

ALSO
HAZMAT
95 JAN 11 PM 3:20

January 10, 1995
1063-1, MV011004

Mr. Scott Seery
ALAMEDA COUNTY HEALTH CARE SERVICES
DEPARTMENT OF ENVIRONMENTAL HEALTH
1131 Harbor Bay Parkway, Room 250
Alameda, California 94502-6577

**RE: SOIL AND GROUND WATER
QUALITY RECONNAISSANCE
REPORT FOR
S&S BUILDING SUPPLY
SAN LEANDRO, CALIFORNIA**

Dear Mr. Seery:

Per our client's request, enclosed is the soil and ground water quality reconnaissance report for the referenced site located at 701 Fremont Avenue in San Leandro, California.

If you have any questions, please call.

Very truly yours,

LOWNEY ASSOCIATES



Stason I. Foster, P.E.
Associate
Environmental Engineer

SIF:BAF:tjc

SOIL AND GROUND WATER
QUALITY RECONNAISSANCE
S&S BUILDING SUPPLY
SAN LEANDRO, CALIFORNIA

1-10-95

LOWNEY ASSOCIATES
Environmental/Geotechnical/Engineering Services

December 20, 1994
1063-1, MV120708

Mr. Bob Gardner
S&S BUILDING SUPPLY
701 Fremont Avenue
San Leandro, California 94577

**RE: SOIL AND GROUND WATER
QUALITY RECONNAISSANCE
S&S BUILDING SUPPLY
SAN LEANDRO, CALIFORNIA**

Dear Mr. Gardner:

As requested, we are pleased to present this report summarizing our soil and ground water quality reconnaissance at the above-referenced site. This investigation was performed in accordance with our proposal dated June 24, 1994.

Three exploratory borings were drilled on-site to a depth of approximately 25 feet and converted into monitoring wells (MW-1, MW-2 and MW-3); a fourth exploratory boring was drilled to an approximate depth of 16.5 feet (EB-1). Laboratory analysis of soil samples collected from the four borings detected low levels of gasoline range petroleum hydrocarbons. Based on these findings, it appears that the significantly impacted soil was removed during previous overexcavation of the tank pit area.

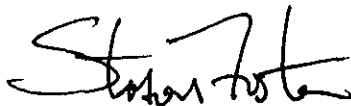
To evaluate the ground water quality, ground water samples were collected from monitoring wells MW-1, MW-2 and MW-3. Gasoline range petroleum hydrocarbons (1,200 to 35,000 ppb) were detected in the ground water sampled. The highest level was detected in the down-gradient monitoring well (MW-1); however, benzene was not detected.

Sampling of the three monitoring wells, on a quarterly basis, is currently planned.

We refer you to the text of the report for details regarding the site activities, results, and conclusions. If you have any questions, please call.

Very truly yours,

LOWNEY ASSOCIATES



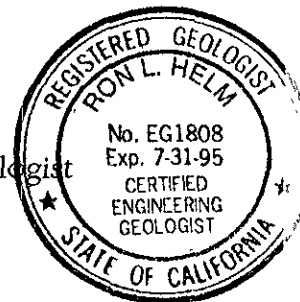
Stason I. Foster, P.E.
Associate, Environmental Engineer

RLH:SIF:BAF:tjc

Copies: Addressee (4)



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



SOIL AND GROUND WATER QUALITY RECONNAISSANCE

For

S&S BUILDING SUPPLY
San Leandro, California

To

Mr. Bob Gardner
S&S BUILDING SUPPLY
701 Fremont Avenue
San Leandro, California 94577

December 1994

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SOIL AND GROUND WATER QUALITY RECONNAISSANCE
S&S BUILDING SUPPLY
SAN LEANDRO, CALIFORNIA

1.0 INTRODUCTION

In this report, we present the results of our soil and ground water quality reconnaissance at 701 Fremont Avenue in San Leandro, California (Figures 1 and 2). The purpose of this investigation was to evaluate soil and ground water quality near the former location of two underground storage tanks (USTs).

Two 1,000-gallon gasoline USTs and dispenser island were formerly located on-site. During the removal of the USTs in 1989, two soil samples were collected from beneath the northern and southern ends of each UST. Laboratory analysis of soil samples collected from beneath the northern and southern end of the westernmost UST detected total petroleum hydrocarbons (TPH) as gasoline at 2,300 parts per million (ppm) and 7,600 ppm, respectively. Laboratory analysis of soil samples collected from beneath the easternmost UST did not detect TPH as gasoline or benzene, ethylbenzene, toluene, or xylenes (BTEX) above the laboratory detection limits.

We understand that additional soil was removed from the UST excavation; however, it does not appear that any additional verification soil samples were collected. The excavation reportedly was extended to ground water at a depth of 10 to 12 feet. Analysis of five composite soil samples collected from the stockpiled soil after aeration did not detect TPH as gasoline or

1.1 Purpose

1.2 Site History

BTEX compounds. The stockpiled soil was subsequently used to backfill the excavation.

The scope of work for this investigation included the following:

- ▼ Supervising the drilling and logging of one exploratory boring to a depth of approximately 16.5 feet, three borings to depths of approximately 25 feet, and collection of soil samples.
- ▼ Conversion of the three 25-foot borings into "permanent" 2-inch diameter monitoring wells and development, sampling, and surveying of the wells.
- ▼ Analysis of selected soil and ground water samples for TPH as gasoline and BTEX (EPA Test Method 8015/8020).

2.0 SOIL AND GROUND WATER QUALITY EVALUATION

To evaluate soil and ground water quality at the site, exploratory borings EB-1, MW-1, MW-2, and MW-3 were drilled on October 27, 1994 at the locations shown on Figure 2. Boring EB-1 was drilled to a depth of approximately 16.5 feet. Borings MW-1, MW-2, and MW-3 were drilled into the shallow water-bearing zone to a depth of approximately 25 feet.

Based on the findings of our subsurface explorations, soil encountered beneath the site appeared to be heterogeneous. However, the soils can generally be grouped into five strata. These strata are designated Stratum A through Stratum E and are discussed below.

1.3 Scope of Work

2.1 Subsurface Exploration

2.1.1 Subsurface Materials

Boring logs, details regarding our field investigation, and soil sampling protocol are presented in Appendix A.

- ▼ Stratum A, a silty clay, was encountered to a depth of approximately 7 feet.
- ▼ Stratum B, a silty sand, was encountered directly beneath Stratum A to depths ranging from 10 to 15 feet.
- ▼ Stratum C, a sandy clay, was encountered to depths of approximately 14 to 16 feet.
- ▼ Stratum D, consisting predominantly of silty/clayey sand and gravel, was encountered beneath Stratum C to a depth of approximately 20 feet. Ground water was typically encountered in Stratum D at a depth between 15 and 18 feet.
- ▼ Stratum E, a sandy clay, was encountered beneath Stratum D and extended to the maximum depth explored of approximately 25 feet.

The three exploratory borings (MW-1, MW-2, and MW-3) drilled into the shallow water-bearing strata were converted into "permanent" 2-inch diameter monitoring wells in general accordance with Zone 7 Water Agency guidelines. Copies of the well permits are included in Appendix B. Well construction details and well development and sampling protocols are described in Appendix C.

2.1.2 Monitoring Well Installation

To evaluate soil quality beneath the site, soil samples collected from above the ground water table in each boring were analyzed for TPH as gasoline and BTEX compounds. Analytical results are presented in Table 1 and on Figure 3. Copies of all laboratory reports are presented in Appendix D.

The soil samples were also monitored with an organic vapor meter (OVM) in the field; the OVM results are shown on the boring logs presented in Appendix A.

2.2 Analytical Results of Soil

TABLE 1. Analytical Results for Soil Samples
(concentrations in ppm)

Sample ID	Gasoline Range Hydrocarbons	Benzene	Toluene	Ethylbenzene	Xylenes
MW-1					
@ 5.0-5.5 ft.	<1.0	<0.005	<0.005	<0.005	0.012
@ 10.0-10.5 ft.	8.4	0.017	<0.005	0.14	0.50
@ 15.0-15.5 ft.	360	0.87	1.2	3.5	17
MW-2					
@ 15.0-15.5 ft.	<1.0	<0.005	<0.005	<0.005	0.0064
MW-3					
@ 5.0-5.5 ft.	<1.0	<0.005	<0.005	<0.005	<0.005
@ 10.0-10.5 ft.	8.6	<0.005	<0.005	0.05	0.11
@ 15.0-15.5 ft.	19	0.021	0.088	0.11	0.17
EB-1					
@ 5.0-5.5 ft.	<1.0	<0.005	<0.005	<0.005	<0.005
@ 10.0-10.5 ft.	2.9	<0.005	<0.005	0.0053	<0.005
@ 14.0-14.5 ft.	27	0.010	0.10	0.099	<0.010

< Compound not detected above the specified laboratory detection limit.

Ground water samples collected from monitoring wells MW-1, MW-2, and MW-3 were also analyzed for TPH as gasoline and BTEX compounds. Analytical results are presented in Table 2 and on Figure 4.

2.3 Analytical Results of Ground Water

TABLE 2. Analytical Results for Ground Water Samples
(concentrations in parts per billion)

Sample ID	Gasoline Range Hydrocarbons	Benzene	Toluene	Ethylbenzene	Xylenes
MW-1	35,000	<25	<25	140	430
MW-2	1200	<2.5	<2.5	<2.5	<2.5
MW-3	2400	4.2	<2.0	40	43
SS-3*	3000	5.6	<2.0	39	44

< Compound not detected above the specified laboratory detection limit.
* Split Sample from monitoring well MW-3

detection limits too high

To establish the ground water gradient, ground water elevations were measured prior to sampling each well using an electronic depth sounder. The relative top of casing elevations for each well were also surveyed. Surveying protocol is included in Appendix C. As shown on the Site Plan (Figure 2), the ground water flow direction beneath the site is towards the southwest. The ground water and top of casing elevations are presented in Table 3.

2.4 Ground Water Flow

TABLE 3. Ground Water and Top of Casing Elevations
(measurements in feet)

Well Number	Relative Top of Casing Elevation	Ground Water Depth*	Relative Ground Water Elevation
MW-1	100.05	15.46	84.59
MW-2	100.00	15.29	84.71
MW-3	99.58	14.96	84.62

*Measured from top of casing

not to MSL

3.0 CONCLUSIONS

The purpose of this investigation was to evaluate soil and ground water quality near the location of the former USTs.

The ground water flow direction beneath the site was measured to be towards the southwest. This corresponds with the regional ground water flow direction.

Laboratory analysis of soil samples collected from the four exploratory borings generally detected low levels of gasoline range petroleum hydrocarbons. The highest levels were detected in soil collected near the soil and ground water interface. Concentrations detected in the more shallow samples were all less than 10 ppm. Based on the low concentrations detected, it appears that the significantly impacted soil was removed during the previous over-excavation of the UST pit area. In our opinion, no further soil quality evaluation is warranted. *OK*

Laboratory analysis of ground water samples collected from the monitoring wells detected gasoline range petroleum hydrocarbons (1,200 to 35,000 ppb). The highest levels were present in the down-gradient monitoring well (MW-1); however, benzene was not detected (<25 ppb). *at least @ this high detection limit*

Based on our experience, the Alameda County Department of Environmental Health will likely require additional investigation to further delineate the extent of ground water contamination. However, prior to performing additional work, we recommend continued quarterly ground water monitoring and that these results be reviewed to further establish ground water flow direction and the residual levels of gasoline range hydrocarbons present in the ground water. The next sampling event is currently scheduled for January 1995.

A copy of this report should be sent to the Alameda County Department of Environmental Health and California Regional Water Quality Control Board.

4.0 LIMITATIONS

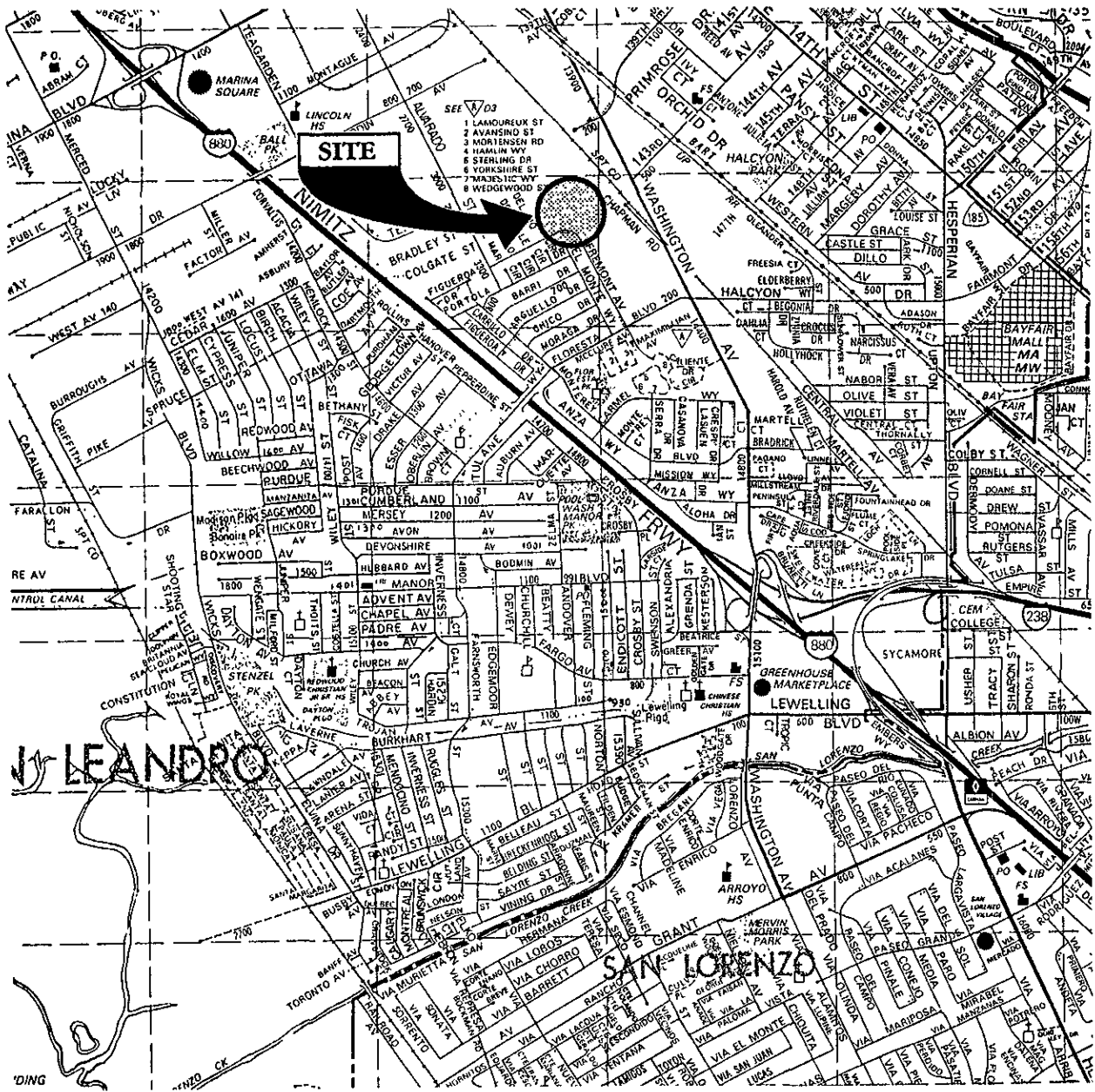
The study that we have made assumes that the data obtained in the field and laboratory are reasonably representative of field conditions and that the subsurface conditions are reasonably susceptible to interpolation and extrapolation between sampling locations. The chemical and other data presented in this report can change over time and are applicable only to the time this study was performed.

The accuracy and reliability of this investigation is a reflection of the number and type of samples taken and the extent of the analysis conducted, and is thus inherently limited and dependent upon the resources expended. Chemical analyses were performed for specific parameters during this investigation, as detailed in the scope of services. Please note that additional constituents not searched for during this investigation may be present in soil and ground water at the site. Our sampling and analytical plan was designed using accepted environmental principles and our judgment for the performance of a reconnaissance investigation, and was based on the degree of investigation desired by you. It is possible to obtain a greater degree of certainty, if desired, by implementing a more rigorous soil and/or ground water sampling program.

This report was prepared for the use of the S&S Building Supply in evaluating soil and ground water

quality at the referenced site at the time of this study.
We make no warranty, expressed or implied, except
that our services have been performed in accordance
with environmental principles generally accepted at
this time and location.

* * * * *



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

1063-1, 11/30 BAF'EB

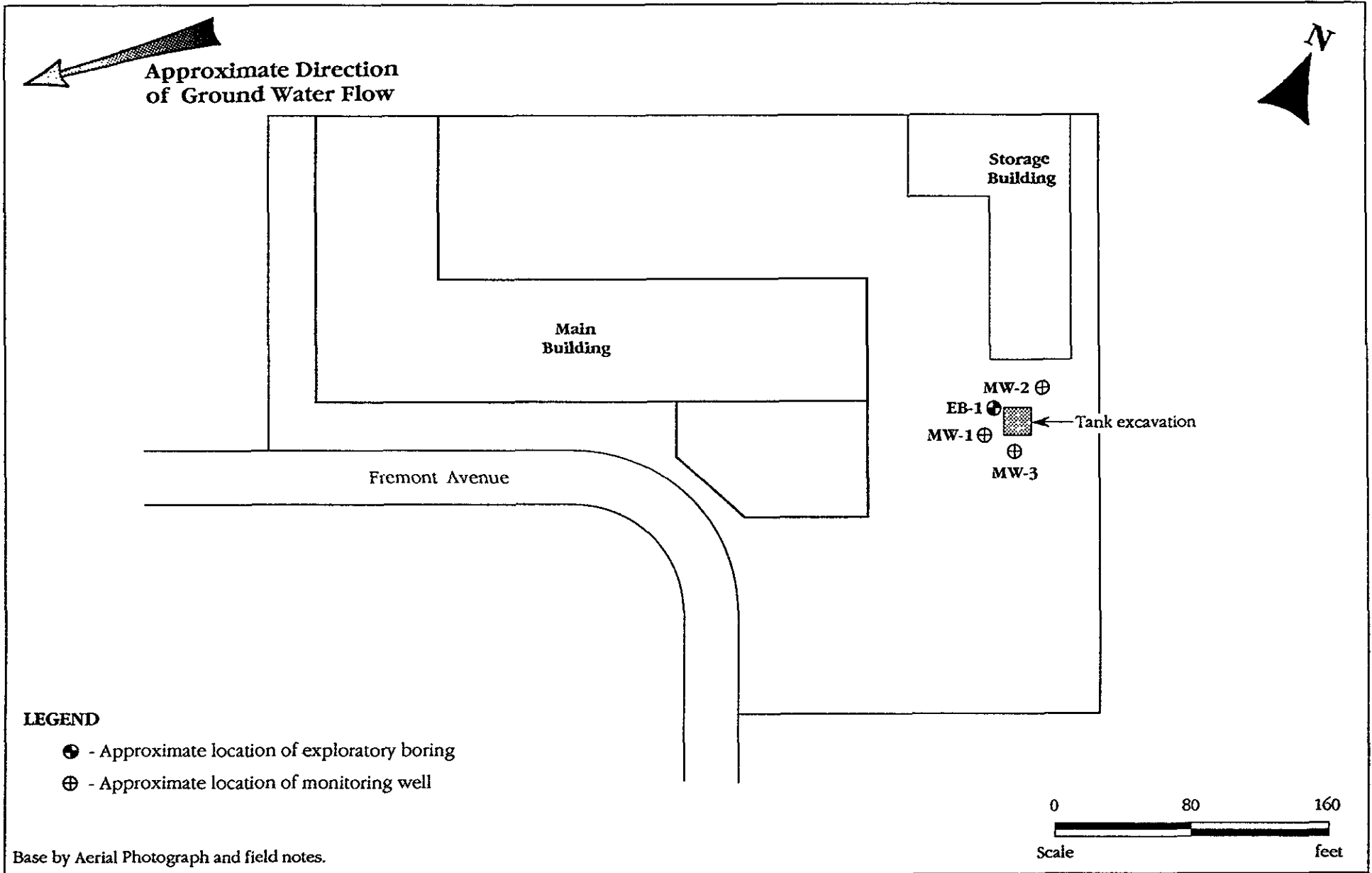
VICINITY MAP

S & S BUILDING SUPPLY
San Leandro, California

LOVNEY ASSOCIATES
Environmental/Geotechnical/Engineering Services

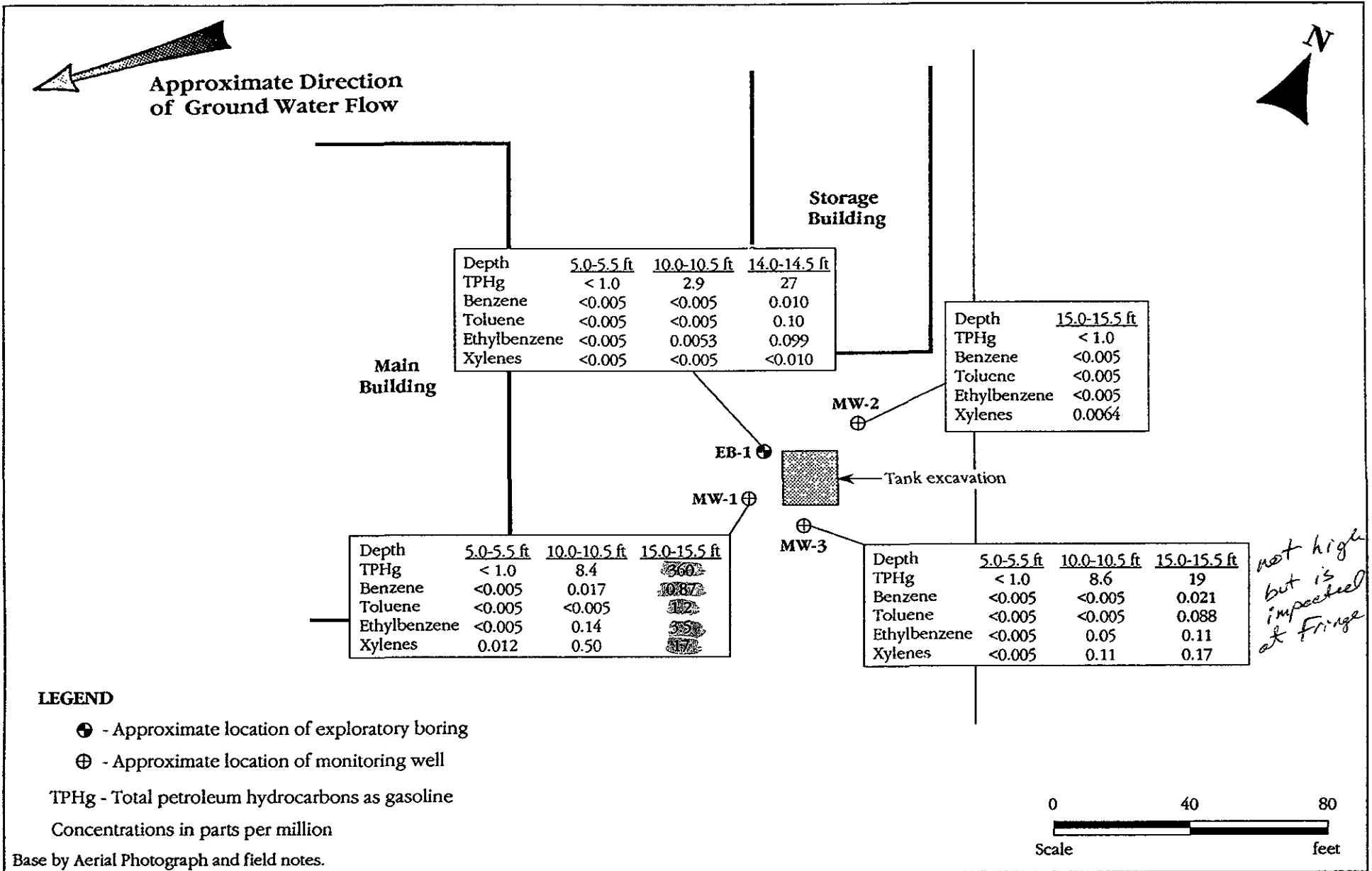
FIGURE 1

1063-1, December 1994



1063-1, 11/30 BAF*EB

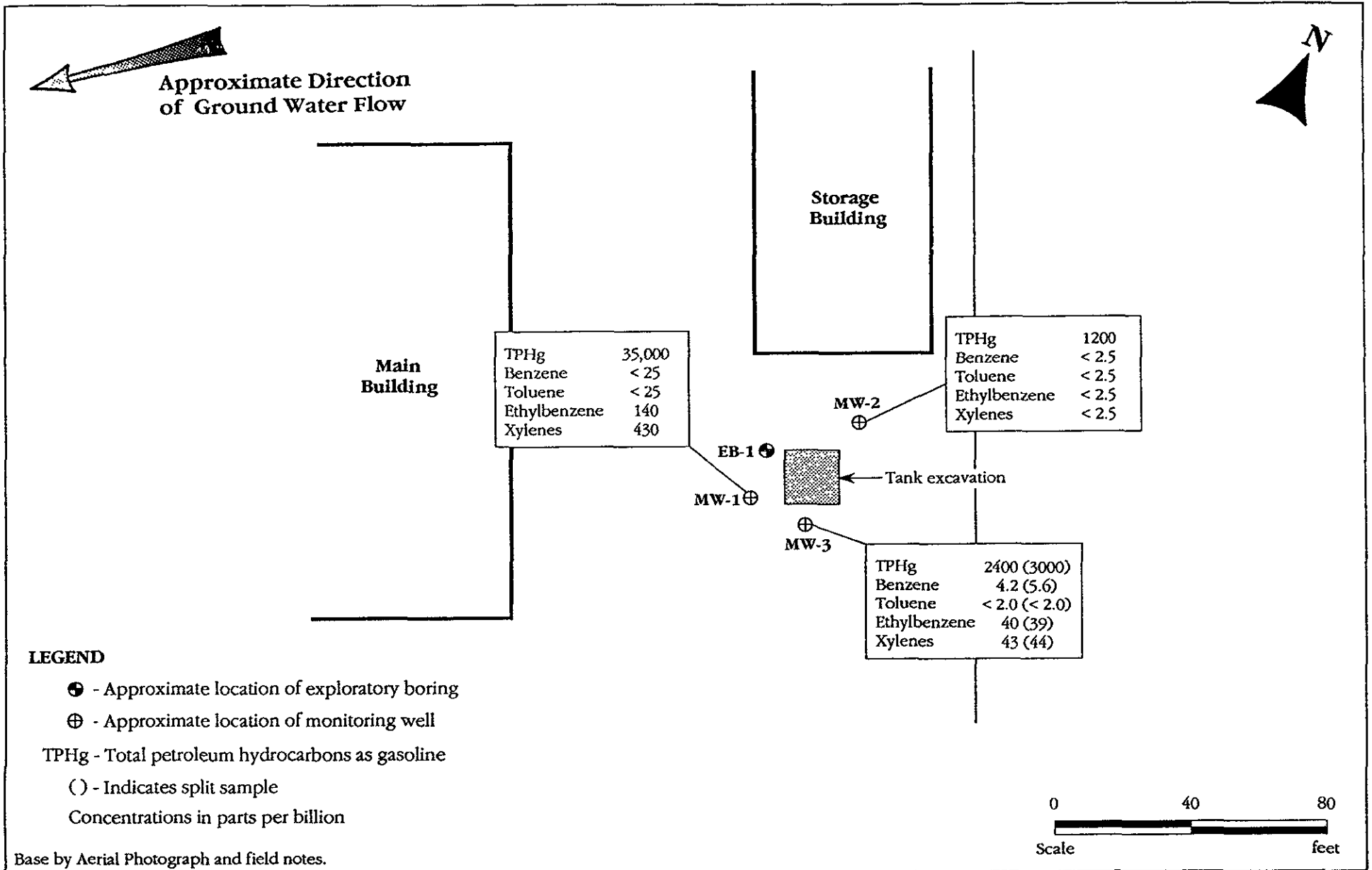
SITE PLAN
S & S BUILDING SUPPLY
 San Leandro, California



1063-1, 11/30 BAF*EB

ANALYTICAL RESULTS FOR SOIL SAMPLES

S & S BUILDING SUPPLY
San Leandro, California



1063-1, 11/30 BAF*EB

ANALYTICAL RESULTS FOR GROUND WATER SAMPLES

S & S BUILDING SUPPLY
San Leandro, California

APPENDIX A
SUBSURFACE INVESTIGATION

The subsurface investigation was performed on October 27, 1994 using a mobile B-40 drill rig equipped with an 8-inch hollow-stem auger. Four soil borings were advanced to depths of approximately 25 feet. Soil samples were collected every 5 feet. The soils encountered in the borings were logged using the Unified Soil Classification System (ASTM D-2487). The logs of the borings, as well as a key to the classification of the soil (Figure A-1), are included as part of this appendix.

The attached boring logs and related information depict subsurface conditions only at the locations indicated and at the particular date designated on the log. Subsurface conditions at other locations may differ from conditions occurring at these boring locations. The passage of time may result in a change in the subsurface conditions due to environmental changes. In addition, any stratification lines on the log represent the approximate boundary between soil types; the transition may be gradual.

The soil samples were obtained in 5-foot intervals using a 2.5-inch diameter Modified California split spoon sampler. Soil samples for laboratory analysis were collected in brass liners, the ends covered in aluminum foil, taped, and capped with plastic end caps. The samples were then labeled, placed on ice, and transported to a state certified analytical laboratory with chain of custody documentation for analysis. The soil samples were also monitored with an OVM. Soil

was placed in a Ziplock bag, sealed, and the OVM probe used to pierce the bag to take a reading after several minutes. All drilling and sampling equipment was cleaned in a solution of tri-sodium phosphate and distilled water or steam cleaned before use in each boring.

PRIMARY DIVISIONS			SOIL TYPE	LEGEND	SECONDARY DIVISIONS
COARSE GRAINED SOILS MORE THAN HALF OF MATERIAL IS LARGER THAN NO. 200 SIEVE SIZE	GRAVELS MORE THAN HALF OF COARSE FRACTION IS LARGER THAN NO. 4 SIEVE	CLEAN GRAVELS (LESS THAN 5% FINES)	GW		Well graded gravels, gravel-sand mixtures, little or no fines.
		GRAVEL WITH FINES	GP		Poorly graded gravels or gravel-sand mixtures, little or no fines.
			GM		Silty gravels, gravel-sand-silt mixtures, non-plastic fines.
			GC		Clayey gravels, gravel-sand-clay mixtures, plastic fines.
	SANDS MORE THAN HALF OF COARSE FRACTION IS SMALLER THAN NO. 4 SIEVE	CLEAN SANDS (LESS THAN 5% FINES)	SW		Well graded sands, gravelly sands, little or no fines.
		SANDS WITH FINES	SP		Poorly graded sands or gravelly sands, little or no fines.
			SM		Silty sands, sand-silt mixtures, non-plastic fines.
			SC		Clayey sands, sand-clay mixtures, plastic fines.
FINE GRAINED SOILS MORE THAN HALF OF MATERIAL IS SMALLER THAN NO. 200 SIEVE SIZE	SILTS AND CLAYS LIQUID LIMIT IS LESS THAN 50%	ML		Inorganic silts and very fine sands, rock flour, silty or clayey fine sands or clayey silts with slight plasticity.	
		CL		Inorganic clays of low to medium plasticity, gravelly clays, sandy clays, silty clays, lean clays.	
		OL		Organic silts and organic silty clays of low plasticity.	
	SILTS AND CLAYS LIQUID LIMIT IS GREATER THAN 50%	MH		Inorganic silts, micaceous or diatomaceous fine sandy or silty soils, elastic silts.	
		CH		Inorganic clays of high plasticity, fat clays.	
		OH		Organic clays of medium to high plasticity, organic silts.	
		HIGHLY ORGANIC SOILS	Pt		Peat and other highly organic soils.

DEFINITION OF TERMS

SILTS AND CLAY	U.S. STANDARD SERIES SIEVE			CLEAR SQUARE SIEVE OPENINGS		COBBLES	BOULDERS
	200	40	10	4	3/4" 3" 12"		
	SAND			GRAVEL			
	FINE	MEDIUM	COARSE	FINE	COARSE		

GRAIN SIZES



SAMPLERS

SAND AND GRAVEL	BLOWS/FOOT*
VERY LOOSE	0 - 4
LOOSE	4 - 10
MEDIUM DENSE	10 - 30
DENSE	30 - 50
VERY DENSE	OVER 50

RELATIVE DENSITY

SILTS AND CLAYS	STRENGTH ‡	BLOWS/FOOT*
VERY SOFT	0 - 1/4	0 - 2
SOFT	1/4 - 1/2	2 - 4
MEDIUM STIFF	1/2 - 1	4 - 8
STIFF	1 - 2	8 - 16
VERY STIFF	2 - 4	16 - 32
HARD	OVER 4	OVER 32

CONSISTENCY

- * Number of blows of 140 pound hammer falling 30 inches to drive a 2 inch O.D. (1-3/8 inch I.D.) split spoon (ASTM D-1586).
- ‡ Unconfined compressive strength in tons/sq. ft. as determined by laboratory testing or approximated by the standard penetration test (ASTM D-1586), pocket penetrometer, torvane, or visual observation.

KEY TO EXPLORATORY BORING LOGS Unified Soil Classification System (ASTM D - 2487)

S & S BUILDING SUPPLY
San Leandro, California

DRILL RIG: Mobile B-40

SURFACE ELEVATION: --

LOGGED BY: BAF

DEPTH TO GROUND WATER: 15.5 feet

BORING DIAMETER: 8 inches

DATE DRILLED: 10/27/94

DESCRIPTION AND REMARKS	SYMBOL	LEGEND	CONSISTENCY	SOIL TYPE	DEPTH (FEET)	SAMPLER	WATER CONTENT (%)	PENETRATION RESISTANCE (BLOWS/FT.)	SHEAR STRENGTH BY TORVANE (KSF)	ORGANIC VAPOR METER (ppm)
Asphalt										
SILTY CLAY, Black, slightly moist, low to moderate plasticity	A		Hard	CL						
SILTY CLAY, Dark brown, slightly moist, low plasticity	A		Hard	CL						
					5			79		0
SILTY SAND, Brown, slightly moist	B		Medium dense	SM						
SILTY CLAY, Greenish brown, slightly moist, low to moderate plasticity	C		Very stiff	CL	10			21		134
Minor medium sand										
SANDY GRAVEL, Gray, moist, well-graded	D		Very dense	GW	15			37		82
								52		2164
Bottom of Boring = 16.5 feet.										
					20					
					25					
					30					

NOTE: The stratification lines represent the approximate boundary between the soil types. The transition may be gradual.

1063-1, 11/30 BAF*EB

EXPLORATORY BORING LOG - EB-1

S & S BUILDING SUPPLY
San Leandro, California

LOWNEY ASSOCIATES
Environmental/Geotechnical/Engineering Services

EB-1
1063-1, December 1994

DRILL RIG: Mobile B-40

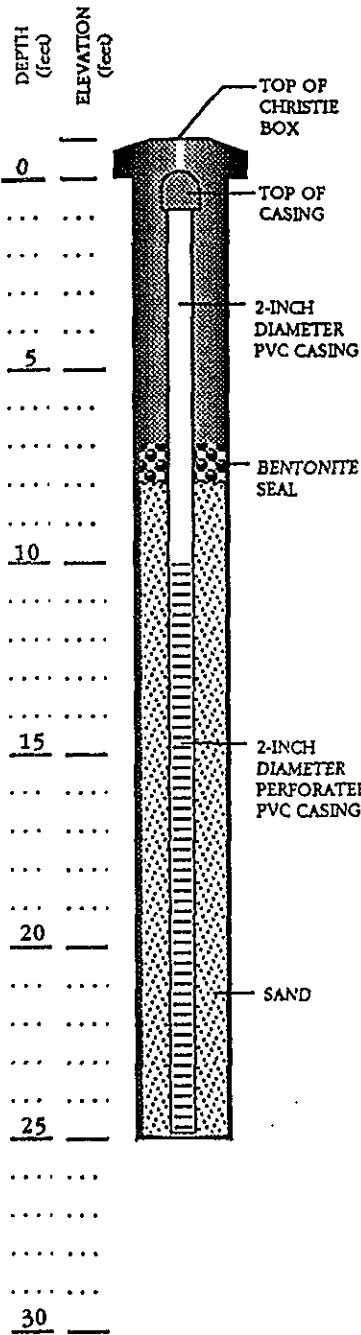
SURFACE ELEVATION: -

LOGGED BY: BAF

DEPTH TO GROUND WATER: 18.0 feet
(From Surface Elevation)

BORING DIAMETER: 8 inches

DATE DRILLED: 10/27/94



DEPTH (feet)	ELEVATION (feet)	DESCRIPTION	SYMBOL	CONSISTENCY	SOIL TYPE	LEGEND	DEPTH (feet)	SAMPLER	WATER CONTENT (%)	PENETRATION RESISTANCE (BLOWS/FT.)	ORGANIC VAPORS (ppm)
0		Asphalt									
1.5		SILTY CLAY, Black, slightly moist, low to moderate plasticity	A	Hard	CL	[Hatched]					
4.5		SILTY CLAY, Dark brown, slightly moist, low plasticity	A	Hard	CL	[Hatched]					
5							5		80	56	
10		SILTY SAND, Greenish gray, slightly moist, slight petroleum odor	B	Medium dense	SM	[Vertical lines]					
10							10		21	69	
15		SANDY CLAY, Greenish gray, slightly moist, moderate plasticity, petroleum odor	C	Very stiff	CL	[Hatched]					
15		SANDY GRAVEL, Gray moist, well-graded, petroleum odor	D	Dense	GW	[Dotted]					
15							15		Final 62	2228	
15		SILTY SAND, Grayish brown, moist	D	Very dense	SM	[Vertical lines]					
15											Initial
18		SAND, Brown, saturated, well-graded	D	Very loose	SW	[Dotted]					
20							20				
20		SANDY CLAY, Gray, moist, moderate to high plasticity	E	Very stiff	CL	[Hatched]					
22									22	21	
22		SANDY CLAY, Brown, slightly moist, moderate to high plasticity	E	Very stiff	CL	[Hatched]					
24		SANDY CLAY, Dark brown, slightly moist, moderate plasticity	C	Hard	CL	[Hatched]					
25							25				8
25		Bottom of Well = 25.0 feet									
30		NOTE: The stratification lines represent the approximate boundary between the soil types. The transition may be gradual.					30				

1063-1, 11/30 BAF*EB

MONITORING WELL LOG - MW-1

S & S BUILDING SUPPLY
San Leandro, California

DRILL RIG: Mobile B-40

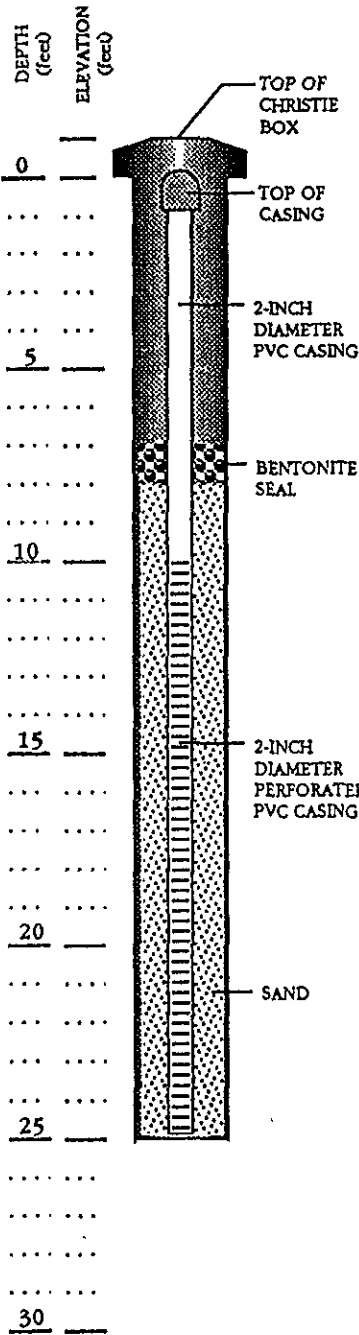
SURFACE ELEVATION: -

LOGGED BY: BAF

DEPTH TO GROUND WATER: 17.0 feet
(From Surface Elevation)

BORING DIAMETER: 8 inches

DATE DRILLED: 10/27/94



DEPTH (feet)	ELEVATION (feet)	DESCRIPTION	SYMBOL	CONSISTENCY	SOIL TYPE	LEGEND	DEPTH (feet)	SAMPLER	WATER CONTENT (%)	PENETRATION RESISTANCE (BLOWS/FT.)	ORGANIC VAPORS (ppm)
0		Asphalt									
0		SILTY CLAY, Black, slightly moist, low to moderate plasticity	A	Hard	CL	[Diagonal Hatching]					
0		SILTY CLAY, Dark brown, slightly moist, low plasticity	A	Hard	CL	[Diagonal Hatching]					
5							5		69	8	
10		SILTY SAND, Brown, slightly moist	B	Medium dense	SM	[Vertical Dotted]					
10		SILTY SAND, Greenish gray, slightly moist, slight petroleum odor	B	Medium dense	SM	[Vertical Dotted]			23	20	88
15		SANDY CLAY, Brown with gray streaks, moist, moderate to high plasticity	C	Very stiff	CL	[Diagonal Hatching]	15	▼ Final	25	10	
15		CLAYEY SAND, Gray, moist	D	Medium dense	SC	[Diagonal Hatching]		▼ Initial			
15		CLAYEY SAND, Brown, saturated	D	Medium dense	SC	[Diagonal Hatching]					
20		SANDY CLAY, Brown, slightly moist, moderate to high plasticity	E	Very stiff	CL	[Diagonal Hatching]	20		23	0	
25		SANDY CLAY, Dark brown, slightly moist, moderate plasticity	E	Hard	CL	[Diagonal Hatching]	25		36	0	
		Bottom of Well = 25.0 feet									
30							30				

1063-1, 11/30 BAF*EB

MONITORING WELL LOG - MW-2

S & S BUILDING SUPPLY
San Leandro, California

DRILL RIG: Mobile B-40

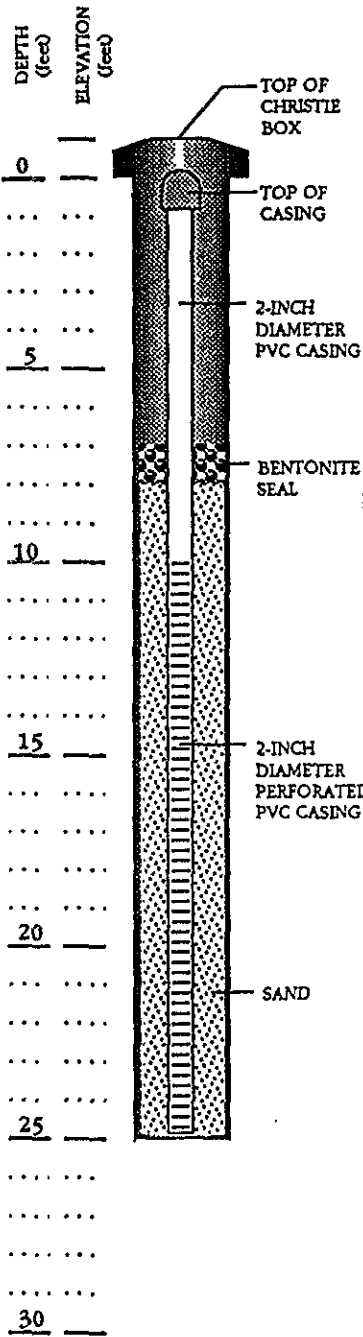
SURFACE ELEVATION: --

LOGGED BY: BAF

DEPTH TO GROUND WATER: 17.0 feet
(From Surface Elevation)

BORING DIAMETER: 8 inches

DATE DRILLED: 10/27/94



DEPTH (feet)	DESCRIPTION	SYMBOL	CONSISTENCY	SOIL TYPE	LEGEND	DEPTH (feet)	SAMPLER	WATER CONTENT (%)	PENETRATION RESISTANCE (BLOWS/FT.)	ORGANIC VAPORS (ppm)
0	Asphalt									
0 - 5	SILTY CLAY, Black, slightly moist, low to moderate plasticity	A	Hard	CL	[Hatched]					
5 - 8	SILTY CLAY, Dark brown, slightly moist, low plasticity	A	Hard	CL	[Hatched]	5		47		
8 - 10	SILTY SAND, Brown, slightly moist, slight petroleum odor	B	Medium dense	SM	[Dotted]	10		30	901	
10 - 15	SANDY CLAY, Brown with gray streaks, moist, moderate to high plasticity, petroleum odor	C	Very stiff	CL	[Hatched]	15		Final 23	68	
15 - 20	SANDY CLAY, Brown, saturated	E	Very stiff	CL	[Hatched]			Initial		
20 - 25	SANDY CLAY, Dark brown, slightly moist, moderate plasticity	E	Hard	CL	[Hatched]	20		19	0	
25 - 25.0	Bottom of Well = 25.0 feet					25		44	0	
30	NOTE: The stratification lines represent the approximate boundary between the soil types. The transition may be gradual.					30				

1063-1, 11/30 BAF*EB

MONITORING WELL LOG - MW-3

S & S BUILDING SUPPLY
San Leandro, California

APPENDIX B
WELL PERMITS



ZONE 7 WATER AGENCY

5997 PARKSIDE DRIVE

PLEASANTON, CALIFORNIA 94588

VOICE (510) 484-2600

FAX (510) 452-3914

DRILLING PERMIT APPLICATION

FOR APPLICANT TO COMPLETE

FOR OFFICE USE

LOCATION OF PROJECT 701 Fremont Boulevard,
San Leandro, CA

PERMIT NUMBER 945-12
LOCATION NUMBER _____

CLIENT

Name S's Building Supply
Address 701 Fremont Blvd. Voice (510) 351-7020
City San Leandro, CA Zip 94577

PERMIT CONDITIONS

Circled Permit Requirements Apply

APPLICANT

Name Lowney Associates Fax _____
Address 405 Clyde Ave. Voice (415) 967-2365
City Mountain View, CA Zip 94043

TYPE OF PROJECT

Well Construction	Geotechnical Investigation
Cathodic Protection _____	General _____
Water Supply _____	Contamination _____
Monitoring <u>X</u>	Well Destruction _____

PROPOSED WATER SUPPLY WELL USE

Domestic _____	Industrial _____	Other _____
Municipal _____	Irrigation _____	

DRILLING METHOD:

Mud Rotary _____ Air Rotary _____ Auger X barlow-skim
Cable _____ Other _____

DRILLER'S LICENSE NO. C57-494288

WELL PROJECTS

Drill Hole Diameter <u>8</u> in.	Maximum
Casing Diameter <u>2</u> in.	Depth <u>25</u> ft.
Surface Seal Depth <u>10</u> ft.	Number <u>3</u>

GEOTECHNICAL PROJECTS

Number of Borings _____	Maximum
Hole Diameter _____ in.	Depth _____ ft.

ESTIMATED STARTING DATE August 15, 1994
ESTIMATED COMPLETION DATE August 15, 1994

I hereby agree to comply with all requirements of this permit and Alameda County Ordinance No. 73-68.

APPLICANT'S SIGNATURE Bridget A. Baxter Date 7/26/94

(A) GENERAL

1. A permit application should be submitted so as to arrive at the Zone 7 office five days prior to proposed starting date.
2. Submit to Zone 7 within 60 days after completion of permitted work the original Department of Water Resources Water Well Drillers Report or equivalent for well Projects, or drilling logs and location sketch for geotechnical projects.
3. Permit is void if project not begun within 90 days of approval date.

(B) WATER WELLS, INCLUDING PIEZOMETERS

1. Minimum surface seal thickness is two inches of cement grout placed by tremie.
2. Minimum seal depth is 50 feet for municipal and industrial wells or 20 feet for domestic and irrigation wells unless a lesser depth is specially approved. Minimum seal depth for monitoring wells is the maximum depth practicable or 20 feet.

C. GEOTECHNICAL. Backfill bore hole with compacted cuttings or heavy bentonite and upper two feet with compacted material. In areas of known or suspected contamination, tremied cement grout shall be used in place of compacted cuttings.

D. CATHODIC. Fill hole above anode zone with concrete placed by tremie.

E. WELL DESTRUCTION. See attached.

Approved Craig A. Masfield Date 6 Sep 94

91992

APPENDIX C
MONITORING WELL INSTALLATION, SURVEYING,
DEVELOPMENT, AND GROUND WATER SAMPLING

Borings MW-1, MW-2 and MW-3 were converted into "permanent" ground water monitoring wells with the installation of PVC casing. The casing used in all wells was 2-inch I.D, threaded, flush-jointed, PVC Schedule 40. The casing in the lower portion of the well had 0.02-inch factory slots. After the casing was installed, a filter pack composed of number 3 sand was placed in the wells. The sand was placed in the approximately 3- to 4-inch diameter annulus to approximately 1 to 2 feet above the slotted casing. An approximately 1-foot thick seal composed of bentonite pellets topped by cement was placed in the annulus above the sandpack to the surface. The wells were completed with flush mounted christy boxes. In addition, the PVC well casings were fitted with watertight, locking well caps at the surface. Well construction details are shown on the boring logs.

Well Installation

To evaluate ground water flow direction, the lateral locations of the wells were established using a metered wheel. The relative elevations of the monitoring wells and ground water was then surveyed by a two-person crew using a Leitz level and an engineer's graduated rod.

Surveying

Approximately 48 hours after installation, the static water levels were measured to the nearest 0.01 foot using an electronic depth sounder. The wells were developed by the bailing of several well volumes of water so that a representative ground water sample

Development

could be obtained and fine-grained material was flushed from the well and surrounding soil.

Approximately 48 hours after development, the ground water from the two monitoring wells was sampled. A Teflon bailer was used to purge a minimum of three well casing volumes of water from each well. After each well volume, pH, temperature, and conductivity measurements were recorded. These measurements generally stabilize after three to four well volumes. If, after the third well volume, the pH and conductivity did not stabilize, additional well volumes were removed until these measurements did stabilize. If yield was low and the well was pumped dry, the well was allowed to recharge to the 80 percent level before sampling. Samples were collected in appropriate sample bottles, labeled, and immediately placed into an ice cooled chest for delivery to an analytical laboratory certified by the State for the requested analyses.

Ground Water Sampling

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

Well development/sampling records for both wells were maintained by Lowney Associates. Copies of these records are attached.

Project Number 1063-1
 Project Name SFS Building Supply
 Field Geologist/Engineer TJR

Well Number MW-1 Boring Diameter 7 (inches)
 Well Total Depth (completed) 25 (feet) Casing Diameter 2 (inches)

Development Date 11/1/94 Method Grindfos Volume Produced 35 (liter/gal)

Note: Petroleum sheen on water

WELL VOLUME CONVERSION FACTORS

2-INCH CASING DIAMETER

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

9.54
.62
5.91

4-INCH CASING DIAMETER

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

Sampling Date 11/3/94 Time 1:30 Method Jetflow Bailer

Static Water Level Prior to Purging 15.46 (ft)
 (Measured from top of casing) $H_2O = 9.54$

Water Level After Recovery 15.46 (ft)

80 Percent Recharged Yes No

Well Volume 5.91 (liter/gal)

Three Well Volumes 17.74 (liter/gal)

Total Produced 18 (liter/gal)

Number of Well Volumes 3

Production Time _____ (min)

Production Rate _____ (/min)

Sample Description MW-1

Laboratory Seagosa

Deliver Pick-Up Date _____

Well Volumes	ph	Conductivity $\mu S \times 10$	Temp °F
1	7.3	78	69
2	7.1	80	69
3	7.1	80	69
4			
5			
6			
7			
8			
9			
10			

Comments Petroleum Odor, sheen on water

Project Number 1063-1
 Project Name Sis Building Supply
 Field Geologist/Engineer TJR
 Well Number MW-2 Boring Diameter 7 (inches)
 Well Total Depth (completed) 25 (feet) Casing Diameter 2 (inches)
 Development Date 11/1/94 Method Grindfos Volume Produced 30 (liter/gal)

WELL VOLUME CONVERSION FACTORS

2-INCH CASING DIAMETER

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

9.71
 .02
 6.02

4-INCH CASING DIAMETER

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

Sampling Date 11/3/94 Time 11:30 Method Teflon Bailor
 Static Water Level Prior to Purging 15.29 (ft) Water Level After Recovery 15.35 (ft)
 (Measured from top of casing) $H-H_2O = 9.71$
 80 Percent Recharged Yes No

Well Volume 6.02 (liter/gal)
 Three Well Volumes 18.06 (liter/gal)
 Total Produced 19 (liter/gal)
 Number of Well Volumes 3
 Production Time _____ (min)
 Production Rate _____ (/min)

Well Volumes	ph	Conductivity $\mu S \times 10$	Temp °F
1	7.3	68	70
2	7.1	75	69
3	7.1	75	69
4			
5			
6			
7			
8			
9			
10			

Sample Description MW-2
 Laboratory Sequoia
 Deliver Pick-Up Date _____

Comments _____

Project Number 1063-1
Project Name S&S Building Supply
Field Geologist/Engineer TJR
Well Number MW-3 Boring Diameter 7 (inches)
Well Total Depth (completed) 25 (feet) Casing Diameter 2 (inches)
Development Date 4/1/94 Method Groutfos Volume Produced 18 (liter/gal)
Well has slow yield

WELL VOLUME CONVERSION FACTORS

2-INCH CASING DIAMETER

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

10.04
0.62
6.22

4-INCH CASING DIAMETER

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

Sampling Date 11/3/94 Time 12:30 Method Teflon Bailor
Static Water Level Prior to Purging 14.965 (ft) Water Level After Recovery 15.08 (ft)
(Measured from top of casing) $H_2O =$
80 Percent Recharged Yes No

Well Volume 6.22 (liter/gal)
Three Well Volumes 18.67 (liter/gal)
Total Produced 19 (liter/gal)
Number of Well Volumes 3
Production Time _____ (min)
Production Rate _____ (/min)

Well Volumes	ph	Conductivity $\mu S \times 10$	Temp 'F
1	7.3	95	71
2	7.2	94	70
3	7.2	94	70
4			
5			
6			
7			
8			
9			
10			

Sample Description MW-3
Laboratory SEQUOIA
Deliver Pick-Up Date _____

Comments

APPENDIX D
ANALYTICAL RESULTS

The refrigerated ground water and soil samples were delivered to Sequoia Analytical located in Redwood City, California. Chain of custody documentation was maintained for all samples. Attached are copies of the analytical results and the chain of custody forms. Sequoia Analytical is certified by the State of California as a Hazardous Waste Testing Laboratory and as an Approved Water and Wastewater Laboratory.



Lowney Associates 405 Clyde Avenue Mountain View, CA 94043	Client Proj. ID: 1063-1 Sample Descript: MW-1 5-5 1/2 Matrix: SOLID Analysis Method: 8015Mod/8020 Lab Number: 9410145-01	Sampled: 10/27/94 Received: 10/28/94 Extracted: 11/02/94 Analyzed: 11/02/94 Reported: 11/10/94
--	--	--

QC Batch Number: GC110294BTEXEXB
 Instrument ID: GCHP-01

Total Purgeable Petroleum Hydrocarbons (TPPH) with BTEX

Analyte	Detection Limit mg/Kg	Sample Results mg/Kg
TPPH as Gas	1.0	N.D.
Benzene	0.0050	N.D.
Toluene	0.0050	N.D.
Ethyl Benzene	0.0050	N.D.
Xylenes (Total)	0.0050	0.012
Chromatogram Pattern:		

Surrogates	Control Limits %	% Recovery
Trifluorotoluene	70 130	90

Analytes reported as N.D. were not present above the stated limit of detection.

SEQUOIA ANALYTICAL - ELAP #1210



Andrea Fulcher
Project Manager





Lowney Associates
405 Clyde Avenue
Mountain View, CA 94043

Client Proj. ID: 1063-1
Sample Descript: MW-1 10-10 1/2
Matrix: SOLID
Analysis Method: 8015Mod/8020
Lab Number: 9410145-02

Sampled: 10/27/94
Received: 10/28/94
Extracted: 11/02/94
Analyzed: 11/02/94
Reported: 11/10/94

QC Batch Number: GC110294BTEXEXB
Instrument ID: GCHP-01

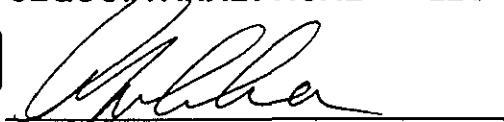
Total Purgeable Petroleum Hydrocarbons (TPPH) with BTEX

Analyte	Detection Limit mg/Kg	Sample Results mg/Kg
TPPH as Gas	1.0	8.4
Benzene	0.0050	0.017
Toluene	0.0050	N.D.
Ethyl Benzene	0.0050	0.14
Xylenes (Total)	0.0050	0.50
Chromatogram Pattern:		Gas

Surrogates	Control Limits %	% Recovery
Trifluorotoluene	70 130	100

Analytes reported as N.D. were not present above the stated limit of detection.

SEQUOIA ANALYTICAL - ELAP #1210



Andrea Fulcher
Project Manager





Lowney Associates 405 Clyde Avenue Mountain View, CA 94043	Client Proj. ID: 1063-1 Sample Descript: MW-1 15-15 1/2 Matrix: SOLID Analysis Method: 8015Mod/8020 Lab Number: 9410145-03	Sampled: 10/27/94 Received: 10/28/94 Extracted: 11/02/94 Analyzed: 11/02/94 Reported: 11/10/94
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QC Batch Number: GC110294BTEXEXB
Instrument ID: GCHP-01

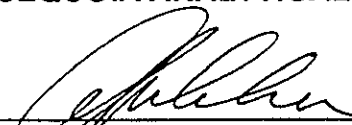
Total Purgeable Petroleum Hydrocarbons (TPPH) with BTEX

Analyte	Detection Limit mg/Kg	Sample Results mg/Kg
TPPH as Gas	50	360
Benzene	0.25	0.87
Toluene	0.25	1.2
Ethyl Benzene	0.25	3.5
Xylenes (Total)	0.25	17
Chromatogram Pattern:		Gas

Surrogates	Control Limits %	% Recovery
Trifluorotoluene	70 130	119

Analytes reported as N.D. were not present above the stated limit of detection.

SEQUOIA ANALYTICAL - ELAP #1210


Andrea Fulcher
Project Manager





Lowney Associates
405 Clyde Avenue
Mountain View, CA 94043

Client Proj. ID: 1063-1
Sample Descript: MW-2 15-15 1/2
Matrix: SOLID
Analysis Method: 8015Mod/8020
Lab Number: 9410145-04

Sampled: 10/27/94
Received: 10/28/94
Extracted: 11/02/94
Analyzed: 11/02/94
Reported: 11/10/94

Attention: Brock Foster

QC Batch Number: GC110294BTEXEXB
Instrument ID: GCHP-01

Total Purgeable Petroleum Hydrocarbons (TPPH) with BTEX

Table with 3 columns: Analyte, Detection Limit mg/Kg, Sample Results mg/Kg. Rows include TPHH as Gas, Benzene, Toluene, Ethyl Benzene, Xylenes (Total) with values 1.0, 0.0050, 0.0050, 0.0050, 0.0050 and N.D., N.D., N.D., N.D., 0.0064.

Table with 2 columns: Surrogates, Control Limits % and % Recovery. Row for Trifluorotoluene with values 70 and 130, and 89.

Analytes reported as N.D. were not present above the stated limit of detection.

SEQUOIA ANALYTICAL - ELAP #1210

Handwritten signature of Andrea Fulcher

Andrea Fulcher
Project Manager





Lowney Associates
405 Clyde Avenue
Mountain View, CA 94043

Attention: Brock Foster

Client Proj. ID: 1063-1
Sample Descript: MW-3 5-5 1/2
Matrix: SOLID
Analysis Method: 8015Mod/8020
Lab Number: 9410145-05

Sampled: 10/27/94
Received: 10/28/94
Extracted: 11/02/94
Analyzed: 11/03/94
Reported: 11/10/94

GC Batch Number: GC110294BTEXEXB
Instrument ID: GCHP-01

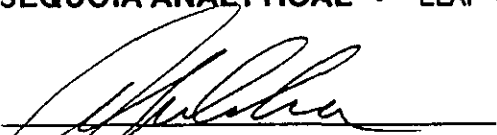
Total Purgeable Petroleum Hydrocarbons (TPPH) with BTEX

Analyte	Detection Limit mg/Kg	Sample Results mg/Kg
TPPH as Gas	1.0	N.D.
Benzene	0.0050	N.D.
Toluene	0.0050	N.D.
Ethyl Benzene	0.0050	N.D.
Xylenes (Total)	0.0050	N.D.
Chromatogram Pattern:		

Surrogates	Control Limits %	% Recovery
Trifluorotoluene	70 130	79

Analytes reported as N.D. were not present above the stated limit of detection.

SEQUOIA ANALYTICAL - ELAP #1210


Andrea Fulcher
Project Manager





Lowney Associates
405 Clyde Avenue
Mountain View, CA 94043

Client Proj. ID: 1063-1
Sample Descript: MW-3 10-10 1/2
Matrix: SOLID
Analysis Method: 8015Mod/8020
Lab Number: 9410145-06

Sampled: 10/27/94
Received: 10/28/94
Extracted: 11/02/94
Analyzed: 11/03/94
Reported: 11/10/94

QC Batch Number: GC110294BTEXEXB
Instrument ID: GCHP-01

Total Purgeable Petroleum Hydrocarbons (TPPH) with BTEX

Analyte	Detection Limit mg/Kg	Sample Results mg/Kg
TPPH as Gas	1.0	8.6
Benzene	0.0050	N.D.
Toluene	0.0050	N.D.
Ethyl Benzene	0.0050	0.050
Xylenes (Total)	0.0050	0.11
Chromatogram Pattern: Weathered Gas		C7-C12

Surrogates	Control Limits %	% Recovery
Trifluorotoluene	70 130	87

Analytes reported as N.D. were not present above the stated limit of detection.

SEQUOIA ANALYTICAL - ELAP #1210


Andrea Fulcher
Project Manager





Lowney Associates
405 Clyde Avenue
Mountain View, CA 94043

Client Proj. ID: 1063-1
Sample Descript: MW-3 15-15 1/2
Matrix: SOLID
Analysis Method: 8015Mod/8020
Lab Number: 9410145-07

Sampled: 10/27/94
Received: 10/28/94
Extracted: 11/02/94
Analyzed: 11/03/94
Reported: 11/10/94

Attention: Brock Foster

QC Batch Number: GC110294BTEXEXB
Instrument ID: GCHP-01

Total Purgeable Petroleum Hydrocarbons (TPPH) with BTEX

Analyte	Detection Limit mg/Kg	Sample Results mg/Kg
TPPH as Gas	1.0	19
Benzene	0.0050	0.021
Toluene	0.0050	0.088
Ethyl Benzene	0.0050	0.11
Xylenes (Total)	0.0050	0.17
Chromatogram Pattern:		Gas

Surrogates	Control Limits %	% Recovery
Trifluorotoluene	70 130	104

Analytes reported as N.D. were not present above the stated limit of detection.

SEQUOIA ANALYTICAL - ELAP #1210

Andrea Fulcher
Project Manager





Lowney Associates
405 Clyde Avenue
Mountain View, CA 94043

Client Proj. ID: 1063-1
Sample Descript: EB-1 5-5 1/2
Matrix: SOLID
Analysis Method: 8015Mod/8020
Lab Number: 9410145-08

Sampled: 10/27/94
Received: 10/28/94
Extracted: 11/02/94
Analyzed: 11/03/94
Reported: 11/10/94

Attention: Brock Foster

QC Batch Number: GC110294BTEXEXB
Instrument ID: GCHP-01


Total Purgeable Petroleum Hydrocarbons (TPPH) with BTEX

Analyte	Detection Limit mg/Kg	Sample Results mg/Kg
TPPH as Gas	1.0	N.D.
Benzene	0.0050	N.D.
Toluene	0.0050	N.D.
Ethyl Benzene	0.0050	N.D.
Xylenes (Total)	0.0050	N.D.
Chromatogram Pattern:		

Surrogates	Control Limits %	% Recovery
Trifluorotoluene	70 130	78

Analytes reported as N.D. were not present above the stated limit of detection.

SEQUOIA ANALYTICAL - ELAP #1210


Andrea Fulcher
Project Manager





Lowney Associates
 405 Clyde Avenue
 Mountain View, CA 94043

Client Proj. ID: 1063-1
 Sample Descript: EB-1 10-10 1/2
 Matrix: SOLID
 Analysis Method: 8015Mod/8020
 Lab Number: 9410145-09

Sampled: 10/27/94
 Received: 10/28/94
 Extracted: 11/02/94
 Analyzed: 11/03/94
 Reported: 11/10/94

QC Batch Number: GC110294BTEXEXB
 Instrument ID: GCHP-01

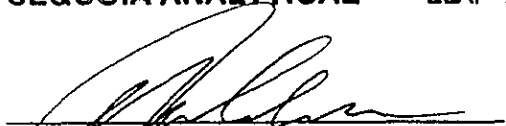
Total Purgeable Petroleum Hydrocarbons (TPPH) with BTEX

Analyte	Detection Limit mg/Kg	Sample Results mg/Kg
TPPH as Gas	1.0	2.9
Benzene	0.0050	N.D.
Toluene	0.0050	N.D.
Ethyl Benzene	0.0050	0.0053
Xylenes (Total)	0.0050	N.D.
Chromatogram Pattern: Weathered Gas		C8-C12

Surrogates	Control Limits %	% Recovery
Trifluorotoluene	70 130	82

Analytes reported as N.D. were not present above the stated limit of detection.

SEQUOIA ANALYTICAL - ELAP #1210


 Andrea Fulcher
 Project Manager





Lowney Associates
405 Clyde Avenue
Mountain View, CA 94043

Client Proj. ID: 1063-1
Sample Descript: EB-1 14-14 1/2
Matrix: SOLID
Analysis Method: 8015Mod/8020
Lab Number: 9410145-10

Sampled: 10/27/94
Received: 10/28/94
Extracted: 11/02/94
Analyzed: 11/02/94
Reported: 11/10/94

Attention: Brock Foster

QC Batch Number: GC110294BTEXEXB
Instrument ID: GCHP-01

Total Purgeable Petroleum Hydrocarbons (TPPH) with BTEX

Table with 4 columns: Analyte, Detection Limit mg/Kg, Sample Results mg/Kg. Rows include TPHH as Gas, Benzene, Toluene, Ethyl Benzene, Xylenes (Total), Chromatogram Pattern, and Weathered Gas.

Table with 3 columns: Surrogates, Control Limits %, % Recovery. Row includes Trifluorotoluene.

Analytes reported as N.D. were not present above the stated limit of detection.

SEQUOIA ANALYTICAL - ELAP #1210

Signature of Andrea Fulcher
Andrea Fulcher
Project Manager





Sequoia
Analytical

680 Chesapeake Drive
1900 Bates Avenue, Suite L
819 Striker Avenue, Suite 8

Redwood City, CA 94063
Concord, CA 94520
Sacramento, CA 95834

(415) 364-9600
(510) 686-9600
(916) 921-9600

FAX (415) 364-9233
FAX (510) 686-9689
FAX (916) 921-0100

Lowney Associates
405 Clyde Avenue
Mountain View, CA 94043
Attention: Brock Foster

Client Proj. ID: 1063-1
Lab Proj. ID: 9410145

Received: 10/28/94
Reported: 11/10/94

LABORATORY NARRATIVE

Not Applicable

SEQUOIA ANALYTICAL

Andrea Fulcher
Project Manager





Lowney Associates Client Project ID: 1063-1
 405 Clyde Avenue Matrix: Solid
 Mountain View, CA 94043
 Attention: Brock Foster Work Order #: 9410145 -01-10 Reported: Nov 10, 1994

QUALITY CONTROL DATA REPORT

Analyte:	Benzene	Toluene	Ethyl Benzene	Xylenes
QC Batch#:	GC110294BTEXEXB	GC110294BTEXEXB	GC110294BTEXEXB	GC110294BTEXEXB
Analy. Method:	EPA 8020	EPA 8020	EPA 8020	EPA 8020
Prep. Method:	EPA 5030	EPA 5030	EPA 5030	EPA 5030

Analyst:	R. Geckler	R. Geckler	R. Geckler	R. Geckler
MS/MSD #:	9410126-05	9410126-05	9410126-05	9410126-05
Sample Conc.:	N.D.	N.D.	N.D.	N.D.
Prepared Date:	11/2/94	11/2/94	11/2/94	11/2/94
Analyzed Date:	11/2/94	11/2/94	11/2/94	11/2/94
Instrument I.D.#:	GCHP01	GCHP01	GCHP01	GCHP01
Conc. Spiked:	0.20 mg/kg	0.20 mg/kg	0.20 mg/kg	0.60mg/kg
Result:	0.19 mg/kg	0.19 mg/kg	0.20 mg/kg	0.59 mg/kg
MS % Recovery:	95	95	100	98
Dup. Result:	0.20 mg/kg	0.20 mg/kg	0.21 mg/kg	0.62 mg/kg
MSD % Recov.:	100	100	105	103
RPD:	5.1	5.1	4.9	5.0
RPD Limit:	50	50	50	50

LCS #:

Prepared Date:
 Analyzed Date:
 Instrument I.D.#:
 Conc. Spiked:

LCS Result:
 LCS % Recov.:

MS/MSD LCS	Control Limits	55-145	47-149	47-155	56-140
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SEQUOIA ANALYTICAL

Andrea Fulcher
 Andrea Fulcher
 Project Manager

Please Note:

The LCS is a control sample of known, interferent-free matrix that is analyzed using the same reagents, preparation, and analytical methods employed for the samples. The matrix spike is an aliquot of sample fortified with known quantities of specific compounds and subjected to the entire analytical procedure. If the recovery of analytes from the matrix spike does not fall within specified control limits due to matrix interference, the LCS recovery is to be used to validate the batch.





Lowney Associates
405 Clyde Avenue
Mountain View, CA 94043

Client Proj. ID: 1063-1
Sample Descript: MW-2
Matrix: LIQUID
Analysis Method: 8015Mod/8020
Lab Number: 9411420-01

Sampled: 11/03/94
Received: 11/04/94
Analyzed: 11/09/94
Reported: 11/16/94

QC Batch Number: GC110894BTEX03A
Instrument ID: GCHP3

Total Purgeable Petroleum Hydrocarbons (TPPH) with BTEX

Table with 3 columns: Analyte, Detection Limit ug/L, Sample Results ug/L. Rows include TPHH as Gas (250, 1200), Benzene (2.5, N.D.), Toluene (2.5, N.D.), Ethyl Benzene (2.5, N.D.), Xylenes (Total) (2.5, N.D.), Chromatogram Pattern: Weathered Gas (C7-C12).

Table with 3 columns: Surrogates, Control Limits %, % Recovery. Row: Trifluorotoluene (70, 130, 83).

Analytes reported as N.D. were not present above the stated limit of detection.

SEQUOIA ANALYTICAL - ELAP #1210

Handwritten signature of Andrea Fulcher

Andrea Fulcher
Project Manager





Lowney Associates
 405 Clyde Avenue
 Mountain View, CA 94043

Client Proj. ID: 1063-1
 Sample Descript: MW-3
 Matrix: LIQUID
 Analysis Method: 8015Mod/8020
 Lab Number: 9411420-02

Sampled: 11/03/94
 Received: 11/04/94
 Analyzed: 11/09/94
 Reported: 11/16/94

QC Batch Number: GC110994BTEX17A
 Instrument ID: GCHP17


Total Purgeable Petroleum Hydrocarbons (TPPH) with BTEX

Analyte	Detection Limit ug/L	Sample Results ug/L
TPPH as Gas	200	2400
Benzene	2.0	4.2
Toluene	2.0	N.D.
Ethyl Benzene	2.0	40
Xylenes (Total)	2.0	43
Chromatogram Pattern:		Gas

Surrogates	Control Limits %	% Recovery
Trifluorotoluene	70 130	109

Analytes reported as N D. were not present above the stated limit of detection.

SEQUOIA ANALYTICAL - ELAP #1210


 Andrea Fulcher
 Project Manager





Lowney Associates
405 Clyde Avenue
Mountain View, CA 94043

Client Proj. ID: 1063-1
Sample Descript: SS-3
Matrix: LIQUID
Analysis Method: 8015Mod/8020
Lab Number: 9411420-03

Sampled: 11/03/94
Received: 11/04/94
Analyzed: 11/09/94
Reported: 11/16/94

QC Batch Number: GC110994BTEX17A
Instrument ID: GCHP17

Total Purgeable Petroleum Hydrocarbons (TPPH) with BTEX

Analyte	Detection Limit ug/L	Sample Results ug/L
TPPH as Gas	200	3000
Benzene	2.0	5.6
Toluene	2.0	N.D.
Ethyl Benzene	2.0	39
Xylenes (Total)	2.0	44
Chromatogram Pattern:		GAS+ > C10

Surrogates	Control Limits %	% Recovery
Trifluorotoluene	70 130	105

Analytes reported as N.D. were not present above the stated limit of detection.

SEQUOIA ANALYTICAL - ELAP #1210

Andrea Fulcher
Project Manager





Lowney Associates
405 Clyde Avenue
Mountain View, CA 94043

Client Proj. ID: 1063-1
Sample Descript: MW-1
Matrix: LIQUID
Analysis Method: 8015Mod/8020
Lab Number: 9411420-04

Sampled: 11/03/94
Received: 11/04/94
Analyzed: 11/08/94
Reported: 11/16/94

QC Batch Number: GC110894BTEX17A
Instrument ID: GCHP17

Total Purgeable Petroleum Hydrocarbons (TPPH) with BTEX

Analyte	Detection Limit ug/L	Sample Results ug/L
TPPH as Gas	2500	35,000
Benzene	25	N.D.
Toluene	25	N.D.
Ethyl Benzene	25	140
Xylenes (Total)	25	430
Chromatogram Pattern:		GAS+ > C10

Surrogates	Control Limits %	% Recovery
Trifluorotoluene	70 130	138 Q

Analytes reported as N.D. were not present above the stated limit of detection.

SEQUOIA ANALYTICAL - ELAP #1210

Andrea Fulcher
Project Manager





Lowney Associates
405 Clyde Avenue
Mountain View, CA 94043
Attention: Brock Foster

Client Proj. ID: 1063-1

Lab Proj. ID: 9411420

Received: 11/04/94

Reported: 11/22/94

LABORATORY NARRATIVE

PLEASE NOTE:

Sample ID# MW-1 has a high surrogate recovery due to co-elution.

SEQUOIA ANALYTICAL

Andrea Fulcher
Project Manager





Lowney Associates
 405 Clyde Avenue
 Mountain View, CA 94043
 Attention: Brock Foster

Client Project ID: 1063-1
Matrix: LIQUID

Work Order #: 9411420 01

Reported: Nov 16, 1994

QUALITY CONTROL DATA REPORT

Analyte:	Benzene	Toluene	Ethyl Benzene	Xylenes
QC Batch#:	GC110894BTEX03A	GC110894BTEX03A	GC110894BTEX03A	GC110894BTEX03A
Analy. Method:	EPA 8020	EPA 8020	EPA 8020	EPA 8020
Prep. Method:	N.A.	N.A.	N.A.	N.A.

Analyst:	J. Minkel	J. Minkel	J. Minkel	J. Minkel
MS/MSD #:	941105304	941105304	941105304	941105304
Sample Conc.:	N.D.	N.D.	N.D.	N.D.
Prepared Date:	N.A.	N.A.	N.A.	N.A.
Analyzed Date:	11/8/94	11/8/94	11/8/94	11/8/94
Instrument I.D.#:	GCHP3	GCHP3	GCHP3	GCHP3
Conc. Spiked:	10 µg/L	10 µg/L	10 µg/L	30 µg/L
Result:	9.6	9.5	9.5	28
MS % Recovery:	96	95	95	93
Dup. Result:	9.6	9.5	9.4	28
MSD % Recov.:	96	95	94	93
RPD:	0.0	0.0	1.1	0.0
RPD Limit:	0-50	0-50	0-50	0-50

LCS #:

Prepared Date:
Analyzed Date:
Instrument I.D.#:
Conc. Spiked:

LCS Result:
LCS % Recov.:

MS/MSD LCS Control Limits	71-133	72-128	72-130	71-120
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SEQUOIA ANALYTICAL

Andrea Fulcher
 Andrea Fulcher
 Project Manager

Please Note:

The LCS is a control sample of known, interferent-free matrix that is analyzed using the same reagents, preparation, and analytical methods employed for the samples. The matrix spike is an aliquot of sample fortified with known quantities of specific compounds and subjected to the entire analytical procedure. If the recovery of analytes from the matrix spike does not fall within specified control limits due to matrix interference, the LCS recovery is to be used to validate the batch.

** MS=Matrix Spike, MSD=MS Duplicate, RPD=Relative % Difference

9411420.JVL <1>





Lowney Associates
405 Clyde Avenue
Mountain View, CA 94043
Attention: Brock Foster

Client Project ID: 1063-1
Matrix: LIQUID

Work Order #: 9411420 02,03

Reported: Nov 16, 1994

QUALITY CONTROL DATA REPORT

Analyte:	Benzene	Toluene	Ethyl Benzene	Xylenes
QC Batch#:	GC110994BTEX17A	GC110994BTEX17A	GC110994BTEX17A	GC110994BTEX17A
Analy. Method:	EPA 8020	EPA 8020	EPA 8020	EPA 8020
Prep. Method:	N.A.	N.A.	N.A.	N.A.

Analyst:	J. Minkel	J. Minkel	J. Minkel	J. Minkel
MS/MSD #:	941104402	941104402	941104402	941104402
Sample Conc.:	N.D.	N.D.	N.D.	N.D.
Prepared Date:	N.A.	N.A.	N.A.	N.A.
Analyzed Date:	11/9/94	11/9/94	11/9/94	11/9/94
Instrument I.D.#:	GCHP17	GCHP17	GCHP17	GCHP17
Conc. Spiked:	10 µg/L	10 µg/L	10 µg/L	30 µg/L
Result:	10	9.9	9.9	30
MS % Recovery:	100	99	99	100
Dup. Result:	9.6	9.2	9.3	28
MSD % Recov.:	96	92	93	93
RPD:	4.1	7.3	6.3	6.9
RPD Limit:	0-50	0-50	0-50	0-50

LCS #:

Prepared Date:
Analyzed Date:
Instrument I.D.#:
Conc. Spiked:

LCS Result:
LCS % Recov.:

MS/MSD LCS Control Limits	71-133	72-128	72-130	71-120
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Please Note:

The LCS is a control sample of known, interferent-free matrix that is analyzed using the same reagents, preparation, and analytical methods employed for the samples. The matrix spike is an aliquot of sample fortified with known quantities of specific compounds and subjected to the entire analytical procedure. If the recovery of analytes from the matrix spike does not fall within specified control limits due to matrix interference, the LCS recovery is to be used to validate the batch.

SEQUOIA-ANALYTICAL

Andrea Fulcher
Andrea Fulcher
Project Manager

** MS=Matrix Spike, MSD=MS Duplicate, RPD=Relative % Difference

9411420.JVL <2>





Lowney Associates
405 Clyde Avenue
Mountain View, CA 94043
Attention: Brock Foster

Client Project ID: 1063-1
Matrix: LIQUID
Work Order #: 9411420 04

Reported: Nov 16, 1994

QUALITY CONTROL DATA REPORT

Analyte:	Benzene	Toluene	Ethyl Benzene	Xylenes
QC Batch#:	GC110894BTEX17A	GC110894BTEX17A	GC110894BTEX17A	GC110894BTEX17A
Analy. Method:	EPA 8020	EPA 8020	EPA 8020	EPA 8020
Prep. Method:	N.A.	N.A.	N.A.	N.A.

Analyst:	J. Minkel	J. Minkel	J. Minkel	J. Minkel
MS/MSD #:	941125803	941125803	941125803	941125803
Sample Conc.:	N.D.	N.D.	N.D.	N.D.
Prepared Date:	N.A.	N.A.	N.A.	N.A.
Analyzed Date:	11/8/94	11/8/94	11/8/94	11/8/94
Instrument I.D.#:	GCHP17	GCHP17	GCHP17	GCHP17
Conc. Spiked:	10 µg/L	10 µg/L	10 µg/L	30 µg/L

Result:	9.7	10	9.9	30
MS % Recovery:	97	100	99	100

Dup. Result:	10	11	11	31
MSD % Recov.:	100	110	110	103

RPD:	3.0	9.5	11	3.3
RPD Limit:	0-50	0-50	0-50	0-50

LCS #:

Prepared Date:
Analyzed Date:
Instrument I.D.#:
Conc. Spiked:

LCS Result:
LCS % Recov.:

MS/MSD LCS Control Limits	71-133	72-128	72-130	71-120

Please Note:

The LCS is a control sample of known, interferent-free matrix that is analyzed using the same reagents, preparation, and analytical methods employed for the samples. The matrix spike is an aliquot of sample fortified with known quantities of specific compounds and subjected to the entire analytical procedure. If the recovery of analytes from the matrix spike does not fall within specified control limits due to matrix interference, the LCS recovery is to be used to validate the batch.

SEQUOIA ANALYTICAL

Andrea Fulcher
Andrea Fulcher
Project Manager

** MS=Matrix Spike, MSD=MS Duplicate, RPD=Relative % Difference

9411420.JVL <3>



LOWNEY ASSOCIATES CHAIN OF CUSTODY RECORD

JOB NO. 1063-1		PROJECT NAME/LOCATION 701 Fremont Ave		NO. OF CONTAINERS	ANALYSIS REQUIRED						SHIP TO: LOWNEY ASSOCIATES 405 Clyde Avenue Mountain View, CA 94043 415-967-2365 415-967-2785 (FAX)	
SAMPLER(S): (Signature) <i>T Brock Foster</i>					TPH	GAS	BTEX					REMARKS
DATE	TIME	SAMPLE DESCRIPTION										
10/27/08		MW-1 5-5 1/2		1	x							9410345
		MW-1 10-10 1/2		1	x							Normal Response Time
		MW-1 15-15 1/2		1	x							CONTACT: Brock Foster
		MW-2 15-15 1/2		1	x							
		MW-3 5-5 1/2		1	x							
		MW-3 10-10 1/2		1	x							
		MW-3 15-15 1/2		1	x							
		EB-1 5-5 1/2		1	x							
		EB-1 10-10 1/2		1	x							
		EB-1 14-14 1/2		1	x							
Relinquished by: (Signature) <i>T Brock Foster</i>		Date 10/28	Time 2:20	Received By: (Signature) <i>Ray Gutierrez</i>		Relinquished by: (Signature) <i>Ray Gutierrez</i>		Date 10/28	Time 3:55	Received By: (Signature)		
Laboratory of Record:		Date	Time	Received for Laboratory By: (Signature) <i>Brock Foster</i>		Date 10/28/08		Time	Remarks:			

LOWNEY ASSOCIATES CHAIN OF CUSTODY RECORD

JOB NO. 1063-1		PROJECT NAME/LOCATION 701 FREMONT AVE.			NO. OF CON- TAINERS	ANALYSIS REQUIRED						SHIP TO:				
SAMPLER (S): (Signature) 						TPH-GAS	13TEX						LOWNEY ASSOCIATES 405 Clyde Avenue Mountain View, CA 94043 415-967-2365 415-967-2785 (FAX)			
DATE													REMARKS			
TIME		SAMPLE DESCRIPTION														
11/3/94		11:30		MW-2 Groundwater		3	✓							9411420		
		12:30		MW-3		3	✓							Normal Response Time		
		12:40		SS-3		3	✓									
		1:30		MW-1		3	✓							CONTACT: BROCK FOSTER		
Relinquished by: (Signature) 					Relinquished by: (Signature) 					Date	Time	Received By: (Signature)				
Laboratory of Record:					Date	Time	Received for Laboratory By: (Signature) 					Date	Time	Remarks:		
					11/4/94	9:05						11/4/94	11:45			
							Nindale					11/4	11:48			