QUARTERLY MONITORING REPORT
BECK ROOFING

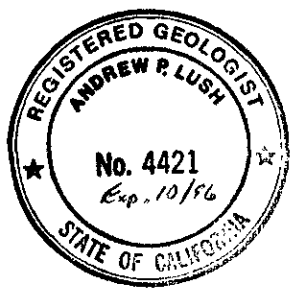
HAYWARD, CALIFORNIA

LUSH GEOSCIENCES JOB NO. 423-001

NOVEMBER 28, 1994

F. William Welter
Project Manager

Andrew P. Lush
RG 4421



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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:

- 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.

We have attached a Generalized Site Plan (Figure 2), showing the site configuration.

2.1 Previous Work

Previous work, performed by other consultants, includes excavation of approximately 350 cubic yards of contaminated soil, drilling and sampling 20 soil borings, installation of four groundwater monitoring wells, 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 on October 25, 1994. 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	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

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

* Data for previous sampling events is not available

3.2 Groundwater Analyses

All analyses were conducted by Sparger Technology Laboratories, of Sacramento, California, which is certified by the State of California for the requested analyses.

Groundwater samples from each 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.

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GEOLOGICAL AND ENVIRONMENTAL SERVICES

December 8, 1994
423-001

Ms. Juliet Shin
Alameda County Health Services
1131 Harbor Bay Parkway
Alameda, CA 94502

Subject: Transmittal of Interim Remedial Action Report and Quarterly Monitoring Report
Beck Roofing in Hayward, California

Dear Ms. Shin:

Enclosed, please find the Interim Remedial Action Report and the Quarterly Monitoring Report. Please call if you have any questions.

Sincerely,

LUSH GEOSCIENCES

Bill Welter
Project Manager

Enclosures

3560 BUSINESS DRIVE, SUITE 120 • SACRAMENTO, CA 95820 • (916) 737-9294 • FAX (916) 737-9298

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**
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**
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**
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**

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

The groundwater gradient was approximated from calculations made using surveyed wellhead elevations and locations in combination with depth to groundwater measurements made on October 25, 1994 (Table 3)(Figure 2). The groundwater elevation data indicate that groundwater was flowing South 22° West with a gradient of 0.0009 feet per foot at the time the measurements were made.

TABLE 3

GROUNDWATER ELEVATION DATA

BECK ROOFING FACILITY
HAYWARD, CALIFORNIA

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**	0.0009
MW2	**58.65**	**30.15**	**28.50**	ft/ft
MW3	**58.52**	**30.10**	**28.42**	S22°W
MW4	**58.01**	**29.60**	**28.41**	

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 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, MW2, and MW4 during this sampling event. Groundwater contamination also was **not** detected in MW3, where past sampling events has detected contamination at varying concentrations. We feel this is very likely due to the lower groundwater elevation as shown in Table 3.

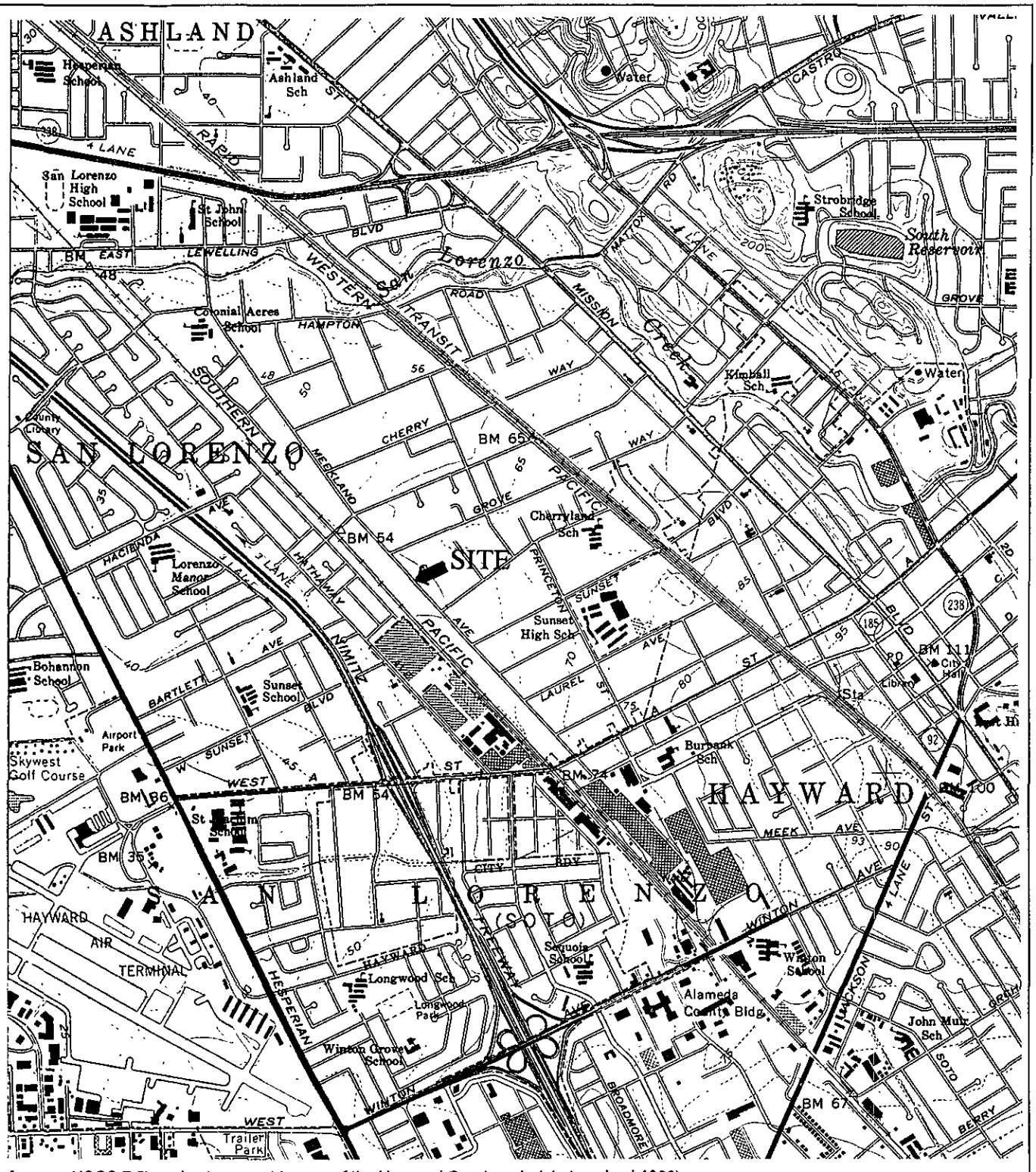
5.0 RECOMMENDATIONS

The present data suggest that there is minimal effect on, and minimal risk to the public from the contamination present. Further remedial action has been initiated to reduce potential risks to groundwater by removing the primary source of the contamination, the contaminated soil remaining underlying the former tank location. Quarterly groundwater monitoring should continue after completion of the remedial action.

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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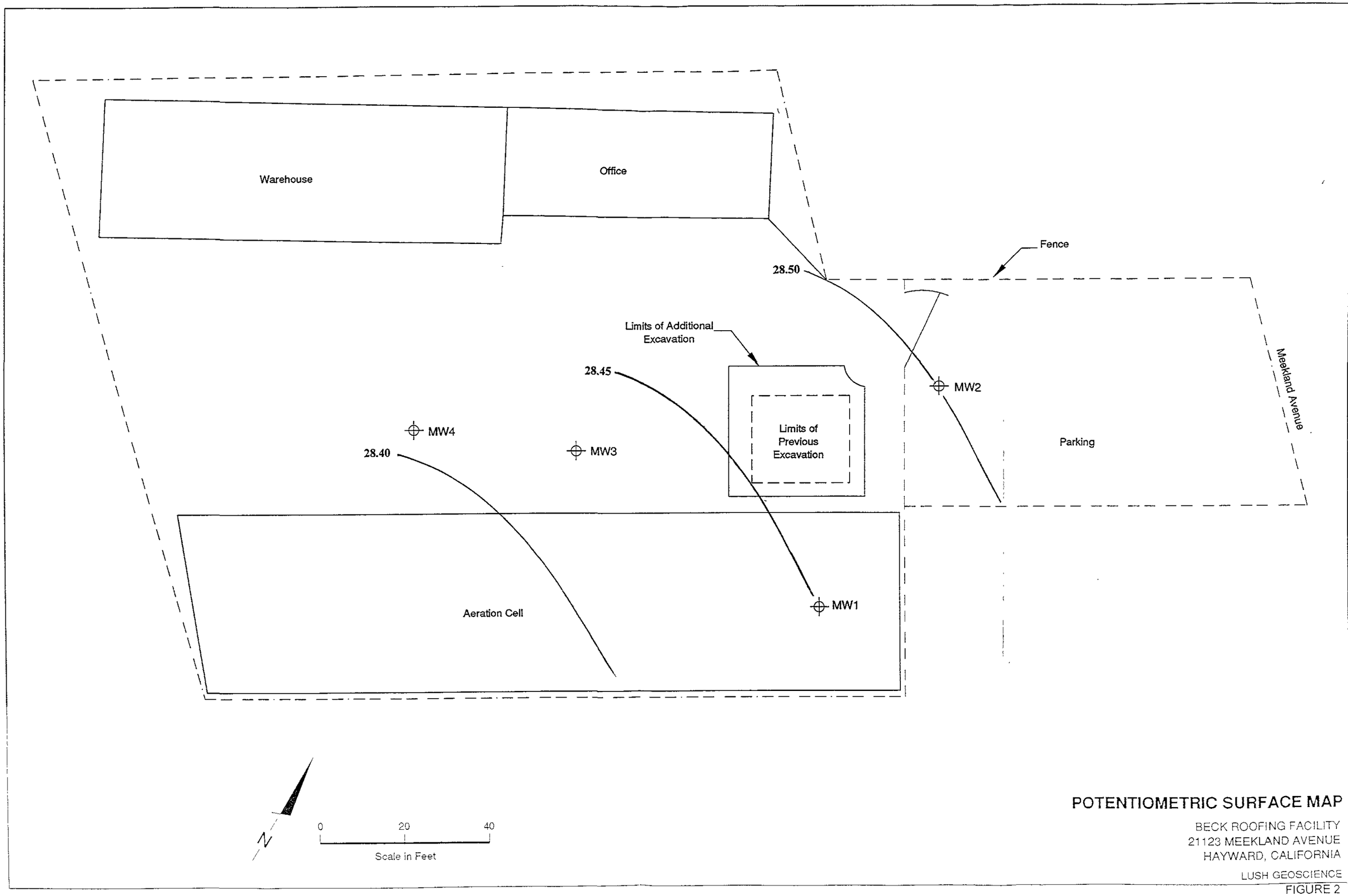
FIGURE 1



POTENTIOMETRIC SURFACE MAP

BECK ROOFING FACILITY
21123 MEEKLAND AVENUE
HAYWARD, CALIFORNIA

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FIGURE 2

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

CHAIN OF CUSTODY RECORD

3959

Company: LUSH GEOSCIENCES Phone: (916) 737-9294
Project Manager: Bill Welter FAX (916) 737-9298
STAL Invoice Number:

Report Address: 3560 BUSINESS DRIVE, SUITE 120, SACRAMENTO, CA 95820
Billing Name & Address:

Project Name: Beck Roofing Project/Job #: 423-001
Project Location: P.O. #:

ANALYSIS REQUEST

REMARKS:

WET (STLC)
TCLP
Total

SAMPLE ID	Sampling: Date	Sampling: Time	Container: 40 mL VOA	Container: Brass Sleeve	Container: 1 L amber bottle	Container: 250 mL Plastic	Container: Other:	Preservative Used: HCl/HNO3 (CE)	Preservative Used: None	Preservative Used: Other:	Matrix: Water	Matrix: Soil	Matrix: Air	Matrix: Other:	TCLP: BTEX (602/8020)/503.1	TCLP: BTEX/TPHgas (602/8020/8015)	TCLP: TPHdiesel/TPHmotor oil/kerosene(8015)	TCLP: EPA 601/8010/502.2/504	TCLP: EPA 602/8020	TCLP: EPA 608/8080 (Pesticides)/505/508	TCLP: EPA 608/8080 (PCB's)	TCLP: EPA 624/8240/524.2	TCLP: 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	TAT: Standard	TAT: Rush Services (72hr / 48hr / 24hr / 12hr)	TAT: Holiday/Weekend Rush
W-30.10-MW1	10/25/94		2					/			/					/															/		
W-30.15-MW2	"		2					/			/					/															/		
W-30.10-MW3	"		2					/			/					/															/		
W-29.6-MW4	10/25/94		2					/			/					/															/		

Relinquished by: [signature] Date: 10/25/94 Time: 4:45
Received by: [signature] Date: 10/25/94 Time: 16:45
Relinquished by: [signature] Date: 10/25/94 Time: 17:45
Received by: [signature] Date: 10/25/94 Time: 5:45 pm

Sparger Technology, Inc.
With Automation in Mind

Analytical Laboratory Division
Mobile Laboratory Division
Scientific Division

November 11, 1994

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

Dear Mr. Welter:

Enclosed is the report for the four (4) water samples. The samples were received at Sparger Technology Analytical Lab on October 25, 1994.

The samples were received in eight (8) VOAs. 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

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Mobile Laboratory Division
Scientific Division

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
ST94-10-978A	W-30.10-MW1	TPHgas & BTEX
ST94-10-979A	W-30.15-MW2	TPHgas & BTEX
ST94-10-980A	W-30.10-MW3	TPHgas & BTEX
ST94-10-981A	W-29.6-MW4	TPHgas & BTEX

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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.

C. **Laboratory Control Spike.** A Laboratory Control Spike (LCS) is a sample which is spiked with 30 ppb BTEX, 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 8020 Modified LCS BTEX Analysis Report.

D. **Matrix Spike Results.** A Matrix Spike is a sample which is spiked with 30 ppb BTEX, 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 8020 Modified Matrix-Spike BTEX Analysis Report.

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.

Accuracy is measured by Percent Recovery as in:

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

IV Analysis Results

Results are on the attached data sheets.

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Sparger Technology, Inc.
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8020/8015 Modified Analysis Report
Project: Beck Roofing (423-001)

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

Date Sampled: Oct 25, 1994
Date Received: Oct 25, 1994
Date Analyzed: Nov 7, 1994
Invoice #: 3959

WATER SAMPLES

Unit = ug/L

Lab ID	Client ID	B	Det Limit	T	Det Limit	E	Det Limit	X	Det Limit	TPHgas	Det Limit	Surrogate % Recovery of Trifluorotoluene	Dilution 1:
ST94-10-978A	W-30.10-MW1	ND	0.3	ND	0.3	ND	0.3	ND	0.3	ND	50	104%	1
ST94-10-979A	W-30.15-MW2	ND	0.3	ND	0.3	ND	0.3	ND	0.3	ND	50	112%	1
ST94-10-980A	W-30.10-MW3	ND	0.3	ND	0.3	ND	0.3	ND	0.3	ND	50	120%	1
ST94-10-981A	W-29.6-MW4	ND	0.3	ND	0.3	ND	0.3	ND	0.3	ND	50	112%	1

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

R. L. James, Principal Chemist

Nov 9, 1994
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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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: Date Received: Date Analyzed:	Oct 25, 1994 Oct 25, 1994 Oct 28, 1994
Project ID:	423-001	Project Name:	Beck Roofing
Client ID:	LCS/LCSD	LAB ID:	ST94-10-028 LCS ST94-10-028 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	32	ug/L	107%	107%	0%
Toluene	30 ppb	ND	32	33	ug/L	107%	110%	3%
Ethylbenzene	30 ppb	ND	33	34	ug/L	110%	113%	3%
Xylenes	30 ppb	ND	31	32	ug/L	103%	107%	3%

Surrogate % Recovery of Trifluorotoluene = 108% LCS 108% 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

Nov 9, 1994
Date Reported

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(Certification No 1614)

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Analytical Laboratory Division
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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:	Oct 25, 1994 Oct 25, 1994 Oct 28, 1994
Project ID:	423-001	Project Name:	Beck Roofing
Client ID:	MS/MSD (Batch)	LAB ID:	ST94-10-1079A MS ST94-10-1079A 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	28	28	ug/L	93%	93%	0%
Toluene	30 ppb	ND	27	27	ug/L	90%	90%	0%
Ethylbenzene	30 ppb	ND	25	26	ug/L	83%	87%	4%
Xylenes	30 ppb	ND	25	25	ug/L	83%	83%	0%

Surrogate % Recovery of Trifluorotoluene = 88% MS 88% 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

Nov 9, 1994
Date

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