Prepared by:

McLaren/Hart
16755 Von Karman
Irvine, California 92714-4918

April 14, 1995

FIRST QUARTER 1995 (JANUARY-MARCH) MONITORING LETTER REPORT FOR LAND TREATMENT AT MOBIL JALK FEE, SANTA FE SPRINGS, CA

McLaren Hart®
ENVIRONMENTAL ENGINEERING CORPORATION

recycled paper

McLaren Hart®

ENVIRONMENTAL ENGINEERING CORPORATION

April 14, 1995

James E. Ross,
Unit Chief, Site Cleanup Unit
California Regional Water Quality Control Board, Los Angeles Region
101 Centre Plaza Drive
Monterey Park, CA 91754-2156

RE: FIRST QUARTER 1995 (JANUARY-MARCH) MONITORING LETTER REPORT FOR LAND TREATMENT AT MOBIL JALK FEE, SANTA FE SPRINGS, CALIFORNIA (03.0601266.000)

CRWQCB MONITORING AND REPORTING PROGRAM NO. 90-148-47 [FILE NO. 90-60-47(94)]

Dear Mr. Ross:

This report presents the results of McLaren/Hart's first quarter 1995 (January-March) land treatment cell monitoring at the Mobil Exploration & Producing U.S., Inc. (Mobil) Jalk Fee site in Santa Fe Springs, California. This report has been prepared in accordance with the requirements set forth in California Regional Water Quality Control Board-Los Angeles Region (CRWQCB) Monitoring and Reporting Program No. 90-148-47. The scope of work for this project was presented in McLaren/Hart's remedial action plan (RAP) dated December 21, 1993, and approved by the CRWQCB.

The principal objective of the land treatment program is to reduce the concentration of total recoverable petroleum hydrocarbons (TRPH) in soil transported to the land treatment cells to below 1,000 parts per million (ppm). As presented in the RAP, the soil transported to the Jalk Fee site is derived solely from properties in the Mobil Operated Santa Fe Springs Oil Field, including the Jalk Fee, DeWenter/Jordan/Green, Baker/Humble properties and Oil Well 732-C site (Figure 1). Two bioremediation cells (Cell #1 [large cell] and Cell #2 [small cell]) have been constructed, surveyed, and loaded with TRPH-impacted soil, three groundwater monitoring wells have been installed and sampled, and baseline soil sampling as

G:\M\MOBIL\0601266\JF1QRT95.RPT

16755 Von Karman Avenue, Irvine, CA 92714 (714) 756-2667 FAX (714) 756-8460

recycled paper

presented in our RAP has been completed. All soil excavation activities have been completed and soil treatment was started in early May 1994. To date, 9 thousand cubic yards of soil have been successfully remediated and removed from the bioremediation cells. This first quarterly (January-March) report presents the bioremediation cell operation, maintenance, and monitoring results from January 1995 through March 1995. Figure 2 presents the site layout.

BIOREMEDIATION ACTIVITIES

No bioremediation activities have occurred on the site since December 21, 1994. This is due to the fact that in November 1994, the Regional Water Quality Control Board, Los Angeles Region set new standards for soil screening levels for the remediation of petroleum impacted soils. The new standards were presented in a document titled "Interim Guidance For Remediation of Petroleum Impacted Sites" (Appendix A). The soil screening levels are based on the depth to groundwater and whether the groundwater is designated and suitable for drinking water use. A letter report was submitted by McLaren/Hart to the RWQCB on February 21, 1995 requesting site closure and that no further bioremediation soil sampling be conducted on the Mobil Jalk Fee site based on these guidelines. McLaren/Hart is currently awaiting a response from the RWQCB.

GROUNDWATER MONITOR WELL SAMPLING

On December 14, 1994, a request for permission to abandon MMW-1 at the DeWenter/Jordan/Green site and MMW-2 at the Baker/Humble site was submitted to the RWQCB. On February 8, 1995, verbal permission was granted by Ms. Manju Chakrabarti of the RWQCB to abandon the two wells. The soil from the bioremediation cells remain on the Jalk Fee site, and although bioremediation activities and soil sampling was not conducted, the groundwater must still be monitored. On March 8, 1995, McLaren/Hart sounded, purged, and sampled the three remaining groundwater monitor wells (MMW-3, MMW-4, and MMW-5) at the Jalk Fee site. Table 1 presents a summary of groundwater elevation data from March 1994 through March 1995.

GROUNDWATER MONITORING RESULTS

The results from the groundwater level sounding indicated that groundwater in the aquifer underlying the property (the Exposition Aquifer) flows to the southwest at a hydraulic gradient of 0.0077 feet/foot as shown in Figure 3.

The groundwater samples obtained from the three wells for this first quarter were analyzed for the following analyses:

- TPH by EPA Method 8015 modified
- Volatile organic compounds (VOCs) by EPA Method 624
- pH by EPA Method 150.1
- Total dissolved solids (TDS) by EPA Method 160.1

Tables 2, 3, and 4 present the groundwater sample analytical results from the first, second, third, and fourth quarter sampling events for 1994 for the Jalk Fee, DeWenter/Jordan/Green and Baker/Humble sites, and the first quarter sampling event for 1995 for the Jalk Fee site.

TPH was not detected in the three wells at the Jalk Fee site. The groundwater pH level for the three wells ranged from 6.8 to 6.9 and the TDS concentrations for MMW-3, MMW-4, and MMW-5 were 1,100 ppm, 1,300 ppm, and 1,200 ppm, respectively. The concentration of VOCs in all three wells remained relatively unchanged from the fourth quarter, with the exception of PCE in MMW-5, which increased from 1,400 ppb to 2,200 ppb.

The groundwater sampling protocols are presented in Appendix B. The groundwater sample analytical results and chain-of-custody forms are presented in Appendix C.

CONCLUSIONS

Based on field observations and analytical results from the first quarter of 1995, the following conclusions have been made:

(1) Groundwater analytical results for the Jalk Fee site indicate that PCE concentrations have increased since the last sampling round. Based on previous McLaren/Hart soil investigations, the increase of PCE in MMW-5 may indicate the migration of this compound in groundwater from an off-site source.

CLOSURE

(1) No bioremediation activities will be conducted pending response from the Regional Water Quality Control Board on the letter titled "Mobil DeWenter/Jordan/Green Lease" dated February 21, 1995.

(2) Groundwater monitoring will be conducted in June, 1995.

(3) A quarterly monitoring report will be submitted on July 15, 1995.

The attached figures, tables, and appendices complete this letter report. Should you have any questions, please contact Tabb W. Bubier at (714) 752-3204 or Hassan Amini at (714) 752-3208.

Sincerely,

Tabb W. Bubier
Supervising Geoscientist

Eric A. Smith For
Hassan Amini, Ph.D., R.G.
Principal Geoscientist

Enclosure

cc: T.M. Walker, Mobil Exploration and Producing
J. Hill, McLaren/Hart
S. English, McLaren/Hart

G:\M\MOBIL\0601266\JF1QRT95.RPT

Table 1

Mobil Dewenter/Jordan/Green, and Baker/Humble, and Jalk Fee, Santa Fe Springs, California

Summary of Groundwater Elevation Data
April 14, 1995

Monitoring Well	Date	Screened Interval (ft. below grade)	Top of Casing Elevation (ft.)	Depth to Groundwater (ft.)	Groundwater Elevation (ft. above Mean Sea Level)
MMW-1	3/15/94	50-95	135.80	53.46	82.34
	6/22/94			Not Measured	Not Measured
	9/16/94			53.74	82.06
	12/16/94			56.42	79.38
	3/8/95			Not Measured	Not Measured
MMW-2	3/15/94	75-95	141.19	78.05	63.14
	6/22/94			Not Measured	Not Measured
	9/16/94			75.30	65.89
	12/16/94			75.90	65.29
	3/8/95			Not Measured	Not Measured
MMW-3	3/15/94	62-92	134.26	64.92	69.34
	6/22/94			63.08	71.18
	9/16/94			64.34	69.92
	12/16/94			66.21	68.05
	3/8/95			64.95	69.31
MMW-4	3/15/94	60-105	131.40	64.36	67.04
	6/22/94			62.73	68.67
	9/16/94			64.32	67.08
	12/16/94			66.10	65.30
	3/8/95			65.38	66.02
MMW-5	3/15/94	61-106	133.38	66.26	67.12
	6/22/94			64.45	68.93
	9/16/94			65.61	67.77
	12/16/94			67.34	66.04
	3/8/95			66.16	67.22

Table 2

Mobil Dewenter/Jordan/Green, and Baker/Humble, and Jalk Fee, Santa Fe Springs, California

Groundwater Sample Analytical Results
Total Petroleum Hydrocarbons (TPH), pH, and Total Dissolved Solids (TDS)
in Parts Per Million (ppm)
April 14, 1995

Monitoring Well	Date	Total Petroleum Hydrocarbon (EPA Method 8015M)	pH (EPA Method 150.1)	Total Dissolved Solids (EPA Method 160.1)
MMW-1	3/15/94	0.74	NA[1]	NA
	6/22/94	NA	NA	NA
	9/16/94	<0.5	NA	NA
	12/16/94	<0.5	NA	NA
	3/8/95	NA	NA	NA
MMW-2	3/15/94	1.2	NA	NA
	6/22/94	NA	NA	NA
	9/16/94	<0.5	NA	NA
	12/16/94	NA	NA	NA
	3/8/95	NA	NA	NA
MMW-3	3/15/94	<0.5	7.2	1,200
	6/22/94	<0.5	7.6	1,300
	9/16/94	<0.5	7.1	1,700
	12/16/94	<0.5	7.2	1,300
	3/8/95	<0.5	6.8	1,100
MMW-4	3/15/94	<0.5	7.1	1,100
	6/22/94	<0.5	7.4	1,100
	9/16/94	<0.5	6.9	1,700
	12/16/94	<0.5	7.2	1,200
	3/8/95	<0.5	6.9	1,300
MMW-5	3/15/94	<0.5	7.2	1,100
	6/22/94	<0.5	7.2	1,100
	9/16/94	<0.5	6.9	1,200
	12/16/94	<0.5	7.2	1,100
	3/8/95	<0.5	6.9	1,200

[1] Not Analyzed

G:\M\MOBIL\0601266\TABLES

Table 3
Mobil Dewenter/Jordan/Green, Baker/Humble, and Jalk Fee, Santa Fe Springs, California

Groundwater Sample Analytical Results
Volatile Organic Compounds (VOCs) and Semi-Volatile Organic Compounds (SVOCs)
in Parts Per Billion (ppb)
April 14, 1995

Monitoring Well	Date	VOCs (EPA Method 624)[1]								SVOCs (EPA Method 625)		
		1,1-DCE	1,1-DCA	B	TCE	T	PCE	E	X	2-Methyl-naph thalene	Dimethyl-phthalate	Bis(2-Ethylhexyl) phthalate
MMW-1	3/15/94[2]	2	<5	<5	16	7	5	16	54	<10	250	<10
	6/22/94	NA[3]	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	9/16/94[4]	<5	<5	<5	11	<5	<5	<5	<5	NA	NA	NA
	12/16/94	<5	<5	4	10	31	10	5	24	NA	NA	NA
	3/8/95	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
MMW-2	3/15/94[5]	<10	98	250	<10	9	22	16	57	61	120	<20
	6/22/94	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	9/16/94[6]	<5	110	57	<5	<5	<5	<5	<5	NA	NA	NA
	12/16/94	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	3/8/95	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

Table 3
Mobil Dewenter/Jordan/Green, Baker/Humble, and Jalk Fee, Santa Fe Springs, California

Groundwater Sample Analytical Results
Volatile Organic Compounds (VOCs) and Semi-Volatile Organic Compounds (SVOCs) in Parts Per Billion (PPB)

Monitoring Well	Date	VOCs (EPA Method 624)[1]								SVOCs (EPA Method 625)		
		1,1-DCE	1,1-DCA	B	TCE	T	PCE	E	X	2-Methyl-naph thalene	Dimethyl-phthalate	Bis(2-Ethylhexyl) phthalate
MMW-3	3/15/94[7]	10	2	4	25	13	5	26	101	320	<10	11
	6/22/94	8	2	<5	24	<5	4	<5	<5	NA	NA	NA
	9/16/94	3	<5	<5	12	3	<5	<5	6	NA	NA	NA
	12/16/94	5	2	<5	17	8	3	2	8	NA	NA	NA
	3/8/95	2	2	28	20	28	4	2	18	NA	NA	NA
MMW-4	3/15/94[8]	2	<5	<5	18	4	4	10	38	<20	100	<20
	6/22/94	<5	<5	<5	16	<5	2	<5	<5	NA	NA	NA
	9/16/94	<5	<5	<5	6	<5	<5	<5	<5	NA	NA	NA
	12/16/94	<5	<5	<5	6	7	1	3	9	NA	NA	NA
	3/8/95	<5	<5	2	9	2	5	<5	1	NA	NA	NA

Table 3
Mobil Dewenter/Jordan/Green, Baker/Humble, and Jalk Fee, Santa Fe Springs, California

Groundwater Sample Analytical Results
Volatile Organic Compounds (VOCs) and Semi-Volatile Organic Compounds (SVOCs) in Parts Per Billion (PPB)

Monitoring Well	Date	VOCs (EPA Method 624)[1]								SVOCs (EPA Method 625)		
		1,1-DCE	1,1-DCA	B	TCE	T	PCE	E	X	2-Methyl-naph thalene	Dimethyl-phthalate	Bis(2-Ethylhexyl) phthalate
MMW-5	3/15/94[9]	5	<5	<5	60	<10	330	11	37	<10	80	<10
	6/22/94	<50	<5	<5	100	<50	930	<50	<50	NA	NA	NA
	9/16/94[10]	<50	<5	<5	82	<50	830	<50	<50	NA	NA	NA
	12/16/94	5	<5	<5	140	1	1,400	2	1	NA	NA	NA
	3/8/95	<100	<100	<100	180	<100	2,200	<100	<100	NA	NA	NA
Maximum Contaminant Levels	--	6	5	1	5	Un-regu-lated	5	680	1,750	Not Available	Not Available	Not Available

1 1,1 DCE = 1,1 Dichloroethene, 1,1-DCA = 1,1-Dichloroethane; B = Benzene; TCE = Trichloroethene; T = Toluene; PCE = Tetrachloroethene; E = Ethylbenzene; X = Total Xylenes.
2 Chloroform = 2 ppb; Napthalene = 5 ppb
3 Not Analyzed
4 2-Hexanon = 5 ppb
5 Vinyl Chloride = 20 ppb; Naphthalene = 4 ppb; Phenanthrene = 2 ppb
6 Vinyl Chloride = 33 ppb; 1,2-Dichloroethane = 2 ppb
7 Napthalene = 5 ppb
8 Napthalene = 3 ppb
9 Napthalene = 2 ppb
10 Methylene Chloride = 23 ppb
11 cis-1,2chloroethene = 8 ppb

Table 4

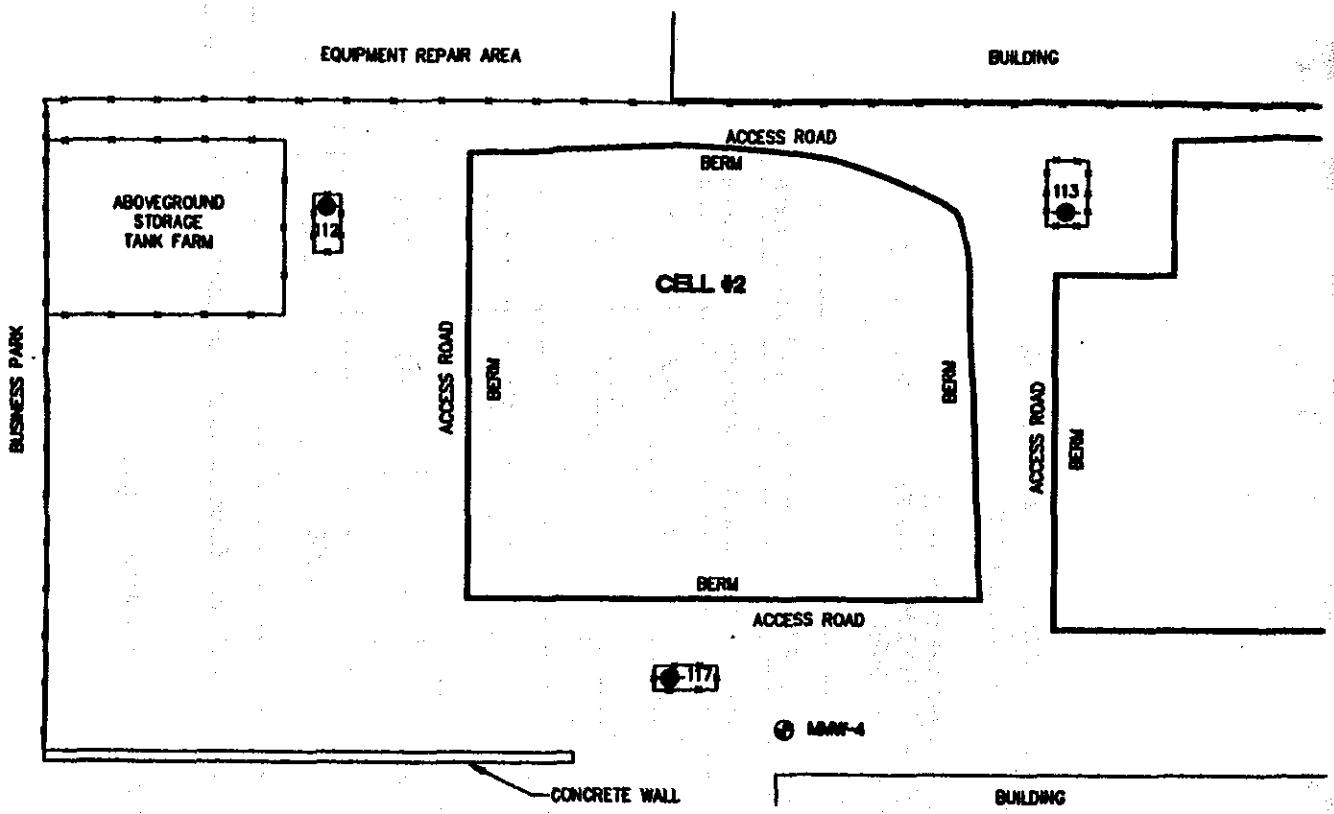
Mobil DeWenter/Jordan/Green, Baker/Humble, and Jalk Fee, Santa Fe Springs, California

Groundwater Sample Analytical Results
California Assessment Manual (CAM) Title 22 Metals in Parts Per Billion (ppb)
April 14, 1995

Monitoring Well	Date		CAM Title 22 Metals: Total Threshold Limit Concentration (TTLC)[1,2]				
		Arsenic	Barium	Chromium	Mercury	Selenium	Zinc
MMW-1	3/15/94	17	75	<10	<0.2	<5	22
MMW-2	3/15/94	67	680	<10	<0.2	<5	38
MMW-3	3/15/94	<10	100	11	<0.2	7	89
MMW-4	3/15/94	<10	120	11	0.4	<5	56
MMW-5	3/15/94	<10	58	<10	<0.2	<5	<20
CAM Title 22 TTLC	--	500,000	10,000,000	500,000	20,000	100,000	5,000,000
CAM Title 22 STLC	--	5,000	100,000	5,000	200	1,000	250,000

[1] All detected metals were detected at concentrations below CAM Title 22 Total Threshold Limit Concentrations (TTLCs) and 10 times Soluble Threshold Limit Concentrations (STLCs).

[2] All other CAM metals were below laboratory detection limits in all groundwater samples.



LEGEND

APPROXIMATE AREA OF BIOREMEDIATION CELL (4.37 ACRES)

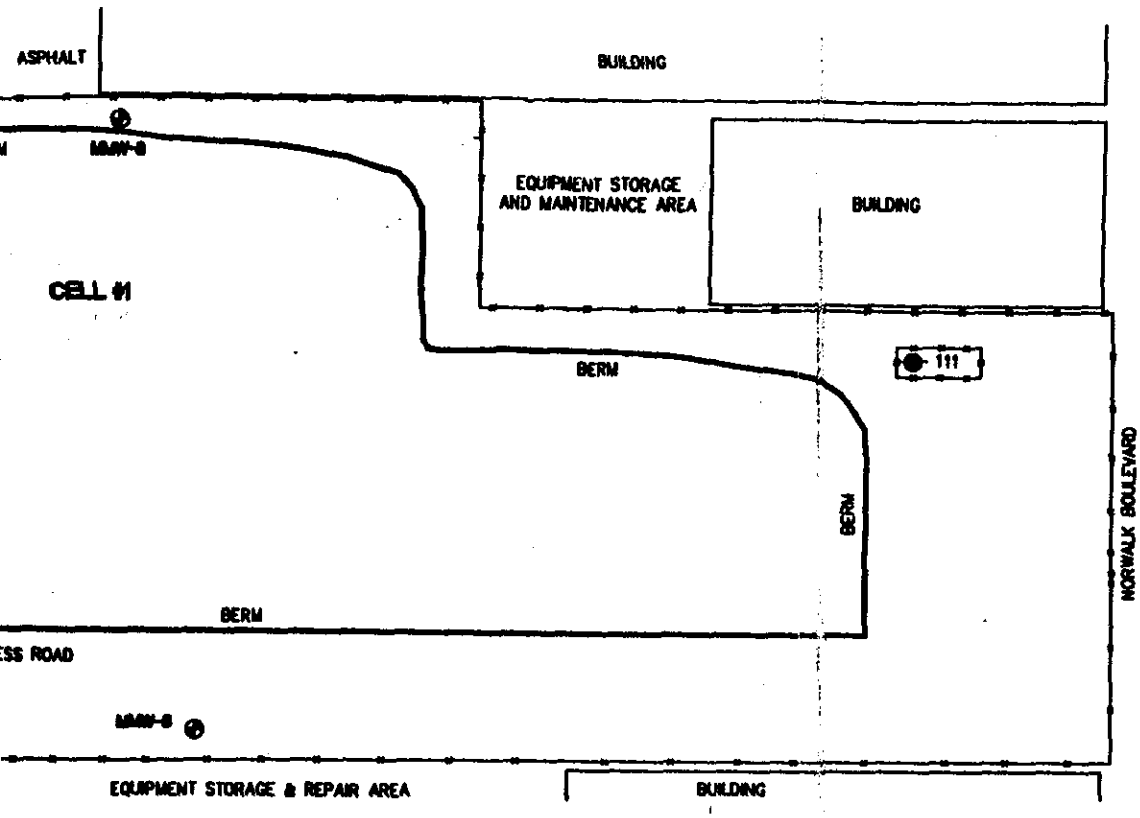
MMW-4 GROUNDWATER MONITOR WELL LOCATION

NOTES: SITE MAP MODIFIED FROM LEVINE-FRICKE (1991c).
AREA ESTIMATIONS CONCERNING ACTIVE OIL WELLS AND EXISTING TANK FARM ARE BASED ON VISUAL OBSERVATIONS FROM LEVINE-FRICKE (1991c).

117 OPERATIONAL OIL WELL

CHAIN LINK FENCE

GATE



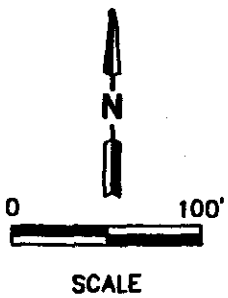


FIGURE 2
BIOREMEDIATION TREATMENT
CELL LOCATION
MOBIL JALK FEE
10607 NORWALK BOULEVARD
SANTA FE SPRINGS, CA

DRAWING NUMBER
8-94_FIG2