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By Alameda County Environmental Health at 4:02 pm, Aug 20, 2013

August 12, 2013

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., Ground Zero Analysis, Inc. (GZA) prepared the 1st 2013 Semi-Annual Groundwater Monitoring, dated August 6, 2013 that was sent to your office via electronic delivery per Alameda County's guidelines.

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

Respectfully submitted,

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

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REPORT

1st Semi-Annual Groundwater Monitoring & Remedial Effectiveness (Performed in 2nd Quarter: June 2013)

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

Project No. 1262.2
August 6, 2013

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

Prepared by:
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August 6, 2013

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 & Remedial Effectiveness Performed 2nd Quarter, June 2013
Location: 187 North L Street, Livermore, CA 94550.
(ACEH Fuel Leak Case No. RO0000394)

Dear Mr. & Ms. Sullins:

Ground Zero Analysis, Inc. has prepared the following Report for the 1st Semi-Annual 2013 groundwater monitoring event performed between June 24th and June 26th, 2013, at the 187 North L Street property in Livermore, CA. In addition, the remedial activities performed during the 1st and 2nd Quarters of 2013 will be discussed. An elevated core of gasoline contamination persists in the location of and down-gradient (northwest) of the former USTs/piping. GTI is has implemented the Corrective Action Plan (CAP) and the Dual Phase Extraction (DPE) system which was started on November 15th, 2011 and continues to operate.

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

Respectfully submitted,

Raynold I. Kablanow II, PhD
PG, CHG, REAII

cc: Jerry Wickham - ACEH
USTCUF (Via Geotracker)

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REPORT

1st Semi-Annual Groundwater Monitoring & Remedial Effectiveness

Arrow Rentals Services
187 North L St.
Livermore, CA

Project No. 1262.2
August 6, 2013

1.0 EXECUTIVE SUMMARY

This report summarizes the results of the 1st Semi-Annual 2013 groundwater monitoring and sampling event that took place between June 24th and June 26th, 2013. In addition, the remedial activities performed during the 1st and 2nd Quarters of 2013 will be included in this report.

The average shallow groundwater elevation at the site was 443.30 feet above mean sea level (msl) and the average depth to water was 36.89 feet below ground surface (bgs). This represents increase of 4.15 feet since the November 2012 monitoring event and an increase of 1.41 feet since the May 2012 monitoring event. The shallow groundwater flow was northwest (N75°W) at a slope of 0.0097 ft/ft for this event.

The analytical results of groundwater samples show that detectable concentrations of gasoline range petroleum hydrocarbons were present in all seventeen of the site's groundwater monitoring wells sampled for this event. Historically, a persistent core of high concentrations has remained in the vicinity of wells W-1/W-1s/CMT-4, which are located adjacent to former USTs/piping trenches and is down gradient of the former UST system. A secondary core of high concentrations persists in the vicinity of CMT-5 in the intermediate zone (MW-205).

GZA is currently implementing the Corrective Action Plan (CAP) which includes the operation of a Dual Phase Extraction (DPE) system and an air sparging system to treat the

residual contamination at the site, which was started on November 15th, 2011 and March 21st, 2012, respectively. As of July 31st, 2013, the DPE system has removed a total of approximately 10,716.8 pounds, or 1,742.6 gallons, of gasoline hydrocarbons as TPH-G since operation began on November 15th, 2011. Since the start of the 1st Quarter 2013, the DPE system operated for 1,863 hours and removed a total of approximately 470.7 pounds or 76.6 gallons of gasoline hydrocarbons as TPH-G, which is an average of 6.1 pounds or approximately 1.0 gallon per day.

Recommendations

1. Continue groundwater monitoring as directed by Alameda County Environmental Health in their most recent email dated October 6th, 2011.
2. In the event that the groundwater elevation rises enough to allow for sampling of the shallow CMT well intervals (MW-4, MW-5/105, MW-6/106, MW-7/107 & MW-8/108), we recommend that that opportunity be taken at its soonest event.
3. Continue implementation of the Corrective Action Plan (CAP) and operating the Dual Phase Extraction (DPE) and air sparging systems, as the initial operation has been effective at treating the sites groundwater and soil contamination. It is recommended that the DPE system operate in a pulse mode, as discussed in Section 4.3 of this report.

1.1 Site History

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

The work performed to date is summarized below*:

- 1972 – Three 1,500 gallon gasoline USTs removed.
- 1984 – A single 1,000 gallon gasoline UST installed.
- 1986 – Two gasoline USTs removed (4,000 & 6,000 gallon).
- June 1985 – Pitcock Petroleum dispenses ~600 gallons into a vapor monitoring well adjacent to the 1,000 gasoline UST (Pitcock Release).
- September 1988 – Three monitoring wells installed (W-1, W-2 and W-3).
- March 1989 – Five soil borings advanced (B-1 through B-5).
- May 1989 – Three monitoring wells installed (W-1, W-2 and W-3).
- July 1990 – Five monitoring wells installed (W-A through W-E), three soil borings advanced (B-7, B-8 and B-1A), and a soil gas survey was completed.
- March 1991 – A single soil boring advanced (B-F).
- January 1992 - UST pipeline soil excavation and sampling, two soil borings advanced (B-G and B-H).
- March 1994 – Dual Phase Extraction pilot test performed.
- March 1996 - Four monitoring wells installed (W-1s, W-Bs, W-3s and W-Es).
- 1998- Soil gas survey.

- November 2005 - Soil gas survey.
- October 2006 - Five continuous tubing multi-Chambered wells installed (the MW-4/104/204/304/404 through MW-8/108/208/308 series).
- October 2006 - Dual Phase Extraction pilot test performed.
- August 2007 – Final Corrective Action Plan prepared.
- April 2011 – Begin implementation of Corrective Action Plan.
- November 2011 – Start-up of Dual Phase Extraction (DPE) system.
- March 2012 – Start-up of air sparging system
- 1988 to present – intermittent monitoring/sampling of select monitoring wells.
  * Data from Woodward Clyde Consultants, GTI, & ACEH documentation.

1.2 Site Setting and Geology

The site is in the central portion of 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 – clayey/sandy gravels and clays; with minor amounts of silt and sand units. The site exhibits little correlation between boreholes and this situation is exacerbated by the fact that different geologists logged the boreholes and a five foot sampling interval was utilized in the past. The Site's geology is summarized as consisting primarily of gravelly units from the surface to approximately 35 – 45 feet bgs. Below these depths are 15 to 20 feet of clayey units that seem to retard the vertical migration of contaminants. These fine grained units are underlain by more gravels and a second clay horizon at approximately 78 feet bgs. Silts and sand units are present in the soil profile but are thin (usually a few inches thick, but much less than 5 feet thick) and less frequent than the soils noted above.

2.0 GROUNDWATER MONITORING

2.1 Groundwater Elevation and Flow Direction

The average groundwater elevation in the site's shallow water table wells was 443.30 feet above mean sea level (amsl) on June 24th, 2013. This corresponds to 36.89 feet below grade surface (bgs) and represents an increase of 4.15 feet since the November 2012 monitoring event and an increase of 1.41 feet since the May 2012 monitoring event. The depth to groundwater observed in the site's wells has ranged from approximately 20 - 44 feet below grade surface from 1989 to 2012. Refer to Figures 1 through 3 for site details, well and borehole locations.

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-1, W-3, W-A, MW-104, MW-205, MW-206, MW-207, MW-208.
Notes:

- Well W-1 is considered intermediate and is monitored; however the well is not utilized for groundwater gradient measurements due to modifications to the well top for remedial purposes.
- Monitoring well W-2 cannot be located following the construction of the housing complex to the south and southeast of the site.
- Monitoring well W-3 could not be monitored since an access agreement could not be obtained from Signature Properties.

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/deepest aquifer levels, respectively.

Horizontal Groundwater Gradients:
The calculated gradients for the June 2013 monitoring event are as follows:

Aquifer Zone:	Gradient:	Bearing:
Water table	0.0097	N75°W
Intermediate	0.0140	N73°W
Deep	0.0091	N78°W

Figures 5A illustrates the shallow aquifer groundwater gradient map for the June 2013 monitoring event. Figure 5B and 5C illustrate the intermediate and deep aquifer gradient maps, respectively.

Vertical Groundwater Gradients:
GZA calculated vertical gradients for well pairs MW-204/304, MW-205/305, MW-206/306 and MW-207/307 for the June 2013 monitoring event, which are as follows:

- The MW-204/304 pair was negative (or downward) at -0.010 ft/ft.
- The MW-205/305 pair was negative (or downward) at -0.016 ft/ft.
- The MW-206/306 pair was negative (or downward) at -0.003 ft/ft.
- The MW-207/307 pair was positive (or upward) at 0.026 ft/ft.

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

2.2 Groundwater Sampling Procedure

Between June 24th and June 26th, 2013, Ground Zero Analysis, Inc. (GZA) staff mobilized to the site to conduct depth-to-water measurements and purging & sampling of the site's monitoring wells. Before sampling was attempted, the wells were sounded for depth to water and groundwater levels recorded with exceptions as noted. The CMT™ 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 poly 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, MW-6, MW-7, MW-8, MW-105, MW-106, MW-107 and MW-108 during the June 2013 event.*

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

All well purge water was placed in a 55 gallon DOT approved container. Upon completing the groundwater monitoring event, all purge water was pumped from drums and into the DPE system for remediation prior to being discharged to the sanitary sewer system.

Groundwater monitoring field logs are included in Appendix C.

2.3 Laboratory Analyses

The groundwater samples collected during the June 2013 groundwater monitoring event were delivered to BC Laboratories of Bakersfield, California (certification #1186) for analyses.

The groundwater samples were analyzed for:

- Benzene, Toluene, Ethyl Benzene and Xylene (BTEX) by EPA method 8021b
- Total Petroleum Hydrocarbons as Gasoline (TPH-G) by EPA method 8021b
- Oxygenated Fuel Compound MTBE by EPA method 8021b (select wells)

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 2nd Semiannual 2012 was submitted to GeoTracker on August 12, 2013 – confirmation number 4660984098. Laboratory data was submitted to GeoTracker on August 12, 2013 – confirmation numbers 4355152189.

3.0 FINDINGS AND DISCUSSION

3.1 Field Parameters

For the June 2013 event:

- Dissolved Oxygen (DO) ranged from 0.07 (W-1s) to 1.85 (W-A). Well W-A has been undergoing air sparging remediation and is attributed for the rise increase in DO levels.
- Electrical Conductivity (EC) ranged from 919 (W-Bs) to 1333 (W-1s).

- Oxygen Reduction Potential (ORP) ranged from -159.8 (W-1s) to 160.6 (W-Es).
- pH ranged from 6.43 (W-3s) to 7.09 (W-Es).
- Temperature ranged from 20.3 °C (W-3s) to 21.9 °C (W-1s).

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

Since the initiation of the Dual-Phase Extraction (DPE) remediation system (November 2011), the May 2012, November 2012 and June 2013 groundwater monitoring events have reported historically low groundwater elevation levels, ranging from 38 to 41.5 feet below grade surface. The low groundwater levels likely resulted in near or above historically high concentrations in deeper wells as the contaminant smear zone extended and remains at near historic groundwater lows. As shown in Figure 9, contaminant concentrations in the core of the plume tend to be elevated during low groundwater periods.

The shallow wells less than 40 feet below grade surface have not been sampled since the DPE system was started in November 2011. It is anticipated that as groundwater levels rise, concentrations in the shallow wells will report decreased concentrations following extensive vadose zone remediation between 42 and 25 feet below grade surface.

Shallow Aquifer:

- CMT wells MW-4, MW-5, MW-6, MW-7, MW-8, MW-105, MW-106, MW-107 and MW-108 were dry during the June 2013 groundwater monitoring event and were not sampled. Theses shallow wells have not been sampled since prior to starting DPE remediation in November 2011, making it difficult to assess the performance of the DPE system in these shallow wells.
- Shallow monitoring well W-1s reported the highest concentrations of TPH-g (1,700 µg/l) and benzene (530 µg/l) of all the wells sampled in the shallow aquifer. Contaminant concentrations in W-1s appear to be decreasing over time.
- The shallow aquifer TPH-g plume appears to be moving down-gradient over time, as suggested by the increasing concentrations in MW-207 and MW-107, which has been dry during the previous three (3) groundwater monitoring events. Concentrations in well MW-207 appear to be stabilizing, while down gradient wells W-Bs and MW-208 appear to be decreasing over time. Concentrations in far down-gradient well W-3s appear to be decreasing, suggesting the shallow groundwater plume is slowly moving down gradient towards well CMT-7 while decreasing in concentration. However, the data is incomplete and further groundwater monitoring events will allow for a better evaluation of seasonal fluctuations.
- Monitoring wells W-1s and W-Bs reported a decrease in TPH-G concentrations for the June 2013 groundwater monitoring event.

- Monitoring wells W-1s, W-3s and W-Bs reported an increase in benzene, while monitoring well W-3s reported an increase in TPH-G concentrations for the June 2013 groundwater monitoring event.
- Figure 6 shows a contour map indicating GZA's interpretation of the shallow TPH-g plume in June 2013.

Intermediate Aquifer:

- Well W-1 reported the highest concentrations of TPH-g (43,000 µg/l) and benzene (6,200 µg/l) in the intermediate aquifer. Contaminant concentrations in W-1 appear to be on an overall decreasing trend despite a slight increase reported for the June 2013 monitoring event.
- The core of the intermediate aquifer TPH-g plume appears to move around from one monitoring event to the next, as suggested by the historical fluctuation of the plume center between W-1, W-A, MW-104 and MW-205, with contaminant concentrations on an overall decreasing trend, both increasing and decreasing.
- Remediation by DPE and air sparging in wells W-A and W-1 appears to have decreased the contaminant mass in the core of the plume in the vicinity of well W-A, as shown in Figure 7. This is supported by the overall decreasing contaminant concentrations in intermediate core wells W-1, W-A, MW-205 and MW-104. Despite overall decreasing trends, intermediate core wells W-1, W-A, MW-104 and MW-205 reported increases in contaminant concentrations since the November 2012 monitoring event.
- CMT™ well MW-207 has reported increases in both TPH-G and benzene since the start of DPE remediation in November 2011. This may be caused by both low groundwater elevations and/or the sites geology. As shown in Figures 13 and 14, MW-207 is located in a discontinuous 5-foot thick sand and gravel lens located within the lower clay layer (see section 1.2 for site geology). This sand and gravel lens connects well MW-207 to the groundwater extraction well W-1, which appears to be drawing contaminants from the surrounding clay layer, suggested by decreasing contaminant trends in wells screened within this layer.
- Figure 7 contains a contour map indicating GZA's interpretation of the intermediate TPH-g plume in June 2013. The groundwater plume is localized in the vicinity of the former USTs/piping trenches and appears to be centered on wells W-1 and MW-205, which reported TPH-g concentrations of 43,000 µg/l and 37,000 µg/l (respectively) during the June 2013 event.

Deep Aquifer:

- CMT™ monitoring well MW-204 reported the highest concentration of TPH-g (3,500 µg/l) and benzene (660 µg/l) in the deep aquifer. Contaminant concentrations in MW-204 appear to be fluctuating but appear to be on an overall decreasing trend.

- All deep wells sampled during the June 2013 monitoring event reported increases in both TPH-g and benzene since the November 2012 (May 2012 for MW-307) event, except MW-306 which reported similar concentrations.
- Concentrations reported in the deep wells during the November 2012 event suggest that remediation is occurring in the core of the plume based on decreasing concentrations in core well MW-204. However unstable trends in wells MW-307 and MW-308 make it difficult to understand what is occurring in the deep aquifer down-gradient of the contaminant core.
- Figure 8 contains a contour map indicating GZA's interpretation of the deep TPH-g plume in June 2013. The groundwater plume is localized in the vicinity of the former USTs/piping trenches and appears to be centered on well CMT-4 (MW-204).

Deepest Aquifer

- CMT™ well MW-304 reported an increase in all constituents analyzed for the November 2012 monitoring event, except for ethylbenzene and total xylenes.
- CMT™ well MW-404 reported an increase in all constituents analyzed for the June 2013 monitoring event except for TPH-G.

Figures

- Figure 9 illustrates TPH-g concentration versus time in well W-1s (located in the vicinity of the core of the contaminant plume). With the exception of events in 1995, 1997 and 2001 the contaminant concentrations exhibit a fairly stable trend. The three peaks evident correspond with low stands of groundwater and suggest that significant contaminant mass is present although decades have past since the original USTs were removed. The June 2013 monitoring event represents a historical low concentration of TPH-g and near historical low for benzene in this well despite the low groundwater elevation conditions.
- Figure 10 illustrates TPH-g concentration versus time in well W-3s (located down/cross gradient of the core of the plume). The contaminant concentrations show an overall declining trend, despite several elevated spikes in concentrations in 1996, 1997, 1998 and 2003. These events of elevated concentration do not show a correlation with low groundwater elevations, as was observed in W-1s. Since the start of remediation in November 2011, groundwater contaminant concentrations have been on a decreasing trend in this well.
- Figure 11 illustrates TPH-g concentration versus time in well W-Bs (located down gradient of the core of the plume). The contaminant concentrations showed a rapid declining trend from 1995 – 2003 but appear to be fairly stabilized since. The June 2013 monitoring event represents a near historical low concentration of TPH-g and benzene in this well, despite a slight rise since the May 2012 event, when W-Bs reported historical low concentrations of all constituents. Despite some small fluctuations, contaminant concentrations have been on a declining trend since April 2007.

- Figure 12 – See Section 5.2: Treatment System Data.
- Figures 13 and 14: Cross Sections A-A' and B-B' illustrate the site's geology and the distribution of groundwater contaminants prior to (October 2011 event) and following remediation (June 2013 event). As shown, the site is underlain with an upper gravelly unit from the surface to approximately 35 to 45 feet bgs and a lower clay unit from 35/45 feet to approximately 65 feet bgs and appears to inhibit the migration of the contamination below this unit. According the *Final Corrective Action Plan* dated August 1st, 2007, the extent of the sites soil contamination lies in the groundwater smear zone between 20 and 45 or greater feet below grade surface (bgs). Decreasing contaminant trends in wells W-Bs, W-A and W-1 suggest remediation of the lower clay unit is occurring. Within the lower clay layer is a sand and gravel lens that is reporting an increase in contaminant concentrations in the down-gradient wells screened within this lens (MW-207 and 208). Groundwater extraction well W-1 is screened within this lens and appears to be drawing contaminants from the surrounding lower clay layer into the sand/gravel lens. Due to near historical low groundwater elevations, groundwater samples have not been collected from the shallow groundwater wells within the upper gravelly unit except well W-1s, which displays a decreasing trend since remediation began. As groundwater elevations increase, contaminant reduction within the upper gravelly unit can be better assessed.

4.0 REMEDIATION SYSTEM STATUS & EFFECTIVENESS

A dual phase extraction (DPE) and an air sparging remediation system were installed at the site and operations commenced in November 2011 and March 2012, respectively. The remedial action consists of dual phase extraction (DPE - soil vapor and groundwater) and air sparging in four (4) of the sites core wells:

- Vadose zone well EW-1 is used to remove soil vapor from the vadose zone
- Shallow depth well W-1s is used to remove soil vapor from the smear zone
- Intermediate depth well W-1 is used to remove soil vapor and groundwater and as of July 2013 can be utilized for air sparging
- Intermediate depth well W-A is used for air sparging and can be utilized to remove soil vapor and groundwater

According the *Final Corrective Action Plan* dated August 1st, 2007, the extent of the sites soil contamination lies in the groundwater smear zone between 20 and 45 or greater feet below grade surface (bgs). The sites general geology consists of an upper gravelly unit from the surface to approximately 35 to 45 feet bgs and a lower clay unit from 35/45 feet to approximately 65 feet bgs and appears to inhibit the migration of the contamination below this unit. Remediation wells W-1s and EW-1 are screened within the upper gravelly layer (screened across 10 to 45 feet bgs). Remediation wells W-1 and W-A are screened within the

lower clay unit (screened across 42 to 57.5 feet bgs). Therefore, the screen intervals of the four (4) remediation wells completely transcends both the upper gravelly and lower clay units as well as the vertical extent of the soil contamination (20 to 45+ feet bgs).

A site map showing the distribution of the remediation wells and cross section lines is provided as Figure 3. A cross section illustrating the sites geology and remediation wells is provided as Figures 13 and 14.

4.1 System Operation

The extracted vapors are treated with a thermal oxidizer and then discharged to ambient air under permit from the Bay Area Air Quality Management District (BAAQMD). The treated water is discharged to the municipal sewer system under permit from the City of Livermore.

The groundwater extracted by DPE is initially separated from the vapor phase via a knockout tank, with groundwater residing in the tank and the vapor phase continues on to the thermal oxidizer for treatment. The water is then pumped from the tank to an air stripper column to remove volatile organic petroleum hydrocarbons. The vapors generated by the air stripper are plumbed back to the thermal oxidizer joining the DPE extracted vapors. The treated groundwater is plumbed to two (2) 2000 lbs. granulated activated carbon vessels in series after leaving the air stripper. The water is then monitored with an LEL sensor for contaminant levels while being discharged to the sewer system under associated permit requirements.

System operation commenced on November 15th, 2011 (soil vapor extraction only), in compliance with the Alameda County Environmental Health (ACEH) directive extension. Various system repairs and modifications were completed following the initial start-up and full operation of the DPE system (soil vapor extraction only) began on November 29th, 2011.

Modifications to DPE well W-1 were completed and groundwater extraction testing began on December 7th, 2011. Upon the start-up of groundwater extraction, various repairs and modifications were made to the air stripper and were completed on December 19th, 2012. In anticipation for the City of Livermore groundwater discharge permit inspection, operational testing and sampling of the air stripper system were completed. On January 10th, 2012, Alan Wilcox from the City of Livermore met on-site to perform the groundwater discharge permit inspection. Upon issuance of the groundwater discharge permit, further air stripper operational testing and modifications were made. On January 18th, 2012, the DPE system began full operation and extraction and treatment of both groundwater and soil vapor.

Due to decreasing contaminant concentrations in the vapor phase and decreasing funds, the DPE system was shut down in order to install a catalytic cell to the DPE system and switch from thermal to catalytic oxidizer mode. This reduced the propane use of the system by over 60%.

Upon completion of the system modifications and the further allocation of funds, the DPE system was restarted in full operation on February 23rd, 2012. Between March 19th and March 21st, 2012, an air sparging system was installed into intermediate well W-A. The air sparge line was plumbed into the existing W-A remediation line and valves were installed to allow either air injection or dual phase extraction. On July 31st, 2013, an air sparging system was installed into intermediate well W-1. The air sparge line was plumbed into the existing W-1 remediation line and valves were installed to allow either air injection or dual phase extraction. Equipment was installed to automatically switch injection between wells W-1 and W-A every 30 minutes.

Both the DPE and air sparging systems have been in continuous operation since March 2012, except for minor repairs. Both the DPE and air sparge systems were shut down on June 12th, 2013 in anticipation of the 2nd Quarter 2013 groundwater monitoring event.

1st & 2nd Quarters 2013

The DPE system operated throughout the 1st and 2nd Quarters of 2013 except for the following reasons:

- December 13, 2012 thru January 10, 2013 – system was shut down due to repairs being made to the propane regulation system.
- February 4, 2013 – system shut down due to a low air pressure alarm and was attempted to be restarted on February 14, 2013.
- February 14 thru April 10, 2013 – system was shut down due to a malfunctioning backflow valve that allowed liquid ring pump oil to be drawn backwards into the systems KO tank following an unexpected shut down. The purpose of the backflow valve is to close and eliminated back pressure from the formation "pulling back" on the system during shut down. The system was restarted on April 11, 2013 following the replacement of the backflow valve, removal of the oil from the DPE system and a rehabilitation of the liquid ring pump was completed.
- April 19, 2013 – system shut down due to a high water alarm in the air stripper tank. System was restarted on April 26, 2013.
- May 4, 2013 – system shut down due to a low air pressure alarm
- May 8, 2013 - system shut down due to a low air pressure alarm
- May 19, 2013 - system shut down due to a low air pressure alarm
- May 23 thru June 6, 2013 – system shut down due to a malfunctioning pump causing the knockout (KO) tank pump to fail and the tank to fill, initiating a high water alarm. The pump was replaced and the system was restarted on June 6, 2013.
- June 12, 2013 – shut down system for two weeks prior to the 2nd Quarter groundwater monitoring event. The system was restarted on June 26, 2013.

As discussed in the 1st Semi-Annual 2012 Groundwater Monitoring & Remedial Effectiveness report, during the first seven (7) months of DPE operation (November 2011

thru June 2012), wells W-1s and W-1 were focused on for extraction due to historically low groundwater levels exposing the upper gravely unit (surface to 35-45 feet bgs) that is expected to contain a majority of the contaminant mass. Due to lower concentrations being extracted from vadose zone well EW-1, this well was remediated less frequently. Extensive remediation of the upper gravely layer was accomplished as demonstrated by decreasing contaminant concentrations in well W-1s and a decline in contaminant concentrations of the DPE vapor stream when extracting from shallow wells W-1s and EW-1.

Based on recent groundwater monitoring data in the intermediate CMT well intervals (MW-205, 206, 207 and 208) and previous work, it is suspected there is a significant mass of contaminants residing in the lower clay layer (35/45 to 65 feet bgs). In order to address the entire extent of the groundwater and soil contamination, GZA began pulsing the system by rotating which wells are being extracted from on a bi-monthly basis during the 3rd and 4th Quarters of 2012. Wells W-A and W-1 were used to focus on the lower clay layer, while wells W-1s and EW-1 were used to focus on the upper gravelly layer. The air sparging system continued to operate in well W-A while it was not being extracted from.

During the 1st and 2nd Quarters of 2013, DPE remediation was pulsed but focused on wells screened in the lower clay layer (W-1 and W-A) in order to reduce contaminant concentrations in this unit and due to inconsistent system operation and numerous repairs. Based on decreasing contaminant concentrations in wells screened within this layer and a decline in contaminant concentrations of the DPE vapor stream when extracting from intermediate wells W-1 and W-A, remediation of the lower clay layer is occurring.

4.2 Treatment System Data

As of July 31st, 2013, the DPE system has removed a total of approximately 10,716.8 pounds, or 1,742.6 gallons, of gasoline hydrocarbons as TPH-G since operation began on November 15th, 2011. Since the start of the 1st Quarter 2013, the DPE system operated for 1,863 hours and removed a total of approximately 470.7 pounds or 76.6 gallons of gasoline hydrocarbons as TPH-G, which is an average of 6.1 pounds or approximately 1.0 gallon per day.

Soil Vapor Extraction Mass Removal

Mass removal calculations are completed utilizing the results of bi-monthly PID analyses and their correlation with four (4) laboratory analyses results of the system influent and effluent vapor streams. Four (4) samples were collected for laboratory analyses throughout the initial seven (7) months of system operation, of which a PID reading was collected directly from the sample bags for the purpose of correlation. Figure 12 is a graph and table outlining how the laboratory vapor samples were correlated to bi-monthly PID readings.

As of July 31st, 2013, the DPE system has removed approximately 10,658.9 pounds, or 1,733.2 gallons of soil-vapor gasoline hydrocarbons as TPH-G since operation began on November 15th, 2011. Since the start of the 1st Quarter 2013, the DPE system removed

approximately 449.4 pounds, or 73.1 gallons of soil vapor gasoline hydrocarbons as TPH-G. These amounts do not include effluent vapors from the air stripper that are plumbed from the air stripper to the thermal oxidizer since none of the samples were collected during the operation of the air stripper. The mass of TPH-G treated by the thermal oxidizer is summarized in Table 7 of Appendix A.

Groundwater Extraction Mass Removal

Mass removal calculations are completed utilizing the results of monthly sampling of the influent groundwater stream for laboratory analyses. As of July 31st ,2013, the DPE system had removed approximately 57.9 pounds, or 9.4 gallons, of gasoline hydrocarbons as TPH-G from groundwater extraction. Since the start of the 1st quarter 2013, the DPE system removed approximately 21.3 pounds, or 3.5 gallons, of gasoline hydrocarbons as TPH-G. The mass of TPH-G removed by groundwater extraction and treated by air stripping and running through granular activated carbon is summarized in Table 6 of Appendix A.

Assumptions

- Average vapor concentrations used in the mass removal calculations assume that the daily concentration of TPH-G removed by the system is equivalent to the concentration of TPH-G sampled during the following bi-monthly event. For example: If analyses were performed twice a month (every 2 weeks), the average daily concentration for that two (2) week time period is assumed equivalent to the sample concentration of the sample collected from the sampling event at the end of the 2 week period.
- Daily airflow is assumed to be equivalent to the airflow reading from the following sampling event.
- Vapor concentrations are collected using a PID and data is recorded in parts per million (ppm) and correlated to laboratory results that are reported in milligrams per cubic meter (mg/m^3). When vapor samples were collected for laboratory analysis, a PID reading was collected directly from the sample and following various sampling events, the data was correlated and an equation was produced. For more information on data correlation, refer to Figure 12.
- The mass removed as vapor does not include vapor phase contaminants "stripped" from the groundwater in the air stripper as none of the vapor sampling occurred while the air stripper was operating, which occurs for approximately 90 minutes per day.
- Concentration of aqueous phase removal is based on actual analytical results taken from the line following the knockout drum and prior to the first groundwater storage tank. The bi-monthly analytical results are assumed constant for the previous two (2) week period. It is likely the concentrations, thus the mass removed from the extraction wells, is higher at the well than is measured at the sampling point for the following reasons:
  - The groundwater extraction is achieved by high vacuum and soil vapor extraction from the wells, which result in withdraws of both soil vapor and groundwater.

This air/water mixture is transported through 90 feet of piping to the DPE unit where the two phases are separated in the knockout drum. So in essence, the piping system acts as a linear air stripper causing the VOCs in the water to transfer into the vapor phase.

4.3 Future DPE Operation

Based on groundwater monitoring data and elevated contaminant concentrations being removed from the lower clay layer, GZA recommends continue pulse-mode operation of the DPE system and air sparging system during the 3rd and 4th Quarters of 2013. The pulse mode will continue as follows:

1. Two weeks remediating the lower clay unit by operating groundwater and vapor extraction from wells W-A and W-1, followed by;
2. Two weeks remediating the upper gravel unit (vadose zone) by operating vapor extraction wells W-1s and EW-1 while the air sparging system operates in wells W-1 and W-A.

Following the 4th Quarter 2013 groundwater monitoring event, the need to continue operating the remediation systems will be assessed.

5.0 CONCLUSIONS & RECOMMENDATIONS

Conclusions

1. Elevated concentrations of BTEX and TPH-g are present in a laterally limited (probably less than 150 foot radius in the down gradient direction) groundwater plume that is centered near W-1/W-1s/CMT-4, with the core between the vicinity CMT™ Cluster 7, CMT™ Cluster 5 and wells W-1/W-1s/CMT-4. The plume appears to attenuate to the northeast at CMT™ Cluster 6, to the northwest at W-3s and W-3. The extent of the plume is unknown to the north and south.
2. The data shows that the dual phase extraction system has been effective in removing contaminant mass, as evidenced by decreasing contaminant concentrations in the core of the plume, near the extraction wells (W-1, W-A, W-1s and EW-1).
3. The data shows that the down-gradient edge (MW-207 & MW-208) of the plume is stable or slightly increasing in contaminant concentrations; however this is attributed to the historically low groundwater and minimal water column in these wells. The low groundwater has left these well intervals near the top of the water column and within the contaminant smear zone. In addition, wells MW-207 and MW-208 are screened within the same sand/gravel lens as extraction well W-1, which is drawing contaminants from the surrounding lower clay unit (see Section 3.2 under Figures 13 and 14).

4. Increasing contaminant concentrations in the site's deep wells (MW-304 & MW-404) is attributed to the historically low groundwater, drawing the contaminant smear zone closer to these wells.
5. Based on decreasing contaminant concentrations in well W-A, the air sparging and groundwater extraction occurring in well W-A appears to be remediating the up-gradient edge of the groundwater plume core.
6. Overall the contaminant concentrations at the site are following a decreasing trend, as shown in Figures 9, 10 and 11. It appears that there is a direct relationship between groundwater elevation and contaminant concentrations. It is hypothesized that the low groundwater levels during the May 2012, November 2012 and June 2013 groundwater monitoring event may be responsible for the high concentrations reported in some wells near the top of groundwater. Continued sampling will allow for further evaluation of this relationship.

Recommendations

1. Continue groundwater monitoring as directed by Alameda County Environmental Health in their most recent email dated October 6th, 2011.
2. In the event that the groundwater elevation rises enough to allow for sampling of the shallow CMT well intervals (MW-4, MW-5/105, MW-6/106, MW-7/107 & MW-8/108), we recommend that that opportunity be taken at its soonest event.
3. Continue implementation of the Corrective Action Plan (CAP) and operating the Dual Phase Extraction (DPE) and air sparging systems, as the initial operation has been effective at treating the sites groundwater and soil contamination. It is recommended that the DPE system operate in a pulse mode, as discussed in Section 4.3 of this report.

6.0 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.

7.0 SIGNATURES & CERTIFICATION

This report was prepared by:

Andrew Dorn, B.Sc. Geology
California Professional Geologist-in-Training (GIT #411)

This report was prepared under the direction of:

Raynold I. Kablanow II, PhD
PG, CHG, REAII

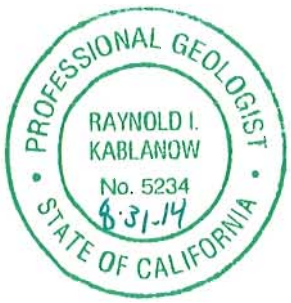
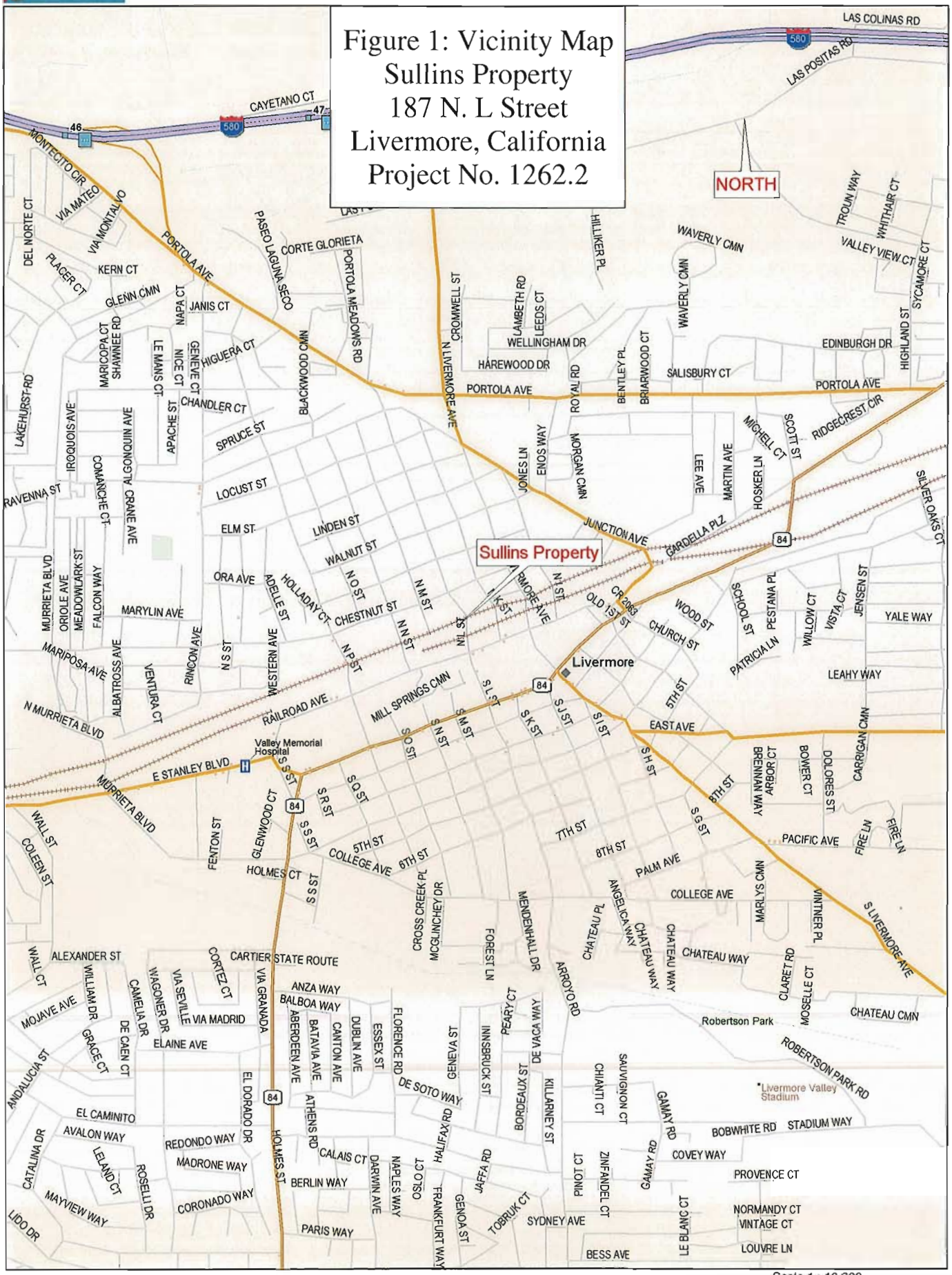
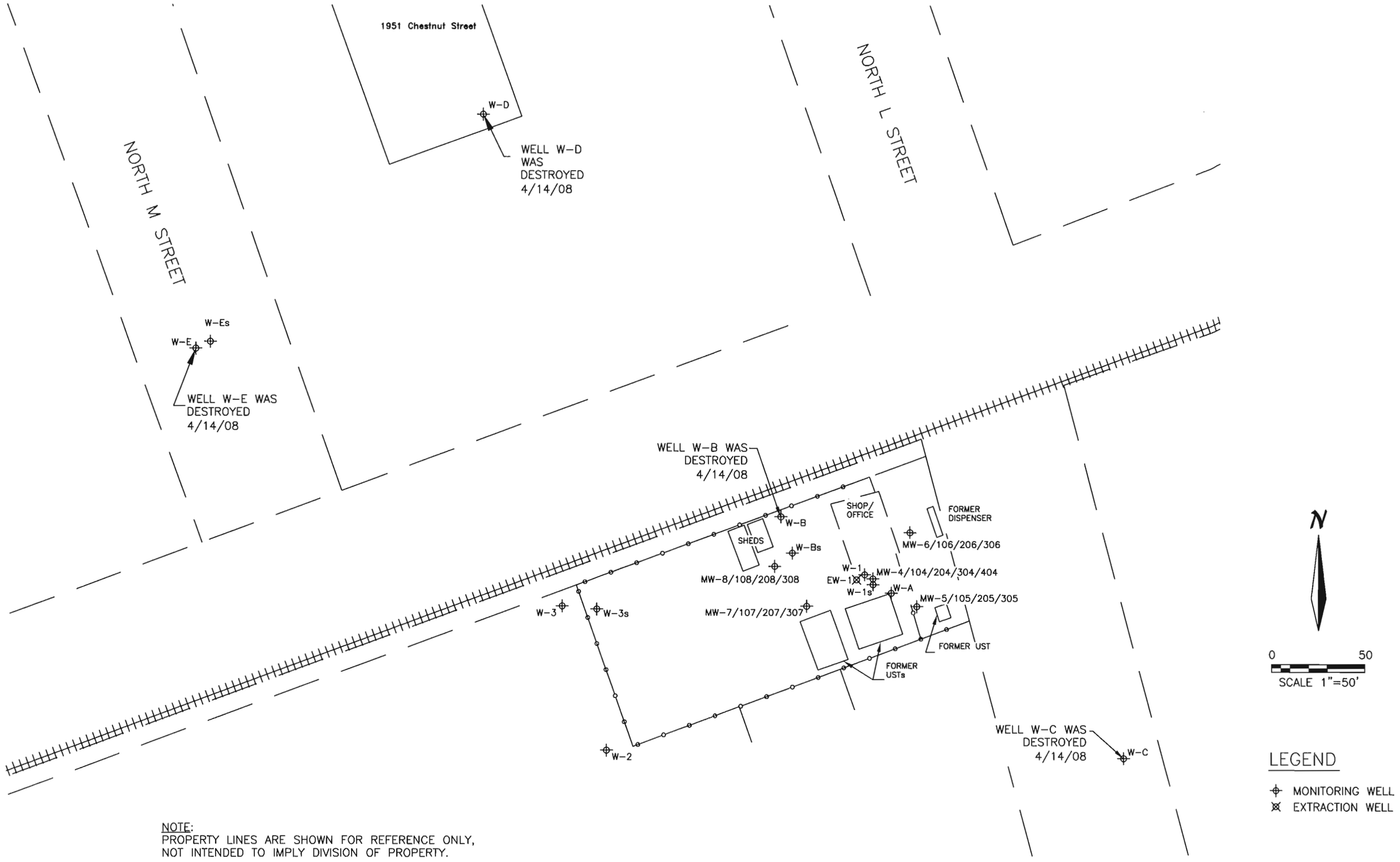


Figure 1: Vicinity Map
Sullins Property
187 N. L Street
Livermore, California
Project No. 1262.2



TN
MN (13.8°E)

Scale 1 : 19,200
1" = 1,600.0 ft
Data Zoom 13-4



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

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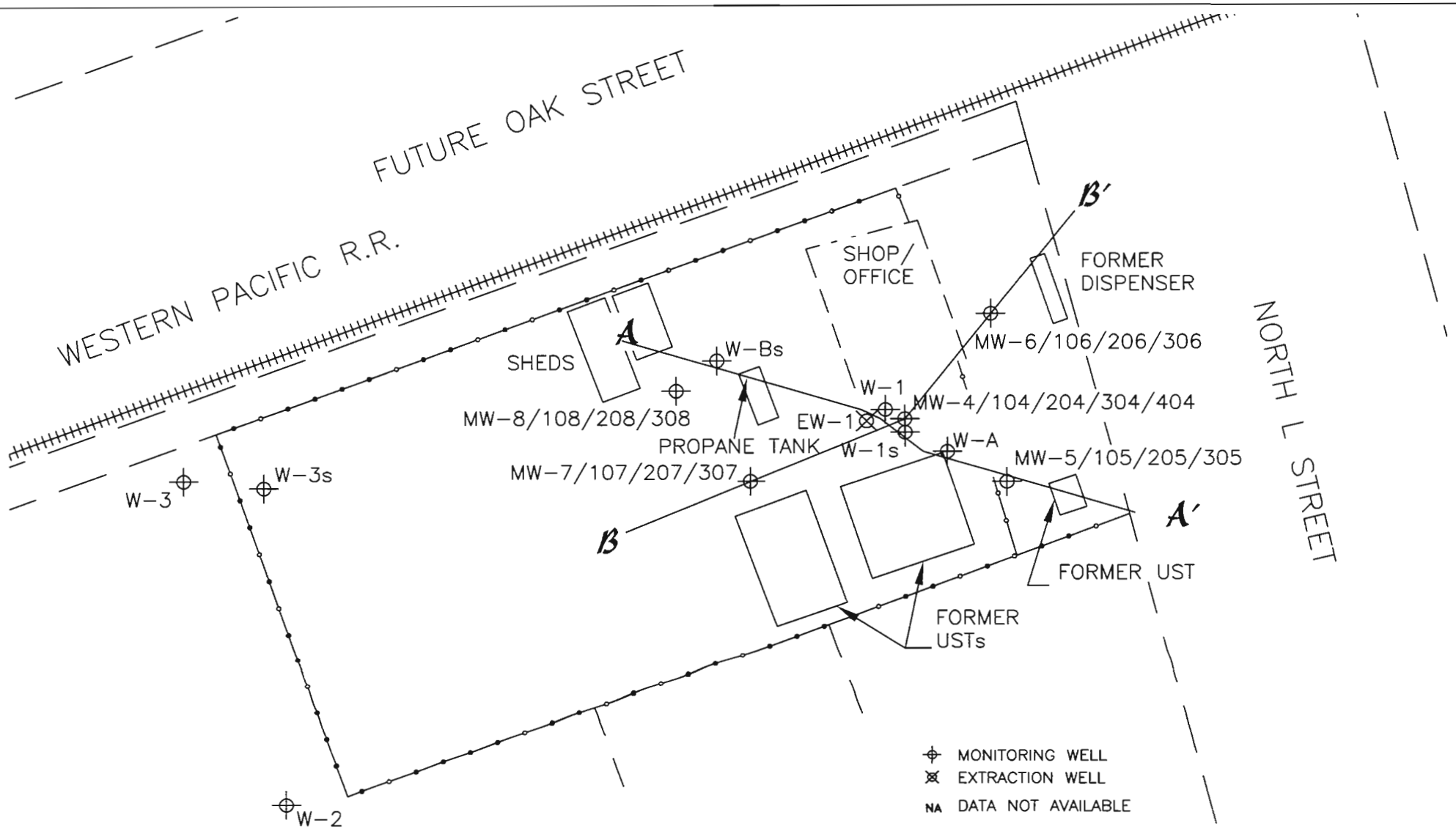
Job No:	1262.2 Date: 07-29-13
Scale:	1" = 50 feet
File:	12622 Graphics 6-24-13

GROUND ZERO ANALYSIS, INC.

FIGURE 2: SITE MAP

ARROW RENTALS
187 NORTH L STREET
LIVERMORE, CA



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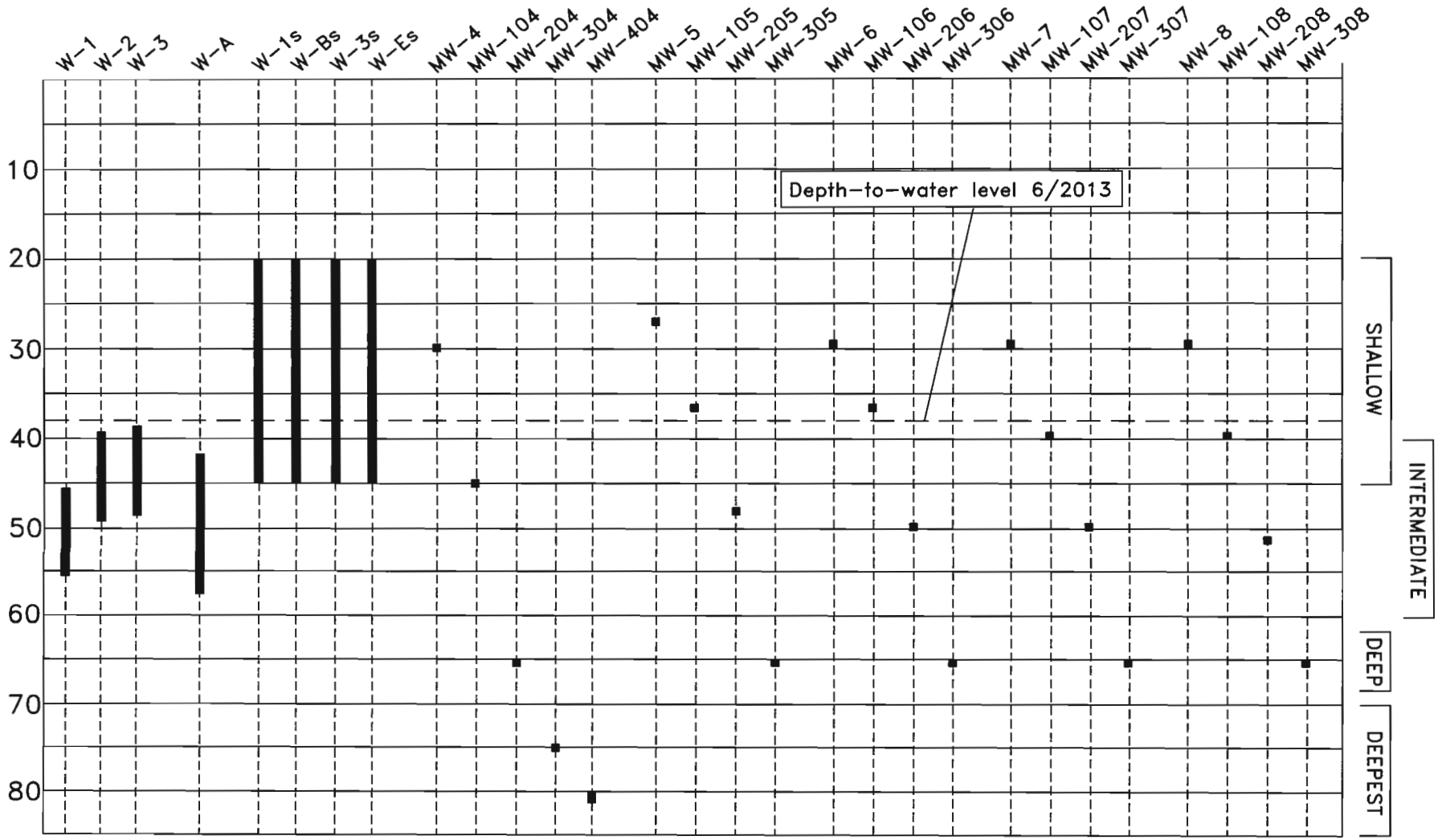
By:	AD
Job No:	1262.2 Date: 07-29-13
Scale:	1" = 50 feet
File:	12622 Graphics 6-24-13

GROUND ZERO ANALYSIS, INC.

FIGURE 3: SITE DETAIL MAP

ARROW RENTALS
187 NORTH L STREET
LIVERMORE, CA

Figure 4:
Well Screened
Interval Diagram



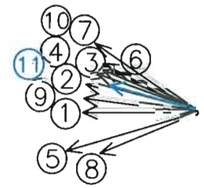
Sullins
187 North L Street
Livermore, CA

Ground Zero Analysis, Inc.

7/29/13

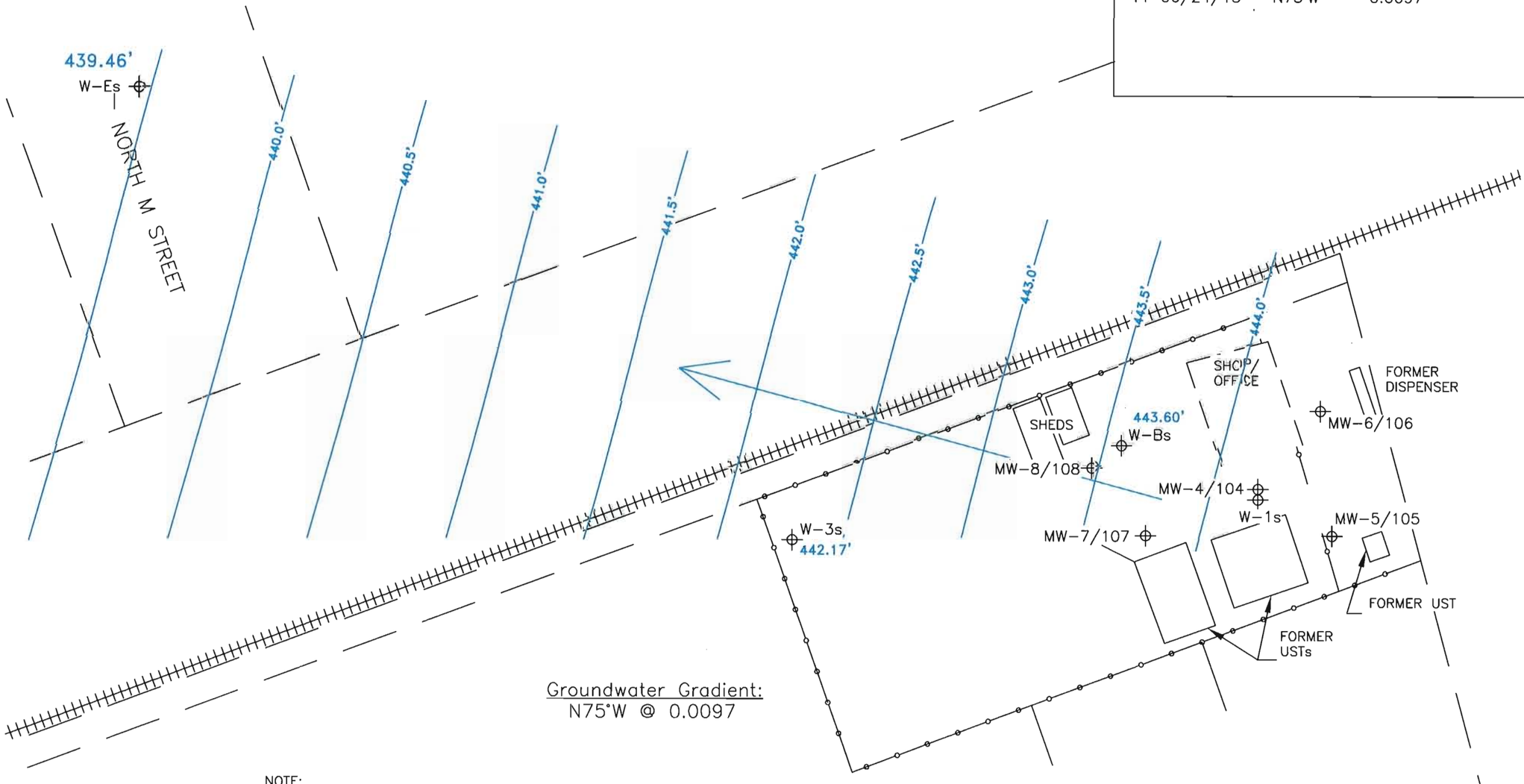
	DATE	BEARING	GRADIENT
1	04/29/04	WEST	0.019
2	07/07/06	N76°W	0.019
3	10/16/06	N68°W	0.014
4	04/17/07	N71°W	0.016
5	12/19/07	S74°W	0.033
6	04/07/08	N64°W	0.012
7	04/08/11	N56°W	0.0221
8	10/25/11	S68°W	0.0129
9	05/30/12	N82°W	0.0193
10	11/19/12	N63°W	0.0153
11	06/24/13	N75°W	0.0097

ROSE DIAGRAM



0.001 0.01 0.1 1

GROUNDWATER GRADIENT FT/FT



N

0 50

SCALE 1"=50'

LEGEND

- MONITORING WELL
- EXTRACTION WELL
- NA DATA NOT AVAILABLE

GRADIENT CALCULATED BY COMPUTER GENERATED CONTOURS

GROUNDWATER ELEV. 443.60'

CONTOUR INTERVAL = 0.5 FOOT

GW BEARING DETERMINED USING W-Es, W-3s and W-Bs.

Groundwater Gradient:
N75°W @ 0.0097

NOTE:
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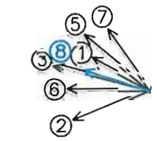
File:	12622 Graphics 6-24-13

GROUND ZERO ANALYSIS, INC.

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

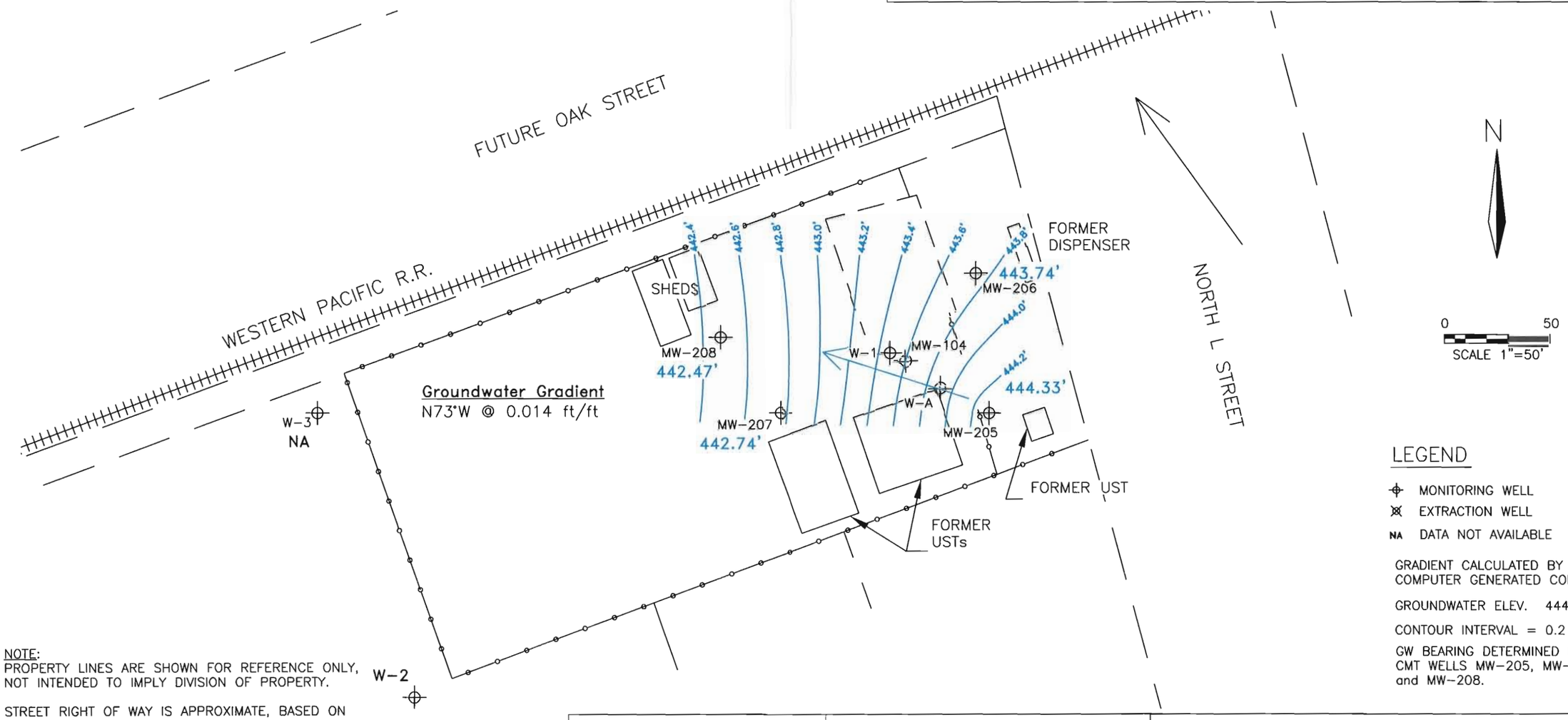
	DATE	BEARING	GRADIENT
1	10/16/06	N63°W	0.012
2	04/17/07	S68°W	0.022
3	12/19/07	N76°W	0.04
4	04/07/08	NORTHWEST	VARIABLE
5	10/25/11	N53°W	0.025
6	05/30/12	S89°W	0.020
7	11/19/12	N36°W	0.015
8	06/24/13	N73°W	0.014

ROSE DIAGRAM



0.001 0.01 0.1 1

GROUNDWATER GRADIENT FT/FT



LEGEND

- MONITORING WELL
- EXTRACTION WELL
- NA DATA NOT AVAILABLE

GRADIENT CALCULATED BY COMPUTER GENERATED CONTOURS

GROUNDWATER ELEV. 444.33'

CONTOUR INTERVAL = 0.2 FEET

GW BEARING DETERMINED USING CMT WELLS MW-205, MW-206 and MW-208.

NOTE:
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WELLS W-A & W-1 WERE LEFT OUT OF GRADIENT CALCULATIONS DUE TO ANOMALOUS VALUES AND MODIFICATION TO WELL TOP

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Scale:	1" = 50 feet
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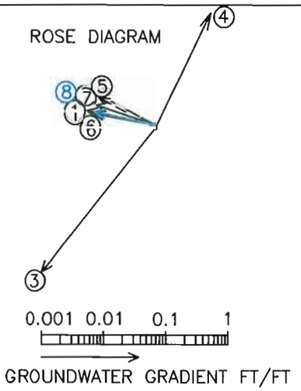
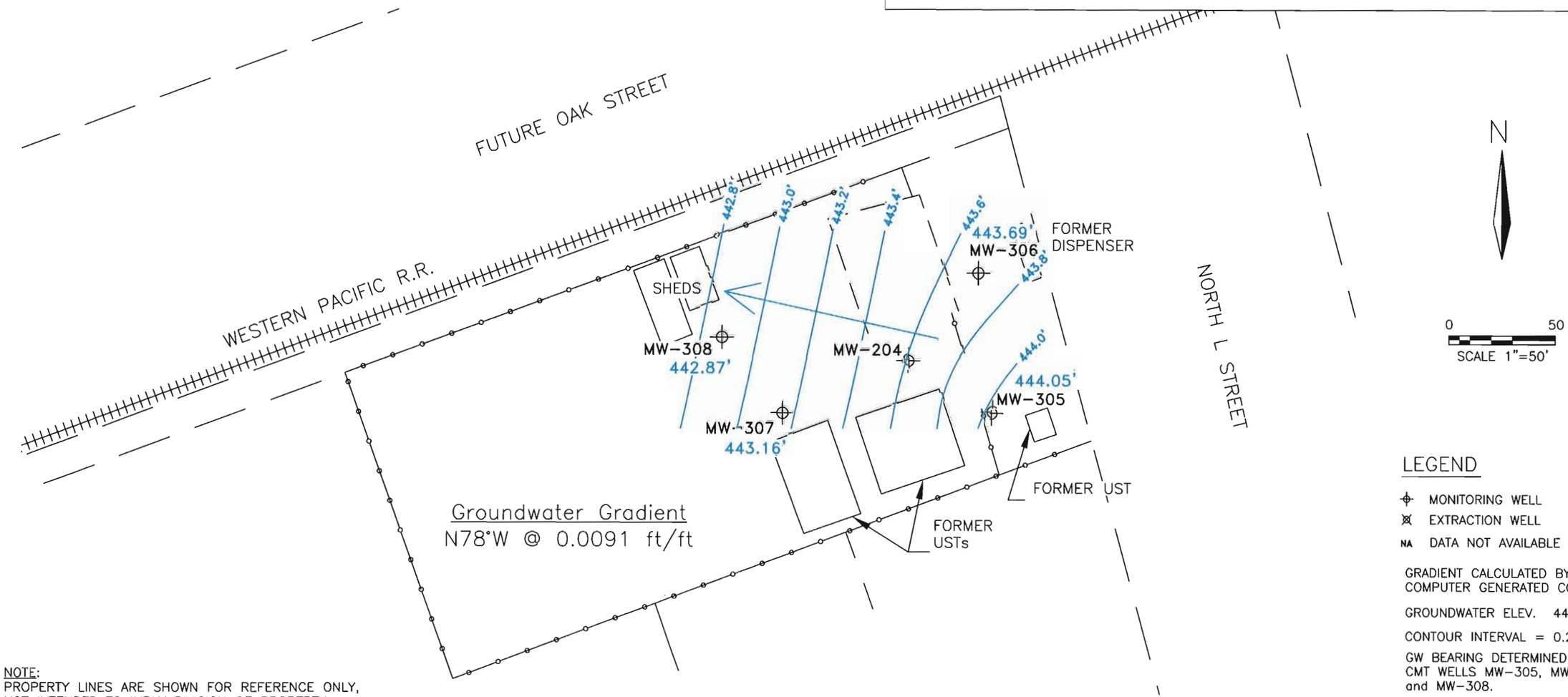
GROUND ZERO ANALYSIS, INC.

FIGURE 5B: GROUNDWATER GRADIENT MAP INTERMEDIATE WELLS

ARROW RENTALS
187 NORTH L STREET
LIVERMORE, CA

	DATE	BEARING	GRADIENT
1	10/16/06	N78°W	0.0140
2	04/17/07	UNDETERMINED	
3	12/19/07	S39°W	0.1800
4	04/07/08	N26°E	0.1000
5	10/25/11	N64°W	0.0114
6	05/30/12	N79°W	0.0100
7	11/19/12	N72°W	0.0089
8	06/24/13	N78°W	0.0091





LEGEND

- MONITORING WELL
- EXTRACTION WELL
- NA DATA NOT AVAILABLE

GRADIENT CALCULATED BY COMPUTER GENERATED CONTOURS

GROUNDWATER ELEV. 444.05'

CONTOUR INTERVAL = 0.2 FEET

GW BEARING DETERMINED USING CMT WELLS MW-305, MW-307 and MW-308.

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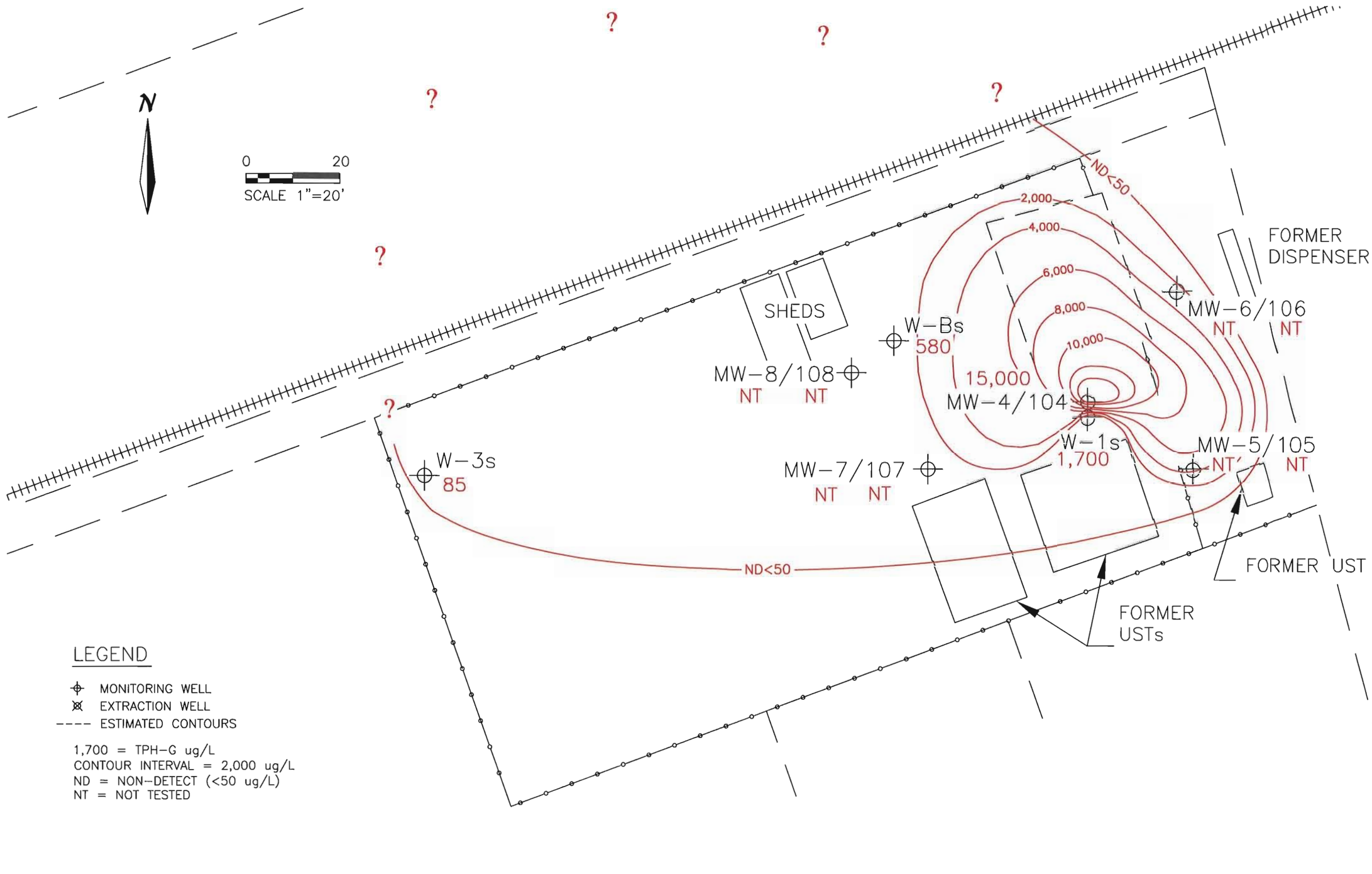
GROUND ZERO ANALYSIS, INC.

FIGURE 5C: GROUNDWATER GRADIENT MAP DEEP WELLS

ARROW RENTALS
187 NORTH L STREET
LIVERMORE, CA



LEGEND

- ⊕ MONITORING WELL
- ⊠ EXTRACTION WELL
- ---- ESTIMATED CONTOURS

1,700 = TPH-G ug/L
CONTOUR INTERVAL = 2,000 ug/L
ND = NON-DETECT (<50 ug/L)
NT = NOT TESTED

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

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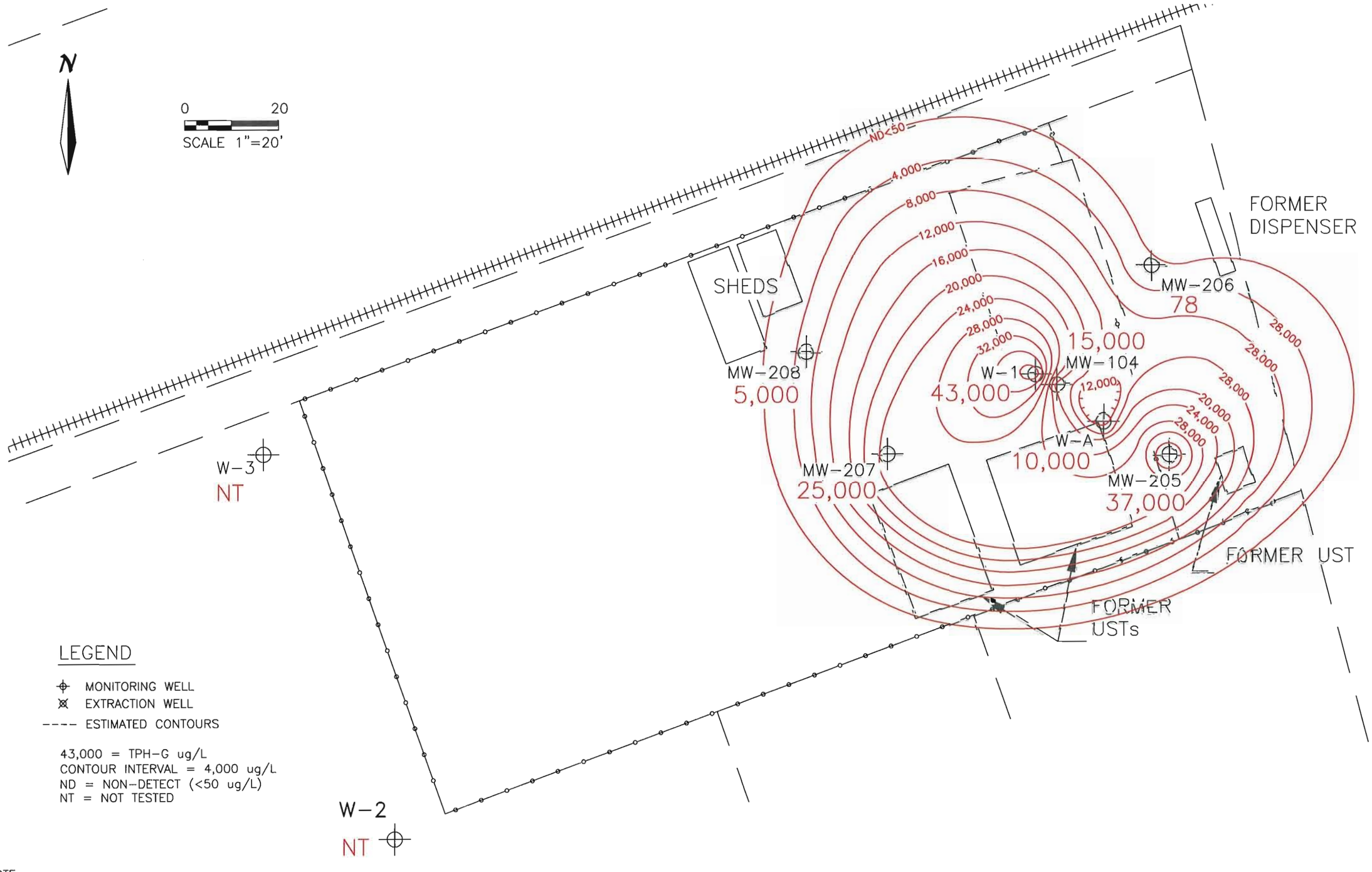
Job No: 1262.2	Date: 7-29-13
Scale:	1" = 50 feet
File: 12622 Graphics 6-24-13	

GROUND ZERO ANALYSIS, INC.

FIGURE 6: SHALLOW WELL TPH-G CONCENTRATIONS

ARROW RENTALS
187 NORTH L STREET
LIVERMORE, CA



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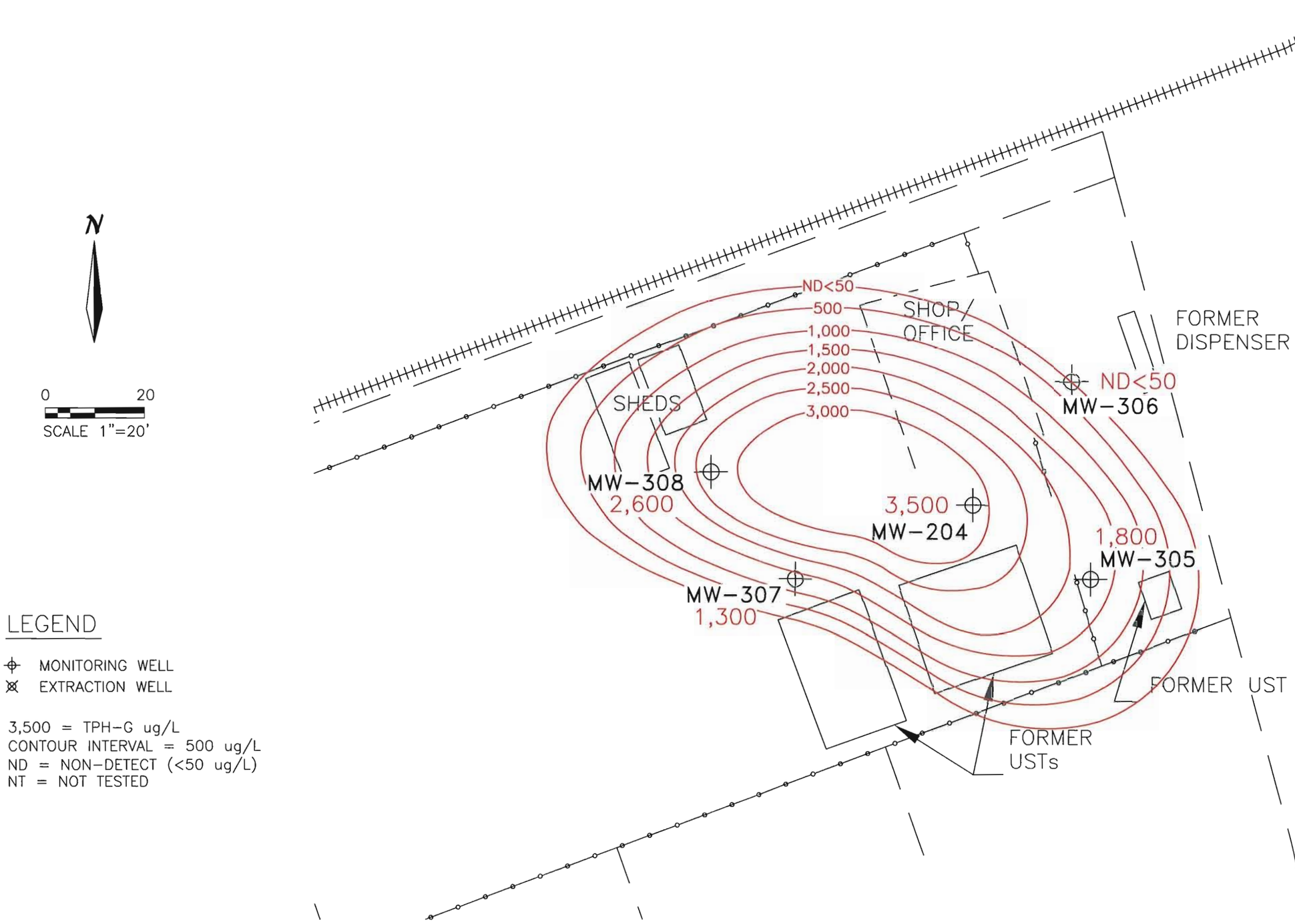
By:	AD
Job No:	1262.2 Date: 07-29-13
Scale:	1" = 50 feet
File:	12622 Graphics 6-24-13

GROUND ZERO ANALYSIS, INC.

FIGURE 7: INTERM. WELL TPH-G CONCENTRATIONS

ARROW RENTALS
187 NORTH L STREET
LIVERMORE, CA



LEGEND

- ⊕ MONITORING WELL
- ⊗ EXTRACTION WELL

3,500 = TPH-G ug/L
CONTOUR INTERVAL = 500 ug/L
ND = NON-DETECT (<50 ug/L)
NT = NOT TESTED

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

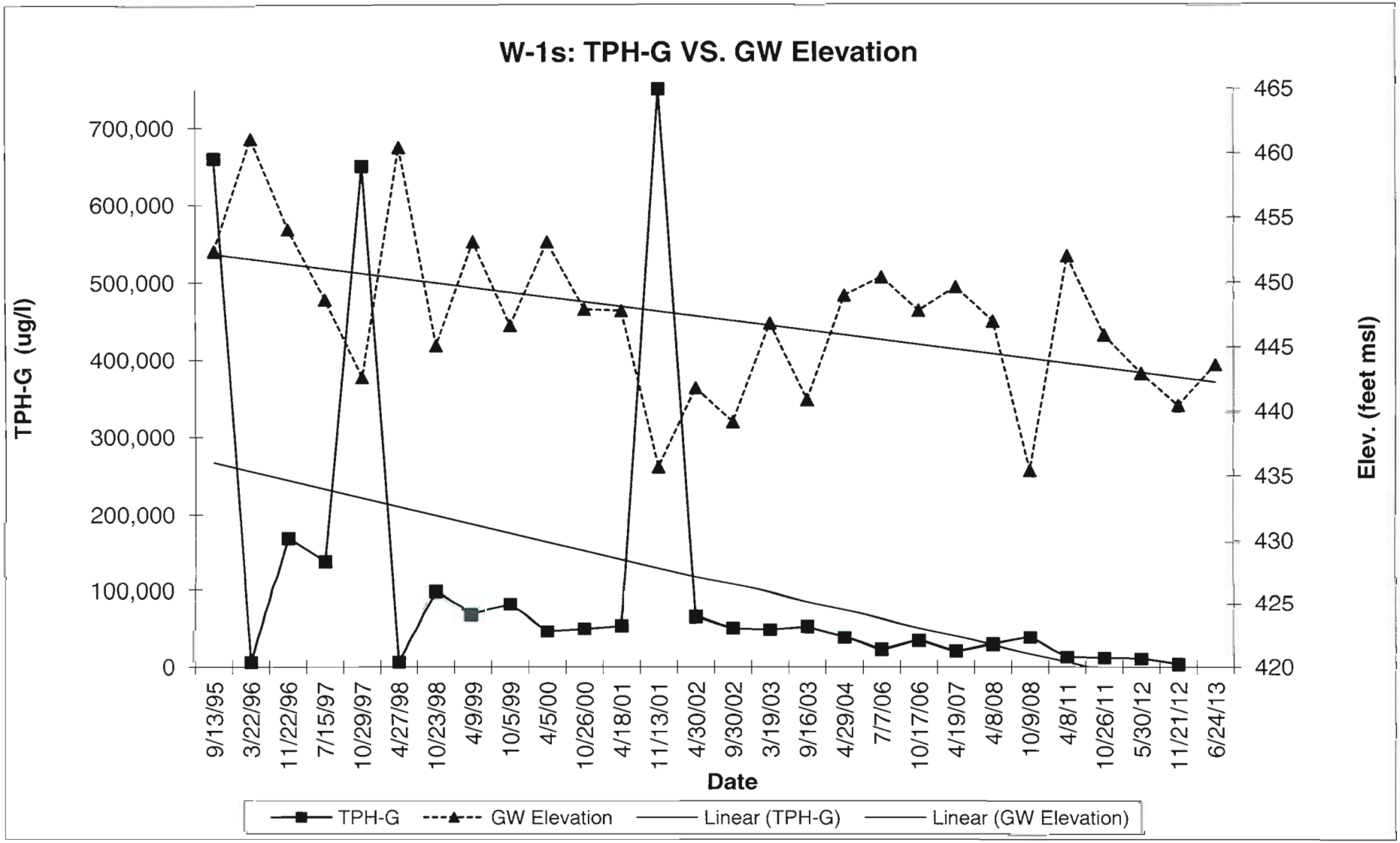
By:	AD
Job No:	1262.2 Date: 07-29-13
Scale:	1" = 50 feet
File:	12622 Graphics 6-24-13

GROUND ZERO ANALYSIS, INC.

FIGURE 8: DEEP WELL TPH-G CONCENTRATIONS

ARROW RENTALS
187 NORTH L STREET
LIVERMORE, CA

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



Ground Zero Analysis, Inc.
1262 gwad

8/8/2013

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

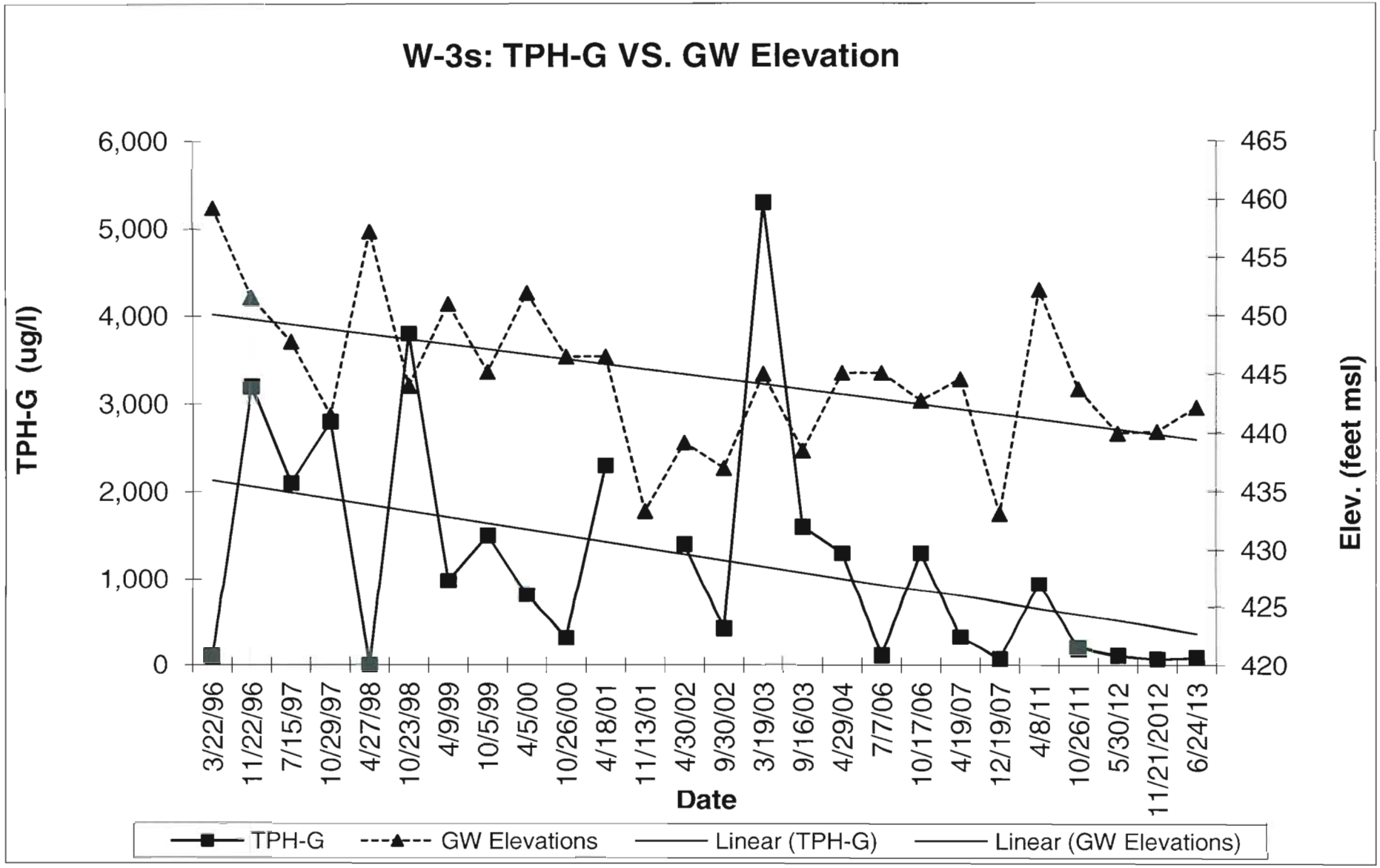


Figure 11: Sullins
187 N.L Street
Livermore, CA

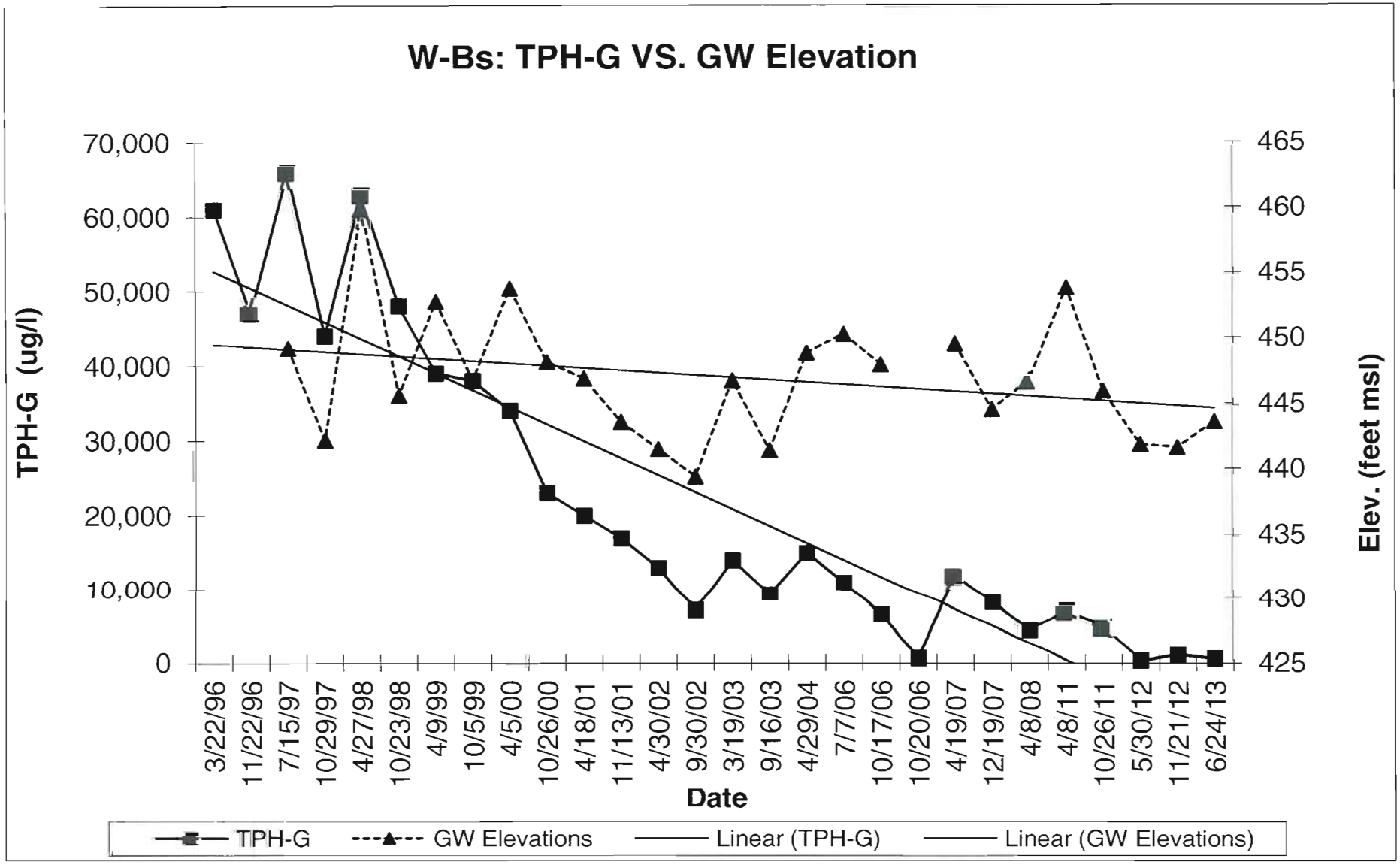
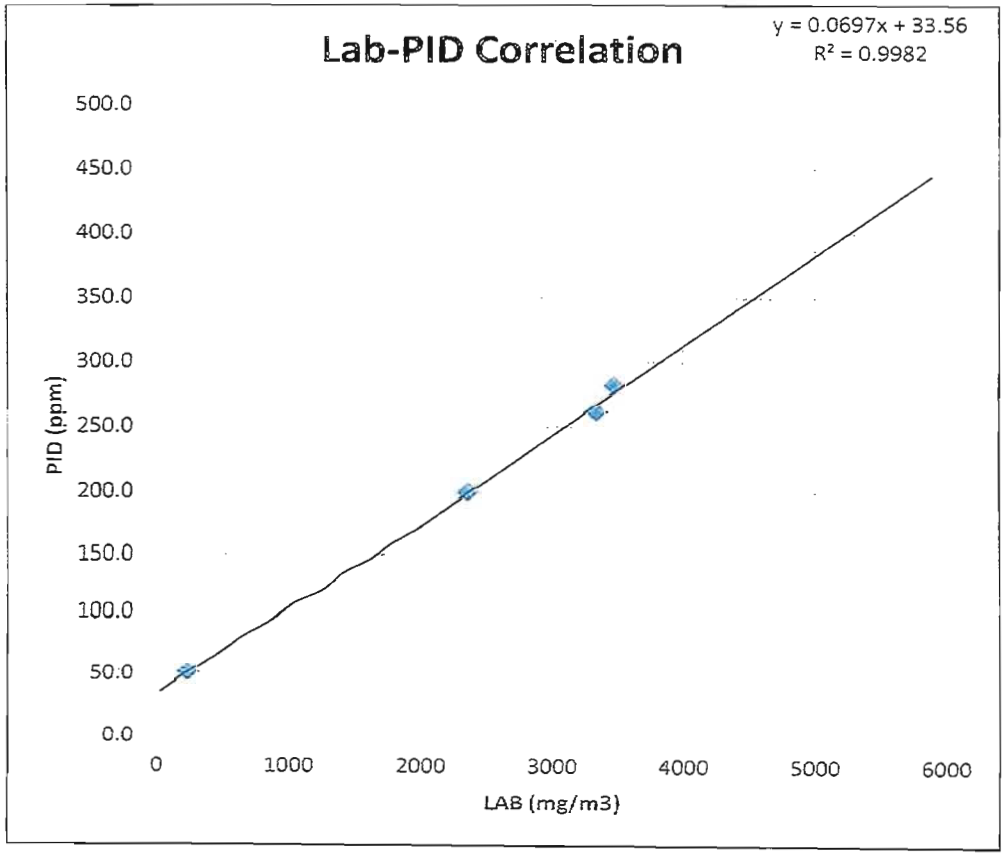


Figure 12: Photo-Ionization Detector to Laboratory Data Correlation

Sullins (Arrow Rentals)
187 North "L" Street
Livermore, CA
Project No.: 1262.2

DATE	Lab Results	Correlation Results	PID
	(mg/m^3)	(mg/m^3)	(ppm)
11/15/2011	-	68197.1	4800
11/16/2011	-	28139.9	2000
11/29/2011	-	24706.4	1760
12/7/2011	-	4234.3	329
12/8/2011	2380.0	2388.8	200
12/13/2011	-	8197.1	606
12/14/2011	-	11816.6	859
12/30/2011	-	8182.8	605
1/5/2012	3360.0	3275.8	262
1/10/2012	-	7939.6	588
1/13/2012	-	11087.0	808
1/19/2012	-	12617.7	915
1/26/2012	-	3776.5	297
1/31/2012	-	3862.4	303
2/24/2012	-	11845.2	861
3/8/2012	3490.0	3561.9	282
3/21/2012	-	2288.7	193
4/3/2012	-	2145.6	183
4/19/2012	-	2288.7	193
5/3/2012	-	915.3	97
5/16/2012	251.0	258.7	51.1



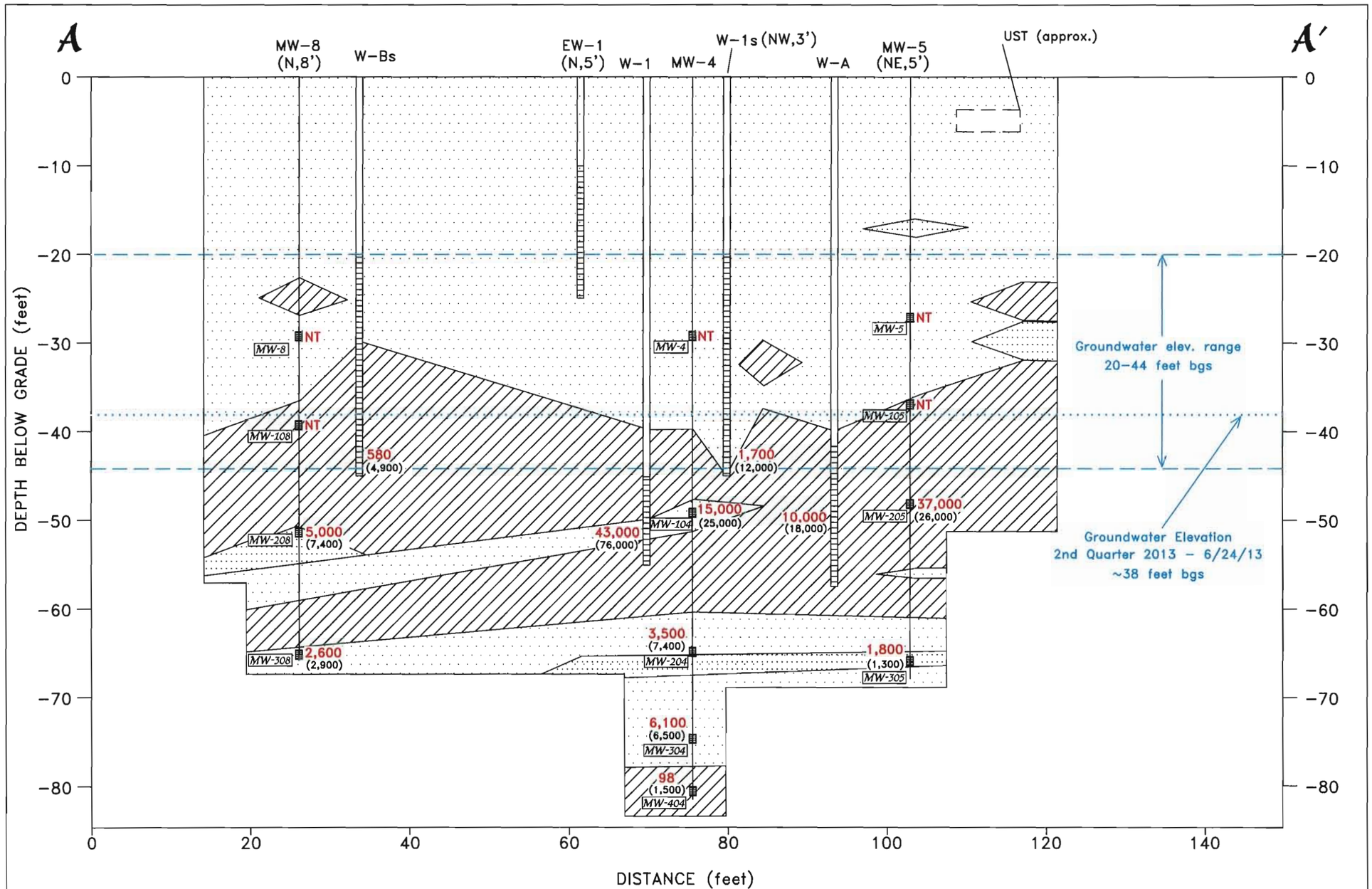


Figure 13
Cross Section A – A'
With TPH–G Soil plume
Arrow Rentals
187 N L Street
Livermore, CA
Project No.: 1262.2

Ground Zero Analysis, Inc. 8/06/13

LEGEND

(25,000) = Groundwater TPH–G Concentration (mg/kg)– October 2011 – Prior to DPE Remediation

2,600 = Groundwater TPH–G Concentration (mg/kg)

NT = Not Tested

MW-108 = CMT well screen section

(N,5') = Boring projection onto section (direction, distance)

Scale as Indicated.

GRAVELLY UNITS UNITS (includes sandy gravels,silty gravels, clayey gravels)

FINE GRAINED UNITS (includes silts and clays, gravelly clays)

SAND UNITS

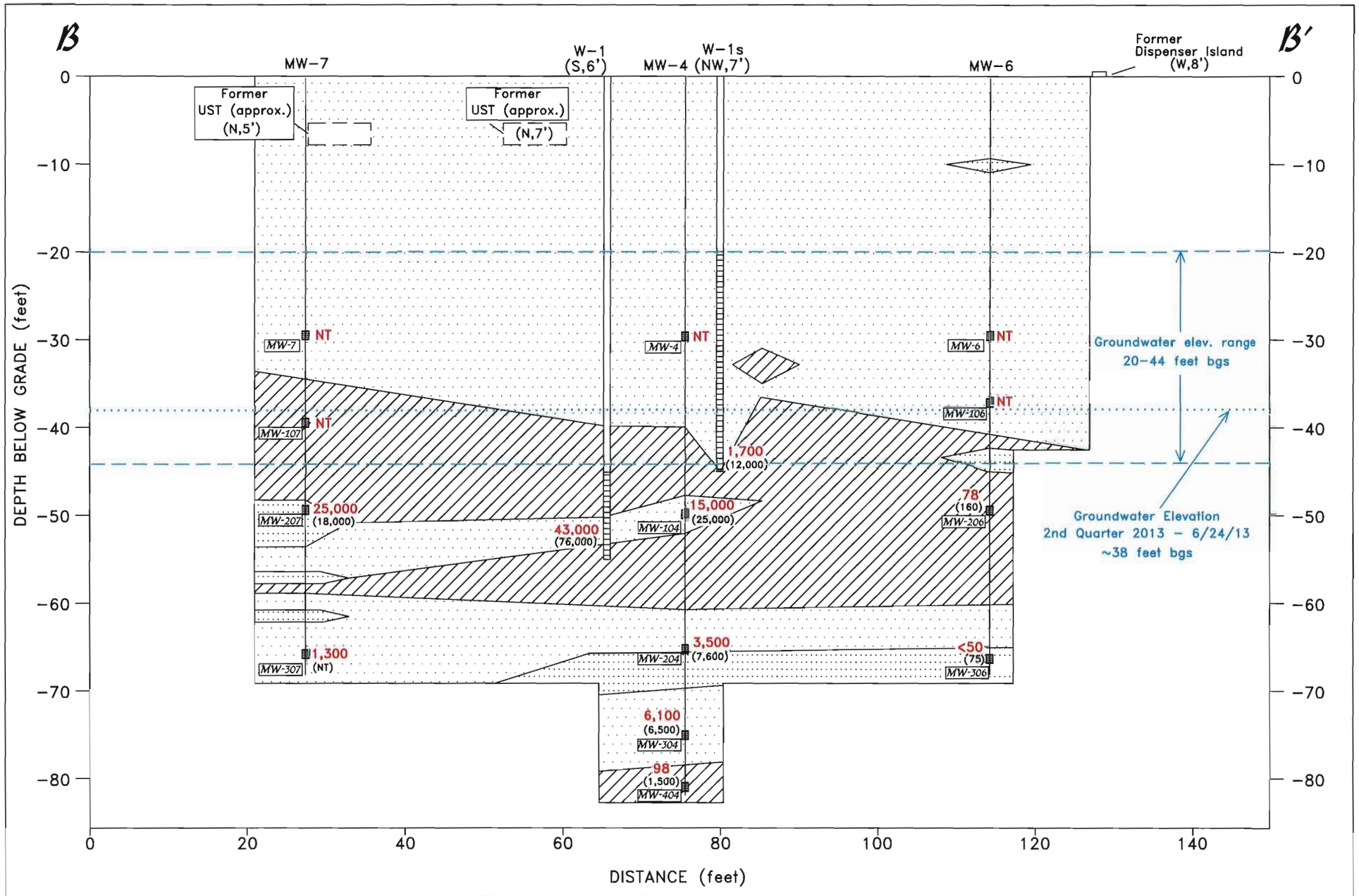


Figure 14
Cross Section B – B'
With TPH–gasoline
Arrow Rentals
187 N L Street
Livermore, CA
Project No.: 1262.2

Ground Zero Analysis, Inc. 8/06/13

LEGEND

Scale as Indicated.

(25,000) = Groundwater TPH–G Concentration (mg/kg)– October 2011 – Prior to DPE Remediation

1,300 = Groundwater TPH–G Concentration (mg/kg)

NT = Not Tested

MW-108 = CMT well screen section

(N,5') = Boring projection onto section (direction, distance)

GRAVELLY UNITS UNITS (Includes sandy gravels,silty gravels, clayey gravels)

FINE GRAINED UNITS (Includes silts and clays, gravelly clays)

SAND UNITS

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

Elevation of Groundwater - Wells Surveyed October 16, 2006 in accordance with SWRCB Geotracker Requirements

Date		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
	top of casing	481.19		479.12		480.92		476.78		480.84		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
	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
10/16/2006		447.81	33.38	446.17	32.95	447.93	32.99	442.75	34.03	-	-	-	-	-	-	-	-	-	-
4/17/2007		449.64	31.55	448.35	30.77	449.51	31.41	444.58	32.20	454.09	26.75	-	-	-	-	-	-	-	-
12/19/2007		438.88	42.31	437.46	41.66	444.51	36.41	433.10	43.68	-	-	-	-	-	-	-	-	-	-
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
10/8-9/2008		435.40	43.69	-	-	-	-	431.01	43.65	-	-	-	-	-	-	-	-	-	-
4/8/2011		452.00	27.09	452.20	26.92	453.81	27.11	446.59	28.07	-	-	-	-	-	-	-	-	-	-
10/26/2011		445.90	35.29	443.72	35.40	445.92	35.00	441.13	35.65	-	-	-	-	-	-	-	-	-	-
** 5/30/2012		442.92	38.27	439.98	39.14	441.85	39.07	437.10	39.68	-	-	-	-	-	-	-	-	-	-
** 11/19/2012		440.42	40.77	440.12	39.00	441.63	39.29	434.44	42.34	-	-	-	-	-	-	-	-	-	-
** 6/242013		443.59	37.60	442.17	36.95	443.60	37.32	439.46	37.32	-	-	-	-	-	-	-	-	-	-

Date		MW-105	DTW-MW-105	MW-106	DTW-MW-106	MW-107	DTW-MW-107	MW-108	MW-108	Avg. Elv.	Avg. DTW	Gradient	Bearing
	top of casing	481.12		480.79		480.91		480.64		(feet)	(feet)	(ft/ft)	
	top of screen	445.12	36	444.79	36	441.91	39	441.64	39				
	bottom of screen	444.12	37	443.79	37	440.91	40	440.64	40				
10/16/2006		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		-	-	-	-	448.92	31.99	-	-	448.20	31.58	0.016	N71°W
12/19/2007		-	-	443.07	37.72	442.26	38.65	442.60	38.04	440.27	39.78	0.033	S74°W
4/7/2008		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		431.68	49.44	431.31	49.48	-	-	430.56	50.08	431.99	47.27	0.010	N57°W
4/8/2011		-	-	-	-	-	-	-	-	451.15	27.30	0.0221	N56°W
10/26/2011		445.57	35.55	446.15	34.64	444.99	35.92	444.59	36.05	445.26	35.41	0.0129	S68°W
** 5/30/2012		445.63	35.49	443.61	37.18	442.15	38.76	-	-	441.89	38.23	0.0129	N82°W
** 11/19/2012		-	-	-	-	-	-	-	-	439.15	40.35	0.0153	N63°W
** 6/242013		445.69	35.43	444.72	36.07	443.81	37.10	443.35	37.29	443.30	36.89	**0.0097**	**N75°W**

"-" = well dry or depth to water measurement could not be obtained
Starting 10/26/11 - Gradient calculated using a 3-point problem with monitoring wells W-Bs, W-Es and W-3s. - The well top of W-1s was modified for the DPE system.

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-1**	DTW-W-1	W-A**	DTW-W-A	W-B	DTW-W-B	W-C	DTW-W-C	W-D	DTW-W-D	W-E	DTW-W-E	MW-104	DTW-MW-104	MW-205	DTW-MW-205	MW-206	DTW-MW-206	MW-207	DTW-MW-207	MW-208	DTW-MW-208	Avg. Elv.	Avg. DTW	Gradient	Bearing
	top of casing	480.77		481.04		480.74		481.61		477.03		476.56		480.84		481.12		480.79		480.91		480.64		(feet)	(feet)	(ft/ft)	
	top of screen	435.27	45.5	439.04	42	440.74	40	436.61	45	435.03	42	436.06	40.5	431.34	49.5	434.12	47	431.79	49	431.91	49	429.64	51				
	bottom of screen	425.27	55.5	423.54	57.5	425.74	55	426.61	55	419.53	57.5	416.26	60.3	430.34	50.5	433.12	48	430.79	50	430.91	50	428.64	52				
10/16/2006		-	-	-	-	-	-	-	-	-	-	442.63	33.93	444.85	35.99	446.75	34.37	447.03	33.76	446.27	34.64	445.12	35.52	445.44	34.70	0.012	N63°W
4/17/2007		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	448.57	32.22	447.13	33.78	447.05	33.59	447.58	33.20	0.022	S68°W
12/19/2007		-	-	438.36	42.68	-	-	-	-	-	-	-	-	435.98	44.86	-	-	436.10	44.69	434.33	46.58	433.92	46.72	435.74	45.11	0.04	N76°W
4/7/2008		-	-	446.72	34.32	-	-	-	-	-	-	-	-	443.10	37.74	444.84	36.28	446.38	34.41	444.84	36.07	443.66	36.98	444.92	35.97	northwest	variable
10/8-9/2008		-	-	-	-	Wells Destroyed on 4/18/2008								431.08	49.76	434.51	46.61	431.32	49.47	-	-	430.68	49.96	431.90	48.95	0.12	N20°W
4/8/2011		-	-	453.38	27.66	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	453.38	27.66	N/A	N/A
10/26/2011		445.28	35.49	445.60	35.44	-	-	-	-	-	-	-	-	444.83	36.01	444.00	37.12	443.25	37.54	442.79	38.12	442.05	38.59	443.75	37.14	0.025	N52°W
** 5/30/2012		441.21	39.56	441.50	39.54	-	-	-	-	-	-	-	-	441.78	39.06	442.43	38.69	441.39	39.40	440.37	40.54	440.05	40.59	441.25	39.63	0.020	S89°W
** 11/19/2012		439.12	41.65	438.12	42.92	-	-	-	-	-	-	-	-	439.29	41.55	439.08	42.04	438.11	42.68	437.70	43.21	437.35	43.29	438.40	42.48	0.015	N36°W
** 6/24/2013		443.53	37.24	444.19	36.85	-	-	-	-	-	-	-	-	443.76	37.08	444.33	36.79	443.74	37.05	442.74	38.17	442.47	38.17	443.54	37.34	**0.014**	**N73°W**

"-" = well dry or depth to water measurement could not be obtained
Starting 10/26/11 - Gradient calculated using a 3-point problem with CMT wells 205, 206 & 208
** = The well tops of W-A and W-1 were modified for the DPE system, therefore the depth-to-water data is irrevelant and was not used for groundwater contour or avg. groundwater elevation calculations

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																	
		DEEP WELLS										GROUNDWATER				DEEPEST WELLS			
		MW-204	DTW-MW-204	MW-305	DTW-MW-305	MW-306	DTW-MW-306	MW-307	DTW-MW-307	MW-308	DTW-MW-308	Avg. Elv.	Avg. DTW	Gradient	Bearing	MW-304	DTW-MW-304	MW-404	DTW-MW-404
	top of casing	480.84		481.12		480.79		480.91		480.64		(feet)	(feet)	(ft/ft)		480.84		480.84	
	top of screen	415.34	65.5	416.12	65	415.79	65	415.91	65	415.64	65					406.34	74.5	400.84	80.0
	bottom of screen	414.34	66.5	415.12	66	414.79	66	414.91	66	414.64	66					405.34	75.5	399.34	81.5
10/16/2006		447.09	33.75	447.44	33.68	447.29	33.50	446.63	34.28	446.37	34.27	446.96	33.90	0.014	N78°W	442.76	38.08	444.37	36.47
4/17/2007		-	-	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		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
10/26/2011		445.22	35.62	445.74	35.38	445.34	35.45	-	-	445.55	35.09	445.46	35.39	0.0114	N64°W	445.14	35.70	445.07	35.77
5/30/2012		441.06	39.78	441.37	39.75	440.96	39.83	440.56	40.35	440.24	40.40	440.84	40.02	0.0100	N79°W	440.95	39.89	440.85	39.99
11/19/2012		438.53	42.31	438.84	42.28	438.46	42.33	438.04	42.87	437.72	42.92	438.32	42.54	0.0089	N72°W	438.40	42.44	438.33	42.51
6/24/2013		443.75	37.09	444.05	37.07	443.69	37.10	443.16	37.75	442.87	37.77	443.50	37.36	**0.0091**	**N78°W**	443.66	37.18	443.50	37.34

"-" = well dry or depth to water measurement could not be obtained
Starting 10/26/11 - Gradient calculated using a 3-point problem with CMT wells 305, 307 & 308

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	0.140
	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	0.038
	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	-0.179
	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	0.032
	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	-0.031
	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	0.010
	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	0.054
	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	-0.556
	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	0.096
	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	-0.231
	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	0.126
	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	0.556
	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	0.060
	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	-			
25-Oct-11	MW-204	414.84	415.34	414.34	445.22	-0.080	9.00	-0.009
	MW-304	405.84	406.34	405.34	445.14			
25-Oct-11	MW-205	433.62	434.12	433.12	444.00	1.740	18.00	0.097
	MW-305	415.62	416.12	415.12	445.74			
25-Oct-11	MW-206	431.29	431.79	430.79	443.25	2.090	16.00	0.131
	MW-306	415.29	415.79	414.79	445.34			
25-Oct-11	MW-207	431.41	431.91	430.91	442.79		16.00	N/A
	MW-307	415.41	415.91	414.91	-			
30-May-12	MW-204	414.84	415.34	414.34	441.06	-0.110	9.00	-0.012
	MW-304	405.84	406.34	405.34	440.95			
30-May-12	MW-205	433.62	434.12	433.12	442.43	-1.060	18.00	-0.059
	MW-305	415.62	416.12	415.12	441.37			
30-May-12	MW-206	431.29	431.79	430.79	441.39	-0.430	16.00	-0.027
	MW-306	415.29	415.79	414.79	440.96			
30-May-12	MW-207	431.41	431.91	430.91	440.37	0.190	16.00	0.012
	MW-307	415.41	415.91	414.91	-			
19-Nov-12	MW-204	414.84	415.34	414.34	438.53	-0.130	9.00	-0.014
	MW-304	405.84	406.34	405.34	438.40			
19-Nov-12	MW-205	433.62	434.12	433.12	439.08	-0.240	18.00	-0.013
	MW-305	415.62	416.12	415.12	438.84			
19-Nov-12	MW-206	431.29	431.79	430.79	438.11	0.350	16.00	0.022
	MW-306	415.29	415.79	414.79	438.46			
19-Nov-12	MW-207	431.41	431.91	430.91	437.70	0.340	16.00	0.021
	MW-307	415.41	415.91	414.91	438.04			
24-Jun-13	MW-204	414.84	415.34	414.34	443.75	-0.090	9.00	-0.010
	MW-304	405.84	406.34	405.34	443.66			
24-Jun-13	MW-205	433.62	434.12	433.12	444.33	-0.280	18.00	-0.016
	MW-305	415.62	416.12	415.12	444.05			
24-Jun-13	MW-206	431.29	431.79	430.79	443.74	-0.050	16.00	-0.003
	MW-306	415.29	415.79	414.79	443.69			
24-Jun-13	MW-207	431.41	431.91	430.91	442.74	0.420	16.00	0.026
	MW-307	415.41	415.91	414.91	443.16			

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

Red= Destroyed in 2008

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	-	-	-	-	-	-
	10/26/2011	76,000	-	15,000	6,100	910	11,000	-	-	-	-	-	-	-
	5/30/2012	25,000	-	4,500	840	600	1,900	-	-	-	-	-	-	-
	11/19/2012	36,000	-	6,300	1,700	1,900	6,200	-	-	-	-	-	-	-
	6/26/2013	43,000	-	6,200	1,700	1,900	5,500	190	-	-	-	-	-	-
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	-	-	-	-	-	-
	4/8/2011	well location unknown												
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	-	-	-	-	-	-
	10/26/2011	-	-	-	-	-	-	-	-	-	-	-	-	-
	5/30/2012	-	-	-	-	-	-	-	-	-	-	-	-	-
	11/19/2012	-	-	-	-	-	-	-	-	-	-	-	-	-
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	-	-	-	-	-	-
	10/26/2011	18,000	-	3,500	410	970	870	-	-	-	-	-	-	-
	6/7/2012	37,000	-	3,500	700	660	1700	-	-	-	-	-	-	-
	11/21/2012	7,500	-	1,900	110	300	440	-	-	-	-	-	-	-
	6/25/2013	10,000	-	2,800	370	520	1,100	56	-	-	-	-	-	-
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	-	-	-	-	-	-	-
		Abondened April 14, 2008												
W-C	1990	<10	<100	<1	<1	<1	<1	-	-	-	-	-	-	-
		Abondened April 14, 2008												
W-D	1990	100	<100	1	2	2	1	-	-	-	-	-	-	-
		Abondened April 14, 2008												
W-E	1990	<10	<100	<1	<1	<1	<1	-	-	-	-	-	-	-
	9/13/1995	95	-	4	<0.5	<0.5	<0.5	18	-	-	-	-	-	-
		Abondened April 14, 2008												
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	-	-	-	-	-	-
	10/26/2011	12,000	-	2,900	280	520	530	-	-	-	-	-	-	-
	5/30/2012	11,000	-	490	83	140	740	-	-	-	-	-	-	-
	11/21/2012	3,600	-	320	47	33	180	-	-	-	-	-	-	-
	6/26/2013	1,700	-	530	11	8.1	18	<10	-	-	-	-	-	-
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	-	-	-	-	-	-
	10/25/2011	190	-	5.2	0.76	1.3	2.1	-	-	-	-	-	-	-
	5/30/2012	110	-	33	0.51	1.1	0.5	-	-	-	-	-	-	-
	11/19/2012	71	-	<0.3	<0.3	<0.3	<0.6	-	-	-	-	-	-	-
	6/25/2013	85	-	6	0.82	0.36	0.75	<1.0	-	-	-	-	-	-

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-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	-	-	-	-	-	-
	10/25/2011	4,900	-	250	23	230	38	-	-	-	-	-	-	-
	5/30/2012	310	-	7.6	0.46	18	3	-	-	-	-	-	-	-
	11/19/2012	1,100	-	31	3.9	23	17	-	-	-	-	-	-	-
	6/25/2013	580	-	34	2.4	3.9	1.8	6.1	-	-	-	-	-	-
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	-	-	-	-	-	-
	10/26/2011	-	-	-	-	-	-	-	-	-	-	-	-	-
	5/29/2012	<50	-	<0.5	<0.5	<0.5	<1	0.84	-	-	-	-	-	-
	11/19/2012	-	-	-	-	-	-	-	-	-	-	-	-	-
	6/25/2013	<50	-	<0.3	<0.3	<0.3	<0.6	1	-	-	-	-	-	-
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												
	10/26/2011	-	-	-	-	-	-	-	-	-	-	-	-	-
	5/30/2012	-	-	-	-	-	-	-	-	-	-	-	-	-
	11/19/2012	DRY												
	6/25/2013	DRY												
MW-5	10/16/2006	DRY												
	4/19/2007	DRY												
	12/19/2007	DRY												
	4/8/2011	DRY												
	10/26/2011	DRY												
	5/30/2012	DRY												
	11/19/2012	DRY												
	6/25/2013	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	-	-	-	-	-	-
	10/26/2011	DRY												
	5/30/2012	DRY												
	11/19/2012	DRY												
	6/25/2013	DRY												
MW-7	10/16/2006	DRY												
	4/17/2007	DRY												
	12/19/2007	DRY												
	4/8/2011	DRY												
	10/26/2011	DRY												
	5/30/2012	DRY												
	11/19/2012	DRY												
	6/25/2013	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	-	-	-	-	-	-
	10/26/2011	DRY												
	5/30/2012	DRY												
	11/19/2012	DRY												
	6/25/2013	DRY												
MW-104	10/19/2006	960	-	250	170	20	83	-	-	-	-	-	-	-
	4/18/2007	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	-	-	-	-	-	-
	10/26/2011	25,000	-	8,400	120	490	740	-	-	-	-	-	-	-
	5/30/2012	18,000	-	4,200	280	490	1,300	<10	-	-	-	-	-	-
	11/19/2012	12,000	-	6,100	280	310	530	32	-	-	-	-	-	-
	6/25/2013	15,000	-	6,600	160	490	490	120						

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-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	-	-	-	-	-	-
	10/26/2011	-	-	-	-	-	-	-	-	-	-	-	-	-
	5/30/2012	DRY												
	11/19/2012	DRY												
	6/25/2013	DRY												
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	-	-	-	-	-	-
	10/26/2011	190	-	1.7	<0.3	<0.3	<0.6	-	-	-	-	-	-	-
	5/30/2012	DRY												
	11/19/2012	DRY												
	6/25/2013	DRY												
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	-	-	-	-	-	-
	10/26/2011	16,000	-	6,400	28	140	200	-	-	-	-	-	-	-
	5/30/2012	DRY												
	11/19/2012	DRY												
	6/25/2013	DRY												
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	-	-	-	-	-	-
	10/26/2011	-	-	-	-	-	-	-	-	-	-	-	-	-
	5/30/2012	DRY												
	11/19/2012	DRY												
	6/25/2013	DRY												
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	-	-	-	-	-	-
	10/26/2011	7,400	-	1,900	38	250	400	-	-	-	-	-	-	-
	5/30/2012	3,800	-	770	44	76	170	17	-	-	-	-	-	-
	11/19/2012	4,800	-	1,900	88	220	470	<20	-	-	-	-	-	-
	6/25/2013	3,500	-	660	27	230	310	<20	-	-	-	-	-	-
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	-	-	-	-	-	-
	10/26/2011	26,000	-	11,000	130	240	300	-	-	-	-	-	-	-
	5/29/2012	40,000	-	15,000	150	860	1,100	<10	-	-	-	-	-	-
	11/21/2012	5,100	-	1,700	26	210	360	<20	-	-	-	-	-	-
	6/25/2013	37,000	-	13,000	120	900	970	57	-	-	-	-	-	-
MW-206	10/16/2006	<50	-	0.72	<0.5	<0.5	<0.5	-	-	-	-	-	-	-
	4/18/2007	<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	-	-	-	-	-	-
	10/26/2011	160	-	5.7	0.40	0.25	<0.6	-	-	-	-	-	-	-
	5/29/2012	1,500	-	250	100	38	170	-	-	-	-	-	-	-
	11/21/2012	73	-	1.4	<0.3	<0.3	<0.6	-	-	-	-	-	-	-
	6/24/2013	78	-	2.3	0.87	0.44	0.62	1.8	-	-	-	-	-	-
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	-	-	-	-	-	-
	10/26/2011	18,000	-	7,600	38	160	280	-	-	-	-	-	-	-
	5/29/2012	24,000	-	11,000	87	310	340	190	-	-	-	-	-	-
	11/21/2012	21,000	-	14,000	65	310	190	140	-	-	-	-	-	-
	6/24/2013	25,000	-	12,000	77	300	180	120	-	-	-	-	-	-
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	-	-	-	-	-	-
	10/26/2011	7,400	-	1,600	97	60	210	-	-	-	-	-	-	-
	5/29/2012	11,000	-	2,600	42	220	170	<10	-	-	-	-	-	-
	11/21/2012	11,000	-	3,500	37	310	130	39	-	-	-	-	-	-
	6/24/2013	5,000	-	1,100	18	34	50	45	-	-	-	-	-	-
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	-	-	-	-	-	-
	10/26/2011	6,500	-	1,600	45	190	350	-	-	-	-	-	-	-
	5/30/2012	1,600	-	190	13	39	100	-	-	-	-	-	-	-
	11/19/2012	5,100	-	1,600	67	250	500	-	-	-	-	-	-	-
	6/25/2013	6,100	-	2,000	87	220	480	<20	-	-	-	-	-	-
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	-	-	-	-	-	-
	10/26/2011	1,300	-	280	37	20	49	-	-	-	-	-	-	-
	5/29/2012	920	-	260	3.6	18	30	-	-	-	-	-	-	-
	11/21/2012	3,700	-	1,300	17	170	230	-	-	-	-	-	-	-
	6/25/2013	1,800	-	560	12	41	75	<20	-	-	-	-	-	-

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-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	-	-	-	-	-	-
	10/26/2011	75	-	0.5	<0.3	<0.3	<0.6	-	-	-	-	-	-	-
	5/30/2012	-	-	-	-	-	-	-	-	-	-	-	-	-
	11/21/2012	44	-	1.2	<0.3	<0.3	<0.6	-	-	-	-	-	-	-
	6/24/2013	<50	-	0.8	<0.3	<0.3	0.24	<1	-	-	-	-	-	-
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	-	-	-	-	-	-
	10/26/2011	-	-	-	-	-	-	-	-	-	-	-	-	-
	5/29/2012	2,000	-	540	4.2	57	110	4.5	-	-	-	-	-	-
	11/19/2012	-	-	-	-	-	-	-	-	-	-	-	-	-
	6/24/2013	1,300	-	480	7.2	43	54	<20	-	-	-	-	-	-
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	-	-	-	-	-	-
	10/26/2011	2,900	-	610	9.2	73	53	-	-	-	-	-	-	-
	5/29/2012	1,200	-	89	5.1	18	25	-	-	-	-	-	-	-
	11/21/2012	4,800	-	930	46	160	210	-	-	-	-	-	-	-
	6/24/2013	2,600	-	610	22	110	87	<20	-	-	-	-	-	-
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	-	-	-	-	-	-
	10/26/2011	1,500	-	400	9.1	46	65	-	-	-	-	-	-	-
	5/30/2012	1,200	-	260	11	34	80	-	-	-	-	-	-	-
	11/19/2012	1,100	-	230	<6.0	46	84	-	-	-	-	-	-	-
	6/25/2013	98	-	840	22	60	140	<20	-	-	-	-	-	-

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
10/26/2011	6.65	1012	18.1	-121.5	0.16	6.65	914	17.9	-57.6	0.52	6.51	722	17.6	-115.8	0.38	-	-	-	-	-
5/30/2012	6.60	1574	21.4	-351.9	0.00	6.89	761	20.3	-66.9	0.11	6.88	676	20.9	-87.3	0.79	-	-	-	-	-
11/19/2012	6.16	1301	18.6	-119.7	0.06	6.75	834	17.2	-65.1	0.19	7.04	825	17.2	-39.2	0.18	-	-	-	-	-
6/24/2013	6.71	1333	21.9	-159.8	0.07	6.43	1243	20.3	-60.2	1.03	6.75	919	21.2	-92.1	0.84	7.09	951	21.8	160.6	0.61

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
10/26/2011	6.45	1073	17.8	-60.9	0.20	-	-	-	-	-	6.70	1019	18.0	-120.2	0.15
5/30/2012	6.71	1062	20.7	-98.7	0.95	-	-	-	-	-	6.83	1127	20.3	-90.3	0.15
11/19/2012	7.04	965	17.3	-97.0	0.12	-	-	-	-	-	6.92	1185	18.0	-139.9	0.17
6/24/2013	6.73	1156	20.5	-110.6	0.28	-	-	-	-	-	6.84	1255	20.5	-124.1	1.85

" - " = insufficient data no result reported

Table 6: TPH-G Mass Removal Calculations: Groundwater

Sullins (Arrow Rentals)
187 North "L" Street
Livermore, CA
Project No.: 1262.2

Date/Time	Hours			GW Removed		Lab	Removal Calculations				Mass Removal Totals	
	Meter	Cumulative	in period	Cummulative (gallons)	In Period (gallons)	(ug/L)	(grams/L)	(grams/gal.)	(lbs./gal.)	(lbs./period)	cumulative pounds	cumulative gallons
Start-Up	11/15/11 @ 0700										-	-
12/7/2011	10428.3	0.0	-	0	-	-	-	-	-	0.00	-	-
12/13/2011	10441.8	13.5	695.1	1060	1060	2400	0.00240	0.00063	0.00000140	0.67	0.67	0.11
1/13/2012	11136.9	708.6	106.9	1378	67	6400	0.00640	0.00169	0.00000373	0.11	0.79	0.13
1/18/2012	11243.8	815.5	11.7	1445	1735	3800	0.00380	0.00100	0.00000221	1.74	2.53	0.41
1/19/2012	11255.5	827.2	585.7	3180	4520	2800	0.00280	0.00074	0.00000163	3.34	5.87	0.95
3/8/2012	11841.2	1412.9	624.6	7700	12173	190	0.00019	0.00005	0.00000011	0.61	6.48	1.05
4/3/2012	12465.8	2037.5	719.8	19873	18435	810	0.00081	0.00021	0.00000047	3.94	10.43	1.70
5/3/2012	13185.6	2757.3	310.6	38308	5546	1000	0.00100	0.00026	0.00000058	1.47	11.89	1.93
5/16/2012	13496.2	3067.9	1.8	43854	139	2800	0.00280	0.00074	0.00000163	0.10	11.99	1.95
6/7/2012	13498.0	3069.7	163.2	43993	2176	5000	0.00500	0.00132	0.00000291	2.87	14.87	2.42
7/9/2012	13661.2	3232.9	707.9	46169	9396	2600	0.00260	0.00069	0.00000151	6.45	21.32	3.47
8/16/2012	14369.1	3940.8	671.4	55565	13607	2300	0.00230	0.00061	0.00000134	8.27	29.59	4.81
9/13/2012	15040.5	4612.2	32.3	69172	1488	1800	0.00180	0.00048	0.00000105	0.71	30.30	4.93
10/16/2012	15072.8	4644.5	459.2	70660	13308	1800	0.00180	0.00048	0.00000105	6.33	36.63	5.96
12/13/2012	15532.0	5103.7	574.6	83968	0	1800	0.00180	0.00048	0.00000105	0.00	36.63	5.96
2/4/2013	16106.6	5678.3	6.5	83968	712	1300	0.00130	0.00034	0.00000076	0.24	36.87	6.00
2/14/2013	16113.1	5684.8	0.8	84680	0	1300	0.00130	0.00034	0.00000076	0.00	36.87	6.00
4/10/2013	16113.9	5685.6	208.0	84680	1373	2000	0.00200	0.00053	0.00000116	0.73	37.59	6.11
4/26/2013	16321.9	5893.6	167.6	86053	757	2000	0.00200	0.00053	0.00000116	0.40	37.99	6.18
5/3/2013	16489.5	6061.2	37.0	86810	2328	1600	0.00160	0.00042	0.00000093	0.98	38.98	6.34
5/16/2013	16526.5	6098.2	58.1	89138	3026	1600	0.00160	0.00042	0.00000093	1.28	40.26	6.55
6/6/2013	16584.6	6156.3	144.5	92164	4762	1600	0.00160	0.00042	0.00000093	2.01	42.27	6.87
6/26/2013	16729.1	6300.8	665.7	96926	37081	1600	0.00160	0.00042	0.00000093	15.67	57.94	9.42
7/31/2013	17394.8	6966.5	-	134007	-	-	-	-	-	-	-	-
								Total Mass Removed via GW 12/07/11 thru 7/31/13			**57.94**	**9.42**
								Total Mass Removed via GW 1/10/13 thru 7/31/13			**21.32**	**3.47**

Table 7: Mass Removal Calculations: Soil Vapor

Sullins (Arrow Rentals)
187 North "L" Street
Livermore, CA
Project No.: 1262.2

Date/Time	Wells	Hours			Lab	PID	Air Flow	Removal Calculations					Mass Removal Totals	
		Meter	Cumulative	in period	(mg/m3)	(ppm)	(cfm)	(mg/ft3)	(lbs./ft3)	(lbs./min)	(lbs./hour)	(lbs./period)	cumulative lbs.	cumulative gal.
Start-Up	**11/15/11 @ 0700**													
11/15/2011	W-1s & EW-1	10378.5	0	-	-	-	-	-	-	-	-	0	-	-
11/15/2011	W-1s & EW-1	10381.5	27.6	27.6	68197.1	4800	78	1931.11	0.004257	0.3321	19.924	549.9	549.9	89.4
11/16/2011	W-1s & EW-1	10409.1	28.0	0.4	28139.9	2000	125	796.83	0.001757	0.2196	13.175	5.3	555.2	90.3
11/29/2011	W-1s & EW-1	10409.5	46.8	18.8	24706.4	1760	75	699.60	0.001542	0.1157	6.941	130.5	685.7	111.5
12/7/2011	W-1s & EW-1	10428.3	55.7	8.9	4234.3	329	131	119.90	0.000264	0.0346	2.078	18.5	704.2	114.5
12/8/2011	W-1s & EW-1	10437.2	60.3	4.6	**2380.0**	200	90	67.39	0.000149	0.0134	0.802	3.7	707.9	115.1
12/13/2011	W-1s only	10441.8	67.3	7.0	8197.1	606	137	232.11	0.000512	0.0701	4.206	29.4	737.3	119.9
12/14/2011	W-1s & W-1	10448.8	435.5	368.2	11816.6	859	100	334.61	0.000738	0.0738	4.426	1629.7	2367.0	384.9
12/30/2011	W-1s only	10817.0	579.2	143.7	8182.8	605	96	231.71	0.000511	0.0490	2.942	422.8	2789.8	453.6
1/5/2012	W-1s only	10960.7	698.0	118.8	**3360.0**	262	136	95.14	0.000210	0.0285	1.712	203.3	2993.1	486.7
1/10/2012	W-1s only	11079.5	755.4	57.4	7939.6	588	161	224.82	0.000496	0.0798	4.788	274.8	3268.0	531.4
1/13/2012	W-1s only	11136.9	874.0	118.6	11087.0	808	133	313.95	0.000692	0.0921	5.523	655.1	3923.0	637.9
1/19/2012	W-1s only	11255.5	1040.2	166.2	12617.7	915	98	357.29	0.000788	0.0772	4.632	769.8	4692.8	763.1
1/26/2012	W-1s only	11421.7	1147.8	107.6	3776.5	297	149	106.94	0.000236	0.0351	2.108	226.8	4919.6	799.9
1/31/2012	W-1s & W-1	11529.3	1151.0	3.2	3862.4	303	141	109.37	0.000241	0.0340	2.040	6.5	4926.1	801.0
Shut Down	**1/31/2012 @ 1550 to 2/24/2012 @ 1330**													
2/24/2012	W-1s & W-1	11532.5	1459.7	308.7	11845.2	861	84	335.42	0.000739	0.0621	3.727	1150.5	6076.6	988.1
3/8/2012	W-1s & W-1	11841.2	1774.7	315.0	**3490.0**	282	152	98.82	0.000218	0.0331	1.987	625.9	6702.5	1089.8
3/21/2012	W-1s & W-1	12156.2	2084.3	309.6	2288.7	193	158	64.81	0.000143	0.0226	1.354	419.3	7121.9	1158.0
4/3/2012	W-1s & W-1	12465.8	2469.3	385.0	2145.6	183	145	60.76	0.000134	0.0194	1.165	448.7	7570.5	1231.0
4/19/2012	W-1s & W-1	12850.8	2804.1	334.8	2288.7	193	132	64.81	0.000143	0.0189	1.132	378.9	7949.4	1292.6
5/3/2012	W-1s & W-1	13185.6	3114.7	310.6	915.3	97	130	25.92	0.000057	0.0074	0.446	138.4	8087.8	1315.1
5/16/2012	W-1s & W-1	13496.2	3116.5	1.8	**251.0**	51.1	99	7.11	0.000016	0.0016	0.093	0.2	8088.0	1315.1
Shut Down	**5/16/2012 @ 1025 to 6/07/2012 @ 0940**													
6/7/2012	W-1s & W-1	13498.0	3186.7	70.2	2345.9	197.0	88	66.43	0.000146	0.0129	0.773	54.3	8142.2	1323.9
6/20/2012	W-1s & W-1	13568.2	3278.3	91.6	1687.8	151.0	128	47.79	0.000105	0.0135	0.809	74.1	8216.4	1336.0
7/5/2012	EW-1 & W-1	13659.8	3279.7	1.4	673.5	80.1	105	19.07	0.000042	0.0044	0.265	0.4	8216.7	1336.1
7/9/2012	EW-1 & W-1	13661.2	3292.2	12.5	705.0	82.3	93	19.96	0.000044	0.0041	0.246	3.1	8219.8	1336.6
7/18/2012	EW-1 & W-1	13673.7	3602.4	310.2	481.8	66.7	95	13.64	0.000030	0.0029	0.171	53.2	8273.0	1345.2
7/31/2012	EW-1 & W-1	13983.9	3987.6	385.2	6509.0	488.0	85	184.31	0.000406	0.0345	2.072	798.3	9071.3	1475.0
8/16/2012	EW-1 & W-1	14369.1	4346.8	359.2	3032.6	245.0	89	85.87	0.000189	0.0168	1.011	363.1	9434.4	1534.0
8/31/2012	W-1s & EW-1	14728.3	4659.0	312.2	3519.0	279.0	129	99.65	0.000220	0.0283	1.700	530.8	9965.2	1620.4
9/13/2012	W-1s & EW-1	15040.5	4686.7	27.7	25.5	34.8	121	0.72	0.000002	0.0002	0.012	0.3	9965.6	1620.4
Shut Down	**9/14/2012 @ ~1900 due to low pressure alarm**													
10/1/2012	W-1 & W-A	15068.2	4691.3	4.6	2675.0	220.0	120	75.75	0.000167	0.0200	1.202	5.5	9971.1	1621.3
Shut Down	**9/14/2012 @ ~1400 due to low pressure alarm**													
10/16/2012	W-1 & W-A	15072.8	5050.8	359.5	1087.0	109.0	98	30.78	0.000068	0.0066	0.397	142.7	10113.8	1644.5
10/31/2012	W-1 & W-A	15432.3	5149.7	98.9	2374.5	199.0	108	67.24	0.000148	0.0160	0.961	95.0	10208.8	1660.0
Shut Down	**11/4/2012 @ 1400 and was left off until 12/13/2012 @ 1245 in order to perform the 4th Quarter groundwater monitoring event**													
11/16/2012*	W-1 & W-A	15531.2	5150.5	0.8	2045.5	176.0	108	57.92	0.000128	0.0138	0.827	0.7	10209.5	1660.1
12/13/2012	W-1 & W-A	15532.0	-	-	521.9	69.5	130	14.78	0.000033	0.0042	-	-	-	-
Shut Down	**12/13/2012 thru 1/10/13 due to malfunction of propane regulating system**													
1/10/2013	-	15532.0	5294.1	143.6	-	-	-	-	-	-	-	-	-	-
1/17/2013	W-1s & EW-1	15675.6	5725.1	431.0	311.6	54.8	138.0	8.82	0.000019	0.0027	0.161	69.4	10278.9	1671.4
2/4/2013	W-1s & EW-1	16106.6	5731.8	6.7	20.1	23.2	180.0	0.57	0.000001	0.0002	0.014	0.1	10279.0	1671.4
2/14/2013	W-1 & W-A	16113.3	5737.5	5.7	3061.2	247.0	80.0	86.68	0.000191	0.0153	0.917	5.2	10284.2	1672.2
Shut Down	**2/14/13 thru 4/10/13 due to liquid ring pump failure and repairs (see Section 5.1)**													
4/11/2013	W-1 & W-A	16119.0	5940.4	202.9	2374.5	199.0	56.0	67.24	0.000148	0.0083	0.498	101.1	10385.3	1688.7
Shut Down	**4/19/13 due to a high water alarm in the air stripper tank**													
4/26/2013	W-1s & EW-1	16321.9	6108.0	167.6	215.7	48.1	141.0	6.11	0.000013	0.0019	0.114	19.1	10404.4	1691.8
5/3/2013	W-1 & W-A	16489.5	6145.0	37.0	2049.8	176.3	78.0	58.04	0.000128	0.0100	0.599	22.2	10426.5	1695.4
Shut Down	**5/8/13 due to a low air pressure alarm**													
5/16/2013	W-1 & W-A	16526.5	6203.1	58.1	157.1	44.0	58.0	4.45	0.000010	0.0006	0.034	2.0	10428.5	1695.7
Shut Down	**5/23/13 thru 6/6/2013 due to bad KO tank pump and repairs**													
6/6/2013	W-1 & W-A	16584.6	6347.6	144.5	24.1	30.6	41.0	0.68	0.000002	0.0001	0.004	0.5	10429.0	1695.8
Shut Down	**6/12/13 thru 6/26/13 for 2nd Quarter GWM event**													
6/26/2013	W-1 & W-A	16729.1	6534.6	187.0	2331.6	196.0	46.0	66.02	0.000146	0.0067	0.402	75.1	10504.2	1708.0
7/11/2013	W-1 & W-A	16916.1	6869.1	334.5	1802.3	159.0	42.0	51.03	0.000113	0.0047	0.284	94.8	10599.0	1723.4
7/25/2013	W-1 & W-A	17250.6	7013.3	144.2	1031.2	105.1	107.5	29.20	0.000064	0.0069	0.415	59.9	10658.9	1733.2
7/31/2013	W-1 & W-A	17394.8	-	-	572.0	73.0	110.0	16.20	0.000036	0.0039	0.236	-	-	-
										TOTAL Mass Removed 11/15/11 thru 7/31/13			**10658.9**	**1733.2**
										TOTAL Mass Removed Between 1/10/13 & 7/31/13			**449.4**	**73.1**

* = PID concentration a extraction flow rate an average of previous 3 events due to system shut down

Appendix B

Laboratory Analytical Data Sheets

BC Laboratories, Inc.
Environmental Testing Laboratory Since 1949

Date of Report: 02/11/2013

Project Manager

Geological Technics
1172 Kansas Avenue
Modesto, CA 95354

Project:	Sullins
BC Work Order:	1302505
Invoice ID:	B139683

Enclosed are the results of analyses for samples received by the laboratory on 2/5/2013. If you have any questions concerning this report, please feel free to contact me.

Sincerely,

Contact Person: Christina Herndon
Client Service Rep

Authorized Signature

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

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Purgeable Aromatics and Total Petroleum Hydrocarbons

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GROUND ZERO ANALYSIS

Geological Technics
1172 Kansas Avenue
Modesto, CA
(209) 522-4119 Fax 522-4227
E-mail: gti@gtienv.com

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1302505

Chain of Custody

Billing To: *Geological Technics Inc.*

Project #:	Project Name:
1262.2	SULLINS

Site Address: 187 NORTH L STREET, LIVERMORE, CA

Global ID No.: T0600100116 | EDF Report: ☐ Yes ☒ No

Client: Geological Technics Inc. | Rpt Attn: (GTI)

Client Address: 1172 Kansas Avenue | Type of Event: GWM (Sys Monitoring) Drl/Eng Other

City, State, Zip: Modesto, CA 95351 | Client Email: gti@gtienv.com

Client Phone: (209) 522-4119 | Client Fax: (209) 522-4227

Sampling Info: Sampled By (Initials): AD, Geological Technics

Date	Time	EDF Field ID	Sample I.D./Description / Location	No. of Containers	Matrix (Soil, Water, Gas, Other)	Preservation Type	Analysis Requested: TPH-G + BTEX (8015/8021)
2-4-2013	1310		GW-INF -1	6	W	HCL	X

Laboratory: BC LABS

Purchase Order # 1262-703348

Turnaround Time: (S = Standard) 1 day 2 day 3 day 5 day

Email Lab Report (.pdf): ☒ Yes ☐ No

Email EDF Lab Report (.zip): ☐ Yes ☐ No

Mail Lab Report: ☐ Yes ☐ No

Special Instructions / Remarks

CHK BY: JWW

DISTRIBUTION

SUB-OUT

	Signature	Print Name	Company	Date:	Time:
Received / Relinquished by:		ANDREW DOAN	GZA/GTI	2-4-2013	1545
Received / Relinquished by:		Ross Dickey	BCLAB	2.5.13	1040
Received / Relinquished by:		Ross Dickey	BCLAB	2.5.13	1700

Please return cooler/ice chest to Geological Technics Inc.

REC Jenny Bogan 2-5-13 1700
REL Jenny Bogan 2-5-13 1830

DEL. 2-5-13 21:30

REC. 2-5-13 18:30

05-13 2130

Rev. 10/2010

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

Chain of Custody and Cooler Receipt Form for 1302505 Page 2 of 2

C LABORATORIES INC. COOLER RECEIPT FORM Rev. Ma. 13 08/17/12 Page 1 Of 1

Submission #: 1302505

SHIPPING INFORMATION
ederal Express ☐ UPS ☐ Hand Delivery ☐
3C Lab Field Service ☑ Other ☐ (Specify)_____

SHIPPING CONTAINER
Ice Chest ☑ None ☐
Box ☐ Other ☐ (Specify)_____

Refrigerant: Ice ☑ Blue Ice ☐ None ☐ Other ☐ Comments:

Custody Seals: Ice Chest ☐ Intact? Yes ☐ No ☐ | Containers ☐ Intact? Yes ☐ No ☐ | None ☑ Comments:

All samples received? Yes ☑ No ☐ All samples containers intact? Yes ☑ No ☐ Description(s) match COC? Yes ☑ No ☐

COC Received ☑YES ☐ NO

Emissivity: 0.95 Container: Cup Thermometer ID: 207 Date/Time 2-5-13

Temperature: (A) 1.5 °C / (C) 1.8 °C Analyst Init KIQ 2130

SAMPLE CONTAINERS	SAMPLE NUMBERS									
	1	2	3	4	5	6	7	8	9	10
QT GENERAL MINERAL/ GENERAL PHYSICAL										
PT PE UNPRESERVED										
QT INORGANIC CHEMICAL METALS										
PT INORGANIC CHEMICAL METALS										
PT CYANIDE										
PT NITROGEN FORMS										
PT TOTAL SULFIDE										
2oz. NITRATE / NITRITE										
PT TOTAL ORGANIC CARBON										
PT TOX										
PT CHEMICAL OXYGEN DEMAND										
PtA PHENOLICS										
40ml VOA VIAL TRAVEL BLANK										
40ml VOA VIAL	A-16									
QT EPA 413.1, 413.2, 418.1										
PT ODOR										
RADIOLOGICAL										
BACTERIOLOGICAL										
40 ml VOA VIAL- 504										
QT EPA 508/608/8080										
QT EPA 515.1/8150										
QT EPA 525										
QT EPA 525 TRAVEL BLANK										
100ml EPA 547										
100ml EPA 531.1										
QT EPA 548										
QT EPA 549										
QT EPA 632										
QT EPA 8015M										
QT AMBER										
8 OZ. JAR										
32 OZ. JAR										
SOIL SLEEVE										
PCB VIAL										
PLASTIC BAG										
FERROUS IRON										
ENCORE										
SMART KIT										

Comments:

Sample Numbering Completed By: KIQ Date/Time: 2-5-13 @2310

Geological Technics
1172 Kansas Avenue
Modesto, CA 95354

Reported: 02/11/2013 15:21
Project: Sullins
Project Number: 1262.2
Project Manager: Project Manager

Laboratory / Client Sample Cross Reference

Laboratory	Client Sample Information			
1302505-01	**COC Number:**	---	**Receive Date:**	02/05/2013 21:30
	Project Number:	Sullins	**Sampling Date:**	02/04/2013 13:10
	Sampling Location:	---	**Sample Depth:**	---
	Sampling Point:	GW-INF	**Lab Matrix:**	Water
	Sampled By:	Andrew Dorn of GTIM	**Sample Type:**	Groundwater
			Delivery Work Order:	
			Global ID: T0600100116	
			Location ID (FieldPoint): GW-INF	
			Matrix: W	
			Sample QC Type (SACode): CS	
			Cooler ID:	

Geological Technics
1172 Kansas Avenue
Modesto, CA 95354

Reported: 02/11/2013 15:21
Project: Sullins
Project Number: 1262.2
Project Manager: Project Manager

Purgeable Aromatics and Total Petroleum Hydrocarbons

BCL Sample ID: 1302505-01 | **Client Sample Name:** Sullins, GW-INF, 2/4/2013 1:10:00PM, Andrew Dorn

Constituent	Result	Units	PQL	MDL	Method	MB Bias	Lab Quals	Run #
Benzene	**130**	**ug/L**	**3.0**	**0.40**	**EPA-8021B**	ND	**A01**	1
Toluene	**40**	**ug/L**	**0.30**	**0.046**	**EPA-8021B**	ND		2
Ethylbenzene	**32**	**ug/L**	**0.30**	**0.042**	**EPA-8021B**	ND		2
Total Xylenes	**110**	**ug/L**	**0.60**	**0.14**	**EPA-8021B**	ND		2
Gasoline Range Organics (C4 - C12)	**1300**	**ug/L**	**50**	**5.0**	**Luft**	ND		3
a,a,a-Trifluorotoluene (PID Surrogate)	94.7	%	70 - 130 (LCL - UCL)		EPA-8021B			1
a,a,a-Trifluorotoluene (PID Surrogate)	114	%	70 - 130 (LCL - UCL)		EPA-8021B			2
a,a,a-Trifluorotoluene (FID Surrogate)	119	%	70 - 130 (LCL - UCL)		Luft			3

Run #	Method	Prep Date	Run Date/Time	Analyst	Instrument	Dilution	QC Batch ID
1	EPA-8021B	02/06/13	02/08/13 15:13	jjh	GC-V4	10	BWB0366
2	EPA-8021B	02/06/13	02/06/13 17:50	jjh	GC-V4	1	BWB0366
3	Luft	02/06/13	02/06/13 17:50	jjh	GC-V4	1	BWB0366

Geological Technics
1172 Kansas Avenue
Modesto, CA 95354

Reported: 02/11/2013 15:21
Project: Sullins
Project Number: 1262.2
Project Manager: Project Manager

Purgeable Aromatics and Total Petroleum Hydrocarbons

Quality Control Report - Method Blank Analysis

Constituent	QC Sample ID	MB Result	Units	PQL	MDL	Lab Quals
QC Batch ID: BWB0366						
Benzene	BWB0366-BLK1	ND	ug/L	0.30	0.040	
Toluene	BWB0366-BLK1	ND	ug/L	0.30	0.046	
Ethylbenzene	BWB0366-BLK1	ND	ug/L	0.30	0.042	
Total Xylenes	BWB0366-BLK1	ND	ug/L	0.60	0.14	
Gasoline Range Organics (C4 - C12)	BWB0366-BLK1	ND	ug/L	50	5.0	
a,a,a-Trifluorotoluene (PID Surrogate)	BWB0366-BLK1	85.3	%	70 - 130 (LCL - UCL)		
a,a,a-Trifluorotoluene (FID Surrogate)	BWB0366-BLK1	87.0	%	70 - 130 (LCL - UCL)		

Geological Technics
1172 Kansas Avenue
Modesto, CA 95354

Reported: 02/11/2013 15:21
Project: Sullins
Project Number: 1262.2
Project Manager: Project Manager

Purgeable Aromatics and Total Petroleum Hydrocarbons

Quality Control Report - Laboratory Control Sample

Constituent	QC Sample ID	Type	Result	Spike Level	Units	Percent Recovery	RPD	Control Limits Percent Recovery	Control Limits RPD	Lab Quals
QC Batch ID: BWB0366										
Benzene	BWB0366-BS1	LCS	41.535	40.000	ug/L	104		85 - 115		
Toluene	BWB0366-BS1	LCS	39.546	40.000	ug/L	98.9		85 - 115		
Ethylbenzene	BWB0366-BS1	LCS	41.665	40.000	ug/L	104		85 - 115		
Total Xylenes	BWB0366-BS1	LCS	124.72	120.00	ug/L	104		85 - 115		
Gasoline Range Organics (C4 - C12)	BWB0366-BS1	LCS	985.09	1000.0	ug/L	98.5		85 - 115		
a,a,a-Trifluorotoluene (PID Surrogate)	BWB0366-BS1	LCS	37.524	40.000	ug/L	93.8		70 - 130		
a,a,a-Trifluorotoluene (FID Surrogate)	BWB0366-BS1	LCS	37.344	40.000	ug/L	93.4		70 - 130		

Geological Technics
1172 Kansas Avenue
Modesto, CA 95354

Reported: 02/11/2013 15:21
Project: Sullins
Project Number: 1262.2
Project Manager: Project Manager

Purgeable Aromatics and Total Petroleum Hydrocarbons

Quality Control Report - Precision & Accuracy

Constituent	Type	Source Sample ID	Source Result	Result	Spike Added	Units	RPD	Percent Recovery	Control Limits RPD	Control Limits Percent Recovery	Lab Quals
QC Batch ID: BWB0366	Used client sample: N										
Benzene	MS	1225032-92	ND	40.809	40.000	ug/L		102		70 - 130	
	MSD	1225032-92	ND	41.258	40.000	ug/L	1.1	103	20	70 - 130	
Toluene	MS	1225032-92	ND	38.937	40.000	ug/L		97.3		70 - 130	
	MSD	1225032-92	ND	39.363	40.000	ug/L	1.1	98.4	20	70 - 130	
Ethylbenzene	MS	1225032-92	ND	40.843	40.000	ug/L		102		70 - 130	
	MSD	1225032-92	ND	41.617	40.000	ug/L	1.9	104	20	70 - 130	
Total Xylenes	MS	1225032-92	ND	122.53	120.00	ug/L		102		70 - 130	
	MSD	1225032-92	ND	124.92	120.00	ug/L	1.9	104	20	70 - 130	
Gasoline Range Organics (C4 - C12)	MS	1225032-92	ND	998.33	1000.0	ug/L		99.8		70 - 130	
	MSD	1225032-92	ND	1019.3	1000.0	ug/L	2.1	102	20	70 - 130	
a,a,a-Trifluorotoluene (PID Surrogate)	MS	1225032-92	ND	37.650	40.000	ug/L		94.1		70 - 130	
	MSD	1225032-92	ND	36.183	40.000	ug/L	4.0	90.5		70 - 130	
a,a,a-Trifluorotoluene (FID Surrogate)	MS	1225032-92	ND	37.897	40.000	ug/L		94.7		70 - 130	
	MSD	1225032-92	ND	37.856	40.000	ug/L	0.1	94.6		70 - 130	

Geological Technics	**Reported:** 02/11/2013 15:21
1172 Kansas Avenue	Project: Sullins
Modesto, CA 95354	Project Number: 1262.2
	Project Manager: Project Manager

Notes And Definitions

MDL	Method Detection Limit
ND	Analyte Not Detected at or above the reporting limit
PQL	Practical Quantitation Limit
RPD	Relative Percent Difference
A01	PQL's and MDL's are raised due to sample dilution.

BC Laboratories, Inc.
Environmental Testing Laboratory Since 1949

Date of Report: 04/15/2013

Project Manager

Ground Zero Analysis, Inc.
1172 Kansas Avenue
Modesto, CA 95354

Project:	Sullins
BC Work Order:	1307499
Invoice ID:	B143818

Enclosed are the results of analyses for samples received by the laboratory on 4/11/2013. If you have any questions concerning this report, please feel free to contact me.

Sincerely,

Contact Person: Christina Herndon
Client Service Rep

Authorized Signature

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

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Chain of Custody

Ground Zero Analysis, Inc. (GZA)
Geological Technics
1172 Kansas Avenue
Modesto, CA
(209) 522-4119 Fax 522-4227
E-mail: gti@gtienv.com

13-07499

Billing To: Ground Zero Analysis, Inc.

Laboratory: BC LABS

Purchase Order # 1262 - 703348

Turnaround Time: (S = Standard) 1 day 2 day 3 day 5 day

Email Lab Report (.pdf): ☒ Yes ☐ No

Email EDF Lab Report (.zip): ☐ Yes ☐ No

Mail Lab Report: ☐ Yes ☐ No

Special Instructions / Remarks

Project #: 1262.2

Project Name: Sullins (Arrow Rentals)

Site Address: 187 North "L" Street, Livermore, CA

Global ID No.: T0600100116

EDF Report: ☐ Yes ☒ No

Client: GZA / Geological Technics

Rpt Attn: GZA / GT

Client Address: 1172 Kansas Avenue

Type of Event: GWM Sys Monitoring Drilling Other

City, State, Zip: Modesto, CA 95351

Client Email: gti@gtienv.com

Client Phone: (209) 522-4119

Client Fax: (209) 522-4227

Sampling Info: Sampled By (Initials): AD , GZA / GT

Date	Time	EDF Field ID	Sample I.D./Description / Location	No. of Containers	Matrix (Soil, Water, Gas, Other)	Preservation Type	Analysis Requested: TPH-G + BTEX (EPA 8015 / 8021)	
4-11-13	1120		SVE-INF	1	G	None	X	

CHK BY DISTRIBUTION

WILL CALL OUT ☐

Signature	Print Name	Company	Date:	Time:
Relinquished by:	Andrew Doan	GZA	4-11-13	1340
Received / Relinquished by:	Ross Dickey	BCLabs	4/11/13	1600
Received / Relinquished by:	Ross Dickey	BC Labs	4/11/13	1700

Please return cooler / ice chest to GZA / Geological Technics

RSC 4-11-13 23:10 ← 4-11-13 2310 REC Jenny Boan 4-11-13 1700 REL Jenny Boan 4-11-13 2500 RSC 4-11-13 20:00

Rev. 2/2013

Chain of Custody and Cooler Receipt Form for 1307499 Page 2 of 2

BC LABORATORIES INC. COOLER RECEIPT FORM Rev. No. 13 08/17/12 Page 1 Of 1

Submission #: 13-07499

SHIPPING INFORMATION
Federal Express ☐ UPS ☐ Hand Delivery ☐
BC Lab Field Service ☒ Other ☐ (Specify)_____

SHIPPING CONTAINER
Ice Chest ~~☒~~ JNW None ☐
Box ☒ 4-11 Other ☐ (Specify)_____

Refrigerant: Ice ☐ Blue Ice ☐ None ☒ Other ☐ Comments:

Custody Seals Ice Chest ☐ Intact? Yes ☐ No ☐ Containers ☐ Intact? Yes ☐ No ☐ None ☒ Comments:

All samples received? Yes ☑ No ☐ All samples containers intact? Yes ☑ No ☐ Description(s) match COC? Yes ☑ No ☐

COC Received ☒ YES ☐ NO

Emissivity: ~~0.9~~ Container: Tedlar Bag Thermometer ID: ~~297~~

Temperature: (A) Room °C / (C) TEMP °C

Date/Time 4-11-13

Analyst Init JNW 0320

SAMPLE CONTAINERS	SAMPLE NUMBERS									
	1	2	3	4	5	6	7	8	9	10
QT GENERAL MINERAL/ GENERAL PHYSICAL										
PT PE UNPRESERVED										
QT INORGANIC CHEMICAL METALS										
PT INORGANIC CHEMICAL METALS										
~~PT CYANIDE~~ Teddlar Bag	A									
PT NITROGEN FORMS										✓
PT TOTAL SULFIDE										
2oz. NITRATE / NITRITE										
PT TOTAL ORGANIC CARBON										
PT TOX										
PT CHEMICAL OXYGEN DEMAND										
PIA PHENOLICS										
40ml VOA VIAL TRAVEL BLANK										
40ml VOA VIAL	( )	( )	( )	( )	( )	( )	( )	( )	( )	( )
QT EPA 413.1, 413.2, 418.1										
PT ODOR										
RADIOLOGICAL										
BACTERIOLOGICAL										
40 ml VOA VIAL- 504										
QT EPA 508/608/8080										
QT EPA 515.1/8150										
QT EPA 525										
QT EPA 525 TRAVEL BLANK										
100ml EPA 547										
100ml EPA 531.1										
QT EPA 548										
QT EPA 549										
QT EPA 632										
QT EPA 8015M										
QT AMBER										
8 OZ. JAR										
32 OZ. JAR										
SOIL SLEEVE										
PCB VIAL										
PLASTIC BAG										
FERROUS IRON										
ENCORE										
SMART KIT										

Comments:

Sample Numbering Completed By: KIQ Date/Time: 4/12/13 @ 0020

A = Actual / C = Corrected

Ground Zero Analysis, Inc.
1172 Kansas Avenue
Modesto, CA 95354

Reported: 04/15/2013 13:44
Project: Sullins
Project Number: 1262.2
Project Manager: Project Manager

Laboratory / Client Sample Cross Reference

Laboratory	Client Sample Information			
1307499-01	**COC Number:**	---	**Receive Date:**	04/11/2013 20:00
	Project Number:	Sullins	**Sampling Date:**	04/11/2013 11:20
	Sampling Location:	---	**Sample Depth:**	---
	Sampling Point:	SVE-INF	**Lab Matrix:**	Air
	Sampled By:	Andrew Dorn of GTIM	**Sample Type:**	Other
			Delivery Work Order:	
			Global ID: T0600100116	
			Location ID (FieldPoint): SVE-INF	
			Matrix: GS	
			Sample QC Type (SACode): CS	
			Cooler ID:	

Ground Zero Analysis, Inc.
1172 Kansas Avenue
Modesto, CA 95354

Reported: 04/15/2013 13:44
Project: Sullins
Project Number: 1262.2
Project Manager: Project Manager

Volatile Organic Compounds by GC/MS (EPA Method TO-15)

BCL Sample ID: 1307499-01 | **Client Sample Name:** Sullins, SVE-INF, 4/11/2013 11:20:00AM, Andrew Dorn

Constituent	Result	Units	PQL	MDL	Method	MB Bias	Lab Quals	Run #
Benzene	13000	ppbv	500	68	EPA-TO-15	ND	A01	1
Ethylbenzene	2100	ppbv	200	20	EPA-TO-15	ND	A01	2
Toluene	2900	ppbv	200	20	EPA-TO-15	ND	A01	2
p- & m-Xylenes	4600	ppbv	200	44	EPA-TO-15	ND	A01	2
o-Xylene	1200	ppbv	200	28	EPA-TO-15	ND	A01	2
Total Xylenes	5900	ppbv	400	72	EPA-TO-15	ND	A01	2
Total Petroleum Hydrocarbons	37000	ppbv	20000	3800	EPA-TO-15	ND	A01	2
4-Bromofluorobenzene (Surrogate)		%	70 - 130 (LCL - UCL)		EPA-TO-15			1
4-Bromofluorobenzene (Surrogate)		%	70 - 130 (LCL - UCL)		EPA-TO-15			2

Run #	Method	Prep Date	Run Date/Time	Analyst	Instrument	Dilution	QC Batch ID
1	EPA-TO-15	04/11/13	04/12/13 10:54	LHS	HPCHEM	1000	BWD0823
2	EPA-TO-15	04/11/13	04/12/13 11:32	LHS	HPCHEM	400	BWD0823

Ground Zero Analysis, Inc.
1172 Kansas Avenue
Modesto, CA 95354

Reported: 04/15/2013 13:44
Project: Sullins
Project Number: 1262.2
Project Manager: Project Manager

Volatile Organic Compounds by GC/MS (EPA Method TO-15)

Quality Control Report - Method Blank Analysis

Constituent	QC Sample ID	MB Result	Units	PQL	MDL	Lab Quals
QC Batch ID: BWD0823						
Benzene	BWD0823-BLK1	ND	ppbv	0.50	0.068	
Ethylbenzene	BWD0823-BLK1	ND	ppbv	0.50	0.050	
Toluene	BWD0823-BLK1	ND	ppbv	0.50	0.051	
p- & m-Xylenes	BWD0823-BLK1	ND	ppbv	0.50	0.11	
o-Xylene	BWD0823-BLK1	ND	ppbv	0.50	0.070	
Total Xylenes	BWD0823-BLK1	ND	ppbv	1.0	0.18	
Total Petroleum Hydrocarbons	BWD0823-BLK1	ND	ppbv	50	9.5	
4-Bromofluorobenzene (Surrogate)	BWD0823-BLK1		%	70 - 130 (LCL - UCL)		

Ground Zero Analysis, Inc.
1172 Kansas Avenue
Modesto, CA 95354

Reported: 04/15/2013 13:44
Project: Sullins
Project Number: 1262.2
Project Manager: Project Manager

Volatile Organic Compounds by GC/MS (EPA Method TO-15)

Quality Control Report - Laboratory Control Sample

Constituent	QC Sample ID	Type	Result	Spike Level	Units	Percent Recovery	RPD	Control Limits Percent Recovery	Control Limits RPD	Lab Quals
QC Batch ID: BWD0823										
Benzene	BWD0823-BS1	LCS	8.8590	10.000	ppbv	88.6		70 - 130		
	BWD0823-BSD1	LCSD	9.1050	10.000	ppbv	91.0	2.7	70 - 130	30	
Ethylbenzene	BWD0823-BS1	LCS	8.5980	10.000	ppbv	86.0		70 - 130		
	BWD0823-BSD1	LCSD	8.6270	10.000	ppbv	86.3	0.3	70 - 130	30	
Toluene	BWD0823-BS1	LCS	9.7780	10.000	ppbv	97.8		70 - 130		
	BWD0823-BSD1	LCSD	9.5270	10.000	ppbv	95.3	2.6	70 - 130	30	
p- & m-Xylenes	BWD0823-BS1	LCS	18.399	20.000	ppbv	92.0		70 - 130		
	BWD0823-BSD1	LCSD	18.233	20.000	ppbv	91.2	0.9	70 - 130	30	
o-Xylene	BWD0823-BS1	LCS	9.4150	10.000	ppbv	94.2		70 - 130		
	BWD0823-BSD1	LCSD	9.3210	10.000	ppbv	93.2	1.0	70 - 130	30	
Total Xylenes	BWD0823-BS1	LCS	27.814	30.000	ppbv	92.7		70 - 130		
	BWD0823-BSD1	LCSD	27.554	30.000	ppbv	91.8	0.9	70 - 130	30	
4-Bromofluorobenzene (Surrogate)	BWD0823-BS1	LCS	8.4860		ppbv			70 - 130		
	BWD0823-BSD1	LCSD	8.6070		ppbv		1.4	70 - 130		

Ground Zero Analysis, Inc.
1172 Kansas Avenue
Modesto, CA 95354

Reported: 04/15/2013 13:44
Project: Sullins
Project Number: 1262.2
Project Manager: Project Manager

Notes And Definitions

MDL	Method Detection Limit
ND	Analyte Not Detected at or above the reporting limit
PQL	Practical Quantitation Limit
RPD	Relative Percent Difference
A01	PQL's and MDL's are raised due to sample dilution.

BC Laboratories, Inc.
Environmental Testing Laboratory Since 1949

Date of Report: 05/16/2013

Project Manager

Ground Zero Analysis, Inc.
1172 Kansas Avenue
Modesto, CA 95354

Project:	Sullins
BC Work Order:	1309572
Invoice ID:	B146318

Enclosed are the results of analyses for samples received by the laboratory on 5/8/2013. If you have any questions concerning this report, please feel free to contact me.

Sincerely,

Contact Person: Christina Herndon
Client Service Rep

Authorized Signature

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

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Ground Zero Analysis, Inc. (GZA)
Geological Technics
1172 Kansas Avenue
Modesto, CA
(209) 522-4119 Fax 522-4227
E-mail: gti@gtienv.com

13.09572

Page 1 of 1

Chain of Custody

Billing To: Ground Zero Analysis, Inc.

Project #: 12622	Project Name: Sullins
Site Address: 187 North "L" St Livermore, CA	
Global ID No.:	EDF Report: ☐ Yes ☒ No
Client: GZA / Geological Technics	Rpt Attn: GZA / GT
Client Address: 1172 Kansas Avenue	Type of Event: GWM (Sys Monitoring) Drilling Other
City, State, Zip: Modesto, CA 95351	Client Email: gti@gtienv.com
Client Phone: (209) 522-4119	Client Fax: (209) 522-4227
Sampling Info:	Sampled By (Initials): mP, GZA / GT

Laboratory: BC Labs
Purchase Order # 1262-703276
Turnaround Time: (S = Standard) 1 day 2 day 3 day 5 day
Email Lab Report (.pdf): ☒ Yes ☐ No
Email EDF Lab Report (.zip): ☐ Yes ☒ No
Mail Lab Report: ☐ Yes ☒ No

Analysis Requested

Date	Time	EDF Field ID	Sample I.D./Description / Location	No. of Containers	Matrix (Soil, Water, Gas, Other)	Preservation Type	TPH-G 8015/8021	BTEX 8015/8021	Special Instructions / Remarks
5/7/13	1305	\	GW INF	6	W	HCL	X	X	

CHK BY: MS DISTRIBUTION: TS SUB-OUT ☐

	Signature	Print Name	Company	Date:	Time:
Received / Relinquished by:	[signature]	Mark Pierson	GZA	5/7/13	330 pm
Received / Relinquished by:	[signature]	Jenny Weese	GZA	5/8/13	1344
Received / Relinquished by:	[signature]	Ross Dickey	BC LAB	5/8/13	1544
Rel. by Ross Dickey		Ross Dickey	BC LAB	5-8-13	1740

Please return cooler / ice chest to GZA / Geological Technics

REC [initials] 5-8-13 17:40 REL. [initials] 5-8-13 22:55 KOL 5-8-13 2255

Rev. 2/2013

Chain of Custody and Cooler Receipt Form for 1309572 Page 2 of 2

C LABORATORIES INC. COOLER RECEIPT FORM Rev. No. 13 08/17/12 Page 1 of 1

ubmission#: 13·0957Z

SHIPPING INFORMATION
ederal Express ☐ UPS ☐ Hand Delivery ☐
C Lab Field Service ☒ Other ☐ (Specify)_____

SHIPPING CONTAINER
Ice Chest ☒ None ☐
Box ☐ Other ☐ (Specify)_____

efrigerant: Ice ☒ Blue Ice ☐ None ☐ Other ☐ Comments:

ustody Seals Ice Chest ☐ Intact? Yes ☐ No ☐ Containers ☐ Intact? Yes ☐ No ☐ None ☒ Comments:

l samples received? Yes ☒ No ☐ All samples containers intact? Yes ☒ No ☐ Description(s) match COC? Yes ☒ No ☐

COC Received ☒ YES ☐ NO

Emissivity: 0.95 Container: PT PE Thermometer ID: 207 Date/Time 5/8/13 1255

Temperature: (A) 0.6 °C / (C) 0.5 °C Analyst Init SAS

SAMPLE CONTAINERS	SAMPLE NUMBERS 1	2	3	4	5	6	7	8	9	10
GENERAL MINERAL/ GENERAL PHYSICAL										
PE UNPRESERVED										
INORGANIC CHEMICAL METALS										
INORGANIC CHEMICAL METALS										
CYANIDE										
NITROGEN FORMS										
TOTAL SULFIDE										
NITRATE / NITRITE										
TOTAL ORGANIC CARBON										
TOX										
CHEMICAL OXYGEN DEMAND										
PHENOLICS										
ml VOA VIAL TRAVEL BLANK										
ml VOA VIAL	A / H	/	/	/	/	/	/	/	/	/
EPA 413.1, 413.2, 418.1										
ODOR										
BIOLOGICAL										
CTERIOLOGICAL										
ml VOA VIAL- 504										
EPA 508/608/8080										
EPA 525.1/8150										
EPA 525										
EPA 525 TRAVEL BLANK										
ml EPA 547										
ml EPA 531.1										
EPA 548										
EPA 549										
EPA 632										
EPA 8015M										
AMBER										
OZ. JAR										
OZ. JAR										
L SLEEVE										
L VIAL										
ASTIC BAG										
RUBUS IRON										
CORE										
ART KIT										

Comments:_____

ple Numbering Completed By: _____ Date/Time: 050913 @ 837

Actual / C = Corrected

Ground Zero Analysis, Inc.
1172 Kansas Avenue
Modesto, CA 95354

Reported: 05/16/2013 14:50
Project: Sullins
Project Number: 1262.2
Project Manager: Project Manager

Laboratory / Client Sample Cross Reference

Laboratory	Client Sample Information			
1309572-01	**COC Number:**	---	**Receive Date:**	05/08/2013 22:55
	Project Number:	---	**Sampling Date:**	05/07/2013 13:05
	Sampling Location:	---	**Sample Depth:**	---
	Sampling Point:	GW INF	**Lab Matrix:**	Water
	Sampled By:	Andrew Dorn	**Sample Type:**	Groundwater
			Delivery Work Order:	
			Global ID:	
			Location ID (FieldPoint):	
			Matrix:	
			Sample QC Type (SACode):	
			Cooler ID:	

Ground Zero Analysis, Inc.
1172 Kansas Avenue
Modesto, CA 95354

Reported: 05/16/2013 14:50
Project: Sullins
Project Number: 1262.2
Project Manager: Project Manager

Purgeable Aromatics and Total Petroleum Hydrocarbons

BCL Sample ID: 1309572-01 | **Client Sample Name:** GW INF, 5/7/2013 1:05:00PM, Andrew Dorn

Constituent	Result	Units	PQL	MDL	Method	MB Bias	Lab Quals	Run #
Benzene	ND	ug/L	0.30	0.040	EPA-8021B	ND		1
Toluene	ND	ug/L	0.30	0.046	EPA-8021B	ND		1
Ethylbenzene	ND	ug/L	0.30	0.042	EPA-8021B	ND		1
Total Xylenes	ND	ug/L	0.60	0.14	EPA-8021B	ND		1
Gasoline Range Organics (C4 - C12)	ND	ug/L	50	5.0	Luft	ND		2
a,a,a-Trifluorotoluene (PID Surrogate)	93.1	%	70 - 130 (LCL - UCL)		EPA-8021B			1
a,a,a-Trifluorotoluene (FID Surrogate)	100	%	70 - 130 (LCL - UCL)		Luft			2

Run #	Method	Prep Date	Run Date/Time	Analyst	Instrument	Dilution	QC Batch ID
1	EPA-8021B	05/09/13	05/10/13 13:23	jjh	GC-V9	1	BWE0495
2	Luft	05/09/13	05/10/13 13:23	jjh	GC-V9	1	BWE0495

Ground Zero Analysis, Inc.
1172 Kansas Avenue
Modesto, CA 95354

Reported: 05/16/2013 14:50
Project: Sullins
Project Number: 1262.2
Project Manager: Project Manager

Purgeable Aromatics and Total Petroleum Hydrocarbons

Quality Control Report - Method Blank Analysis

Constituent	QC Sample ID	MB Result	Units	PQL	MDL	Lab Quals
QC Batch ID: BWE0495						
Benzene	BWE0495-BLK1	ND	ug/L	0.30	0.040	
Toluene	BWE0495-BLK1	ND	ug/L	0.30	0.046	
Ethylbenzene	BWE0495-BLK1	ND	ug/L	0.30	0.042	
Total Xylenes	BWE0495-BLK1	ND	ug/L	0.60	0.14	
Gasoline Range Organics (C4 - C12)	BWE0495-BLK1	ND	ug/L	50	5.0	
a,a,a-Trifluorotoluene (PID Surrogate)	BWE0495-BLK1	80.8	%	70 - 130 (LCL - UCL)		
a,a,a-Trifluorotoluene (FID Surrogate)	BWE0495-BLK1	84.5	%	70 - 130 (LCL - UCL)		

Ground Zero Analysis, Inc.
1172 Kansas Avenue
Modesto, CA 95354

Reported: 05/16/2013 14:50
Project: Sullins
Project Number: 1262.2
Project Manager: Project Manager

Purgeable Aromatics and Total Petroleum Hydrocarbons

Quality Control Report - Laboratory Control Sample

Constituent	QC Sample ID	Type	Result	Spike Level	Units	Percent Recovery	RPD	Control Limits Percent Recovery	Control Limits RPD	Lab Quals
QC Batch ID: BWE0495										
Benzene	BWE0495-BS1	LCS	37.177	40.000	ug/L	92.9		85 - 115		
Toluene	BWE0495-BS1	LCS	37.383	40.000	ug/L	93.5		85 - 115		
Ethylbenzene	BWE0495-BS1	LCS	38.106	40.000	ug/L	95.3		85 - 115		
Total Xylenes	BWE0495-BS1	LCS	113.99	120.00	ug/L	95.0		85 - 115		
Gasoline Range Organics (C4 - C12)	BWE0495-BS1	LCS	865.96	1000.0	ug/L	86.6		85 - 115		
a,a,a-Trifluorotoluene (PID Surrogate)	BWE0495-BS1	LCS	33.377	40.000	ug/L	83.4		70 - 130		
a,a,a-Trifluorotoluene (FID Surrogate)	BWE0495-BS1	LCS	33.370	40.000	ug/L	83.4		70 - 130		

Ground Zero Analysis, Inc.
1172 Kansas Avenue
Modesto, CA 95354

Reported: 05/16/2013 14:50
Project: Sullins
Project Number: 1262.2
Project Manager: Project Manager

Purgeable Aromatics and Total Petroleum Hydrocarbons

Quality Control Report - Precision & Accuracy

Constituent	Type	Source Sample ID	Source Result	Result	Spike Added	Units	RPD	Percent Recovery	Control Limits RPD	Control Limits Percent Recovery	Lab Quals
QC Batch ID: BWE0495	Used client sample: N										
Benzene	MS	1308130-50	ND	37.277	40.000	ug/L		93.2		70 - 130	
	MSD	1308130-50	ND	36.515	40.000	ug/L	2.1	91.3	20	70 - 130	
Toluene	MS	1308130-50	ND	37.349	40.000	ug/L		93.4		70 - 130	
	MSD	1308130-50	ND	36.616	40.000	ug/L	2.0	91.5	20	70 - 130	
Ethylbenzene	MS	1308130-50	ND	38.062	40.000	ug/L		95.2		70 - 130	
	MSD	1308130-50	ND	37.307	40.000	ug/L	2.0	93.3	20	70 - 130	
Total Xylenes	MS	1308130-50	ND	113.86	120.00	ug/L		94.9		70 - 130	
	MSD	1308130-50	ND	111.61	120.00	ug/L	2.0	93.0	20	70 - 130	
Gasoline Range Organics (C4 - C12)	MS	1308130-50	ND	893.16	1000.0	ug/L		89.3		70 - 130	
	MSD	1308130-50	ND	870.44	1000.0	ug/L	2.6	87.0	20	70 - 130	
a,a,a-Trifluorotoluene (PID Surrogate)	MS	1308130-50	ND	33.501	40.000	ug/L		83.8		70 - 130	
	MSD	1308130-50	ND	33.044	40.000	ug/L	1.4	82.6		70 - 130	
a,a,a-Trifluorotoluene (FID Surrogate)	MS	1308130-50	ND	35.034	40.000	ug/L		87.6		70 - 130	
	MSD	1308130-50	ND	35.291	40.000	ug/L	0.7	88.2		70 - 130	

BC Laboratories, Inc.
Environmental Testing Laboratory Since 1949

Date of Report: 07/12/2013

Project Manager

Ground Zero Analysis, Inc.
1172 Kansas Avenue
Modesto, CA 95354

Project:	Sullins
BC Work Order:	1313480
Invoice ID:	B150318

Enclosed are the results of analyses for samples received by the laboratory on 6/27/2013. If you have any questions concerning this report, please feel free to contact me.

Sincerely,

Contact Person: Christina Herndon
Client Service Rep

Authorized Signature

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Chain of Custody and Cooler Receipt Form for 1313480 Page 1 of 4

Ground Zero Analysis, Inc. (GZA)
Geological Technics
1172 Kansas Avenue
Modesto, CA
(209) 522-4119 Fax 522-4227
E-mail: gti@gtienv.com

13-13480

Page 1 of 2

Chain of Custody

Billing To: Ground Zero Analysis, Inc.

Project #: 1262.2 | Project Name: SULLINS

Site Address: 187 NORTH "L" STREET, LIVERMORE, CA

Global ID No.: | EDF Report: Yes No

Client: GZA / Geological Technics | Rpt Attn: GZA / GT

Client Address: 1172 Kansas Avenue | Type of Event: GWM Sys Monitoring Drilling Other

City, State, Zip: Modesto, CA 95351 | Client Email: gti@gtienv.com

Client Phone: (209) 522-4119 | Client Fax: (209) 522-4227

Sampling Info: | Sampled By (Initials): AD, GZA / GT

Date	Time	EDF Field ID	Sample I.D./Description / Location	No. of Containers	Matrix (Soil, Water, Gas, Other)	Preservation Type	TPH-G, BTEX & MTBE (8015/8021)
6-25-13	1030	-1	W-Es	6	W	HCL	X
6-25-13	1220	-2	W-3s				
6-25-13	1510	-3	W-Bs				
6-26-13	1350	-4	W-1s				
6-26-13	1105	-5	W-1				
6-25-13	1520	-6	W-A				
6-24-13	1345	-7	MW-306				
6-24-13	1405	-8	MW-206				
6-24-13	1515	-9	MW-308				
6-24-13	1530	-10	MW-208				
6-24-13	1430	-11	MW-307				
6-24-13	1450	-12	MW-207				
6-25-13	1410	-13	MW-404				
6-25-13	1420	-14	MW-304				
6-25-13	1430	-15	MW-204	↓	↓	↓	↓

Analysis Requested

Laboratory: BC LABS

Purchase Order # 1262-703348

Turnaround Time: (S = Standard) 1 day 2 day 3 day 5 day

Email Lab Report (.pdf): Yes No

Email EDF Lab Report (.zip): Yes No

Mail Lab Report: Yes No

Special Instructions / Remarks

* PLEASE USE THE FOLLOWING REPORTING LIMITS:

TPH-G	50.0 ug/L
BTEX	0.5 ug/L
MTBE	0.5 ug/L

CHK BY: SAS

DISTRIBUTION

SUB-OUT

Signature	Print Name	Company	Date:	Time:
Received / Relinquished by:	Jonny Wacca	GZA	6/27/13	0940
Received / Relinquished by:	Ross Dickey	BC Labs	6/27/13	0940
Received / Relinquished by:	Ross Dickey	BC Labs	6-27-13	1705

Please return cooler / ice chest to GZA / Geological Technics

REC. 6-27-13 21:10

REC Mary Boger 6-27-13 1705

REL Mary Boger 6-27-13 1800 REC. KDr 6-27-13 2118

Rev. 2/2013

Chain of Custody and Cooler Receipt Form for 1313480 Page 2 of 4

Ground Zero Analysis, Inc. (GZA)
Geological Technics
1172 Kansas Avenue
Modesto, CA
(209) 522-4119 Fax 522-4227
E-mail: gti@gtienv.com

1313480

Page 2 of 2

Chain of Custody

Billing To: Ground Zero Analysis, Inc.

Laboratory: BC LABS

Purchase Order # 1262-703348

Project #: 1262.2 Project Name: SULLINS

Site Address: 187 NORTH "L" STREET, LIVERMORE, CA

Global ID No.:

EDF Report: ☒ Yes ☐ No

Client: GZA / Geological Technics

Rpt Attn: GZA / GT

Client Address: 1172 Kansas Avenue

Type of Event: (GWM) Sys Monitoring Drilling Other

City, State, Zip: Modesto, CA 95351

Client Email: gti@gtienv.com

Client Phone: (209) 522-4119

Client Fax: (209) 522-4227

Turnaround Time: (S = Standard) 1 day 2 day 3 day 5 day

Email Lab Report (.pdf): ☒ Yes ☐ No

Email EDF Lab Report (.zip): ☐ Yes ☐ No

Mail Lab Report: ☐ Yes ☐ No

Sampling Info: Sampled By (initials): AD, GZA / GT

Special Instructions / Remarks

Date	Time	EDF Field ID	Sample I.D./Description / Location	No. of Containers	Matrix (Soil, Water, Gas, Other)	Preservation Type	TPH-G, BTEX & MTBE (8015/8021)
6-25-13	1440	-16	MW-104	6	W	HCL	X
6-25-13	1230	-17	MW-305	"	"	"	"
6-25-13	1240	-18	MW-205	↓	↓	↓	↓

	Signature	Print Name	Company	Date:	Time:
Received / Relinquished by:		Jenny Weese	GZA	6/27/13	0940
Received / Relinquished by:		Ross Dickey	BC LABS	6-27-13	0940
Received / Relinquished by:		Ross Dickey	BC LABS	6-27-13	1705

Please return cooler / ice chest to GZA / Geological Technics

REC. 6-27-13 21:10

REC Gary Bogan 6-27-13 1705

REC. Gary Bogan 6-27-13 1800. REC. KM 6.27.13 2110

Rev. 2/2013

BC Laboratories, Inc.
Environmental Testing Laboratory Since 1949

Chain of Custody and Cooler Receipt Form for 1313480 Page 3 of 4

BC LABORATORIES INC. | COOLER RECEIPT FORM | Rev. No. 13 | 08/17/12 | Page ___ Of ___

Submission #: 13-13480

SHIPPING INFORMATION
Federal Express ☐ UPS ☐ Hand Delivery ☐
BC Lab Field Service ☑ Other ☐ (Specify)_____

SHIPPING CONTAINER
Ice Chest ☑ None ☐
Box ☐ Other ☐ (Specify)_____

Refrigerant: Ice ☑ Blue Ice ☐ None ☐ Other ☐ Comments:

Custody Seals: Ice Chest ☐ Intact? Yes ☐ No ☐ | Containers ☐ Intact? Yes ☐ No ☐ | None ☑ Comments:

All samples received? Yes ☑ No ☐ All samples containers intact? Yes ☑ No ☐ Description(s) match COC? Yes ☑ No ☐

COC Received ☑ YES ☐ NO

Emissivity: 0.97 Container: Voa Thermometer ID: 207 Date/Time 6.27.13 2230

Temperature: (A) 1.6 °C / (C) 1.1 °C Analyst Init SAS

SAMPLE CONTAINERS	SAMPLE NUMBERS 1	2	3	4	5	6	7	8	9	10
QT GENERAL MINERAL/ GENERAL PHYSICAL										
PT FE UNPRESERVED										
QT INORGANIC CHEMICAL METALS										
PT INORGANIC CHEMICAL METALS										
PT CYANIDE										
PT NITROGEN FORMS										
PT TOTAL SULFIDE										
2oz. NITRATE / NITRITE										
PT TOTAL ORGANIC CARBON										
PT TOX										
PT CHEMICAL OXYGEN DEMAND										
PtA PHENOLICS										
40ml VOA VIAL TRAVEL BLANK										
40ml VOA VIAL	A	A	A	A	A	A	A	A	A	A
QT EPA 413.1, 413.2 418.1										
PT ODOR										
RADIOLOGICAL										
BACTERIOLOGICAL										
40 ml VOA VIAL- 504										
QT EPA 508/608/8080										
QT EPA 515.1/8150										
QT EPA 525										
QT EPA 525 TRAVEL BLANK										
100ml EPA 547										
100ml EPA 531.1										
QT EPA 548										
QT EPA 549										
QT EPA 632										
QT EPA 8015M										
QT AMBER										
8 OZ. JAR										
32 OZ. JAR										
SOIL SLEEVE										
PCB VIAL										
PLASTIC BAG										
FERROUS IRON										
ENCORE										
SMART KIT										

Comments: One voa from -2 recieved broken

Sample Numbering Completed By: KIQ Date/Time: 6/28/13 @ 1055

A = Acceptable B = Unacceptable

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

BC Laboratories, Inc.
Environmental Testing Laboratory Since 1949

BC LABORATORIES INC. — COOLER RECEIPT FORM — Rev. No. 13 — 08/17/12 — Page 01

Submission #: 13-13480

SHIPPING INFORMATION
Federal Express ☐ UPS ☐ Hand Delivery ☐
BC Lab Field Service ☑ Other ☐ (Specify)_____

SHIPPING CONTAINER
Ice Chest ☑ None ☐
Box ☐ Other ☐ (Specify)_____

Refrigerant: Ice ☑ Blue Ice ☐ None ☐ Other ☐ Comments:

Custody Seals: Ice Chest ☐ (Intact? Yes ☐ No ☐) Containers ☐ (Intact? Yes ☐ No ☐) None ☑ Comments:

All samples received? Yes ☑ No ☐ All samples containers intact? Yes ☑ No ☐ Description(s) match COC? Yes ☑ No ☐

COC Received ☑ YES ☐ NO

Emissivity: 0.97 Container: Voa Thermometer ID: 207 Date/Time 6.27.13 2230

Temperature: (A) 1.6 °C / (C) 1.1 °C Analyst Init SAS

SAMPLE CONTAINERS	SAMPLE NUMBERS 1	2	3	4	5	6	7	8	9	10
QT GENERAL MINERAL/ GENERAL PHYSICAL										
QT PE UNPRESERVED										
QT INORGANIC CHEMICAL METALS										
QT INORGANIC CHEMICAL METALS										
QT CYANIDE										
QT NITROGEN FORMS										
QT TOTAL SULFIDE										
8oz NITRATE / NITRITE										
QT TOTAL ORGANIC CARBON										
QT TOX										
QT CHEMICAL OXYGEN DEMAND										
QA PHENOLICS										
40ml VOA VIAL TRAVEL BLANK										
40ml VOA VIAL	A	A	A	A	A	A	A	A		
QT EPA 413.1, 413.2, 418.1										
QT ODOR										
RADIOLOGICAL										
BACTERIOLOGICAL										
40 ml VOA VIAL- 504										
QT EPA 508/608/8080										
QT EPA 515.1/8150										
QT EPA 525										
QT EPA 525 TRAVEL BLANK										
100ml EPA 547										
100ml EPA 531.1										
QT EPA 548										
QT EPA 549										
QT EPA 632										
QT EPA 8015M										
QT AMBER										
8 OZ. JAR										
32 OZ. JAR										
SOIL SLEEVE										
PCB VIAL										
PLASTIC BAG										
FERROUS IRON										
ENCORE										
SMART KIT										

Comments: One VOA from -2 recieved broken

Sample Numbering Completed By: RLQ Date/Time: 6/28/13 @ 1655

Ground Zero Analysis, Inc.
1172 Kansas Avenue
Modesto, CA 95354

Reported: 07/12/2013 16:16
Project: Sullins
Project Number: 1262.2
Project Manager: Project Manager

Laboratory / Client Sample Cross Reference

Laboratory	Client Sample Information			
1313480-01	**COC Number:**	---	**Receive Date:**	06/27/2013 21:10
	Project Number:	Sullins	**Sampling Date:**	06/25/2013 10:30
	Sampling Location:	---	**Sample Depth:**	---
	Sampling Point:	W-ES	**Lab Matrix:**	Water
	Sampled By:	Andrew Dorn of GTIM	**Sample Type:**	Water
			Delivery Work Order:	
			Global ID:	
			Location ID (FieldPoint):	W-ES
			Matrix:	W
			Sample QC Type (SACode):	CS
			Cooler ID:	
1313480-02	**COC Number:**	---	**Receive Date:**	06/27/2013 21:10
	Project Number:	Sullins	**Sampling Date:**	06/25/2013 12:20
	Sampling Location:	---	**Sample Depth:**	---
	Sampling Point:	W-3S	**Lab Matrix:**	Water
	Sampled By:	Andrew Dorn of GTIM	**Sample Type:**	Water
			Delivery Work Order:	
			Global ID:	
			Location ID (FieldPoint):	W-3S
			Matrix:	W
			Sample QC Type (SACode):	CS
			Cooler ID:	
1313480-03	**COC Number:**	---	**Receive Date:**	06/27/2013 21:10
	Project Number:	Sullins	**Sampling Date:**	06/25/2013 15:10
	Sampling Location:	---	**Sample Depth:**	---
	Sampling Point:	W-BS	**Lab Matrix:**	Water
	Sampled By:	Andrew Dorn of GTIM	**Sample Type:**	Water
			Delivery Work Order:	
			Global ID:	
			Location ID (FieldPoint):	W-BS
			Matrix:	W
			Sample QC Type (SACode):	CS
			Cooler ID:	

Ground Zero Analysis, Inc.
1172 Kansas Avenue
Modesto, CA 95354

Reported: 07/12/2013 16:16
Project: Sullins
Project Number: 1262.2
Project Manager: Project Manager

Laboratory / Client Sample Cross Reference

Laboratory	Client Sample Information		
1313480-04	**COC Number:**	---	**Receive Date:** 06/27/2013 21:10
	Project Number:	Sullins	**Sampling Date:** 06/26/2013 13:50
	Sampling Location:	---	**Sample Depth:** ---
	Sampling Point:	W-1S	**Lab Matrix:** Water
	Sampled By:	Andrew Dorn of GTIM	**Sample Type:** Water
			Delivery Work Order:
			Global ID:
			Location ID (FieldPoint): W-1S
			Matrix: W
			Sample QC Type (SACode): CS
			Cooler ID:
1313480-05	**COC Number:**	---	**Receive Date:** 06/27/2013 21:10
	Project Number:	Sullins	**Sampling Date:** 06/26/2013 11:05
	Sampling Location:	---	**Sample Depth:** ---
	Sampling Point:	W-1	**Lab Matrix:** Water
	Sampled By:	Andrew Dorn of GTIM	**Sample Type:** Water
			Delivery Work Order:
			Global ID:
			Location ID (FieldPoint): W-1
			Matrix: W
			Sample QC Type (SACode): CS
			Cooler ID:
1313480-06	**COC Number:**	---	**Receive Date:** 06/27/2013 21:10
	Project Number:	Sullins	**Sampling Date:** 06/25/2013 15:20
	Sampling Location:	---	**Sample Depth:** ---
	Sampling Point:	W-A	**Lab Matrix:** Water
	Sampled By:	Andrew Dorn of GTIM	**Sample Type:** Water
			Delivery Work Order:
			Global ID:
			Location ID (FieldPoint): W-A
			Matrix: W
			Sample QC Type (SACode): CS
			Cooler ID:

Ground Zero Analysis, Inc.
1172 Kansas Avenue
Modesto, CA 95354

Reported: 07/12/2013 16:16
Project: Sullins
Project Number: 1262.2
Project Manager: Project Manager

Laboratory / Client Sample Cross Reference

Laboratory	Client Sample Information			
1313480-07	**COC Number:**	---	**Receive Date:**	06/27/2013 21:10
	Project Number:	Sullins	**Sampling Date:**	06/24/2013 13:45
	Sampling Location:	---	**Sample Depth:**	---
	Sampling Point:	MW-306	**Lab Matrix:**	Water
	Sampled By:	Andrew Dorn of GTIM	**Sample Type:**	Water
			Delivery Work Order:	
			Global ID:	
			Location ID (FieldPoint):	MW-306
			Matrix:	W
			Sample QC Type (SACode):	CS
			Cooler ID:	
1313480-08	**COC Number:**	---	**Receive Date:**	06/27/2013 21:10
	Project Number:	Sullins	**Sampling Date:**	06/24/2013 14:05
	Sampling Location:	---	**Sample Depth:**	---
	Sampling Point:	MW-206	**Lab Matrix:**	Water
	Sampled By:	Andrew Dorn of GTIM	**Sample Type:**	Water
			Delivery Work Order:	
			Global ID:	
			Location ID (FieldPoint):	MW-206
			Matrix:	W
			Sample QC Type (SACode):	CS
			Cooler ID:	
1313480-09	**COC Number:**	---	**Receive Date:**	06/27/2013 21:10
	Project Number:	Sullins	**Sampling Date:**	06/24/2013 15:15
	Sampling Location:	---	**Sample Depth:**	---
	Sampling Point:	MW-308	**Lab Matrix:**	Water
	Sampled By:	Andrew Dorn of GTIM	**Sample Type:**	Water
			Delivery Work Order:	
			Global ID:	
			Location ID (FieldPoint):	MW-308
			Matrix:	W
			Sample QC Type (SACode):	CS
			Cooler ID:	

Ground Zero Analysis, Inc.
1172 Kansas Avenue
Modesto, CA 95354

Reported: 07/12/2013 16:16
Project: Sullins
Project Number: 1262.2
Project Manager: Project Manager

Laboratory / Client Sample Cross Reference

Laboratory	Client Sample Information			
1313480-10	**COC Number:**	---	**Receive Date:**	06/27/2013 21:10
	Project Number:	Sullins	**Sampling Date:**	06/24/2013 15:30
	Sampling Location:	---	**Sample Depth:**	---
	Sampling Point:	MW-208	**Lab Matrix:**	Water
	Sampled By:	Andrew Dorn of GTIM	**Sample Type:**	Water
			Delivery Work Order:	
			Global ID:	
			Location ID (FieldPoint):	MW-208
			Matrix:	W
			Sample QC Type (SACode):	CS
			Cooler ID:	
1313480-11	**COC Number:**	---	**Receive Date:**	06/27/2013 21:10
	Project Number:	Sullins	**Sampling Date:**	06/24/2013 14:30
	Sampling Location:	---	**Sample Depth:**	---
	Sampling Point:	MW-307	**Lab Matrix:**	Water
	Sampled By:	Andrew Dorn of GTIM	**Sample Type:**	Water
			Delivery Work Order:	
			Global ID:	
			Location ID (FieldPoint):	MW-307
			Matrix:	W
			Sample QC Type (SACode):	CS
			Cooler ID:	
1313480-12	**COC Number:**	---	**Receive Date:**	06/27/2013 21:10
	Project Number:	Sullins	**Sampling Date:**	06/24/2013 14:50
	Sampling Location:	---	**Sample Depth:**	---
	Sampling Point:	MW-207	**Lab Matrix:**	Water
	Sampled By:	Andrew Dorn of GTIM	**Sample Type:**	Water
			Delivery Work Order:	
			Global ID:	
			Location ID (FieldPoint):	MW-207
			Matrix:	W
			Sample QC Type (SACode):	CS
			Cooler ID:	

Ground Zero Analysis, Inc.
1172 Kansas Avenue
Modesto, CA 95354

Reported: 07/12/2013 16:16
Project: Sullins
Project Number: 1262.2
Project Manager: Project Manager

Laboratory / Client Sample Cross Reference

Laboratory	Client Sample Information		
1313480-13	**COC Number:**	---	**Receive Date:** 06/27/2013 21:10
	Project Number:	Sullins	**Sampling Date:** 06/25/2013 14:10
	Sampling Location:	---	**Sample Depth:** ---
	Sampling Point:	MW-404	**Lab Matrix:** Water
	Sampled By:	Andrew Dorn of GTIM	**Sample Type:** Water
			Delivery Work Order:
			Global ID:
			Location ID (FieldPoint): MW-404
			Matrix: W
			Sample QC Type (SACode): CS
			Cooler ID:
1313480-14	**COC Number:**	---	**Receive Date:** 06/27/2013 21:10
	Project Number:	Sullins	**Sampling Date:** 06/25/2013 14:20
	Sampling Location:	---	**Sample Depth:** ---
	Sampling Point:	MW-304	**Lab Matrix:** Water
	Sampled By:	Andrew Dorn of GTIM	**Sample Type:** Water
			Delivery Work Order:
			Global ID:
			Location ID (FieldPoint): MW-304
			Matrix: W
			Sample QC Type (SACode): CS
			Cooler ID:
1313480-15	**COC Number:**	---	**Receive Date:** 06/27/2013 21:10
	Project Number:	Sullins	**Sampling Date:** 06/25/2013 14:30
	Sampling Location:	---	**Sample Depth:** ---
	Sampling Point:	MW-204	**Lab Matrix:** Water
	Sampled By:	Andrew Dorn of GTIM	**Sample Type:** Water
			Delivery Work Order:
			Global ID:
			Location ID (FieldPoint): MW-204
			Matrix: W
			Sample QC Type (SACode): CS
			Cooler ID:

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Laboratory / Client Sample Cross Reference

Laboratory	Client Sample Information		
1313480-16	**COC Number:**	---	**Receive Date:** 06/27/2013 21:10
	Project Number:	Sullins	**Sampling Date:** 06/25/2013 14:40
	Sampling Location:	---	**Sample Depth:** ---
	Sampling Point:	MW-104	**Lab Matrix:** Water
	Sampled By:	Andrew Dorn of GTIM	**Sample Type:** Water
			Delivery Work Order:
			Global ID:
			Location ID (FieldPoint): MW-104
			Matrix: W
			Sample QC Type (SACode): CS
			Cooler ID:
1313480-17	**COC Number:**	---	**Receive Date:** 06/27/2013 21:10
	Project Number:	Sullins	**Sampling Date:** 06/25/2013 12:30
	Sampling Location:	---	**Sample Depth:** ---
	Sampling Point:	MW-305	**Lab Matrix:** Water
	Sampled By:	Andrew Dorn of GTIM	**Sample Type:** Water
			Delivery Work Order:
			Global ID:
			Location ID (FieldPoint): MW-305
			Matrix: W
			Sample QC Type (SACode): CS
			Cooler ID:
1313480-18	**COC Number:**	---	**Receive Date:** 06/27/2013 21:10
	Project Number:	Sullins	**Sampling Date:** 06/25/2013 12:40
	Sampling Location:	---	**Sample Depth:** ---
	Sampling Point:	MW-205	**Lab Matrix:** Water
	Sampled By:	Andrew Dorn of GTIM	**Sample Type:** Water
			Delivery Work Order:
			Global ID:
			Location ID (FieldPoint): MW-205
			Matrix: W
			Sample QC Type (SACode): CS
			Cooler ID:

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Project Manager: Project Manager

Purgeable Aromatics and Total Petroleum Hydrocarbons

BCL Sample ID: 1313480-01 | **Client Sample Name:** Sullins, W-ES, 6/25/2013 10:30:00AM, Andrew Dorn

Constituent	Result	Units	PQL	MDL	Method	MB Bias	Lab Quals	Run #
Benzene	ND	ug/L	0.30	0.040	EPA-8021B	ND		1
Toluene	ND	ug/L	0.30	0.046	EPA-8021B	ND		1
Ethylbenzene	ND	ug/L	0.30	0.042	EPA-8021B	ND		1
Methyl t-butyl ether	**1.0**	**ug/L**	**1.0**	**0.030**	**EPA-8021B**	ND	**V11**	1
Total Xylenes	ND	ug/L	0.60	0.14	EPA-8021B	ND		1
Gasoline Range Organics (C4 - C12)	ND	ug/L	50	5.0	Luft	ND		2
a,a,a-Trifluorotoluene (PID Surrogate)	85.7	%	70 - 130 (LCL - UCL)		EPA-8021B			1
a,a,a-Trifluorotoluene (FID Surrogate)	90.8	%	70 - 130 (LCL - UCL)		Luft			2

Run #	Method	Prep Date	Run Date/Time	Analyst	Instrument	Dilution	QC Batch ID
1	EPA-8021B	07/02/13	07/03/13 01:55	jjh	GC-V9	1	BWG0126
2	Luft	07/02/13	07/03/13 01:55	jjh	GC-V9	1	BWG0126

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Purgeable Aromatics and Total Petroleum Hydrocarbons

BCL Sample ID: 1313480-02 | **Client Sample Name:** Sullins, W-3S, 6/25/2013 12:20:00PM, Andrew Dorn

Constituent	Result	Units	PQL	MDL	Method	MB Bias	Lab Quals	Run #
Benzene	**6.0**	**ug/L**	**0.30**	**0.040**	**EPA-8021B**	ND		1
Toluene	**0.82**	**ug/L**	**0.30**	**0.046**	**EPA-8021B**	ND		1
Ethylbenzene	**0.36**	**ug/L**	**0.30**	**0.042**	**EPA-8021B**	ND		1
Methyl t-butyl ether	ND	ug/L	1.0	0.030	EPA-8021B	ND	V11	1
Total Xylenes	**0.75**	**ug/L**	**0.60**	**0.14**	**EPA-8021B**	ND		1
Gasoline Range Organics (C4 - C12)	**85**	**ug/L**	**50**	**5.0**	**Luft**	ND		2
a,a,a-Trifluorotoluene (PID Surrogate)	87.0	%	70 - 130 (LCL - UCL)		EPA-8021B			1
a,a,a-Trifluorotoluene (FID Surrogate)	90.0	%	70 - 130 (LCL - UCL)		Luft			2

Run #	Method	Prep Date	Run Date/Time	Analyst	Instrument	Dilution	QC Batch ID
1	EPA-8021B	07/02/13	07/03/13 06:06	jjh	GC-V9	1	BWG0126
2	Luft	07/02/13	07/03/13 06:06	jjh	GC-V9	1	BWG0126

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Purgeable Aromatics and Total Petroleum Hydrocarbons

BCL Sample ID: 1313480-03 | **Client Sample Name:** Sullins, W-BS, 6/25/2013 3:10:00PM, Andrew Dorn

Constituent	Result	Units	PQL	MDL	Method	MB Bias	Lab Quals	Run #
Benzene	**34**	**ug/L**	**0.30**	**0.040**	**EPA-8021B**	ND		1
Toluene	**2.4**	**ug/L**	**0.30**	**0.046**	**EPA-8021B**	ND		1
Ethylbenzene	**3.9**	**ug/L**	**0.30**	**0.042**	**EPA-8021B**	ND		1
Methyl t-butyl ether	**6.1**	**ug/L**	**1.0**	**0.030**	**EPA-8021B**	ND		1
Total Xylenes	**1.8**	**ug/L**	**0.60**	**0.14**	**EPA-8021B**	ND		1
Gasoline Range Organics (C4 - C12)	**580**	**ug/L**	**50**	**5.0**	**Luft**	ND		2
a,a,a-Trifluorotoluene (PID Surrogate)	91.6	%	70 - 130 (LCL - UCL)		EPA-8021B			1
a,a,a-Trifluorotoluene (FID Surrogate)	123	%	70 - 130 (LCL - UCL)		Luft			2

Run #	Method	Prep Date	Run Date/Time	Analyst	Instrument	Dilution	QC Batch ID
1	EPA-8021B	07/02/13	07/09/13 03:09	jjh	GC-V9	1	BWG0126
2	Luft	07/02/13	07/09/13 03:09	jjh	GC-V9	1	BWG0126

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Purgeable Aromatics and Total Petroleum Hydrocarbons

BCL Sample ID: 1313480-04 | **Client Sample Name:** Sullins, W-1S, 6/26/2013 1:50:00PM, Andrew Dorn

Constituent	Result	Units	PQL	MDL	Method	MB Bias	Lab Quals	Run #
Benzene	**530**	**ug/L**	**3.0**	**0.40**	**EPA-8021B**	ND	**A01**	1
Toluene	**11**	**ug/L**	**3.0**	**0.46**	**EPA-8021B**	ND	**A01**	1
Ethylbenzene	**8.1**	**ug/L**	**3.0**	**0.42**	**EPA-8021B**	ND	**A01**	1
Methyl t-butyl ether	ND	ug/L	10	0.30	EPA-8021B	ND	A01,V11	1
Total Xylenes	**18**	**ug/L**	**6.0**	**1.4**	**EPA-8021B**	ND	**A01**	1
Gasoline Range Organics (C4 - C12)	**1700**	**ug/L**	**500**	**50**	Luft	ND	**A01**	2
a,a,a-Trifluorotoluene (PID Surrogate)	113	%	70 - 130 (LCL - UCL)		EPA-8021B			1
a,a,a-Trifluorotoluene (FID Surrogate)	104	%	70 - 130 (LCL - UCL)		Luft			2

Run #	Method	Prep Date	Run Date/Time	Analyst	Instrument	Dilution	QC Batch ID
1	EPA-8021B	07/03/13	07/10/13 11:04	jjh	GC-V9	10	BWG0249
2	Luft	07/03/13	07/10/13 11:04	jjh	GC-V9	10	BWG0249

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Purgeable Aromatics and Total Petroleum Hydrocarbons

BCL Sample ID: 1313480-05 | **Client Sample Name:** Sullins, W-1, 6/26/2013 11:05:00AM, Andrew Dorn

Constituent	Result	Units	PQL	MDL	Method	MB Bias	Lab Quals	Run #
Benzene	**6200**	**ug/L**	**75**	**10**	**EPA-8021B**	ND	**A01**	1
Toluene	**1700**	**ug/L**	**6.0**	**0.92**	**EPA-8021B**	ND	**A01**	2
Ethylbenzene	**1900**	**ug/L**	**75**	**10**	**EPA-8021B**	ND	**A01**	1
Methyl t-butyl ether	**190**	**ug/L**	**20**	**0.60**	**EPA-8021B**	ND	**A01,V11**	2
Total Xylenes	**5500**	**ug/L**	**150**	**35**	**EPA-8021B**	ND	**A01**	1
Gasoline Range Organics (C4 - C12)	**43000**	**ug/L**	**12000**	**1200**	**Luft**	ND	**A01**	3
a,a,a-Trifluorotoluene (PID Surrogate)	89.3	%	70 - 130 (LCL - UCL)		EPA-8021B			1
a,a,a-Trifluorotoluene (PID Surrogate)	106	%	70 - 130 (LCL - UCL)		EPA-8021B			2
a,a,a-Trifluorotoluene (FID Surrogate)	85.5	%	70 - 130 (LCL - UCL)		Luft			3
a,a,a-Trifluorotoluene (FID Surrogate)	133	%	70 - 130 (LCL - UCL)		Luft		A19,S09	4

Run #	Method	Prep Date	Run Date/Time	Analyst	Instrument	Dilution	QC Batch ID
1	EPA-8021B	07/03/13	07/09/13 05:34	jjh	GC-V9	250	BWG0249
2	EPA-8021B	07/03/13	07/04/13 12:14	jjh	GC-V9	20	BWG0249
3	Luft	07/03/13	07/09/13 05:34	jjh	GC-V9	250	BWG0249
4	Luft	07/03/13	07/04/13 12:14	jjh	GC-V9	1	BWG0249

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Purgeable Aromatics and Total Petroleum Hydrocarbons

BCL Sample ID: 1313480-06 | **Client Sample Name:** Sullins, W-A, 6/25/2013 3:20:00PM, Andrew Dorn

Constituent	Result	Units	PQL	MDL	Method	MB Bias	Lab Quals	Run #
Benzene	2800	ug/L	15	2.0	EPA-8021B	ND	A01	1
Toluene	370	ug/L	6.0	0.92	EPA-8021B	ND	A01	2
Ethylbenzene	520	ug/L	6.0	0.84	EPA-8021B	ND	A01	2
Methyl t-butyl ether	56	ug/L	20	0.60	EPA-8021B	ND	A01,V11	2
Total Xylenes	1100	ug/L	12	2.8	EPA-8021B	ND	A01	2
Gasoline Range Organics (C4 - C12)	10000	ug/L	2500	250	Luft	ND	A01	3
a,a,a-Trifluorotoluene (PID Surrogate)	90.4	%	70 - 130 (LCL - UCL)		EPA-8021B			1
a,a,a-Trifluorotoluene (PID Surrogate)	101	%	70 - 130 (LCL - UCL)		EPA-8021B			2
a,a,a-Trifluorotoluene (FID Surrogate)	92.6	%	70 - 130 (LCL - UCL)		Luft			3
a,a,a-Trifluorotoluene (FID Surrogate)	107	%	70 - 130 (LCL - UCL)		Luft			4

Run #	Method	Prep Date	Run Date/Time	Analyst	Instrument	Dilution	QC Batch ID
1	EPA-8021B	07/03/13	07/09/13 05:55	jjh	GC-V9	50	BWG0249
2	EPA-8021B	07/03/13	07/04/13 12:35	jjh	GC-V9	20	BWG0249
3	Luft	07/03/13	07/09/13 05:55	jjh	GC-V9	50	BWG0249
4	Luft	07/03/13	07/04/13 12:35	jjh	GC-V9	1	BWG0249

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Purgeable Aromatics and Total Petroleum Hydrocarbons

BCL Sample ID: 1313480-07 | **Client Sample Name:** Sullins, MW-306, 6/24/2013 1:45:00PM, Andrew Dorn

Constituent	Result	Units	PQL	MDL	Method	MB Bias	Lab Quals	Run #
Benzene	**0.80**	**ug/L**	**0.30**	**0.040**	**EPA-8021B**	ND		1
Toluene	ND	ug/L	0.30	0.046	EPA-8021B	ND		1
Ethylbenzene	ND	ug/L	0.30	0.042	EPA-8021B	ND		1
Methyl t-butyl ether	ND	ug/L	1.0	0.030	EPA-8021B	ND	V11	1
Total Xylenes	**0.24**	**ug/L**	**0.60**	**0.14**	**EPA-8021B**	ND	J	1
Gasoline Range Organics (C4 - C12)	ND	ug/L	50	5.0	Luft	ND		2
a,a,a-Trifluorotoluene (PID Surrogate)	98.8	%	70 - 130 (LCL - UCL)		EPA-8021B			1
a,a,a-Trifluorotoluene (FID Surrogate)	100	%	70 - 130 (LCL - UCL)		Luft			2

Run #	Method	Prep Date	Run Date/Time	Analyst	Instrument	Dilution	QC Batch ID
1	EPA-8021B	07/03/13	07/04/13 10:52	jjh	GC-V9	1	BWG0249
2	Luft	07/03/13	07/05/13 10:45	jjh	GC-V9	1	BWG0249

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Purgeable Aromatics and Total Petroleum Hydrocarbons

BCL Sample ID: 1313480-08 | **Client Sample Name:** Sullins, MW-206, 6/24/2013 2:05:00PM, Andrew Dorn

Constituent	Result	Units	PQL	MDL	Method	MB Bias	Lab Quals	Run #
Benzene	**2.3**	**ug/L**	**0.30**	**0.040**	**EPA-8021B**	ND		1
Toluene	**0.87**	**ug/L**	**0.30**	**0.046**	**EPA-8021B**	ND		1
Ethylbenzene	**0.44**	**ug/L**	**0.30**	**0.042**	**EPA-8021B**	ND		1
Methyl t-butyl ether	**1.8**	**ug/L**	**1.0**	**0.030**	**EPA-8021B**	ND	V11	1
Total Xylenes	**0.62**	**ug/L**	**0.60**	**0.14**	**EPA-8021B**	ND		1
Gasoline Range Organics (C4 - C12)	**78**	**ug/L**	**50**	**5.0**	**Luft**	ND		2
a,a,a-Trifluorotoluene (PID Surrogate)	101	%	70 - 130 (LCL - UCL)		EPA-8021B			1
a,a,a-Trifluorotoluene (FID Surrogate)	103	%	70 - 130 (LCL - UCL)		Luft			2

Run #	Method	Prep Date	Run Date/Time	Analyst	Instrument	Dilution	QC Batch ID
1	EPA-8021B	07/03/13	07/04/13 11:12	jjh	GC-V9	1	BWG0249
2	Luft	07/03/13	07/05/13 11:05	jjh	GC-V9	1	BWG0249

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Purgeable Aromatics and Total Petroleum Hydrocarbons

BCL Sample ID: 1313480-09 | **Client Sample Name:** Sullins, MW-308, 6/24/2013 3:15:00PM, Andrew Dorn

Constituent	Result	Units	PQL	MDL	Method	MB Bias	Lab Quals	Run #
Benzene	**610**	**ug/L**	**6.0**	**0.80**	**EPA-8021B**	ND	**A01**	1
Toluene	**22**	**ug/L**	**6.0**	**0.92**	**EPA-8021B**	ND	**A01**	1
Ethylbenzene	**110**	**ug/L**	**6.0**	**0.84**	**EPA-8021B**	ND	**A01**	1
Methyl t-butyl ether	ND	ug/L	20	0.60	EPA-8021B	ND	A01,V11	1
Total Xylenes	**87**	**ug/L**	**12**	**2.8**	**EPA-8021B**	ND	**A01**	1
Gasoline Range Organics (C4 - C12)	**2600**	**ug/L**	**1000**	**100**	**Luft**	ND	**A01**	2
a,a,a-Trifluorotoluene (PID Surrogate)	98.1	%	70 - 130 (LCL - UCL)		EPA-8021B			1
a,a,a-Trifluorotoluene (FID Surrogate)	85.6	%	70 - 130 (LCL - UCL)		Luft			2
a,a,a-Trifluorotoluene (FID Surrogate)	100	%	70 - 130 (LCL - UCL)		Luft			3

Run #	Method	Prep Date	Run Date/Time	Analyst	Instrument	Dilution	QC Batch ID
1	EPA-8021B	07/03/13	07/04/13 12:55	jjh	GC-V9	20	BWG0249
2	Luft	07/03/13	07/05/13 13:25	jjh	GC-V9	20	BWG0249
3	Luft	07/03/13	07/04/13 12:55	jjh	GC-V9	1	BWG0249

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Purgeable Aromatics and Total Petroleum Hydrocarbons

BCL Sample ID: 1313480-10 | **Client Sample Name:** Sullins, MW-208, 6/24/2013 3:30:00PM, Andrew Dorn

Constituent	Result	Units	PQL	MDL	Method	MB Bias	Lab Quals	Run #
Benzene	**1100**	**ug/L**	**6.0**	**0.80**	**EPA-8021B**	ND		1
Toluene	**18**	**ug/L**	**6.0**	**0.92**	**EPA-8021B**	ND	**A01**	1
Ethylbenzene	**34**	**ug/L**	**6.0**	**0.84**	**EPA-8021B**	ND	**A01**	1
Methyl t-butyl ether	**45**	**ug/L**	**20**	**0.60**	**EPA-8021B**	ND	**A01,V11**	1
Total Xylenes	**50**	**ug/L**	**12**	**2.8**	**EPA-8021B**	ND	**A01**	1
Gasoline Range Organics (C4 - C12)	**5000**	**ug/L**	**500**	**50**	**Luft**	ND	**A01**	2
a,a,a-Trifluorotoluene (PID Surrogate)	95.9	%	70 - 130 (LCL - UCL)		EPA-8021B			1
a,a,a-Trifluorotoluene (FID Surrogate)	97.3	%	70 - 130 (LCL - UCL)		Luft			2

Run #	Method	Prep Date	Run Date/Time	Analyst	Instrument	Dilution	QC Batch ID
1	EPA-8021B	07/03/13	07/04/13 13:16	jjh	GC-V9	20	BWG0249
2	Luft	07/03/13	07/05/13 13:45	jjh	GC-V9	10	BWG0249

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Project: Sullins
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Project Manager: Project Manager

Purgeable Aromatics and Total Petroleum Hydrocarbons

BCL Sample ID: 1313480-11 | **Client Sample Name:** Sullins, MW-307, 6/24/2013 2:30:00PM, Andrew Dorn

Constituent	Result	Units	PQL	MDL	Method	MB Bias	Lab Quals	Run #
Benzene	**480**	**ug/L**	**6.0**	**0.80**	**EPA-8021B**	ND	**A01**	1
Toluene	**7.2**	**ug/L**	**6.0**	**0.92**	**EPA-8021B**	ND	**A01**	1
Ethylbenzene	**43**	**ug/L**	**6.0**	**0.84**	**EPA-8021B**	ND	**A01**	1
Methyl t-butyl ether	ND	ug/L	20	0.60	EPA-8021B	ND	A01,V11	1
Total Xylenes	**54**	**ug/L**	**12**	**2.8**	**EPA-8021B**	ND	**A01**	1
Gasoline Range Organics (C4 - C12)	**1300**	**ug/L**	**250**	**25**	**Luft**	ND	**A01**	2
a,a,a-Trifluorotoluene (PID Surrogate)	97.1	%	70 - 130 (LCL - UCL)		EPA-8021B			1
a,a,a-Trifluorotoluene (FID Surrogate)	104	%	70 - 130 (LCL - UCL)		Luft			2

Run #	Method	Prep Date	Run Date/Time	Analyst	Instrument	Dilution	QC Batch ID
1	EPA-8021B	07/03/13	07/04/13 13:36	jjh	GC-V9	20	BWG0249
2	Luft	07/03/13	07/05/13 14:06	jjh	GC-V9	5	BWG0249

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Project: Sullins
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Project Manager: Project Manager

Purgeable Aromatics and Total Petroleum Hydrocarbons

BCL Sample ID: 1313480-12 | **Client Sample Name:** Sullins, MW-207, 6/24/2013 2:50:00PM, Andrew Dorn

Constituent	Result	Units	PQL	MDL	Method	MB Bias	Lab Quals	Run #
Benzene	**12000**	**ug/L**	**75**	**10**	**EPA-8021B**	ND	**A01,V11**	1
Toluene	**77**	**ug/L**	**6.0**	**0.92**	**EPA-8021B**	ND	**A01**	2
Ethylbenzene	**300**	**ug/L**	**6.0**	**0.84**	**EPA-8021B**	ND	**A01**	2
Methyl t-butyl ether	**120**	**ug/L**	**20**	**0.60**	**EPA-8021B**	ND	**A01**	2
Total Xylenes	**180**	**ug/L**	**12**	**2.8**	**EPA-8021B**	ND	**A01**	2
Gasoline Range Organics (C4 - C12)	**25000**	**ug/L**	**12000**	**1200**	**Luft**	ND	**A01**	3
a,a,a-Trifluorotoluene (PID Surrogate)	96.1	%	70 - 130 (LCL - UCL)		EPA-8021B			1
a,a,a-Trifluorotoluene (PID Surrogate)	102	%	70 - 130 (LCL - UCL)		EPA-8021B			2
a,a,a-Trifluorotoluene (FID Surrogate)	93.2	%	70 - 130 (LCL - UCL)		Luft			3
a,a,a-Trifluorotoluene (FID Surrogate)	92.3	%	70 - 130 (LCL - UCL)		Luft			4

Run #	Method	Prep Date	Run Date/Time	Analyst	Instrument	Dilution	QC Batch ID
1	EPA-8021B	07/03/13	07/05/13 14:26	jjh	GC-V9	250	BWG0249
2	EPA-8021B	07/03/13	07/04/13 13:57	jjh	GC-V9	20	BWG0249
3	Luft	07/03/13	07/05/13 14:26	jjh	GC-V9	250	BWG0249
4	Luft	07/03/13	07/04/13 13:57	jjh	GC-V9	1	BWG0249

Ground Zero Analysis, Inc.
1172 Kansas Avenue
Modesto, CA 95354

Reported: 07/12/2013 16:16
Project: Sullins
Project Number: 1262.2
Project Manager: Project Manager

Purgeable Aromatics and Total Petroleum Hydrocarbons

BCL Sample ID: 1313480-13 | **Client Sample Name:** Sullins, MW-404, 6/25/2013 2:10:00PM, Andrew Dorn

Constituent	Result	Units	PQL	MDL	Method	MB Bias	Lab Quals	Run #
Benzene	**840**	**ug/L**	**6.0**	**0.80**	**EPA-8021B**	ND	**A01**	1
Toluene	**22**	**ug/L**	**6.0**	**0.92**	**EPA-8021B**	ND	**A01**	1
Ethylbenzene	**60**	**ug/L**	**6.0**	**0.84**	**EPA-8021B**	ND	**A01**	1
Methyl t-butyl ether	ND	ug/L	20	0.60	EPA-8021B	ND	A01	1
Total Xylenes	**140**	**ug/L**	**12**	**2.8**	**EPA-8021B**	ND	**A01**	1
Gasoline Range Organics (C4 - C12)	**98**	**ug/L**	**50**	**5.0**	**Luft**	ND		2
a,a,a-Trifluorotoluene (PID Surrogate)	92.0	%	70 - 130 (LCL - UCL)		EPA-8021B			1
a,a,a-Trifluorotoluene (FID Surrogate)	96.4	%	70 - 130 (LCL - UCL)		Luft			2
a,a,a-Trifluorotoluene (FID Surrogate)	93.6	%	70 - 130 (LCL - UCL)		Luft			3

Run #	Method	Prep Date	Run Date/Time	Analyst	Instrument	Dilution	QC Batch ID
1	EPA-8021B	07/03/13	07/04/13 15:20	jjh	GC-V9	20	BWG0249
2	Luft	07/03/13	07/05/13 16:33	jjh	GC-V9	1	BWG0249
3	Luft	07/03/13	07/04/13 15:20	jjh	GC-V9	1	BWG0249

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Project Manager: Project Manager

Purgeable Aromatics and Total Petroleum Hydrocarbons

BCL Sample ID: 1313480-14 | **Client Sample Name:** Sullins, MW-304, 6/25/2013 2:20:00PM, Andrew Dorn

Constituent	Result	Units	PQL	MDL	Method	MB Bias	Lab Quals	Run #
Benzene	**2000**	**ug/L**	**15**	**2.0**	**EPA-8021B**	ND	**A01**	1
Toluene	**87**	**ug/L**	**6.0**	**0.92**	**EPA-8021B**	ND	**A01**	2
Ethylbenzene	**220**	**ug/L**	**6.0**	**0.84**	**EPA-8021B**	ND	**A01**	2
Methyl t-butyl ether	ND	ug/L	20	0.60	EPA-8021B	ND	A01	2
Total Xylenes	**480**	**ug/L**	**12**	**2.8**	**EPA-8021B**	ND	**A01**	2
Gasoline Range Organics (C4 - C12)	**6100**	**ug/L**	**2500**	**250**	**Luft**	ND	**A01**	3
a,a,a-Trifluorotoluene (PID Surrogate)	95.4	%	70 - 130 (LCL - UCL)		EPA-8021B			1
a,a,a-Trifluorotoluene (PID Surrogate)	93.5	%	70 - 130 (LCL - UCL)		EPA-8021B			2
a,a,a-Trifluorotoluene (FID Surrogate)	92.7	%	70 - 130 (LCL - UCL)		Luft			3
a,a,a-Trifluorotoluene (FID Surrogate)	84.7	%	70 - 130 (LCL - UCL)		Luft			4

Run #	Method	Prep Date	Run Date/Time	Analyst	Instrument	Dilution	QC Batch ID
1	EPA-8021B	07/03/13	07/05/13 16:53	jjh	GC-V9	50	BWG0249
2	EPA-8021B	07/03/13	07/04/13 15:41	jjh	GC-V9	20	BWG0249
3	Luft	07/03/13	07/05/13 16:53	jjh	GC-V9	50	BWG0249
4	Luft	07/03/13	07/04/13 15:41	jjh	GC-V9	1	BWG0249

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Project: Sullins
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Project Manager: Project Manager

Purgeable Aromatics and Total Petroleum Hydrocarbons

BCL Sample ID: 1313480-15 | **Client Sample Name:** Sullins, MW-204, 6/25/2013 2:30:00PM, Andrew Dorn

Constituent	Result	Units	PQL	MDL	Method	MB Bias	Lab Quals	Run #
Benzene	**660**	**ug/L**	**6.0**	**0.80**	**EPA-8021B**	ND	**A01**	1
Toluene	**27**	**ug/L**	**6.0**	**0.92**	**EPA-8021B**	ND	**A01**	1
Ethylbenzene	**230**	**ug/L**	**6.0**	**0.84**	**EPA-8021B**	ND	**A01**	1
Methyl t-butyl ether	ND	ug/L	20	0.60	EPA-8021B	ND	A01	1
Total Xylenes	**310**	**ug/L**	**12**	**2.8**	**EPA-8021B**	ND	**A01**	1
Gasoline Range Organics (C4 - C12)	**3500**	**ug/L**	**1000**	**100**	**Luft**	ND	**A01**	2
a,a,a-Trifluorotoluene (PID Surrogate)	93.6	%	70 - 130 (LCL - UCL)		EPA-8021B			1
a,a,a-Trifluorotoluene (FID Surrogate)	94.0	%	70 - 130 (LCL - UCL)		Luft			2
a,a,a-Trifluorotoluene (FID Surrogate)	98.7	%	70 - 130 (LCL - UCL)		Luft		A01	3

Run #	Method	Prep Date	Run Date/Time	Analyst	Instrument	Dilution	QC Batch ID
1	EPA-8021B	07/03/13	07/04/13 16:01	jjh	GC-V9	20	BWG0249
2	Luft	07/03/13	07/05/13 17:14	jjh	GC-V9	20	BWG0249
3	Luft	07/03/13	07/04/13 16:01	jjh	GC-V9	1	BWG0249

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Purgeable Aromatics and Total Petroleum Hydrocarbons

BCL Sample ID: 1313480-16 | **Client Sample Name:** Sullins, MW-104, 6/25/2013 2:40:00PM, Andrew Dorn

Constituent	Result	Units	PQL	MDL	Method	MB Bias	Lab Quals	Run #
Benzene	6600	ug/L	30	4.0	EPA-8021B	ND	A01	1
Toluene	160	ug/L	6.0	0.92	EPA-8021B	ND	A01	2
Ethylbenzene	490	ug/L	6.0	0.84	EPA-8021B	ND	A01	2
Methyl t-butyl ether	120	ug/L	20	0.60	EPA-8021B	ND	A01	2
Total Xylenes	490	ug/L	12	2.8	EPA-8021B	ND	A01	2
Gasoline Range Organics (C4 - C12)	15000	ug/L	2500	250	Luft	ND	A01	3
a,a,a-Trifluorotoluene (PID Surrogate)	88.6	%	70 - 130 (LCL - UCL)		EPA-8021B			1
a,a,a-Trifluorotoluene (PID Surrogate)	97.7	%	70 - 130 (LCL - UCL)		EPA-8021B			2
a,a,a-Trifluorotoluene (FID Surrogate)	91.3	%	70 - 130 (LCL - UCL)		Luft			3
a,a,a-Trifluorotoluene (FID Surrogate)	99.9	%	70 - 130 (LCL - UCL)		Luft			4

Run #	Method	Prep Date	Run Date/Time	Analyst	Instrument	Dilution	QC Batch ID
1	EPA-8021B	07/03/13	07/09/13 03:50	jjh	GC-V9	100	BWG0249
2	EPA-8021B	07/03/13	07/04/13 16:22	jjh	GC-V9	20	BWG0249
3	Luft	07/03/13	07/05/13 17:35	jjh	GC-V9	50	BWG0249
4	Luft	07/03/13	07/04/13 16:22	jjh	GC-V9	1	BWG0249

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Purgeable Aromatics and Total Petroleum Hydrocarbons

BCL Sample ID: 1313480-17 | **Client Sample Name:** Sullins, MW-305, 6/25/2013 12:30:00PM, Andrew Dorn

Constituent	Result	Units	PQL	MDL	Method	MB Bias	Lab Quals	Run #
Benzene	**560**	**ug/L**	**6.0**	**0.80**	**EPA-8021B**	ND	**A01**	1
Toluene	**12**	**ug/L**	**6.0**	**0.92**	**EPA-8021B**	ND	**A01**	1
Ethylbenzene	**41**	**ug/L**	**6.0**	**0.84**	**EPA-8021B**	ND	**A01**	1
Methyl t-butyl ether	ND	ug/L	20	0.60	EPA-8021B	ND	A01	1
Total Xylenes	**75**	**ug/L**	**12**	**2.8**	**EPA-8021B**	ND	**A01**	1
Gasoline Range Organics (C4 - C12)	**1800**	**ug/L**	**1000**	**100**	**Luft**	ND	**A01**	2
a,a,a-Trifluorotoluene (PID Surrogate)	92.1	%	70 - 130 (LCL - UCL)		EPA-8021B			1
a,a,a-Trifluorotoluene (FID Surrogate)	89.3	%	70 - 130 (LCL - UCL)		Luft			2
a,a,a-Trifluorotoluene (FID Surrogate)	94.4	%	70 - 130 (LCL - UCL)		Luft			3

Run #	Method	Prep Date	Run Date/Time	Analyst	Instrument	Dilution	QC Batch ID
1	EPA-8021B	07/03/13	07/04/13 16:43	jjh	GC-V9	20	BWG0249
2	Luft	07/03/13	07/05/13 17:56	jjh	GC-V9	20	BWG0249
3	Luft	07/03/13	07/04/13 16:43	jjh	GC-V9	1	BWG0249

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Purgeable Aromatics and Total Petroleum Hydrocarbons

BCL Sample ID: 1313480-18 | **Client Sample Name:** Sullins, MW-205, 6/25/2013 12:40:00PM, Andrew Dorn

Constituent	Result	Units	PQL	MDL	Method	MB Bias	Lab Quals	Run #
Benzene	**13000**	**ug/L**	**75**	**10**	**EPA-8021B**	ND	**A01**	1
Toluene	**120**	**ug/L**	**6.0**	**0.92**	**EPA-8021B**	ND	**A01**	2
Ethylbenzene	**900**	**ug/L**	**6.0**	**0.84**	**EPA-8021B**	ND	**A01**	2
Methyl t-butyl ether	**57**	**ug/L**	**20**	**0.60**	**EPA-8021B**	ND	**A01**	2
Total Xylenes	**970**	**ug/L**	**12**	**2.8**	**EPA-8021B**	ND	**A01**	2
Gasoline Range Organics (C4 - C12)	**37000**	**ug/L**	**12000**	**1200**	**Luft**	ND	**A01**	3
a,a,a-Trifluorotoluene (PID Surrogate)	85.5	%	70 - 130 (LCL - UCL)		EPA-8021B			1
a,a,a-Trifluorotoluene (PID Surrogate)	102	%	70 - 130 (LCL - UCL)		EPA-8021B			2
a,a,a-Trifluorotoluene (FID Surrogate)	88.1	%	70 - 130 (LCL - UCL)		Luft			3
a,a,a-Trifluorotoluene (FID Surrogate)	100	%	70 - 130 (LCL - UCL)		Luft			4

Run #	Method	Prep Date	Run Date/Time	Analyst	Instrument	Dilution	QC Batch ID
1	EPA-8021B	07/03/13	07/05/13 18:17	jjh	GC-V9	250	BWG0249
2	EPA-8021B	07/03/13	07/04/13 17:03	jjh	GC-V9	20	BWG0249
3	Luft	07/03/13	07/05/13 18:17	jjh	GC-V9	250	BWG0249
4	Luft	07/03/13	07/04/13 17:03	jjh	GC-V9	1	BWG0249

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Project Manager: Project Manager

Purgeable Aromatics and Total Petroleum Hydrocarbons

Quality Control Report - Method Blank Analysis

Constituent	QC Sample ID	MB Result	Units	PQL	MDL	Lab Quals
QC Batch ID: BWG0126						
Benzene	BWG0126-BLK1	ND	ug/L	0.30	0.040	
Toluene	BWG0126-BLK1	ND	ug/L	0.30	0.046	
Ethylbenzene	BWG0126-BLK1	ND	ug/L	0.30	0.042	
Methyl t-butyl ether	BWG0126-BLK1	ND	ug/L	1.0	0.030	
Total Xylenes	BWG0126-BLK1	ND	ug/L	0.60	0.14	
Gasoline Range Organics (C4 - C12)	BWG0126-BLK1	ND	ug/L	50	5.0	
a,a,a-Trifluorotoluene (PID Surrogate)	BWG0126-BLK1	94.9	%	70 - 130 (LCL - UCL)		
a,a,a-Trifluorotoluene (FID Surrogate)	BWG0126-BLK1	97.2	%	70 - 130 (LCL - UCL)		
QC Batch ID: BWG0249						
Benzene	BWG0249-BLK1	ND	ug/L	0.30	0.040	
Toluene	BWG0249-BLK1	ND	ug/L	0.30	0.046	
Ethylbenzene	BWG0249-BLK1	ND	ug/L	0.30	0.042	
Methyl t-butyl ether	BWG0249-BLK1	ND	ug/L	1.0	0.030	
Total Xylenes	BWG0249-BLK1	ND	ug/L	0.60	0.14	
Gasoline Range Organics (C4 - C12)	BWG0249-BLK1	ND	ug/L	50	5.0	
a,a,a-Trifluorotoluene (PID Surrogate)	BWG0249-BLK1	90.1	%	70 - 130 (LCL - UCL)		
a,a,a-Trifluorotoluene (FID Surrogate)	BWG0249-BLK1	91.5	%	70 - 130 (LCL - UCL)		

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Purgeable Aromatics and Total Petroleum Hydrocarbons

Quality Control Report - Laboratory Control Sample

Constituent	QC Sample ID	Type	Result	Spike Level	Units	Percent Recovery	RPD	Control Limits Percent Recovery	Control Limits RPD	Lab Quals
QC Batch ID: BWG0126										
Benzene	BWG0126-BS1	LCS	42.999	40.000	ug/L	107		85 - 115		
Toluene	BWG0126-BS1	LCS	38.488	40.000	ug/L	96.2		85 - 115		
Ethylbenzene	BWG0126-BS1	LCS	37.681	40.000	ug/L	94.2		85 - 115		
Methyl t-butyl ether	BWG0126-BS1	LCS	19.978	40.000	ug/L	49.9		85 - 115		L01
Total Xylenes	BWG0126-BS1	LCS	111.96	120.00	ug/L	93.3		85 - 115		
Gasoline Range Organics (C4 - C12)	BWG0126-BS1	LCS	979.55	1000.0	ug/L	98.0		85 - 115		
a,a,a-Trifluorotoluene (PID Surrogate)	BWG0126-BS1	LCS	37.836	40.000	ug/L	94.6		70 - 130		
a,a,a-Trifluorotoluene (FID Surrogate)	BWG0126-BS1	LCS	39.424	40.000	ug/L	98.6		70 - 130		
QC Batch ID: BWG0249										
Benzene	BWG0249-BS1	LCS	39.184	40.000	ug/L	98.0		85 - 115		
Toluene	BWG0249-BS1	LCS	37.659	40.000	ug/L	94.1		85 - 115		
Ethylbenzene	BWG0249-BS1	LCS	37.900	40.000	ug/L	94.8		85 - 115		
Methyl t-butyl ether	BWG0249-BS1	LCS	36.809	40.000	ug/L	92.0		85 - 115		
Total Xylenes	BWG0249-BS1	LCS	113.64	120.00	ug/L	94.7		85 - 115		
Gasoline Range Organics (C4 - C12)	BWG0249-BS1	LCS	863.95	1000.0	ug/L	86.4		85 - 115		
a,a,a-Trifluorotoluene (PID Surrogate)	BWG0249-BS1	LCS	35.853	40.000	ug/L	89.6		70 - 130		
a,a,a-Trifluorotoluene (FID Surrogate)	BWG0249-BS1	LCS	36.194	40.000	ug/L	90.5		70 - 130		

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Purgeable Aromatics and Total Petroleum Hydrocarbons

Quality Control Report - Precision & Accuracy

Constituent	Type	Source Sample ID	Source Result	Result	Spike Added	Units	RPD	Percent Recovery	Control Limits RPD	Control Limits Percent Recovery	Lab Quals
QC Batch ID: BWG0126	Used client sample: N										
Benzene	MS	1313237-06	ND	43.409	40.000	ug/L		109		70 - 130	
	MSD	1313237-06	ND	42.521	40.000	ug/L	2.1	106	20	70 - 130	
Toluene	MS	1313237-06	ND	38.877	40.000	ug/L		97.2		70 - 130	
	MSD	1313237-06	ND	38.022	40.000	ug/L	2.2	95.1	20	70 - 130	
Ethylbenzene	MS	1313237-06	ND	38.095	40.000	ug/L		95.2		70 - 130	
	MSD	1313237-06	ND	37.159	40.000	ug/L	2.5	92.9	20	70 - 130	
Methyl t-butyl ether	MS	1313237-06	ND	20.601	40.000	ug/L		51.5		70 - 130	Q03
	MSD	1313237-06	ND	19.927	40.000	ug/L	3.3	49.8	20	70 - 130	Q03
Total Xylenes	MS	1313237-06	ND	113.34	120.00	ug/L		94.4		70 - 130	
	MSD	1313237-06	ND	110.57	120.00	ug/L	2.5	92.1	20	70 - 130	
Gasoline Range Organics (C4 - C12)	MS	1313237-06	ND	1031.7	1000.0	ug/L		103		70 - 130	
	MSD	1313237-06	ND	1006.2	1000.0	ug/L	2.5	101	20	70 - 130	
a,a,a-Trifluorotoluene (PID Surrogate)	MS	1313237-06	ND	37.758	40.000	ug/L		94.4		70 - 130	
	MSD	1313237-06	ND	37.252	40.000	ug/L	1.3	93.1		70 - 130	
a,a,a-Trifluorotoluene (FID Surrogate)	MS	1313237-06	ND	39.883	40.000	ug/L		99.7		70 - 130	
	MSD	1313237-06	ND	39.107	40.000	ug/L	2.0	97.8		70 - 130	
QC Batch ID: BWG0249	Used client sample: N										
Benzene	MS	1313237-07	ND	39.831	40.000	ug/L		99.6		70 - 130	
	MSD	1313237-07	ND	38.780	40.000	ug/L	2.7	97.0	20	70 - 130	
Toluene	MS	1313237-07	ND	38.318	40.000	ug/L		95.8		70 - 130	
	MSD	1313237-07	ND	37.256	40.000	ug/L	2.8	93.1	20	70 - 130	
Ethylbenzene	MS	1313237-07	ND	38.615	40.000	ug/L		96.5		70 - 130	
	MSD	1313237-07	ND	37.505	40.000	ug/L	2.9	93.8	20	70 - 130	
Methyl t-butyl ether	MS	1313237-07	ND	35.784	40.000	ug/L		89.5		70 - 130	
	MSD	1313237-07	ND	32.269	40.000	ug/L	10.3	80.7	20	70 - 130	
Total Xylenes	MS	1313237-07	ND	115.78	120.00	ug/L		96.5		70 - 130	
	MSD	1313237-07	ND	112.53	120.00	ug/L	2.8	93.8	20	70 - 130	
Gasoline Range Organics (C4 - C12)	MS	1313237-07	ND	920.38	1000.0	ug/L		92.0		70 - 130	
	MSD	1313237-07	ND	855.03	1000.0	ug/L	7.4	85.5	20	70 - 130	
a,a,a-Trifluorotoluene (PID Surrogate)	MS	1313237-07	ND	35.984	40.000	ug/L		90.0		70 - 130	
	MSD	1313237-07	ND	36.091	40.000	ug/L	0.3	90.2		70 - 130	
a,a,a-Trifluorotoluene (FID Surrogate)	MS	1313237-07	ND	34.879	40.000	ug/L		87.2		70 - 130	
	MSD	1313237-07	ND	35.437	40.000	ug/L	1.6	88.6		70 - 130	

Ground Zero Analysis, Inc. 1172 Kansas Avenue Modesto, CA 95354	**Reported:** 07/12/2013 16:16 Project: Sullins Project Number: 1262.2 Project Manager: Project Manager

Notes And Definitions

J	Estimated Value (CLP Flag)
MDL	Method Detection Limit
ND	Analyte Not Detected at or above the reporting limit
PQL	Practical Quantitation Limit
RPD	Relative Percent Difference
A01	PQL's and MDL's are raised due to sample dilution.
A19	Surrogate is high due to matrix interference. Interferences verified through second extraction/analysis.
L01	The Laboratory Control Sample Water (LCSW) recovery is not within laboratory established control limits.
Q03	Matrix spike recovery(s) is(are) not within the control limits.
S09	The surrogate recovery on the sample for this compound was not within the control limits.
V11	The Continuing Calibration Verification (CCV) recovery is not within established control limits.

Appendix C

Groundwater Monitoring Field Notes

Geological Technics, Inc.

Groundwater Monitoring Field Log

Project Name: Sullins (L St)

Well I.D.: W-1s

Project No.: 1262.2

Date: 6/26/2013

Project Location: 187 N. L Street

Livermore, CA

Samples sent to: BC Labs

Time	Cumulative Volume Purged (gal)	Temp C°	EC (µS/cm)	pH	ORP (millivolts)	DO (mg/L)	Remarks
11:15	0	22.09	1287	6.74	-97.7	2.22	Black w/slight sheen, strong odor, no sediments
11:40	10	22.18	1330	6.70	-131.0	0.10	Clearish, Black w/slight sheen, strong odor, no sediments
12:10	20	21.92	1335	6.70	-155.5	0.08	Clearish, Black w/slight sheen, strong odor, no sediments
12:40	30	21.94	1333	6.71	-159.8	0.07	Clearish, Black w/slight sheen, strong odor, no sediments
13:50							Collected Samples

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

Pumping Rate: 1.20 gal/min

Well Constructed TD (ft):	45.00
* Well TD (ft):	44.21
Silt Thickness (ft):	0.79
Initial DTW (ft):	37.6
Water column height (ft):	6.61
One casing volume (gal):	9.79
** Final DTW (ft):	38.02
Casing diameter (in):	6"

Sample Containers used: 6 # VOAs X preserved ____ non-preserved

____ # amber liters ____ preserved ____ non-preserved

____ # polys ____ ____ preserved ____ non-preserved

____ # polys ____ ____ preserved ____ non-preserved

Notes: Maximum drawdown to 42.7' BGS. Slow purge due to slow recharge. Stopped to allow for recharge. Allowed recharge prior to sampling.

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.: W-3s

Project No.: 1262.2

Date: 6/25/2013

Project Location: 187 N. L Street

Livermore, CA

Samples sent to: BC Labs

Time	Cumulative Volume Purged (gal)	Temp C°	EC (µS/cm)	pH	ORP (millivolts)	DO (mg/L)	Remarks
10:45	0	19.87	1083	6.95	-51.3	0.61	Blackish brown, mild odor, lots of sediments & bio-foul
11:15	4.25	19.76	1168	6.45	-82.0	0.74	Grayish clear, mild odor, very few sediments
11:45	8.50	20.22	1232	6.43	-61.1	1.09	Grayish clear, mild odor, very few sediments
12:15	12.75	20.31	1243	6.43	-60.2	1.03	Grayish clear, mild odor, very few sediments
12:20							Collected Samples

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

Pumping Rate: 0.14 gal/min

Well Constructed TD (ft):	45.00
* Well TD (ft):	43.11
Silt Thickness (ft):	1.89
Initial DTW (ft):	36.95
Water column height (ft):	6.16
One casing volume (gal):	4.01
** Final DTW (ft):	38.03
Casing diameter (in):	4"

Sample Containers used: 6 # VOAs X preserved ___ non-preserved

___ # amber liters ___ preserved ___ non-preserved

___ # polys ___ ___ preserved ___ non-preserved

___ # polys ___ ___ preserved ___ non-preserved

Notes: Slow purge due to slow recharge. Maximum draw down to 41.2'

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.: W-Bs

Project No.: 1262.2

Date: 6/25/2013

Project Location: 187 N. L Street

Livermore, CA

Samples sent to: BC Labs

Time	Cumulative Volume Purged (gal)	Temp C°	EC (µS/cm)	pH	ORP (millivolts)	DO (mg/L)	Remarks
12:50	0.0	20.20	841	7.15	-12.6	0.98	Greenish clear, mild odor, very few sediments
13:10	10.5	20.78	919	6.73	-119.0	0.68	Clear, mild odor, no sediments
13:35	21.0	21.10	921	6.74	-101.3	0.81	Clear, mild odor, no sediments
13:55	31.5	21.16	919	6.75	-92.1	0.84	Clear, mild odor, no sediments
15:10							Collected Samples

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

Pumping Rate: 0.48 gal/min

Well Constructed TD (ft):	45.00
* Well TD (ft):	44.39
Silt Thickness (ft):	0.61
Initial DTW (ft):	37.32
Water column height (ft):	7.07
One casing volume (gal):	10.35
** Final DTW (ft):	37.41
Casing diameter (in):	6"

Sample Containers used: 6 # 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.: W-Es

Date: 6/25/2013

Samples sent to: BC Labs

Time	Cumulative Volume Purged (gal)	Temp C°	EC (µS/cm)	pH	ORP (millivolts)	DO (mg/L)	Remarks
10:10	0	22.11	1001	6.91	109.5	1.85	Grayish brown / clear, no odor, very few sediments
10:15	1.25	20.78	1004	6.98	151.5	0.55	Grayish brown / clear, no odor, very few sediments
10:20	2.50	21.82	960	7.08	161.2	0.63	Grayish brown / clear, no odor, very few sediments
10:25	3.75	21.83	951	7.09	160.6	0.61	Grayish brown / clear, no odor, very few sediments
10:30							Collected samples

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

Pumping Rate: 0.25 gal/min

Well Constructed TD (ft):	45.00
* Well TD (ft):	44.16
Silt Thickness (ft):	0.84
Initial DTW (ft):	37.32
Water column height (ft):	6.84
One casing volume (gal):	1.17
** Final DTW (ft):	37.32
Casing diameter (in):	2"

Sample Containers used: 6 # 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.: W-A

Date: 6/25/2013

Samples sent to: BC Labs

Time	Cumulative Volume Purged (gal)	Temp C°	EC (µS/cm)	pH	ORP (millivolts)	DO (mg/L)	Remarks
14:00	0	20.56	1257	7.10	-137.1	1.43	Greenish gray / clear, strong odor, very few sediments
14:20	11	20.59	1251	6.84	-121.0	1.11	Greenish gray / clear, strong odor, very few sediments
14:40	22	20.51	1256	6.83	-128.6	1.82	Clearish, Greenish gray / clear, strong odor, very few sediments
15:00	33	20.46	1255	6.84	-124.1	1.85	Clearish, Greenish gray / clear, strong odor, very few sediments
15:20							Collected Samples

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

Pumping Rate: 0.55 gal/min

Well Constructed TD (ft):	63.00
* Well TD (ft):	53.66
Silt Thickness (ft):	9.34
Initial DTW (ft):	36.85
Water column height (ft):	16.81
One casing volume (gal):	10.93
** Final DTW (ft):	36.93
Casing diameter (in):	4"

Sample Containers used: 6 # VOAs X preserved ____ non-preserved

____ # amber liters ____ preserved ____ non-preserved

____ # polys ____ ____ preserved ____ non-preserved

____ # polys ____ ____ preserved ____ non-preserved

Notes: Allowed for recharge prior to sampling. Maximum draw down to 39.3'

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.: W-1

Project No.: 1262.2

Date: 6/26/2013

Project Location: 187 N. L Street

Livermore, CA

Samples sent to: BC Labs

Time	Cumulative Volume Purged (gal)	Temp C°	EC (µS/cm)	pH	ORP (millivolts)	DO (mg/L)	Remarks
10:20	0	22.60	1196	6.83	-105.3	7.64	Greenish gray / clear, strong odor, very few sediments
10:45	3	20.50	1153	6.73	-109.6	2.35	Greenish gray / clear, strong odor, very few sediments
10:50	6	20.49	1155	6.73	-110.2	0.30	Greenish gray / clear, strong odor, very few sediments
10:55	9	20.49	1156	6.73	-110.6	0.28	Greenish gray / clear, strong odor, very few sediments
11:05							Collected Samples

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

Pumping Rate: 0.26 gal/min

Well Constructed TD (ft):	56.50
* Well TD (ft):	53.99
Silt Thickness (ft):	2.51
Initial DTW (ft):	37.24
Water column height (ft):	16.75
One casing volume (gal):	2.85
** Final DTW (ft):	37.29
Casing diameter (in):	2"

Sample Containers used: 6 # 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-4

Date: 6/24/2013

Samples sent to: BC Labs

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

Sample Containers used:

_____	# VOAs	X	preserved ____ non-preserved
_____	# amber liters	_____	preserved ____ non-preserved
_____	# polys _____	_____	preserved ____ non-preserved
_____	# polys _____	_____	preserved ____ non-preserved

Notes: 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)

Well I.D.: MW-104

Project No.: 1262.2

Date: 6/25/2013

Project Location: 187 N. L Street

Livermore, CA

Samples sent to: BC Labs

Time	Cumulative Volume Purged (gal)	Temp C°	EC (µS/cm)	pH	ORP (millivolts)	DO (mg/L)	Remarks
14:30	0.0						Milky gray, strong odor, very few sediments
14:35	0.5						Milky gray, strong odor, very few sediments
14:40							Collected Samples

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

Pumping Rate: 0.1 gal/min

Well Constructed TD (ft):	50.50
* Well TD (ft):	49.87
Silt Thickness (ft):	0.63
Initial DTW (ft):	37.08
Water column height (ft):	12.79
One casing volume (gal):	0.15
** Final DTW (ft):	37.08
Casing diameter (in):	CMT

Sample Containers used: 6 # VOAs X preserved ____ non-preserved

____ # amber liters ____ preserved ____ non-preserved

____ # polys ____ ____ preserved ____ non-preserved

____ # polys ____ ____ preserved ____ non-preserved

Notes: Strong bubbling reaction in VOA, groundwater was foamy.

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: 6/25/2013

Samples sent to: BC Labs

Time	Cumulative Volume Purged (gal)	Temp C°	EC (µS/cm)	pH	ORP (millivolts)	DO (mg/L)	Remarks
13:45	0						Greenish gray, strong odor, very few sediments
13:55	1.0						Greenish gray, strong odor, very few sediments
14:30							Collected Samples

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

Pumping Rate: 0.1 gal/min

Well Constructed TD (ft):	66.50
* Well TD (ft):	65.99
Silt Thickness (ft):	0.51
Initial DTW (ft):	37.09
Water column height (ft):	28.90
One casing volume (gal):	0.32
** Final DTW (ft):	37.09
Casing diameter (in):	CMT

Sample Containers used: 6 # VOAs X preserved ____ non-preserved

____ # VOAs ____ preserved ____ non-preserved

____ # polys ____ ____ preserved ____ non-preserved

____ # polys ____ ____ preserved ____ non-preserved

Notes: Strong bubbling reaction in VOA, groundwater was foamy

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.: W-1s

Project No.: 1262.2

Date: 6/26/2013

Project Location: 187 N. L Street

Livermore, CA

Samples sent to: BC Labs

Time	Cumulative Volume Purged (gal)	Temp C°	EC (µS/cm)	pH	ORP (millivolts)	DO (mg/L)	Remarks
11:15	0	22.09	1287	6.74	-97.7	2.22	Black w/slight sheen, strong odor, no sediments
11:40	10	22.18	1330	6.70	-131.0	0.10	Clearish, Black w/slight sheen, strong odor, no sediments
12:10	20	21.92	1335	6.70	-155.5	0.08	Clearish, Black w/slight sheen, strong odor, no sediments
12:40	30	21.94	1333	6.71	-159.8	0.07	Clearish, Black w/slight sheen, strong odor, no sediments
13:50							Collected Samples

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

Pumping Rate: 1.20 gal/min

Well Constructed TD (ft):	45.00
* Well TD (ft):	44.21
Silt Thickness (ft):	0.79
Initial DTW (ft):	37.6
Water column height (ft):	6.61
One casing volume (gal):	9.79
** Final DTW (ft):	38.02
Casing diameter (in):	6"

Sample Containers used: 6 # VOAs X preserved ____ non-preserved

____ # amber liters ____ preserved ____ non-preserved

____ # polys ____ ____ preserved ____ non-preserved

____ # polys ____ ____ preserved ____ non-preserved

Notes: Maximum drawdown to 42.7' BGS. Slow purge due to slow recharge. Stopped to allow for recharge. Allowed recharge prior to sampling.

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.: W-3s

Project No.: 1262.2

Date: 6/25/2013

Project Location: 187 N. L Street

Livermore, CA

Samples sent to: BC Labs

Time	Cumulative Volume Purged (gal)	Temp C°	EC (µS/cm)	pH	ORP (millivolts)	DO (mg/L)	Remarks
10:45	0	19.87	1083	6.95	-51.3	0.61	Blackish brown, mild odor, lots of sediments & bio-foul
11:15	4.25	19.76	1168	6.45	-82.0	0.74	Grayish clear, mild odor, very few sediments
11:45	8.50	20.22	1232	6.43	-61.1	1.09	Grayish clear, mild odor, very few sediments
12:15	12.75	20.31	1243	6.43	-60.2	1.03	Grayish clear, mild odor, very few sediments
12:20							Collected Samples

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

Pumping Rate: 0.14 gal/min

Well Constructed TD (ft):	45.00
* Well TD (ft):	43.11
Silt Thickness (ft):	1.89
Initial DTW (ft):	36.95
Water column height (ft):	6.16
One casing volume (gal):	4.01
** Final DTW (ft):	38.03
Casing diameter (in):	4"

Sample Containers used: 6 # VOAs X preserved ___ non-preserved

___ # amber liters ___ preserved ___ non-preserved

___ # polys ___ ___ preserved ___ non-preserved

___ # polys ___ ___ preserved ___ non-preserved

Notes: Slow purge due to slow recharge. Maximum draw down to 41.2'

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.: W-Bs

Project No.: 1262.2

Date: 6/25/2013

Project Location: 187 N. L Street

Livermore, CA

Samples sent to: BC Labs

Time	Cumulative Volume Purged (gal)	Temp C°	EC (µS/cm)	pH	ORP (millivolts)	DO (mg/L)	Remarks
12:50	0.0	20.20	841	7.15	-12.6	0.98	Greenish clear, mild odor, very few sediments
13:10	10.5	20.78	919	6.73	-119.0	0.68	Clear, mild odor, no sediments
13:35	21.0	21.10	921	6.74	-101.3	0.81	Clear, mild odor, no sediments
13:55	31.5	21.16	919	6.75	-92.1	0.84	Clear, mild odor, no sediments
15:10							Collected Samples

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

Pumping Rate: 0.48 gal/min

Well Constructed TD (ft):	45.00
* Well TD (ft):	44.39
Silt Thickness (ft):	0.61
Initial DTW (ft):	37.32
Water column height (ft):	7.07
One casing volume (gal):	10.35
** Final DTW (ft):	37.41
Casing diameter (in):	6"

Sample Containers used: 6 # 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.: W-Es

Date: 6/25/2013

Samples sent to: BC Labs

Time	Cumulative Volume Purged (gal)	Temp C°	EC (µS/cm)	pH	ORP (millivolts)	DO (mg/L)	Remarks
10:10	0	22.11	1001	6.91	109.5	1.85	Grayish brown / clear, no odor, very few sediments
10:15	1.25	20.78	1004	6.98	151.5	0.55	Grayish brown / clear, no odor, very few sediments
10:20	2.50	21.82	960	7.08	161.2	0.63	Grayish brown / clear, no odor, very few sediments
10:25	3.75	21.83	951	7.09	160.6	0.61	Grayish brown / clear, no odor, very few sediments
10:30							Collected samples

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

Pumping Rate: 0.25 gal/min

Well Constructed TD (ft):	45.00
* Well TD (ft):	44.16
Silt Thickness (ft):	0.84
Initial DTW (ft):	37.32
Water column height (ft):	6.84
One casing volume (gal):	1.17
** Final DTW (ft):	37.32
Casing diameter (in):	2"

Sample Containers used: 6 # 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.: W-A

Date: 6/25/2013

Samples sent to: BC Labs

Time	Cumulative Volume Purged (gal)	Temp C°	EC (µS/cm)	pH	ORP (millivolts)	DO (mg/L)	Remarks
14:00	0	20.56	1257	7.10	-137.1	1.43	Greenish gray / clear, strong odor, very few sediments
14:20	11	20.59	1251	6.84	-121.0	1.11	Greenish gray / clear, strong odor, very few sediments
14:40	22	20.51	1256	6.83	-128.6	1.82	Clearish, Greenish gray / clear, strong odor, very few sediments
15:00	33	20.46	1255	6.84	-124.1	1.85	Clearish, Greenish gray / clear, strong odor, very few sediments
15:20							Collected Samples

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

Pumping Rate: 0.55 gal/min

Well Constructed TD (ft):	63.00
* Well TD (ft):	53.66
Silt Thickness (ft):	9.34
Initial DTW (ft):	36.85
Water column height (ft):	16.81
One casing volume (gal):	10.93
** Final DTW (ft):	36.93
Casing diameter (in):	4"

Sample Containers used: 6 # VOAs X preserved ____ non-preserved

____ # amber liters ____ preserved ____ non-preserved

____ # polys ____ ____ preserved ____ non-preserved

____ # polys ____ ____ preserved ____ non-preserved

Notes: Allowed for recharge prior to sampling. Maximum draw down to 39.3'

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.: W-1

Project No.: 1262.2

Date: 6/26/2013

Project Location: 187 N. L Street

Livermore, CA

Samples sent to: BC Labs

Time	Cumulative Volume Purged (gal)	Temp C°	EC (µS/cm)	pH	ORP (millivolts)	DO (mg/L)	Remarks
10:20	0	22.60	1196	6.83	-105.3	7.64	Greenish gray / clear, strong odor, very few sediments
10:45	3	20.50	1153	6.73	-109.6	2.35	Greenish gray / clear, strong odor, very few sediments
10:50	6	20.49	1155	6.73	-110.2	0.30	Greenish gray / clear, strong odor, very few sediments
10:55	9	20.49	1156	6.73	-110.6	0.28	Greenish gray / clear, strong odor, very few sediments
11:05							Collected Samples

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

Pumping Rate: 0.26 gal/min

Well Constructed TD (ft):	56.50
* Well TD (ft):	53.99
Silt Thickness (ft):	2.51
Initial DTW (ft):	37.24
Water column height (ft):	16.75
One casing volume (gal):	2.85
** Final DTW (ft):	37.29
Casing diameter (in):	2"

Sample Containers used: 6 # 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-4

Date: 6/24/2013

Samples sent to: BC Labs

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

Sample Containers used:

_____	# VOAs	X	preserved ____ non-preserved
_____	# amber liters	_____	preserved ____ non-preserved
_____	# polys _____	_____	preserved ____ non-preserved
_____	# polys _____	_____	preserved ____ non-preserved

Notes: 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)

Well I.D.: MW-104

Project No.: 1262.2

Date: 6/25/2013

Project Location: 187 N. L Street

Livermore, CA

Samples sent to: BC Labs

Time	Cumulative Volume Purged (gal)	Temp C°	EC (µS/cm)	pH	ORP (millivolts)	DO (mg/L)	Remarks
14:30	0.0						Milky gray, strong odor, very few sediments
14:35	0.5						Milky gray, strong odor, very few sediments
14:40							Collected Samples

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

Pumping Rate: 0.1 gal/min

Well Constructed TD (ft):	50.50
* Well TD (ft):	49.87
Silt Thickness (ft):	0.63
Initial DTW (ft):	37.08
Water column height (ft):	12.79
One casing volume (gal):	0.15
** Final DTW (ft):	37.08
Casing diameter (in):	CMT

Sample Containers used: 6 # VOAs X preserved ____ non-preserved

____ # amber liters ____ preserved ____ non-preserved

____ # polys ____ ____ preserved ____ non-preserved

____ # polys ____ ____ preserved ____ non-preserved

Notes: Strong bubbling reaction in VOA, groundwater was foamy.

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: 6/25/2013

Samples sent to: BC Labs

Time	Cumulative Volume Purged (gal)	Temp C°	EC (µS/cm)	pH	ORP (millivolts)	DO (mg/L)	Remarks
13:45	0						Greenish gray, strong odor, very few sediments
13:55	1.0						Greenish gray, strong odor, very few sediments
14:30							Collected Samples

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

Pumping Rate: 0.1 gal/min

Well Constructed TD (ft):	66.50
* Well TD (ft):	65.99
Silt Thickness (ft):	0.51
Initial DTW (ft):	37.09
Water column height (ft):	28.90
One casing volume (gal):	0.32
** Final DTW (ft):	37.09
Casing diameter (in):	CMT

Sample Containers used: 6 # VOAs X preserved ____ non-preserved

____ # VOAs ____ preserved ____ non-preserved

____ # polys ____ ____ preserved ____ non-preserved

____ # polys ____ ____ preserved ____ non-preserved

Notes: Strong bubbling reaction in VOA, groundwater was foamy

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-304

Project No.: 1262.2

Date: 6/25/2013

Project Location: 187 N. L Street

Livermore, CA

Samples sent to: BC Labs

Time	Cumulative Volume Purged (gal)	Temp C°	EC (µS/cm)	pH	ORP (millivolts)	DO (mg/L)	Remarks
13:30	0						Light brown, mild odor, very few sediments
13:45	1.3						Light brown, mild odor, very few sediments
14:20							Collected Samples

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

Pumping Rate: 0.09 gal/min

Well Constructed TD (ft):	75.50
* Well TD (ft):	75.12
Silt Thickness (ft):	0.38
Initial DTW (ft):	37.18
Water column height (ft):	37.94
One casing volume (gal):	0.42
** Final DTW (ft):	37.18
Casing diameter (in):	CMT

Sample Containers used: 6 # 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)

Well I.D.: MW-304

Project No.: 1262.2

Date: 6/25/2013

Project Location: 187 N. L Street

Livermore, CA

Samples sent to: BC Labs

Time	Cumulative Volume Purged (gal)	Temp C°	EC (µS/cm)	pH	ORP (millivolts)	DO (mg/L)	Remarks
13:30	0						Light brown, mild odor, very few sediments
13:45	1.3						Light brown, mild odor, very few sediments
14:20							Collected Samples

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

Pumping Rate: 0.09 gal/min

Well Constructed TD (ft):	75.50
* Well TD (ft):	75.12
Silt Thickness (ft):	0.38
Initial DTW (ft):	37.18
Water column height (ft):	37.94
One casing volume (gal):	0.42
** Final DTW (ft):	37.18
Casing diameter (in):	CMT

Sample Containers used: 6 # 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)

Well I.D.: MW-404

Project No.: 1262.2

Date: 6/25/2013

Project Location: 187 N. L Street

Livermore, CA

Samples sent to: BC Labs

Time	Cumulative Volume Purged (gal)	Temp C°	EC (µS/cm)	pH	ORP (millivolts)	DO (mg/L)	Remarks
13:05	0						Light brown, mild odor, no sediments
13:30	1.5						Light brown, mild odor, no sediments
14:10							Collected Samples

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

Pumping Rate: 0.06 gal/min

Well Constructed TD (ft):	81.50
* Well TD (ft):	81.00
Silt Thickness (ft):	0.50
Initial DTW (ft):	37.34
Water column height (ft):	43.66
One casing volume (gal):	0.48
** Final DTW (ft):	37.34
Casing diameter (in):	CMT

Sample Containers used: 6 # 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)

Well I.D.: MW-5

Project No.: 1262.2

Date: 6/24/2013

Project Location: 187 N. L Street

Livermore, CA

Samples sent to: BC Labs

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):	Dry
Water column height (ft):	
One casing volume (gal):	
** Final DTW (ft):	
Casing diameter (in):	CMT

Sample Containers used:

_____ # VOAs	X	preserved ____ non-preserved
_____ # amber liters	____	preserved ____ non-preserved
_____ # polys _____	____	preserved ____ non-preserved
_____ # polys _____	____	preserved ____ non-preserved

Notes: 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-105

Date: 6/24/2013

Samples sent to: BC Labs

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):	37.00
* Well TD (ft):	
Silt Thickness (ft):	
Initial DTW (ft):	35.43
Water column height (ft):	
One casing volume (gal):	
** Final DTW (ft):	
Casing diameter (in):	CMT

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

_____ # amber liters _____ preserved ____ non-preserved

_____ # polys _____ _____ preserved ____ non-preserved

_____ # polys _____ _____ preserved ____ non-preserved

Notes: Not enough water in CMT column 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-205

Date: 6/25/2013

Samples sent to: BC Labs

Time	Cumulative Volume Purged (gal)	Temp C°	EC (µS/cm)	pH	ORP (millivolts)	DO (mg/L)	Remarks
11:50	0						Light brown / clear, mild odor, very few sediments
12:00	0.5						Light brown / clear, mild odor, very few sediments
12:40							Collected Samples

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

Pumping Rate: 0.05 gal/min

Well Constructed TD (ft):	48.00
* Well TD (ft):	47.79
Silt Thickness (ft):	0.21
Initial DTW (ft):	36.79
Water column height (ft):	11.00
One casing volume (gal):	0.13
** Final DTW (ft):	36.79
Casing diameter (in):	CMT

Sample Containers used: 6 # 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)

Well I.D.: MW-305

Project No.: 1262.2

Date: 6/25/2013

Project Location: 187 N. L Street

Livermore, CA

Samples sent to: BC Labs

Time	Cumulative Volume Purged (gal)	Temp C°	EC (µS/cm)	pH	ORP (millivolts)	DO (mg/L)	Remarks
11:30	0						Milky light brown, mild odor, very few sediments
11:50	1.0						Milky light brown, mild odor, very few sediments
12:30							Collected Samples

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

Pumping Rate: 0.05 gal/min

Well Constructed TD (ft):	66.00
* Well TD (ft):	65.70
Silt Thickness (ft):	0.30
Initial DTW (ft):	37.07
Water column height (ft):	28.63
One casing volume (gal):	0.32
** Final DTW (ft):	37.07
Casing diameter (in):	CMT

Sample Containers used: 6 # 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-6

Date: 6/24/2013

Samples sent to: BC Labs

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

Sample Containers used:

_____ # VOAs	X preserved	____ non-preserved
_____ # amber liters	_____ preserved	____ non-preserved
_____ # polys _____	_____ preserved	____ non-preserved
_____ # polys _____	_____ preserved	____ non-preserved

Notes: 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-106

Date: 6/24/2013

Samples sent to: BC Labs

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):	37.00
* Well TD (ft):	
Silt Thickness (ft):	
Initial DTW (ft):	36.07
Water column height (ft):	
One casing volume (gal):	
** Final DTW (ft):	
Casing diameter (in):	CMT

Sample Containers used: 6 # VOAs X preserved ____ non-preserved

_____ # VOAs _____ preserved ____ non-preserved

_____ # polys _____ _____ preserved ____ non-preserved

_____ # polys _____ _____ preserved ____ non-preserved

Notes: Too short of water column to sample

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: 6/24/2013

Samples sent to: BC Labs

Time	Cumulative Volume Purged (gal)	Temp C°	EC (µS/cm)	pH	ORP (millivolts)	DO (mg/L)	Remarks
13:50	0						Light brown / clear, septic odor, very few sediements
14:00	0.5						Light brown / clear, septic odor, very few sediements
14:05							Collected Samples

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

Pumping Rate: 0.05 gal/min

Well Constructed TD (ft):	50.00
* Well TD (ft):	50.91
Silt Thickness (ft):	
Initial DTW (ft):	37.05
Water column height (ft):	13.86
One casing volume (gal):	0.16
** Final DTW (ft):	37.05
Casing diameter (in):	CMT

Sample Containers used: 6 # 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-306

Date: 6/24/2013

Samples sent to: BC Labs

Time	Cumulative Volume Purged (gal)	Temp C°	EC (µS/cm)	pH	ORP (millivolts)	DO (mg/L)	Remarks
13:20	0						Light brown / clear, septic odor, very few sediments
13:40	1.0						Light brown / clear, septic odor, very few sediments
13:45							Collected Samples

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

Pumping Rate: 0.05 gal/min

Well Constructed TD (ft):	66.00
* Well TD (ft):	66.70
Silt Thickness (ft):	
Initial DTW (ft):	37.10
Water column height (ft):	29.60
One casing volume (gal):	0.33
** Final DTW (ft):	37.10
Casing diameter (in):	CMT

Sample Containers used: 6 # 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: 6/24/2013

Samples sent to: BC Labs

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

Sample Containers used:

_____ # VOAs	_X_ preserved	____ non-preserved
_____ # amber liters	____ preserved	____ non-preserved
_____ # polys _____	_____ preserved	____ non-preserved
_____ # polys _____	_____ preserved	____ non-preserved

Notes: 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-107

Date: 6/24/2013

Samples sent to: BC Labs

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):	40.00
* Well TD (ft):	
Silt Thickness (ft):	
Initial DTW (ft):	37.10
Water column height (ft):	
One casing volume (gal):	
** Final DTW (ft):	
Casing diameter (in):	CMT

Sample Containers used: 6 # VOAs X preserved ____ non-preserved

_____ # amber liters _____ preserved ____ non-preserved

_____ # polys _____ _____ preserved ____ non-preserved

_____ # polys _____ _____ preserved ____ non-preserved

Notes: Not enough water in well to purge/collect sample

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: 6/24/2013

Samples sent to: BC Labs

Time	Cumulative Volume Purged (gal)	Temp C°	EC (µS/cm)	pH	ORP (millivolts)	DO (mg/L)	Remarks
14:35	0						Milky light brown, strong odor, very few sediments
14:45	0.5						Milky light brown, strong odor, very few sediments
14:50							Collected Samples

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

Pumping Rate: 0.05 gal/min

Well Constructed TD (ft):	50.00
* Well TD (ft):	49.21
Silt Thickness (ft):	0.79
Initial DTW (ft):	38.17
Water column height (ft):	11.04
One casing volume (gal):	0.13
** Final DTW (ft):	38.17
Casing diameter (in):	CMT

Sample Containers used: 6 # 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)

Well I.D.: MW-307

Project No.: 1262.2

Date: 6/24/2013

Project Location: 187 N. L Street

Livermore, CA

Samples sent to: BC Labs

Time	Cumulative Volume Purged (gal)	Temp C°	EC (µS/cm)	pH	ORP (millivolts)	DO (mg/L)	Remarks
14:10	0						Milky light brown, mild odor, very few sediments
14:25	1.0						Milky light brown, mild odor, very few sediments
14:30							Collected Samples

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

Pumping Rate: 0.06 gal/min

Well Constructed TD (ft):	66.00
* Well TD (ft):	67.70
Silt Thickness (ft):	
Initial DTW (ft):	37.75
Water column height (ft):	29.95
One casing volume (gal):	0.33
** Final DTW (ft):	37.75
Casing diameter (in):	CMT

Sample Containers used: 6 # 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-8

Date: 6/24/2013

Samples sent to: BC Labs

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

Sample Containers used: 6 # VOAs X preserved ____ non-preserved

_____ # amber liters _____ preserved _____ non-preserved

_____ # polys _____ _____ preserved _____ non-preserved

_____ # polys _____ _____ preserved _____ non-preserved

Notes: 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)

Well I.D.: MW-108

Project No.: 1262.2

Date: 6/24/2013

Project Location: 187 N. L Street

Livermore, CA

Samples sent to: BC Labs

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):	40.00
* Well TD (ft):	
Silt Thickness (ft):	
Initial DTW (ft):	37.29
Water column height (ft):	
One casing volume (gal):	
** Final DTW (ft):	
Casing diameter (in):	CMT

Sample Containers used: 6 # VOAs __X__ preserved ____ non-preserved

_____ # VOAs _____ preserved ____ non-preserved

_____ # polys _____ _____ preserved ____ non-preserved

_____ # polys _____ _____ preserved ____ non-preserved

Notes: Too small of water column to sample

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: 6/24/2013

Samples sent to: BC Labs

Time	Cumulative Volume Purged (gal)	Temp C°	EC (µS/cm)	pH	ORP (millivolts)	DO (mg/L)	Remarks
15:15	0						Blackish clear, strong odor, very few sediments
15:25	0.5						Blackish clear, strong odor, very few sediments
15:30							Collected Samples

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

Pumping Rate: 0.05 gal/min

Well Constructed TD (ft):	52.00
* Well TD (ft):	50.81
Silt Thickness (ft):	1.19
Initial DTW (ft):	38.17
Water column height (ft):	12.64
One casing volume (gal):	0.14
** Final DTW (ft):	38.17
Casing diameter (in):	CMT

Sample Containers used: 6 # VOAs X preserved ____ non-preserved

____ # amber liters ____ preserved ____ non-preserved

____ # polys ____ ____ preserved ____ non-preserved

____ # polys ____ ____ preserved ____ non-preserved

Notes: Strong reaction in VOA, water was foamy

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-308

Project No.: 1262.2

Date: 6/24/2013

Project Location: 187 N. L Street

Livermore, CA

Samples sent to: BC Labs

Time	Cumulative Volume Purged (gal)	Temp C°	EC (µS/cm)	pH	ORP (millivolts)	DO (mg/L)	Remarks
14:55	0						Blackish clear, strong odor, very few sediments
15:10	1.0						Blackish clear, strong odor, very few sediments
15:15							Collected Samples

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

Pumping Rate: 0.06 gal/min

Well Constructed TD (ft):	66.00
* Well TD (ft):	63.50
Silt Thickness (ft):	2.50
Initial DTW (ft):	37.77
Water column height (ft):	25.73
One casing volume (gal):	0.29
** Final DTW (ft):	37.77
Casing diameter (in):	CMT

Sample Containers used: 6 # 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

Appendix D

Vertical Groundwater Gradient Calculation Procedure

Appendix D: Vertical Groundwater Gradient Calculation Procedure

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

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