



June 18, 2001

**SECOND QUARTER GROUNDWATER MONITORING REPORT  
MAY 30, 2001**

Mr. Don Puckett  
4687 Hawaina Way (707) 277-7757  
Kelseyville, CA 95451

JUN 20 2001

Ms. Betty Puckett  
18153 Plymouth Drive  
Castro Valley, CA 94546

RE: L&D Scaffold, 1420 162<sup>nd</sup>, San Leandro, California

Dear Mr. and Ms. Puckett:

Thank you for contracting with ALLCAL Environmental (ALLCAL) to sample groundwater monitoring wells MW-1, MW-2, and MW-3 at the above referenced property. The sampling event was conducted pursuant to an April 18, 2001, letter (attached) from the Alameda County Health Care Services Agency (ACHCSA) requiring quarterly monitoring. Also in this letter, the ACHCSA required that the groundwater from well MW-2 be additionally analyzed for MTBE and other oxygenates using EPA method 8260. The additional analysis was required because potential MTBE was detected in well MW-2 by EPA method 8020, which is not definitive for oxygenates. This is the fourth quarterly sampling event. The following documents the sampling event and presents results of gradient measurement and chemical analyses.

See Attachments A, B, C, and D for ALLCAL's procedures with regard to groundwater sampling, sample handling, quality assurance and quality control, and waste handling and decontamination procedures.

**DOCUMENTATION AND SAMPLING RESULTS**

Wells MW-1, MW-2, and MW-3 were sampled on May 30, 2001. Prior to sampling, the depth to groundwater and total well depth were measured from each well's top-of-casing with an electronic water level meter. These measurements were used to calculate the volume of water in each well and the minimum number of well volumes (three) to purge, prior to sampling. The depth to groundwater, when subtracted from the elevation of each top-of-casing, provides the groundwater elevation which was used to determine the groundwater gradient on the date measured. The following table documents depths to groundwater and groundwater elevations.

McC Campbell Analytical Inc. (McC Campbell) laboratory located in Pacheco, California. The samples were analyzed for total petroleum hydrocarbons as gasoline (TPHG); benzene, toluene, ethylbenzene, and xylenes (BTEX); and methyl tert-butyl ether (MTBE) by the United States Environmental Protection Agency (EPA) methods GCFID modified 5030/8015, 8020, and 8020, respectively. The water sample from well MW-2 was additionally analyzed for MTBE and oxygenates by EPA method 8260.

### Results of Chemical Analyses

All water samples were non-detectable for all analytes, with the exception that MTBE was detected in well MW-1 at a concentration of 220 parts per billion (ppb).

See attached certified analytical report and chain-of-custody for documentation and detailed analytical results.

The following table summarizes all groundwater monitoring well analytical results to date.

### SUMMARY OF GROUNDWATER CHEMICAL ANALYSES (ppb)

Well	Date	Depth to Water(ft)	TPHG	MTBE <sup>1</sup>	Benzene	Toluene	Ethyl-benzene	Xylenes	Oxygenated Volatile Organics
MW-1	9/6/00	5.71	110,b	3300	<0.5	<0.5	<0.5	<0.5	NA <sup>2</sup>
	12/6/00	5.70	<50	940	<0.5	<0.5	<0.5	<0.5	1300 for MTBE
	2/28/01	4.94	<50	570	<0.5	<0.5	<0.5	<0.5	NA
	5/30/01	5.64	<50	220	<0.5	<0.5	<0.5	<0.5	NA
MW-2	9/6/00	5.185	<50	<5.0	<0.5	<0.5	<0.5	<0.5	NA
	12/6/00	5.18	<50	<5.0	<0.5	<0.5	<0.5	<0.5	NA
	2/28/01	4.42	<50	6.7	<0.5	<0.5	<0.5	<0.5	NA
	5/30/01	5.12	<50	<5.0	<0.5	<0.5	<0.5	<0.5	ND
MW-3	9/6/00	5.61	<50	<5.0	<0.5	<0.5	<0.5	<0.5	NA
	12/6/00	5.53	<50	<5.0	<0.5	<0.5	<0.5	<0.5	NA
	2/28/01	4.81	<50	<5.0	<0.5	<0.5	<0.5	<0.5	NA
	5/30/01	5.49	<50	<5.0	<0.5	<0.5	<0.5	<0.5	NA

b = The laboratory interprets the TPH chromatogram to indicate that heavier gasoline range compounds are significant (aged gasoline?)

<sup>1</sup> = EPA method 8020    <sup>2</sup> NA=Not analyzed

**COMMENTS**

A review of the above table, **SUMMARY OF GROUNDWATER CHEMICAL ANALYSES**, shows that, for the subject sampling event, TPHG remains non-detectable in all wells and MTBE has decrease in concentration from 570 ppb (EPA method 8020) to 220 ppb (EPA method 8020) in well MW-1 when compared to the previous monitoring event of February 28, 2000. MTBE was not detected in well MW-2.

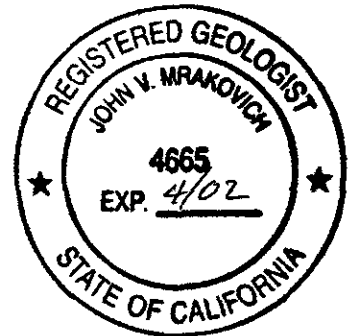
If you have any questions, please call me at (209) 586-6464.

Sincerely,



John V. Mrakovich, Ph.D.  
Registered Geologist No. 4665

cc: eva chu  
Hazardous Materials Specialist  
Alameda County Health Agency  
1131 Harbor Bay Parkway, 2<sup>nd</sup> Floor  
Alameda, CA 94502



**GROUNDWATER ELEVATION**

Well Name	Top of Casing Elevation (ft MSL)	Date	Depth to Groundwater From Top of Casing (ft)	Groundwater Elevation (ft)	Gradient ft./ft.
MW-1	33.14	9/6/00	5.71	27.43	NNE/0.0038
		12/6/00	5.70	27.44	NNE/0.0024
		2/28/01	4.94	28.20	NNE/0.0031
		5/30/01	5.64	27.50	NNE/0.0027
MW-2	32.53	9/6/00	5.185	27.345	
		12/6/00	5.18	27.35	
		2/28/01	4.42	28.11	
		5/30/01	5.12	27.41	
MW-3	32.78	9/6/00	5.61	27.17	
		12/6/00	5.53	27.25	
		2/28/01	4.81	27.97	
		5/30/01	5.49	27.29	

Groundwater Gradient

Based on the above groundwater elevations, groundwater flow direction on May 30, 2001, was north-northeasterly at a gradient of about 0.0027 feet per feet (see the attached FIGURE 1). The direction of groundwater flow and gradient are consistent with the previous monitoring events.

Average depth to groundwater has increased about .69 feet since last quarter's monitoring event.

Groundwater Sampling and Analytical Methodology

Before collecting water samples, each well was purged with a new, dedicated, disposable bailer. Each well was purged a minimum of three well volumes and until the parameters of temperature, pH, and electrical conductivity (measured with a Hydac meter) stabilized (see attached Records of Water Sampling). Nine gallons of water were purged from each well. Purge water is stored on site in a labeled 55-gallon drum.

After purging each well, a groundwater sample was collected with the dedicated bailer and decanted into 40-milliliter VOA bottles having Teflon-lined caps and septa. The bottles were labeled to show site address, sample and sampler name, date and time sampled, and placed in an iced-cooler for delivery, under chain-of-custody (attached), to California Department of Health Services certified

RO0000425

April 18, 2001

Mr. Don Puckett  
P.O. Box 7237  
Clear Lake, CA 95422

Ms. Betty Puckett  
18153 Plymouth Drive  
Castro Valley, CA 94546

**RE: Groundwater Monitoring at 1420 162<sup>nd</sup> Ave, San Leandro, CA**

Dear Mr. and Ms. Puckett:

I have completed review of AllCal Environmental's February 2001 *First Quarter Groundwater Monitoring Report* prepared for the above referenced site. In the groundwater sampling event that took place in February 28, 2001, MTBE was identified in well MW-2, at 6.7 parts per billion, for the first time. For the next sampling event (May 2001), groundwater from well MW-2 should be analyzed for MTBE and other oxygenates using EPA Method 8260. If MTBE is not present, I will evaluate the case to determine if closure is warranted.

If you have any questions, I can be reached at (510) 567-6762.

eva chu  
Hazardous Materials Specialist

email: John Mrakovich

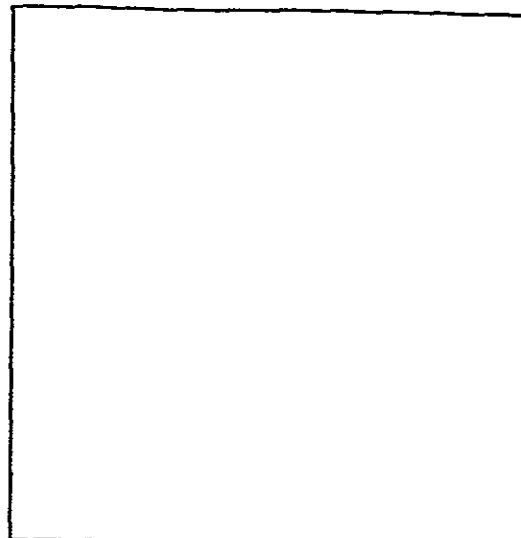
## RECORD OF WATER SAMPLING

PROJECT NO.: 147 DATE: 5/30/01  
 PROJECT NAME: L&D SCAFFOLD, INC.  
 PROJECT LOCATION: 1420 162<sup>ND</sup> AVE.  
 SAMPLER: ALLCAL ENVIRON  
 ANALYSES: TPH6/BTEX/MTBE

WELL NO.: MW7  
 WELL DIAMETER: 2"  
 TOC ELEV: 33.14  
 LOCK NO.: \_\_\_\_\_

WELL DEPTH (from construction detail): \_\_\_\_\_  
 WELL DEPTH (measured): 24.2 SOFT BOTTOM?: N  
 DEPTH TO WATER: 5.64 TIME: 0.50  
 PRESSURE (circle one)?: YES OR NO  
 IF YES, WAS PRESSURE (circle one): POSITIVE OR NEGATIVE?

WATER VOLUME IN WELL: 2.97  
 [2-INCH CASING = 0.16 GAL/FT] [4-INCH CASING = 0.65 GAL/FT]  
 [6-INCH CASING = 1.47 GAL/FT] [1 GAL = 3.78 L]



LOCATION MAP

CALCULATED PURGE VOL. (GAL): 8.9 (L): \_\_\_\_\_ ACTUAL PURGE VOL. (GAL): 9 (L): \_\_\_\_\_  
 PURGE METHOD: DISPOSABLE BAIER SAMPLE METHOD: DISPOSABLE BAIER

### FIELD MEASUREMENTS

Time	Depth to Water (FT)	Vol (L)	Temp (Deg. F)	pH	EC X1000	Clarity	Turbidity (NTU)	Remarks
1035		2	70.2	8.06	1.52			CLEAR THEN TURBID NO OIL
1039		3	68.9	7.86	1.43			
1041		4	68.0	7.80	1.45			
1044		5	67.9	7.80	1.45			
1046		6	68.0	7.74	1.53			
1048		7	67.6	7.68	1.54			
1050		8	67.6	7.64	1.46			
1054		9	67.6	7.61	1.52			
1100	SAMPLE							

SIGNATURE: G. M. [Signature]

WATER VOL. IN DRUM: \_\_\_\_\_  
 NEED NEW DRUM?: NO

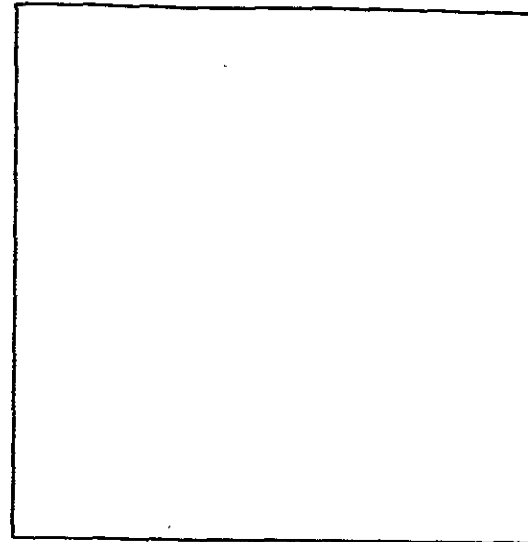
RECORD OF WATER SAMPLING

PROJECT NO.: 147 DATE: 5/30/01  
 PROJECT NAME: L & D SCAFFOLDS, INC  
 PROJECT LOCATION: 1420 162<sup>ND</sup> AVE.  
 SAMPLER: ALLCAL ENVIRON  
 ANALYSES: TPHS/BTEX/MTBE

WELL NO.: MW-2  
 WELL DIAMETER: 2"  
 TOC ELEV: 32.53  
 LOCK NO.: \_\_\_\_\_

WELL DEPTH (from construction detail): \_\_\_\_\_  
 WELL DEPTH (measured): 23.82 SOFT BOTTOM?: N  
 DEPTH TO WATER: 5.12 TIME: 847  
 PRESSURE (circle one)? YES OR NO  
 IF YES, WAS PRESSURE (circle one): POSITIVE OR NEGATIVE?

WATER VOLUME IN WELL: 3.0  
 [2-INCH CASING = 0.16 GAL/FT] [4-INCH CASING = 0.65 GAL/FT]  
 [6-INCH CASING = 1.47 GAL/FT] [1 GAL = 3.78 L]



LOCATION MAP

CALCULATED PURGE VOL. (GAL): 9.0 (L): \_\_\_\_\_ ACTUAL PURGE VOL. (GAL): 9 (L): \_\_\_\_\_  
 PURGE METHOD: DISPOSABLE BAILER SAMPLE METHOD: DISPOSABLE BAILER

FIELD MEASUREMENTS

Time	Depth to Water (FT)	Flow (L)	Temp (Deg. F)	pH	EC <small>X/1000</small>	Clarity	Turbidity (NTU)	Remarks
947		2	70.9	9.11	1.17			CLEAR, THEN TURBID, NO O <sub>2</sub> OR
951		3	69.8	8.91	1.19			
954		4	69.3	8.80	1.17			
956		5	69.3	8.66	1.13			
1000		6	68.3	8.54	1.18			
1005		7	68.1	8.41	1.13			
1009		8	68.3	8.32	1.13			
1012		9	68.3	8.24	1.12			
1015	SAMPLE							

SIGNATURE: J. Muehbach

WATER VOL. IN DRUM: \_\_\_\_\_  
 NEED NEW DRUM?: NO

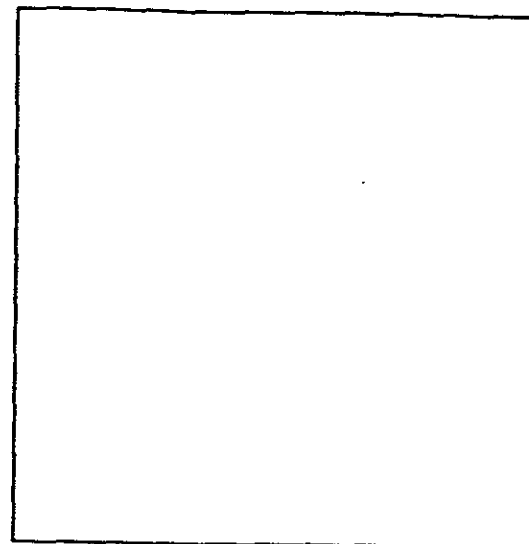
# RECORD OF WATER SAMPLING

PROJECT NO.: 147 DATE: 5/30/01  
 PROJECT NAME: L&D SCAFFOLDS, INC  
 PROJECT LOCATION: 1420 162<sup>ND</sup> AVE.  
 SAMPLER: ALLCAL ENVIRON  
 ANALYSES: TPHS, BTEX, MTBE

WELL NO.: MW-7  
 WELL DIAMETER: 2"  
 TOC ELEV: 32.78  
 LOCK NO.: \_\_\_\_\_

WELL DEPTH (from construction detail): \_\_\_\_\_  
 WELL DEPTH (measured): 24.92 SOFT BOTTOM?: N  
 DEPTH TO WATER: 5.49 TIME: 845  
 PRESSURE (circle one): YES OR (NO)  
 IF YES, WAS PRESSURE (circle one): POSITIVE OR NEGATIVE?

WATER VOLUME IN WELL: 3.1 G  
 [2-INCH CASING = 0.16 GAL/FT] [4-INCH CASING = 0.65 GAL/FT]  
 [6-INCH CASING = 1.47 GAL/FT] [1 GAL = 3.78 L]



LOCATION MAP

CALCULATED PURGE VOL. (GAL): 9.3 (L): \_\_\_\_\_ ACTUAL PURGE VOL. (GAL): 9 (L): \_\_\_\_\_  
 PURGE METHOD: DISPOSABLE BAILER SAMPLE METHOD: DISPOSABLE BAILER

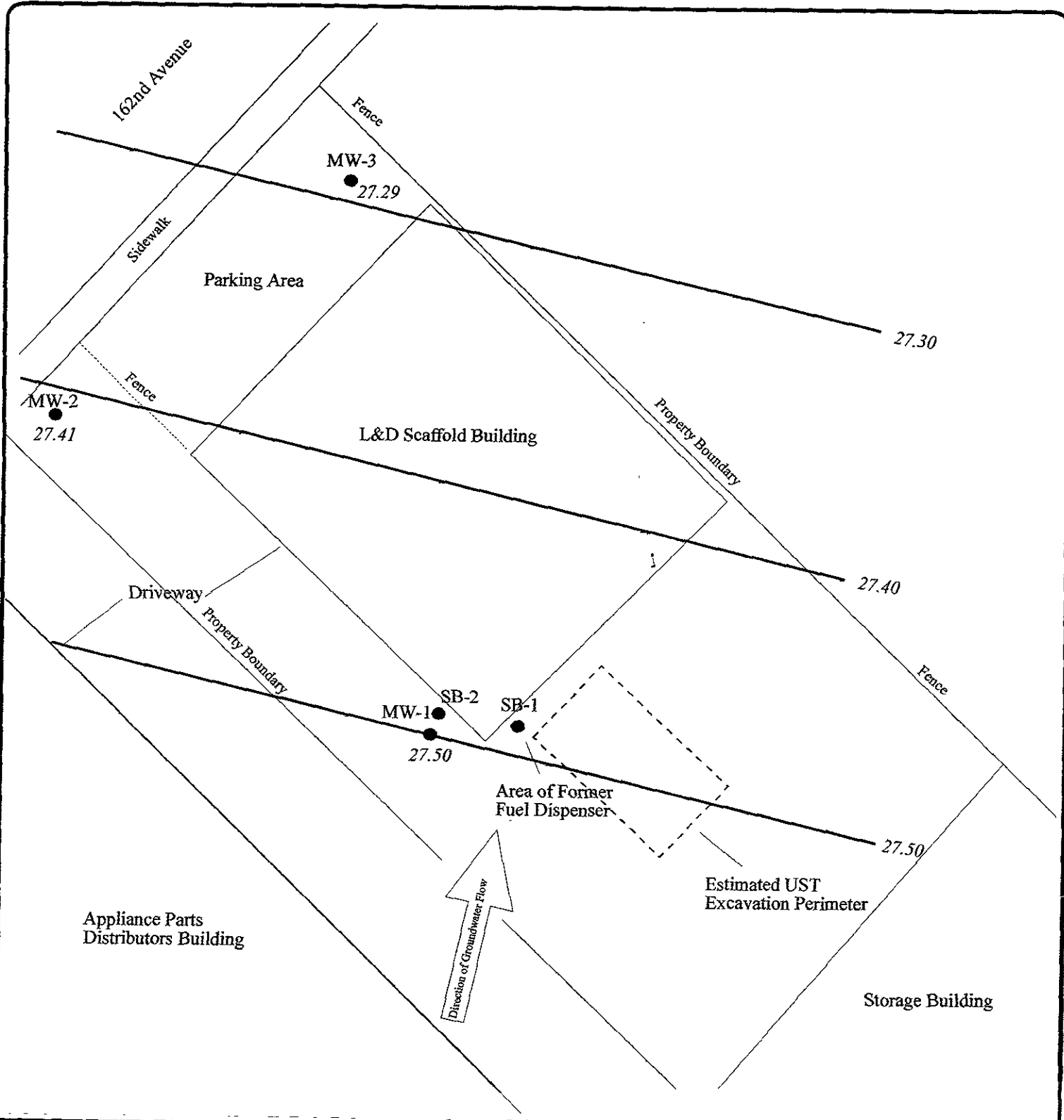
## FIELD MEASUREMENTS

Time	Depth to Water (FT)	Gal (L)	Temp (Deg. F)	pH	EC X1000	Clarity	Turbidity (NTU)	Remarks
905		2	67.1	10.88	1.54			1 <sup>ST</sup> PULL CLEAR, THEN SLIGHTLY TURBID TURBID, NO ODOR         ↓
907		3	65.8	11.06	1.30			
910		4	65.4	10.77	1.22			
913		5	65.4	10.48	1.20			
916		6	65.5	10.20	1.23			
920		7	65.5	9.95	1.19			
923		8	65.5	9.78	1.19			
926		9	65.5	9.58	1.19			
935	SAMPLE							

SIGNATURE: Jo. Mackovick

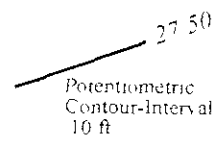
WATER VOL. IN DRUM: \_\_\_\_\_  
 NEED NEW DRUM?: NO





- SB-1  
● Name and Location of Soil Boring
- MW-1  
● Name and Location of Monitoring Well with Groundwater Elevation (MSL)  
27.50

**Legend**



Approximate Scale: ft

**ALLCAL ENVIRONMENTAL**

**FIGURE 1**

GROUNDWATER GRADIENT MAP-05/30/01  
L&D SCAFFOLD, INC.  
1420 162ND AVENUE  
SAN LEANDRO, CA 94578



McCAMPBELL ANALYTICAL INC.

110 2nd Avenue South, #D7, Pacheco, CA 94553-5560  
Telephone : 925-798-1620 Fax : 925-798-1622  
<http://www.mccampbell.com> E-mail: [main@mccampbell.com](mailto:main@mccampbell.com)

ALLCAL Environmental P.O. Box 1652 Twain Harte, CA 95383	Client Project ID: #147; L & D Scaffold	Date Sampled: 05/30/01
		Date Received: 05/30/01
	Client Contact: John Mrakovich	Date Extracted: 05/30/01
	Client P.O:	Date Analyzed: 05/30/01

06/06/2001

Dear John:

Enclosed are:

- 1). the results of 4 samples from your #147; L & D Scaffold project,
- 2). a QC report for the above samples
- 3). a copy of the chain of custody, and
- 4). a bill for analytical services.

All analyses were completed satisfactorily and all QC samples were found to be within our control limits. If you have any questions please contact me. McCampbell Analytical Laboratories strives for excellence in quality, service and cost. Thank you for your business and I look forward to working with you again.

Yours truly,

Edward Hamilton, Lab Director



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ALLCAL Environmental P.O. Box 1652 Twain Harte, CA 95383	Client Project ID: #147; L & D Scaffold	Date Sampled: 05/30/01
	Client Contact: John Mrakovich	Date Received: 05/30/01
	Client P.O:	Date Extracted: 06/01/01
		Date Analyzed: 06/01/01

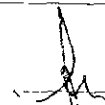
**Gasoline Range (C6-C12) Volatile Hydrocarbons as Gasoline\*, with Methyl tert-Butyl Ether\* & BTEX\***  
EPA methods 5030, modified 8015, and 8020 or 602; California RWQCB (SF Bay Region) method GCFID(5030)

Lab ID	Client ID	Matrix	TPH(g) <sup>+</sup>	MTBE	Benzene	Toluene	Ethyl-benzene	Xylenes	% Recovery Surrogate
68610	Trip Blank	W	ND	ND	ND	ND	ND	ND	104
68611	MW-1	W	ND	220	ND	ND	ND	ND	107
68612	MW-2	W	ND	ND	ND	ND	ND	ND	107
68613	MW-3	W	ND	ND	ND	ND	ND	ND	104
Reporting Limit unless otherwise stated; ND means not detected above the reporting limit	W		50 ug/L	5.0	0.5	0.5	0.5	0.5	
	S		1.0 mg/kg	0.05	0.005	0.005	0.005	0.005	

\* water and vapor samples are reported in ug/L. wipe samples in ug/wipe. soil and sludge samples in mg/kg. and all TCLP and SPLP extracts in ug/L.

\* cluttered chromatogram, sample peak coelutes with surrogate peak

The following descriptions of the TPH chromatogram are cursory in nature and McCampbell Analytical is not responsible for their interpretation: a) unmodified or weakly modified gasoline is significant, b) heavier gasoline range compounds are significant (aged gasoline?), c) lighter gasoline range compounds (the most mobile fraction) are significant, d) gasoline range compounds having broad chromatographic peaks are significant, biologically altered gasoline?, e) TPH pattern that does not appear to be derived from gasoline (?), f) one to a few isolated peaks present, g) strongly aged gasoline or diesel range compounds are significant, h) higher than water immiscible phase is present, i) liquid sample that contains greater than ~5 vol % sediment, j) no recognizable pattern.

 Edward Hamilton, Lab Director



McCAMPBELL ANALYTICAL INC.

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ALLCAL Environmental P.O. Box 1652 Twain Harte, CA 95383	Client Project ID: #147; L & D Scaffold	Date Sampled: 05/30/01
	Client Contact: John Mrakovich	Date Received: 05/30/01
	Client P.O:	Date Extracted: 05/30/01
		Date Analyzed: 05/30/01

**Oxygenated Volatile Organics By GC/MS**  
 EPA method 8260 modified

Lab ID	68612	Client ID	MW-2	Matrix	W	Reporting Limit	
						S	W
Compound	Concentration*					ug/kg	ug/L
Di-isopropyl Ether (DIPE)	ND					5.0	1.0
Ethyl tert-Butyl Ether (ETBE)	ND					5.0	1.0
Methyl-tert Butyl Ether (MTBE)	ND					5.0	1.0
tert-Amyl Methyl Ether (TAME)	ND					5.0	1.0
tert-Butanol	ND					25	5.0


**Surrogate Recoveries (%)**

Dibromofluoromethane	106				
----------------------	-----	--	--	--	--

**Comments:**

\* water samples are reported in ug/L, soil and sludge samples in ug/kg, wipes in ug/wipe and all TCLP / STLC / SPLP extracts in ug/L  
 ND means not detected above the reporting limit; N/A means surrogate not applicable to this analysis  
 (h) lighter than water immiscible sheen is present; (i) liquid sample that contains greater than ~5 vol. % sediment; (j) sample diluted due to high organic content

DHS Certification No. 1644

 Edward Hamilton, Lab Director



McCAMPBELL ANALYTICAL INC.

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 Telephone : 925-798-1620 Fax : 925-798-1622  
<http://www.mccampbell.com> E-mail: main@mccampbell.com

## QC REPORT

Date: 06/01/01-06/02/01 Matrix: Water

Extraction: TTLC

Compound	Concentration: ug/L				%Recovery		RPD
	Sample	MS	MSD	Amount Spiked	MS	MSD	

SampleID: 60201

Instrument:

GC-7

Surrogate1	0.000	101.0	101.0	100.00	101	101	0.0
Xylenes	0.000	32.0	31.8	30.00	107	106	0.6
Ethyl Benzene	0.000	9.8	9.8	10.00	98	98	0.0
Toluene	0.000	10.2	10.1	10.00	102	101	1.0
Benzene	0.000	9.5	9.5	10.00	95	95	0.0
MTBE	0.000	10.5	10.4	10.00	105	104	1.0
GAS	0.000	105.9	106.3	100.00	106	106	0.3

SampleID: 53001

Instrument:

GC-11 B

Surrogate1	0.000	100.0	108.0	100.00	100	108	7.7
TPH (diesel)	0.000	7250.0	7250.0	7500.00	97	97	0.0

$$\% \text{ Recovery} = \frac{(MS - \text{Sample})}{\text{Amount Spiked}} \times 100$$

$$RPD = \frac{(MS - MSD)}{(MS + MSD)} \times 100$$

RPD means Relative Percent Deviation



McCAMPBELL ANALYTICAL INC.

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## QC REPORT

### VOCs (EPA 8240/8260)

Date: 05/29/0105/30/01 Matrix: Water

Extraction: N/A

Compound	Concentration: ug/L			%Recovery		RPD	
	Sample	MS	MSD	Amount Spiked	MS : MSD		
SampleID: 53001		Instrument			GC-4		
Surrogate	0.000	106.0	106.0	100.00	106	106	0.0
tert-Amyl Methyl Ether	0.000	102.0	100.0	100.00	102	100	2.0
Methyl tert-Butyl Ether	0.000	106.0	106.0	100.00	106	106	0.0
Ethyl tert-Butyl Ether	0.000	103.0	102.0	100.00	103	102	1.0
Di-isopropyl Ether	0.000	90.0	88.0	100.00	90	88	2.2

$$\% \text{ Recovery} = \frac{(MS - \text{Sample})}{\text{Amount Spiked}} \times 100$$

$$RPD = \frac{(MS - MSD)}{(MS + MSD)} \times 200$$

RPD means Relative Percent Deviation

26650 ZOC41

McCAMBELL ANALYTICAL INC.

110 2<sup>nd</sup> AVENUE SOUTH, #D7  
PACHECO, CA 94553

Telephone: (510) 798-1620

Fax: (510) 798-1622

CHAIN OF CUSTODY RECORD

TURN AROUND TIME     RUSH 24 HOUR 48 HOUR 5 DAY

Report To: JOHN MIRAKOVICH Bill To: SAME

Company: ALLCAL ENVIRONMENTAL

P.O. BOX 1652

TUAIN HARTE, CA 95383

Tele: (249) 5866464 Fax: ( ) SAME-CALL FIRST

Project #: 147 Project Name: LED SCAFFOLD

Project Location: 1420 162<sup>nd</sup> AVE, SAN LEANRO, CA

Sampler Signature: John Mirakovich

		Analysis Request											Other	Comments			
		BTEX & TPH as Gas (602/8020 + 8015) MTBE	TPH as Diesel (8015)	Total Petroleum Oil & Grease (5520 E&F/B&F)	Total Petroleum Hydrocarbons (418.1)	EPA 601 / 8010	BTEX ONLY (EPA 602 / 8020)	EPA 608 / 8080	EPA 608 / 8080 PCB's ONLY	EPA 624 / 8240 (8260) <del>FUEL OXYGENATES</del>	EPA 625 / 8270	PAH's / PNA's by EPA 625 / 8270 / 8310	CAM-17 Metals	LUFT 5 Metals	Lead (7240/7421/2392/6010)	RCI	
✓	TRIP BLANK	NA	5/30/01	900	1	90 ML	X										68610
+	MW-1	MW-1	↓	1100	2	↓	↓	X									68611
+	MW-2	MW-2	↓	1015	4	↓	↓			X							68612
+	MW-3	MW-3	↓	935	2	↓	↓										68613

Relinquished By: J. Mirakovich Date: 5/30/01 Time: 10:45 Received By: B. Buith

Relinquished By: B. Buith Date: 5-30 Time: 10:45 Received By: Wanda Meece

Relinquished By: Date: Time: Received By:

Remarks:

ICE:  PRESERVATION  VOAS/O&G/METALS/OTHER   
GOOD CONDITION  APPROPRIATE   
HEAD SPACE ABSENT  CONTAINERS

## ATTACHMENT A

### GROUNDWATER SAMPLING PROCEDURES

Groundwater monitoring wells will not be sampled until at least 48 hours after well development. Groundwater samples will be obtained using either a bladder pump, clear Teflon bailer, or polyethylene bailer. Prior to sampling, sampling equipment will be thoroughly decontaminated to prevent introduction of contaminants into the well and to avoid cross-contamination. Monitoring wells will be sampled after three to five wetted casing volumes of groundwater have been evacuated and after the Allcal sampling team leader determines that water representative of the formation is being obtained. The well will be purged until conductivity has been stabilized (three consecutive conductivity reading within 15% of one another). If the well is emptied before four to ten well volumes are removed, the sample shall be taken when the water level in the well recovers to 80% of its initial water level or better.

ALLCAL will also measure the thickness of any floating product in the monitoring wells using a probe or clear Teflon bailer. The floating product will be measured after well development but prior to the collection of groundwater samples. If floating product is present in the well, ALLCAL will recommend to the client that product removal be commenced immediately and reported to the appropriate regulatory agency.

Unless specifically waived or changed by the local, prevailing regulatory agency, water samples shall be handled and preserved according to the latest EPA methods as described in the Federal Register (Volume 44, No.233, Page 69544, Table II) for the type of analysis to be performed.

### MEASUREMENTS

Purged Water Parameter: During purging, discharged water will be measured for the following parameters.

<u>Parameter</u>	<u>Units of Measurement</u>
pH	Units
Electrical conductivity	Umhos
Temperature	Degrees F or C
Depth to Water	Feet/Tenths
Volume of Water Discharged	Liters

Documentation: All parameter measurements shall be documented in writing on ALLCAL development logs.



## ATTACHMENT B

### SAMPLE HANDLING PROCEDURES

Soil and groundwater samples will be packaged carefully to avoid breakage or contamination and will be delivered to the laboratory in an iced-cooler. Sample bottle/sleeve lids will not be mixed. All sample lids will stay with the original containers.

Samples will be stored in iced-coolers to maintain custody, control temperature, and prevent breakage during transportation to the laboratory. Ice, blue ice, or dry ice (dry ice will be used for preserving soil samples collected for the Alameda County Water District) will be used to cool samples during transport to the laboratory. Water samples will be cooled with crushed ice. In the Alameda County Water District, water samples will be buried in the crushed ice with a thermometer, and the laboratory will be requested to record thermometer temperature at the time of receipt.

Each sample will be identified by affixing a label on the container(s). This label will contain the site identification, sample identification number, date and time of sample collection, and the collector's initials.

Soil samples collected in brass or stainless-steel tubes will be preserved by covering the ends with Teflon tape and capping with plastic end-caps. The tubes will be labeled, sealed in quart-size bags, and placed in an iced-cooler for transport to the laboratory.

All groundwater sample containers will be pre-cleaned and will be obtained from a State Department of Health Services certified analytical laboratory.

A chain-of-custody form will be completed for all samples and accompany the sample cooler to the laboratory. All sample transfers will be documented in the chain-of-custody. All field personnel are personally responsible for sample collection and the care and custody of collected samples until the samples are transferred or properly dispatched.

The custody record will be completed by the field technician or professional who has been designated as being responsible for sample shipment to the appropriate laboratory. The custody record will include the following information: site identification, name of person collecting the sample(s), date and time sample(s) were collected, type of sampling conducted (composite/grab), location of sampling station, number and type of containers used, and signature of the person relinquishing samples to another person with the date and time of transfer noted.

## ATTACHMENT C

### QUALITY ASSURANCE AND QUALITY CONTROL PROCEDURES

The overall objectives of the field sampling program include generation of reliable data that will support development of a remedial action plan. Sample quality will be checked by the use of proper sampling, handling, and testing methods. Additional sample quality control methods may include the use of background samples, equipment rinsate samples, and trip and field blanks. Chain-of-custody forms, use of a qualified laboratory, acceptable detection limits, and proper sample preservation and holding times also provide assurance of accurate analytical data.

A quality assurance and quality control (QA/QC) program may be conducted in the field to ensure that all samples collected and field measurements taken are representative of actual field and environmental conditions and that data obtained are accurate and reproducible. These activities and laboratory QA/QC procedures are described below.

Field Samples: Additional samples may be taken in the field to evaluate both sampling and analytical methods. Three basic categories of QA/QC samples that may be collected are trip blanks, field blanks, and duplicate samples.

Trip blanks are a check for cross-contamination during sample collection, shipment, and laboratory analysis. They are water samples that remain with the collected samples during transportation and are analyzed along with the field samples to check for residual contamination. Analytically confirmed organic-free water will be used for organic parameters and deionized water for metal parameters. Blanks will be prepared by the laboratory supplying the sample containers. The blanks will be numbered, packaged, and sealed in the same manner as the other samples. One trip blank will be used for each sample set of less than 20 samples. At least 5% blanks will be used for sets greater than 20 samples. The trip blank is not to be opened by either the sample collectors or the handlers.

The field blank is a water sample that is taken into the field and is opened and exposed at the sampling point to detect contamination from air exposure. The water sample is poured into appropriate containers to simulate actual sampling conditions. Contamination due to air exposure can vary considerably from site to site.

Duplicate samples are identical sample pairs (collected in the same place and at the same time), placed in identical containers. For soils, adjacent sample liners will be analyzed. For the purpose of data reporting, one is arbitrarily designated the sample, and the other is designated as a duplicate sample. Both sets of results are reported to give an indication of the precision of sampling and analytical methods.

The laboratory's precision will be assessed without the laboratory's knowledge by labeling one of the duplicates with false identifying information. Data quality will be evaluated on the basis of the duplicate results.

Laboratory QA/QC: Execution of a strict QA/QC program is an essential ingredient in high-quality analytical results. By using accredited laboratory techniques and analytical procedures, estimates of the experimental values can be very close to the actual value of the environmental sample. The experimental value is monitored for its precision and accuracy by performing QC tests designed to measure the amount of random and systematic errors and to signal when correction of these errors is needed.

The QA/QC program describes methods for performing QC tests. These methods involve analyzing method blanks, calibration standards, check standards (both independent and the United States Environmental Protection Agency-certified standards), duplicates, replicates, and sample spikes. Internal QC also requires adherence to written methods, procedural documentation, and the observance of good laboratory practices.

## ATTACHMENT D

### WASTE HANDLING AND DECONTAMINATION PROCEDURES

Decontamination: Any drilling, sampling, or field equipment that comes into contact with soil or groundwater will be decontaminated prior to its use at the site and after each incident of contact with the soil or groundwater being investigated. Decontamination is essential to obtain samples that are representative of environmental conditions and to accurately characterize the extent of soil and groundwater contamination. Hollow-stem auger flights, the drill bit, and all other soil boring devices will be steam-cleaned between the drilling of each boring.

All sample equipment, including the split-spoon sampler and brass or stainless-steel tubes, will be cleaned by washing with trisodium phosphate or Alconox detergent, followed by rinsing with tap water. Where required by specific regulatory guidelines, a nonphosphate detergent will be used.

Waste Handling: Waste materials generated during site characterization activities will be handled and stored as hazardous waste and will be stored on site in appropriately labeled containers. Waste materials anticipated include: excavated soil, drill cuttings, development and purge water, water generated during aquifer testing, water generated during decontamination, and used personnel protection equipment such as gloves and Tyvek. The site owner will be responsible for providing the storage containers and will be responsible for the disposal of the waste materials. Drill cuttings from individual borings will be stored separately in drums or covered by plastic sheeting, and the appropriate disposal procedure will be determined by the site owner following receipt of the soil sample analytical results. Storage containers will be labeled to show material stored, known or suspected contaminant, date stored, expected removal date, company name, contact, and telephone number.