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Alameda County  
Environmental Health

December 9, 2008

Rita and Tony Sullins  
Don Sul Inc.  
187 North L Street  
Livermore, CA 94550

Re: Transmittal Letter  
Site Location: Arrow Rentals  
167 North L Street, Livermore, CA 94550

Dear Mr. Wickham:

On behalf of Rita and Tony Sullins, Don Sul Inc., Geological Technics Inc. (GTI) prepared the Semiannual Groundwater Monitoring, October of 2008, dated December 9, 2008 that was sent to your office via electronic delivery per Alameda County's guidelines on December 12, 2008.

I declare under penalty of law that the information and/or recommendations contained in the above referenced document or report is true and correct to the best of my knowledge.

Respectfully submitted,



Rita / Tony Sullins  
Property Owner  
Don Sul Inc.  
187 North L Street  
Livermore, CA 94550

*Geological Technics Inc.* \_\_\_\_\_

## **REPORT**

**Semiannual Groundwater Monitoring  
October 2008**

**Arrow Rentals Service  
187 North L St.  
Livermore, CA 94550**

**Project No. 1262.2  
December 9, 2008**

**Prepared for:  
Tony & Rita Sullins  
Arrow Rentals Service  
187 North L St.  
Livermore, CA 94550**

**Prepared by:  
*Geological Technics Inc.*  
1101 7<sup>th</sup> Street  
Modesto, California 95354  
(209) 522-4119**

# *Geological Technics Inc.*

---

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Modesto, California 95354  
(209) 522-4119/Fax (209) 522-4227

December 9, 2008

Project No.: 1262.2  
Project Name: Sullins (L St.)

Tony & Rita Sullins  
Arrow Rentals Service  
187 North L Street  
Livermore, CA 94550

RE: Report: Semiannual Groundwater Monitoring, October 2008  
Location: 187 North L Street, Livermore, CA 94550.  
(ACEH Fuel Leak Case No. RO0000394)

Dear Mr. & Ms. Sullins:

Geological Technics Inc. has prepared the following Report for the 2<sup>nd</sup> Semi-annual 2008 groundwater monitoring event performed on October 8<sup>th</sup> and 9<sup>th</sup>, 2008, at the 187 North L Street property in Livermore. The groundwater data for the event indicate that the plume continues to display a trend of declining concentrations. However, an elevated core of gasoline contamination persists in the location of the former USTs/piping.

GTI is currently implementing the Corrective Action Plan (CAP) that includes provisions for performing dual phase extraction to treat the residual contamination at the site, which has received approval from ACEH and cost pre-approval from the UST Cleanup Fund.

If you have any questions, please do not hesitate to call me at (209) 522-4119.

Respectfully submitted,



Tamorah Bryant, P.E.

cc: Jerry Wickham - ACEH  
USTCUF  
Chris Davidson - City of Livermore  
Jennifer Sedlecek - Exxon Mobile Corp.

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# ***Geological Technics Inc.***

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## **REPORT**

### **Semiannual Groundwater Monitoring October 2008**

**Arrow Rentals Services  
187 North L St.  
Livermore, CA**

Project No. 1262.2  
December 9, 2008

#### **EXECUTIVE SUMMARY**

This report summarizes the results of the 2<sup>nd</sup> Semi-annual 2008 groundwater monitoring and sampling event that took place on October 8<sup>th</sup> and 9<sup>th</sup>, of 2008.

The average shallow groundwater elevation at the site was 432 feet above mean sea level (msl) and the groundwater flow was Northwest in a variable direction for this event. This represents a decrease of 15.24 feet since the April 2008 monitoring event.

The analytical results of groundwater samples show that detectable concentrations of gasoline range petroleum hydrocarbons were present in five of the site's six groundwater monitoring wells sampled for this event (down gradient well W-Es was non-detect). A persistent core remains in the vicinity of well W-1 (140,000 µg/l TPH-g, sampled 12/20/2007) that is located adjacent to former USTs/piping trenches and is down gradient of the former UST system from which the Pitcock release originated.

GTI is currently implementing the Corrective Action Plan (CAP) that includes provisions for performing dual phase extraction to treat the residual contamination at the site, which has received approval from ACEH and cost pre-approval from the UST Cleanup Fund.

## 1.0 GROUNDWATER MONITORING

### 1.1 Hydrogeology of Site

The average groundwater elevation in the site's shallow wells was 432 feet above mean sea level (msl) on October 8<sup>th</sup> and 9<sup>th</sup>, 2008. This corresponds to approximately 47 feet below grade surface (bgs) and represents an increase of 14.04 feet since the April 2008 monitoring event. The depth to groundwater observed in the site's wells has ranged from approximately 20 - 49 feet below grade surface from 1989 to 2008. Refer to Figures 1 through 3 for site details, well and borehole locations.

GTI grouped the five new CMT™ well sets installed in October 2006 and existing wells according to the aquifer interval that the screened section intercepted (see Table 3 in Appendix A for well construction details, and Figure 4 for well screen intervals):

Shallow Wells (screened 20 – 45 feet bgs):

W-1s, W-Bs, W-3s, W-Es, and either {MW-4, MW-5, MW-6, MW-7, MW-8} or {MW-105, MW-106, MW-107, MW-108} depending on groundwater elevation

Intermediate Wells (screened 40 – 60 feet bgs):

W-A, W-B, W-C, W-D, W-E, MW-104, MW-205, MW-206, MW-207, MW-208

Note: Wells W-B, -C, -D, and -E were abandoned on April 14, 2008.

Deep Wells (screened ~ 65 feet bgs):

MW-204, MW-305, MW-306, MW-307, MW-308

Deepest Wells (screened > 70 feet bgs):

MW-304, MW-404

The groundwater elevation data are summarized in Tables 1A, 1B and 1C of Appendix A, for the shallow, intermediate and deep aquifer levels, respectively.

Horizontal Groundwater Gradients:

The calculated gradients for the October 8<sup>th</sup> and 9<sup>th</sup>, 2008 monitoring event are as follows:

<u>Aquifer Zone:</u>	<u>Gradient:</u>	<u>Bearing:</u>
Water table	0.010	N57°W
Intermediate	0.12	N20°W
Deep	variable	

Figures 5A through 5C illustrate the three aquifer groundwater gradient maps for the October 8<sup>th</sup> and 9<sup>th</sup>, 2008 monitoring event.

### Vertical Groundwater Gradients:

GTI calculated vertical gradients for well pairs MW-205/305, and MW-206/306 well pairs for the October 8<sup>th</sup> and 9<sup>th</sup>, 2008 monitoring event.

The following procedure is used to calculate vertical groundwater gradients in wells with submerged screens:

- Determine the vertical distance between the two measuring devices (wells) by calculating the distance between the mid-point between the screen top and bottom in the deep well (MW-305) and the mid-point between the screen top and bottom in the shallower well (MW-205).
- Measure the head in both wells used in the calculations.
- If the lateral distance between the well pair is greater than a few feet, then calculations must be made to correct the down-gradient piezometric head to account for the sloping water table between the wells. This is not necessary in this case because the wells are adjacent to each other in the CMT™ well sets.
- Divide the difference in head by the difference in vertical distance in the measuring devices to obtain the vertical gradient.

Figure 3 shows the location of the well pairs used for calculating vertical groundwater gradient in this report: MW-204/304, MW-205/305 MW-206/306, and MW-207/307. Table 2 in Appendix A shows the calculated vertical gradients.

For the October 8<sup>th</sup> and 9<sup>th</sup>, 2008 event:

- The vertical gradient for the MW-205/305 pair was positive (or upward) at 0.56 ft/ft.
- The vertical gradient for the MW-206/306 pair was positive (or upward) at 0.06 ft/ft

In their January 16, 2007 letter correspondence Alameda County Environmental Health (ACEH) staff directed that groundwater elevation data for deep wells MW-304 & MW-404 be included in future reports. This data has been added in two columns on the far right of Table 1C, Appendix A.

## **1.2 Groundwater Sampling Procedure**

On October 8<sup>th</sup> and 9<sup>th</sup>, 2008 Geological Technics Inc. (GTI) staff mobilized to the site to conduct sounding and sampling of the site's monitoring wells. Before sampling was attempted, the wells were sounded for depth to water and groundwater levels recorded with exceptions as noted. The non-CMT™ wells were purged of at least three well volumes of stagnant water using a dedicated Waterra check-ball. Purging continued until the temperature, conductivity, and pH of the groundwater stabilized (<10% variation in three consecutive readings), indicating that formation water representative of aquifer conditions was entering the wells.



Once purging was complete, water samples were collected from the Waterra tube. Care was taken to minimize sample agitation. Once a sample container was filled and capped, the bottle was inverted, tapped and checked for headspace bubbles. The sample container was identified and labeled with a unique designation, inserted into a foam holder and placed into an ice chest cooled to 4°C for transport to the laboratory. Disposable gloves were used by the technician to collect all samples and were changed with each sample collection.

The following deviations from the sampling protocol are noted:

- *Several CMT™ wells did not contain enough water to purge and collect samples. Samples were not collected from the following wells: MW-205, MW-208, MW-306, and MW-404.*
- *Wells W-3s, W-Bs, MW-107, MW-207, MW-304, MW-305, MW-307, and MW-308 were not sampled due to a lack of water/recharge for both days.*
- *Wells W-1s, and W-Es contained enough water to collect partial samples.*
- *Samples were not collected from well MW-104 due to issues with the Waterra tubing. The tubing and check valve will be replaced prior to the next monitoring event.*

A chain of custody document, listing all samples collected, accompanied the samples from field to laboratory, thereby providing a means to track the movement of and insure the integrity of the samples.

All well purge water was placed in a 55 gallon DOT approved container. These drums were properly labeled and will be stored on site until their proper disposition can be arranged.

Groundwater monitoring field logs are included in Appendix C.

### **1.3 Laboratory Analyses**

The groundwater samples collected on October 8<sup>th</sup> and 9<sup>th</sup>, 2008, were delivered to Argon Laboratories in Ceres, California (Certification Number 2359) for analysis.

The groundwater samples were analyzed for:

- Ethyl Benzene and Xylene (BTEX) by EPA method 8021B
- Total Petroleum Hydrocarbons as Gasoline (TPH-G) by EPA method 8015M
- Oxygenated Fuel Compound MtBE by EPA method 8021B

The results and detection limits for the above analyses are listed in Table 4 of Appendix A while the lab analytical results are presented in Appendix B.

As required under AB2886, the depth to groundwater data for the 2<sup>nd</sup> Semiannual 2008 was submitted to GeoTracker on December 9, 2008 – confirmation number 5039214193. Laboratory data was submitted to GeoTracker on December 12, 2008 – confirmation number 1919234335.

## 2.0 FINDINGS AND DISCUSSION

The results of the groundwater monitoring and sample analyses indicate the following:

October 8<sup>th</sup> and 9<sup>th</sup>, 2008-

- Shallow aquifer:
  - Well W-1s contained: 39,000 µg/l TPH-g, 3,900 µg/l benzene, 340 µg/l toluene, 1,400 µg/l ethyl benzene, and 2,000 µg/l xylene.
  - Wells W-3s, W-Bs and MW-105 were not sampled during this event due to the well being dry.
  - Well W-Es did not contain BTEX, TPH-g and MtBE contamination above the laboratory reporting limits.
  - MW-105 contained 11,000 µg/l TPH-g, 3,800 µg/l benzene, 70 µg/l toluene, 40 µg/l ethylbenzene, and 110 µg/l xylene.
  - MW-106 contained 90 µg/l TPH-g and 0.6 µg/l benzene.
  - Well MW-108 contained 2,100 µg/l TPH-g, 490 µg/l benzene, 8.4 µg/l toluene, 35 µg/l ethylbenzene and 40 µg/l xylene.
  - Figure 6 contains a contour map indicating GTI's interpretation of the shallow TPH-g plume in October 2008. The groundwater plume is localized in the vicinity of the former USTs/piping trenches.
- Intermediate aquifer:
  - MW-104 was not sampled during this event.
  - Well MW-205, 207, and 208 were not sampled during this event due to poor water production. Figure 5B contains GTI's interpretation of the intermediate ground water gradient.
  - Due to a lack of sample points, GTI was not able to generate a TPH-g plume for the intermediate wells. Figure 7 contains a contour map of the intermediate aquifer TPH-g plume from the April 2008 monitoring event.
- Deep aquifer:
  - Well MW-204 contained 18,000 µg/l TPH-g, 9,200 µg/l benzene, 360 µg/l toluene, 130 µg/l ethyl benzene, and 370 µg/l xylene.
  - Well MW-305, 307, and 308 were not sampled during this event due to poor water production.
  - Due to a lack of sample points, GTI was not able to generate a TPH-g plume for the intermediate wells. Figure 8 contains a contour map of the deep aquifer TPH-g plume from the April 2008 monitoring event.

- Deepest aquifer wells:
  - Well MW-304, and -404 were not sampled during this event due to poor water production.
  - The vertical extent of the groundwater plume in the two deepest CMT™ wells is illustrated in Figure 9, Cross Section A-A'.
- Figure 10 illustrates TPH-g concentration versus time in well W-1s (located in the vicinity of the core of the contaminant plume). With the exception of events in 1997 and 2001 the contaminant concentrations display a declining trend. The two peaks evident in Figure 10 suggest that significant contaminant mass is present although decades have past since the original USTs were removed. TPH-g concentrations in the well have remained somewhat stable for the last four monitoring events.
- Figure 11 illustrates TPH-g concentration versus time in well W-3s (located down/cross gradient of the core of the plume). The contaminant concentrations show a declining trend. W-3s was not sampled during this monitoring event.
- Figure 12 illustrates TPH-g concentration versus time in well W-Bs (located down gradient of the core of the plume). The contaminant concentrations showed a declining trend from 1995 – 2003 but appear to have stabilized. W-Bs was not sampled during this monitoring event.
- Obtaining valid water level measurements from the CMT™ wells remains problematic due to the clayey soils at the site. The clays clog the Waterra tubing and smear on the inside of the individual chambers. Some well elevations appear to be anomalous when utilizing computer-generated contours. Those points were removed in an attempt to accurately depict true groundwater gradient and direction.
- Groundwater gradient and direction were variable in the deep wells during the October 2008 monitoring event. Wells MW-305, MW-306, and MW-308 were used to determine groundwater gradient and direction for this monitoring event.
- Groundwater gradient and direction were variable in the deep level aquifer, and was determined using wells MW-305, MW-306, and MW-308. Figure 5C is a gradient map showing GTI's interpretation of groundwater movement and gradient.
- Due to a lack of data points, a TPH-g plume was not prepared for the intermediate and deep wells. Figures 7 and 8 contain GTI's interpretation from the April 2008 monitoring event.

### 3.0 CONCLUSIONS & RECOMMENDATIONS

#### Conclusions

1. Elevated concentrations of BTEX and TPH-g are present in a laterally limited (probably less than 300 foot radius) groundwater plume that is centered in the vicinity of wells W-1 & W-1s.
2. The highest level of TPH-g detected, 39,000 µg/l, was present in shallow depth well W-1s. This well is located just down gradient of the former UST system from which the Pitcock release originated.
3. The lateral extent of the TPH-g plume is defined to the west by well W-Es.
4. The center of the plume has not migrated beyond the source area providing evidence that the plume is degrading as it migrates laterally by advective flow.
5. The data shows that the core of the plume is fairly stable, with concentrations decreasing very slowly by either natural biodegradation causes or by dilution effects.

#### Recommendations

- Maintain the current semi-annual monitoring schedule.
- Continue the process of developing and purging the CMT™ well chambers to clear them of clay residue/smear that precludes recharge and water level monitoring.
- Continue implementation of the Corrective Action Plan (CAP) that includes provisions for performing dual phase extraction to treat the residual contamination at the site, which has received approval from ACEH and cost pre-approval from the UST Cleanup Fund.

### 4.0 LIMITATIONS

This report was prepared in accordance with the generally accepted standard of care and practice in effect at the time Services were rendered. It should be recognized that definition and evaluation of environmental conditions is an inexact science and that the state or practice of environmental geology/hydrology is changing and evolving and that standards existing at the present time may change as knowledge increases and the state of the practice continues to improve. Further, that differing subsurface soil characteristics can be experienced within a small distance and therefore cannot be known in an absolute sense. All conclusions and recommendations are based on the available data and information.

The tasks proposed and completed during this project were reviewed and approved by the local regulatory agency for compliance with the law. No warranty, expressed or implied, is made.

## 5.0 SIGNATURES & CERTIFICATION

This report was prepared under the direction of:

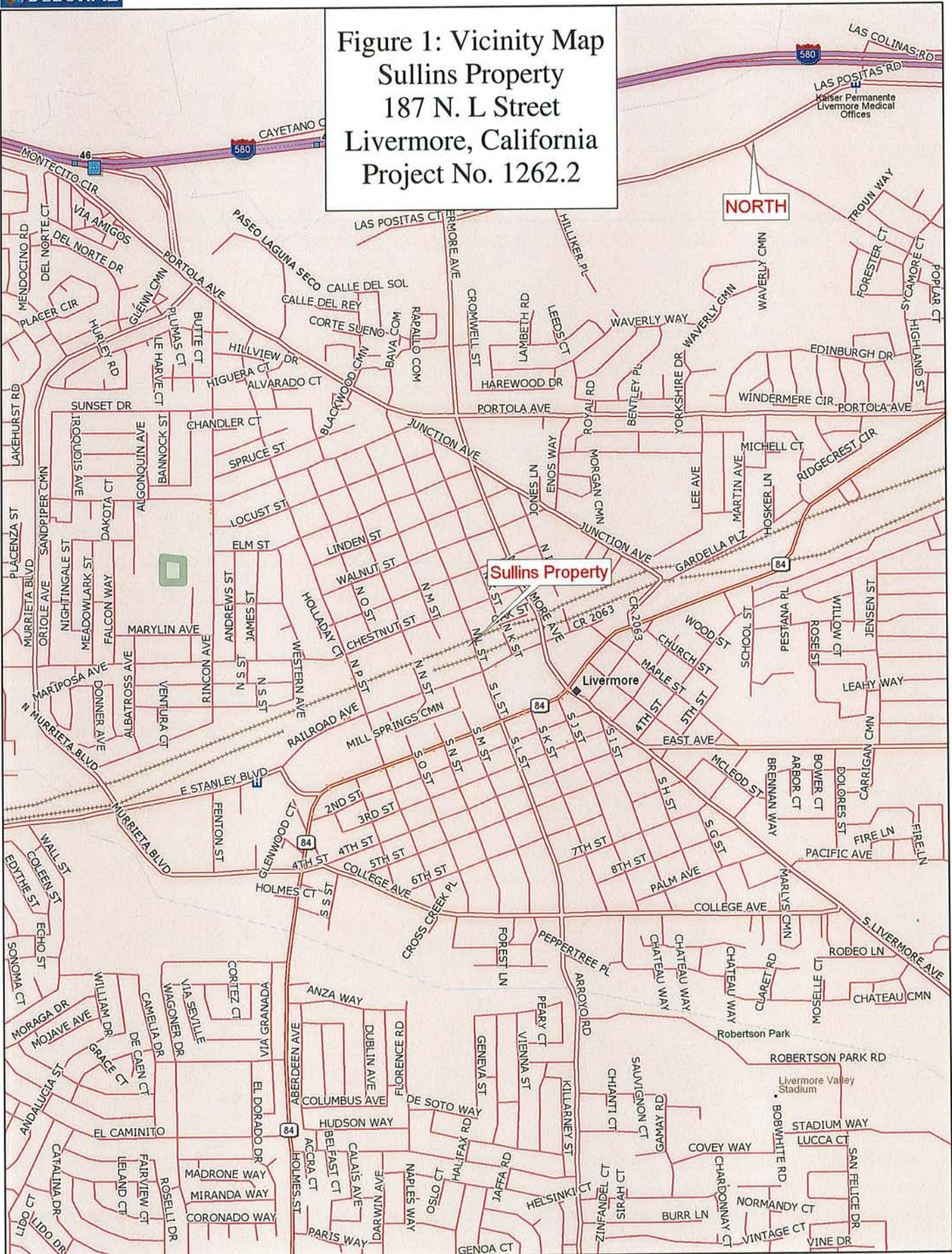


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Tamorah Bryant, P.E.



Figure 1: Vicinity Map  
Sullins Property  
187 N. L Street  
Livermore, California  
Project No. 1262.2



NORTH

Sullins Property

Livermore

Scale 1 : 19,200



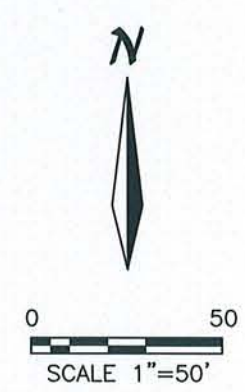
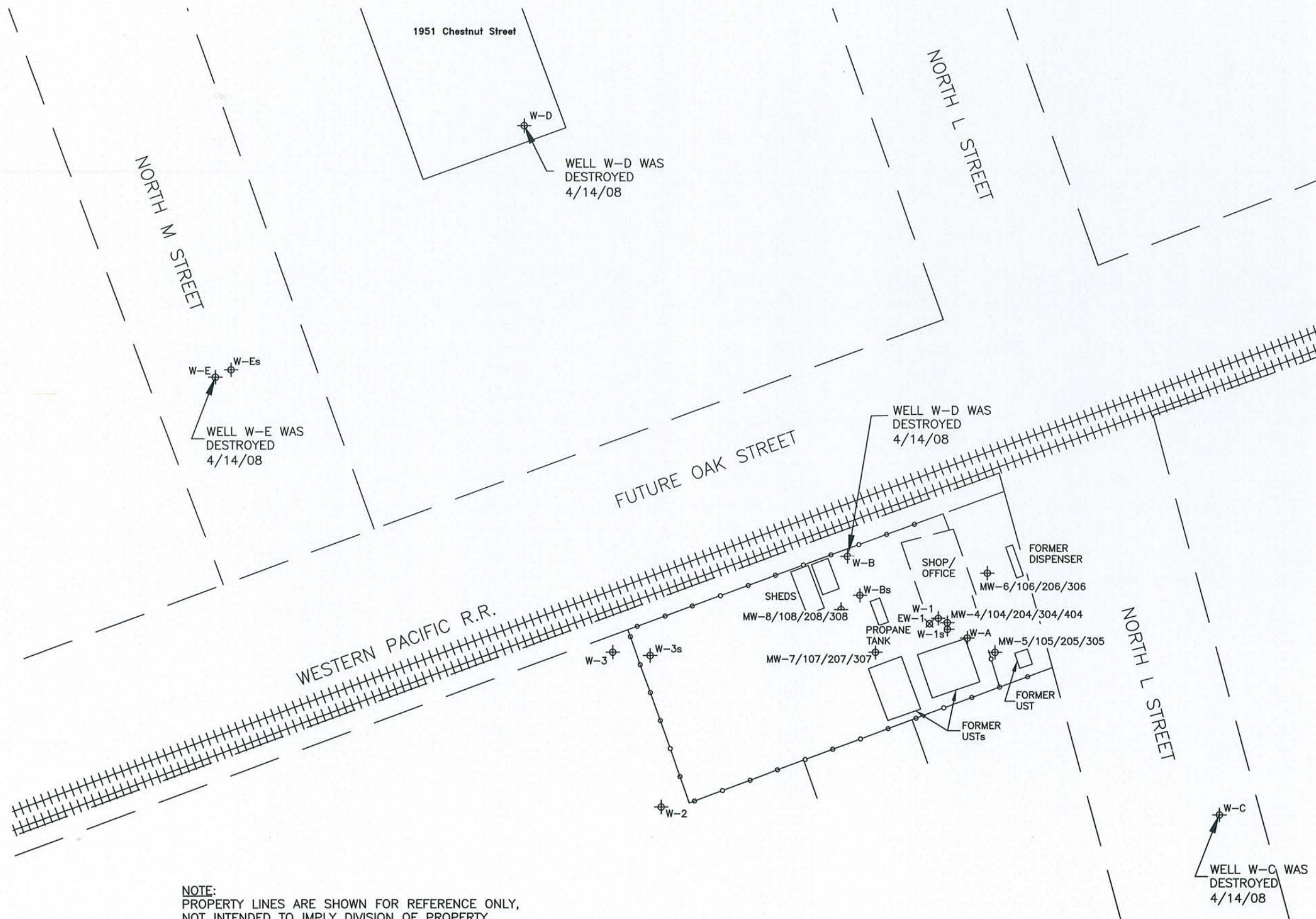
1" = 1,600.0 ft Data Zoom 13-4

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**LEGEND**

⊕ MONITORING WELL

⊗ EXTRACTION WELL

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 PROPERTY LINES ARE SHOWN FOR REFERENCE ONLY,  
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STREET RIGHT OF WAY IS APPROXIMATE, BASED ON  
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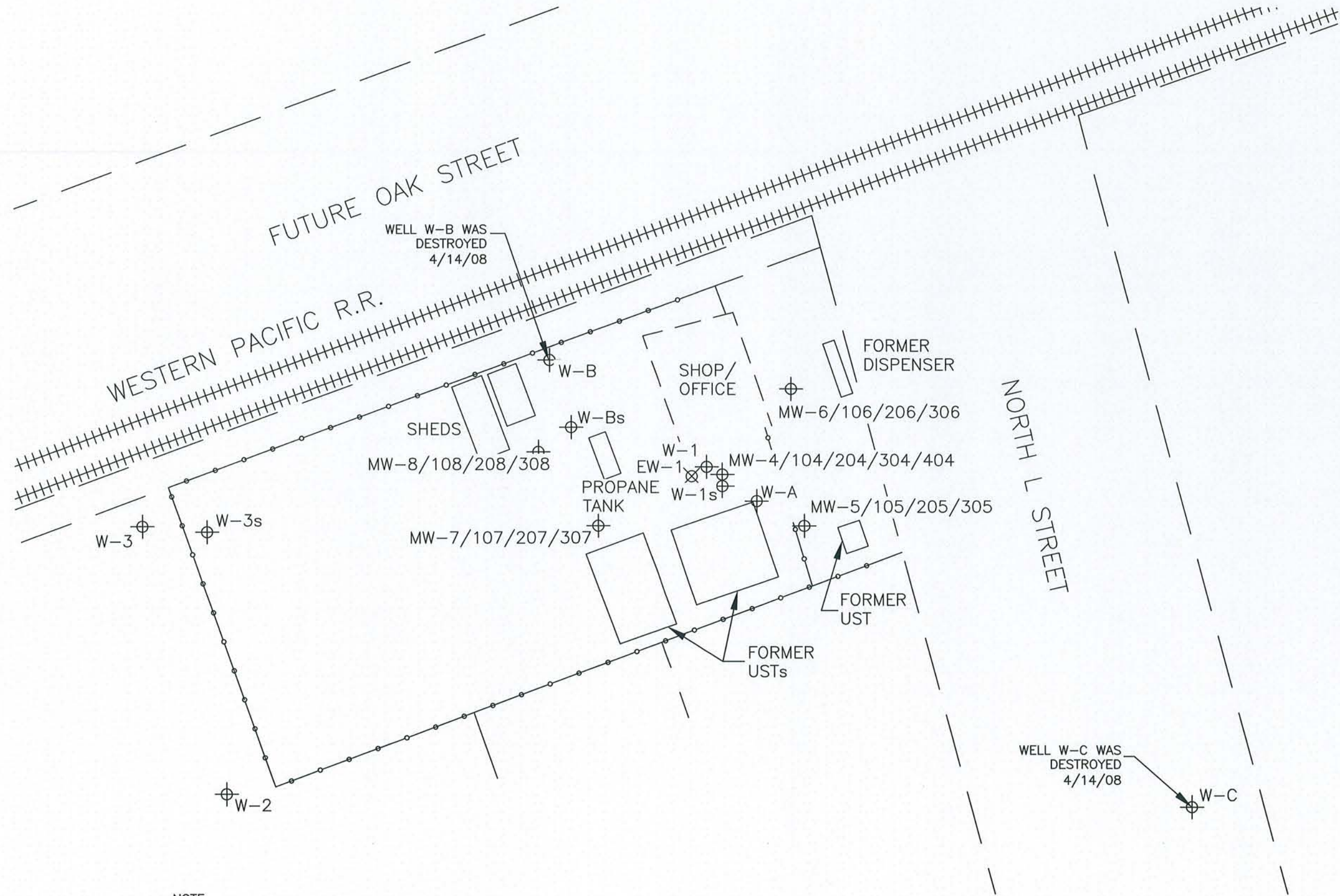
By:	MV
Job No:	1262.2 Date: 11/18/08
Scale:	NTS
File:	12622 GWG map 0811

**Geological Technics, Inc.**



1101 7th Street  
 Modesto, CA  
 95354  
 209.522.4119 (tel)  
 209.522.4227 (fax)

**FIGURE 2: SITE MAP**  
 ARROW RENTALS  
 187 NORTH L STREET  
 LIVERMORE, CA



WELL W-B WAS DESTROYED  
4/14/08

WELL W-C WAS DESTROYED  
4/14/08



- LEGEND**
- ⊕ MONITORING WELL
  - ⊗ EXTRACTION WELL

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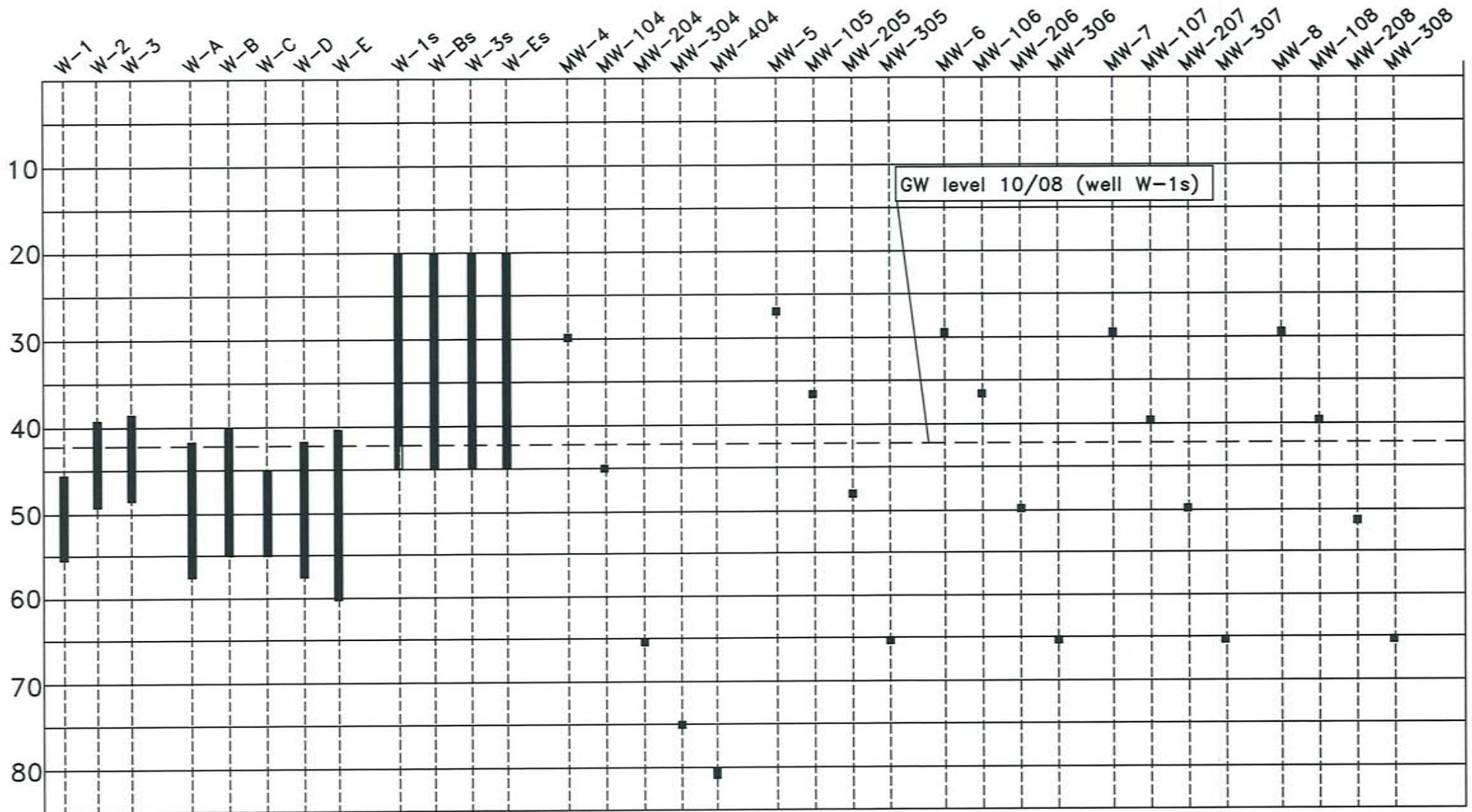
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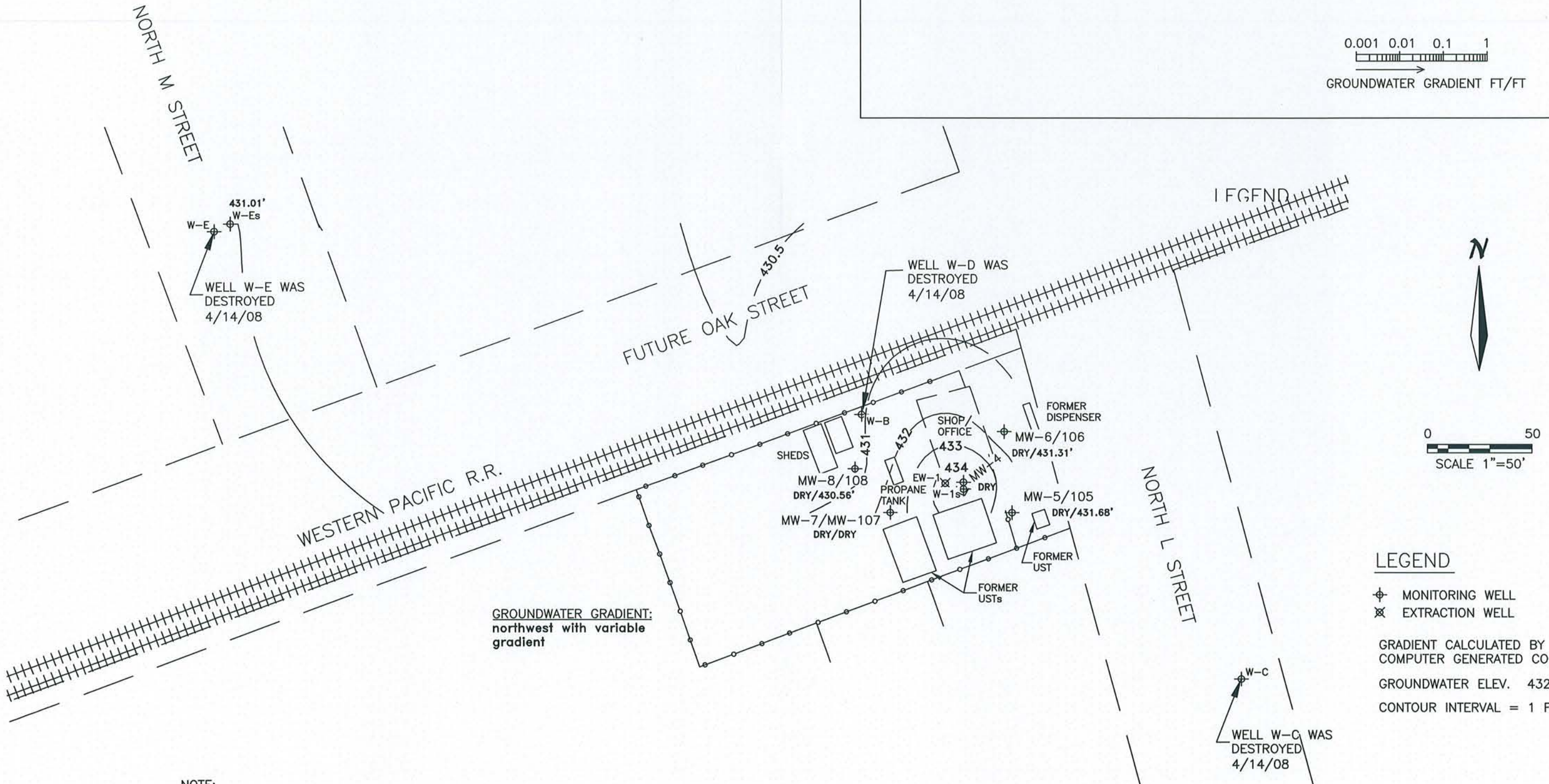
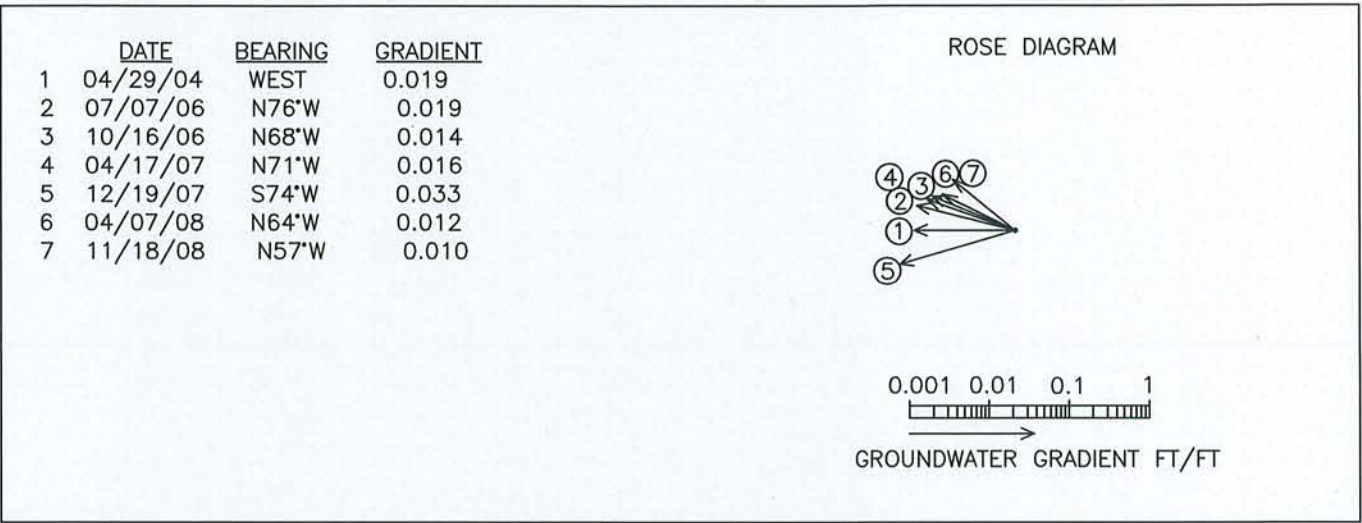
**FIGURE 3: SITE DETAIL MAP**  
ARROW RENTALS  
187 NORTH L STREET  
LIVERMORE, CA



Fig 4: Well  
Screened Interval  
Diagram



Sullins  
187 North L Street  
Livermore, CA



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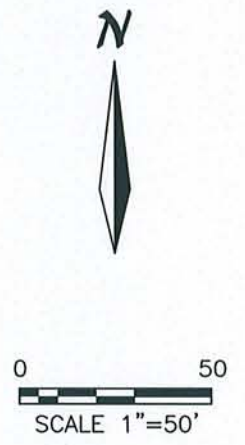
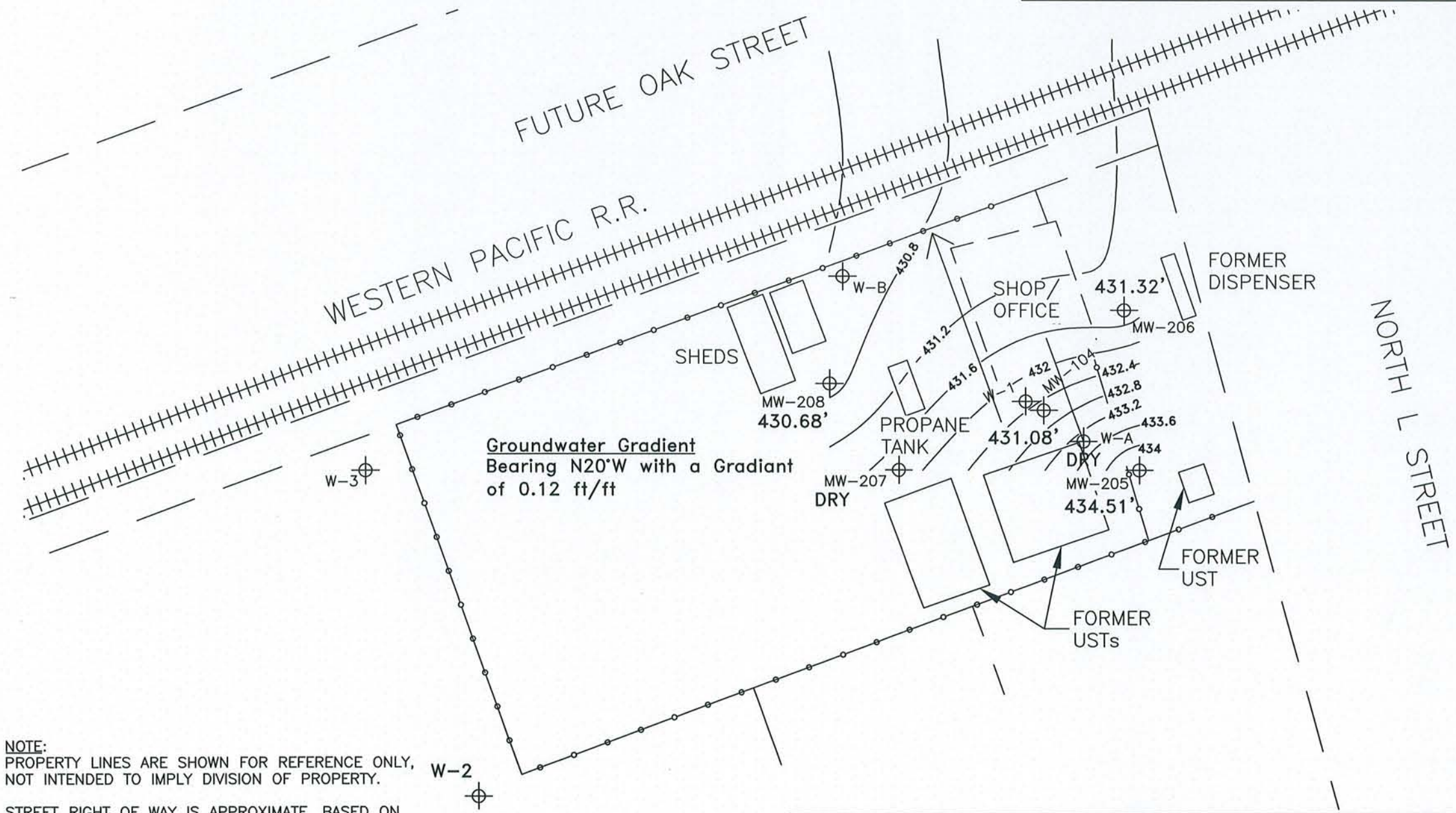
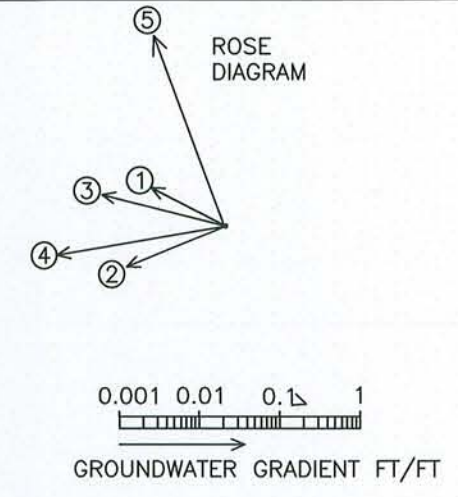
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FIGURE 5A: GROUNDWATER GRADIENT MAP  
SHALLOW WELLS

ARROW RENTALS  
187 NORTH L STREET  
LIVERMORE, CA

	DATE	BEARING	GRADIENT
1	10/16/06	N63°W	0.012
2	04/17/07	S68°W	0.022
3	12/19/07	N76°W	0.04
4	04/07/08	SOUTHWEST	VARIABLE
5	11/18/08	N20°W	0.12



**LEGEND**

⊕ MONITORING WELL  
 ⊗ EXTRACTION WELL

GRADIENT CALCULATED BY  
 COMPUTER GENERATED CONTOURS  
 GROUNDWATER ELEV. 431.90'  
 CONTOUR INTERVAL = 0.4 FEET

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WELLS MW-205, -207, AND -208 LEFT OUT OF GRADIENT  
 CALCULATIONS DUE TO ANOMALOUS VALUES

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Scale:	NTS
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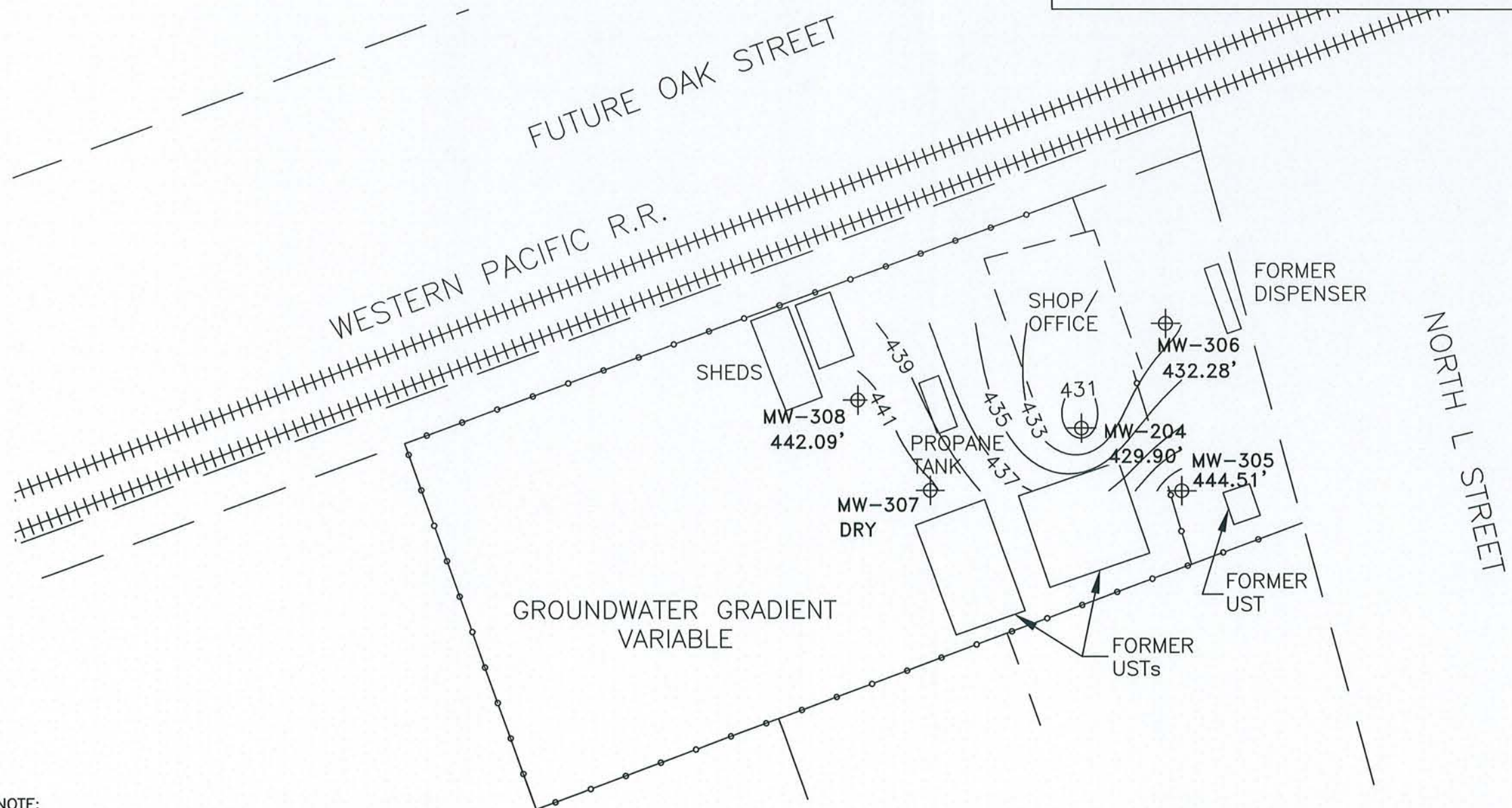
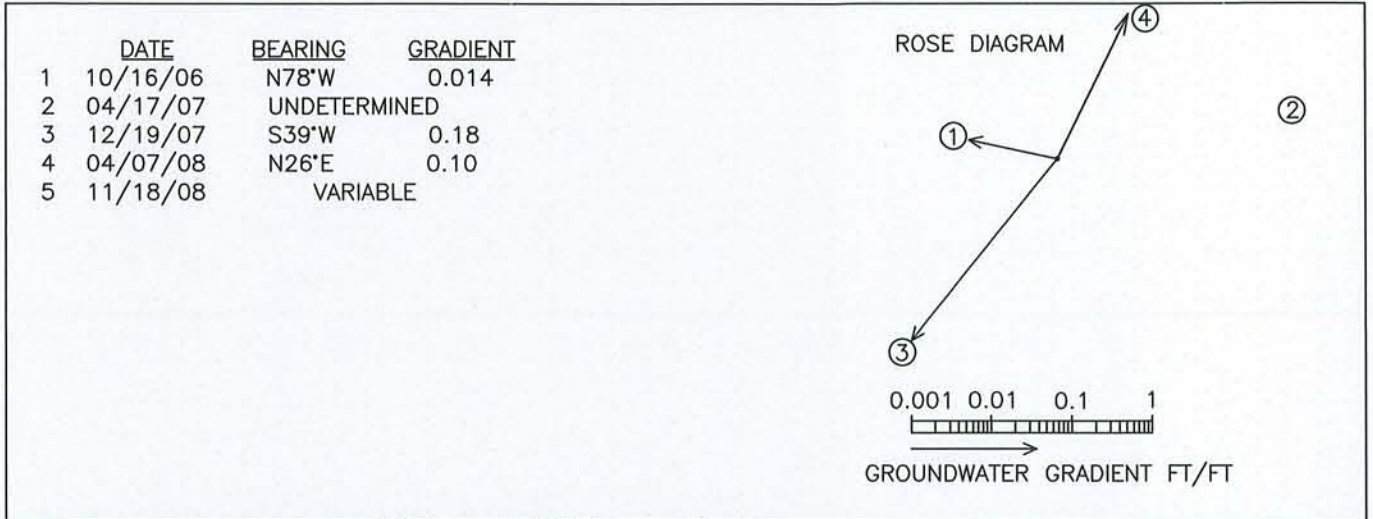
**Geological Technics, Inc.**

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**FIGURE 5B: GROUNDWATER GRADIENT MAP  
 INTERMEDIATE WELLS**

**ARROW RENTALS**  
 187 NORTH L STREET  
 LIVERMORE, CA

Page 1 of 1



**LEGEND**


⊕ MONITORING WELL  
 ⊗ EXTRACTION WELL

GRADIENT CALCULATED BY  
 COMPUTER GENERATED CONTOURS

GROUNDWATER ELEV. 437.20'  
 CONTOUR INTERVAL = 2 FEET

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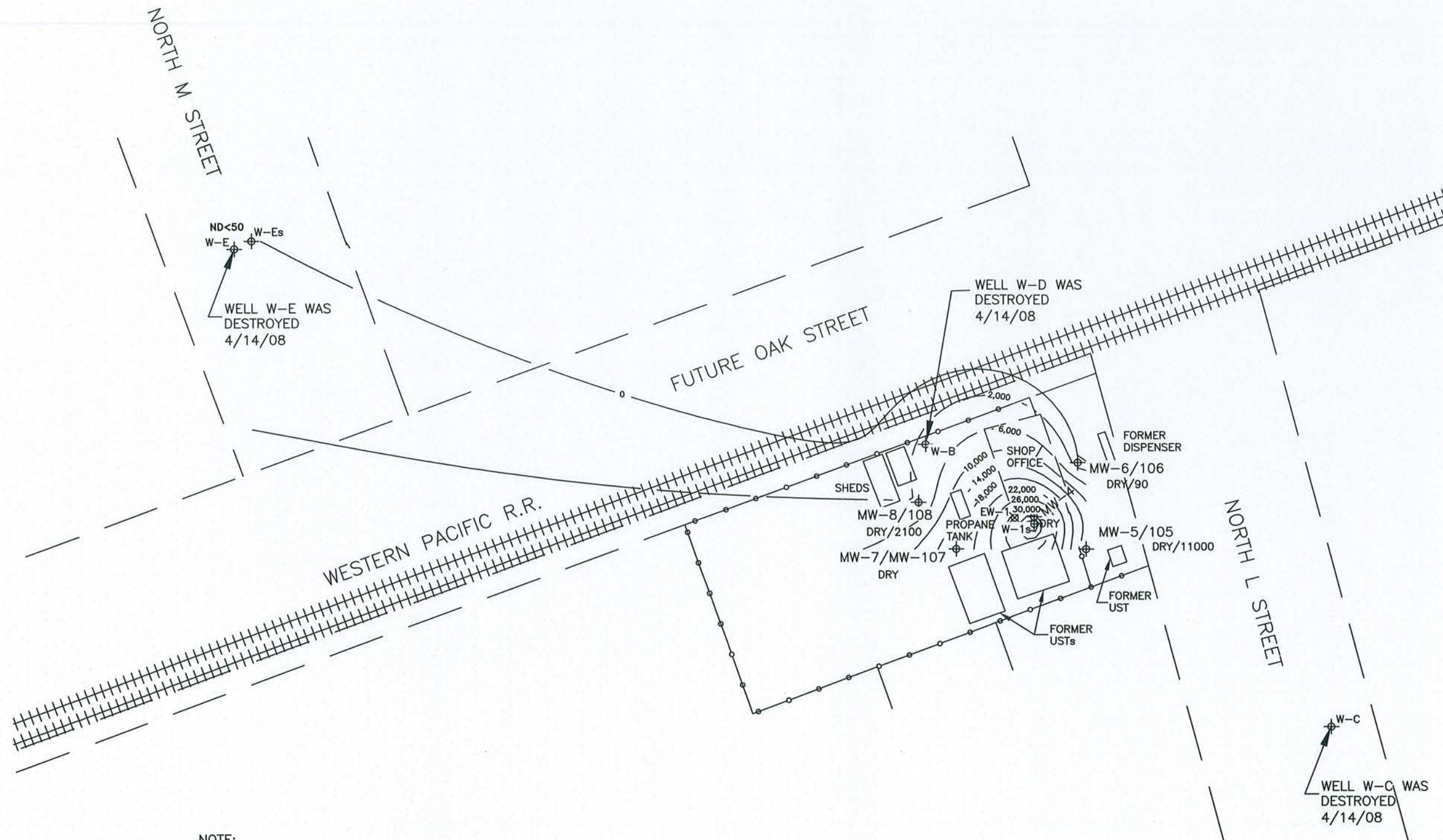
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By: mv	<b>Geological Technics, Inc.</b>  1101 7th Street Modesto, CA 95354 209.522.4119 (tel) 209.522.4227 (fax)
Job No: 1262.2 Date: 11/18/08	
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**FIGURE 5C: GROUNDWATER GRADIENT MAP  
 DEEP WELLS**

ARROW RENTALS  
 187 NORTH L STREET  
 LIVERMORE, CA

Page 1 of 1



**LEGEND**

⊕ MONITORING WELL  
 ⊗ EXTRACTION WELL

6000 = TPH-G ug/L  
 CONTOUR INTERVAL = 4,000 ug/L  
 ND = NON-DETECT (<50 ug/L)  
 NT = NOT TESTED

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Scale:	NTS
File:	12622 gwg map 0811

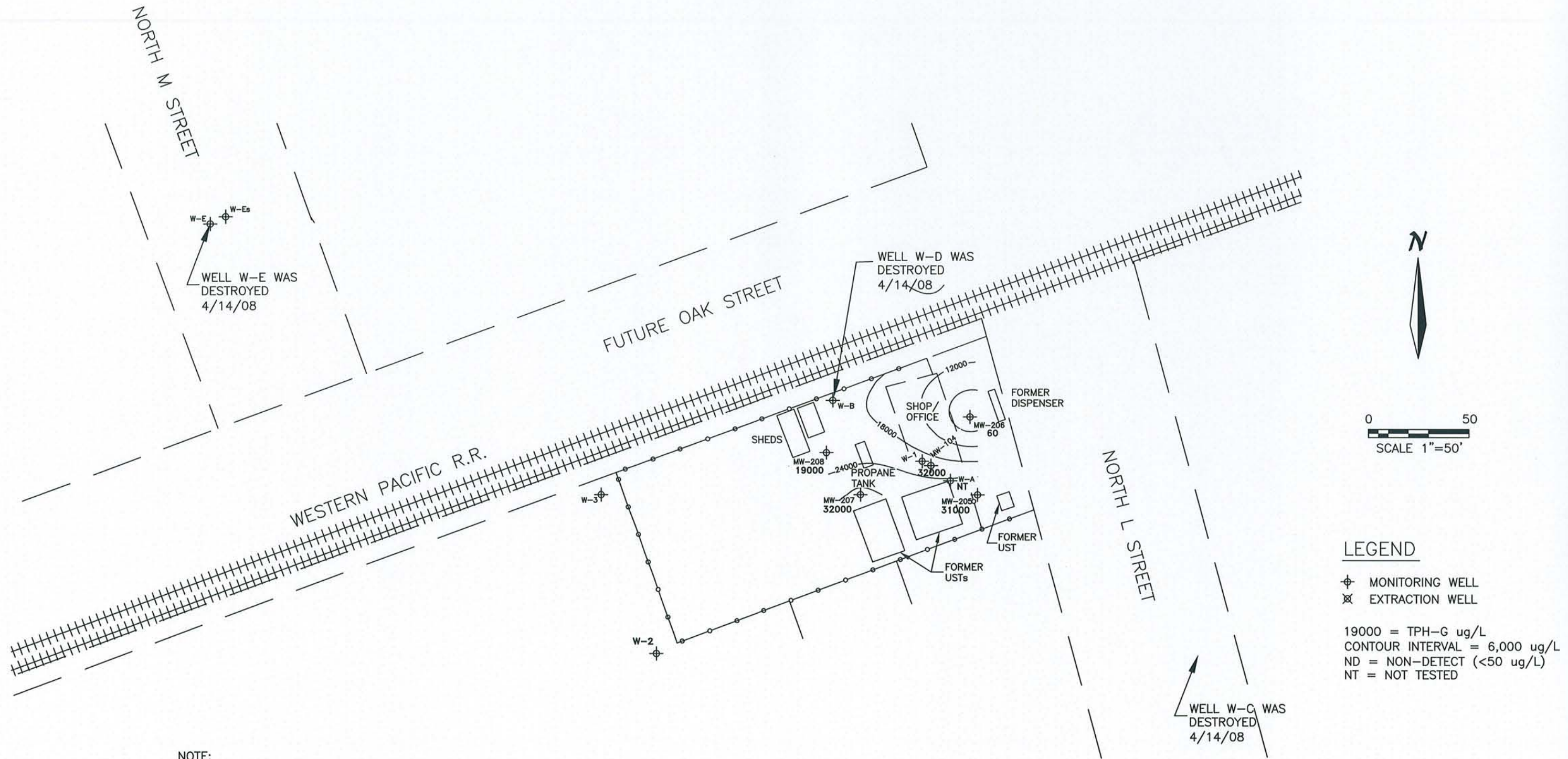
**Geological Technics, Inc.**

1101 7th Street  
 Modesto, CA  
 95354  
 209.522.4119 (tel)  
 209.522.4227 (fax)

**FIGURE 6: SHALLOW WELL APRIL 2008  
 TPH-G CONCENTRATIONS**

ARROW RENTALS  
 187 NORTH L STREET  
 LIVERMORE, CA

**NOTE:**  
 DURING OCTOBER 8TH AND 9TH MONITORING EVENT NOT ENOUGH DATA WAS COLLECTED  
 TO CALCULATE THE TPH-G CONCENTRATIONS FOR THE INTERMEDIATE LEVELS.  
 THE DATA SEEN ON THIS TABLE WAS GENERATED  
 DURING THE APRIL 2008 MONITORING EVENT.



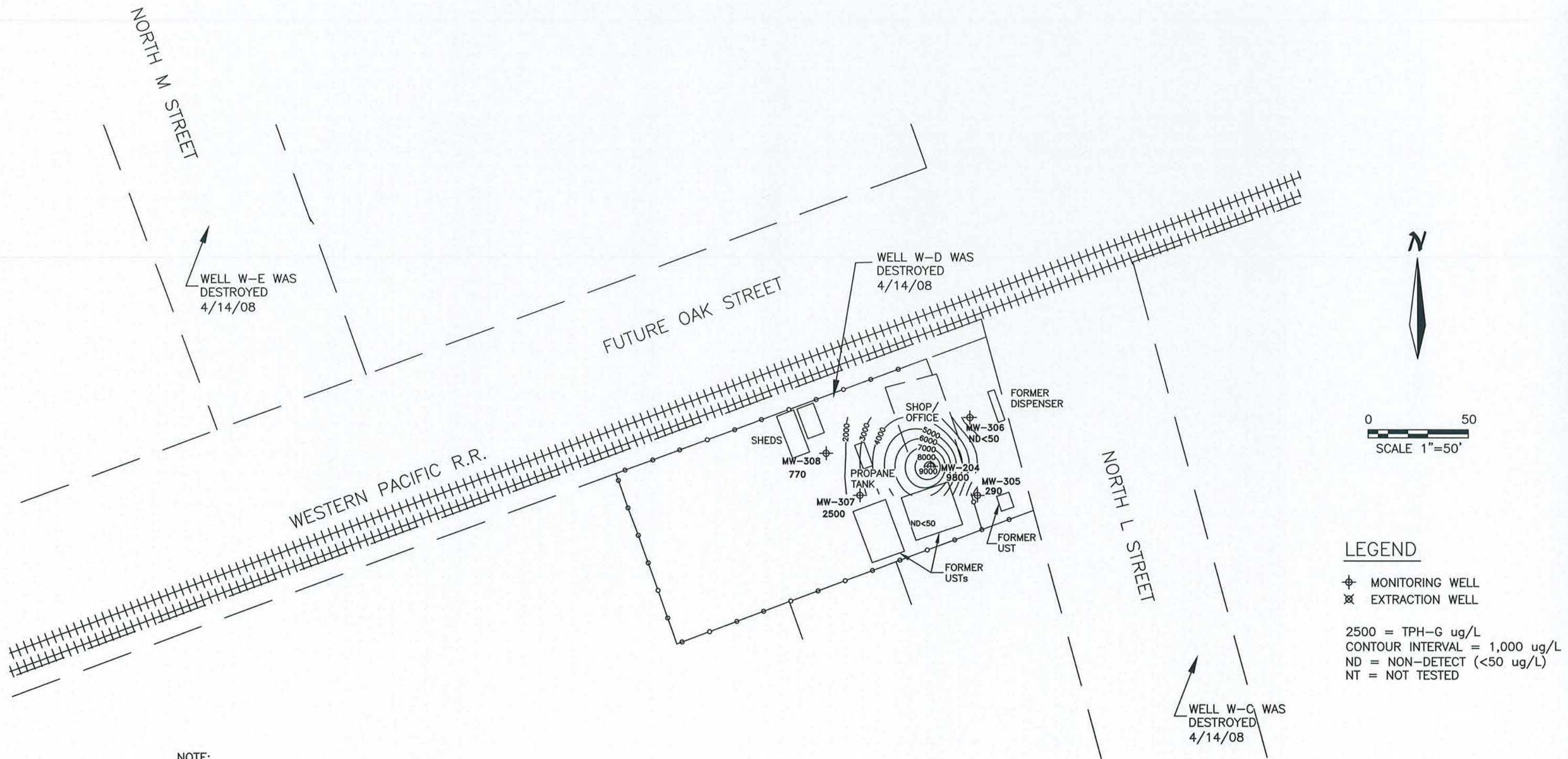
**NOTE:**  
 PROPERTY LINES ARE SHOWN FOR REFERENCE ONLY,  
 NOT INTENDED TO IMPLY DIVISION OF PROPERTY.  
 STREET RIGHT OF WAY IS APPROXIMATE, BASED ON  
 ASSESSOR'S PARCEL MAPS AND INFORMATION PROVIDED  
 BY WOODWARD-CLYDE CONSULTANTS

By:	MV
Job No:	1262.2 Date: 11/18/08
Scale:	NTS
File:	12622 gwg map 0811

**Geological Technics, Inc.**  
  
 1101 7th Street  
 Modesto, CA  
 95354  
 209.522.4119 (tel)  
 209.522.4227 (fax)

**FIGURE 7: INTERMEDIATE WELL APRIL 2008  
 TPH-G CONCENTRATIONS**  
 ARROW RENTALS  
 187 NORTH L STREET  
 LIVERMORE, CA

NOTE:  
 DURING OCTOBER 8TH AND 9TH MONITORING EVENT NOT ENOUGH  
 DATA WAS COLLECTED TO CALCULATE THE TPH-G  
 CONCENTRATIONS FOR THE DEEP LEVELS.  
 THE DATA SEEN ON THIS TABLE WAS GENERATED  
 DURING THE APRIL 2008 MONITORING EVENT.

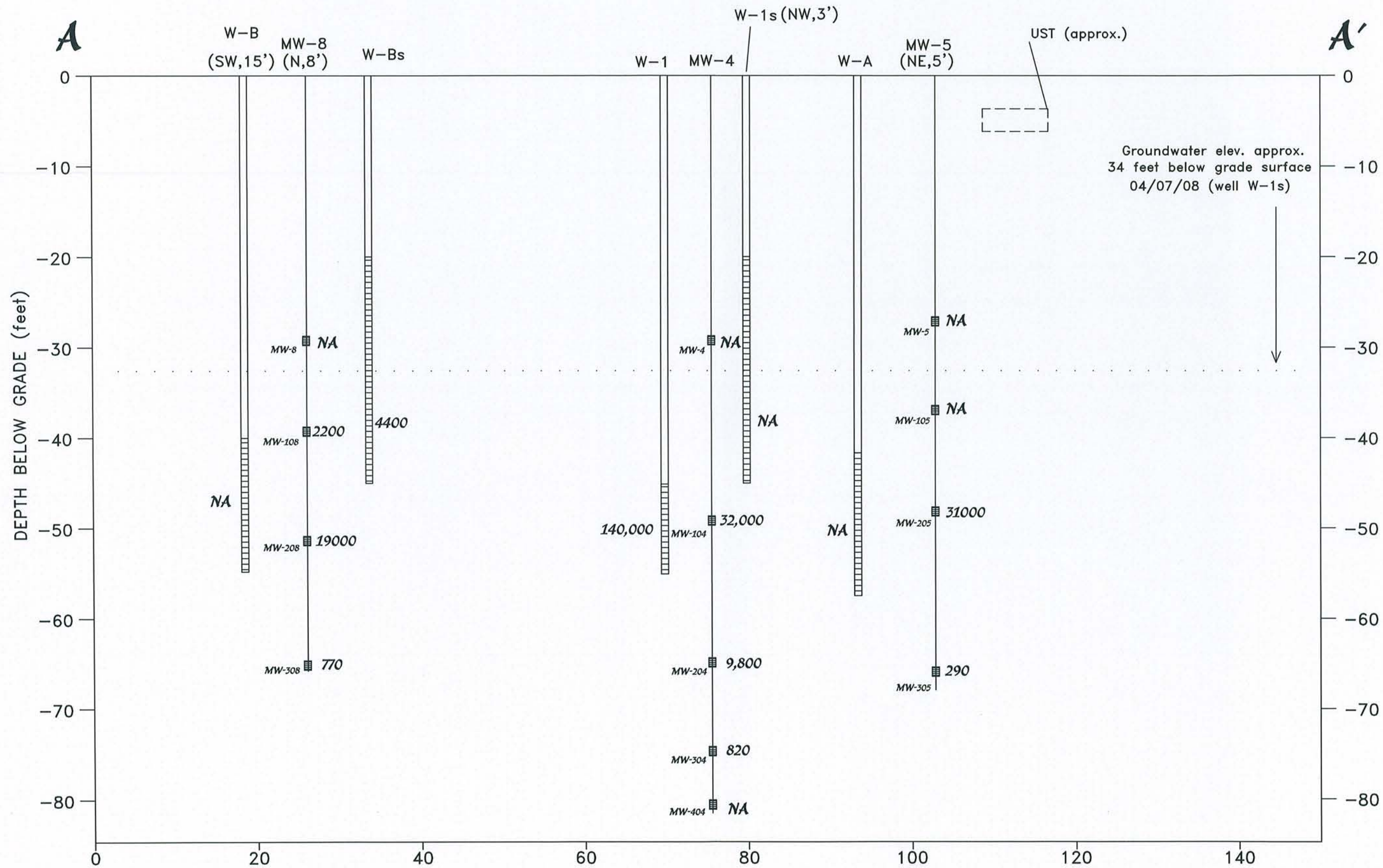


NOTE:  
 PROPERTY LINES ARE SHOWN FOR REFERENCE ONLY,  
 NOT INTENDED TO IMPLY DIVISION OF PROPERTY.  
 STREET RIGHT OF WAY IS APPROXIMATE, BASED ON  
 ASSESSOR'S PARCEL MAPS AND INFORMATION PROVIDED  
 BY WOODWARD-CLYDE CONSULTANTS

By:	mv
Job No:	1262.2 Date: 11/18/08
Scale:	NTS
File:	12622 GWG map 0811

**Geological Technics, Inc.**  
 1101 7th Street  
 Modesto, CA  
 95354  
 209.522.4119 (tel)  
 209.522.4227 (fax)

FIGURE 8: DEEP WELL APRIL 2008  
 TPH-G CONCENTRATIONS  
 ARROW RENTALS  
 187 NORTH L STREET  
 LIVERMORE, CA



By:	MV
Job No:	1262.2
Date:	11/18/08
Scale:	N.T.S
File:	1262_cross_080407_TPHG

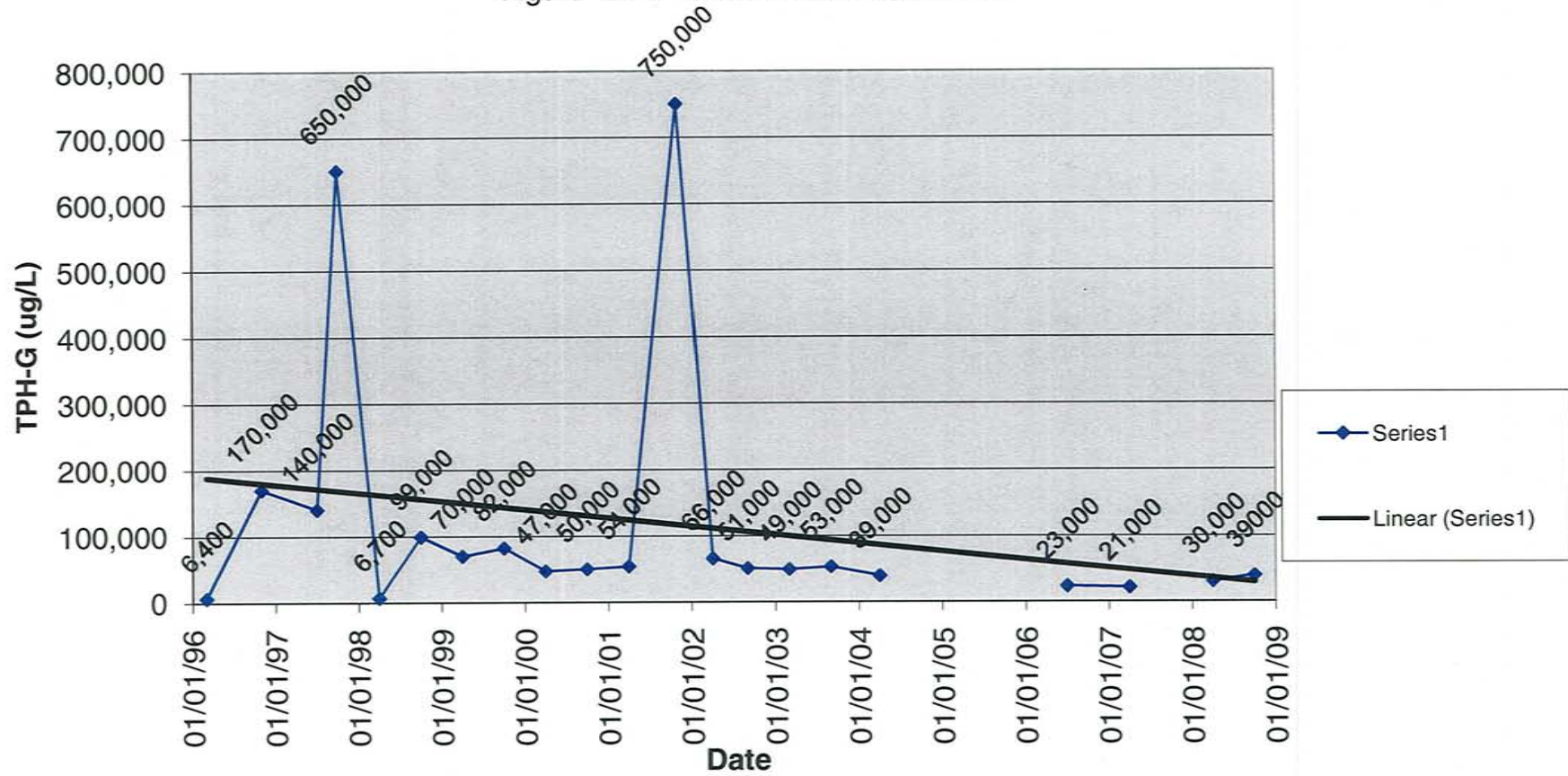
**Geological Technics, Inc.**  
 1101 7th Street  
 Modesto, CA 95354  
 209.522.4119 (tel)  
 209.522.4227 (fax)

FIGURE 9: CROSS SECTION A - A'  
 ARROW RENTALS  
 187 NORTH L STREET  
 LIVERMORE, CA

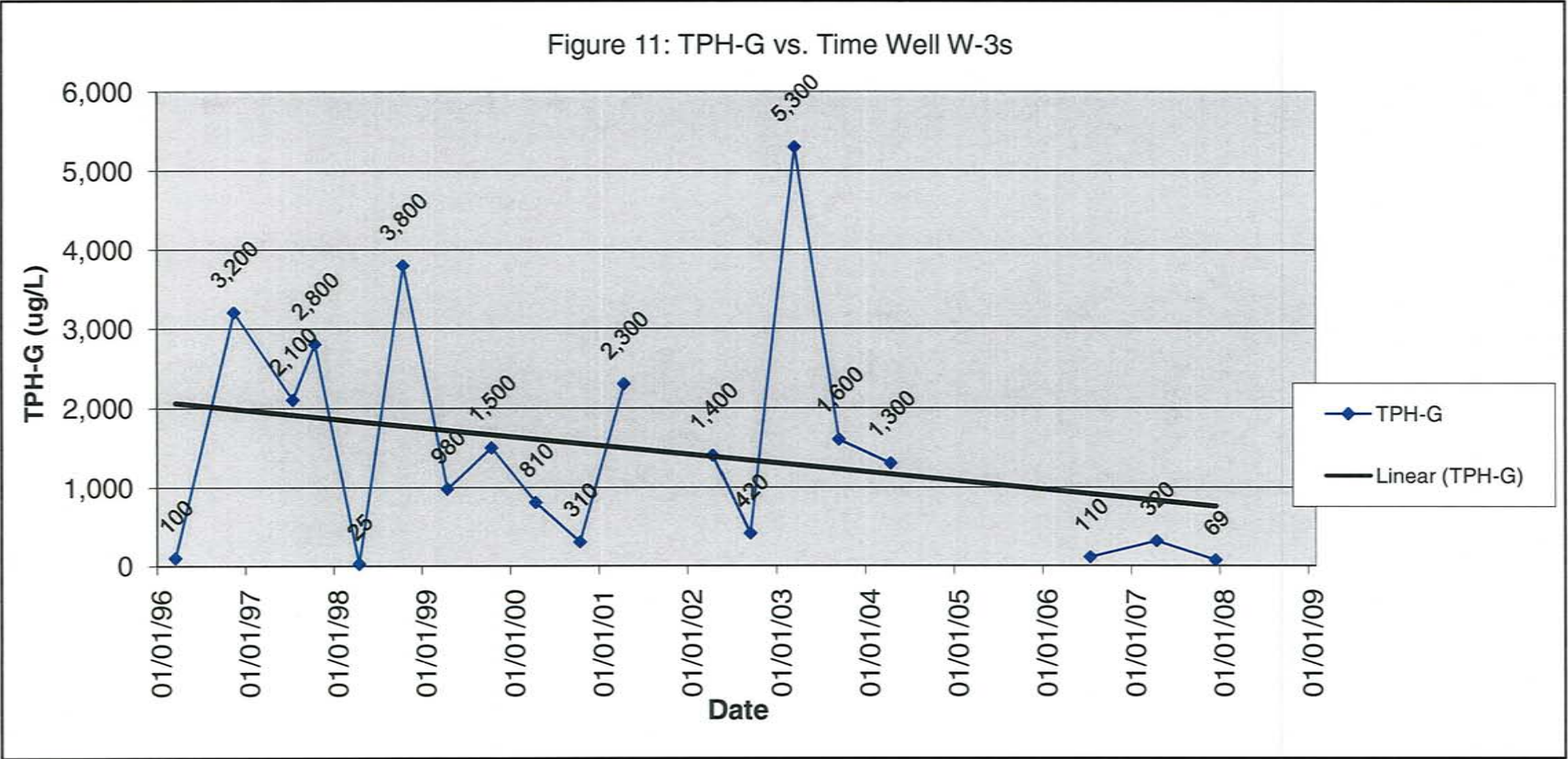


Arrow Rentals  
187 North L Street  
Livermore, CA  
Project No. 1262.2

Figure 10: TPH-G vs. Time Well W-1s

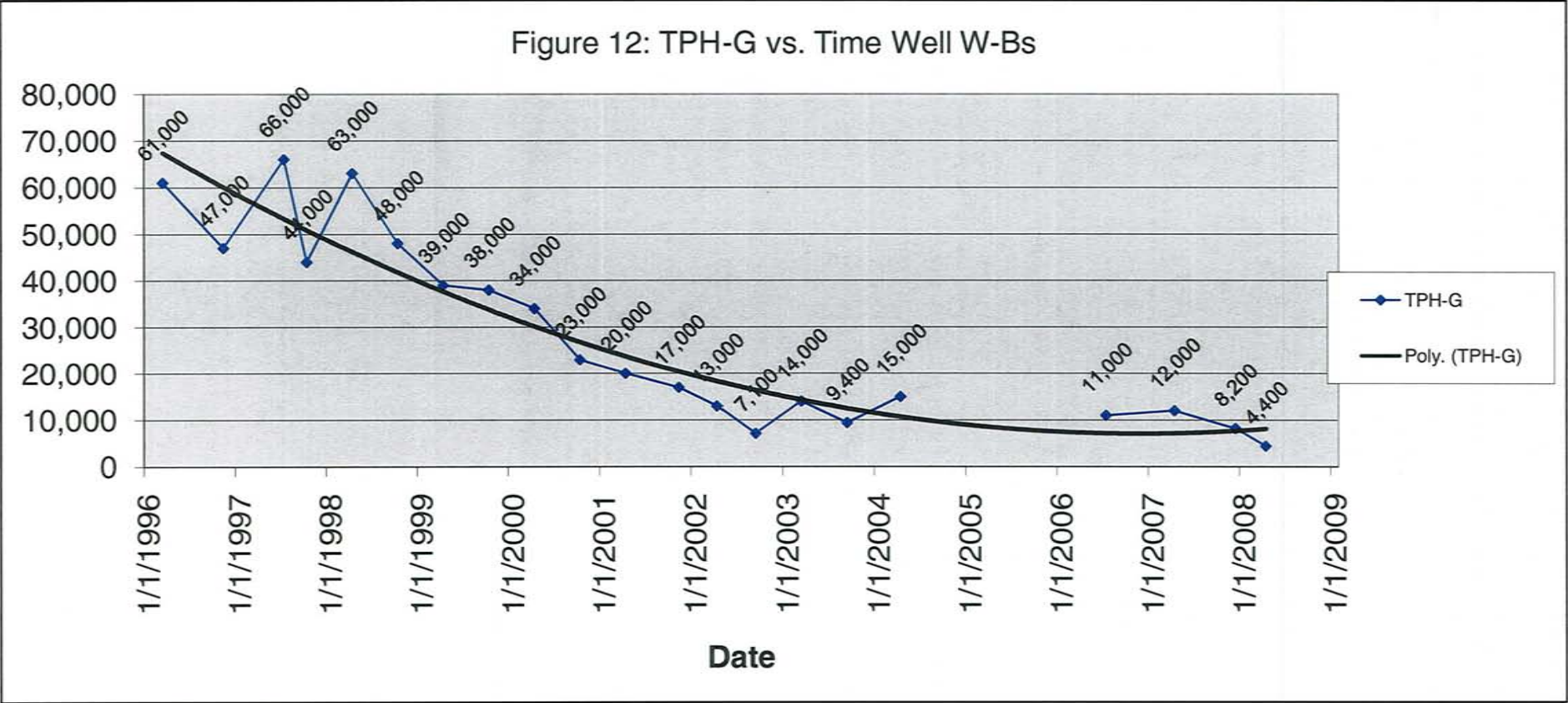


Arrow Rentals  
187 North L Street  
Livermore, CA  
Project No. 1262.2



Arrow Rentals  
187 North L Street  
Livermore, CA  
Project No. 1262.2

Figure 12: TPH-G vs. Time Well W-Bs



# **Appendix A**

## **Summary Tables**

Table 1A: Summary of Groundwater Elevation and Gradient - Water Table Wells

Arrow Rentals  
 187 North L Street  
 Livermore CA  
 Project No. 1262.2

Date		Elevation of Groundwater*												Avg. Elv. (feet)	Avg. DTW (feet)	Gradient (ft/ft)	Bearing	
		W-1s	W-3s	W-Bs	W-Es													
	top of casing	479.09	476.98	478.82	474.66													
	top of screen	459.09	456.98	458.82	454.66													
	bottom of screen	434.09	431.98	433.82	429.66													
7/15/1997		448.68	447.81	449.20	443.20													
10/29/1997		442.64	441.53	442.19	437.98													
4/27/1998		460.48	457.25	459.96	455.39													
10/23/1998		445.11	444.01	445.60	440.16													
4/9/1999		453.14	451.02	452.78	447.25													
10/5/1999		446.66	445.20	446.72	441.47													
4/5/2000		453.12	451.96	453.77	448.04													
10/26/2000		447.91	446.50	448.14	442.43													
4/18/2001		447.80	446.51	446.89	442.63													
11/13/2001		435.69	433.32	443.59	431.05													
4/30/2002		441.80	439.19	441.50	437.09													
9/30/2002		439.17	437.01	439.39	434.50													
3/19/2003		446.83	445.03	446.74	441.80													
9/16/2003		440.88	438.50	441.40	436.14													
4/29/2004		448.99	447.39	448.83	443.43									447.16	30.23	0.019	West	
7/7/2006		450.40	448.61	450.25	444.21									448.37	29.02	0.019	N76°W	

\*Data prior to July 7, 2006 from Environmental Sampling Services 5/27/04 Groundwater Monitoring Report

Date		Elevation of Groundwater - Wells Surveyed October 16, 2006 in accordance with SWRCB Geotracker Requirements												Avg. Elv. (feet)	Avg. DTW (feet)	Gradient (ft/ft)	Bearing	
		W-1s	W-3s	W-Bs	W-Es	MW-4	MW-5	MW-6	MW-7	MW-8	MW-105	MW-106	MW-107					MW-108
	top of casing	481.19	479.12	480.92	476.78	480.84	481.12	480.79	480.91	480.64	481.12	480.79	480.91	480.64				
	top of screen	461.19	459.12	460.92	456.78	451.84	455.12	451.79	451.91	451.64	445.12	444.79	441.91	441.64				
	bottom of screen	436.19	434.12	435.92	431.78	450.84	454.12	450.79	450.91	450.64	444.12	443.79	440.91	440.64				
10/16/2006		447.81	446.17	447.93	442.75	-	-	-	-	-	447.97	447.11	446.77	446.34	446.61	33.58	0.014	N68°W
4/17/2007		449.64	448.35	449.51	444.58	454.09	-	-	-	-	-	-	448.92	-	448.20	31.58	0.016	N71°W
12/19/2007		438.88	437.46	444.51	433.10	-	-	-	-	-	-	443.07	442.26	442.60	440.27	39.78	0.033	S74°W
4/7/2008		446.97	-	446.76	442.34	453.30	-	445.99	-	452.15	447.38	445.18	445.86	446.36	447.23	33.23	0.012	N64°W
10/8-9/2008		435.40	-	-	431.01	-	-	-	-	-	431.68	431.31	-	430.56	431.99	47.27	0.01	N57°W

"-" = well dry or depth to water measurement could not be obtained

**Table 1B: Summary of Groundwater Elevation and Gradient - Intermediate Wells**

Arrow Rentals  
 187 North L Street  
 Livermore CA  
 Project No. 1262.2

Date	Elevation of Groundwater - Wells Surveyed Octpber 16, 2006 in accordance with SWRCB Geotracker Requirements														
		W-A	W-B	W-C	W-D	W-E	MW-104	MW-205	MW-206	MW-207	MW-208	Avg. Elv.	Avg. DTW	Gradient	Bearing
	<i>top of casing</i>	481.04	480.74	481.61	477.03	476.56	480.84	481.12	480.79	480.91	480.64	(feet)	(feet)	(ft/ft)	
	<i>top of screen</i>	439.04	440.74	436.61	435.03	436.06	431.34	434.12	431.79	431.91	429.64				
	<i>bottom of screen</i>	423.54	425.74	426.61	419.53	416.26	430.34	433.12	430.79	430.91	428.64				
10/16/2006		-	-	-	-	442.63	444.85	446.75	447.03	446.27	445.12	445.44	34.70	0.012	N63°W
4/17/2007		-	-	-	-	-	-	-	448.57	447.13	447.05	447.58	33.20	0.022	S68°W
12/19/2007		438.36	-	-	-	-	435.98	-	436.10	434.33	433.92	435.74	45.11	0.04	N76°W
4/7/2008		446.72	-	-	-	-	443.10	444.84	446.38	444.84	443.66	444.92	35.97	northwest	variable
10/8-9/2008		-	-	-	-	-	431.08	434.51	431.32	-	430.68	431.90	48.95	0.12	N20°W

"-" = well dry or depth to water measurement could not be obtained

**Table 1C: Summary of Groundwater Elevation and Gradient - Deep Wells**

Arrow Rentals  
 187 North L Street  
 Livermore CA  
 Project No. 1262.2

Date	Elevation of Groundwater - Wells Surveyed October 16, 2006 in accordance with SWRCB Geotracker Requirements											
		MW-204	MW-305	MW-306	MW-307	MW-308	Avg. Elv. (feet)	Avg. DTW (feet)	Gradient (ft/ft)	Bearing	MW-304	MW-404
	<i>top of casing</i>	480.84	481.12	480.79	480.91	480.64					480.84	480.84
	<i>top of screen</i>	415.34	416.12	415.79	415.91	415.64					406.34	400.84
	<i>bottom of screen</i>	414.34	415.12	414.79	414.91	414.64					405.34	399.34
10/16/2006		447.09	447.44	447.29	446.63	446.37	446.96	33.90	0.014	N78°W	442.76	444.37
4/17/2007		-	448.49	449.08	-	-	448.79	32.17	-	-	-	448.82
12/19/2007		435.73	-	443.19	435.20	434.93	437.26	43.53	0.18	S39°W	435.45	435.51
4/7/2008		446.42	446.56	442.68	446.86	445.59	445.62	35.24	0.1	N26°E	441.42	446.18
10/8-9/2008		429.90	444.51	432.28	-	442.09	437.20	43.65	-	-	-	432.20

"-" = well dry or depth to water measurement could not be obtained

Table 2

Arrow Rentals  
187 North L Street  
Livermore CA  
Project No. 1262.2

Date	Well Pair	Mid Points (TS-BS & TS-BS)	gwl/ts	bs/bs	GW Elev. (Head)	Vert Head diff.	Vert Dist diff.	Vertical Gradient
16-Oct-06	MW-104	430.84	431.34	430.34	444.85	2.240	16.00	0.14
	MW-204	414.84	415.34	414.34	447.09			
16-Oct-06	MW-205	433.62	434.12	433.12	446.75	0.690	18.00	0.04
	MW-305	415.62	416.12	415.12	447.44			
19-Apr-07	MW-107	441.41	441.91	440.91	448.92	-1.790	10.00	-0.18
	MW-207	431.41	431.91	430.91	447.13			
19-Apr-07	MW-206	431.29	431.79	430.79	446.75	0.510	16.00	0.03
	MW-306	415.29	415.79	414.79	447.44			
19-Dec-07	MW-204	414.84	415.34	414.34	435.73	-0.280	9.00	-0.03
	MW-304	405.84	406.34	405.34	435.45			
19-Dec-07	MW-304	405.84	406.34	405.34	435.45	0.060	5.75	0.01
	MW-404	400.09	400.84	399.34	435.51			
19-Dec-07	MW-207	431.41	431.91	430.91	434.33	0.870	16.00	0.05
	MW-307	415.41	415.91	414.91	435.20			
7-Apr-08	MW-204	414.84	415.34	414.34	446.42	-5.000	9.00	-0.56
	MW-304	405.84	406.34	405.34	441.42			
7-Apr-08	MW-205	433.62	434.12	433.12	446.75	1.720	18.00	0.10
	MW-305	415.62	416.12	415.12	447.44			
7-Apr-08	MW-206	431.29	431.79	430.79	446.75	-3.700	16.00	-0.23
	MW-306	415.29	415.79	414.79	447.44			
7-Apr-08	MW-207	431.41	431.91	430.91	444.84	2.020	16.00	0.13
	MW-307	415.41	415.91	414.91	446.86			
8-Oct-08	MW-204	414.84	415.34	414.34	429.90		9.00	
	MW-304	405.84	406.34	405.34	-			
8-Oct-08	MW-205	433.62	434.12	433.12	434.51	10.000	18.00	0.56
	MW-305	415.62	416.12	415.12	444.51			
8-Oct-08	MW-206	431.29	431.79	430.79	431.32	0.960	16.00	0.06
	MW-306	415.29	415.79	414.79	432.28			
8-Oct-08	MW-207	431.41	431.91	430.91	-		16.00	
	MW-307	415.41	415.91	414.91	-			



Table 3: Summary of Well Construction

Arrow Rentals  
 187 North L Street  
 Livermore, CA  
 Project No. 1262.2

Well/Boring Type	Well/Boring Number	Status	Date Drilled	Total Depth (ft)	Boring Diameter (in)	Well Casing Diameter (in)	Casing Type	Slot Size (in)	Sand Type	Well Screen		Filter Pack		Annular Seal		Grout Seal	
										From	To	From	To	From	To	From	To
Monitoring	W-1	Active	5/25/1989	56.5	8	2	PVC	0.010	#2/12	55.5	45.5	55.5	41.5	41.5	39	39	S
Monitoring	W-2	Active	5/26/1989	51.5	8	2	PVC	0.010	#2/12	49	39	49	36	36	22.5	22.5	S
Monitoring	W-3	Active	5/26/1989	51.5	8	2	PVC	0.010	#2/12	48	38	48	34.5	34.5	32.5	32.5	S
Monitoring	W-A	Active	7/12/1990	63	12	4	PVC	0.010	#2/12	57.5	42	63	40	40	36.5	36.5	S
Monitoring	W-B	Active	7/13/1990	55	12	4	PVC	0.010	#2/12	55	40	55	32	32	30	30	S
Monitoring	W-C	Active	7/11/1990	55	8	2	PVC	0.010	#2	55	45	55	37.5	37.5	35	35	S
Monitoring	W-D	Active	7/12/1990	57.5	12	4	PVC	0.010	#2/12	57.5	42	57.5	39.5	34	32	32	S
Monitoring	W-E	Active	7/10/1990	61	8	2	PVC	0.010	#2/12	60.3	40.5	61	37	30	29	29	S
Monitoring	MW-1s	Active	3/11/1996	45	?	6	PVC	0.010	#2/12	45	20	45	17	17	15	15	S
Monitoring	MW-Bs	Active	3/12/1996	45	?	6	PVC	0.010	#2/12	45	20	45	18	18	16	16	S
Monitoring	MW-3s	Active	3/12/1996	45	?	4	PVC	0.010	#2/12	45	20	45	18	18	16	16	S
Monitoring	MW-Es	Active	3/13/1996	45	?	2	PVC	0.010	#2/12	45	20	45	18	18	16	16	S
Monitoring	MW-4	Active	10/04/06	82	8	-	MCT	-	#2/12	30	29	30	20	16	14	14	S
Monitoring	MW-104	Active	-	-	-	-	MCT	-	#2/12	50.5	49.5	52	48	-	-	-	-
Monitoring	MW-204	Active	-	-	-	-	MCT	-	#2/12	66.5	65.5	68	64	-	-	-	-
Monitoring	MW-304	Active	-	-	-	-	MCT	-	#2/12	75.5	74.5	76	73	-	-	-	-
Monitoring	MW-404	Active	-	-	-	-	MCT	-	#2/12	81.5	80	81.5	79.5	-	-	-	-
Monitoring	MW-5	Active	10/09/06	68	8	-	MCT	-	#2/12	27	26	29	24	24	21.5	21.5	S
Monitoring	MW-105	Active	-	-	-	-	MCT	-	#2/12	37	36	39	34	-	-	-	-
Monitoring	MW-205	Active	-	-	-	-	MCT	-	#2/12	48	47	50	45	-	-	-	-
Monitoring	MW-305	Active	-	-	-	-	MCT	-	#2/12	66	65	68	63	-	-	-	-
Monitoring	MW-6	Active	10/10/06	68	8	-	MCT	-	#2/12	30	29	31	27	27	24	24	S
Monitoring	MW-106	Active	-	-	-	-	MCT	-	#2/12	37	36	39	35	-	-	-	-
Monitoring	MW-206	Active	-	-	-	-	MCT	-	#2/12	50	49	52	47	-	-	-	-
Monitoring	MW-306	Active	-	-	-	-	MCT	-	#2/12	66	65	68	63	-	-	-	-
Monitoring	MW-7	Active	10/05/06	69.5	8	-	MCT	-	#2/12	30	29	30	20	-	-	6	S
Monitoring	MW-107	Active	-	-	-	-	MCT	-	#2/12	40	39	42	37	-	-	-	-
Monitoring	MW-207	Active	-	-	-	-	MCT	-	#2/12	50	49	52	47	-	-	-	-
Monitoring	MW-307	Active	-	-	-	-	MCT	-	#2/12	66	65	68	63	-	-	-	-
Monitoring	MW-8	Active	10/06/06	66.5	8	-	MCT	-	#2/12	30	29	30	30	20	18	18	S
Monitoring	MW-108	Active	-	-	-	-	MCT	-	#2/12	40	39	42	37	-	-	-	-
Monitoring	MW-208	Active	-	-	-	-	MCT	-	#2/12	52	51	54	49	-	-	-	-
Monitoring	MW-308	Active	-	-	-	-	MCT	-	#2/12	66	65	66	63	-	-	-	-
Vapor Extraction	EW-1	Active	10/3/2006	25	10	4	PVC	0.010	#2/12	25	10	25	9.5	9.5	7.5	7.5	S





## **Appendix B**

### **Laboratory Analytical Data Sheets**

# argon laboratories

16 October 2008

Ray Kablanow  
Geological Technics, Inc.  
1101 7th Street  
Modesto, CA 95354

RE: Sullins Project Data

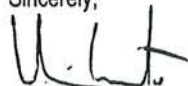
Enclosed are the results for sample(s) received on 10/10/08 14:43 by Argon Laboratories. The sample(s) were analyzed according to instructions in accompanying chain-of-custody. Results are summarized on the following pages.

Please see quality control report for a summary of QC data pertaining to this project.

The sample(s) will be stored for 30 days after completion of analysis, then disposed of in accordance with State and Federal regulations. Sample(s) may be archived by prior arrangement.

Thank you for the opportunity to service the needs of your company.

Sincerely,



Hiram Cueto  
Lab Manager

# Geological Technics Inc.

1101 7th Street  
 Modesto, CA  
 (209) 522-4119 Fax 522-4227  
 E-mail: gti@geologicaltechnics.com



## Chain of Custody

Project #:				No. of Containers	Matrix (Soil, Water, Gas, Other)	Preservation Type	Analysis Requested										Laboratory:	
Client/Project Name:							TPH-G by EPA method (415m) * BTEX, MTBE by (821) **										Argon Labs	
Site Address:														Temp. @ Shipping: C°				
Global ID No.:														Temp. @ Lab Receipt: C°				
Sampled By: (print and sign name)														Purchase Order #				
Ezaria Nona														1262-658077				
														EDF Report: <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No				
														Turnaround Time (S) Standard				
														1 day 2 day 5 day				
														Remarks				
Date	Time	Field I.D.	Sample I.D.															
10/8/08	1340		W-Es	1	W	various											* TPH-G: RL=50ug/L	
10/9/08	1000		MW-105	4		HCL												
10/9/08	0940		W-15	4		HCL											**BTEX + MTBE: RL=5ug/L	
10/8/08	1430		MW-106	2		HCL												
10/8/08	1430		MW-106	2		None												
10/8/08	1455		MW-108	2		HCL											NOTE ****	
10/8/08	1455		MW-108	2		None											Please include Preservation	
10/8/08	1515		MW-204	2		HCL											type w/results	
10/8/08	1515		MW-204	2		None												
Relinquished by: (signature)				Date:	Time:	Received by: (signature)				Date:	Time:							
Ezaria Nona				10/9/08	1450	[Signature]				10/9/08	1600							
Relinquished by: (signature)				Date:	Time:	Received by: (signature)				Date:	Time:							
[Signature]				10/9/08	16:00	[Signature]				10/9/08	16:00							
Relinquished by: (signature)				Date:	Time:	Received by: (signature)				Date:	Time:							
[Signature]				10/10/08	14:43	[Signature]				10/10/08	14:43							

Please return cooler/ice chest to Geological Technics Inc.

# Argon Laboratories Sample Receipt Checklist

Client Name: Geological Technics, Inc. Date & Time Received: 10/10/08 14:43  
Project Name: Sullins Client Project Number: 1262.2  
Received By: C.R. Matrix: Water  Soil  Sludge   
Sample Carrier: Client  Laboratory  Fed Ex  UPS  Other   
Argon Labs Project Number: I810031  
Shipper Container in good condition? N/A  Yes  No  Samples received in proper containers? Yes  No   
Samples received intact? Yes  No  Sufficient sample volume for requested tests? Yes  No   
Samples received under refrigeration? Yes  No  Chain of custody present? Yes  No  Samples received within holding time? Yes  No   
Chain of Custody signed by all parties? Yes  No  Do samples contain proper preservative?  
N/A  Yes  No   
Chain of Custody matches all sample labels? Yes  No  Do VOA vials contain zero headspace?  
(None submitted ) Yes  No

ANY "No" RESPONSE MUST BE DETAILED IN THE COMMENTS SECTION BELOW

Date Client Contacted: \_\_\_\_\_ Person Contacted: \_\_\_\_\_  
Contacted By: \_\_\_\_\_ Subject: \_\_\_\_\_

Comments:

Action Taken:

ADDITIONAL TEST(S) REQUEST / OTHER

Contacted By: \_\_\_\_\_ Date: \_\_\_\_\_ Time: \_\_\_\_\_  
Call Received By: \_\_\_\_\_

Comments:



Geological Technics, Inc. 1101 7th Street Modesto, CA 95354	Project Number: 1262.2 Project Name: Sullins Project Manager: Ray Kablanow	Work Order No.: I810031
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**ANALYTICAL REPORT FOR SAMPLES**

Sample ID	Laboratory ID	Matrix	Date Sampled	Date Received
W-E s	I810031-01	Water	10/08/08 13:40	10/10/08 14:43
MW-105	I810031-02	Water	10/09/08 10:00	10/10/08 14:43
W-1 s	I810031-03	Water	10/09/08 09:40	10/10/08 14:43
MW-106 (HCl Pres.)	I810031-04	Water	10/08/08 14:30	10/10/08 14:43
MW-106 (Unpreserved)	I810031-05	Water	10/08/08 14:30	10/10/08 14:43
MW-108 (HCl Pres.)	I810031-06	Water	10/08/08 14:55	10/10/08 14:43
MW-108 (Unpreserved)	I810031-07	Water	10/08/08 14:55	10/10/08 14:43
MW-204 (HCl Pres.)	I810031-08	Water	10/08/08 15:15	10/10/08 14:43
MW-204 (Unpreserved)	I810031-09	Water	10/08/08 15:15	10/10/08 14:43

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Approved By

Argon Laboratories, Inc. California D.O.H.S. Cert. #2359



Geological Technics, Inc. 1101 7th Street Modesto, CA 95354	Project Number: 1262.2 Project Name: Sullins Project Manager: Ray Kablanow	Work Order No.: I810031
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**TPH-gas/BTEX/MTBE EPA Method 8015M / 8021B**

Analyte	Result	Reporting Limit	Units	Dilution	Analyzed	Method	Notes
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✓ **W-E s (I810031-01) Water** Sampled: 08-Oct-08 13:40 Received: 10-Oct-08 14:43

Total Petroleum Hydrocarbons @	ND	50	ug/L	1	13-Oct-08	EPA 8015M/8021B	
Gasoline							
Benzene	ND	0.5	"	"	"	"	
Toluene	ND	0.5	"	"	"	"	
Xylenes (total)	ND	1.0	"	"	"	"	
Ethylbenzene	ND	0.5	"	"	"	"	
Methyl-t-butyl ether	ND	5.0	"	"	"	"	
Surr. Rec.:		97 %			"	"	

✓ **MW-105 (I810031-02) Water** Sampled: 09-Oct-08 10:00 Received: 10-Oct-08 14:43

Total Petroleum Hydrocarbons @	11000	500	ug/L	10	13-Oct-08	EPA 8015M/8021B	
Gasoline							
Benzene	3800	5.0	"	"	"	"	
Toluene	70	5.0	"	"	"	"	
Xylenes (total)	110	10	"	"	"	"	
Ethylbenzene	40	5.0	"	"	"	"	
Methyl-t-butyl ether	ND	50	"	"	"	"	
Surr. Rec.:		101 %			"	"	

✓ **W-1 s (I810031-03) Water** Sampled: 09-Oct-08 09:40 Received: 10-Oct-08 14:43

Total Petroleum Hydrocarbons @	39000	2500	ug/L	50	13-Oct-08	EPA 8015M/8021B	
Gasoline							
Benzene	3900	25	"	"	"	"	
Toluene	340	25	"	"	"	"	
Xylenes (total)	2000	50	"	"	"	"	
Ethylbenzene	1400	25	"	"	"	"	
Methyl-t-butyl ether	ND	250	"	"	"	"	
Surr. Rec.:		107 %			"	"	

Approved By  
Argon Laboratories, Inc. California D.O.H.S. Cert. #2359

Geological Technics, Inc. 1101 7th Street Modesto, CA 95354	Project Number: 1262.2 Project Name: Sullins Project Manager: Ray Kablanow	Work Order No.: I810031
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**TPH-gas/BTEX/MTBE EPA Method 8015M / 8021B**

Analyte	Result	Reporting Limit	Units	Dilution	Analyzed	Method	Notes
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**MW-106 (HCl Pres.) (I810031-04) Water** Sampled: 08-Oct-08 14:30 Received: 10-Oct-08 14:43

<b>Total Petroleum Hydrocarbons @</b>	<b>90</b>	50	ug/L	1	13-Oct-08	EPA 8015M/8021B	
<b>Gasoline</b>							
<b>Benzene</b>	<b>0.6</b>	0.5	"	"	"	"	
Toluene	ND	0.5	"	"	"	"	
Xylenes (total)	ND	1.0	"	"	"	"	
Ethylbenzene	ND	0.5	"	"	"	"	
Methyl-t-butyl ether	ND	5.0	"	"	"	"	
Surr. Rec.:		88 %			"	"	

**MW-106 (Unpreserved) (I810031-05) Water** Sampled: 08-Oct-08 14:30 Received: 10-Oct-08 14:43

<b>Total Petroleum Hydrocarbons @</b>	<b>100</b>	50	ug/L	1	13-Oct-08	EPA 8015M/8021B	
<b>Gasoline</b>							
<b>Benzene</b>	<b>1.0</b>	0.5	"	"	"	"	
Toluene	ND	0.5	"	"	"	"	
Xylenes (total)	ND	1.0	"	"	"	"	
Ethylbenzene	ND	0.5	"	"	"	"	
Methyl-t-butyl ether	ND	5.0	"	"	"	"	
Surr. Rec.:		87 %			"	"	

**MW-108 (HCl Pres.) (I810031-06) Water** Sampled: 08-Oct-08 14:55 Received: 10-Oct-08 14:43

<b>Total Petroleum Hydrocarbons @</b>	<b>2100</b>	120	ug/L	2.5	13-Oct-08	EPA 8015M/8021B	
<b>Gasoline</b>							
<b>Benzene</b>	<b>490</b>	1.2	"	"	"	"	
<b>Toluene</b>	<b>8.4</b>	1.2	"	"	"	"	
<b>Xylenes (total)</b>	<b>40</b>	2.5	"	"	"	"	
<b>Ethylbenzene</b>	<b>35</b>	1.2	"	"	"	"	
Methyl-t-butyl ether	ND	12	"	"	"	"	
Surr. Rec.:		101 %			"	"	

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Argon Laboratories, Inc. California D.O.H.S. Cert. #2359

Geological Technics, Inc. 1101 7th Street Modesto, CA 95354	Project Number: 1262.2 Project Name: Sullins Project Manager: Ray Kablanow	Work Order No.: 1810031
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**TPH-gas/BTEX/MTBE EPA Method 8015M / 8021B**

Analyte	Result	Reporting Limit	Units	Dilution	Analyzed	Method	Notes
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**MW-108 (Unpreserved) (1810031-07) Water** Sampled: 08-Oct-08 14:55 Received: 10-Oct-08 14:43

<b>Total Petroleum Hydrocarbons @</b>	<b>1300</b>	120	ug/L	2.5	13-Oct-08	EPA 8015M/8021B	
Gasoline							
Benzene	200	1.2	"	"	"	"	
Toluene	5.8	1.2	"	"	"	"	
Xylenes (total)	33	2.5	"	"	"	"	
Ethylbenzene	18	1.2	"	"	"	"	
Methyl-t-butyl ether	ND	12	"	"	"	"	

Surr. Rec.: 99 %

**MW-204 (HCl Pres.) (1810031-08) Water** Sampled: 08-Oct-08 15:15 Received: 10-Oct-08 14:43

<b>Total Petroleum Hydrocarbons @</b>	<b>18000</b>	1000	ug/L	20	13-Oct-08	EPA 8015M/8021B	
Gasoline							
Benzene	9200	10	"	"	"	"	
Toluene	360	10	"	"	"	"	
Xylenes (total)	370	20	"	"	"	"	
Ethylbenzene	130	10	"	"	"	"	
Methyl-t-butyl ether	ND	100	"	"	"	"	

Surr. Rec.: 105 %

**MW-204 (Unpreserved) (1810031-09) Water** Sampled: 08-Oct-08 15:15 Received: 10-Oct-08 14:43

<b>Total Petroleum Hydrocarbons @</b>	<b>8400</b>	1000	ug/L	20	13-Oct-08	EPA 8015M/8021B	
Gasoline							
Benzene	2500	10	"	"	"	"	
Toluene	140	10	"	"	"	"	
Xylenes (total)	250	20	"	"	"	"	
Ethylbenzene	20	10	"	"	"	"	
Methyl-t-butyl ether	ND	100	"	"	"	"	

Surr. Rec.: 101 %

Approved By

Argon Laboratories, Inc. California D.O.H.S. Cert. #2359

Geological Technics, Inc. 1101 7th Street Modesto, CA 95354	Project Number: 1262.2 Project Name: Sullins Project Manager: Ray Kabanow	Work Order No.: I810031
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**TPH-gas/BTEX/MTBE EPA Method 8015M / 8021B - Quality Control**

**Argon Laboratories**

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
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**Batch I802183 - EPA 5030B**

**Blank (I802183-BLK1)**

Prepared & Analyzed: 10/13/08

<i>Surrogate: a,a,a-Trifluorotoluene</i>	42.5		ug/L	50		85	80-120			
Total Petroleum Hydrocarbons @ Gasoline	ND	50	"							
Benzene	ND	0.5	"							
Toluene	ND	0.5	"							
Xylenes (total)	ND	1.0	"							
Ethylbenzene	ND	0.5	"							
Methyl-t-butyl ether	ND	5.0	"							

**LCS (I802183-BS1)**

Prepared & Analyzed: 10/13/08

Total Petroleum Hydrocarbons @ Gasoline	1055		ug/L	1000		106	80-120			
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**LCS Dup (I802183-BSD1)**

Prepared & Analyzed: 10/13/08

Total Petroleum Hydrocarbons @ Gasoline	934.0		ug/L	1000		93	80-120	12	20	
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**Matrix Spike (I802183-MS1)**

Source: I810031-01

Prepared & Analyzed: 10/13/08

Benzene	21.90		ug/L	25	ND	88	70-130			
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**Matrix Spike Dup (I802183-MSD1)**

Source: I810031-01

Prepared & Analyzed: 10/13/08

Benzene	21.80		ug/L	25	ND	87	70-130	0.5	20	
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Approved By

Argon Laboratories, Inc. California D.O.H.S. Cert. #2359

Geological Technics, Inc.  
1101 7th Street  
Modesto, CA 95354

Project Number: 1262.2  
Project Name: Sullins  
Project Manager: Ray Kablanow

Work Order No.:  
1810031

### Notes and Definitions

DET Analyte DETECTED  
ND Analyte NOT DETECTED at or above the reporting limit  
NR Not Reported  
dry Sample results reported on a dry weight basis  
RPD Relative Percent Difference

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Approved By

Argon Laboratories, Inc. California D.O.H.S. Cert. #2359

## **Appendix C**

### **Groundwater Monitoring Field Notes**

Project Name: Sullins (L St)

Well I.D.: W-1s

Project No.: 1262.2

Date: 10/9/2008

Project Location: 187 N. L Street

Livermore, CA

Samples sent to: Argon

Time	Cumulative Volume Purged (gal)	Temp	C°	EC (µS/cm)	pH	ORP (millivolts)	DO (mg/L)	Remarks
9:40								Collected samples

Purge Method:  Dedicated Waterra  Centrifugal pump with dedicated tubing  Other

Pumping Rate: \_\_\_\_\_ gal/min

Well Constructed TD (ft):	45.00
* Well TD (ft):	44.31
Silt Thickness (ft):	0.69
Initial DTW (ft):	43.69
Water column height (ft):	0.62
One casing volume (gal):	0.92
** Final DTW (ft):	-
Casing diameter (in):	6"

Sample Containers used: 4 # VOAs X preserved \_\_\_ non-preserved  
 \_\_\_\_\_ # amber liters \_\_\_\_\_ preserved \_\_\_ non-preserved  
 \_\_\_\_\_ # polys \_\_\_\_\_ preserved \_\_\_ non-preserved  
 \_\_\_\_\_ # polys \_\_\_\_\_ preserved \_\_\_ non-preserved

Notes: Not enough water in the well to collect parameters.  
 \_\_\_\_\_  
 Sampled By: E. Nona

Sample Method: Waterra  Bailer  Other

\* = measured \*\* = @ sampling

Purged Water Drummed:  Yes  No  
 No. of Drums: 1

Gallons per foot of casing. 2" dia. = 0.17, 3" dia. = 0.38 4" dia. = 0.65, 5" dia. = 1.02, 6" dia. = 1.48

Project Name: Sullins (L St)

Well I.D.: W-3s

Project No.: 1262.2

Date: 10/8/2008

Project Location: 187 N. L Street

Livermore, CA

Samples sent to: Argon

Time	Cumulative Volume Purged (gal)	Temp	C°	EC (µS/cm)	pH	ORP (millivolts)	DO (mg/L)	Remarks

Purge Method:  Dedicated Watterra  Centrifugal pump with dedicated tubing  Other

Pumping Rate: \_\_\_\_\_ gal/min

Well Constructed TD (ft):	45.00
* Well TD (ft):	42.99
Silt Thickness (ft):	2.01
Initial DTW (ft):	-
Water column height (ft):	-
One casing volume (gal):	-
** Final DTW (ft):	-
Casing diameter (in):	4"

Sample Containers used: \_\_\_\_\_ # VOAs \_\_\_\_\_ preserved \_\_\_\_\_ non-preserved  
 \_\_\_\_\_ # amber liters \_\_\_\_\_ preserved \_\_\_\_\_ non-preserved  
 \_\_\_\_\_ # polys \_\_\_\_\_ preserved \_\_\_\_\_ non-preserved  
 \_\_\_\_\_ # polys \_\_\_\_\_ preserved \_\_\_\_\_ non-preserved

Notes: Dry well.

Sampled By: E. Nona 

Sample Method: Watterra  Bailer  Other

\* = measured    \*\* = @ sampling

Purged Water Drummed:  Yes  No  
 No. of Drums: \_\_\_\_\_

Gallons per foot of casing. 2" dia. = 0.17, 3" dia. = 0.38 4" dia. = 0.65, 5" dia. = 1.02, 6" dia. = 1.48



Project Name: Sullins (L St)

Well I.D.: W-Bs

Project No.: 1262.2

Date: 10/8/2008

Project Location: 187 N. L Street

Livermore, CA

Samples sent to: Argon

Time	Cumulative Volume Purged (gal)	Temp	C°	EC (µS/cm)	pH	ORP (millivolts)	DO (mg/L)	Remarks

Purge Method:  Dedicated Waterra  Centrifugal pump with dedicated tubing  Other

Pumping Rate: \_\_\_\_\_ gal/min

Well Constructed TD (ft):	<u>45.00</u>
* Well TD (ft):	<u>44.13</u>
Silt Thickness (ft):	<u>0.87</u>
Initial DTW (ft):	<u>-</u>
Water column height (ft):	<u>-</u>
One casing volume (gal):	<u>-</u>
** Final DTW (ft):	<u>-</u>
Casing diameter (in):	<u>4"</u>

Sample Containers used: \_\_\_\_\_ # VOAs \_\_\_\_\_ preserved \_\_\_\_\_ non-preserved  
 \_\_\_\_\_ # amber liters \_\_\_\_\_ preserved \_\_\_\_\_ non-preserved  
 \_\_\_\_\_ # polys \_\_\_\_\_ preserved \_\_\_\_\_ non-preserved  
 \_\_\_\_\_ # polys \_\_\_\_\_ preserved \_\_\_\_\_ non-preserved

Notes: Dry well.  
 \_\_\_\_\_  
 Sampled By: E. Nona 

Sample Method: Waterra  Bailer  Other

\* = measured \*\* = @ sampling

Purged Water Drummed:  Yes  No  
 No. of Drums: \_\_\_\_\_

Gallons per foot of casing. 2" dia. = 0.17, 3" dia. = 0.38 4" dia. = 0.65, 5" dia. = 1.02, 6" dia. = 1.48

Project Name: Sullins (L St)

Well I.D.: W-Es

Project No.: 1262.2

Date: 10/8/2008

Project Location: 187 N. L Street  
Livermore, CA

Samples sent to: Argon

Time	Cumulative Volume Purged (gal)	Temp C°	EC (µS/cm)	pH	ORP (millivolts)	DO (mg/L)	Remarks
13:40							Collected samples

Purge Method:  Dedicated Waterra  Centrifugal pump with dedicated tubing  Other

Pumping Rate: \_\_\_\_\_ gal/min

Well Constructed TD (ft):	45.00
* Well TD (ft):	44.05
Silt Thickness (ft):	0.95
Initial DTW (ft):	43.65
Water column height (ft):	0.40
One casing volume (gal):	0.07
** Final DTW (ft):	-
Casing diameter (in):	2"

Sample Containers used: 1 # VOAs X preserved    non-preserved  
 \_\_\_\_\_ # amber liters    preserved    non-preserved  
 \_\_\_\_\_ # polys    preserved    non-preserved  
 \_\_\_\_\_ # polys    preserved    non-preserved

Notes: Not enough water in the well to collect parameters.

Sampled By: E. Nona 

Sample Method: Waterra  Bailer  Other

\* = measured \*\* = @ sampling

Purged Water Drummed:  Yes  No

No. of Drums: \_\_\_\_\_

Gallons per foot of casing. 2" dia. = 0.17, 3" dia. = 0.38 4" dia. = 0.65, 5" dia. = 1.02, 6" dia. = 1.48

Project Name: Sullins (L St)

Well I.D.: MW-104

Project No.: 1262.2

Date: 10/8/2008

Project Location: 187 N. L Street

Livermore, CA

Samples sent to: Argon

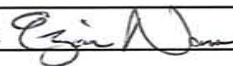
Time	Cumulative Volume Purged (gal)	Temp C°	EC (µS/cm)	pH	ORP (millivolts)	DO (mg/L)	Remarks

Purge Method:  Dedicated Waterra  Centrifugal pump with dedicated tubing  Other

Pumping Rate: \_\_\_\_\_ gal/min

Well Constructed TD (ft):	-
* Well TD (ft):	57.79
Silt Thickness (ft):	-
Initial DTW (ft):	49.76
Water column height (ft):	8.03
One casing volume (gal):	-
** Final DTW (ft):	-
Casing diameter (in):	CMT

Sample Containers used: \_\_\_\_\_ # VOAs \_\_\_\_\_ preserved \_\_\_\_ non-preserved  
\_\_\_\_\_ # amber liters \_\_\_\_\_ preserved \_\_\_\_ non-preserved  
\_\_\_\_\_ # polys \_\_\_\_\_ preserved \_\_\_\_ non-preserved  
\_\_\_\_\_ # polys \_\_\_\_\_ preserved \_\_\_\_ non-preserved

Notes: Tubing was too flexible to purge out any water.  
\_\_\_\_\_  
Sampled By: E. Nona 

Sample Method: Waterra  Bailer  Other

\* = measured \*\* = @ sampling

Purged Water Drummed:  Yes  No  
No. of Drums: \_\_\_\_\_

Gallons per foot of casing. 2" dia. = 0.17, 3" dia. = 0.38 4" dia. = 0.65, 5" dia. = 1.02, 6" dia. = 1.48

Project Name: Sullins (L St)

Well I.D.: MW-105

Project No.: 1262.2

Date: 10/9/2008

Project Location: 187 N. L Street

Livermore, CA

Samples sent to: Argon

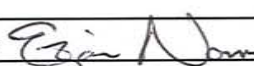
Time	Cumulative Volume Purged (gal)	Temp	C°	EC (µS/cm)	pH	ORP (millivolts)	DO (mg/L)	Remarks
10:00								Collected samples

Purge Method:  Dedicated Waterra  Centrifugal pump with dedicated tubing  Other

Pumping Rate:          gal/min

Well Constructed TD (ft):	<u>        </u>
* Well TD (ft):	<u>63.79</u>
Silt Thickness (ft):	<u>        </u>
Initial DTW (ft):	<u>49.44</u>
Water column height (ft):	<u>14.35</u>
One casing volume (gal):	<u>        </u>
** Final DTW (ft):	<u>49.49</u>
Casing diameter (in):	<u>CMT</u>

Sample Containers used: 4 # VOAs X preserved          non-preserved  
         # amber liters          preserved          non-preserved  
         # polys          preserved          non-preserved  
         # polys          preserved          non-preserved

Notes: \_\_\_\_\_  
 \_\_\_\_\_  
 Sampled By: E. Nona 

Sample Method: Waterra  Bailer  Other

\* = measured \*\* = @ sampling

Purged Water Drummed:  Yes  No  
 No. of Drums: \_\_\_\_\_

Gallons per foot of casing. 2" dia. = 0.17, 3" dia. = 0.38 4" dia. = 0.65, 5" dia. = 1.02, 6" dia. = 1.48

Project Name: Sullins (L St)

Well I.D.: MW-106

Project No.: 1262.2

Date: 10/8/2008

Project Location: 187 N. L Street

Livermore, CA

Samples sent to: Argon

Time	Cumulative Volume Purged (gal)	Temp C°	EC (µS/cm)	pH	ORP (millivolts)	DO (mg/L)	Remarks
14:30							Collected samples

Purge Method:  Dedicated Waterra  Centrifugal pump with dedicated tubing  Other

Pumping Rate:    -    gal/min

Well Constructed TD (ft):	-
* Well TD (ft):	66.65
Silt Thickness (ft):	-
Initial DTW (ft):	49.48
Water column height (ft):	17.17
One casing volume (gal):	-
** Final DTW (ft):	49.50
Casing diameter (in):	CMT

Sample Containers used:   2   # VOAs   X   preserved    non-preserved  
  2   # VOAs    preserved   X   non-preserved  
   # polys    preserved    non-preserved  
   # polys    preserved    non-preserved

Notes: \_\_\_\_\_  
 \_\_\_\_\_  
 Sampled By: E. Nona *E. Nona*

Sample Method: Waterra  Bailer  Other

\* = measured    \*\* = @ sampling

Purged Water Drummed:  Yes  No  
 No. of Drums: \_\_\_\_\_

Gallons per foot of casing. 2" dia. = 0.17, 3" dia. = 0.38 4" dia. = 0.65, 5" dia. = 1.02, 6" dia. = 1.48

Project Name: Sullins (L St)

Well I.D.: MW-107

Project No.: 1262.2

Date: 10/8/2008

Project Location: 187 N. L Street

Livermore, CA

Samples sent to: Argon

Time	Cumulative Volume Purged (gal)	Temp	C°	EC (µS/cm)	pH	ORP (millivolts)	DO (mg/L)	Remarks


Purge Method:  Dedicated Waterra  Centrifugal pump with dedicated tubing  Other

Pumping Rate:    gal/min

Well Constructed TD (ft):	-
* Well TD (ft):	30.15
Silt Thickness (ft):	-
Initial DTW (ft):	-
Water column height (ft):	-
One casing volume (gal):	-
** Final DTW (ft):	-
Casing diameter (in):	CMT

Sample Containers used:    # VOAs    preserved    non-preserved  
   # amber liters    preserved    non-preserved  
   # polys    preserved    non-preserved  
   # polys    preserved    non-preserved

Notes: Dry well.

Sampled By: E. Nona 

Sample Method: Waterra  Bailer  Other

\* = measured \*\* = @ sampling

Purged Water Drummed:  Yes  No  
No. of Drums:   

Gallons per foot of casing. 2" dia. = 0.17, 3" dia. = 0.38 4" dia. = 0.65, 5" dia. = 1.02, 6" dia. = 1.48

Project Name: Sullins (L St)

Well I.D.: MW-108

Project No.: 1262.2

Date: 10/8/2008

Project Location: 187 N. L Street

Livermore, CA

Samples sent to: Argon

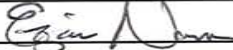
Time	Cumulative Volume Purged (gal)	Temp C°	EC (µS/cm)	pH	ORP (millivolts)	DO (mg/L)	Remarks
14:55							Collected samples

Purge Method:  Dedicated Waterra  Centrifugal pump with dedicated tubing  Other

Pumping Rate: \_\_\_\_\_ gal/min

Well Constructed TD (ft):	-
* Well TD (ft):	64.28
Silt Thickness (ft):	-
Initial DTW (ft):	50.08
Water column height (ft):	14.20
One casing volume (gal):	-
** Final DTW (ft):	-
Casing diameter (in):	CMT

Sample Containers used: 2 # VOAs X preserved \_\_\_ non-preserved  
2 # VOAs \_\_\_ preserved X non-preserved  
 \_\_\_\_\_ # polys \_\_\_\_\_ preserved \_\_\_ non-preserved  
 \_\_\_\_\_ # polys \_\_\_\_\_ preserved \_\_\_ non-preserved

Notes: \_\_\_\_\_  
 \_\_\_\_\_  
 Sampled By: E. Nona 

Sample Method: Waterra  Bailer  Other

\* = measured \*\* = @ sampling

Purged Water Drummed:  Yes  No  
 No. of Drums: \_\_\_\_\_

Gallons per foot of casing. 2" dia. = 0.17, 3" dia. = 0.38 4" dia. = 0.65, 5" dia. = 1.02, 6" dia. = 1.48

Project Name: Sullins (L St)

Well I.D.: MW-204

Project No.: 1262.2

Date: 10/8/2008

Project Location: 187 N. L Street  
Livermore, CA

Samples sent to: Argon

Time	Cumulative Volume Purged (gal)	Temp C°	EC (µS/cm)	pH	ORP (millivolts)	DO (mg/L)	Remarks
15:15							Collected samples

Purge Method:  Dedicated Waterra  Centrifugal pump with dedicated tubing  Other \_\_\_\_\_

Pumping Rate: \_\_\_\_\_ gal/min

Well Constructed TD (ft):	-
* Well TD (ft):	55.89
Silt Thickness (ft):	-
Initial DTW (ft):	50.94
Water column height (ft):	4.95
One casing volume (gal):	-
** Final DTW (ft):	-
Casing diameter (in):	CMT

Sample Containers used: 2 # VOAs X preserved \_\_\_ non-preserved  
2 # VOAs \_\_\_ preserved X non-preserved  
 \_\_\_ # polys \_\_\_ preserved \_\_\_ non-preserved  
 \_\_\_ # polys \_\_\_ preserved \_\_\_ non-preserved

Notes: \_\_\_\_\_  
 \_\_\_\_\_  
 Sampled By: E. Nona *E. Nona*

Sample Method: Waterra  Bailer  Other

\* = measured \*\* = @ sampling

Purged Water Drummed:  Yes  No  
 No. of Drums: \_\_\_\_\_

Gallons per foot of casing. 2" dia. = 0.17, 3" dia. = 0.38 4" dia. = 0.65, 5" dia. = 1.02, 6" dia. = 1.48



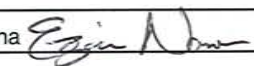
Project Name: Sullins (L St) Well I.D.: MW-205  
 Project No.: 1262.2 Date: 10/8/2008  
 Project Location: 187 N. L Street  
Livermore, CA Samples sent to: Argon

Time	Cumulative Volume Purged (gal)	Temp C°	EC (μS/cm)	pH	ORP (millivolts)	DO (mg/L)	Remarks

Purge Method:  Dedicated Waterra     Centrifugal pump with dedicated tubing     Other \_\_\_\_\_  
 Pumping Rate: \_\_\_\_\_ gal/min

Well Constructed TD (ft):	-
* Well TD (ft):	47.84
Silt Thickness (ft):	-
Initial DTW (ft):	46.61
Water column height (ft):	1.23
One casing volume (gal):	-
** Final DTW (ft):	-
Casing diameter (in):	CMT

Sample Containers used: \_\_\_\_\_ # VOAs    \_\_\_\_\_ preserved    \_\_\_\_\_ non-preserved  
 \_\_\_\_\_ # amber liters    \_\_\_\_\_ preserved    \_\_\_\_\_ non-preserved  
 \_\_\_\_\_ # polys    \_\_\_\_\_ preserved    \_\_\_\_\_ non-preserved  
 \_\_\_\_\_ # polys    \_\_\_\_\_ preserved    \_\_\_\_\_ non-preserved

Notes: Removed 5-10 ml before well went dry, could not collect any samples.  
 Sampled By: E. Nona 

Sample Method:    Waterra     Bailer     Other     \* = measured    \*\* = @ sampling    Purged Water Drummed:  Yes     No  
 Gallons per foot of casing. 2" dia. = 0.17, 3" dia. = 0.38 4" dia. = 0.65, 5" dia. = 1.02, 6" dia. = 1.48    No. of Drums: \_\_\_\_\_

Project Name: Sullins (L St)

Well I.D.: MW-207

Project No.: 1262.2

Date: 10/8/2008

Project Location: 187 N. L Street

Livermore, CA

Samples sent to: Argon

Time	Cumulative Volume Purged (gal)	Temp	C°	EC (µS/cm)	pH	ORP (millivolts)	DO (mg/L)	Remarks

Purge Method:  Dedicated Waterra  Centrifugal pump with dedicated tubing  Other

Pumping Rate:    gal/min

Well Constructed TD (ft):	-
* Well TD (ft):	49.30
Silt Thickness (ft):	-
Initial DTW (ft):	-
Water column height (ft):	-
One casing volume (gal):	-
** Final DTW (ft):	-
Casing diameter (in):	CMT

Sample Containers used:    # VOAs    preserved    non-preserved  
   # amber liters    preserved    non-preserved  
   # polys    preserved    non-preserved  
   # polys    preserved    non-preserved

Notes: Dry well.  
 Sampled By: E. Nona *E. Nona*

Sample Method: Waterra  Bailer  Other

\* = measured    \*\* = @ sampling

Purged Water Drummed:  Yes  No  
 No. of Drums:   

Gallons per foot of casing. 2" dia. = 0.17, 3" dia. = 0.38 4" dia. = 0.65, 5" dia. = 1.02, 6" dia. = 1.48

Project Name: Sullins (L St)

Well I.D.: MW-208

Project No.: 1262.2

Date: 10/8/2008

Project Location: 187 N. L Street  
Livermore, CA

Samples sent to: Argon

Time	Cumulative Volume Purged (gal)	Temp C°	EC (µS/cm)	pH	ORP (millivolts)	DO (mg/L)	Remarks

Purge Method:  Dedicated Waterra  Centrifugal pump with dedicated tubing  Other \_\_\_\_\_

Pumping Rate: \_\_\_\_\_ gal/min

Well Constructed TD (ft):	-
* Well TD (ft):	<b>50.83</b>
Silt Thickness (ft):	-
Initial DTW (ft):	49.96
Water column height (ft):	0.87
One casing volume (gal):	-
** Final DTW (ft):	-
Casing diameter (in):	CMT

Sample Containers used: \_\_\_\_\_ # VOAs \_\_\_\_\_ preserved \_\_\_\_\_ non-preserved  
 \_\_\_\_\_ # amber liters \_\_\_\_\_ preserved \_\_\_\_\_ non-preserved  
 \_\_\_\_\_ # polys \_\_\_\_\_ preserved \_\_\_\_\_ non-preserved  
 \_\_\_\_\_ # polys \_\_\_\_\_ preserved \_\_\_\_\_ non-preserved

Notes: Not enough water in the well to collect any samples.  
 \_\_\_\_\_  
 Sampled By: E. Nona *E. Nona*

Sample Method: Waterra  Bailor  Other

\* = measured \*\* = @ sampling

Purged Water Drummed:  Yes  No  
 No. of Drums: \_\_\_\_\_

Gallons per foot of casing. 2" dia. = 0.17, 3" dia. = 0.38 4" dia. = 0.65, 5" dia. = 1.02, 6" dia. = 1.48

Project Name: Sullins (L St)

Well I.D.: MW-304

Project No.: 1262.2

Date: 10/8/2008

Project Location: 187 N. L Street

Livermore, CA

Samples sent to: Argon

Time	Cumulative Volume Purged (gal)	Temp	C°	EC (µS/cm)	pH	ORP (millivolts)	DO (mg/L)	Remarks

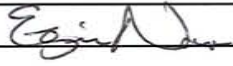
Purge Method:  Dedicated Waterra     Centrifugal pump with dedicated tubing     Other

Pumping Rate:    -    gal/min

Well Constructed TD (ft):	-
* Well TD (ft):	29.50
Silt Thickness (ft):	-
Initial DTW (ft):	
Water column height (ft):	-
One casing volume (gal):	-
** Final DTW (ft):	-
Casing diameter (in):	CMT

Sample Containers used:    # VOAs    preserved    non-preserved  
   # amber liters    preserved    non-preserved  
   # polys       preserved    non-preserved  
   # polys       preserved    non-preserved

Notes: Dry well.

Sampled By: E. Nona 

Sample Method:      Waterra     Bailer     Other

\* = measured      \*\* = @ sampling

Purged Water Drummed:  Yes  No

Gallons per foot of casing. 2" dia. = 0.17, 3" dia. = 0.38 4" dia. = 0.65, 5" dia. = 1.02, 6" dia. = 1.48

No. of Drums:

Project Name: Sullins (L St)

Well I.D.: MW-305

Project No.: 1262.2

Date: 10/8/2008

Project Location: 187 N. L Street

Livermore, CA

Samples sent to: Argon

Time	Cumulative Volume Purged (gal)	Temp C°	EC (µS/cm)	pH	ORP (millivolts)	DO (mg/L)	Remarks

Purge Method:  Dedicated Waterra     Centrifugal pump with dedicated tubing     Other \_\_\_\_\_

Pumping Rate: \_\_\_\_\_ gal/min

Well Constructed TD (ft):	-
* Well TD (ft):	<b>36.61</b>
Silt Thickness (ft):	-
Initial DTW (ft):	-
Water column height (ft):	-
One casing volume (gal):	-
** Final DTW (ft):	-
Casing diameter (in):	<b>CMT</b>

Sample Containers used: \_\_\_\_\_ # VOAs \_\_\_\_\_ preserved \_\_\_\_\_ non-preserved  
 \_\_\_\_\_ # amber liters \_\_\_\_\_ preserved \_\_\_\_\_ non-preserved  
 \_\_\_\_\_ # polys \_\_\_\_\_ preserved \_\_\_\_\_ non-preserved  
 \_\_\_\_\_ # polys \_\_\_\_\_ preserved \_\_\_\_\_ non-preserved

Notes: Dry well.  
 \_\_\_\_\_  
 Sampled By: E. Nona *E. Nona*

Sample Method:    Waterra     Bailer     Other

\* = measured    \*\* = @ sampling

Purged Water Drummed: <input type="checkbox"/> Yes <input type="checkbox"/> No
No. of Drums: _____

Gallons per foot of casing. 2" dia. = 0.17, 3" dia. = 0.38 4" dia. = 0.65, 5" dia. = 1.02, 6" dia. = 1.48

Project Name: Sullins (L St)

Well I.D.: MW-306

Project No.: 1262.2

Date: 10/8/2008

Project Location: 187 N. L Street

Livermore, CA

Samples sent to: Argon

Time	Cumulative Volume Purged (gal)	Temp C°	EC (µS/cm)	pH	ORP (millivolts)	DO (mg/L)	Remarks


Purge Method:  Dedicated Waterra  Centrifugal pump with dedicated tubing  Other

Pumping Rate:          gal/min

Well Constructed TD (ft):	-
* Well TD (ft):	50.97
Silt Thickness (ft):	-
Initial DTW (ft):	48.51
Water column height (ft):	2.46
One casing volume (gal):	-
** Final DTW (ft):	-
Casing diameter (in):	CMT

Sample Containers used: \_\_\_\_\_ # VOAs \_\_\_\_\_ preserved \_\_\_ non-preserved  
 \_\_\_\_\_ # amber liters \_\_\_\_\_ preserved \_\_\_ non-preserved  
 \_\_\_\_\_ # polys \_\_\_\_\_ preserved \_\_\_ non-preserved  
 \_\_\_\_\_ # polys \_\_\_\_\_ preserved \_\_\_ non-preserved

Notes: Not enough water in the well to collect any samples.

Sampled By: E. Nona 

Sample Method: Waterra  Bailer  Other

\* = measured    \*\* = @ sampling

Purged Water Drummed:  Yes  No  
 No. of Drums: \_\_\_\_\_

Gallons per foot of casing: 2" dia. = 0.17, 3" dia. = 0.38 4" dia. = 0.65, 5" dia. = 1.02, 6" dia. = 1.48

Project Name: Sullins (L St)

Well I.D.: MW-307

Project No.: 1262.2

Date: 10/8/2008

Project Location: 187 N. L Street

Livermore, CA

Samples sent to: Argon


Time	Cumulative Volume Purged (gal)	Temp C°	EC (µS/cm)	pH	ORP (millivolts)	DO (mg/L)	Remarks

Purge Method:  Dedicated Waterra  Centrifugal pump with dedicated tubing  Other

Pumping Rate:      gal/min

Well Constructed TD (ft):	-
* Well TD (ft):	39.49
Silt Thickness (ft):	-
Initial DTW (ft):	-
Water column height (ft):	-
One casing volume (gal):	-
** Final DTW (ft):	-
Casing diameter (in):	CMT

Sample Containers used: \_\_\_\_\_ # VOAs \_\_\_\_\_ preserved \_\_\_\_\_ non-preserved  
 \_\_\_\_\_ # amber liters \_\_\_\_\_ preserved \_\_\_\_\_ non-preserved  
 \_\_\_\_\_ # polys \_\_\_\_\_ preserved \_\_\_\_\_ non-preserved  
 \_\_\_\_\_ # polys \_\_\_\_\_ preserved \_\_\_\_\_ non-preserved

Notes: Dry well.  
 Sampled By: E. Nona 

Sample Method: Waterra  Bailer  Other

\* = measured \*\* = @ sampling

Purged Water Drummed:  Yes  No  
 No. of Drums: \_\_\_\_\_

Gallons per foot of casing. 2" dia. = 0.17, 3" dia. = 0.38 4" dia. = 0.65, 5" dia. = 1.02, 6" dia. = 1.48

Project Name: Sullins (L St)

Well I.D.: MW-308

Project No.: 1262.2

Date: 10/8/2008

Project Location: 187 N. L Street

Livermore, CA

Samples sent to: Argon

Time	Cumulative Volume Purged (gal)	Temp C°	EC (μS/cm)	pH	ORP (millivolts)	DO (mg/L)	Remarks

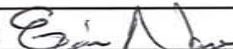
Purge Method:  Dedicated Waterra  Centrifugal pump with dedicated tubing  Other \_\_\_\_\_

Pumping Rate: \_\_\_\_\_ gal/min

Well Constructed TD (ft):	-
* Well TD (ft):	38.55
Silt Thickness (ft):	-
Initial DTW (ft):	-
Water column height (ft):	-
One casing volume (gal):	-
** Final DTW (ft):	-
Casing diameter (in):	CMT

Sample Containers used: \_\_\_\_\_ # VOAs \_\_\_\_\_ preserved \_\_\_\_\_ non-preserved  
 \_\_\_\_\_ # amber liters \_\_\_\_\_ preserved \_\_\_\_\_ non-preserved  
 \_\_\_\_\_ # polys \_\_\_\_\_ preserved \_\_\_\_\_ non-preserved  
 \_\_\_\_\_ # polys \_\_\_\_\_ preserved \_\_\_\_\_ non-preserved

Notes: Dry well.

Sampled By: E. Nona 

Sample Method: Waterra  Bailer  Other

\* = measured    \*\* = @ sampling

Purged Water Drummed:  Yes  No

Gallons per foot of casing. 2" dia. = 0.17, 3" dia. = 0.38 4" dia. = 0.65, 5" dia. = 1.02, 6" dia. = 1.48

No. of Drums: \_\_\_\_\_



Project Name: Sullins (L St)

Well I.D.: MW-404

Project No.: 1262.2

Date: 10/8/2008

Project Location: 187 N. L Street

Livermore, CA

Samples sent to: Argon


Time	Cumulative Volume Purged (gal)	Temp C°	EC (µS/cm)	pH	ORP (millivolts)	DO (mg/L)	Remarks

Purge Method:  Dedicated Waterra    Centrifugal pump with dedicated tubing    Other

Pumping Rate:    gal/min

Well Constructed TD (ft):	<u>  </u>
* Well TD (ft):	<u>49.94</u>
Silt Thickness (ft):	<u>  </u>
Initial DTW (ft):	<u>48.64</u>
Water column height (ft):	<u>1.30</u>
One casing volume (gal):	<u>  </u>
** Final DTW (ft):	<u>  </u>
Casing diameter (in):	<u>CMT</u>

Sample Containers used:    # VOAs      preserved      non-preserved  
   # amber liters      preserved      non-preserved  
   # polys      preserved      non-preserved  
   # polys      preserved      non-preserved

Notes: Could not purge out any water with hand purging method.  
 Sampled By: E. Nona 

Sample Method:   Waterra    Bailer    Other

\* = measured   \*\* = @ sampling

Purged Water Drummed:  Yes    No  
 No. of Drums:   

Gallons per foot of casing. 2" dia. = 0.17, 3" dia. = 0.38 4" dia. = 0.65, 5" dia. = 1.02, 6" dia. = 1.48