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8:34 am, Jun 20, 2011

Alameda County
Environmental Health

June 14, 2011

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 1st Semi-Annual Groundwater Monitoring, April 2011, dated June 13, 2011 that was sent to your office via electronic delivery per Alameda County's guidelines on June 14, 2011.

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

Respectfully submitted,

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

Geological Technics Inc.

REPORT

Semi-Annual Groundwater Monitoring
April 2011

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

Project No. 1262.2
June 13, 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

Geological Technics Inc.

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

June 10, 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: 1st Semi-Annual Groundwater Monitoring, April 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 1st Semi-annual 2011 groundwater monitoring event performed on April 7th and 8th, 2011, at the 187 North L Street property in Livermore. 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) that includes provisions for performing dual phase extraction to treat the residual contamination at the site, which has received approval from ACEH.

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

Respectfully submitted,

Tamorah Bryant, P.E.

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

TABLE OF CONTENTS

FIGURES

APPENDICES

Geological Technics Inc.
1172 Kansas Ave.
Modesto, California 95351
(209) 522-4119/Fax (209) 522-4227

REPORT

Semi-Annual Groundwater Monitoring
April 2011

Arrow Rentals Services
187 North L St.
Livermore, CA

Project No. 1262.2
June 10, 2011

1.0 EXECUTIVE SUMMARY

This report summarizes the results of the 1st Semi-annual 2011 groundwater monitoring and sampling event that took place on April 7th and 8th, of 2011.

The average shallow groundwater elevation at the site was 451.15 feet above mean sea level (msl) and the average depth to water was 27.30 feet below grade surface (bgs). This represents an increase of 3.92 feet since the April 2008 monitoring event. The shallow groundwater flow was northwest (N56°W) at a slope of 0.0221 ft/ft for this event.

The analytical results of groundwater samples show that detectable concentrations of gasoline range petroleum hydrocarbons were present in twenty-four of the site's twenty-five groundwater monitoring wells sampled for this event (down gradient well W-Es was non-detect for TPH-G). Detectable concentrations of MTBE were present in four (MW-104, MW-108, MW-207 and down-gradient W-Es) of the site's twenty-five groundwater monitoring wells sampled for this event. A persistent core remains in the vicinity of well W-1 (68,900 µg/l TPH-g, sampled 04/08/2011) which is located adjacent to former USTs/piping trenches and is down gradient of the former UST system from which the Pitcock release originated.

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

1.1 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 facility also experienced an environmental impact when a gasoline delivery was introduced into a subsurface vapor/monitoring well rather than the UST fill pipe ("Pitcock Release").

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.
- 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 wells was 451.15 feet above mean sea level (msl) on April 7th and 8th, 2011. This corresponds to 27.30 feet below grade surface (bgs) and represents an increase of 3.92 feet since the April 2008 monitoring event. The depth to groundwater observed in the site's wells has ranged from approximately 20 - 49 feet below grade surface from 1989 to 2011. Refer to Figures 1 through 3 for site details, well and borehole locations.

GTI was unable to obtain depth-to-water measurements in the five CMT™ wells during the April groundwater monitoring event. Therefore the groundwater gradient for the intermediate and deep aquifers could not be determined during this event.

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

Shallow Wells (screened 20 – 45 feet bgs):

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

Intermediate Wells (screened 40 – 60 feet bgs):
W-A, W-B, W-C, W-D, W-E, W-1, W-3, MW-104, MW-205, MW-206, MW-207, MW-208.

Note: 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

Deep Wells (screened ~ 65 feet bgs):
MW-204, MW-305, MW-306, MW-307, MW-308

Deepest Wells (screened > 70 feet bgs):
MW-304, MW-404

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

Horizontal Groundwater Gradients:
The calculated gradients for the April 7th and 8th, 2011 monitoring event are as follows:

Aquifer Zone:	Gradient:	Bearing:
Water table	0.0221	N56°W
Intermediate	N/A	N/A
Deep	N/A	N/A

Figures 5A illustrates the shallow aquifer groundwater gradient map for the April 7th and 8th, 2011 monitoring event. Figure 5B and 5C, which illustrate the intermediate and deep aquifer gradient maps, were not included due to a lack of depth-to-water data from the CMT™ wells.

Vertical Groundwater Gradients:
GTI was unable to calculate vertical gradients for well pairs MW-205/305, and MW-206/306 for the April 7th and 8th, 2011 monitoring event.

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. GTI was unable to collect depth-to-water measurements in MW-304 and MW-404 for the April 7th and 8th, 2011 monitoring event.

Groundwater Flow Conclusions

- Obtaining valid water level measurements from the CMT™ wells remains problematic due to the clayey soils at the site. During this event and past events, the clays clog the

Waterra tubing and smear on the inside of the individual chambers, making it not possible to lower the depth-to-water meter measuring tape into the well casing.

- Shallow groundwater flow was northwest (N56°W) at a slope of 0.0221 ft/ft for this event. Figure 5A is a shallow groundwater gradient map.
- Intermediate and deep groundwater flow could not be determined for the April 2011 event due to problems collecting groundwater depth data from the CMT™ wells.
- Vertical groundwater gradients could not be determined for the April 2011 event due to problems collecting groundwater depth data from the CMT™ wells.

2.2 Groundwater Sampling Procedure

On April 7th and 8th, 2011, Geological Technics Inc. (GTI) staff mobilized to the site to conduct depth-to-water measurements and sampling of the site's monitoring wells. Before sampling was attempted, the wells were sounded for depth to water and groundwater levels recorded with exceptions as noted. The CMT™ wells were purged of at least three well volumes of stagnant water by hand. The non-CMT™ wells were purged of at least three well volumes of stagnant water using a dedicated Waterra check-ball. Purging continued until the temperature, conductivity, and pH of the groundwater stabilized (<10% variation in three consecutive readings), indicating that formation water representative of aquifer conditions was entering the wells.

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

The following deviations from the sampling protocol are noted:

- *Several CMT™ wells did not contain enough water to purge and collect samples. Samples were not collected from the following wells: MW-4, MW-5, and MW-7.*

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

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

Groundwater monitoring field logs are included in Appendix C.

2.3 Laboratory Analyses

The groundwater samples collected on April 7th and 8th, 2011, were delivered to Excelchem Environmental Labs (Department of Health Services Certification No. 2119) of Roseville, California, for analysis.

The groundwater samples were analyzed for:

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

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

As required under AB2886, the depth to groundwater data for the 1st Semiannual 2011 was submitted to GeoTracker on June 13, 2011 – confirmation number 6627961158. Laboratory data was submitted to GeoTracker on June 13, 2011 – confirmation number 7589196741.

3.0 FINDINGS AND DISCUSSION

3.1 Field Parameters

For the April 7th and 8th, 2011 event:

- Dissolved Oxygen (DO) ranged from 0.02 (W-Bs) to 1.06 (W-Es).
- Electrical Conductivity (EC) ranged from 780 (W-Bs) to 967 (W-1s), which is above historical ranges.
- Oxygen Reduction Potential (ORP) ranged from -254.5 (W-A) to 141.3 (W-Es).
- pH ranged from 6.17 (W-1s) to 7.03 (W-Es).
- Temperature ranged from 18.1 °C (W-3s) to 19.5 °C (W-Es).

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

3.2 Laboratory Analytical Data

For the April 7th and 8th, 2011 event:

Shallow Aquifer:

- CMT™ monitoring well MW-107 reported the highest concentrations of TPH-g (20,400 µg/l) and benzene (15,100 µg/l) in the shallow aquifer. Contaminant concentrations in MW-107 appear to be increasing over time and are above historical ranges for the April 2011 monitoring 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 centered around W-1s and W-4 during the April 2007 monitoring event to centered around CMT-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.
- Eleven of the thirteen shallow monitoring wells sampled during this event reported MTBE concentrations below laboratory reporting limits. MW-108 and down gradient W-Es reported MTBE concentrations of 89.6 µg/l and 0.5 µg/l, respectively.
- Well W-1s contained: 13,400 µg/l TPH-g, 2,040 µg/l benzene, 239 µg/l toluene, 1,180 µg/l ethyl benzene, and 877 µg/l xylene.
- Well W-Bs contained: 6,960 µg/l TPH-g, 1,280 µg/l benzene, 56.2 µg/l toluene, 632 µg/l ethyl benzene, and 432 µg/l xylene.
- Well W-3s contained: 937 µg/l TPH-g, 422 µg/l benzene, 239 µg/l and 6.5 µg/l ethyl benzene. W-3s was non-detect below laboratory reporting limits for toluene and xylene.
- Well W-Es contained 0.5 µg/l of MTBE. W-Es did not contain BTEX or TPH-g contamination above the laboratory reporting limits.
- CMT™ Well MW-6 contained 220 µg/l TPH-g and 3.2 µg/l benzene. MW-6 was non-detect below laboratory reporting limits for toluene, ethyl benzene and xylene.
- CMT™ Well MW-8 contained 765 µg/l TPH-g, 119 µg/l benzene, 3.0 µg/l ethyl benzene, and 6.0 µg/l xylene. MW-8 was non-detect below laboratory reporting limits for toluene.
- CMT™ Well MW-105 contained 11,300 µg/l TPH-g, 5,870 µg/l benzene, 135 µg/l toluene 518 µg/l ethyl benzene, and 1,110 µg/l xylene.
- CMT™ Well MW-106 contained 247 µg/l TPH-g and 9.3 µg/l benzene. MW-106 was non-detect below laboratory reporting limits for toluene, ethyl benzene and xylene.
- CMT™ Well MW-107 contained 20,400 µg/l TPH-g, 15,100 µg/l benzene and 360 µg/l ethyl benzene. MW-107 was non-detect below laboratory reporting limits for toluene and xylene (<200 µg/l and <400 µg/l, respectively).
- CMT™ Well MW-108 contained: 4,000 µg/l TPH-g, 1,640 µg/l benzene, 10.8 µg/l toluene, 123 µg/l ethyl benzene, 84.2 µg/l xylene and 89.6 µg/l of MTBE.
- CMT™ wells MW-4, MW-5 and MW-7 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 April 2011. The groundwater plume is localized in the vicinity of the former USTs/piping trenches and appears to be centered around CMT™ cluster 7 (MW-107), which reported a TPH-g concentration of 20,400 µg/l during the April 2011 event.

Intermediate Aquifer:

- Monitoring well W-1 reported the highest concentrations of TPH-g (68,900 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 April 2011 monitoring event.
- CMT™ monitoring well MW-205 reported the highest concentrations of benzene (25,000 µg/l) in the intermediate aquifer. Contaminant concentrations in MW-205 appear to be increasing and are above historical ranges for the April 2011 monitoring 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, 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.
- Six of the eight intermediate monitoring wells sampled during this event reported MTBE concentrations below laboratory reporting limits. MW-104 and MW-207 reported MTBE concentrations of 250 µg/l and 108 µg/l, respectively.
- Well W-A contained: 13,200 µg/l TPH-g, 2,370 µg/l benzene, 128 µg/l toluene, 439 µg/l ethyl benzene, and 523 µg/l xylene.
- Well W-1 contained: 68,900 µg/l TPH-g, 13,800 µg/l benzene, 8,150 µg/l toluene, 1,520 µg/l ethyl benzene, and 11,600 µg/l xylene.
- Well W-3 contained: 193 µg/l TPH-g, 7.8 µg/l benzene and 0.5 µg/l ethyl benzene. W-3 was non-detect below laboratory reporting limits for toluene and xylene.
- CMT™ Well MW-104 contained: 18,500 µg/l TPH-g, 13,700 µg/l benzene, 212 µg/l toluene, 266 µg/l ethyl benzene, and 384 µg/l xylene.
- CMT™ Well MW-205 contained: 33,600 µg/l TPH-g, 25,000 µg/l benzene, 232 µg/l toluene, 640 µg/l ethyl benzene, and 448 µg/l xylene.
- CMT™ Well MW-206 contained 1,170 µg/l TPH-g and 115 µg/l benzene. MW-206 was non-detect below laboratory reporting limits for toluene, ethyl benzene and xylene.
- CMT™ Well MW-207 contained 19,500 µg/l TPH-g, 15,000 µg/l benzene and 180 µg/l ethyl benzene. MW-207 was non-detect below laboratory reporting limits for toluene and xylene.
- CMT™ Well MW-208 contained: 12,300 µg/l TPH-g, 5,820 µg/l benzene, 75 µg/l toluene, 432 µg/l ethyl benzene, and 270 µg/l xylene.
- Figure 7 contains a contour map indicating GTI's interpretation of the intermediate TPH-g plume in April 2011. The groundwater plume is localized in the vicinity of the former USTs/piping trenches and appears to be centered around monitoring well W-1, which reported a TPH-g concentration of 68,900 µg/l during the April 2011 event.

Deep Aquifer:

- CMT™ monitoring well MW-308 reported the highest concentrations of TPH-g (3,240 µg/l) and benzene (1,230 µg/l) in the deep aquifer. Contaminant concentrations in MW-308 appear to be increasing and are above historical ranges for the April 2011 monitoring event.
- The deep aquifer TPH-g plume appears to be moving down-gradient, as suggested by the movement of the core of the plume from centered around CMT™ well MW-204 during the April 2007 monitoring event to split cores centered around MW-204 and further down-gradient MW-308, which is about 50 feet down-gradient. In addition, down-gradient well MW-308 has reported increasing contaminant concentrations since April 2007. However, the data is incomplete and further groundwater monitoring events will allow for a better evaluation of seasonal fluctuations.
- All five of the deep monitoring wells sampled during this event reported MTBE concentrations below laboratory reporting limits.
- CMT™ Well MW-204 contained: 2,520 µg/l TPH-g, 1,140 µg/l benzene, 27.8 µg/l toluene, 72.8 µg/l ethyl benzene, and 30.6 µg/l xylene.
- CMT™ Well MW-305 contained: 862 µg/l TPH-g, 193 µg/l benzene, 10.4 µg/l toluene, 27.6 µg/l ethyl benzene, and 69.1 µg/l xylene.
- CMT™ Well MW-306 contained: 10.4 µg/l benzene and was non-detect below laboratory reporting limits for TPH-G, toluene, ethyl benzene and xylene.
- CMT™ Well MW-307 contained: 70 µg/l TPH-g, 24.3 µg/l benzene, 3.8 µg/l toluene, 0.6 µg/l ethyl benzene, and 3.3 µg/l xylene.
- CMT™ Well MW-308 contained: 3,240 µg/l TPH-g, 1,230 µg/l benzene, 18.6 µg/l toluene, 187 µg/l ethyl benzene, and 125 µg/l xylene.
- Figure 8 contains a contour map indicating GTI's interpretation of the deep TPH-g plume in April 2011. The groundwater plume is localized in the vicinity of the former USTs/piping trenches and appears to be centered around monitoring wells MW-204 and MW-308, which reported a TPH-g concentration of 2,520 µg/l and 3,240 µg/l, respectively, during the April 2011 event. The plume appears to attenuate around MW-306 (ND) to the northeast and MW-307 (70 µg/l TPH-g) to the southwest.

Deepest Aquifer

- CMT™ Well MW-304 contained: 2,880 µg/l TPH-g, 657 µg/l benzene, 32.3 µg/l toluene, 93.5 µg/l ethyl benzene, and 262 µg/l xylene.
- CMT™ Well MW-404 contained: 119 µg/l TPH-g, 90.8 µg/l benzene, 1.4 µg/l toluene, 1.0 µg/l ethyl benzene, and 2.6 µg/l xylene.

Figures

- Figure 9B is a cross section illustrating the groundwater TPH-g concentrations reported during the April 2011 event. The figure shows the distribution of the

groundwater TPH-g contamination amongst the shallow, intermediate, deep and deepest aquifers. The highest concentrations appear to span from 35 to 60 feet below grade surface, with consistent concentrations greater than 5,000 µg/l TPH-g. These depths represent the shallow and intermediate aquifers described in Section 2.1. Figure 9A shows the cross section line A-A'.

- Figure 9C is a cross section illustrating the groundwater benzene concentrations reported during the April 2011 event. The figure shows the distribution of the groundwater benzene contamination amongst the shallow, intermediate, deep and deepest aquifers. The highest concentrations appear to span from 40 to 55 feet below grade surface and centered around the cluster of wells including W-1, MW-104, W-1s, W-A, MW-105 and MW-205 and the further down gradient MW-208, with consistent concentrations greater than 2,000 µg/l of benzene. These depths represent the shallow and intermediate aquifers described in Section 2.1. Figure 9A shows the cross section line A-A'.
- Figure 10 illustrates TPH-g concentration versus time in well W-1s (located in the vicinity of the core of the contaminant plume). With the exception of events in 1997 and 2001 the contaminant concentrations display a declining trend. The two peaks evident in Figure 10 suggest that significant contaminant mass is present although decades have past since the original USTs were removed. The April 2011 monitoring event represents the lowest concentrations of TPH-g in this well since April of 1998.
- Figure 11 illustrates TPH-g concentration versus time in well W-3s (located down/cross gradient of the core of the plume). The contaminant concentrations show an overall declining trend, despite elevated concentrations in October of 1998 and March of 2003.
- Figure 12 illustrates TPH-g concentration versus time in well W-Bs (located down gradient of the core of the plume). The contaminant concentrations showed a rapid declining trend from 1995 – 2003 but appear to have stabilized since.

4.0 CONCLUSIONS & RECOMMENDATIONS

Conclusions

1. The dominant groundwater flow direction is to the northwest, with the average flow bearing being N56°W at a slope of 0.0221 ft/ft.
2. For the April 2011 event, the average groundwater elevation and depth is 451.15 feet below mean sea level and 27.30 feet below ground surface, respectively.
3. Elevated concentrations of BTEX and TPH-g are present in a laterally limited (probably less than 300 foot radius) groundwater plume that is centered between the vicinity CMT™ Cluster 7 and wells W-1/W-1s. The plume appears to attenuate to the northeast at CMT™ 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, 25,000 µg/l, was present in intermediate depth well MW-205. This well is located just down gradient of the former UST system from which the Pitcock release originated.
5. The highest level of TPH-g detected, 68,900 µg/l, was present in intermediate depth well W-1. This well is located just down gradient of the former UST system from which the Pitcock release originated.
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 10, 11 and 12. It appears that there is a direct relationship between groundwater elevation and contaminant concentrations. It is hypothesized that groundwater levels during the April 2011 groundwater monitoring event may be related to high concentrations reported in some wells. Continued sampling will allow for further evaluation of this relationship.

Recommendations

1. Impending changes within the USTCF process will result in budgetary constraints placed on all projects. To accommodate these impending changes, GTI proposes that the groundwater monitoring and sample analysis be revised as outlined below. Please note that the reductions in frequency and constituents are based on consideration of historical data.

   The current monitoring plan includes semi-annual monitoring of twenty eight groundwater monitoring wells (W-1, W-3, W-A, W-1s, W-3s, W-Bs, W-Es, MW-4, MW-104, MW-204, MW-304, MW-404, MW-5, MW-105, MW-205, MW-305, MW-6, MW-106, MW-206, MW-306, MW-7, MW-107, MW-207, MW-307, MW-8, MW-108, MW-208 and MW-308). These wells range from historically non-detect to historically contaminated with constituents of concern.

   The proposed monitoring plan would be effective for the 2011 4th quarter semi-annual event and includes:

   - Semiannual monitoring of twenty-six groundwater monitoring wells which have historically contained levels of contaminants of concern (W-1, W-3, W-A, W-1s, W-3s, W-Bs, MW-4, MW-104, MW-204, MW-304, MW-404, MW-5, MW-105, MW-205, MW-305, MW-6, MW-106, MW-206, MW-306, MW-7, MW-107, MW-207, MW-8, MW-108, MW-208, MW-308). Laboratory analysis for the above wells are as follows:
     - TPH-G and BTEX only: W-1, W-3, W-A, W-1s, W-3s, W-Bs, MW-4, MW-304, MW-404, MW-5, MW-105, MW-305, MW-6, MW-106, MW-206, MW-306, MW-7, MW-107, MW-8, and MW-308.
     - TPH-G, BTEX and MTBE: MW-104, MW-204, MW-205, MW-207, MW-108 and MW-208.

- Annual monitoring, done in the 2nd quarter semi-annual event, of two groundwater monitoring wells which have historically low to trace levels of contaminants of concern (W-Es and MW-307). Laboratory analysis is proposed to be reduced to TPH-G and BTEX for MW-307 and TPH-G, BTEX and MTBE for W-Es.

Please note that GTI recommends reverting to the current monitoring schedule as the USTCF process permits.

2. Continue the process of developing and purging the CMT™ well chambers to clear them of clay residue/smear that precludes recharge and water level monitoring.

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

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

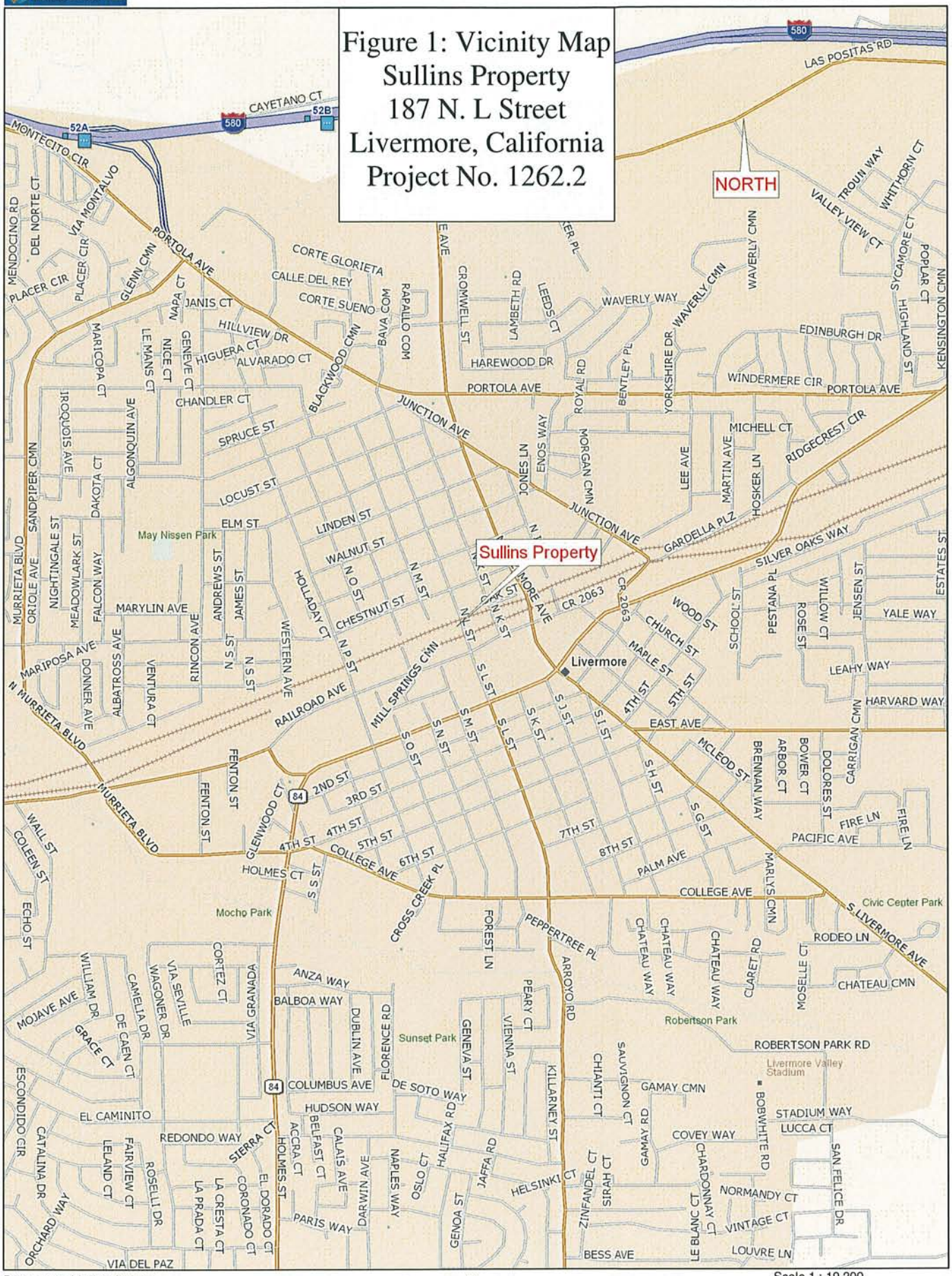
This report was prepared by:

Andrew Dorn, B.Sc. Geology

This report was prepared under the direction of:

Tamorah Bryant, P.E.

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



Data use subject to license.

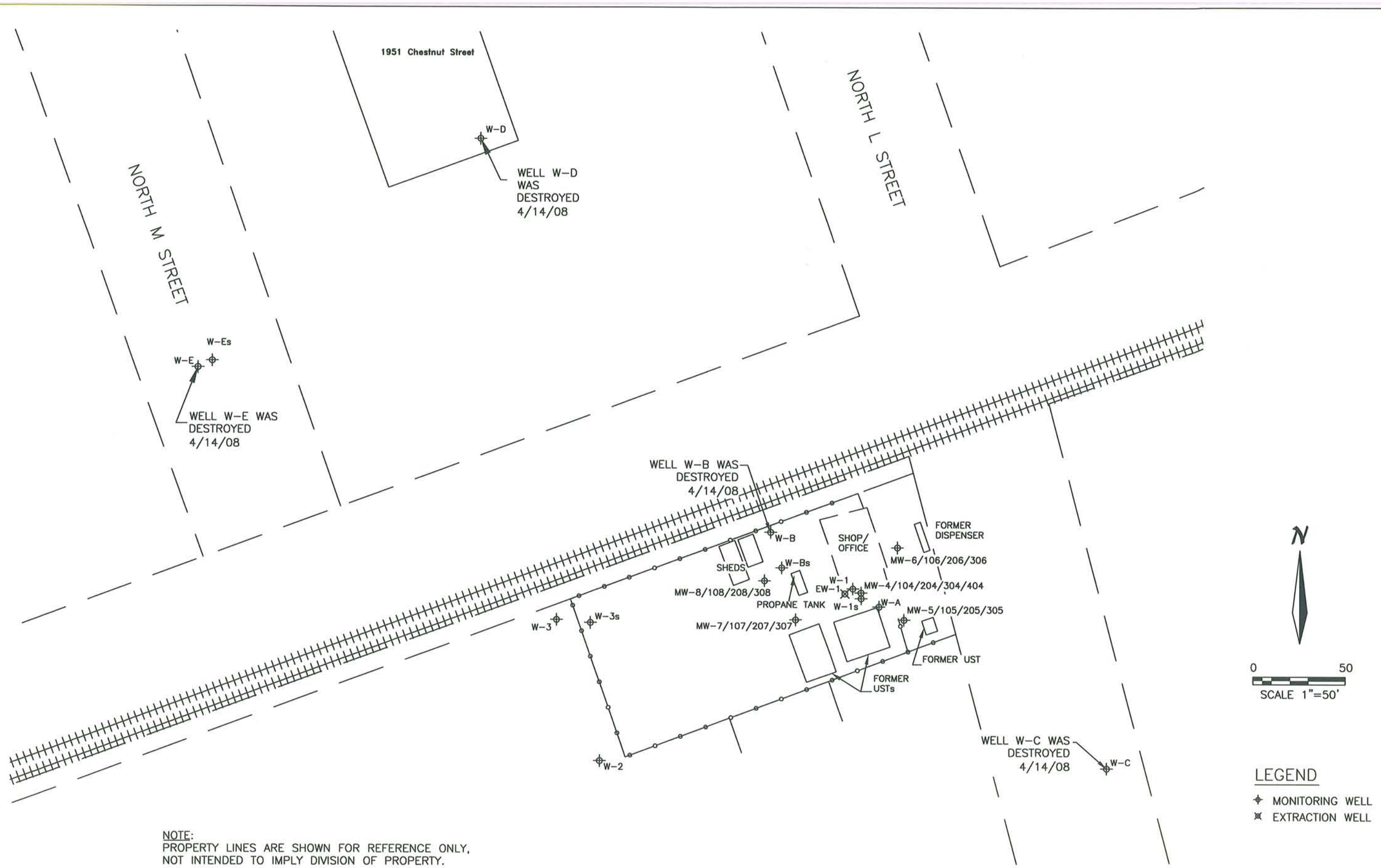
www.delorme.com

TN
MN (14.1°E)

Scale 1 : 19,200

1" = 1,600.0 ft

Data Zoom 13-4



NOTE:
PROPERTY LINES ARE SHOWN FOR REFERENCE ONLY, NOT INTENDED TO IMPLY DIVISION OF PROPERTY.

STREET RIGHT OF WAY IS APPROXIMATE, BASED ON ASSESSOR'S PARCEL MAPS AND INFORMATION PROVIDED BY WOODWARD-CLYDE CONSULTANTS

By:	TB
Job No:	1262.2 Date: 04-12-11
Scale:	1" = 50 feet
File:	12622 Graphics 4-8-11

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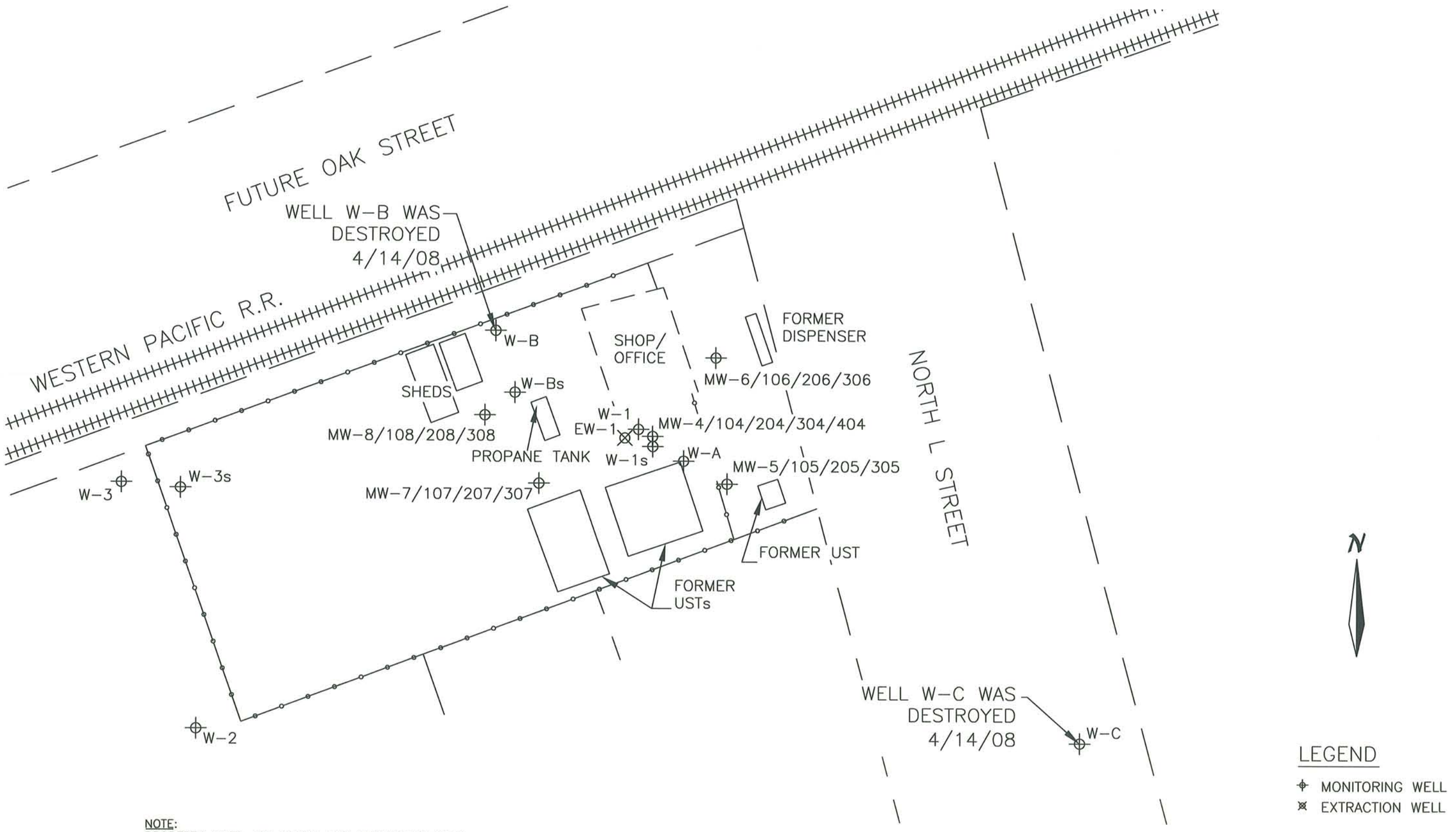
Modesto, CA
95351
209.522.4119 (tel)
209.522.4227 (fax)

FIGURE 2: SITE MAP

ARROW RENTALS
187 NORTH L STREET
LIVERMORE, CA



NOTE:
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By:	TB
Job No:	1262.2 Date: 4-12-11
Scale:	NTS
File:	12622 Graphics 4-8-11

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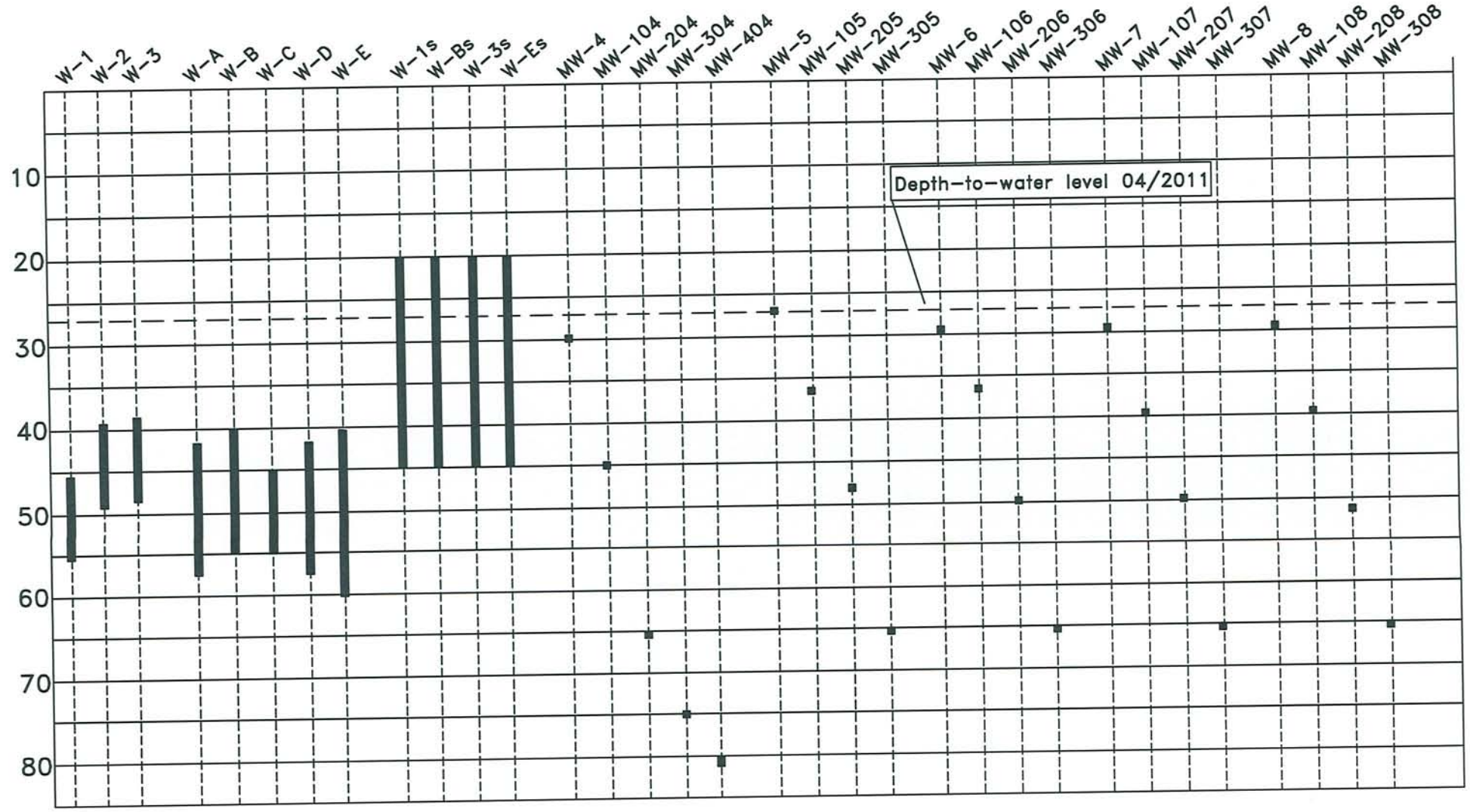
FIGURE 3: SITE DETAIL MAP

ARROW RENTALS
187 NORTH L STREET
LIVERMORE, CA

Figure 4:
Well Screened
Interval Diagram



Sullins
187 North L Street
Livermore, CA

Geological Technics Inc.

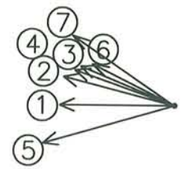
04/12/11

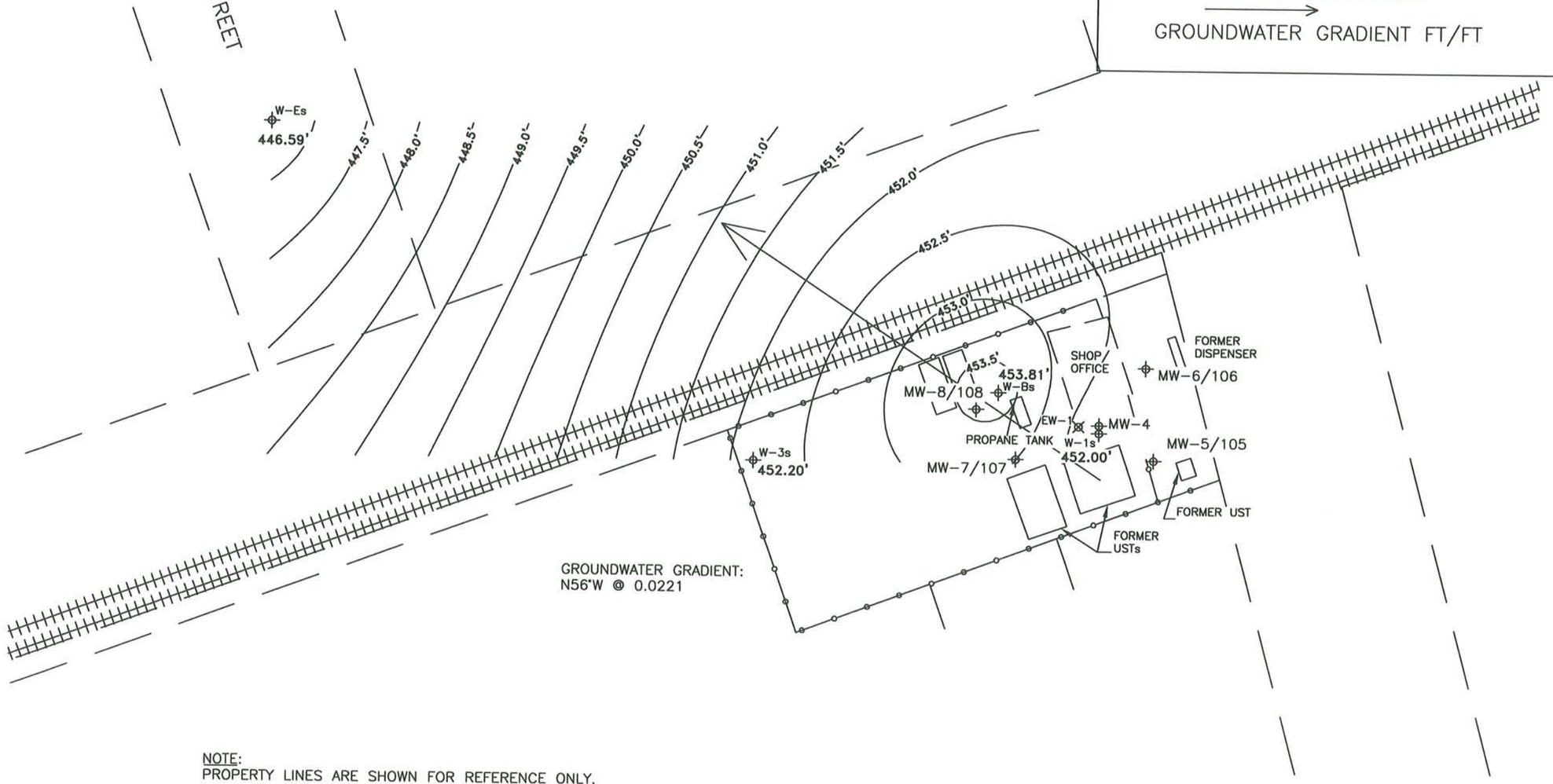
	DATE	BEARING	GRADIENT
1	04/29/04	WEST	0.019
2	07/07/06	N76°W	0.019
3	10/16/06	N68°W	0.014
4	04/17/07	N71°W	0.016
5	12/19/07	S74°W	0.033
6	04/07/08	N64°W	0.012
7	04/08/11	N56°W	0.0221

0.001 0.01 0.1 1

GROUNDWATER GRADIENT FT/FT

ROSE DIAGRAM





N

0 50

SCALE 1"=50'

LEGEND

- MONITORING WELL
- EXTRACTION WELL
- DATA NOT AVAILABLE

GRADIENT CALCULATED BY COMPUTER GENERATED CONTOURS

GROUNDWATER ELEV. −33.66'

CONTOUR INTERVAL = 0.5 FOOT

NOTE:
PROPERTY LINES ARE SHOWN FOR REFERENCE ONLY, NOT INTENDED TO IMPLY DIVISION OF PROPERTY.

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By:	AD
Job No:	1262.2 Date: 4−12−11
Scale:	1" = 50 feet
File:	12622 Graphics 4−8−11

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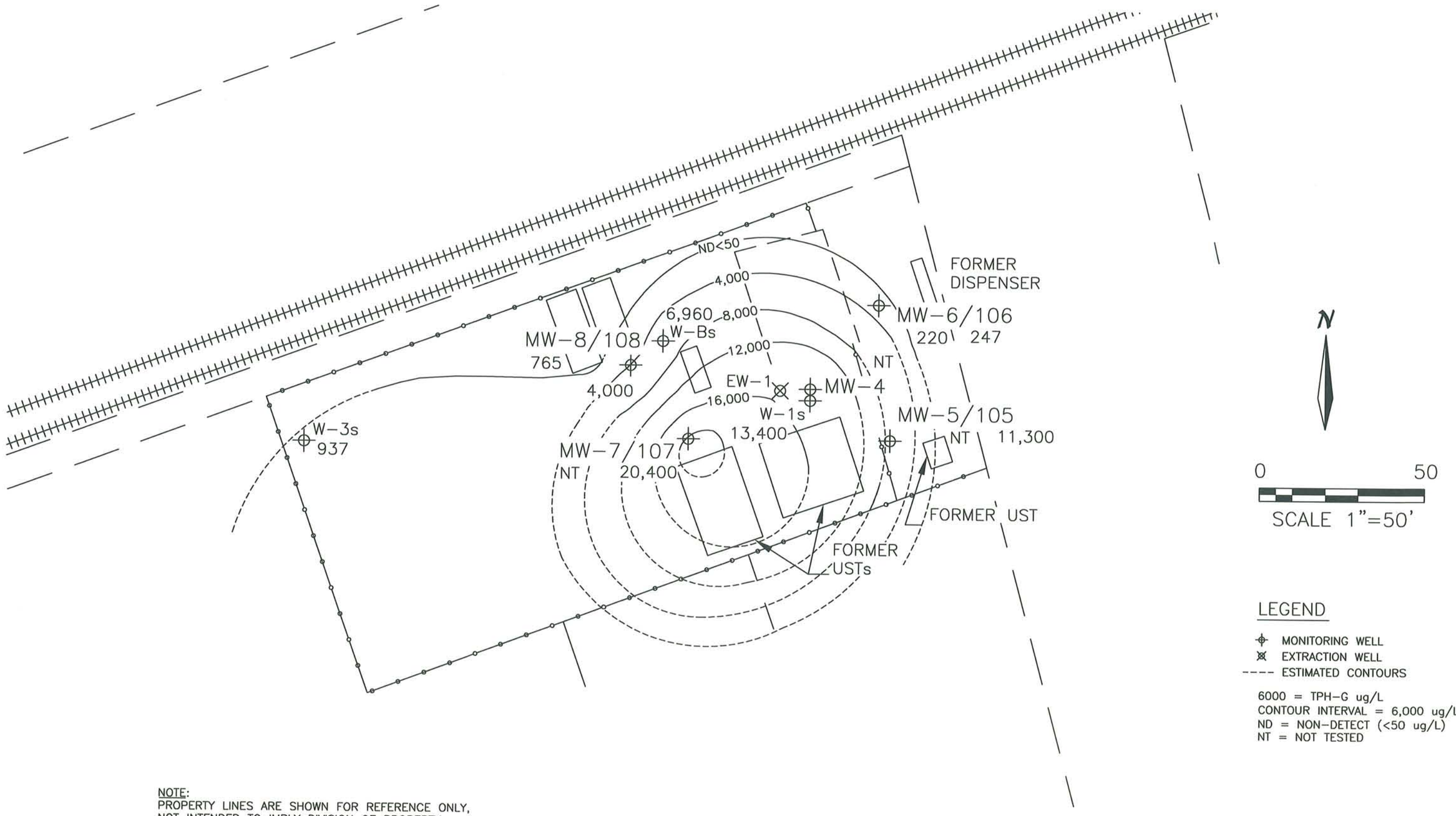
FIGURE 5A: GROUNDWATER GRADIENT MAP
SHALLOW WELLS
ARROW RENTALS
187 NORTH L STREET
LIVERMORE, CA



LEGEND

- MONITORING WELL
- EXTRACTION WELL
- ---- ESTIMATED CONTOURS

6000 = TPH-G ug/L
CONTOUR INTERVAL = 6,000 ug/L
ND = NON-DETECT (<50 ug/L)
NT = NOT TESTED

NOTE:
PROPERTY LINES ARE SHOWN FOR REFERENCE ONLY, NOT INTENDED TO IMPLY DIVISION OF PROPERTY.

STREET RIGHT OF WAY IS APPROXIMATE, BASED ON ASSESSOR'S PARCEL MAPS AND INFORMATION PROVIDED BY WOODWARD-CLYDE CONSULTANTS

By: AD	
Job No: 1262.2 Date: 4-12-11	
Scale: 1" = 50 feet	
File: 12622 Graphics 4-8-11	

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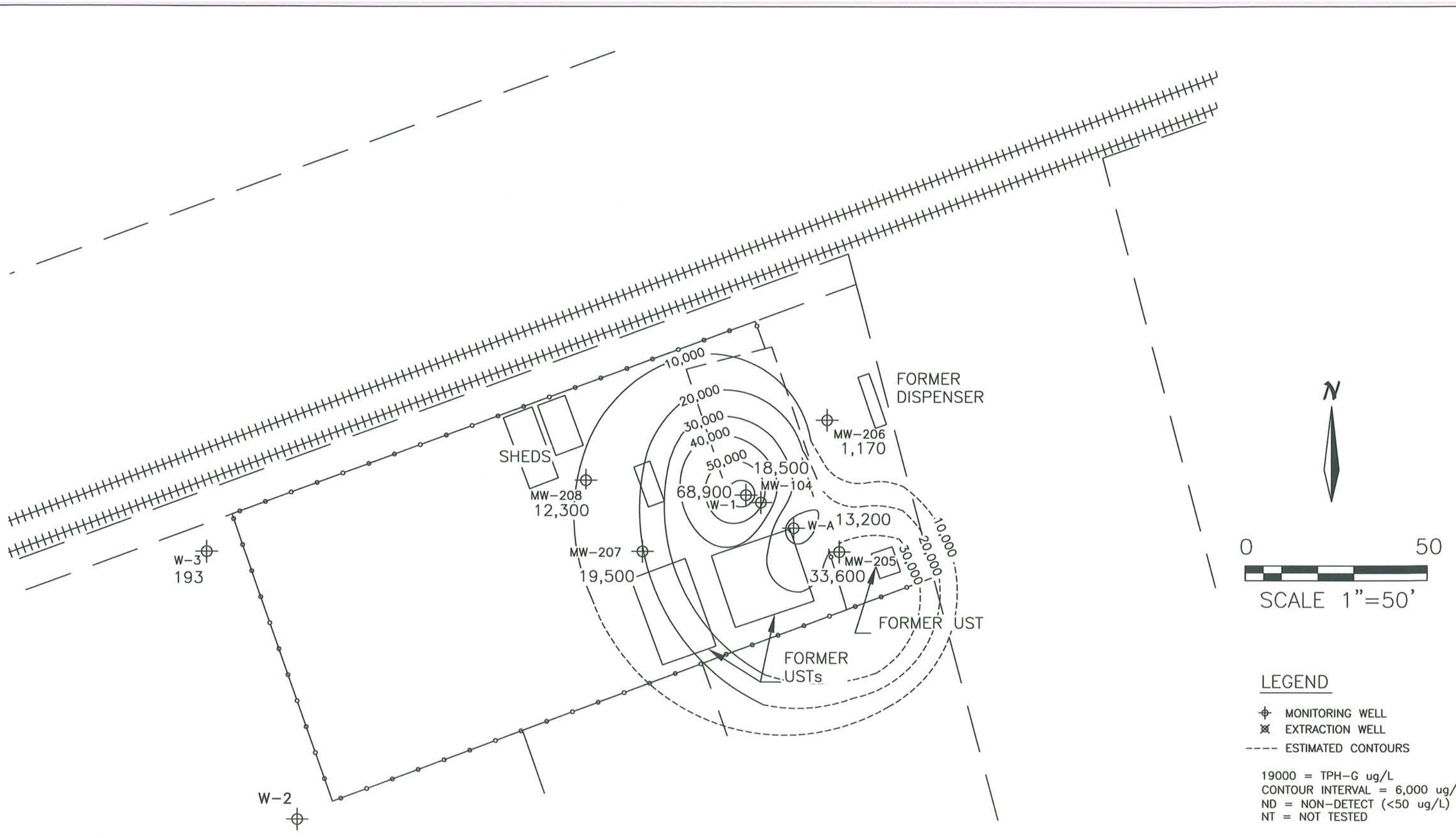
FIGURE 6: SHALLOW WELL TPH-G CONCENTRATIONS

ARROW RENTALS
187 NORTH L STREET
LIVERMORE, CA



LEGEND

- MONITORING WELL
- EXTRACTION WELL
- ---- ESTIMATED CONTOURS

19000 = TPH-G ug/L
CONTOUR INTERVAL = 6,000 ug/L
ND = NON-DETECT (<50 ug/L)
NT = NOT TESTED

NOTE:
PROPERTY LINES ARE SHOWN FOR REFERENCE ONLY, NOT INTENDED TO IMPLY DIVISION OF PROPERTY.

STREET RIGHT OF WAY IS APPROXIMATE, BASED ON ASSESSOR'S PARCEL MAPS AND INFORMATION PROVIDED BY WOODWARD-CLYDE CONSULTANTS

By:	AD
Job No:	1262.2 Date: 4-12-11
Scale:	1" = 50 feet
File:	12622 Graphics 4-8-11

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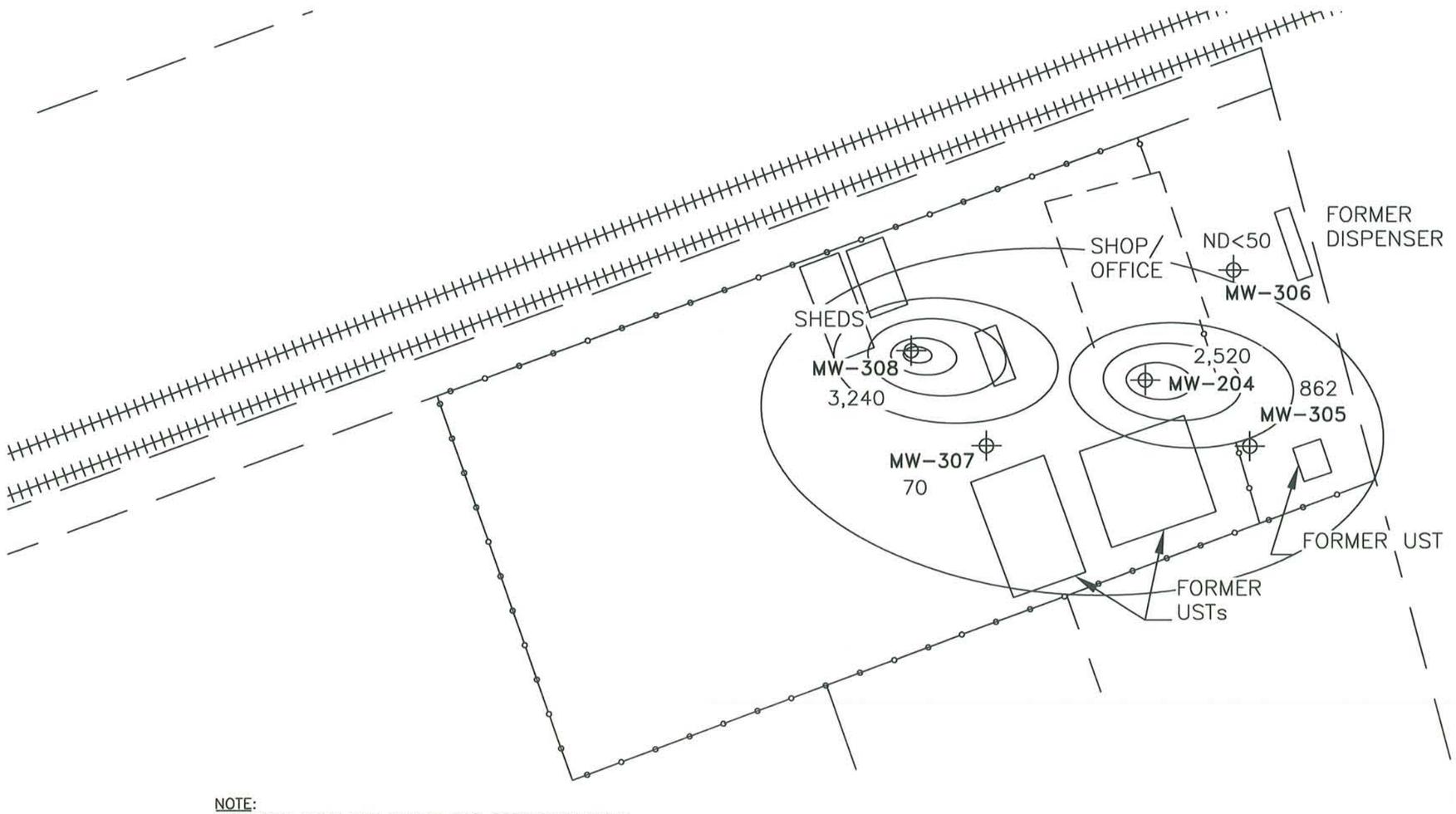
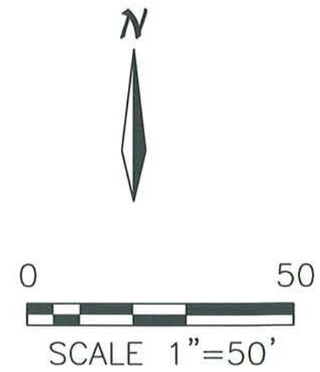
209.522.4227 (fax)

FIGURE 7: INTERM. WELL TPH-G CONCENTRATIONS

ARROW RENTALS
187 NORTH L STREET
LIVERMORE, CA





LEGEND

- MONITORING WELL
- EXTRACTION WELL

2500 = TPH-G ug/L
CONTOUR INTERVAL = 1,000 ug/L
ND = NON-DETECT (<50 ug/L)
NT = NOT TESTED

NOTE:
PROPERTY LINES ARE SHOWN FOR REFERENCE ONLY, NOT INTENDED TO IMPLY DIVISION OF PROPERTY.

STREET RIGHT OF WAY IS APPROXIMATE, BASED ON ASSESSOR'S PARCEL MAPS AND INFORMATION PROVIDED BY WOODWARD-CLYDE CONSULTANTS

By:	AD
Job No:	1262.2 Date: 4-12-11
Scale:	1" = 50 feet
File:	12622 Graphics 4-8-11

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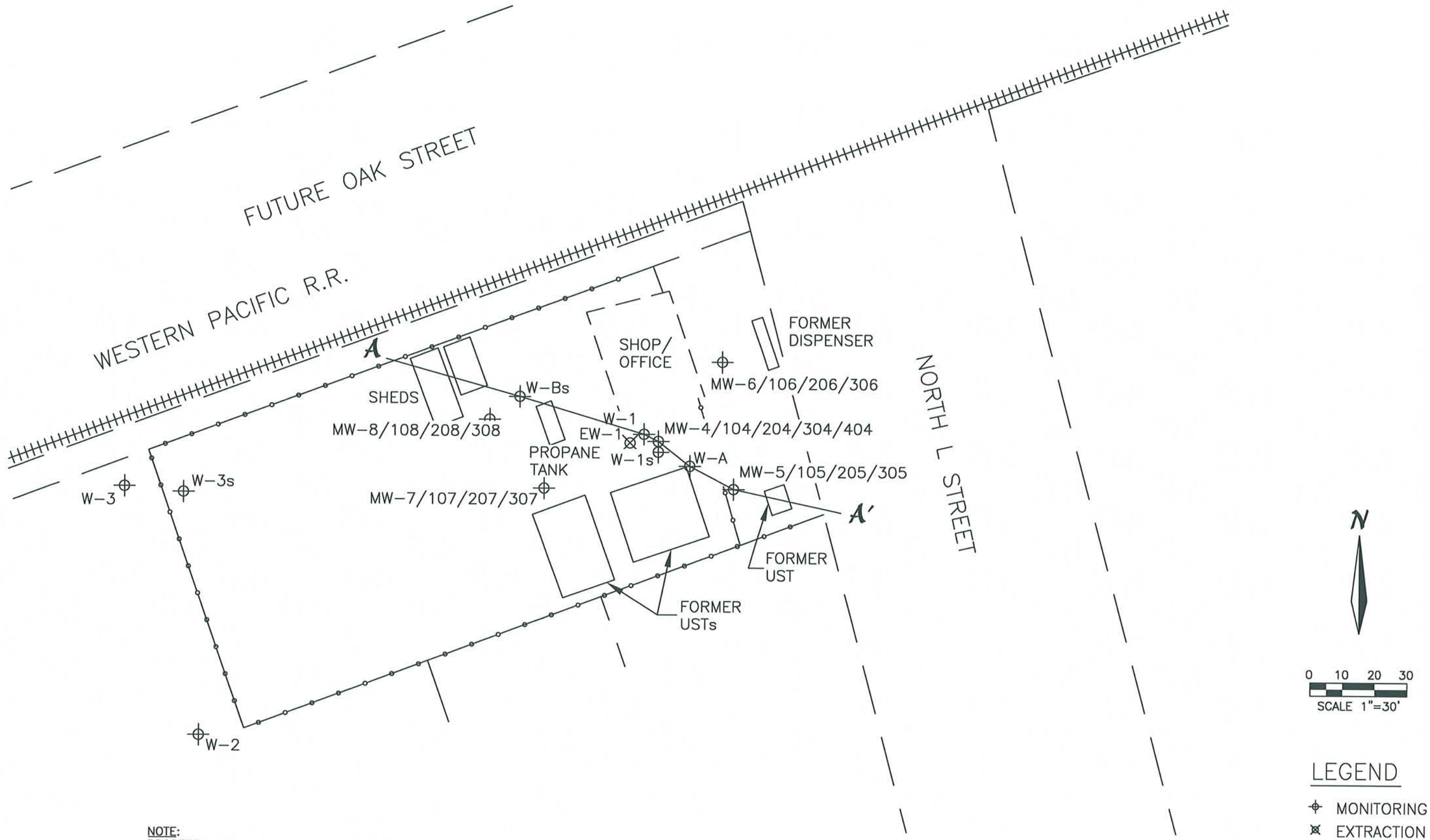
FIGURE 8: DEEP WELL TPH-G CONCENTRATIONS

ARROW RENTALS
187 NORTH L STREET
LIVERMORE, CA



LEGEND

- MONITORING WELL
- EXTRACTION WELL

NOTE:
PROPERTY LINES ARE SHOWN FOR REFERENCE ONLY, NOT INTENDED TO IMPLY DIVISION OF PROPERTY.

STREET RIGHT OF WAY IS APPROXIMATE, BASED ON ASSESSOR'S PARCEL MAPS AND INFORMATION PROVIDED BY WOODWARD-CLYDE CONSULTANTS

By:	AD
Job No:	1262.2 Date: 4-12-11
Scale:	1" = 30'
File:	Site Map Cross A-A'

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FIGURE 9A: SITE MAP W/ CROSS SECTION A-A'

ARROW RENTALS
187 NORTH L STREET
LIVERMORE, CA

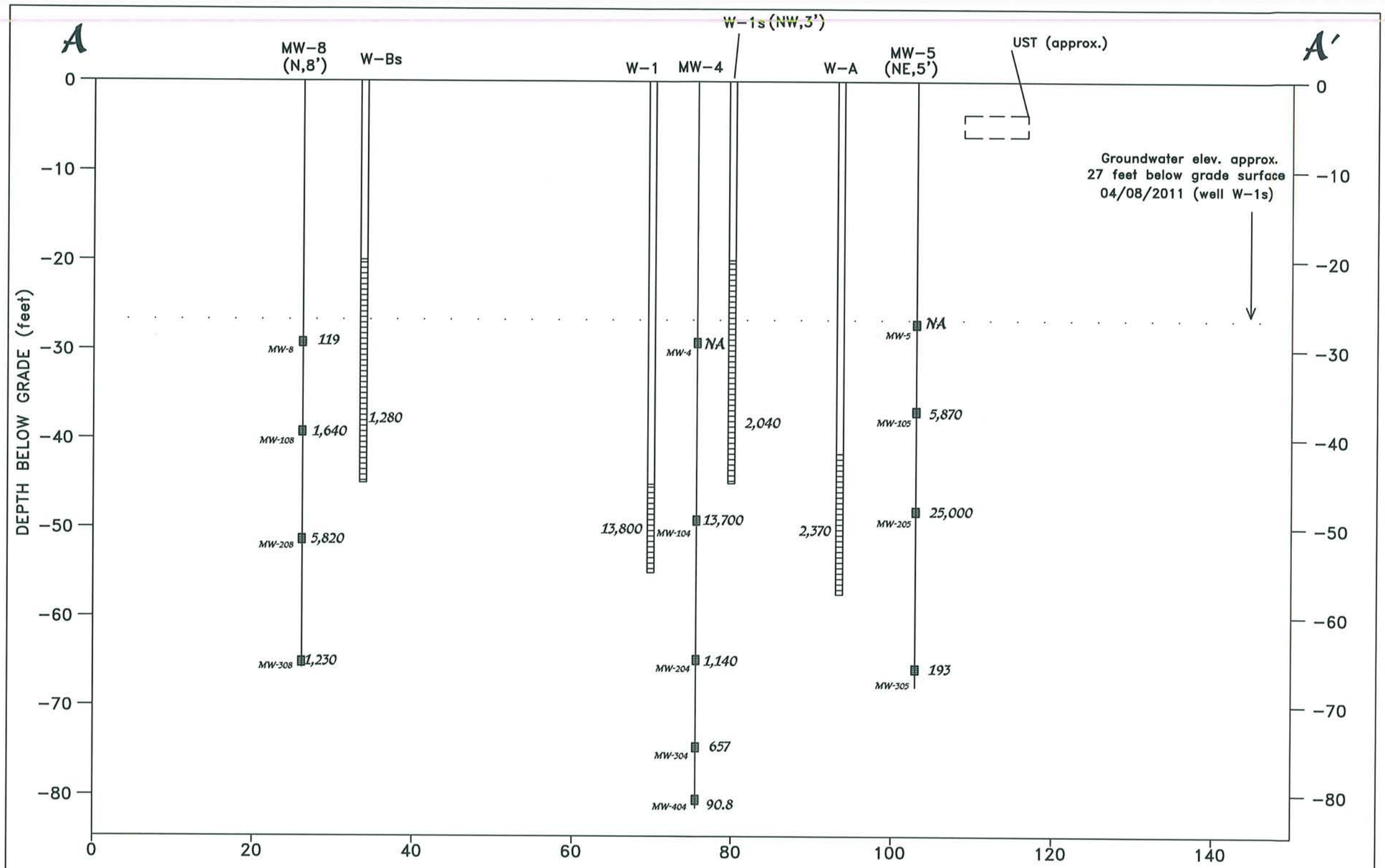


Figure 9C
Cross Section A – A'
With GW Benzene Concentrations
Arrow Rentals
187 N L Street
Livermore, CA
Project No.: 1262.2

Geological Technics Inc. 4/12/2011

LEGEND

Scale as Indicated.

2300 = Water Benzene Concentration (ug/l)

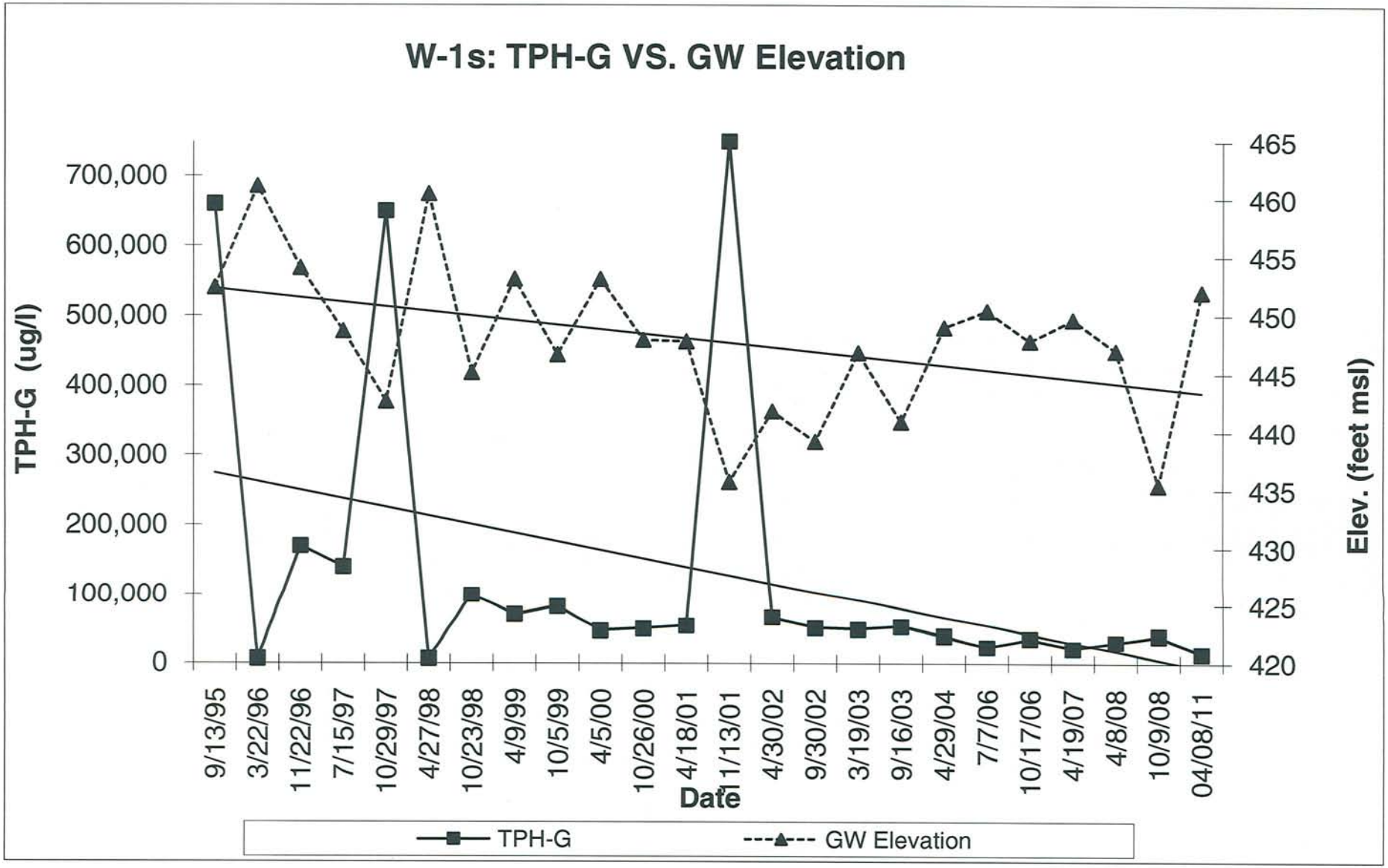
NA = Not Sampled

MW-108 = CMT well screen section

MW-5 (NE,5') = Boring Projection onto Section (direction, distance)

* BENZENE CONCENTRATIONS ARE BASED ON THE GW ANALYTICAL DATA FROM THE 04/08/2011 MONITORING EVENT

Figure 10: Sullins
187 N.L Street
Livermore, CA



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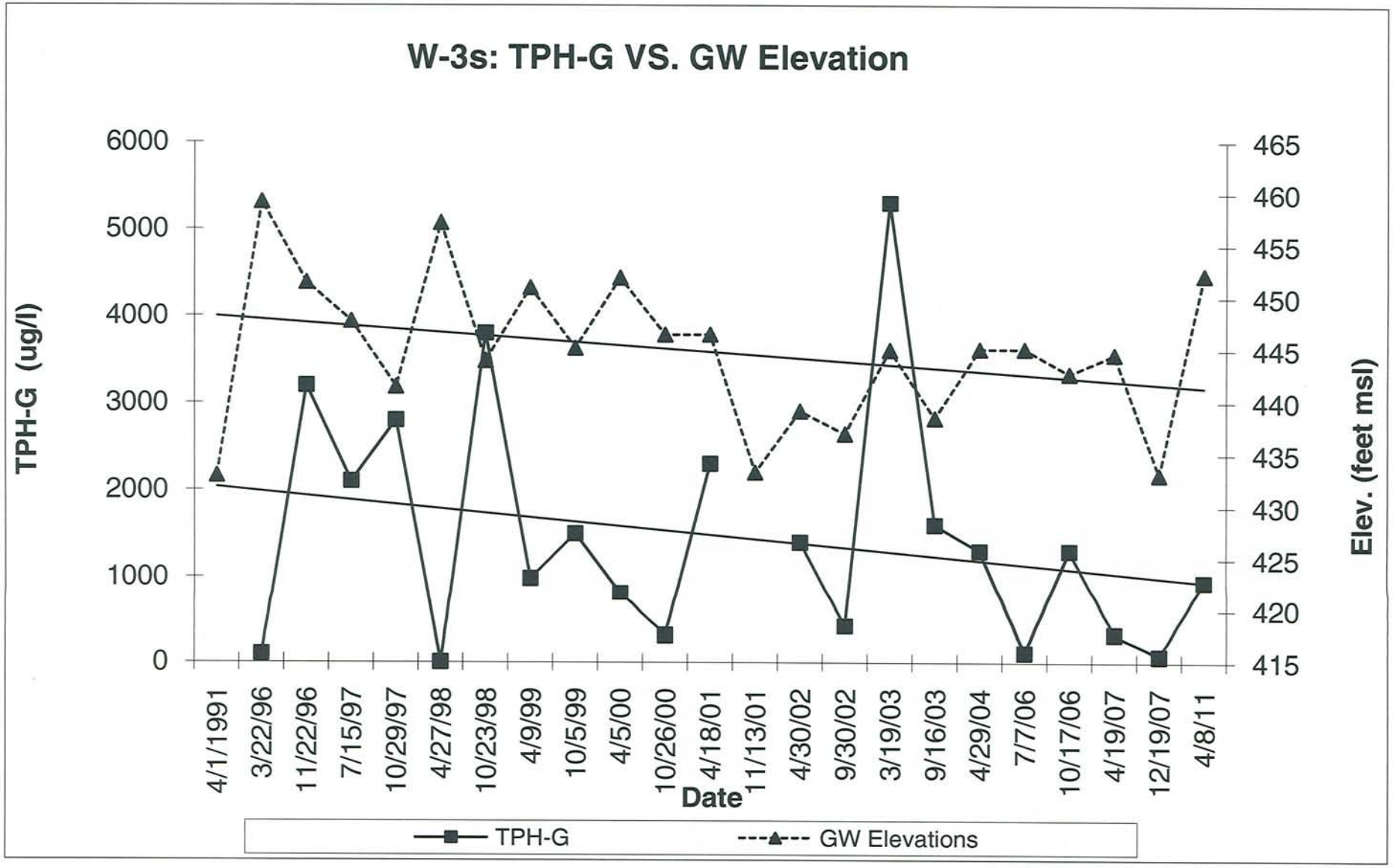
1262 gwad

04/12/2011

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



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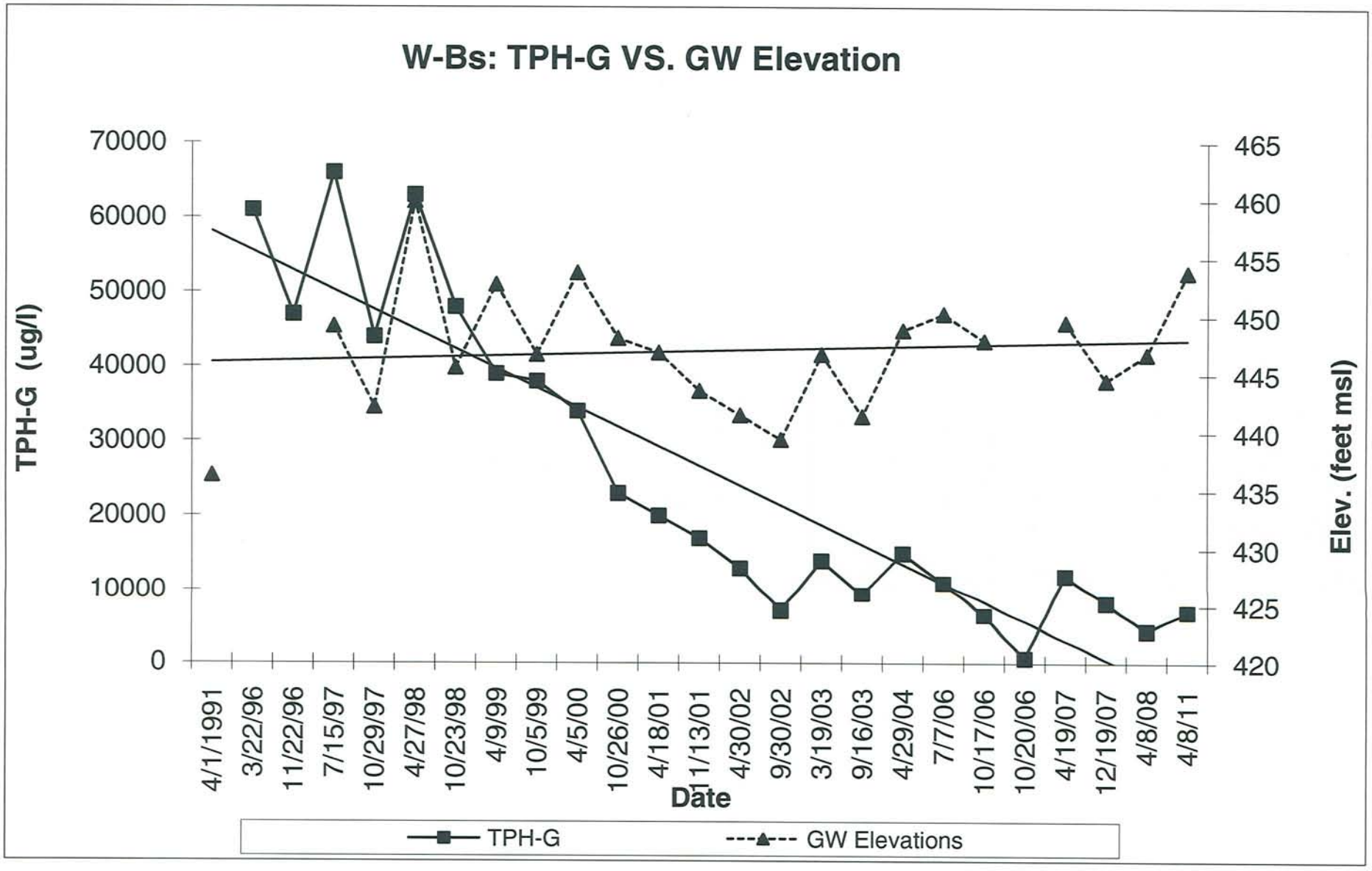
1262 gwad

04/12/2011

Figure 12: Sullins
187 N.L Street
Livermore, CA



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1262 gwad

04/12/2011

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	Bearing
		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																							
	top of screen	459.09	20	456.98	20	458.82	20	454.66	20																						
	bottom of screen	434.09	45	431.98	45	433.82	45	429.66	45																						
6/2/1989		435.93		432.48		-		-																				434.21	43.83		
7/25/1990		-		-		434.20		431.58																				432.89	43.85		
1/1/1992																												-	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																				441.09	36.30		
4/27/1998		460.48	18.61	457.25		459.96		455.39																				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																				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																				451.72	25.67		
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		-	-	-	-	-																				442.46	34.93		
3/15/2002		441.32		-	-	-	-	-																				441.32	36.07		
4/16/2002		441.79		-	-	-	-	-																				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°W

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

Date		Elevation of Groundwater - Wells Surveyed October 16, 2006 in accordance with SWRCB Geotracker Requirements																												Avg. Elv.	Avg. DTW	Gradient	Bearing
		W-1s	DTW-W-1s	W-3s	DTW-W-3s	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	(feet)	(feet)	(ft/ft)	
	top of casing	481.19		479.12		480.92		476.78		480.84		481.12		480.79		480.91		480.64		481.12		480.79		480.91		480.64					
	top of screen	461.19	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	-	-	-	-	-	-	-	-	-	-	-	-	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	-	-	-	-	-	-	-	-	-	-	-	-	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	-	-	446.76	34.16	442.34	34.44	453.30	27.54	-	-	445.99	34.80	-	-	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	-	-	-	-	431.01	43.65	-	-	-	-	-	-	-	-	-	-	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	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	451.15	27.30	0.0221	N56°W

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

Geological Technics Inc.
12622 gwg

5/23/2011

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

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

Date	Elevation of Groundwater - Wells Surveyed Octpber 16, 2006 in accordance with SWRCB Geotracker Requirements														
		W-A	DTW-W-A	W-B	W-C	W-D	W-E	MW-104	MW-205	MW-206	MW-207	MW-208	Avg. Elv.	Avg. DTW	Gradient	Bearing
	top of casing	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	439.04	42	440.74	436.61	435.03	436.06	431.34	434.12	431.79	431.91	429.64				
	bottom of screen	423.54	57.5	425.74	426.61	419.53	416.26	430.34	433.12	430.79	430.91	428.64				
10/16/2006		-	-	-	-	-	442.63	444.85	446.75	447.03	446.27	445.12	445.44	34.70	0.012	N63°W
4/17/2007		-	-	-	-	-	-	-	-	448.57	447.13	447.05	447.58	33.20	0.022	S68°W
12/19/2007		438.36	42.68	-	-	-	-	435.98	-	436.10	434.33	433.92	435.74	45.11	0.04	N76°W
4/7/2008		446.72	34.32	-	-	-	-	443.10	444.84	446.38	444.84	443.66	444.92	35.97	northwest	variable
10/8-9/2008		-	-	-	-	-	-	431.08	434.51	431.32	-	430.68	431.90	48.95	0.12	N20°W
4/8/2011		453.38	27.66	-	-	-	-	-	-	-	-	-	453.38	27.66	N/A	N/A

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

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

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

Date	Elevation of Groundwater - Wells Surveyed October 16, 2006 in accordance with SWRCB Geotracker Requirements																		
		MW-204	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		-	-	448.49	32.63	449.08	31.71	-	-	-	-	448.79	32.17	-	-	-	-	448.82	32.02
12/19/2007		435.73	45.11	-	-	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	-	-	-	-	432.20	48.64
4/8/2011		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

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

Table 2

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

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

Table 3: Summary of Well Construction

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

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

Table 4: Summary of Groundwater Analytical Data

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

Wells	Date	TPH Gasoline ug/L	TPH Diesel ug/L	Benzene ug/L	Toluene ug/L	Ethyl Benzene ug/L	Total Xylenes ug/L	MTBE ug/L	ETBE ug/L	DIPE ug/L	TAME ug/L	TBA ug/L	1,2 DCA ug/L	EDB ug/L
W-1	11/1988 (?)	210,000	300,000	29,000	30,000	5,400	24,000	-	-	-	-	-	-	-
	9/13/1995	666,000	-	65,000	78,000	6,400	36,000	<12500	-	-	-	-	-	-
	10/19/2006	77,000	-	9,700	11,000	2,000	10,000	-	-	-	-	-	-	-
	10/20/2006	110,000	-	4,600	7,200	3,900	11,000	-	-	-	-	-	-	-
	12/20/2007	140,000	-	20,000	17,000	3,000	16,000	<2000	-	-	-	-	-	-
	4/8/2011	68,900	-	13,800	8,150	1,520	11,600	<200	-	-	-	-	-	-
W-2	11/1988 (?)	360	<50	6.7	2.1	0.5	1.3	-	-	-	-	-	-	-
	9/13/1995	90	-	<0.5	<0.5	<0.5	<0.5	<5	-	-	-	-	-	-
W-3	11/1988 (?)	11,000	2,200	290	120	150	140	-	-	-	-	-	-	-
	9/13/1995	27,000	-	5,600	290	460	280	<2500	-	-	-	-	-	-
	4/7/2011	193	-	7.8	<0.5	0.5	<1	<0.5	-	-	-	-	-	-
W-A	1990	10,000	2,400	6,800	5,500	620	3,400	-	-	-	-	-	-	-
(dup)	1990		-	6,900	5,600	620	6,800	-	-	-	-	-	-	-
	10/20/2006	450	-	40	19	21	33	-	-	-	-	-	-	-
	10/29/2007	40,000	-	4,000	330	1,600	3,000	<100	-	-	-	-	-	-
	4/8/2011	13,200	-	2,370	128	439	523	<20	-	-	-	-	-	-
W-B	1990	13,000	1,700	22,000	7,900	2,000	4,000	-	-	-	-	-	-	-
(dup)	1990	21,000	1,600	21,000	7,300	1,800	3,700	-	-	-	-	-	-	-
W-C	1990	<10	<100	<1	<1	<1	<1	-	-	-	-	-	-	-
W-D	1990	100	<100	1	2	2	1	-	-	-	-	-	-	-
W-E	1990	<10	<100	<1	<1	<1	<1	-	-	-	-	-	-	-
	9/13/1995	95	-	4	<0.5	<0.5	<0.5	18	-	-	-	-	-	-
W-1s	3/22/1996	6,400	-	580	470	85	1,100	<500	-	-	-	-	-	-
	11/22/1996	170,000	-	13,000	18,000	3,500	18,000	<10000	-	-	-	-	-	-
	7/15/1997	140,000	38,000	12,000	12,000	2,600	16,000	<800	-	-	-	-	-	-
	10/29/1997	650,000	180,000	14,000	19,000	7,800	35,000	<3000	-	-	-	-	-	-
	4/27/1998	6,700	2,200	410	250	77	870	<30	-	-	-	-	-	-
	10/23/1998	99,000	18,000	9,800	9,400	1,800	11,000	<600	-	-	-	-	-	-
	4/9/1999	70,000	24,000	6,500	7,000	1,800	8,900	360	-	-	-	-	-	-
	10/5/1999	82,000	60,000	5,500	4,500	2,500	14,000	<300	-	-	-	-	-	-
	4/5/2000	47,000	15,000	4,300	2,300	1,500	6,100	170	-	-	-	-	-	-
	10/26/2000	50,000	1,200	3,800	1,800	1,700	7,600	<50	-	-	-	-	-	-
	4/18/2001	54,000	6,800	5,200	1,800	1,500	7,000	<330	-	-	-	-	-	-
	11/13/2001	750,000	-	9,500	7,800	7,200	33,000	<2000	-	-	-	-	-	-
	4/30/2002	66,000	8,200	6,000	2,700	2,300	11,000	<1200	-	-	-	-	-	-
	9/30/2002	51,000	1,200	5,600	1,500	2,000	9,400	<1000	-	-	-	-	-	-
	3/19/2003	49,000	9,800	3,400	880	1,300	7,300	<500	-	-	-	-	-	-
	9/16/2003	53,000	24,000	4,100	1,200	1,400	6,600	<1000	-	-	-	-	-	-
	4/29/2004	39,000	5,900	3,700	1,200	810	4,700	<2500	-	-	-	-	-	-
	7/7/2006	23,000	<500	4,000	710	1,200	2,900	<100	<500	<500	<500	<1000	<50	<50
	10/17/2006	35,000	<470	5,000	1,300	1,500	3,500	-	-	-	-	-	-	-
	10/19/2006	40,000	-	6,000	3,800	1,300	4,400	-	-	-	-	-	-	-
	10/20/2006	32,000	-	2,100	2,700	1,200	3,600	-	-	-	-	-	-	-
	4/19/2007	21,000	-	2,200	460	1,200	1,800	<200	-	-	-	-	-	-
	10/29/2007	68,000	-	19,000	830	2,700	4,000	<400	-	-	-	-	-	-
	4/8/2008	30,000	-	2,600	340	1,800	1,700	<120	-	-	-	-	-	-
	10/9/2008	39,000	-	3,900	340	1,400	2,000	<250	-	-	-	-	-	-
	4/8/2011	13,400	-	2,040	239	1,180	877	<20	-	-	-	-	-	-
W-3s	3/22/1996	100	-	13	6.9	5.3	14	<5	-	-	-	-	-	-
	11/22/1996	3,200	-	270	29	63	100	<100	-	-	-	-	-	-
	7/15/1997	2,100	340	230	7	33	51	<20	-	-	-	-	-	-
	10/29/1997	2,800	750	630	31	71	69	<30	-	-	-	-	-	-
	4/27/1998	<50	<50	<0.5	<0.5	<0.5	<0.5	<3	-	-	-	-	-	-
	10/23/1998	3,800	1,000	500	28	90	37	35	-	-	-	-	-	-
	4/9/1999	980	430	240	4	37	3	<12	-	-	-	-	-	-
	10/5/1999	1,500	1,000	290	9.5	53	9.8	<6	-	-	-	-	-	-
	4/5/2000	810	320	150	3	9	5.7	<5	-	-	-	-	-	-
	10/26/2000	310	120	83	3.5	6.4	1.2	<5	-	-	-	-	-	-
	4/18/2001	2,300	1,600	320	8	16	7	<20	-	-	-	-	-	-
	11/13/2001	-	-	-	-	-	-	-	-	-	-	-	-	-
	4/30/2002	1,400	490	320	5.5	24	5	<25	-	-	-	-	-	-
	3/19/2003	5,300	1,500	920	24	140	27	<25	-	-	-	-	-	-
	3/19/2003	5,300	1,500	920	24	140	27	<25	-	-	-	-	-	-
	9/16/2003	1,600	1,400	270	1.7	5.2	<0.5	<5	-	-	-	-	-	-
	4/29/2004	1,300	400	210	5.1	23	4.5	<25	-	-	-	-	-	-
	7/7/2006	110	<500	44	0.77	<0.5	<0.5	<1	<5	<5	<5	<10	<0.5	<0.5
	10/17/2006	1,300	<50	95	<2	2	<2	-	-	-	-	-	-	-
	4/19/2007	320	-	83	<2.5	<2.5	<2.5	<5	-	-	-	-	-	-
	12/19/2007	69	-	1.3	<0.5	<0.5	<1	<2	-	-	-	-	-	-
	4/8/2011	937	-	422	<5	6.5	<10	<5	-	-	-	-	-	-
W-Bs	3/22/1996	61,000	-	9,800	8,000	2,200	11,000	<5000	-	-	-	-	-	-
	11/22/1996	47,000	-	5,100	3,100	1,400	7,800	<2500	-	-	-	-	-	-
	7/15/1997	66,000	17,000	7,800	4,900	1,900	10,000	<600	-	-	-	-	-	-
	10/29/1997	44,000	27,000	6,000	500	1,500	6,400	380	-	-	-	-	-	-
	4/27/1998	63,000	17,000	6,100	5,400	1,900	9,100	<600	-	-	-	-	-	-
	10/23/1998	48,000	9,600	6,700	1,200	1,500	6,200	<300	-	-	-	-	-	-
	4/9/1999	39,000	12,000	4,100	1,900	1,400	5,600	<300	-	-	-	-	-	-
	10/5/1999	38,000	7,300	3,800	390	1,600	5,900	<60	-	-	-	-	-	-
		34,000	9,600	3,500	1,200	1,400	4,700	<150	-	-	-	-	-	-
	10/26/2000	23,000	650	2,500	210	1,100	2,600	150	-	-	-	-	-	-
	4/18/2001	20,000	2,500	2,400	180	880	1,800	<20	-	-	-	-	-	-
	11/13/2001	17,000	3,600	2,000	130	1,100	1,700	<150	-	-	-	-	-	-
	4/30/2002	13,000	2,300	1,000	38	660	360	<170	-	-	-	-	-	-
	9/30/2002	7,100	1,500	940	28	260	93	<250	-	-	-	-	-	-
	3/19/2003	14,000	3,900	1,200	77	820	900	<120	-	-	-	-	-	-
	9/16/2003	9,400	1,900	1,300	36	580	160	<150	-	-	-	-	-	-
	4/29/2004	15,000	3,300	2,400	170	1,300	950	<200	-	-	-	-	-	-
	7/7/2006	11,000	<50	1,900	160	820	440	<40	<200	<200	<200	<400	<20	<20
	10/17/2006	6,500	<47	1,000	37	410	83	-	-	-	-	-	-	-
	10/20/2006	630	<47	39	8.5	1.7	20	-	-	-	-	-	-	-
	4/19/2007	12,000	-	1,500	100	900	620	<100	-	-	-	-	-	-
	12/19/2007	8,200	-	360	<50	380	<100	<200	-	-	-	-	-	-
	4/8/2008	4,400	-	410	15	460	71	<50	-	-	-	-	-	-
	4/8/2011	6,960	-	1,280	56.2	632	432	<10	-	-	-	-	-	-
W-Es	3/22/1996	<50	-	<0.5	<0.5	<0.5	<0.5	<5	-	-	-	-	-	-
	11/22/1996	280	-	24	0.6	1.8	2.2	<5	-	-	-	-	-	-
	7/15/1997	-	-	-	-	-	-	-	-	-	-	-	-	-
	10/29/1997	-	-	-	-	-	-	-	-	-	-	-	-	-
	4/27/1998	-	-	-	-	-	-	-	-	-	-	-	-	-
	10/23/1998	82	69	<0.5	0.8	<0.5	0.8	4	-	-	-	-	-	-
	4/9/1999	-	-	-	-	-	-	-	-	-	-	-	-	-
	10/5/1999	68	88	<0.5	<0.5	<0.5	<1.0	4	-	-	-	-	-	-
	4/5/2000	-	-	-	-	-	-	-	-	-	-	-	-	-
	10/26/2000	110	<50	0.7	<0.5	<0.5	<1.0	<5	-	-	-	-	-	-
	4/18/2001	-	-	-	-	-	-	-	-	-	-	-	-	-
	11/13/2001	-	-	-	-	-	-	-	-	-	-	-	-	-
	4/30/2002	-	-	-	-	-	-	-	-	-	-	-	-	-
	9/30/2002	-	-	-	-	-	-	-	-	-	-	-	-	-
	3/19/2003	86	61	<0.5	<0.5	<0.5	<0.5	<5	-	-	-	-	-	-
	4/17/2007	-	-	-	-	-	-	-	-	-	-	-	-	-
	4/29/2004	55	87	0.62	<0.5	<0.5	<0.5	<5	-	-	-	-	-	-
	7/7/2006	<25	<50	<0.5	<0.5	<0.5	<0.5	2.4	<5	<5	<5	<10	<0.5	<0.5
	10/17/2006	<50	<50	<0.5	<0.5	<0.5	<0.5	-	-	-	-	-	-	-
	4/17/2007	<50	-	<0.5	<0.5	<0.5	<0.5	<1	-	-	-	-	-	-
	12/19/2007	<50	-	<0.5	<0.5	<0.5	<1	<2	-	-	-	-	-	-
	4/7/2008	<50	-	<0.5	<0.5	<0.5	<1	<5	-	-	-	-	-	-
	10/8/2008	<50	-	<0.5	<0.5	<0.5	<1	<5	-	-	-	-	-	-
	4/8/2011	<50	-	<0.5	<0.5	<0.5	<1	0.5	-	-	-	-	-	-
MW-4	10/16/2006	DRY												
	4/17/2007	DRY												
	10/29/2007	460,000	-	24,000	21,000	3,800	19,000	<500	-	-	-	-	-	-
	12/19/2007	DRY												
	4/8/2011	DRY												
MW-5	10/16/2006	DRY												
	4/19/2007	DRY												
	12/19/2007	DRY												
	4/8/2011	DRY												
MW-6	10/16/2006	DRY												
	4/17/2007	DRY												
	12/19/2007	DRY												
	4/8/2011	220	-	3.2	<0.5	<0.5	<1	<0.5	-	-	-	-	-	-
MW-7	10/16/2006	DRY												
	4/17/2007	DRY												
	12/19/2007	DRY												
	4/8/2011	DRY												
MW-8	10/16/2006	DRY												
	4/17/2007	DRY												
	12/19/2007	DRY												
	4/8/2011	765	-	119	<2	3.0	6.0	<2	-	-	-	-	-	-

Table 4: Summary of Groundwater Analytical Data

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

Wells	Date	TPH Gasoline ug/L	TPH Diesel ug/L	Benzene ug/L	Toluene ug/L	Ethyl Benzene ug/L	Total Xylenes ug/L	MTBE ug/L	ETBE ug/L	DIPE ug/L	TAME ug/L	TBA ug/L	1,2 DCA ug/L	EDB ug/L
MW-104	10/19/2006	960	-	250	170	20	83	-	-	-	-	-	-	-
	4/8/2008	DRY												
	10/29/2007	1,300	-	210	82	110	380	<5	-	-	-	-	-	-
	12/19/2007	DRY												
	4/8/2008	32,000	-	7,100	1,400	680	1,800	<250	-	-	-	-	-	-
	4/8/2011	18,500	-	13,700	212	266	384	250	-	-	-	-	-	-
MW-105	10/16/2006	-	-	-	-	-	-	-	-	-	-	-	-	-
	4/19/2007	13,000	-	4,300	980	490	1,500	<250	-	-	-	-	-	-
	12/19/2007	DRY												
	4/8/2008	DRY												
	10/9/2008	11,000	-	3,800	70	40	110	<50	-	-	-	-	-	-
	4/8/2011	11,300	-	5,870	135	518	1,110	<40	-	-	-	-	-	-
MW-106	10/16/2006	56	-	2.2	<0.5	0.57	<0.5	-	-	-	-	-	-	-
	4/19/2007	240	-	7.6	<0.5	<0.5	<0.5	<1	-	-	-	-	-	-
	10/29/2007	86	-	<0.5	<0.5	<0.5	<0.5	<1	-	-	-	-	-	-
	12/20/2007	54	-	1.0	<0.5	<0.5	<1	<2	-	-	-	-	-	-
	4/8/2008	DRY												
	10/8/2008	90	-	0.6	<0.5	<0.5	<1	<5	-	-	-	-	-	-
	4/14/2009													
	4/8/2011	247	-	9.3	<0.5	<0.5	<1	<0.5	-	-	-	-	-	-
MW-107	10/19/2006	320	-	430	290	33	140	-	-	-	-	-	-	-
	4/19/2007	7,400	-	3,400	150	140	140	<200	-	-	-	-	-	-
	12/19/2007	DRY												
	4/8/2008	18,000	-	6,100	700	380	480	<50	-	-	-	-	-	-
	4/8/2011	20,400	-	15,100	<200	360	<400	<200	-	-	-	-	-	-
MW-108	10/16/2006	3,400	-	790	46	<20	65	-	-	-	-	-	-	-
	4/19/2007	<20,000	-	5,400	<200	400	220	<400	-	-	-	-	-	-
	10/29/2007	310	-	55	3.2	10	14	1.9	-	-	-	-	-	-
	12/19/2007	DRY												
	4/8/2008	2,200	-	1,100	24	26	140	<25	-	-	-	-	-	-
	10/9/2008	2,100	-	490	8.4	35	40	<12	-	-	-	-	-	-
	4/8/2011	4,000	-	1,640	10.8	123	84.2	89.6	-	-	-	-	-	-
MW-204	10/19/2006	5,800	-	560	420	110	580	-	-	-	-	-	-	-
	4/18/2007	<10,000	-	2,700	650	210	970	<200	-	-	-	-	-	-
	10/29/2007	710	-	18	9.9	11	34	<1	-	-	-	-	-	-
	12/20/2007	22,000	-	4,700	1,100	490	1,400	<800	-	-	-	-	-	-
	4/8/2008	9,800	-	1,800	340	520	560	<50	-	-	-	-	-	-
	10/8/2008	18,000	-	9,200	360	130	370	<100	-	-	-	-	-	-
	4/8/2011	2,520	-	1,140	27.8	72.8	30.6	<10	-	-	-	-	-	-
MW-205	10/16/2006	<2000	-	880	63	<20	54	-	-	-	-	-	-	-
	10/17/2006	5,100	-	2,000	190	52	220	-	-	-	-	-	-	-
	4/18/2007	<40,000	-	14,000	550	<400	<400	<800	-	-	-	-	-	-
	12/19/2007	DRY												
	4/8/2008	31,000	-	20,000	640	510	1,400	<250	-	-	-	-	-	-
	4/8/2011	33,600	-	25,000	232	640	448	<200	-	-	-	-	-	-
MW-206	10/16/2006	<50	-	0.72	<0.5	<0.5	<0.5	-	-	-	-	-	-	-
	4/8/2008	<50	-	0.96	<0.5	<0.5	<0.5	<1	-	-	-	-	-	-
	12/19/2007	84	-	0.71	<0.5	<0.5	<1	<2	-	-	-	-	-	-
	4/8/2008	60	-	1.8	<0.5	<0.5	<1	<5	-	-	-	-	-	-
	4/8/2011	1,170	-	115	<10	<10	<20	<10	-	-	-	-	-	-
MW-207	10/19/2006	1,000	-	170	52	18	67	-	-	-	-	-	-	-
	4/18/2007	<25,000	-	9,700	480	<250	250	<500	-	-	-	-	-	-
	12/19/2007	DRY												
	4/7/2008	32,000	-	12,000	350	580	790	<250	-	-	-	-	-	-
	4/8/2011	19,500	-	15,000	<100	180	<200	108	-	-	-	-	-	-
MW-208	10/17/2006	1,500	-	520	39	<10	100	-	-	-	-	-	-	-
	4/19/2007	<10,000	-	2,500	<100	<100	<100	<200	-	-	-	-	-	-
	12/19/2007	DRY												
	4/8/2008	19,000	-	3,900	230	550	1,200	<200	-	-	-	-	-	-
	4/8/2011	12,300	-	5,820	75	432	270	<50	-	-	-	-	-	-
MW-304	10/19/2006	3,300	-	290	240	56	530	-	-	-	-	-	-	-
	4/19/2007	<10,000	-	3,100	450	<100	420	<200	-	-	-	-	-	-
	12/20/2007	1,500	-	380	43	32	110	<40	-	-	-	-	-	-
	4/7/2008	820	-	100	36	36	98	<5	-	-	-	-	-	-
	4/8/2011	2,880	-	657	32.3	93.5	262	<5	-	-	-	-	-	-
MW-305	10/16/2006	<50	-	1.8	<0.5	<0.5	0.67	-	-	-	-	-	-	-
	4/19/2007	<20,000	-	3,600	<200	<200	<200	<400	-	-	-	-	-	-
	12/19/2007	DRY												
	4/8/2008	290	-	42	14	8.1	28	<5	-	-	-	-	-	-
	4/8/2011	862	-	193	10.4	27.6	69.1	<5	-	-	-	-	-	-
MW-306	10/16/2006	<50	-	<0.5	<0.5	<0.5	<0.5	-	-	-	-	-	-	-
	4/18/2007	<50	-	3.1	<0.5	<0.5	<0.5	<1	-	-	-	-	-	-
	12/20/2007	<50	-	0.54	<0.5	<0.5	<1	<2	-	-	-	-	-	-
	4/7/2008	<50	-	<0.5	<0.5	<0.5	<1	<5	-	-	-	-	-	-
	4/8/2011	<50	-	10.4	<0.5	<0.5	<1	<0.5	-	-	-	-	-	-
MW-307	10/19/2006	<50	-	2.3	1.5	<0.5	4.7	-	-	-	-	-	-	-
	4/18/2007	<4000	-	1,300	250	78	310	<80	-	-	-	-	-	-
	12/19/2007	1,500	-	200	50	59	140	<40	-	-	-	-	-	-
	4/7/2008	2,500	-	720	110	69	160	<25	-	-	-	-	-	-
	4/8/2011	70	-	24.3	3.8	0.6	3.3	<0.5	-	-	-	-	-	-
MW-308	10/16/2006	<50	-	<0.5	<0.5	<0.5	<0.5	-	-	-	-	-	-	-
	4/19/2007	<10,000	-	1,600	<100	<100	<100	<200	-	-	-	-	-	-
	12/19/2007	190	-	25	1.5	7.2	8.4	<4	-	-	-	-	-	-
	4/7/2008	770	-	150	10	48	45	<5	-	-	-	-	-	-
	4/8/2011	3,240	-	1,230	18.6	187	125	<10	-	-	-	-	-	-
MW-404	10/19/2006	1,700	-	120	73	27	280	-	-	-	-	-	-	-
	4/18/2007	<10,000	-	1,400	440	130	550	<200	-	-	-	-	-	-
	12/19/2007	2,200	-	160	63	92	300	<40	-	-	-	-	-	-
	4/8/2008	DRY												
	4/8/2011	119	-	90.8	1.4	1.0	2.6	<0.5	-	-	-	-	-	-

pre- 2006 data adapted from *Environmental Sampling Services* 5/27/04 Groundwater Monitoring Report
"-" = not analyzed

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				
	pH	E.C.	Temp	ORP	DO	pH	E.C.	Temp	ORP	DO	pH	E.C.	Temp	ORP	DO	pH	E.C.	Temp	ORP	DO
Date			°C					°C					°C					°C		
7/7/2006	-	-	-	-128.5	0.13	-	-	-	-	0.07	-	-	-	-107.3	0.09	7.05	339	20.9	32.9	0.06
12/29/2007	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
4/8/2008	6.76	514	24.8	-95.5	-	-	-	-	-	-	-	-	-	-	0.28	7.07	503	25.1	121.4	6.85
10/8-9/2008	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
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	0.02	7.03	790	19.5	141.3	1.06

Monitoring Well	W-1					W-3					W-A				
	pH	E.C.	Temp	ORP	DO	pH	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

" - " = insufficient data no result reported

Appendix B

Laboratory Analytical Data Sheets

COPY

EXCELCHEM
Environmental Labs

1135 W Sunset Boulevard
Suite A
Rocklin, CA 95765
Phone# 916-543-4445
Fax# 916-543-4449

ELAP Certificate No. : 2119

21 April 2011

Geological Technics

Geological Technics

1172 Kansas Ave

Modesto, CA 95351

RE: Sullins

Workorder number:1104120

Enclosed are the results of analyses for samples received by the laboratory on 04/12/11 15:00. All Quality Control results are within acceptable limits except where noted as a case narrative. If you have any questions concerning this report, please feel free to contact the laboratory.

Sincerely,

_____

John Somers, Lab Director

Excelchem Environmental Labs

Geological Technics	Project:	Sullins	
1172 Kansas Ave	Project Number:	1262.2	Date Reported:
Modesto, CA 95351	Project Manager:	Geological Technics	04/21/11 12:17

ANALYTICAL REPORT FOR SAMPLES

Sample ID	Laboratory ID	Matrix	Date Sampled	Date Received
W-ES	1104120-01	Water	04/07/11 14:00	04/12/11 15:00
W-3S	1104120-02	Water	04/08/11 09:30	04/12/11 15:00
W-BS	1104120-03	Water	04/07/11 16:20	04/12/11 15:00
W-3	1104120-04	Water	04/07/11 14:40	04/12/11 15:00
W-A	1104120-05	Water	04/08/11 10:20	04/12/11 15:00
W-1S	1104120-06	Water	04/08/11 12:20	04/12/11 15:00
W-1	1104120-07	Water	04/08/11 13:00	04/12/11 15:00
MW-104	1104120-08	Water	04/08/11 16:05	04/12/11 15:00
MW-204	1104120-09	Water	04/08/11 16:00	04/12/11 15:00
MW-304	1104120-10	Water	04/08/11 15:55	04/12/11 15:00
MW-404	1104120-11	Water	04/08/11 15:50	04/12/11 15:00
MW-305NP	1104120-12	Water	04/08/11 10:20	04/12/11 15:00
MW-105	1104120-13	Water	04/08/11 10:55	04/12/11 15:00
MW-205	1104120-14	Water	04/08/11 10:45	04/12/11 15:00
MW-305P	1104120-15	Water	04/08/11 10:40	04/12/11 15:00
MW-6	1104120-16	Water	04/08/11 12:40	04/12/11 15:00
MW-106	1104120-17	Water	04/08/11 12:30	04/12/11 15:00
MW-206	1104120-18	Water	04/08/11 12:15	04/12/11 15:00
MW-306	1104120-19	Water	04/08/11 12:00	04/12/11 15:00
MW-107	1104120-20	Water	04/08/11 15:35	04/12/11 15:00
MW-207	1104120-21	Water	04/08/11 15:30	04/12/11 15:00
MW-307	1104120-22	Water	04/08/11 15:25	04/12/11 15:00
MW-8	1104120-23	Water	04/07/11 16:00	04/12/11 15:00
MW-108	1104120-24	Water	04/07/11 15:50	04/12/11 15:00
MW-208	1104120-25	Water	04/07/11 15:45	04/12/11 15:00
MW-308	1104120-26	Water	04/07/11 15:40	04/12/11 15:00

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Laboratory Representative

Excelchem Environmental Labs

Geological Technics	Project:	Sullins	
1172 Kansas Ave	Project Number:	1262.2	Date Reported:
Modesto, CA 95351	Project Manager:	Geological Technics	04/21/11 12:17

W-ES

1104120-01 (Water)

Analyte	Result	Reporting Limit	Units	Batch	Date Prepared	Date Analyzed	Method	Notes
Volatile Organic Compounds by GC/MS								
Gasoline Range Hydrocarbons	ND	50.0	ug/l	AUD0159	04/14/11	04/14/11	EPA 8260B	
Methyl tert-Butyl Ether	**0.5**	0.5	"	"	"	"	"	
Benzene	ND	0.5	"	"	"	"	"	
Toluene	ND	0.5	"	"	"	"	"	
Ethylbenzene	ND	0.5	"	"	"	"	"	
m,p-Xylene	ND	0.5	"	"	"	"	"	
o-Xylene	ND	0.5	"	"	"	"	"	
Xylenes, total	ND	1.0	"	"	"	"	"	
Surrogate: Dibromofluoromethane	*99.0 %*	% Recovery Limits		*70-130*			"	
Surrogate: Toluene-d8	*102 %*	% Recovery Limits		*70-130*			"	
Surrogate: 4-Bromofluorobenzene	*94.0 %*	% Recovery Limits		*70-130*			"	

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Laboratory Representative

Excelchem Environmental Labs

Geological Technics	Project:	Sullins	
1172 Kansas Ave	Project Number:	1262.2	Date Reported:
Modesto, CA 95351	Project Manager:	Geological Technics	04/21/11 12:17

W-3S
1104120-02 (Water)

Analyte	Result	Reporting Limit	Units	Batch	Date Prepared	Date Analyzed	Method	Notes
Volatile Organic Compounds by GC/MS								
Gasoline Range Hydrocarbons	**937**	500	ug/l	AUD0159	04/15/11	04/15/11	EPA 8260B	
Methyl tert-Butyl Ether	ND	5.0	"	"	"	"	"	
Benzene	**422**	5.0	"	"	"	"	"	
Toluene	ND	5.0	"	"	"	"	"	
Ethylbenzene	**6.5**	5.0	"	"	"	"	"	
m,p-Xylene	ND	5.0	"	"	"	"	"	
o-Xylene	ND	5.0	"	"	"	"	"	
Xylenes, total	ND	10.0	"	"	"	"	"	
Surrogate: Dibromofluoromethane	*98.6 %*	% Recovery Limits		*70-130*			"	
Surrogate: Toluene-d8	*98.7 %*	% Recovery Limits		*70-130*			"	
Surrogate: 4-Bromofluorobenzene	*99.4 %*	% Recovery Limits		*70-130*			"	

Excelchem Environmental Lab.

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Laboratory Representative

Excelchem Environmental Labs

Geological Technics	Project:	Sullins	
1172 Kansas Ave	Project Number:	1262.2	Date Reported:
Modesto, CA 95351	Project Manager:	Geological Technics	04/21/11 12:17

W-BS

1104120-03 (Water)

Analyte	Result	Reporting Limit	Units	Batch	Date Prepared	Date Analyzed	Method	Notes
Volatile Organic Compounds by GC/MS								
Gasoline Range Hydrocarbons	**6960**	1000	ug/l	AUD0159	04/15/11	04/15/11	EPA 8260B	
Methyl tert-Butyl Ether	ND	10.0	"	"	"	"	"	
Benzene	**1280**	10.0	"	"	"	"	"	
Toluene	**56.2**	10.0	"	"	"	"	"	
Ethylbenzene	**632**	10.0	"	"	"	"	"	
m,p-Xylene	**417**	10.0	"	"	"	"	"	
o-Xylene	**15.4**	10.0	"	"	"	"	"	
Xylenes, total	**432**	20.0	"	"	"	"	"	
Surrogate: Dibromofluoromethane	*98.1 %*	% Recovery Limits		*70-130*			"	
Surrogate: Toluene-d8	*101 %*	% Recovery Limits		*70-130*			"	
Surrogate: 4-Bromofluorobenzene	*98.3 %*	% Recovery Limits		*70-130*			"	

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Laboratory Representative

Excelchem Environmental Labs

Geological Technics	Project:	Sullins	
1172 Kansas Ave	Project Number:	1262.2	Date Reported:
Modesto, CA 95351	Project Manager:	Geological Technics	04/21/11 12:17

W-3

1104120-04 (Water)

Analyte	Result	Reporting Limit	Units	Batch	Date Prepared	Date Analyzed	Method	Notes
Volatile Organic Compounds by GC/MS								
Gasoline Range Hydrocarbons	**193**	50.0	ug/l	AUD0159	04/15/11	04/15/11	EPA 8260B	
Methyl tert-Butyl Ether	ND	0.5	"	"	"	"	"	
Benzene	**7.8**	0.5	"	"	"	"	"	
Toluene	ND	0.5	"	"	"	"	"	
Ethylbenzene	**0.5**	0.5	"	"	"	"	"	
m,p-Xylene	ND	0.5	"	"	"	"	"	
o-Xylene	ND	0.5	"	"	"	"	"	
Xylenes, total	ND	1.0	"	"	"	"	"	
Surrogate: Dibromofluoromethane	*99.9 %*	% Recovery Limits		*70-130*			"	
Surrogate: Toluene-d8	*104 %*	% Recovery Limits		*70-130*			"	
Surrogate: 4-Bromofluorobenzene	*101 %*	% Recovery Limits		*70-130*			"	

Excelchem Environmental Lab.

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.

Laboratory Representative

Excelchem Environmental Labs

Geological Technics	Project:	Sullins	
1172 Kansas Ave	Project Number:	1262.2	Date Reported:
Modesto, CA 95351	Project Manager:	Geological Technics	04/21/11 12:17

W-A

1104120-05 (Water)

Analyte	Result	Reporting Limit	Units	Batch	Date Prepared	Date Analyzed	Method	Notes
Volatile Organic Compounds by GC/MS								
Gasoline Range Hydrocarbons	**13200**	2000	ug/l	AUD0159	04/15/11	04/15/11	EPA 8260B	
Methyl tert-Butyl Ether	ND	20.0	"	"	"	"	"	
Benzene	**2370**	20.0	"	"	"	"	"	
Toluene	**128**	20.0	"	"	"	"	"	
Ethylbenzene	**439**	20.0	"	"	"	"	"	
m,p-Xylene	**458**	20.0	"	"	"	"	"	
o-Xylene	**65.2**	20.0	"	"	"	"	"	
Xylenes, total	**523**	40.0	"	"	"	"	"	
Surrogate: Dibromofluoromethane	*95.8 %*	% Recovery Limits		*70-130*			"	
Surrogate: Toluene-d8	*101 %*	% Recovery Limits		*70-130*			"	
Surrogate: 4-Bromofluorobenzene	*96.9 %*	% Recovery Limits		*70-130*			"	

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Geological Technics	Project:	Sullins	
1172 Kansas Ave	Project Number:	1262.2	Date Reported:
Modesto, CA 95351	Project Manager:	Geological Technics	04/21/11 12:17

W-1S

1104120-06 (Water)

Analyte	Result	Reporting Limit	Units	Batch	Date Prepared	Date Analyzed	Method	Notes
Volatile Organic Compounds by GC/MS								
Gasoline Range Hydrocarbons	**13400**	2000	ug/l	AUD0159	04/15/11	04/16/11	EPA 8260B	
Methyl tert-Butyl Ether	ND	20.0	"	"	"	"	"	
Benzene	**2040**	20.0	"	"	"	"	"	
Toluene	**239**	20.0	"	"	"	"	"	
Ethylbenzene	**1180**	20.0	"	"	"	"	"	
m,p-Xylene	**743**	20.0	"	"	"	"	"	
o-Xylene	**134**	20.0	"	"	"	"	"	
Xylenes, total	**877**	40.0	"	"	"	"	"	
Surrogate: Dibromofluoromethane	*99.6 %*	% Recovery Limits		*70-130*			"	
Surrogate: Toluene-d8	*101 %*	% Recovery Limits		*70-130*			"	
Surrogate: 4-Bromofluorobenzene	*97.7 %*	% Recovery Limits		*70-130*			"	

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Geological Technics	Project:	Sullins	
1172 Kansas Ave	Project Number:	1262.2	Date Reported:
Modesto, CA 95351	Project Manager:	Geological Technics	04/21/11 12:17

W-1

1104120-07 (Water)

Analyte	Result	Reporting Limit	Units	Batch	Date Prepared	Date Analyzed	Method	Notes
Volatile Organic Compounds by GC/MS								
Gasoline Range Hydrocarbons	**68900**	20000	ug/l	AUD0159	04/14/11	04/15/11	EPA 8260B	
Methyl tert-Butyl Ether	ND	200	"	"	"	"	"	
Benzene	**13800**	200	"	"	"	"	"	
Toluene	**8150**	200	"	"	"	"	"	
Ethylbenzene	**1520**	200	"	"	"	"	"	
m,p-Xylene	**8250**	200	"	"	"	"	"	
o-Xylene	**3300**	200	"	"	"	"	"	
Xylenes, total	**11600**	400	"	"	"	"	"	
Surrogate: Dibromofluoromethane	*105 %*	% Recovery Limits		*70-130*			"	
Surrogate: Toluene-d8	*99.0 %*	% Recovery Limits		*70-130*			"	
Surrogate: 4-Bromofluorobenzene	*95.4 %*	% Recovery Limits		*70-130*			"	

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Geological Technics	Project:	Sullins	
1172 Kansas Ave	Project Number:	1262.2	Date Reported:
Modesto, CA 95351	Project Manager:	Geological Technics	04/21/11 12:17

MW-104
1104120-08 (Water)

Analyte	Result	Reporting Limit	Units	Batch	Date Prepared	Date Analyzed	Method	Notes
Volatile Organic Compounds by GC/MS								
Gasoline Range Hydrocarbons	**18500**	10000	ug/l	AUD0159	04/19/11	04/19/11	EPA 8260B	
Methyl tert-Butyl Ether	**250**	100	"	"	"	"	"	
Benzene	**13700**	100	"	"	"	"	"	
Toluene	**212**	100	"	"	"	"	"	
Ethylbenzene	**266**	100	"	"	"	"	"	
m,p-Xylene	**326**	100	"	"	"	"	"	
o-Xylene	ND	100	"	"	"	"	"	
Xylenes, total	**384**	200	"	"	"	"	"	
Surrogate: Dibromofluoromethane	*96.4 %*	% Recovery Limits		*70-130*			"	
Surrogate: Toluene-d8	*98.3 %*	% Recovery Limits		*70-130*			"	
Surrogate: 4-Bromofluorobenzene	*100 %*	% Recovery Limits		*70-130*			"	

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Modesto, CA 95351	Project Manager:	Geological Technics	04/21/11 12:17

MW-204

1104120-09 (Water)

Analyte	Result	Reporting Limit	Units	Batch	Date Prepared	Date Analyzed	Method	Notes
Volatile Organic Compounds by GC/MS								
Gasoline Range Hydrocarbons	**2520**	1000	ug/l	AUD0159	04/15/11	04/16/11	EPA 8260B	
Methyl tert-Butyl Ether	ND	10.0	"	"	"	"	"	
Benzene	**1140**	10.0	"	"	"	"	"	
Toluene	**27.8**	10.0	"	"	"	"	"	
Ethylbenzene	**72.8**	10.0	"	"	"	"	"	
m,p-Xylene	**23.6**	10.0	"	"	"	"	"	
o-Xylene	ND	10.0	"	"	"	"	"	
Xylenes, total	**30.6**	20.0	"	"	"	"	"	
Surrogate: Dibromofluoromethane	*99.7 %*	% Recovery Limits		*70-130*			"	
Surrogate: Toluene-d8	*97.0 %*	% Recovery Limits		*70-130*			"	
Surrogate: 4-Bromofluorobenzene	*104 %*	% Recovery Limits		*70-130*			"	

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1172 Kansas Ave	Project Number:	1262.2	Date Reported:
Modesto, CA 95351	Project Manager:	Geological Technics	04/21/11 12:17

MW-304
1104120-10 (Water)

Analyte	Result	Reporting Limit	Units	Batch	Date Prepared	Date Analyzed	Method	Notes
Volatile Organic Compounds by GC/MS								
Gasoline Range Hydrocarbons	**2880**	500	ug/l	AUD0159	04/14/11	04/15/11	EPA 8260B	
Methyl tert-Butyl Ether	ND	5.0	"	"	"	"	"	
Benzene	**657**	5.0	"	"	"	"	"	
Toluene	**32.3**	5.0	"	"	"	"	"	
Ethylbenzene	**93.5**	5.0	"	"	"	"	"	
m,p-Xylene	**186**	5.0	"	"	"	"	"	
o-Xylene	**76.0**	5.0	"	"	"	"	"	
Xylenes, total	**262**	10.0	"	"	"	"	"	
Surrogate: Dibromofluoromethane	*102 %*	% Recovery Limits		*70-130*			"	
Surrogate: Toluene-d8	*98.9 %*	% Recovery Limits		*70-130*			"	
Surrogate: 4-Bromofluorobenzene	*96.6 %*	% Recovery Limits		*70-130*			"	

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Modesto, CA 95351	Project Manager:	Geological Technics	04/21/11 12:17

MW-404

1104120-11 (Water)

Analyte	Result	Reporting Limit	Units	Batch	Date Prepared	Date Analyzed	Method	Notes
Volatile Organic Compounds by GC/MS								
Gasoline Range Hydrocarbons	**119**	50.0	ug/l	AUD0159	04/15/11	04/15/11	EPA 8260B	
Methyl tert-Butyl Ether	ND	0.5	"	"	"	"	"	
Benzene	**90.8**	0.5	"	"	"	"	"	
Toluene	**1.4**	0.5	"	"	"	"	"	
Ethylbenzene	**1.0**	0.5	"	"	"	"	"	
m,p-Xylene	**1.1**	0.5	"	"	"	"	"	
o-Xylene	**1.5**	0.5	"	"	"	"	"	
Xylenes, total	**2.6**	1.0	"	"	"	"	"	
Surrogate: Dibromofluoromethane	*100 %*	% Recovery Limits		*70-130*			"	
Surrogate: Toluene-d8	*95.3 %*	% Recovery Limits		*70-130*			"	
Surrogate: 4-Bromofluorobenzene	*102 %*	% Recovery Limits		*70-130*			"	

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Modesto, CA 95351	Project Manager:	Geological Technics	04/21/11 12:17

MW-305NP
1104120-12 (Water)

Analyte	Result	Reporting Limit	Units	Batch	Date Prepared	Date Analyzed	Method	Notes
Volatile Organic Compounds by GC/MS								
Gasoline Range Hydrocarbons	**2710**	1000	ug/l	AUD0159	04/14/11	04/15/11	EPA 8260B	
Methyl tert-Butyl Ether	ND	10.0	"	"	"	"	"	
Benzene	**689**	10.0	"	"	"	"	"	
Toluene	**61.8**	10.0	"	"	"	"	"	
Ethylbenzene	**110**	10.0	"	"	"	"	"	
m,p-Xylene	**292**	10.0	"	"	"	"	"	
o-Xylene	**52.8**	10.0	"	"	"	"	"	
Xylenes, total	**344**	20.0	"	"	"	"	"	
Surrogate: Dibromofluoromethane	*102 %*	% Recovery Limits		*70-130*			"	
Surrogate: Toluene-d8	*98.4 %*	% Recovery Limits		*70-130*			"	
Surrogate: 4-Bromofluorobenzene	*99.0 %*	% Recovery Limits		*70-130*			"	

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Modesto, CA 95351	Project Manager:	Geological Technics	04/21/11 12:17

MW-105
1104120-13 (Water)

Analyte	Result	Reporting Limit	Units	Batch	Date Prepared	Date Analyzed	Method	Notes
Volatile Organic Compounds by GC/MS								
Gasoline Range Hydrocarbons	**11300**	4000	ug/l	AUD0159	04/15/11	04/16/11	EPA 8260B	
Methyl tert-Butyl Ether	ND	40.0	"	"	"	"	"	
Benzene	**5870**	40.0	"	"	"	"	"	
Toluene	**135**	40.0	"	"	"	"	"	
Ethylbenzene	**518**	40.0	"	"	"	"	"	
m,p-Xylene	**934**	40.0	"	"	"	"	"	
o-Xylene	**172**	40.0	"	"	"	"	"	
Xylenes, total	**1110**	80.0	"	"	"	"	"	
Surrogate: Dibromofluoromethane	*99.7 %*	% Recovery Limits		*70-130*			"	
Surrogate: Toluene-d8	*96.4 %*	% Recovery Limits		*70-130*			"	
Surrogate: 4-Bromofluorobenzene	*101 %*	% Recovery Limits		*70-130*			"	

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Modesto, CA 95351	Project Manager:	Geological Technics	04/21/11 12:17

MW-205
1104120-14 (Water)

Analyte	Result	Reporting Limit	Units	Batch	Date Prepared	Date Analyzed	Method	Notes
Volatile Organic Compounds by GC/MS								
Gasoline Range Hydrocarbons	**33600**	20000	ug/l	AUD0159	04/14/11	04/15/11	EPA 8260B	
Methyl tert-Butyl Ether	ND	200	"	"	"	"	"	
Benzene	**25000**	200	"	"	"	"	"	
Toluene	**232**	200	"	"	"	"	"	
Ethylbenzene	**640**	200	"	"	"	"	"	
m,p-Xylene	**388**	200	"	"	"	"	"	
o-Xylene	ND	200	"	"	"	"	"	
Xylenes, total	**448**	400	"	"	"	"	"	
Surrogate: Dibromofluoromethane	*99.9 %*	% Recovery Limits		*70-130*			"	
Surrogate: Toluene-d8	*96.9 %*	% Recovery Limits		*70-130*			"	
Surrogate: 4-Bromofluorobenzene	*101 %*	% Recovery Limits		*70-130*			"	

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Modesto, CA 95351	Project Manager:	Geological Technics	04/21/11 12:17

MW-305P

1104120-15 (Water)

Analyte	Result	Reporting Limit	Units	Batch	Date Prepared	Date Analyzed	Method	Notes
Volatile Organic Compounds by GC/MS								
Gasoline Range Hydrocarbons	**862**	500	ug/l	AUD0159	04/15/11	04/15/11	EPA 8260B	
Methyl tert-Butyl Ether	ND	5.0	"	"	"	"	"	
Benzene	**193**	5.0	"	"	"	"	"	
Toluene	**10.4**	5.0	"	"	"	"	"	
Ethylbenzene	**27.6**	5.0	"	"	"	"	"	
m,p-Xylene	**60.3**	5.0	"	"	"	"	"	
o-Xylene	**8.8**	5.0	"	"	"	"	"	
Xylenes, total	**69.1**	10.0	"	"	"	"	"	
Surrogate: Dibromofluoromethane	*98.8 %*	% Recovery Limits		*70-130*			"	
Surrogate: Toluene-d8	*97.4 %*	% Recovery Limits		*70-130*			"	
Surrogate: 4-Bromofluorobenzene	*99.3 %*	% Recovery Limits		*70-130*			"	

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MW-6
1104120-16 (Water)

Analyte	Result	Reporting Limit	Units	Batch	Date Prepared	Date Analyzed	Method	Notes
Volatile Organic Compounds by GC/MS								
Gasoline Range Hydrocarbons	**220**	50.0	ug/l	AUD0159	04/15/11	04/15/11	EPA 8260B	
Methyl tert-Butyl Ether	ND	0.5	"	"	"	"	"	
Benzene	**3.2**	0.5	"	"	"	"	"	
Toluene	ND	0.5	"	"	"	"	"	
Ethylbenzene	ND	0.5	"	"	"	"	"	
m,p-Xylene	ND	0.5	"	"	"	"	"	
o-Xylene	ND	0.5	"	"	"	"	"	
Xylenes, total	ND	1.0	"	"	"	"	"	
Surrogate: Dibromofluoromethane	*99.0 %*	% Recovery Limits		*70-130*			"	
Surrogate: Toluene-d8	*99.1 %*	% Recovery Limits		*70-130*			"	
Surrogate: 4-Bromofluorobenzene	*99.5 %*	% Recovery Limits		*70-130*			"	

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Modesto, CA 95351	Project Manager:	Geological Technics	04/21/11 12:17

MW-106
1104120-17 (Water)

Analyte	Result	Reporting Limit	Units	Batch	Date Prepared	Date Analyzed	Method	Notes
Volatile Organic Compounds by GC/MS								
Gasoline Range Hydrocarbons	**247**	50.0	ug/l	AUD0159	04/15/11	04/15/11	EPA 8260B	
Methyl tert-Butyl Ether	ND	0.5	"	"	"	"	"	
Benzene	**9.3**	0.5	"	"	"	"	"	
Toluene	ND	0.5	"	"	"	"	"	
Ethylbenzene	ND	0.5	"	"	"	"	"	
m,p-Xylene	ND	0.5	"	"	"	"	"	
o-Xylene	ND	0.5	"	"	"	"	"	
Xylenes, total	ND	1.0	"	"	"	"	"	
Surrogate: Dibromofluoromethane	*100 %*	% Recovery Limits		*70-130*			"	
Surrogate: Toluene-d8	*101 %*	% Recovery Limits		*70-130*			"	
Surrogate: 4-Bromofluorobenzene	*102 %*	% Recovery Limits		*70-130*			"	

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Geological Technics 1172 Kansas Ave Modesto, CA 95351	Project: Project Number: Project Manager:	Sullins 1262.2 Geological Technics	Date Reported: 04/21/11 12:17

MW-206
1104120-18 (Water)

Analyte	Result	Reporting Limit	Units	Batch	Date Prepared	Date Analyzed	Method	Notes
Volatile Organic Compounds by GC/MS								
Gasoline Range Hydrocarbons	**1170**	1000	ug/l	AUD0159	04/14/11	04/15/11	EPA 8260B	
Methyl tert-Butyl Ether	ND	10.0	"	"	"	"	"	
Benzene	**115**	10.0	"	"	"	"	"	
Toluene	ND	10.0	"	"	"	"	"	
Ethylbenzene	ND	10.0	"	"	"	"	"	
m,p-Xylene	ND	10.0	"	"	"	"	"	
o-Xylene	ND	10.0	"	"	"	"	"	
Xylenes, total	ND	20.0	"	"	"	"	"	
Surrogate: Dibromofluoromethane	*102 %*	% Recovery Limits		*70-130*			"	
Surrogate: Toluene-d8	*98.8 %*	% Recovery Limits		*70-130*			"	
Surrogate: 4-Bromofluorobenzene	*101 %*	% Recovery Limits		*70-130*			"	

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1172 Kansas Ave	Project Number:	1262.2	Date Reported:
Modesto, CA 95351	Project Manager:	Geological Technics	04/21/11 12:17

MW-306
1104120-19 (Water)

Analyte	Result	Reporting Limit	Units	Batch	Date Prepared	Date Analyzed	Method	Notes
Volatile Organic Compounds by GC/MS								
Gasoline Range Hydrocarbons	ND	50.0	ug/l	AUD0159	04/15/11	04/15/11	EPA 8260B	
Methyl tert-Butyl Ether	ND	0.5	"	"	"	"	"	
Benzene	**10.4**	0.5	"	"	"	"	"	
Toluene	ND	0.5	"	"	"	"	"	
Ethylbenzene	ND	0.5	"	"	"	"	"	
m,p-Xylene	ND	0.5	"	"	"	"	"	
o-Xylene	ND	0.5	"	"	"	"	"	
Xylenes, total	ND	1.0	"	"	"	"	"	
Surrogate: Dibromofluoromethane	*101 %*	% Recovery Limits		*70-130*			"	
Surrogate: Toluene-d8	*96.9 %*	% Recovery Limits		*70-130*			"	
Surrogate: 4-Bromofluorobenzene	*98.4 %*	% Recovery Limits		*70-130*			"	

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Geological Technics 1172 Kansas Ave Modesto, CA 95351	Project: Project Number: Project Manager:	Sullins 1262.2 Geological Technics	Date Reported: 04/21/11 12:17

MW-107

1104120-20 (Water)

Analyte	Result	Reporting Limit	Units	Batch	Date Prepared	Date Analyzed	Method	Notes
Volatile Organic Compounds by GC/MS								
Gasoline Range Hydrocarbons	**20400**	20000	ug/l	AUD0159	04/14/11	04/15/11	EPA 8260B	
Methyl tert-Butyl Ether	ND	200	"	"	"	"	"	
Benzene	**15100**	200	"	"	"	"	"	
Toluene	ND	200	"	"	"	"	"	
Ethylbenzene	**360**	200	"	"	"	"	"	
m,p-Xylene	**220**	200	"	"	"	"	"	
o-Xylene	ND	200	"	"	"	"	"	
Xylenes, total	ND	400	"	"	"	"	"	
Surrogate: Dibromofluoromethane	*101 %*	% Recovery Limits		*70-130*			"	
Surrogate: Toluene-d8	*97.4 %*	% Recovery Limits		*70-130*			"	
Surrogate: 4-Bromofluorobenzene	*100 %*	% Recovery Limits		*70-130*			"	

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Geological Technics 1172 Kansas Ave Modesto, CA 95351	Project: Project Number: Project Manager:	Sullins 1262.2 Geological Technics	Date Reported: 04/21/11 12:17

MW-207

1104120-21 (Water)

Analyte	Result	Reporting Limit	Units	Batch	Date Prepared	Date Analyzed	Method	Notes
Volatile Organic Compounds by GC/MS								
Gasoline Range Hydrocarbons	**19500**	10000	ug/l	AUD0159	04/15/11	04/15/11	EPA 8260B	
Methyl tert-Butyl Ether	**108**	100	"	"	"	"	"	
Benzene	**15000**	100	"	"	"	"	"	
Toluene	ND	100	"	"	"	"	"	
Ethylbenzene	**180**	100	"	"	"	"	"	
m,p-Xylene	ND	100	"	"	"	"	"	
o-Xylene	ND	100	"	"	"	"	"	
Xylenes, total	ND	200	"	"	"	"	"	
Surrogate: Dibromofluoromethane	*98.6 %*	% Recovery Limits		*70-130*			"	
Surrogate: Toluene-d8	*96.5 %*	% Recovery Limits		*70-130*			"	
Surrogate: 4-Bromofluorobenzene	*102 %*	% Recovery Limits		*70-130*			"	

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Geological Technics	Project:	Sullins	
1172 Kansas Ave	Project Number:	1262.2	Date Reported:
Modesto, CA 95351	Project Manager:	Geological Technics	04/21/11 12:17

MW-307

1104120-22 (Water)

Analyte	Result	Reporting Limit	Units	Batch	Date Prepared	Date Analyzed	Method	Notes
Volatile Organic Compounds by GC/MS								
Gasoline Range Hydrocarbons	**70.0**	50.0	ug/l	AUD0159	04/15/11	04/15/11	EPA 8260B	
Methyl tert-Butyl Ether	ND	0.5	"	"	"	"	"	
Benzene	**24.3**	0.5	"	"	"	"	"	
Toluene	**3.8**	0.5	"	"	"	"	"	
Ethylbenzene	**0.6**	0.5	"	"	"	"	"	
m,p-Xylene	**1.5**	0.5	"	"	"	"	"	
o-Xylene	**1.8**	0.5	"	"	"	"	"	
Xylenes, total	**3.3**	1.0	"	"	"	"	"	
Surrogate: Dibromofluoromethane	*99.5 %*	% Recovery Limits		*70-130*			"	
Surrogate: Toluene-d8	*97.1 %*	% Recovery Limits		*70-130*			"	
Surrogate: 4-Bromofluorobenzene	*104 %*	% Recovery Limits		*70-130*			"	

Excelchem Environmental Lab.

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Laboratory Representative

Excelchem Environmental Labs

Geological Technics 1172 Kansas Ave Modesto, CA 95351	Project: Project Number: Project Manager:	Sullins 1262.2 Geological Technics	Date Reported: 04/21/11 12:17

MW-8
1104120-23 (Water)

Analyte	Result	Reporting Limit	Units	Batch	Date Prepared	Date Analyzed	Method	Notes
Volatile Organic Compounds by GC/MS								
Gasoline Range Hydrocarbons	**765**	200	ug/l	AUD0159	04/19/11	04/19/11	EPA 8260B	
Methyl tert-Butyl Ether	ND	2.0	"	"	"	"	"	
Benzene	**119**	2.0	"	"	"	"	"	
Toluene	ND	2.0	"	"	"	"	"	
Ethylbenzene	**3.0**	2.0	"	"	"	"	"	
m,p-Xylene	**4.1**	2.0	"	"	"	"	"	
o-Xylene	ND	2.0	"	"	"	"	"	
Xylenes, total	**6.0**	4.0	"	"	"	"	"	
Surrogate: Dibromofluoromethane	*98.8 %*	% Recovery Limits		*70-130*			"	
Surrogate: Toluene-d8	*99.5 %*	% Recovery Limits		*70-130*			"	
Surrogate: 4-Bromofluorobenzene	*99.0 %*	% Recovery Limits		*70-130*			"	

Excelchem Environmental Lab.

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Laboratory Representative

Excelchem Environmental Labs

Geological Technics	Project:	Sullins	
1172 Kansas Ave	Project Number:	1262.2	Date Reported:
Modesto, CA 95351	Project Manager:	Geological Technics	04/21/11 12:17

MW-108
1104120-24 (Water)

Analyte	Result	Reporting Limit	Units	Batch	Date Prepared	Date Analyzed	Method	Notes
Volatile Organic Compounds by GC/MS								
Gasoline Range Hydrocarbons	**4000**	1000	ug/l	AUD0159	04/15/11	04/15/11	EPA 8260B	
Methyl tert-Butyl Ether	**89.6**	10.0	"	"	"	"	"	
Benzene	**1640**	10.0	"	"	"	"	"	
Toluene	**10.8**	10.0	"	"	"	"	"	
Ethylbenzene	**123**	10.0	"	"	"	"	"	
m,p-Xylene	**75.4**	10.0	"	"	"	"	"	
o-Xylene	ND	10.0	"	"	"	"	"	
Xylenes, total	**84.2**	20.0	"	"	"	"	"	
Surrogate: Dibromofluoromethane	*101 %*	% Recovery Limits		*70-130*			"	
Surrogate: Toluene-d8	*96.5 %*	% Recovery Limits		*70-130*			"	
Surrogate: 4-Bromofluorobenzene	*99.4 %*	% Recovery Limits		*70-130*			"	

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Laboratory Representative

Excelchem Environmental Labs

Geological Technics	Project:	Sullins	
1172 Kansas Ave	Project Number:	1262.2	Date Reported:
Modesto, CA 95351	Project Manager:	Geological Technics	04/21/11 12:17

MW-208
1104120-25 (Water)

Analyte	Result	Reporting Limit	Units	Batch	Date Prepared	Date Analyzed	Method	Notes
Volatile Organic Compounds by GC/MS								
Gasoline Range Hydrocarbons	**12300**	5000	ug/l	AUD0159	04/15/11	04/16/11	EPA 8260B	
Methyl tert-Butyl Ether	ND	50.0	"	"	"	"	"	
Benzene	**5820**	50.0	"	"	"	"	"	
Toluene	**75.0**	50.0	"	"	"	"	"	
Ethylbenzene	**432**	50.0	"	"	"	"	"	
m,p-Xylene	**247**	50.0	"	"	"	"	"	
o-Xylene	ND	50.0	"	"	"	"	"	
Xylenes, total	**270**	100	"	"	"	"	"	
Surrogate: Dibromofluoromethane	*102 %*	% Recovery Limits		*70-130*			"	
Surrogate: Toluene-d8	*97.7 %*	% Recovery Limits		*70-130*			"	
Surrogate: 4-Bromofluorobenzene	*100 %*	% Recovery Limits		*70-130*			"	

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Laboratory Representative

Excelchem Environmental Labs

Geological Technics 1172 Kansas Ave Modesto, CA 95351	Project: Project Number: Project Manager:	Sullins 1262.2 Geological Technics	Date Reported: 04/21/11 12:17

MW-308
1104120-26 (Water)

Analyte	Result	Reporting Limit	Units	Batch	Date Prepared	Date Analyzed	Method	Notes
Volatile Organic Compounds by GC/MS								
Gasoline Range Hydrocarbons	**3240**	1000	ug/l	AUD0159	04/15/11	04/16/11	EPA 8260B	
Methyl tert-Butyl Ether	ND	10.0	"	"	"	"	"	
Benzene	**1230**	10.0	"	"	"	"	"	
Toluene	**18.6**	10.0	"	"	"	"	"	
Ethylbenzene	**187**	10.0	"	"	"	"	"	
m,p-Xylene	**105**	10.0	"	"	"	"	"	
o-Xylene	**19.8**	10.0	"	"	"	"	"	
Xylenes, total	**125**	20.0	"	"	"	"	"	
Surrogate: Dibromofluoromethane	*99.7 %*	% Recovery Limits		*70-130*			"	
Surrogate: Toluene-d8	*98.3 %*	% Recovery Limits		*70-130*			"	
Surrogate: 4-Bromofluorobenzene	*94.5 %*	% Recovery Limits		*70-130*			"	

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Laboratory Representative

Excelchem Environmental Labs

Geological Technics	Project:	Sullins	
1172 Kansas Ave	Project Number:	1262.2	Date Reported:
Modesto, CA 95351	Project Manager:	Geological Technics	04/21/11 12:17

Volatile Organic Compounds by GC/MS - Quality Control

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch AUD0159 - EPA 8260B										
Blank (AUD0159-BLK1)				Prepared & Analyzed: 04/14/11						
Surrogate: Dibromofluoromethane	*12.1*		*ug/l*	*12.5*		*96.6*	*70-130*			
Surrogate: Toluene-d8	*12.7*		*"*	*12.5*		*102*	*70-130*			
Surrogate: 4-Bromofluorobenzene	*13.0*		*"*	*12.5*		*104*	*70-130*			
Gasoline Range Hydrocarbons	ND	50.0	"							
Methyl tert-Butyl Ether	ND	0.5	"							
Benzene	ND	0.5	"							
Toluene	ND	0.5	"							
Ethylbenzene	ND	0.5	"							
m,p-Xylene	ND	0.5	"							
o-Xylene	ND	0.5	"							
Xylenes, total	ND	1.0	"							
Blank (AUD0159-BLK2)				Prepared: 04/14/11 Analyzed: 04/15/11						
Surrogate: Dibromofluoromethane	*12.4*		*ug/l*	*12.5*		*98.9*	*70-130*			
Surrogate: Toluene-d8	*12.4*		*"*	*12.5*		*99.3*	*70-130*			
Surrogate: 4-Bromofluorobenzene	*13.0*		*"*	*12.5*		*104*	*70-130*			
Gasoline Range Hydrocarbons	ND	50.0	"							
Methyl tert-Butyl Ether	ND	0.5	"							
Benzene	ND	0.5	"							
Toluene	ND	0.5	"							
Ethylbenzene	ND	0.5	"							
m,p-Xylene	ND	0.5	"							
o-Xylene	ND	0.5	"							
Xylenes, total	ND	1.0	"							
LCS (AUD0159-BS1)				Prepared & Analyzed: 04/14/11						
Surrogate: Dibromofluoromethane	*11.8*		*ug/l*	*12.5*		*94.7*	*70-130*			
Surrogate: Toluene-d8	*12.1*		*"*	*12.5*		*97.1*	*70-130*			
Surrogate: 4-Bromofluorobenzene	*12.8*		*"*	*12.5*		*102*	*70-130*			
Benzene	19.2	0.5	"	20.0		96.1	80-120			
Toluene	17.7	0.5	"	20.0		88.6	80-120			
1,1-Dichloroethene	17.9	0.5	"	20.0		89.6	80-120			
Trichloroethene	17.6	0.5	"	20.0		87.9	80-120			
Chlorobenzene	17.9	0.5	"	20.0		89.3	80-120			

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Laboratory Representative

Excelchem Environmental Labs

Geological Technics	Project:	Sullins	
1172 Kansas Ave	Project Number:	1262.2	Date Reported:
Modesto, CA 95351	Project Manager:	Geological Technics	04/21/11 12:17

Volatile Organic Compounds by GC/MS - Quality Control

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch AUD0159 - EPA 8260B										
LCS (AUD0159-BS2)				Prepared & Analyzed: 04/14/11						
Surrogate: Dibromofluoromethane	*12.0*		*ug/l*	*12.5*		*96.1*	*70-130*			
Surrogate: Toluene-d8	*12.2*		*"*	*12.5*		*97.9*	*70-130*			
Surrogate: 4-Bromofluorobenzene	*13.0*		*"*	*12.5*		*104*	*70-130*			
Benzene	19.3	0.5	"	20.0		96.4	80-120			
Toluene	17.8	0.5	"	20.0		89.0	80-120			
1,1-Dichloroethene	17.8	0.5	"	20.0		89.0	80-120			
Trichloroethene	17.7	0.5	"	20.0		88.6	80-120			
Chlorobenzene	18.4	0.5	"	20.0		92.2	80-120			
LCS Dup (AUD0159-BSD1)				Prepared & Analyzed: 04/14/11						
Surrogate: Dibromofluoromethane	*11.9*		*ug/l*	*12.5*		*95.0*	*70-130*			
Surrogate: Toluene-d8	*12.1*		*"*	*12.5*		*97.0*	*70-130*			
Surrogate: 4-Bromofluorobenzene	*13.2*		*"*	*12.5*		*106*	*70-130*			
Benzene	19.7	0.5	"	20.0		98.4	80-120	2.31	15	
Toluene	18.1	0.5	"	20.0		90.7	80-120	2.34	15	
1,1-Dichloroethene	18.1	0.5	"	20.0		90.4	80-120	0.834	15	
Trichloroethene	17.5	0.5	"	20.0		87.6	80-120	0.342	15	
Chlorobenzene	18.4	0.5	"	20.0		92.2	80-120	3.14	15	
LCS Dup (AUD0159-BSD2)				Prepared: 04/14/11 Analyzed: 04/15/11						
Surrogate: Dibromofluoromethane	*12.0*		*ug/l*	*12.5*		*96.2*	*70-130*			
Surrogate: Toluene-d8	*12.1*		*"*	*12.5*		*97.1*	*70-130*			
Surrogate: 4-Bromofluorobenzene	*12.6*		*"*	*12.5*		*101*	*70-130*			
Benzene	19.5	0.5	"	20.0		97.5	80-120	1.14	15	
Toluene	18.0	0.5	"	20.0		89.9	80-120	0.951	15	
1,1-Dichloroethene	18.0	0.5	"	20.0		90.0	80-120	1.17	15	
Trichloroethene	17.5	0.5	"	20.0		87.6	80-120	1.14	15	
Chlorobenzene	18.6	0.5	"	20.0		93.2	80-120	1.03	15	

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Laboratory Representative

Excelchem Environmental Labs

Geological Technics 1172 Kansas Ave Modesto, CA 95351	Project: Project Number: Project Manager:	Sullins 1262.2 Geological Technics	Date Reported: 04/21/11 12:17

Notes and Definitions

ND Analyte not detected at reporting limit.

NR Not reported

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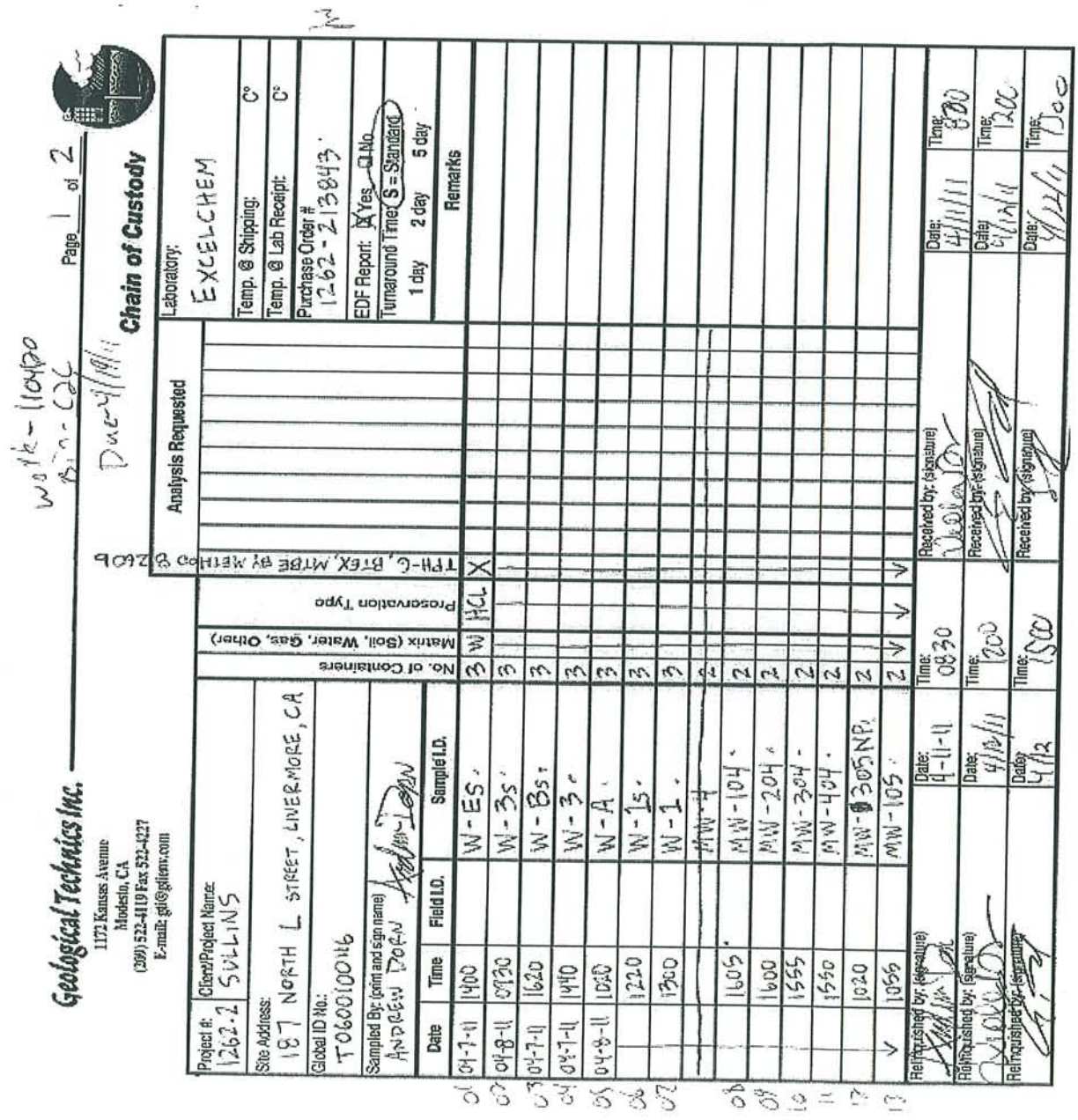
Geological Technics 1172 Kansas Ave Modesto, CA 95351	Project: Project Number: Project Manager:	Sullins 1262.2 Geological Technics	Date Reported: 04/21/11 12:17



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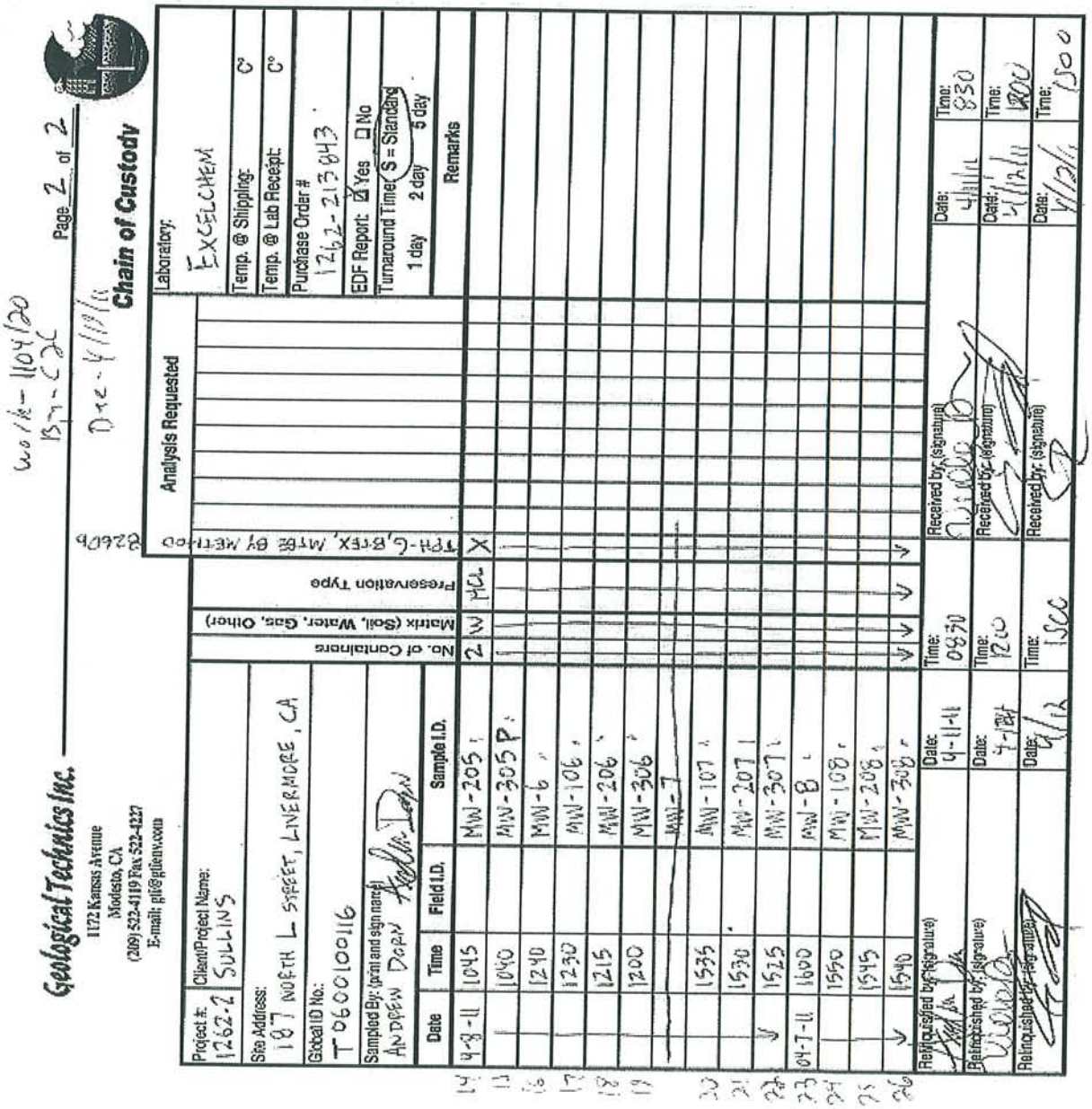
Geological Technics 1172 Kansas Ave Modesto, CA 95351	Project: Project Number: Project Manager:	Sullins 1262.2 Geological Technics	Date Reported: 04/21/11 12:17



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Laboratory Representative

Excelchem Environmental Labs

Geological Technics 1172 Kansas Ave Modesto, CA 95351	Project: Project Number: Project Manager:	Sullins 1262.2 Geological Technics	Date Reported: 04/21/11 12:17

Sample Integrity

WORK ORDER 1104120

Date Received: 4/12/11

Section 1 – Sample Arrival Info.

Sample Transport: ONTRAC UPS USPS Walk-In EXCELCHEM Courier Fed-Ex Other:

Transported In: Ice Chest Box Hand

Describe type of packing materials: None Bubble Wrap Foam Packing Peanuts Paper Other:

Has chilling process begun? Y N Samples Received: Chilled to Touch / Ambient / On Ice

Temperature of Samples (°C): 2 Ice Chest Temperature(s) (°C): 2

Was temperature In Range?: Y N

Section 2 – Bottle/Analysis Info.

	Yes	No	N/A	Comments
Did all bottles arrive unbroken and intact?	X			
Did all bottle labels agree with COC?	X			
Were correct containers used for the tests requested?	X			
Were correct preservations used for the tests requested?	X			
Was a sufficient amount of sample sent for tests indicated?	X			
Were bubbles present in VOA Vials?: (Volatile Methods Only)		X		

Section 3 – COC Info.

	Completed Yes	Completed No	Info From Container		Completed Yes	Completed No	Comments
Was COC Received	X			Analysis Requested	X		
Date Sampled	X			Samples arrived within holding time	X		
Time Sampled	X			Any hold times less than 72 hrs		X	
Sample ID	X			Client Name	X		
Rush TAT		X		Address/Telephone #	X		

Section 4 – Comments / Discrepancies

Was Client notified of discrepancies: Yes No N/A Notified by:

Explanations / Comments:

Samples Labeled by: SM
Labels reviewed by: MM
Bin #s: 22
COC Scanned/Attached by:

Form completed by: **Date/Time:** 4/12

Excelchem Environmental Lab.

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Laboratory Representative

Appendix C

Groundwater Monitoring Field Notes

Geological Technics, Inc.

Well Development Field Log

Project Name: Sullins

Project No.: 1262.2

Project Location: 187 N. L Street
Livermore, CA

Well I.D.: W-A

Date: 4/13/2011

Time	Cumulative Volume Purged (gal)	Pumping Rate (gpm)	Temp. C°	E.C. (µmhos/cm)	pH	DO (mg/L)	Remarks
11:30-11:40	0-5						Clear, strong odor, no sediments
12:50	5.0						Brownish black, strong odor, a lot of sediments
13:00	10.0						Brownish black, strong odor, a lot of sediments
13:05	15.0						Brownish black, strong odor, a lot of sediments
13:15	20.0						Brownish black, strong odor, a lot of sediments
13:25	25.0						Brownish black, strong odor, a lot of sediments
13:30	30.0						Brownish black, strong odor, a lot of sediments
13:40	35.0						Brownish black, strong odor, a lot of sediments
13:50	40.0						Brownish black, strong odor, a lot of sediments
14:05	45.0						Brownish black, strong odor, a lot of sediments

Development Method: ☒ Dedicated Waterra w/ surge block attachement ☐ Centrifugal pump with dedicated tubing ☐ Other

Pumping Rate: 0.33 gal/min

Develop Style: ☐ Continuous ☒ Intermittent

Well Pumped Dry: ☐ Yes ☒ No

* Bottom of Well Screen (ft bgs):	63.00
* Top of Well Screen (ft bgs):	-
**Well Screen Interval (ft):	-
Casing diameter (in):	4"
Initial DTW (ft):	-
Water column height (ft):	-
**Volume (gal/linear ft):	-
**One casing volume (gal):	-

*Well Constructed TD (ft):	63.00
* Well TD (ft):	58.34
**Silt Thickness (ft):	4.66
Final DTW (ft):	57.75
Initial Apprnc (clr-odor):	Brn Blk/Strong
Final Apprnc (clr-odor):	Lt Brn/Strong
Total Developed Vol (gal):	95
Develop Duration (min):	155

Notes:
1st 1/2 gal purged water was clear and then changed to black, collected a sample with a bailer.

Developed By: E. Nona

Develop Water Drummed: ☒ Yes ☐ No

No. of Drums: 7

* = constructed

** = calculated

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

Geological Technics, Inc.

Well Development Field Log

Project Name: Sullins

Project No.: 1262.2

Project Location: 187 N. L Street
Livermore, CA

Well I.D.: W-A

Date: 4/13/2011

Time	Cumulative Volume Purged (gal)	Pumping Rate (gpm)	Temp. C°	E.C. (µmhos/cm)	pH	DO (mg/L)	Remarks
14:20	50.0						Brownish black, strong odor, a lot of sediments
14:25	55.0						Brownish black, strong odor, a lot of sediments
14:30	60.0						Brownish black, strong odor, a lot of sediments
14:40	65.0						Light brown, strong odor, a lot of sediments
14:45	70.0						Light brown, strong odor, a lot of sediments
14:50	75.0						Light brown, strong odor, a lot of sediments
14:55	80.0						Light brown, strong odor, a lot of sediments
15:05	85.0						Light brown, strong odor, a lot of sediments
15:10	90.0						Light brown, strong odor, a lot of sediments
15:15	95.0						Light brown, strong odor, a lot of sediments

Development Method: ☒ Dedicated Waterra w/ surge block attachement ☐ Centrifugal pump with dedicated tubing ☐ Other

Pumping Rate: 0.33 gal/min

Develop Style: ☐ Continuous ☒ Intermittent

Well Pumped Dry: ☐ Yes ☒ No

* Bottom of Well Screen (ft bgs):	63.00
* Top of Well Screen (ft bgs):	-
**Well Screen Interval (ft):	-
Casing diameter (in):	4"
Initial DTW (ft):	-
Water column height (ft):	-
**Volume (gal/linear ft):	-
**One casing volume (gal):	-

*Well Constructed TD (ft):	63.00
* Well TD (ft):	58.34
**Silt Thickness (ft):	4.66
Final DTW (ft):	57.75
Initial Apprnc (clr-odor):	Brn Blk/Strong
Final Apprnc (clr-odor):	Lt Brn/Strong
Total Developed Vol (gal):	95
Develop Duration (min):	155

Notes:

Developed By: E. Nona

Develop Water Drummed: ☒ Yes ☐ No

No. of Drums: 7

* = constructed

** = calculated

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

Geological Technics, Inc.

Well Development Field Log

Project Name: Sullins

Project No.: 1262.2

Project Location: 187 N. L Street
Livermore, CA

Well I.D.: W-1

Date: 4/13/2011

Time	Cumulative Volume Purged (gal)	Pumping Rate (gpm)	Temp. C°	E.C. (µmhos/cm)	pH	DO (mg/L)	Remarks
12:35	0.0						Greyish green, strong odor, a lot of sediments
12:45	5.0						Greyish green, strong odor, a lot of sediments
12:53	10.0						Greyish green, strong odor, a lot of sediments
13:05	15.0						Greyish green, strong odor, a lot of sediments
13:17	20.0						Light green, strong odor, few sediments
14:00	25.0						Light green, strong odor, few sediments
14:06	30.0						Light green, strong odor, few sediments
14:15	35.0						Light green, strong odor, few sediments
14:25	40.0						Light green, strong odor, few sediments
14:35	45.0						Light green, strong odor, few sediments

Development Method: ☒ Dedicated Waterra w/ surge block attachement ☐ Centrifugal pump with dedicated tubing ☐ Other

Pumping Rate: 0.38 gal/min

Develop Style: ☐ Continuous ☒ Intermittent

Well Pumped Dry: ☐ Yes ☒ No

* Bottom of Well Screen (ft bgs):	56.50
* Top of Well Screen (ft bgs):	-
**Well Screen Interval (ft):	-
Casing diameter (in):	2"
Initial DTW (ft):	27.72
Water column height (ft):	-
**Volume (gal/linear ft):	-
**One casing volume (gal):	-

*Well Constructed TD (ft):	56.60
* Well TD (ft):	54.56
**Silt Thickness (ft):	2.04
Final DTW (ft):	55.00
Initial Apprnc (clr-odor):	Grey/Grn/Strong
Final Apprnc (clr-odor):	Lt Gry Grn/strong
Total Developed Vol (gal):	35
Develop Duration (min):	110

Notes:

Developed By: E. Nona

Develop Water Drummed: ☒ Yes ☐ No

No. of Drums: 7

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

* = constructed

** = calculated

Geological Technics, Inc.

Groundwater Monitoring Field Log

Project Name: Sullins (L St)

Project No.: 1262.2

Project Location: 187 N. L Street

Livermore, CA

Well I.D.: W-1

Date: 4/8/2011

Samples sent to: Excelchem

Time	Cumulative Volume Purged (gal)	Temp C°	EC (µS/cm)	pH	ORP (millivolts)	DO (mg/L)	Remarks
12:37	0.00	16.00	860	6.87	-62.5	19.35	Light grey, strong odor, few sediments
12:41	4.75	18.90	924	5.96	-137.6	1.14	Clear/milky, strong odor, no sediments
12:45	9.50	18.96	921	6.07	-147.4	0.82	Clear/milky, strong odor, no sediments
12:49	14.25	18.96	917	6.30	-164.3	0.40	Clear/milky, strong odor, no sediments
13:00							Collected samples

Purge Method: ☒ Dedicated Waterra ☐ Centrifugal pump with dedicated tubing ☐ Other _____

Pumping Rate: 1.19 gal/min

Well Constructed TD (ft):	56.50
* Well TD (ft):	54.63
Silt Thickness (ft):	1.87
Initial DTW (ft):	27.07
Water column height (ft):	27.56
One casing volume (gal):	4.69
** Final DTW (ft):	28.22
Casing diameter (in):	2"

Sample Containers used: 3 # VOAs X preserved ____ non-preserved

_____ # amber liters _____ preserved ____ non-preserved

_____ # polys _____ _____ preserved ____ non-preserved

_____ # polys _____ _____ preserved ____ non-preserved

Notes: Small droplets of sheen were observed on top of purge water.

Sampled By: A. Dorn

Sample Method: Waterra ☒ Bailer ☐ Other ☐

* = measured ** = @ sampling

Purged Water Drummed: ☒ Yes ☐ No

No. of Drums: 4

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

Geological Technics, Inc.

Groundwater Monitoring Field Log

Project Name: Sullins (L St)

Project No.: 1262.2

Project Location: 187 N. L Street

Livermore, CA

Well I.D.: W-1s

Date: 4/7/2011

Samples sent to: Excelchem

Time	Cumulative Volume Purged (gal)	Temp C°	EC (µS/cm)	pH	ORP (millivolts)	DO (mg/L)	Remarks
10:43	0.0	17.34	1006	6.75	-173.1	5.91	Clear, strong odor, few sediments
11:15	26.0	18.91	976	6.01	-229.9	0.16	Clear, strong odor, few sediments
11:45	52.0	18.92	976	6.18	-247.4	0.09	Clear, strong odor, few sediments
12:15	78.0	19.06	967	6.17	-221.5	0.37	Clear, strong odor, few sediments
12:20							Collected samples

Purge Method: ☒ Dedicated Waterra ❑ Centrifugal pump with dedicated tubing ❑ Other _____

Pumping Rate: 0.85 gal/min

Well Constructed TD (ft):	45.00
* Well TD (ft):	44.52
Silt Thickness (ft):	0.48
Initial DTW (ft):	27.09
Water column height (ft):	17.43
One casing volume (gal):	25.80
** Final DTW (ft):	31.80
Casing diameter (in):	6"

Sample Containers used: 3 # VOAs X preserved ____ non-preserved

_____ # amber liters _____ preserved ____ non-preserved

_____ # polys _____ _____ preserved ____ non-preserved

_____ # polys _____ _____ preserved ____ non-preserved

Notes: Small droplets of sheen were observed in the purged water.

Sampled By: A. Dorn

Sample Method: Waterra ☒ Bailer ❑ Other ❑

* = measured ** = @ sampling

Purged Water Drummed: ☒ Yes ❑ No

No. of Drums:

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

Geological Technics, Inc.

Groundwater Monitoring Field Log

Project Name: Sullins (L St)

Project No.: 1262.2

Project Location: 187 N. L Street

Livermore, CA

Well I.D.: W-3

Date: 4/7/2011

Samples sent to: Excelchem

Time	Cumulative Volume Purged (gal)	Temp C°	EC (µS/cm)	pH	ORP (millivolts)	DO (mg/L)	Remarks
14:17	0.00	15.49	910	7.30	250.6	11.20	Metal gray, mild odor, few sediments (first 1/2 gal was clear)
14:25	3.75	18.31	931	7.18	-157.7	0.56	Clear, mild odor, very few sediments
14:28	7.50	18.34	927	7.04	-176.4	0.24	Clear, mild odor, very few sediments
14:31	11.25	18.25	928	6.94	-185.7	0.10	Clear, mild odor, very few sediments
14:40							Collected samples

Purge Method: ☒ Dedicated Waterra ☐ Centrifugal pump with dedicated tubing ☐ Other _____

Pumping Rate: 0.80 gal/min

Well Constructed TD (ft):	51.50
* Well TD (ft):	50.01
Silt Thickness (ft):	1.49
Initial DTW (ft):	28.76
Water column height (ft):	21.25
One casing volume (gal):	3.61
** Final DTW (ft):	29.83
Casing diameter (in):	2"

Sample Containers used: 3 # VOAs X preserved ____ non-preserved

_____ # amber liters _____ preserved ____ non-preserved

_____ # polys _____ _____ preserved ____ non-preserved

_____ # polys _____ _____ preserved ____ non-preserved

Notes: Recharged took 2 minutes, bubbles stopped afterwards.

Sampled By: A. Dorn

Sample Method: Waterra ☒ Bailer ☐ Other ☐

* = measured ** = @ sampling

Purged Water Drummed: ☐ Yes ☐ No

No. of Drums:

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

Geological Technics, Inc.

Groundwater Monitoring Field Log

Project Name: Sullins (L St)

Project No.: 1262.2

Project Location: 187 N. L Street

Livermore, CA

Well I.D.: W-3s

Date: 4/7/2011

Samples sent to: Excelchem

Time	Cumulative Volume Purged (gal)	Temp C°	EC (µS/cm)	pH	ORP (millivolts)	DO (mg/L)	Remarks
8:56	0.00	13.58	877	6.85	141.6	10.46	*See below.
9:05	10.75	18.01	954	6.85	27.0	1.23	Dark brown, no odor, few sediments
9:15	21.50	18.05	963	6.71	42.4	0.78	Light brown, no odor, few sediments
9:25	32.25	18.06	964	6.63	40.7	0.72	Light brown, mild odor, few sediments
9:30							Collected samples

Purge Method: ☒ Dedicated Waterra ☐ Centrifugal pump with dedicated tubing ☐ Other _____

Pumping Rate: 3.25 gal/min

Well Constructed TD (ft):	45.00
* Well TD (ft):	43.10
Silt Thickness (ft):	1.90
Initial DTW (ft):	26.92
Water column height (ft):	16.18
One casing volume (gal):	10.52
** Final DTW (ft):	-
Casing diameter (in):	4"

Sample Containers used: 3 # VOAs X preserved ____ non-preserved

_____ # amber liters _____ preserved ____ non-preserved

_____ # polys _____ _____ preserved ____ non-preserved

_____ # polys _____ _____ preserved ____ non-preserved

Notes: *In first purge volume, water condition changed from light brown/clear, no odor, few sediments (1/2 gal) to dark black, strong odor, few sediments at 2 gals. Recharge

Sampled By: A. Dorn stayed to 80% and took 5 minutes.

Sample Method: Waterra ☒ Bailer ☐ Other ☐

* = measured ** = @ sampling

Purged Water Drummed: ☐ Yes ☐ No

No. of Drums:

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

Geological Technics, Inc.

Groundwater Monitoring Fie

Project Name: Sullins (L St)

Project No.: 1262.2

Project Location: 187 N. L Street

Livermore, CA

Well I.D.: W-A

Date: 4/7/2011

Samples sent to: Excelchem

Time	Cumulative Volume Purged (gal)	Temp C°	EC (µS/cm)	pH	ORP (millivolts)	DO (mg/L)	Remarks
9:47	0.0	15.96	618	7.11	72.2	9.50	Black, strong odor, few sediments
	18.0	18.89	926	6.85	-245.7	0.24	Black, strong odor, few sediments
	36.0	18.94	849	6.69	-249.7	0.14	Black, strong odor, few sediments
10:15	54.0	18.94	907	6.85	-254.5	0.04	Black, strong odor, few sediments
10:20							Collected samples

Purge Method: ☒ Dedicated Waterra ☐ Centrifugal pump with dedicated tubing ☐ Other

Pumping Rate: 1.93 gal/min

Well Constructed TD (ft):	63.00
* Well TD (ft):	55.12
Silt Thickness (ft):	7.88
Initial DTW (ft):	27.66
Water column height (ft):	27.46
One casing volume (gal):	17.85
** Final DTW (ft):	-
Casing diameter (in):	4"

Sample Containers used: 3 # VOAs X preserved ____ non-preserved

____ # amber liters ____ preserved ____ non-preserved

____ # polys ____ ____ preserved ____ non-preserved

____ # polys ____ ____ preserved ____ non-preserved

Notes: Droplets of bio-foul in black purged water.

Sampled By: A. Dorn

Sample Method: Waterra ☒ Bailer ☐ Other ☐

* = measured ** = @ sampling

Purged Water Drummed: ☐ Yes ☐ No

No. of Drums:

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

Geological Technics, Inc.

Groundwater Monitoring Field Log

Project Name: Sullins (L St)

Project No.: 1262.2

Project Location: 187 N. L Street

Livermore, CA

Well I.D.: W-Bs

Date: 4/7/2011

Samples sent to: Excelchem

Time	Cumulative Volume Purged (gal)	Temp C°	EC (µS/cm)	pH	ORP (millivolts)	DO (mg/L)	Remarks
14:55	0.00	17.21	690	6.88	-157.8	5.42	Grayish clear, strong odor, very few sediments
15:23	25.75	18.57	778	6.75	-200.6	0.06	Clear, no odor, no sediments
15:49	51.50	18.58	781	6.58	-198.5	0.04	Clear, no odor, no sediments
16:18	77.25	18.53	780	6.61	-198.2	0.02	Clear, no odor, no sediments
16:20							Collected samples

Purge Method: ☒ Dedicated Waterra ☐ Centrifugal pump with dedicated tubing ☐ Other _____

Pumping Rate: 0.93 gal/min

Well Constructed TD (ft):	45.00
* Well TD (ft):	44.40
Silt Thickness (ft):	0.60
Initial DTW (ft):	27.11
Water column height (ft):	17.29
One casing volume (gal):	25.59
** Final DTW (ft):	27.72
Casing diameter (in):	4"

Sample Containers used: 3 # VOAs X preserved ____ non-preserved

_____ # amber liters _____ preserved ____ non-preserved

_____ # polys _____ _____ preserved ____ non-preserved

_____ # polys _____ _____ preserved ____ non-preserved

Notes: Recharge took 2 minutes.

Sampled By: A. Dorn

Sample Method: Waterra ☒ Bailer ☐ Other ☐

* = measured ** = @ sampling

Purged Water Drummed: ☐ Yes ☐ No

No. of Drums:

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

Geological Technics, Inc.

Groundwater Monitoring Field Log

Project Name: Sullins (L St)

Project No.: 1262.2

Project Location: 187 N. L Street

Livermore, CA

Well I.D.: W-Es

Date: 4/7/2011

Samples sent to: Excelchem

Time	Cumulative Volume Purged (gal)	Temp C°	EC (µS/cm)	pH	ORP (millivolts)	DO (mg/L)	Remarks
13:40	0.00	17.77	871	7.07	87.2	6.45	Greyish brown/clear, no odor, very few sediments
13:43	2.75	19.44	778	6.82	96.0	2.14	Greyish brown/clear, no odor, very few sediments
13:49	5.50	19.36	793	7.05	149.3	1.30	Greyish brown/clear, no odor, very few sediments
13:53	8.25	19.47	790	7.03	141.3	1.06	Greyish brown/clear, no odor, very few sediments
14:00							Collected samples

Purge Method: ☒ Dedicated Waterra ☐ Centrifugal pump with dedicated tubing ☐ Other _____

Pumping Rate: 0.63 gal/min

Well Constructed TD (ft):	45.00
* Well TD (ft):	44.17
Silt Thickness (ft):	0.83
Initial DTW (ft):	28.07
Water column height (ft):	16.10
One casing volume (gal):	2.74
** Final DTW (ft):	29.12
Casing diameter (in):	2"

Sample Containers used: 3 # VOAs X preserved ____ non-preserved

_____ # amber liters _____ preserved ____ non-preserved

_____ # polys _____ _____ preserved ____ non-preserved

_____ # polys _____ _____ preserved ____ non-preserved

Notes: Had to clear check valve at 3.5 gal purged, recharge took 1 minute.

Sampled By: A. Dorn

Sample Method: Waterra ☒ Bailer ☐ Other ☐

* = measured ** = @ sampling

Purged Water Drummed: ☐ Yes ☐ No

No. of Drums:

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

Geological Technics, Inc.

Groundwater Monitoring Field Log

Project Name: Sullins (L St)

Project No.: 1262.2

Project Location: 187 N. L Street

Livermore, CA

Well I.D.: MW-4

Date: 4/8/2011

Samples sent to: Excelchem

Time	Cumulative Volume Purged (gal)	Temp C°	EC (µS/cm)	pH	ORP (millivolts)	DO (mg/L)	Remarks
13:45	0.1						

Purge Method: ☒ Dedicated Waterra ☐ Centrifugal pump with dedicated tubing ☐ Other _____

Pumping Rate: - gal/min

Well Constructed TD (ft):	30.00
* Well TD (ft):	-
Silt Thickness (ft):	-
Initial DTW (ft):	27.00 (Assumed)
Water column height (ft):	3.00
One casing volume (gal):	0.03
** Final DTW (ft):	-
Casing diameter (in):	CMT

Sample Containers used: _____ # VOAs _____ preserved ____ non-preserved

_____ # amber liters _____ preserved ____ non-preserved

_____ # polys _____ _____ preserved ____ non-preserved

_____ # polys _____ _____ preserved ____ non-preserved

Notes: Well dry.

Sampled By: A. Dorn

Sample Method: Waterra ☒ Bailer ☐ Other ☐

* = measured ** = @ sampling

Purged Water Drummed: ☐ Yes ☐ No

No. of Drums:

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

Geological Technics, Inc.

Groundwater Monitoring Field Log

Project Name: Sullins (L St)

Project No.: 1262.2

Project Location: 187 N. L Street

Livermore, CA

Well I.D.: MW-5

Date: 4/8/2011

Samples sent to: Excelchem

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

Purge Method: ☒ Dedicated Waterra ❑ Centrifugal pump with dedicated tubing ❑ Other _____

Pumping Rate: - gal/min

Well Constructed TD (ft):	27.00
* Well TD (ft):	-
Silt Thickness (ft):	-
Initial DTW (ft):	27.00 (Assumed)
Water column height (ft):	-
One casing volume (gal):	-
** Final DTW (ft):	-
Casing diameter (in):	CMT

Sample Containers used: _____ # VOAs _____ preserved _____ non-preserved

_____ # amber liters _____ preserved _____ non-preserved

_____ # polys _____ _____ preserved _____ non-preserved

_____ # polys _____ _____ preserved _____ non-preserved

Notes: Well Dry.

Sampled By: A. Dorn

Sample Method: Waterra ☒ Bailer ❑ Other ❑

* = measured ** = @ sampling

Purged Water Drummed: ❑ Yes ❑ No

No. of Drums:

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

Geological Technics, Inc.

Groundwater Monitoring Field Log

Project Name: Sullins (L St)

Project No.: 1262.2

Project Location: 187 N. L Street

Livermore, CA

Well I.D.: MW-6

Date: 4/8/2011

Samples sent to: Excelchem

Time	Cumulative Volume Purged (gal)	Temp C°	EC (µS/cm)	pH	ORP (millivolts)	DO (mg/L)	Remarks
12:25	0.1						Dark greenish gray, strong odor, a lot of sediments
12:40							Collected samples

Purge Method: ☒ Dedicated Waterra ☐ Centrifugal pump with dedicated tubing ☐ Other _____

Pumping Rate: - gal/min

Well Constructed TD (ft):	30.00
* Well TD (ft):	-
Silt Thickness (ft):	-
Initial DTW (ft):	27.00 (Assumed)
Water column height (ft):	3.00
One casing volume (gal):	0.03
** Final DTW (ft):	-
Casing diameter (in):	CMT

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

_____ # amber liters _____ preserved _____ non-preserved

_____ # polys _____ _____ preserved _____ non-preserved

_____ # polys _____ _____ preserved _____ non-preserved

Notes: _____

Sampled By: A. Dorn

Sample Method: Waterra ☒ Bailer ☐ Other ☐

* = measured ** = @ sampling

Purged Water Drummed: ☐ Yes ☐ No

No. of Drums:

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

Geological Technics, Inc.

Groundwater Monitoring Field Log

Project Name: Sullins (L St)

Project No.: 1262.2

Project Location: 187 N. L Street

Livermore, CA

Well I.D.: MW-7

Date: 4/8/2011

Samples sent to: Excelchem

Time	Cumulative Volume Purged (gal)	Temp C°	EC (µS/cm)	pH	ORP (millivolts)	DO (mg/L)	Remarks
	0.1						

Purge Method: ☒ Dedicated Waterra ☐ Centrifugal pump with dedicated tubing ☐ Other _____

Pumping Rate: - gal/min

Well Constructed TD (ft):	30.00
* Well TD (ft):	-
Silt Thickness (ft):	-
Initial DTW (ft):	27.00 (Assumed)
Water column height (ft):	3.00
One casing volume (gal):	0.03
** Final DTW (ft):	-
Casing diameter (in):	CMT

Sample Containers used: _____ # VOAs _____ preserved ____ non-preserved

_____ # amber liters _____ preserved ____ non-preserved

_____ # polys _____ _____ preserved ____ non-preserved

_____ # polys _____ _____ preserved ____ non-preserved

Notes: Well purged dry and was not enough water to collect samples.

Sampled By: A. Dorn

Sample Method: Waterra ☒ Bailer ☐ Other ☐

* = measured ** = @ sampling

Purged Water Drummed: ☐ Yes ☐ No

No. of Drums:

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

Geological Technics, Inc.

Groundwater Monitoring Field Log

Project Name: Sullins (L St)

Project No.: 1262.2

Project Location: 187 N. L Street

Livermore, CA

Well I.D.: MW-8

Date: 4/7/2011

Samples sent to: Excelchem

Time	Cumulative Volume Purged (gal)	Temp C°	EC (µS/cm)	pH	ORP (millivolts)	DO (mg/L)	Remarks
15;25							Milky metal gray, strong odor, a lot of sediments
16:00							Collected samples

Purge Method: ☒ Dedicated Waterra ☐ Centrifugal pump with dedicated tubing ☐ Other _____

Pumping Rate: - gal/min

Well Constructed TD (ft):	30.00
* Well TD (ft):	-
Silt Thickness (ft):	-
Initial DTW (ft):	-
Water column height (ft):	-
One casing volume (gal):	-
** Final DTW (ft):	-
Casing diameter (in):	CMT

Sample Containers used: 1 # VOAs X preserved ____ non-preserved

_____ # amber liters _____ preserved _____ non-preserved

_____ # polys _____ _____ preserved _____ non-preserved

_____ # polys _____ _____ preserved _____ non-preserved

Notes: Dry, could not purge. Collected samples from a small volume tubing.

Sampled By: A. Dorn

Sample Method: Waterra ☒ Bailer ☐ Other ☐

* = measured ** = @ sampling

Purged Water Drummed: ☐ Yes ☐ No

No. of Drums:

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

Geological Technics, Inc.

Groundwater Monitoring Field Log

Project Name: Sullins (L St)

Project No.: 1262.2

Project Location: 187 N. L Street

Livermore, CA

Well I.D.: MW-104

Date: 4/8/2011

Samples sent to: Excelchem

Time	Cumulative Volume Purged (gal)	Temp C°	EC (µS/cm)	pH	ORP (millivolts)	DO (mg/L)	Remarks
15:00	0.78						Metal gray, strong odor, a lot of sediments
16:05							Collected samples

Purge Method: ☒ Dedicated Waterra ☐ Centrifugal pump with dedicated tubing ☐ Other _____

Pumping Rate: - gal/min

Well Constructed TD (ft):	50.50
* Well TD (ft):	-
Silt Thickness (ft):	-
Initial DTW (ft):	27.00 (Assumed)
Water column height (ft):	23.50
One casing volume (gal):	0.26
** Final DTW (ft):	-
Casing diameter (in):	CMT

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

_____ # amber liters _____ preserved ____ non-preserved

_____ # polys _____ _____ preserved ____ non-preserved

_____ # polys _____ _____ preserved ____ non-preserved

Notes: _____

Sampled By: A. Dorn

Sample Method: Waterra ☒ Bailer ☐ Other ☐

* = measured ** = @ sampling

Purged Water Drummed: ☐ Yes ☐ No

No. of Drums:

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

Geological Technics, Inc.

Groundwater Monitoring Field Log

Project Name: Sullins (L St)

Project No.: 1262.2

Project Location: 187 N. L Street

Livermore, CA

Well I.D.: MW-105

Date: 4/8/2011

Samples sent to: Excelchem

Time	Cumulative Volume Purged (gal)	Temp C°	EC (µS/cm)	pH	ORP (millivolts)	DO (mg/L)	Remarks
10:10	0.33						Greyish clear, mild odor, no sediments
10:55							Collected samples

Purge Method: ☒ Dedicated Waterra ☐ Centrifugal pump with dedicated tubing ☐ Other _____

Pumping Rate: - gal/min

Well Constructed TD (ft):	37.00
* Well TD (ft):	-
Silt Thickness (ft):	-
Initial DTW (ft):	27.00 (Assumed)
Water column height (ft):	10.00
One casing volume (gal):	0.11
** Final DTW (ft):	-
Casing diameter (in):	CMT

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

_____ # amber liters _____ preserved _____ non-preserved

_____ # polys _____ _____ preserved _____ non-preserved

_____ # polys _____ _____ preserved _____ non-preserved

Notes: _____

Sampled By: A. Dorn

Sample Method: Waterra ☒ Bailer ☐ Other ☐

* = measured ** = @ sampling

Purged Water Drummed: ☐ Yes ☐ No

No. of Drums:

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

Geological Technics, Inc.

Groundwater Monitoring Field Log

Project Name: Sullins (L St)

Project No.: 1262.2

Project Location: 187 N. L Street

Livermore, CA

Well I.D.: MW-106

Date: 4/8/2011

Samples sent to: Excelchem

Time	Cumulative Volume Purged (gal)	Temp C°	EC (µS/cm)	pH	ORP (millivolts)	DO (mg/L)	Remarks
12:20	0.33						*See below.
12:30							Collected samples

Purge Method: ☒ Dedicated Waterra ☐ Centrifugal pump with dedicated tubing ☐ Other _____

Pumping Rate: - gal/min

Well Constructed TD (ft):	37.00	
* Well TD (ft):	-	
Silt Thickness (ft):	-	
Initial DTW (ft):	27.00	(Assumed)
Water column height (ft):	10.00	
One casing volume (gal):	0.11	
** Final DTW (ft):	-	
Casing diameter (in):	CMT	

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

____ # VOAs ____ preserved ____ non-preserved

____ # polys ____ ____ preserved ____ non-preserved

____ # polys ____ ____ preserved ____ non-preserved

Notes: 1st purge volume: light brownish clear, mild odor, very few sediments; 2nd & 3rd volume: Greenish gray, strong odor, a lot of sediments.

Sampled By: A. Dorn

Sample Method: Waterra ☒ Bailer ☐ Other ☐

* = measured ** = @ sampling

Purged Water Drummed: ☐ Yes ☐ No

No. of Drums:

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

Geological Technics, Inc.

Groundwater Monitoring Field Log

Project Name: Sullins (L St)

Project No.: 1262.2

Project Location: 187 N. L Street

Livermore, CA

Well I.D.: MW-107

Date: 4/8/2011

Samples sent to: Excelchem

Time	Cumulative Volume Purged (gal)	Temp C°	EC (µS/cm)	pH	ORP (millivolts)	DO (mg/L)	Remarks
13:50	0.43						Dark grey, strong odor, few sediments
15:35							Collected samples

Purge Method: ☒ Dedicated Waterra ☐ Centrifugal pump with dedicated tubing ☐ Other _____

Pumping Rate: - gal/min

Well Constructed TD (ft):	40.00
* Well TD (ft):	-
Silt Thickness (ft):	-
Initial DTW (ft):	27.00 (Assumed)
Water column height (ft):	13.00
One casing volume (gal):	0.14
** Final DTW (ft):	-
Casing diameter (in):	CMT

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

_____ # amber liters _____ preserved _____ non-preserved

_____ # polys _____ _____ preserved _____ non-preserved

_____ # polys _____ _____ preserved _____ non-preserved

Notes: _____

Sampled By: A. Dorn

Sample Method: Waterra ☒ Bailer ☐ Other ☐

* = measured ** = @ sampling

Purged Water Drummed: ☐ Yes ☐ No

No. of Drums:

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

Geological Technics, Inc.

Groundwater Monitoring Field Log

Project Name: Sullins (L St)

Project No.: 1262.2

Project Location: 187 N. L Street

Livermore, CA

Well I.D.: MW-108

Date: 4/7/2011

Samples sent to: Excelchem

Time	Cumulative Volume Purged (gal)	Temp C°	EC (µS/cm)	pH	ORP (millivolts)	DO (mg/L)	Remarks
15:20							Metal gray, strong odor, few sediments
15:50							Collected samples

Purge Method: ☒ Dedicated Waterra ☐ Centrifugal pump with dedicated tubing ☐ Other _____

Pumping Rate: - gal/min

Well Constructed TD (ft):	40.00
* Well TD (ft):	-
Silt Thickness (ft):	-
Initial DTW (ft):	-
Water column height (ft):	-
One casing volume (gal):	-
** Final DTW (ft):	-
Casing diameter (in):	CMT

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

_____ # VOAs _____ preserved _____ non-preserved

_____ # polys _____ _____ preserved _____ non-preserved

_____ # polys _____ _____ preserved _____ non-preserved

Notes: _____

Sampled By: A. Dorn

Sample Method: Waterra ☒ Bailer ☐ Other ☐

* = measured ** = @ sampling

Purged Water Drummed: ☐ Yes ☐ No

No. of Drums:

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

Geological Technics, Inc.

Groundwater Monitoring Field Log

Project Name: Sullins (L St)

Project No.: 1262.2

Project Location: 187 N. L Street

Livermore, CA

Well I.D.: MW-204

Date: 4/8/2011

Samples sent to: Excelchem

Time	Cumulative Volume Purged (gal)	Temp C°	EC (µS/cm)	pH	ORP (millivolts)	DO (mg/L)	Remarks
14:31	0.44						1st purge: Clear, mild odor, no sediments
							Metal gray, strong odor, few sediments
14:40	0.88						Metal gray, strong odor, few sediments
14:50	1.32						Metal gray, strong odor, few sediments
16:00							Collected samples

Purge Method: ☒ Dedicated Waterra ☐ Centrifugal pump with dedicated tubing ☐ Other _____

Pumping Rate: - gal/min

Well Constructed TD (ft):	66.50
* Well TD (ft):	-
Silt Thickness (ft):	-
Initial DTW (ft):	27.00 (Assumed)
Water column height (ft):	39.50
One casing volume (gal):	0.44
** Final DTW (ft):	-
Casing diameter (in):	CMT

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

_____ # VOAs _____ preserved _____ non-preserved

_____ # polys _____ _____ preserved _____ non-preserved

_____ # polys _____ _____ preserved _____ non-preserved

Notes: _____

Sampled By: A. Dorn

Sample Method: Waterra ☒ Bailer ☐ Other ☐

* = measured ** = @ sampling

Purged Water Drummed: ☐ Yes ☐ No

No. of Drums:

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

Geological Technics, Inc.

Groundwater Monitoring Field Log

Project Name: Sullins (L St)

Well I.D.: MW-205

Project No.: 1262.2

Date: 4/8/2011

Project Location: 187 N. L Street

Livermore, CA

Samples sent to: Excelchem

Time	Cumulative Volume Purged (gal)	Temp C°	EC (µS/cm)	pH	ORP (millivolts)	DO (mg/L)	Remarks
10:05	0.69						Greyish clear, mild odor, few sediments
10:45							Collected samples

Purge Method: ☒ Dedicated Waterra ☐ Centrifugal pump with dedicated tubing ☐ Other _____

Pumping Rate: - gal/min

Well Constructed TD (ft):	48.00
* Well TD (ft):	-
Silt Thickness (ft):	-
Initial DTW (ft):	27.00 (Assumed)
Water column height (ft):	21.00
One casing volume (gal):	0.23
** Final DTW (ft):	-
Casing diameter (in):	CMT

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

_____ # amber liters _____ preserved _____ non-preserved

_____ # polys _____ _____ preserved _____ non-preserved

_____ # polys _____ _____ preserved _____ non-preserved

Notes:

Sampled By: A. Dorn

Sample Method: Waterra ☒ Bailer ☐ Other ☐

* = measured ** = @ sampling

Purged Water Drummed: ☐ Yes ☐ No

No. of Drums:

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

Geological Technics, Inc.

Groundwater Monitoring Field Log

Project Name: Sullins (L St)

Project No.: 1262.2

Project Location: 187 N. L Street

Livermore, CA

Well I.D.: MW-206

Date: 4/8/2011

Samples sent to: Excelchem

Time	Cumulative Volume Purged (gal)	Temp C°	EC (µS/cm)	pH	ORP (millivolts)	DO (mg/L)	Remarks
12:05	0.75						Light greenish gray, mild odor, few sediments
12:15							Collected samples

Purge Method: ☒ Dedicated Waterra ☐ Centrifugal pump with dedicated tubing ☐ Other _____

Pumping Rate: - gal/min

Well Constructed TD (ft):	50.00
* Well TD (ft):	-
Silt Thickness (ft):	-
Initial DTW (ft):	27.00 (Assumed)
Water column height (ft):	23.00
One casing volume (gal):	0.25
** Final DTW (ft):	-
Casing diameter (in):	CMT

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

_____ # amber liters _____ preserved ____ non-preserved

_____ # polys _____ _____ preserved ____ non-preserved

_____ # polys _____ _____ preserved ____ non-preserved

Notes: _____

Sampled By: A. Dorn

Sample Method: Waterra ☒ Bailer ☐ Other ☐

* = measured ** = @ sampling

Purged Water Drummed: ☐ Yes ☐ No

No. of Drums:

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

Geological Technics, Inc.

Groundwater Monitoring Field Log

Project Name: Sullins (L St)

Project No.: 1262.2

Project Location: 187 N. L Street

Livermore, CA

Well I.D.: MW-207

Date: 4/8/2011

Samples sent to: Excelchem

Time	Cumulative Volume Purged (gal)	Temp C°	EC (µS/cm)	pH	ORP (millivolts)	DO (mg/L)	Remarks
14:15	0.78						Light brown, strong odor, few sediments
15:30							Collected samples

Purge Method: ☒ Dedicated Waterra ☐ Centrifugal pump with dedicated tubing ☐ Other _____

Pumping Rate: - gal/min

Well Constructed TD (ft):	50.00
* Well TD (ft):	-
Silt Thickness (ft):	-
Initial DTW (ft):	27.00 (Assumed)
Water column height (ft):	23.00
One casing volume (gal):	0.26
** Final DTW (ft):	-
Casing diameter (in):	CMT

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

_____ # amber liters _____ preserved ____ non-preserved

_____ # polys _____ _____ preserved ____ non-preserved

_____ # polys _____ _____ preserved ____ non-preserved

Notes: _____

Sampled By: A. Dorn

Sample Method: Waterra ☒ Bailer ☐ Other ☐

* = measured ** = @ sampling

Purged Water Drummed: ☐ Yes ☐ No

No. of Drums:

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

Geological Technics, Inc.

Groundwater Monitoring Field Log

Project Name: Sullins (L St)

Project No.: 1262.2

Project Location: 187 N. L Street

Livermore, CA

Well I.D.: MW-208

Date: 4/8/11

Samples sent to: Excelchem

Time	Cumulative Volume Purged (gal)	Temp C°	EC (µS/cm)	pH	ORP (millivolts)	DO (mg/L)	Remarks
15:15							Greyish clear, mild odor, no sediments
15:45							Collected samples

Purge Method: ☒ Dedicated Waterra ☐ Centrifugal pump with dedicated tubing ☐ Other _____

Pumping Rate: - gal/min

Well Constructed TD (ft):	52.00
* Well TD (ft):	-
Silt Thickness (ft):	-
Initial DTW (ft):	-
Water column height (ft):	-
One casing volume (gal):	-
** Final DTW (ft):	-
Casing diameter (in):	CMT

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

_____ # amber liters _____ preserved _____ non-preserved

_____ # polys _____ _____ preserved _____ non-preserved

_____ # polys _____ _____ preserved _____ non-preserved

Notes: _____

Sampled By: A. Dorn

Sample Method: Waterra ☒ Bailer ☐ Other ☐

* = measured ** = @ sampling

Purged Water Drummed: ☐ Yes ☐ No

No. of Drums:

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

Geological Technics, Inc.

Groundwater Monitoring Field Log

Project Name: Sullins (L St)

Project No.: 1262.2

Project Location: 187 N. L Street

Livermore, CA

Well I.D.: MW-304

Date: 4/8/2011

Samples sent to: Excelchem

Time	Cumulative Volume Purged (gal)	Temp C°	EC (µS/cm)	pH	ORP (millivolts)	DO (mg/L)	Remarks
14:12	0.53						Light brown, strong odor, a lot of sediments
14:20	1.06						Light brown, strong odor, a lot of sediments
14:30	1.59						Light brown, strong odor, a lot of sediments
15:55							Collected samples

Purge Method: ☒ Dedicated Waterra ☐ Centrifugal pump with dedicated tubing ☐ Other _____

Pumping Rate: - gal/min

Well Constructed TD (ft):	75.50
* Well TD (ft):	-
Silt Thickness (ft):	-
Initial DTW (ft):	27.00 (Assumed)
Water column height (ft):	48.50
One casing volume (gal):	0.53
** Final DTW (ft):	-
Casing diameter (in):	CMT

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

_____ # amber liters _____ preserved ____ non-preserved

_____ # polys _____ _____ preserved ____ non-preserved

_____ # polys _____ _____ preserved ____ non-preserved

Notes: Collected samples after 3rd purge volumes, no silting issue.

Sampled By: A. Dorn

Sample Method: Waterra ☒ Bailer ☐ Other ☐

* = measured ** = @ sampling

Purged Water Drummed: ☐ Yes ☐ No

No. of Drums:

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

Geological Technics, Inc.

Groundwater Monitoring Field Log

Project Name: Sullins (L St)

Project No.: 1262.2

Project Location: 187 N. L Street

Livermore, CA

Well I.D.: MW-305

Date: 4/8/2011

Samples sent to: Excelchem

Time	Cumulative Volume Purged (gal)	Temp C°	EC (µS/cm)	pH	ORP (millivolts)	DO (mg/L)	Remarks
10:15	0.43						Milky brown, mild odor, a lot of sediments
10:20							Took 1st purge volume samples (MW-305NP
10:32	0.86						Milky brown, mild odor, a lot of sediments
10:40	1.29						Light brown, mild odor, very few sediments
10:40							Took 3rd purge volume samples (MW-305P)

Purge Method: ☒ Dedicated Waterra ❑ Centrifugal pump with dedicated tubing ❑ Other _____

Pumping Rate: - gal/min

Well Constructed TD (ft):	66.00
* Well TD (ft):	-
Silt Thickness (ft):	-
Initial DTW (ft):	27.00 (Assumed)
Water column height (ft):	39.00
One casing volume (gal):	0.43
** Final DTW (ft):	-
Casing diameter (in):	CMT

Sample Containers used: 4 # VOAs X preserved ____ non-preserved

_____ # amber liters _____ preserved ____ non-preserved

_____ # polys _____ _____ preserved ____ non-preserved

_____ # polys _____ _____ preserved ____ non-preserved

Notes: Collected 2 voas from 1st purge and 2 voas from 3rd purge volumes.

Sampled By: A. Dorn

Sample Method: Waterra ☒ Bailer ❑ Other ❑

* = measured ** = @ sampling

Purged Water Drummed: ❑ Yes ❑ No

No. of Drums:

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

Geological Technics, Inc.

Groundwater Monitoring Field Log

Project Name: Sullins (L St)

Project No.: 1262.2

Project Location: 187 N. L Street

Livermore, CA

Well I.D.: MW-306

Date: 4/8/2011

Samples sent to: Excelchem

Time	Cumulative Volume Purged (gal)	Temp C°	EC (µS/cm)	pH	ORP (millivolts)	DO (mg/L)	Remarks
11:15	0.43						Brown, mild odor, a lot sediments
11:26	0.86						Brown, mild odor, a lot sediments
11:50	1.29						Brown, mild odor, a lot sediments
12:00							Collected samples

Purge Method: ☒ Dedicated Waterra ☐ Centrifugal pump with dedicated tubing ☐ Other _____

Pumping Rate: - gal/min

Well Constructed TD (ft):	66.00
* Well TD (ft):	-
Silt Thickness (ft):	-
Initial DTW (ft):	27.00 (Assumed)
Water column height (ft):	39.00
One casing volume (gal):	0.43
** Final DTW (ft):	-
Casing diameter (in):	CMT

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

_____ # amber liters _____ preserved ____ non-preserved

_____ # polys _____ _____ preserved ____ non-preserved

_____ # polys _____ _____ preserved ____ non-preserved

Notes: Collected after 3 purge volumes - difficult.

Sampled By: A. Dorn

Sample Method: Waterra ☒ Bailer ☐ Other ☐

* = measured ** = @ sampling

Purged Water Drummed: ☐ Yes ☐ No

No. of Drums:

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

Geological Technics, Inc.

Groundwater Monitoring Field Log

Project Name: Sullins (L St)

Project No.: 1262.2

Project Location: 187 N. L Street

Livermore, CA

Well I.D.: MW-307

Date: 4/8/2011

Samples sent to: Excelchem

Time	Cumulative Volume Purged (gal)	Temp C°	EC (µS/cm)	pH	ORP (millivolts)	DO (mg/L)	Remarks
14:25	0.43						Clear, strong odor, few sediments
14:35	0.86						Light brown, strong odor, few sediments
14:45	1.29						Light brown, strong odor, few sediments
15:25							Collected samples

Purge Method: ☒ Dedicated Waterra ☐ Centrifugal pump with dedicated tubing ☐ Other _____

Pumping Rate: - gal/min

Well Constructed TD (ft):	66.00
* Well TD (ft):	-
Silt Thickness (ft):	-
Initial DTW (ft):	27.00 (Assumed)
Water column height (ft):	39.00
One casing volume (gal):	0.43
** Final DTW (ft):	-
Casing diameter (in):	CMT

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

_____ # amber liters _____ preserved ____ non-preserved

_____ # polys _____ _____ preserved ____ non-preserved

_____ # polys _____ _____ preserved ____ non-preserved

Notes:

Sampled By: A. Dorn

Sample Method: Waterra ☒ Bailer ☐ Other ☐

* = measured ** = @ sampling

Purged Water Drummed: ☐ Yes ☐ No

No. of Drums:

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

Geological Technics, Inc.

Groundwater Monitoring Field Log

Project Name: Sullins (L St)

Project No.: 1262.2

Project Location: 187 N. L Street

Livermore, CA

Well I.D.: MW-308

Date: 4/7/2011

Samples sent to: Excelchem

Time	Cumulative Volume Purged (gal)	Temp C°	EC (µS/cm)	pH	ORP (millivolts)	DO (mg/L)	Remarks
15:10							Brownish clear, no odor, a lot of sediments
15:40							Collected samples

Purge Method: ☒ Dedicated Waterra ☐ Centrifugal pump with dedicated tubing ☐ Other _____

Pumping Rate: - gal/min

Well Constructed TD (ft):	66.00
* Well TD (ft):	-
Silt Thickness (ft):	-
Initial DTW (ft):	-
Water column height (ft):	-
One casing volume (gal):	-
** Final DTW (ft):	-
Casing diameter (in):	CMT

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

____ # amber liters ____ preserved ____ non-preserved

____ # polys ____ ____ preserved ____ non-preserved

____ # polys ____ ____ preserved ____ non-preserved

Notes:

Sampled By: A. Dorn Andrew Dorn

Sample Method: Waterra ☒ Bailer ☐ Other ☐

* = measured ** = @ sampling

Purged Water Drummed: ☐ Yes ☐ No

No. of Drums:

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

Geological Technics, Inc.

Groundwater Monitoring Field Log

Project Name: Sullins (L St)

Project No.: 1262.2

Project Location: 187 N. L Street

Livermore, CA

Well I.D.: MW-404

Date: 4/8/2011

Samples sent to: Excelchem

Time	Cumulative Volume Purged (gal)	Temp C°	EC (µS/cm)	pH	ORP (millivolts)	DO (mg/L)	Remarks
13:45	0.6						Light brownish clear, mild odor, few sediments
13:57	1.2						Light brownish clear, mild odor, few sediments
14:10	1.8						Light brownish clear, mild odor, few sediments
15:50							Collected samples

Purge Method: ☒ Dedicated Waterra ☐ Centrifugal pump with dedicated tubing ☐ Other _____

Pumping Rate: - gal/min

Well Constructed TD (ft):	81.50
* Well TD (ft):	-
Silt Thickness (ft):	-
Initial DTW (ft):	27.00 (Assumed)
Water column height (ft):	54.50
One casing volume (gal):	0.60
** Final DTW (ft):	-
Casing diameter (in):	CMT

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

_____ # amber liters _____ preserved ____ non-preserved

_____ # polys _____ _____ preserved ____ non-preserved

_____ # polys _____ _____ preserved ____ non-preserved

Notes: Collected sample after 3 purge volumes - no silting issue.

Sampled By: A. Dorn

Sample Method: Waterra ☒ Bailer ☐ Other ☐

* = measured ** = @ sampling

Purged Water Drummed: ☐ Yes ☐ No

No. of Drums:

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

Geological Technics Inc.

(209) 522-4119 (Office) * (209) 522-4227 (Fax)
1172 Kansas Avenue, Modesto, CA 95351
gti@gtienv.com

SULLINS PROJECT NO. 1262.2
187 N. L STREET, LIVERMORE

MONITORING WELL FIELD SUMMARY LOG 2011
DEPTH TO WATER MEASUREMENTS

	QTR. 1	QTR. 2	QTR. 3	QTR. 4	WELL
DATE	4/8/2011	mm/dd/yyyy	mm/dd/yyyy	mm/dd/yyyy	TD
	(ft)	(ft)	(ft)	(ft)	
LOCATION					
W-1	27.07				56.50
W-1s	27.09				45.00
W-3	28.76				51.50
W-3s	26.92				45.00
W-A	27.66				63.00
W-Bs	27.11				45.00
W-Es	28.07				45.00

*Geo Assumed MW-4 through MW-307 the depth to be 27.00

NOTE:
ALL MEASUREMENTS ARE MADE FROM THE NORTH SIDE AND TOP EDGE OF THE WELL CASING. THE TOP OF CASING WITH A NOTCH OR PERMANENT MARKINGS, WHICH EVER ONE CONDITION IS APPROPRIATE.