REMEDIATION SERVICE, INT'L.
2060 KNOLL DRIVE, SUITE 200, VENTURA, CALIFORNIA 93003
(805) 644-5892 • FAX (805) 654-0720

Send info of FP backing (Qty) -
when will add'l MWs be installed?

December 19, 1994

Ms. Eva Chu, Haz. Mat. Specialist
Alameda County Health Care Service
Department of Environmental Health
1131 Harbor Bay Parkway
Alameda, CA 94502-6577

RE: **Quarterly Report of November 22, 1994 Groundwater Sampling & Monitoring**
2008 First Street, Livermore, CA 94550
StID 1689

Dear Ms. Chu:

Enclosed is the most recent Groundwater Monitoring Report for the above referenced property in Livermore, California.

If you have any questions regarding this report, please do not hesitate to contact Mr. Rick Pilat, the program director at RSI.

Sincerely,

Heather Davis
Remediation Service, Int'l.

cc: Mr. John Rutherford
Desert Petroleum, Inc.

Mr. Sumadhu Arigala
RWQCB, San Francisco Bay Area
2101 Webster St., Suite 500
Oakland, CA 94612

enclosure

REMEDIATION SERVICE, INT'L.

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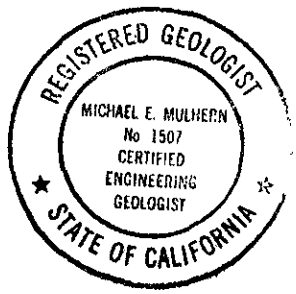
QUARTERLY REPORT
of
NOVEMBER 22, 1994
GROUNDWATER SAMPLING AND
WATER QUALITY MONITORING

2008 First street
Livermore, California

Prepared for:
DESERT PETROLEUM
P.O. Box 1601
Oxnard, CA 93032
(805) 644-6784

Prepared by:
RSI - REMEDIATION SERVICE, INT'L
2060 Knoll Drive, Suite 200
Ventura, CA 93003
(805) 644-5892

Michael E. Mulhern
E.G. #1507
Exp. 10/31/96



December 15, 1994

TABLE OF CONTENTS

1.0 INTRODUCTION

This report presents the results of quarterly groundwater monitoring for the real property located at 2008 First Street, Livermore, Alameda County, California (Figure 1). The site is currently occupied by a retail gasoline station operating under the British Petroleum trade name. Site improvements include three underground storage tanks, two pump islands and an office/garage building (Figure 2).

A site assessment conducted in February, 1988 indicated that both soil and groundwater contained elevated concentrations of petroleum hydrocarbons. One groundwater monitoring well was installed in September, 1988 and three additional wells were installed in June, 1994.

2.0 GROUNDWATER MONITORING

2.1 Groundwater Monitoring Procedures

On November 22, 1994, groundwater monitoring wells MW-1, MW-2, MW-3 and MW-4 were measured for depth to groundwater and checked for the presence of free product. The wells were measured to an accuracy of 0.01 feet and the measuring point was the top of the well casing. Approximately 0.04 feet of free product was found in well MW-2; this well was therefore not sampled. The wells which did not contain free product were then purged using a Grundfos Rediflo pump. The pump and hose were decontaminated between each well with TSP and a standard 3-bucket wash method. Purging continued until temperature, electrical conductivity and pH stabilized and three well volumes had been removed from each well. These measurements, along with all other pertinent data, were recorded on Water Sample Logs (Appendix A). The purged water was placed in 55 gallon DOT approved drums which were sealed, labeled as pending laboratory analysis and stored on site.

~ 1/2"

The wells were allowed to recharge to a minimum of 80 percent, then sampled using a disposable polyethylene bailer. The samples, along with a trip blank, were sealed, labeled and placed on blue ice for transportation under standard chain of custody to Atkins Environmental, a state certified laboratory in Ventura, California. All samples were analyzed to minimum detection limits for TPH as gasoline and benzene, toluene, ethyl benzene and total xylenes (BTEX) using standard EPA approved methods. Laboratory Reports for Water Sample Analyses are included in Appendix B.

2.2 Groundwater Monitoring Results

As reported on Table 1 and in Appendix A, the depth to groundwater on November 22, 1994 ranged between 40.07 to 40.96 feet below ground surface (bgs). Groundwater gradient was calculated to be approximately 0.013 ft/ft with groundwater flow in a northwesterly direction (Figure 3).

Hydrocarbons were detected in the groundwater samples from all three wells sampled (Table 2). Well MW-2 was not sampled due to the presence of free product. TPH concentrations ranged between 1,700 µg/L (MW-4) and 19,000 µg/L (MW-1). Benzene was also detected in all three samples at concentrations of 110 µg/L in well MW-4, 8,000 µg/L in MW-3 and 400 µg/L in MW-1. These concentrations for benzene exceed the California Department of Health Services Drinking Water Action Level of 1 part per billion (CCR Title 22, Section 64444.5).

Analytical results for groundwater samples are summarized in Table 2 and shown in Figure 4; the complete laboratory report is contained in Appendix B. State of California concentrations for drinking water standards are included in Table 2.

3.0 LIMITATIONS

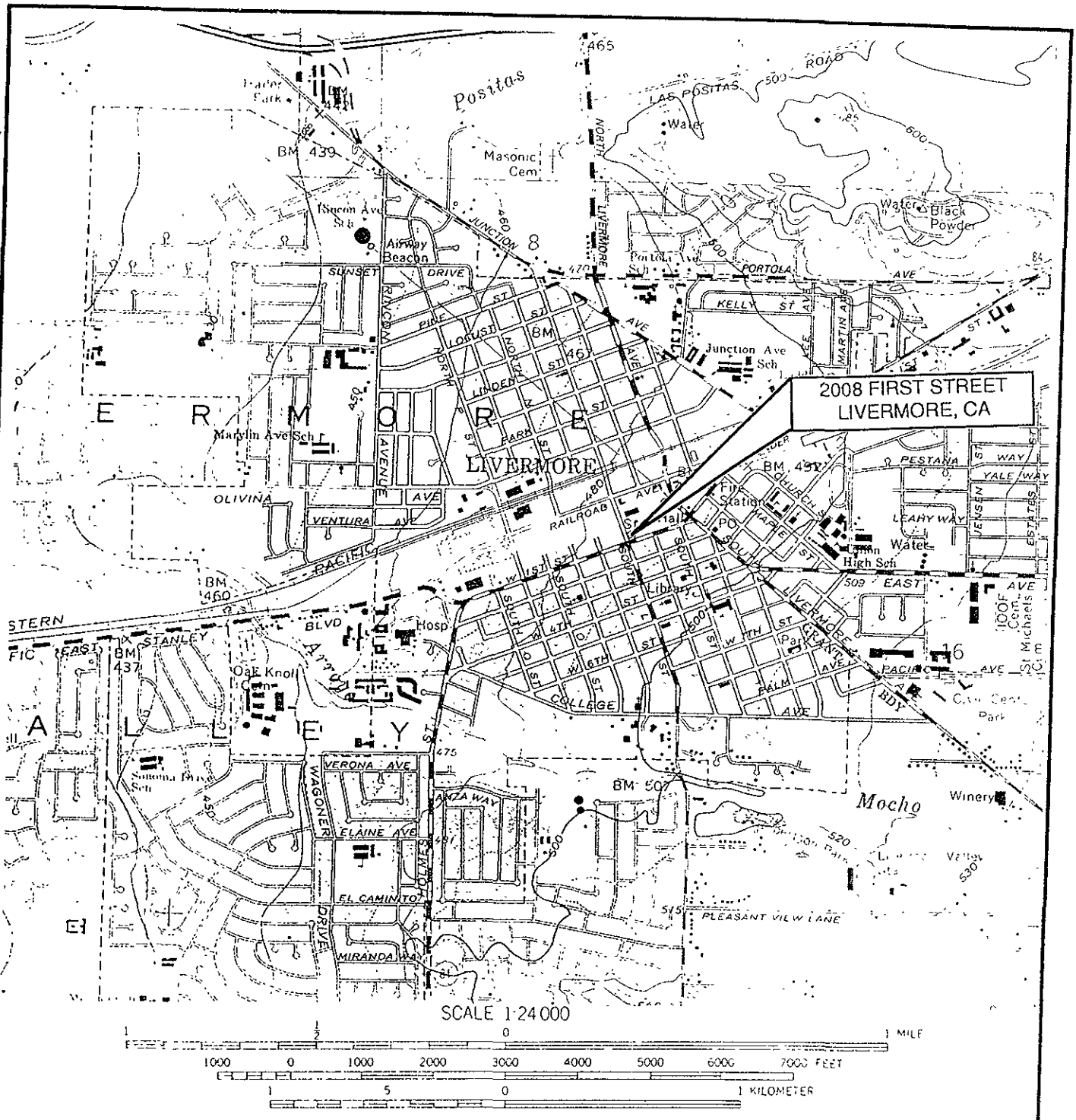
The discussion, conclusion and any recommendations presented in this report are based on the professional performance of the personnel who conducted the investigations, the observations of the field personnel, the results of laboratory analyses performed by a state certified laboratory, any referenced documents and our understanding of the regulations of the State of California and any other applicable local regulations.

Variations in the soil and groundwater conditions may exist beyond the points explored in this investigation.

The services performed by Remediation Service, Int'l 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.

Please note that 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.

FIGURES



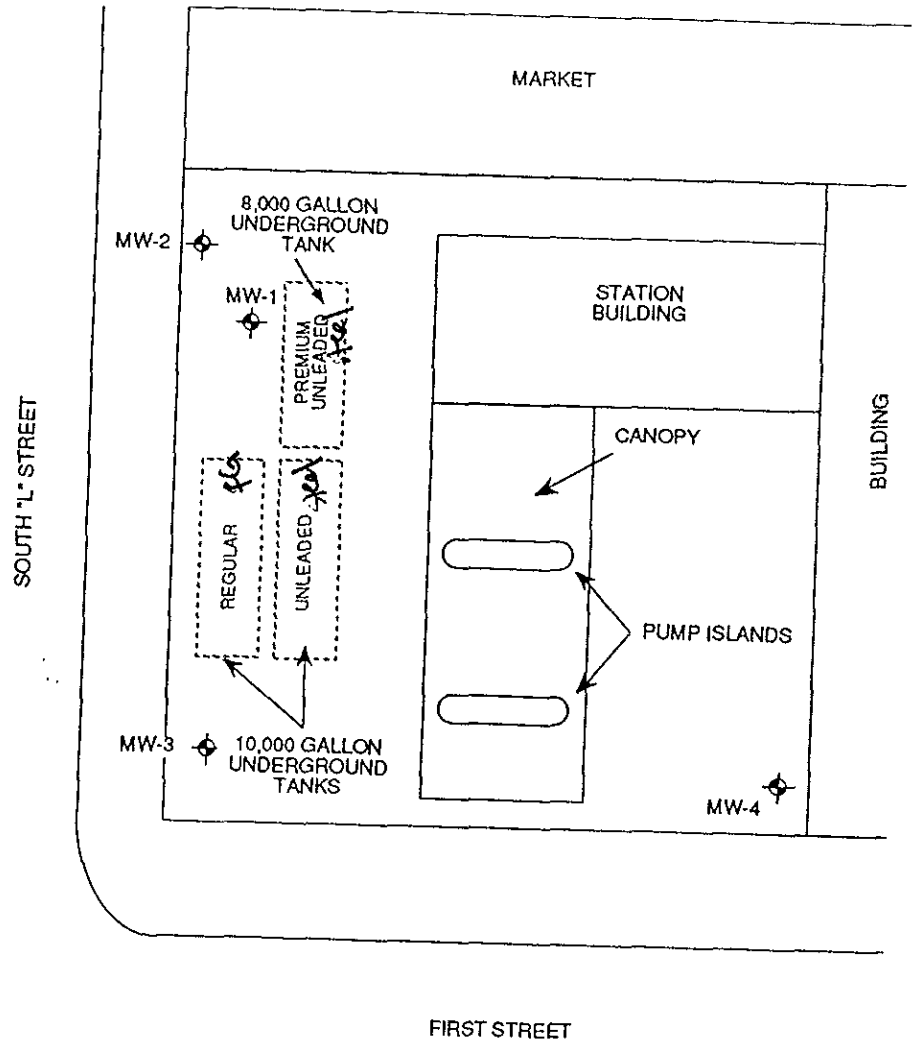
FROM U.S.G.S. 7.5' TOPOGRAPHIC QUADRANGLE "LIVERMORE, CALIFORNIA, " 1961, PHOTOREVISED 1980

N

2008 FIRST STREET,
LIVERMORE, CA

FIGURE 1: LOCATION MAP

RSI - REMEDIATION SERVICE, INT'L



MAP NOT TO SCALE.
SURVEYED DISTANCE BETWEEN WELLS, 1" = 25'.

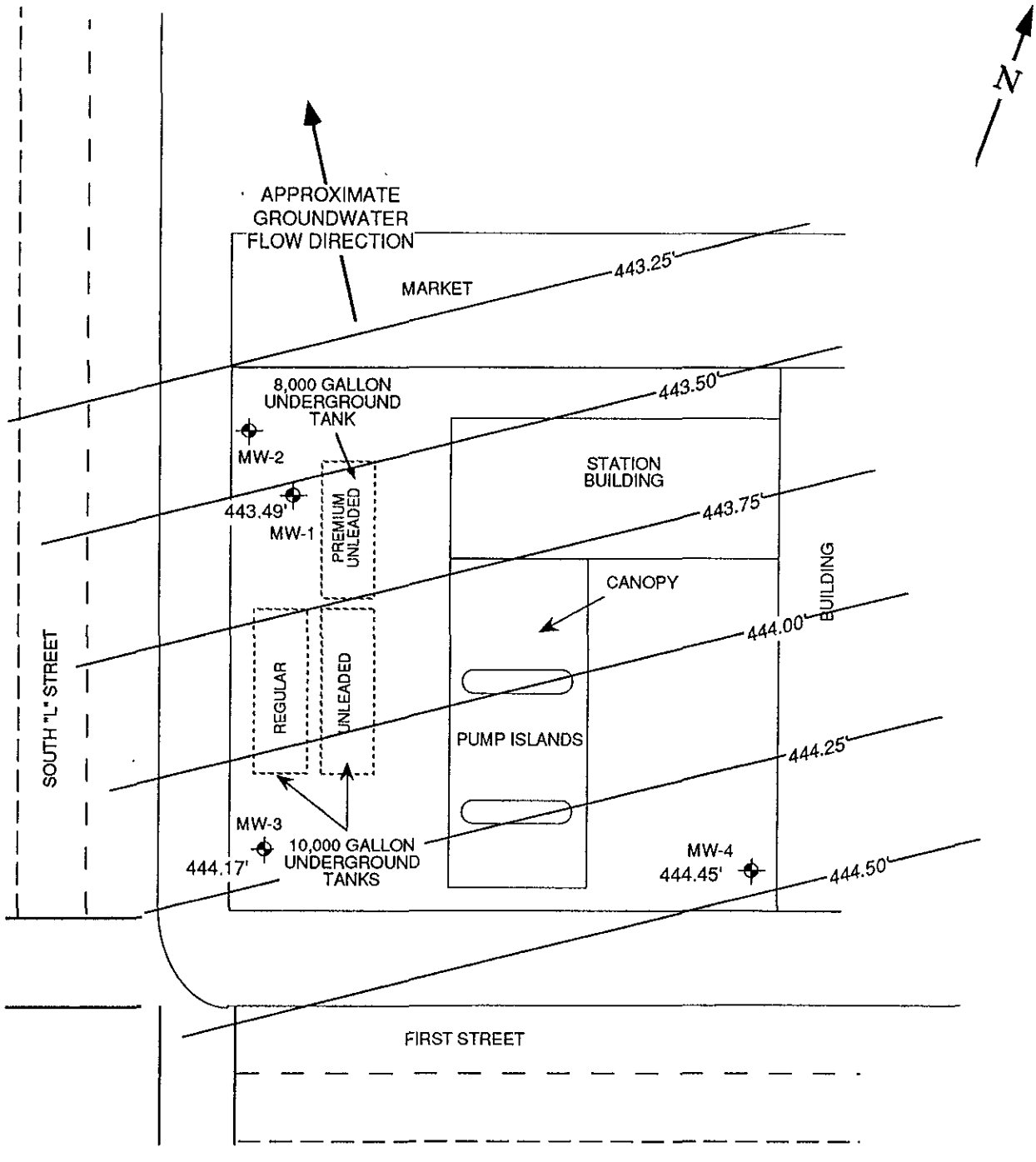
LEGEND

⌖ GROUNDWATER MONITORING WELL LOCATION

2008 FIRST STREET,
LIVERMORE, CA 94550

FIGURE 2: PLOT PLAN

REMEDIATION SERVICE, INT'L.



MAP NOT TO SCALE.
SURVEYED DISTANCE BETWEEN WELLS, 1" = 25'.

LEGEND

445.71'
MW-2 — GROUNDWATER MONITORING WELL LOCATION WITH GROUNDWATER ELEVATION IN FEET ABOVE MEAN SEA LEVEL.

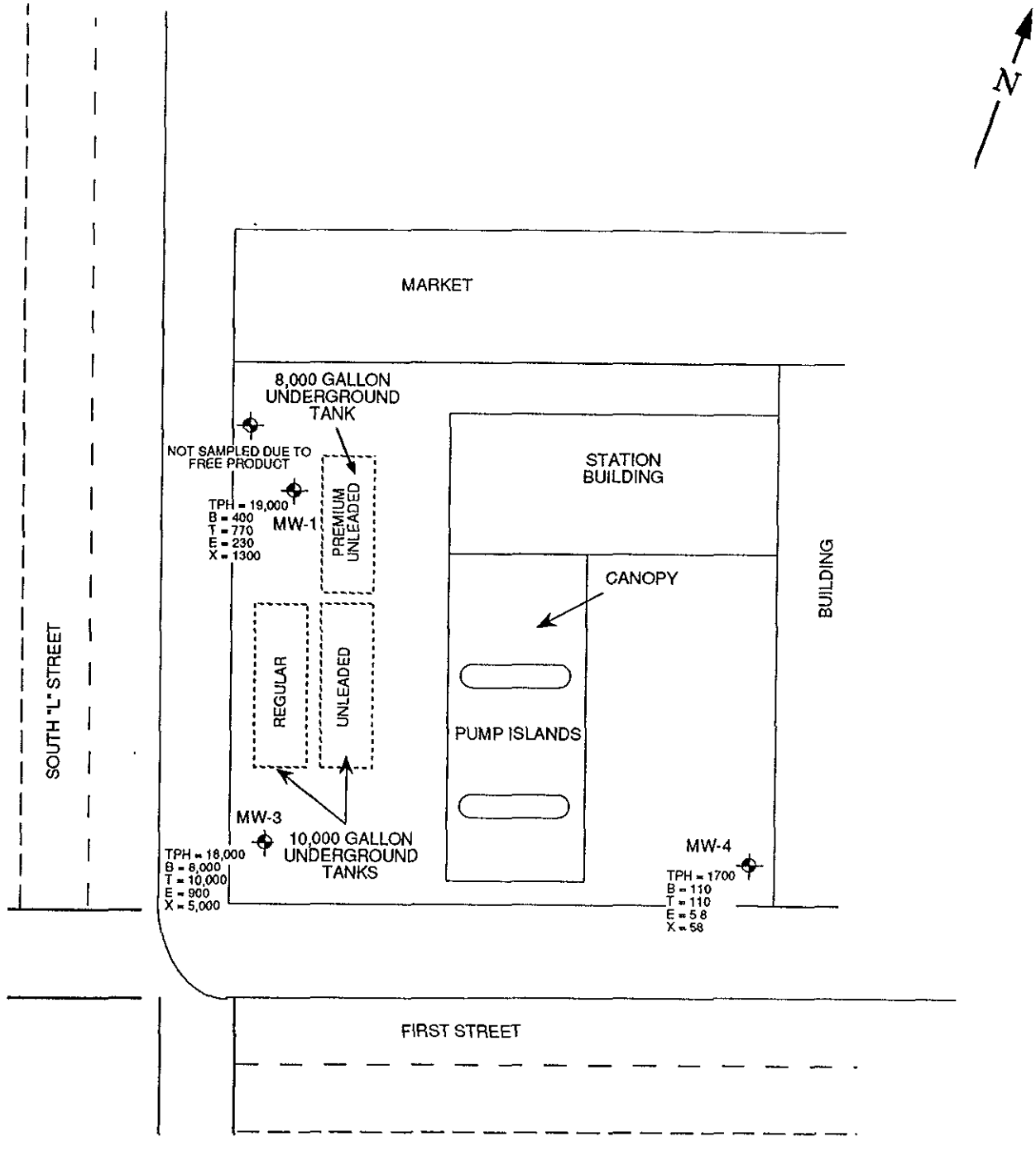
446.0' — GROUNDWATER ELEVATION CONTOUR LINE

NOTE. GROUNDWATER ELEVATION FOR MW-2 NOT USED IN GRADIENT DUE TO FREE PRODUCT

2008 FIRST STREET,
LIVERMORE, CA 94550

FIGURE 3: PLOT PLAN WITH GROUNDWATER ELEVATION CONTOURS
NOVEMBER 25, 1994

RSI REMEDIATION SERVICE, INT'L.



MAP NOT TO SCALE.
SURVEYED DISTANCE BETWEEN WELLS, 1" = 25'.

LEGEND

⌖ GROUNDWATER MONITORING WELL LOCATION WITH TPH & BTEX CONCENTRATIONS IN µg/L

2008 FIRST STREET,
LIVERMORE, CA 94550

FIGURE 4: PLOT PLAN WITH GROUNDWATER ANALYTICAL RESULTS
NOVEMBER 26, 1994

REMEDIATION SERVICE, INT'L.

TABLES

TABLE 1
GROUNDWATER ELEVATION DATA

2008 FIRST STREET
LIVERMORE, CA

Measurements are in feet.

Well	Date Measured	Depth to Free Product	Depth to Water*	Free Product Thickness	Corrected Depth to Water Table **	Well Head Elevation*	Water Table Elevation*	Change in Elevation
MW-1	9/22/88	—	60.50	—	—	487.00	426.50	
	8/2/90	—	43.10	—	—		443.90	17.40
	10/10/91	—	66.39	—	—		420.61	-23.29
	1/8/92	—	68.72	—	—		418.28	-2.33
	5/11/93	—	34.76	—	—		452.24	33.96
	9/21/93	—	38.70	—	—		448.30	-3.94
	5/22/94	—	33.57	—	—		453.43	5.13
	6/19/94	—	37.51	—	—	484.07	446.56	—
	8/25/94	—	43.27	—	—		440.80	-5.76
	11/22/94	—	40.58	—	—		443.49	2.69
MW-2	6/19/94	—	38.15	—	—	483.86	445.71	—
	8/25/94	43.47	44.13	0.66	43.63		440.23	-5.48
	11/22/94	40.92	40.96	0.04	40.93		442.93	2.70
MW-3	6/19/94	—	37.15	—	—	484.24	447.09	—
	8/25/94	—	42.31	—	—		441.93	-5.16
	11/22/94	—	40.07	—	—		444.17	2.24
MW-4	6/19/94	—	37.49	—	—	485.04	447.55	—
	8/25/94	—	42.25	—	—		442.79	-4.76
	11/22/94	—	40.59	—	—		444.45	1.66

*Elevations are in feet above mean sea level.
Well Head Elevations to top of casing surveyed 6/94 to City of Livermore Bench Mark: street monument located at the intersection of 1st. street and S. L street.
Bench Mark elevation = 483.82', based on USGS Sea Level Datum 1929.
**Corrected depth = Depth to water - (Free product thickness x Specific gravity of product).

REMEDIATION SERVICE, INT'L.

TABLE 2
SUMMARY OF LABORATORY ANALYSIS OF GROUNDWATER

2008 FIRST STREET
LIVERMORE, CA

TPH & BTEX Concentrations are in µg/L (parts per billion)
Total Lead Concentrations are in mg/L (parts per million)

WELL #	DATE SAMPLED	TPH	BENZENE	TOLUENE	ETHYL-BENZENE	TOTAL XYLENES	TOTAL LEAD	SOLUBLE LEAD
MW-1	8/2/90	24,000	1,300	1,300	400	2,700	NA	NA
	10/10/91	2,200	430	170	100	290	NA	NA
	1/8/92	1,200	200	120	30	150	NA	NA
	5/11/93	960	66	8	41	90	NA	NA
	9/21/93	1,900	311	118	33.8	112	NA	NA
	5/22/94	10,000	690	1100	340	1200	NA	NA
	8/26/94	13,000	290	690	120	670	NA	ND
	11/22/94	19,000	400	770	230	1300	NA	NA
MW-2	6/19/94	290,000	18,000	36,000	4,600	26,000	0.016	0.016
	8/26/94	NS*	NS*	NS*	NS*	NS*	NA	NA
	11/22/94	NS* w/ 1/2" FP	NS*	NS*	NS*	NS*	NA	NA
MW-3	6/19/94	11,000	640	580	270	790	ND	ND
	8/26/94	41,000	1,600	2,300	330	1,800	NA	ND
	11/22/94	18,000	8,000	10,000	900	5,000	NA	NA
MW-4	6/19/94	810	12	25	ND	22	0.007	0.007
	8/26/94	850	37	51	9.5	35	NA	ND
	11/22/94	1,700	110	110	5.8	58	NA	NA
Title 22 CCR MCL		—	1	150	700	1,750	—	—

TPH = Total petroleum hydrocarbons (gasoline)
NA = Not analyzed for this constituent.
ND = Not detected at or above minimum detection limit.
NS* = Not sampled due to the presence of free product.

RSI REMEDIATION SERVICE, INT'L.

APPENDICES

APPENDIX A

WATER SAMPLE LOGS

WATER SAMPLE LOG

DATE: 11/22/94

PROJECT LOCATION: 2008 First St., Livermore, CA

WELL NUMBER: **MW-1**

WEATHER CONDITIONS: Sunny, cool

FIELD OBSERVATIONS: *Water present inside well cover.*

TOTAL DEPTH OF WELL: 76.20 feet
CASING DIAMETER: 2 inches
DEPTH TO FREE PRODUCT: NONE
ONE WELL VOLUME = 27.90 gallons
DEPTH TO WATER: 40.58 feet
PURGING METHOD: Grundfos Rediflo Pump
DEPTHS MEASURED FROM: Top of well casing, north side.

WELL PURGING DATA

Time	Discharge (gallons)	pH	Temp in F.	Specific Conductance (µmhos/cm)	Comments
10:33	4.0	8.03	61.2	1.19	Brown, mod. product odor.
10:36	9.0	7.72	61.5	1.12	Brown, mod. product odor.
10:39	14.0	7.47	61.2	1.08	Brown, mod. product odor.
10:45	24.0	7.24	59.9	1.08	Cloudy, slt. product odor.
10:51	34.0	7.18	62.5	1.08	Cloudy, slt. product odor.
10:57	44.0	7.20	62.6	1.09	Cloudy, slt. product odor.
11:05	54.0	7.25	64.2	1.09	Cloudy, slt. product odor.
11:11	64.0	7.32	62.9	1.09	Cloudy, slt. product odor.
11:18	74.0	7.36	62.7	1.09	Cloudy, slt. product odor.

TOTAL DISCHARGE: 74.0 gallons
WELL VOLUMES REMOVED: 2.7

TIME SAMPLE COLLECTED: 3:50 PM
DEPTH TO WATER AT TIME OF SAMPLE: 40.86 feet
PERCENT RECHARGE: 99
METHOD OF SAMPLE COLLECTION: disposable bailer
APPEARANCE OF SAMPLE: Clear with some sediment, moderate odor present.
AMOUNT AND SIZE OF SAMPLE CONTAINERS: 4 x 40 ml. VOAs
SAMPLE TRANSPORTED TO: Atkins Environmental

SAMPLED BY: J. Jensen

REMEDIATION SERVICE, INT'L.
2060 KNOLL DR., SUITE 200, VENTURA, CA 93003
(805) 644-5892 • FAX (805) 654-0720

FREE PRODUCT REMOVAL LOG

PROJECT: 2008 FIRST STREET, LIVERMORE, CA

DATE: 11/22/94
TIME: 8:50 AM

WELL NUMBER: **MW-2**

WEATHER CONDITIONS: Sunny, cool
FIELD OBSERVATIONS: Well in good condition.

TOTAL DEPTH OF WELL: 57.40 feet
DEPTH TO FREE PRODUCT: 40.92
DEPTH TO WATER: 40.96 feet
DEPTHS MEASURED FROM: Top of well casing, north side.

CASING DIAMETER: 4 inches
FREE PRODUCT THICKNESS: 0.04 feet
PURGING METHOD: Bail

WELL PURGING DATA

ESTIMATED CONSTITUENT:

- [X] FRESH GASOLINE
- [ ] FRESH DIESEL
- [ ] FRESH OIL
- [ ] DEGRADED GASOLINE
- [ ] DEGRADED DIESEL
- [ ] DEGRADED OIL

APPEARANCE:

- [ ] CLEAR
- [ ] AMBER
- [ ] BROWN
- [X] GREY
- [ ] D. BROWN
- [ ] BLACK

- [ ] SHEEN
- [ ] THIN
- [X] THICK

ODOR:

- [X] GASOLINE ODOR
- [ ] DIESEL ODOR
- [ ] CHLORINATED SOLVENT ODOR
- [ ] OTHER:

TOTAL FREE PRODUCT & GROUNDWATER REMOVED: 17.0 gallons
Approx. % Free Product 0.3
Approx. % Water 99.7
Estimated Total Free Product Removed 0.05 gallons

FREE PRODUCT REMOVED BY: J. Jensen

REMEDIATION SERVICE, INT'L.
2060 KNOLL DR., SUITE 200, VENTURA, CA 93003
(805) 644-5892 • FAX (805) 654-0720

WATER SAMPLE LOG

DATE: 11/22/94

PROJECT LOCATION: 2008 First St., Livermore, CA

WELL NUMBER: **MW-3**

WEATHER CONDITIONS: Sunny, cool

FIELD OBSERVATIONS: Water present inside well cover.

TOTAL DEPTH OF WELL: 60.00 feet
CASING DIAMETER: 4 inches
DEPTH TO FREE PRODUCT: NONE
ONE WELL VOLUME = 24.39 gallons
DEPTH TO WATER: 40.07 feet
PURGING METHOD: Grundfos Rediflo Pump
DEPTHS MEASURED FROM: Top of well casing, north side.

WELL PURGING DATA

Time	Discharge (gallons)	pH	Temp in F.	Specific Conductance (µmhos/cm)	Comments
11:42	5.0	7.60	64.3	1.14	Lt. brown, mod. product odor.
11:48	15.0	7.44	64.2	1.14	Lt. brown, mod. product odor.
11:52	20.0	7.39	63.9	1.14	Lt. brown, mod. product odor.
12:00	30.0	7.30	61.9	1.15	Lt. brown, mod. product odor.
12:16	50.0	7.35	57.7	1.14	Lt. brown, mod. product odor.
12:32	70.0	7.36	57.6	1.14	Lt. brown, mod. product odor.
12:56	100.0	7.33	57.9	1.14	Lt. brown, mod. product odor.
1:20	130.0	7.35	57.4	1.14	Lt. brown, mod. product odor.
1:24	135.0	7.33	57.0	1.14	Lt. brown, mod. product odor.

TOTAL DISCHARGE: 135.0 gallons
WELL VOLUMES REMOVED: 5.5

TIME SAMPLE COLLECTED: 4:05 PM
DEPTH TO WATER AT TIME OF SAMPLE: 40.33 feet
PERCENT RECHARGE: 99
METHOD OF SAMPLE COLLECTION: disposable bailer
APPEARANCE OF SAMPLE: Clear, strong product odor present.
AMOUNT AND SIZE OF SAMPLE CONTAINERS: 4 x 40 ml. VOAs
SAMPLE TRANSPORTED TO: Atkins Environmental

SAMPLED BY: J. Jensen

REMEDIATION SERVICE, INT'L.
2060 KNOLL DR., SUITE 200, VENTURA, CA 93003
(805) 644-5892 • FAX (805) 654-0720

WATER SAMPLE LOG

DATE: 11/22/94

PROJECT LOCATION: 2008 First St., Livermore, CA

WELL NUMBER: **MW-4**

WEATHER CONDITIONS: Sunny, cool

FIELD OBSERVATIONS: Water present inside well cover.

TOTAL DEPTH OF WELL: 60.00 feet
CASING DIAMETER: 4 inches
DEPTH TO FREE PRODUCT: NONE
ONE WELL VOLUME = 23.76 gallons
DEPTH TO WATER: 40.59 feet
PURGING METHOD: Grundfos Rediflo Pump
DEPTHS MEASURED FROM: Top of well casing, north side.

WELL PURGING DATA

Time	Discharge (gallons)	pH	Temp in F.	Specific Conductance (µmhos/cm)	Comments
2:00	2.0	7.82	67.0	1.30	Lt. brown, no product odor.
2:12	17.0	7.77	67.3	1.29	Lt. brown, no product odor.
2:20	27.0	7.53	66.8	1.29	Lt. brown, no product odor.
2:28	37.0	7.57	64.2	1.28	Lt. brown, no product odor.
2:44	57.0	7.49	64.4	1.29	Lt. brown, no product odor.
3:00	77.0	7.47	62.8	1.29	Lt. brown, no product odor.
3:16	97.0	7.42	61.7	1.29	Lt. brown, no product odor.
3:24	107.0	7.44	61.5	1.29	Lt. brown, no product odor.
3:32	117.0	7.41	61.8	1.29	Lt. brown, no product odor.

TOTAL DISCHARGE: 117.0 gallons
WELL VOLUMES REMOVED: 4.9

TIME SAMPLE COLLECTED: 3:55 PM
DEPTH TO WATER AT TIME OF SAMPLE: 40.62 feet
PERCENT RECHARGE: 100
METHOD OF SAMPLE COLLECTION: disposable bailer
APPEARANCE OF SAMPLE: Clear with some sediment, no product odor present.
AMOUNT AND SIZE OF SAMPLE CONTAINERS: 4 x 40 ml. VOAs
SAMPLE TRANSPORTED TO: Atkins Environmental

SAMPLED BY: J. Jensen

REMEDIATION SERVICE, INT'L.
2060 KNOLL DR., SUITE 200, VENTURA, CA 93003
(805) 644-5892 • FAX (805) 654-0720

APPENDIX B

LABORATORY REPORT
AND
CHAIN OF CUSTODY

Atkins Environmental
HELP LABS
2889 Bunsen Ave, Suite A
Ventura, CA 93003
805-644-1044

LABORATORY RESULTS

HELP LABS JOB #:

Client Name: RSI

Sample Matrix: WATER
Sample I.D: SEE UNDER SAMPLE I. D. COLUMN
Lab Number: 002106-002108

Client Reference: DP 795/ LIVERMORE, CA
Date Sampled: 11/22/94
Date Extracted: NA
Date Analyzed: 11/29/94, 11/30/94

VOLATILE ORGANIC COMPOUNDS E.P.A. METHOD 8260 : **TPH GASOLINE BY MS DETECTOR**

WATER *MDL		0.3	0.3	0.3	0.6	40	ug/L
SAMPLE I. D.	DF	BENZENE	TOLUENE	E. BENZENE	T. XYLENE	T. P. H. G.	UNITS
MW-1	25	400	770	230	1300	19000	ug/L
MW-3	250	8000	10000	900	5000	18000	ug/L
MW-4	5	110	110	5.8	58	1700	ug/L

Russell Teague, Laboratory Director
Certificate Number: E.L.A.P. #1966

THE TEST RESULTS REPORTED REPRESENT ONLY THE ITEMS BEING TESTED AND MAY NOT REPRESENT THE ENTIRE MATERIAL FROM WHICH THE SAMPLE WAS TAKEN

DF = Dilution Factor
ND = Not Detected
*MDL (METHOD DETECTION LIMIT) = MDL X DF

BQL = Below Practical Quantitation Limit
PQL = Practical Quantitation Limit

Atkins Environmental
HELP LABS
2889 Bunsen Ave, Suite A Ventura, CA 93003
805-644-1044 Fax 805-644-0236

Chain of Custody Record
Analytical Services Request

CLIENT NAME	ADDRESS	TELEPHONE/FAX NUMBER	METHOD OF SHIPMENT/SHIPPING DOCUMENT #
RSI	2060 Knoll Dr. Ste. 200 Ventura, CA 93003	(805) 644 5892	
PROJECT NAME/LOCATION: D795 Livermore, CA.	CLIENT PROJECT NO	REQUESTED TURNAROUND TIME: 24 HOURS:_____ 10 DAY:_____ 5 DAY:_____	HELP LABS QUOTE #_____ HELP LABS PROJECT #_____
PROJECT MANAGER: R. Pilat	SAMPLER (S): JS/RP	P.O. NO.	

SAMPLE IDENTIFICATION NO.	LAB NUMBER	DATE SAMPLED	TIME SAMPLED	CONTAINER #/TYPE	GRAB	COMPOSITE	SOIL	H2O	OTHER	524.2	624	8260	TPHg/MS	BTEX	REMARKS
MW-1	2106	11-22-94	3:50	4-VOAs									X	X	
MW-3	2107	"	4:05	"									X	X	
MW-4	2108	"	3:55	"									X	X	

CONDITION OF SAMPLE:
TEMPERATURE UPON RECEIPT:
SEALS INTACT. YES / NO
SAMPLE DISPOSAL:

RELINQUISHED BY: (Signature) John Jensen
RELINQUISHED BY: (Signature)
RELINQUISHED BY: (Signature)

RECEIVED BY: (Signature) Kindahl Hall — DATE 11/28/94 — TIME 11:05 Am
RECEIVED BY: (Signature) — DATE — TIME
RECEIVED BY: (Signature) — DATE — TIME

SEND INVOICE TO:

PAGE 1 OF 1