-PPM*	47500.0	28000.0	12000.0	8600.0	6550.0	4500.0
	TOTAL VAPORS TO ENGINE	SCF	129409.2	488700.0	509884.2	576435.0	330265.8	451809.0
		TPH-PPM*	47500.0	28000.0	12000.0	8600.0	6550.0	4500.0
AIR	TO SPRAY AERATOR	SCFM	9.7	7.3	7.4	5.2	3.8	3.3
	TO ENGINE	SCFM	9.7	7.3	7.4	5.2	3.8	3.3
FREE PRODUCT	RECOVERED FROM WELLS	GALLONS						
ENGINE	EXHAUST	TPH-PPM*	ND		ND	ND		ND
		CO-PPM*	23.0		3.0	26.0		12.0
	OPERATION	HOURS	69.8	225.0	200.9	231.5	219.3	295.3
	SPEED	RPM	1879.7	1828.1	1771.9	1807.1	1786.1	1805.5
TOTAL CONTAMINANT REMOVED	FROM THE PROJECT LOCATION	GALLONS	160.4	415.4	192.0	164.9	69.8	67.3

\* DENOTES AVERAGE CONCENTRATIONS.

S.A.V.E. SYSTEM PERFORMANCE DATA

SUMMARY TABLE

PROJECT LOCATION: DESERT PETROLEUM, INC. STATION #793

MONTH			JUN 90	JUL 90	AUG 90	SEP 90	OCT 90	NOV 90
GROUNDWATER	SPRAY AERATOR WATER IN	GALLONS						
		TPH-PPM*						
	SPRAY AERATOR WATER OUT	GALLONS						
		TPH-PPM*						
VAPOR	RECOVERED VAPORS FROM WELLS	SCFM*	13.8	16.2	22.9	23.0	22.4	23.9
		TPH-PPM*	1100.0	270.0	2350.0	3150.0	3900.0	3600.0
	TOTAL VAPORS TO ENGINE	SCF	271177.2	178860.0	666582.0	96373.8	141855.0	467415.0
		TPH-PPM*	1100.0	270.0	2350.0	3150.0	3900.0	3600.0
AIR	TO SPRAY AERATOR	SCFM	10.0	5.8	4.0	1.3	2.1	8.6
	TO ENGINE	SCFM	10.0	5.8	4.0	1.3	2.1	8.6
FREE PRODUCT	RECOVERED FROM WELLS	GALLONS						
ENGINE	EXHAUST	TPH-PPM*	ND	ND	ND	ND	ND	55.0
		CO-PPM*	6.0				0.0	
	OPERATION	HOURS	189.9	135.5	413.0	66.1	96.5	239.7
		SPEED	RPM	1800.0	1585.4	1908.5	1785.3	1758.4
TOTAL CONTAMINANT REMOVED	FROM THE PROJECT LOCATION	GALLONS	6.6	1.4	50.7	10.9	19.2	47.1

\* DENOTES AVERAGE CONCENTRATIONS.

## S.A.V.E. SYSTEM PERFORMANCE DATA

## SUMMARY TABLE

PROJECT LOCATION: DESERT PETROLEUM, INC. STATION #793

page 3 of 3

MONTH		DEC 90	JAN 91					TOTAL
GROUNDWATER	SPRAY AERATOR WATER IN	GALLONS						
		TPH-PPM*						
	SPRAY AERATOR WATER OUT	GALLONS						
		TPH-PPM*						
VAPOR	RECOVERED VAPORS FROM WELLS	SCFM*	23.0	19.8				
		TPH-PPM*	2300.0	190.0				
	TOTAL VAPORS TO ENGINE	SCF	310150.8	901854.0				
		TPH-PPM*	2300.0	190.0				
AIR	TO SPRAY AERATOR	SCFM	7.3	14.4				
	TO ENGINE	SCFM	7.3	14.4				
FREE PRODUCT	RECOVERED FROM WELLS	GALLONS						
ENGINE	EXHAUST	TPH-PPM*	ND	ND				
		CO-PPM*						
	OPERATION	HOURS	170.6	439.5				2992.6
	SPEED	RPM	1845.2	1801.6				
TOTAL CONTAMINANT REMOVED	FROM THE PROJECT LOCATION	GALLONS	20.6	3.8				1230.1

\* DENOTES AVERAGE CONCENTRATIONS.



S.A.V.E. SYSTEM PERFORMANCE DATA

TABLE I

PROJECT LOCATION: DESERT PETROLEUM, INC. STATION #793

page 1 of 5

MONTH			JAN 91				
GROUNDWATER	SPRAY AERATOR WATER IN	GALLONS					
		TPH-PPM*					
	SPRAY AERATOR WATER OUT	GALLONS					
		TPH-PPM*					
VAPOR	RECOVERED VAPORS FROM WELLS	SCFM*	19.8				
		TPH-PPM*	190.0				
	TOTAL VAPORS TO ENGINE	SCF	901854.0				
		TPH-PPM*	190.0				
AIR	TO SPRAY AERATOR	SCFM	14.4				
	TO ENGINE	SCFM	14.4				
FREE PRODUCT	RECOVERED FROM WELLS	GALLONS					
ENGINE	EXHAUST	TPH-PPM*	ND				
		CO-PPM*					
	OPERATION	HOURS	439.5				
	SPEED	RPM	1801.6				
TOTAL CONTAMINANT REMOVED	FROM THE PROJECT LOCATION	GALLONS	3.8				

\* DENOTES AVERAGE CONCENTRATIONS.

S.A.V.E. SYSTEM  
SUMMARY OF LABORATORY RESULTS FOR JAN 91  
TABLE II

PROJECT LOCATION: DESERT PETROLEUM, INC. STATION #793

page 2 of 5

DATE	EXTRACTED H <sub>2</sub> O TO AERATOR (mg/l)	DISCHARGED H <sub>2</sub> O FROM AERATOR (mg/l)	EXTRACTED VAPOR FROM WELLS (ppmv)	ENGINE EXHAUST (ppmv)
10	time: by:  TPH. B. T. EB. X.	time: by:  TPH. B. T. EB. X.	time: 11:15 by: A.A.  TPH 190. B. 0.31 T. ND EB. ND X. 0.25	time: 11:00 by: A.A.  TPH ND B. ND T. ND EB. ND X. ND
	time: by:  TPH. B. T. EB. X.	time: by:  TPH. B. T. EB. X.	time: by:  TPH. B. T. EB. X.	time: by:  TPH. B. T. EB. X.
	time: by:  TPH. B. T. EB. X.	time: by:  TPH. B. T. EB. X.	time: by:  TPH. B. T. EB. X.	time: by:  TPH. B. T. EB. X.

ND - Not Detected

NOTES:

S.A.V.E. SYSTEM  
MONITORING DATA LOG FOR JAN 91  
TABLE III

PROJECT LOCATION: DESERT PETROLEUM, INC. STATION #793

page 3 of 5

	DATE	TIME	ENGINE OPERATION DATA		PRESSURE READINGS AT				
			RUNNING TIME (HOURS)	SPEED (RPM)	EXTRACTION MANIFOLD (INCH H <sub>2</sub> O)	EXTRACTION WELL (INCH H <sub>2</sub> O)	EXTRACTION WELL (INCH H <sub>2</sub> O)	SPRAY AERATOR (INCH Hg)	RECIRC WATER (PSI)
BEGIN	2	16:00	2457.2	1800.0	30.0				
	3	15:00	2765.1	1800.0	30.0				
	4	15:30	2773.4	1800.0	30.0				
	5	14:30	2780.1	1800.0	30.0				
	9	15:00	2789.0	1800.0	30.0				
	10	11:00	2793.3	1800.0	30.0				
	11	15:00	2805.1	1800.0	30.0				
	12	14:30	2812.9	1800.0	30.0				
	13	16:00	2826.0	1800.0	30.0				
	14	16:10	2832.6	1800.0	>30.0				
	15	9:30	2833.2	1900.0	>30.0				
	16	14:30	2840.2	1800.0	30.0				
	17	14:00	2848.7	1800.0	30.0				
	18	9:30	2853.2	1800.0	30.0				
	19	14:30	2867.5	1800.0	30.0				
	20	14:00	2875.5	1800.0	>30.0				
	23	14:30	2896.7	1800.0	30.0				
	24	10:15	2896.7	1700.0	>30.0				
END	01/24/91	10:15	2896.7						

NOTES:

S.A.V.E. SYSTEM  
 MONITORING DATA LOG FOR JAN 91  
 TABLE IV

PROJECT LOCATION: DESERT PETROLEUM, INC. STATION #793

page 4 of 5

DATE	TEMPERATURE READINGS AT					FLOW READING AT			
	AMBIENT AIR (F)	EXTRACTED VAPOR (F)	ENGINE OUTLET (F)	CATALYST OUTLET (F)	RECIRC WATER (F)	AIR TO SPRAY TANK (CFM)	EXTRACTED VAPORS (CFM)	AUXILIARY FUEL (CFH)	DISCHARGE WATER (GALS)
2	60.0	60.0				15.0	20.0	66.0	
3	52.0	52.0				12.0	25.0	60.0	
4	63.0	63.0				12.0	25.0	60.0	
5	55.0	55.0				15.0	25.0	57.0	
9	62.0	62.0				12.0	25.0	65.0	
10	51.0	51.0				13.0	25.0	65.0	
11	63.0	63.0				15.0	25.0	65.0	
12	62.0	62.0				12.0	25.0	65.0	
13	62.0	62.0				14.0	25.0	65.0	
14	55.0	55.0				10.0	20.0	70.0	
15	50.0	50.0				8.0	25.0	75.0	
16	64.0	64.0				12.0	25.0	65.0	
17	65.0	65.0				15.0	25.0	65.0	
18	62.0	62.0				15.0	25.0	65.0	
19	65.0	65.0				12.0	25.0	65.0	
20	65.0	65.0				14.0	25.0	67.0	
23	62.0	62.0				15.0	25.0	65.0	
24	50.0	50.0				7.0	25.0	70.0	

NOTES:

S.A.V.E. SYSTEM  
MONITORING DATA LOG FOR JAN 91  
TABLE V

PROJECT LOCATION: DESERT PETROLEUM, INC. STATION #793 page 5 of 5

DATE	EXHAUST GAS COMPONENTS				
	H-C	CO	CO <sub>2</sub>	O <sub>2</sub>	NO <sub>x</sub>
2					
3					
4					
5					
9					
10					
11					
12					
13					
14					
15					
16					
17					
18					
19					
20					
23					
24					

NOTES:



# SEQUOIA ANALYTICAL

680 Chesapeake Drive • Redwood City, CA 94063  
(415) 364-9600 • FAX (415) 364-9233

RECEIVED MAR 05 1991

*Water 2  
= RS-1*

Waterwork  
2350-A Walsh Avenue  
Santa Clara, CA 95051  
Attention: Eric Taylor

Client Project ID: DP Oakland, #830  
Sample Descript.: **Water, MW-1**  
Analysis Method: EPA 5030/8015/8020  
Lab Number: 102-2495 A - B

Sampled: Feb 15, 1991  
Received: Feb 21, 1991  
Analyzed: Feb 26, 1991  
Reported: Mar 1, 1991

## TOTAL PETROLEUM FUEL HYDROCARBONS WITH BTEX DISTINCTION (EPA 8015/8020)

Analyte	Detection Limit µg/L (ppb)	Sample Results µg/L (ppb)
Low to Medium Boiling Point Hydrocarbons.....	30	6,900
Benzene.....	0.30	910
Toluene.....	0.30	200
Ethyl Benzene.....	0.30	30
Xylenes.....	0.30	540

Low to Medium Boiling Point Hydrocarbons are quantitated against a gasoline standard.  
Analytes reported as N.D. were not present above the stated limit of detection.

SEQUOIA ANALYTICAL

*Elizabeth W. Hackl*  
Elizabeth W. Hackl  
Project Manager



# SEQUOIA ANALYTICAL

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Waterwork  
2350-A Walsh Avenue  
Santa Clara, CA 95051  
Attention: Eric Taylor

Client Project ID: DP Oakland, #330

QC Sample Group: 102-2495

Reported: Mar 1, 1991

## QUALITY CONTROL DATA REPORT

ANALYTE	Benzene	Toluene	Ethyl Benzene	Xylenes
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Method:	EPA 8020	EPA 8020	EPA 8020	EPA 8020
Analyst:	E.Hamilton	E.Hamilton	E.Hamilton	E.Hamilton
Reporting Units:	µg/L	µg/L	µg/L	µg/L
Date Analyzed:	Feb 26, 1991	Feb 26, 1991	Feb 26, 1991	Feb 26, 1991
QC Sample #:	102-0482	102-0482	102-0482	102-0482

Sample Conc.:	N.D.	N.D.	N.D.	N.D.
Spike Conc. Added:	20	20	20	60
Conc. Matrix Spike:	15	15	15	46
Matrix Spike % Recovery:	75	75	75	77
Conc. Matrix Spike Dup.:	15	13	13	51
Matrix Spike Duplicate % Recovery:	75	65	65	85
Relative % Difference:	0.0	1.4	1.4	1.0

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*Elizabeth W. Hackl*  
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Project Manager

% Recovery:	$\frac{\text{Conc. of M.S.} - \text{Conc. of Sample}}{\text{Spike Conc. Added}} \times 100$
Relative % Difference:	$\frac{\text{Conc. of M.S.} - \text{Conc. of M.S.D.}}{(\text{Conc. of M.S.} + \text{Conc. of M.S.D.}) / 2} \times 100$

1022495.WAT <2>

