LUSH
GEOSCIENCES

GEOLOGICAL AND ENVIRONMENTAL SERVICES

QUARTERLY MONITORING REPORT
BECK ROOFING
HAYWARD, CALIFORNIA

LUSH GEOSCIENCES JOB NO. 423-001

AUGUST 9, 1995

F. William Welter
Project Manager

Andrew P. Lush
RG 4421

ANDREW P. LUSH
10/96

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1.0 INTRODUCTION

This report was prepared to summarize quarterly monitoring work performed in the investigation of contamination associated with one former 1,000-gallon underground gasoline storage tank at the Beck Roofing Facility in Hayward, California (site). The report describes methods and procedures used to evaluate groundwater quality near the former tank. The methods and procedures used during this phase of investigation included:

- Monthly measurements ofgroundwater depth in the wells with gradient calculations;
- Collecting groundwater samples from the four previously installed wells;
- Analyzing the groundwater samples; and,
- Preparing this report.

This report summarizes the field and laboratory operations conducted, the methods and procedures used, the data obtained, and presents conclusions and recommendations.

2.0 SITE BACKGROUND

The site is an operating roofing company. One wooden structure located on the northwest side of the site contains office and warehouse space. The remainder of the site is used for equipment and materials storage. In May of 1990, a 1,000-gallon underground fuel tank, used to store gasoline, was removed. When the tank was removed, evidence of leakage was noted in soil adjacent to the tank.

The site location is shown on Figure 1; the site configuration is shown on the attached potentiometric surface maps (Figures 2, 3, and 4).

2.1 Previous Work

Previous work, performed by other consultants, included excavation of approximately 350 cu yd of contaminated soil, drilling and sampling 20 soil borings, installation of four groundwater monitoring wells, excavation of an additional 400 cu yd of contaminated soil, and quarterly monitoring of the wells. Previous analyses have shown variable contaminant concentrations in one well (MW3), and slight to non-detectable levels in the remaining wells.

3.0 QUARTERLY GROUNDWATER SAMPLING

3.1 Field Procedures

Groundwater samples were collected from each well except MW1 on July 13, 1995. Soil had been stockpiled on MW1, preventing access to that well. Sampling activities were conducted as follows:

- Water and product levels were determined using an electronic water sensitive measuring device. Depth to water or product was measured to an accuracy of 0.01 ft. No free product was encountered.

- Prior to sampling, each well was purged with a submersible pump until at least 3 well volumes of water were removed. The purged water was monitored for temperature, pH, and electrical conductivity (Table 1). Purging continued until these parameters stabilized. The well was allowed to recover until at least 80% of the initial water level had been reached.

- After each well stabilized, a sample was collected with an unused, clean, disposable polyethylene bailer. The collected sample was transferred from the bailer to appropriate 40-ml glass sample vials. All sample containers were filled completely with a convex meniscus to eliminate any trapped air or headspace. Each sample container cap was fitted with a Teflon septum.

- After sampling, the samples were labeled, showing the sample number, well number, date, time, samplers name, and preservation. The samples were refrigerated in a cooler containing ice until delivery to the laboratory to perform the specified analyses. Chain-of-custody documentation was maintained from the sampling location to the laboratory. The chain-of custody was signed by the sampler and placed in the container holding the samples. Condition of the samples was noted on the chain-of-custody document by the laboratory.

TABLE 1
PURGED WATER PARAMETERS
GROUNDWATER MONITORING WELLS
BECK ROOFING FACILITY
HAYWARD, CALIFORNIA

Well	Date	Subjective Evidence	T(°F)	pH	K	3WV	Volume Purged
MW1	10/25/94	No Odor	64.7	6.98	1930	27	30
MW2	10/25/94	No Odor	63.8	6.92	2600	27	30
MW3	10/25/94	No Odor	66.5	6.90	2600	27	30
MW4	10/25/94	No Odor	64.5	8.61	2400	27	30
MW1	1/20/95	No Odor	62.9	7.37	570	27	30
MW2	1/20/95	No Odor	62.1	7.20	775	27	30
MW3	1/20/95	No Odor	63.6	7.10	870	27	30
MW4	1/20/95	No Odor	63.3	7.26	728	27	30
MW1	4/11/95	No Odor	65.9	6.66	637	30	35
MW2	4/11/95	No Odor	72.9	6.63	926	30	35
MW3	4/11/95	Odor	70.8	6.62	873	30	35
MW4	4/11/95	No Odor	69.2	6.68	791	30	35
MW1	7/13/95	INACCESSIBLE					
MW2	7/13/95	No Odor	73.6	6.30	819	30	35
MW3	7/13/95	Odor	75.0	6.60	800	30	35
MW4	7/13/95	No Odor	75.0	7.00	739	30	35

K = Conductivity in micromhos
T = Temperature in degrees Fahrenheit
pH = Hydrogen ion concentration
3WV = Calculated three well volumes in gallons

* Data for previous sampling events are not available

3.2 Groundwater Analyses

Groundwater samples from each accessible well were analyzed for TPHg using Environmental Protection Agency (EPA) Method 8015 (modified for gasoline) with purge and trap EPA Method 5030, and for the associated volatile constituents BTEX using EPA Method 602 with purge and trap EPA Method 5030. Results of the analyses are summarized in Table 2; copies of laboratory reports are attached as Appendix A. All analyses were conducted by Sparger Technology Laboratories, of Sacramento, California, which is certified by the State of California for the requested analyses.

TABLE 2
RESULTS OF LABORATORY ANALYSES
GROUNDWATER SAMPLES
BECK ROOFING FACILITY
HAYWARD, CALIFORNIA

Well Number and Date	TPHg	Benzene	Toluene	Ethyl-benzene	Total Xylenes
MW1					
8/4/94	<0.05	<0.0003	<0.0003	<0.0003	<0.0005
10/25/94	<0.05	<0.0003	<0.0003	<0.0003	<0.0003
1/20/95	<0.05	<0.0003	<0.0003	<0.0003	<0.0003
4/11/95	<0.05	<0.0003	<0.0003	<0.0003	<0.0003
7/13/95		INACCESSIBLE			
MW2					
8/4/94	<0.05	<0.0003	<0.0003	<0.0003	<0.0005
10/25/94	<0.05	<0.0003	<0.0003	<0.0003	<0.0003
1/20/95	<0.05	**0.0010**	<0.0003	<0.0003	<0.0003
4/11/95	<0.05	**0.0012**	<0.0003	<0.0003	<0.0003
7/13/95	<0.05	<0.0003	<0.0003	<0.0003	<0.0003
MW3					
8/4/94	**4.2**	**0.45**	<0.003	**0.18**	**0.16**
10/25/94	<0.05	<0.0003	<0.0003	<0.0003	<0.0003
1/20/95	**4.4**	**0.58**	**0.002**	**0.130**	**0.160**
4/11/95	**1.8**	**0.088**	**0.0014**	**0.033**	**0.027**
7/13/95	**3.4**	**0.50**	<0.0003	**0.130**	**0.094**
MW4					
8/4/94	<0.05	<0.003	0.0005	<0.0003	<0.0005
10/25/94	<0.05	<0.0003	<0.0003	<0.0003	<0.0003
1/20/95	<0.05	<0.0003	<0.0003	<0.0003	<0.0003
4/11/95	<0.05	<0.0003	<0.0003	<0.0003	<0.0003
7/13/95	<0.05	<0.0003	<0.0003	<0.0003	<0.0003

TPHg = Total petroleum hydrocarbons
Results given in milligrams per liter (parts per million)
< = Less than laboratory minimum detection limits
MW1 = Monitoring well number

3.3 Groundwater Gradient

As directed by the Alameda County Environmental Health Department, groundwater surface measurements have been taken on a monthly basis since the last quarterly monitoring event in April 1995. Elevation data gathered during the monthly measurements indicate the groundwater surface has been receding since April. The groundwater gradient was approximated from calculations made using surveyed wellhead elevations and locations in combination with depth to groundwater measurements made on May 9 and June 9, 1995 (Table 3, Figures 2, 3, and 4). The groundwater elevation data indicate that groundwater was flowing S65°W with a gradient of 0.0011 ft per ft on May 9, and S59°W with a gradient of 0.0007 ft per ft on June 9. As previously noted, during the sampling event on July13, 1995 soil stockpiled on the property had been placed directly over MW1, prohibiting access to that well. As a result, the groundwater elevation could not be measured in MW1, prohibiting accurate determination of the groundwater flow characteristics. Based on the elevations measured in MW1, MW2, and MW3, it appears the groundwater flow remains westerly or southwesterly.

TABLE 3
GROUNDWATER ELEVATION DATA
BECK ROOFING FACILITY
HAYWARD, CALIFORNIA
Page 1 of 2

Well Number	Elevation of Top of Casing (ft. above MSL)	Depth to Water (ft. below top of casing)	Water-level Elevation (ft. above MSL)	Gradient and Direction
8/4/94				
MW1	58.55	29.96	29.29	
MW2	58.65	29.35	29.30	
MW3	58.52	29.27	29.25	
MW4	58.01	28.80	29.21	
10/25/94				
MW1	58.55	30.10	28.45	
MW2	58.65	30.15	28.50	0.0009 ft/ft
MW3	58.52	30.10	28.42	S22°W
MW4	58.01	29.60	28.41	
1/20/95				
MW1	58.55	26.57	31.98	
MW2	58.65	26.65	32.00	0.0002 ft/ft
MW3	58.52	26.54	31.98	S0°W
MW4	58.01	26.03	31.98	
4/11/95				
MW1	58.55	23.87	34.68	
MW2	58.65	23.92	34.73	0.0009 ft/ft
MW3	58.52	23.87	34.65	S24°W
MW4	58.01	23.38	34.63	
5/9/95				
MW2	58.55	24.65	33.90	
MW2	58.65	24.735	33.915	0.0011 ft/ft
MW3	58.52	24.66	33.86	S65°W
MW4	58.01	24.20	33.81	
6/9/95				
MW1	58.55	25.39	33.16	
MW2	58.65	25.47	33.18	0.0007 ft/ft
MW3	58.52	25.40	33.12	S59°W
MW4	58.01	24.92	33.10	

Continued on Next Page

TOC = Top of the well casing (elevation in ft. above mean sea level- AMSL)
Gradient = groundwater gradient in ft per ft
Direction = groundwater flow direction

TABLE 3
GROUNDWATER ELEVATION DATA
BECK ROOFING FACILITY
HAYWARD, CALIFORNIA
Page 2 of 2

Well Number	Elevation of Top of Casing (ft. above MSL)	Depth to Water (ft. below top of casing)	Water-level Elevation (ft. above MSL)	Gradient and Direction
7/13/95				
MW1	58.55	INACCESSIBLE		
MW2	58.65	26.0	32.65	
MW3	58.52	25.95	32.57	
MW4	58.01	25.5	32.51	

TOC = Top of the well casing (elevation in ft. above mean sea level- AMSL)
Gradient = groundwater gradient in ft per ft
Direction = groundwater flow direction

3.4 Quality Assurance/Quality Control

All field equipment was cleaned and decontaminated prior to being introduced into the sampling environment. Each sample was collected using a dedicated, disposable bailer. Care was taken to prevent the bailer from becoming contaminated prior to being introduced into the sampling environment.

3.4.1 Laboratory QA/QC

Sparger Technology is certified by the CalEPA Hazardous Waste Testing Laboratory Certification Program to conduct the analyses requested. The methods used by the laboratory are published, approved analytical methods which have built-in QA/QC practices. Other QA/QC practices are part of CalEPA's certification program. The laboratory provided pertinent QA/QC documents pertaining to the analytical protocol. These QA/QC documents include surrogate recovery data and analytical charts including those of the spikes and matrix spike duplicates. Copies of these documents were incorporated into the laboratory reports of analyses (Appendix A).

4.0 CONCLUSIONS AND DISCUSSION

Consistent with data presented in previous quarterly monitoring reports, groundwater contamination was not detected in monitoring wells MW1 and MW4. While benzene was detected in MW2 during the two previous events, it was not detected during this event. Gasoline and benzene were detected in MW3 at concentrations of 3.49 and 0.50 ppm, respectively. The contaminant concentrations detected in MW3 increased somewhat since the previous sampling event ,but are consistent with historic analytical data for that well. The groundwater elevation was roughly 0.5 feet lower than the elevation measured during the previous sampling event.

based on?

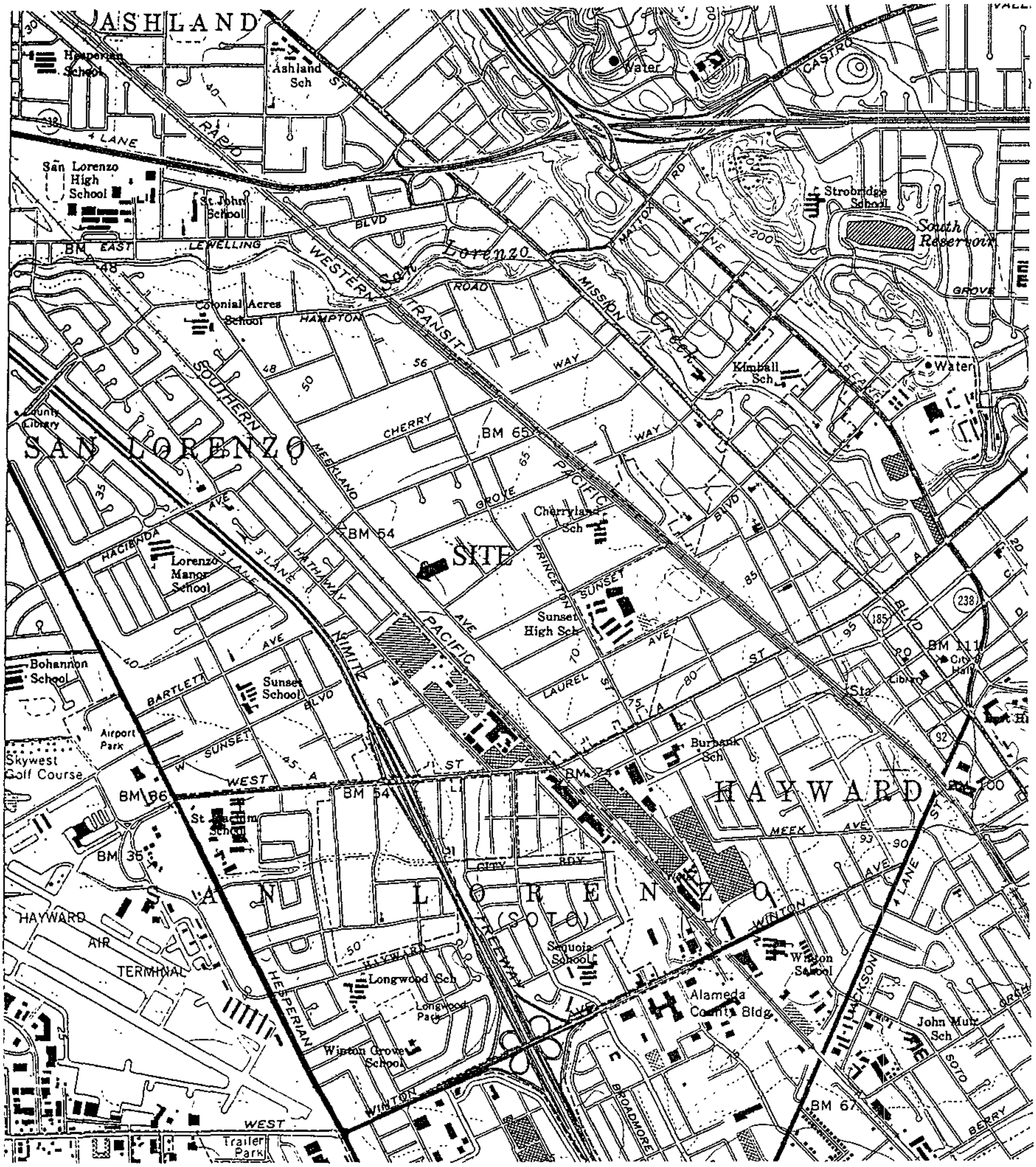
5.0 RECOMMENDATIONS

The present data suggest that there is minimal effect on, and minimal risk to, the public from the contamination present. Excavation of approximately 400 cu yd of contaminated soil underlying the former tank location was completed in November 1994. Confirmation soil samples collected from the sidewalls indicated that significant contaminant concentrations remains in the subsurface at the perimeter of the excavation. Consequently, further remedial action is being considered. Sampling of all of the onsite monitoring wells should continue on a quarterly basis with monthly groundwater elevation measurements until completion of all remedial action, or until otherwise directed.

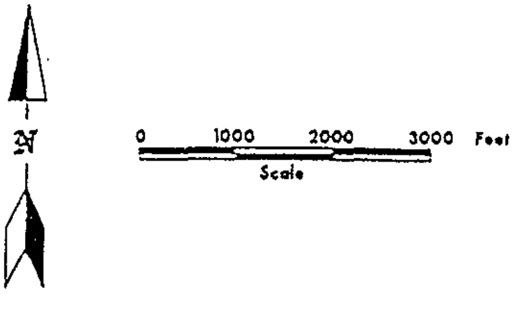
6.0 LIMITATIONS

The above conclusions are based on our assessment of conditions indicated to exist as of the dates of our field work. Our assessment included review of previous documents and interviews with state or local regulatory persons familiar with the area. This assessment was conducted in accordance with generally accepted standards of environmental geological practice at the time it was performed. The results of this assessment do not preclude the possibility that substances that are currently, or which in the future may be defined as hazardous, may be present on the property because of activities that we could not identify, or in locations which were not sampled.

Our conclusions are based on groundwater sample analyses representative of contaminant concentrations at the locations sampled. These results are considered indicative of site conditions, but such conditions may vary away from the points sampled. Further investigation, including additional subsurface exploration and laboratory testing of soil and groundwater samples can reduce the uncertainties inherent in this type of limited environmental assessment. No soil engineering or geotechnical references are made, nor should they be inferred.



Reference: USGS 7.5'- series topographic map of the Hayward Quadrangle (photorevised 1980)



SITE LOCATION MAP
BECK ROOFING FACILITY
21123 MEEKLAND AVENUE

HAYWARD, CALIFORNIA

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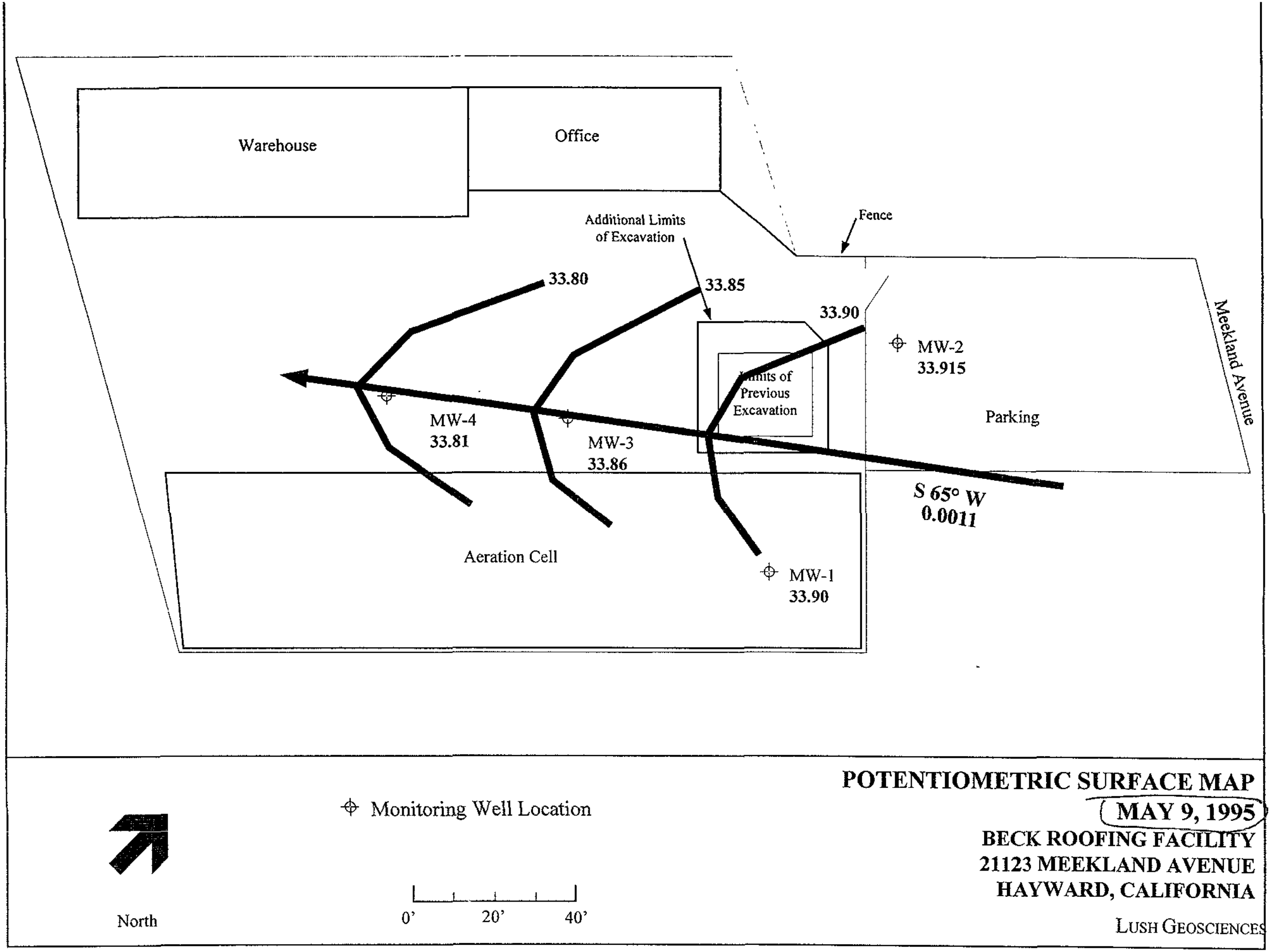
FIGURE 1



POTENTIOMETRIC SURFACE MAP
MAY 9, 1995
BECK ROOFING FACILITY
21123 MEEKLAND AVENUE
HAYWARD, CALIFORNIA

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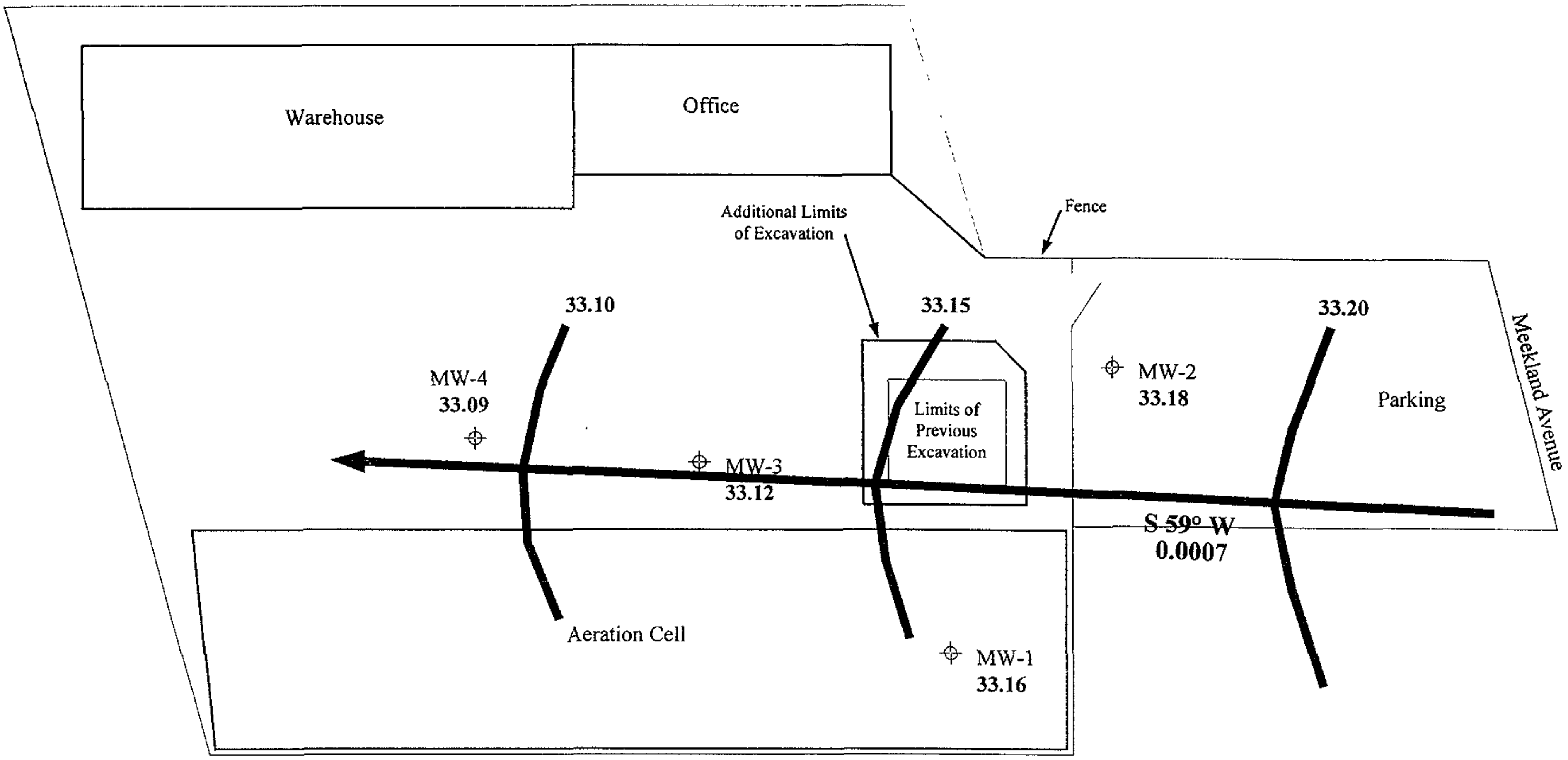
FIGURE 4



⌖ Monitoring Well Location

North

0' 20' 40'

POTENTIOMETRIC SURFACE MAP
JUNE 9, 1995
BECK ROOFING FACILITY
21123 MEEKLAND AVENUE
HAYWARD, CALIFORNIA

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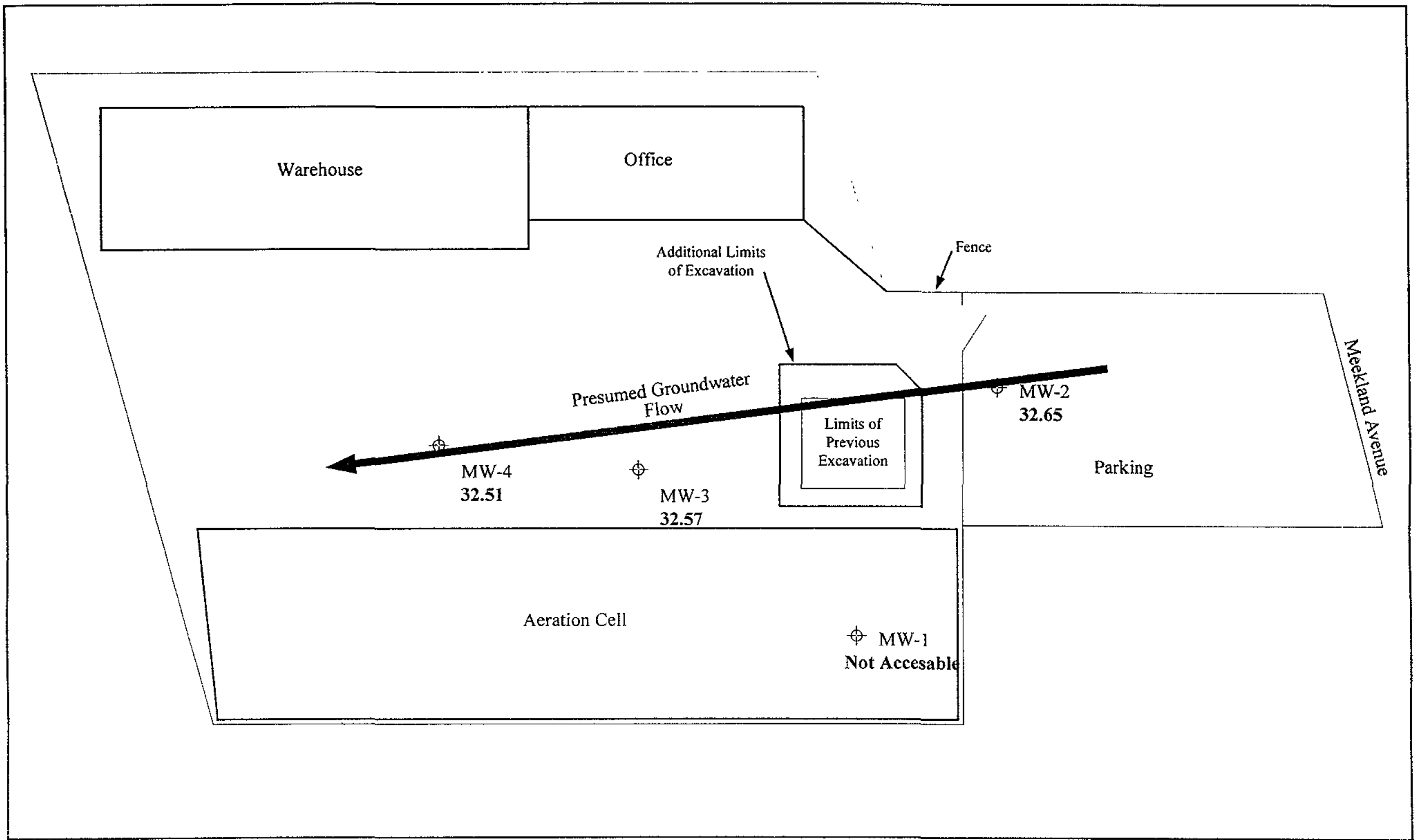
FIGURE 3



POTENTIOMETRIC SURFACE MAP
JULY 13, 1995

BECK ROOFING FACILITY
21123 MEEKLAND AVENUE
HAYWARD, CALIFORNIA

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FIGURE 4

APPENDIX A

CHAIN OF CUSTODY RECORDS

LABORATORY REPORTS OF ANALYSES

STOCKPILED SOIL SAMPLES

SPARGER TECHNOLOGY, INC.
Analytical Laboratory
3050 Fite Circle, #112 Sacramento, CA 95827
Phone: (916) 362-8947
FAX: (916) 362-0947

CHAIN OF CUSTODY RECORD

Company: Lush Geosciences **Phone:** (916) 737-9294

Project Manager: Bill Welter FAX (916) 737-9298

Report Address:
3560 Business Drive, Suite 120

Sacramento, CA 95826

Billing Name & Address:

STAL Invoice Number: 5101

Project Name: Beck Roofing **Project/Job #:** 423-001

Project Location: Hayward **P.O. #:**

REMARKS:

ANALYSIS REQUEST

	Sampling		Container					Preservative Used			Matrix					TCLP													WET (STLC) / TCLP / Total					TAT		
SAMPLE ID	Date	Time	40 mL VOA	Brass Sleeve	1 L amber bottle	250 mL Plastic	Other:	HCl/HNO3/ICE	None	Other:	Water	Soil	Air	Other:	BTEX (602/8020)/503.1	BTEX/TPHgas (502/8020/8015)	TPHdiesel/TPHmotor oil/kerosene(8015)	EPA 601/8010/502.2/504	EPA 602/8020	EPA 608/8080 (Pesticides)/505/508	EPA 608/8080 (PCS's)	EPA 524/8240/524.2	EPA 625/8270/525	Total Oil & Grease (5520)	Non-Polar O & G/TRPH (418.1)	Organic Lead	RCI		CAM-17 Metals	CAM-5 Metals (Cd, Cr, Pb, Ni, Zn)	Lead			Standard	Rush Services (72hr / 48hr / 24hr / 12hr)	Holiday/Weekend Rush
TMW2	7-13		2								X					X																		X		
TMW3	7-13		2								X					X																		X		
TMW4	7-13		2								X					X																		X		

Relinquished by:
Date: 7-13-95 Time:

Received by:
Date: 7/13/95 Time: 3:30p

Relinquished by:
Date: Time:

Received by:
D

Sparger Technology, Inc.
With Automation in Mind

Analytical Laboratory Division
Mobile Laboratory Division
Scientific Division

July 25, 1995

Mr. Bill Welter
Lush Geosciences
3560 Business Drive, Suite 120
Sacramento, CA 95820

Dear Mr. Welter:

Enclosed is the report for the three (3) water samples. The samples were received at Sparger Technology Analytical Lab on July 13, 1995.

The samples were received in six (6) 40 mL VOA vials. The samples were transported and received under documented chain of custody and stored at four (4) degrees C until analysis was performed.

The report consists of the following sections:

I. Sample Description
II. Analysis Request
III. Quality Control Report
IV. Analysis Results

No problems were encountered with the analysis of your samples.

If you have questions, please feel free to call.

Sincerely,

R. L. James
Principal Chemist

3050 Fite Circle, Suite 112 • Sacramento, California 95827 • (916) 362-8947 • FAX (916) 362-0947

I Sample Description

See attached Samples Description Information.

The samples were received under chain-of-custody.

II Analysis Request

The following analytical tests were requested:

Lab ID	Your ID	Analysis Description
ST95-07-678A	MW2	TPHgas & BTEX
ST95-07-679A	MW3	TPHgas & BTEX
ST95-07-680A	MW4	TPHgas & BTEX

III Quality Control

A. **Project Specific QC.** No project specific QC (i.e., spikes and/or duplicates) was requested.

B. **Method Blank Results.** A method blank is a laboratory-generated sample which assesses the degree to which laboratory operations and procedures cause false-positive analytical results for your sample.

No target parameters were detected in the method blank associated with your sample at the reporting limit levels noted on the data sheets in the Analytical Results section.

C. **Laboratory Control Spike.** A Laboratory Control Spike (LCS) is a sample which is spiked with known analyte concentrations, and analyzed at approximately 10% of the sample load in order to establish method-specific control limits. The LCS results associated with your samples are on the attached Laboratory Control Spike and Laboratory Control Spike Duplicate Analysis Report.

D. **Matrix Spike Results.** A Matrix Spike is a sample which is spiked with known analyte concentrations, and analyzed at approximately 10% of the sample load in order to establish method-specific control limits. The Matrix Spike results associated with your samples are on the attached Matrix Spike and Matrix Spike Duplicate Analysis Report.

Accuracy is measured by Percent Recovery as in:

$$\% \text{ recovery} = \frac{(\text{measured concentration}) \times 100}{(\text{actual concentration})}$$

IV Analysis Results

Results are on the attached data sheets.

Sparger Technology, Inc.
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Analytical Laboratory Division
Mobile Laboratory Division
Scientific Division

8015/8020 Modified Analysis Report

Attention: Mr. Bill Welter
Lush Geosciences
3560 Business Drive, Suite 120
Sacramento, CA 95820

Date Sampled: Jul 13, 1995
Date Received: Jul 13, 1995
Date Analyzed: Jul 16, 1995

Project #: 423-001

Project Name: Beck Roofing

Client ID: MW-2

LAB ID: ST95-07-678A

Matrix: Water

Dilution: 1 : 1

Name	Amount	Detection Limits	Units
Benzene	ND	0.3	ug/L
Toluene	ND	0.3	ug/L
Ethylbenzene	ND	0.3	ug/L
Xylenes	ND	0.3	ug/L
TPHgas	ND	50	ug/L

Surrogate % Recovery of Trifluorotoluene = 104%

ppb = parts per billion = ug/L = micrograms per Liter
ppm= parts per million = ug/mL = micrograms per milliliter
ND = Not Detected. Compound(s) may be present at concentrations below the detection limit.

R. L. James, Principal Chemist

Jul 19, 1995
Date Reported

SPARGER TECHNOLOGY ANALYTICAL LABORATORY, INC IS CERTIFIED BY THE STATE OF CALIFORNIA DEPARTMENT OF HEALTH SERVICES AS A HAZARDOUS WASTE TESTING LABORATORY

(Certification No 1614)

Sparger Technology, Inc.
With Automation in Mind

Analytical Laboratory Division
Mobile Laboratory Division
Scientific Division

8015/8020 Modified Analysis Report

Attention: Mr. Bill Welter
Lush Geosciences
3560 Business Drive, Suite 120
Sacramento, CA 95820

Date Sampled: Jul 13, 1995
Date Received: Jul 13, 1995
Date Analyzed: Jul 16, 1995

Project #: 423-001

Project Name: Beck Roofing

Client ID: MW-3

LAB ID: ST95-07-679A

Matrix: Water

Dilution: 1 : 5

Name	Amount	Detection Limits	Units
Benzene	500	1.5	ug/L
Toluene	ND	1.5	ug/L
Ethylbenzene	130	1.5	ug/L
Xylenes	94	1.5	ug/L
TPHgas	3400	250	ug/L

Surrogate % Recovery of Trifluorotoluene = 120%

ppb = parts per billion = ug/L = micrograms per Liter
ppm= parts per million = ug/mL = micrograms per milliliter
ND = Not Detected. Compound(s) may be present at concentrations below the detection limit.

R. L. James, Principal Chemist

Jul 19, 1995
Date Reported

SPARGER TECHNOLOGY ANALYTICAL LABORATORY, INC IS CERTIFIED BY THE STATE OF CALIFORNIA DEPARTMENT OF HEALTH SERVICES AS A HAZARDOUS WASTE TESTING LABORATORY
(Certification No. 1614)

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With Automation in Mind

Analytical Laboratory Division
Mobile Laboratory Division
Scientific Division

8015/8020 Modified Analysis Report

Attention:	Mr. Bill Welter Lush Geosciences 3560 Business Drive, Suite 120 Sacramento, CA 95820	Date Sampled: Date Received: Date Analyzed:	Jul 13, 1995 Jul 13, 1995 Jul 16, 1995
Project #:	423-001	Project Name:	Beck Roofing
Client ID:	MW-4	LAB ID:	ST95-07-680A
Matrix:	Water	Dilution:	1 : 1

Name	Amount	Detection Limits	Units
Benzene	ND	0.3	ug/L
Toluene	ND	0.3	ug/L
Ethylbenzene	ND	0.3	ug/L
Xylenes	ND	0.3	ug/L
TPHgas	ND	50	ug/L

Surrogate % Recovery of Trifluorotoluene = 105%

ppb = parts per billion = ug/L = micrograms per Liter
ppm= parts per million = ug/mL = micrograms per milliliter
ND = Not Detected. Compound(s) may be present at concentrations below the detection limit.

R. L. James, Principal Chemist

Jul 19, 1995
Date Reported

SPARGER TECHNOLOGY ANALYTICAL LABORATORY, INC IS CERTIFIED BY THE STATE OF CALIFORNIA
DEPARTMENT OF HEALTH SERVICES AS A HAZARDOUS WASTE TESTING LABORATORY
(Certification No 1614)

Sparger Technology, Inc.
With Automation in Mind

Analytical Laboratory Division
Mobile Laboratory Division
Scientific Division

8020 Modified Laboratory Control Spike (LCS) & Laboratory Control Spike Duplicate (LCSD) BTEX Analysis Report

Attention: Mr. Bill Welter
Lush Geosciences
3560 Business Drive, Suite 120
Sacramento, CA 95820

Date Sampled: Jul 13, 1995
Date Received: Jul 13, 1995
Date Analyzed: Jul 16, 1995

Project ID: 423-001

Project Name: Beck Roofing

Client ID: LCS/LCSD

LAB ID: ST95-07-016 LCS
ST95-07-016 LCSD

Matrix: Water

Dilution:

Name	Conc. Spike Added	Sample Result	LCS Result	LCSD Result	Units	LCS % Recovery	LCSD % Recovery	% RPD Recovery
Benzene	30 ppb	ND	32	30	ug/L	107%	100%	6%
Toluene	30 ppb	ND	33	31	ug/L	110%	103%	6%
Ethylbenzene	30 ppb	ND	33	32	ug/L	110%	107%	3%
Xylenes	30 ppb	ND	32	31	ug/L	107%	103%	3%

Surrogate % Recovery of Trifluorotoluene = 118% LCS 113% LCSD

ppb = parts per billion = ug/L = micrograms per Liter
ppm= parts per million = ug/mL = micrograms per milliliter
ND = Not Detected. Compound(s) may be present at concentrations below the detection limit

R. L. James, Principal Chemist

Jul 19, 1995
Date Reported

SPARGER TECHNOLOGY ANALYTICAL LABORATORY, INC IS CERTIFIED BY THE STATE OF CALIFORNIA
DEPARTMENT OF HEALTH SERVICES AS A HAZARDOUS WASTE TESTING LABORATORY
(Certification No 1614)

Sparger Technology, Inc.
With Automation in Mind

Analytical Laboratory Division
Mobile Laboratory Division
Scientific Division

8020 Modified Matrix Spike (MS) & Matrix Spike Duplicate (MSD)
BTEX Analysis Report

Attention:	Mr. Bill Welter Lush Geosciences 3560 Business Drive, Suite 120 Sacramento, CA 95820	Date Sampled: Date Received: Date Analyzed:	Jul 13, 1995 Jul 13, 1995 Jul 16, 1995
Project ID:	423-001	Project Name:	Beck Roofing
Client ID:	MS/MSD (Batch)	LAB ID:	ST95-07-572A MS ST95-07-572A MSD
Matrix:	Water	Dilution:	

Name	Conc. Spike Added	Sample Result	MS Result	MSD Result	Units	MS % Recovery	MSD % Recovery	% RPD Recovery
Benzene	30 ppb	ND	27	29	ug/L	90%	97%	7%
Toluene	30 ppb	ND	27	30	ug/L	90%	100%	11%
Ethylbenzene	30 ppb	ND	27	30	ug/L	90%	100%	11%
Xylenes	30 ppb	ND	27	29	ug/L	90%	97%	7%

Surrogate % Recovery of Trifluorotoluene = 90% MS 101% MSD

ppb = parts per billion = ug/L = micrograms per liter
ppm= parts per million = ug/ml = micrograms per milliliter
ND = Not Detected. Compound(s) may be present at concentrations below the detection limit

R L James, Principal Chemist

Jul 19, 1995
Date

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