REPORT OF INTERIM REMEDIAL ACTION

BECK ROOFING
HAYWARD, CALIFORNIA

LUSH GEOSCIENCES JOB NO. 423-001

NOVEMBER 29, 1994

F. William Welter
Project Manager

Andrew P. Lush
President
R.G. 4421

REGISTERED GEOLOGIST
ANDREW P. LUSH
No. 4421
Exp 10/96
STATE OF CALIFORNIA

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GEOLOGICAL AND ENVIRONMENTAL SERVICES

November 29, 1994
423-001

Mr. Charles Beck
Beck Roofing
21123 Meekland Avenue
Hayward, California 94543

Subject: Interim Remedial Action
Beck Roofing Site, 21123 Meekland Avenue, Hayward

Dear Mr. Beck:

The attached report was prepared to summarize the work completed in November 1994, to mitigate soil contamination remaining in the soil below a former underground fuel tank at the subject property. The report summarizes the nature and extent of the work completed, soil sampling methods, results of the laboratory analyses, and presents conclusions and recommendations. The objective of this remedial action was to remove as much of the remaining contaminated soil as possible with the funds available. The intent was to focus on the deeper soil with the highest contaminant concentrations (underlying the previous excavation), that was acting as the primary source of the groundwater contamination. Based on space and budget constraints, we determined that the maximum size of the excavation could be approximately 400 cu yd of contaminated soil, with a total of slightly more than 1,000 cu yd excavated.

A written workplan describing the proposed scope of work was submitted to Alameda County Department of Environmental Health, Division of Hazardous Materials, and approval of the workplan was received from Ms. Juliet Shin from that office on October 26, 1994. Subsequently, the work was scheduled to commence on November 1, 1994 and a Notification Form was prepared and submitted to the Bay Area Air Quality Management District (BAAQMD).

Previously Excavated Soil

The soil that had been over-excavated after tank removal in 1990 had been stockpiled onsite along the southern property line since that time. To determine if the material was suitable for use as backfill, 18 samples of the soil were collected on October 25, 1994. The 18 individual samples were composited at the laboratory to create 6 composite samples for analysis. The six

composite samples were analyzed for Total Petroleum Hydrocarbons as gasoline and for the associated volatile constituents benzene, toluene, ethylbenzene, and xylene (BTEX) indicated that the soil was suitable to be used as backfill after the excavation.

Interim Remedial Action

During this remedial action, an area measuring 30 ft x 30 ft, roughly centered over the former tank location, was excavated to an average depth of 31 ft. The total volume excavated was approximately 1,033 cu yd. Further lateral excavating was prohibited by safety concerns, structural impediments (i.e. underground utilities or surface improvements), and space constraints. Excavation of the contaminated area included removal of approximately 350 cu yd of a cement grout material that had been used to backfill the original excavation when the tank and some of the contaminated soil had been removed. Based on the limits of the grout, it appears the original excavation measured 20 ft x 20 ft and extended to a maximum depth of 24 ft.

Measurement of depth to groundwater before excavation began indicated the potentiometric surface of groundwater was at a depth of roughly 30 ft. Although the excavation was extended to a depth of 31-32 ft, groundwater was observed to infiltrate very slowly into the excavation. This suggests low transmissivity of the fine-grained soil in the water-bearing zone; the groundwater may be confined. However, this allowed removal of soil in the water bearing zone without significant disturbance to, and further contamination of, the groundwater.

Results of the laboratory analyses of soil samples collected from the excavation sidewalls indicate significant petroleum contamination remains in some areas adjacent to the excavation. Notably, gasoline was detected in the samples collected from the water-bearing zone and capillary fringe at the west corner of the excavation at concentrations of 740 and 3,600 ppm, respectively. In other samples collected in the water bearing zone (below 30 ft) at the north, south, and east corners of the excavation, gasoline was detected at concentrations of 2.4, 30, and 32 ppm, respectively. Analyses of samples taken in the capillary fringe (approximately 25 ft deep) yielded gasoline concentrations of 28 ppm at the north corner and 82 ppm at the east corner. Gasoline was also detected midway on the northeast wall (25 ft deep) at a concentration of 320 ppm. Gasoline and any of the associated volatile constituents were not detected at the south corner at a depth of 25 ft. Also, gasoline and its associated volatile constituents were not detected in any of the samples collected on each sidewall at a depth of 18 ft. One sample was collected in the bottom of the excavation, roughly at its center. Only toluene, ethylbenzene, and xylenes were detected at trace concentrations (0.013, 0.006, and 0.027 ppm, respectively).

Summary

The data summarized above indicates this remedial action was effective at removing the contaminated soil that remained beneath the former tank location and original excavation. This data also indicates there are still some areas of soil contamination adjacent to the excavation that will require mitigation. This remedial action was not intended as a comprehensive clean-up of the site. Rather, this action was designed to remove as much of the remaining contamination as practical with the allocated budget and within the constricted working area.

Methods to mitigate the contamination that remains at the perimeter of the excavation are currently being assessed. In the interim, we recommend that quarterly sampling of the four onsite monitoring wells continue. Results of that monitoring will be considered in evaluating future remedial alternatives. Prior to initiating any further remedial action, the contaminated soil stockpiled onsite should be aerated as weather permits. We anticipate this may be postponed until the spring and summer of 1995, when the weather should be more favorable. At that time, a permit will be secured from the BAAQMD and the soil aerated in compliance with any restrictions contained therein. Due limited space at the site, disposition of this soil should be determined before implementing any further site remediation.

Please call Bill Welter at (916) 737-9294 if you have any questions.

Sincerely,

LUSH GEOSCIENCES

Andrew P. Lush
President

REGISTERED GEOLOGIST
ANDREW P. LUSH
No. 4421
Exp. 10/96
STATE OF CALIFORNIA

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1.0 INTRODUCTION

This report was prepared to summarize the work completed in November 1994, to mitigate soil contamination associated with a former underground fuel tank at the Beck Roofing facility located on Meekland Avenue in Hayward, California (Figure 1). This report summarizes the nature and extent of the work completed, soil sampling methods, results of the laboratory analyses, and presents conclusions and recommendations.

2.0 SITE BACKGROUND

In May of ~~1990~~ 1991, a 1,000 gallon underground fuel tank, used to store gasoline, was removed from the property. When the tank was removed, evidence of a fuel leak was noted in soil adjacent to the tank excavation. As a result, approximately 300 cu yd of contaminated soil were also excavated and stockpiled onsite. The excavation was extended to a reported depth of 17 ft and backfilled with a lean cement grout.

Subsequent investigations performed by other consultants indicated that groundwater, at a depth of 28-30 ft below the surface has been impacted. The plume appears to be contained within the property boundaries, and extends 60-80 ft downgradient to the southwest. Soil contamination was also noted in the capillary fringe, 2-3 ft above the groundwater contamination plume. Vadose soil contamination has not been accurately delineated but appears to extend up to 20-25 ft laterally beyond the former tank location. Soil underlying the previous tank excavation (below 17 ft) contains gasoline at concentrations of approximately 500 parts per million (ppm).

3.0 OBJECTIVE

The objective of this remedial action was to remove as much of the remaining contaminated soil as possible with the funds available. The intent was to focus on the deeper soil with the highest contaminant concentrations (underlying the previous excavation), that was acting as the primary source of the groundwater contamination.

Because the funds available were limited, performing this action was predicated on treating the contaminated soil onsite, thereby eliminating disposal costs. Based on space and budget constraints, we determined that the maximum size of the excavation could be approximately 400 cu yd of contaminated soil, with a total of slightly more than 1,000 cu yd excavated. Clean soil excavated to expose contaminated zones would be returned to the excavation as engineered fill.

4.0 SCOPE OF WORK

4.1 Regulatory Approval

We prepared a written workplan describing the proposed scope of work and submitted it to Alameda County Department of Environmental Health, Division of Hazardous Materials, on October 25, 1994. Written approval of the workplan was received from Ms. Juliet Shin from that office on October 26, 1994. Subsequently, the work was scheduled to commence on November 1, 1994; a Notification Form was prepared and submitted to the Bay Area Air Quality Management District (BAAQMD).

4.2 Laboratory Analysis of Stockpiled Soil

The soil that had been over-excavated after tank removal in 1990 had been stockpiled onsite along the southern property line since that time. At the time of this remedial construction, the stockpile measured approximately 30 ft x 60 ft, and was roughly 2-3 ft high. During the four years it has been stockpiled onsite, it has been necessary to periodically relocate the soil on the property or otherwise alter the pile to provide access or storage space for materials and/or equipment used in the roofing business. As a result, we felt it was likely that the exposure and handling of the soil may have volatilized gasoline contaminants sufficiently to allow reuse of the soil as backfill

To determine if the material was suitable for use as backfill, 18 samples of the soil were collected on October 25, 1994. The samples were collected by digging 1-2 ft into the stockpile at 18 random locations, and driving a 2-in diameter brass tube into the underlying soil until it was completely full. Each tube was covered with teflon tape, capped, sealed with duct tape, placed immediately in refrigerated storage, and submitted the same day to Sparger Technology Laboratories, of Sacramento, California.

The 18 individual samples were composited at the laboratory to create 6 composite samples for analysis. The six composite samples were analyzed for Total Petroleum Hydrocarbons as gasoline (TPHg) using modified EPA Method 8015 with purge and trap EPA Method 5030, and for the associated volatile constituents benzene, toluene, ethylbenzene, and xylene (BTEX) using EPA Method 8020 with purge and trap EPA Method 5030. Results of the analyses are summarized in Table 1; copies of the laboratory reports are attached as Appendix A.

TABLE 1

RESULTS OF LABORATORY ANALYSES
STOCKPILE SOIL SAMPLES

BECK ROOFING
HAYWARD, CALIFORNIA

Sample Number	TPHg	Benzene	Toluene	Ethyl-benzene	Total Xylene
SP(1-3)	<1.0	<0.005	<0.005	<0.005	<0.005
SP(4-6)	<1.0	<0.005	<0.005	<0.005	<0.005
SP(7-9)	<1.0	<0.005	<0.005	<0.005	<0.005
SP(10-12)	<1.0	<0.005	<0.005	<0.005	<0.005
SP(13-15)	<1.0	<0.005	<0.005	<0.005	<0.005
SP(16-18)	<1.0	<0.005	<0.005	<0.005	<0.005

TPHg = Total petroleum hydrocarbons as gasoline
Results given in micrograms per gram (parts per million)
< = Less than laboratory minimum detection limits
SP(1-3) = Composite of samples SP-1, SP-2, and SP-3

The above laboratory data indicate the soil was suitable to be used as backfill after the excavation during this remedial action. The soil was relocated to the northwest corner of the site, which was designated as the temporary storage area for clean soil.

4.3 Implementation of the Workplan

Remedial Constructors Inc. (RCI), of Modesto, California, was retained as the general contractor to perform the excavating and backfilling necessary to complete the proposed scope of work. On October 31, 1994, RCI mobilized their equipment, a Mitsubishi MS 180 excavator and a Caterpillar 918F loader, to the site. The limits of the excavation were staked to form a 30 ft x 30 ft square centered over the previous excavation. This extended the original excavation laterally 5 ft in each direction.

Excavating began on November 1, 1994. As proposed, the upper 15 ft of soil (presumed clean) was excavated and stockpiled in the northwest corner of the site, along with the previously stockpiled soil that had been tested and found suitable for use as backfill. The cement grout, used to backfill the original excavation, was broken out and stockpiled separately to be incorporated into the backfill.

The sides of the excavation were sloped back sufficiently to facilitate safe entry into the excavation and an access ramp was constructed on the southwest side. The excavator was then repositioned in the bottom of the excavation. Working from the base of the ramp, the excavator deepened the excavation to 30-32 ft, starting at the northeast side of the initial excavation and working progressively to the southwest.

All of the soil excavated below the 15 ft depth was presumed contaminated and stockpiled in an aeration cell constructed along the southeast property line. The aeration cell, measuring approximately 60 x 110 ft, was constructed with polyethylene sheeting supported at the perimeter with hay bales.

4.3.1 Soil Sampling and Analysis

As full depth was achieved in the excavation, soil samples were collected from the bottom and sidewalls (Figure 2). Where accessible, the samples were secured by driving 2-in diameter brass tubes into the sidewall (or bottom) with an AMS slide hammer. Where the sample locations could not be safely accessed with the side hammer, the excavator cleared all loose soil from around the selected sampling site, and then excavated undisturbed soil from the bottom/sidewall. The sample was then collected from the excavator bucket by driving the brass tube into the soil nearest the cutting edge of the bucket.

All of the samples were retrieved from the sampler in their brass liners, covered with aluminum foil, capped, sealed with duct tape, labeled, and immediately placed in refrigerated storage.

The samples were then submitted to Sparger Technology Laboratories in Sacramento, California, where they were analyzed for TPHg by EPA Method 8015 (modified) with purge and trap EPA Method 5030, and for associated volatile constituents BTEX using EPA Method 8020 with purge and trap EPA Method 5030. Results of the analyses are summarized in Table 2; copies of the laboratory reports are attached as Appendix B.

TABLE 2

RESULTS OF LABORATORY ANALYSES
SOIL CONFIRMATION SAMPLES

BECK ROOFING
HAYWARD, CALIFORNIA

Sample Number	Depth (feet)*	TPHg	Benzene	Toluene	Ethyl benzene	Total Xylenes
SW-1	30.0*	32	0.52	0.93	0.52	1.6
SW-2	25.0	82	0.43	3.2	1.5	4.5
SW-3	25.0	320	1.5	6.7	4.6	15
SW-4	30.0*	2.4	0.17	0.50	0.11	0.38
SW-5	25.0	28	0.14	0.91	0.37	1.3
SW-6	31.0*	740	1.4	18	7.1	22
SW-7	25.0	3,600	5.7	160	72	220
SW-8	31.0*	30	0.26	2.8	0.76	2.2
SW-9	25.0	<1.0	<0.005	<0.005	<0.005	<0.005
B-10	31.0*	<1.0	<0.005	0.013	0.006	0.027
SW-11	18.0	<1.0	<0.005	<0.005	<0.005	<0.005
SW-12	18.0	<1.0	<0.005	<0.005	<0.005	<0.005
SW-13	18.0	<1.0	<0.005	<0.005	<0.005	<0.005

TPHg = Total petroleum hydrocarbons as gasoline
Results in micrograms per gram (parts per million)
< = Less than laboratory minimum detection limits
* = samples collected at bottom of the excavation

4.3.2 Excavation Backfill

After the excavation had been extended to its maximum practical limits and confirmation samples had been collected, backfilling commenced immediately (beginning November 4, 1994). Clean granular material, composed predominately of pea gravel, was imported from CalMat in Pleasanton, California. The cement grout debris was blended with the imported material and placed in the bottom of the excavation. Sufficient material was imported (approximately 475 tons or 340 cubic yards) and blended with the grout debris to backfill the excavation to an elevation roughly 15 ft below the ground surface.

On November 7, 1994, RCI brought in an Ingersoll Rand SD70F compactor, and began replacing the clean stockpiled soil in the excavation as engineered fill. Steady rain, preceding the backfill operation, saturated the surface of the stockpile. The equipment operators blended surface saturated soil with dry soil deeper in the stockpile to produce a uniform moisture content near optimum in the backfill material.

4.3.3 Backfill Soil Sampling and Analysis

A portion of the backfill soil had previously been analyzed for petroleum contaminants, and the remainder of the pile was composed of uncontaminated overburden soil. Samples were collected to confirm that contamination was not introduced into the stockpile.

The samples were collected as the soil was being replaced in the excavation. Four samples were taken at random locations in the fill, at roughly 2-ft vertical intervals as the fill was placed. The samples were collected by driving 2-in brass tubes into the surface of the fill. They were then retrieved and stored according to protocol previously described in this report.

All of the samples were submitted to Sparger Technology Laboratories were composited and analyzed for TPHg by modified EPA Method 8015 with purge and trap EPA Method 5030, and for associated volatile constituents BTEX using EPA Method 8020 with purge and trap Method 5030. Results of the analyses are summarized in Table 3; copies of laboratory reports are attached as Appendix C.

TABLE 3

RESULTS OF LABORATORY ANALYSES
BACKFILL SOIL SAMPLES

BECK ROOFING
HAYWARD, CALIFORNIA

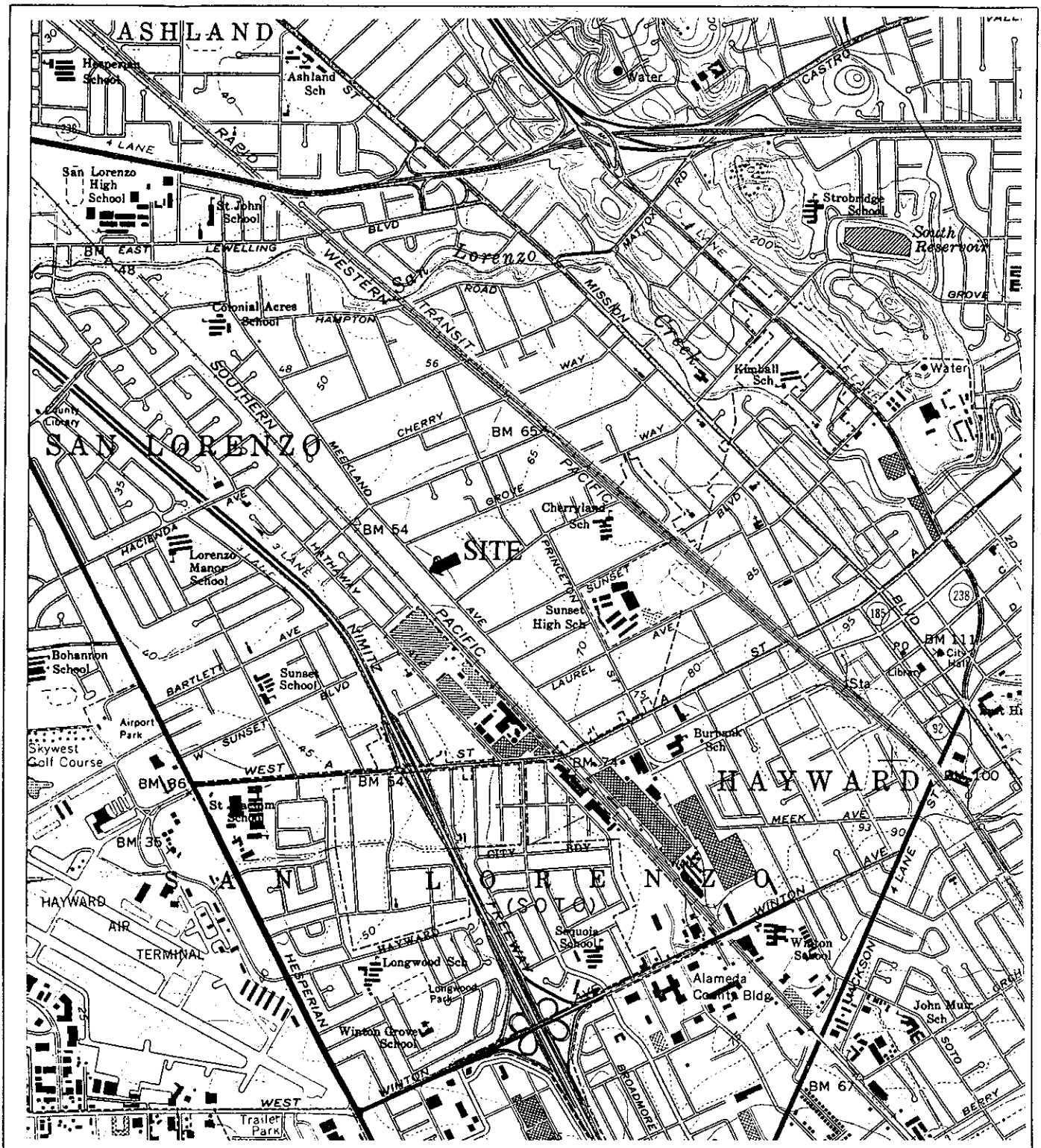
Sample Number	Depth (feet)*	TPHg	Benzene	Toluene	Ethyl-benzene	Total Xylenes
BF-14(A-D)	17.0	1.0	<0.005	0.020	0.012	0.050
BF-15(A-D)	15.0	<1.0	<0.005	<0.005	<0.005	0.013
BF-16(A-D)	13.0	<1.0	<0.005	<0.005	<0.005	<0.005
BF-17(A-D)	11.0	<1.0	<0.005	<0.005	<0.005	<0.005
BF-18(A-D)	9.0	<1.0	<0.005	<0.005	<0.005	<0.005
BF-19(A-D)	7.0	<1.0	<0.005	<0.005	<0.005	<0.005
BF-20(A-D)	4.0	<1.0	<0.005	<0.005	<0.005	<0.005

TPHg = Total petroleum hydrocarbons as gasoline
Results given in micrograms per gram (parts per million)
< = Less than laboratory minimum detection limit
BF-14(A-D) = Composite of samples BF-14A, BF-14B, BF-14C, and BF-14D

4.3.4 Disposition of Contaminated Soil

After the excavation had been backfilled to its original elevation, the contaminated soil (approximately 400 cubic yards) was spread uniformly in the aeration cell. The contaminated soil was completely covered with polyethylene sheeting and securely anchored at the perimeter.

At the end of the winter season, the soil will be exposed and periodically turned over to encourage aeration of the petroleum contaminants. Prior to performing any aeration, the BAAQMD will be notified and an aeration permit obtained. Aeration of the soil will be performed in accordance with any controls or restrictions imposed by the aeration permit.



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

N

0 1000 2000 3000 Feet
Scale

SITE LOCATION MAP
BECK ROOFING FACILITY
21123 MEEKLAND AVENUE

HAYWARD, CALIFORNIA

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FIGURE 1

5.0 QUALITY ASSURANCE/QUALITY CONTROL

All field sampling equipment was cleaned and decontaminated prior to being introduced into the sampling environment and after each soil sample was collected. Each sample was collected in a new brass liner and was immediately capped, sealed, and placed in refrigerated storage.

5.1 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 spikes and matrix spike duplicates. Copies of these documents were incorporated into the laboratory reports of analyses (Appendices A, B, C).

6.0 CONCLUSIONS AND DISCUSSION

During this remedial action, an area measuring 30 ft x 30 ft, roughly centered over the former tank location, was excavated to an average depth of 31 ft. The total volume excavated was approximately 1,033 cu yd. Further lateral excavating was prohibited by safety concerns, structural impediments (i.e. underground utilities or surface improvements), and space constraints.

Excavation of the contaminated area included removal of approximately 350 cu yd of a cement grout material that had been used to backfill the original excavation when the tank and some of the contaminated soil had been removed. Based on the limits of the grout, it appears the original excavation measured 20 ft x 20 ft and extended to a maximum depth of 24 ft.

Based on subsurface investigations completed prior to this remedial action, it was determined that soil above 15 ft in depth was not contaminated. Consequently, only soil deeper than 15 ft was designated for treatment. Excluding the volume of cement grout that extended below 15 ft, this generated approximately 400 cubic yards of soil that was stockpiled onsite for treatment.

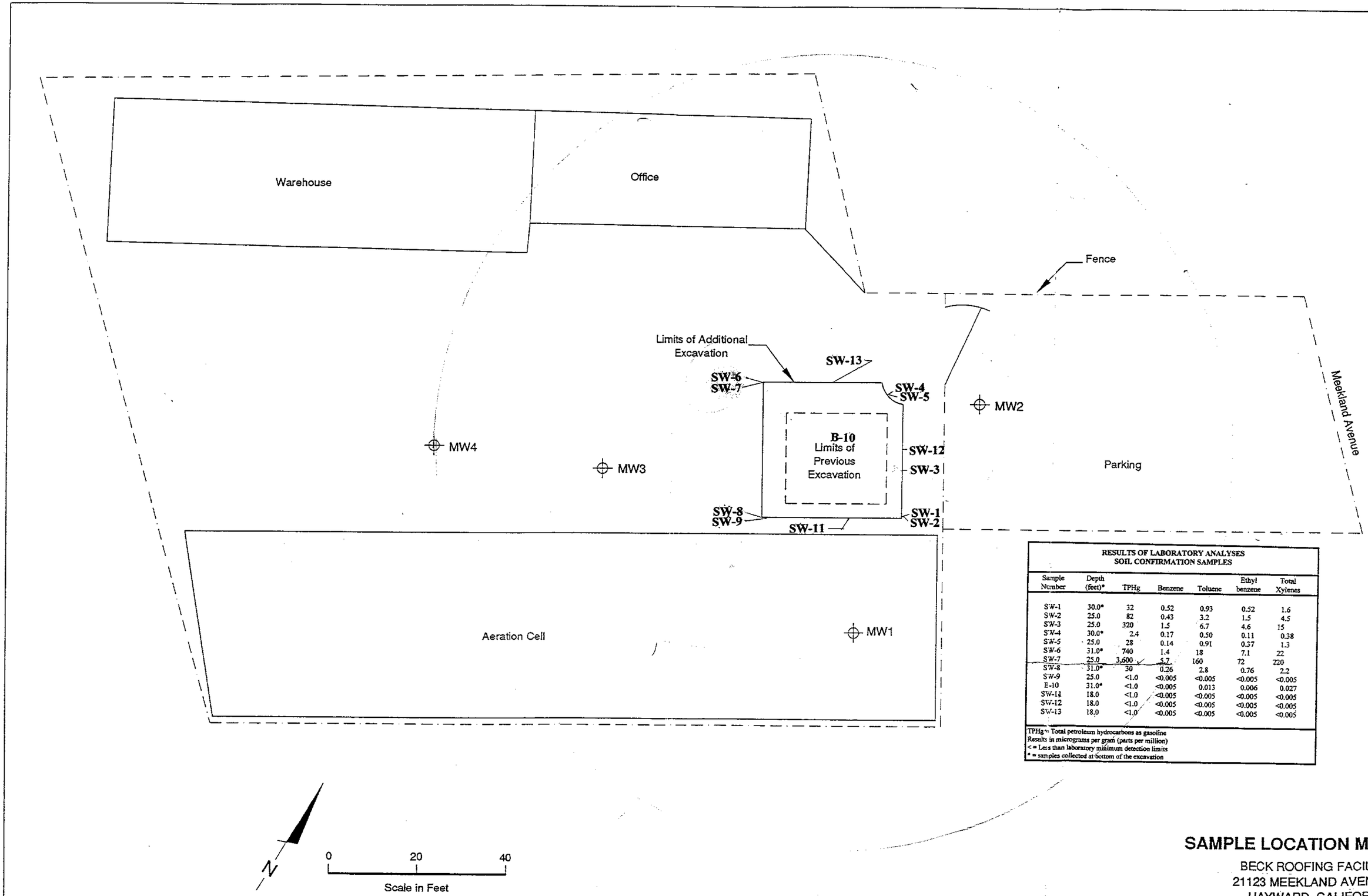
Measurement of depth to groundwater before excavation began indicated the potentiometric surface of groundwater was at a depth of roughly 30 ft. Although the excavation was extended to a depth of 31-32 ft, groundwater was observed to infiltrate very slowly into the

excavation. This suggests low transmissivity of the fine-grained soil in the water-bearing zone; the groundwater may be confined. However, this allowed removal of soil in the water bearing zone without significant disturbance to, and further contamination of, the groundwater.

Results of the laboratory analyses of soil samples collected from the excavation sidewalls indicate significant petroleum contamination remains in some areas adjacent to the excavation. Notably, gasoline was detected in the samples collected from the water-bearing zone and capillary fringe at the west corner of the excavation at concentrations of 740 and 3,600 ppm, respectively. In other samples collected in the water bearing zone (below 30 ft) at the north, south, and east corners of the excavation, gasoline was detected at concentrations of 2.4, 30, and 32 ppm, respectively. Analyses of samples taken in the capillary fringe (approximately 25 ft deep) yielded gasoline concentrations of 28 ppm at the north corner and 82 ppm at the east corner. Gasoline was also detected midway on the northeast wall (25 ft deep) at a concentration of 320 ppm. Gasoline and any of the associated volatile constituents were not detected at the south corner at a depth of 25 ft. Also, gasoline and its associated volatile constituents were not detected in any of the samples collected on each sidewall at a depth of 18 ft. One sample was collected in the bottom of the excavation, roughly at its center. Only toluene, ethylbenzene, and xylenes were detected at trace concentrations (0.013, 0.006, and 0.027 ppm, respectively).

The data summarized above indicates this remedial action was effective at removing the contaminated soil that remained beneath the former tank location and original excavation. This data also indicates there are still some areas of soil contamination adjacent to the excavation that will require mitigation. As stated in the workplan prepared for Alameda County Health Department, this remedial action was not intended as a comprehensive clean-up of the site. Rather, this action was designed to remove as much of the remaining contamination as practical with the allocated budget and within the constricted working area.

Methods to mitigate the contamination that remains at the perimeter of the excavation are currently being assessed. In the interim, we recommend that quarterly sampling of the four onsite monitoring wells continue. Results of that monitoring will be considered in evaluating future remedial alternatives. Prior to initiating any further remedial action, the contaminated soil stockpiled onsite should be aerated as weather permits. We anticipate this may be postponed until the spring and summer of 1995, when the weather should be more favorable. At that time, a permit will be secured from the BAAQMD and the soil aerated in compliance with any restrictions contained therein. Due limited space at the site, disposition of this soil should be determined before implementing any further site remediation.



RESULTS OF LABORATORY ANALYSES
SOIL CONFIRMATION SAMPLES

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SW-5	25.0	28	0.14	0.91	0.37	1.3
SW-6	31.0*	740	1.4	18	7.1	22
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SW-8	31.0*	30	0.26	2.8	0.76	2.2
SW-9	25.0	<1.0	<0.005	<0.005	<0.005	<0.005
E-10	31.0*	<1.0	<0.005	0.013	0.006	0.027
SW-11	18.0	<1.0	<0.005	<0.005	<0.005	<0.005
SW-12	18.0	<1.0	<0.005	<0.005	<0.005	<0.005
SW-13	18.0	<1.0	<0.005	<0.005	<0.005	<0.005

TPHg = Total petroleum hydrocarbons as gasoline
Results in micrograms per gram (parts per million)
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* = samples collected at bottom of the excavation

SAMPLE LOCATION MAP

BECK ROOFING FACILITY
21123 MEEKLAND AVENUE
HAYWARD, CALIFORNIA

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FIGURE 2

APPENDIX A

CHAIN OF CUSTODY RECORDS

LABORATORY REPORTS OF ANALYSES

STOCKPILED SOIL SAMPLES

page 1 of 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

3958

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

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

Project Name: Beech Lumber Project/Job #: 423-001
Project Location: Hayward P.O. #:

ANALYSIS REQUEST

REMARKS:

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/ICE	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	WET (STLC): CAM-17 Metals	TCLP: CAM-5 Metals (Cd, Cr, Pb, Ni, Zn)	Total: Lead	TAT: Standard	TAT: Rush Services (72hr / 48hr / 24hr / 12hr)	TAT: Holiday/Weekend Rush
SP1	10/25/94			1				/				1																						
SP2				1				/				1			1			Composite														1		
SP3				1				/				1																						
SP4				1				/				1																						
SP5				1				/				1			1			Composite														1		
SP6				1				/				1																						
SP7				1				/				1																						
SP8				1				/				1			1			Composite														1		
SP9	10/25/94			1				/				1																						

Relinquished by:	Date:	Time:	Received by:	Date:	Time:
	10/25/94	9:40		10/25/94	16:45
Relinquished by:	Date:	Time:	Received by:	Date:	Time:
	10/25/94	17:45		10/25/94	

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

CHAIN OF CUSTODY RECORD

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STAL Invoice Number:

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

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

Billing Name & Address:

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

REMARKS:

ANALYSIS REQUEST

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/ICE	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	WET (STLC): CAM-17 Metals	WET (STLC): CAM-5 Metals (Cd, Cr, Pb, Ni, Zn)	WET (STLC): Lead	TCLP: CAM-17 Metals	TCLP: CAM-5 Metals (Cd, Cr, Pb, Ni, Zn)	TCLP: Lead	Total: CAM-17 Metals	Total: CAM-5 Metals (Cd, Cr, Pb, Ni, Zn)	Total: Lead	TAT: Standard	TAT: Rush Services (72hr / 48hr / 24hr / 12hr)	TAT: Holiday/Weekend Rush
SP10	10/25/94			1				✓				✓																											
SP11				1				✓				✓			1	COMPOSITE																						1		
SP12				1				✓				✓																											
SP13				1				✓				✓																											
SP14				1				✓				✓			1	COMPOSITE																						1		
SP15				1				✓				✓																											
SP16				1				✓				✓																											
SP17				1				✓				✓			1	COMPOSITE																						1		
SP18	10/25/94			1				✓				✓																											

Relinquished by:	Received by:	Relinquished by:	Received by:
Date:	Time: 1645	Date: 10/25/94 Time: 1645	Date: 10/25/94 Time: 1940	Date: 10/25/94 Time: 2345

Sparger Technology, Inc.
With Automation in Mind

Analytical Laboratory Division
Mobile Laboratory Division
Scientific Division

INVOICE

Lush Geosciences
3560 Business Drive
Suite 120
Sacramento, CA 95820

INVOICE NUMBER: 3958

INVOICE DATE: November 15, 1994

ORDERED BY: Lush Geosciences

YOUR P.O. #/JOB #.: 423-001

TERMS: Payment due net 30 days; 1.5% per month finance

ITEMIZATION OF SERVICES PROVIDED AND CHARGES
(All unpaid invoices and charges are subject to attorney collection fees)

QUANTITY	ANALYSIS DESCRIPTION	UNIT PRICE	EXTENSION
	Project Name: Beck Lumber		
	**********		
6.00	TPHgas & BTEX	55.00	330.00

Total Invoice Amount: $330.00

Please indicate invoice number(s) on your check when paying.

(916) [illegible] FAX (916) [illegible]

Sparger Technology, Inc.
With Automation in Mind

Analytical Laboratory Division
Mobile Laboratory Division
Scientific Division

November 15, 1994

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

Dear Mr. Welter:

Enclosed is the report for the six (6) soil samples. The samples were received at Sparger Technology Analytical Lab on October 25, 1994.

The samples were received in eighteen (18) brass tubes. 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

Sparger Technology, Inc.
With Automation in Mind

Analytical Laboratory Division
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
ST94-10-972A	SP(1-3) Comp.	TPHgas & BTEX
ST94-10-973A	SP(4-6) Comp.	TPHgas & BTEX
ST94-10-974A	SP(7-9) Comp.	TPHgas & BTEX
ST94-10-975A	SP(10-12) Comp.	TPHgas & BTEX
ST94-10-976A	SP(13-15) Comp.	TPHgas & BTEX
ST94-10-977A	SP(16-18) Comp.	TPHgas & BTEX

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

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:

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

IV Analysis Results

Results are on the attached data sheets.

8020/8015 Modified Analysis Report
Project: Beck Lumber (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: Oct 31, 1994
Invoice #: 3958

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Soil Samples

Unit = ug/g

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:
ST94-10-972A	SP(1-3) Comp.	ND	0.005	ND	0.005	ND	0.005	ND	0.005	ND	1.0	*	1
ST94-10-973A	SP(4-6) Comp.	ND	0.005	ND	0.005	ND	0.005	ND	0.005	ND	1.0	*	1
ST94-10-974A	SP(7-9) Comp.	ND	0.005	ND	0.005	ND	0.005	ND	0.005	ND	1.0	*	1
ST94-10-975A	SP(10-12) Comp.	ND	0.005	ND	0.005	ND	0.005	ND	0.005	ND	1.0	*	1
ST94-10-976A	SP(13-15) Comp.	ND	0.005	ND	0.005	ND	0.005	ND	0.005	ND	1.0	80%	1
ST94-10-977A	SP(16-18) Comp.	ND	0.005	ND	0.005	ND	0.005	ND	0.005	ND	1.0	*	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.

*** Matrix Interference**

R. L. James, Principal Chemist

Nov 2, 1994
Date Reported

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: Date Received: Date Analyzed:	Oct 25, 1994 Oct 25, 1994 Nov 4, 1994
Project ID:	423-001	Project Name:	Beck Lumber
Client ID:	LCS/LCSD	LAB ID:	ST94-11-004 LCS ST94-11-004 LCSD
Matrix:	Soil	Dilution:	

Name	Conc. Spike Added	Sample Result	LCS Result	LCSD Result	Units	LCS % Recovery	LCSD % Recovery	% RPD Recovery
Benzene	30 ppb	ND	28	28	ug/kg	93%	93%	0%
Toluene	30 ppb	ND	28	28	ug/kg	93%	93%	0%
Ethylbenzene	30 ppb	ND	28	27	ug/kg	93%	90%	4%
Xylenes	30 ppb	ND	27	27	ug/kg	90%	90%	0%

Surrogate % Recovery of Trifluorotoluene = 100% LCS 100% LCSD

ppb = parts per billion = ug/kg = micrograms per kilogram
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 4, 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)

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:	Oct 25, 1994 Oct 25, 1994 Nov 4, 1994
Project ID:	423-001	Project Name:	Beck Lumber
Client ID:	MS/MSD (Batch)	LAB ID:	ST94-11-033A MS ST94-11-033A MSD
Matrix:	Soil	Dilution:	

Name	Conc. Spike Added	Sample Result	MS Result	MSD Result	Units	MS % Recovery	MSD % Recovery	% RPD Recovery
Benzene	30 ppb	ND	28	30	ug/kg	93%	100%	7%
Toluene	30 ppb	ND	28	29	ug/kg	93%	97%	4%
Ethylbenzene	30 ppb	ND	27	28	ug/kg	90%	93%	4%
Xylenes	30 ppb	ND	27	29	ug/kg	90%	97%	7%

Surrogate % Recovery of Trifluorotoluene = 100% MS 100% MSD

ppb = parts per billion = ug/kg = micrograms per kilogram
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 4, 1994
DATE

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DEPARTMENT OF HEALTH SERVICES AS A HAZARDOUS WASTE TESTING LABORATORY
(Certification No 1614)

[illegible] • Sacramento, California 95827 • (916) 362-8947 • FAX (916) 362-0947

APPENDIX B

CHAIN OF CUSTODY RECORDS

LABORATORY REPORTS OF ANALYSES

SOIL SAMPLES AT LIMITS OF EXCAVATION

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

CHAIN OF CUSTODY RECORD

page 1 of 2

4021

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

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

Project Name: BELK Roofing Project/Job #: 1123.001
Project Location: HAYWARD P.O. #:

ANALYSIS REQUEST

REMARKS:

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/ICE	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	WET (STLC): CAM-17 Metals	WET (STLC): CAM-5 Metals (Cd, Cr, Pb, Ni, Zn)	WET (STLC): Lead	TCLP: CAM-17 Metals	TCLP: CAM-5 Metals (Cd, Cr, Pb, Ni, Zn)	TCLP: Lead	Total: CAM-17 Metals	Total: CAM-5 Metals (Cd, Cr, Pb, Ni, Zn)	Total: Lead	TAT: Standard	TAT: Rush Services (72hr / 48hr / 24hr / 12hr)	TAT: Holiday/Weekend Rush
SW-1	11-4			X					X			X				X																				X		
SW-2				X					X			X				X																				X		
SW-3				X					X			X				X																				X		
SW-4				X					X			X				X																				X		
SW-5				X					X			X				X																				X		
SW-6				X					X			X				X																				X		
SW-7				X					X			X				X																				X		
SW-8				X					X			X				X																				X		
SW-9				X					X			X				X																				Y		

Relinquished by:	Received by:	Relinquished by:	Received by:
Date: 11-7-94 Time: 1110	Date: 11/7/94 Time: 11:11	Date: Time:	Date: Time:

SPARGER TECHNOLOGY, INC.

Analytical Laboratory

3050 Fite Circle, #112 Sacramento, CA 95827

Phone: (916) 362-8947

FAX: (916) 362-0947

CHAIN OF CUSTODY RECORD

Page 2 of 2 4021

Company: LUSH GEOSCIENCES Phone: (916) 737-9294

FAX (916) 737-9298

Project Manager:

STAL Invoice Number:

Report Address: 3560 BUSINESS DRIVE, SUITE 120 SACRAMENTO, CA 95826

Billing Name & Address:

ANALYSIS REQUEST

Project Name: BECK Roofing Project/Job #: 423-001

Project Location: HAYWARD P.O. #:

REMARKS: Composite BF-14A BF-14B BF-14C BF-14D

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/ICE	Preservative Used: None	Preservative Used: Other:	Matrix: Water	Matrix: Soil	Matrix: Air	Matrix: Other:
B-10	11-4			X					X			X		
SW-11	11-7			X					X			X		
SW-12	11-7			X					X			X		
SW-13	11-7			X					X			X		
BF-14A	11-7			X					X			X		
BF-14B	11-7			X					X			X		
BF-14C	11-7			X					X			X		
BF-14D	11-7			X					X			X		
BW 4002 (struck through)				X					X			X		

SAMPLE ID	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		WET (STLC) / TCLP / Total: 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
B-10		X																		X		
SW-11		X																		X		
SW-12		X																		X		
SW-13		X																		X		
BF-14A		X																		X		
BF-14B		X																		X		
BF-14C		X																		X		
BF-14D		X																		X		
BW 4002 (struck through)		X																		X		

BF-14A – BF-14D: composite to ONE sample. Bw

Relinquished by: Bruce [signature]

Received by: [signature]

Relinquished by:

Received by:

[redacted]te: [redacted] 7-... [redacted]e: ... [redacted] 11/... [redacted]e: 1... [redacted]e: [redacted] [redacted] Tim[redacted] [redacted]te: [redacted] [redacted] [redacted] Tim[redacted] [redacted]

Sparger Technology, Inc.
With Automation in Mind

Analytical Laboratory Division
Mobile Laboratory Division
Scientific Division

November 16, 1994

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

Dear Mr. Welter:

Enclosed is the report for the fourteen (14) soil samples. The samples were received at Sparger Technology Analytical Lab on November 7, 1994.

The samples were received in seventeen (17) brass tubes. 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

Sparger Technology, Inc.
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Analytical Laboratory Division
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
ST94-11-296A	SW-1	TPHgas & BTEX
ST94-11-297A	SW-2	TPHgas & BTEX
ST94-11-298A	SW-3	TPHgas & BTEX
ST94-11-299A	SW-4	TPHgas & BTEX
ST94-11-300A	SW-5	TPHgas & BTEX
ST94-11-301A	SW-6	TPHgas & BTEX
ST94-11-302A	SW-7	TPHgas & BTEX
ST94-11-303A	SW-8	TPHgas & BTEX
ST94-11-304A	SW-9	TPHgas & BTEX
ST94-11-305A	B-10	TPHgas & BTEX
ST94-11-306A	SW-11	TPHgas & BTEX
ST94-11-307A	SW-12	TPHgas & BTEX
ST94-11-308A	SW-13	TPHgas & BTEX
ST94-11-309A	BF-14(A-D) Comp.	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:

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

IV Analysis Results

Results are on the attached data sheets.

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: Nov 4, 1994
Date Received: Nov 7, 1994
Date Analyzed: Nov 13, 1994
Invoice #: 4021

Soil Samples

Unit = ug/g

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:
ST94-11-296A	SW-1	0.52	0.125	0.93	0.125	0.52	0.125	1.6	0.125	32	25	Matrix Interference	25
ST94-11-297A	SW-2	0.43	0.25	3.2	0.25	1.5	0.25	4.5	0.25	82	50	Matrix Interference	50
ST94-11-298A	SW-3	1.5	1.0	6.7	1.0	4.6	1.0	15	1.0	320	200	Matrix Interference	200
ST94-11-299A	SW-4	0.17	0.10	0.50	0.10	0.11	0.10	0.38	0.10	2.4	1.0	116%	*
ST94-11-300A	SW-5	0.14	0.125	0.91	0.125	0.37	0.125	1.3	0.125	28	25	Matrix Interference	25
ST94-11-301A	SW-6	1.4	1.0	18	1.0	7.1	1.0	22	1.0	740	200	Matrix Interference	200
ST94-11-302A	SW-7	5.7	5.0	160	20	72	20	220	20	3600	1000	80%	**
ST94-11-303A	SW-8	0.26	0.125	2.8	0.125	0.76	0.125	2.2	0.125	30	25	Matrix Interference	25
ST94-11-304A	SW-9	ND	0.005	ND	0.005	ND	0.005	ND	0.005	ND	1.0	96%	1
ST94-11-305A	B-10	ND	0.005	0.013	0.005	0.006	0.005	0.027	0.005	ND	1.0	72%	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.

*** Dilution 1:20 for BTEX**

**** Dilution 1:1000 for TPHgas & Benzene; Dilution 1:4000 for TEX**

R. L. James, Principal Chemist

Nov 16, 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)

Sparger Technology, Inc.
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Analytical Laboratory Division
Mobile Laboratory Division
Scientific Division
3950 Fite Circle, Suite 112 • Sacramento, California 95827 • (916) 362-8947 • FAX (916) 362-0947

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: Nov 7, 1994
Date Received: Nov 7, 1994
Date Analyzed: Nov 13, 1994
Invoice #: 4021

Sparger Technology, Inc.
With Automation in Mind
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Soil Samples

Unit = ug/g

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:
ST94-11-306A	SW-11	ND	0.005	ND	0.005	ND	0.005	ND	0.005	ND	1.0	100%	1
ST94-11-307A	SW-12	ND	0.005	ND	0.005	ND	0.005	ND	0.005	ND	1.0	76%	1
ST94-11-308A	SW-13	ND	0.005	ND	0.005	ND	0.005	ND	0.005	ND	1.0	80%	1
ST94-11-309A	BF-14(A-D) Comp.	ND	0.005	0.020	0.005	0.012	0.005	0.050	0.005	1.0	1.0	80%	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 16, 1994
Date Reported

Analytical Laboratory Division
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Scientific Division

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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: Date Received: Date Analyzed:	Nov 7, 1994 Nov 7, 1994 Nov 13, 1994
Project ID:	423-001	Project Name:	Beck Roofing
Client ID:	LCS/LCSD	LAB ID:	ST94-11-013 LCS ST94-11-013 LCSD
Matrix:	Soil	Dilution:	

Name	Conc. Spike Added	Sample Result	LCS Result	LCSD Result	Units	LCS % Recovery	LCSD % Recovery	% RPD Recovery
Benzene	30 ppb	ND	31	32	ug/kg	103%	107%	3%
Toluene	30 ppb	ND	32	31	ug/kg	107%	103%	3%
Ethylbenzene	30 ppb	ND	32	32	ug/kg	107%	107%	0%
Xylenes	30 ppb	ND	31	32	ug/kg	103%	107%	3%

Surrogate % Recovery of Trifluorotoluene = 112% LCS 104% LCSD

ppb = parts per billion = ug/kg = micrograms per kilogram
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 16, 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)

3975 Fifth Avenue, Suite 112 • Sacramento, California 95827 • (916) 362-8947 • FAX (916) 362-0947

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:	Nov 7, 1994 Nov 7, 1994 Nov 13, 1994
Project ID:	423-001	Project Name:	Beck Roofing
Client ID:	MS/MSD	LAB ID:	ST94-11-399A MS ST94-11-399A MSD
Matrix:	Soil	Dilution:	

Name	Conc. Spike Added	Sample Result	MS Result	MSD Result	Units	MS % Recovery	MSD % Recovery	% RPD Recovery
Benzene	30 ppb	ND	29	29	ug/kg	97%	97%	0%
Toluene	30 ppb	ND	28	28	ug/kg	93%	93%	0%
Ethylbenzene	30 ppb	ND	29	28	ug/kg	97%	93%	4%
Xylenes	30 ppb	ND	29	28	ug/kg	97%	93%	4%

Surrogate % Recovery of Trifluorotoluene = 104% MS 96% MSD

ppb = parts per billion = ug/kg = micrograms per kilogram
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 16, 1994
DATE

SPARGER TECHNOLOGY ANALYTICAL LABORATORY, INC. IS CERTIFIED BY THE STATE OF CALIFORNIA
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APPENDIX C

CHAIN OF CUSTODY RECORDS

LABORATORY REPORTS OF ANALYSES

BACKFILLED SOIL SAMPLES

LUSH GEOSCIENCES

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

CHAIN OF CUSTODY RECORD

Page 2 of 2 4021

Company: LUSH GEOSCIENCES Phone: (916) 737-9294
FAX (916) 737-9298
Project Manager:
STAL Invoice Number:
Report Address: Billing Name & Address:
3560 BUSINESS DRIVE, SUITE 120
SACRAMENTO, CA 95820

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

ANALYSIS REQUEST

REMARKS: Composite BF-14A BF-14D BF-14B BF-14C

WET (STLC) | TCLP | Total

Sampling: Date, Time · Container: 40 mL VOA, Brass Sleeve, 1 L amber bottle, 250 mL Plastic, Other · Preservative Used: HCl/HNO3/ICE, None, Other · Matrix: Water, Soil, Air, Other · TCLP · 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 (602/8020/8015)	TPHdiesel/TPHmotor oil/kerosene(8015)	EPA 601/8010/502.2/504	EPA 602/8020	EPA 608/8080 (Pesticides)/505/508	EPA 608/8080 (PCB's)	EPA 624/8240/524.2	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
B-10	11-4			X					X			X				X																		X		
SW-11	11-7			X					X			X				X																		X		
SW-12	11-7			X					X			X				X																		X		
SW-13	11-7			X					X			X				X																		X		
BF-14A	11-7			X					X			X				X																		X		
BF-14B	11-7			X					X			X				X																		X		
BF-14C	11-7			X					X			X				X																		X		
BF-14D	11-7			X					X			X				X																		X		
BW [illegible]				X					X			X				X																		X		

Composite to one sample. BW

Relinquished by:		Received by:		Relinquished by:		Received by:	
Bruce [illegible]		[illegible]					
Date: 11-7-94	Time: 1110	Date: 11/7/94	Time: 11:11	Date:	Time:	Date:	Time:

Sparger Technology, Inc.
With Automation in Mind

Analytical Laboratory Division
Mobile Laboratory Division
Scientific Division

November 16, 1994

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

Dear Mr. Welter:

Enclosed is the report for the fourteen (14) soil samples. The samples were received at Sparger Technology Analytical Lab on November 7, 1994.

The samples were received in seventeen (17) brass tubes. 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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Analytical Laboratory Division
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
ST94-11-296A	SW-1	TPHgas & BTEX
ST94-11-297A	SW-2	TPHgas & BTEX
ST94-11-298A	SW-3	TPHgas & BTEX
ST94-11-299A	SW-4	TPHgas & BTEX
ST94-11-300A	SW-5	TPHgas & BTEX
ST94-11-301A	SW-6	TPHgas & BTEX
ST94-11-302A	SW-7	TPHgas & BTEX
ST94-11-303A	SW-8	TPHgas & BTEX
ST94-11-304A	SW-9	TPHgas & BTEX
ST94-11-305A	B-10	TPHgas & BTEX
ST94-11-306A	SW-11	TPHgas & BTEX
ST94-11-307A	SW-12	TPHgas & BTEX
ST94-11-308A	SW-13	TPHgas & BTEX
ST94-11-309A	BF-14(A-D) Comp.	TPHgas & BTEX

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Analytical Laboratory Division
Mobile Laboratory Division
Scientific Division

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:

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

IV Analysis Results

Results are on the attached data sheets.

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

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: Nov 7, 1994
Date Received: Nov 7, 1994
Date Analyzed: Nov 13, 1994
Invoice #: 4021

Sparger Technology, Inc.
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Soil Samples

Unit = ug/g

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:
ST94-11-306A	SW-11	ND	0.005	ND	0.005	ND	0.005	ND	0.005	ND	1.0	100%	1
ST94-11-307A	SW-12	ND	0.005	ND	0.005	ND	0.005	ND	0.005	ND	1.0	76%	1
ST94-11-308A	SW-13	ND	0.005	ND	0.005	ND	0.005	ND	0.005	ND	1.0	80%	1
ST94-11-309A	BF-14(A-D) Comp.	ND	0.005	0.020	0.005	0.012	0.005	0.050	0.005	1.0	1.0	80%	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 16, 1994
Date Reported

Analytical Laboratory Division
Mobile Laboratory Division
Scientific Division

Sparger Technology, Inc.
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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: Date Received: Date Analyzed:	Nov 7, 1994 Nov 7, 1994 Nov 13, 1994
Project ID:	423-001	Project Name:	Beck Roofing
Client ID:	LCS/LCSD	LAB ID:	ST94-11-013 LCS ST94-11-013 LCSD
Matrix:	Soil	Dilution:	

Name	Conc. Spike Added	Sample Result	LCS Result	LCSD Result	Units	LCS % Recovery	LCSD % Recovery	% RPD Recovery
Benzene	30 ppb	ND	31	32	ug/kg	103%	107%	3%
Toluene	30 ppb	ND	32	31	ug/kg	107%	103%	3%
Ethylbenzene	30 ppb	ND	32	32	ug/kg	107%	107%	0%
Xylenes	30 ppb	ND	31	32	ug/kg	103%	107%	3%

Surrogate % Recovery of Trifluorotoluene = 112% LCS 104% LCSD

ppb = parts per billion = ug/kg = micrograms per kilogram
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 16, 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)

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:	Nov 7, 1994 Nov 7, 1994 Nov 13, 1994
Project ID:	423-001	Project Name:	Beck Roofing
Client ID:	MS/MSD	LAB ID:	ST94-11-399A MS ST94-11-399A MSD
Matrix:	Soil	Dilution:	

Name	Conc. Spike Added	Sample Result	MS Result	MSD Result	Units	MS % Recovery	MSD % Recovery	% RPD Recovery
Benzene	30 ppb	ND	29	29	ug/kg	97%	97%	0%
Toluene	30 ppb	ND	28	28	ug/kg	93%	93%	0%
Ethylbenzene	30 ppb	ND	29	28	ug/kg	97%	93%	4%
Xylenes	30 ppb	ND	29	28	ug/kg	97%	93%	4%

Surrogate % Recovery of Trifluorotoluene = 104% MS 96% MSD

ppb = parts per billion = ug/kg = micrograms per kilogram
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 16, 1994
DATE

SPARGER TECHNOLOGY ANALYTICAL LABORATORY, INC. IS CERTIFIED BY THE STATE OF CALIFORNIA
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(Certification No. 1614)

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

CHAIN OF CUSTODY RECORD

4027

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

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

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

ANALYSIS REQUEST

REMARKS: RUN 1 GAS/BTEX ON EACH Composite SAMPLE

WET (STLC) | TCLP | Total

SAMPLE ID	Date	Time	Sampling	Container: 40 mL VOA	Container: Brass Sleeve	Container: 1 L amber bottle	Container: 250 mL Plastic	Container: Other:	Preservative Used: HCl/HNO3/ICE	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
BF-14A Composite	11/7				X												X															X		
BF-14B					X												X																	
BF-14C					X												X																	
BF-14D					X												X																	
BF-15A Composite					X												X															X		
BF-15B					X												X																	
BF-15C					X												X																	
BF-15D					X												X																	

Relinquished by: Debby Monte Date: 11-7-94 Time: 4:06
Received by: Date: 11/8/94 Time: 6:00
Relinquished by: Date: 11/8/94 Time: 6:00
Received by: Date: 11/9/94 Time: 9:20

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

CHAIN OF CUSTODY RECORD

4027

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

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

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

ANALYSIS REQUEST

REMARKS: Composite 4 Samples and Analyze Composite for gas/BTEX

SAMPLE ID	Date	Time	Sampling	Container: 40 mL VOA	Container: Brass Sleeve	Container: 1 L amber bottle	Container: 250 mL Plastic	Container: Other:	Preservative Used: HCl/HNO3/ICE	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	WET (STLC): CAM-17 Metals	TCLP: CAM-5 Metals (Cd, Cr, Pb, Ni, Zn)	TCLP: Lead	Total: Lead	TAT: Standard	TAT: Rush Services (72hr / 48hr / 24hr / 12hr)	TAT: Holiday/Weekend Rush
BF-18A	11-7												X																				X		
BF-18B													X																				X		
BF-18C													X			X																	X		
BF-18D													X																				X		
BF-19A													X																				X		
BF-19B													X																				X		
BF-19C													X			X																	X		
B-19D													X																				X		

Composite

Composite

Relinquished by:	Received by:	Relinquished by:	Received by:
Debby Monte			
Date: 11-7-94 Time: 4:06	Date: 11/8/94 Time: 8:45	Date: 11/8/94 Time: 9:05	Date: 11/8/94 Time: 9 -

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

CHAIN OF CUSTODY RECORD

4027

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

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

Billing Name & Address:

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

REMARKS:
Composite four samples and analyze composite for gas/BTEX

ANALYSIS REQUEST

SAMPLE ID	Date	Time	Sampling	40 mL VOA	Brass Sleeve	1 L amber bottle	250 mL Plastic	Container: Other:	Preservative Used: HCl/HNO3/ICE	None	Other:	Matrix: Water	Soil	Air	Other:	TCLP: BTEX (602/8020)/503.1	BTEX/TPHgas (602/8020/8015)	TPHdiesel/TPHmotor oil/kerosene(8015)	EPA 601/8010/502.2/504	EPA 602/8020	EPA 608/8080 (Pesticides)/505/508	EPA 608/8080 (PCB's)	EPA 624/8240/524.2	EPA 625/8270/525	Total Oil & Grease (5520)	Non-Polar O & G/TRPH (418.1)	Organic Lead	RCI	WET (STLC): CAM-17 Metals	TCLP: CAM-5 Metals (Cd, Cr, Pb, Ni, Zn)	Lead	Total:	TAT: Standard	Rush Services (72hr / 48hr / 24hr / 12hr)	Holiday/Weekend Rush
Composite																																			
BF-16A	11-7				X								X				X																X		
BF-16B					X								X				—																X		
BF-16C					X								X				—																X		
BF-16D					X								X				—																X		
Composite																																			
BF-17A	11-7				X								X				X																X		
BF-17B					X								X				—																X		
BF-17C					X								X				—																X		
BF-17D					X								X				—																X		

Relinquished by: Debby Monte
Date: 11-7-94 Time: 4:06

Received by:
Date: 11/8/94 Time: 8:00

Relinquished by:
Date: 11/8/94 Time: 8:00

Received by:
Date: 11/8/94 Time: 9:00

ACPA

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

CHAIN OF CUSTODY RECORD

4027

Company: LUSH GEOSCIENCES Phone: (916) 737-9294
Project Manager: 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: HAYWARD P.O. #:

ANALYSIS REQUEST

REMARKS: RUN 1 GAS/BTEX ON EACH COMPOSITE SAMPLE.

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/ICE	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	WET (STLC): CAM-17 Metals	TCLP: CAM-5 Metals (Cd, Cr, Pb, Ni, Zn)	TCLP: Lead	Total: Lead	TAT: Standard	TAT: Rush Services (72hr / 48hr / 24hr / 12hr)	TAT: Holiday/Weekend Rush
BF-20A	11/8	11:00		/								/				X																X		
BF-20B	↓	↓		/								/				X																X		
BF-20C				/								/				X																X		
BF-20D				/								/				X																X		

Relinquished by: [signature] Date: 11/9/94 Time: 5:30pm
Received by: [signature] Date: 11/9/94 Time: 9:30 am
Relinquished by: Date: Time:
Received by: [signature] Date: 11/9/94

Sparger Technology, Inc.
With Automation in Mind

Analytical Laboratory Division
Mobile Laboratory Division
Scientific Division

November 16, 1994

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

Dear Mr. Welter:

Enclosed is the report for the six (6) soil samples. The samples were received at Sparger Technology Analytical Lab on November 9, 1994.

The samples were received in twenty four (24) brass tubes. 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

Sparger Technology, Inc.
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Analytical Laboratory Division
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
ST94-11-380A	BF-15(A-D) Comp.	TPHgas & BTEX
ST94-11-381A	BF-18(A-D) Comp.	TPHgas & BTEX
ST94-11-382A	BF-19(A-D) Comp.	TPHgas & BTEX
ST94-11-383A	BF-16(A-D) Comp.	TPHgas & BTEX
ST94-11-384A	BF-17(A-D) Comp.	TPHgas & BTEX
ST94-11-385A	BF-20(A-D) Comp.	TPHgas & BTEX

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Sparger Technology, Inc.
With Automation in Mind

Analytical Laboratory Division
Mobile Laboratory Division
Scientific Division

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:

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

IV Analysis Results

Results are on the attached data sheets.

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

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Sparger Technology Inc.
With Automation in Mind

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 Received: Nov 9, 1994
Date Analyzed: Nov 14, 1994
Invoice #: 4027

Soil Samples (Sampled at November 7, 1994)

Unit = ug/g

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:
ST94-11-380A	BF-15(A-D) Comp.	ND	0.005	ND	0.005	ND	0.005	0.013	0.005	ND	1.0	Matrix Interference	1
ST94-11-381A	BF-18(A-D) Comp.	ND	0.005	ND	0.005	ND	0.005	ND	0.005	ND	1.0	88%	1
ST94-11-382A	BF-19(A-D) Comp.	ND	0.005	ND	0.005	ND	0.005	ND	0.005	ND	1.0	72%	1
ST94-11-383A	BF-16(A-D) Comp.	ND	0.005	ND	0.005	ND	0.005	ND	0.005	ND	1.0	96%	1
ST94-11-384A	BF-17(A-D) Comp.	ND	0.005	ND	0.005	ND	0.005	ND	0.005	ND	1.0	Matrix Interference	1

Soil Samples (Sampled at November 8, 1994)

Unit = ug/g

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:
ST94-11-385A	BF-20(A-D) Comp.	ND	0.005	ND	0.005	ND	0.005	ND	0.005	ND	1.0	72%	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 16, 1994
Date Reported

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: Date Received: Date Analyzed:	Nov 8, 1994 Nov 9, 1994 Nov 13, 1994
Project ID:	423-001	Project Name:	Beck Roofing
Client ID:	LCS/LCSD	LAB ID:	ST94-11-013 LCS ST94-11-013 LCSD
Matrix:	Soil	Dilution:	

Name	Conc. Spike Added	Sample Result	LCS Result	LCSD Result	Units	LCS % Recovery	LCSD % Recovery	% RPD Recovery
Benzene	30 ppb	ND	31	32	ug/kg	103%	107%	3%
Toluene	30 ppb	ND	32	31	ug/kg	107%	103%	3%
Ethylbenzene	30 ppb	ND	32	32	ug/kg	107%	107%	0%
Xylenes	30 ppb	ND	31	32	ug/kg	103%	107%	3%

Surrogate % Recovery of Trifluorotoluene = 112% LCS 104% LCSD

ppb = parts per billion = ug/kg = micrograms per kilogram
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 16, 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)

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:	Nov 8, 1994 Nov 9, 1994 Nov 13, 1994
Project ID:	423-001	Project Name:	Beck Roofing
Client ID:	MS/MSD	LAB ID:	ST94-11-399A MS ST94-11-399A MSD
Matrix:	Soil	Dilution:	

Name	Conc. Spike Added	Sample Result	MS Result	MSD Result	Units	MS % Recovery	MSD % Recovery	% RPD Recovery
Benzene	30 ppb	ND	29	29	ug/kg	97%	97%	0%
Toluene	30 ppb	ND	28	28	ug/kg	93%	93%	0%
Ethylbenzene	30 ppb	ND	29	28	ug/kg	97%	93%	4%
Xylenes	30 ppb	ND	29	28	ug/kg	97%	93%	4%

Surrogate % Recovery of Trifluorotoluene = 104% MS 96% MSD

ppb = parts per billion = ug/kg = micrograms per kilogram
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 16, 1994
DATE

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(Certification No. 1614)