December 22, 2011

# **RECEIVED**

2:06 pm, Dec 28, 2011

Alameda County Environmental Health

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

Re:

Transmittal Letter

Site Location:

Arrow Rentals

187 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 2<sup>nd</sup> Semi-Annual Groundwater Monitoring, October 2011, dated December 23, 2011 that was sent to your office via electronic delivery per Alameda County's guidelines.

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

# REPORT

2<sup>nd</sup> Semi-Annual Groundwater Monitoring 4<sup>th</sup> Quarter: October 2011

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

> > Project No. 1262.2 December 23, 2011

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

Prepared by:
Geological Technics Inc.
1172 Kansas Ave.
Modesto, California 95351
(209) 522-4119
www.gtienv.com

# Geological Technics Inc.

1172 Kansas Ave. Modesto, California 95351 (209) 522-4119/Fax (209) 522-4227 www.gtienv.com

December 23, 2011

Project No.:

1262.2

Project Name:

Sullins (L St.)

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

RE:

Report:

2<sup>nd</sup> Semi-Annual Groundwater Monitoring, 4<sup>th</sup> Quarter, October 2011

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 2011 groundwater monitoring event performed on October 25th and 26th, 2011, at the 187 North L Street property in Livermore, CA. An elevated core of gasoline contamination persists in the location of and down-gradient (northwest) of the former USTs/piping.

GTI is currently implementing the Corrective Action Plan (CAP) and the Dual Phase Extraction (DPE) system was started on November 15th, 2011. An installation report detailing the installation and start-up of the DPE system will be submitted by December 31<sup>st</sup>, 2011.

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

Respectfully submitted,

Raynold I. Kablanow II, PhD

PG, CHG, REAII

cc:

Jerry Wickham - ACEH

USTCUF

Chris Davidson - City of Livermore

Jennifer Sedlechek – Exxon Mobile Corp.

# TABLE OF CONTENTS

1.0	EXECUTIVE SUMMARY	1
1.1		
1.2	SITE SETTING AND GEOLOGY	3
2.0	GROUNDWATER MONITORING	3
2.1	GROUNDWATER ELEVATION AND FLOW DIRECTION	3
2.2	GROUNDWATER SAMPLING PROCEDURE.	
2.3	LABORATORY ANALYSES	5
3.0	FINDINGS AND DISCUSSION	7
3.1	FIELD PARAMETERS	7
3.2	LABORATORY ANALYTICAL DATA	7
4.0	CONCLUSIONS & RECOMMENDATIONS	)
5.0	LIMITATIONS11	L
6.0	SIGNATURES & CERTIFICATION	1
	<b>FIGURES</b>	
VICIN	NITY MAP	1
SITE		2
SITE	DETAIL MAP	3
WELI	L SCREENED INTERVAL DIAGRAM	4
GRO	JNDWATER GRADIENT MAP SHALLOW WELLS	5A
GRO	JNDWATER GRADIENT MAP INTERMEDIATE WELLS	5B
GRO	JNDWATER GRADIENT MAP DEEP WELLS	5C
SHAL	LOW WELL TPH-G CONCENTRATIONS	6
INTE	RMEDIATE WELL TPH-G CONCENTRATIONS	7
DEEP	WELL TPH-G CONCENTRATIONS	8
GRAI	PH OF TPH-G CONCENTRATION VS. TIME W-1s	9
GRAI	PH OF TPH-G CONCENTRATION VS. TIME W-3S	10
GRAI	PH OF TPH-G CONCENTRATION VS. TIME W-Bs	11

i

# APPENDICES

SUMMARY TABLES	A
Table 1A: Summary of Groundwater Elevation and Gradient - Water Table Wells	
Table 1B: Summary of Groundwater Elevation and Gradient - Intermediate Wells	
Table 1C: Summary of Groundwater Elevation and Gradient - Deep Wells	
Table 2: Summary of Vertical Gradients	
Table 3: Summary of Well Construction	
Table 4: Summary of Groundwater Analytical Data	
Table 5: Summary of Field Parameters	
LABORATORY ANALYTICAL DATA SHEETS	В
GROUNDWATER MONITORING FIELD LOGS	C

# Geological Technics Inc.\_

1172 Kansas Ave. Modesto, California 95351 (209) 522-4119/Fax (209) 522-4227 www.gtienv.com

# REPORT

2<sup>nd</sup> Semi-Annual Groundwater Monitoring October 2011

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

> > Project No. 1262.2 December 23, 2011

# 1.0 EXECUTIVE SUMMARY

This report summarizes the results of the 2<sup>nd</sup> Semi-Annual 2011 groundwater monitoring and sampling event that took place on October 25<sup>th</sup> and 26<sup>th</sup>, of 2011.

The average shallow groundwater elevation at the site was 445.26 feet above mean sea level (msl) and the average depth to water was 35.41 feet below ground surface (bgs). This represents a decrease of 8.11 feet since the April 2011 monitoring event. The shallow groundwater flow was southwest (S68°W) at a slope of 0.0129 ft/ft for this event.

The analytical results of groundwater samples show that detectable concentrations of gasoline range petroleum hydrocarbons were present in all eighteen of the site's groundwater monitoring wells sampled for this event. A persistent core remains in the vicinity of well W-1 (76,000  $\mu$ g/l TPH-g) which is located adjacent to former USTs/piping trenches and is down gradient of the former UST system.

GTI is currently implementing the Corrective Action Plan (CAP) that includes operating a Dual Phase Extraction system to treat the residual contamination at the site, which was started on November 15<sup>th</sup>, 2011.

#### Recommendations

- 1. Continue groundwater monitoring as directed by Alameda County Environmental Health in their most recent email dated October 6, 2011.
- 2. Continue implementation of the Corrective Action Plan (CAP) and operating the Dual Phase Extraction (DPE) system, as the initial months of operation have been effective at treating the sites groundwater and soil contamination. A report detailing the installation and start-up of the DPE system will be submitted by December 31, 2011.

# 1.1 Site History

Gasoline range petroleum hydrocarbons associated with underground storage tank (UST) systems have been documented in soil and groundwater at 187 North L Street, Livermore, CA (sees Figures 1 and 2 for vicinity and site maps).

The work performed to date is summarized below\*:

- 1972 Three 1,500 gallon gasoline USTs removed.
- 1984 A single 1,000 gallon gasoline UST installed.
- 1986 Two gasoline USTs removed (4,000 & 6,000 gallon).
- June 1985 Pitcock Petroleum dispenses ~600 gallons into a vapor monitoring well adjacent to the 1,000 gasoline UST (Pitcock Release).
- September 1988 Three monitoring wells installed (W-1, W-2 and W-3).
- March 1989 Five soil borings advanced (B-1 through B-5).
- May 1989 Three monitoring wells installed (W-1, W-2 and W-3).
- July 1990 Five monitoring wells installed (W-A through W-E), three soil borings advanced (B-7, B-8 and B-1A), and a soil gas survey was completed.
- March 1991 A single soil boring advanced (B-F).
- January 1992 UST pipeline soil excavation and sampling, two soil borings advanced (B-G and B-H).
- March 1994 Dual Phase Extraction pilot test performed.
- March 1996 Four monitoring wells installed (W-1s, W-Bs, W-3s and W-Es).
- 1998- Soil gas survey.
- November 2005 Soil gas survey.
- October 2006 five continuous tubing multi-Chambered wells installed (the MW-4/104/204/304/404 through MW-8/108/208/308 series).
- October 2006 Dual Phase Extraction pilot test performed.
- August 2007 Final Corrective Action Plan prepared.
- April 2011 Begin implementation of Corrective Action Plan.
- November 2011 Start-up of Dual Phase Extraction (DPE) system.
- 1988 to present intermittent monitoring/sampling of select monitoring wells.
   \* Data from Woodward Clyde Consultants, GTI, & ACEH documentation.

# 1.2 Site Setting and Geology

The site is in central portion in the City of Livermore, California, which is located in the Livermore Valley. The shallow sediments (<100 feet below grade) investigated in the project are Pleistocene (recent) alluvial fan and flood plain deposits [source: Geologic Map of California, San Jose Sheet, Division of Mines and Geology, 1966 (truncated geologic map copy located in Appendix D)].

The subject property is at an elevation of approximately 480 feet above mean sea level based on an October 16, 2006 survey conducted by Keir & Wright Engineers Surveyors Inc. of Livermore, California. Regionally, the surrounding area slopes to the west [source: USGS, Livermore Quadrangle, 7.5 Minute Series Topographic Map, 1980 photo-revision (truncated topographic map copy located in Appendix D)].

The subjective field observations of various field geologists and associated boring logs documented during this investigation were included in GTI's December 18, 2006 SCM report. The subsurface lithology falls into two predominant categories- gravelly soils and clayey soils. The site exhibits little correlation between boreholes and this situation is exacerbated by the fact that different geologists logged the boreholes and a five foot sampling interval was utilized in the past. The Site's geology is summarized as consisting primarily of gravelly units from the surface to approximately 35 – 45 feet bgs. Below these depths are 15 to 20 feet of clayey units that seem to retard the vertical migration of contaminants. These fine grained units are underlain by more gravels and a second clay horizon at approximately 78 feet bgs. Silts and sand units are present in the soil profile but are thin (usually a few inches thick, but much less than 5 feet thick) and less frequent than the soils noted above.

#### 2.0 GROUNDWATER MONITORING

### 2.1 Groundwater Elevation and Flow Direction

The average groundwater elevation in the site's shallow water table wells was 445.26 feet above mean sea level (msl) on October 25<sup>th</sup>, 2011. This corresponds to 35.41 feet below grade surface (bgs) and represents a decrease of 8.11 feet since the April 2011 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 2011. Refer to Figures 1 through 3 for site details, well and borehole locations.

GTI grouped the five CMT<sup>TM</sup> 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, W-1, W-3, MW-104, MW-205, MW-206, MW-207, MW-208.

#### Notes:

- Wells W-B, -C, -D, and -E were abandoned on April 14, 2008. W-1 and W-3 are considered intermediate and are monitored; however they are not utilized for groundwater gradient measurements.
- Monitoring well W-2 cannot be located following the construction of the housing complex to the south and southeast of the site.

# <u>Deep Wells</u> (screened ~ 65 feet bgs):

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

# <u>Deepest Wells</u> (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 25th and 26th, 2011 monitoring event are as follows:

Aquifer Zone:	Gradient:	Bearing:
Water table	0.0129	S68°W
Intermediate	0.025	N52°W
Deep	0.0114	N64°W

Figures 5A illustrates the shallow aquifer groundwater gradient map for the October 25<sup>th</sup> and 26<sup>th</sup>, 2011 monitoring event. Figure 5B and 5C illustrate the intermediate and deep aquifer gradient maps, respectively.

#### Vertical Groundwater Gradients:

GTI calculated vertical gradients for well pairs MW-204/304, MW-205/305, and MW-206/306 for the October 25<sup>th</sup> and 26<sup>th</sup>, 2011 monitoring event. The vertical gradient for well pair MW-207/307 was not calculated during this event since MW-307 was not monitored during the 4<sup>th</sup> Quarter of 2011.

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

- O 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.
- o 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<sup>TM</sup> 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 25<sup>th</sup> and 26<sup>th</sup>, 2011 event:

- The vertical gradient for the MW-204/304 pair was negative (or downward) at -0.01 ft/ft.
- o The vertical gradient for the MW-205/305 pair was positive (or upward) at 0.10 ft/ft.
- o The vertical gradient for the MW-206/306 pair was positive (or upward) at 0.13 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.

# 2.2 Groundwater Sampling Procedure

On October 25<sup>th</sup> and 26<sup>th</sup>, 2011, Geological Technics Inc. (GTI) staff mobilized to the site to conduct depth-to-water measurements and purging & 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 CMT<sup>TM</sup> wells were purged of at least three well volumes of stagnant water by hand. The non-CMT<sup>TM</sup> 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<sup>™</sup> wells did not contain enough water to purge and collect samples. Samples were not collected from the following wells: MW-4, MW-5, MW-6, MW-7, MW-8, MW-105 and MW-108.

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 ensure 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.

# 2.3 Laboratory Analyses

The groundwater samples collected on October 25<sup>th</sup> and 26<sup>th</sup>, 2011, were delivered to BC Laboratories of Bakersfield, California (certification #1186) for analyses.

The groundwater samples were analyzed for:

- Benzene, Toluene, Ethyl Benzene and Xylene (BTEX) by EPA method 8021B
- Total Petroleum Hydrocarbons as Gasoline (TPH-G) by EPA method 8015M

Note: The samples were not analyzed for MTBE for the 4<sup>th</sup> Quarter, 2011 monitoring event per an email directive from Jerry Wickham of Alameda County Environmental Health dated October 6<sup>th</sup>, 2011.

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 2011 was submitted to GeoTracker on December 27, 2011 – confirmation number 1240370988. Laboratory data was submitted to GeoTracker on December 27, 2011 – confirmation number 6582917213.

### 3.0 FINDINGS AND DISCUSSION

#### 3.1 Field Parameters

For the October 25<sup>th</sup> and 26<sup>th</sup>, 2011 event:

- Dissolved Oxygen (DO) ranged from 0.15 (W-A) to 0.52 (W-3s).
- Electrical Conductivity (EC) ranged from 722 (W-Bs) to 1073 (W-1), which is above historical ranges.
- Oxygen Reduction Potential (ORP) ranged from -121.5 (W-1s) to -57.6 (W-3s).
- pH ranged from 6.45 (W-1) to 6.70 (W-A).
- Temperature ranged from 17.6 °C (W-Bs) to 18.1 °C (W-1s).

Field parameters were collected while purging all monitoring wells except the five CMT<sup>TM</sup> wells. The field parameter results are shown in Table 5 of Appendix A.

# 3.2 Laboratory Analytical Data

For the October 25th and 26th, 2011 event:

# **Shallow Aquifer:**

- CMT<sup>TM</sup> monitoring well MW-107 reported the highest concentrations of TPH-g (16,000 μg/l) and benzene (6,400 μg/l) in the shallow aquifer. Contaminant concentrations in MW-107 appear to be increasing over time; however concentrations decreased since the April 2011 event.
- The shallow aquifer TPH-g plume appears to be moving down-gradient, as suggested by the movement of the core of the plume, from being centered around W-1s and CMT<sup>TM</sup> -4 during the April 2007 monitoring event to centered around CMT<sup>TM</sup> -7, which is about 40 feet down-gradient. However, down-gradient well W-3s reported contaminant concentrations within the lower end of historical ranges, suggesting the boundary of the plume is not increasing. However, the data is incomplete and further groundwater monitoring events will allow for a better evaluation of seasonal fluctuations. The shallow aquifer TPH-g plume is shown in Figure 6.
- Well W-1s contained: 12,000 μg/l TPH-g, 2,900 μg/l benzene, 280 μg/l toluene, 520 μg/l ethyl benzene, and 530 μg/l xylene.
- Well W-Bs contained: 4,900  $\mu$ g/l TPH-g, 250  $\mu$ g/l benzene, 23.0  $\mu$ g/l toluene, 230  $\mu$ g/l ethyl benzene, and 38  $\mu$ g/l xylene.
- Well W-3s contained: 190 μg/l TPH-g, 5.2 μg/l benzene, 0.76 μg/l toluene, 1.3 μg/l ethyl benzene and 2.1 μg/l xylene.
- CMT<sup>TM</sup> Well MW-106 contained 190 μg/l TPH-g and 1.7 μg/l benzene. MW-106 was non-detect below laboratory reporting limits for toluene, ethyl benzene and xylene.
- CMT<sup>TM</sup> Well MW-107 contained 16,000 μg/l TPH-g, 6,400 μg/l benzene, 28.0 μg/l toluene, 140 μg/l ethyl benzene and 200 μg/l xylene.

- CMT<sup>TM</sup> wells MW-4, MW-5, MW-6, MW-7, MW-8, MW-105 and MW-108 could not be sampled due to a lack of water in the well casing.
- Figure 6 contains a contour map indicating GTI's interpretation of the shallow TPH-g plume in October 2011. The groundwater plume is localized in the down gradient vicinity of the former USTs/piping trenches and appears to be centered on CMT<sup>TM</sup> cluster 7 (MW-107), which reported a TPH-g concentration of 16,000 μg/l during the October 2011 event.

# **Intermediate Aquifer:**

- Monitoring well W-1 reported the highest concentrations of TPH-g (76,000 μg/l) and benzene (15,000 μg/l) in the intermediate aquifer. Contaminant concentrations in W-1 appear to be on an overall decreasing trend and are within historical ranges for the October 2011 monitoring event. However, both TPH-g and benzene concentrations increased from the April 2011 event.
- The intermediate aquifer TPH-g plume appears to be stationary, as suggested by the fluctuation of the core of the plume between W-1, W-A, MW-104 and MW-205, with contaminant concentrations increasing and decreasing. In addition, down-gradient well W-3 reported the lowest contaminant concentrations to date during the April 2011 event, suggesting the boundary of the plume is not increasing. W-3 was not sampled during the October 2011 event due to the lack of an access agreement. However, the data is incomplete and further groundwater monitoring events will allow for a better evaluation of seasonal fluctuations. The intermediate aquifer TPH-g plume is shown in Figure 7.
- Well W-A contained: 18,000  $\mu$ g/l TPH-g, 3,500  $\mu$ g/l benzene, 410  $\mu$ g/l toluene, 970  $\mu$ g/l ethyl benzene, and 870  $\mu$ g/l xylene.
- Well W-1 contained:  $76,000 \mu g/l$  TPH-g,  $15,000 \mu g/l$  benzene,  $6,100 \mu g/l$  toluene,  $910 \mu g/l$  ethyl benzene, and  $11,000 \mu g/l$  xylene.
- CMT<sup>TM</sup> Well MW-104 contained: 25,000 μg/l TPH-g, 8,400 μg/l benzene, 120 μg/l toluene, 490 μg/l ethyl benzene, and 740 μg/l xylene.
- CMT<sup>TM</sup> Well MW-205 contained: 26,000  $\mu$ g/l TPH-g, 11,000  $\mu$ g/l benzene, 130  $\mu$ g/l toluene, 240  $\mu$ g/l ethyl benzene, and 300  $\mu$ g/l xylene.
- CMT<sup>TM</sup> Well MW-206 contained 160  $\mu$ g/l TPH-g and 5.7  $\mu$ g/l benzene, 0.4  $\mu$ g/l toluene, 0.25  $\mu$ g/l ethyl benzene. MW-206 was non-detect below laboratory reporting limits for total xylenes.
- CMT<sup>TM</sup> Well MW-207 contained 18,000  $\mu$ g/l TPH-g, 7,600  $\mu$ g/l benzene, 38  $\mu$ g/l toluene, 160  $\mu$ g/l ethyl benzene, and 280  $\mu$ g/l xylene.
- CMT<sup>TM</sup> Well MW-208 contained: 7,400 μg/l TPH-g, 1,600 μg/l benzene, 97 μg/l toluene, 60 μg/l ethyl benzene, and 210 μg/l xylene.
- Figure 7 contains a contour map indicating GTI's interpretation of the intermediate TPH-g plume in October 2011. The groundwater plume is localized in the vicinity of the former USTs/piping trenches and appears to be centered on monitoring well W-1, which reported a TPH-g concentration of 76,000 μg/l during the October 2011 event.

# Deep Aquifer:

- CMT<sup>TM</sup> monitoring well MW-204 reported the highest concentrations of TPH-g (7,400 μg/l) and benzene (1,900 μg/l) in the deep aquifer. Contaminant concentrations in MW-204 appear to be fluctuating and have increased since the April 2011 monitoring event.
- Concentrations reported in the deep wells during the October 2011 event suggest the deep groundwater plume is stationary or moving down gradient slowly. However, the data is incomplete and further groundwater monitoring events will allow for a better evaluation of seasonal fluctuations. Previously, the deep aquifer TPH-g plume has appeared to be moving down-gradient, as suggested by the movement of the core of the plume from centered around CMT<sup>TM</sup> well MW-204 during the April 2007 monitoring event to split cores centered around MW-204 and further down-gradient (50 feet) MW-308 in April 2011. Until the October 2011 event, MW-308 had been reporting increasing contaminant concentrations, suggesting the boundary of the plume appears to be increasing.
- CMT<sup>TM</sup> Well MW-204 contained: 7,400 μg/l TPH-g, 1,900 μg/l benzene, 38 μg/l toluene, 250 μg/l ethyl benzene, and 400 μg/l xylene.
- CMT<sup>TM</sup> Well MW-305 contained: 1,300 μg/l TPH-g, 280 μg/l benzene, 37 μg/l toluene, 20 μg/l ethyl benzene, and 49 μg/l xylene.
- CMT<sup>TM</sup> Well MW-306 contained: 75 μg/l TPH-g, 0.5 μg/l benzene and was non-detect below laboratory reporting limits for toluene, ethyl benzene and xylene.
- CMT<sup>TM</sup> Well MW-307 was not sampled during the 4<sup>th</sup> quarter of 2011.
- CMT<sup>TM</sup> Well MW-308 contained: 2,900 μg/l TPH-g, 610 μg/l benzene, 9.2 μg/l toluene, 73 μg/l ethyl benzene, and 53 μg/l xylene.
- Figure 8 contains a contour map indicating GTI's interpretation of the deep TPH-g plume in October 2011. The groundwater plume is localized in the vicinity of the former USTs/piping trenches and appears to be centered around CMT<sup>TM</sup> -4, which reported a TPH-g concentration of 7,400 μg/l, respectively, during the October 2011 event. The plume appears to attenuate around MW-306 (75 μg/l) to the northeast.

# Deepest Aquifer

- CMT<sup>TM</sup> Well MW-304 contained: 6,500 μg/l TPH-g, 1,600 μg/l benzene, 45 μg/l toluene, 190 μg/l ethyl benzene, and 350 μg/l xylene.
- CMT<sup>TM</sup> Well MW-404 contained: 1,500 μg/l TPH-g, 400 μg/l benzene, 9.1 μg/l toluene, 46 μg/l ethyl benzene, and 65 μg/l xylene.

#### **Figures**

• Figure 9 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 1995, 1997 and 2001 the contaminant concentrations exhibit a fairly stable trend. The three peaks evident correspond with low stands of groundwater and suggest that significant

- contaminant mass is present although decades have past since the original USTs were removed. The October 2011 monitoring event represents the lowest concentrations of TPH-g in this well since April of 1998.
- Figure 10 illustrates TPH-g concentration versus time in well W-3s (located down/cross gradient of the core of the plume). The contaminant concentrations show an overall declining trend, despite several elevated spikes in concentrations in 1996, 1997, 1998 and 2003. These events of elevated concentration do not show a correlation with low groundwater elevations, as was observed in W-1s.
- Figure 11 illustrates TPH-g concentration versus time in well W-Bs (located down gradient of the core of the plume). The contaminant concentrations showed a rapid declining trend from 1995 2003 but appear to be fairly stabilized since.

### 4.0 CONCLUSIONS & RECOMMENDATIONS

### Conclusions

- 1. The dominant groundwater flow direction is to the southwest, with the average flow bearing being S68°W at a slope of 0.0129 ft/ft.
- 2. For the October 2011 event, the average groundwater elevation and depth is 445.26 feet below mean sea level and 35.41 feet below ground surface, respectively.
- 3. Elevated concentrations of BTEX and TPH-g are present in a laterally limited (probably less than 150 foot radius) groundwater plume that is centered between the vicinity CMT<sup>TM</sup> Cluster 7 and wells W-1/W-1s. The plume appears to attenuate to the northeast at CMT<sup>TM</sup> Cluster 6, to the northwest at W-3s and W-3 and unknown to the north and south.
- 4. The highest level of benzene detected, 15,000 μg/l, was present in intermediate depth well W-1.
- 5. The highest level of TPH-g detected, 76,000 μg/l, was present in intermediate depth well W-1.
- 6. 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.
- 7. Overall the contaminant concentrations at the site are following a decreasing trend, as shown in Figures 9, 10 and 11. It appears that there is a direct relationship between groundwater elevation and contaminant concentrations. It is hypothesized that groundwater levels during the October 2011 groundwater monitoring event may be related to low concentrations reported in some wells. Continued sampling will allow for further evaluation of this relationship.

### Recommendations

- 1. Continue groundwater monitoring as directed by Alemeda County Environmental Health in their most recent email dated October 6, 2011.
- 2. Continue implementation of the Corrective Action Plan (CAP) and operating the Dual Phase Extraction (DPE) system, as the initial months of operation have been effective at

treating the sites groundwater and soil contamination. A report detailing the installation and start-up of the DPE system will be submitted by December 31, 2011.

### 5.0 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.

# 6.0 SIGNATURES & CERTIFICATION

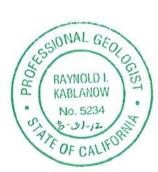
This report was prepared by:

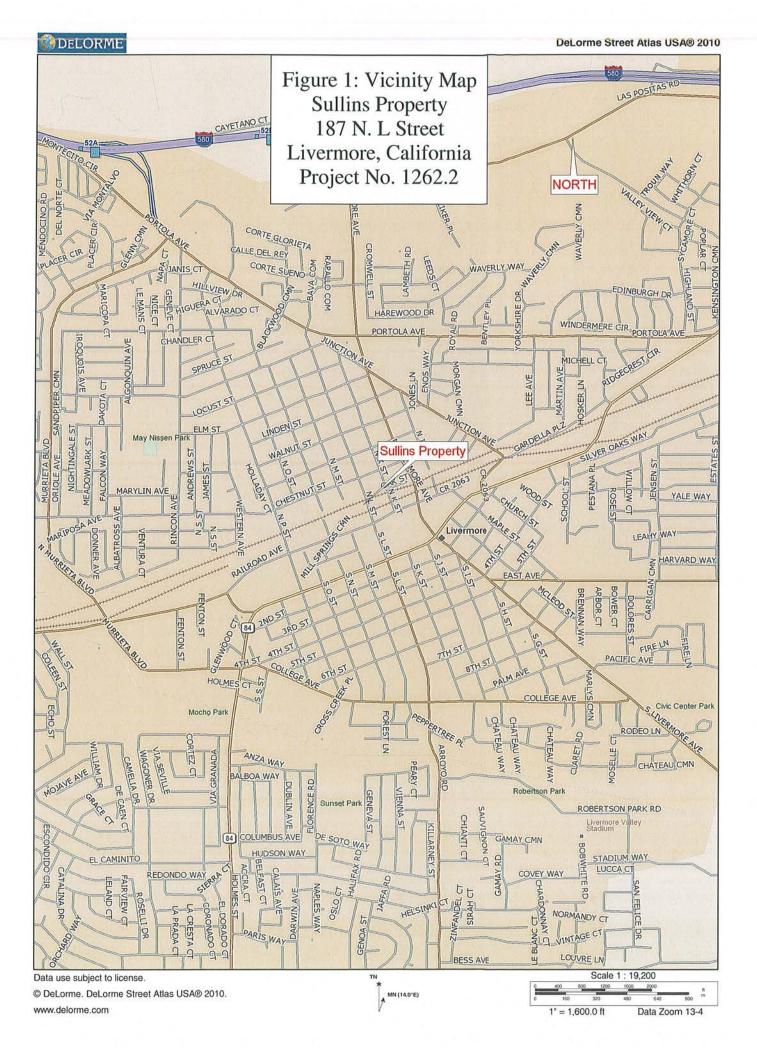
Andrew Dorn, B.Sc. Geology

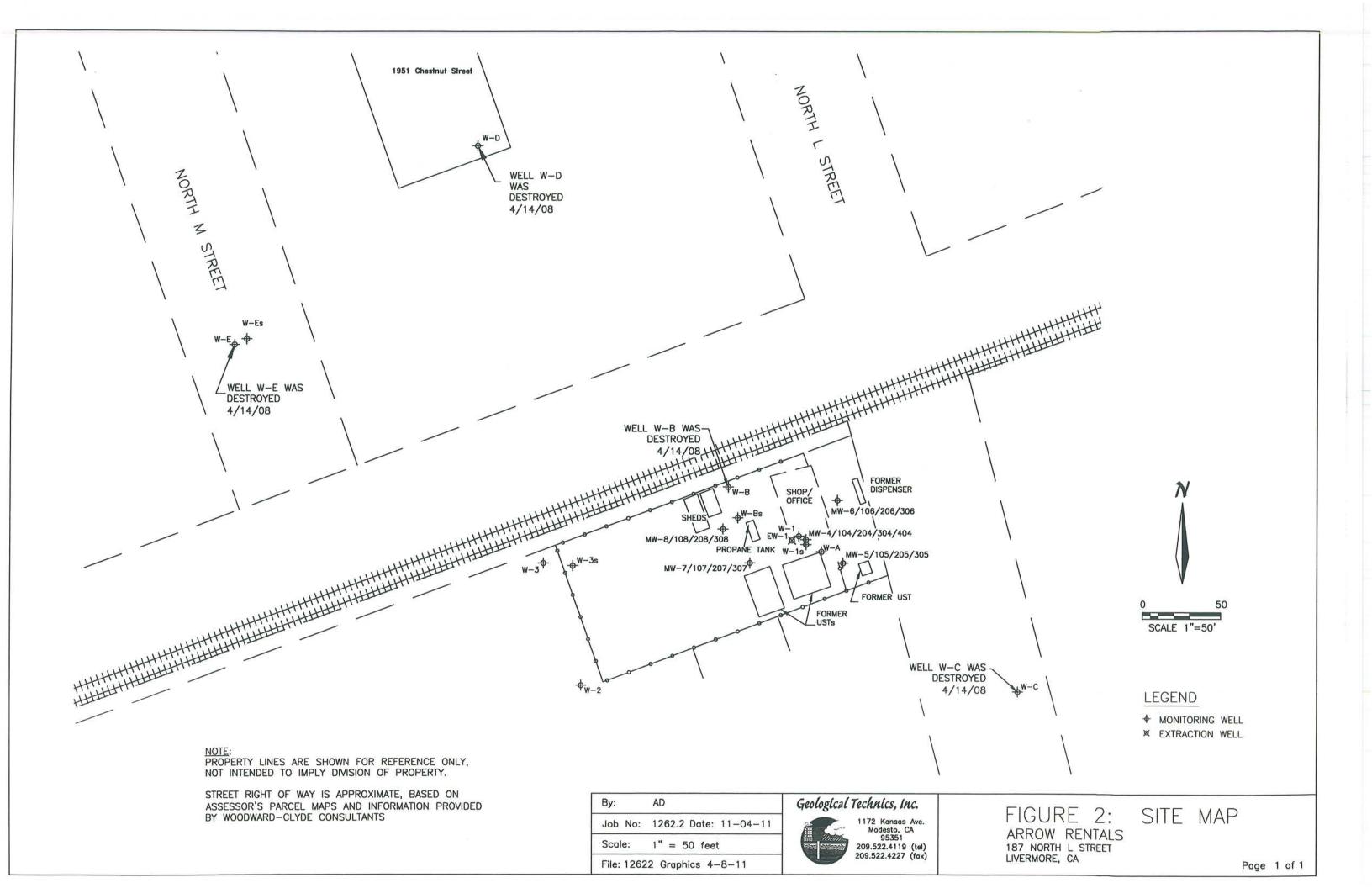
This report was prepared under the direction of:

Raynold I. Kablanow II, PhD

PG, CHG, REAII







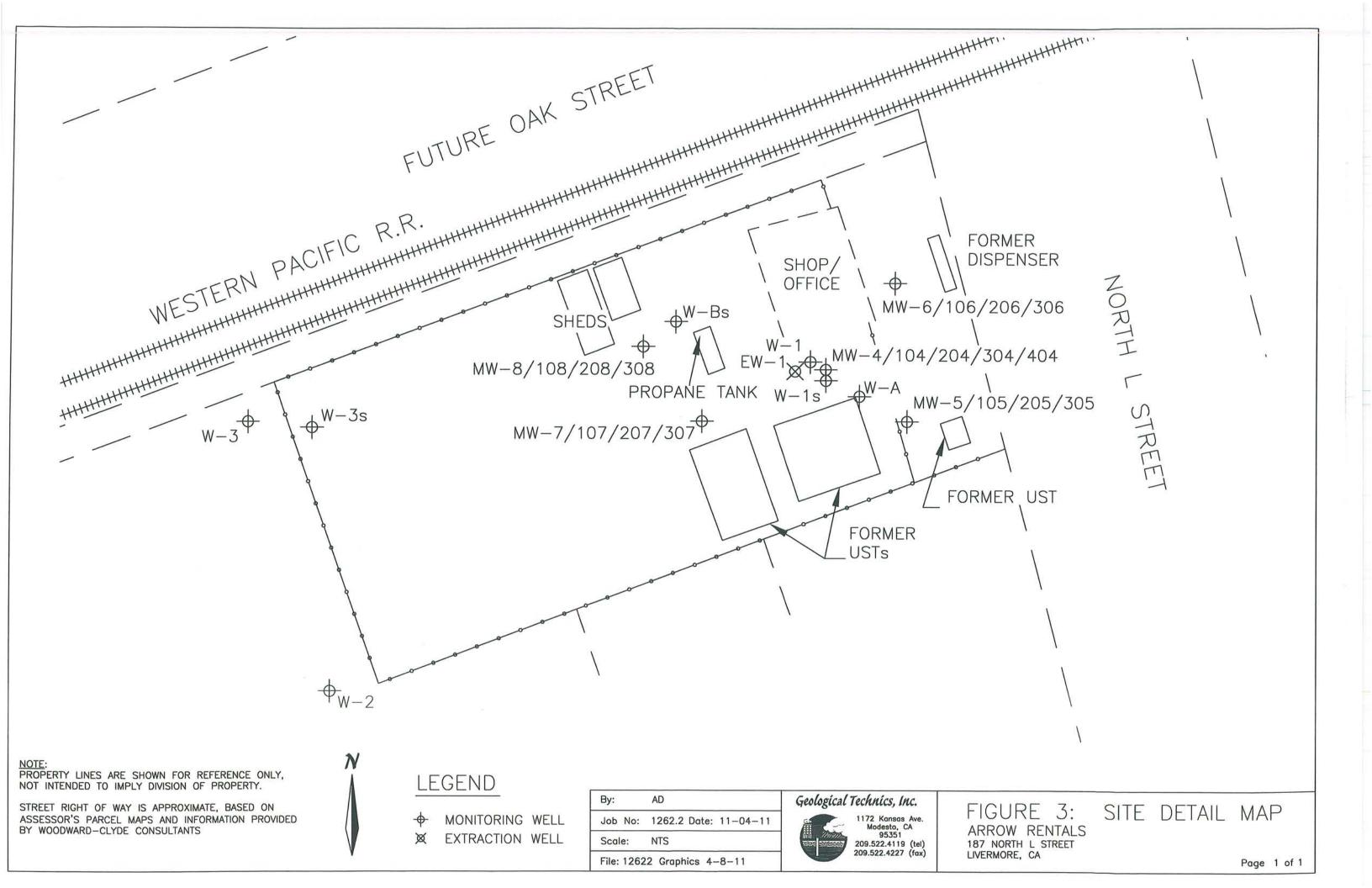
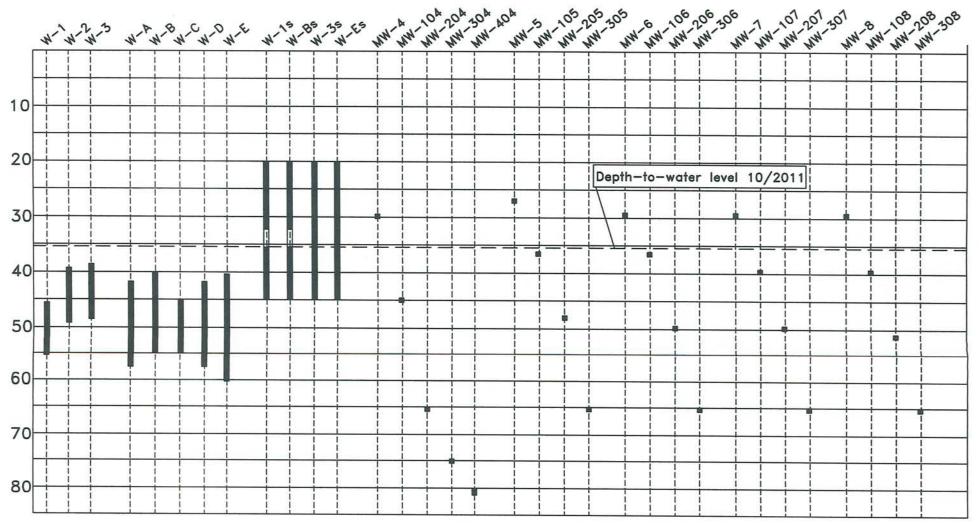
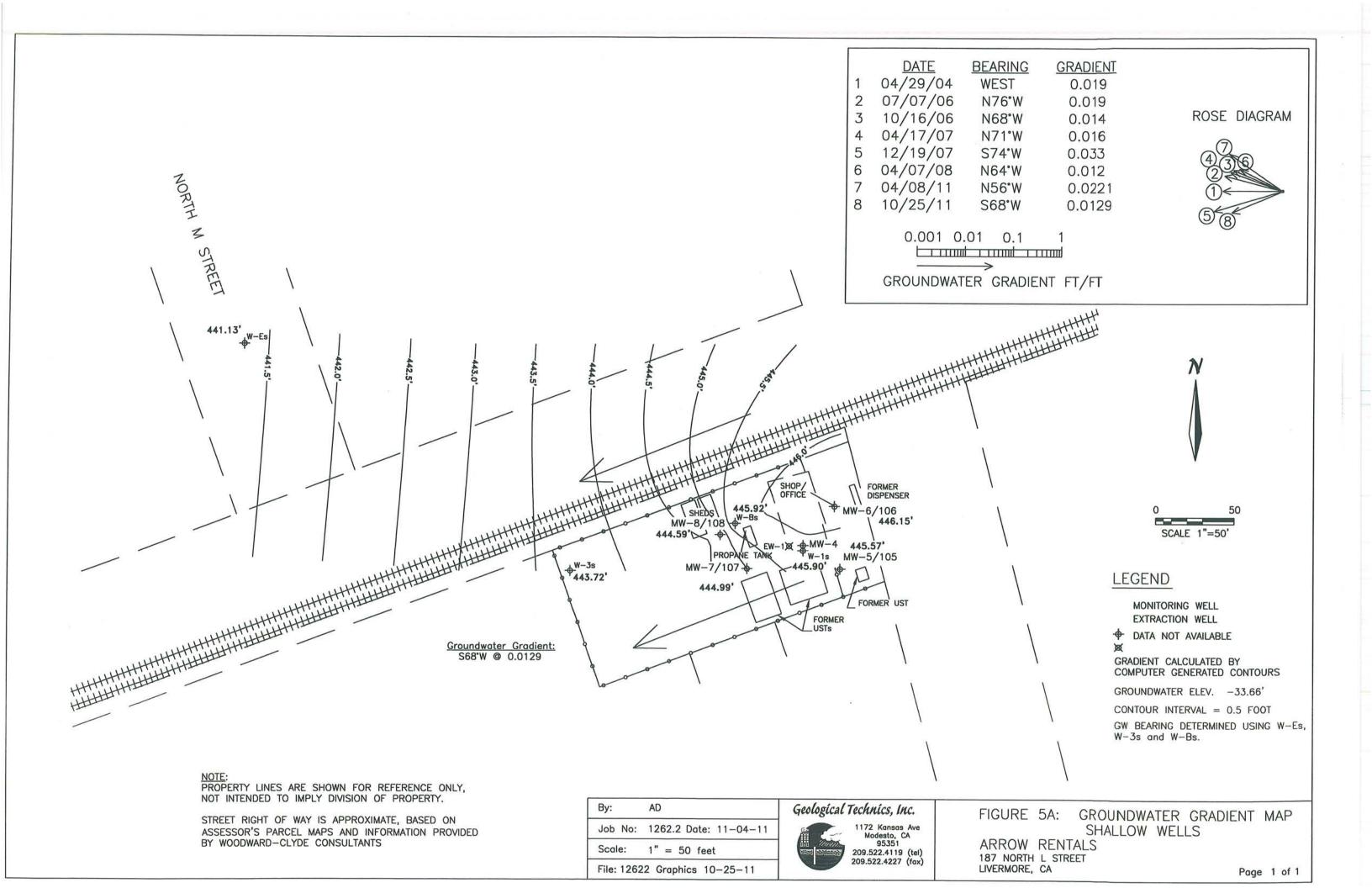
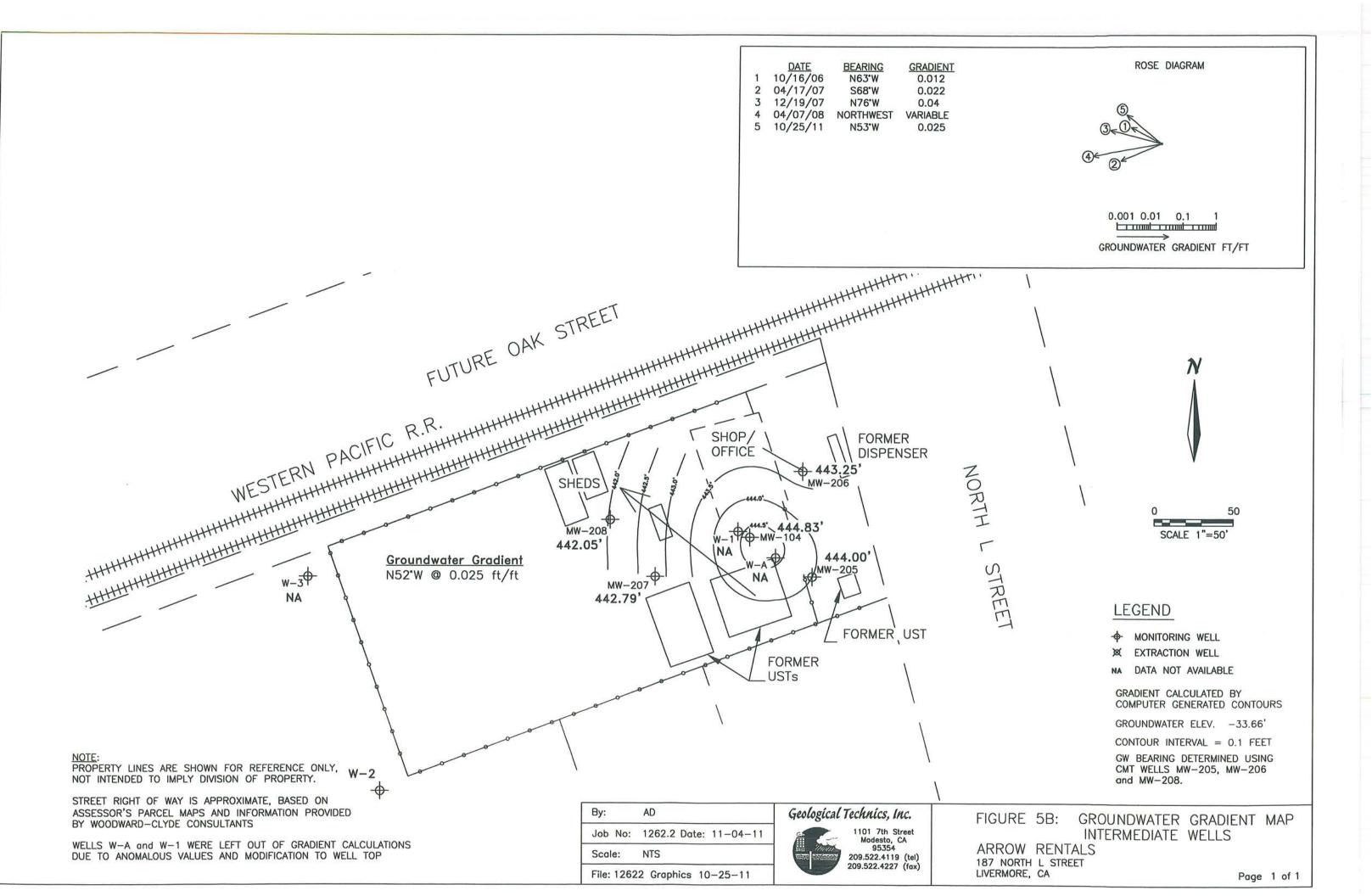


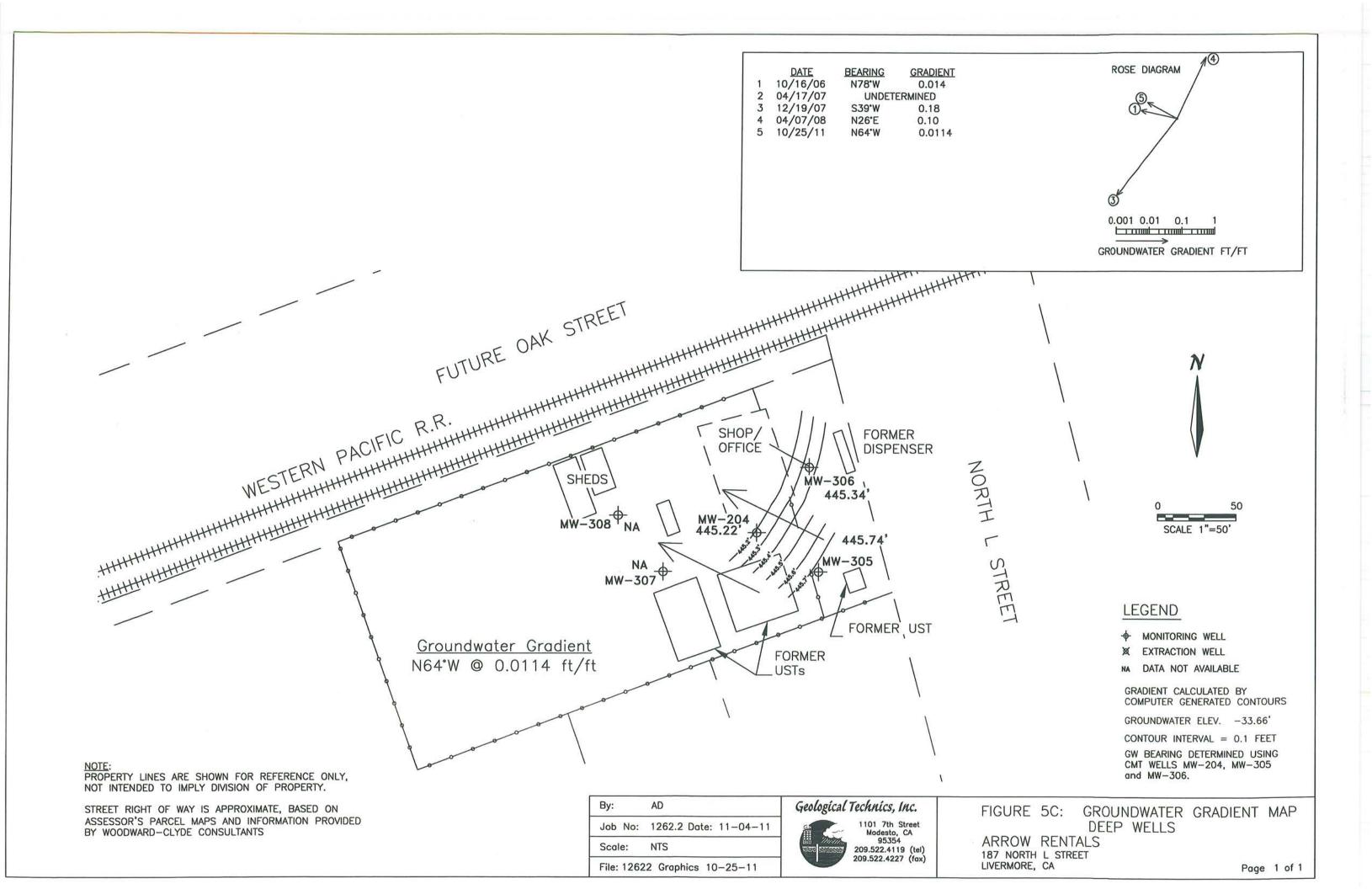
Figure 4: Well Screened Interval Diagram

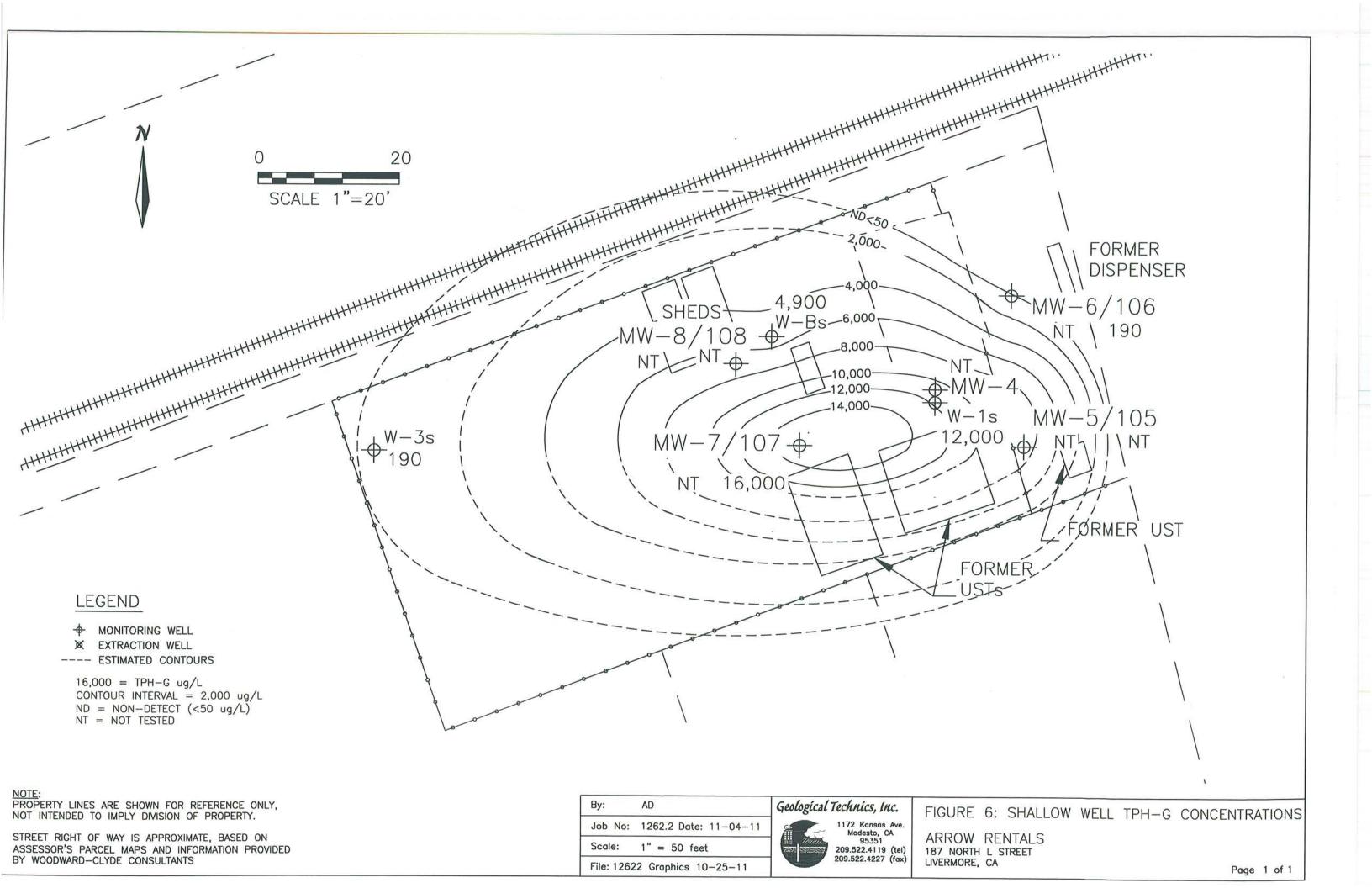


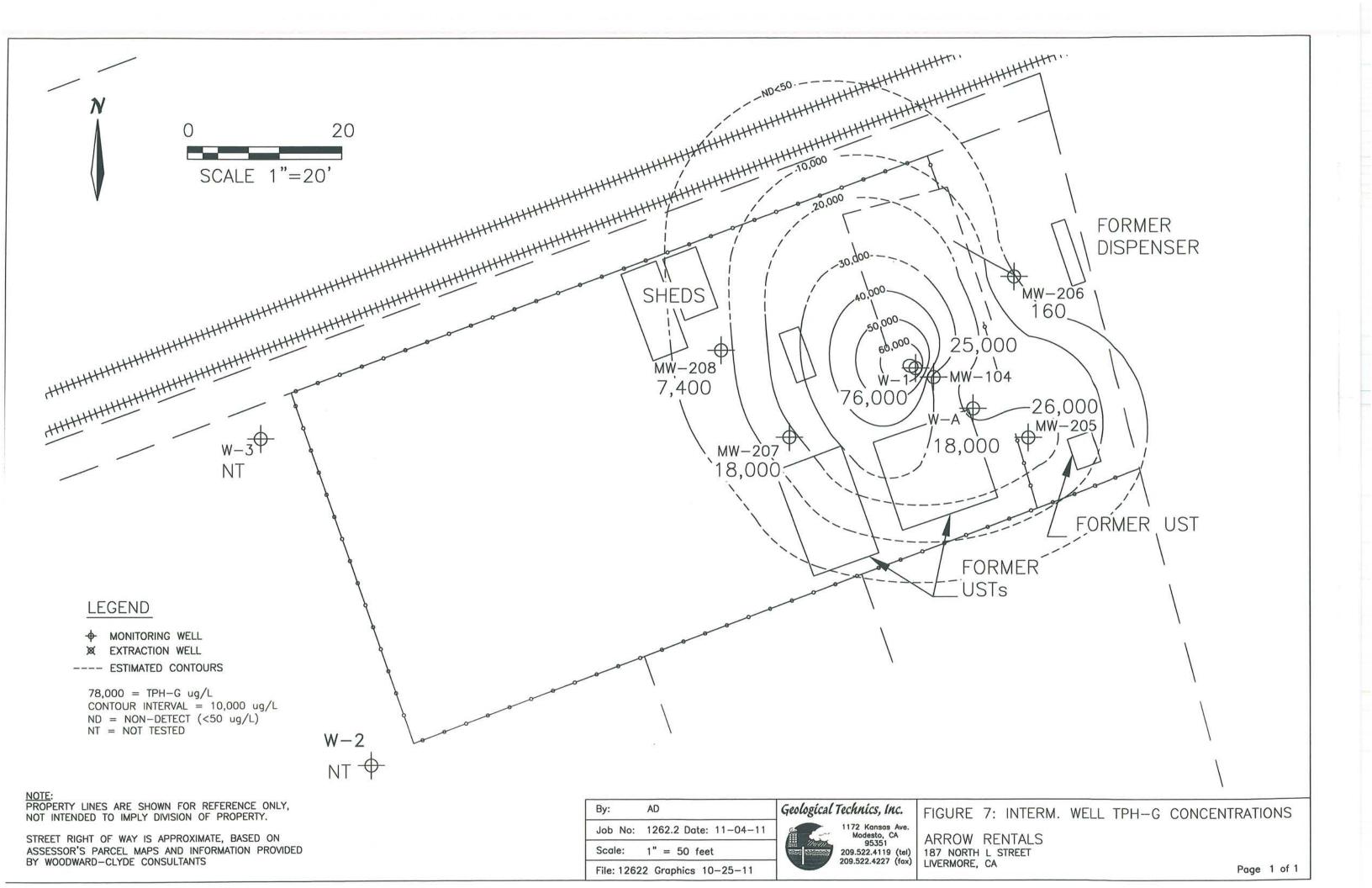
Sullins 187 North L Street Livermore, CA

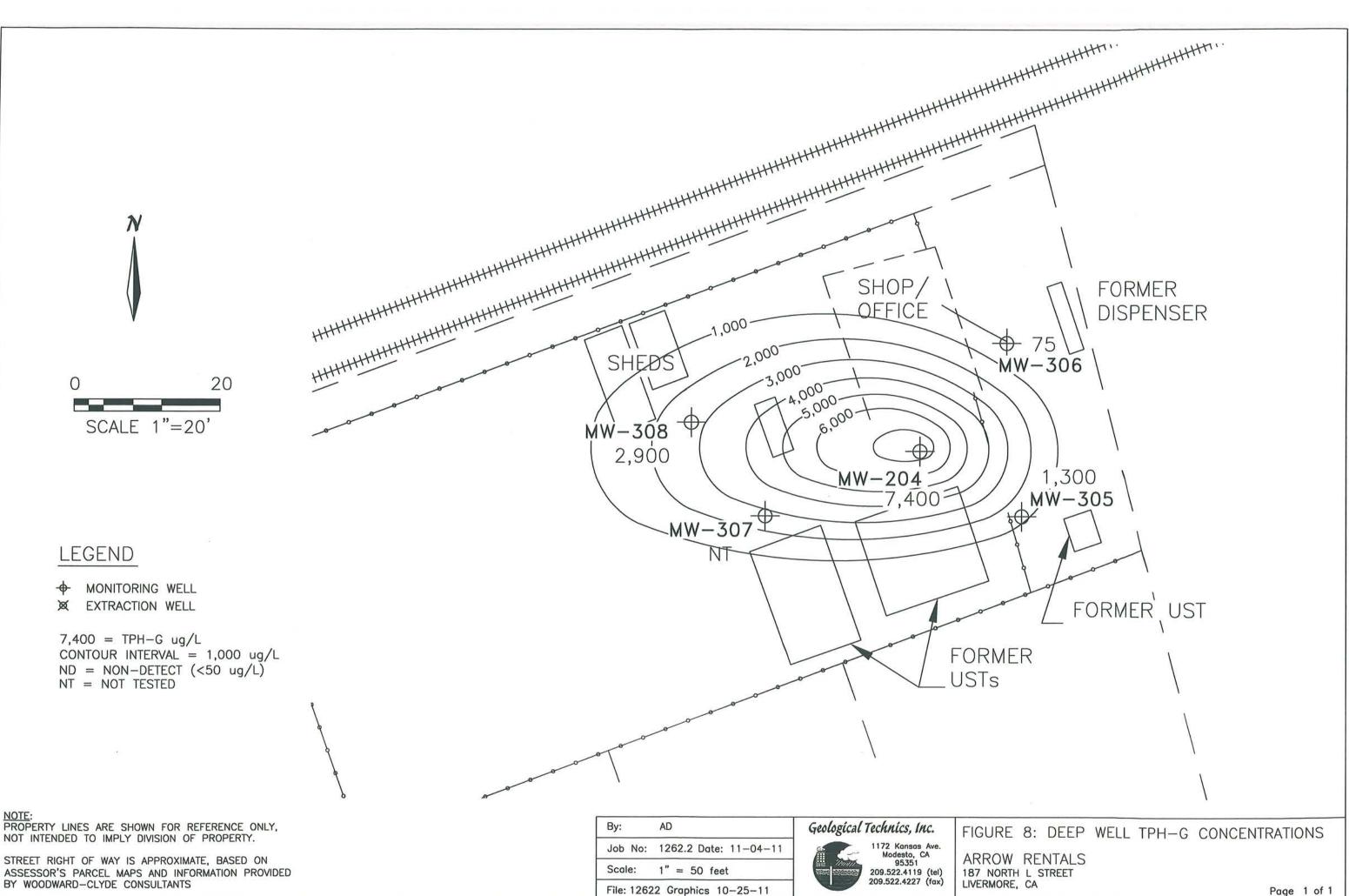












Page 1 of 1

Figure 9: Sullins 187 N.L Street Livermore, CA

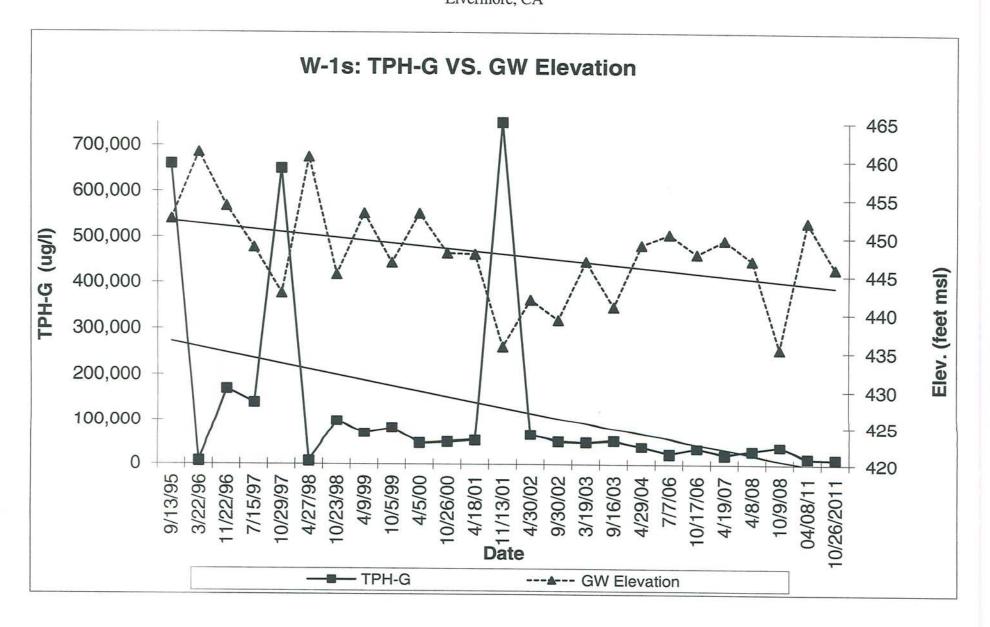


Figure 10: Sullins 187 N.L Street

Livermore, CA

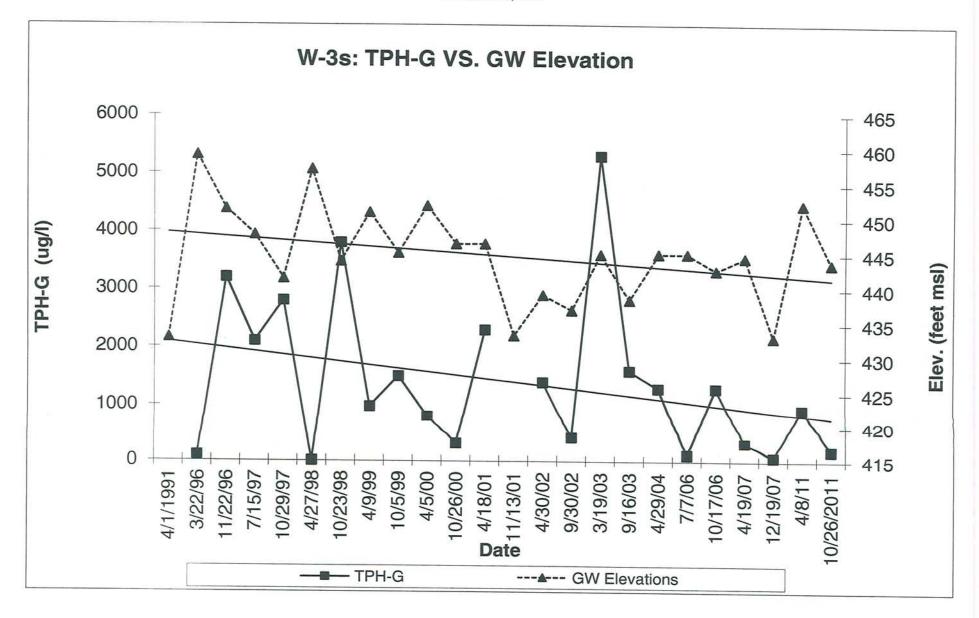
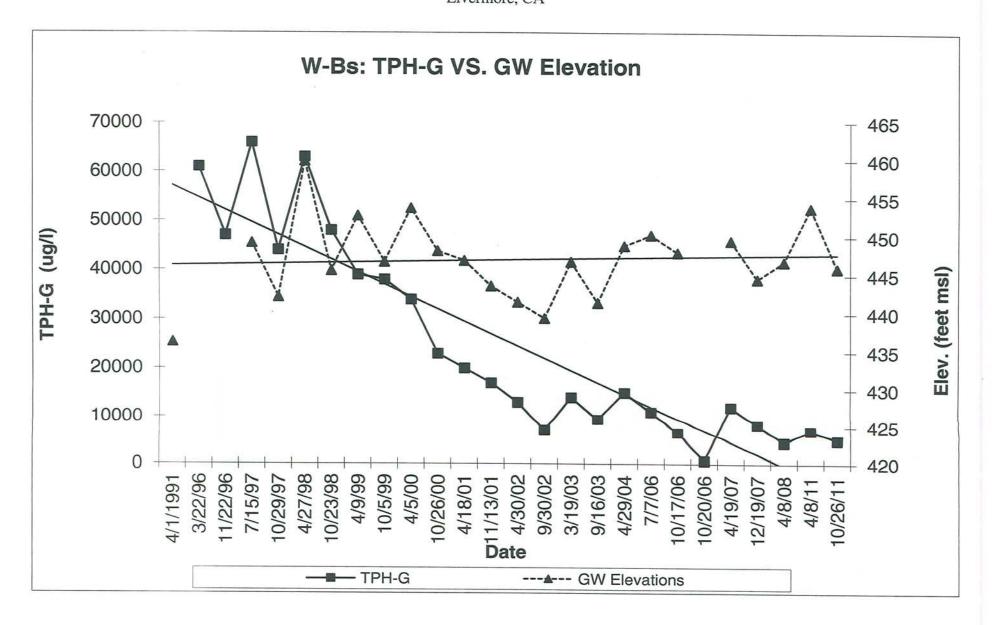


Figure 11: Sullins 187 N.L Street Livermore, CA



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.	Avg. DTW	Gradient	Bearin
0-3		W-1s	DTW-W-1s	W-3s	DTW-W-3s	W-Bs	DTW-W-Es	W-Es	DTW-W-Es											(feet)	(feet)	(ft/ft)	
	top of casing	479.09		476.98		478.82		474.66									S			1			
	top of screen	459.09	20	456.98	20	458.82	20	454.66	20													E	
	bottom of screen	434.09	45	431.98	45	433.82	45	429.66	45					L									
6/2/1989		435.93		432,48		-														434.21	43.83		
7/25/1990		3.5		-		434.20		431.58												432.89	43.85		
1/1/1992															T. U						41.00		
4/24/1996		461.14		459.28		460.77		456.21												459.35	18.04		
11/22/1996		454.09		451.53		453.12		446.66												451.35	26.04		
7/15/1997		448.68		447.81		449.20		443.20												447.22	30.17		
10/29/1997		442.64	36.45	441.53		442.19		437.98							S					 441.09	36.30		
4/27/1998		460.48	18.61	457.25		459.96		455.39								- 1				458.27	19.12		
10/23/1998		445.11	33.98	444.01		445.60		440.16												443.72	33.67		
4/9/1999		453.14	25.95	451.02		452.78		447.25						J						451.05	26.34		
10/5/1999		446.66	32,43	445.20		446.72		441.47												445.01	32.38		
4/5/2000		453.12	25.97	451.96		453.77		448.04						J						451.72	25.67		140
10/26/2000		447.91	31.18	446.50		448.14		442.43												446.25	31.14		
4/18/2001		447.80	31.29	446.51		446.89		442.63												445.96	31.43		
11/13/2001		435.69	43.40	433.32		443.59		431.05												435.91	41.48		
2/15/2002		442.46			1,45	t e	1.5													442.46	34.93		
3/15/2002		441.32		- 17	0.00						- Ki									441.32	36.07		
4/16/2002		441.79						695			i c		( )							441.79	35.60		
4/30/2002		441.80	37.29	439.19		441.50		437.09												439.90	37.49		
9/30/2002		439.17	39.92	437.01		439.39		434.50												437.52	39.87		
3/19/2003		446.83	32.26	445.03		446.74		441.80												445.10	32.29		
9/16/2003		440.88		438.50		441.40		436.14												439.23	38.16		
4/29/2004		448.99	30.10	447.39	29.59	448.83	29.99	443.43	31.23											447.16	30.23	0.019	West
7/7/2006		450,40	28.69	448.61	28.37	450.25	28.57	444.21	30.45											448,37	29.02	0.019	N76°V

Date				15								Elevation of	Groundwater -	Wells Survey	yed October 1	6, 2006 in acc	rdance with S'	WRCB Geotr	acker Require	ements											
		W-1s	DTW-W-Is	W-3s	DTW-W-3a	W-Bs	DTW-W-Es	W-Es	DTW-W-Es	MW-4	DTW-MW-4	MW-5	DTW-MW-5	MW-6	DTW-MW-6	MW-7	DTW-MW-7	MW-8	DTW-MW-8	MW-105	DTW-MW-105	MW-106	DTW-MW-106	MW-107	DTW-MW-107	MW-108	MW-108	Avg. Elv.	Avg. DTW	Gradient	Bearing
	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		(feet)	(feet)	(ft/ft)	
	top of screen	461.19	20	459.12	20	460.92	20	456.78	20	451.84	29	455.12	26	451.79	29	451.91	29	451.64	29	445.12	36	444.79	36	441.91	39	441.64	39				
	bottom of screen	436.19	45	434.12	45	435.92	45	431.78	45	450.84	30	454.12	27	450.79	30	450.91	30	450.64	30	444.12	37	443.79	37	440.91	40	440.64	40				
10/16/2006		447.81	33.38	446.17	32.95	447.93	32.99	442.75	34.03										-	447.97	33.15	447.11	33.68	446.77	34.14	446.34	34.30	446.61	33.58	0.014	N68°W
4/17/2007		449.64	31.55	448.35	30.77	449.51	31.41	444.58	32.20	454.09	26.75				2								[+]	448.92	31.99			448.20	31.58	0.016	N71°W
12/19/2007		438.88	42.31	437.46	41.66	444.51	36.41	433.10	43.68	- 4	-	-	P					29		021	720	443.07	37.72	442.26	38.65	442.60	38.04	440.27	39.78	0.033	S74°W
4/7/2008		446.97	34.22	125	-	446.76	34.16	442.34	34.44	453.30	27.54	( a )	* /	445.99	34.80	- 2	20	452.15	28.49	447.38	33.74	445.18	35.61	445.86	35.05	446.36	34.28	447.23	33.23	0.012	N64°W
10/8-9/2008		435.40	43.69	38		-	-	431.01	43.65	-	-				-	- 2	¥3	2,		431.68	49.44	431.31	49.48		-	430.56	50.08	431.99	47.27	0.010	N57°W
4/8/2011		452.00	27.09	452.20	26.92	453.81	27.11	446.59	28.07	12		2	-			F.	æ(						-				11.	451.15	27.30	0.0221	N56°W
10/26/2011		445.90	35.29	443.72	35.40	445.92	35.00	441.13	35.65	~	14	*	-		*	*				445.57	35.55	446.15	34.64	444.99	35.92	444.59	36.05	445.26	35.41	0.0129	S68°W

445.90 35.29 445.72 35.40 445.92 35.29 445.72 35.40 445.92 35.29 445.92 35.40 445.92 445.92 35.40 445.92 35.4

#### 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 Surve	yed Octpber 1	6, 2006 in acc	ordance with S	WRCB Geotr	acker Require	ements									
		W-1	DIW-W-I	W-A	DIM-W-V	W-B	DIW-W-B	W-C	DTW-W-C	W-D	DIM-W-D	W-E	D1W-W-E	MW-104	DTW-MW-104	MW-205	DTW-MW-205	MW-206	DTW-MW-206	MW-207	DTW-MW-207	MW-208	DIW-MW-208	Avg. Elv.	Avg. DTW	Gradient	Bearing
	top of casing	480.77		481.04		480.74		481.61		477.03		476.56		480.84		481.12		480.79		480.91		480.64		(feet)	(feet)	(ft/ft)	
	top of screen	435.27	45.5	439.04	42	440.74	40	436.61	45	435.03	42	436.06	40.5	431.34	49.5	434.12	47	431.79	49	431.91	49	429.64	51				
	bottom of screen	425.27	55.5	423.54	57.5	425.74	55	426.61	55	419.53	57.5	416.26	60.3	430.34	50.5	433.12	48	430.79	50	430.91	50	428.64	52				
10/16/2006			- 12	122								442.63	33.93	444.85	35.99	446.75	34.37	447.03	33.76	446.27	34.64	445.12	35.52	445.44	34.70	0.012	N63°W
4/17/2007		-								3.55	38)1						(-)	448.57	32.22	447.13	33.78	447.05	33.59	447.58	33.20	0.022	S68°W
12/19/2007			1.5	438.36	42.68	- 2 -				20	127			435.98	44.86	-		436.10	44.69	434.33	46.58	433.92	46.72	435.74	45.11	0.04	N76°W
4/7/2008			1.0	446.72	34.32		*		( ) ( ) ( ) ( ) ( ) ( )	. •		i.e		443.10	37.74	444.84	36.28	446.38	34.41	444.84	36.07	443.66	36.98	444.92	35.97	northwest	variable
10/8-9/2008		- 83	988	(7			•	- 0	Wells Destroye	ed on 4/18/200	18	/		431.08	49.76	434.51	46.61	431.32	49.47	-		430.68	49.96	431.90	48.95	0.12	N20°W
4/8/2011				453.38	27.66				1.5	5-0	- 1	- ×			*		30					-	1	453.38	27.66	N/A	N/A
10/26/2011		445.28	35.49	445.60	35.44	181			9.80	1.21	325	-5		444.83	36.01	444.00	37.12	443.25	37.54	442.79	38.12	442.05	38.59	443.75	37.14	0.025	N52°W

<sup>&</sup>quot;-" = well dry or depth to water measurement could not be obtained
Starting 10/26/11 - Gradient calculated using a 3-point problem with CMT wells 205, 206 & 208

# 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 Surve	yed October 16	, 2006 in acco	rdance with SY	WRCB Geotra	acker Requirer	nents					
						DEEP	WELLS						GROUNI	OWATER			DEEPES	T WELLS	
		MW-204	DTW-MW-204	MW-305	DTW-MW-305	MW-306	DTW-MW-306	MW-307	DTW-MW-307	MW-308	DTW-MW-308	Avg. Elv.	Avg. DTW	Gradient	Bearing	MW-304	DTW-MW-304	MW-404	DTW-MW-404
	top of casing	480.84		481.12		480.79		480.91		480.64		(feet)	(feet)	(ft/ft)		480.84		480.84	
	top of screen	415.34	65.5	416.12	65	415.79	65	415.91	65	415.64	65					406.34	74.5	400.84	80.0
	bottom of screen	414.34	66.5	415.12	66	414.79	66	414.91	66	414.64	66					405.34	75.5	399.34	81.5
10/16/2006		447.09	33.75	447.44	33.68	447.29	33.50	446.63	34.28	446.37	34.27	446.96	33.90	0.014	N78°W	442.76	38.08	444.37	36.47
4/17/2007		5=5	( <b>4</b> )	448.49	32.63	449.08	31.71	-	-		-	448.79	32.17	-	- 1	-	3 30	448.82	32.02
12/19/2007		435.73	45.11	(5)	-	443.19	37.60	435.20	45.71	434.93	45.71	437.26	43.53	0.18	S39°W	435.45	45.39	435.51	45.33
4/7/2008		446.42	34.42	446.56	34.56	442.68	38.11	446.86	34.05	445.59	35.05	445.62	35.24	0.1	N26°E	441.42	39.42	446.18	34.66
10/8-9/2008		429.90	50.94	444.51	36.61	432.28	48.51		-	442.09	38.55	437.20	43.65	(*)		-	(+0)	432.20	48.64
4/8/2011		-			12	2	E	8	12		2	2	2		9)		-	-	74
10/26/2011		445.22	35.62	445.74	35.38	445.34	35.45	*	-	445.55	35.09	445.46	35.39	0.0114	N64°W	445.14	35.70	445.07	35.77

<sup>&</sup>quot;-" = well dry or depth to water measurement could not be obtained

Starting 10/26/11 - Gradient calculated using a 3-point problem with CMT wells 204, 305 & 306

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.	Vertica Gradie
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	10000000	DESERT.	2802
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	Person	950000	2000
	11000000000000000						*********	
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
17-200-01	MW-304	405.84	406.34	405.34	435.45	0.200	7.00	0.03
		105.01	100.51	405.54	400.40			
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			
10.0-07	NOW 207	421.41	421.01	420.01	424.22	0.070	16.00	0.05
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 4 00	MW 205	433.62	424.12	422.12	446.75	1.720	10.00	0.10
7-Apr-08	MW-205 MW-305	433.62	434.12 416.12	433.12 415.12	447.44	1.720	18.00	0.10
	MW-303	413.02	410.12	413.12	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			
7.1.00	1000	(2) (1)	121.01	120.01	111.01	2.020	15.00	0.12
7-Apr-08	MW-207	431.41	431.91	430.91	444.84 446.86	2.020	16.00	0.13
	MW-307	415.41	415.91	414.91	440.80			
8-Oct-08	MW-204	414.84	415.34	414.34	429.90		9.00	N/A
	MW-304	405.84	406.34	405.34				
2020002				122.12	42.4.51	10.000		
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		1089	5555
8-Oct-08	MW-207	431.41	431.91	430.91			16.00	N/A
25.0 . 11	MW-307	415.41	415.91	414.91	115.00	0.000	0.00	0.01
25-Oct-11	MW-204 MW-304	414.84	415.34	414.34	445.22 445.14	·0.080	9.00	-0.01
	MW-304	-40.04	400.34	402.34	113.11			
25-Oct-11	MW-205	433.62	434.12	433.12	444.()()	1.740	18.00	0.10
	MW-305	415.62	416.12	415.12	445.74		67/4/5	
	ĺ							
25-Oct-11	MW-206	431.29	431.79	430.79	443.25	2.090	16.00	0.13
	MW-306	415.29	415.79	414.79	445.34			
25-Oct-11	MW-207	431.41	431.91	430.91	442.79		16.00	NIA
23-001-11	IVI VY - 20 /	451.41	431.91	430.91	444.19		10.00	N/A

Table 3: Summary of Well Construction

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

Well/Boring Type	Well/Boring	Status	Date Drilled	Total Depth	Boring	Well Casing	Casine Type	Slot Size (in)	Sand Type	Well		Filter	r Pack	Annul	ar Seal	Grou	it Seal
e 11	Number	39,132,300%	55-500 (500 to 100 to 1	(ft)	Diameter (in)	Diameter (in)	Casing 1 ypc	Siot Size (III)	Sand Type	From	To	From	To	From	To	From	T
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	
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	5
Monitoring	W-A	Active	7/12/1990	63	12	4	PVC	0.010	#2/12	57.5	42		10				
Monitoring	W-B	Active	7/13/1990	55	12	4	PVC	0.010	#2/12			63	40	40	36.5	36.5	
Monitoring	W-C	Active	7/11/1990	55	8	2	PVC	0.010	#2/12	55 55	40	55	32	32	30	30	
Monitoring	W-D	Active	7/12/1990	57.5	12	4	PVC	0.010				55	37.5	37.5	35	35	
Monitoring	W-E	Active	7/10/1990	61	8	2	PVC	0.010	#2/12	57.5 60.3	42	57.5 61	39.5	34	32 29	32	
													- 31	30	- 27	29	
Monitoring	MW-1s	Active	3/11/1996	45	2	6	PVC	0.010	#2/12	45	20	45	17	17	15	15	
Monitoring	MW-Bs	Active	3/12/1996	45	?	6	PVC	0.010	#2/12	45	20	45	18	18	16	16	
Monitoring	MW-35	Active	3/12/1996	45	?	4	PVC	0.010	#2/12	45	20	45	18	18	16	16	
Monitoring	MW-Es	Active	3/13/1996	45	?	2	PVC	0.010	#2/12	45	20	45	18	18	16	16	
Monitoring	MW-4	Active	10/04/06	82	8		MCT		#2/12	30							
Monitoring	MW-104	Active				-	MCT		#2/12		29	30	20	16	14	14	
Monitoring	MW-204	Active					MCT			50.5	49.5	52	48		- 4		
Monitoring	MW-304	Active				-	MCT	-	#2/12	66.5	65.5	68	64				
Monitoring	MW-404	Active	21			1	MCT	-	#2/12	75.5 81.5	74.5	76 81.5	73 79.5			55	
												0.10	1313			-	
Monitoring	MW-5	Active	10/09/06	68	- 8		MCT		#2/12	27	26	29	24	24	21.5	21.5	
Monitoring	MW-105	Active					MCT		#2/12	37	36	39	34	24	21.3	21.5	
Monitoring	MW-205	Active		2	-	-	MCT		#2/12	48	47	50	45		-		
Monitoring	MW-305	Active		1			мст		#2/12	66	65	68	63	-	-		_
Monitoring	MW-6	Active	10/10/06	68	8		MCT		#2/12	30	29						
Monitoring	MW-106	Active		- 00			MCT	-	#2/12	37		31	27	27	24	24	_
Monitoring	MW-206	Active					MCT	-	#2/12	50	36	39	35	-		-	-
Monitoring	MW-306	Active				-	MCT		#2/12	66	49 65	52 68	63	-	-	-	
Monitoring	MW-7	Austria	tomene	10.5			10000		10000000	//					v		
Monitoring	MW-107	Active	10/05/06	69.5	8	-	мст	-	#2/12	30	29	30	20		*	6	
Monitoring	MW-207	Active	*		-	-	MCT		#2/12	40	39	42	37	12	(a)	- 2	
Monitoring	MW-307	Active Active	-		-	-	MCT	,	#2/12	50	49	52	47	- 4			
(Monitoring	14144-207	Active	•	•			мст	•	#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	$\vdash$
Monitoring	MW-108	Active		-			MCT		#2/12	40	39	42	37			-	
Monitoring	MW-208	Active		-			MCT	*	#2/12	52	51	54	49			- 2	
Monitoring	MW-308	Active			-	-	мст	-	#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		

R							. 09						4/8/2011 10/26/2011	
						× × ×	DAN						10/16/2006 4/17/2007 12/19/2007	MW-7
						× <0.5	· 🛆	<0.5	<0.5	. 32		220	12/19/2007 4/8/2011 10/26/2011	
	-					*	DA						10/16/2006 4/17/2007	NW-6
							DA			.			9/200 9/2011 9/2011	
						× -	DR		ll.				6/201	MW-5
						× 500	19,000 DR	3,800	21,000	24,000		460,000	9/200	
	-						OP						6/200	MW-4
						0.5	۵۵۵	A0.5	A0.5	A0.5		- 50 - 50	10/8/2008 4/8/2011	
Columbe   Colu						ΔΔ.	<0.5	40.5 0.5	<0.5 0.5	\$0.5 0.5	60	50 60	4/17/2007	
	<0.5 <0.5	<10	<u>ه</u> . ا	გ.,	۵.	2.4	<0.5	<0.5	<0.5	0.62	87 <50	\$5	4/29/2004 7/7/2006	
						۵.	<0.5	<0.5	<0.5	<0.5	61	86	9/30/2002 3/19/2003 4/17/2007	
													4/18/2001 11/13/2001 4/30/2002	
		. .				ه ۱	<1.0	<0.5	×0.5	0.7	<b>.</b> 650 ⋅ 80	110	4/5/2000 10/26/2000	
			, .			4 .	8.0	-0.5	0.8	<0.5	69	82	23/199 9/1999	
									.].].				29/199	
						ልል	<0.5 2.2	<0.5 1.8	0.6	<0.5		<50 280	22/199 /22/199	W-Es
Calcidomic   Cal				. ,		. 60	38	230	23	250		4,900	25/201	
Calcidome   Calc						<200	<100 71	460	15	410		4,400	1/8/2008 1/8/2008	
Calconine   Calc						<100	20 620	900	100	1,500	<47	12,000	79/20/200	
	<20 <20	. 400	<200	<200	<200	- 40	83 440	820	160	1,900	<50	11,000 6,500	7/7/2006 0/17/200	
						<120	160	580	36	1,300	1,900	9,400	/16/2003	
						<170 <250	360	260	28	940	1,500	7,100	/30/2002	
						<150	1,800	1,100	180	2,400	2,500 3,600	20,000 17,000	/18/2001 1/13/200	
						<150	4,700	1,400	1,200	2,500	9,600	34,000	10/26/2000	
						A300	5,600	1,400	1,900	4,100	12,000	39,000	4/9/1999	
						-600	9,100	1,500	5,400	6,100	17,000	63,000	1/27/1998 1/27/1998	
						<2500	7,800	1,400	3,100	5,100	17,000	47,000 66,000	1/22/199	
						5000	2.1	2200	8.000	9.800	.	61.000	3/22/1996	W-Bs
						6 A	40	<0.5	405	422		937	4/8/2011	
Caboline   Unit.   U						ъ.	25	<2.5	<2.5	83	<50	1,300 320	4/19/2007	
	0,	10	ъ.,	۵	o,	A & &	4.5	¢0.5	5.1	210	<b>400</b>	1,300	4/29/2004 7/7/2006	
					١.	25	27	140	24	920	1,500	5,300	3/19/2003	
						<25	on .	24	5.5	320	490	1,400	1/13/200	
				. .		20 6	72	6.4	3.5	83	1,600	310 2,300	0/26/200/	
						<12	9.8	53	9.5	290	1,000	1,500	4/9/1999 10/5/1999	
						35 &	<0.5	<0.5 90	<0.5	<0.5 500	<50 1,000	<50 3,800	4/27/1998 0/23/1998	
						200	51	2 22 2	7	230	340	2,100	7/15/1997	
						â	14	5.3	6.9	13		100	3/22/1996	W-3s
				. .		- 20	530	1,180	239	2,040		13,400 12,000	4/8/2011 10/26/2011	
		١		1.		<120	1,700	1,800	340	2,500		39,000	4/8/2008 10/9/2008	
Cabaoline   Diese    Ug/L   Diese    Ug/L   Diese    Ug/L   Ug/L   Diese    Ug/L   U						200	1,800	1,200	2,700 460	2,200		21,000	4/19/2007	
							3,500 4,400	1,500	3,800	5,000	<470	40,000	10/19/2006	
Diese    Ug/L   Diese    Ug/L   Diese    Ug/L   Diese    Ug/L   Diese    Ug/L   Diese    Ug/L   Ug/L   Diese    Ug/L   Ug/L   Diese    Ug/L   Ug/	<50 <50	<1000	<500	<500	<500	<2500	4,700 2,900	810 1,200	1,200 710	3,700	5,900 <500	23,000	/29/2004	
Casacline   Diesel   Ug/L   Benzene   Wylenes   Ug/L   Benzene   Wylenes   Ug/L   Benzene   Wylenes   Ug/L   Ug/L   Benzene   Wylenes   Ug/L				.  -		4500	7,300	1,300	1,200	3,400	9,800	49,000	/19/2003 /16/2003	
Casacline   Dieset   Ug/L   Ug/L   Benzane   Wylenes						<1200	11,000	2,300	2,700	5,500	8,200	51,000	/30/2002	
Casacline   Diesel   ug/L   Ug/L   Benzane   Nylenes   Ug/L   Ug/L   Benzane   Nylenes   Ug/L   Ug						<330	7,600	1,500	1,800	5,200	6,800	54,000	1/13/200	
Casoline   Diesel   ug/L   ug/L   Benzene   Nylenes						<300 170	14,000 6,100	2,500 1,500	4,500 2,300	5,500 4,300	15,000	82,000 47,000	0/5/1999	
Casacline   Diesel   Ug/L						3600	11,000	1,800	9,400	9,800	18,000 24,000	99,000 70,000	0/23/199 4/9/1999	
Casoline   Diesel   ug/L   u						++	35,000	7,800	19,000	14,000	180,000	650,000	0/29/199	
Gasoline   Diesel   Upla.							1,100	3,500	18,000	13,000	38	170,000	1/22/199	11-18
Caseoline   Diesel   Upl.					8	pril 14, 200	Abondened A							
Gasoline   Diesel   Upl.   U		,					Ž.	40.5	<u>^0.5</u>	44	<100	<10 95	1990 9/13/1995	W-E
Gasoline   Diesel   Upl.   U				-		pril 14, 200	Abondened A	2	2		<100	100	1390	1
Gasoline   Diesel   Upl.   U					8	pril 14, 200	Abondened A					8	4000	5
Gasoline   Diesel   Ug/L   U							Δ	Δ	Δ	Δ	<100	<10	1990	W-C
Gasoline   Diesel   Upl.   U						pril 14, 200	3,700 Abondened A	1,800	7,300	21,000	1,600	21,000	1990	(dup)
1/1988 (7 0/19/200 0/20/200 0/20/200 0/20/200 0/20/200 0/20/200 1/1988 (7 1/1988 (7 1/1988 (7 1/1988 (7 1/1988 (7 1/1988 (7 1/1988 (7 1/1980 (7 1/				.	.  .	.]	4,000	2,000	7,900	22,000	1,700	13,000	1990	W-B
1/1988 (7 9/13/1995 0/19/2000 0/20/2000 0/20/2000 2/20/2001 1/1988 (7 9/13/1995 4///2011 1/1988 (7 1/1988 (7 9/13/1995 1/1990 0/20/2001						<20	523	439	128	2,370		13,200	4/8/2011 10/26/2011	
1/1988 (7 0/19/2000 0/20/2000 0/20/2000 0/20/2000 0/20/2001 0/26/2011 0/26/2011 0/26/2011 0/26/2011 0/26/2011							6,800 33	620 21	5,600	6,900		450	10/20/2006	(dup)
1/1988 (7 1/13/1988 (7			.				3,400	620	5,500	6,800	2,400	10,000	1990	W-W
1/1988 (7 9/13/1985 0/19/200 0/20/200 0/20/200 2/20/200 2/20/200 1						<0.5	. △ 280	0.5	<0.5	7.8		193	4/7/2011	
1/1988 (7 9/13/1995 0/19/2000 0/20/2000 0/20/2000 4/8/2011 0/26/2011 1/1988 (7 9/13/1995							140	150	120	290	2,200	11,000	11/1988 (7)	W-3
1/1988 (7 9/13/1995 0/19/2006 0/20/2006 2/20/2001 1/1988 (7						-<5	<0.5 well location	<0.5	<0.5	<0.5		90	9/13/1995	
1/1988 (7 9/13/1995 0/19/2000 0/20/2000 2/20/2001 1/8/2011						.	1.3	0.5	2.1	6.7	<50	360	11/1988 (7)	W-2
1/1988 (7 9/13/1995 0/20/2006						<2000	11,600	1,520	8,150 8,150	13,800		68,900	4/8/2011	
1/1988 (7							10,000	3,900	7,200	9,700		77,000	0/20/2006	
Gasoline Diesel บอู่ใ. บอู่ใ. Benzene Xylenes บอู่ใ.						<12500	24,000	5,400	30,000	29,000	300,000	210,000	1/1988 (7 9/13/1995	W-1
Total Street Street	ng/L ug/L	-J/Bn	ng/L	ng/L	1/gu	ng/L	xylenes ug/L	ug/L	J/Bn	ng/L	ng/L	ng/L Gasonne		I

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

pre- 2006 d		MW-404			MW-308		MW-307			MW-306			MW-305			MW-304		MW-208			MW-207			MW-206			MW-205				MW-204				MW-108		MW-107				WW-106			MW-105			MW-104		WW.0	e-wir
ata adapted fro	4/8/2011 10/26/2011	10/19/2006 4/18/2007 12/19/2007	10/26/2011	4/19/2007 12/19/2007 4/7/2008 4/8/2011	10/16/2006	4/7/2008 4/8/2011 10/26/2006	10/19/2006 4/18/2007 12/19/2007	10/26/2011	4/7/2008	10/16/2006	4/8/2011 10/26/2011	12/19/2007 4/8/2008	10/16/2006	4/8/2011 10/26/2011	12/20/2007	10/19/2006	4/8/2008 4/8/2011 10/26/2011	10/17/2006 4/19/2007 12/19/2007	10/26/2011	12/19/2007 4/7/2008	10/19/2006 4/18/2007	10/26/2011	4/8/2008	10/16/2006 4/8/2008	4/8/2011 10/26/2011	12/19/2007 4/8/2008	10/16/2006 10/17/2006 4/18/2007	10/26/2011	10/8/2008	12/20/2007	10/19/2006 4/18/2007	10/26/2011	4/8/2008 10/9/2008 4/8/2011	10/29/2007	10/16/2006	4/8/2008 4/8/2011 10/26/2011	4/19/2007 12/19/2007	10/26/2011	10/8/2008 4/14/2009	12/20/2007	4/19/2007	4/8/2011 10/26/2011	4/8/2008	10/16/2006 4/19/2007	4/8/2011 10/26/2011	12/19/2007	10/19/2006	4/8/2011 10/26/2011	4/17/2007	3006/31/01
m Environment	119	1,700 <10,000 2,200	2,900	<10,000 190 770	<50	2,500 70	<50 <4000 1,500	75	60	60	1,300	290	<50 <20,000	2,880 6,500	1,500	3,300	19,000 12,300 7,400	1,500 <10,000	18,000	32,000	1,000 <25,000	160	60	<50 450	33,600 26,000	31,000	5,100 <40,000	7,400	18,000 2,520	22,000 9,800	5,800 <10,000		2,200 2,100 4,000	310	3,400	18,000 20,400 16,000	7,400	190	90	54	240 86	11,300	11,000	13,000	18,500 25,000	32,000	960	765		Gasoline ug/L
al Sampling Se														2 5		ė.			,													,													•					Diesel ug/L
vices 5/27/04 (	90.8	1,400 1,60	610	1,600 25 150	<0.5	720 24.3	2.3 1,300 200	0.5	<0.5	3.1	193	42	3,600	1,600	380	290	3,900 5,820 1,600	520 2,500	7,600	12,000	170 9,700	5.7	1.8	0.72	25,000 11,000	20,000	2,000	1,900	9,200	4,700	560 2,700		1,100 490 1,640	55	790	6,100 15,100 6,400	3,400	1.7	0.6	1.0	7.6 <0.5	5,870	3,800	4,300	13,700 8,400	7,100	250	119		nB/L
Groundwater N	9.1	73 63	9.2	1.5	<0.5	3.8	1.5 250	<0.3	A0.5	<0.5	10.4 37	14	<0.5	32.3 45	8 2 2	240	230 75 97	<100	38	350	480	0.40	A0.5	<0.5	130	640	550 550	38	360 27.8	1,100	420 650		24 8.4 10.8	3.2	46	700 <200 28	290 150	<0.3	<0.5	<0.5	40.5 40.5	135	70	980	212 120	1,400	170	. &		ug/L
onitoring Rep	46.0	27 130 92	73	48 48	<0.5	0.6	<0.5 78	<0.3	0.5	40.5	27.6	8.1	40.5 40.5	93.5 190	38 32	56	550 432 60	<100	160	580	<b>18</b>	0.25	<0.5	<0.5 0.5	240 240	510	\$20 \$400	250	130 72.8	520	110 210		26 123	10	420	380 140	140	<0.3	<0.5	<0.5	<0.5	- 518	40	490	266 490	680	20	3.0		Benzene ug/L
хи	2.6 65	280 550 300	ន	45 45	<0.5	3.3	4.7 310 140	<0.6	2 4 4	<0.5	69.1 49	28 DRY	0.67	262 350	98 110	530	1,200 270 210	<100 DRY	280	790 DRY	67 250	<0.6	3 4 4	<0.5 0.5	300	1.400 DRY	220 <400	400	370 30.6	1,400	970		140 40 84.2	14 DRY	365	480 200	140 140 DAY	<0.6	4 4	<1 DRY	40.5 0.5	1,110	110 DRY	1,500	384 740	1.800 DAY	83 DAY	6.0	DAY	Xylenes ug/L
	<0.5	<200		4 6 6		<25 <0.5	<80 -40	, 10.0	200	Δ.	. 6	ъ.	4400	٠ ۵	6 40		- <del>200</del>	<200	. 8	<250	<u>.</u>	- <10	88	△.	-200	<250	\$800	Ŀ	<100 <10	800	<200		<25 89.6	1.9		- 200	<200	. 603	\$	2	△△.	<40	<b>450</b>	<250	250	£250		. &		лди
									. .						. . .						е.																										,			пду
															. .	Ŀ								, ,														. ,					,							лgu
																																							l.											лдл
									·   ·																										ŀ					·										ηθη
											, ,							. ,												. .				٠.		0.0		١.												лдг
											. 6																			.].						5 .	*:							6 6		.				ηθη

Table 5: Summary of Field Parameters

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

Monitoring Well			W-1s					W-3s					W-Bs					W-Es		
	pН	E.C.	Temp	ORP	DO	pН	E.C.	Temp	ORP	DO	На	E.C.	Temp	ORP	DO	pH	E.C.	Temp	ODD	
Date			°C					°C					°C	- J		Pii	L.O.	°C	ORP	DO
7/7/2006			-	-128.5	0.13	-	-	-		0.07	- 4			-107.3	0.09	7.05	339	20.9	00.0	0.00
12/29/2007	-	-		-	1.2	-	-	-		-	-	-		107.0	0.03	7.03	339	20.9	32.9	0.06
4/8/2008	6.76	514	24.8	-95.5	-	-		-	-	-	-	-			0.28	7.07	500	05.4	404.4	-
10/8-9/2008			-	-			-		-		100					7.07	503	25.1	121.4	6.85
4/7-8/2011	6.17	967	19.1	-221.5	0.37	6.63	964	18.1	40.7	0.72	6.61	780	18.5	-198.2	- 0.00	7.00		-	187	-
10/26/2011	6.65	1012	18.1	-121.5	0.16	6.65	914	17.9	-57.6	0.52	6.51	722	17.6	-115.8	0.02	7.03	790	19.5	141.3	1.06

Monitoring Well			W-1					W-3					W-A		
	pH	E.C.	Temp	ORP	DO	pН	E.C.	Temp	ORP	DO	pH	E.C.	Temp	ORP	DO
Date			°C					°C					°C		
4/7-8/2011	6.30	917	19.0	-164.3	0.40	6.94	928	18.3	-185.7	0.10	6.85	907	18.9	-254.5	0.04
10/26/2011	6.45	1073	17.8	-60.9	0.20	- 5	186	-	-		6.70	1019	18.0	-120.2	0.15

<sup>&</sup>quot; - " = insufficient data no result reported

# Appendix B

**Laboratory Analytical Data Sheets** 



Date of Report: 11/04/2011

Andrew Dorn

**Geological Technics** 1172 Kansas Avenue Modesto, CA 95354

Project:

Water Samples

BC Work Order:

1117830

Invoice ID:

B110692

Enclosed are the results of analyses for samples received by the laboratory on 10/27/2011. If you have any questions concerning this report, please feel free to contact me.

Sincerely,

Contact Person: Christina Herndon

Client Service Rep

Authorized Signature

Certifications: CA ELAP #1186; NV #CA00014





#### **Table of Contents**

Sample Information	
Chain of Custody and Cooler Receipt form	3
Laboratory / Client Sample Cross Reference	
Sample Results	
1117830-01 - W-3S	
Purgeable Aromatics and Total Petroleum Hydrocarbons	1;
1117830-02 - W-BS	
Purgeable Aromatics and Total Petroleum Hydrocarbons	14
1117830-03 - W-A	
Purgeable Aromatics and Total Petroleum Hydrocarbons	15
1117830-04 - W-1S	
Purgeable Aromatics and Total Petroleum Hydrocarbons	16
1117830-05 - W-1	
Purgeable Aromatics and Total Petroleum Hydrocarbons	17
1117830-06 - MW-404	
Purgeable Aromatics and Total Petroleum Hydrocarbons	
1117830-07 - MW-308	
Purgeable Aromatics and Total Petroleum Hydrocarbons	19
1117830-08 - MW-306	
Purgeable Aromatics and Total Petroleum Hydrocarbons	20
1117830-09 - MW-305	
Purgeable Aromatics and Total Petroleum Hydrocarbons	21
1117830-10 - MW-304	
Purgeable Aromatics and Total Petroleum Hydrocarbons	22
Purgeable Aromatics and Total Petroleum Hydrocarbons	22
1117830-12 - MW-207	23
Purgeable Aromatics and Total Petroleum Hydrocarbons	24
1117830-13 - MW-206	24
Purgeable Aromatics and Total Petroleum Hydrocarbons	25
1117830-14 - MW-205	20
Purgeable Aromatics and Total Petroleum Hydrocarbons	26
1117830-15 - MW-204	20
Purgeable Aromatics and Total Petroleum Hydrocarbons	27
1117830-16 - MW-107	
Purgeable Aromatics and Total Petroleum Hydrocarbons	28
1117830-17 - MW-106	
Purgeable Aromatics and Total Petroleum Hydrocarbons	29
1117830-18 - MW-104	
Purgeable Aromatics and Total Petroleum Hydrocarbons	30
Quality Control Reports	
Purgeable Aromatics and Total Petroleum Hydrocarbons	
Method Blank Analysis	31
Laboratory Control Sample	
Precision and Accuracy	33
lotes	
Notes and Definitions	3.4

Environmental Testing Laboratory Since 1949 Laboratories, Inc.

Chain of Custody and Cooler Receipt Form for 1117830

Page 1 of 4

#### **Chain of Custody**

W-3 W-A	No. of Containers	Matrix (Soil, Water, Gas, Other)	Preservation Type	TPH-G & BTEX (BOIS/BOZ)		BC LAB 5  Temp. @ Shipping: C°  Temp. @ Lab Receipt: C°  Purchase Order #
Sample I.D.  W-35  W-B5  W-A	No. of	Matrix (Soil, Water, Gas,	Preservation Type	E BTEX (BOIS		Temp. @ Lab Receipt: C°  Purchase Order #    \262 - 703276  EDF Report: \$\forall Yes □ No  Turnaround Time(\$\forall = Standard)
Sample I.D.  W-35  W-B5  W-A	No. of	Matrix (Soil, Water, Gas,	Preservation Type	E BTEX		Purchase Order # 1262 - 703276  EDF Report: Yes □ No Turnaround Time(S = Standard)
Sample I.D.  W-35  W-B5  W-A	No. of	Matrix (Soil, Water,	Preservation Type	E BTEX		1262 - 703276  EDF Report: Yes □ No  Turnaround Time(S = Standard)
0. Sample I.D. W-35 W-B5 W-3 W-A	No. of	-	Preservation	-05-		Turnaround Time S = Standard
W-35 W-B5 W-3 W-A	٠ ا ا	-	Prese	흥		day 2 day 5 day
W-B5 W-3 W-A	6	-	LL			
W-B5 W-3 W-A	_	100	HCL	5		Remarks
W-3 W-A	- L	П	1			THE REPORTING LIMITS ARE AS
W-A		土				FOLLOWS:
	6	+		H		
W-15	_	H	$\vdash$	₩		TPH-C 5000
W-1	6	+	-	₩		BENZENE 0.5
MW-404	6	H	$\vdash$	₩		TOLVENE 0.50
MW -308	6	+	$\vdash$	₩	+++++	ETHYLBENZENE 0.5.
MW-306	6	H	$\vdash$	₩	+++++	XYLENE 0-5
MW-305	6	H	$\vdash$	H +	+ + + + + + -	
MW-304	6	H	$\vdash$	₩	<del></del>	
MW-208	5	+	-		<del></del>	CHK BY DISTRIBUTION
MW-207	6	+	$\vdash$	-	<del></del>	07
MW-206	6	1	4	1	<del></del>	SUB-OUT
Date: 10-27-11 Date: 10-27-11	Time D'	83		R	Elzabeth Emm Received by (signature)	Date: Time: 10/27/11 83/0 Date: Time: 1/05
18.27.11	1	15		- 1.	Dary Rogan	Date: Time: 1630  Rel- Idel G 10-27-11 A3:50  Rev. 2/2009  Rev. 2/2009
	Date: 10-27-11 Date: 10-27-11 Date: (8.27-1/	Date: 10-27-11 Date: 10-27-11 Date: 10-27-11 Time Date: 10-27-1/ Time Date: 10-27-1/ Time Date: 10-27-1/	Date: 10-27-11 Date: 10-27-11 Date: 10-27-11 Date: 15-27-11 Date:	Date: 10-27-11 Date: 10-27-11 11:08  Date: 10-27-11 11:08  Date: 0.27-1/ 1550	Date: 10-27-11 D 8 3 0  Date: 10-27-11 J:08  Date: 10-27-11 J:08  Date: 0.27-1/ Time: 1550	Date: 10-27-11 De 30 Received by: (signature) Plan Luch Emmr  Date: 10-27-11 De Received by: (signature) Plan Luch Emmr  Date: 10-27-11 Date: Received by: (signature) Plan Luch Emmr  Date: 1550 Received by: (signature) Plan Luch Emmr

Geological Technics Inc. 1172 Kansas Avenue Modesto, CA (209) 522-4119 Fax 522-4227

The results in this report apply to the samples analyzed in accordance with the chain of custody document. This analytical report must be reproduced in its entirety.

All results listed in this report are for the exclusive use of the submitting party. BC Laboratories, Inc. assumes no responsibility for report alteration, separation, detachment or third party interpretation.

4100 Atlas Court Bakersfield, CA 93308 (661) 327-4911 FAX (661) 327-1918 www.bclabs.com

Environmental Testing Laboratory Since 1949

Laboratories, Inc.

Chain of Custody and Cooler Receipt Form for 1117830

Page 2 of 4

#### Page 2 of 2

#### Chain of Custody

	E-1	nail: gti@gtienv	·com #	11-178	30	)		Г		Ana	lysis F	Reaue	sted			Laborator	y:		
Project #:		ject Name:	1.00	11110	Ť			1	1		П		T	Т	Г	BC	LABS		
1262-2		LINS			_	Other)		80%								Temp. @	Shipping:	C	
Site Address		el 1.00	D.44006 /	- 0		Gas, O		(8015/8021)									Lab Receipt:	C	5
Global ID No	JETH L	St. , LIVE	KNOWE,	-A	1								1			Purchase			
-010	100011	2			Sers	/ate	ype	RTEX	5								-703276		
Sampled By:	(print and s	dgn name) a	~		불	). 	, LO	9	5							EDF Repo	ort: 🗆 Yes 🗆	No	
ANDREW	DORN	elgn name) Aydur	Sam		of Containers	Matrix (Soil, Water,	Preservation Type	TPN-C. è					1			1 urnarour 1 day	ad Time $S = St$ 2 day	andard 5 day	
Date	Time	Field I.D.	Sai	nple I.D.	S.	Matr	Pres	lg.									Remark		
10-26-11	1400	-14	MW-205	;	_	W	HCL	-			$\dashv$		十			+115 0c0			
10-26-11	1505	-15	MW-204	1	6	$\Box$	1	T	+		+	-	+	$\vdash$		Follows	PRING LIMITS	MILE AS	
	_		MW-108		Ť	口		#	=				$\pm$			FOLLOW:	7.		
10-26-11	1430	-Up	MW-107		6	Ш	1	11	+	$\vdash$	+	-	+	$\vdash$		-0	11.6		
10-26-11	1345	-17	MW-106		4	Ш	$\vdash$	Ħ	+	$\vdash$	+	$\dashv$	+	+			H-6	50 v	
			MW-10		+	Н		1			+	+	+	+			UZENE	0.50	
10-26-11	1515	-18	MW-104		1	V	=	H	_				+	=			UEVE	0-50	19EL
			1-100 10		16	1		14	4	$\vdash$	-	-	+	+	Ш		YLBENZENE	0-5	Jaj L
				-	+	Н		╀	+	$\vdash$	+	-	+	$\vdash$	Ш	XΥι	ENE	0-5	vg/L
					+	Н		+	+	+	+	-	+	$\vdash$	Н				,
			-		+	Н		╁	+	-	+	+	+	+					
					$\vdash$			╁	+		+	+	+	$\vdash$					
					1			╁	+	$\vdash$	+	+	+	$\vdash$					
					+	$\vdash$		╁	+	$\vdash$	+	+	+	$\vdash$	Н				
Relinquished	by signat	ure)		Date: 10-27-11	Tim	e: )83	ი	_	Rec	eived b	y: (signa	ature)	7	<u></u>	Ш		Date:	Time:	
Relination	by: (signate	emman	0	Date: 10/27/11	Tim				Rec	elved b	(signa	aturer)	iri	MO	wo		10/27/11 Date:	83 <sub>0</sub>	
Relinquished	by: (signati	are)		Date:	Tim	٥.	-		Rec	eived b	V: /signa	ature)	_		_		/0.27.// Date:	1108	*
Kess	Mala	7		10.27-11		15.5	0		=	eived b	-(3)						10-27-11	Time:	2

Please return cooler/ice chest to Geological Technics Inc. DEI - Smil Roam 12-27-11

Geological Technics Inc.

1172 Kansas Avenue Modesto, CA

(209) 522-4119 Fax 522-4227 E-mail: gti@gtienv.com

Rel- Face B 10-37-1 23:50 Rev. 2/2009

The results in this report apply to the samples analyzed in accordance with the chain of custody document. This analytical report must be reproduced in its entirent. All results listed in this report are for the exclusive use of the submitting party. BC Laboratories, Inc. assumes no responsibility for report alteration, separation, detachment or third party interpretation.
4100 Allas Court Bakersfield, CA 93308 (661) 327-4911 FAX (661) 327-1918 www.bclabs.com



Chain of Custody and Cooler Receipt Form for 1117830 Page 3 of 4

Submission #: 11-1783	OT		E RECE			Rev. No. 12	06/24/08	Page	1 of 2	
SHIPPING INFO		N		T		OLUDE	NNC CO	TAILET		
Federal Express ☐ UPS ☐ BC Lab Field Service ☐ Other	Hand De	livery 🗆			Ice Ches Box	40.3		ne 🗆 er 🗆 (Sp		
Refrigerant: Ice B Blue Ice D	] Non	e 🗆 O	ther 🗆	Comme	nts:					
Custody Seals Ice Chest □ Intact? Yes □ No □	Contair Intact? Ye	iers 🗆 s 🗆 No 🗇	None-S	U Comm	ents:					
		s containe				Descrip	otion(s) ma	tch COC?	Yes ⊠No	
	missivity: emperature	9: A	Container:	87. pc	Thermome	eter ID:			<u> KS O</u> bm <u>AW_</u> 11n1	ד פצוני זן
SAMPLE CONTAINERS	1	2	3			NUMBERS				
OT GENERAL MINERALI GENERAL PHYSICAL		1	1 3	4	5	6	1	8	9	10
T PE UNPRESERVED						7.			1	
OT INORGANIC CHEMICAL METALS									1	1
T INORGANIC CHEMICAL METALS										
T CYANIDE										
T NITROGEN FORMS		7								
T TOTAL SULFIDE										
DZ NITRATE / NITRITE										
T TOTAL ORGANIC CARBON										
ттох										
T CHEMICAL OXYGEN DEMAND									1	
A PHENOLICS										
mi voa vial travel blank					6					
mi VOA VIAL	A 14	A ile	A ILA	Aile	A de	A ile	A 161	A 16	A 6	A 6
T EPA 413.1, 413.2, 418.1								11	1 1	11 14
CODOR										
ADIOLOGICAL										
ACTERIOLOGICAL										
ml VOA VIAL- 504										
Γ EPA 508/608/8080										
Γ EPA 515.1/8150										
C EPA 525										
EPA 525 TRAVEL BLANK								II. O		
Oml EPA 547										
Omi EPA 531.1										
EPA 548									- wat	
EPA 549										
EPA 632					e/zeetee					
EPA 8015M										
AMBER										
Z. JAR						71	40			
OZ. JAR									14 -1	
IL SLEEVE										
B VIAL										
ASTIC BAG								-		
RROUS IRON CORE										



Chain of Custody and Cooler Receipt Form for 1117830 Page 4 of 4

Submission #: IL-1 8 30 SHIPPING INFORMATION Federal Express UPS UPS Wand Delivery DECLAP Field Service—Q) Other (Specify)  Refrigerant: Ico B Blue Ice None Other (Specify)  Refrigerant: Ico B Blue Ice None Other (Specify)  Refrigerant: Ico B Blue Ice None Other Other Comments:  Custody Seals Ice Chest I	BC LABORATORIES INC.		SAMPL	E RECEI	PT FORM	l Re	v. No. 12	06/24/08	Page 7	LOF Z	
SHIPPING INFORMATION BC Lab Field Service-CD		30			222311		T				
Federal Express   UPS   Hand Delivery   Ice Chest   None   Specify   BC Lab Field Service-Q.) Other   (Specify   Box   Other   General   Box   Other   (Specify   Box   Other   General   General   Box   Other   General   General   Box   Other   General   Gen					T		OLUBRI.	NC CON	TAINED		
Refrigerant: Ico Blue Ice None Other Comments:  Custody Seals Ice Chest Containers Interity Seal No Description(s) match COC? Yes No					1	lea Chaef					
Refrigerant: IGSTS Blue Ice   None   Other   Comments:  Custody Seats   Ice Chest     Containers   None   None   Comments:    IntertYve   No   IntertYve   No   IntertYve   No   Description(s) match COC? Yes   No   Description(s) match COC? Yes   No   Other   Comments:										ify)	
Custody Seals   Ce Chest	)					1000000		(3) (3) (3) (3) (3) (3) (3) (3) (3) (3)			
Custody Seals   Ice Chest	Refrigerant: Ice & Blue Ice	□ None	□ Ot	her 🗆	Commen	ts:					
Intact? Yes   No   Intact? Yes   No   All samples containers intact? Yes   No   Description(s) match COC? Yes   No    COC Received		Contain	ers 🗆	None	Comme	nte:					
COC Received  Emissivity Q TB Container Q To Thermometer ID: Date/TimeQ TX XIII VT  Femperature: A Q Q 'c C Q Q 'c Analyst Init MA  SAMPLE CONTAINERS  II 1 2 13 14 15 11 17 15 9 19  OT GENERAL MINREAU GENERAL PHYSICAL  FT PE INPRESSERVED  OT INORGANIC CHEMICAL METALS  FT INORGANIC CHEMICAL METALS  FT INORGANIC CHEMICAL METALS  FT INORGANIC CHEMICAL METALS  FT TOTAL GRANIC CARBON  FT TO GRANIC CARBON  F				, tollo de	1 00mm	into.					
Temperature: A	All samples received? Yes P No 🗆										
Temperature: A	COC Received	Emissivity:	,98	Container:	The.	Thermome	ter ID: \	77	Date/Time	Ilk Flor	VIO
SAMPLE CONTAINERS			1		1	~ ^					
SAMPLE CONTAINERS  11 12 13 14 15 11 17 16 9 10  27 EMERICAL MINERAL GENERAL PHYSICAL  27 EN INFRESERVED  27 ENORGANIC CHEMICAL METALS  27 ENORGANIC CHEMICAL METALS  27 ENORGANIC CHEMICAL METALS  27 ENORGANIC CHEMICAL METALS  27 ENTRINGERN FORMS  27 TOTAL SULFIDE  28 ENTRATE / INTRITE  29 ENTRATE / INTRITE  20 ENTRATE / INTRITE  21 ENTROPE	7	Temperature	: A	, 6	C/C_	5.4	'C		Analyst Ir	it WA	
SAMPLE CONTAINERS  11 12 13 14 15 11 17 16 9 10  27 EMERICAL MINERAL GENERAL PHYSICAL  27 EN INFRESERVED  27 ENORGANIC CHEMICAL METALS  27 ENORGANIC CHEMICAL METALS  27 ENORGANIC CHEMICAL METALS  27 ENORGANIC CHEMICAL METALS  27 ENTRINGERN FORMS  27 TOTAL SULFIDE  28 ENTRATE / INTRITE  29 ENTRATE / INTRITE  20 ENTRATE / INTRITE  21 ENTROPE		T				SAMPLE	NIIMBERS				
DI GENERAL MINERAL GENERAL PHYSICAL TO TE NORRESERVED  TO TRONGANIC CHEMICAL METALS TO TRONGEN FORMS TO TOTAL SULFIDE  SE MITRATE INTERITE TOTAL SULFIDE  SE MITRATE INTERITE TO T	SAMPLE CONTAINERS	11	1 12	13	14			l v	10	9	10
PT PE INPRESERVED  DI INORGANIC CREMICAL METALS  PT CYCANIDE  PT NITROGEN FORMS  PT TOTAL SULFIDE  Lee INTRATE / INTRITE  PT TOTAL ORGANIC CARBON  PT T TOTOOR  PT TO	OT GENERAL MINERAL/ GENERAL PHYSIC										
PT ENGRGANIC CHEMICAL METALS PT CYANDE PT TOTAL SULFEDE  See NITRATE / NITRITE PT TOTAL ORGANIC CARBON PT TOX PA PHENOLICS SOME VOA VIAL TRAVEL BLANK SOME VOA VIAL TRAVEL BLANK TO DOM VIAL TRAVEL BLANK SOME VOA VIAL PT EPA 4311, 413.1, 413.1 PT DODG RADIOLOGICAL SOME VOA VIAL 594 TO BEN SOME VOA VIAL 594 TO BEN SOME VOA VIAL TO BEN SOME VOA VIAL 594 TO TE PA 5325 TO TE PA 5325 TO TE PA 5355 TO TE PA 5351 TO TE PA 5485 TO TE PA 5486 TO TE PA 5481 TO TE PA 5489											
PT ENORGANIC CHEMICAL METALS PT CYANIDE PT TOTAL SULEDBE  DES. NITRATE / NITRITE PT TOTAL ORGANIC CARBON PT TOX PT CHEMICAL OXYGEN DEMAND PARTICLE OXYGEN DEMAND PARTICLE OXYGEN DEMAND PARTICLE OXYGEN DEMAND PARTICL OXYGE	OT INORGANIC CHEMICAL METALS										
PT CYANIDE PT NITROGEN FORMS PT TOTAL SULFIDE EA NITRATE / NITRITTE PT TOTAL ORGANIC CARBON PT TOTAL ORGANIC CARBON PT TOTAL ORGANIC CARBON PT TOTAL OXYGEN DEMAND PA PHENOLICS POBLI YOA VIAL PA PHENOLICS POBLI YOA VIAL PT FOR A13.1, 413.1, 413.1 PT CODOR PA PHENOLICS PT PT A13.1, 413.1, 413.1 PT CODOR PA PHENOLICS PT PT A13.1, 413.1, 413.1 PT CODOR PT PT PT A13.1, 413.1, 413.1 PT P											
PT INTROGEN FORMS PT TOTAL SULFIDE  SEE NITRATE / NITRITE PT TOTAL ORGANIC CARBON PT TOX PT CHEMICAL OXYGEN DEMAND PLAP PRENDLICS  SOLIVOA VIAL TRAVEL BLANK SOLIVOA VIAL SOLIVOA											
PT TOTAL SULFIDE  102. NITRATE / NITRITE  T TOTAL ORGANIC CARBON  TT TOX  T CREMICAL OXYGEN DEMAND  103. PAPHENOLICS  103. IVOA VIAL TRAVEL BLANK  104. IVOA VIAL  T EPA 411, 413.2, 418.1  T DOOR  105. INCREMICAL  106. IVOA VIAL 504  107. EPA 413.1, 413.2, 418.1  T EPA 512 STRAVEL BLANK  107. EPA 513.1  T EPA 513. TRAVEL BLANK  107. EPA 513.1  T EPA 549  T EPA 632  T EPA 632  T EPA 632  T AMBER  107. JAMBER  107. JAMBE											
TOTAL ORGANIC CARBON TTOX TOTAL ORGANIC CARBON TTOX  PAPENOLICS OBJ VOA VIAL TRAVEL BLANK OBJ VOA VIAL T COOR ADDIOLOGICAL ACTERIOLOGICAL OF TEPA 513. L/8.15 T EPA 513 TRAVEL BLANK OBJ VOA VIAL T EPA 548 T EPA 549 T EPA 549 T EPA 549 T EPA 549 T EPA 540 T EPA 515 T EPA 540 T EPA 531 T EPA 540 T EPA 531 T EPA 540 T											
TTOX T CHEMICAL OXYGEN DEMAND TA PRENOLICS  Omit VOA VIAL TRAVEL BLANK  Omit VOA VIAL TRAVEL BLANK  OT EPA 4131, 413.1, 418.1  T ODOR ADIOLOGICAL ACTERIOLOGICAL OUT EPA 501.1  T EPA 515 TRAVEL BLANK  OMIT EPA 511.1  T EPA 549  T EPA 632  T EP	CONTRACTOR OF THE CONTRACTOR O										
T CHEMICAL OXYGEN DEMAND  PA PHENOLICS  0ml VOA VIAL TRAVEL BLANK  0ml VOA VIAL  TO DOR  RADIOLOGICAL  MCTERIOLOGICAL  0 ml VOA VIAL 504  TT EPA 508/008/00800  TT EPA 515. Usl 504  TT EPA 515  TT EPA 515  TT EPA 515  TT EPA 515  TT EPA 519  TT EPA 510  TT EPA 610  TT EP	T TOTAL ORGANIC CARBON										
PAPERIOLICS    Some voa vial	PT TOX						====	Unage.			
Omityon vial   A   I	T CHEMICAL OXYGEN DEMAND										
Omi VOA VIAL  PI 5 A 16 A	PLA PHENOLICS										
T EPA 413.1, 413.2, 418.1 T ODOR  RADIOLOGICAL  MCTERIOLOGICAL  O mI VOA VIAL- 504  IT EPA 508/608/8080  IT EPA 515.1/8150  IT EPA 525  IT EPA 525  IT EPA 531.1  IT EPA 549  IT EPA 549  IT EPA 632  IT EPA 632  IT EPA 8015M  IT AMBER  OZ. JAR  OUL SLEEVE	Omi VOA VIAL TRAVEL BLANK	-									
TODOR RADIOLOGICAL BACTERIOLOGICAL BACTERIOLOG	Omi VOA VIAL	H15	A 161	A (le)	Ail	A ila	A 14	A 141	Hilp		
RADIOLOGICAL  BACTERIOLOGICAL  DI MI VOA VIAL- 504  OT EPA 508/608/8080  OT EPA 515.1/8150  OT EPA 525  OT EPA 525  OT EPA 525 TRAVEL BLANK  OOMI EPA 531.1  OT EPA 547  OOMI EPA 548  OT EPA 548  OT EPA 549  OT EPA 632  OT EPA 632  OT EPA 8015M  OT AMBER  OZ. JAR  OOL JAR  OOL SLEEVE	OT EPA 413.1, 413.2, 418.1										
ACTERIOLOGICAL  0 mi VOA VIAL- 504  OT EPA 508/608/8080  OT EPA 515.1/8150  OT EPA 525  OT EPA 525  OT EPA 525  OT EPA 525  OT EPA 531.1  OUMI EPA 531.1  OUMI EPA 549  OT EPA 632  OT EPA 632  OT EPA 632  OT AMBER  OZ. JAR  OUL SLEEVE	T ODOR										
0 ml VOA VIAL- 504 OT EPA 508/608/8080 OT EPA 515.1/8150 OT EPA 525 OT EPA 525 TRAVEL BLANK OOmi EPA 537 OOmi EPA 531.1 OT EPA 547 OOmi EPA 548 OT EPA 548 OT EPA 549 OT EPA 632 OT EPA 633	RADIOLOGICAL										
TE PA 508/508/80800  TE PA 515.1/8150  TE PA 525 TRAVEL BLANK  DOME PA 547  DOME PA 531.1  TE PA 531.1  TE PA 549  TE PA 632  TE PA 632  TE PA 6305M  TAMBER  OZ. JAR  DOL SLEEVE	ACTERIOLOGICAL	_									
T EPA 515.1/8150  T EPA 525  T EPA 525 TRAVEL BLANK  DOME EPA 547  DOME EPA 531.1  T EPA 549  T EPA 549  T EPA 632  T EPA 8015M  T AMBER  OZ. JAR  DUL SLEEVE	0 ml VOA VIAL- 504						-				
T EPA 525 TE PA 525 TRAVEL BLANK  00mi EPA 547  00mi EPA 531.1 TE PA 548 TE PA 549 TE PA 632 TE PA 632 TE PA 8015M TAMBER  OZ. JAR  COZ. JAR  DUL SLEEVE	T EPA 508/608/8080	-									
T EPA 525 TRAVEL BLANK  100ml EPA 531.1  TEPA 531.1  TEPA 549  TEPA 549  TEPA 632  TEPA 8015M  TAMBER  OZ. JAR  OUL SLEEVE		-	-		-				-		
00mi EPA 547 00mi EPA 531.1 00mi EPA 548 0T EPA 549 0T EPA 632 0T EPA 8015M 0T AMBER 0Z JAR 0Z JAR 0UL SLEEVE											
00m(EPA 531.1  TEPA 548  TEPA 549  TEPA 632  TEPA 8015M  TAMBER  OZ. JAR  OUL SLEEVE	Approximately and the control of the	-									
TEPA 548  TEPA 549  TEPA 632  TEPA 8015M  TAMBER  OZ. JAR  OU. SLEEVE		-		1							
T EPA 549  T EPA 632  T EPA 8015M  T AMBER  OZ. JAR  OUL SLEEVE		-						-		-	
T EPA 632  T EPA 8015M  T AMBER  OZ. JAR  OU. SLEEVE											
T EPA 8015M  T AMBER  OZ. JAR  OU. JAR  DUL SLEEVE							_				
TAMBER  OZ. JAR  OU. SLEEVE											
OZ JAR  LOZ JAR  DIL SLEEVE					-						
OZ. JAR OLL SLEEVE											
DIL SLEEVE DIL SLEEVE											
LASTIC BAG											
ERROUS IRON											
NCORE											*

11/04/2011 13:12 Reported:

Sample QC Type (SACode): CS

Cooler ID:

Project: Water Samples

Project Number: Sullins Project Manager: Andrew Dorn

#### Laboratory / Client Sample Cross Reference

-		Laboratory / Chent Sample	Closs Releichee	
Laboratory	Client Sample Informat	ion		
1117830-01	COC Number: Project Number: Sampling Location: Sampling Point: Sampled By:	Sullins W-3S Andrew Dorn of GTIM	Receive Date: Sampling Date: Sample Depth: Lab Matrix: Sample Type: Delivery Work Orde Global ID: T06099 Location ID (FieldP Matrix: W Sample QC Type (S	00342 Point): W-3S
1117830-02	COC Number: Project Number: Sampling Location: Sampling Point: Sampled By:	Sullins W-BS Andrew Dorn of GTIM	Receive Date: Sampling Date: Sample Depth: Lab Matrix: Sample Type: Delivery Work Orde Global ID: T060990 Location ID (FieldPo Matrix: W Sample QC Type (S Cooler ID:	00342 pint): W-BS
1117830-03	COC Number: Project Number: Sampling Location: Sampling Point: Sampled By:	Sullins W-A Andrew Dorn of GTIM	Receive Date: Sampling Date: Sample Depth: Lab Matrix: Sample Type: Delivery Work Order Global ID: T060990 Location ID (FieldPo	0342

Geological Technics

Reported:

11/04/2011 13:12

Project: Water Samples

Project Number: Sullins

Project Manager: Andrew Dorn

#### Laboratory / Client Sample Cross Reference

Laboratory

1172 Kansas Avenue Modesto, CA 95354

Client Sample Information

1117830-04

**COC Number:** 

Sullins

**Project Number:** Sampling Location:

Sampling Point:

Sampled By:

W-1S

Andrew Dorn of GTIM

Receive Date:

10/27/2011 23:50

Sampling Date:

10/26/2011 12:45

Sample Depth: Lab Matrix:

Water

Sample Type:

Groundwater

Delivery Work Order: Global ID: T0609900342 Location ID (FieldPoint): W-1S

Matrix: W

Sample QC Type (SACode): CS

Cooler ID:

1117830-05

**COC Number:** 

**Project Number:** Sampling Location: Sullins

Sampling Point:

W-1

Sampled By:

Andrew Dorn of GTIM

Receive Date:

10/27/2011 23:50

Sampling Date:

10/26/2011 12:00

Sample Depth:

Lab Matrix:

Water

Sample Type:

Groundwater

Delivery Work Order: Global ID: T0609900342 Location ID (FieldPoint): W-1

Matrix: W

Sample QC Type (SACode): CS

Cooler ID:

1117830-06

**COC Number:** 

Project Number: Sampling Location: Sullins

Sampling Point:

Sampled By:

MW-404

Andrew Dorn of GTIM

Receive Date:

10/27/2011 23:50

Sampling Date:

10/26/2011 14:55

Sample Depth:

Lab Matrix:

Water Groundwater

Sample Type:

Delivery Work Order:

Global ID: T0609900342

Location ID (FieldPoint): MW-404

Matrix: W

Sample QC Type (SACode): CS

Cooler ID:

Reported:

11/04/2011 13:12

Project: Water Samples

Cooler ID:

Project Number: Sullins
Project Manager: Andrew Dorn

### **Laboratory / Client Sample Cross Reference**

Laboratory Client Sample Information 1117830-07 COC Number: Receive Date: 10/27/2011 23:50 Project Number: Sullins Sampling Date: 10/26/2011 15:40 Sampling Location: Sample Depth: Sampling Point: MW-308 Lab Matrix: Water Andrew Dorn of GTIM Sampled By: Sample Type: Groundwater Delivery Work Order: Global ID: T0609900342 Location ID (FieldPoint): MW-308 Matrix: W Sample QC Type (SACode): CS Cooler ID: 1117830-08 COC Number: Receive Date: 10/27/2011 23:50 **Project Number:** Sullins Sampling Date: 10/26/2011 13:20 Sampling Location: Sample Depth: MW-306 Sampling Point: Lab Matrix: Water Andrew Dorn of GTIM Sampled By: Groundwater Sample Type: Delivery Work Order: Global ID: T0609900342 Location ID (FieldPoint): MW-306 Matrix: W Sample QC Type (SACode): CS Cooler ID: 1117830-09 COC Number: Receive Date: 10/27/2011 23:50 **Project Number:** Sullins Sampling Date: 10/26/2011 13:50 Sampling Location: Sample Depth: MW-305 Sampling Point: Lab Matrix: Water Andrew Dorn of GTIM Sampled By: Groundwater Sample Type: Delivery Work Order: Global ID: T0609900342 Location ID (FieldPoint): MW-305 Matrix: W Sample QC Type (SACode): CS

Reported: 11/04/2011 13:12 Project: Water Samples

Cooler ID:

Project Number: Sullins
Project Manager: Andrew Dorn

#### **Laboratory / Client Sample Cross Reference**

Laboratory	Client Sample Informat	ion		
1117830-10	COC Number:		Receive Date:	10/27/2011 23:50
	Project Number:	Sullins	Sampling Date:	10/26/2011 23:50
	Sampling Location:			10/20/2011 15:00
	Sampling Point:	MW-304	Sample Depth: Lab Matrix:	Water
	Sampled By:	Andrew Dorn of GTIM	Sample Type:	Groundwater
	campica by.	1.11.31.31.31.31.31.31.11.11	Delivery Work Ord	
			Global ID: T0609	
			Location ID (Field)	- F
			Matrix: W	Ollity. WWV-304
			Sample QC Type	(SACode): CS
			Cooler ID:	(UNOUG). US
			Codio IB.	
1117830-11	COC Number:	***	Receive Date:	10/27/2011 23:50
	Project Number:	Sullins	Sampling Date:	10/26/2011 16:00
	Sampling Location:		Sample Depth:	
	Sampling Point:	MW-208	Lab Matrix:	Water
	Sampled By:	Andrew Dorn of GTIM	Sample Type:	Groundwater
	HONOR SOLD HEROCALITY HAS		Delivery Work Orde	er:
		*	Global ID: T06099	
			Location ID (FieldP	oint): MW-208
			Matrix: W	
			Sample QC Type (	SACode): CS
			Cooler ID:	
1117830-12	COC Number:		Receive Date:	10/27/2011 23:50
	Project Number:	Sullins	Sampling Date:	10/26/2011 14:15
	Sampling Location:		Sample Depth:	10/20/2011 14:13
	Sampling Point:	MW-207	Lab Matrix:	Water
	Sampled By:	Andrew Dorn of GTIM	Sample Type:	Groundwater
			Delivery Work Orde	
			Global ID: T060990	
			Location ID (FieldP	
			Matrix: W	,
			Sample QC Type (S	SACode): CS
			sample do Type (c	

Geological Technics 1172 Kansas Avenue

Modesto, CA 95354



Reported: 11/04/2011 13:12 Project: Water Samples

Project Number: Sullins
Project Manager: Andrew Dorn

#### **Laboratory / Client Sample Cross Reference**

Laboratory	Client Sample Informati	оп		
1117830-13	COC Number: Project Number: Sampling Location: Sampling Point: Sampled By:	Sullins MW-206 Andrew Dorn of GTIM	Receive Date: Sampling Date: Sample Depth: Lab Matrix: Sample Type: Delivery Work Orde Global ID: T06099 Location ID (FieldP Matrix: W Sample QC Type (S	00342 Point): MW-206
1117830-14	COC Number: Project Number: Sampling Location: Sampling Point: Sampled By:	Sullins MW-205 Andrew Dorn of GTIM	Receive Date: Sampling Date: Sample Depth: Lab Matrix: Sample Type: Delivery Work Orde Global ID: T060990 Location ID (FieldPo Matrix: W Sample QC Type (S	00342 oint): MW-205
1117830-15	COC Number: Project Number: Sampling Location: Sampling Point: Sampled By:	Sullins MW-204 Andrew Dorn of GTIM	Receive Date: Sampling Date: Sample Depth: Lab Matrix: Sample Type: Delivery Work Orde Global ID: T060990 Location ID (FieldPo Matrix: W Sample QC Type (S Cooler ID:	00342 bint): MW-204

Reported:

11/04/2011 13:12

Project: Water Samples

Project Number: Sullins

Project Manager: Andrew Dorn

#### Laboratory / Client Sample Cross Reference

Laboratory

Client Sample Information

1117830-16

**COC Number:** 

**Project Number:** 

Sullins

Sampling Location:

Sampling Point: Sampled By:

MW-107

Andrew Dorn of GTIM

Receive Date:

10/27/2011 23:50 10/26/2011 14:30

Sampling Date: Sample Depth:

Lab Matrix:

Sample Type:

Water Groundwater

Delivery Work Order:

Global ID: T0609900342

Location ID (FieldPoint): MW-107

Matrix: W

Sample QC Type (SACode): CS

Cooler ID:

1117830-17

1117830-18

COC Number:

Project Number: Sampling Location: Sullins

Sampling Point: Sampled By:

**COC Number:** 

**Project Number:** 

Sampling Point:

Sampled By:

Sampling Location:

Sullins

MW-104

Andrew Dorn of GTIM

MW-106 Andrew Dorn of GTIM

Receive Date:

10/27/2011 23:50

Sampling Date:

10/26/2011 13:45

Sample Depth:

Lab Matrix:

Water

Sample Type:

Groundwater

Delivery Work Order: Global ID: T0609900342

Location ID (FieldPoint): MW-106

Matrix: W

Sample QC Type (SACode): CS

Cooler ID:

Groundwater

Receive Date: Sampling Date:

10/27/2011 23:50 10/26/2011 15:15

Sample Depth:

Lab Matrix:

Water

Sample Type:

Delivery Work Order:

Global ID: T0609900342

Location ID (FieldPoint): MW-104

Matrix: W

Sample QC Type (SACode): CS

Cooler ID:



Reported: 11

11/04/2011 13:12

Project: Water Samples

Project Number: Sullins
Project Manager: Andrew Dorn

BCL Sample ID: 111783	30-01	Client Sampl	e Name:	Sullins, W	/-38, 10/25	/2011 1:40:00F	PM, Andrew Do	orn	
Constituent		Result	Units	PQL	MDL	Method	MB Bias	Lab Quals	Run#
Benzene		5.2	ug/L	0.30	0.040	EPA-8021	ND		1
Toluene		0.76	ug/L	0.30	0.046	EPA-8021	ND		1
Ethylbenzene		1.3	ug/L	0.30	0.042	EPA-8021	ND		1
Total Xylenes		2.1	ug/L	0.60	0.14	EPA-8021	ND		1
Gasoline Range Organics (C4 - C	12)	190	ug/L	50	5.0	Luft	ND		2
a,a,a-Trifluorotoluene (PID Surroga	ate)	108	%	70 - 130 (LCI	L - UCL)	EPA-8021			1
a,a,a-Trifluorotoluene (FID Surroga	ite)	108	%	70 - 130 (LCI	L - UCL)	Luft			2

			Run				QC	
Run#	Method	<b>Prep Date</b>	Date/Time	Analyst	Instrument	Dilution	Batch ID	
1	EPA-8021	10/31/11	11/02/11 17:54	jjh	GC-V4	1	BUJ2124	
2	Luft	10/31/11	11/02/11 17:54	jjh	GC-V4	1	BUJ2124	

Reported: 11/04/2011 13:12 Project: Water Samples

Project Number: Sullins
Project Manager: Andrew Dorn

BCL Sample ID: 1117	7830-02	Client Sampl	e Name:	Sullins, W	-BS, 10/25	5/2011 3:45:00F	PM, Andrew Do	orn	
Constituent		Result	Units	PQL	MDL	Method	MB Bias	Lab Quals	Run#
Benzene		250	ug/L	6.0	0.80	EPA-8021	ND	A01	1
Toluene		23	ug/L	6.0	0.92	EPA-8021	ND	A01	1
Ethylbenzene		230	ug/L	6.0	0.84	EPA-8021	ND	A01	1
Total Xylenes		38	ug/L	12	2.8	EPA-8021	ND	A01	1
Gasoline Range Organics (C4	- C12)	4900	ug/L	1000	100	Luft	ND	A01	2
a,a,a-Trifluorotoluene (PID Surre	ogate)	106	%	70 - 130 (LCI	UCL)	EPA-8021			1
a,a,a-Trifluorotoluene (FID Surro	ogate)	106	%	70 - 130 (LCI	- UCL)	Luft			2

			Run					
Run#	Method	Prep Date	Date/Time	Analyst	Instrument	Dilution	Batch ID	
1	EPA-8021	10/31/11	11/03/11 08:16	jjh	GC-V4	20	BUJ2124	
2	Luft	10/31/11	11/03/11 08:16	jjh	GC-V4	20	BUJ2124	

Geological Technics 1172 Kansas Avenue

Modesto, CA 95354



Reported: 11/04/2011 13:12 Project: Water Samples

Project Number: Sullins
Project Manager: Andrew Dorn

BCL Sample ID:	1117830-03	Client Sampl	e Name:	Sullins, W	Sullins, W-A, 10/26/2011 10:10:00AM, Andrew Dorn						
Constituent		Result	Units	PQL	MDL	Method	MB Bias	Lab Quals	Run#		
Benzene		3500	ug/L	15	2.0	EPA-8021	ND	A01	1		
Toluene		410	ug/L	15	2.3	EPA-8021	ND	A01	1		
Ethylbenzene		970	ug/L	15	2.1	EPA-8021	ND	A01	1		
Total Xylenes		870	ug/L	30	7.0	EPA-8021	ND	A01	1		
Gasoline Range Organic	s (C4 - C12)	18000	ug/L	2500	250	Luft	ND	A01	2		
a,a,a-Trifluorotoluene (PIE	O Surrogate)	114	%	70 - 130 (LC	L - UCL)	EPA-8021			1		
a,a,a-Trifluorotoluene (FIE	) Surrogate)	111	%	70 - 130 (LCI	L - UCL)	Luft			2		

			Run			QC				
Run#	Method	Prep Date	Date/Time	Analyst	Instrument	Dilution	Batch ID			
1	EPA-8021	10/31/11	11/02/11 18:38	jjh	GC-V4	50	BUJ2124			
2	Luft	10/31/11	11/02/11 18:38	jjh	GC-V4	50	BUJ2124			



11/04/2011 13:12

Project: Water Samples

Project Number: Sullins
Project Manager: Andrew Dorn

BCL Sample ID: 1117	7830-04	Client Sampl	e Name:	Sullins, W	Sullins, W-1S, 10/26/2011 12:45:00PM, Andrew Dorn							
Constituent		Result	Units	PQL	MDL	Method	MB Bias	Lab Quals	Run#			
Benzene		2900	ug/L	15	2.0	EPA-8021	ND	A01	1			
Toluene		280	ug/L	15	2.3	EPA-8021	ND	A01	1			
Ethylbenzene		520	ug/L	15	2.1	EPA-8021	ND	A01	1			
Total Xylenes		530	ug/L	30	7.0	EPA-8021	ND	A01	1			
Gasoline Range Organics (C4	- C12)	12000	ug/L	2500	250	Luft	ND	A01	2			
a,a,a-Trifluorotoluene (PID Surr	ogate)	112	%	70 - 130 (LCI	- UCL)	EPA-8021			1			
a,a,a-Trifluorotoluene (FID Surro	ogate)	107	%	70 - 130 (LCL	- UCL)	Luft			2			

			Run			QC				
Run#	Method	Prep Date	Date/Time	Analyst	Instrument	Dilution	Batch ID			
1	EPA-8021	10/31/11	11/02/11 18:59	jjh	GC-V4	50	BUJ2124			
2	Luft	10/31/11	11/02/11 18:59	jjh	GC-V4	50	BUJ2124			



11/04/2011 13:12

Project: Water Samples

Project Number: Sullins
Project Manager: Andrew Dorn

BCL Sample ID: 1117830-05	Client Sampl	e Name:	Sullins, W	Sullins, W-1, 10/26/2011 12:00:00PM, Andrew Dorn						
Constituent	Result	Units	PQL	MDL	Method	MB Bias	Lab Quals	Run#		
Benzene	15000	ug/L	60	8.0	EPA-8021	ND	A01	1		
Toluene	6100	ug/L	30	4.6	EPA-8021	ND	A01	2		
Ethylbenzene	910	ug/L	30	4.2	EPA-8021	ND	A01	2		
Total Xylenes	11000	ug/L	60	14	EPA-8021	ND	A01	2		
Gasoline Range Organics (C4 - C12)	76000	ug/L	5000	500	Luft	ND	A01	3		
a,a,a-Trifluorotoluene (PID Surrogate)	118	%	70 - 130 (LC	L - UCL)	EPA-8021			1		
a,a,a-Trifluorotoluene (PID Surrogate)	123	%	70 - 130 (LC	L - UCL)	EPA-8021			2		
a,a,a-Trifluorotoluene (FID Surrogate)	120	%	70 - 130 (LC	L - UCL)	Luft		4,-	3		

			Run			QC		
Run#	Method	Prep Date	Date/Time	<b>Analyst</b>	Instrument	Dilution	Batch ID	
1	EPA-8021	10/31/11	11/04/11 05:17	jjh	GC-V4	200	BUJ2124	
2	EPA-8021	10/31/11	11/02/11 19:21	jjh	GC-V4	100	BUJ2124	
3	Luft	10/31/11	11/02/11 19:21	jjh	GC-V4	100	BUJ2124	

Reported: 11/04/2011 13:12

Project: Water Samples

Project Number: Sullins
Project Manager: Andrew Dorn

BCL Sample ID:	1117830-06	Client Sampl	e Name:	Sullins, M	Sullins, MW-404, 10/26/2011 2:55:00PM, Andrew Dorn						
Constituent		Result	Units	PQL	MDL	Method	MB Bias	Lab Quals	Run#		
Benzene		400	ug/L	3.0	0.40	EPA-8021	ND	A01	1		
Toluene		9.1	ug/L	3.0	0.46	EPA-8021	ND	A01	1		
Ethylbenzene		46	ug/L	3.0	0.42	EPA-8021	ND	A01	1		
Total Xylenes		65	ug/L	6.0	1.4	EPA-8021	ND	A01	1		
Gasoline Range Organio	cs (C4 - C12)	1500	ug/L	500	50	Luft	ND	A01	2		
a,a,a-Trifluorotoluene (PI	D Surrogate)	106	%	70 - 130 (LCI	- UCL)	EPA-8021			1		
a,a,a-Trifluorotoluene (FI	D Surrogate)	102	%	70 - 130 (LCI	- UCL)	Luft			2		

			Run			QC		
Run#	Method	Prep Date	Date/Time	Analyst	Instrument	Dilution	Batch ID	
1	EPA-8021	10/31/11	11/02/11 19:43	jjh	GC-V4	10	BUJ2124	
2	Luft	10/31/11	11/02/11 19:43	jjh	GC-V4	10	BUJ2124	

Reported: 11/0

11/04/2011 13:12

Project: Water Samples

Project Number: Sullins

Project Manager: Andrew Dorn

BCL Sample ID: 1117830-0	7 Client Sample	le Name:	Sullins, M	Sullins, MW-308, 10/26/2011 3:40:00PM, Andrew Dorn							
Constituent	Result	Units	PQL	MDL	Method	MB Bias	Lab Quals	Run#			
Benzene	610	ug/L	3.0	0.40	EPA-8021	ND	A01	1			
Toluene	9.7	ug/L	3.0	0.46	EPA-8021	ND	A01	1			
Ethylbenzene	73	ug/L	3.0	0.42	EPA-8021	ND	A01	1			
Total Xylenes	53	ug/L	6.0	1.4	EPA-8021	ND	A01	1			
Gasoline Range Organics (C4 - C12)	2900	ug/L	500	50	Luft	, ND	A01	2			
a,a,a-Trifluorotoluene (PID Surrogate)	112	%	70 - 130 (LCI	L - UCL)	EPA-8021			1			
a,a,a-Trifluorotoluene (FID Surrogate)	113	%	70 - 130 (LCI	L - UCL)	Luft			2			

			Run				QC	
Run#	Method	Prep Date	Date/Time	Analyst	Instrument	Dilution	Batch ID	
1	EPA-8021	10/31/11	11/02/11 20:05	jjh	GC-V4	10	BUJ2124	
2	Luft	10/31/11	11/02/11 20:05	jjh	GC-V4	10	BUJ2124	

11/04/2011 13:12 Reported: Project: Water Samples

Project Number: Sullins Project Manager: Andrew Dorn

BCL Sample ID:	1117830-08	Client Sampl	e Name:	Sullins, M	Sullins, MW-306, 10/26/2011 1:20:00PM, Andrew Dorn						
Constituent		Result	Units	PQL	MDL	Method	MB Bias	Lab Quals	Run#		
Benzene		0.50	ug/L	0.30	0.040	EPA-8021	ND		1		
Toluene		ND	ug/L	0.30	0.046	EPA-8021	ND		1		
Ethylbenzene		ND	ug/L	0.30	0.042	EPA-8021	ND		1		
Total Xylenes		ND	ug/L	0.60	0.14	EPA-8021	ND		1		
Gasoline Range Organics	(C4 - C12)	75	ug/L	50	5.0	Luft	ND		2		
a,a,a-Trifluorotoluene (PID	Surrogate)	106	%	70 - 130 (LC	L - UCL)	EPA-8021			1		
a,a,a-Trifluorotoluene (FID	Surrogate)	98.0	%	70 - 130 (LCI	L - UCL)	Luft			2		

			Run				QC	
Run#	Method	Prep Date	Date/Time	Analyst	Instrument	Dilution	Batch ID	
1	EPA-8021	10/31/11	11/02/11 22:17	jjh	GC-V4	1	BUJ2124	
2	Luft	10/31/11	11/02/11 22:17	jjh	GC-V4	1	BUJ2124	



Reported: 11/04/2011 13:12

Project: Water Samples

Project Number: Sullins Project Manager: Andrew Dorn

BCL Sample ID:	1117830-09	Client Sampl	e Name:	Sullins, M	W-305, 10	/26/2011 1:50:0	00PM, Andrew	Dorn	
Constituent		Result	Units	PQL	MDL	Method	MB Bias	Lab Quals	Run#
Benzene		280	ug/L	3.0	0.40	EPA-8021	ND	A01	1
Toluene		37	ug/L	3.0	0.46	EPA-8021	ND	A01	1
Ethylbenzene		20	ug/L	3.0	0.42	EPA-8021	ND	A01	1
Total Xylenes		49	ug/L	6.0	1.4	EPA-8021	ND	A01	1
Gasoline Range Organ	ics (C4 - C12)	1300	ug/L	500	50	Luft	ND	A01	2
a,a,a-Trifluorotoluene (F	PID Surrogate)	98.1	%	70 - 130 (LC	L - UCL)	EPA-8021			1
a,a,a-Trifluorotoluene (F	FID Surrogate)	102	%	70 - 130 (LCI	L - UCL)	Luft			2

			Run				QC	
Run#	Method	Prep Date	Date/Time	Analyst	Instrument	Dilution	Batch ID	
1	EPA-8021	10/31/11	11/02/11 22:38	jjh	GC-V4	10	BUJ2124	
2	Luft	10/31/11	11/02/11 22:38	jjh	GC-V4	10	BUJ2124	

Environmental Testing Laboratory Since 1949

**Geological Technics** 1172 Kansas Avenue Modesto, CA 95354

Reported: 11/04/2011 13:12 Project: Water Samples

Project Number: Sullins Project Manager: Andrew Dorn

BCL Sample ID:	1117830-10	Client Sampl	e Name:	Sullins, M	W-304, 10	/26/2011 3:00:0	00PM, Andrew	Dorn	
Constituent		Result	Units	PQL	MDL	Method	MB Bias	Lab Quals	Run #
Benzene		1600	ug/L	15	2.0	EPA-8021	ND	A01	1
Toluene		45	ug/L	15	2.3	EPA-8021	ND	A01	1
Ethylbenzene		190	ug/L	15	2.1	EPA-8021	ND	A01	1
Total Xylenes		350	ug/L	30	7.0	EPA-8021	ND	A01	1
Gasoline Range Organ	ics (C4 - C12)	6500	ug/L	2500	250	Luft	ND	A01	2
a,a,a-Trifluorotoluene (P	PID Surrogate)	107	%	70 - 130 (LCI	L - UCL)	EPA-8021			1
a,a,a-Trifluorotoluene (F	ID Surrogate)	103	%	70 - 130 (LCI	- UCL)	Luft			2

			Run				QC	
Run#	Method	Prep Date	Date/Time	Analyst	Instrument	Dilution	Batch ID	
1	EPA-8021	10/31/11	11/02/11 23:00	jjh	GC-V4	5 <b>O</b>	BUJ2124	
2	Luft	10/31/11	11/02/11 23:00	jjh	GC-V4	50	BUJ2124	



Reported: 11/04/2011 13:12 Project: Water Samples

Project Number: Sullins
Project Manager: Andrew Dorn

BCL Sample ID: 11178	830-11	Client Sampl	e Name:	Sullins, M	W-208, 10	/26/2011 4:00:0	00PM, Andrew	Dom	
Constituent		Result	Units	PQL	MDL	Method	MB Bias	Lab Quals	Run#
Benzene		1600	ug/L	15	2.0	EPA-8021	ND	A01	1
Toluene	175,	97	ug/L	15	2.3	EPA-8021	ND	A01	1
Ethylbenzene		60	ug/L	15	2.1	EPA-8021	ND	A01	1
Total Xylenes		210	ug/L	30	7.0	EPA-8021	ND	A01	1
Gasoline Range Organics (C4 -	C12)	7400	ug/L	2500	250	Luft	ND	A01	2
a,a,a-Trifluorotoluene (PID Surro	gate)	106	%	70 - 130 (LC	L - UCL)	EPA-8021			1
a,a,a-Trifluorotoluene (FID Surro	gate)	107	%	70 - 130 (LC	L - UCL)	Luft			2

			Run			QC				
Run#	Method	<b>Prep Date</b>	Date/Time	Analyst	Instrument	Dilution	Batch ID			
1	EPA-8021	10/31/11	11/02/11 23:22	jjh	GC-V4	50	BUJ2124			
2	Luft	10/31/11	11/02/11 23:22	jjh	GC-V4	50	BUJ2124			

Reported: 11/04/2011 13:12 Project: Water Samples

Project Number: Sullins
Project Manager: Andrew Dorn

BCL Sample ID: 11178	30-12	Client Sampl	e Name:	Sullins, M	W-207, 10	/26/2011 2:15:0	00PM, Andrew	Dorn	
Constituent		Result	Units	PQL	MDL	Method	MB Bias	Lab Quals	Run#
Benzene		7600	ug/L	30	4.0	EPA-8021	ND	A01	1
Toluene		38	ug/L	15	2.3	EPA-8021	ND	A01	2
Ethylbenzene		160	ug/L	15	2.1	EPA-8021	ND	A01	2
Total Xylenes		280	ug/L	30	7.0	EPA-8021	ND	A01	2
Gasoline Range Organics (C4 - C	(12)	18000	ug/L	2500	250	Luft	ND	A01	3
a,a,a-Trifluorotoluene (PID Surrog	ate)	105	%	70 - 130 (LC	L - UCL)	EPA-8021			1
a,a,a-Trifluorotoluene (PID Surrog	ate)	114	%	70 - 130 (LC	L - UCL)	EPA-8021			2
a,a,a-Trifluorotoluene (FID Surrog	ate)	113	%	70 - 130 (LC	L - UCL)	Luft			3

			Run				QC	
Run#	Method	Prep Date	Date/Time	Analyst	Instrument	Dilution	Batch ID	
1	EPA-8021	10/31/11	11/04/11 05:38	jjh	GC-V4	100	BUJ2124	
2	EPA-8021	10/31/11	11/02/11 23:43	jjh	GC-V4	5O	BUJ2124	
3	Luft	10/31/11	11/02/11 23:43	jjh	GC-V4	5O	BUJ2124	



Reported: 11/04/2011 13:12

Project: Water Samples

Project Number: Sullins
Project Manager: Andrew Dorn

BCL Sample ID:	1117830-13	Client Sampl	e Name:	Sullins, M	Sullins, MW-206, 10/26/2011 2:00:00PM, Andrew Dorn						
Constituent		Result	Units	PQL	MDL	Method	MB Bias	Lab Quals	Run#		
Benzene		5.7	ug/L	0.30	0.040	EPA-8021	ND		1		
Toluene		0.40	ug/L	0.30	0.046	EPA-8021	ND		1		
Ethylbenzene		0.25	ug/L	0.30	0.042	EPA-8021	ND	J	1		
Total Xylenes		ND	ug/L	0.60	0.14	EPA-8021	ND		1		
Gasoline Range Organi	cs (C4 - C12)	160	ug/L	50	5.0	Luft	ND		2		
a,a,a-Trifluorotoluene (P	ID Surrogate)	105	%	70 - 130 (LC	L - UCL)	EPA-8021			1		
a,a,a-Trifluorotoluene (F	ID Surrogate)	102	%	70 - 130 (LC	L - UCL)	Luft			2		

			Run			QC			
Run#	Method	Prep Date	Date/Time	Analyst	Instrument	Dilution	Batch ID		
1	EPA-8021	10/31/11	11/03/11 00:05	jjh	GC-V4	1	BUJ2124		
2	Luft	10/31/11	11/03/11 00:05	jjh	GC-V4	1	BUJ2124		

Reported:

11/04/2011 13:12 Project: Water Samples

Project Number: Sullins Project Manager: Andrew Dorn

BCL Sample ID: 1117830-14	Client Sampl	e Name:	Sullins, M	Sullins, MW-205, 10/26/2011 2:00:00PM, Andrew Dorn							
Constituent	Result	Units	PQL	MDL	Method	MB Bias	Lab Quals	Run #			
Benzene	11000	ug/L	60	8.0	EPA-8021	ND	A01	1			
Toluene	130	ug/L	15	2.3	EPA-8021	ND	A01	2			
Ethylbenzene	240	ug/L	15	2.1	EPA-8021	ND	A01	2			
Total Xylenes	300	ug/L	30	7.0	EPA-8021	ND	A01	2			
Gasoline Range Organics (C4 - C12)	26000	ug/L	2500	250	Luft	ND	A01	3			
a,a,a-Trifluorotoluene (PID Surrogate)	100	%	70 - 130 (LC	L - UCL)	EPA-8021			1			
a,a,a-Trifluorotoluene (PID Surrogate)	112	%	70 - 130 (LC	L - UCL)	EPA-8021			2			
a,a,a-Trifluorotoluene (FID Surrogate)	115	%	70 - 130 (LC	L - UCL)	Luft			3			

			Run				QC	
Run#	Method	Prep Date	Date/Time	Analyst	Instrument	Dilution	Batch ID	
1	EPA-8021	10/31/11	11/04/11 09:06	jjh	GC-V4	200	BUJ2124	
2	EPA-8021	10/31/11	11/03/11 00:27	jjh	GC-V4	50	BUJ2124	
3	Luft	10/31/11	11/03/11 00:27	jjh	GC-V4	50	BUJ2124	



Reported: 11/04/2011 13:12 Project: Water Samples

Project Number: Sullins
Project Manager: Andrew Dorn

BCL Sample ID:	1117830-15	Client Sampl	e Name:	Sullins, M	Sullins, MW-204, 10/26/2011 3:05:00PM, Andrew Dorn							
Constituent		Result	Units	PQL	MDL	Method	MB Bias	Lab Quals	Run#			
Benzene		1900	ug/L	15	2.0	EPA-8021	ND	A01	1			
Toluene		38	ug/L	15	2.3	EPA-8021	ND	A01	1			
Ethylbenzene		250	ug/L	15	2.1	EPA-8021	ND	A01	1			
Total Xylenes		400	ug/L	30	7.0	EPA-8021	ND	A01	1			
Gasoline Range Orgar	nics (C4 - C12)	7400	ug/L	2500	250	Luft	ND	A01	2			
a,a,a-Trifluorotoluene (I	PID Surrogate)	105	%	70 - 130 (LCI	- UCL)	EPA-8021			1			
a,a,a-Trifluorotoluene (I	FID Surrogate)	104	%	70 - 130 (LCI	- UCL)	Luft			2			

			Run			QC				
Run#	Method	Prep Date	Date/Time	Analyst	Instrument	Dilution	Batch ID			
1	EPA-8021	10/31/11	11/03/11 00:49	jjh	GC-V4	50	BUJ2124			
2	Luft	10/31/11	11/03/11 00:49	jjh	GC-V4	50	BUJ2124			



Reported: 11/04/2011 13:12 Project: Water Samples

Project Number: Sullins
Project Manager: Andrew Dorn

BCL Sample ID:	1117830-16	Client Sampl	e Name:	Sullins, M	W-107, 10	/26/2011 2:30:0	00PM, Andrew	Dorn	
Constituent		Result	Units	PQL	MDL	Method	MB Bias	Lab Quals	Run#
Benzene		6400	ug/L	30	4.0	EPA-8021	ND	A01	1
Toluene		28	ug/L	15	2.3	EPA-8021	ND	A01	2
Ethylbenzene		140	ug/L	15	2.1	EPA-8021	ND	A01	2
Total Xylenes		200	ug/L	30	7.0	EPA-8021	ND	A01	2
Gasoline Range Organics	s (C4 - C12)	16000	ug/L	2500	250	Luft	ND	A01	3
a,a,a-Trifluorotoluene (PID	) Surrogate)	103	%	70 - 130 (LC	L - UCL)	EPA-8021			1
a,a,a-Trifluorotoluene (PID	Surrogate)	107	%	70 - 130 (LC	L - UCL)	EPA-8021			2
a,a,a-Trifluorotoluene (FID	Surrogate)	111	%	70 - 130 (LC	L - UCL)	Luft			3

			Run			QC			
Run#	Method	<b>Prep Date</b>	Date/Time	Analyst	Instrument	Dilution	Batch ID		
1	EPA-8021	10/31/11	11/04/11 06:22	jjh	GC-V4	100	BUJ2124		
2	EPA-8021	10/31/11	11/03/11 01:11	jjh	GC-V4	50	BUJ2124	2.5523	
3	Luft	10/31/11	11/03/11 01:11	jjh	GC-V4	50	BUJ2124		

Reported: 11/04/2011 13:12

Project: Water Samples

Project Number: Sullins
Project Manager: Andrew Dorn

BCL Sample ID:	1117830-17	Client Sampl	e Name:	Sullins, M	Sullins, MW-106, 10/26/2011 1:45:00PM, Andrew Dorn						
Constituent		Result	Units	PQL	MDL	Method	MB Bias	Lab Quals	Run#		
Benzene		1.7	ug/L	0.30	0.040	EPA-8021	ND		1		
Toluene		ND	ug/L	0.30	0.046	EPA-8021	ND		1		
Ethylbenzene		ND	ug/L	0.30	0.042	EPA-8021	ND		1		
Total Xylenes		ND	ug/L	0.60	0.14	EPA-8021	ND		1		
Gasoline Range Organ	nics (C4 - C12)	190	ug/L	50	5.0	Luft	ND		2		
a,a,a-Trifluorotoluene (	PID Surrogate)	109	%	70 - 130 (LC	L - UCL)	EPA-8021			1		
a,a,a-Trifluorotoluene (	FID Surrogate)	106	%	70 - 130 (LC	L - UCL)	Luft			2		

			Run		QC				
Run#	Method	Prep Date	Date/Time	Analyst	Instrument	Dilution	Batch ID		
1	EPA-8021	10/31/11	11/03/11 01:33	jjh	GC-V4	1	BUJ2124		
2	Luft	10/31/11	11/03/11 01:33	jjh	GC-V4	1	BUJ2124		



Reported: 11/04/2011 13:12 Project: Water Samples

Project Number: Sullins
Project Manager: Andrew Dorn

BCL Sample ID:	1117830-18	Client Sampl	e Name:	Sullins, M	Sullins, MW-104, 10/26/2011 3:15:00PM, Andrew Dom							
Constituent		Result	Units	PQL	MDL	Method	MB Bias	Lab Quals	Run#			
Benzene		8400	ug/L	30	4.0	EPA-8021	ND	A01	1			
Toluene		120	ug/L	15	2.3	EPA-8021	ND	A01	2			
Ethylbenzene		490	ug/L	15	2.1	EPA-8021	ND	A01	2			
Total Xylenes		740	ug/L	30	7.0	EPA-8021	ND	A01	2			
Gasoline Range Organic	cs (C4 - C12)	25000	ug/L	2500	250	Luft	ND	A01	3			
a,a,a-Trifluorotoluene (PI	D Surrogate)	102	%	70 - 130 (LC	L - UCL)	EPA-8021			1			
a,a,a-Trifluorotoluene (Pl	D Surrogate)	108	%	70 - 130 (LC	L - UCL)	EPA-8021			2			
a,a,a-Trifluorotoluene (FII	D Surrogate)	116	%	70 - 130 (LC	L - UCL)	Luft			3			

			Run				QC	
Run#	Method	Prep Date	Date/Time	Analyst	Instrument	Dilution	Batch ID	
1	EPA-8021	10/31/11	11/04/11 06:44	jjh	GC-V4	100	BUJ2124	
2	EPA-8021	10/31/11	11/03/11 01:55	jjh	GC-V4	50	BUJ2124	
3	Luft	10/31/11	11/03/11 01:55	jjh	GC-V4	50	BUJ2124	



Reported: 11/04/2011 13:12 Project: Water Samples

Project Number: Sullins
Project Manager: Andrew Dorn

#### Purgeable Aromatics and Total Petroleum Hydrocarbons

#### **Quality Control Report - Method Blank Analysis**

Constituent	QC Sample ID	MB Result	Units	PQL	MDL	Lab Quals
QC Batch ID: BUJ2124						
Benzene	BUJ2124-BLK1	ND	ug/L	0.30	0.040	
Toluene	BUJ2124-BLK1	ND	ug/L	0.30	0.046	
Ethylbenzene	BUJ2124-BLK1	ND	ug/L	0.30	0.042	
Total Xylenes	BUJ2124-BLK1	ND	ug/L	0.60	0.14	
Gasoline Range Organics (C4 - C12)	BUJ2124-BLK1	ND	ug/L	50	5.0	
a,a,a-Trifluorotoluene (PID Surrogate)	BUJ2124-BLK1	105	%	70 - 130	(LCL - UCL)	
a,a,a-Trifluorotoluene (FID Surrogate)	BUJ2124-BLK1	93.8	%	70 - 130	(LCL - UCL)	



Reported: 11/04/2011 13:12

Project: Water Samples

Project Number: Sullins
Project Manager: Andrew Dorn

# Purgeable Aromatics and Total Petroleum Hydrocarbons

### **Quality Control Report - Laboratory Control Sample**

		-								
Constituent	QC Sample ID	Туре	Result	Spike Level	Units	Percent Recovery	RPD	Control I Percent Recovery		Lab Quals
QC Batch ID: BUJ2124										
Benzene	BUJ2124-BS1	LCS	42.044	40.000	ug/L	105		85 - 115		
Toluene	BUJ2124-BS1	LCS	42.034	40.000	ug/L	105		85 - 115		
Ethylbenzene	BUJ2124-BS1	LCS	42.803	40.000	ug/L	107		85 - 115		
Total Xylenes	BUJ2124-BS1	LCS	124.78	120.00	ug/L	104		85 - 115		
Gasoline Range Organics (C4 - C12)	BUJ2124-BS1	LCS	905.56	1000.0	ug/L	90.6		85 - 115		
a,a,a-Trifluorotoluene (PID Surrogate)	BUJ2124-BS1	LCS	42.682	40.000	ug/L	107		70 - 130		
a,a,a-Trifluorotoluene (FID Surrogate)	BUJ2124-BS1	LCS	41.662	40.000	ug/L	104		70 - 130		
, , , , , , , , , , , , , , , , , , , ,			The state of the s							





Reported: 11/04/2011 13:12 Project: Water Samples

Project Number: Sullins
Project Manager: Andrew Dorn

#### Purgeable Aromatics and Total Petroleum Hydrocarbons

#### **Quality Control Report - Precision & Accuracy**

Constituent		Source Sample ID	Source Result	Result		Units			Control Limits		
	Туре				Spike Added			Percent	RPD	Percent Recovery	Lab Quals
							RPD	Recovery			
QC Batch ID: BUJ2124	Use	d client samp	ole: N								
Benzene	MS	1115418-97	ND	40.792	40.000	ug/L		102		70 - 130	
	MSD	1115418-97	ND	42.165	40.000	ug/L	3.3	105	20	70 - 130	
Toluene	MS	1115418-97	ND	40.298	40.000	ug/L		101		70 - 130	
	MSD	1115418-97	ND	42.309	40.000	ug/L	4.9	106	20	70 - 130	
Ethylbenzene	MS	1115418-97	ND	40.765	40.000	ug/L		102		70 - 130	
	MSD	1115418-97	ND	43.103	40.000	ug/L	5.6	108	20	70 - 130	
Total Xylenes	MS	1115418-97	ND	119.33	120.00	ug/L		99.4		70 - 130	
	MSD	1115418-97	ND	125.84	120.00	ug/L	5.3	105	20	70 - 130	
Gasoline Range Organics (C4 - C12)	MS	1115418-97	ND	879.52	1000.0	ug/L		88.0		70 - 130	
	MSD	1115418-97	ND	884.50	1000.0	ug/L	0.6	88.4	20	70 - 130	
a,a,a-Trifluorotoluene (PID Surrogate)	MS	1115418-97	ND	41.859	40.000	ug/L		105		70 - 130	
	MSD	1115418-97	ND	42.197	40.000	ug/L	0.8	105		70 - 130	
a,a,a-Trifluorotoluene (FID Surrogate)	MS	1115418-97	ND	40.193	40.000	ug/L		100		70 - 130	
	MSD	1115418-97	ND	40.242	40.000	ug/L	0.1	101		70 - 130	

Geological Technics 1172 Kansas Avenue Modesto, CA 95354

Reported: 11/04/2011 13:12 Project: Water Samples

Project Number: Sullins
Project Manager: Andrew Dorn

#### **Notes And Definitions**

J Estimated Value (CLP Flag)

MDL Method Detection Limit

ND Analyte Not Detected at or above the reporting limit

PQL Practical Quantitation Limit
RPD Relative Percent Difference

A01 PQL's and MDL's are raised due to sample dilution.

## Appendix C

	Project Name:	Sullins (L St)				Well I.D.: W-1					
	Project No.:	1262.2					Date: 10/26/2011				
	Project Location:	187 N. L Street	t								
		Livermore, CA	à				Samples sent to: BC Labs				
Time	Cumulative Volume Purged (gal)	Temp C°	EC (μS/cm)	рН	ORP (millivolts)	DO (mg/L)	Remarks				
11:35	0	20.26	514	4.87	362.0	14.18	Brown, very strong odor, few sediments				
11:40	3.5	18.02	1052	6.46	-69.5	18.75	Brown, very strong odor, few sediments				
11:45	7.0	17.76	875	6.51	-49.9	0.20	Brown, very strong odor, few sediments				
11:50	10.5	17.82	1073	6.45	-60.9	0.20	Brown, very strong odor, few sediments				
12:00							Collected Samples				
Well	Purge Method Pumping Rate Constructed TD (ft)	56.50	Waterra □Cen		np with dedicated t		# VOAsX preserved non-preserved				
	* Well TD (ft)		-				# amber liters preserved non-preserved				
	Silt Thickness (ft)	13.53.50	-				# polys preserved non-preserved				
	Initial DTW (ft)		1				# polys preserved non-preserved				
AMERICA 01	r column height (ft)		-		Notes:						
One	** Final DTW (ft)		-		OInd D	A Dam /	Sadlan der				
_	asing diameter (in)	V	1		Sampled By:	A. Dom	Suffer der				
	asing diameter (iii)	. 2	1								
Sample Me	ethod: Illons per foot of casing		tiler  Other	55, 5" dia. = 1	* = measured .02, 6" dia. = 1.48	** = @ sampling	Purged Water Drummed: ☒ Yes ☐ No No. of Drums:				

	Project Name:	Sullins (L	St)				Well I.D.: MW-204					
	Project No.:	1262.2							Date: 10/26/2011			
	Project Location:	187 N. L	Street	i .								
		Livermor	e, CA						Samples sent to: BC Labs			
Time	Cumulative Volume Purged (gal)	Temp	C°	EC (µS/cm)	pН	ORP (millivolts)	DO	(mg/L)	Remarks			
12:08	0								Greenish gray, strong odor, few sediments			
12:12	0.34								Greenish gray, strong odor, few sediments			
12:16	0.68								Greenish gray, strong odor, few sediments			
12:20	1.02								Greenish gray, strong odor, few sediments			
15:05									Collected Samples			
	Purge Method: Pumping Rate:		cated \	Waterra □Cent	trifugal pum	np with dedicated t	ubing	☐ Oth	er			
Well	Constructed TD (ft):	66.5	0		Sample	Containers used:		6	# VOAsX preserved non-preserved			
	* Well TD (ft):	66.0	00						# VOAs preserved non-preserved			
	Silt Thickness (ff):	0.5	0						# polys preserved non-preserved			
	Initial DTW (ft):	35.6	62						# polys preserved non-preserved			
Water	column height (ft):	30.3	88			Notes:						
One o	casing volume (gal):	0.3	4	]					1 7			
	** Final DTW (ft):			]		Sampled By:	A. Do	rn +	man Logan			
С	asing diameter (in):	CM	Т									
Sample Me	ethod: llons per foot of casing.			iler  Other	5, 5° dia. = 1	* = measured .02, 6" dia. = 1.48	** = @ \$	sampling	Purged Water Drummed:			

Time 13:40 13:55 14:10 14:25 14:30

Sample Method:

cou	gical reci	ririus,	Bre	••					Groundwater Monitoring Field Log
	Project Name:	Sullins (L	St)						Well I.D.: W-3s
	Project No.:	1262.2							Date: 10/25/2011
	Project Location:	187 N. L S	Street						
		Livermore	v. 13.340.00						Samples sent to: BC Labs
ime	Cumulative Volume Purged (gal)	Temp	C°	EC (μ9/cm)	pН	ORP (millivolts)	DO	(mg/L)	Remarks
3:40	0.0	22.06	3	999	7.12	211.1	6	3.68	Dark gray, mild odor, very few sediments
3:55	5.25	17.40	)	907	6.62	-90.7	(	0.39	Gray/clear, no odor, no sediments
1:10	10.50	17.32	2	911	6.63	-85.9	(	0.58	Gray/clear, no odor, no sediments
1:25	15.75	17.85	5	914	6.65	-57.6	(	0.52	Gray/clear, no odor, no sediments
1:30									Collected Samples
								4.45	Took reading 5 minutes later w/no bubbles in flow cell
	Purge Method Pumping Rate			Waterra □Cen	trifugal pum	p with dedicated to	ubing	☐ Oth	er
Well	Constructed TD (ft)	45.00	)		Sample	Containers used:		6	# VOAs X preserved non-preserved
	* Well TD (ft)	43.29	9						# amber liters preserved non-preserved
	Silt Thickness (ft)	1.71							# polys preserved non-preserved
	Initial DTW (ft)	35.4	21				4		# polys preserved non-preserved
Wate	r column height (ft)	7.89	9			Notes:	DO lev	els remai	ned low until ~ 15 gallons had been purged and then began to climb
One	casing volume (gal)	5.13	fe fi				w/bub	bles-elim	ninated bubbles yet DO climbed & leveled off @ 4.45
	** Final DTW (ft)	35.41	1			Sampled By:	A. Do	rn A	and m spen
С	asing diameter (in)	4"						,	•

\*\* = @ sampling

\* = measured

K:\Jobs\S Jobs\Sullins (L St.) 12622\12622\GWM field logs\2011\Semi Annual GWM 11

Waterra ⊠ Bailer □ Other □

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

Purged Water Drummed: ☐ Yes ☐ No

No. of Drums:

	Project Name:	Sullins (I	_St)				Well I.D.: W-Bs					
	Project No.:	1262.2						Date: 10/	25/2011			
	Project Location:	187 N. L	Stree	t								
		Livermo	re, CA					Samples sent to: BC	Labs			
Time	Cumulative Volume Purged (gal)	Temp	C°	EC (μS/cm)	рН	ORP (millivolts)	DO (mg/L)		Remarks			
14:40	0.0	19.8	37	750	7.17	-37.0	4.31	Dark gray, strong odor, fe	ew sediments			
14:45	14.0	17.6	30	707	6.55	-130.3	0.32	Gray/clear, strong odor, f	ew sediments			
15:12	28.0	18.0	)4	711	6.56	-103.8	0.36	Gray/clear, strong odor, f	ew sediments			
15:30	42.0	17.6	64	722	6.51	-115.8	0.38	Gray/clear, strong odor, f	ew sediments			
15:45								Collected Samples				
	Purge Method: Pumping Rate:			Waterra □Cen	trifugal pum	p with dedicated t	ubing	er				
Well	Constructed TD (ft):	45.0	00		Sample	Containers used:	6	# VOAs	X preserved non-pr	reserved		
	* Well TD (ft):	44.	38					# amber liters	preserved non-pre	served		
	Silt Thickness (ft):	0.6	62					# polys	preserved non-pre	served		
	Initial DTW (ft):	35.	00	_				# polys	preserved non-pre	served		
Wate	r column height (ft)	9.3	88	_		Notes:						
One	casing volume (gal)	13.	88			3		17	<u> </u>			
	** Final DTW (ft):	35.	69			Sampled By:	A. Dorn	Sadle John				
С	asing diameter (in)	4	10					19 <del>0000</del> 000 100				
Sample M				ailer Other	e eldo d	• = measured	** = @ sampling		Purged Water Drummed: No. of Drums:	☐ Yes	□ No	
Ga	allons per foot of casing.	∠ dia. = 0.	17, 3 (	na. = 0.36 4 dia. = 0.6	5, 5 dia. = 1	.uz. 0 ula. = 1.46			NO. OI DIUIIIS.			

	Project Name:	Sullins (L S	st)				Well I.D.: <u>W-3</u>						
	Project No.:	1262.2							Date	: 10/26/	2011		
	Project Location:	187 N. L St	reet										
		Livermore,	CA						Samples sent to	: BC Lat	os		
Time	Cumulative Volume Purged (gal)	Temp	C° E	EC (μS/cm)	pН	ORP (millivolts)	DO	(mg/L)			Remarks		
				-									
			-										
			-										
	Purge Method: Pumping Rate:				rifugal pump	with dedicated to	ubing	☐ Othe	er				
Well	Constructed TD (ft):	51.50			Sample	Containers used:			# VOAs	_ <u>×</u> _	preserved non-preserved		
	* Well TD (ft):								# amber liters	_	_ preserved non-preserved		
	Silt Thickness (ft):					ä			# polys	-	_ preserved non-preserved		
10/-4-	Initial DTW (ft):		_		1				# polys		_ preserved non-preserved		
	casing volume (gai):					Notes:	Dia not	monitor	due to lacking access agre	eement			
o.i.e v	** Final DTW (ft):					Sampled By:	A. Dor	n A	ndm Ton				
С	asing diameter (in):	2"			,			7	100 22/30				
Sample Me	ethod:			Other  38 4" dia. = 0.66	5, 5" dia. = 1.0	* = measured 2, 6" dia. = 1.48	•• = @ s	ampling	]		Purged Water Drummed:  Yes  No. of Drums:	□ No	

	Project Name:	Sullins (L St)				Well I.D.: W-A					
	Project No.:	1262.2	_				Date: 10/26/2011				
	Project Location:	187 N. L Stree	t								
		Livermore, CA					Samples sent to: BC Labs				
Time	Cumulative Volume Purged (gal)	Temp C°	EC (μS/cm)	pН	ORP (millivolts)	DO (mg/L)	Remarks				
9:30	0	19.63	869	7.99	-44.7	4.85	Light gray, strong odor, lots of sediments				
9:45	13.5	17.91	1033	6.62	-133.0	0.24	Dark green, strong odor, lots of sediments				
9:55	27.0	17.95	1020	6.66	-144.5	0.13	Dark green, strong odor, lots of sediments				
10:05	40.5	17.97	1019	6.70	-120.2	0.15	Dark green, strong odor, lots of sediments				
10:10							Collected Samples				
	Purge Method Pumping Rate		Waterra □Cen	trifugal pum	p with dedicated to	ubing	ner				
Well	Constructed TD (ft)	63.00	]	Sample	Containers used:	6	# VOAsX preserved non-preserved				
	* Well TD (ft)	56.00	1				# amber liters preserved non-preserved				
	Silt Thickness (ft)	7.00	4				preserved non-preserved				
	Initial DTW (ft)		4				# polys preserved non-preserved				
	r column height (ft)		4		Notes:	Well recharges	quickly; top of casing modified				
One	casing volume (gal)	13.36	4		)						
	** Final DTW (ft)		1		Sampled By:	A. Dorn	and Mr. I spen				
С	asing diameter (in)	4"	]				V 300000 95				
Sample Me	ethod: allons per foot of casing		tiler  Other	5, 5" dia. = 1.	* = measured .02, 6" dia. = 1.48	••= @ sampling	Purged Water Drummed:				

	Project Name: Sullins (L St)							Well I.D.: W-1s					
	Project No.:	1262.2					Date: 10/26/2011						
	Project Location:	187 N. L	Street										
		Livermo	re, CA					Samples sent to: BC Labs					
Time	Cumulative Volume Purged (gal)	Temp	C°	EC (µS/cm)	pН	ORP (millivolts)	DO (mg/L)	Remarks					
10:30	0	18.4	12	1008	6.72	-66.5	5.32	Clear, strong odor, no sediments					
10:45	13.75	17.9	90	1014	6.59	-103.2	0.47	Clear, strong odor, no sediments					
11:00	27.5	18.	12	1010	6.67	-122.2	0.15	Clear, strong odor, no sediments					
11:20	41.25	18.	13	1012	6.65	-121.5	0.16	Black, strong odor, lots of sediments					
								Collected Samples					
1 10 10 10 11	Purge Method Pumping Rate		0.83	Waterra □Cent		np with dedicated t							
Well	Constructed TD (ft)	-			Sample	Containers used:	6						
	* Well TD (ft)	-						# amber liters preserved non-preserved					
	Silt Thickness (ft)							# polys preserved non-preserved					
Motor	Initial DTW (ft)			j j				# polys preserved non-preserved					
	casing volume (gal)		3-2			Notes:		& flow cell became clogged w/sediments and bio-foul after					
One	** Final DTW (ft)	-	2000	3		Sampled By:		lohs. Slow recharge (6" in ~ 30 minutes)					
C	asing diameter (in)					Sampled by.	A. Dom	KNOW JOHN					
Sample Me	ar o	Waterra	⊠ Ba	iler  Other	5, 5* dia. = 1	* = measured	•• = @ sampling	Purged Water Drummed: ☒ Yes ☐ No No. of Drums:					

	-								Groun	dwater Monitoring Field Log
	Project Name:	Sullins (L	St)						Well I.D.:	MW-4
	Project No.:	1262.2							Date:	10/26/2011
	Project Location:	187 N. L	Street							
		Livermor	e, CA						Samples sent to:	BC Labs
Time	Cumulative Volume Purged (gal)	Temp	C°	EC (μS/cm)	pН	ORP (millivolts)	DO	(mg/L)		Remarks
					-					
	Purge Method Pumping Rate		cated \	Waterra □Cen	trifugal pum	p with dedicated to	ubing	□ Oth	er	
Well C	Constructed TD (ft)	30.0	0		Sample	Containers used:			# VOAs	preserved non-preserved
	* Well TD (ft)								# amber liters	preserved non-preserved
	Silt Thickness (ft)		4.5	0					# polys	preserved non-preserved
Water	Initial DTW (ft) column height (ft)					Notes:			# polys	preserved non-preserved
	asing volume (gal)			1		Troics.		٨	0	
	** Final DTW (ft)					Sampled By:	A. Do	rn A	men den	
Ca	sing diameter (in)	CM	T					,	(	
Sample Me	thod:	Waterra [	⊠ Ba	iler  Other		• = measured	•• = @ s	ampling	]	Purged Water Drummed:    Yes    No
Gal	ons per foot of casing	2" dia. = 0.1	7, 3" di	ia. = 0.38 4" dia. = 0.6	65, 5" dia. = 1.	.02, 6" dia. = 1.48				No. of Drums:

	Project Name:	Sullins (	L St)				Well I.D.: MW-104					
	Project No.:	1262.2							Date: 10/26/2011			
	Project Location:	187 N. L	Street	t								
		Livermo							Samples sent to: BC Labs			
Time	Cumulative Volume Purged (gal)	Temp	C°	EC (μS/cm)	pН	ORP (millivolts)	DO	(mg/L)	Remarks			
12:22	0.0											
12:24	0.16											
12:26	0.32											
12:30	0.48											
15:15									Collected Samples			
	Purge Method: Pumping Rate			Waterra □Cen	trifugal pun	np with dedicated t	ubing	☐ Oth	ner			
Well	Constructed TD (ft):	50.	50	]	Sample	Containers used:		6	# VOAsX preserved non-preserved			
	· Well TD (ft):	49.	91						# amber liters preserved non-preserved			
	Silt Thickness (tt)	0.5	59						# polys preserved non-preserved			
	Initial DTW (ft)	36.	01						# polys preserved non-preserved			
Wate	r column height (ft)	13.	90	]		Notes:						
One	casing volume (gal)	0.	16			1						
	** Final DTW (ft)					Sampled By:	A. Do	rn /	nder Logar			
С	asing diameter (in)	: CN	ΛT					, ,				
Sample Mo	ethod:			tiler □ Other □ Other □ Other □	55, 5" dia. = 1	* = measured .02, 6" dia, = 1.48	** = @ \$	sampling	Purged Water Drummed:			

	Project Name: Sullins (L St)								Well I.D.: MW-304					
	Project No.:	1262.2							Date: 10/26/2011					
	Project Location:	187 N. L S	Street											
		Livermore	e, CA				3		Samples sent to: BC Labs					
Time	Cumulative Volume Purged (gal)	Temp	C°	EC (μS/cm)	pН	ORP (millivolts)	DO	(mg/L)	Remarks					
11:51	0													
11:55	0.44													
12:01	0.88													
12:07	1.32													
15:00									Colected Samples					
	Purge Method				trifugal pun	np with dedicated t	ubing	☐ Oth	er					
Well	Constructed TD (ft)		0		Sample	Containers used:		6	# VOAsX preserved non-preserved					
	* Well TD (ft)		7						# amber liters preserved non-preserved					
	Silt Thickness (tt)			g.					# polys preserved non-preserved					
	Initial DTW (ft)								# polys preserved non-preserved					
	r column height (ft)					Notes:								
One	casing volume (gal)		1											
	** Final DTW (ft)					Sampled By:	A. Do	rn	molly deen					
	asing diameter (in)	CM	Γ											
Sample M	ethod:			ler  Other  a. = 0.38 4" dia. = 0.6	65. 5" dia. = 1	* = measured	•• = @ :	sampling	Purged Water Drummed: ☐ Yes ☐ No No. of Drums:					

	Project Name: Sullins (L St)							Well I.D.: MW-404				
	Project No.:	1262.2							Date: 10/26/2011			
	Project Location:	187 N. L	Street	t								
		Livermo	re, CA						Samples sent to: BC Labs			
Time	Cumulative Volume Purged (gal)	Temp	C°	EC (μS/cm)	рН	ORP (millivolts)	DO	(mg/L)	Remarks			
11:30	0.0								Milky brown, no odor, very few sediments			
11:36	0.5								Milky brown, no odor, very few sediments			
11:43	1.0								Milky brown, no odor, very few sediments			
11:50	1.5								Milky brown, no odor, very few sediments			
14:55									Collected Samples			
	Purge Method Pumping Rate		licated '	Waterra □Cen	trifugal pum	np with dedicated t	ubing	☐ Oth	er			
Well	Constructed TD (ft)	81.	50		Sample	Containers used:		6	# VOAs preserved non-preserved			
	* Well TD (ft)	80.	87						# amber liters preserved non-preserved			
	Silt Thickness (ft)	0.6	33	1					# polys preserved non-preserved			
	Initial DTW (ft)	35.	77	1			_		# polys preserved non-preserved			
Wate	r column height (ft)	45.	10	1		Notes:						
One	casing volume (gal)		50									
	** Final DTW (ft)					Sampled By:	A. Do	rn /	MM Spr			
	asing diameter (in)	: CN	ΛT					,				
Sample M	ethod: allons per foot of casing			ailer		* = measured .02, 6" dia. = 1.48	•• = @ :	sampling	Purged Water Drummed:			

#### **Groundwater Monitoring Field Log** Project Name: Sullins (L St) Well I.D.: MW-5 Date: 10/26/2011 Project No.: 1262.2 Project Location: 187 N. L Street Samples sent to: BC Labs Livermore, CA Cumulative Volume Purged C° EC (µS/cm) pH ORP (millivolts) (mg/L) Temp Remarks Time (gal) Purge Method: Dedicated Waterra ☐ Centrifugal pump with dedicated tubing ☐ Other Pumping Rate: \_\_\_ preserved \_\_\_\_ non-preserved Sample Containers used: # VOAs Well Constructed TD (ft): \* Well TD (ft): # amber liters preserved \_ non-preserved # polys \_ non-preserved Silt Thickness (ft): preserved Initial DTW (ft): preserved non-preserved Water column height (ft): Notes: One casing volume (gal): Sampled By: A. Dorn \*\* Final DTW (ft): Casing diameter (in): CMT

Sample Method:

Waterra ⊠ Bailer □ Other □

• = measured •• = @ sampling

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

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

	Project Name:	Sullins (	L St)				Well I.D.: MW-105					
	Project No.:	1262.2							Date: 10/26/2011			
	Project Location:	187 N. I	Street						<del> </del>			
		Livermo							Samples sent to: BC Labs			
		Liverino	ie, ox						Samples sent to. Bo Labs			
Time	Cumulative Volume Purged (gal)	Temp	C°	EC (μS/cm)	pН	ORP (millivolts)	DO	(mg/L)	Remarks			
	0.01								Could not purge 1 volume			
	0.02											
	0.03											
	Purge Method: Pumping Rate:		dicated \	Waterra □Cen	trifugal pum	p with dedicated to	ubing	☐ Oth	ner			
Well	Constructed TD (ft):	37.	.00		Sample	Containers used:			# VOAsX preserved non-preserved			
	* Well TD (ft):	36.	.55		. N. 18-18-19. 19. 19. 19. 19. 19. 19. 19. 19. 19.				# amber liters preserved non-preserved			
	Silt Thickness (ft):	0.4	45						# polys preserved non-preserved			
	Initial DTW (ft):	35.	.55						# polys preserved non-preserved			
Water	r column height (ft):	1.0	00			Notes:	Dry					
One	casing volume (gal):	0.	01					٨				
	** Final DTW (ft):					Sampled By:	A. Do	n Ka	with an			
С	asing diameter (in):	CI	ЛT	]				/ \				
Sample Me	ethod: Illons per foot of casing.			iler  Other	55, 5" dia. = 1	* = measured  02, 6" dia. = 1.48	** = @ S	ampling	Purged Water Drummed:			

	Project Name:	Sullins (	L St)						Well I.D.: MW-205
	Project No.:	1262.2							Date: 10/26/2011
	Project Location:	187 N. L	_ Street						
		Livermo	re, CA						Samples sent to: BC Labs
Time	Cumulative Volume Purged (gal)	Temp	C°	EC (μS/cm)	рН	ORP (millivolts)	DO	(mg/L)	Remarks
13:21	0								Dark gray, strong odor, few sediments
13:25	0.12								Dark gray, strong odor, few sediments
13:30	0.24								Dark gray, strong odor, few sediments
13:35	0.36								Dark gray, strong odor, few sediments
14:00									Collected Samples
Well	Purge Method Pumping Rate Constructed TD (ft) * Well TD (ft)	48.	0.009 .00	Waterra □Cer gal/min	WTW DEL	np with dedicated t		Oth	# VOAsX preserved non-preserved amber liters preserved non-preserved
	Silt Thickness (ft)	:0.	23						_# polys preserved non-preserved
	Initial DTW (ft)	37	.12				_		# polys preserved non-preserved
Wate	r column height (ft)	10	.65			Notes			
One	casing volume (gal)	:0.	12						
:	** Final DTW (ft)	1				Sampled By	A. Do	rn /	ndlin John
	asing diameter (in)	: CI	MT					,	
Sample M	ethod: allons per foot of casing			iler		* = measured 1.02, 6" dia. = 1.48	• = @	sampling	Purged Water Drummed:  Yes  No No. of Drums:

	Project Name:	Sullins (	L St)						Well I.D.: MW-305
	Project No.:	1262.2							Date: 10/26/2011
	Project Location:		Street	()					
	DOMESTICAL CONTRACTOR OF THE PROPERTY OF THE P		TI ACCOUNTS						Complex cent to: PC   cho
		Livermo	re, CA						Samples sent to: BC Labs
Time	Cumulative Volume Purged (gal)	Temp	C°	EC (μS/cm)	рН	ORP (millivolts)	DO	(mg/L)	Remarks
13:05	0								Milky brown, no odor, few sediments
13:10	0.34								Milky brown, no odor, few sediments
13:15	0.68								Milky brown, no odor, few sediments
13:20	1.02								Milky brown, no odor, few sediments
13:50									Collected Samples
Well	Purge Method Pumping Rate Constructed TD (ft) * Well TD (ft)	66		Waterra □Cer	5	np with dedicated to		□ Oth	# VOAs preserved non-preserved amber liters preserved non-preserved
	Silt Thickness (ft		.29	1					# polys preserved non-preserved
	Initial DTW (tt		5.38						# polys preserved non-preserved
Wate	er column height (ff		0.33	1		Notes			
One	casing volume (gal	): 0	.34	1					
	** Final DTW (ft			1		Sampled By	: A. Do	orn /	Sudve Lago
	Casing diameter (in	): C	TM					)	
Sample M	lethod:			ailer ☐ Other ☐ dia. = 0.38 4* dia. = 0		* = measured 1.02, 6" dia. = 1.48	•• = @	sampling	Purged Water Drummed:

	Project Name:	Sullins (I	LSt)						Well I.D.:	MW-6
	Project No.:	1262.2							Date:	10/26/2011
	Project Location:	187 N. L	Street							
		Livermo							Samples sent to:	BC Labs
Time	Cumulative Volume Purged (gal)	Temp	C°	EC (μS/cm)	рН	ORP (millivolts)	DO	(mg/L)		Remarks
									-	
		-								
		-								
	Purge Method Pumping Rate				trifugal pum	np with dedicated t	ubing	☐ Oth	er	
Well	Constructed TD (ft)	-			Sample	Containers used:			# VOAs	X preserved non-preserved
	* Well TD (ft)	-		-					# amber liters # polys	preserved non-preserved preserved non-preserved
	Silt Thickness (ft) Initial DTW (ft)			-					# polys	
Wate	er column height (ft)			1		Notes			poi,jo	
1	casing volume (gal							Λ	1	
	** Final DTW (ft	):		]		Sampled By	: A. Do	rn /	man Lope	
(	Casing diameter (in	: CN	ЛТ					/	,	
Sample M	lethod: allons per foot of casing			ailer  Other  Odia. = 0.38 4" dia. = 0.		• = measured	** = @ :	sampling	]	Purged Water Drummed:  Yes  No No. of Drums:

	Project Name:	Sullins (L	St)							Well I.D.:	MW-106
	Project No.:	1262.2								Date:	10/26/2011
	Project Location:	187 N. L	Street								
		Livermore	e, CA							Samples sent to:	BC Labs
Time	Cumulative Volume Purged (gal)	Temp	C°	EC (μS/c	n)	рН	ORP (millivolts)	DO	(mg/L)		Remarks
	0										
	0.04										
	0.08										
	0.12										
13:45										Collected Samples	
	Purge Method: Pumping Rate:			Waterra [	Centrifu	igal pum	p with dedicated t	ubing	Oth	er	
Well	Constructed TD (ft):	37.0	00			Sample	Containers used:		4	# VOAs	X preserved non-preserved
	* Well TD (ft):	38.0	)2							# VOAs	preserved non-preserved
	Silt Thickness (ft)									# polys	preserved non-preserved
	Initial DTW (ft)	34.6	64					_		# polys	preserved non-preserved
Wate	r column height (ft)	3.3	8				Notes:	Well w	vent dry, c	ould only collect 4 voa's	
One	casing volume (gal)	0.0	4						-A		
	** Final DTW (ft)						Sampled By:	A. Do	rn /	ndu John	
C	asing diameter (in)	CM	Т	]							
Sample M	ethod: allons per foot of casing			iler □ Othe		5" dia. = 1	* = measured .02, 6* dia. = 1.48	** = @	sampling	]	Purged Water Drummed:

	Project Name:	Sullins (	L St)						Well I.D.: 1	MW-206
	Project No.:	1262.2							Date:	10/26/2011
	Project Location:	187 N. L	. Street							
		Livermo	re, CA						Samples sent to: I	BC Labs
			_							
Time	Cumulative Volume Purged (gal)	Temp	C°	EC (μS/cm)	рН	ORP (millivolts)	DO	(mg/L)		Remarks
13:50	0								clearish brown, no odo	r, no sediments
13:52	0.15									
13:53	0.30									
13:55	0.45									
14:00									Collected Samples	
										* 1
	Purge Method:	⊠ Ded	licated \	Waterra	rifugal pum	p with dedicated t	ubing	☐ Oth	er	
	Pumping Rate:		0.045	gal/min						
Well	Constructed TD (ft):	50.	00	1	Sample	Containers used:		6	# VOAs	X preserved non-preserved
100000000	* Well TD (ft):	50.	92	1	274 D94 00. \$ 0000				# amber liters	preserved non-preserved
	Silt Thickness (ft):			1					# polys	preserved non-preserved
	Initial DTW (ft):	37.	54	1					# polys	preserved non-preserved
Wate	r column height (#):	13.	38			Notes:				
One	casing volume (gal)	0.1	15					J	1	
	** Final DTW (ft)			]		Sampled By:	A. Do	rn A	moller John	
С	asing diameter (in)	CN	ΛT							
Sample M	ethod:	Waterra	⊠ Ba	iler  Other		• = measured	•• = @ :	sampling	] [	Purged Water Drummed: ☐ Yes ☐ No
Ga	allons per foot of casing.	2" dia. = 0	.17, 3" d	ia. = 0.38 4" dia. = 0.6	5, 5" dia. = 1	.02, 6" dia. = 1.48			ļ	No. of Drums:

	_								Groundwa	ter Monitoring Field Log
	Project Name:	Sullins (L	_St)						Well I.D.: MV	V-306
	Project No.:	1262.2							Date: 10/	/26/2011
	Project Location:	187 N. L	Street							
		Livermor	re. CA						Samples sent to: BC	Labs
			-, -, -				kl		• • • • • • • • • • • • • • • • • • •	
Time	Cumulative Volume Purged (gal)	Temp	C°	EC (μS/cm)	pН	ORP (millivolts)	DO	(mg/L)		Remarks
13:36	0								Milky brown, no odor, lots	s of sediments
13:40	0.35								Milky brown, no odor, lots	s of sediments
13:44	0.70								Milky brown, no odor, lots	s of sediments
13:48	1.05								Milky brown, no odor, lots	s of sediments
13:20									Collected Samples	
		-								
	Purge Method Pumping Rate			Waterra □Cen	trifugal pun	np with dedicated t	ubing	□ Oth	er	
Well	Constructed TD (ft)	66.0	00		Sample	e Containers used:		6	_# VOAs	X preserved non-preserved
	* Well TD (ft)	66.6	61						# amber liters	preserved non-preserved
	Silt Thickness (ft)	):							_# polys	preserved non-preserved
	Initial DTW (ff)	35.4	45				_		# polys	preserved non-preserved
Wate	r column height (ff)	31.	16			Notes:		- 1		
One	casing volume (gal)	0.3	35			,		-A	1. 1	
	** Final DTW (ft)	):				Sampled By:	A. Do	rn /	Salle Spr	
С	asing diameter (in)	: CN	ИΤ	J						
Sample Me	ethod:	Waterra	⊠ Ba	iler  Other		• = measured	··= @ s	sampling		Purged Water Drummed:
Ga	allons per foot of casing	2" dia. = 0.	17, 3" d	ia. = 0.38 4" dia. = 0.6	65, 5" dia. = 1	1.02, 6" dia. = 1.48			_	No. of Drums:

	Project Name:	Sullins (L	St)						Well I.D.:	MW-7
	Project No.:	1262.2							Date:	10/26/2011
	Project Location:	187 N. L	Street							
		Livermor							Samples sent to:	BC Labs
Time	Cumulative Volume Purged (gal)	Temp	C°	EC (μS/cm)	pН	ORP (millivolts)	DO	(mg/L)		Remarks
	Purge Method Pumping Rate				ntrifugal pun	np with dedicated t	ubing	Oth	er	
Well	Constructed TD (ft)	30.0	00	]	Sample	Containers used:			# VOAs	X preserved non-preserved
	* Well TD (ft)								# amber liters	preserved non-preserved
	Silt Thickness (ft)		200						# polys	preserved non-preserved
Wate	Initial DTW (ft) er column height (ft)		у	1		Notes	:		# polys	preservednon-preserved
	casing volume (gal)						-	l	1	
	** Final DTW (ft)					Sampled By	A. Do	rn /	and m den	
	Casing diameter (in)	: CN	1T	]				/		
Sample N	lethod:	Waterra	⊠ Ba	iller  Other		• = measured	••=@:	sampling	]	Purged Water Drummed:
G	allons per foot of casing	2" dia. = 0.	17, 3" d	lia. = 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-107
	Project No.:	1262.2							Date: 10/26/2011
	Project Location:	187 N. L	Street	11					
		Livermor	Company Co.						Samples sent to: BC Labs
Time	Cumulative Volume Purged (gal)	Temp	C°	EC (μS/cm)	pН	ORP (millivolts)	DO	(mg/L)	Remarks
13:01	0								
13:02	0.04								
13:03	0.08								
13:04	0.12								
14:30									Collected Samples
							-		
	Purge Method Pumping Rate			Waterra □Cen	trifugal pur	np with dedicated	tubing	☐ Oth	her
Well	Constructed TD (ft)	40.0	00		Sample	e Containers used	:	6	
	* Well TD (ft)	39.4	48						# amber liters preserved non-preserved
	Silt Thickness (ft)	0.5	2						# polys preserved non-preserved
	Initial DTW (ft)	35.	92						# polys preserved non-preserved
Wate	er column height (ft)	3.5	6	_		Notes	: Collec	ted samp	oles from tubing
One	casing volume (gal)	0.0	)4					- A	
	** Final DTW (ft)					Sampled By	: A. Do	orn /	Suffer Joseph
	Casing diameter (in)	: CN	/T					,	S= 7
Sample N	Method:			ailer		* = measured 1.02, 6" dia. = 1.48	** = @	sampling	Purged Water Drummed: ☐ Yes ☐ No No. of Drums:

	Project Name:	Sullins (I	L St)						Well I.D.: MW-207
	Project No.:	1262.2							Date: 10/26/2011
	Project Location:	187 N. L	Street	t					
		Livermo	re, CA						Samples sent to: BC Labs
Time	Cumulative Volume Purged (gal)	Temp	C°	EC (μS/cm)	pН	ORP (millivolts)	DO	(mg/L)	Remarks
12:53	0								Clear, strong odor, no sediments
12:55	0.13								Clear, strong odor, no sediments
12:57	0.26								Clear, strong odor, no sediments
13:00	0.39								Clear, strong odor, no sediments
14:15									Collected Samples
	Purge Method		icated '	Waterra □Cen	trifugal pum	p with dedicated to	ubing	☐ Oth	er
Well	Constructed TD (ft):	50.0	00		Sample	Containers used:		6	# VOAsX preserved non-preserved
	* Well TD (ft)	49.2	29	]					# amber liters preserved non-preserved
	Silt Thickness (ft)	0.7	1						# polys preserved non-preserved
×	Initial DTW (ft)	38.	12						# polys preserved non-preserved
Water	column height (ft)	11.	17			Notes:			
One o	casing volume (gal)	0.1	3					1	
	** Final DTW (ft)					Sampled By:	A. Do	rn /	and the John
Ca	asing diameter (in)	: CN	1T					,	
Sample Me	ethod: llons per foot of casing.			iler  Other	65, 5° dia. = 1	* = measured .02, 6" dia. = 1.48	** = @ s	ampling	Purged Water Drummed: ☐ Yes ☐ No No. of Drums:

	Project Name:	Sullins (L	St)						Well I.D.: MW-8	
	Project No.:	1262.2							Date: 10/26/2011	
	Project Location:	187 N. L	Stree	t					-	
		Livermore	e, CA						Samples sent to: BC Labs	
Time	Cumulative Volume Purged (gal)	Temp	C°	EC (μS/cm)	pН	ORP (millivolts)	DO	(mg/L)	Ren	narks
		-								
	Purge Method: Pumping Rate:			Waterra □Cen	trifugal pum	p with dedicated to	ubing	☐ Oth	er	
Well	Constructed TD (ft):	30.0	0		Sample	Containers used:			# VOAsX pre-	served non-preserved
	* Well TD (ft):									erved non-preserved
	Silt Thickness (ft): Initial DTW (ft):									erved non-preserved
Water	column height (ft):					Notes:			# polys prese	erved non-preserved
li .	casing volume (gal):					9.00.000.00		Λ		10-
	** Final DTW (ft):					Sampled By:	A. Dor	n /	when der	
C	asing diameter (in):	CM	Γ					,		
Sample Me	ethod:	Waterra D	☑ Ba	iler  Other		* = measured	•• = @ s	ampling	Purgeo	Water Drummed:    Yes    No
Ga	llons per foot of casing.	2" dia. = 0.1	7, 3" di	a. = 0.38 4" dia. = 0.6	5, 5* dia. = 1.	02, 6" dia. = 1.48				No. of Drums:

	Project Name:	Sullins (	L St)						Well I.D.:	MW-208
	Project No.:	1262.2							Date:	10/26/2011
	Project Location:	187 N. I	Street							
	4	Livermo							Samples sent to:	PC Labo
		Liverino	ne, CA						Samples sent to.	BC Labs
Time	Cumulative Volume Purged (gal)	Temp	C°	EC (μS/cm)	рН	ORP (millivolts)	DO	(mg/L)		Remarks
14:16	0									
14:20	0.15									
14:24	0.30									
14:30	0.45									
16:00									Collected Samples	
	Purge Method: Pumping Rate:		dicated '	Waterra □Cen	trifugal pun	np with dedicated t	ubing	Oth	er	
Well	Constructed TD (ft):	52.	.00	]	Sample	Containers used:		5	# VOAs	X preserved non-preserved
	* Well TD (ft):	51	.98						# amber liters	preserved non-preserved
	Silt Thickness (ft):	0.	02						# polys	preserved non-preserved
	Initial DTW (ft):	38	.59			-			# polys	preserved non-preserved
Water	r column height (ft):	13	.39			Notes:				
One	casing volume (gal):	0.	15					/	1	
	** Final DTW (ft):					Sampled By:	A. Do	m A	moller app	
С	asing diameter (in)	CI	MT	]				/		
Sample Me	ethod: llons per foot of casing			iler	35, 5" dia. = 1	• = measured	** = @ \$	sampling	]	Purged Water Drummed:

	Project Name:	Sullins (	(LSt)						Well I.D.: MW-308
	Project No.:	1262.2							Date: 10/26/2011
	Project Location:		Street						
		Livermo	-0						Samples sent to: BC Labs
Time	Cumulative Volume Purged (gal)	Temp	C°	EC (μS/cm)	рН	ORP (millivolts)	DO	(mg/L)	Remarks
14:00	0								
14:05	0.31								
14:10	0.62								7-2
14:15	0.93								
15:40									Collected Samples
		-							
		-							
		-							
						<u> </u>			
	Purge Method	: 🗵 De	dicated '	Waterra □Cer	trifugal pun	np with dedicated t	ubing	☐ Oth	her
	Pumping Rate			gal/min					
Well	Constructed TD (#1)	- 66	.00	1	Sample	Containers used:		6	# VOAs preserved non-preserved
	* Well TD (ft)		.03		oup.				# amber liters preserved non-preserved
	Silt Thickness (ft)		97	1			-		# polys preserved non-preserved
	Initial DTW (ft)		.09	1					# polys preserved non-preserved
Wate	r column height (ff)	27	.94			Notes			
One	casing volume (gal)	. 0.	31	]				λ	
	** Final DTW (ft)	):				Sampled By	A. Do	orn /	Sudm Loga
C	asing diameter (in)	: CI	MT					7	
Sample M	ethod: allons per foot of casing			tiler		• = measured 1.02, 6" dia. = 1.48	** = @	sampling	Purged Water Drummed: ☐ Yes ☐ No No. of Drums: