LOWNEY ASSOCIATES
Environmental / Geotechnical / Engineering Services

September 12, 1995
719-3A, MV091202

Mr. Anthony Varni
P.O. Box 778
Hayward, California 94543

RE: THIRD QUARTER 1995 GROUND WATER MONITORING REPORT WORTHLEY DRIVE PARCEL SAN LORENZO, CALIFORNIA

Dear Mr. Varni:

In accordance with your request, we are pleased to submit this report presenting the results of the third quarter 1995 sampling of ground water at 16525 Worthley Drive, located in San Lorenzo, California. The scope of work including collection and analysis of ground water samples from two on-site monitoring wells and one on-site extraction well, was performed per our agreement with you dated January 18, 1994.

Laboratory analysis of the ground water samples collected from monitoring well MW-2 detected total petroleum hydrocarbons as gasoline (TPHg) at a concentration of 160 parts per billion (ppb). Also detected was toluene at 0.68 ppb, and xylenes at 0.98 ppb. Analysis of ground water samples collected from monitoring well MW-8 did not detect TPHg or benzene, toluene, ethylbenzene, and xylenes (BTEX).

Laboratory analysis of ground water samples collected from extraction well RW-1 detected TPHg at a concentration of 75 ppb, benzene at a concentration of 12 ppb, ethylbenzene at 1.8 ppb, and xylenes at 3.5 ppb.

We refer you to the text of the report for details regarding our investigation. If you have any questions, please call and we shall be glad to discuss them with you.

Very truly yours,

LOWNEY ASSOCIATES

REGISTERED PROFESSIONAL ENGINEER
STASON I. FOSTER
No. 051495
Exp. 6-30-98
CIVIL
STATE OF CALIFORNIA

Stason Foster, P.E.
Associate, Environmental Engineer

REGISTERED GEOLOGIST
RON L. HELM
No. EG1808
Exp. 7-31-97
CERTIFIED ENGINEERING GEOLOGIST
STATE OF CALIFORNIA

Ron L. Helm, C.E.G.
Principal, Environmental Geologist

RLH:SIF:PJR:tjc

Copies: Addressee (2)
Alameda County Health Care Services (1)
Attn: Ms. Amy Leech

405 Clyde Avenue, Mountain View, CA 94043-2209 (415) 967-2365 FAX (415) 967-2785
Mailing Address: P.O. Box 1388, Mountain View, CA 94042-1388

Mountain View *Walnut Creek*

THIRD QUARTER 1995
GROUND WATER MONITORING REPORT
WORTHLEY DRIVE PARCEL
SAN LORENZO, CALIFORNIA

LOWNEY ASSOCIATES
Environmental / Geotechnical / Engineering Services

THIRD QUARTER 1995 GROUND WATER MONITORING

For

WORTHLEY DRIVE PARCEL
San Lorenzo, California

To

ANTHONY VARNI
P.O. Box 778
Hayward, California 94543

September 1995

Table Of Contents

THIRD QUARTER 1995 GROUND WATER MONITORING
WORTHLEY DRIVE PARCEL
SAN LORENZO, CALIFORNIA

1.0 INTRODUCTION

1.1 Purpose

We are pleased to present this report summarizing the third quarter 1995 ground water monitoring at 16525 Worthley Drive, San Lorenzo, California (Figure 1). The purpose of this investigation was to continue an on-going ground water quality evaluation at the site, near the vicinity of the former fuel storage tanks, by collecting and analyzing ground water samples from monitoring wells MW-2, MW-8, and extraction well RW-1.

1.2 Background

The site reportedly was developed in the late 1960s as an aircraft engine maintenance facility, which operated there until 1981. Two underground gasoline fuel storage tanks (USTs) were reportedly used by this facility and were removed from the site in 1987.

Subsequent soil and ground water quality investigations have included drilling of several soil borings within and near the former UST excavation, over excavation of the UST pit to remove impacted soil, the performance of a soil vapor survey, and the installation of eight ground water monitoring wells. The results of this work were summarized in our first quarter 1994 monitoring report dated August 29, 1994.

In January 1991, a ground water extraction and treatment system was installed at the site. The system extracted ground water from extraction well RW-1 at a limited rate of approximately 0.1 gallon per minute

(gpm) and treated the water with activated carbon beds prior to discharge. Laboratory analyses of influent samples collected from the treatment system indicated that petroleum hydrocarbon concentrations have decreased or remained generally consistent over the past several years. Since its installation in November 1989, extraction well RW-1 appears to have been sampled/analyzed 33 times. Fourteen of 33 sampling events did not detect total petroleum hydrocarbons in the gasoline range (TPHg) above the laboratory detection limit. Analytical results for the remaining 19 events revealed concentrations typically ranging from 57 ppb to 480 ppb; higher levels were only detected in three sampling events.

Sampling of ground water from well MW-2, located near the former USTs, has historically detected only low levels of TPHg and benzene, toluene, ethylbenzene, and xylenes (BTEX) compounds. From 1987 to 1995 concentrations of TPHg have typically ranged between 57 ppb and 870 ppb. Higher concentrations were detected during two sampling events. Petroleum hydrocarbons typically have not been detected in the other on-site monitoring wells.

A summary of previous sampling results from monitoring well MW-2 and extraction well RW-1, as well as the most recent sampling of monitoring well MW-8, is presented in Table 1.

1.3 Scope of Work

The scope of work performed during this supplemental ground water quality investigation included the following:

- Measurement of on-site ground water depths.

- Collection of ground water samples from on-site monitoring wells MW-2, MW-8, and extraction well RW-1 located near the former fuel tank area.

- Laboratory analysis of the ground water samples for total petroleum hydrocarbons as gasoline (TPHg) (EPA Test Method 8015), and benzene, toluene, ethylbenzene, and xylenes (BTEX).

- Preparation of this report.

2.0 SITE INVESTIGATION

2.1 Ground Water Flow Direction

Based on ground water elevations measured by others (Resna 1992 and 1993), the regional ground water flow direction has fluctuated between south-southwest and south-southeast, generally towards the San Francisco Bay. Ground water elevations collected during well sampling on August 23, 1995 ranged from 0.79 to 2.26 feet above mean sea level (msl) and showed the ground water flow direction to be generally toward the south and southwest, which is consistent with past measurements. The ground water elevations are presented in Table 1; the ground water elevation contours are shown on Figure 2.

TABLE 1. Ground Water and Top of Casing Elevations

Well Number	Date	Top of Casing Elevation (feet above mean sea level)	Depth to Ground Water (feet below top of casing)	Ground Water Elevation (feet above mean sea level)
MW-1	08/23/95	8.86	7.55	1.31
MW-2	08/23/95	9.17	7.72	1.45
MW-5	08/23/95	9.11	6.85	2.26
MW-6	08/23/95	9.19	7.21	1.98
MW-7	08/23/95	8.41	7.62	0.79
MW-8	08/23/95	8.52	7.26	1.26

2.2 Ground Water Quality

Ground water from three of seven on-site monitoring wells and the one on-site extraction well was sampled and analyzed for TPHg and BTEX. A discussion of well sampling protocol is presented in Appendix A. The laboratory analytical results for this sampling event and the previous investigations are presented in Table 2. Laboratory reports are presented in Appendix B.

TABLE 2. Laboratory Analysis of Ground Water Samples
(concentrations in ppb)

Well Number	Date	TPHg	Benzene	Toluene	Ethyl-benzene	Total Xylenes
MW-2	07/14/87	110	1.2	1.9	--	2
	11/24/87	3,600	82	47	--	13
	02/29/88	800	ND	ND	--	ND
	05/25/88	250	ND	ND	--	ND
	08/10/88	260	ND	ND	--	ND
	11/29/88	870	9.	ND	1	1
	02/07/89	710	16	ND	ND	ND
	05/12/89	260	2.8	0.76	1.3	3
	08/04/89	360	ND	ND	ND	0.48
	11/14/89	85	ND	3.5	0.36	2.5
	02/22/90	120	ND	ND	1.5	0.55
	05/17/90	240	ND	ND	ND	ND
	08/17/90	130	ND	2.9	1.2	0.68
	11/06/90	170	0.37	1.2	2	1.5
	02/01/91	57	ND	ND	ND	0.73
	05/01/91	220	1.5	0.42	0.43	0.54
	08/08/91	710	4.1	0.84	ND	0.71
	11/15/91	630	2.3	ND	3.1	0.86
	02/12/92	580	5.9	1.2	0.52	ND
	05/21/92	790	26	5.4	ND	ND
	11/13/92	230	ND	ND	ND	ND
	02/24/93	400	17	ND	ND	ND
	05/28/93	110	<0.50	<0.50	<0.50	<0.50
	08/20/93	1,000	<0.50	0.75	1.1	5.4
	11/30/93	590	<0.50	<0.50	3.8	2.3
	04/08/94	480	5.2	<0.50	<0.50	<0.50
	08/08/94	330	<0.50	<0.50	<0.50	<0.50
	08/23/95	160	<0.50	0.68	<0.50	0.98
MW-8	08/23/95	<50	<0.50	<0.50	<0.50	<0.50

continued

TABLE 2. Laboratory Analysis of Ground Water Samples
(concentrations in ppb)
(continued)

Well Number	Date	TPHg	Benzene	Toluene	Ethyl-benzene	Total Xylenes
RW-1	11/28/89	3,200	<50	<100	<100	<100
	01/09/90	1,300	150	15	100	170
	01/16/91	78	17.0	2.7	7.7	1.3
	04/20/91	<30	<0.30	<0.30	<0.30	<0.30
	05/01/91	160	40	0.79	14	6.1
	05/24/91	<30	<0.30	<0.30	<0.30	<0.30
	06/14/91	57	12	<0.30	4.3	0.84
	07/03/91	<30	<0.30	<0.30	<0.30	<0.30
	07/22/91	18	<0.30	2.7	0.4	<0.30
	08/08/91	89	41	0.31	4.6	0.73
	11/15/91	140	41	<0.30	1.3	0.44
	12/18/91	<50	12	<0.50	0.78	<0.50
	02/12/92	260	78	.073	6.6	8.2
	03/06/92	480	81	1.2	21	21
	04/02/92	300	52	1.2	13	15
	05/21/92	57	20	ND	1.7	0.85
	06/30/92	<50	7.7	<0.50	<0.50	<0.50
	07/17/92	79	7.4	<0.50	1.2	1.4
	09/01/92	<50	4.2	<0.50	<0.50	<0.50
	11/13/92	ND	ND	ND	ND	ND
	01/08/93	ND	8	ND	0.78	0.59
	01/29/93	64	22	ND	4.8	3.7
	03/18/93	2,400	330	3.3	51	17
	04/22/93	<50	13	<0.50	1.5	<0.50
	05/28/93	<50	0.76	<0.50	<0.50	<0.50
	08/20/93	57	16	<0.50	0.70	1.92
	09/15/93	<50	1.5	<0.50	<0.50	<0.50
	10/08/93	<50	<0.50	<0.50	0.50	<0.50
	10/26/93	<50	<0.50	<0.50	0.50	<0.50
	12/16/93	<50	0.73	2.6	1.1	<0.50
	04/08/94	130	15	1.4	1.9	1.9
	08/08/94	110	25	<0.50	0.86	3.2
	08/23/95	75	12	<0.50	1.8	3.5

– no data obtained
ND not detected

3.0 CONCLUSIONS AND RECOMMENDATIONS

The purpose of this investigation was to continue an on-going ground water quality evaluation at the site, near the former fuel storage tanks, by collecting and analyzing ground water samples from monitoring wells MW-2, MW-8, and extraction well RW-1.

Laboratory analysis of the ground water samples collected from monitoring well MW-2 detected TPHg at a concentration of 160 ppb. BTEX compounds, toluene and xylenes were also detected at concentrations of 0.68 and 0.98 ppb, respectively. Analysis of ground water samples collected from monitoring well MW-8 did not detect TPHg or BTEX compounds.

Laboratory analysis of ground water samples collected from extraction well RW-1 detected TPHg at a concentration of 75 ppb. Benzene, ethylbenzene, and xylenes were also detected at concentrations of 12, 1.8, and 3.5 ppb, respectively.

As shown in Table 1, the concentrations of TPHg and BTEX compounds present in monitoring/extraction well ground water have continued to decrease or remain consistent with those previously detected.

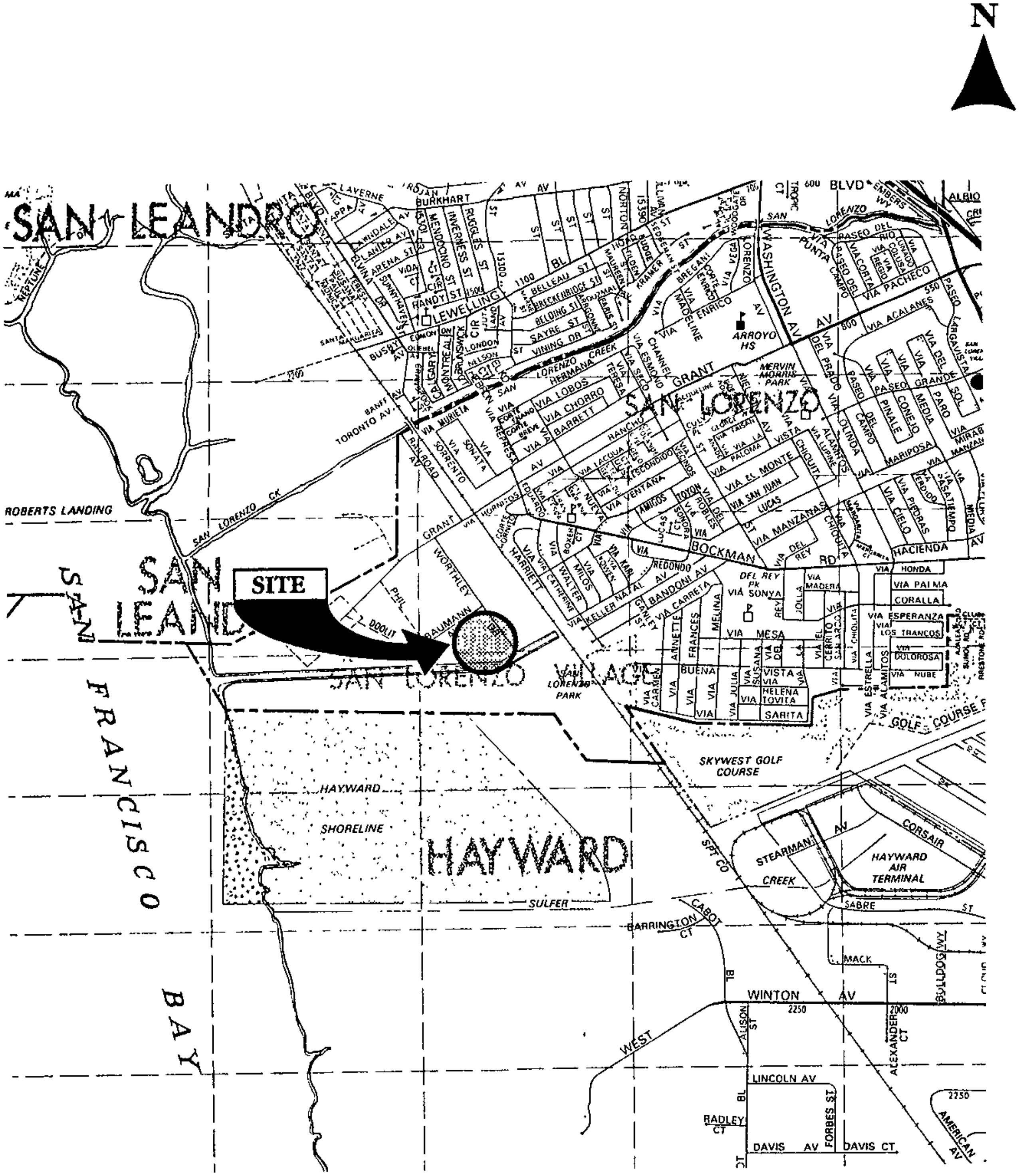
As requested by the County Department of Environmental Health, the installation of one additional ground water monitoring well located southwest of the former UST location is planned. We understand that once the limits of impacted ground water are established in this direction, the site would likely be accepted into the Non-Attainment Area (NAA) program.

→ Call to confirm when.

4.0 LIMITATIONS

This report was prepared for the use of Mr. Anthony Varni in evaluating ground water quality at selected on-site locations at the time of this study. We make no warranty, expressed or implied, except that our services have been performed in accordance with environmental principles generally accepted at this time and location. The chemical and other data presented in this report can change over time and are applicable only to the time this study was performed.

* * * * * * * * * * * * *



"Reproduced with permission granted by THOMAS BROS. MAPS."

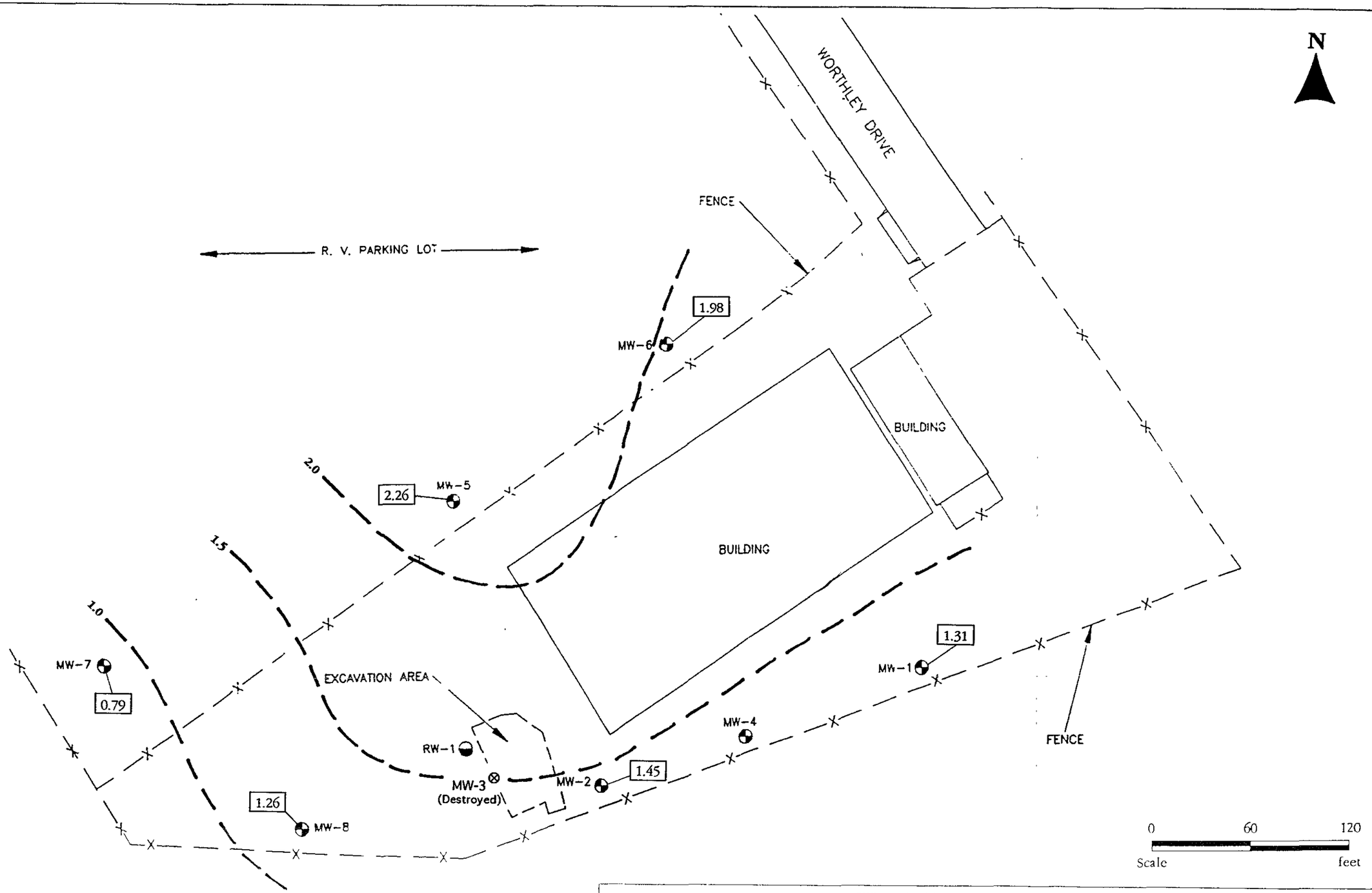
719-3A, 9/95 PR*EB

VICINITY MAP

WORTHLEY DRIVE PARCEL
San Lorenzo, California

LOWNEY ASSOCIATES
Environmental/Geotechnical/Engineering Services

FIGURE 1
719-3A



LEGEND

- ◓ - Approximate location of ground water monitoring well by Resna (1993)
- ◒ - Approximate location of ground water recovery well by Resna (1993)
- 2.26 - Ground water elevations
- — — - Ground water contour

Base by Resna, dated 8/93

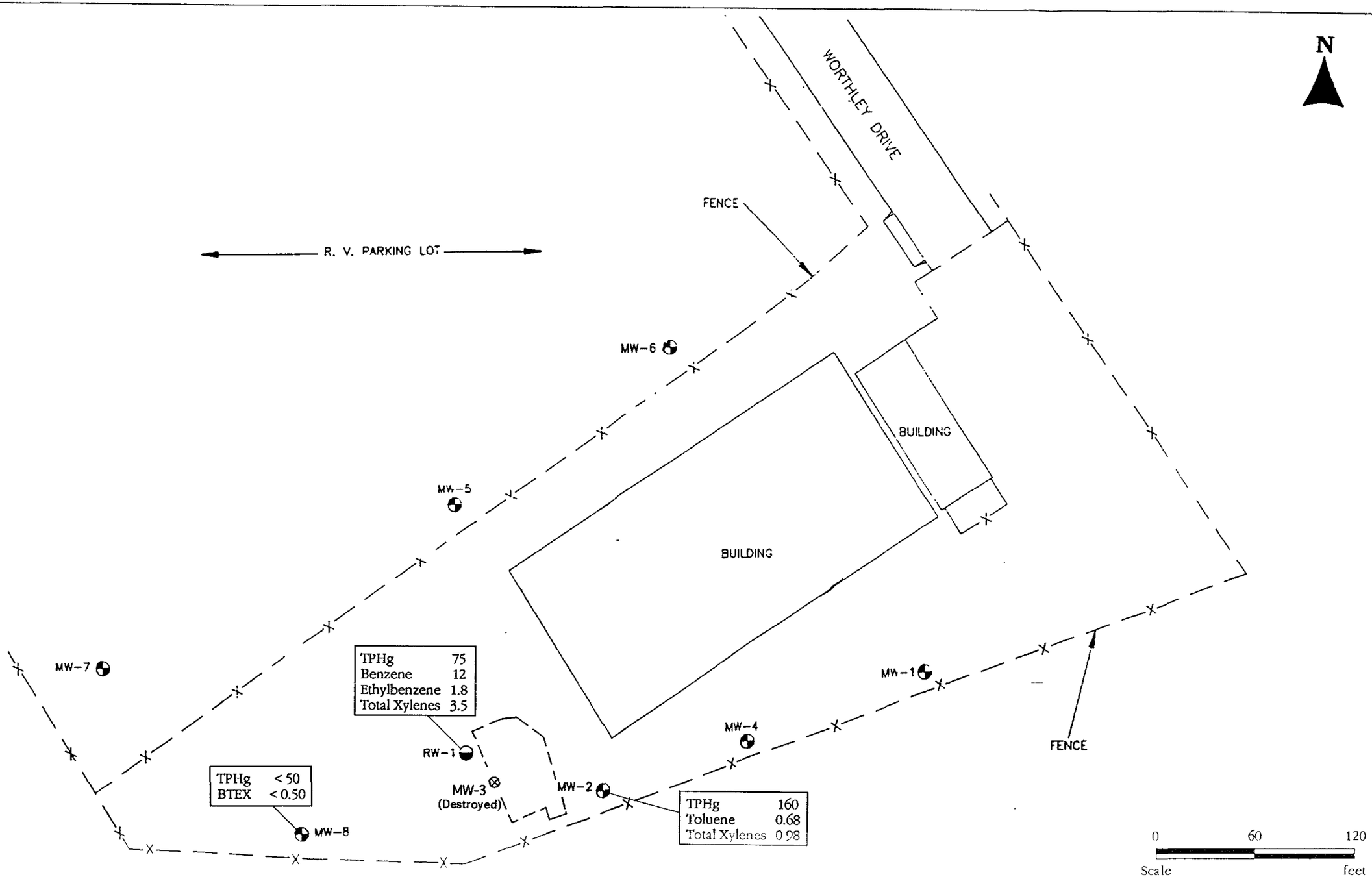
719 3A 9-95 PR'EB

SITE PLAN/GROUND WATER ELEVATIONS

WORTHLEY DRIVE PARCEL
San Lorenzo, California

LOWNEY ASSOCIATES
Environmental / Geotechnical / Engineering Services

FIGURE 2
719-3A



LEGEND

- ◓ - Approximate location of ground water monitoring well by Resna (1993)
- ◒ - Approximate locatuon of ground water recovery well by Resna (1993)

TPHg - Total petroleum hydrocarbons as gasoline

Concentrations in ppb

Base by Resna, dated 8/93

PETROLEUM HYDROCARBONS CONCENTRATIONS IN GROUND WATER

WORTHLEY DRIVE PARCEL
San Lorenzo, California

LOWNEY ASSOCIATES
Environmental / Geotechnical / Engineering Services

FIGURE 3
719-3A

APPENDIX A

WELL SAMPLING PROTOCOL AND RECORDS

Ground Water Sampling

Prior to collection of ground water samples, a Teflon bailer or submersible pump was used to purge a minimum of four well casing volumes of water from each well. After purging each well volume, pH, temperature, and conductivity measurements were recorded. In general, these measurements stabilize after three to four well volumes. If, after the fourth well volume the pH and conductivity did not stabilize, additional well volumes were removed until these measurements did stabilize. If the yield was low and the well was pumped dry, the well was allowed to recharge to 80 percent of the initial water level before sampling. Samples were collected in appropriate sample bottles, labeled, and immediately placed into an ice-cooled chest for delivery to a state-certified analytical laboratory for analysis.

Equipment Decontamination

All well sampling equipment was cleaned with an aqueous tri-sodium phosphate solution and distilled water or steam cleaned prior to entering each well.

Purged ground water was stored on-site in labeled 55-gallon drums. Well development and sampling records are attached.

LOVNEY ASSOCIATES — RECORD OF WELL DEVELOPMENT/SAMPLING

Project Number 7.9-3 1

Project Name Lithology Firm Parcel

Field Geologist/Engineer PJR

Well Number MW-2

Boring Diameter _____ (inches)

Well Total Depth (completed) 25.55 (feet)

Casing Diameter 2" (inches)

Development Date _____ Method _____ Volume Produced _____ (liter/gal)

WELL VOLUME CONVERSION FACTORS

2-INCH CASING DIAMETER

VOL (GALLONS) = FEET OF WATER x 0.17
VOL (LITERS) = FEET OF WATER x 0.62

4-INCH CASING DIAMETER

VOL (GALLONS) = FEET OF WATER x 0.66
VOL (LITERS) = FEET OF WATER x 2.5

Sampling Date 8-23-95 Time 10:45 Method Teflon Bailer

Static Water Level Prior to Purging (Measured from top of casing) 7.72 (ft)

Water Level After Recovery 9.82 (ft)

80 Percent Recharged Yes ☒ No ☐

Well Volume 11.05 (liter/gal)

Three Well Volumes 33.16 (liter/gal)

Total Produced 34 (liter/gal)

Number of Well Volumes 3.2

Production Time _____ (min)

Production Rate _____ (_/min)

Well Volumes	ph	Conductivity µSx10	Temp °F
1	6.9	121	68
2	7.0	128	69
3	7.0	129	69
4			
5			
6			
7			
8			
9			
10			

Sample Description MW-2

Laboratory Sequoia Analytical

Deliver ☒ Pick-Up ☐ Date 8-23-95

Comments

LOWNEYASSOCIATES

RECORD OF WELL DEVELOPMENT/SAMPLING

Project Number: 719 - 3A

Project Name: Whitney Dr. Parcel

Field Geologist/Engineer: PJK

Well Number: MW-8

Boring Diameter: ____ (inches)

Well Total Depth (completed): ≈15.25 (feet)

Casing Diameter: 2" (inches)

Development Date: ____ Method: ____ Volume Produced: ____ (liter/gal)

WELL VOLUME CONVERSION FACTORS

2-INCH CASING DIAMETER

VOL (GALLONS) = FEET OF WATER x 0.17
VOL (LITERS) = FEET OF WATER x 0.62

4-INCH CASING DIAMETER

VOL (GALLONS) = FEET OF WATER x 0.66
VOL (LITERS) = FEET OF WATER x 2.5

Sampling Date: 8-23-95 Time: 11:30 Method: Teflon Bailer

Static Water Level Prior to Purging (Measured from top of casing): 7.26 (ft)
H_2O Ht = 8.00

Water Level After Recovery: 8.24 (ft)

80 Percent Recharged: Yes ☒ No ☐

Well Volume: 4.96 (liter/gal) — liter circled

Three Well Volumes: 14.88 (liter/gal) — liter circled

Total Produced: 20.00 (liter/gal) — liter circled

Number of Well Volumes: 4.03

Production Time: ____ (min)

Production Rate: ____ (/min)

Well Volumes	ph	Conductivity µSx10	Temp °F
1	7.1	130	69
2	7.0	127	68
3	6.9	125	68
4			
5			
6			
7			
8			
9			
10			

Sample Description: MW-8

Laboratory: Sequoia Analytical

Deliver ☒ Pick-Up ☐ Date: 8-23-95

Comments: MW-1 = 7.55'
MW-5 = 6.85' MW-6 = 7.21
MW-7 = 7.67' MW-8 = 7.26

LOWNEYASSOCIATES

RECORD OF WELL DEVELOPMENT/SAMPLING

Project Number 719-3A

Project Name Westhley Dr Parcel

Field Geologist/Engineer PJC

Well Number RW-1

Boring Diameter ________ (inches)

Well Total Depth (completed) ________ (feet)

Casing Diameter ________ (inches)

Development Date ________ Method ________ Volume Produced ________ (liter/gal)

WELL VOLUME CONVERSION FACTORS

2-INCH CASING DIAMETER

VOL (GALLONS) = FEET OF WATER x 0.17
VOL (LITERS) = FEET OF WATER x 0.62

4-INCH CASING DIAMETER

VOL (GALLONS) = FEET OF WATER x 0.66
VOL (LITERS) = FEET OF WATER x 2.5

Sampling Date 8-23-95 Time 11:30 Method Extraction System Pump

Static Water Level Prior to Purging NA (ft)
(Measured from top of casing)

Water Level After Recovery NA (ft)

80 Percent Recharged Yes ☐ No ☐

Well Volume ________ (liter/gal)

Three Well Volumes ________ (liter/gal)

Total Produced 10 (liter/gal) [gal circled]

Number of Well Volumes ________

Production Time ________ (min)

Production Rate ________ (/min)

Well Volumes	ph	Conductivity µSx10	Temp °F
1	7.0	130	69
2	7.0	120	69
3	7.0	122	69
4			
5			
6			
7			
8			
9			
10			

Sample Description RW-1

Laboratory Sequoia Analytical

Deliver ☒ Pick-Up ☐ Date 8-23-95

Comments ________

APPENDIX B

ANALYTICAL RESULTS

The chilled samples were delivered to a state-certified analytical laboratory. Chain of custody documentation was maintained for all samples. Attached are copies of the analytical results and chain of custody forms.

Sequoia Analytical

680 Chesapeake Drive, Redwood City, CA 94063, (415) 364-9600, FAX (415) 364-9233
404 N. Wiget Lane, Walnut Creek, CA 94598, (510) 988-9600, FAX (510) 988-9673
819 Striker Avenue, Suite 8, Sacramento, CA 95834, (916) 921-9600, FAX (916) 921-0100

Lowney Associates
405 Clyde Ave.
Mt. View, CA 94043
Attention: Stason Foster

Client Project ID: Worthley Drive Parcel
Sample Matrix: Water
Analysis Method: EPA 5030/8015 Mod./8020
First Sample #: 508-1928

Sampled: Aug 23, 1995
Received: Aug 23, 1995
Reported: Sep 6, 1995

QC Batch Number: GC090495 GC090695 GC090495
802004A 802002A 802004A

TOTAL PURGEABLE PETROLEUM HYDROCARBONS with BTEX DISTINCTION

Analyte	Reporting Limit µg/L	Sample I.D. 508-1928 RW-1	Sample I.D. 508-1929 MW-2	Sample I.D. 508-1930 MW-8
Purgeable Hydrocarbons	50	75	160	N.D.
Benzene	0.50	12	N.D.	N.D.
Toluene	0.50	N.D.	0.68	N.D.
Ethyl Benzene	0.50	1.8	N.D.	N.D.
Total Xylenes	0.50	3.5	0.98	N.D.
Chromatogram Pattern:		*Gasoline*	*Gasoline*	--

Quality Control Data

Report Limit Multiplication Factor:	1.0	1.0	1.0
Date Analyzed:	9/4/95	9/6/95	9/4/95
Instrument Identification:	HP-4	HP-2	HP-4
Surrogate Recovery, %: (QC Limits = 70-130%)	106	116	103

Purgeable Hydrocarbons are quantitated against a fresh gasoline standard.
Analytes reported as N.D. were not detected above the stated reporting limit.

SEQUOIA ANALYTICAL, #1271

Kevin Van Slambrook
Project Manager

5081928.LLL <1>

LOVNEY ASSOCIATES

CHAIN OF CUSTODY RECORD

SEND RESULTS TO:
☒ Mountain View Office
405 Clyde Ave
Mountain View, Ca 94043
415-967-2365
FAX COPY: ☒ 415-967-2785 (FAX)

☐ Walnut Creek Office
1600 S. Main St, Suite 125
Walnut Creek, Ca 94596
510-938-9356
FAX COPY: ☐ 510-938-9359 (FAX)

Project Name: Worthley Drive Parcel

Job No.: 719 - 3A

Report To: Stason Foster

Sampler (print): Paul Reginato

Sampler (signature): Paul Reginato

QC Requirements:
☒ Level A (standard) ☐ Level B ☐ Level C ☐ Level D

Turnaround Requirements:
☒ 10 Working days
☐ 5 Working days
☐ 3 Working days
☐ 48 Hours
☐ 24 Hours
☐ 2-3 Hours (RUSH)

ANALYSIS REQUESTED 9508428

Sample I.D.	Date	Time	Lab I.D.	Sample Matrix	No. of Cont.	TPHGas/BTEX (8015/8020)	TPH as diesel (8015M)	TRPH (5520) EF/BF	Halogenated VOCs (8010)	Purgeable Organics (8240)	Extractable Organics (8270)	Remarks
RW-1	8-23-95			Water	3	X			5081928	AC		
MW-2	↓			↓	3	X			5081929	↓		
MW-8	↓			↓	3	X			5081930	↓		

Relinquished By: Paul Reginato Date: 8-23-95 Time: 4:50
Relinquished By: Date: Time:
Relinquished By: Date: Time:

Received By: Date: Time:
Received By: Date: Time:
PM Initial:

Lab Of Record: Sequoia Analytical
Received By Lab: RB Kelley Date: 8/23/95 Time: 4:50
Temperature: 9°C