Santa Fe Pacific Pipeline Partners, L.P.

888 South Figueroa Street, Los Angeles, California 90017
213/614-1095 FAX 213/486-7940

Santa Fe Pacific Pipelines, Inc.
General Partner

SFPP, L.P.
Operating Partnership

Thomas P. Danaher
Senior Environmental Specialist

ENV 29.15 (9760.912.5716.LEK.0141)

July 24, 1995

Mr. Sum Arigala
California Regional Water Quality Control Board
San Francisco Bay Region
2101 Webster Street, Suite 500
Oakland, CA 94612

RE: QUARTERLY GROUNDWATER MONITORING REPORT
DOUGHERTY BOOSTER STATION

Dear Mr. Arigala:

Attached is a copy of the second quarter groundwater monitoring report for 1995 for the Santa Fe Pacific Pipeline Partners, L.P. (SFPP) Dougherty Booster Station. The third quarterly monitoring event for 1995 is to be conducted during September and the report will be issued during October, 1995.

Should you have any questions or comments, please contact me at 213/ 486-7739 or Mark Sandon at (213) 486-7946.

Sincerely,

Thomas P. Danaher

Enclosure

TPD:ms

cc: *With Enclosure:*
S. G. Tostengard
A. W. Housley
M. J. Sandon
Kevin Keenan, Alton Geoscience

Robert Weston
James A. Lerhman
Alameda County Env. Health Dept.
80 Swan Way, Room 200
Oakland, CA 94621

Terra
Services

June 19, 1995

Santa Fe Pacific Pipeline Partners, L.P.
Environmental Engineering Department
888 South Figueroa
Los Angeles, California 90017

ATTENTION: Mr. Tom Danaher

SUBJECT: GROUNDWATER MONITORING REPORT
Second Quarter, 1995
Dougherty Booster Station

Dear Mr. Danaher:

This letter report presents the results of groundwater monitoring conducted by TerraServices, Inc. (TSI) on May 24, 1995 at the Dougherty Booster Station for Santa Fe Pacific Pipeline Partners, L.P. (SFPP).

Scheduleld field work included measuring fluid levels and sampling groundwater in six wells, numbered LF-1 through LF-4, MW-5, and MW-6. Wells MW-5 and MW-6 were added to the groundwater monitoring program this quarter. A groundwater sample was not collected in well LF-3 due to the presence of a non-aqueous phase hydrocarbon (NAPH, or 'free product') layer.

SITE DESCRIPTION

The Dougherty Booster Station is located in Camp Parks, on Dougherty Road, in Dubbin, California. The station is a support facility for the transportation of refined petroleum products in an SFPP pipeline. The site location is shown in Figure 1. Locations of groundwater monitoring wells are shown in Figure 2. The depth to groundwater or free product has ranged from approximately 7 to 12 feet in the database record presented with this report.

SAMPLING AND ANALYTICAL PROTOCOL

The sampling protocol is described in Appendix A. Analytical chemistry was conducted by Apollo Analytics, Inc., in Costa Mesa, California. Apollo Analytics is certified by the California Department of Health Services. Groundwater samples were collected from wells LF-1, LF-2, LF-4, MW-5, and MW-6. All samples were analyzed by EPA Method 5030\8020 for benzene, toluene, ethylbenzene, and total xylene (BTEX) compounds. In addition, field measurements of dissolved oxygen were made by titration. Laboratory Quality Assurance\Quality Control (QA\QC) procedures included method blank, matrix spike, and matrix spike duplicate samples. Field analytical QA\QC procedures included collection of one field equipment blank and one duplicate groundwater sample.

FLUID LEVEL DATA

Fluid levels were measured in all wells within one field day and are presented in Table 1, which includes all available historical data. Fluid level measurements collected prior to 1993 were provided by SFPP. Figure 3 shows a potentiometric groundwater surface map based on fluid level measurements for this monitoring period. A corrected groundwater level was calculated for all monitoring wells with free product using the most recent product specific gravity measurement.

WATER QUALITY DATA

Water quality analytical data is summarized in Table 2, which includes all available historical data. Water quality data collected prior to 1993 was provided by SFPP. Groundwater field parameter measurements are recorded in the SFPP Field Data Sheets in Appendix B. Laboratory analytical reports and chain-of-custody records are included in Appendix C. Figure 4 shows a concentration map of dissolved BTEX compounds.

GROUNDWATER MONITORING RESULTS

Groundwater Flow: The direction of groundwater flow is west-southwest. The hydraulic gradient is approximately 0.0017 feet per foot between well LF-2 and the 2.25-foot equipotential line. Groundwater elevations have risen an average of 0.32 feet since the last monitoring period.

Non-Aqueous Phase Hydrocarbons: A NAPH layer 0.01 feet thick was measured in well LF-3.

Dissolved BTEX Compounds: BTEX compounds were detected only in the groundwater sample from well LF-2. The benzene concentration was 700 micrograms per liter (ug/L). BTEX compounds have not been detected in wells LF-1 and LF-4 since April and July, 1994, respectively. The detection limit for all BTEX compounds was 0.5 ug/L.

Dissolved Oxygen: Dissolved oxygen concentrations were measured in the field by titration. The following concentrations in parts per million (ppm) were recorded: LF-1 (0.6 ppm), LF-2 (0.6 ppm), LF-4 (4.0 ppm), MW-5 (0.2 ppm), and MW-6 (0.0 ppm). The detection limit was 0.1 ppm.

Analytical QA\QC: No deviations from standard procedures occurred during this monitoring period. Laboratory quality control tests were within laboratory performance quidelines. No BTEX compounds were detected in the pump equipment blank collected to assess the effectiveness of field decontamination procedures. A duplicate water-quality sample was collected at monitoring well LF-2 and labeled LF-8. Duplicate sample results were not within 30 percent of well LF-2 analytical results.

If you have any questions regarding the contents of this report, please contact us at your convenience. The next monitoring event is scheduled for August 28, 1995.

Very truly yours,

TERRASERVICES, INC.

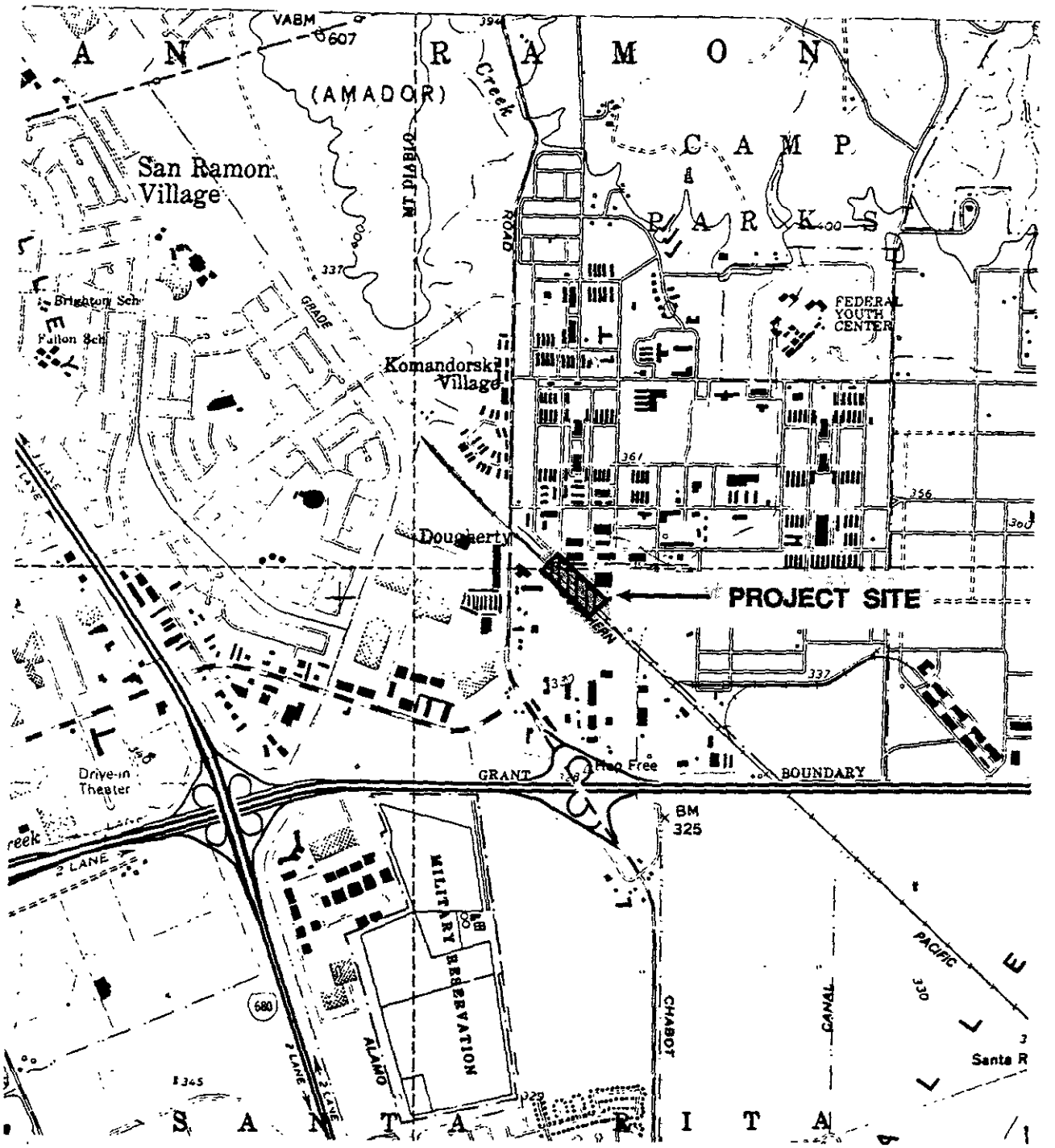
Mark C. Olson, MSc., REA 2184
Hydrologist\Project Manager

REGISTERED ENVIRONMENTAL ASSESSOR
MARK CALVIN OLSON
No. 2184
Exp: 08-30-96
STATE OF CALIFORNIA

Jeff Findl
Jeff Findl, RG 5464
Project Geologist

REGISTERED GEOLOGIST
JEFF D. FINDL
No 5464
Exp 3/96
STATE OF CALIFORNIA

Enclosure(s): 2 Report Copies



UTM Grid
1981 Magnetic North

Quadrangle Location

0 1/2 1 MI

REF: USGS 7.5 Minute Dublin Quadrangle (1980)

SITE LOCATION MAP

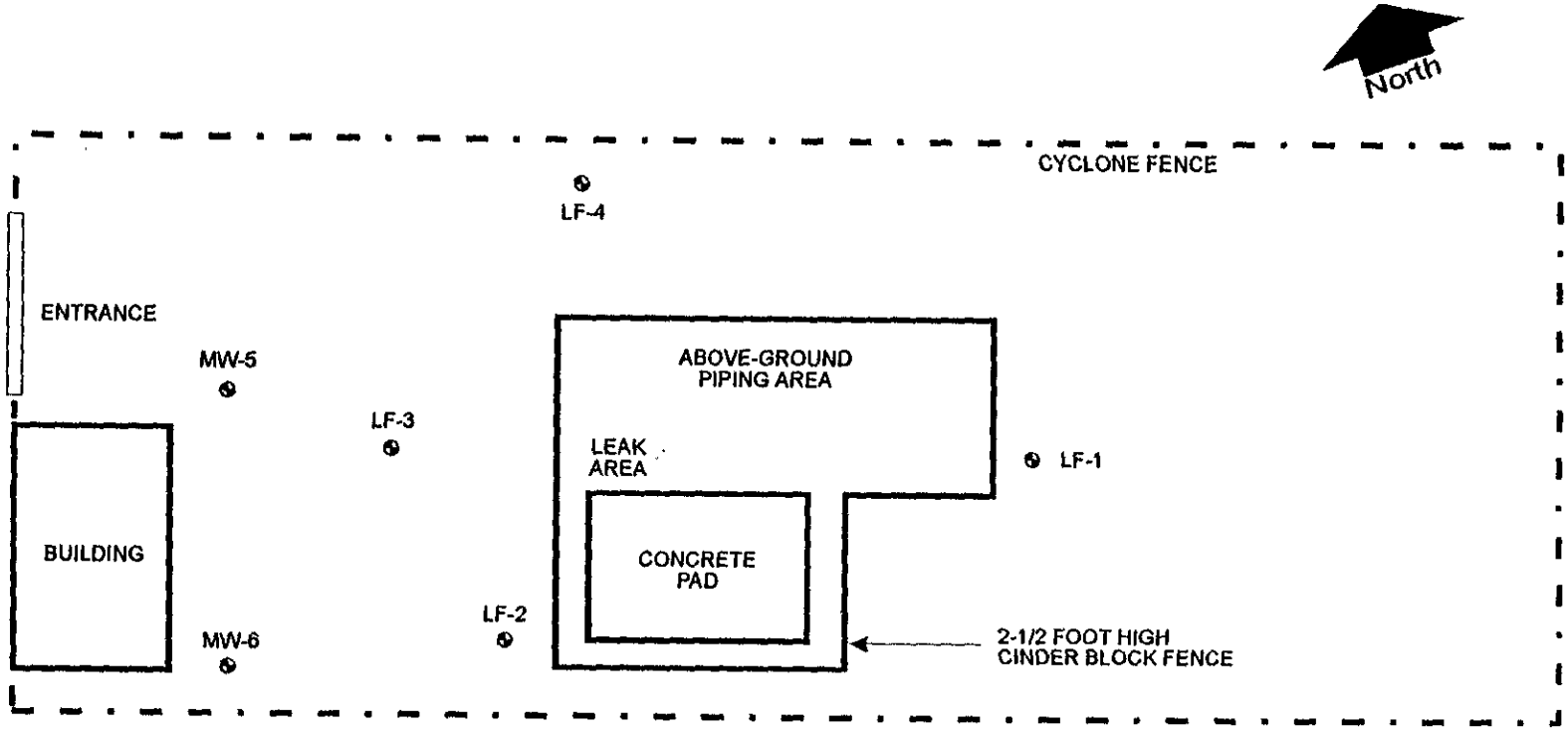
DOUGHERTY BOOSTER STATION

Santa Fe Pacific Pipeline Partners, L.P.
Dougherty, California

TERRA SERVICES
714.586.4187

TSI PROJECT GM138M93
FILE MCO\138R01F1.DOU
MAR-30-93

FIGURE 1



LEGEND

WELL-# — Monitoring Well and Identification
— Water Level Elevation in Feet Above MSL

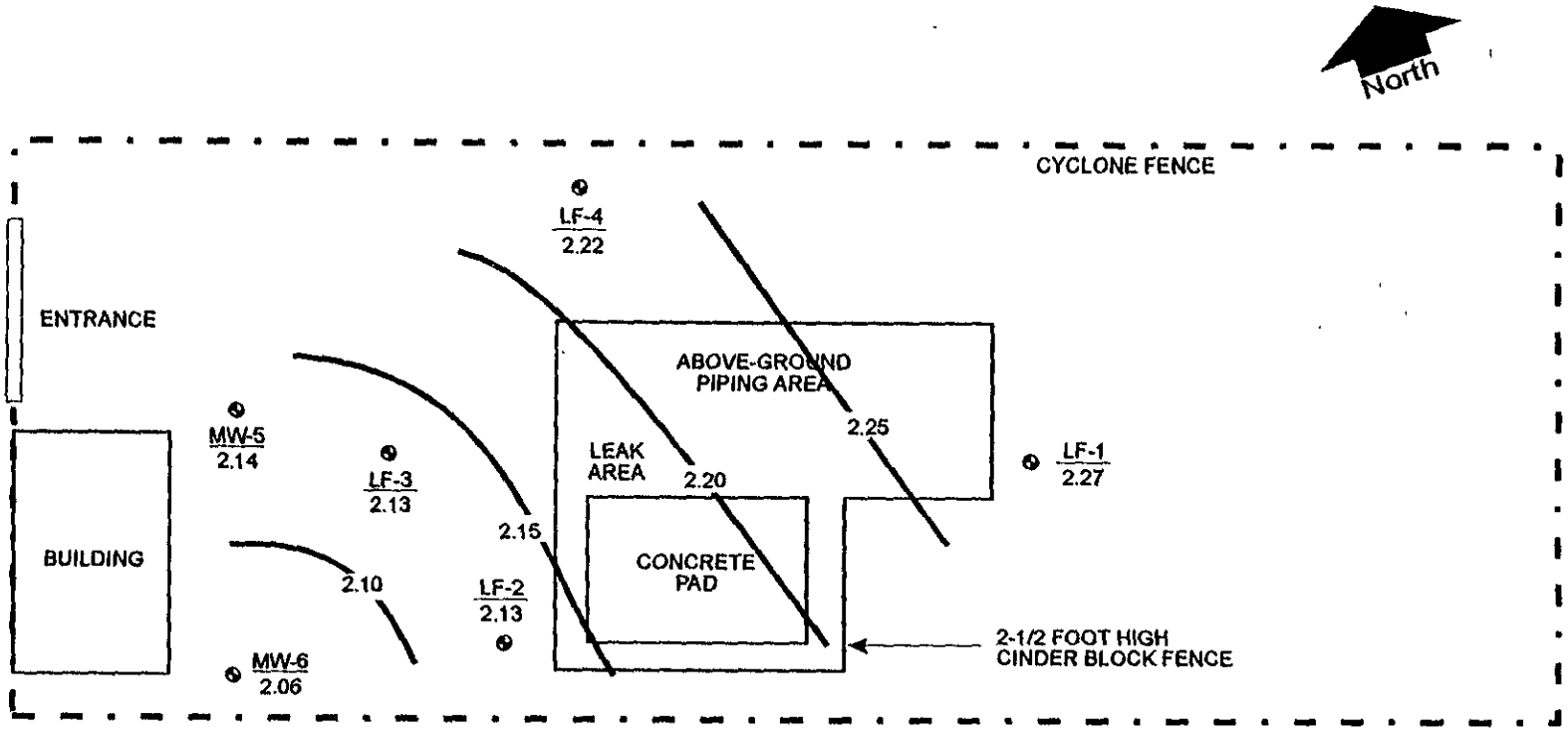
0 10 20 30
Approximate Scale in Feet

WELL LOCATION MAP

DOUGHERTY BOOSTER STATION
Santa Fe Pacific Pipeline Partners, L.P.
Dougherty, California

TERRA SERVICES
714.586.4187
TSI PROJECT GM138M93
FILE MCO\138R04F2.DOU
DEC-21-93

FIGURE 2



LEGEND

WELL-# — Monitoring Well and Identification
#.## — Water Level Elevation in Feet Above MSL
— Ground-Water Equipotential Line

0 10 20 30
Approximate Scale in Feet
(1 cm = 9.5 ft)

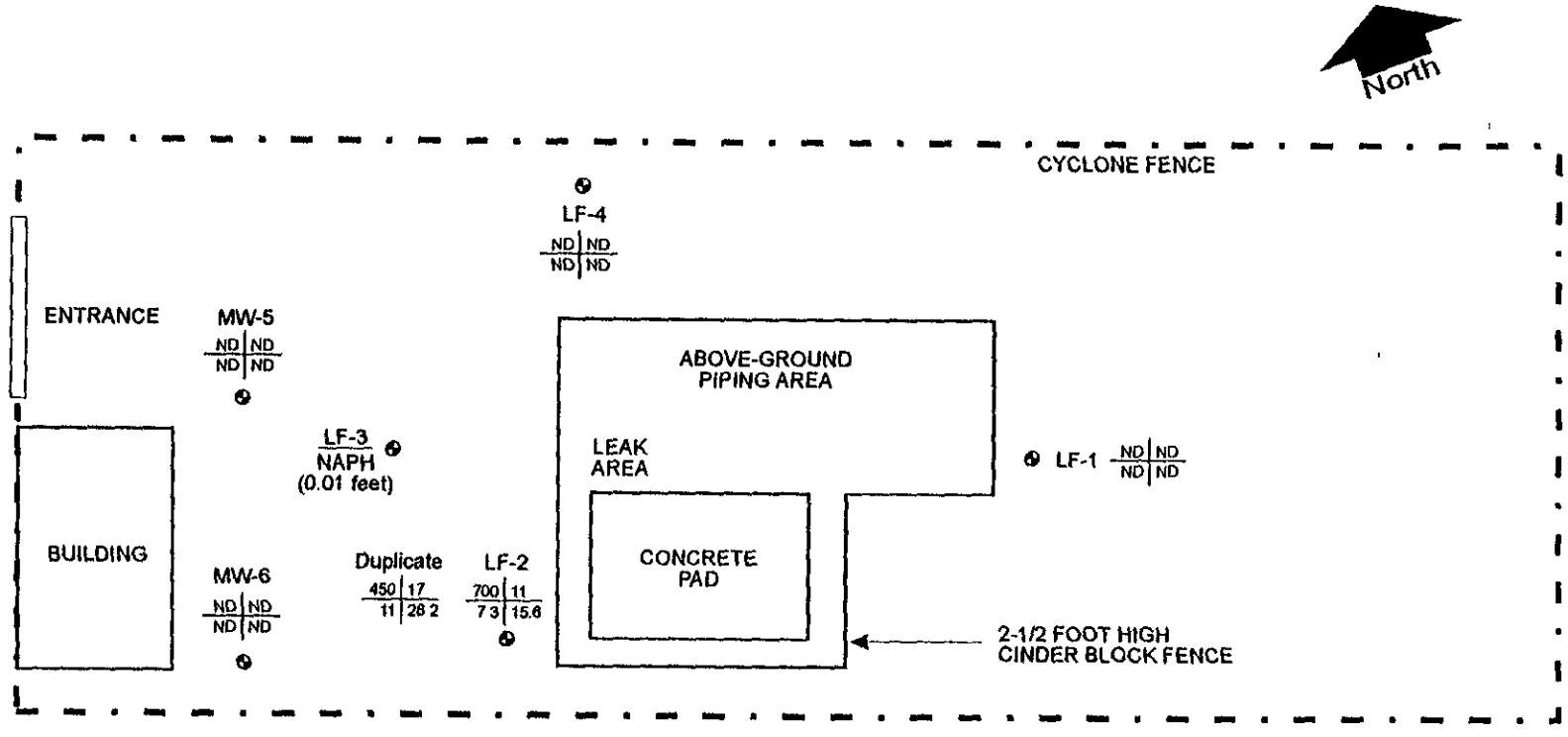
Note: Equipotential lines interpreted between wells, estimated (dashed) where not bounded by or measured in wells

GROUNDWATER ELEVATION MAP

DOUGHERTY BOOSTER STATION
Santa Fe Pacific Pipeline Partners, L.P.
Dougherty, California

TERRA SERVICES
714.586.4187
TSI PROJECT GM265M95
FILE SRB\265R02F3.DOU
JUN-19-95

FIGURE 3



LEGEND

- WELL-# — Monitoring Well and Identification
- B | T / E | X — Benzene, Toluene, Ethylbenzene, and Total Xylenes in ug/L. ND = Not Detected
- # — Isoconcentration Line in ug/L

0 10 20 30
Approximate Scale in Feet

BTEX CONCENTRATION MAP

DOUGHERTY BOOSTER STATION

Santa Fe Pacific Pipeline Partners, L.P.
Dougherty, California

TERRA SERVICES
714.586.4187
TSI PROJECT GM265M95
FILE SRB\265R02F4.DOU
JUN-19-95

FIGURE 4

TABLE 1
SUMMARY OF GROUNDWATER MONITORING WELL CONSTRUCTION AND GAUGING DATA

Terra Services

DOUGHERTY BOOSTER

WELL No.	DATE INSTALLED (M/D/Y)	DIAM. (INCHES)	TOTAL DEPTH (FEET)	SCREEN LENGTH (FEET)	TOP OF SCREEN ELEV. (FEET MSL.)	TOP OF CASING ELEV. (FEET MSL.)	SAMPLING DATE (M/D/Y)	DEPTH TO PRODUCT (FEET)	DEPTH TO WATER (FEET)	PRODUCT THICKNESS (FEET)	SPECIFIC GRAVITY	CORRECTED DEPTH TO GROUNDWATER (FEET)	GROUNDWATER ELEVATION (FEET MSL.)	CASING VOLUME (GALLONS)	COMMENTS
LF-1	10-14-91	4 00	20.50	15.00	4.29	9.79	3-13-92	NA	9 12	NA	NA	NA	0 67	7 4	
LF-1	10-14-91	4.00	20.50	15.00	4 29	9.79	5-21-92	NA	9 99	NA	NA	NA	-0 20	6.9	
LF-1	10-14-91	4.00	20.50	15.00	4.29	9.79	9-10-92	NA	11 68	NA	NA	NA	-1 89	6 8	
LF-1	10-14-91	4 00	20.50	15.00	4.29	9.79	12-10-92	NA	10.39	NA	NA	NA	-0 60	6.6	
LF-1	10-14-91	4.00	20 50	15 00	4 29	9.79	2-10-93	NA	7 81	NA	NA	NA	1 98	8 3	
LF-1	10-14-91	4.00	20.50	15.00	4.29	9.79	6-4-93	NA	8 20	NA	NA	NA	1.59	8 0	
LF-1	10-14-91	4.00	20.50	15.00	4 29	9.79	8-9-93	NA	9.76	NA	NA	NA	0 03	7.0	
LF-1	10-14-91	4.00	20.50	15.00	4.29	9.79	11-2-93	NA	10 93	NA	NA	NA	-1 14	6 2	
LF-1	10-14-91	4.00	20 50	15.00	4.29	9.79	3-3-94	NA	8 74	NA	NA	NA	1 05	7 7	
LF-1	10-14-91	4.00	20.50	15 00	4 29	9.79	4-17-94	NA	9.72	NA	NA	NA	0 07	7 0	
LF-1	10-14-91	4.00	20.50	15 00	4.29	9 79	7-25-94	NA	10 49	NA	NA	NA	-0 70	6 5	
LF-1	10-14-91	4.00	20.50	15.00	4 29	9 79	10-20-94	NA	11 23	NA	NA	NA	-1 44	6 0	New MWS
LF-1	10-14-91	4 00	20 50	15.00	4.29	9.79	2-20-95	NA	7 84	NA	NA	NA	1 95	8 3	
LF-1	10-14-91	4 00	20 50	15 00	4.29	9 79	5-24-95	NA	7 52	NA	NA	NA	2 27	8 5	
LF-2	10-15-91	4.00	20.50	15 00	3 83	9.33	3-13-92	NA	8 74	NA	NA	NA	0.59	7 7	
LF-2	10-15-91	4.00	20.50	15.00	3.83	9.33	5-21-92	NA	9 70	NA	NA	NA	-0.37	7.0	
LF-2	10-15-91	4.00	20.50	15.00	3.83	9.33	9-10-92	NA	11.39	NA	NA	NA	-2 06	5.9	
LF-2	10-15-91	4.00	20 50	15.00	3.83	9.33	12-10-92	NA	9 94	NA	NA	NA	-0 61	6 9	
LF-2	10-15-91	4.00	20.50	15 00	3.83	9 33	2-10-93	NA	7.58	NA	NA	NA	1.75	8 4	
LF-2	10-15-91	4.00	20.50	15 00	3.83	9.33	6-4-93	NA	7.89	NA	NA	NA	1.44	8 2	
LF-2	10-15-91	4.00	20.50	15.00	3.83	9.33	8-9-93	NA	9 50	NA	NA	NA	-0 17	7.2	
LF-2	10-15-91	4.00	20.50	15.00	3.83	9 33	11-2-93	NA	10 57	NA	NA	NA	-1.24	6 5	
LF-2	10-15-91	4.00	20.50	15 00	3.83	9.33	3-3-94	NA	8 51	NA	NA	NA	0 82	7 8	
LF-2	10-15-91	4.00	20.50	15.00	3.83	9.33	4-17-94	NA	9.42	NA	NA	NA	-0 09	7.2	
LF-2	10-15-91	4.00	20.50	15 00	3.83	9.33	7-25-94	NA	10 13	NA	NA	NA	-0 80	6 8	
LF-2	10-15-91	4.00	20.50	15.00	3.83	9 33	10-20-94	NA	10.87	NA	NA	NA	-1.54	6.3	
LF-2	10-15-91	4.00	20.50	15.00	3.83	9 33	2-20-95	NA	7.51	NA	NA	NA	1 82	8.5	
LF-2	10-15-91	4.00	20.50	15.00	3 83	9.33	5-24-95	NA	7.20	NA	NA	NA	2.13	8.7	
LF-3	10-15-91	4.00	20.50	15.00	4.92	10.42	3-13-92	NA	9.87	NA	NA	NA	0 55	6 9	
LF-3	10-15-91	4.00	20.50	15 00	4.92	10.42	5-21-92	NA	10.81	NA	NA	NA	-0 39	6 3	
LF-3	10-15-91	4.00	20.50	15.00	4 92	10 42	9-10-92	12.21	13 40	1.19	NA	12.45	-2.03	4 6	
LF-3	10-15-91	4.00	20.50	15.00	4.92	10 42	12-10-92	11.09	11.24	0.15	NA	11.12	-0 70	6 0	
LF-3	10-15-91	4.00	20.50	15 00	4.92	10 42	2-10-93	8.75	8.76	0.01	0.800	8 75	1 67	7.7	NAPH Sheen
LF-3	10-15-91	4.00	20.50	15 00	4.92	10.42	5-4-93	8.98	9.02	0.04	0 800	8 99	1 43	7.5	NAPH Layer
LF-3	10-15-91	4.00	20.50	15.00	4.92	10 42	8-9-93	10.61	10 80	0 19	0.800	10 65	-0 23	6 3	NAPH Layer
LF-3	10-15-91	4.00	20.50	15 00	4.92	10 42	11-2-93	11 61	11.99	0.38	0 800	11 69	-1.27	5 8	NAPH Layer

File: 265R02T1.BAL LEGEND: NA = Not Applicable

NOTE: Sp. Gravity = Last data or 0.800 if no previous measurement was available

TABLE 1
SUMMARY OF GROUNDWATER MONITORING WELL CONSTRUCTION AND GAUGING DATA

Terra Services

DOUGHERTY BOOSTER

WELL No.	DATE INSTALLED (M/D/Y)	DIAM. (INCHES)	TOTAL DEPTH (FEET)	SCREEN LENGTH (FEET)	TOP OF SCREEN ELEV. (FEET MSL.)	TOP OF CASING ELEV. (FEET MSL.)	SAMPLING DATE (M/D/Y)	DEPTH TO PRODUCT (FEET)	DEPTH TO WATER (FEET)	PRODUCT THICKNESS (FEET)	SPECIFIC GRAVITY	CORRECTED DEPTH TO GROUNDWATER (FEET)	GROUNDWATER ELEVATION (FEET MSL.)	CASING VOLUME (GALLONS)	COMMENTS
LF-3	10-15-91	4.00	20.50	15.00	4.92	10.42	3-3-94	9.64	9.66	0.02	0.800	9.64	0.78	7.1	NAPH Layer
LF-3	10-15-91	4.00	20.50	15.00	4.92	10.42	4-17-94	10.53	10.54	0.01	0.800	10.53	-0.11	6.6	NAPH Layer
LF-3	10-15-91	4.00	20.50	15.00	4.92	10.42	7-26-94	11.22	11.35	0.13	0.800	11.25	-0.83	6.0	NAPH Layer
LF-3	10-15-91	4.00	20.50	15.00	4.92	10.42	10-20-94	11.91	12.30	0.39	0.800	11.99	-1.57	5.3	NAPH Layer
LF-3	10-15-91	4.00	20.50	15.00	4.93	10.43	2-20-95	8.60	8.64	0.04	0.800	8.61	1.82	7.7	NAPH Layer
LF-3	10-15-91	4.00	20.50	15.00	4.93	10.43	5-24-95	8.29	8.30	0.01	0.800	8.29	2.14	8.0	NAPH Sheen
LF-4	10-14-91	4.00	20.50	15.00	5.14	10.64	3-13-92	NA	10.10	NA	NA	NA	0.54	6.8	
LF-4	10-14-91	4.00	20.50	15.00	5.14	10.64	5-21-92	NA	10.97	NA	NA	NA	-0.33	6.2	
LF-4	10-14-91	4.00	20.50	15.00	5.14	10.64	9-10-92	NA	12.71	NA	NA	NA	-2.07	5.1	
LF-4	10-14-91	4.00	20.50	15.00	5.14	10.64	12-10-92	NA	10.96	NA	NA	NA	-0.32	6.2	
LF-4	10-14-91	4.00	20.50	15.00	5.14	10.64	2-10-93	NA	8.90	NA	NA	NA	1.74	7.6	
LF-4	10-14-91	4.00	20.50	15.00	5.14	10.64	5-4-93	NA	9.13	NA	NA	NA	1.51	7.4	
LF-4	10-14-91	4.00	20.50	15.00	5.14	10.64	8-9-93	NA	10.65	NA	NA	NA	-0.01	6.4	
LF-4	10-14-91	4.00	20.50	15.00	5.14	10.64	11-2-93	NA	11.87	NA	NA	NA	-1.23	5.6	
LF-4	10-14-91	4.00	20.50	15.00	5.14	10.64	3-3-94	NA	9.78	NA	NA	NA	0.86	7.0	
LF-4	10-14-91	4.00	20.50	15.00	5.14	10.64	4-17-94	NA	10.71	NA	NA	NA	-0.07	6.4	
LF-4	10-14-91	4.00	20.50	15.00	5.14	10.64	7-26-94	NA	11.43	NA	NA	NA	-0.79	5.9	
LF-4	10-14-91	4.00	20.50	15.00	5.14	10.64	10-20-94	NA	12.15	NA	NA	NA	-1.51	5.4	
LF-4	10-14-91	4.00	20.50	15.00	5.14	10.64	2-20-95	NA	8.74	NA	NA	NA	1.90	7.7	
LF-4	10-14-91	4.00	20.50	15.00	5.14	10.64	5-24-95	NA	8.42	NA	NA	NA	2.22	7.9	
MW-5	No Data	No Data	No Data	No Data	No Data	10.63	5-24-95	NA	8.49	NA	NA	NA	2.14	No Data	
MW-6	No Data	No Data	No Data	No Data	No Data	9.60	5-24-95	NA	7.52	NA	NA	NA	2.08	No Data	

TABLE 2
SUMMARY OF GROUNDWATER SAMPLE ANALYTICAL RESULTS

Terra Services

DOUGHERTY BOOSTER

WELL No.	DATE INSTALLED (M/D/Y)	SAMPLING DATE (M/D/Y)	BENZENE (ug/l)	TOLUENE (ug/l)	ETHYL-BENZENE (ug/l)	TOTAL XYLENES (ug/l)	TPH GASOLINE (mg/l)	TPH DIESEL (mg/l)	SPECIFIC GRAVITY	COMMENTS
LF-1	10-14-91	03/13/92	ND	ND	ND	ND	NA	NA	NA	
LF-1	10-14-91	05/21/92	ND	ND	ND	1.0	NA	NA	NA	
LF-1	10-14-91	09/10/92	ND	ND	ND	ND	NA	NA	NA	
LF-1	10-14-91	12/10/92	ND	ND	ND	ND	NA	NA	NA	
LF-1	10-14-91	2/10/93	ND	ND	ND	ND	NA	NA	NA	
LF-1	10-14-91	5/4/93	ND	ND	0.6	ND	NA	NA	NA	
LF-1	10-14-91	8/10/93	ND	ND	ND	ND	NA	NA	NA	
LF-1	10-14-91	11/2/93	ND	ND	ND	ND	NA	NA	NA	
LF-1	10-14-91	03/3/94	ND	ND	ND	ND	NA	NA	NA	
LF-1	10-14-91	04/17/94	ND	3.2	1.40	4.0	NA	NA	NA	
LF-1	10-14-91	07/25/94	ND	ND	ND	ND	NA	NA	NA	
LF-1	10-14-91	10/20/94	ND	ND	ND	ND	NA	NA	NA	
LF-1	10-14-91	02/20/95	ND	ND	ND	ND	NA	NA	NA	
LF-1	10-14-91	05/24/95	ND	ND	ND	ND	NA	NA	NA	
LF-2	10-15-91	03/13/92	1300	750	98	840	NA	NA	NA	
LF-2	10-15-91	05/21/92	5900	420	ND	620	NA	NA	NA	
LF-2	10-15-91	09/10/92	11000	610	97	520	NA	NA	NA	
LF-2	10-15-91	12/10/92	28	3.3	0.8	14	NA	NA	NA	
LF-2	10-15-91	2/10/93	68	127	17	175	NA	NA	NA	
LF-2	10-15-91	5/4/93	1300	30	5.9	21.6	NA	NA	NA	
LF-2	10-15-91	8/10/93	11000	61	31	33	NA	NA	NA	
LF-2	10-15-91	11/2/93	14000	57	47	35	NA	NA	NA	
LF-2	10-15-91	03/3/94	110	43	12	27	NA	NA	NA	
LF-2	10-15-91	04/17/94	1600	230	110	260	NA	NA	NA	Dup as LF-5
LF-2	10-15-91	07/25/94	1400	20	12	17.7	NA	NA	NA	Dup as LF-5
LF-2	10-15-91	10/20/94	730	1.8	ND	1.1	NA	NA	NA	Dup as LF-5
LF-2	10-15-91	02/20/95	100	26	12	37.1	NA	NA	NA	Dup as LF-5
LF-2	10-15-91	05/24/95	700	11	7.3	15.6	NA	NA	NA	Dup as LF-5
LF-3	10-15-91	03/13/92	8200	7900	630	4700	NA	NA	NA	
LF-3	10-15-91	05/21/92	8900	3200	ND	2600	NA	NA	NA	
LF-3	10-15-91	09/10/92	NA	NA	NA	NA	NA	NA	NA	NAPH Layer
LF-3	10-15-91	12/10/92	NA	NA	NA	NA	NA	NA	NA	
LF-3	10-15-91	2/10/93	NS	NS	NS	NS	NA	NA	NS	NAPH Sheen
LF-3	10-15-91	5/4/93	NS	NS	NS	NS	NA	NA	NA	NAPH Layer
LF-3	10-15-91	8/10/93	NS	NS	NS	NS	NA	NA	NA	NAPH Layer
LF-3	10-15-91	11/2/93	NS	NS	NS	NS	NA	NA	NA	NAPH Layer
LF-3	10-15-91	03/3/94	NS	NS	NS	NS	NA	NA	NS	NAPH Layer
LF-3	10-15-91	04/17/94	NS	NS	NS	NS	NA	NA	NA	NAPH Layer
LF-3	10-15-91	07/25/94	NS	NS	NS	NS	NA	NA	NA	NAPH Layer
LF-3	10-15-91	10/20/94	NS	NS	NS	NS	NA	NA	NA	NAPH Layer
LF-3	10-15-91	02/20/95	NS	NS	NS	NS	NA	NA	NS	NAPH Layer
LF-3	10-15-91	05/24/95	NS	NS	NS	NS	NA	NA	NA	NAPH Sheen
LF-4	10-14-91	03/13/92	ND	ND	ND	ND	NA	NA	NA	
LF-4	10-14-91	05/21/92	ND	ND	ND	2.1	NA	NA	NA	
LF-4	10-14-91	09/10/92	ND	ND	ND	ND	NA	NA	NA	
LF-4	10-14-91	12/10/92	ND	ND	ND	ND	NA	NA	NA	
LF-4	10-14-91	2/10/93	13	1	ND	7	NA	NA	NA	
LF-4	10-14-91	5/4/93	50	ND	ND	1.3	NA	NA	NA	
LF-4	10-14-91	8/10/93	25	ND	ND	ND	NA	NA	NA	

TABLE 2
SUMMARY OF GROUNDWATER SAMPLE ANALYTICAL RESULTS

Terra Services

DOUGHERTY BOOSTER

WELL No.	DATE INSTALLED (M/D/Y)	SAMPLING DATE (M/D/Y)	BENZENE (ug/l)	TOLUENE (ug/l)	ETHYL-BENZENE (ug/l)	TOTAL XYLENES (ug/l)	TPH GASOLINE (mg/l)	TPH DIESEL (mg/l)	SPECIFIC GRAVITY	COMMENTS
LF-4	10-14-91	11/2/93	3.9	ND	ND	ND	NA	NA	NA	
LF-4	10-14-91	03/3/94	ND	ND	ND	ND	NA	NA	NA	
LF-4	10-14-91	04/17/94	ND	ND	ND	ND	NA	NA	NA	
LF-4	10-14-91	07/25/94	2.5	ND	ND	ND	NA	NA	NA	
LF-4	10-14-91	10/20/94	ND	ND	ND	ND	NA	NA	NA	
LF-4	10-14-91	02/20/95	ND	ND	ND	ND	NA	NA	NA	
LF-4	10-14-91	05/24/95	ND	ND	ND	ND	NA	NA	NA	
MW-5	No Data	05/24/95	ND	ND	ND	ND	NA	NA	NA	
MW-6	No Data	05/24/95	ND	ND	ND	ND	NA	NA	NA	
LF-3		03/13/92	8200	8000	620	4700	NA	NA	NA	DUPLICATE
LF-2		05/21/92	4200	260	ND	580	NA	NA	NA	DUPLICATE
LF-2		09/10/92	11000	620	98	530	NA	NA	NA	DUPLICATE
LF-2		12/10/92	31	2.7	0.9	17	NA	NA	NA	DUPLICATE
LF-2		2/10/93	48	133	18	181	NA	NA	NA	DUPLICATE
LF-2		5/4/93	1100	31	6.4	23	NA	NA	NA	DUPLICATE
LF-2		8/10/93	12000	61	17	14.7	NA	NA	NA	DUPLICATE
LF-2		11/2/93	13000	52	43	30	NA	NA	NA	DUPLICATE
LF-2		03/3/94	110	43	15	39	NA	NA	NA	DUPLICATE
LF-2		04/17/94	1500	41	23	25.5	NA	NA	NA	DUPLICATE
LF-2		07/25/94	1500	22	73	21.3	NA	NA	NA	DUPLICATE
LF-2		10/20/94	740	9.3	49	5.8	NA	NA	NA	DUPLICATE
LF-2		02/20/95	100	25	12	36.9	NA	NA	NA	DUPLICATE
LF-2		05/24/95	450	17	11	28.2	NA	NA	NA	DUPLICATE

Updated Detection Limits	95Q2
[1] BTEX compounds by EPA Method 5030/8020:	0.5 ug/L
[2] TVPH as gasoline by EPA Method 5030/8015-Modified:	NA
[3] TEPH as diesel by EPA Method 3550/8015-Modified:	NA

APPENDIX A

GROUND-WATER SAMPLING METHODOLOGY

Terra
Services
Tel 714.586.4187

SUMMARY OF GROUNDWATER SAMPLING PROTOCOL

Wells are purged by pumping or bailing, depending on well production rates, access, and height of the water column in the well. Pumping is the first choice because it provides a more continuous discharge rate, less agitation of the well filter pack, and lower nephelometric turbidity unit readings. To reduce the potential for cross-contamination between wells, the wells are sampled beginning with the least contaminant-impacted well or area and proceeding consecutively to the most impacted well or area.

All wells are gauged at one time prior to purging and sampling. Fluid levels are measured with an electric water level sounder or interface probe with a resolution of 0.01 feet. A complete set of fluid levels is measured in one day. The fluid level probe is decontaminated between each well, as described below for well purging equipment.

A stainless steel submersible groundwater pump with a variable discharge rate of 0.15 to 8 gallons per minute is used for purging most wells. A check valve between the pump and the discharge hose prevents backflush of water to the well which reduces the potential for cross-contamination between wells. The discharge hose assembly is made of stainless steel, teflon, and PVC. When field logistics prevent the practical use of a groundwater pump, a Teflon™ or disposable bailer is used for purging.

Monitoring wells are purged until field monitoring parameters stabilize and at least three well casing volumes have been evacuated. Measured field parameters include the water temperature, pH, electrical conductivity, and turbidity. Stabilization of field parameters is achieved when successive measurements are within approximately ten percent of one another. Well purging may be limited to less than the minimum of three well volumes if a well is dry. A well is considered dry when it cannot sustain a pumping rate equal to 10 percent of one casing volume per minute. Water levels in dry wells are allowed to recover 80 percent or at least two hours prior to sampling.

Decontamination of well purging equipment is conducted between each well. This includes the external portion of the pump discharge hose, the external and internal surfaces of the pump, and the internal surfaces of the discharge hose. Decontamination procedures consist of cleaning equipment in a non-phosphate detergent wash, a potable water wash, and a distilled water rinse. External portions of the hose assembly are decontaminated manually. The groundwater pump and internal surfaces of the discharge hose are decontaminated by operating the pump in decontamination fluid tanks. Well water, detergent water, and potable water inside the pump and discharge hose are flushed to a purge water holding tank prior to circulating the subsequent decontamination fluid. If a reusable Teflon™ bailer is used for purging, the bailer is decontaminated with a detergent wash, potable water wash, and distilled water rinse. Bailer rope exposed to the well is decontaminated and discarded.

Disposable bailers are used for sampling. Immediately prior to sample collection, sample containers are labeled with the well number, date of collection, analyses required, project number or identification, and the sampler's initials. When collecting volatile organic compound samples, the container fill rate is minimized to reduce the potential release of volatile compounds. The sample vial is visually inspected to ensure that air bubbles are not present. Samples are refrigerated in a cooler with blue ice to a temperature of 4° centigrade and are transported by TSI or an overnight mail delivery service to the analytical laboratory. Chain-of-Custody records are kept for each sample through delivery to the analytical laboratory.

Purge water and spent decontamination fluids are disposed of on-site in an oil/water separator or in DOT 17H 55-gallon drums. Disposable bailers and bailer rope are decontaminated prior to disposal.

APPENDIX B

FIELD DATA SHEETS

SFPP GROUNDWATER MONITORING PROGRAM
WATER SAMPLING FIELD DATA SHEET

Terra Services

SITE LOCATION: Dougherty Booster
COMPANY NAME: Sierra Environmental
PERSONNEL: P. Flynn

DATE: 5/24
SAMPLING EVENT: (Circle Below)
Qtr: First (Second) Third Fourth

WELL NUMBER	LF-1
WELL DIAMETER	4
WELL CONDITION	Clean
DEPTH TO PRODUCT	—
DEPTH TO WATER	7.52
PRODUCT THICKNESS	—
TOTAL WELL DEPTH	19.77
GALS PER FOOT	.65
WELL CASING VOLUME	7.96
GALLONS PURGED	31
WATER CONDITION	Clr/no odor
RECOVERY RATE	fast

Time	Gal	Temp	Ec	pH	Turb.
0849					
0853	10	66.0	1107	7.63	2.1
0857	22	66.8	1154	7.52	1.1
0859	28	66.4	1161	7.48	1.0
0900	31	End	→		

0905

SAMPLE NO.	ANALYSIS
LF-1	BTEX 5030/8020
	TVPH 5030/8015-M
	TEPH 3550/8015-M
	TRPH 418.1
	LEAD 239.2 (Fil/ Un)
	ORG. LEAD 239.1

COMMENTS: Pump
Pump blank @ 0815
D.O. = .6 ppm
Cloud. - Breezy

WELL NUMBER	LF-4
WELL DIAMETER	4
WELL CONDITION	Clean
DEPTH TO PRODUCT	—
DEPTH TO WATER	8.42
PRODUCT THICKNESS	—
TOTAL WELL DEPTH	19.52
GALS PER FOOT	.65
WELL CASING VOLUME	7.22
GALLONS PURGED	19
WATER CONDITION	Slcldy/no odor
RECOVERY RATE	mod-slow

Time	Gal	Temp	Ec	pH	Turb.
0915					
0919	9	66.5	653	7.70	19.7
0923	15	69.2	576	7.67	28.5
0925	19	Dry	→		

1025

SAMPLE NO.	ANALYSIS
LF-4	BTEX 5030/8020
	TVPH 5030/8015-M
	TEPH 3550/8015-M
	TRPH 418.1
	LEAD 239.2 (Fil/ Un)
	ORG. LEAD 239.1

COMMENTS: Pump
D.O. = 4 ppm
Tb - 16.5 NTU @ sample time
Clearing

WELL NUMBER	MW-5
WELL DIAMETER	4
WELL CONDITION	Clean
DEPTH TO PRODUCT	—
DEPTH TO WATER	8.49
PRODUCT THICKNESS	—
TOTAL WELL DEPTH	25.18
GALS PER FOOT	.65
WELL CASING VOLUME	10.85
GALLONS PURGED	62
WATER CONDITION	Clr/no odor
RECOVERY RATE	fast

Time	Gal	Temp	Ec	pH	Turb.
0947					
0950	10	67.0	1072	7.46	15.9
0954	23	66.9	1028	7.48	59.8
0958	36	66.6	1012	7.49	75.7
1002	50	67.2	1024	7.55	32.8
1006	60	66.9	1016	7.51	15.5
1007	62	End	→		

1015

SAMPLE NO.	ANALYSIS
MW-5	BTEX 5030/8020
	TVPH 5030/8015-M
	TEPH 3550/8015-M
	TRPH 418.1
	LEAD 239.2 (Fil/ Un)
	ORG. LEAD 239.1

COMMENTS: Pump
D.O. = .2 ppm
Partl. cloud.

ANALYTICAL LABORATORY: Apollo/SFPP
DELIVERED BY: Fed Ex
SAMPLES COLLECTED BY: P. Flynn

DATE: 5/24
PAGE 1 OF 2

FILE SFPP_FDS.WK4

SFPP GROUNDWATER MONITORING PROGRAM
WATER SAMPLING FIELD DATA SHEET

Terra Services

SITE LOCATION: Dougherty Booster
COMPANY NAME: Sierra Environmental
PERSONNEL: P. Flynn

DATE: 5/24
SAMPLING EVENT: (Circle Below)
Qtr: First (Second) Third Fourth

WELL NUMBER	MW-6	WELL NUMBER	LF-2	WELL NUMBER	LF-3
WELL DIAMETER	4	WELL DIAMETER	4	WELL DIAMETER	4
WELL CONDITION	Clean	WELL CONDITION	Clean	WELL CONDITION	H2O on well hd
DEPTH TO PRODUCT	—	DEPTH TO PRODUCT	—	DEPTH TO PRODUCT	8.29
DEPTH TO WATER	7.52	DEPTH TO WATER	7.20	DEPTH TO WATER	8.30
PRODUCT THICKNESS	—	PRODUCT THICKNESS	—	PRODUCT THICKNESS	.01
TOTAL WELL DEPTH	24.73	TOTAL WELL DEPTH	19.79	TOTAL WELL DEPTH	
GALS PER FOOT	.65	GALS PER FOOT	.65	GALS PER FOOT	
WELL CASING VOLUME	11.19	WELL CASING VOLUME	8.18	WELL CASING VOLUME	
GALLONS PURGED	20	GALLONS PURGED	44	GALLONS PURGED	
WATER CONDITION	Cldy/no odor	WATER CONDITION	Sl cldy/sl fuel odor	WATER CONDITION	
RECOVERY RATE	Slow	RECOVERY RATE	mod-fast	RECOVERY RATE	

Time	Gal	Temp	Ec	pH	Turb.
1036					
1040	14	66.7	1931	7.25	>200
1046	20	Dry	→		

1200

SAMPLE NO.	ANALYSIS
MW-6	BTEX 5030/8020
	TVPH 5030/8015-M
	TEPH 3550/8015-M
	TRPH 418.1
	LEAD 239.2 (Fil/ Un)
	ORG. LEAD 239.1

COMMENTS: Pump
D.O. = appeared to be 0 but sample V. Cloudy. Tb = >200 NTU @ sample time.

Time	Gal	Temp	Ec	pH	Turb.
1056					
1100	13	68.7	778	7.63	101
1105	27	72.2	667	7.52	58.2
1107	32	71.9	657	7.42	28.3
1111	40	70.0	688	7.37	24.8
1113	44	End	→		

1130

SAMPLE NO.	ANALYSIS
LF-2	BTEX 5030/8020
	TVPH 5030/8015-M
	TEPH 3550/8015-M
	TRPH 418.1
	LEAD 239.2 (Fil/ Un)
	ORG. LEAD 239.1

COMMENTS: Pump
Field Dups as LF-8 @ 0940
D.O. = .6 ppm

Time	Gal	Temp	Ec	pH	Turb.

SAMPLE NO.	ANALYSIS
	BTEX 5030/8020
	TVPH 5030/8015-M
	TEPH 3550/8015-M
	TRPH 418.1
	LEAD 239.2 (Fil/ Un)
	ORG. LEAD 239.1

COMMENTS: Gauge Only

ANALYTICAL LABORATORY: Apollo / SFPP
DELIVERED BY: Fed Ex
SAMPLES COLLECTED BY: P. Flynn

DATE: 5/24
PAGE 2 OF 2

FILE SFPP_FDS.WK4

APPENDIX C

LABORATORY ANALYTICAL REPORT

JUN 12 1995

PHONE (714) 751-3210 FAX (714) 751-6414

2960 AIRWAY AVENUE, SUITE B-101 COSTA MESA, CALIFORNIA 92626

AAI RFS# : 9514601

June 5, 1995

Terra Services
21257 Hickorywood Way
Lake Forest, CA 92630

Project Name: Dougherty Booster
Project # : GM265Q2

Attention: Mark Olson

Apollo Analytics Inc., has received the following sample(s):

Date Received	Quantity	Matrix
May 25, 1995	7	Water

The samples received were analyzed for BTEX using EPA method 8020.

The results of these analyses and the quality control data are enclosed. If you have any questions please do not hesitate to call.

Leon Levan
Laboratory Manager

ANALYTICAL RESULTS

AAI RFS #: 9514601

Client Name: Terra Services/SFPP,LP
Project Name: Dougherty Booster
Project #: GM265Q2
Matrix: Water

Date(s) Sampled: 5/24/95
Date(s) Analyzed: 5/31/95
Analytical Method: EPA 8020
Chemist: J. Kittleson

AAI ID Number	Client ID Number	Benzene (ug/L)	Toluene (ug/L)	Ethylbenzene (ug/L)	m,p-Xylene (ug/L)	o-Xylene (ug/L)
9514601 -001	Pump	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<0.5
9514601 -002	LF-1	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<0.5
9514601 -003	MW-5	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<0.5
9514601 -004	LF-4	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<0.5
9514601 -005	LF-8	450	17	11	22	6.2
9514601 -006	LF-2	700	11	7.3	12	3.6
9514601 -007	MW-6	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<0.5
Method Blank		ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<0.5

QUALITY CONTROL

AAI RFS #: 9514601

Client Name: Terra Services/SFPP,LP
Project Name: Dougherty Booster
Project #: GM265Q2
Matrix: Water

Date(s) Sampled: 5/24/95
Date(s) Analyzed: 5/31/95
Analytical Method: EPA 8020
Chemist: J. Kittleson

Target Compound	MS/MSD AAI ID Number	Matrix Spike % Recovery	Matrix Spike Duplicate % Recovery	RPD	QC Limits % Rec	QC Limits RPD
Benzene	9514801-001	78	75	3.9	70-135	30
Toluene	9514801-001	83	80	3.7	70-135	30
Ethylbenzene	9514801-001	82	78	5.0	70-135	30
m,p-Xylene	9514801-001	79	76	3.9	70-135	30
o-Xylene	9514801-001	79	80	1.3	70-135	30

RPD = relative percent difference

Apollo Analytics, Inc.
2960 Airway Ave., Suite B-101 • Costa Mesa, CA 92626
Phone (714) 751-3210 • FAX (714) 751-6414

Chain of Custody

Dougherty Booster

DATE 5/24/95 PAGE 1 OF 1

PROJECT MANAGER: Mark Olson
COMPANY: Terra Services
ADDRESS: 20371 Lake Forest Dr.
Lake Forest, Ca 92630
PHONE #(714) 586 4187 FAX # 714 951 1787
BILL TO: SEPP, LP
COMPANY:
ADDRESS:

SAMPLERS: (Signature)

19161 283 2723
PHONE NUMBER

Recommended Quantity and Preservative (Provide triple volume on QC Samples)

SAMPLE ID	DATE	TIME	MATRIX	LAB ID
Pump	5/24	0815	H_2O	001
LF-1		0905		002
MW-5		1015		003
LF-4		1025		004
LF-8		0940		005
LF-2		1130		006
MW-6		1200		007

Air Toxics	Volatile Cmpds (EPA TO14)	Hydrocarbon Speciations	Fixed Gases (CH_4, O_2, CO_2, CO)	TPH/BTXE	TNMOC (SCAQMD 25.2)	Metals (CARB 436)	Soil & Water Toxics	Petroleum Hydrocarbons (418.1)	Oil and Grease (413.2)	Gasoline (MOD 8015/DOHS)	Diesel (MOD 8015/DOHS)	Gasoline /BTXE (MOD 8015/8020)	(MOD 8015)	BTXE (8020)	Chlorinated Hydrocarbons (8010)	Aromatic Hydrocarbons (8020)	Organic Lead (Pb)	Volatile Cmpds GC/MS (8240/8260)	Semi-Volatile Cmpds GC/MS (8270)	Pesticides/PCB (8080)	Polynuclear Aromatic (8310)	CCR Metals	Priority Pollutant Metals	Number of Containers
	4L	1L	1L	1L	1L			1L (H_2SO_4)/100g	4 oz (HCL)/50g	4 oz (HCL)/50g	4 oz (HCL)/50g	4 oz (HCL)/50g	2X40ml (HCL)/50g	2X40ml (HCL)/50g	2X40ml (HCL)/50g	500ml/50g	2X40ml (HCL)/100g	1L/100g	1L/50g	1L/100g	500ml/100g	500ml/100g	
														✓ 5030	✓	✓							2
														✓	✓	✓							2
														✓	✓	✓							2
														✓	✓	✓							2
														✓	✓	✓							2
														✓	✓	✓							2

PROJECT INFORMATION

PROJECT NUMBER: GM256Q2
PROJECT NAME: Dougherty Booster
PURCHASE ORDER NUMBER:
SHIPPED VIA: Fed Ex
TAT: ☐ 24HR ☐ 48HR ☐ 1WK ☐ 2WKS
Comments:

SAMPLE RECEIPT

TOTAL NUMBER OF CONTAINERS: 14
CHAIN OF CUSTODY SEALS Y/N/NA:
INTACT? Y/N/NA:
RECEIVED GOOD COND./COLD:
AAI RFS #: 5514601

SAMPLE DISPOSAL INSTRUCTIONS

☐ AAI Disposal (By Quote) ☐ Return ☐ Pickup (will call)

RELINQUISHED BY: 1	RELINQUISHED BY: 2.	RELINQUISHED BY: 3.
Signature: Time: 1906	Signature: Time:	Signature: Time:
Printed Name: Patrick Flynn Date: 5/24/95	Printed Name: Date:	Printed Name: Date:
Company: Sierra Environmental	Company:	Company:
RECEIVED BY: 1	**RECEIVED BY: 2.**	**RECEIVED BY: 3.**
Signature: Time:	Signature: Time:	Signature: Time:
Printed Name: Date:	Printed Name: Date:	Printed Name: Date: 5/25/95
Company:	Company:	Apollo Analytics, Inc.

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