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By Alameda County Environmental Health at 3:48 pm, Feb 13, 2015

January 29, 2015

Mr. Keith Nowell  
Alameda County Health Care Services Agency  
1131 Harbor Bay Parkway, Suite 250  
Alameda, CA 94502-6577

**Subject: Quarterly Summary Report, Fourth Quarter 2014**  
**Site: 76 Station No. 5191/5043**  
**449 Hegenberger Road**  
**Oakland, California**  
**Fuel Leak Case No. RO0000219**

Dear Mr. Nowell;

I declare under penalty of perjury that to the best of my knowledge the information and/or recommendations contained in the attached report is/are true and correct.

If you have any questions or need additional information, please call:

Walter T. Sprague  
Pacific Convenience & Fuel  
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Pleasanton, California 94566  
Tel: (925) 931-5714  
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WSprague@pcandf.com

Sincerely,

**PACIFIC CONVENIENCE & FUEL**

  
**WALTER SPRAGUE**  
Director of Retail Services

Attachment

# *Quarterly Summary Report, Fourth Quarter 2014*

*76 Station No. 5191/5043  
449 Hegenberger Road  
Oakland, California*

*Alameda County Health Care Services  
Agency Fuel Leak Case No. RO0000219*

*San Francisco Bay, Regional Water Quality  
Control Board Case No. 01-1601*

*GeoTracker Global ID No. T0600101476*

*Antea Group Project No. I42705191*

*January 29, 2015*

*Prepared for:*  
**Mr. Keith Nowell**  
Alameda County Health Care  
Services Agency  
1131 Harbor Bay Parkway,  
Suite 250  
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# Table of Contents

1.0	INTRODUCTION .....	1
1.1	Work Performed [Fourth Quarter 2014].....	1
1.2	Work Proposed [First Quarter 2015].....	1
2.0	CURRENT PROJECT STATUS .....	2
2.1	Regulatory Correspondence.....	2
2.2	Remedial Activities.....	2
2.3	Groundwater Monitoring.....	2
2.3.1	Groundwater Flow Gradient and Directional Trends .....	3
2.3.2	Groundwater Quality Data .....	3
2.3.3	Groundwater Contaminant Trends.....	4
2.3.4	Waste Disposal Summary .....	5
2.3.5	Quality Assurance / Quality Control .....	5
3.0	LOW THREAT CLOSURE POLICY CHECKLIST .....	6
4.0	RECOMMENDATIONS .....	6
5.0	REMARKS .....	7

## Figures

Figure 1	Site Location Map
Figure 2	Site Plan
Figure 3	Groundwater Elevation Contour Map – December 22, 2014
Figure 4	Dissolved Phase TPHg Isoconcentration Map – December 22, 2014
Figure 5	Dissolved Phase Benzene Isoconcentration Map – December 22, 2014
Figure 6	Dissolved Phase MTBE Isoconcentration Map – December 22, 2014
Figure 7	Dissolved Phase TPHd Isoconcentration Map – December 22, 2014
Figure 8	Historical Groundwater Flow Directions

## Tables

Table 1	Well Construction Details
Table 2	Current Groundwater Gauging and Analytical Data
Table 3	Historical Groundwater Gauging and Analytical Data
Table 3a	Additional Historical Groundwater Analytical Data
Table 3b	Additional Historical Groundwater Analytical Data
Table 3c	Additional Historical Groundwater Analytical Data
Table 3d	Additional Historical Groundwater Analytical Data
Table 4	Historical Groundwater Gradient and Flow Direction Data

## *Appendices*

Appendix A	Previous Investigation and Site History Summary
Appendix B	Antea Group Groundwater Sampling Procedures
Appendix C	Antea Group Groundwater Sampling Field Data Sheets
Appendix D	Certified Laboratory Analytical Report and Data Validation Form
Appendix E	Concentration vs. Time Graphs
Appendix F	Mann-Kendall Statistical Analysis

## 1.0 INTRODUCTION

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Antea Group is pleased to submit this *Quarterly Summary Report, Fourth Quarter 2014*, for the referenced site in Oakland, California (**Figure 1**). The subject site is an operating 76 station located on the southwestern corner of Hegenberger Road and Edgewater Drive in Oakland, CA. Station facilities include three underground storage tanks (USTs), two dispenser islands, a station building, and a carwash. A total of ten groundwater monitoring wells are located at or near the site (**Figure 2**). Please refer to **Appendix A** for additional site information and for the history of environmental investigations and remedial actions.

This report summarizes the data obtained from the recent groundwater monitoring and sampling event conducted on December 22, 2014. Included herein are site figures, groundwater contaminant data tables, and a discussion of trends. This report has received a technical review by Mr. Dennis Dettloff, California Professional Geologist No. 7480.

### 1.1 Work Performed [Fourth Quarter 2014]

1. Antea Group submitted the *Quarterly Summary Report, Third Quarter 2014*, dated October 27, 2014 to the Alameda County Health Care Services Agency (ACHCSA).
2. Antea Group submitted the *Revised Remedial Design and Implementation Plan* dated October 29, 2014 to the ACHCSA.
3. Antea Group submitted a *Site Investigation Report* dated November 12, 2014, outlining the results of the off-site soil boring activities to the ACHCSA.
4. Antea Group conducted the fourth quarter 2014 groundwater monitoring and sampling event on December 22, 2014.

### 1.2 Work Proposed [First Quarter 2015]

1. Antea Group will submit the *Quarterly Summary Report, Fourth Quarter 2014* (contained herein) to the ACHCSA.
2. Antea Group will continue to work towards completing the on-site soil excavation activities.
3. Antea Group will conduct the first quarter 2015 monitoring and sampling event.

## 2.0 CURRENT PROJECT STATUS

Current phase of project:	Quarterly Groundwater Monitoring
Local Oversight Program (LOP) – Lead agency for cleanup oversight:	Alameda County Health Care Services Agency Case No. RO0000219
Secondary agency(s):	San Francisco Bay Regional Water Quality Control Board Case No. 01-1601
Monitoring well gauging schedule:	Quarterly: MW-3, MW-6 through MW-9, MW-11, and MW-13 through MW-16
Monitoring well sampling schedule:	Quarterly: MW-6, MW-11, and MW-13 through 16 Semi-Annual (second and fourth quarters): MW-3, MW-6 through MW-9, MW-11, and MW-13 through MW-16
Total number of monitoring/remediation wells (Table 1):	Ten (MW-3, MW-6 through MW-9, MW-11, and MW-13 through MW-16)
Range of well depths (total depth below ground surface, bgs) (Table 1):	Wells are set from 13 feet to 20 feet bgs
Wells with historical measurable LNAPL (light non-aqueous phase liquid):	Former monitoring wells MW-1 and MW-2 and current monitoring well MW-6
Historical depth to water range, in feet below top of casing (BTOC):	Min: 0.07 (MW-9, Q1 2005) Max: 8.42 (MW-6, Q4 2010)
Historical groundwater elevation range (ft) for monitoring wells MW-1 through MW-17	Min: 2.77 (MW-3, Q3 1994) Max: 9.70 (MW-9, Q3 2012)
Local receptors:	See <b>Appendix A</b>
Current remediation technique	None

### 2.1 Regulatory Correspondence

Antea Group sent an email to ACHCSA on October 20, 2014 discussing the access issues with the adjacent property owner (Mr. Beretta). Due to lack of an access agreement with Mr. Beretta, monitoring wells MW-7 and MW-8 will not be sampled until Mr. Beretta grants Antea Group access.

Antea Group was copied on an email from ACHCSA to Mr. Beretta. ACHCSA determined that the access requirements offered in the access agreement are reasonable standard business practices. ACHCSA asked Mr. Beretta to grant access to monitoring wells MW-7 and MW-8 so that they could be sampled as they have been since well installation in 1997.

### 2.2 Remedial Activities

No remedial activities took place during the fourth quarter 2014.

### 2.3 Groundwater Monitoring

During the fourth quarter 2014 groundwater monitoring and sampling event, eight monitoring wells were gauged, purged, and sampled by Antea Group per standard sampling protocol (**Appendix B**). Monitoring wells MW-7 and MW-8 were not gauged or sampled due to the off-site property owner, Mr. Beretta, denying access to the

property. Copies of Antea Group’s field data sheets are presented as **Appendix C**. The recent gauging and sampling data are summarized below and in **Table 2**. Historical gauging and sampling data are summarized in **Tables 3, 3a, 3b, 3c, and 3d**.

Well gauging and sampling date:	December 22, 2014
Wells gauged:	MW-3, MW-6, MW-9, MW-11, and MW-13 through MW-16
Wells sampled:	MW-3, MW-6, MW-9, MW-11, and MW-13 through MW-16
Purge method:	3 well casing volumes via electric, submersible pump
Sample collection method:	Disposable bailers
Groundwater parameters measured ( <b>Attachment C</b> ):	Temperature, pH, Conductivity, Dissolved Oxygen (DO), Oxidation Reduction Potential (ORP), and Turbidity
Wells with measurable LNAPL:	None
Current depth to water range (ft BTOC):	Min: 1.53 (MW-11) Max: 3.18 (MW-14)
Current groundwater elevation range (ft):	Min: 7.87 (MW-16) Max: 9.36 (MW-9)
Change in water depths from previous event (average change for all gauged wells):	1.61 foot decrease
Groundwater flow direction and gradient in foot per foot (ft/ft):	Variable

### 2.3.1 Groundwater Flow Gradient and Directional Trends

The fourth quarter 2014 groundwater monitoring and sampling event was performed by Antea Group on December 22, 2014. The average groundwater elevation increased 1.61 feet from the September 2014 event. Depth to groundwater in the site monitoring wells ranged from 1.53 feet (MW-11) to 3.18 feet (MW-14) BTOC during the current event. The groundwater flow direction and gradient were interpreted to be variable during the current event (**Table 4 and Figure 8**).

### 2.3.2 Groundwater Quality Data

Groundwater samples collected during the fourth quarter 2014 monitoring and sampling event were submitted with chain-of-custody (COC) documentation to Pace Analytical (Pace), a state of California Environmental Laboratory Accreditation Program (ELAP) certified laboratory (Certification No. 08263CA). The complete analytical report and Antea Group’s laboratory data validation checklist are presented as **Appendix D**. Groundwater samples were analyzed for one or more of the following:

- Total petroleum hydrocarbons as diesel (TPHd) [silica gel treated] by Environmental Protection Agency (EPA) Method 8015M;
- Total petroleum hydrocarbons as gasoline (TPHg), benzene, toluene, ethylbenzene, and total xylenes (BTEX), methyl tertiary-butyl ether (MTBE), tertiary-butyl alcohol (TBA), and ethanol by EPA Method 8260B.

Groundwater analytical results are presented in **Table 2** (current) and **Tables 3, 3a, 3b, 3c, and 3d** (historical). The following ranges of contaminant concentrations were reported in the specified site wells, groundwater samples collected on December 22, 2014. Only the reported contaminants are listed in the table below.

Constituents	Number of Reported Samples Above LRL of the Samples Collected	Minimum Reported Concentration, in µg/L (Sample ID)	Maximum Reported Concentration, in µg/L (Sample ID)
TPHg	3 of 8	250 (MW-3)	49,000 (MW-6)
TPHd	1 of 8	250* (MW-6)	250* (MW-6)
Benzene	4 of 8	0.50 (MW-15)	2,000 (MW-6)
Toluene	2 of 8	3.8 (MW-14)	120 (MW-6)
Ethylbenzene	2 of 8	260 (MW-14)	1,600 (MW-6)
Total Xylenes	2 of 8	540 (MW-14)	7,700 (MW-6)
MTBE	7 of 8	5.2 (MW-9)	65 (MW-15)
TBA	6 of 8	12 (MW-14)	150 (MW-6)

**Explanations:**

µg/L = Micrograms per liter

LRL = Laboratory reporting limit

\* Lower boiling hydrocarbons present, atypical for Diesel Fuel.

### 2.3.3 Groundwater Contaminant Trends

During the fourth quarter 2014, analytical results from the groundwater sample collected from monitoring well MW-3 indicated that TPHg, MTBE, and TBA decreased in concentration. Analytical results from the groundwater sample collected from monitoring well MW-6 indicated that TPHd, MTBE and TBA decreased in concentration and TPHg and BTEX increased in concentration. Analytical results from the groundwater sample collected from monitoring well MW-9 indicated that MTBE increased in concentration. Analytical results from the groundwater sample collected from monitoring well MW-11 indicated that MTBE increased in concentration. Analytical results from the groundwater sample collected from monitoring well MW-13 indicated that MTBE did not change in concentration and TBA decreased in concentration. Analytical results from the groundwater sample collected from monitoring well MW-14 indicated that TPHd, TPHg, BTEX, and TBA decreased in concentration. Analytical results from the groundwater sample collected from monitoring well MW-15 indicated that MTBE and TBA decreased in concentration. Analytical results from the groundwater sample collected from monitoring well MW-16 indicated that benzene increased in concentration and MTBE and TBA decreased in concentration. Isoconcentration maps for TPHg, benzene, MTBE, and TPHd are presented on **Figures 4 through 7** and historical groundwater flow directions are shown on **Figure 8**. Concentration versus time graphs for monitoring wells MW-6, MW-13, MW-14, and MW-17 are presented as **Appendix E**. Based on the graphs, concentrations of TPHd, TPHg, and benzene in monitoring well MW-6 are decreasing over time and MTBE is stable. Concentrations of TPHd, TPHg, and MTBE are decreasing in monitoring well MW-13 and benzene is stable. Concentrations of MTBE are stable or increasing in monitoring well MW-14 and TPHg, TPHd, and benzene are decreasing. Concentrations of TPHg, TPHd, benzene, and MTBE are stable or decreasing over time in monitoring well MW-17.





A Mann-Kendall (M-K) trend analysis was performed on monitoring well MW-6 for TPHg, benzene, TPHd, and MTBE concentration data, on monitoring well MW-13 for TPHg and MTBE concentration data, and on monitoring wells MW-14 and MW-17 for TPHg, benzene, and TPHd concentration data. The M-K analysis is a non-parametric test that is helpful in identifying trends over time. It is the result of a comparison of each value in a data set with all previous values in the data set. For this site, comparisons of contaminant data for the past 10 sampling events were used (i.e., n=10, with the most recent data being Event #11).

The recent M-K trend analyses for TPHg and benzene in monitoring well MW-14 indicate a certain increasing trend. TPHg, benzene, and MTBE in monitoring well MW-6 and TPHg and benzene in monitoring well MW-17 indicate no trend or stable but increasing trend. M-K trend analyses for TPHg in monitoring well MW-13 and TPHd in monitoring well MW-14 indicate a no trend or stable but decreasing trend. M-K trend analysis for TPHd in monitoring well MW-6 indicates a probable decreasing trend. M-K trend analyses for MTBE in monitoring well MW-13 and TPHd in monitoring well MW-17 indicate a certain decreasing trend. A summary of the results of the Mann-Kendall trend analyses and the M-K trend analyses statistical computation tables are presented as **Appendix F**.

### 2.3.4 Waste Disposal Summary

Approximately 72 gallons of waste water were generated during well purging/sampling and equipment cleaning during the fourth quarter event. Water generated during well sampling and equipment cleaning was placed into a properly labeled 55-gallon Department of Transportation (DOT) approved steel drum and temporarily stored on-site. The waste is currently being profiled using analytical results for the monitoring wells sampled during the recent sampling event. Subsequent to waste profiling, the waste will be transported off-site by Belshire Environmental Services to an approved disposal facility. Field procedures for purge water handling and disposal are included in **Appendix B**.

### 2.3.5 Quality Assurance / Quality Control

Antea Group's QA/QC measures included use of a field duplicate and a detailed QA/QC data validation check of the Pace laboratory analytical results for the December 2014 sampling event. Antea Group's laboratory data validation checklist and the Pace laboratory report are presented as **Appendix D**.

Laboratory QA/QC Performed:	Yes (validated by Antea Group)
Laboratory Data Qualifiers:	Yes – three qualifiers*
Are the data valid for their intended purpose?	Yes, the data are valid

\* Recoveries for some Matrix Spike/Matrix Spike Duplicate analytes were outside of control limits. This may indicate a bias for the samples that were spiked. Since the LCS recoveries were within control limits, no data are flagged.

\* LCS results associated with samples MW-13\_20141231, MW-15\_20141231, MW-16\_20141231, MW-3\_20141231, and MW-9\_20141231 for the analyte Ethanol were outside of control limits, indicating a possible

high bias for this analyte. Since Ethanol was not detected above the Method Reporting Limit in the associated samples, no data are flagged.

- \* Sample MW-14 was analyzed outside of hold time for analytes Benzene, Toluene, Methyl-t-butyl ether, Tert-Butanol, and Ethanol by Method EPA 8260B. The hydrochloric acid (HCl) preservation was insufficient to maintain a pH of 2.0 or less required to extend sample hold time from 7 to 14 days.

Based on a review of the laboratory's analytical report, including their QA/QC procedures and those implemented by Antea Group, we conclude that the laboratory data obtained during this groundwater sampling event are valid for their intended purpose.

### 3.0 LOW THREAT CLOSURE POLICY CHECKLIST

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An item in the Low Threat Closure Policy (LTCP) checklist on GeoTracker needs to be updated.

Media-Specific Criteria: Direct Contact and Outdoor Air Exposure:

- "Soil Concentrations of Naphthalene: Unknown"
  - Soil samples taken from soil borings in July 2013 were analyzed for Naphthalene. Concentrations ranged from 150 milligrams per kilogram (mg/kg) in SB-1d5.5 to below the laboratory's indicated reporting limit in the majority of samples.

### 4.0 RECOMMENDATIONS


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Antea Group recommends that all monitoring wells MW-3 and MW-6, MW-11, MW-13, MW-14, MW-15, and MW-16 be purged and sampled on a semi-annual basis during the second and fourth quarters of each year. In addition, Antea Group recommends that monitoring wells MW-7 and MW-8 be purged and sampled annually during the second quarter of each year (once access is granted).

## 5.0 REMARKS

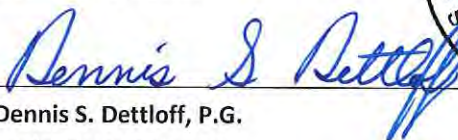
The recommendations contained in this report represent Antea USA, Inc.'s professional opinions based upon the currently available information and are arrived at in accordance with currently accepted professional standards. This report is based upon a specific scope of work requested by the client. For any reports cited that were not generated by Delta or Antea Group, the data from those reports is used "as is" and is assumed to be accurate. Antea Group does not guarantee the accuracy of this data for the referenced work performed nor the inferences or conclusions stated in these reports. The contract between Antea USA, Inc. and its client outlines the scope of work, and only those tasks specifically authorized by that contract or outlined in this report were performed. This report is intended only for the use of Antea USA, Inc.'s client and anyone else specifically identified in writing by Antea USA, Inc. as a user of this report. Antea USA, Inc. will not and cannot be liable for unauthorized reliance by any other third party. Other than as contained in this paragraph, Antea USA, Inc. makes no express or implied warranty as to the contents of this report.

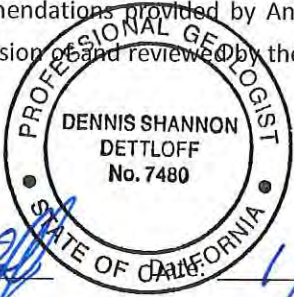
Prepared by:

  
Jonathan Fillingame  
Staff Geologist

Information, conclusions, and recommendations provided by Antea Group in this document regarding the site have been prepared under the supervision of and reviewed by the licensed professional whose signature appears below.

Licensed Approver:

  
Dennis S. Dettloff, P.G.  
Senior Project Manager  
California Registered Professional Geologist No. 7480

  
Date: 1/29/15

cc: GeoTracker (upload)

## Figures

- Figure 1 Site Location Map
- Figure 2 Site Plan
- Figure 3 Groundwater Elevation Contour Map – December 22, 2014
- Figure 4 Dissolved Phase TPHg Isoconcentration Map – December 22, 2014
- Figure 5 Dissolved Phase Benzene Isoconcentration Map – December 22, 2014
- Figure 6 Dissolved Phase MTBE Isoconcentration Map – December 22, 2014
- Figure 7 Dissolved Phase TPHd Isoconcentration Map – December 22, 2014
- Figure 8 Historical Groundwater Flow Directions

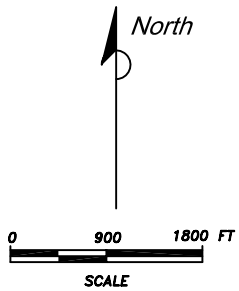
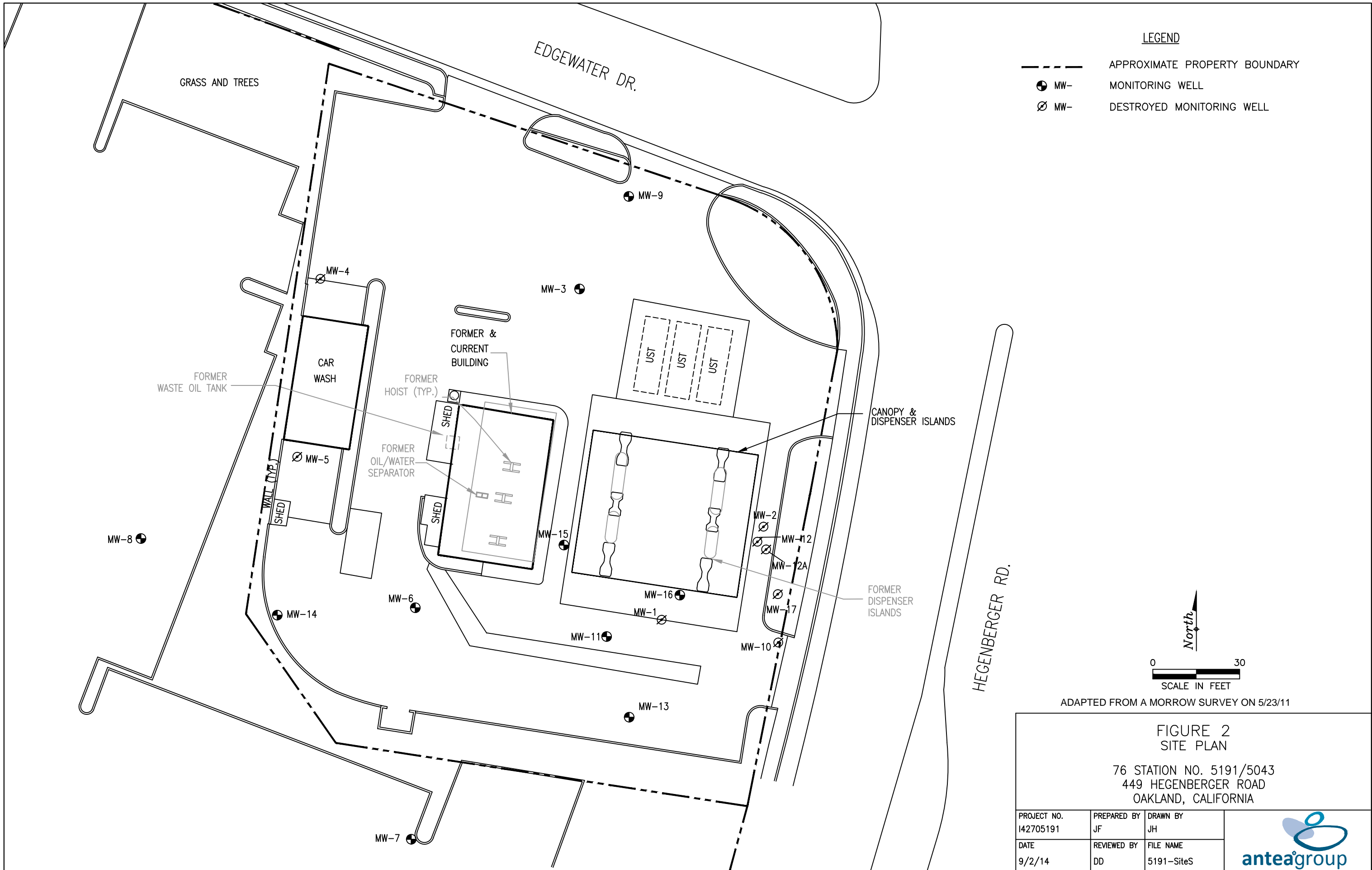


FIGURE 1  
 SITE LOCATION MAP  
 76 STATION NO. 5191/5043  
 449 HEGENBERGER ROAD  
 OAKLAND, CALIFORNIA

PROJECT NO. 142705191	PREPARED BY EW	DRAWN BY DR/JH
DATE 1/31/11	REVIEWED BY DD	FILE NAME 5043-SiteLocator

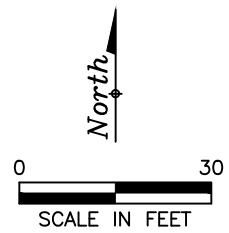


SOURCE: USGS 7.5 MINUTE TOPOGRAPHIC MAP, OAKLAND EAST QUADRANGLE (1973)



**LEGEND**

- APPROXIMATE PROPERTY BOUNDARY
- MW- MONITORING WELL
- ⊘ MW- DESTROYED MONITORING WELL

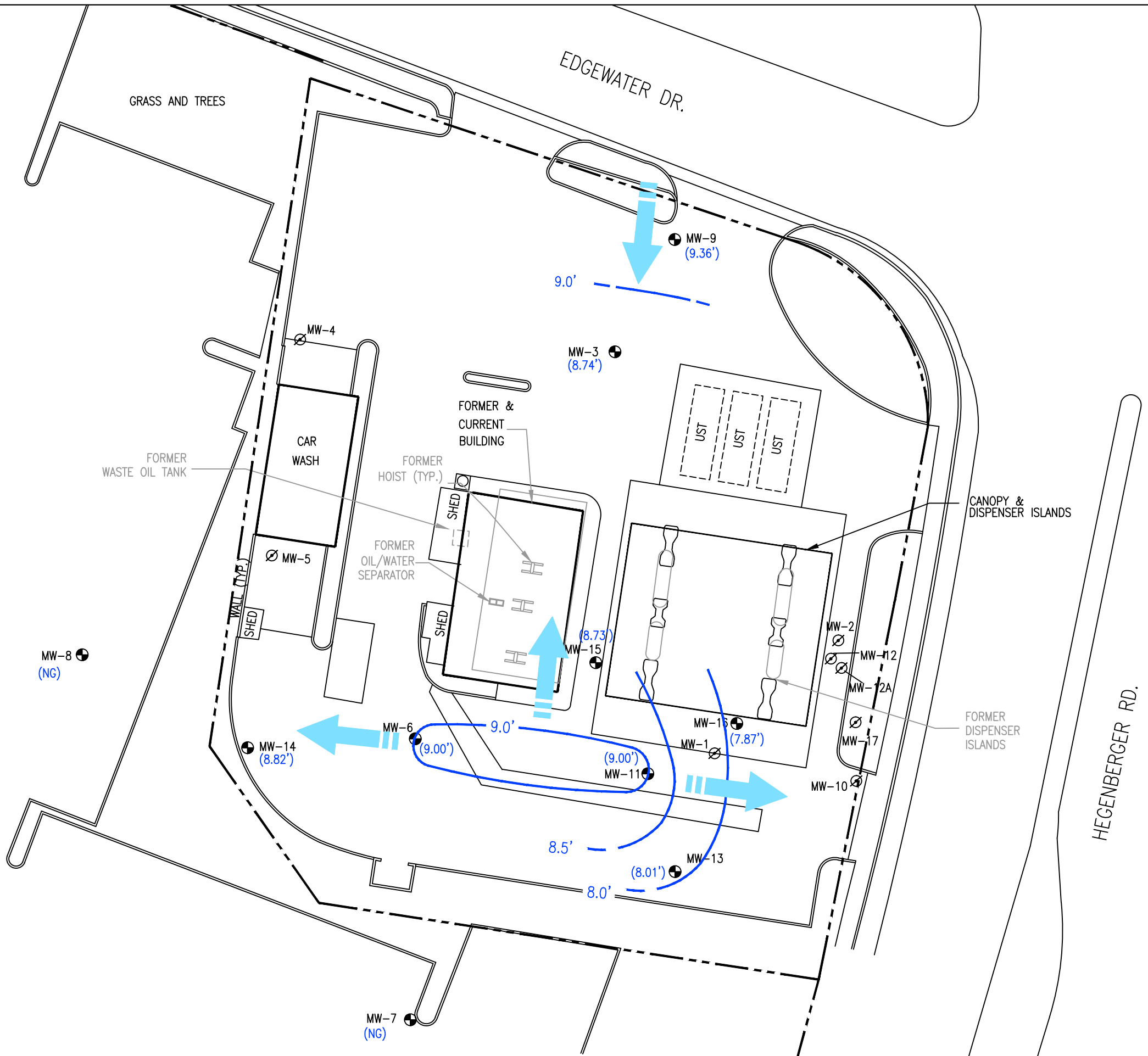


ADAPTED FROM A MORROW SURVEY ON 5/23/11

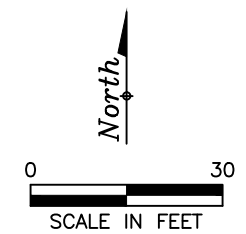
**FIGURE 2  
SITE PLAN**

76 STATION NO. 5191/5043  
449 HEGENBERGER ROAD  
OAKLAND, CALIFORNIA

PROJECT NO. I42705191	PREPARED BY JF	DRAWN BY JH	
DATE 9/2/14	REVIEWED BY DD	FILE NAME 5191-SiteS	

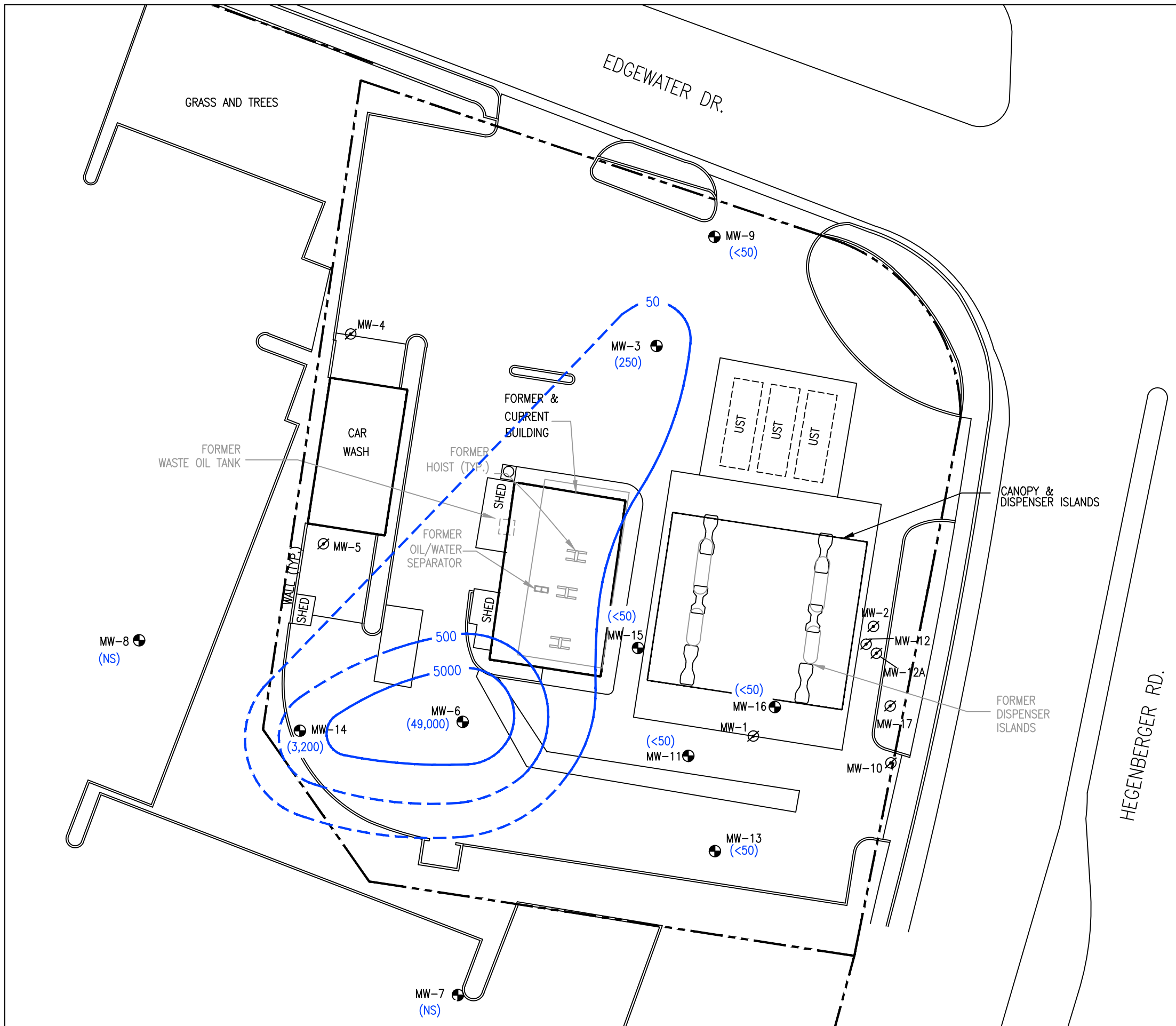


- LEGEND**
- APPROXIMATE PROPERTY BOUNDARY
  - MW- MONITORING WELL
  - ⊘ MW- DESTROYED MONITORING WELL
  - (8.74') GROUNDWATER ELEVATION IN FEET ABOVE MEAN SEA LEVEL (ft/msl)
  - (NG) NOT GAUGED
  - 8.0' — GROUNDWATER CONTOUR LINE (ft/msl) —DASHED WHERE INFERRED (CONTOUR INTERVAL: 0.50 ft)
  - ← GROUNDWATER FLOW DIRECTION



**FIGURE 3**  
**GROUNDWATER ELEVATION CONTOUR MAP**  
 DECEMBER 22, 2014  
 76 STATION NO. 5191/5043  
 449 HEGENBERGER ROAD  
 OAKLAND, CALIFORNIA

PROJECT NO. I42705191	PREPARED BY EW	DRAWN BY JH
DATE 1/19/15	REVIEWED BY DD	FILE NAME 5191-SiteS

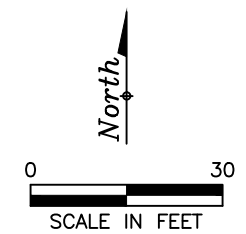


**LEGEND**

- APPROXIMATE PROPERTY BOUNDARY
- MW- MONITORING WELL
- ⊘ MW- DESTROYED MONITORING WELL
- (49,000) DISSOLVED PHASE TPHg ISOCONCENTRATION (µg/L)
- 5,000 — DISSOLVED PHASE TPHg ISOCONTOUR (µg/L)  
-DASHED WHERE INFERRED

**NOTES:**

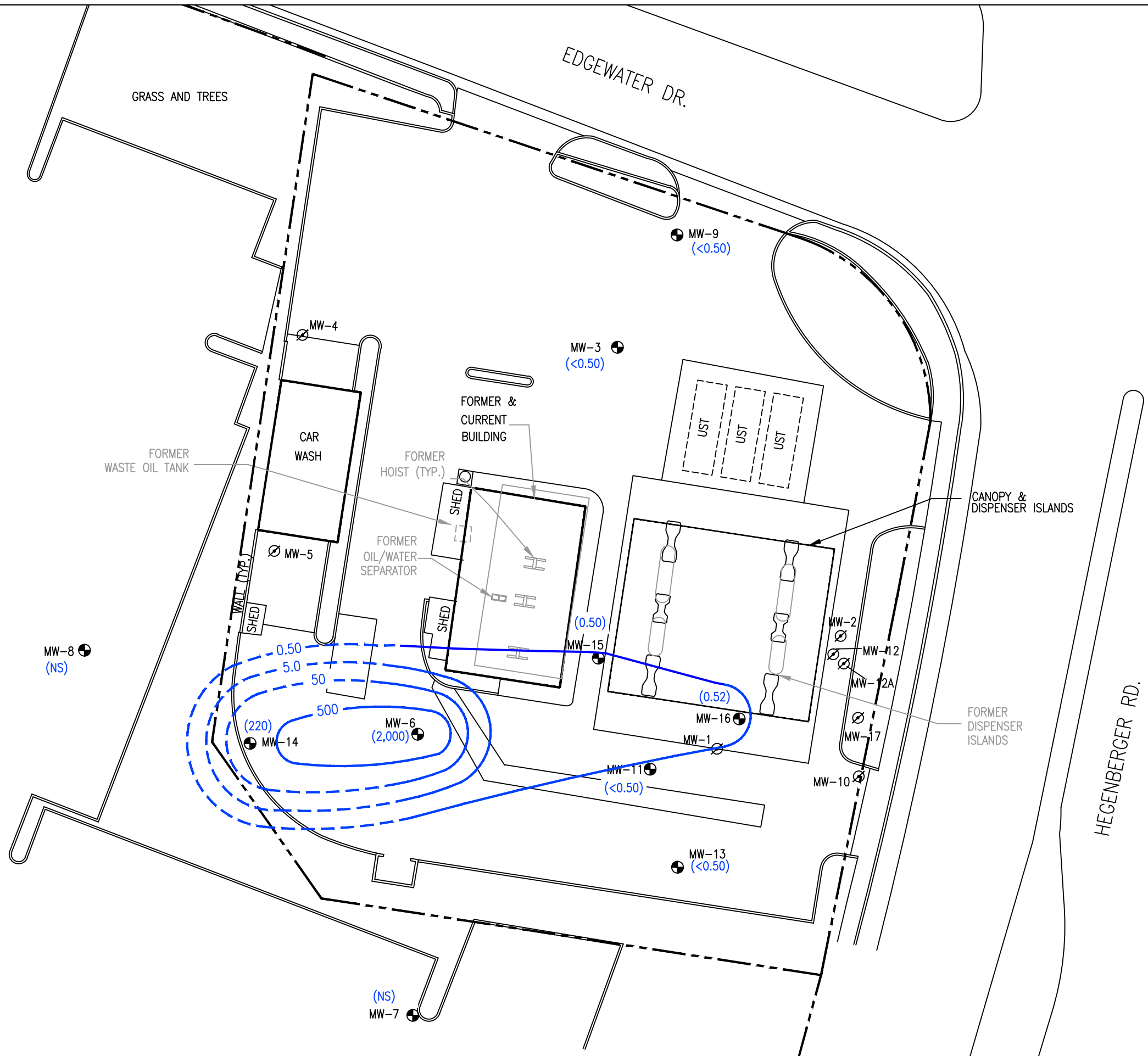
TPHg = TOTAL PETROLEUM HYDROCARBONS AS GASOLINE  
 NS = NOT SAMPLED  
 µg/L = MICROGRAMS PER LITER  
 <50 = LESS THAN LABORATORY INDICATED REPORTING LIMIT



**FIGURE 4**  
 DISSOLVED PHASE TPHg ISOCONCENTRATION MAP  
 DECEMBER 22, 2014  
 76 STATION NO. 5191/5043  
 449 HEGENBERGER ROAD  
 OAKLAND, CALIFORNIA

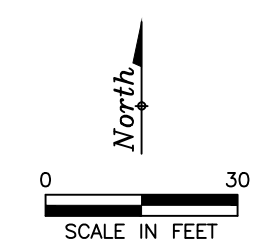
PROJECT NO. I42705191	PREPARED BY EW	DRAWN BY JH	
DATE 10/14/14	REVIEWED BY DD	FILE NAME 5191-SiteS	





- LEGEND**
- APPROXIMATE PROPERTY BOUNDARY
  - MW- MONITORING WELL
  - ⊘ MW- DESTROYED MONITORING WELL
  - (220) DISSOLVED PHASE BENZENE ISOCONCENTRATION (µg/L)
  - 500 — DISSOLVED PHASE BENZENE ISOCONTOUR (µg/L) -DASHED WHERE INFERRED

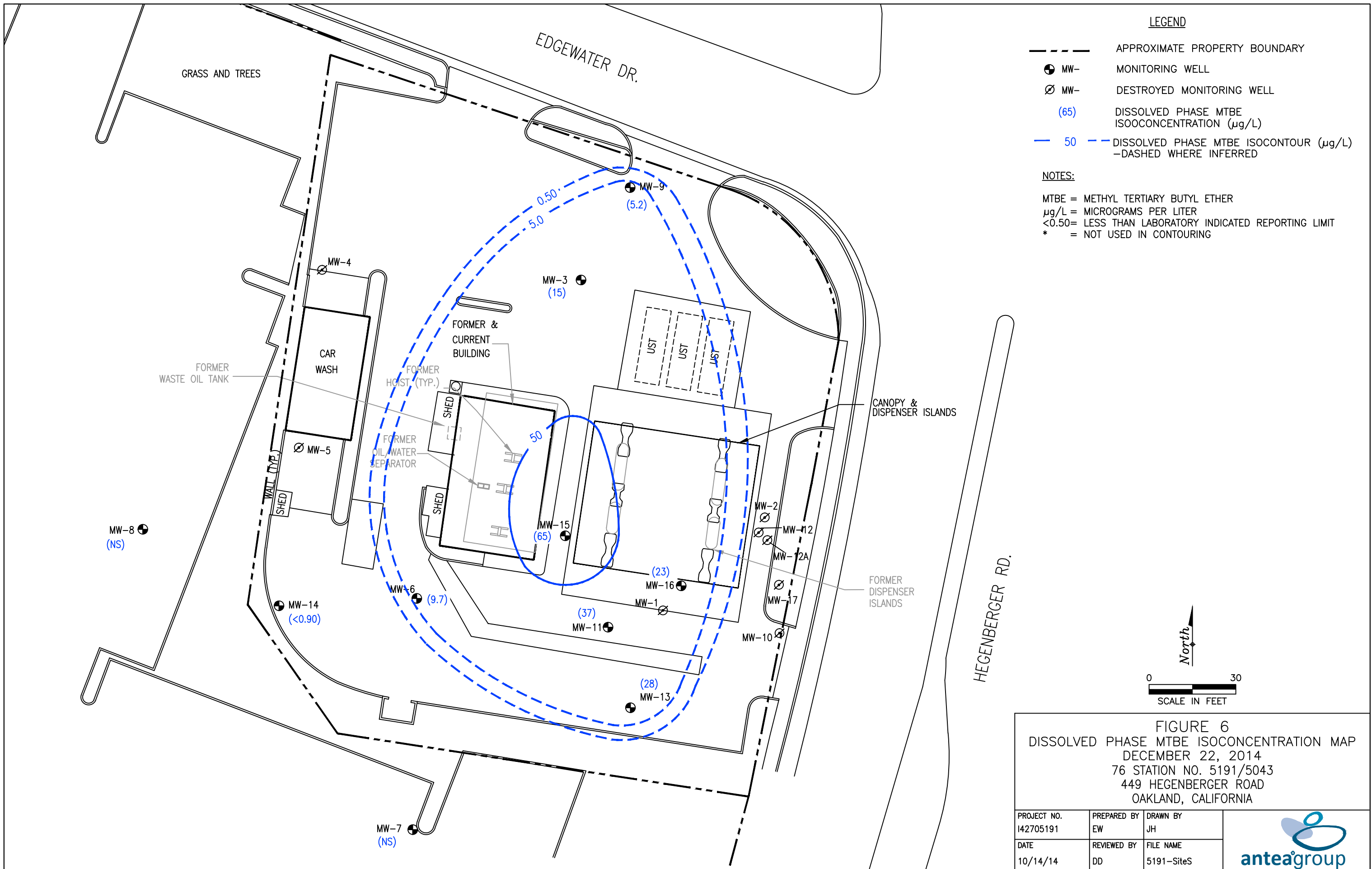
- NOTES:**
- NS = NOT SAMPLED
  - µg/L = MICROGRAMS PER LITER
  - <0.50 = LESS THAN LABORATORY INDICATED REPORTING LIMIT



**FIGURE 5**  
 DISSOLVED PHASE BENZENE ISOCONCENTRATION MAP  
 DECEMBER 22, 2014  
 76 STATION NO. 5191/5043  
 449 HEGENBERGER ROAD  
 OAKLAND, CALIFORNIA

PROJECT NO. 142705191	PREPARED BY EW	DRAWN BY JH
DATE 10/14/14	REVIEWED BY DD	FILE NAME 5191-SiteS



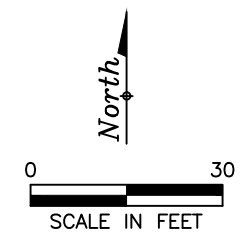


**LEGEND**

- APPROXIMATE PROPERTY BOUNDARY
- MW- MONITORING WELL
- MW- DESTROYED MONITORING WELL
- (65) DISSOLVED PHASE MTBE ISOCONCENTRATION (µg/L)
- 50 DISSOLVED PHASE MTBE ISOCONTOUR (µg/L) -DASHED WHERE INFERRED

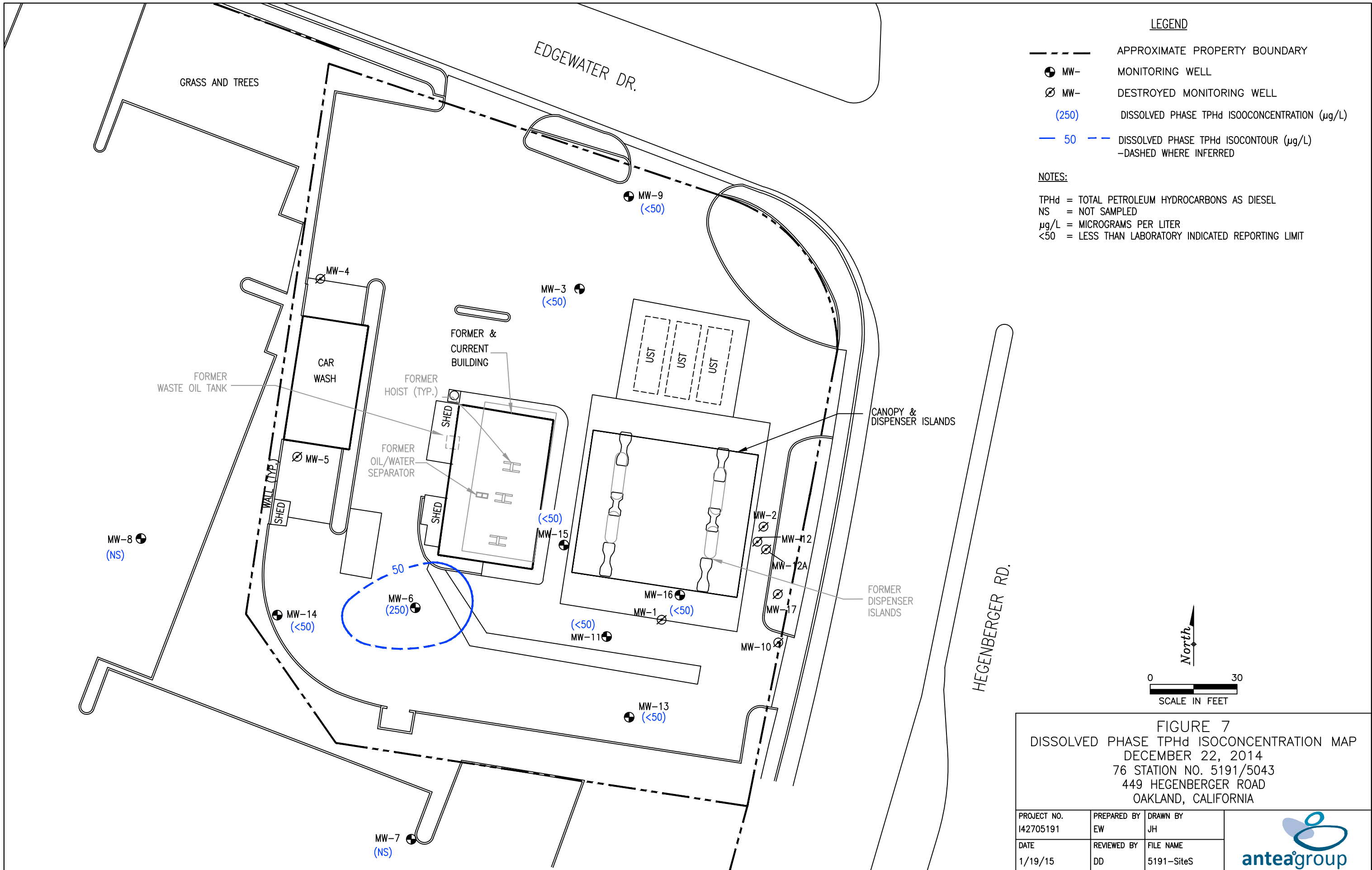
**NOTES:**

MTBE = METHYL TERTIARY BUTYL ETHER  
 µg/L = MICROGRAMS PER LITER  
 <0.50= LESS THAN LABORATORY INDICATED REPORTING LIMIT  
 \* = NOT USED IN CONTOURING




**FIGURE 6**  
 DISSOLVED PHASE MTBE ISOCONCENTRATION MAP  
 DECEMBER 22, 2014  
 76 STATION NO. 5191/5043  
 449 HEGENBERGER ROAD  
 OAKLAND, CALIFORNIA

PROJECT NO. I42705191	PREPARED BY EW	DRAWN BY JH	
DATE 10/14/14	REVIEWED BY DD	FILE NAME 5191-SiteS	

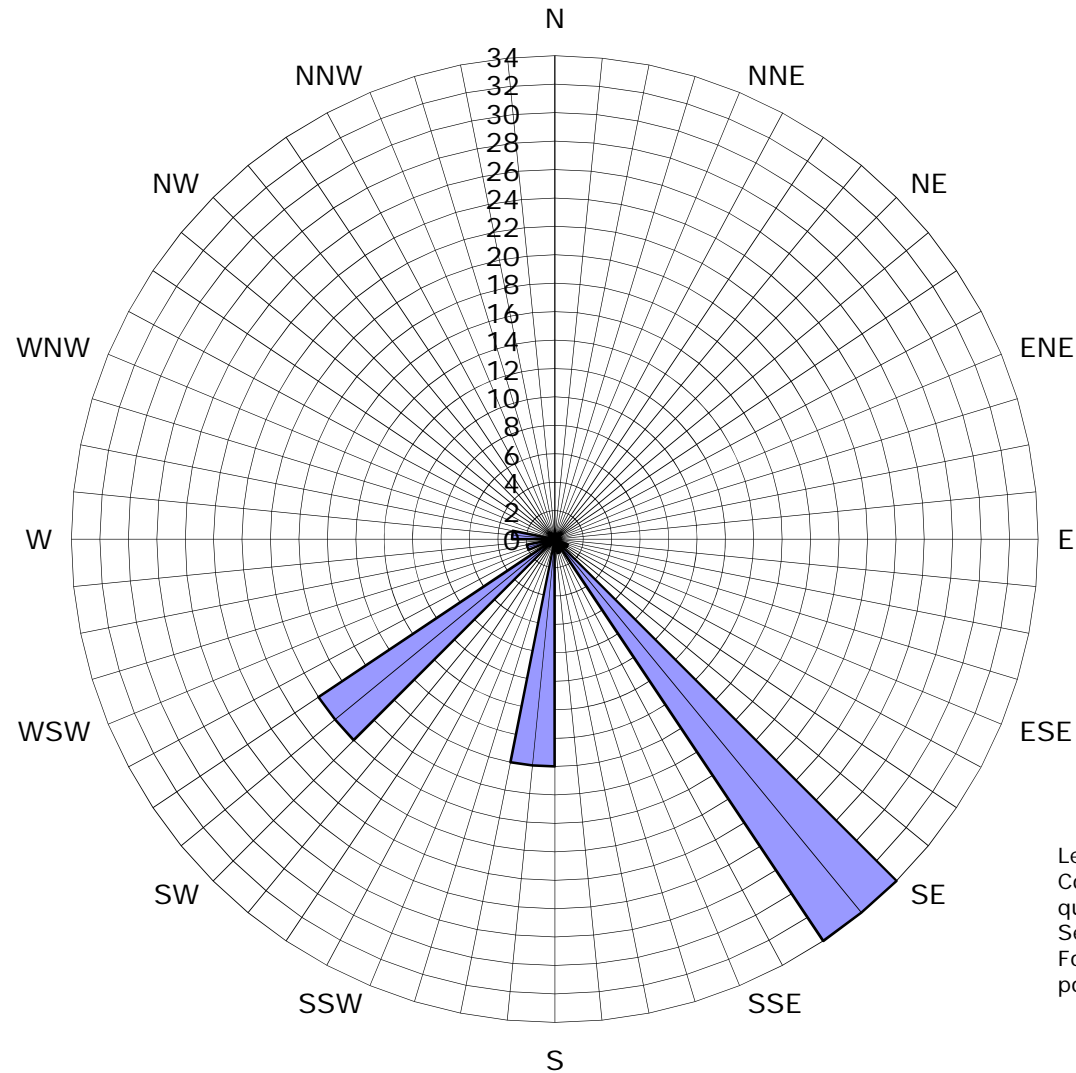


**FIGURE 7**  
 DISSOLVED PHASE TPHd ISOCONCENTRATION MAP  
 DECEMBER 22, 2014  
 76 STATION NO. 5191/5043  
 449 HEGENBERGER ROAD  
 OAKLAND, CALIFORNIA

PROJECT NO. I42705191	PREPARED BY EW	DRAWN BY JH
DATE 1/19/15	REVIEWED BY DD	FILE NAME 5191-SiteS



**Figure 8**  
**Historical Groundwater Flow Directions**  
**76 Station No. 5191/5043**  
 449 Hegenberger Road  
 Oakland, California



Legend  
 Concentric circles represent  
 quarterly monitoring events  
 Second Quarter 1992 through  
 Fourth Quarter 2014. 77 data  
 points shown

■ Groundwater Flow Direction

## ***Tables***

Table 1	Well Construction Details
Table 2	Current Groundwater Gauging and Analytical Data
Table 3	Historical Groundwater Gauging and Analytical Data
Table 3a	Additional Historical Groundwater Analytical Data
Table 3b	Additional Historical Groundwater Analytical Data
Table 3c	Additional Historical Groundwater Analytical Data
Table 3d	Additional Historical Groundwater Analytical Data
Table 4	Historical Groundwater Gradient and Flow Direction Data

**Table 1**  
**Well Construction Details**  
 76 Station No. 5191/5043  
 449 Hegenberger Road  
 Oakland, CA

Well I.D.	Drill Date	Well		Screen		Screen Length (feet)	Comments
		Depth (feet bgs)	Diameter (inches)	Top (feet bgs)	Bottom (feet bgs)		
<b>Monitoring Wells</b>							
MW-1	02/05/91	13.5	2	2.0	13.0	11.0	Destroyed
MW-2	02/05/91	15.0	2	3.0	15.0	12.0	Destroyed
MW-3	02/05/91	14.0	2	2.0	14.0	12.0	
MW-4	08/21/92	13.5	2	2.5	13.5	11.0	Destroyed
MW-5	08/21/92	13.5	2	2.5	13.5	11.0	Destroyed
MW-6	08/21/92	13.5	2	2.5	13.5	11.0	
MW-7	04/21/97	13.0	2	3.0	13.0	10.0	
MW-8	04/21/97	15.0	2	3.0	15.0	12.0	
MW-9	01/25/95	13.0	2	3.0	13.0	10.0	
MW-10	01/25/95	13.0	2	3.0	13.0	10.0	Destroyed
MW-11	06/22/10	20.0	4	5.0	20.0	15.0	
MW-12	06/22/10	20.0	4	5.0	20.0	15.0	Destroyed
MW-12A	06/23/10	34.0	2	30.0	34.0	4.0	Destroyed
MW-13	06/22/10	15.0	2	5.0	15.0	10.0	
MW-14	05/17/11	13.0	2	3.0	13.0	10.0	
MW-15	05/17/11	13.0	2	3.0	13.0	10.0	
MW-16	05/17/11	13.0	2	3.0	13.0	10.0	
MW-17	05/18/11	13.0	2	3.0	13.0	10.0	Destroyed
<b>Explanation</b>							
Wells are of poly-vinyl-chloride (PVC) construction							
bgs = Below ground surface							

TABLE 2  
 CURRENT GROUNDWATER GAUGING AND ANALYTICAL DATA  
 76 STATION NO. 5191/5043  
 449 HEGENBERGER ROAD  
 OAKLAND, CALIFORNIA



Well I.D.	Date	GROUNDWATER GAUGING DATA				GROUNDWATER ANALYTICAL DATA								
		TOC Elevation (ft)	Depth to Water (ft)	LNAPL Thickness (ft)	Water Elevation* (ft)	TPHd (ug/L)	TPHg (ug/L)	Benzene (ug/L)	Toluene (ug/L)	Ethylbenzene (ug/L)	Total Xylenes (ug/L)	MTBE (ug/L)	TBA (ug/L)	Ethanol (ug/L)
MW-3	12/22/2014	10.81	2.07	NP	8.74	<50	<b>250</b>	<0.50	<0.50	<0.50	<0.50	<b>15</b>	<b>35</b>	<5.0
MW-6	12/22/2014	11.55	2.55	NP	9.00	<b>250 A</b>	<b>49,000</b>	<b>2,000</b>	<b>120</b>	<b>1,600</b>	<b>7,700</b>	<b>9.7</b>	<b>150</b>	<150
MW-7	--	11.64	--	--	--	--	--	--	--	--	--	--	--	--
MW-8	--	11.32	--	--	--	--	--	--	--	--	--	--	--	--
MW-9	12/22/2014	10.94	1.58	NP	9.36	<50	<50	<0.50	<0.50	<0.50	<0.50	<b>5.2</b>	<5.0	<5.0
MW-11	12/22/2014	10.53	1.53	NP	9.00	<50	<50	<0.50	<0.50	<0.50	<0.50	<b>37</b>	<5.0	<5.0
MW-13	12/22/2014	11.08	3.07	NP	8.01	<50	<50	<0.50	<0.50	<0.50	<0.50	<b>28</b>	<b>39</b>	<5.0
MW-14	12/22/2014	12.00	3.18	NP	8.82	<50	<b>3,200</b>	<b>220</b>	<b>3.8</b>	<b>260</b>	<b>540</b>	<0.90	<b>12</b>	<9.0
MW-15	12/22/2014	11.11	2.38	NP	8.73	<50	<50	<b>0.50</b>	<0.50	<0.50	<0.50	<b>65</b>	<b>36</b>	<5.0
MW-16	12/22/2014	10.98	3.11	NP	7.87	<50	<50	<b>0.52</b>	<0.50	<0.50	<0.50	<b>23</b>	<b>140</b>	<5.0

**Gauging Notes:**

- TOS - Top of Screen
- ft - Feet
- NP - LNAPL not present
- LNAPL - Light non-aqueous phase liquid
- \* - Corrected for LNAPL if present (assumes LNAPL specific gravity = 0.75)
- - No information available

**Analytical Notes:**

- < - Below laboratory's indicated reporting limit
- ug/L - micrograms/liter
- TPHd- Total petroleum hydrocarbons as diesel (silica gel treated)
- TPHg- Total petroleum hydrocarbons as gasoline
- MTBE- Methyl tertiary-butyl ether
- TBA- Tertiary-butyl alcohol
- Bold** - Above the laboratory's indicated reporting limit
- A** - Lower boiling hydrocarbons present, atypical for Diesel Fuel.

**TABLE 3**  
**HISTORICAL GROUNDWATER GAUGING AND ANALYTICAL DATA**  
**76 STATION NO. 5191/5043**  
**449 HEGENBERGER ROAD**  
**OAKLAND, CALIFORNIA**



Well I.D.	Date	GROUNDWATER GAUGING DATA				GROUNDWATER ANALYTICAL DATA														
		TOC Elevation (ft)	Depth to Water (ft)	LNAPL Thickness (ft)	Water Elevation* (ft)	TPHd (ug/L)	TPHg (ug/L)	Benzene (ug/L)	Toluene (ug/L)	Ethylbenzene (ug/L)	Total Xylenes (ug/L)	MTBE (SW8021B) (ug/L)	MTBE (SW8260B) (ug/L)	DIPE (ug/L)	ETBE (ug/L)	TAME (ug/L)	TBA (ug/L)	Ethanol (ug/L)	1,2-Dibromoethane (EDB) (ug/L)	1,2-Dichloroethane (ug/L)
MW-1	2/18/1992	NSVD	NG	NG	NG	13,000	150,000	17,000	26,000	5,200	26,000	--	--	--	--	--	--	--	--	--
	8/31/1992	NSVD	NG	NG	NG	8,900	64,000	13,000	12,000	2,500	22,000	--	--	--	--	--	--	--	--	--
	5/4/1993	8.96	2.13	0.10	6.91	LPH	LPH	LPH	LPH	LPH	LPH	LPH	LPH	LPH	LPH	LPH	LPH	LPH	LPH	LPH
	8/4/1993	8.96	2.92	0.03	6.06	LPH	LPH	LPH	LPH	LPH	LPH	LPH	LPH	LPH	LPH	LPH	LPH	LPH	LPH	LPH
	11/3/1993	7.38	3.04	NP	4.34	LPH	LPH	LPH	LPH	LPH	LPH	LPH	LPH	LPH	LPH	LPH	LPH	LPH	LPH	LPH
	2/7/1994	7.38	2.55	0.03	4.85	LPH	LPH	LPH	LPH	LPH	LPH	LPH	LPH	LPH	LPH	LPH	LPH	LPH	LPH	LPH
	5/19/1994	7.38	2.23	0.01	5.16	LPH	LPH	LPH	LPH	LPH	LPH	LPH	LPH	LPH	LPH	LPH	LPH	LPH	LPH	LPH
	6/25/1994	7.38	2.49	0.01	4.90	LPH	LPH	LPH	LPH	LPH	LPH	LPH	LPH	LPH	LPH	LPH	LPH	LPH	LPH	LPH
	7/27/1994	7.38	3.10	NP	4.28	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
	8/15/1994	7.38	2.85	0.11	4.61	LPH	LPH	LPH	LPH	LPH	LPH	LPH	LPH	LPH	LPH	LPH	LPH	LPH	LPH	LPH
	11/14/1994	7.38	2.97	0.12	4.50	LPH	LPH	LPH	LPH	LPH	LPH	LPH	LPH	LPH	LPH	LPH	LPH	LPH	LPH	LPH
2/21/1995	7.38	1.53	0.02	5.87	LPH	LPH	LPH	LPH	LPH	LPH	LPH	LPH	LPH	LPH	LPH	LPH	LPH	LPH	LPH	
5/18/1995	NSVD	WD	WD	WD	WD	WD	WD	WD	WD	WD	WD	WD	WD	WD	WD	WD	WD	WD	WD	
MW-2	2/18/1992	NSVD	NG	NG	NG	4,300	29,000	1,000	5,300	260	7,900	--	--	--	--	--	--	--	--	--
	5/20/1992	NSVD	NG	NG	NG	4,300	24,000	2,200	7,600	630	11,000	--	--	--	--	--	--	--	--	--
	8/31/1992	NSVD	NG	NG	NG	1,600	9,000	1,800	640	140	2,000	--	--	--	--	--	--	--	--	--
	11/30/1992	NSVD	NG	NG	NG	5,700	29,000	2,000	3,400	1,200	6,900	--	--	--	--	--	--	--	--	--
	2/4/1993	NSVD	NG	NG	NG	6,100	18,000	1,600	3,000	ND	6,900	--	--	--	--	--	--	--	--	--
	5/4/1993	8.96	2.48	NP	6.48	7,100	63,000	3,200	17,000	470	17,000	--	--	--	--	--	--	--	--	--
	8/4/1993	8.96	3.20	NP	5.76	1,800	45,000	2,100	6,600	1,400	12,000	--	--	--	--	--	--	--	--	--
	11/3/1993	8.58	3.37	NP	5.21	2,600	72,000	3,700	16,000	3,700	20,000	--	--	--	--	--	--	--	--	--
	2/7/1994	8.58	2.40	NP	6.18	LPH	LPH	LPH	LPH	LPH	LPH	LPH	LPH	LPH	LPH	LPH	LPH	LPH	LPH	LPH
	5/19/1994	8.58	2.13	NP	6.45	3,000	42,000	2,500	1,300	2,300	13,000	--	--	--	--	--	--	--	--	--
	6/25/1994	8.58	2.65	NP	5.93	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
	7/27/1994	8.58	3.44	NP	5.14	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
	8/15/1994	8.58	3.25	NP	5.33	2,800	35,000	2,400	850	1,700	15,000	--	--	--	--	--	--	--	--	--
	11/14/1994	8.58	2.13	NP	6.45	10,000	43,000	2,200	6,500	1,800	14,000	--	--	--	--	--	--	--	--	--
2/21/1995	8.58	1.65	NP	6.93	2,000	44,000	2,200	3,200	1,300	1,500	--	--	--	--	--	--	--	--	--	
5/18/1995	NSVD	WD	WD	WD	WD	WD	WD	WD	WD	WD	WD	WD	WD	WD	WD	WD	WD	WD	WD	
MW-3	2/18/1992	NSVD	NG	NG	NG	ND	230	4.8	22	1.8	33	--	--	--	--	--	--	--	--	
	5/20/1992	NSVD	WI	WI	WI	WI	WI	WI	WI	WI	WI	WI	WI	WI	WI	WI	WI	WI	WI	
	8/31/1992	NSVD	NG	NG	NG	92	210	1	ND	ND	ND	--	--	--	--	--	--	--	--	
	11/30/1992	NSVD	NG	NG	NG	94	790	ND	ND	ND	ND	--	--	--	--	--	--	--	--	
	2/4/1993	NSVD	NG	NG	NG	550	3,300	320	ND	96	6.1	--	--	--	--	--	--	--	--	
	5/4/1993	7.84	4.32	NP	3.52	250	1,800	95	ND	ND	ND	--	--	--	--	--	--	--	--	
	8/4/1993	7.84	4.94	NP	2.90	100	210	ND	ND	ND	ND	--	--	--	--	--	--	--	--	
	11/3/1993	7.42	4.53	NP	2.89	160	640	ND	ND	ND	ND	--	--	--	--	--	--	--	--	
	2/7/1994	7.42	2.40	NP	5.02	620	2,700	110	ND	17	ND	--	--	--	--	--	--	--	--	
	5/19/1994	7.42	3.60	NP	3.82	480	1,800	83	ND	6.2	9.1	--	--	--	--	--	--	--	--	
	6/25/1994	7.42	4.58	NP	2.84	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
	7/27/1994	7.42	4.58	NP	2.84	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
	8/15/1994	7.42	4.65	NP	2.77	110	130	1.1	0.54	ND	0.97	--	--	--	--	--	--	--	--	
	11/14/1994	7.42	3.18	NP	4.24	150	1,600	ND	ND	ND	ND	--	--	--	--	--	--	--	--	
	2/21/1995	7.42	1.81	NP	5.61	850	3,800	350	ND	130	22	--	--	--	--	--	--	--	--	
	5/18/1995	7.42	4.56	NP	2.86	150	1,300	42	ND	ND	ND	--	--	--	--	--	--	--	--	
8/17/1995	7.42	WI	WI	WI	WI	WI	WI	WI	WI	WI	WI	WI	WI	WI	WI	WI	WI	WI	WI	
7/26/1996	7.42	WI	WI	WI	WI	WI	WI	WI	WI	WI	WI	WI	WI	WI	WI	WI	WI	WI	WI	
10/28/1996	7.42	WO	WO	WO	WO	WO	WO	WO	WO	WO	WO	WO	WO	WO	WO	WO	WO	WO	WO	
1/29/1997	7.42	WI	WI	WI	WI	WI	WI	WI	WI	WI	WI	WI	WI	WI	WI	WI	WI	WI	WI	





**TABLE 3**  
**HISTORICAL GROUNDWATER GAUGING AND ANALYTICAL DATA**  
**76 STATION NO. 5191/5043**  
**449 HEGENBERGER ROAD**  
**OAKLAND, CALIFORNIA**

Well I.D.	Date	GROUNDWATER GAUGING DATA				GROUNDWATER ANALYTICAL DATA														
		TOC Elevation (ft)	Depth to Water (ft)	LNAPL Thickness (ft)	Water Elevation* (ft)	TPHd (ug/L)	TPHg (ug/L)	Benzene (ug/L)	Toluene (ug/L)	Ethylbenzene (ug/L)	Total Xylenes (ug/L)	MTBE (SW8021B) (ug/L)	MTBE (SW8260B) (ug/L)	DIPE (ug/L)	ETBE (ug/L)	TAME (ug/L)	TBA (ug/L)	Ethanol (ug/L)	1,2-Dibromoethane (EDB) (ug/L)	1,2-Dichloroethane (ug/L)
MW-3	4/15/1997	7.42	WI	WI	WI	WI	WI	WI	WI	WI	WI	WI	WI	WI	WI	WI	WI	WI	WI	WI
	5/27/1997	7.42	3.45	NP	3.97	--	670	6.5	ND	ND	ND	250	--	--	--	--	--	--	--	--
	6/1/1997	7.42	3.50	NP	3.92	610	--	--	--	--	--	--	--	--	--	--	--	--	--	--
	7/15/1997	8.04	3.71	NP	4.33	240	240	ND	ND	ND	ND	490	--	--	--	--	--	--	--	--
	10/9/1997	8.04	3.70	NP	4.34	500	270	1.1	ND	2.4	1.4	910	--	--	--	--	--	--	--	--
	1/14/1998	8.04	2.16	NP	5.88	340	310	ND	ND	0.62	0.65	140	--	--	--	--	--	--	--	--
	4/1/1998	8.04	2.20	NP	5.84	320	370	5.7	ND	ND	ND	93	--	--	--	--	--	--	--	--
	7/15/1998	8.04	3.38	NP	4.66	510	460	ND	ND	ND	ND	230	--	--	--	--	--	--	--	--
	10/16/1998	8.04	2.30	NP	5.74	67	330	4.7	ND	ND	ND	60	--	--	--	--	--	--	--	--
	1/25/1999	8.04	2.42	NP	5.62	120	420	1.5	ND	ND	ND	180	--	--	--	--	--	--	--	--
	4/15/1999	8.04	2.16	NP	5.88	170	290	0.54	ND	ND	ND	160	--	--	--	--	--	--	--	--
	7/14/1999	8.04	2.35	NP	5.69	420	290	3.2	ND	ND	ND	160	--	--	--	--	--	--	--	--
	10/21/1999	8.04	2.49	NP	5.55	350	360	0.77	ND	ND	ND	82	--	--	--	--	--	--	--	--
	1/20/2000	8.04	2.38	NP	5.66	2,060	ND	0.81	ND	ND	ND	54	--	--	--	--	--	--	--	--
	4/13/2000	8.04	2.76	NP	5.28	200	250	0.69	ND	ND	ND	91	150	ND	ND	ND	ND	ND	ND	ND
	7/14/2000	8.04	3.26	NP	4.78	423	345	ND	ND	ND	ND	95	--	--	--	--	--	--	--	--
	10/26/2000	8.04	3.12	NP	4.92	330	480	6.0	ND	ND	ND	120	--	--	--	--	--	--	--	--
	1/3/2001	8.04	3.65	NP	4.39	287	364	1.59	ND	ND	ND	118	--	--	--	--	--	--	--	--
	4/4/2001	8.04	3.98	NP	4.06	360	417	1.24	ND	ND	0.802	237	--	--	--	--	--	--	--	--
	7/17/2001	8.04	3.12	NP	4.92	270	480	ND	ND	ND	ND	150	--	--	--	--	--	--	--	--
	10/1/2001	8.04	3.25	NP	4.79	270	310	1.0	<0.50	<0.50	<0.50	53	--	--	--	--	--	--	--	--
	1/31/2002	8.04	2.27	NP	5.77	250	250	3.5	<1.0	<1.0	<1.0	110	--	--	--	--	--	--	--	--
	4/18/2002	8.04	3.55	NP	4.49	320	300	<2.0	<2.0	<2.0	<2.0	--	59	--	--	--	--	--	--	--
	7/28/2002	8.04	2.55	NP	5.49	310	500	<0.50	<0.50	<0.50	<1.0	--	130	--	--	--	--	--	--	--
	10/9/2002	8.04	2.47	NP	5.57	700	690	<5	<5	<5	<10	--	120	--	--	--	--	--	--	--
	1/2/2003	8.04	1.70	NP	6.34	210	310	<0.50	<0.50	<0.50	<1.0	--	110	<2.0	<2.0	<2.0	<100	<500	<2.0	<2.0
	4/1/2003	8.04	3.48	NP	4.56	200	250	<1.0	<1.0	<1.0	<2.0	--	210	--	--	--	--	--	--	--
	7/1/2003	8.04	2.65	NP	5.39	380	450	<2.5	<2.5	<2.5	<5.0	--	70	--	--	--	--	<2500	--	--
	10/2/2003	8.04	3.12	NP	4.92	300	<250	<2.5	<2.5	<2.5	<5.0	--	210	--	--	--	--	<2500	--	--
	1/9/2004	8.04	2.39	NP	5.65	200	300	<0.50	0.53	0.53	1.5	--	66	--	--	--	--	<500	--	--
	4/26/2004	8.04	3.11	NP	4.93	160	440	2.5	5.50	2.90	9.4	--	81	--	--	--	--	<50	--	--
	7/22/2004	8.04	2.51	NP	5.53	330	420	<0.5	<0.5	<0.5	<1	--	72	--	--	--	--	<1000	--	--
	10/29/2004	8.04	2.00	NP	6.04	200	460	5.6	15	10	46	--	48	--	--	--	--	<50	--	--
	1/10/2005	8.04	1.52	NP	6.52	250	280	<0.50	0.62	<0.50	2.4	--	64	--	--	--	--	<50	--	--
	6/15/2005	8.04	2.00	NP	6.04	360	460	<0.50	0.70	0.56	1.9	--	110	--	--	--	--	<50	--	--
	9/27/2005	8.04	1.90	NP	6.14	<200	210	<0.50	0.60	<0.50	<1.0	--	100	<0.50	<0.50	<0.50	79	<250	--	--
	12/13/2005	8.04	2.35	NP	5.69	230	230	<0.50	<0.50	<0.50	<1.0	--	92	--	--	--	--	<250	--	--
	3/23/2006	8.04	1.84	NP	6.20	260	290	<0.50	<0.50	<0.50	<1.0	--	88	--	--	--	--	<250	--	--
	6/23/2006	8.04	2.26	NP	5.78	330	500	<0.50	<0.50	<0.50	<1.0	--	75	--	--	--	--	<250	--	--
	9/26/2006	8.04	2.08	NP	5.96	260	270	<0.50	<0.50	<0.50	<0.50	--	73	--	--	--	--	<250	--	--
12/22/2006	8.04	1.88	NP	6.16	250	260	<0.50	<0.50	<0.50	1.2	--	71	--	--	--	--	<250	--	--	
3/30/2007	8.04	2.47	NP	5.57	210	390	<0.50	<0.50	<0.50	<0.50	--	120	--	--	--	--	<250	--	--	
6/28/2007	8.04	2.54	NP	5.50	290	370	<0.50	<0.50	<0.50	<0.50	--	55	--	--	--	--	<250	--	--	
9/25/2007	8.04	2.56	NP	5.48	210	350	<0.50	<0.50	<0.50	<0.50	--	61	--	--	--	--	<250	--	--	
12/28/2007	8.04	2.29	NP	5.75	150	260	<0.50	<0.50	<0.50	<1.0	--	66	--	--	--	--	<250	--	--	
3/22/2008	8.04	3.26	NP	4.78	230	390	<0.50	<0.50	<0.50	<1.0	--	39	--	--	--	--	<250	--	--	
6/23/2008	8.04	2.60	NP	5.44	130	200	<0.50	<0.50	<0.50	<1.0	--	46	--	--	--	--	<250	--	--	
9/19/2008	8.04	3.45	NP	4.59	93	180	<0.50	<0.50	<0.50	<1.0	--	120	--	--	--	--	<250	--	--	
12/31/2008	8.04	2.55	NP	5.49	110	190	<0.50	<0.50	<0.50	<1.0	--	38	--	--	--	--	<250	--	--	
3/27/2009	8.04	2.37	NP	5.67	130	150	<0.50	<0.50	<0.50	<1.0	--	50	--	--	--	--	<250	--	--	
5/28/2009	8.04	3.32	NP	4.72	120	190	<0.50	<0.50	<0.50	<1.0	--	60	--	--	--	--	<250	--	--	

**TABLE 3  
HISTORICAL GROUNDWATER GAUGING AND ANALYTICAL DATA  
76 STATION NO. 5191/5043  
449 HEGENBERGER ROAD  
OAKLAND, CALIFORNIA**



Well I.D.	Date	GROUNDWATER GAUGING DATA				GROUNDWATER ANALYTICAL DATA															
		TOC Elevation (ft)	Depth to Water (ft)	LNAPL Thickness (ft)	Water Elevation* (ft)	TPHd (ug/L)	TPHg (ug/L)	Benzene (ug/L)	Toluene (ug/L)	Ethylbenzene (ug/L)	Total Xylenes (ug/L)	MTBE (SW8021B) (ug/L)	MTBE (SW8260B) (ug/L)	DIPE (ug/L)	ETBE (ug/L)	TAME (ug/L)	TBA (ug/L)	Ethanol (ug/L)	1,2-Dibromoethane (EDB) (ug/L)	1,2-Dichloroethane (ug/L)	
MW-3	9/17/2009	8.04	2.63	NP	5.41	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	
	12/17/2009	8.04	2.13	NP	5.91	338	300	<0.50	<0.50	0.78	<1.5	--	43	--	--	--	--	<250	--	--	
	3/29/2010	8.04	2.22	NP	5.82	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
	6/30/2010	10.81	2.91	NP	7.90	90	261	<0.50	<0.50	<0.50	<1.5	--	89.0	--	--	--	--	<250	--	--	--
	7/6/2010	10.81	2.66	NP	8.15	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
	9/20/2010	10.81	3.12	NP	7.69	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
	12/8/2010	10.81	2.37	NP	8.44	137	306	<0.50	<0.50	<0.50	<1.5	--	58.8	--	--	--	--	<250	--	--	--
	3/14/2011	10.81	2.26	NP	8.55	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
	6/2/2011	10.81	2.43	NP	8.38	155	283	0.58	1.3	<0.50	2.2	--	42.1	--	--	--	--	55.7	<250	--	--
	9/7/2011	10.81	2.36	NP	8.45	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
	12/5/2011	10.81	2.55	NP	8.26	81.7	381	<0.50	<0.50	<0.50	<1.5	--	41.8	--	--	--	--	<250	--	--	--
	3/6/2012	10.81	2.63	NP	8.18	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
	6/11/2012	10.81	2.99	NP	7.82	87.9	371	<0.50	<0.50	<0.50	<1.5	--	55.7	--	--	--	--	77.2	<250	--	--
	9/6/2012	10.81	2.50	NP	8.31	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
	12/13/2012	10.81	2.50	NP	8.31	<50	130	<0.50	<0.50	<0.50	<0.50	--	28	--	--	--	--	77	<5.0	--	--
	3/14/2013	10.81	2.63	NP	8.18	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
	6/11/2013	10.81	3.31	NP	7.50	<50	190	<0.50	<0.50	<0.50	<0.50	--	44	--	--	--	--	97	<5.0	--	--
9/10/2013	10.81	3.25	NP	7.56	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	
12/12/2013	10.81	2.60	NP	8.21	<50	400	<0.50	<0.50	<0.50	<0.50	--	22	--	--	--	--	46	<5.0	--	--	
3/4/2014	10.81	2.38	NP	8.43	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	
6/12/2014	10.81	3.23	NP	7.58	<50	310	<0.50	<0.50	<0.50	<0.50	--	28	--	--	--	--	74	<5.0	--	--	
9/5/2014	10.81	3.62	NP	7.19	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	
12/22/2014	10.81	2.07	NP	8.74	<50	250	<0.50	<0.50	<0.50	<0.50	--	15	--	--	--	--	35	<5.0	--	--	
MW-4	8/31/1992	NSVD	NG	NG	NG	90	240	ND	ND	ND	0.54	--	--	--	--	--	--	--	--	--	
	11/30/1992	NSVD	NG	NG	NG	61	420	ND	ND	ND	ND	--	--	--	--	--	--	--	--	--	
	2/4/1993	NSVD	NG	NG	NG	ND	ND	ND	ND	ND	ND	--	--	--	--	--	--	--	--	--	
	5/4/1993	9.00	4.09	NP	4.91	ND	110	0.95	ND	ND	ND	--	--	--	--	--	--	--	--	--	
	8/4/1993	9.00	5.01	NP	3.99	81	250	ND	3.5	ND	4.1	--	--	--	--	--	--	--	--	--	
	11/3/1993	8.41	4.23	NP	4.18	68	130	ND	ND	ND	ND	--	--	--	--	--	--	--	--	--	
	2/7/1994	8.41	3.35	NP	5.06	ND	56	ND	ND	ND	ND	--	--	--	--	--	--	--	--	--	
	5/19/1994	8.41	3.92	NP	4.49	90	140	ND	ND	ND	ND	--	--	--	--	--	--	--	--	--	
	6/25/1994	8.41	4.35	NP	4.06	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
	7/27/1994	8.41	4.28	NP	4.13	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
	8/15/1994	8.41	4.27	NP	4.14	72	59	ND	0.6	ND	ND	--	--	--	--	--	--	--	--	--	--
11/14/1994	8.41	4.05	NP	4.36	ND	130	ND	ND	ND	ND	--	--	--	--	--	--	--	--	--	--	
2/21/1995	NSVD	WD	WD	WD	WD	WD	WD	WD	WD	WD	WD	WD	WD	WD	WD	WD	WD	WD	WD	WD	
MW-5	8/31/1992	NSVD	NG	NG	NG	690	78	0.89	ND	ND	13	--	--	--	--	--	--	--	--	--	
	11/30/1992	NSVD	NG	NG	NG	470	930	70	290	0.79	14	--	--	--	--	--	--	--	--	--	
	2/4/1993	NSVD	NG	NG	NG	5,500	5,700	38	ND	620	170	--	--	--	--	--	--	--	--	--	
	5/4/1993	8.95	4.37	NP	4.58	4,600	7,400	41	ND	1,000	35	--	--	--	--	--	--	--	--	--	
	8/4/1993	8.95	5.81	NP	3.14	970	1,500	130	1	460	11	--	--	--	--	--	--	--	--	--	
	11/3/1993	8.95	5.68	NP	3.27	2,100	13,000	350	ND	3,500	530	--	--	--	--	--	--	--	--	--	
	2/7/1994	8.95	5.11	NP	3.84	830	2,000	87	ND	370	110	--	--	--	--	--	--	--	--	--	
	5/19/1994	8.95	5.09	NP	3.86	600	260	44	ND	32	4.1	--	--	--	--	--	--	--	--	--	
	6/25/1994	8.95	4.55	NP	4.40	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
	7/27/1994	8.95	5.72	NP	3.23	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
	8/15/1994	8.95	5.68	NP	3.27	860	1,600	110	ND	340	72	--	--	--	--	--	--	--	--	--	--
11/14/1994	8.95	5.63	NP	3.32	290	250	40	ND	ND	5	--	--	--	--	--	--	--	--	--	--	
2/21/1995	NSVD	WD	WD	WD	WD	WD	WD	WD	WD	WD	WD	WD	WD	WD	WD	WD	WD	WD	WD	WD	
MW-6	8/31/1992	NSVD	NG	NG	NG	750	ND	ND	ND	ND	ND	--	--	--	--	--	--	--	--	--	
	11/30/1992	NSVD	NG	NG	NG	1,400	9,200	550	ND	740	1,600	--	--	--	--	--	--	--	--	--	

**TABLE 3**  
**HISTORICAL GROUNDWATER GAUGING AND ANALYTICAL DATA**  
**76 STATION NO. 5191/5043**  
**449 HEGENBERGER ROAD**  
**OAKLAND, CALIFORNIA**



Well I.D.	Date	GROUNDWATER GAUGING DATA				GROUNDWATER ANALYTICAL DATA														
		TOC Elevation (ft)	Depth to Water (ft)	LNAPL Thickness (ft)	Water Elevation* (ft)	TPHd (ug/L)	TPHg (ug/L)	Benzene (ug/L)	Toluene (ug/L)	Ethylbenzene (ug/L)	Total Xylenes (ug/L)	MTBE (SW8021B) (ug/L)	MTBE (SW8260B) (ug/L)	DIPE (ug/L)	ETBE (ug/L)	TAME (ug/L)	TBA (ug/L)	Ethanol (ug/L)	1,2-Dibromoethane (EDB) (ug/L)	1,2-Dichloroethane (ug/L)
MW-6	2/4/1993	NSVD	NG	NG	NG	890	3,600	340	ND	290	550	--	--	--	--	--	--	--	--	--
	5/4/1993	9.12	3.72	NP	5.40	1,800	4,900	360	18	450	430	--	--	--	--	--	--	--	--	--
	8/4/1993	9.12	5.15	NP	3.97	1,100	3,400	390	ND	440	190	--	--	--	--	--	--	--	--	--
	11/3/1993	8.87	5.25	NP	3.62	390	1,400	320	ND	200	7.7	--	--	--	--	--	--	--	--	--
	2/7/1994	8.87	4.55	NP	4.32	970	4,900	650	ND	250	35	--	--	--	--	--	--	--	--	--
	5/19/1994	8.87	4.62	NP	4.25	1,400	3,600	300	1.7	210	41	--	--	--	--	--	--	--	--	--
	8/15/1994	8.87	5.08	NP	3.79	790	1,300	130	6.7	54	57	--	--	--	--	--	--	--	--	--
	11/14/1994	8.87	5.30	NP	3.57	800	730	50	ND	ND	39	--	--	--	--	--	--	--	--	--
	2/21/1995	8.87	5.37	NP	3.50	730	2,000	250	4.6	25	30	--	--	--	--	--	--	--	--	--
	5/18/1995	8.87	WI	WI	WI	WI	WI	WI	WI	WI	WI	WI	WI	WI	WI	WI	WI	WI	WI	WI
	8/17/1995	8.87	WI	WI	WI	WI	WI	WI	WI	WI	WI	WI	WI	WI	WI	WI	WI	WI	WI	WI
	7/26/1996	8.87	6.40	3.33	4.97	LPH	LPH	LPH	LPH	LPH	LPH	LPH	LPH	LPH	LPH	LPH	LPH	LPH	LPH	LPH
	10/28/1996	8.87	4.10	0.21	4.93	LPH	LPH	LPH	LPH	LPH	LPH	LPH	LPH	LPH	LPH	LPH	LPH	LPH	LPH	LPH
	11/13/1996	8.87	4.02	0.25	5.04	LPH	LPH	LPH	LPH	LPH	LPH	LPH	LPH	LPH	LPH	LPH	LPH	LPH	LPH	LPH
	11/25/1996	8.87	4.01	0.75	5.42	LPH	LPH	LPH	LPH	LPH	LPH	LPH	LPH	LPH	LPH	LPH	LPH	LPH	LPH	LPH
	12/4/1996	8.87	3.65	0.50	5.60	LPH	LPH	LPH	LPH	LPH	LPH	LPH	LPH	LPH	LPH	LPH	LPH	LPH	LPH	LPH
	12/19/1996	8.87	4.80	2.20	5.72	LPH	LPH	LPH	LPH	LPH	LPH	LPH	LPH	LPH	LPH	LPH	LPH	LPH	LPH	LPH
	1/8/1997	8.87	4.84	1.75	5.34	LPH	LPH	LPH	LPH	LPH	LPH	LPH	LPH	LPH	LPH	LPH	LPH	LPH	LPH	LPH
	1/14/1997	8.87	4.51	1.15	5.22	LPH	LPH	LPH	LPH	LPH	LPH	LPH	LPH	LPH	LPH	LPH	LPH	LPH	LPH	LPH
	1/27/1997	8.87	4.00	1.75	6.18	LPH	LPH	LPH	LPH	LPH	LPH	LPH	LPH	LPH	LPH	LPH	LPH	LPH	LPH	LPH
	1/29/1997	8.87	3.24	0.31	5.86	LPH	LPH	LPH	LPH	LPH	LPH	LPH	LPH	LPH	LPH	LPH	LPH	LPH	LPH	LPH
	2/11/1997	8.87	4.65	1.20	5.12	LPH	LPH	LPH	LPH	LPH	LPH	LPH	LPH	LPH	LPH	LPH	LPH	LPH	LPH	LPH
	2/24/1997	8.87	4.81	1.10	4.89	LPH	LPH	LPH	LPH	LPH	LPH	LPH	LPH	LPH	LPH	LPH	LPH	LPH	LPH	LPH
	3/10/1997	8.87	4.60	0.95	4.98	LPH	LPH	LPH	LPH	LPH	LPH	LPH	LPH	LPH	LPH	LPH	LPH	LPH	LPH	LPH
	3/17/1997	8.87	4.50	0.89	5.04	LPH	LPH	LPH	LPH	LPH	LPH	LPH	LPH	LPH	LPH	LPH	LPH	LPH	LPH	LPH
	3/31/1997	8.87	4.65	1.00	4.97	LPH	LPH	LPH	LPH	LPH	LPH	LPH	LPH	LPH	LPH	LPH	LPH	LPH	LPH	LPH
	4/15/1997	8.87	4.90	1.03	4.74	LPH	LPH	LPH	LPH	LPH	LPH	LPH	LPH	LPH	LPH	LPH	LPH	LPH	LPH	LPH
	4/28/1997	8.87	4.78	0.03	4.11	LPH	LPH	LPH	LPH	LPH	LPH	LPH	LPH	LPH	LPH	LPH	LPH	LPH	LPH	LPH
	5/15/1997	8.87	4.60	0.25	4.46	LPH	LPH	LPH	LPH	LPH	LPH	LPH	LPH	LPH	LPH	LPH	LPH	LPH	LPH	LPH
	5/27/1997	8.87	4.50	0.25	4.56	LPH	LPH	LPH	LPH	LPH	LPH	LPH	LPH	LPH	LPH	LPH	LPH	LPH	LPH	LPH
	6/9/1997	8.87	4.60	0.20	4.42	LPH	LPH	LPH	LPH	LPH	LPH	LPH	LPH	LPH	LPH	LPH	LPH	LPH	LPH	LPH
	6/24/1997	8.87	4.50	0.25	4.56	LPH	LPH	LPH	LPH	LPH	LPH	LPH	LPH	LPH	LPH	LPH	LPH	LPH	LPH	LPH
	7/9/1997	8.87	4.80	0.60	4.52	LPH	LPH	LPH	LPH	LPH	LPH	LPH	LPH	LPH	LPH	LPH	LPH	LPH	LPH	LPH
7/15/1997	8.87	4.63	0.42	4.56	LPH	LPH	LPH	LPH	LPH	LPH	LPH	LPH	LPH	LPH	LPH	LPH	LPH	LPH	LPH	
7/21/1997	8.87	4.75	0.25	4.31	LPH	LPH	LPH	LPH	LPH	LPH	LPH	LPH	LPH	LPH	LPH	LPH	LPH	LPH	LPH	
8/6/1997	8.87	4.50	0.10	4.45	LPH	LPH	LPH	LPH	LPH	LPH	LPH	LPH	LPH	LPH	LPH	LPH	LPH	LPH	LPH	
8/20/1997	8.87	4.55	0.10	4.40	LPH	LPH	LPH	LPH	LPH	LPH	LPH	LPH	LPH	LPH	LPH	LPH	LPH	LPH	LPH	
9/2/1997	8.87	4.75	0.05	4.16	LPH	LPH	LPH	LPH	LPH	LPH	LPH	LPH	LPH	LPH	LPH	LPH	LPH	LPH	LPH	
10/9/1997	8.87	4.84	0.04	4.06	LPH	LPH	LPH	LPH	LPH	LPH	LPH	LPH	LPH	LPH	LPH	LPH	LPH	LPH	LPH	
1/14/1998	8.87	3.90	0.94	5.68	LPH	LPH	LPH	LPH	LPH	LPH	LPH	LPH	LPH	LPH	LPH	LPH	LPH	LPH	LPH	
2/12/1998	8.87	3.35	0.64	6.00	LPH	LPH	LPH	LPH	LPH	LPH	LPH	LPH	LPH	LPH	LPH	LPH	LPH	LPH	LPH	
3/3/1998	8.87	4.51	0.02	4.38	LPH	LPH	LPH	LPH	LPH	LPH	LPH	LPH	LPH	LPH	LPH	LPH	LPH	LPH	LPH	
4/1/1998	8.87	3.67	1.60	6.40	LPH	LPH	LPH	LPH	LPH	LPH	LPH	LPH	LPH	LPH	LPH	LPH	LPH	LPH	LPH	
5/26/1998	8.87	4.11	0.50	5.14	LPH	LPH	LPH	LPH	LPH	LPH	LPH	LPH	LPH	LPH	LPH	LPH	LPH	LPH	LPH	
6/15/1998	8.87	5.03	0.30	4.07	LPH	LPH	LPH	LPH	LPH	LPH	LPH	LPH	LPH	LPH	LPH	LPH	LPH	LPH	LPH	
7/15/1998	8.87	4.56	0.05	4.35	LPH	LPH	LPH	LPH	LPH	LPH	LPH	LPH	LPH	LPH	LPH	LPH	LPH	LPH	LPH	
8/21/1998	8.87	4.77	0.02	4.12	LPH	LPH	LPH	LPH	LPH	LPH	LPH	LPH	LPH	LPH	LPH	LPH	LPH	LPH	LPH	
9/30/1998	8.87	5.08	0.03	3.81	LPH	LPH	LPH	LPH	LPH	LPH	LPH	LPH	LPH	LPH	LPH	LPH	LPH	LPH	LPH	
10/16/1998	8.87	4.31	2.40	6.36	LPH	LPH	LPH	LPH	LPH	LPH	LPH	LPH	LPH	LPH	LPH	LPH	LPH	LPH	LPH	
11/6/1998	8.87	3.98	0.17	5.02	LPH	LPH	LPH	LPH	LPH	LPH	LPH	LPH	LPH	LPH	LPH	LPH	LPH	LPH	LPH	
11/25/1998	8.87	3.92	0.10	5.03	LPH	LPH	LPH	LPH	LPH	LPH	LPH	LPH	LPH	LPH	LPH	LPH	LPH	LPH	LPH	

**TABLE 3**  
**HISTORICAL GROUNDWATER GAUGING AND ANALYTICAL DATA**  
**76 STATION NO. 5191/5043**  
**449 HEGENBERGER ROAD**  
**OAKLAND, CALIFORNIA**



Well I.D.	Date	GROUNDWATER GAUGING DATA				GROUNDWATER ANALYTICAL DATA															
		TOC Elevation (ft)	Depth to Water (ft)	LNAPL Thickness (ft)	Water Elevation* (ft)	TPHd (ug/L)	TPHg (ug/L)	Benzene (ug/L)	Toluene (ug/L)	Ethylbenzene (ug/L)	Total Xylenes (ug/L)	MTBE (SW8021B) (ug/L)	MTBE (SW8260B) (ug/L)	DIPE (ug/L)	ETBE (ug/L)	TAME (ug/L)	TBA (ug/L)	Ethanol (ug/L)	1,2-Dibromoethane (EDB) (ug/L)	1,2-Dichloroethane (ug/L)	
MW-6	12/28/1998	8.87	3.90	0.20	5.12	LPH	LPH	LPH	LPH	LPH	LPH	LPH	LPH	LPH	LPH	LPH	LPH	LPH	LPH	LPH	LPH
	1/25/1999	8.87	4.18	0.60	5.14	LPH	LPH	LPH	LPH	LPH	LPH	LPH	LPH	LPH	LPH	LPH	LPH	LPH	LPH	LPH	LPH
	2/22/1999	8.87	4.07	0.22	4.97	LPH	LPH	LPH	LPH	LPH	LPH	LPH	LPH	LPH	LPH	LPH	LPH	LPH	LPH	LPH	LPH
	3/22/1999	8.87	4.32	0.15	4.66	LPH	LPH	LPH	LPH	LPH	LPH	LPH	LPH	LPH	LPH	LPH	LPH	LPH	LPH	LPH	LPH
	4/15/1999	8.87	4.23	0.95	5.35	LPH	LPH	LPH	LPH	LPH	LPH	LPH	LPH	LPH	LPH	LPH	LPH	LPH	LPH	LPH	LPH
	5/28/1999	8.87	4.38	0.39	4.78	LPH	LPH	LPH	LPH	LPH	LPH	LPH	LPH	LPH	LPH	LPH	LPH	LPH	LPH	LPH	LPH
	6/29/1999	8.87	4.12	0.02	4.77	LPH	LPH	LPH	LPH	LPH	LPH	LPH	LPH	LPH	LPH	LPH	LPH	LPH	LPH	LPH	LPH
	7/14/1999	8.87	4.20	0.03	4.69	LPH	LPH	LPH	LPH	LPH	LPH	LPH	LPH	LPH	LPH	LPH	LPH	LPH	LPH	LPH	LPH
	8/23/1999	8.87	4.51	0.24	4.54	LPH	LPH	LPH	LPH	LPH	LPH	LPH	LPH	LPH	LPH	LPH	LPH	LPH	LPH	LPH	LPH
	9/30/1999	8.87	4.17	0.17	4.83	LPH	LPH	LPH	LPH	LPH	LPH	LPH	LPH	LPH	LPH	LPH	LPH	LPH	LPH	LPH	LPH
	10/21/1999	8.87	4.27	0.12	4.69	LPH	LPH	LPH	LPH	LPH	LPH	LPH	LPH	LPH	LPH	LPH	LPH	LPH	LPH	LPH	LPH
	11/29/1999	8.87	4.18	NP	4.69	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
	12/20/1999	8.87	4.26	0.01	4.62	LPH	LPH	LPH	LPH	LPH	LPH	LPH	LPH	LPH	LPH	LPH	LPH	LPH	LPH	LPH	LPH
	1/20/2000	8.87	4.31	NP	4.56	67,600	130,000	2,900	8,600	2,000	16,000	ND	--	--	--	--	--	--	--	--	--
	2/26/2000	8.87	3.98	NP	4.89	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
	3/31/2000	8.87	4.14	NP	4.73	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
	4/13/2000	8.87	4.04	NP	4.83	8,700	140,000	5,000	14,000	3,600	27,000	7,700	--	--	--	--	--	--	--	--	--
	5/26/2000	8.87	4.41	NP	4.46	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
	6/17/2000	8.87	4.35	NP	4.52	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
	7/14/2000	8.87	4.47	NP	4.40	133,000	259,000	7,670	13,700	6,860	40,700	ND	ND	--	--	--	--	--	--	--	--
	8/24/2000	8.87	3.71	NP	5.16	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
	9/27/2000	8.87	4.33	NP	4.54	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
	10/26/2000	8.87	4.32	NP	4.55	61,000	110,000	7,000	6,200	3,700	12,000	670	43	--	--	--	--	--	--	--	--
	1/3/2001	8.87	4.52	NP	4.35	929	84,700	3,950	4,130	3,650	11,800	ND	ND	--	--	--	--	--	--	--	--
	4/4/2001	8.87	4.29	NP	4.58	18,000	69,800	2,060	2,840	3,650	10,900	ND	48	ND	ND	ND	ND	ND	ND	ND	ND
	7/17/2001	8.87	4.37	NP	4.50	20,000	100,000	3,200	3,300	3,400	12,000	ND	--	--	--	--	--	--	--	--	--
	10/1/2001	8.87	4.45	NP	4.42	24,000	110,000	3,200	2,400	4,500	13,000	<1000	--	--	--	--	--	--	--	--	--
	1/31/2002	8.87	4.03	NP	4.84	11,000	230,000	2,400	1,800	5,400	16,000	<2500	--	--	--	--	--	--	--	--	--
	4/18/2002	8.87	3.45	NP	5.42	3,500	94,000	6,800	13,000	3,000	19,000	<500	--	--	--	--	--	--	--	--	--
	7/28/2002	8.87	2.24	NP	6.63	27,000	110,000	530	170	3,200	7,300	--	<100	--	--	--	--	--	--	--	--
	10/9/2002	8.87	3.53	NP	5.34	170,000	970,000	10,000	39,000	13,000	94,000	--	<2000	--	--	--	--	--	--	--	--
	1/2/2003	8.87	2.34	NP	6.53	66,000	270,000	6,100	15,000	5,400	37,000	--	<200	--	--	--	--	--	--	--	--
	4/1/2003	8.87	3.17	NP	5.70	35,000	3,000,000	8,000	39,000	37,000	260,000	--	<2000	--	--	--	--	--	--	--	--
	7/1/2003	8.87	3.55	NP	5.32	11,000	38,000	2,100	990	2,700	6,500	--	<100	--	--	--	--	--	<25000	--	--
	10/2/2003	8.87	3.82	NP	5.05	<50	100,000	5,600	6,900	4,700	18,000	--	<800	--	--	--	--	--	<200000	--	--
	1/9/2004	8.87	2.80	NP	6.07	20,000	170,000	2,800	3,300	4,700	16,000	--	<200	--	--	--	--	--	<50000	--	--
	4/26/2004	8.87	3.40	NP	5.47	13,000	97,000	5,900	9,000	5,100	23,000	--	<50	--	--	--	--	--	<5000	--	--
7/22/2004	8.87	3.54	NP	5.33	33,000	110,000	4,100	5,100	4,000	16,000	--	<200	--	--	--	--	--	<300000	--	--	
10/29/2004	8.87	3.03	NP	5.84	78,000	100,000	5,200	6,100	4,200	15,000	--	<50	--	--	--	--	--	<5000	--	--	
1/10/2005	8.87	2.35	NP	6.52	12,000	71,000	1,600	3,700	2,100	9,900	--	<50	--	--	--	--	--	<5000	--	--	
6/15/2005	8.87	2.47	NP	6.40	16,000	130,000	800	1,800	2,200	9,300	--	<50	--	--	--	--	--	<5000	--	--	
9/27/2005	8.87	2.55	NP	6.32	2,500	13,000	82	120	430	990	--	0.56	1.8	<0.50	<0.50	<10	<250	--	--	--	
12/13/2005	8.87	3.28	NP	5.59	18,000	68,000	1,500	1,100	2,200	7,700	--	<50	--	--	--	--	--	<25000	--	--	
3/23/2006	8.87	2.87	NP	6.00	73,000	41,000	290	140	1,500	2,700	--	<50	--	--	--	--	--	<25000	--	--	
6/23/2006	8.87	3.15	NP	5.72	35,000	50,000	2,200	1,400	1,900	5,700	--	<12	--	--	--	--	--	<6200	--	--	
9/26/2006	8.87	3.08	NP	5.79	22,000	130,000	2,200	1,000	2,900	8,800	--	<50	--	--	--	--	--	<25000	--	--	
12/22/2006	8.87	2.90	NP	5.97	62,000	90,000	940	610	1,900	4,700	--	<50	--	--	--	--	--	<25000	--	--	
3/30/2007	8.87	3.26	NP	5.61	62,000	210,000	1,100	560	3,400	12,000	--	<10	--	--	--	--	--	<5000	--	--	
6/28/2007	8.87	3.46	NP	5.41	71,000	67,000	2,200	1,300	2,700	10,000	--	<25	--	--	--	--	--	<12000	--	--	
9/25/2007	8.87	3.52	NP	5.35	58,000	56,000	2,900	720	2,400	9,000	--	<25	--	--	--	--	--	<12000	--	--	
12/28/2007	8.87	3.27	NP	5.60	18,000	78,000	28,000	2,700	4,000	8,100	--	16,000	--	--	--	--	--	<12000	--	--	

**TABLE 3**  
**HISTORICAL GROUNDWATER GAUGING AND ANALYTICAL DATA**  
**76 STATION NO. 5191/5043**  
**449 HEGENERBERGER ROAD**  
**OAKLAND, CALIFORNIA**

Well I.D.	Date	GROUNDWATER GAUGING DATA				GROUNDWATER ANALYTICAL DATA															
		TOC Elevation (ft)	Depth to Water (ft)	LNAPL Thickness (ft)	Water Elevation* (ft)	TPHd (ug/L)	TPHg (ug/L)	Benzene (ug/L)	Toluene (ug/L)	Ethylbenzene (ug/L)	Total Xylenes (ug/L)	MTBE (SW8021B) (ug/L)	MTBE (SW8260B) (ug/L)	DIPE (ug/L)	ETBE (ug/L)	TAME (ug/L)	TBA (ug/L)	Ethanol (ug/L)	1,2-Dibromoethane (EDB) (ug/L)	1,2-Dichloroethane (ug/L)	
MW-6	3/22/2008	8.87	2.48	NP	6.39	68,000	66,000	380	150	1,500	2,400	--	<25	--	--	--	--	<12000	--	--	
	6/23/2008	8.87	3.54	NP	5.33	68,000	59,000	1,600	130	1,800	4,100	--	25	--	--	--	--	<12000	--	--	
	9/19/2008	8.87	4.06	NP	4.81	180,000	65,000	2,000	230	2,000	4,500	--	<12	--	--	--	--	<6200	--	--	
	12/31/2008	8.87	3.45	NP	5.42	68,000	91,000	2,000	320	5,300	13,000	--	<50	--	--	--	--	<25000	--	--	
	3/27/2009	8.87	3.09	NP	5.78	170,000	150,000	1,300	240	2,800	7,200	--	<50	--	--	--	--	<25000	--	--	
	5/28/2009	8.87	3.49	NP	5.38	78,000	53,000	1,700	200	2,300	5,400	--	<50	--	--	--	--	<25000	--	--	
	9/17/2009	8.87	3.64	NP	5.23	250,000 T4	77,000	2,100	1,400	2,600	8,500	--	<12	--	--	--	--	<6200	--	--	
	12/17/2009	8.87	3.14	NP	5.73	30,300	59,100	1,730	199	2,260	5,460	--	20	--	--	--	--	<250	--	--	
	3/29/2010	8.87	3.16	NP	5.71	106,000	48,400	1,980	208	3,070	8,070	--	12	--	--	--	--	<250	--	--	
	6/30/2010	11.55	3.50	NP	8.05	170,000	78,700	2,130	281	2,860	8,400	--	6	--	--	--	--	<250	--	--	
	7/6/2010	11.55	3.49	NP	8.06	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
	9/20/2010	11.55	3.75	NP	7.80	18,800	64,500	2,300	170	2,770	6,260	--	19	--	--	--	--	<250	--	--	
	12/8/2010	11.55	8.42	NP	3.13	28,700	78,400	1,300	1,680	3,490	20,600	--	11	--	--	--	--	<250	--	--	
	3/14/2011	11.55	3.40	NP	8.15	93,000	44,600	912	338	728	3,670	--	16	--	--	--	134	<250	--	--	
	6/2/2011	11.55	2.76	NP	8.79	33,700 T4	56,200	780	262	651	3,890	--	7	--	--	--	81.0	<250	--	--	
	9/7/2011	11.55	2.83	NP	8.72	6,780 T4	16,600	16	11	90	339	--	<0.50	--	--	--	--	<250	--	--	
	12/5/2011	11.55	3.56	NP	7.99	20,200 T4	64,600	646	95	924	4,050	--	15	--	--	--	--	<250	--	--	
	3/6/2012	11.55	3.43	NP	8.12	14,800 T4	55,000	1,020	131	1,320	4,730	--	19	--	--	--	316	<1250	--	--	
	6/11/2012	11.55	3.33	NP	8.22	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
	6/12/2012	--	--	--	--	47,100 T4	33,400	773	61	840	3,110	--	11	--	--	--	123	<250	--	--	--
	9/6/2012	11.55	2.85	NP	8.70	<1000	24,000	450	51	610	1,800	--	6	<4.0	<4.0	<4.0	82	<40	<4.0	<4.0	<4.0
	12/13/2012	11.55	2.90	NP	8.65	470	20,000	200	16	350	1,100	--	<4.0	--	--	--	22	<40	--	--	--
	3/14/2013	11.55	3.69	NP	7.86	680	24,000	500	25	540	1,700	--	8	--	--	--	110	<40	--	--	--
	6/11/2013	11.55	3.86	NP	7.69	2,400	87,000	1,800	250	2,000	9,400	--	13	--	--	--	230	<40	--	--	--
9/10/2013	11.55	4.11	NP	7.44	470	28,000	440	19	530	1,500	--	10	--	--	--	170	<40	--	--	--	
12/12/2013	11.55	3.55	NP	8.00	100	15,000	220	13	270	660	--	9.5	--	--	--	120	<25	--	--	--	
3/4/2014	11.55	3.07	NP	8.48	580	33,000	490	19	620	1,800	--	13	--	--	--	160	<50	--	--	--	
6/12/2014	11.55	3.79	NP	7.76	570	35,000	390	17	690	1,600	--	12	--	--	--	180	<50	--	--	--	
9/5/2014	11.55	4.5	NP	7.05	3,100	28,000	720	29	920	2,400	--	12	--	--	--	200	<50	--	--	--	
12/22/2014	11.55	2.55	NP	9.00	250 A	49,000	2,000	120	1,600	7,700	--	9.7	--	--	--	150	<150	--	--	--	
MW-7	5/27/1997	8.83	4.50	NP	4.33	--	68	ND	ND	ND	ND	ND	--	--	--	--	--	--	--	--	
	6/1/1997	8.83	4.54	NP	4.29	69	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
	7/15/1997	8.83	4.70	NP	4.13	ND	ND	ND	ND	ND	ND	ND	--	--	--	--	--	--	--	--	--
	10/9/1997	8.83	4.30	NP	4.53	190	ND	ND	ND	ND	ND	ND	--	--	--	--	--	--	--	--	--
	1/14/1998	8.83	2.88	NP	5.95	65	ND	ND	ND	ND	ND	36	--	--	--	--	--	--	--	--	--
	4/1/1998	8.83	3.13	NP	5.70	ND	ND	ND	ND	ND	ND	ND	--	--	--	--	--	--	--	--	--
	7/15/1998	8.83	4.45	NP	4.38	74	ND	ND	ND	ND	ND	ND	--	--	--	--	--	--	--	--	--
	10/16/1998	8.83	3.45	NP	5.38	ND	ND	ND	ND	ND	ND	ND	--	--	--	--	--	--	--	--	--
	1/25/1999	8.83	3.22	NP	5.61	ND	ND	ND	ND	ND	ND	ND	--	--	--	--	--	--	--	--	--
	4/15/1999	8.83	3.11	NP	5.72	ND	ND	ND	ND	ND	ND	ND	--	--	--	--	--	--	--	--	--
	7/14/1999	8.83	3.34	NP	5.49	69	ND	ND	ND	ND	ND	ND	--	--	--	--	--	--	--	--	--
	10/21/1999	8.83	3.43	NP	5.40	ND	ND	ND	ND	ND	ND	ND	--	--	--	--	--	--	--	--	--
	1/20/2000	8.83	3.29	NP	5.54	ND	ND	ND	ND	ND	ND	4.2	--	--	--	--	--	--	--	--	--
	4/13/2000	8.83	3.39	NP	5.44	ND	ND	ND	ND	ND	ND	ND	--	--	--	--	--	--	--	--	--
	7/14/2000	8.83	4.42	NP	4.41	68.0	ND	ND	ND	ND	ND	7.83	--	--	--	--	--	--	--	--	--
	7/17/2001	8.83	5.06	NP	3.77	ND	ND	ND	ND	ND	ND	ND	--	--	--	--	--	--	--	--	--
	10/1/2001	8.83	4.98	NP	3.85	<51	<50	<0.50	<0.50	<0.50	<0.50	<0.50	<5.0	--	--	--	--	--	--	--	--
	1/31/2002	8.83	3.88	NP	4.95	90	<50	<0.50	<0.50	<0.50	<0.50	<2.5	--	--	--	--	--	--	--	--	--
	4/18/2002	8.83	4.03	NP	4.80	78	<50	<0.50	<0.50	<0.50	<0.50	5.7	--	--	--	--	--	--	--	--	--
7/28/2002	8.83	3.59	NP	5.24	<50	<50	<0.50	<0.50	<0.50	<1.0	--	3.9	--	--	--	--	--	--	--	--	



**TABLE 3**  
**HISTORICAL GROUNDWATER GAUGING AND ANALYTICAL DATA**  
**76 STATION NO. 5191/5043**  
**449 HEGENBERGER ROAD**  
**OAKLAND, CALIFORNIA**

Well I.D.	Date	GROUNDWATER GAUGING DATA				GROUNDWATER ANALYTICAL DATA														
		TOC Elevation (ft)	Depth to Water (ft)	LNAPL Thickness (ft)	Water Elevation* (ft)	TPHd (ug/L)	TPHg (ug/L)	Benzene (ug/L)	Toluene (ug/L)	Ethylbenzene (ug/L)	Total Xylenes (ug/L)	MTBE (SW8021B) (ug/L)	MTBE (SW8260B) (ug/L)	DIPE (ug/L)	ETBE (ug/L)	TAME (ug/L)	TBA (ug/L)	Ethanol (ug/L)	1,2-Dibromoethane (EDB) (ug/L)	1,2-Dichloroethane (ug/L)
MW-7	10/9/2002	8.83	4.53	NP	4.30	<96	<50	<0.50	<0.50	<0.50	<1.0	--	<b>3.9</b>	--	--	--	--	--	--	--
	1/3/2003	8.83	3.36	NP	5.47	<b>78</b>	<50	<0.50	<0.50	<0.50	<1.0	--	<2.0	--	--	--	--	--	--	--
	4/1/2003	8.83	3.94	NP	4.89	<b>67</b>	<b>71</b>	<0.50	<0.50	<b>0.71</b>	<1.0	--	<b>3.4</b>	--	--	--	--	--	--	--
	7/1/2003	8.83	4.60	NP	4.23	<b>68</b>	<b>64</b>	<0.50	<0.50	<b>0.77</b>	<b>2.0</b>	--	<b>35</b>	--	--	--	--	--	<500	--
	10/2/2003	8.83	5.46	NP	3.37	<b>82</b>	<50	<0.50	<0.50	<0.50	<1.0	--	<b>4.9</b>	--	--	--	--	--	<500	--
	1/9/2004	8.83	3.55	NP	5.28	<b>75</b>	<b>54</b>	<0.50	<0.50	<0.50	<1.0	--	<b>2.4</b>	--	--	--	--	--	<500	--
	4/26/2004	8.83	4.49	NP	4.34	<50	<50	<0.50	<0.50	<0.50	<1.5	--	<b>2.3</b>	--	--	--	--	--	<50	--
	7/22/2004	8.83	4.93	NP	3.90	<200	<b>82</b>	<b>0.90</b>	<b>2.0</b>	<b>3.5</b>	<b>9.9</b>	--	<b>1.4</b>	--	--	--	--	--	<1000	--
	10/29/2004	8.83	3.71	NP	5.12	<b>54</b>	<b>210</b>	<b>0.67</b>	<b>1.6</b>	<b>1.7</b>	<b>5.8</b>	--	<0.50	--	--	--	--	--	<50	--
	1/10/2005	8.83	2.77	NP	6.06	<50	<b>74</b>	<b>0.51</b>	<b>2.2</b>	<b>1.7</b>	<b>7.0</b>	--	<0.50	--	--	--	--	--	<50	--
	6/15/2005	8.83	3.40	NP	5.43	<50	<50	<0.50	<0.50	<0.50	<1.0	--	<b>0.88</b>	--	--	--	--	--	<50	--
	9/27/2005	8.83	3.44	NP	5.39	<200	<50	<b>0.59</b>	<b>1.2</b>	<0.50	<1.0	--	<b>0.96</b>	<0.50	<0.50	<0.50	<10	<250	--	--
	12/13/2005	8.83	3.98	NP	4.85	<200	<50	<0.50	<0.50	<0.50	<1.0	--	<b>0.65</b>	--	--	--	--	--	<250	--
	3/23/2006	8.83	3.37	NP	5.46	<200	<50	<0.50	<0.50	<0.50	<1.0	--	<0.50	--	--	--	--	--	<250	--
	6/23/2006	8.83	5.25	NP	3.58	<200	<50	<0.50	<0.50	<0.50	<1.0	--	<0.50	--	--	--	--	--	<250	--
	9/26/2006	8.83	4.13	NP	4.70	<50	<50	<0.50	<0.50	<0.50	<0.50	--	0.77	--	--	--	--	--	<250	--
	12/22/2006	8.83	3.63	NP	5.20	<b>630</b>	<50	<0.50	<0.50	<0.50	<0.50	--	<0.50	--	--	--	--	--	<250	--
	3/30/2007	8.83	4.31	NP	4.52	<b>94</b>	<50	<0.50	<0.50	<0.50	<0.50	--	<0.50	--	--	--	--	--	<250	--
	6/28/2007	8.83	4.62	NP	4.21	<50	<50	<0.50	<0.50	<0.50	<0.50	--	0.54	--	--	--	--	--	<250	--
	9/25/2007	8.83	4.65	NP	4.18	<50	<50	<0.50	<0.50	<0.50	<0.50	--	<0.50	--	--	--	--	--	<250	--
	12/28/2007	8.83	3.99	NP	4.84	<b>75</b>	<50	<0.50	<0.50	<0.50	<1.0	--	<0.50	--	--	--	--	--	<250	--
	3/22/2008	8.83	4.08	NP	4.75	<50	<50	<0.50	<0.50	<0.50	<1.0	--	<0.50	--	--	--	--	--	<250	--
	6/23/2008	8.83	4.10	NP	4.73	<50	<50	<0.50	<0.50	<0.50	<1.0	--	<0.50	--	--	--	--	--	<250	--
	9/19/2008	8.83	4.86	NP	3.97	<50	<50	<0.50	<0.50	<0.50	<1.0	--	<0.50	--	--	--	--	--	<250	--
	12/31/2008	8.83	4.17	NP	4.66	<50	<50	<0.50	<0.50	<0.50	<1.0	--	<0.50	--	--	--	--	--	<250	--
	3/27/2009	8.83	4.00	NP	4.83	<50	<50	<0.50	<0.50	<0.50	<1.0	--	<0.50	--	--	--	--	--	<250	--
	5/28/2009	8.83	4.71	NP	4.12	<50	<50	<0.50	<0.50	<0.50	<1.0	--	<0.50	--	--	--	--	--	<250	--
	9/17/2009	8.83	4.87	NP	3.96	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
	3/29/2010	8.83	WI	WI	WI	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
	6/30/2010	11.64	4.45	NP	7.19	<b>66.0</b>	<50.0	<0.50	<0.50	<0.50	<1.5	--	<0.50	--	--	--	--	--	<250	--
	7/6/2010	11.64	4.63	NP	7.01	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
	9/20/2010	11.64	4.85	NP	6.79	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
12/8/2010	11.64	3.99	NP	7.65	<b>57.7</b>	<50.0	<0.50	<0.50	<0.50	<1.5	--	<0.50	--	--	--	--	--	<250	--	
3/14/2011	11.64	3.81	NP	7.83	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	
6/2/2011	11.64	3.90	NP	7.74	<b>63.0 T4</b>	--	<0.50	<0.50	<0.50	<1.5	--	<0.50	--	--	--	<5.0	<250	--	--	
9/7/2011	11.64	3.72	NP	7.92	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	
12/5/2011	11.64	4.60	NP	7.04	<50.0	--	<0.50	<0.50	<0.50	<1.5	--	<0.50	--	--	--	--	--	<250	--	
3/6/2012	11.64	4.54	NP	7.10	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	
6/11/2012	11.64	4.93	NP	6.71	<37.9	--	<0.50	<0.50	<0.50	<1.5	--	<0.50	--	--	--	<5.0	<250	--	--	
9/6/2012	11.64	4.03	NP	7.61	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	
12/13/2012	11.64	3.43	NP	8.21	<50	--	<0.50	<0.50	<0.50	<0.50	--	<0.50	--	--	--	<5.0	<5.0	--	--	
3/14/2013	11.64	4.9	NP	6.74	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	
6/11/2013	11.64	6.92	NP	4.72	<b>96</b>	<50	<0.50	<0.50	<0.50	<0.50	--	<0.50	--	--	--	<b>7</b>	<5.0	--	--	
9/10/2013	11.64	6.54	NP	5.1	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	
12/12/2013	11.64	4.60	NP	7.04	<50	<50	<0.50	<0.50	<0.50	<0.50	--	<0.50	--	--	--	<5.0	<5.0	--	--	
3/4/2014	11.64	3.42	NP	8.22	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	
6/12/2014	11.64	5.76	NP	5.88	<50	<50	<0.50	<0.50	<0.50	<0.50	--	<0.50	--	--	--	<5.0	<5.0	--	--	
MW-8	5/27/1997	8.52	3.42	NP	5.10	--	<b>310</b>	<b>0.88</b>	<b>0.67</b>	<b>15</b>	<b>70</b>	ND	--	--	--	--	--	--	--	
	6/1/1997	8.52	3.46	NP	5.06	<b>320</b>	--	--	--	--	--	--	--	--	--	--	--	--	--	
	7/15/1997	8.52	3.49	NP	5.03	ND	ND	ND	ND	<b>2.7</b>	<b>3.8</b>	ND	--	--	--	--	--	--	--	
	10/9/1997	8.52	3.73	NP	4.79	<b>390</b>	<b>590</b>	<b>1.4</b>	ND	<b>32</b>	<b>4.1</b>	ND	--	--	--	--	--	--	--	

**TABLE 3**  
**HISTORICAL GROUNDWATER GAUGING AND ANALYTICAL DATA**  
**76 STATION NO. 5191/5043**  
**449 HEGENBERGER ROAD**  
**OAKLAND, CALIFORNIA**

Well I.D.	Date	GROUNDWATER GAUGING DATA				GROUNDWATER ANALYTICAL DATA															
		TOC Elevation (ft)	Depth to Water (ft)	LNAPL Thickness (ft)	Water Elevation* (ft)	TPHd (ug/L)	TPHg (ug/L)	Benzene (ug/L)	Toluene (ug/L)	Ethylbenzene (ug/L)	Total Xylenes (ug/L)	MTBE (SW8021B) (ug/L)	MTBE (SW8260B) (ug/L)	DIPE (ug/L)	ETBE (ug/L)	TAME (ug/L)	TBA (ug/L)	Ethanol (ug/L)	1,2-Dibromoethane (EDB) (ug/L)	1,2-Dichloroethane (ug/L)	
MW-8	1/14/1998	8.52	1.92	NP	6.60	230	ND	ND	ND	ND	ND	ND	--	--	--	--	--	--	--	--	--
	4/1/1998	8.52	2.38	NP	6.14	510	ND	ND	ND	ND	ND	4.7	--	--	--	--	--	--	--	--	--
	7/15/1998	8.52	3.53	NP	4.99	140	ND	ND	ND	0.56	1.1	ND	--	--	--	--	--	--	--	--	--
	10/16/1998	8.52	3.04	NP	5.48	170	ND	ND	ND	ND	ND	ND	--	--	--	--	--	--	--	--	--
	1/25/1999	8.52	2.92	NP	5.60	ND	ND	ND	ND	ND	ND	ND	--	--	--	--	--	--	--	--	--
	4/15/1999	8.52	2.40	NP	6.12	91	ND	ND	ND	ND	ND	ND	--	--	--	--	--	--	--	--	--
	7/14/1999	8.52	3.03	NP	5.49	120	ND	ND	ND	ND	ND	ND	--	--	--	--	--	--	--	--	--
	10/21/1999	8.52	3.11	NP	5.41	110	ND	ND	ND	ND	ND	ND	--	--	--	--	--	--	--	--	--
	1/20/2000	8.52	3.06	NP	5.46	583	ND	ND	ND	ND	ND	ND	--	--	--	--	--	--	--	--	--
	4/13/2000	8.52	2.84	NP	5.68	80	ND	ND	ND	ND	ND	ND	--	--	--	--	--	--	--	--	--
	7/14/2000	8.52	3.39	NP	5.13	113	ND	ND	ND	ND	ND	ND	--	--	--	--	--	--	--	--	--
	7/17/2001	8.52	3.46	NP	5.06	ND	ND	ND	ND	ND	ND	ND	--	--	--	--	--	--	--	--	--
	10/1/2001	8.52	3.51	NP	5.01	<50	<50	<0.50	<0.50	<0.50	<0.50	<0.50	<5.0	--	--	--	--	--	--	--	--
	1/31/2002	8.52	2.75	NP	5.77	260	<50	<0.50	<0.50	<0.50	<0.50	<0.50	<2.5	--	--	--	--	--	--	--	--
	4/18/2002	8.52	2.98	NP	5.54	160	<50	<0.50	<0.50	<0.50	<0.50	<0.50	<2.5	--	--	--	--	--	--	--	--
	7/28/2002	8.52	2.41	NP	6.11	140	<50	<0.50	<0.50	<0.50	<1.0	--	<2.0	--	--	--	--	--	--	--	--
	10/9/2002	8.52	2.09	NP	6.43	120	<50	<0.50	<0.50	<0.50	<1.0	--	<2.0	--	--	--	--	--	--	--	--
	1/2/2003	8.52	1.98	NP	6.54	210	<50	<0.50	<0.50	<0.50	<1.0	--	<2.0	--	--	--	--	--	--	--	--
	4/1/2003	8.52	2.66	NP	5.86	220	<50	<0.50	<0.50	<0.50	<1.0	--	<2.0	--	--	--	--	--	--	--	--
	7/1/2003	8.52	3.08	NP	5.44	170	<50	<0.50	<0.50	<0.50	<1.0	--	<2.0	--	--	--	--	--	<500	--	--
	10/2/2003	8.52	3.89	NP	4.63	350	540	3.9	15	29	80	--	<2.0	--	--	--	--	--	<500	--	--
	1/9/2004	8.52	2.38	NP	6.14	180	<50	<0.50	<0.50	<0.50	<1.0	--	<2.0	--	--	--	--	--	<500	--	--
	4/26/2004	8.52	2.89	NP	5.63	100	<50	<0.50	<0.50	<0.50	<1.0	--	<0.50	--	--	--	--	--	<50	--	--
	7/22/2004	8.52	3.25	NP	5.27	250	<50	<0.5	<0.5	<0.5	<1	--	<0.5	--	--	--	--	--	<1000	--	--
	10/29/2004	8.52	3.06	NP	5.46	120	<50	<0.50	<0.50	0.82	2.5	--	<0.50	--	--	--	--	--	<50	--	--
	1/10/2005	8.52	1.92	NP	6.60	140	58	<0.50	0.61	1.2	4.0	--	<0.50	--	--	--	--	--	<50	--	--
	6/15/2005	8.52	2.22	NP	6.30	140	<50	<0.50	<0.50	<0.50	<1.0	--	<0.50	--	--	--	--	--	<50	--	--
	9/27/2005	8.52	2.43	NP	6.09	<200	<50	<0.50	<0.50	1.2	<1.0	--	<0.50	<0.50	<0.50	<0.50	<10	<250	--	--	--
	12/13/2005	8.52	2.89	NP	5.63	<200	<50	<0.50	<0.50	<0.50	<1.0	--	<0.50	--	--	--	--	--	<250	--	--
	3/23/2006	8.52	2.12	NP	6.40	<200	<50	<0.50	<0.50	<0.50	<1.0	--	<0.50	--	--	--	--	--	<250	--	--
	6/23/2006	8.52	2.65	NP	5.87	<230	<50	<0.50	<0.50	<0.50	<1.0	--	<0.50	--	--	--	--	--	<250	--	--
	9/26/2006	8.52	2.75	NP	5.77	110	<50	<0.50	<0.50	<0.50	<0.50	--	<0.50	--	--	--	--	--	<250	--	--
	12/22/2006	8.52	2.58	NP	5.94	100	<50	<0.50	<0.50	<0.50	<0.50	--	<0.50	--	--	--	--	--	<250	--	--
	3/30/2007	8.52	2.74	NP	5.78	120	<50	<0.50	<0.50	<0.50	<0.50	--	<0.50	--	--	--	--	--	<250	--	--
	6/28/2007	8.52	2.90	NP	5.62	140	<50	<0.50	<0.50	<0.50	<0.50	--	<0.50	--	--	--	--	--	<250	--	--
	9/25/2007	8.52	3.26	NP	5.26	110	<50	<0.50	<0.50	<0.50	<0.50	--	<0.50	--	--	--	--	--	<250	--	--
	12/28/2007	8.52	2.64	NP	5.88	110	<50	<0.50	<0.50	<0.50	<1.0	--	<0.50	--	--	--	--	--	<250	--	--
	3/22/2008	8.52	2.31	NP	6.21	<50	<50	<0.50	<0.50	<0.50	<1.0	--	<0.50	--	--	--	--	--	<250	--	--
	6/23/2008	8.52	3.13	NP	5.39	<58	<50	<0.50	<0.50	<0.50	<1.0	--	<0.50	--	--	--	--	--	<250	--	--
	9/19/2008	8.52	3.72	NP	4.80	79	<50	<0.50	<0.50	<0.50	<1.0	--	<0.50	--	--	--	--	--	<250	--	--
	12/31/2008	8.52	2.98	NP	5.54	110	<50	<0.50	<0.50	<0.50	<1.0	--	<0.50	--	--	--	--	--	<250	--	--
	3/27/2009	8.52	2.49	NP	6.03	89	<50	<0.50	<0.50	<0.50	<1.0	--	<0.50	--	--	--	--	--	<250	--	--
	5/28/2009	8.52	3.12	NP	5.40	91	<50	<0.50	<0.50	<0.50	<1.0	--	<0.50	--	--	--	--	--	<250	--	--
9/17/2009	8.52	3.63	NP	4.89	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	
3/29/2010	8.52	WI	WI	WI	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	
6/30/2010	11.32	2.60	NP	8.72	182	<50.0	<0.50	<0.50	<0.50	<1.5	--	<0.50	--	--	--	--	--	<250	--	--	
7/6/2010	11.32	3.03	NP	8.29	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	
9/20/2010	11.32	3.33	NP	7.99	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	
12/8/2010	11.32	2.82	NP	8.50	116	<50.0	<0.50	<0.50	<0.50	<1.5	--	<0.50	--	--	--	--	--	<250	--	--	
3/14/2011	11.32	3.84	NP	7.48	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	
6/2/2011	11.32	2.77	NP	8.55	--	<50.0	<0.50	<0.50	<0.50	<1.5	--	<0.50	--	--	--	--	<5.0	<250	--	--	



**TABLE 3**  
**HISTORICAL GROUNDWATER GAUGING AND ANALYTICAL DATA**  
**76 STATION NO. 5191/5043**  
**449 HEGENBERGER ROAD**  
**OAKLAND, CALIFORNIA**

Well I.D.	Date	GROUNDWATER GAUGING DATA				GROUNDWATER ANALYTICAL DATA														
		TOC Elevation (ft)	Depth to Water (ft)	LNAPL Thickness (ft)	Water Elevation* (ft)	TPHd (ug/L)	TPHg (ug/L)	Benzene (ug/L)	Toluene (ug/L)	Ethylbenzene (ug/L)	Total Xylenes (ug/L)	MTBE (SW8021B) (ug/L)	MTBE (SW8260B) (ug/L)	DIPE (ug/L)	ETBE (ug/L)	TAME (ug/L)	TBA (ug/L)	Ethanol (ug/L)	1,2-Dibromoethane (EDB) (ug/L)	1,2-Dichloroethane (ug/L)
MW-8	9/7/2011	11.32	2.84	NP	8.48	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
	12/5/2011	11.32	2.68	NP	8.64	<50.0	<50.0	<0.50	<0.50	<0.50	<1.5	--	<0.50	--	--	--	--	<250	--	--
	3/6/2012	11.32	3.07	NP	8.25	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
	6/11/2012	11.32	3.08	NP	8.24	<37.9	<50.0	<0.50	<0.50	<0.50	<1.5	--	<0.50	--	--	--	<b>8.3</b>	<250	--	--
	9/6/2012	11.32	2.91	NP	8.41	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
	12/13/2012	11.32	2.31	NP	9.01	<50	<50	<0.50	<0.50	<0.50	<0.50	--	<0.50	--	--	--	--	<5.0	<5.0	--
	3/14/2013	11.32	3.19	NP	8.13	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
	6/11/2013	11.32	3.4	NP	7.92	<50	<50	<0.50	<0.50	<0.50	<0.50	--	<0.50	--	--	--	--	<5.0	<5.0	--
	9/10/2013	11.32	3.54	NP	7.78	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
	12/12/2013	11.32	2.80	NP	8.52	<50	<50	<0.50	<0.50	<0.50	<0.50	--	<0.50	--	--	--	--	<5.0	<5.0	--
	3/4/2014	11.32	2.88	NP	8.44	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
6/12/2014	11.32	3.24	NP	8.08	<50	<50	<0.50	<0.50	<0.50	<0.50	--	<0.50	--	--	--	--	<5.0	<5.0	--	
MW-9	2/21/1995	8.29	1.98	NP	6.31	<b>71</b>	<b>70</b>	ND	ND	ND	ND	--	--	--	--	--	--	--	--	--
	5/18/1995	8.29	3.47	NP	4.82	ND	<b>52</b>	ND	<b>1.1</b>	ND	<b>1.9</b>	--	--	--	--	--	--	--	--	--
	8/17/1995	8.29	1.49	NP	6.80	ND	ND	ND	ND	ND	ND	--	--	--	--	--	--	--	--	--
	7/26/1996	8.29	0.28	NP	8.01	<b>98</b>	ND	ND	ND	ND	ND	ND	--	--	--	--	--	--	--	--
	10/28/1996	8.29	1.15	NP	7.14	<b>99</b>	ND	ND	ND	ND	ND	<b>7.6</b>	--	--	--	--	--	--	--	--
	1/29/1997	8.29	1.05	NP	7.24	<b>54</b>	ND	ND	ND	ND	ND	<b>5.4</b>	--	--	--	--	--	--	--	--
	4/15/1997	8.29	1.88	NP	6.41	<b>94</b>	ND	ND	ND	ND	ND	<b>5.4</b>	--	--	--	--	--	--	--	--
	5/27/1997	8.29	1.05	NP	7.24	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
	7/15/1997	8.29	1.90	NP	6.39	ND	ND	ND	ND	ND	ND	ND	--	--	--	--	--	--	--	--
	10/9/1997	8.29	1.76	NP	6.53	<b>160</b>	ND	ND	ND	ND	ND	ND	--	--	--	--	--	--	--	--
	1/14/1998	8.29	1.26	NP	7.03	<b>110</b>	ND	ND	ND	ND	ND	<b>3.0</b>	--	--	--	--	--	--	--	--
	4/1/1998	8.29	0.85	NP	7.44	<b>110</b>	ND	ND	ND	ND	ND	ND	--	--	--	--	--	--	--	--
	7/15/1998	8.29	1.52	NP	6.77	<b>200</b>	ND	ND	ND	ND	ND	ND	--	--	--	--	--	--	--	--
	10/16/1998	8.29	0.81	NP	7.48	ND	ND	ND	ND	ND	ND	ND	--	--	--	--	--	--	--	--
	1/25/1999	8.29	0.92	NP	7.37	ND	ND	ND	ND	ND	ND	ND	--	--	--	--	--	--	--	--
	4/15/1999	8.29	0.90	NP	7.39	ND	<b>75</b>	<b>21</b>	ND	ND	<b>1.1</b>	<b>680</b>	--	--	--	--	--	--	--	--
	7/14/1999	8.29	1.04	NP	7.25	<b>140</b>	ND	<b>1.9</b>	ND	ND	ND	<b>260</b>	--	--	--	--	--	--	--	--
	10/21/1999	8.29	1.23	NP	7.06	<b>210</b>	ND	ND	ND	ND	ND	<b>170</b>	--	--	--	--	--	--	--	--
	1/20/2000	8.29	1.18	NP	7.11	<b>519</b>	ND	<b>1.1</b>	ND	ND	ND	<b>35</b>	--	--	--	--	--	--	--	--
	4/13/2000	8.29	1.08	NP	7.21	<b>81</b>	<b>160</b>	<b>0.64</b>	ND	ND	ND	<b>53</b>	--	--	--	--	--	--	--	--
	7/14/2000	8.29	1.43	NP	6.86	<b>107</b>	ND	ND	ND	ND	ND	<b>20.2</b>	--	--	--	--	--	--	--	--
	10/26/2000	8.29	1.38	NP	6.91	<b>240</b>	<b>240</b>	<b>2.9</b>	ND	ND	ND	<b>56</b>	--	--	--	--	--	--	--	--
	1/3/2001	8.29	1.66	NP	6.63	<b>164</b>	<b>166</b>	<b>0.763</b>	<b>0.776</b>	ND	<b>1.28</b>	<b>50.2</b>	--	--	--	--	--	--	--	--
	4/4/2001	8.29	1.27	NP	7.02	<b>240</b>	<b>296</b>	<b>0.738</b>	ND	ND	0.907	<b>135</b>	--	--	--	--	--	--	--	--
	7/17/2001	8.29	1.38	NP	6.91	ND	ND	ND	ND	ND	ND	<b>13</b>	--	--	--	--	--	--	--	--
	10/1/2001	8.29	1.93	NP	6.36	<52	<b>51</b>	<0.50	<0.50	<0.50	<0.50	<b>5.0</b>	--	--	--	--	--	--	--	--
	1/31/2002	8.29	2.08	NP	6.21	<b>200</b>	<50	<0.50	<0.50	<0.50	<0.50	<b>5.8</b>	--	--	--	--	--	--	--	--
	4/18/2002	8.29	1.76	NP	6.53	<50	<50	<0.50	<0.50	<0.50	<0.50	<b>5.1</b>	--	--	--	--	--	--	--	--
	7/28/2002	8.29	1.57	NP	6.72	<50	<50	<0.50	<0.50	<0.50	<1.0	--	<b>3.5</b>	--	--	--	--	--	--	--
	10/9/2002	8.29	1.45	NP	6.84	<b>100</b>	<50	<0.50	<0.50	<0.50	<1.0	--	<b>17</b>	--	--	--	--	--	--	--
1/2/2003	8.29	1.18	NP	7.11	<50	<50	<0.50	<0.50	<0.50	<1.0	--	<b>8.6</b>	--	--	--	--	--	--	--	
4/1/2003	8.29	2.04	NP	6.25	56	<50	<0.50	<0.50	<0.50	<1.0	--	<b>9.4</b>	--	--	--	--	--	--	--	
7/1/2003	8.29	2.80	NP	5.49	<50	<50	<0.50	<0.50	<0.50	<1.0	--	<b>3.2</b>	--	--	--	--	<500	--	--	
10/2/2003	8.29	2.70	NP	5.59	<50	<50	<0.50	<0.50	<0.50	<1.0	--	<2.0	--	--	--	--	<500	--	--	
1/9/2004	8.29	1.90	NP	6.39	<b>91</b>	<b>74</b>	<0.50	<b>0.98</b>	<b>2.3</b>	<b>6.2</b>	--	<2.0	--	--	--	--	<500	--	--	
4/26/2004	8.29	1.62	NP	6.67	<50	<b>51</b>	<0.50	<0.50	<0.50	<1.0	--	<b>0.51</b>	--	--	--	--	<50	--	--	
7/22/2004	8.29	1.88	NP	6.41	<200	<50	<0.5	<0.5	<0.5	<1	--	<b>0.78</b>	--	--	--	--	<1000	--	--	
10/29/2004	8.29	1.28	NP	7.01	<b>76</b>	<50	<0.50	<0.50	<0.50	<b>1.0</b>	--	<0.50	--	--	--	--	<50	--	--	
1/10/2005	8.29	0.07	NP	8.22	<b>77</b>	<b>93</b>	<b>0.60</b>	<b>2.3</b>	<b>2.4</b>	<b>9.0</b>	--	<0.50	--	--	--	--	<50	--	--	



**TABLE 3  
HISTORICAL GROUNDWATER GAUGING AND ANALYTICAL DATA  
76 STATION NO. 5191/5043  
449 HEGENBERGER ROAD  
OAKLAND, CALIFORNIA**



Well I.D.	Date	GROUNDWATER GAUGING DATA				GROUNDWATER ANALYTICAL DATA															
		TOC Elevation (ft)	Depth to Water (ft)	LNAPL Thickness (ft)	Water Elevation* (ft)	TPHd (ug/L)	TPHg (ug/L)	Benzene (ug/L)	Toluene (ug/L)	Ethylbenzene (ug/L)	Total Xylenes (ug/L)	MTBE (SW8021B) (ug/L)	MTBE (SW8260B) (ug/L)	DIPE (ug/L)	ETBE (ug/L)	TAME (ug/L)	TBA (ug/L)	Ethanol (ug/L)	1,2-Dibromoethane (EDB) (ug/L)	1,2-Dichloroethane (ug/L)	
MW-9	6/15/2005	8.29	1.70	NP	6.59	67	<50	<0.50	<0.50	<0.50	<1.0	--	6.6	--	--	--	--	<50	--	--	
	9/27/2005	8.29	1.98	NP	6.31	<200	<50	<0.50	0.73	<0.50	<1.0	--	2.3	<0.50	<0.50	<0.50	<10	<250	--	--	
	12/13/2005	8.29	2.26	NP	6.03	<200	<50	<0.50	<0.50	<0.50	<1.0	--	2.9	--	--	--	--	<250	--	--	
	3/23/2006	8.29	1.32	NP	6.97	<200	<50	<0.50	<0.50	<0.50	<1.0	--	2.7	--	--	--	--	<250	--	--	
	6/23/2006	8.29	1.98	NP	6.31	<200	<50	<0.50	<0.50	<0.50	<1.0	--	1.9	--	--	--	--	<250	--	--	
	9/26/2006	8.29	2.52	NP	5.77	<50	<50	<0.50	<0.50	<0.50	<0.50	--	<0.50	--	--	--	--	<250	--	--	
	12/22/2006	8.29	1.98	NP	6.31	150	<50	<0.50	0.57	1.8	4.6	--	1.6	--	--	--	--	<250	--	--	
	3/30/2007	8.29	2.01	NP	6.28	72	<50	<0.50	<0.50	<0.50	<0.50	--	3.4	--	--	--	--	<250	--	--	
	6/28/2007	8.29	1.90	NP	6.39	1000	<50	<0.50	<0.50	<0.50	<0.50	--	4.9	--	--	--	--	<250	--	--	
	9/25/2007	8.29	1.57	NP	6.72	100	<50	<0.50	<0.50	<0.50	<0.50	--	<0.50	--	--	--	--	<250	--	--	
	12/28/2007	8.29	1.98	NP	6.31	56	<50	<0.50	<0.50	<0.50	<1.0	--	<0.50	--	--	--	--	<250	--	--	
	3/22/2008	8.29	0.80	NP	7.49	<50	<50	<0.50	<0.50	<0.50	<1.0	--	0.61	--	--	--	--	<250	--	--	
	6/23/2008	8.29	1.80	NP	6.49	<50	<50	<0.50	<0.50	<0.50	<1.0	--	<0.50	--	--	--	--	<250	--	--	
	9/19/2008	8.29	2.43	NP	5.86	56	<50	<0.50	<0.50	<0.50	<1.0	--	3.9	--	--	--	--	<250	--	--	
	12/31/2008	8.29	2.66	NP	5.63	<50	<50	<0.50	<0.50	<0.50	<1.0	--	<0.50	--	--	--	--	<250	--	--	
	3/27/2009	8.29	2.01	NP	6.28	<50	<50	<0.50	<0.50	<0.50	<1.0	--	<0.50	--	--	--	--	<250	--	--	
	5/28/2009	8.29	2.20	NP	6.09	<50	<50	<0.50	<0.50	<0.50	<1.0	--	<0.50	--	--	--	--	<250	--	--	
	9/17/2009	8.29	1.83	NP	6.46	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
	12/17/2009	8.29	1.52	NP	6.77	105	<50.0	<0.50	<0.50	<0.50	<1.5	--	<0.50	--	--	--	--	<250	--	--	
	3/29/2010	8.29	2.21	NP	6.08	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
	6/30/2010	10.94	2.32	NP	8.62	95.0	<50.0	<0.50	<0.50	<0.50	<1.5	--	0.85	--	--	--	--	<250	--	--	
	7/6/2010	10.94	2.02	NP	8.92	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
	9/20/2010	10.94	2.03	NP	8.91	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
	12/8/2010	10.94	1.77	NP	9.17	<50.0	<50.0	<0.50	<0.50	<0.50	<1.5	--	<0.50	--	--	--	--	<250	--	--	
	3/14/2011	10.94	2.24	NP	8.70	<50.0	<50.0	<0.50	<0.50	<0.50	<1.5	--	<0.50	--	--	--	<5.0	<250	--	--	
	6/2/2011	10.94	2.24	NP	8.70	<50.0	<50.0	<0.50	<0.50	<0.50	<1.5	--	<0.50	--	--	--	<5.0	<250	--	--	
	9/7/2011	10.94	2.46	NP	8.48	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
	12/5/2011	10.94	2.43	NP	8.51	<50.0	<50.0	<0.50	<0.50	<0.50	<1.5	--	4.0	--	--	--	--	<250	--	--	
	3/6/2012	10.94	3.03	NP	7.91	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
	6/11/2012	10.94	1.75	NP	9.19	<37.9	<50.0	<0.50	<0.50	<0.50	<1.5	--	<0.50	--	--	--	<5.0	<250	--	--	
9/6/2012	10.94	1.24	NP	9.70	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	
12/13/2012	10.94	1.80	NP	9.14	<50	<50	<0.50	<0.50	<0.50	<0.50	--	<0.50	--	--	--	<5.0	<5.0	--	--		
3/14/2013	10.94	2.38	NP	8.56	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	
6/11/2013	10.94	2.81	NP	8.13	<50	<50	<0.50	<0.50	<0.50	<0.50	--	4.2	--	--	--	<5.0	<5.0	--	--		
9/10/2013	10.94	2.63	NP	8.31	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	
12/12/2013	10.94	1.78	NP	9.16	<50	<50	<0.50	<0.50	<0.50	<0.50	--	0.56	--	--	--	<5.0	<5.0	--	--		
3/4/2014	10.94	1.93	NP	9.01	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	
6/12/2014	10.94	2.39	NP	8.55	<50	<50	<0.50	<0.50	<0.50	<0.50	--	3.3	--	--	--	<5.0	<5.0	--	--		
9/5/2014	10.94	3.49	NP	7.45	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	
12/22/2014	10.94	1.58	NP	9.36	<50	<50	<0.50	<0.50	<0.50	<0.50	--	5.2	--	--	--	<5.0	<5.0	--	--		
MW-10	2/21/1995	8.62	4.69	NP	3.93	270	1500	250	26	9.1	160	--	--	--	--	--	--	--	--	--	
	5/18/1995	8.62	4.92	NP	3.70	75	810	520	ND	18	23	--	--	--	--	--	--	--	--	--	
	8/17/1995	8.62	4.05	NP	4.57	ND	67	25	ND	2.4	ND	--	--	--	--	--	--	--	--	--	
	7/26/1996	8.62	4.08	NP	4.54	ND	ND	3.7	ND	ND	ND	ND	--	--	--	--	--	--	--	--	
	10/28/1996	8.62	4.09	NP	4.53	ND	ND	1.1	ND	ND	ND	ND	--	--	--	--	--	--	--	--	
	1/29/1997	8.62	2.94	NP	5.68	ND	210	41	0.67	7.2	4.8	11	--	--	--	--	--	--	--	--	
	4/15/1997	8.62	4.07	NP	4.55	ND	110	12	ND	0.77	ND	9.7	--	--	--	--	--	--	--	--	
	5/27/1997	8.62	4.40	NP	4.22	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
	7/15/1997	8.62	4.19	NP	4.43	ND	ND	2.1	ND	0.67	0.73	ND	--	--	--	--	--	--	--	--	--
	10/9/1997	8.62	4.75	NP	3.87	ND	190	38	0.92	6.6	7.6	ND	--	--	--	--	--	--	--	--	--
1/14/1998	8.62	2.66	NP	5.96	--	59	9.5	0.85	1.2	1.7	4.5	--	--	--	--	--	--	--	--	--	

**TABLE 3  
HISTORICAL GROUNDWATER GAUGING AND ANALYTICAL DATA  
76 STATION NO. 5191/5043  
449 HEGENBERGER ROAD  
OAKLAND, CALIFORNIA**

Well I.D.	Date	GROUNDWATER GAUGING DATA				GROUNDWATER ANALYTICAL DATA														
		TOC Elevation (ft)	Depth to Water (ft)	LNAPL Thickness (ft)	Water Elevation* (ft)	TPHd (ug/L)	TPHg (ug/L)	Benzene (ug/L)	Toluene (ug/L)	Ethylbenzene (ug/L)	Total Xylenes (ug/L)	MTBE (SW8021B) (ug/L)	MTBE (SW8260B) (ug/L)	DIPE (ug/L)	ETBE (ug/L)	TAME (ug/L)	TBA (ug/L)	Ethanol (ug/L)	1,2-Dibromoethane (EDB) (ug/L)	1,2-Dichloroethane (ug/L)
MW-10	4/1/1998	8.62	3.45	NP	5.17	62	230	66	1.7	12	17	6.4	--	--	--	--	--	--	--	--
	7/15/1998	8.62	4.21	NP	4.41	78	290	98	45	21	38	21	--	--	--	--	--	--	--	--
	10/16/1998	8.62	4.11	NP	4.51	ND	160	44	0.96	2.5	10	17	--	--	--	--	--	--	--	--
	1/25/1999	8.62	3.26	NP	5.36	ND	140	27	ND	2.8	6.8	23	--	--	--	--	--	--	--	--
	4/15/1999	8.62	3.63	NP	4.99	ND	120	18	ND	1.8	5.1	14	--	--	--	--	--	--	--	--
	7/14/1999	8.62	3.89	NP	4.73	180	280	55	3.2	11	31	6.1	--	--	--	--	--	--	--	--
	10/21/1999	8.62	4.09	NP	4.53	96	140	22	0.59	1.7	7.7	5.3	--	--	--	--	--	--	--	--
	1/20/2000	8.62	3.92	NP	4.70	252	ND	0.73	0.86	ND	ND	5.2	--	--	--	--	--	--	--	--
	4/13/2000	8.62	3.85	NP	4.77	69	67	54	ND	2.6	ND	3.8	--	--	--	--	--	--	--	--
	7/14/2000	8.62	4.18	NP	4.44	149	ND	0.547	ND	ND	ND	ND	--	--	--	--	--	--	--	--
	10/26/2000	8.62	3.96	NP	4.66	83	ND	3.3	ND	0.83	1.5	ND	--	--	--	--	--	--	--	--
	1/3/2001	8.62	4.14	NP	4.48	126	52.7	5.15	ND	0.823	1.57	ND	--	--	--	--	--	--	--	--
	4/4/2001	8.62	3.88	NP	4.74	75	129	28.1	1.67	4.97	10.1	ND	--	--	--	--	--	--	--	--
	7/17/2001	8.62	4.08	NP	4.54	ND	ND	4.1	ND	1.0	1.8	ND	--	--	--	--	--	--	--	--
	10/1/2001	8.62	4.22	NP	4.40	100	140	30	0.51	4.0	12	<5.0	--	--	--	--	--	--	--	--
	1/31/2002	8.62	3.68	NP	4.94	170	110	16	<0.50	2.3	5.6	<2.5	--	--	--	--	--	--	--	--
	4/18/2002	8.62	4.01	NP	4.61	130	<50	11	<0.50	1.4	4.5	<2.5	--	--	--	--	--	--	--	--
	7/28/2002	8.62	4.11	NP	4.51	58	67	15	<0.50	0.94	7.3	--	<2.0	--	--	--	--	--	--	--
	10/9/2002	8.62	3.97	NP	4.65	<94	<50	0.67	<0.50	<0.50	<1.0	--	<2.0	--	--	--	--	--	--	--
	1/2/2003	8.62	3.03	NP	5.59	64	<50	<0.50	<0.50	<0.50	<1.0	--	<2.0	--	--	--	--	--	--	--
	4/1/2003	8.62	3.83	NP	4.79	76	<50	11	<0.50	<0.50	<1.0	--	<2.0	--	--	--	--	--	--	--
	7/1/2003	8.62	4.13	NP	4.49	87	<50	<0.50	<0.50	<0.50	<1.0	--	<2.0	--	--	--	--	<500	--	--
	10/2/2003	8.62	4.05	NP	4.57	160	77	9.9	0.78	2.3	4.9	--	<2.0	--	--	--	--	<500	--	--
	1/9/2004	8.62	3.40	NP	5.22	74	53	1.2	<0.50	0.70	1.6	--	<2.0	--	--	--	--	<500	--	--
	4/26/2004	8.62	3.89	NP	4.73	<50	<50	2.8	1.3	1.0	2.9	--	<0.50	--	--	--	--	<50	--	--
	7/22/2004	8.62	3.73	NP	4.89	<200	<50	<0.5	<0.5	<0.5	<1	--	<0.5	--	--	--	--	<1000	--	--
	10/29/2004	8.62	3.41	NP	5.21	<50	100	2.0	1.2	1.1	3.6	--	<0.50	--	--	--	--	<50	--	--
	1/10/2005	8.62	2.68	NP	5.94	94	84	7.8	2.7	2.2	8.9	--	<0.50	--	--	--	--	<50	--	--
	6/15/2005	8.62	4.63	NP	3.99	62	<50	<0.50	<0.50	<0.50	<1.0	--	<0.50	--	--	--	--	<50	--	--
	9/27/2005	8.62	3.96	NP	4.66	<200	<50	<0.50	<0.50	<0.50	<1.0	--	<0.50	<0.50	<0.50	<0.50	<10	<250	--	--
	12/13/2005	8.62	3.75	NP	4.87	<200	<50	<0.50	<0.50	<0.50	<1.0	--	<0.50	--	--	--	--	<250	--	--
	3/23/2006	8.62	3.13	NP	5.49	<200	50	13	<0.50	<0.50	<1.0	--	<0.50	--	--	--	--	<250	--	--
	6/23/2006	8.62	3.90	NP	4.72	<200	<50	<0.50	<0.50	<0.50	<1.0	--	<0.50	--	--	--	--	<250	--	--
	9/26/2006	8.62	3.66	NP	4.96	<50	<50	<0.50	<0.50	<0.50	<0.50	--	<0.50	--	--	--	--	<250	--	--
	12/22/2006	8.62	3.56	NP	5.06	81	<50	<0.50	<0.50	<0.50	1.8	--	<0.50	--	--	--	--	<250	--	--
	3/30/2007	8.62	3.93	NP	4.69	82	<50	<0.50	<0.50	<0.50	<0.50	--	<0.50	--	--	--	--	<250	--	--
	6/28/2007	8.62	4.03	NP	4.59	57	<50	<0.50	<0.50	<0.50	<0.50	--	<0.50	--	--	--	--	<250	--	--
	9/25/2007	8.62	3.91	NP	4.71	82	<50	<0.50	<0.50	<0.50	<0.50	--	<0.50	--	--	--	--	<250	--	--
	12/28/2007	8.62	3.64	NP	4.98	62	<50	2.1	<0.50	<0.50	<1.0	--	<0.50	--	--	--	--	<250	--	--
	3/22/2008	8.62	4.00	NP	4.62	<50	64	13	<0.50	<0.50	<1.0	--	<0.50	--	--	--	--	<250	--	--
6/23/2008	8.62	3.90	NP	4.72	<50	94	30	0.53	3.4	3.5	--	<0.50	--	--	--	--	<250	--	--	
9/19/2008	8.62	3.85	NP	4.77	<50	130	15	1.7	5.7	11	--	<0.50	--	--	--	--	<250	--	--	
12/31/2008	8.62	3.69	NP	4.93	<50	82	11	<0.50	0.81	1.7	--	<0.50	--	--	--	--	<250	--	--	
3/27/2009	8.62	3.75	NP	4.87	730	210	28	1.4	1.2	3.9	--	<0.50	--	--	--	--	<250	--	--	
5/28/2009	8.62	3.66	NP	4.96	<50	<50	0.91	<0.50	<0.50	<1.0	--	<0.50	--	--	--	--	<250	--	--	
9/17/2009	8.62	3.85	NP	4.77	65	<50	<0.50	<0.50	<0.50	<1.0	--	<0.50	--	--	--	--	<250	--	--	
12/17/2009	8.62	3.00	NP	5.62	57.7	<50.0	1.2	<0.50	<0.50	<1.5	--	<0.50	--	--	--	--	<250	--	--	
3/29/2010	8.62	3.81	NP	4.81	82.2	<50.0	0.77	<0.50	<0.50	3.4	--	<0.50	--	--	--	--	<250	--	--	
6/30/2010	10.97	3.90	NP	7.07	53.4	<50.0	<0.50	<0.50	<0.50	<1.5	--	<0.50	--	--	--	--	<250	--	--	
7/6/2010	10.97	3.73	NP	7.24	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	
9/20/2010	10.97	3.85	NP	7.12	<50.0	<50.0	<0.50	<0.50	<0.50	<1.5	--	<0.50	--	--	--	--	<250	--	--	

**TABLE 3**  
**HISTORICAL GROUNDWATER GAUGING AND ANALYTICAL DATA**  
**76 STATION NO. 5191/5043**  
**449 HEGENBERGER ROAD**  
**OAKLAND, CALIFORNIA**

Well I.D.	Date	GROUNDWATER GAUGING DATA				GROUNDWATER ANALYTICAL DATA															
		TOC Elevation (ft)	Depth to Water (ft)	LNAPL Thickness (ft)	Water Elevation* (ft)	TPHd (ug/L)	TPHg (ug/L)	Benzene (ug/L)	Toluene (ug/L)	Ethylbenzene (ug/L)	Total Xylenes (ug/L)	MTBE (SW8021B) (ug/L)	MTBE (SW8260B) (ug/L)	DIPE (ug/L)	ETBE (ug/L)	TAME (ug/L)	TBA (ug/L)	Ethanol (ug/L)	1,2-Dibromoethane (EDB) (ug/L)	1,2-Dichloroethane (ug/L)	
MW-10	12/8/2010	10.97	3.63	NP	7.34	<50.0	<50.0	1.8	<0.50	<0.50	<1.5	--	<0.50	--	--	--	--	<250	--	--	
	3/14/2011	10.97	3.46	NP	7.51	63.3	<50.0	1.1	<0.50	<0.50	<1.5	--	<0.50	--	--	--	<5.0	<250	--	--	
	6/2/2011	10.97	3.92	NP	7.05	<50.0	58.7	4.8	4.2	0.96	5.1	--	<0.50	--	--	--	<5.0	<250	--	--	
	9/7/2011	10.97	4.06	NP	6.91	<50.0	<50.0	4.1	<0.50	0.66	2.4	--	<0.50	--	--	--	--	<250	--	--	
	12/5/2011	10.97	3.82	NP	7.15	<50.0	<50.0	<0.50	<0.50	<0.50	<1.5	--	<0.50	--	--	--	--	<250	--	--	
	3/6/2012	10.97	3.74	NP	7.23	<50.0	<50.0	<0.50	<0.50	<0.50	<1.5	--	<0.50	--	--	--	--	58.7	<250	--	--
	6/11/2012	10.97	3.99	NP	6.98	<37.9	<50.0	0.79	<0.50	<0.50	<1.5	--	0.72	--	--	--	--	17.2	<250	--	--
	9/6/2012	10.97	4.00	NP	6.97	110	64	6.9	0.89	1.8	3.9	--	<0.50	<0.50	<0.50	<0.50	<5.0	<5.0	<0.50	<0.50	
	12/13/2012	10.97	3.40	NP	7.57	<50	120	15	1.1	1.7	5.2	--	<0.50	--	--	--	<5.0	<5.0	--	--	
	3/14/2013	10.97	4.00	NP	6.97	<50	86	25	<0.50	0.6	0.8	--	<0.50	--	--	--	<5.0	<5.0	--	--	
	6/11/2013	10.97	4.20	NP	6.77	<50	<50	<0.50	<0.50	<0.50	<0.50	--	<0.50	--	--	--	<5.0	<8.0	--	--	
	9/10/2013	10.97	3.92	NP	7.05	<50	<50	<0.50	<0.50	<0.50	1.2	--	<0.50	--	--	--	<5.0	<5.0	--	--	
	12/12/2013	10.97	3.85	NP	7.12	<50	<50	2.4	<0.50	<0.50	<0.50	--	<0.50	--	--	--	<5.0	<5.0	--	--	
3/4/2014	10.97	3.38	NP	7.59	<50	<50	1.5	<0.50	<0.50	<0.50	--	<0.50	--	--	--	<5.0	<5.0	--	--		
6/12/2014	10.97	3.92	NP	7.05	<50	<50	4.4	<0.50	<0.50	0.91	--	<0.50	--	--	--	<5.0	<8.0	--	--		
MW-11	7/6/2010	10.53	2.44	NP	8.09	226	99.2	<0.50	<0.50	<0.50	<1.5	--	165	<0.50	<0.50	<0.50	174	<250	<1.0	<1.0	
	9/20/2010	10.53	2.80	NP	7.73	<50.0	76.4 1n	<0.50	<0.50	<0.50	<1.5	--	82.7	--	--	--	--	<250	--	--	
	12/8/2010	10.53	1.90	NP	8.63	52.7	<50.0	<0.50	<0.50	<0.50	<1.5	--	59.1	--	--	--	--	<250	--	--	
	3/14/2011	10.53	1.89	NP	8.64	67.8	<50.0	<0.50	<0.50	<0.50	<1.5	--	44.0	--	--	--	<5.0	<250	--	--	
	6/2/2011	10.53	1.75	NP	8.78	69.0 T4	<50.0	<0.50	0.61	<0.50	<1.5	--	24.9	--	--	--	7.1	<250	--	--	
	9/7/2011	10.53	1.56	NP	8.97	<50.0	<50.0	<0.50	<0.50	<0.50	<1.5	--	3.8	--	--	--	--	<250	--	--	
	12/5/2011	10.53	2.05	NP	8.48	<50.0	<50.0	<0.50	<0.50	<0.50	<1.5	--	26.4	--	--	--	--	<250	--	--	
	3/6/2012	10.53	2.31	NP	8.22	<50.0	<50.0	<0.50	<0.50	<0.50	<1.5	--	35.3	--	--	--	5.7	<250	--	--	
	6/11/2012	10.53	2.24	NP	8.29	<37.9	<50.0	<0.50	<0.50	<0.50	<1.5	--	20.9	--	--	--	10.4	<250	--	--	
	9/6/2012	10.53	1.70	NP	8.83	64	<50	<0.50	<0.50	<0.50	<0.50	--	7.7	<0.50	<0.50	<0.50	<5.0	<5.0	<0.50	<0.50	
	12/13/2012	10.53	1.56	NP	8.97	<50	<50	<0.50	<0.50	<0.50	<0.50	--	27	--	--	--	<5.0	<5.0	--	--	
	3/14/2013	10.53	2.20	NP	8.33	<50	<50	<0.50	<0.50	<0.50	<0.50	--	20	--	--	--	<5.0	<5.0	--	--	
	6/11/2013	10.53	2.92	NP	7.61	<50	<50	<0.50	<0.50	<0.50	<0.50	--	32	--	--	--	<5.0	<5.0	--	--	
	9/10/2013	10.53	2.98	NP	7.55	<50	<50	<0.50	<0.50	<0.50	<0.50	--	22	--	--	--	<5.0	<5.0	--	--	
	12/12/2013	10.53	2.20	NP	8.33	<50	<50	<0.50	<0.50	<0.50	<0.50	--	20	--	--	--	<5.0	<5.0	--	--	
	3/4/2014	10.53	1.75	NP	8.78	<50	<50	<0.50	<0.50	<0.50	<0.50	--	12	--	--	--	<5.0	<5.0	--	--	
6/12/2014	10.53	2.51	NP	8.02	<50	<50	<0.50	<0.50	<0.50	<0.50	--	3.7	--	--	--	<5.0	<5.0	--	--		
9/5/2014	10.53	3.27	NP	7.26	<50	<50	<0.50	<0.50	<0.50	<0.50	--	17	--	--	--	<5.0	<5.0	--	--		
12/22/2014	10.53	1.53	NP	9.00	<50	<50	<0.50	<0.50	<0.50	<0.50	--	37	--	--	--	<5.0	<5.0	--	--		
MW-12	7/6/2010	11.01	4.00	NP	7.01	990	20,300	1,030	955	311	2,450	--	1,650	<0.50	<0.50	1.0	1,430	<250	<1.0	<1.0	
	9/20/2010	11.01	4.18	NP	6.83	5,220	73,700	6,020	6,390	2,970	18,300	--	894	--	--	--	--	<250	--	--	
	12/8/2010	11.01	3.92	NP	7.09	428	3,350	249	117	90	558	--	1,470	--	--	--	--	<2500	--	--	
	3/14/2011	11.01	3.70	NP	7.31	283	2,420	287	81	49	243	--	1,020	--	--	--	70	<250	--	--	
	6/2/2011	11.01	4.40	NP	6.61	1,330 T4	12,200	688	71	225	619	--	824	--	--	--	110	<250	--	--	
	9/7/2011	11.01	4.37	NP	6.64	1,270 T4	7,900	920	25	187	267	--	896	--	--	--	--	<2500	--	--	
	12/5/2011	11.01	4.32	NP	6.69	286 T4	2,240	296	38	38.0	122	--	1,040	--	--	--	--	<250	--	--	
	3/6/2012	11.01	4.01	NP	7.00	272 T4	1,260	193	23	29	81	--	835	--	--	--	78	<250	--	--	
	6/11/2012	11.01	4.20	NP	6.81	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	
	6/12/2012	--	--	--	--	957 T4	1,030	178	17.0	24	69	--	993	--	--	--	448	<250	--	--	
	9/6/2012	11.01	4.15	NP	6.86	<200	580	120	10	15	37	--	840	<1.5	<1.5	<1.5	15	<15	<1.5	14	
	12/13/2012	11.01	3.35	NP	7.66	<50	480	70	4.60	7.20	19	--	820	--	--	--	19	<15	--	--	
	3/14/2013	11.01	4.11	NP	6.90	<50	370	76	3.40	12.00	18	--	810	--	--	--	21	<15	--	--	
6/11/2013	11.01	4.30	NP	6.71	62	290	51	<1.5	4.30	6	--	840	--	--	--	19	<15	--	--		
9/10/2013	11.01	3.96	NP	7.05	<50	340	52	1.90	6.40	4.5	--	820	--	--	--	17	<15	--	--		
12/12/2013	11.01	4.00	NP	7.01	<50	180	18	<1.5	1.60	<1.5	--	940	--	--	--	14	<15	--	--		



**TABLE 3**  
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**76 STATION NO. 5191/5043**  
**449 HEGENBERGER ROAD**  
**OAKLAND, CALIFORNIA**



Well I.D.	Date	GROUNDWATER GAUGING DATA				GROUNDWATER ANALYTICAL DATA															
		TOC Elevation (ft)	Depth to Water (ft)	LNAPL Thickness (ft)	Water Elevation* (ft)	TPHd (ug/L)	TPHg (ug/L)	Benzene (ug/L)	Toluene (ug/L)	Ethylbenzene (ug/L)	Total Xylenes (ug/L)	MTBE (SW8021B) (ug/L)	MTBE (SW8260B) (ug/L)	DIPE (ug/L)	ETBE (ug/L)	TAME (ug/L)	TBA (ug/L)	Ethanol (ug/L)	1,2-Dibromoethane (EDB) (ug/L)	1,2-Dichloroethane (ug/L)	
MW-14	12/12/2013	12.00	4.35	NP	7.65	<50	27,000	1,400	32	2,200	4,800	--	<9.0	--	--	--	<50	<90	--	--	
	3/4/2014	12.00	3.60	NP	8.40	250	40,000	1,600	41	2,900	6,700	--	<9.0	--	--	--	<50	<90	--	--	
	6/12/2014	12.00	4.51	NP	7.49	64	36,000	1,600	43	3,000	6,500	--	<9.0	--	--	--	<50	<90	--	--	
	9/5/2014	12.00	5.47	NP	6.53	250	16,000	850	17	1,200	2,800	--	<4.0	--	--	--	24	<40	--	--	
	12/22/2014	12.00	3.18	NP	8.82	<50	3,200	220	3.8	260	540	--	<0.90	--	--	--	12	<9.0	--	--	
MW-15	6/2/2011	11.11	2.50	NP	8.61	124 T4	357	<0.50	<0.50	<0.50	<1.5	--	15	--	--	--	6.4	<250	--	--	
	9/7/2011	11.11	2.54	NP	8.57	<50.0	412	6.2	<0.50	43	<1.5	--	128	--	--	--	--	<250	--	--	
	12/5/2011	11.11	2.70	NP	8.41	50.5 T4	201	6.6	<0.50	0.93	<1.5	--	142	--	--	--	--	<250	--	--	
	3/6/2012	11.11	2.69	NP	8.42	56.2 T4	<50.0	<0.50	<0.50	<0.50	<1.5	--	106	--	--	--	101	<250	--	--	
	6/11/2012	11.11	2.84	NP	8.27	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
	6/12/2012	--	--	--	--	<37.9	74.3 1n	<0.50	<0.50	<0.50	<1.5	--	114	--	--	--	91	<250	--	--	
	9/6/2012	11.11	2.24	NP	8.87	64	59	<0.50	<0.50	<0.50	<0.50	--	76	<0.50	<0.50	<0.50	45	<5.0	<0.50	<0.50	
	12/13/2012	11.11	2.51	NP	8.60	<50	<50	<0.50	<0.50	<0.50	<0.50	--	33	--	--	--	7.4	<5.0	--	--	
	3/14/2013	11.11	2.91	NP	8.20	<50	<50	<0.50	<0.50	<0.50	<0.50	--	46	--	--	--	21	<5.0	--	--	
	6/11/2013	11.11	3.36	NP	7.75	<50	<50	<0.50	<0.50	<0.50	<0.50	--	73	--	--	--	31	<5.0	--	--	
	9/10/2013	11.11	3.28	NP	7.83	<50	68	<0.50	<0.50	<0.50	<0.50	--	120	--	--	--	39	<5.0	--	--	
	12/12/2013	11.11	3.00	NP	8.11	<50	<50	<0.50	<0.50	<0.50	<0.50	--	130	--	--	--	59	<10	--	--	
	3/4/2014	11.11	2.34	NP	8.77	<50	<50	<0.50	<0.50	<0.50	<0.50	--	96	--	--	--	45	<5.0	--	--	
	6/12/2014	11.11	3.15	NP	7.96	<50	<50	<0.50	<0.50	<0.50	<0.50	--	100	--	--	--	31	<5.0	--	--	
9/5/2014	11.11	4.00	NP	7.11	<50	<50	<0.50	<0.50	<0.50	<0.50	--	100	--	--	--	41	<5.0	--	--		
12/22/2014	11.11	2.38	NP	8.73	<50	<50	0.50	<0.50	<0.50	<0.50	--	65	--	--	--	36	<5.0	--	--		
MW-16	6/2/2011	10.98	3.00	NP	7.98	509 T4	1,420 1n	79	<0.50	4.2	<1.5	--	1,200	--	--	--	257	<250	--	--	
	9/7/2011	10.98	2.65	NP	8.33	90.0 T4	934	<0.50	<0.50	<0.50	<1.5	--	1,240	--	--	--	--	<250	--	--	
	12/5/2011	10.98	3.18	NP	7.80	196 T4	948 1n	<0.50	<0.50	<0.50	<1.5	--	1,320	--	--	--	--	<250	--	--	
	3/6/2012	10.98	2.91	NP	8.07	204 T4	392 1n	<0.50	<0.50	<0.50	<1.5	--	1,090	--	--	--	134	<250	--	--	
	6/11/2012	10.98	3.04	NP	7.94	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	
	6/12/2012	--	--	--	--	48.1 T4	430 1n	<0.50	<0.50	<0.50	<1.5	--	1,100	--	--	--	374	<250	--	--	
	9/6/2012	10.98	2.61	NP	8.37	390	<150	<1.5	<1.5	<1.5	<1.5	--	960	<1.5	<1.5	<1.5	70	<15	<1.5	<1.5	
	12/13/2012	10.98	2.50	NP	8.48	52	<150	<1.5	<1.5	<1.5	<1.5	--	980	--	--	--	55	<20	--	--	
	3/14/2013	10.98	3.15	NP	7.83	<50	<200	<2.0	<2.0	<2.0	<2.0	--	950	--	--	--	67	<20	--	--	
	6/11/2013	10.98	3.19	NP	7.79	<50	<150	<1.5	<1.5	<1.5	<1.5	--	820	--	--	--	70	<15	--	--	
	9/10/2013	10.98	3.44	NP	7.54	<50	<50	<0.50	<0.50	<0.50	0.67	--	240	--	--	--	440	<5.0	--	--	
	12/12/2013	10.98	2.90	NP	8.08	<50	<50	<0.50	<0.50	<0.50	<0.50	--	62	--	--	--	530	<5.0	--	--	
	3/4/2014	10.98	3.25	NP	7.73	<50	60	<0.50	<0.50	<0.50	<0.50	--	440	--	--	--	400	<5.0	--	--	
6/12/2014	10.98	3.67	NP	7.31	<50	<50	<0.50	<0.50	<0.50	<0.50	--	92	--	--	--	440	<5.0	--	--		
9/5/2014	10.98	3.70	NP	7.28	<50	<50	<0.50	<0.50	<0.50	<0.50	--	28	--	--	--	220	<5.0	--	--		
12/22/2014	10.98	3.11	NP	7.87	<50	<50	0.52	<0.50	<0.50	<0.50	--	23	--	--	--	140	<5.0	--	--		

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**OAKLAND, CALIFORNIA**

Well I.D.	Date	GROUNDWATER GAUGING DATA				GROUNDWATER ANALYTICAL DATA															
		TOC Elevation (ft)	Depth to Water (ft)	LNAPL Thickness (ft)	Water Elevation* (ft)	TPHd (ug/L)	TPHg (ug/L)	Benzene (ug/L)	Toluene (ug/L)	Ethylbenzene (ug/L)	Total Xylenes (ug/L)	MTBE (SW8021B) (ug/L)	MTBE (SW8260B) (ug/L)	DIPE (ug/L)	ETBE (ug/L)	TAME (ug/L)	TBA (ug/L)	Ethanol (ug/L)	1,2-Dibromoethane (EDB) (ug/L)	1,2-Dichloroethane (ug/L)	
MW-17	6/2/2011	11.52	5.78	NP	5.74	<b>687 T4</b>	<b>9,130</b>	<b>2,530</b>	<b>960</b>	<b>35</b>	<b>907</b>	--	<b>0.74</b>	--	--	--	<b>366</b>	<250	--	--	
	9/7/2011	11.52	4.56	NP	6.96	<b>1,900 T4</b>	<b>47,200</b>	<b>9,620</b>	<b>5,510</b>	<b>1,210</b>	<b>4,510</b>	--	<25.0	--	--	--	--	<12500	--	--	
	12/5/2011	11.52	4.70	NP	6.82	<b>1,790 T4</b>	<b>17,300</b>	<b>4,720</b>	<b>511</b>	<b>238</b>	<b>747</b>	--	<2.5	--	--	--	--	<1250	--	--	
	3/6/2012	11.52	4.64	NP	6.88	<b>1,530 T4</b>	<b>1,580</b>	<b>2,090</b>	<b>24</b>	<b>39</b>	<b>166</b>	--	<b>1.1</b>	--	--	--	<b>481</b>	<250	--	--	
	6/11/2012	11.52	4.67	NP	6.85	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
	6/12/2012	--	--	--	--	<b>1,090 T4</b>	<b>4,950</b>	<b>2,340</b>	<b>123</b>	<b>153</b>	<b>610</b>	--	<2.5	--	--	--	<b>411</b>	<1250	--	--	
	9/6/2012	11.52	4.39	NP	7.13	<1000	<b>18,000</b>	<b>4,300</b>	<b>170</b>	<b>370</b>	<b>1,100</b>	--	<10	<10	<10	<10	<b>300</b>	<100	<10	110	
	12/13/2012	11.52	4.20	NP	7.32	<100	<b>55,000</b>	<b>7,300</b>	<b>2,700</b>	<b>1,700</b>	<b>4,600</b>	--	<10	--	--	--	<b>300</b>	<100	--	--	
	3/14/2013	11.52	4.70	NP	6.82	<200	<b>63,000</b>	<b>13,000</b>	<b>5,400</b>	<b>3,100</b>	<b>8,800</b>	--	<15	--	--	--	<b>260</b>	<150	--	--	
	6/11/2013	11.52	4.83	NP	6.69	<b>710</b>	<b>110,000</b>	<b>10,000</b>	<b>11,000</b>	<b>3,100</b>	<b>12,000</b>	--	<25	--	--	--	<150	<250	--	--	
	9/10/2013	11.52	4.60	NP	6.92	<b>160</b>	<b>36,000</b>	<b>8,200</b>	<b>510</b>	<b>1,200</b>	<b>2,400</b>	--	<15	--	--	--	<b>320</b>	<150	--	--	
	12/12/2013	11.52	5.00	NP	6.52	<50	<b>92,000</b>	<b>17,000</b>	<b>9,000</b>	<b>2,900</b>	<b>9,100</b>	--	<15	--	--	--	<b>250</b>	<150	--	--	
	3/4/2014	11.52	3.99	NP	7.53	<b>400</b>	<b>13,000</b>	<b>1,600</b>	<b>270</b>	<b>260</b>	<b>540</b>	--	<3.0	--	--	--	<b>330</b>	<b>48</b>	--	--	
6/12/2014	11.52	4.49	NP	7.03	<b>87</b>	<b>17,000</b>	<b>3,600</b>	<b>410</b>	<b>650</b>	<b>1,100</b>	--	<3.0	--	--	--	<b>300</b>	<30	--	--		

**Gauging Notes:**  
TOS - Top of Screen  
ft - Feet  
NP - LNAPL not present  
LNAPL - Light non-aqueous phase liquid  
\* - Corrected for LNAPL if present (assumes LNAPL specific gravity = 0.75)  
-- - No information available

**Analytical Notes:**  
< - Below laboratory's indicated reporting limit  
ug/L - micrograms/liter  
TPHd- Total petroleum hydrocarbons as diesel  
TPHg- Total petroleum hydrocarbons as gasoline  
MTBE- Methyl tertiary-butyl ether  
TBA- Tertiary-butyl alcohol  
**Bold** - Above the laboratory's indicated reporting limit  
1n - The TPHg result for this sample did not match the laboratory standard for gasoline. This is likely due to the presence of MTBE in the sample.  
A - Lower boiling hydrocarbons present, atypical for Diesel Fuel.

TABLE 3a  
 ADDITIONAL HISTORICAL GROUNDWATER ANALYTICAL DATA  
 76 STATION NO. 5191/5043  
 449 HEGENBERGER ROAD  
 OAKLAND, CALIFORNIA



Well I.D.	Date	GROUNDWATER ANALYTICAL DATA																			
		Acetone (ug/L)	Alkalinity, Bicarbonate (mg/L)	Alkalinity, Hydroxide (CaCO) (mg/L)	Alkalinity, Total A2320B (mg/L)	Alkalinity, Total as CaCO3 A2320B (mg/L)	Antimony (ug/L)	Arsenic (ug/L)	Barium (ug/L)	Beryllium (ug/L)	Biochemical Oxygen Demand (ug/L)	Bromate (mg/L)	Bromide (mg/L)	Cadmium S(ug/L)	Chemical Oxygen Demand (ug/L)	Chloride (ug/L)	Chromium (ug/L)	Chromium, Hexavalent (ug/L)	Cobalt (ug/L)	Coliform, Total (MPN/100ML)	E. Coli (MPN/100ML)
MW-6	3/14/2011	<b>18</b>	--	--	--	--	<60.0	<b>23</b>	<b>216</b>	<5.0	<b>32,200</b>	--	--	<5.0	<b>173,000</b>	<b>204,000</b>	--	--	<50.0	--	--
	6/2/2011	<5.0	<b>828</b>	<1	<b>828</b>	<1	<60.0	<b>22.0</b>	<b>191</b>	<5.0	<b>45,100</b>	<0.005	<b>2.1</b>	<5.0	<b>121,000</b>	<b>149,000</b>	<b>4.3</b>	<2	<50.0	<b>42,000</b>	<100
	9/6/2012	--	--	--	--	<b>650</b>	--	--	--	--	--	--	--	--	--	--	<5.0	<10	--	--	--
	3/4/2014	--	--	--	--	--	--	<b>31</b>	--	--	--	--	--	<1.0	--	--	<5.0	--	--	--	--
MW-9	3/14/2011	<5.0	--	--	--	--	<60.0	<20.0	<100	<5.0	<b>7,160.0</b>	--	--	<5.0	<b>11,500.0</b>	<b>34,700.0</b>	--	--	<50.0	--	--
	6/2/2011	<5.0	<b>226.0</b>	<1	<b>226.0</b>	<1	<60.0	<20.0	<100	<5.0	<b>4,170.0</b>	<0.005	<b>2.0</b>	<5.0	<b>15,100.0</b>	<b>32,400.0</b>	<b>2.4</b>	<0.2	<50.0	<b>2.0</b>	<1
MW-10	9/6/2012	--	--	--	--	<b>561</b>	--	--	--	--	--	--	--	--	--	<b>17</b>	<10	--	--	--	--
MW-12	3/14/2011	<5.0	--	--	--	--	<60.0	<20.0	<100	<5.0	<2000	--	--	<5.0	<b>80,100</b>	<b>8,240,000</b>	--	--	<50.0	--	--
	6/2/2011	<5.0	<b>905</b>	<1	<b>905</b>	<1	<60.0	<20.0	<100	<5.0	<b>7,240</b>	<0.05	<b>33</b>	<5.0	<b>191,000</b>	<b>7,260,000</b>	<b>3.3</b>	<2	<50.0	<b>210</b>	<1
	9/6/2012	--	--	--	--	<b>806</b>	--	--	--	--	--	--	--	--	--	--	<5.0	<10	--	--	--
	3/4/2014	--	--	--	--	--	--	<15	--	--	--	--	--	<b>1.8</b>	--	--	<5.0	--	--	--	--
MW-14	9/6/2012	--	--	--	--	<b>1,720</b>	--	--	--	--	--	--	--	--	--	<b>24</b>	<10	--	--	--	--
MW-17	9/6/2012	--	--	--	--	<b>2,820</b>	--	--	--	--	--	--	--	--	--	<b>38</b>	<10	--	--	--	--

**Analytical Notes:**  
 < - Below laboratory's indicated reporting limit  
 mg/L - milligrams per liter  
 MPN/100ML - most probable number per 100 ml  
 ug/L - micrograms/liter  
**Bold** - Above the laboratory's indicated reporting limit

TABLE 3b  
 ADDITIONAL HISTORICAL GROUNDWATER ANALYTICAL DATA  
 76 STATION NO. 5191/504  
 449 HEGENBERGER ROAD  
 OAKLAND, CALIFORNIA



Well I.D.	Date	GROUND WATER ANALYTICAL DATA																			
		Copper (ug/L)	Inorganic Carbon (mg/L)	Iron SW6010 D (ug/L)	Iron SW6010 T (ug/L)	Iron, Ferric (ug/L)	Iron, Ferrous (ug/L)	Lead (ug/L)	Manganese (ug/L)	Mercury (ug/L)	Methane (ug/L)	Molybdenum (ug/L)	Nickel (ug/L)	Nitrate as N E300.0 (mg/L)	Nitrate as N E353/E351 (ug/L)	Nitrite as N (ug/L)	Nitrogen, Ammonia (mg/L)	Nitrogen, NO2 plus NO3 (ug/L)	Nitrogen, Total Kjeldahl (mg/L)	Oil and Grease (ug/L)	Salinity (mg/L)
MW-3	12/17/2009	--	--	--	12,300	--	--	--	--	--	--	--	--	--	<50.0	<50.0	--	<50.0	--	--	--
	6/30/2010	--	--	5,550	10,700	--	--	--	--	--	--	--	--	--	<50.0	95.0	--	75.7	--	--	--
	6/2/2011	--	--	--	13,600	--	--	--	--	--	--	--	--	--	<50.0	<10.0	--	52.5	--	--	--
	6/11/2012	--	--	--	10,900	--	--	--	--	--	--	--	--	--	<50.0	<10	--	<50.0	--	--	--
MW-6	9/17/2009	--	--	--	1,500	--	--	--	--	--	--	--	--	<0.00044	<0.44	--	--	--	--	--	--
	12/17/2009	--	--	--	2,460	--	--	--	--	--	--	--	--	--	<50.0	<50.0	--	<50.0	--	--	--
	3/29/2010	--	--	1,790	1,510	--	--	--	--	--	--	--	--	--	<50.0	41.3	--	54.9	--	--	--
	6/30/2010	--	--	946	2,310	--	--	--	--	--	--	--	--	--	<50.0	57.9	--	69.3	--	--	--
	9/20/2010	--	--	2,730	2,600	--	--	--	--	--	--	--	--	--	<50.0	<10.0	--	52.1	--	--	--
	3/14/2011	--	--	--	4,900	3,900	1,000	27	1,270	<0.20	474	<20.0	<40.0	--	50.1	<10.0	--	54.2	--	--	--
	6/2/2011	--	870	--	4,320	2,520	1,800	23	1,510	<0.20	445	<20.0	<40.0	--	<50.0	<10.0	2.9	50.5	4.8	--	1,500
	6/12/2012	--	--	--	1,240	--	--	--	--	--	--	--	--	--	<50.0	<10	--	<50.0	--	--	--
	9/6/2012	--	--	--	--	1,000	--	--	--	--	2,890	--	--	--	--	--	--	--	--	--	--
9/11/2012	--	--	--	--	--	--	--	--	--	--	--	--	--	<0.10	--	--	--	--	--	--	--
3/4/2014	<5.0	--	--	2,000	--	--	14	--	<0.5	--	--	17	--	--	--	--	--	--	--	--	--
MW-7	6/30/2010	--	--	836	7,550	--	--	--	--	--	--	--	--	--	<50.0	73.9	--	73.6	--	--	--
	6/2/2011	--	--	--	7,800	--	--	--	--	--	--	--	--	--	233	<10.0	--	239	--	--	--
	6/11/2012	--	--	--	264	--	--	--	--	--	--	--	--	--	<50.0	67	--	111	--	--	--
MW-8	6/30/2010	--	--	4,710	8,000	--	--	--	--	--	--	--	--	--	<50.0	68.2	--	59.7	--	--	--
	6/2/2011	--	--	--	24,900	--	--	--	--	--	--	--	--	--	60.9	<10.0	--	60.9	--	--	--
	6/11/2012	--	--	--	21,000	--	--	--	--	--	--	--	--	--	<50.0	48.0	--	<50.0	--	--	--
MW-9	12/17/2009	--	--	--	2,270	--	--	--	--	--	--	--	--	--	<50.0	<50.0	--	<50.0	--	--	--
	6/30/2010	--	--	3,210	8,820	--	--	--	--	--	--	--	--	--	<50.0	14.9	--	<50.0	--	--	--
	3/14/2011	--	--	--	1,560	157	1,400	<10.0	148	<0.20	419	<20.0	<40.0	--	<50.0	<10.0	--	<50.0	--	--	--
	6/2/2011	--	240	--	1,260	1,060	200	<10.0	92	<0.20	673	<20.0	<40.0	--	<50.0	<10.0	0.86	<50.0	0.6	--	405
	6/11/2012	--	--	--	731	--	--	--	--	--	--	--	--	--	<50.0	<10	--	<50.0	--	--	--
MW-10	9/17/2009	--	--	--	9,800	--	--	--	--	--	--	--	--	0.012	12	--	--	--	--	--	--
	12/17/2009	--	--	--	3,410	--	--	--	--	--	--	--	--	--	1,970	60.3	--	2,030	--	--	--
	3/29/2010	--	--	365	2,410	--	--	--	--	--	--	--	--	--	1,960	18.7	--	1,970	--	--	--
	6/30/2010	--	--	216	1,860	--	--	--	--	--	--	--	--	--	2,120	68.1	--	2,190	--	--	--
	9/20/2010	--	--	280	3,080	--	--	--	--	--	--	--	--	--	2,690	68.2	--	2,750	--	--	--
	3/14/2011	--	--	--	2,620	--	--	--	--	--	--	--	--	--	--	--	--	2,350	--	--	--
	6/2/2011	--	--	--	9,870	--	--	--	--	--	--	--	--	--	1,290	49.3	--	1,340	--	--	--
	6/11/2012	--	--	--	11,300	--	--	--	--	--	--	--	--	--	1,510	57.0	--	1,570	--	--	--
	9/6/2012	--	--	--	--	11,000	--	--	--	--	467	--	--	--	--	--	--	--	--	--	--
9/11/2012	--	--	--	--	--	--	--	--	--	--	--	--	--	0.45	--	--	--	--	--	--	--
MW-11	7/6/2010	--	--	<100	3,510	--	--	--	--	--	--	--	--	--	<50.0	31.0	--	66.9	--	--	--
	9/20/2010	--	--	<100	1,690	--	--	--	--	--	--	--	--	--	167	<10.0	--	172	--	--	--
	3/14/2011	--	--	--	756	--	--	--	--	--	--	--	--	--	--	--	--	<50.0	--	--	--
	6/2/2011	--	--	--	1,040	--	--	--	--	--	--	--	--	--	110	<10.0	--	115	--	--	--
	6/11/2012	--	--	--	1,300	--	--	--	--	--	--	--	--	--	88.8	<10	--	93.5	--	--	--
MW-12	7/6/2010	--	--	<100	30,200	--	--	--	--	--	--	--	--	--	<50.0	60.5	--	<50.0	--	--	--
	9/20/2010	--	--	552	3,890	--	--	--	--	--	--	--	--	--	72.3	<10.0	--	75.2	--	--	--
	3/14/2011	--	--	--	793	593	200	<10.0	12,400	<0.20	114	<20.0	151	--	<50.0	60.6	--	54.4	--	--	--
	6/2/2011	--	1,100	--	9,340	8,740	600	<10.0	12,800	<0.20	287	<20.0	119	--	<50.0	<10.0	0.14	58.0	0.91	--	15,600
	6/12/2012	--	--	--	497	--	--	--	--	--	--	--	--	--	<50.0	<10	--	<50.0	--	--	--
	9/6/2012	--	--	--	--	190	--	--	--	--	63.8	--	--	--	--	--	--	--	--	--	--
3/4/2014	<5.0	--	--	680	--	--	<5.0	--	<0.5	--	--	120	--	--	--	--	--	--	--	--	--
MW-12A	7/6/2010	--	--	716	57,300	--	--	--	--	--	--	--	--	--	3,680	164	--	3,840	--	--	--
	9/20/2010	--	--	<100	523	--	--	--	--	--	--	--	--	--	4,680	10.2	--	4,690	--	--	--
	3/14/2011	--	--	--	523	--	--	--	--	--	--	--	--	--	--	--	--	4,790	--	--	--
	6/2/2011	--	--	--	754	--	--	--	--	--	--	--	--	--	4,710	<10.0	--	4,720	--	--	--
	6/11/2012	--	--	--	859	--	--	--	--	--	--	--	--	--	4,250	<10	--	4,260	--	--	--



**TABLE 3b**  
**ADDITIONAL HISTORICAL GROUNDWATER ANALYTICAL DATA**  
**76 STATION NO. 5191/504**  
**449 HEGENBERGER ROAD**  
**OAKLAND, CALIFORNIA**



Well I.D.	Date	GROUND WATER ANALYTICAL DATA																			
		Copper (ug/L)	Inorganic Carbon (mg/L)	Iron SW6010 D (ug/L)	Iron SW6010 T (ug/L)	Iron, Ferric (ug/L)	Iron, Ferrous (ug/L)	Lead (ug/L)	Manganese (ug/L)	Mercury (ug/L)	Methane (ug/L)	Molybdenum (ug/L)	Nickel (ug/L)	Nitrate as N E300.0 (mg/L)	Nitrate as N E353/E351 (ug/L)	Nitrite as N (ug/L)	Nitrogen, Ammonia (mg/L)	Nitrogen, NO2 plus NO3 (ug/L)	Nitrogen, Total Kjeldahl (mg/L)	Oil and Grease (ug/L)	Salinity (mg/L)
MW-13	7/6/2010	--	--	<b>116</b>	<b>92,600</b>	--	--	--	--	--	--	--	--	--	<50.0	<b>65</b>	--	<b>70</b>	--	--	--
	9/20/2010	--	--	<b>279</b>	<b>59,500</b>	--	--	--	--	--	--	--	--	--	<50.0	<10.0	--	<50.0	--	--	--
	3/14/2011	--	--	--	<b>44,600</b>	--	--	--	--	--	--	--	--	--	--	--	--	<50.0	--	--	--
	6/2/2011	--	--	--	<b>36,700</b>	--	--	--	--	--	--	--	--	--	<b>71.5</b>	<b>14.5</b>	--	<b>86.0</b>	--	--	--
	6/12/2012	--	--	--	<b>3,760</b>	--	--	--	--	--	--	--	--	--	<50.0	<b>19.0</b>	--	<50.0	--	--	--
MW-14	6/2/2011	--	--	--	<b>47,500</b>	--	--	--	--	--	--	--	--	--	<50.0	<b>10.4</b>	--	<b>50.1</b>	--	--	--
	6/12/2012	--	--	--	<b>1,150</b>	--	--	--	--	--	--	--	--	--	<50.0	<10	--	<50.0	--	--	--
	9/6/2012	--	--	--	--	<b>8,900</b>	--	--	--	--	<b>718</b>	--	--	--	--	--	--	--	--	--	--
	9/11/2012	--	--	--	--	--	--	--	--	--	--	--	--	<0.10	--	--	--	--	--	--	--
MW-15	6/2/2011	--	--	--	<b>11,700</b>	--	--	--	--	--	--	--	--	--	<b>890</b>	<b>38.0</b>	--	<b>928</b>	--	--	--
	6/12/2012	--	--	--	<b>2,920</b>	--	--	--	--	--	--	--	--	--	<50.0	<10	--	<50.0	--	--	--
MW-16	6/2/2011	--	--	--	<b>34,200</b>	--	--	--	--	--	--	--	--	--	<50.0	<10.0	--	<50.0	--	--	--
	6/12/2012	--	--	--	<b>1,730</b>	--	--	--	--	--	--	--	--	--	<50.0	<10	--	<50.0	--	--	--
MW-17	6/2/2011	--	--	--	<b>109,000</b>	--	--	--	--	--	--	--	--	--	<50.0	<b>29.7</b>	--	<50.0	--	--	--
	6/12/2012	--	--	--	<b>44,300</b>	--	--	--	--	--	--	--	--	--	<50.0	<b>39.0</b>	--	<50.0	--	--	--
	9/6/2012	--	--	--	--	<b>21,000</b>	--	--	--	--	<b>182</b>	--	--	--	--	--	--	--	--	--	--
	9/11/2012	--	--	--	--	--	--	--	--	--	--	--	--	<0.50	--	--	--	--	--	--	--

**Analytical Notes:**  
 < - Below laboratory's indicated reporting limit  
 mg/L - milligrams per liter  
 ug/L - micrograms/liter  
**Bold** - Above the laboratory's indicated reporting limit

TABLE 3c  
 ADDITIONAL HISTORICAL GROUNDWATER ANALYTICAL DATA  
 76 STATION NO. 5191/5041  
 449 HEGENBERGER ROAD  
 OAKLAND, CALIFORNIA



Well I.D.	Date	GROUNDWATER ANALYTICAL DATA							
		Selenium (ug/L)	Silver (ug/L)	Sulfate E300 (ug/L)	Sulfate E300.1 (mg/L)	Thallium (ug/L)	Total Organic Carbon (mg/L)	Vanadium (ug/L)	Zinc (ug/L)
MW-3	12/17/2009	--	--	--	<0.5	--	--	--	--
	6/30/2010	--	--	<5000	--	--	--	--	--
	6/2/2011	--	--	<5000	--	--	--	--	--
	6/11/2012	--	--	<2000	--	--	--	--	--
MW-6	9/17/2009	--	--	<1.0	<0.0010	--	--	--	--
	12/17/2009	--	--	--	<0.5	--	--	--	--
	3/29/2010	--	--	<1000	--	--	--	--	--
	6/30/2010	--	--	<5000	--	--	--	--	--
	9/20/2010	--	--	<1000	--	--	--	--	--
	3/14/2011	<10.0	<10.0	<b>35,400</b>	--	<20.0	--	<50.0	<40.0
	6/2/2011	<10.0	<10.0	<b>38,900</b>	--	<20.0	<b>41</b>	<50.0	<40.0
	6/12/2012	--	--	<b>1,110</b>	--	--	--	--	--
3/4/2014	--	<5.0	--	--	--	--	--	<b>36</b>	
MW-7	6/30/2010	--	--	<b>191,000</b>	--	--	--	--	--
	6/2/2011	--	--	<b>48,900</b>	--	--	--	--	--
	6/11/2012	--	--	<b>56,900</b>	--	--	--	--	--
MW-8	6/30/2010	--	--	<b>2,360,000</b>	--	--	--	--	--
	6/2/2011	--	--	<b>2,830,000</b>	--	--	--	--	--
	6/11/2012	--	--	<b>2,570,000</b>	--	--	--	--	--
MW-9	12/17/2009	--	--	--	<b>11</b>	--	--	--	--
	6/30/2010	--	--	<b>19,000</b>	--	--	--	--	--
	3/14/2011	<10.0	<10.0	<b>8,980</b>	--	<20.0	--	<50.0	<40.0
	6/2/2011	<10.0	<10.0	<b>18,600</b>	--	<20.0	<b>4.7</b>	<50.0	<40.0
	6/11/2012	--	--	<b>42,500</b>	--	--	--	--	--

**TABLE 3c**  
**ADDITIONAL HISTORICAL GROUNDWATER ANALYTICAL DATA**  
**76 STATION NO. 5191/5041**  
**449 HEGENBERGER ROAD**  
**OAKLAND, CALIFORNIA**



Well I.D.	Date	GROUNDWATER ANALYTICAL DATA							
		Selenium (ug/L)	Silver (ug/L)	Sulfate E300 (ug/L)	Sulfate E300.1 (mg/L)	Thallium (ug/L)	Total Organic Carbon (mg/L)	Vanadium (ug/L)	Zinc (ug/L)
MW-10	9/17/2009	--	--	84	0.084	--	--	--	--
	12/17/2009	--	--	--	86	--	--	--	--
	3/29/2010	--	--	73,600	--	--	--	--	--
	6/30/2010	--	--	70,800	--	--	--	--	--
	9/20/2010	--	--	82,000	--	--	--	--	--
	3/14/2011	--	--	68,600	--	--	--	--	--
	6/2/2011	--	--	71,700	--	--	--	--	--
	6/11/2012	--	--	70,100	--	--	--	--	--
MW-11	7/6/2010	--	--	82,100	--	--	--	--	--
	9/20/2010	--	--	58,300	--	--	--	--	--
	3/14/2011	--	--	59,900	--	--	--	--	--
	6/2/2011	--	--	62,900	--	--	--	--	--
	6/11/2012	--	--	79,400	--	--	--	--	--
MW-12	7/6/2010	--	--	3,030,000	--	--	--	--	--
	9/20/2010	--	--	1,970,000	--	--	--	--	--
	3/14/2011	<10.0	<10.0	2,500,000	--	<20.0	--	<50.0	<40.0
	6/2/2011	<10.0	<10.0	2,330,000	--	<20.0	9.1	<50.0	<40.0
	6/12/2012	--	--	2,130,000	--	--	--	--	--
	3/4/2014	--	<5.0	--	--	--	--	--	46
MW-12A	7/6/2010	--	--	100,000	--	--	--	--	--
	9/20/2010	--	--	82,500	--	--	--	--	--
	3/14/2011	--	--	81,000	--	--	--	--	--
	6/2/2011	--	--	101,000	--	--	--	--	--
	6/11/2012	--	--	118,000	--	--	--	--	--

TABLE 3c  
 ADDITIONAL HISTORICAL GROUNDWATER ANALYTICAL DATA  
 76 STATION NO. 5191/5041  
 449 HEGENBERGER ROAD  
 OAKLAND, CALIFORNIA



Well I.D.	Date	GROUNDWATER ANALYTICAL DATA							
		Selenium (ug/L)	Silver (ug/L)	Sulfate E300 (ug/L)	Sulfate E300.1 (mg/L)	Thallium (ug/L)	Total Organic Carbon (mg/L)	Vanadium (ug/L)	Zinc (ug/L)
MW-13	7/6/2010	--	--	<b>450,000</b>	--	--	--	--	--
	9/20/2010	--	--	<b>241,000</b>	--	--	--	--	--
	3/14/2011	--	--	<b>375,000</b>	--	--	--	--	--
	6/2/2011	--	--	<b>188,000</b>	--	--	--	--	--
	6/12/2012	--	--	<b>131,000</b>	--	--	--	--	--
MW-14	6/2/2011	--	--	<b>56,300</b>	--	--	--	--	--
	6/12/2012	--	--	<b>439,000</b>	--	--	--	--	--
MW-15	6/2/2011	--	--	<b>62,700</b>	--	--	--	--	--
	6/12/2012	--	--	<b>42,100</b>	--	--	--	--	--
MW-16	6/2/2011	--	--	<b>8,740</b>	--	--	--	--	--
	6/12/2012	--	--	<b>19,900</b>	--	--	--	--	--
MW-17	6/2/2011	--	--	<b>3,920,000</b>	--	--	--	--	--
	6/12/2012	--	--	<b>2,520,000</b>	--	--	--	--	--

**Analytical Notes:**

< - Below laboratory's indicated reporting limit

mg/L - milligrams per liter

ug/L - micrograms/liter

**Bold** - Above the laboratory's indicated reporting limit

TABLE 3d  
 ADDITIONAL HISTORICAL GROUNDWATER ANALYTICAL DATA  
 76 STATION NO. 5191/5043  
 449 HEGENBERGER ROAD  
 OAKLAND, CALIFORNIA



Well I.D.	Date	GROUNDWATER ANALYTICAL DATA												
		1,2,4-Trimethylbenzene (ug/L)	1,3,5-Trimethylbenzene (ug/L)	Isopropyl Benzene (ug/L)	Naphthalene (ug/L)	O-Xylene (ug/L)	P,M-Xylene (ug/L)	n-Butylbenzene (ug/L)	n-Propylbenzene (ug/L)	p-Isopropyltoluene (ug/L)	sec-Butylbenzene (ug/L)	HEM:Oil and Grease (mg/L)	Phenolics, Total (mg/L)	Cyanide, Total (mg/L)
MW-6	3/4/2014	<b>3,000</b>	<b>860</b>	<b>200</b>	<b>990</b>	<b>300</b>	<b>1,400</b>	<b>100</b>	<b>530</b>	<b>22</b>	<b>53</b>	<b>1.6</b>	<0.1	<0.02
MW-12	3/4/2014	<b>3.7</b>	<b>11</b>	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<b>1.9</b>	<b>0.1</b>	<0.02

**Analytical Notes:**

< - Below laboratory's indicated reporting limit  
 mg/L - milligrams per liter  
 MPN/100ML - most probable number per 100 ml  
 ug/L - micrograms/liter  
**Bold** - Above the laboratory's indicated reporting limit



**TABLE 4**  
**Historical Groundwater Gradient and Flow Direction Data**  
76 Station No. 5191/5043  
449 Hegenberger Road  
Oakland, California

Site	Monitoring Date	Groundwater Gradient (feet per foot)	Groundwater Flow Direction															
			N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW
	03/06/12	0.010	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0
	06/11/12	0.050	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0
	09/06/12	Variable	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	12/13/12	0.020	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0
	03/14/13	0.050	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0
	06/11/13	0.001	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0
	09/10/13	0.014	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0
	12/12/13	0.018	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0
	03/04/14	0.010	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0
	06/12/14	0.020	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0
	09/05/14	0.003	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0
	12/22/14	Variable	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
		<b>0.024 Average</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>1</b>	<b>34</b>	<b>1</b>	<b>16</b>	<b>0</b>	<b>20</b>	<b>2</b>	<b>3</b>	<b>0</b>	<b>0</b>	<b>0</b>
<b>Explanation</b>																		
NA = Not available																		
Number of Events = 68																		

*Quarterly Summary Report, Fourth Quarter 2014*  
*76 Station No. 5191/5043*  
*Oakland, CA*  
*Antea Group Project No. I42705191*



## ***Appendix A***

Previous Investigation and Site History Summary



## PREVIOUS INVESTIGATION AND SITE HISTORY SUMMARY

October 1991 - Four soil samples were collected from the product pipe trenches at depths of approximately 3 feet below ground surface (bgs) during a dispenser island modification. The product pipe trenches were subsequently excavated to the groundwater depth at 4 to 4.5 feet bgs.

February 1992 - Three monitoring wells, MW-1 through MW-3, were installed at the site to depths ranging from 13.5 to 15 feet bgs.

August 1992 - Three additional monitoring wells, MW-4 through MW-6, were installed at the site to a depth of 13.5 feet bgs.

September 1994 - One 280-gallon waste-oil UST was removed from the site. The UST was made of steel, and no apparent holes or cracks were observed in the UST. One soil sample was collected from beneath the former UST at a depth of approximately 9 feet bgs. No petroleum hydrocarbons were reported.

January 1995 - Two additional monitoring wells, MW-9 and MW-10, were installed to depths of 13 and 15 feet bgs. In addition, monitoring wells MW-4 and MW-5 were destroyed by over-drilling the wells and backfilling with neat cement.

March 1995 - Two 10,000-gallon gasoline USTs and one 10,000-gallon diesel UST were removed from the site. Groundwater was encountered in the tank cavity at a depth of approximately 8.5 feet bgs. Soil samples contained total petroleum hydrocarbons as diesel (TPHd) and benzene, and TPH as gasoline (TPHg). Approximately 125,000 gallons of groundwater were pumped from the site for remediation and properly disposed off-site. Four fuel dispenser islands and associated product piping were also removed. Based on the results of the confirmation samples, the product dispenser islands were over excavated to approximately 6 feet bgs.

March-April 1995 - During demolition activities of the former station building, soil samples were collected from two excavations, which were subsequently over excavated. Confirmation samples contained petroleum hydrocarbons. An additional area on the south side of the former station building was excavated based on photo-ionization detector (PID) readings. Two monitoring wells, MW-1 and MW-2, were destroyed in order to allow for over excavation activities to extend to an area adjacent to the dispenser islands in the southeastern quadrant of the site. The excavated areas were subsequently backfilled with clean-engineered fill.

April 1997 - Two additional monitoring wells, MW-7 and MW-8, were installed off-site to the south and east on the neighboring property to a depth of 13 feet bgs. In addition, monitoring well MW-3, which was damaged during site renovation activities, was fully drilled out and reconstructed in the same borehole.

October 2003 - Site environmental consulting responsibilities were transferred to TRC.

April 8-9, 2005 - TRC conducted a 24-hour dual phase extraction (DPE) test at the site using monitoring well MW-6. The 24-hour DPE test was only moderately successful at removing vapor-phase petroleum hydrocarbons from the subsurface; therefore, TRC recommended DPE no longer be considered a viable remedial alternative for the site.

October 2007 - Site environmental consulting responsibilities were transferred to Delta Consultants.

December 2009 - Delta advanced two borings, B-4 and B-5, to depths of 20 feet bgs and 32 feet bgs, respectively. Analytical results from the soil and groundwater samples collected from these two borings indicated that the soil and the groundwater were impacted by petroleum hydrocarbons at these locations.

June 2010 – Delta installed two 4-inch diameter monitoring/extraction wells, MW-11 and MW-12, and two 2-inch diameter monitoring wells, MW-12A and MW-13, at the site. Analytical results from the soil and groundwater samples collected from the MW-12 and MW-12A boring locations indicated that the soil and the groundwater were impacted by petroleum hydrocarbons at these locations.

May 2011 – Antea Group (formally Delta Consultants) installed four 2-inch diameter monitoring wells, MW-14 through MW-17, and advanced one soil boring, B-6, at the site. All four monitoring wells were installed with ten feet of screen from 3 feet bgs to 13 feet bgs. Analytical results of soil samples collected during the monitoring well installation reported TPHg concentrations ranging from 1.0 milligrams per kilogram (mg/kg) (MW-14d13) to 2,490 mg/kg (B-6d9), benzene concentrations ranging from 0.67 mg/kg (B-6d21) to 26.4 mg/kg (B-6d9), toluene concentrations ranging from 0.2 mg/kg (MW-14d10) to 73.9 mg/kg (B-6d9), ethylbenzene concentrations ranging from 0.037 mg/kg (MW-14d13) to 58.1 mg/kg (B-6d9), total xylenes concentrations ranging from 0.066 mg/kg (MW-14d13) to 230 mg/kg (B-6d9), methyl tertiary-butyl ether (MTBE) concentrations ranging from 0.015 mg/kg (MW-15d13) to 0.19 mg/kg (MW-15d8), tertiary-butyl alcohol (TBA) concentrations ranging from 0.014 mg/kg (MW-16d8 and B-6d21) to 0.16 mg/kg (MW-15d8), and lead concentrations ranging from 5.5 mg/kg (MW-16d13) to 16.3 mg/kg (MW-17d9). Diesel range organics (DRO) and DRO with silica gel concentrations were reported; however, all of the results did not match the laboratory standard for diesel. Concentrations of DRO ranged from 2.9 mg/kg (MW-17d13) to 258 mg/kg (B-6d14) and DRO with silica gel concentrations ranged from 2.5 mg/kg (MW-17d13) to 250 mg/kg (B-6d14).

March 2012 – Antea Group advanced five soil borings (HPB-1 through HPB-5) at the site. The borings were advanced using direct push technology. The borings were used to obtain a hydraulic profile of the substrate beneath the site. The data obtained during the investigation will be used to determine the best path forward in terms of remediation.

July 2013 – Antea Group advanced ten soil borings (SB-1 through SB-10) at the site. The borings were advanced using direct push technology. The borings were used to delineate petroleum hydrocarbon impacted soil around

monitoring well MW-6. Results of the investigation can be found in the *Site Investigation Report*, dated January 9, 2014.

June 2014 – Antea Group destroyed monitoring wells MW-10, MW-12, MW-12A, and MW-17 by pressure grouting. The wells were destroyed in preparation for on-site soil excavation activities.

September 2014 – Antea Group advanced two (2) cone penetration test (CPT) borings CPT-1 and CPT-2 in preparation for soil excavations on site. Soil and groundwater samples were not collected. Data from the CPT borings was used to help design shoring for excavations. Antea Group advanced three (3) off-site soil borings, SB-13 through SB-15. Soil and grab-groundwater samples were collected from the borings.

#### **SENSITIVE RECEPTORS**

April 24, 2006, TRC completed a sensitive receptor survey for the site. According to the Department of Water Resources (DWR) records, three water supply wells are located within one-half mile of the site. The closest well is an irrigation well, reported to be, approximately 1,080 feet southeast of the site. In addition, two surface water bodies were observed within a one-half mile radius of the site. San Leandro Creek is located approximately 1,400 feet southwest of the site and flows into the San Leandro Bay. Elmhurst Creek is located approximately 2,220 feet north of the site and also flows into the San Leandro Bay.

Current Consultant: **Antea Group**

*Quarterly Summary Report, Fourth Quarter 2014*  
*76 Station No. 5191/5043*  
*Oakland, CA*  
*Antea Group Project No. I42705191*



## ***Appendix B***

Antea Group Groundwater Sampling Procedures

## **FIELD METHODS AND PROCEDURES**

The following section describes field procedures that are to be used by Antea Group personnel in the performance of the tasks involved with this project.

### **1.0 HEALTH AND SAFETY PLAN**

Fieldwork performed by Antea Group and Antea Group's subcontractors at the site will be conducted according to guidelines established in a Site Health and Safety Plan (SHSP). The SHSP is a document that describes the hazards that may be encountered in the field and specifies protective equipment, work procedures and emergency information. A copy of the SHSP will be at the site and available for reference by appropriate parties during work at the site.

### **2.0 GROUNDWATER DEPTH ASSESSMENT**

A water/product interface probe is used to assess the liquid-phase hydrocarbons (LPH) thickness, if present, and a water level indicator is used to measure the groundwater depth in monitoring wells that do not contain LPH. Depth to groundwater or LPH is measured from a datum point at the top of each monitoring well casing. The datum point is typically a notch cut in the north side of the casing edge. If a water level indicator is used, the tip is subjectively analyzed for LPH sheen.

### **3.0 SUBJECTIVE ANALYSIS OF GROUNDWATER**

Prior to purging, a water sample is collected from the monitoring well for subjective assessment. The sample is retrieved by gently lowering a clean, disposable bailer to approximately one-half the bailer length past the air/liquid interface. The bailer is then retrieved and the sample contained within the bailer is examined for floating LPH and the appearance of a LPH sheen.

### **4.0 MONITORING WELL SAMPLING**

Monitoring wells are purged using a pump or bailer until pH, temperature and conductivity of the purge water has stabilized and a minimum of three well volumes of water has been removed. The purge water is placed in 55-gallon drums and temporarily stored onsite pending evaluation of disposal options. If three well volumes cannot be removed in one-half an hour's time, the well is allowed to recharge to 80 percent of original level. After recharging, a groundwater sample is then removed from each of the wells using a pump or disposable bailer. The water sample is collected, labeled and handled according to the Quality Assurance Plan. Water generated during the monitoring event is disposed of according to the accepted regulatory method pertaining to the site.

## **5.0 QUALITY ASSURANCE PLAN**

This section describes the field and analytical procedures to be followed by Antea Group throughout the investigation.

### **5.1 General Sample Collection and Handling Procedures**

Proper collection and handling are essential to ensure the quality of a sample. Each sample will be collected in the appropriate container, preserved correctly for the intended analysis and stored, prior to analysis, for no longer than the maximum allowable holding time. Details on the procedures for collection and handling of soil samples from this project can be found in previous sections.

### **5.2 Sample Identification and Chain-of-Custody Procedures**

Sample identification and chain-of-custody procedures ensure sample integrity and document sample possession from the time of collection to its ultimate disposal. Each sample container submitted for analysis will have a label affixed to identify the job number, sampler, date and time of sample collection and a sample number unique to that sample. During soil sampling, this information, in addition to a description of the sample, field measurements made, sampling methodology, names of on-site personnel and any other pertinent field observations will be recorded on the borehole log or in the field records.

*Quarterly Summary Report, Fourth Quarter 2014*  
*76 Station No. 5191/5043*  
*Oakland, CA*  
*Antea Group Project No. I42705191*



## ***Appendix C***

Antea Group Groundwater Sampling Field Data Sheets

## Well-Head Inspection & Well Gauging Form

Antea Group Project No: I42705191

Site Address: 449 Hegenberger Oakland CA 94621

Field Technician: Ed Weyers & Jonathan Fillingim/Antea  
(Print Full Name & Company\*)

Date: 12/22/14

Weather: partly Cloudy

### Well Condition

Sample Order	Field Point	Bolts	Seal	Lid Secure	Lock	Expanding Cap	Water in Well Box	Well Casing Dia.	Time Gauged	Depth to Water (Feet)	Depth to Bottom (Feet)	Depth to LNAPL (Feet)	LNAPL Thickness (Feet)	Comments
①	MW-9	1/3	N	N	Y	Y	Y	2	10:53	1.58	12.32	—	—	
②	MW-3	1/2	N	N	Y	Y	Y	2	10:56	2.07	13.81	—	—	
3	MW-11	2/2	Y	Y	Y	Y	Y	4	10:55	1.53	19.67	—	—	
4	MW-13	2/2	Y	Y	Y	Y	Y	2	11:00	3.07	14.67	—	—	
5	MW-15	2/2	Y	Y	Y	Y	N	2	11:05	2.38	12.82	—	—	
6	MW-16	2/2	Y	Y	Y	Y	Y	2	11:10	3.11	12.80	—	—	
⑦	MW-6	2/2	N	Y	Y	Y	Y	2	10:59	2.55	12.50	—	—	
⑧	MW-14	2/2	Y	Y	Y	Y	N	2	11:02	3.18	12.66	—	—	

Notes: 2 Drums SW corner near carwash entrance

\*\* All well caps opened at least 15 minutes or longer before gauging wells:  
**CIRCLE ONE: YES or NO\*\***



\*Form provided by Antea Group

Note: Use G=good and P=poor for well condition



## Groundwater Sampling Form

Site Address: 449 Hegenberger, Oakland, CA 94621	
Project No: I42705191	Field Technician: JF
Field Point: MW-11	Date: 12/22/14
Depth to Water (DTW) (ft bgs): 1.53	Well Diameter (in): 2 (4) 6 8
Depth to LNAPL (ft bgs):	Thickness of LNAPL (ft):
Total Depth of Well (ft bgs): 19.67	Water Column Height (ft): 18.14

### Purging Info and Calculations:

<b>Purge Method:</b> Low-Flow <input checked="" type="checkbox"/> 3 casing volumes Other: _____	<b>Purge Equipment:</b> Disposable Bailor <input checked="" type="checkbox"/> Electric Submersible Peristaltic Pump Bladder Pump Other: _____	<b>Sample Collection Method:</b> Disposable Bailor Extraction Port Dedicated Tubing Disposable Tubing Other: _____
Water Column Height (ft): 18.14    X Conversion Factor (gal/ft): 0.66    = Casing Volume (gal): 11.97 Casing Volume (gal): 11.97    X Specified Volumes: 3    = Calculated Purge (gal): 35.91		
Conversion Factors (gal/ft): 2" = 0.17    4" = 0.66    6" = 1.5    8" = 2.6    Other = radius <sup>2</sup> * 0.163		

### Purge: Start Time: \_\_\_\_\_ Stop Time: \_\_\_\_\_

Time	Temp (°C)	pH	Conductivity (µS/cm)	ORP (mV)	Turbidity (NTU)	D.O. (mg/L)	Volume Purged (gal)	Water Level (for Low-Flow only)
<b>Pre-Purge</b>								
12:12	20.16	7.13	1103	113.1	58.6	4.33	0.1	
12:18	21.44	7.07	1071	68.7	12.8	2.58	12.0	
12:24	21.44	7.04	1082	-1.5	4.22	2.36	24.0	
12:30	21.55	7.04	1079	-29.9	1.56	1.03	36.0	
<b>Post-Purge</b>								

Did Well dewater? Yes  No  Total Purge volume (gal): 36.0

**Other Comments:** \_\_\_\_\_

### Sample Info:

Sample ID: MW-11-20141231	Sample Date and Time: 12/22/14 12:40
Selected Analysis: _____	

This form was provided by Antea Group and completed by: (Print Full Name) \_\_\_\_\_

Signature: *Jonathan F. Williams* Date: 12/22/14



LNAPL= light non-aqueous phase liquids  
 bgs = below ground surface  
 ORP = Oxidation-Reduction Potential  
 D.O.= dissolved oxygen

gal = gallon/s  
 temp = temperature  
 NTU = Nephelometric Turbidity Units  
 mV = millivolts

111 111 11

## Groundwater Sampling Form

Site Address: 449 Hegenberger, Oakland, CA 94621	
Project No: I42705191	Field Technician: JF
Field Point: MW-13	Date: 12/22/14
Depth to Water (DTW) (ft bgs): 3.07	Well Diameter (in): ② 4 6 8
Depth to LNAPL (ft bgs):	Thickness of LNAPL (ft):
Total Depth of Well (ft bgs): 14.67	Water Column Height (ft): 11.60

### Purging Info and Calculations:

<b>Purge Method:</b> Low-Flow <input checked="" type="checkbox"/> 3 casing volumes Other: _____	<b>Purge Equipment:</b> Disposable Bailer <input checked="" type="checkbox"/> Electric Submersible Peristaltic Pump Bladder Pump Other: _____	<b>Sample Collection Method:</b> Disposable Bailer Extraction Port Dedicated Tubing Disposable Tubing Other: _____
Water Column Height (ft): 11.60	X Conversion Factor (gal/ft): <del>0.66</del> 0.17	= Casing Volume (gal): 1.97
Casing Volume (gal): 1.97	X Specified Volumes: _____	= Calculated Purge (gal): 5.9
Conversion Factors (gal/ft): 2" = 0.17    4" = 0.66    6" = 1.5    8" = 2.6    Other = radius <sup>2</sup> * 0.163		

Purge:		Start Time:		Stop Time:				
Time	Temp (°C)	pH	Conductivity (µS/cm)	ORP (mV)	Turbidity (NTU)	D.O. (mg/L)	Volume Purged (gal)	Water Level (for Low-Flow only)
<b>Pre-Purge</b>								
12:51	18.40	7.34	2162	-143.9	60.4	2.74	0.1	
12:52	19.00	7.28	2339	-187.0	14.4	1.63	2.0	
12:53	19.43	7.25	2585	-209.1	28.9	1.34	4.0	
12:54	20.09	7.13	3176	-182.0	24.5	2.92	5.9	
<b>Post-Purge</b>								
Did Well dewater? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>		Total Purge volume (gal): 6.0						

**Other Comments:** \_\_\_\_\_

<b>Sample Info:</b>	
Sample ID: MW-13-20141231	Sample Date and Time: 12/22/14 13:05
Selected Analysis: _____	

This form was provided by Antea Group and completed by: (Print Full Name) \_\_\_\_\_

Signature: *[Signature]* Date: 12/22/14

# Groundwater Sampling Form

Site Address: 449 Hegenberger, Oakland, CA 94621	
Project No: I42705191	Field Technician: ETW
Field Point: MW-14	Date: 12/22/14
Depth to Water (DTW) (ft bgs): 3.18	Well Diameter (in): $\varnothing$ 4 6 8
Depth to LNAPL (ft bgs): —	Thickness of LNAPL (ft): —
Total Depth of Well (ft bgs): 12.66	Water Column Height (ft): 9.48

### Purging Info and Calculations:

<b>Purge Method:</b> Low-Flow 3 casing volumes Other: _____	<b>Purge Equipment:</b> Disposable Bailer Electric Submersible Peristaltic Pump Bladder Pump Other: _____	<b>Sample Collection Method:</b> Disposable Bailer Extraction Port Dedicated Tubing Disposable Tubing Other: _____
Water Column Height (ft): 9.48	X Conversion Factor (gal/ft): 0.17	= Casing Volume (gal): 1.61
Casing Volume (gal): 1.61	X Specified Volumes: 3	= Calculated Purge (gal): 4.83
Conversion Factors (gal/ft): 2" = 0.17    4" = 0.66    6" = 1.5    8" = 2.6    Other = radius <sup>2</sup> * 0.163		

Purge:		Start Time:		Stop Time:					
Time	Temp (°C)	pH	Conductivity (µS/cm)	ORP (mV)	Turbidity (NTU)	D.O. (mg/L)	Volume Purged (gal)	Water Level (for Low-Flow only)	
<b>Pre-Purge</b>									
12:46	18.24	9.44	10254	-222.2	34.8	0.96	1.6		
12:47	18.15	9.37	10350	-229.4	39.6	0.59	3.2		
12:48	19.06	9.25	17580	-209.2	75.4	2.66	4.8		
<b>Post-Purge</b>									
Did Well dewater? Yes <input type="radio"/> No <input checked="" type="radio"/>		Total Purge volume (gal): 4.8							

**Other Comments:** Samples effervescent, unable to remove bubbles

<b>Sample Info:</b>	
Sample ID: MW-14-20141231	Sample Date and Time: 12/22/14 12:55
Selected Analysis:	

This form was provided by Antea Group and completed by: (Print Full Name) Ed Weyrens

Signature: Date: 12/22/14



LNAPL = light non-aqueous phase liquids  
 bgs = below ground surface  
 ORP = Oxidation-Reduction Potential  
 D.O. = dissolved oxygen

gal = gallon/s  
 temp = temperature  
 NTU = Nephelometric Turbidity Units  
 mV = millivolts

## Groundwater Sampling Form

Site Address: 449 Hegenberger, Oakland, CA 94621	
Project No: I42705191	Field Technician: JF
Field Point: MW-15	Date: 12/22/14
Depth to Water (DTW) (ft bgs): 2.38	Well Diameter (in): ② 4 6 8
Depth to LNAPL (ft bgs):	Thickness of LNAPL (ft):
Total Depth of Well (ft bgs): 12.82	Water Column Height (ft): 10.44

### Purging Info and Calculations:

<b>Purge Method:</b> Low-Flow <input checked="" type="checkbox"/> 3 casing volumes Other: _____	<b>Purge Equipment:</b> <input checked="" type="checkbox"/> Disposable Bailer <input checked="" type="checkbox"/> Electric Submersible <input type="checkbox"/> Peristaltic Pump <input type="checkbox"/> Bladder Pump Other: _____	<b>Sample Collection Method:</b> <input checked="" type="checkbox"/> Disposable Bailer <input type="checkbox"/> Extraction Port <input type="checkbox"/> Dedicated Tubing <input type="checkbox"/> Disposable Tubing Other: _____
Water Column Height (ft): 10.44    X Conversion Factor (gal/ft): 0.17    = Casing Volume (gal): 1.77 Casing Volume (gal): 1.77    X Specified Volumes: 3    = Calculated Purge (gal): 5.32		
Conversion Factors (gal/ft):    2" = 0.17    4" = 0.66    6" = 1.5    8" = 2.6    Other = radius <sup>2</sup> * 0.163		

Time	Temp (°C)	pH	Conductivity (µS/cm)	ORP (mV)	Turbidity (NTU)	D.O. (mg/L)	Volume Purged (gal)	Water Level (for Low-Flow only)
<b>Purge:                      Start Time:                      Stop Time:</b>								
<b>Pre-Purge</b>								
13:20	19.79	6.69	1199	-89.6	64.2	3.38	0.1	
13:21	19.15	6.35	1036	-123.9	21.3	1.67	1.8	
13:22	20.60	6.33	1721	-159.3	49.9	1.45	3.5	
13:24	21.16	6.46	2388	-179.5	21.1	1.44	5.3	
<b>Post-Purge</b>								
Did Well dewater?    Yes <input checked="" type="radio"/> No		Total Purge volume (gal): 5.5						

**Other Comments:** \_\_\_\_\_

<b>Sample Info:</b>	
Sample ID: MW-15	Sample Date and Time: 12/22/14 13:35
Selected Analysis: _____	

This form was provided by Antea Group and completed by: (Print Full Name) \_\_\_\_\_

Signature: *[Signature]*                      Date: 12/22/14

## Groundwater Sampling Form

Site Address: 449 Hegenberger, Oakland, CA 94621	
Project No: I42705191	Field Technician: JF
Field Point: MW-16	Date: 12/22/14
Depth to Water (DTW) (ft bgs): 3.11	Well Diameter (in): ② 4 6 8
Depth to LNAPL (ft bgs):	Thickness of LNAPL (ft):
Total Depth of Well (ft bgs): 12.80	Water Column Height (ft): 9.69

### Purging Info and Calculations:

<b>Purge Method:</b> Low-Flow <input checked="" type="checkbox"/> 3 casing volumes Other: _____	<b>Purge Equipment:</b> Disposable Bailer <input checked="" type="checkbox"/> Electric Submersible Peristaltic Pump Bladder Pump Other: _____	<b>Sample Collection Method:</b> <input checked="" type="checkbox"/> Disposable Bailer Extraction Port Dedicated Tubing Disposable Tubing Other: _____
Water Column Height (ft): 9.69	X Conversion Factor (gal/ft): 0.17	= Casing Volume (gal): 1.65
Casing Volume (gal): 1.65	X Specified Volumes: 3	= Calculated Purge (gal): 4.95
Conversion Factors (gal/ft): 2" = 0.17    4" = 0.66    6" = 1.5    8" = 2.6    Other = radius <sup>2</sup> * 0.163		

**Purge:** \_\_\_\_\_ **Start Time:** \_\_\_\_\_ **Stop Time:** \_\_\_\_\_

Time	Temp (°C)	pH	Conductivity (µS/cm)	ORP (mV)	Turbidity (NTU)	D.O. (mg/L)	Volume Purged (gal)	Water Level (for Low-Flow only)
<b>Pre-Purge</b>								
13:49	21.44	6.87	2650	-127.3	22.1	2.42	0.1	
13:50	20.40	6.72	2512	-117.9	8.03	1.02	1.7	
13:51	21.10	6.72	2676	-137.9	11.8	0.82	3.3	
13:52	21.93	6.74	2728	-105.2	18.6	0.77	5.0	
<b>Post-Purge</b>								

Did Well dewater?    Yes    No    Total Purge volume (gal):

**Other Comments:** \_\_\_\_\_

<b>Sample Info:</b>	
Sample ID: MW-16-20141231	Sample Date and Time: 12/22/14 14:05
Selected Analysis:	

This form was provided by Antea Group and completed by: (Print Full Name) \_\_\_\_\_

Signature: *Jonathan K. Mizama*    Date: 12/22/14

# Groundwater Sampling Form

Site Address: 449 Hegenberger, Oakland, CA 94621	
Project No: I42705191	Field Technician: <u>ETW</u>
Field Point: <u>MW-3</u>	Date: <u>12/22/14</u>
Depth to Water (DTW) (ft bgs): <u>2.07</u>	Well Diameter (in): <u>2</u> 4 6 8
Depth to LNAPL (ft bgs): <u>—</u>	Thickness of LNAPL (ft): <u>—</u>
Total Depth of Well (ft bgs): <u>13.81</u>	Water Column Height (ft): <u>11.74</u>

### Purging Info and Calculations:

<b>Purge Method:</b> <u>Low-Flow</u> <u>3 casing volumes</u> Other: _____	<b>Purge Equipment:</b> Disposable Bailer <u>Electric Submersible</u> Peristaltic Pump Bladder Pump Other: _____	<b>Sample Collection Method:</b> <u>Disposable Bailer</u> Extraction Port Dedicated Tubing Disposable Tubing Other: _____
Water Column Height (ft): <u>11.74</u>	X Conversion Factor (gal/ft): <u>0.17</u>	= Casing Volume (gal): <u>1.99</u>
Casing Volume (gal): <u>1.99</u>	X Specified Volumes: <u>3</u>	= Calculated Purge (gal): <u>5.98</u>
Conversion Factors (gal/ft): 2" = 0.17    4" = 0.66    6" = 1.5    8" = 2.6    Other = radius <sup>2</sup> * 0.163		

### Purge: Start Time: \_\_\_\_\_ Stop Time: \_\_\_\_\_

Time	Temp (°C)	pH	Conductivity (µS/cm)	ORP (mV)	Turbidity (NTU)	D.O. (mg/L)	Volume Purged (gal)	Water Level (for Low-Flow only)
<b>Pre-Purge</b>								
<u>12:01</u>	<u>20.82</u>	<u>9.27</u>	<u>2798</u>	<u>-189.8</u>	<u>47.5</u>	<u>1.04</u>	<u>2</u>	
<u>12:03</u>	<u>22.36</u>	<u>9.06</u>	<u>3165</u>	<u>-197.8</u>	<u>12.3</u>	<u>0.77</u>	<u>4</u>	
<u>12:04</u>	<u>22.61</u>	<u>8.91</u>	<u>3093</u>	<u>-156.3</u>	<u>210</u>	<u>4.00</u>	<u>6</u>	
<b>Post-Purge</b>								

Did Well dewater? Yes  No  Total Purge volume (gal): 6.0

**Other Comments:** \_\_\_\_\_

<b>Sample Info:</b>	
Sample ID: <u>MW-3_20141231</u>	Sample Date and Time: <u>12/22/14 12:10</u>
Selected Analysis: _____	

This form was provided by Antea Group and completed by: (Print Full Name) Ed Weyrens

Signature: [Signature] Date: 12/22/14



LNAPL= light non-aqueous phase liquids  
 bgs = below ground surface  
 ORP = Oxidation-Reduction Potential  
 D.O.= dissolved oxygen

gal = gallon/s  
 temp = temperature  
 NTU = Nephelometric Turbidity Units  
 mV = millivolts

# Groundwater Sampling Form

Site Address: 449 Hegenberger, Oakland, CA 94621	
Project No: I42705191	Field Technician: <u>ETW</u>
Field Point: <u>MW-6</u>	Date: <u>12/22/14</u>
Depth to Water (DTW) (ft bgs): <u>2.55</u>	Well Diameter (in): <u>②</u> 4 6 8
Depth to LNAPL (ft bgs): <u>—</u>	Thickness of LNAPL (ft): <u>—</u>
Total Depth of Well (ft bgs): <u>12.50</u>	Water Column Height (ft): <u>9.95</u>

### Purging Info and Calculations:

<b>Purge Method:</b> Low-Flow <u>3 casing volumes</u> Other: _____	<b>Purge Equipment:</b> Disposable Bailer <u>Electric Submersible</u> Peristaltic Pump Bladder Pump Other: _____	<b>Sample Collection Method:</b> <u>Disposable Bailer</u> Extraction Port Dedicated Tubing Disposable Tubing Other: _____
Water Column Height (ft): <u>9.95</u>	X Conversion Factor (gal/ft): <u>0.17</u>	= Casing Volume (gal): <u>1.69</u>
Casing Volume (gal): <u>1.69</u>	X Specified Volumes: <u>3</u>	= Calculated Purge (gal): <u>5.07</u>
Conversion Factors (gal/ft): 2" = 0.17    4" = 0.66    6" = 1.5    8" = 2.6    Other = radius <sup>2</sup> * 0.163		

**Purge:** Start Time: \_\_\_\_\_ Stop Time: \_\_\_\_\_

Time	Temp (°C)	pH	Conductivity (µS/cm)	ORP (mV)	Turbidity (NTU)	D.O. (mg/L)	Volume Purged (gal)	Water Level (for Low-Flow only)
<b>Pre-Purge</b>								
<u>12:25</u>	<u>19.80</u>	<u>9.53</u>	<u>1958</u>	<u>-201.5</u>	<u>37.2</u>	<u>1.07</u>	<u>1.6</u>	
<u>12:26</u>	<u>20.71</u>	<u>9.21</u>	<u>4351</u>	<u>-198.5</u>	<u>329</u>	<u>3.81</u>	<u>3.0</u>	
							<u>5.0</u>	
<b>Post-Purge</b>								

Did Well dewater?  Yes    No    Total Purge volume (gal): 3.0

**Other Comments:** Samples effervesing, unable to remove bubbles

**Sample Info:**

Sample ID: <u>MW-6-20141231</u>	Sample Date and Time: <u>12/22/14 12:30</u>
Selected Analysis: _____	

This form was provided by Antea Group and completed by: (Print Full Name) Ed Weyrens

Signature: [Signature] Date: 12/22/14



LNAPL= light non-aqueous phase liquids  
 bgs = below ground surface  
 ORP = Oxidation-Reduction Potential  
 D.O.= dissolved oxygen

gal = gallon/s  
 temp = temperature  
 NTU = Nephelometric Turbidity Units  
 mV = millivolts

## Groundwater Sampling Form

Site Address: 449 Hegenberger, Oakland, CA 94621	
Project No: I42705191	Field Technician: ETW
Field Point: MW-9	Date: 12/22/14
Depth to Water (DTW) (ft bgs): 1.58	Well Diameter (in): ② 4 6 8
Depth to LNAPL (ft bgs): —	Thickness of LNAPL (ft): —
Total Depth of Well (ft bgs): 12.32	Water Column Height (ft): 10.74

### Purging Info and Calculations:

<b>Purge Method:</b> Low-Flow 3 casing volumes Other: _____	<b>Purge Equipment:</b> Disposable Bailer Electric Submersible Peristaltic Pump Bladder Pump Other: _____	<b>Sample Collection Method:</b> Disposable Bailer Extraction Port Dedicated Tubing Disposable Tubing Other: _____
Water Column Height (ft): 10.74	X Conversion Factor (gal/ft): 0.17	= Casing Volume (gal): 1.83
Casing Volume (gal): 1.83	X Specified Volumes: 3	= Calculated Purge (gal): 5.48
Conversion Factors (gal/ft): 2" = 0.17    4" = 0.66    6" = 1.5    8" = 2.6    Other = radius <sup>2</sup> * 0.163		

### Purge: Start Time: \_\_\_\_\_ Stop Time: \_\_\_\_\_

Time	Temp (°C)	pH	Conductivity (µS/cm)	ORP (mV)	Turbidity (NTU)	D.O. (mg/L)	Volume Purged (gal)	Water Level (for Low-Flow only)
<b>Pre-Purge</b>								
11:43	22.11	9.13	4013	-164.1	63.7	1.29	1.8	
11:44	22.65	9.05	7215	-120.3	25.7	4.01	3.6	
							5.5	
<b>Post-Purge</b>								

Did Well dewater?  Yes    No    Total Purge volume (gal): 4.0

**Other Comments:** \_\_\_\_\_

### Sample Info:

Sample ID: MW-9-20141231	Sample Date and Time: 12/22/14 11:50
Selected Analysis: _____	

This form was provided by Antea Group and completed by: (Print Full Name) Ed Weyrens

Signature: [Signature]    Date: 12/22/14



LNAPL= light non-aqueous phase liquids  
 bgs = below ground surface  
 ORP = Oxidation-Reduction Potential  
 D.O.= dissolved oxygen

gal = gallon/s  
 temp = temperature  
 NTU = Nephelometric Turbidity Units  
 mV = millivolts





### COP ELT CHAIN-OF-CUSTODY / Analytical Request Document

The Chain-of-Custody is a LEGAL DOCUMENT. All relevant fields must be completed and accurate.

4Q14 GW Event

<b>Required Lab Information:</b>		<b>Required Project Information:</b>		<b>Required Invoice Information:</b>	
Lab Name: Pace	Site ID #: 2705191	Task: WG_Q_201412	Send Invoice to: Sandy Hayes		
Address: 2795 Second Street #300	AnteaGrp proj#	Address: 11050 White Rock Road, Suite 110			
Davis, CA 95618	Site Address 449 Hegenberger	City/State: Rancho Cordova CA 95670	Phone #: 916-638-2085	Turn around time (days)	10
Lab PM: Scott Forbes	City: Oakland	State: CA 94621	Reimbursement project?	QC level Required: Standard	Special <input type="checkbox"/> Mark one
Phone/Fax: P: 530-297-4800 F: 530-297-4808	AG PM Name: Dennis Dettloff	Send EDD to: agdataview.us@anteagroup.com	Non-reimbursement project? <input checked="" type="checkbox"/>	NJ Reduced Deliverable Package? <input type="checkbox"/>	
Lab PM email: SForbes@kiffanalytical.com	Phone/Fax: P: 916-503-1261 F: 916-638-8385	CC Hardcopy report to	Mark one	MA MCP Cert? <input type="checkbox"/>	CT RCP Cert? <input type="checkbox"/> Mark one
Applicable Lab Quote #:	AG PM Email: dennis.dettloff@anteagroup.com	CC Hardcopy report to	Lab Project ID (lab use)		

ITEM #	SAMPLE ID One Character per box. (A-Z, 0-9 / -) Samples IDs MUST BE UNIQUE	Valid Matrix Codes MATRIX DRINKING WATER VP WATER W GROUND WATER VGS SURFACE WATER WS WASTE WATER WW WATER OC WS FRESH PRODUCT LP SL ALGUE SL SOIL SO NICKELATE SW OT OIL OIL OTHER SW OT WVPE AMBIENT AIR WV ANIMAL TISSUE DVE AIR AA AE SOL GAS OS	MATRIX CODE	SAMPLE TYPE G-GRAB C-COMP	SAMPLE DATE	SAMPLE TIME	#OF CONTAINERS	FIELD FILTERED? (Y/N)	Preservatives										Requested Analyses	Comments/Lab Sample I.D.				
									Unpreserved	H <sub>2</sub> SO <sub>4</sub>	HNO <sub>3</sub>	HCl	NaOH	Na-S <sub>2</sub> O <sub>3</sub>	Methanol	Other	8015 (PH/Disin/W/Silic)	8260 (GC/MS CRP)			8260 (GC/MS CRP)	8260 (GC/MS CRP)	8260 (GC/MS CRP)	
1	MW-11_20141231		WG	G	12/22/14	12:40	6	N											X	X	X	X		
2	MW-13_20141231		WG	G		13:05	6	N											X	X	X	X		
3	MW-14_20141231		WG	G		12:55	6	N											X	X	X	X		
4	MW-15_20141231		WG	G		13:35	6	N											X	X	X	X		
5	MW-16_20141231		WG	G		14:05	6	N											X	X	X	X		
6	MW-3_20141231		WG	G		12:10	6	N											X	X	X	X		
7	MW-6_20141231		WG	G		12:30	6	N											X	X	X	X		
8	MW-9_20141231		WG	G		11:50	6	N											X	X	X	X		
9																								
10																								
11																								
12																								

Additional Comments/Special Instructions:  <b>Global ID: T0600101476</b>	RELINQUISHED BY / AFFILIATION		DATE	TIME	ACCEPTED BY / AFFILIATION		DATE	TIME	Sample Receipt Conditions				
	<i>Jonathan Fillingame</i>		12/22	17:05	<i>Pace Analytical</i>		12/22/14	17:11		Y/N	Y/N	Y/N	
										Y/N	Y/N	Y/N	
										Y/N	Y/N	Y/N	
SHIPPING METHOD: (mark as appropriate)					SAMPLER NAME AND SIGNATURE								
UPS COURIER FEDEX					PRINT Name of SAMPLER: <i>Jonathan Fillingame</i>								
US MAIL					SIGNATURE of SAMPLER: <i>Jonathan Fillingame</i>								
					DATE signed: 12/22 Time: 14:15								
					Temp in °C								
					Samples on Ice?								
					Sample intact?								
					Trip Blank?								

*Quarterly Summary Report, Fourth Quarter 2014*  
*76 Station No. 5191/5043*  
*Oakland, CA*  
*Antea Group Project No. I42705191*



## ***Appendix D***

Certified Laboratory Analytical Report and Data Validation Form



Report Number : 89994

Date : 12/31/2014

## Laboratory Results

Dennis Dettloff  
Antea Group  
11050 White Rock Rd. Suite 110  
Rancho Cordova, CA 95670

Subject : 8 Water Samples  
Project Name : 2705191  
Project Number :

Dear Mr. Dettloff,

Chemical analysis of the samples referenced above has been completed. Summaries of the data are contained on the following pages. Sample(s) were received under documented chain-of-custody. US EPA protocols for sample storage and preservation were followed. Testing procedures comply with the TNI 2009 standards.

Laboratory results relate only to the samples tested. This report may be freely reproduced in full, but may only be reproduced in part with the express permission of Pace Analytical Services, Inc.

Pace Analytical Services, Inc. is certified by the State of California under the Environmental Laboratory Accreditation Program (ELAP), lab number 08263CA.

If you have any questions regarding procedures or results, please call me at 530-297-4800.

Sincerely,

A handwritten signature in black ink that reads "Troy G. Turpen".

Troy Turpen



Report Number : 89994

Date : 12/31/2014

Subject : 8 Water Samples  
Project Name : 2705191  
Project Number :

## Case Narrative

Recoveries for some Matrix Spike/Matrix Spike Duplicate analytes were outside of control limits. This may indicate a bias for the samples that were spiked. Since the LCS recoveries were within control limits, no data are flagged.

LCS results associated with samples MW-13\_20141231, MW-15\_20141231, MW-16\_20141231, MW-3\_20141231, and MW-9\_20141231 for the analyte Ethanol were outside of control limits, indicating a possible high bias for this analyte. Since Ethanol was not detected above the Method Reporting Limit in the associated samples, no data are flagged.

Sample MW-14 was analyzed outside of hold time for analytes Benzene, Toluene, Methyl-t-butyl ether, Tert-Butanol, and Ethanol by Method EPA 8260B. The hydrochloric acid (HCl) preservation was insufficient to maintain a pH of 2.0 or less required to extend sample hold time from 7 to 14 days.



Report Number : 89994

Date : 12/31/14

# Analysis Summary

Attention : Dennis Dettloff  
 Antea Group  
 11050 White Rock Rd. Suite 110  
 Rancho Cordova, CA 95670

Project Name :2705191

Project Number :

Sample Name			MW-11_20141231	MW-13_20141231	MW-14_20141231	MW-15_20141231	MW-16_20141231	MW-3_20141231	MW-6_20141231							
Sample Date			12/22/14		12/22/14		12/22/14		12/22/14							
Analyte	Method	Units	MRL	Results	MRL	Results	MRL	Results	MRL	Results	MRL	Results	MRL	Results		
Benzene	EPA 8260B	ug/L	0.50	ND	0.50	ND	9.0	<b>220</b>	0.50	<b>0.50</b>	0.50	<b>0.52</b>	0.50	ND	5.0	<b>2000</b>
Ethylbenzene	EPA 8260B	ug/L	0.50	ND	0.50	ND	9.0	<b>260</b>	0.50	ND	0.50	ND	0.50	ND	5.0	<b>1600</b>
Toluene	EPA 8260B	ug/L	0.50	ND	0.50	ND	0.90	<b>3.8</b>	0.50	ND	0.50	ND	0.50	ND	5.0	<b>120</b>
Total Xylenes	EPA 8260B	ug/L	0.50	ND	0.50	ND	9.0	<b>540</b>	0.50	ND	0.50	ND	0.50	ND	15	<b>7700</b>
Ethanol	EPA 8260B	ug/L	5.0	ND	5.0	ND	9.0	ND	5.0	ND	5.0	ND	5.0	ND	150	ND
Methyl-t-butyl ether (MTBE)	EPA 8260B	ug/L	0.50	<b>37</b>	0.50	<b>28</b>	0.90	ND	0.50	<b>65</b>	0.50	<b>23</b>	0.50	<b>15</b>	5.0	<b>9.7</b>
Tert-Butanol	EPA 8260B	ug/L	5.0	ND	5.0	<b>39</b>	5.0	<b>12</b>	5.0	<b>36</b>	5.0	<b>140</b>	5.0	<b>35</b>	25	<b>150</b>
TPH as Gasoline	EPA 8260B	ug/L	50	ND	50	ND	900	<b>3200</b>	50	ND	50	ND	50	<b>250</b>	1500	<b>49000</b>
1,2-Dichloroethane-d4 (Surr)	EPA 8260B	%		99.3		102		102		105		107		106		102
Toluene - d8 (Surr)	EPA 8260B	%		98.1		100		99.5		100		101		102		99.0
TPH as Diesel (Silica Gel)	M EPA 8015	ug/L	50	ND	50	ND	50	ND	50	ND	50	ND	50	ND	50	<b>250</b>
Octacosane (Silica Gel Surr)	M EPA 8015	%		107		111		113		109		107		110		112

MRL = Method Reporting Limit

ND = Not Detected



Report Number : 89994

Date : 12/31/14

# Analysis Summary

Attention : Dennis Dettloff  
Antea Group  
11050 White Rock Rd. Suite 110  
Rancho Cordova, CA 95670

Project Name :2705191

Project Number :

Sample Name		MW-9_20141231		
Sample Date		12/22/14		
Analyte	Method	Units	MRL	Results
Benzene	EPA 8260B	ug/L	0.50	ND
Ethylbenzene	EPA 8260B	ug/L	0.50	ND
Toluene	EPA 8260B	ug/L	0.50	ND
Total Xylenes	EPA 8260B	ug/L	0.50	ND
Ethanol	EPA 8260B	ug/L	5.0	ND
Methyl-t-butyl ether (MTBE)	EPA 8260B	ug/L	0.50	5.2
Tert-Butanol	EPA 8260B	ug/L	5.0	ND
TPH as Gasoline	EPA 8260B	ug/L	50	ND
1,2-Dichloroethane-d4 (Surr)	EPA 8260B	%		105
Toluene - d8 (Surr)	EPA 8260B	%		99.5
TPH as Diesel (Silica Gel)	M EPA 8015	ug/L	50	ND
Octacosane (Silica Gel Surr)	M EPA 8015	%		110

MRL = Method Reporting Limit

ND = Not Detected



Report Number : 89994

Date : 12/31/14

Project Name : **2705191**

Project Number :

Sample : **MW-11\_20141231**

Matrix : Water

Lab Number : 89994-01

Sample Date :12/22/14

Parameter	Measured Value	Method Reporting Limit	Units	Analysis Method	Date/Time Analyzed
Benzene	< 0.50	0.50	ug/L	EPA 8260B	12/27/14 04:33
Toluene	< 0.50	0.50	ug/L	EPA 8260B	12/27/14 04:33
Ethylbenzene	< 0.50	0.50	ug/L	EPA 8260B	12/27/14 04:33
Total Xylenes	< 0.50	0.50	ug/L	EPA 8260B	12/27/14 04:33
<b>Methyl-t-butyl ether (MTBE)</b>	<b>37</b>	0.50	ug/L	EPA 8260B	12/27/14 04:33
Tert-Butanol	< 5.0	5.0	ug/L	EPA 8260B	12/27/14 04:33
Ethanol	< 5.0	5.0	ug/L	EPA 8260B	12/27/14 04:33
TPH as Gasoline	< 50	50	ug/L	EPA 8260B	12/27/14 04:33
1,2-Dichloroethane-d4 (Surr)	99.3		% Recovery	EPA 8260B	12/27/14 04:33
Toluene - d8 (Surr)	98.1		% Recovery	EPA 8260B	12/27/14 04:33
TPH as Diesel (Silica Gel)	< 50	50	ug/L	M EPA 8015	12/30/14 00:38
Octacosane (Silica Gel Surr)	107		% Recovery	M EPA 8015	12/30/14 00:38



Report Number : 89994

Date : 12/31/14

Project Name : **2705191**

Project Number :

Sample : **MW-13\_20141231**

Matrix : Water

Lab Number : 89994-02

Sample Date :12/22/14

Parameter	Measured Value	Method Reporting Limit	Units	Analysis Method	Date/Time Analyzed
Benzene	< 0.50	0.50	ug/L	EPA 8260B	12/26/14 17:38
Toluene	< 0.50	0.50	ug/L	EPA 8260B	12/26/14 17:38
Ethylbenzene	< 0.50	0.50	ug/L	EPA 8260B	12/26/14 17:38
Total Xylenes	< 0.50	0.50	ug/L	EPA 8260B	12/26/14 17:38
<b>Methyl-t-butyl ether (MTBE)</b>	<b>28</b>	0.50	ug/L	EPA 8260B	12/26/14 17:38
<b>Tert-Butanol</b>	<b>39</b>	5.0	ug/L	EPA 8260B	12/26/14 17:38
Ethanol	< 5.0	5.0	ug/L	EPA 8260B	12/26/14 17:38
TPH as Gasoline	< 50	50	ug/L	EPA 8260B	12/26/14 17:38
1,2-Dichloroethane-d4 (Surr)	102		% Recovery	EPA 8260B	12/26/14 17:38
Toluene - d8 (Surr)	100		% Recovery	EPA 8260B	12/26/14 17:38
TPH as Diesel (Silica Gel)	< 50	50	ug/L	M EPA 8015	12/30/14 03:33
Octacosane (Silica Gel Surr)	111		% Recovery	M EPA 8015	12/30/14 03:33





Report Number : 89994

Date : 12/31/14

Project Name : **2705191**

Project Number :

Sample : **MW-14\_20141231**

Matrix : Water

Lab Number : 89994-03

Sample Date :12/22/14

Parameter	Measured Value	Method Reporting Limit	Units	Analysis Method	Date/Time Analyzed
<b>Benzene</b>	<b>220</b>	9.0	ug/L	EPA 8260B	12/27/14 02:57
<b>Toluene</b>	<b>3.8</b>	0.90	ug/L	EPA 8260B	12/30/14 01:21
<b>Ethylbenzene</b>	<b>260</b>	9.0	ug/L	EPA 8260B	12/27/14 02:57
<b>Total Xylenes</b>	<b>540</b>	9.0	ug/L	EPA 8260B	12/27/14 02:57
Methyl-t-butyl ether (MTBE)	< 0.90	0.90	ug/L	EPA 8260B	12/30/14 01:21
<b>Tert-Butanol</b>	<b>12</b>	5.0	ug/L	EPA 8260B	12/30/14 01:21
Ethanol	< 9.0	9.0	ug/L	EPA 8260B	12/30/14 01:21
<b>TPH as Gasoline</b>	<b>3200</b>	900	ug/L	EPA 8260B	12/27/14 02:57
1,2-Dichloroethane-d4 (Surr)	102		% Recovery	EPA 8260B	12/27/14 02:57
Toluene - d8 (Surr)	99.5		% Recovery	EPA 8260B	12/27/14 02:57
TPH as Diesel (Silica Gel)	< 50	50	ug/L	M EPA 8015	12/30/14 08:08
Octacosane (Silica Gel Surr)	113		% Recovery	M EPA 8015	12/30/14 08:08



Report Number : 89994

Date : 12/31/14

Project Name : **2705191**

Project Number :

Sample : **MW-15\_20141231**

Matrix : Water

Lab Number : 89994-04

Sample Date :12/22/14

Parameter	Measured Value	Method Reporting Limit	Units	Analysis Method	Date/Time Analyzed
<b>Benzene</b>	<b>0.50</b>	0.50	ug/L	EPA 8260B	12/27/14 01:45
Toluene	< 0.50	0.50	ug/L	EPA 8260B	12/27/14 01:45
Ethylbenzene	< 0.50	0.50	ug/L	EPA 8260B	12/27/14 01:45
Total Xylenes	< 0.50	0.50	ug/L	EPA 8260B	12/27/14 01:45
<b>Methyl-t-butyl ether (MTBE)</b>	<b>65</b>	0.50	ug/L	EPA 8260B	12/27/14 01:45
<b>Tert-Butanol</b>	<b>36</b>	5.0	ug/L	EPA 8260B	12/27/14 01:45
Ethanol	< 5.0	5.0	ug/L	EPA 8260B	12/27/14 01:45
TPH as Gasoline	< 50	50	ug/L	EPA 8260B	12/27/14 01:45
1,2-Dichloroethane-d4 (Surr)	105		% Recovery	EPA 8260B	12/27/14 01:45
Toluene - d8 (Surr)	100		% Recovery	EPA 8260B	12/27/14 01:45
TPH as Diesel (Silica Gel)	< 50	50	ug/L	M EPA 8015	12/30/14 03:04
Octacosane (Silica Gel Surr)	109		% Recovery	M EPA 8015	12/30/14 03:04



Report Number : 89994

Date : 12/31/14

Project Name : **2705191**

Project Number :

Sample : **MW-16\_20141231**

Matrix : Water

Lab Number : 89994-05

Sample Date :12/22/14

Parameter	Measured Value	Method Reporting Limit	Units	Analysis Method	Date/Time Analyzed
<b>Benzene</b>	<b>0.52</b>	0.50	ug/L	EPA 8260B	12/26/14 23:51
Toluene	< 0.50	0.50	ug/L	EPA 8260B	12/26/14 23:51
Ethylbenzene	< 0.50	0.50	ug/L	EPA 8260B	12/26/14 23:51
Total Xylenes	< 0.50	0.50	ug/L	EPA 8260B	12/26/14 23:51
<b>Methyl-t-butyl ether (MTBE)</b>	<b>23</b>	0.50	ug/L	EPA 8260B	12/26/14 23:51
<b>Tert-Butanol</b>	<b>140</b>	5.0	ug/L	EPA 8260B	12/26/14 23:51
Ethanol	< 5.0	5.0	ug/L	EPA 8260B	12/26/14 23:51
TPH as Gasoline	< 50	50	ug/L	EPA 8260B	12/26/14 23:51
1,2-Dichloroethane-d4 (Surr)	107		% Recovery	EPA 8260B	12/26/14 23:51
Toluene - d8 (Surr)	101		% Recovery	EPA 8260B	12/26/14 23:51
TPH as Diesel (Silica Gel)	< 50	50	ug/L	M EPA 8015	12/30/14 02:34
Octacosane (Silica Gel Surr)	107		% Recovery	M EPA 8015	12/30/14 02:34



Report Number : 89994

Date : 12/31/14

Project Name : **2705191**

Project Number :

Sample : **MW-3\_20141231**

Matrix : Water

Lab Number : 89994-06

Sample Date :12/22/14

Parameter	Measured Value	Method Reporting Limit	Units	Analysis Method	Date/Time Analyzed
Benzene	< 0.50	0.50	ug/L	EPA 8260B	12/27/14 00:28
Toluene	< 0.50	0.50	ug/L	EPA 8260B	12/27/14 00:28
Ethylbenzene	< 0.50	0.50	ug/L	EPA 8260B	12/27/14 00:28
Total Xylenes	< 0.50	0.50	ug/L	EPA 8260B	12/27/14 00:28
<b>Methyl-t-butyl ether (MTBE)</b>	<b>15</b>	0.50	ug/L	EPA 8260B	12/27/14 00:28
<b>Tert-Butanol</b>	<b>35</b>	5.0	ug/L	EPA 8260B	12/27/14 00:28
Ethanol	< 5.0	5.0	ug/L	EPA 8260B	12/27/14 00:28
<b>TPH as Gasoline</b>	<b>250</b>	50	ug/L	EPA 8260B	12/27/14 00:28
1,2-Dichloroethane-d4 (Surr)	106		% Recovery	EPA 8260B	12/27/14 00:28
Toluene - d8 (Surr)	102		% Recovery	EPA 8260B	12/27/14 00:28
TPH as Diesel (Silica Gel)	< 50	50	ug/L	M EPA 8015	12/30/14 02:05
Octacosane (Silica Gel Surr)	110		% Recovery	M EPA 8015	12/30/14 02:05



Report Number : 89994

Date : 12/31/14

Project Name : **2705191**

Project Number :

Sample : **MW-6\_20141231**

Matrix : Water

Lab Number : 89994-07

Sample Date :12/22/14

Parameter	Measured Value	Method Reporting Limit	Units	Analysis Method	Date/Time Analyzed
<b>Benzene</b>	<b>2000</b>	5.0	ug/L	EPA 8260B	12/27/14 02:23
<b>Toluene</b>	<b>120</b>	5.0	ug/L	EPA 8260B	12/27/14 02:23
<b>Ethylbenzene</b>	<b>1600</b>	5.0	ug/L	EPA 8260B	12/27/14 02:23
<b>Total Xylenes</b>	<b>7700</b>	15	ug/L	EPA 8260B	12/30/14 00:11
<b>Methyl-t-butyl ether (MTBE)</b>	<b>9.7</b>	5.0	ug/L	EPA 8260B	12/27/14 02:23
<b>Tert-Butanol</b>	<b>150</b>	25	ug/L	EPA 8260B	12/27/14 02:23
Ethanol	< 150	150	ug/L	EPA 8260B	12/30/14 00:11
<b>TPH as Gasoline</b>	<b>49000</b>	1500	ug/L	EPA 8260B	12/30/14 00:11
1,2-Dichloroethane-d4 (Surr)	102		% Recovery	EPA 8260B	12/27/14 02:23
Toluene - d8 (Surr)	99.0		% Recovery	EPA 8260B	12/27/14 02:23
<b>TPH as Diesel (Silica Gel)</b>	<b>250</b>	50	ug/L	M EPA 8015	12/30/14 01:36
(Note: Lower boiling hydrocarbons present, atypical for Diesel Fuel.)					
Octacosane (Silica Gel Surr)	112		% Recovery	M EPA 8015	12/30/14 01:36



Report Number : 89994

Date : 12/31/14

Project Name : **2705191**

Project Number :

Sample : **MW-9\_20141231**

Matrix : Water

Lab Number : 89994-08

Sample Date :12/22/14

Parameter	Measured Value	Method Reporting Limit	Units	Analysis Method	Date/Time Analyzed
Benzene	< 0.50	0.50	ug/L	EPA 8260B	12/27/14 01:06
Toluene	< 0.50	0.50	ug/L	EPA 8260B	12/27/14 01:06
Ethylbenzene	< 0.50	0.50	ug/L	EPA 8260B	12/27/14 01:06
Total Xylenes	< 0.50	0.50	ug/L	EPA 8260B	12/27/14 01:06
<b>Methyl-t-butyl ether (MTBE)</b>	<b>5.2</b>	0.50	ug/L	EPA 8260B	12/27/14 01:06
Tert-Butanol	< 5.0	5.0	ug/L	EPA 8260B	12/27/14 01:06
Ethanol	< 5.0	5.0	ug/L	EPA 8260B	12/27/14 01:06
TPH as Gasoline	< 50	50	ug/L	EPA 8260B	12/27/14 01:06
1,2-Dichloroethane-d4 (Surr)	105		% Recovery	EPA 8260B	12/27/14 01:06
Toluene - d8 (Surr)	99.5		% Recovery	EPA 8260B	12/27/14 01:06
TPH as Diesel (Silica Gel)	< 50	50	ug/L	M EPA 8015	12/30/14 01:07
Octacosane (Silica Gel Surr)	110		% Recovery	M EPA 8015	12/30/14 01:07

**QC Report : Method Blank Data**Project Name : **2705191**

Project Number :

Parameter	Measured Value	Method Reporting Limit	Units	Analysis Method	Date Analyzed
TPH as Diesel (Silica Gel)	< 50	50	ug/L	M EPA 8015	12/29/14
Octacosane (Silica Gel Surr)	103		%	M EPA 8015	12/29/14
Benzene	< 0.50	0.50	ug/L	EPA 8260B	12/26/14
Ethylbenzene	< 0.50	0.50	ug/L	EPA 8260B	12/26/14
Toluene	< 0.50	0.50	ug/L	EPA 8260B	12/26/14
Total Xylenes	< 0.50	0.50	ug/L	EPA 8260B	12/26/14
Ethanol	< 5.0	5.0	ug/L	EPA 8260B	12/26/14
Methyl-t-butyl ether (MTBE)	< 0.50	0.50	ug/L	EPA 8260B	12/26/14
Tert-Butanol	< 5.0	5.0	ug/L	EPA 8260B	12/26/14
TPH as Gasoline	< 50	50	ug/L	EPA 8260B	12/26/14
1,2-Dichloroethane-d4 (Surr)	102		%	EPA 8260B	12/26/14
Toluene - d8 (Surr)	99.2		%	EPA 8260B	12/26/14
Toluene	< 0.50	0.50	ug/L	EPA 8260B	12/29/14
Total Xylenes	< 0.50	0.50	ug/L	EPA 8260B	12/29/14
Ethanol	< 5.0	5.0	ug/L	EPA 8260B	12/29/14
Methyl-t-butyl ether (MTBE)	< 0.50	0.50	ug/L	EPA 8260B	12/29/14
Tert-Butanol	< 5.0	5.0	ug/L	EPA 8260B	12/29/14
TPH as Gasoline	< 50	50	ug/L	EPA 8260B	12/29/14

Parameter	Measured Value	Method Reporting Limit	Units	Analysis Method	Date Analyzed
Benzene	< 0.50	0.50	ug/L	EPA 8260B	12/26/14
Ethylbenzene	< 0.50	0.50	ug/L	EPA 8260B	12/26/14
Toluene	< 0.50	0.50	ug/L	EPA 8260B	12/26/14
Total Xylenes	< 0.50	0.50	ug/L	EPA 8260B	12/26/14
Ethanol	< 5.0	5.0	ug/L	EPA 8260B	12/26/14
Methyl-t-butyl ether (MTBE)	< 0.50	0.50	ug/L	EPA 8260B	12/26/14
Tert-Butanol	< 5.0	5.0	ug/L	EPA 8260B	12/26/14
TPH as Gasoline	< 50	50	ug/L	EPA 8260B	12/26/14
1,2-Dichloroethane-d4 (Surr)	101		%	EPA 8260B	12/26/14
Toluene - d8 (Surr)	94.6		%	EPA 8260B	12/26/14

## QC Report : Matrix Spike/ Matrix Spike Duplicate

Project Name : **2705191**

Project Number :

Parameter	Spiked Sample	Sample Value	Spike Level	Spike Dup. Level	Spiked Sample Value	Duplicate Spiked Sample Value	Units	Analysis Method	Date Analyzed	Spiked Sample Percent Recov.	Duplicate Spiked Sample Percent Recov.	Relative Percent Diff.	Spiked Sample Percent Recov. Limit	Relative Percent Diff. Limit
TPH-D (Si Gel)	89997-02	<50	1000	1000	822	829	ug/L	M EPA 8015	12/29/14	82.2	82.9	0.947	70-130	25
Benzene	89958-01	<0.50	40.0	39.6	39.4	39.7	ug/L	EPA 8260B	12/26/14	98.5	100	1.65	70.0-130	25
<b>Ethanol</b>	89958-01	<5.0	100	99.0	312	532	ug/L	EPA 8260B	12/26/14	<b>312</b>	<b>537</b>	<b>53.0</b>	55.0-150	25
Ethylbenzene	89958-01	<0.50	40.0	39.6	41.1	41.9	ug/L	EPA 8260B	12/26/14	103	106	2.92	70.0-130	25
<b>Methyl-t-butyl ether</b>	89958-01	<0.50	40.0	39.6	33.4	25.8	ug/L	EPA 8260B	12/26/14	83.4	<b>65.2</b>	24.6	70.0-130	25
P + M Xylene	89958-01	<0.50	40.0	39.6	39.7	40.8	ug/L	EPA 8260B	12/26/14	99.3	103	3.81	70.0-130	25
Tert-Butanol	89958-01	5.3	200	198	198	204	ug/L	EPA 8260B	12/26/14	96.4	101	4.33	70.0-130	25
Toluene	89958-01	0.61	40.0	39.6	40.8	39.6	ug/L	EPA 8260B	12/26/14	100	98.5	2.11	70.0-130	25
Ethanol	89986-10	<5.0	100	100	110	108	ug/L	EPA 8260B	12/29/14	110	108	2.25	55.0-150	25



## QC Report : Matrix Spike/ Matrix Spike Duplicate

Project Name : **2705191**

Project Number :

Parameter	Spiked Sample	Sample Value	Spike Level	Spike Dup. Level	Spiked Sample Value	Duplicate Spiked Sample Value	Units	Analysis Method	Date Analyzed	Spiked Sample Percent Recov.	Duplicate Spiked Sample Percent Recov.	Relative Percent Diff.	Spiked Sample Percent Recov. Limit	Relative Percent Diff. Limit
Methyl-t-butyl ether	89986-10	<0.50	40.0	40.0	39.2	39.4	ug/L	EPA 8260B	12/29/14	98.1	98.4	0.328	70.0-130	25
<b>P + M Xylene</b>	89986-10	<0.50	40.0	40.0	12.1	12.1	ug/L	EPA 8260B	12/29/14	<b>30.2</b>	<b>30.2</b>	0.293	70.0-130	25
Tert-Butanol	89986-10	<5.0	200	200	198	194	ug/L	EPA 8260B	12/29/14	98.9	97.0	2.01	70.0-130	25
<b>Toluene</b>	89986-10	<0.50	40.0	40.0	27.8	27.5	ug/L	EPA 8260B	12/29/14	<b>69.6</b>	<b>68.9</b>	1.12	70.0-130	25
Benzene	89963-16	<0.50	40.0	40.0	41.1	40.8	ug/L	EPA 8260B	12/26/14	103	102	0.656	70.0-130	25
Ethanol	89963-16	<5.0	100	100	110	109	ug/L	EPA 8260B	12/26/14	110	109	0.819	55.0-150	25
Ethylbenzene	89963-16	<0.50	40.0	40.0	44.0	43.3	ug/L	EPA 8260B	12/26/14	110	108	1.41	70.0-130	25
Methyl-t-butyl ether	89963-16	<0.50	40.0	40.0	43.6	45.1	ug/L	EPA 8260B	12/26/14	109	113	3.42	70.0-130	25
<b>P + M Xylene</b>	89963-16	<0.50	40.0	40.0	43.4	43.0	ug/L	EPA 8260B	12/26/14	109	108	0.980	70.0-130	25

**QC Report : Matrix Spike/ Matrix Spike Duplicate**

Project Name : **2705191**

Project Number :

Parameter	Spiked Sample	Sample Value	Spike Level	Spike Dup. Level	Spiked Sample Value	Duplicate Spiked Sample Value	Units	Analysis Method	Date Analyzed	Spiked Sample Percent Recov.	Duplicate Spiked Sample Percent Recov.	Relative Percent Diff.	Spiked Sample Percent Recov. Limit	Relative Percent Diff. Limit
Tert-Butanol	89963-16	<5.0	200	200	216	216	ug/L	EPA 8260B	12/26/14	108	108	0.385	70.0-130	25
Toluene	89963-16	<0.50	40.0	40.0	40.6	40.4	ug/L	EPA 8260B	12/26/14	101	101	0.559	70.0-130	25

## QC Report : Laboratory Control Sample (LCS)

Project Name : **2705191**

Project Number :

Parameter	Spike Level	Units	Analysis Method	Date Analyzed	LCS Percent Recov.	LCS Percent Recov. Limit
TPH-D (Si Gel)	1000	ug/L	M EPA 8015	12/29/14	84.5	70-130
Benzene	40.0	ug/L	EPA 8260B	12/26/14	98.8	70.0-130
<b>Ethanol</b>	100	ug/L	EPA 8260B	12/26/14	<b>296</b>	55.0-150
Ethylbenzene	40.0	ug/L	EPA 8260B	12/26/14	102	70.0-130
Methyl-t-butyl ether	40.0	ug/L	EPA 8260B	12/26/14	91.0	70.0-130
P + M Xylene	40.0	ug/L	EPA 8260B	12/26/14	99.7	70.0-130
Tert-Butanol	200	ug/L	EPA 8260B	12/26/14	98.1	70.0-130
Toluene	40.0	ug/L	EPA 8260B	12/26/14	103	70.0-130
Ethanol	99.3	ug/L	EPA 8260B	12/29/14	102	55.0-150
Methyl-t-butyl ether	39.7	ug/L	EPA 8260B	12/29/14	93.9	70.0-130
P + M Xylene	39.7	ug/L	EPA 8260B	12/29/14	96.0	70.0-130
TPH as Gasoline	500	ug/L	EPA 8260B	12/29/14	85.1	70.0-130
Tert-Butanol	198	ug/L	EPA 8260B	12/29/14	93.3	70.0-130
Toluene	39.7	ug/L	EPA 8260B	12/29/14	96.0	70.0-130
Benzene	39.9	ug/L	EPA 8260B	12/26/14	99.3	70.0-130
Ethanol	99.8	ug/L	EPA 8260B	12/26/14	108	55.0-150
Ethylbenzene	39.9	ug/L	EPA 8260B	12/26/14	107	70.0-130
Methyl-t-butyl ether	39.9	ug/L	EPA 8260B	12/26/14	105	70.0-130
P + M Xylene	39.9	ug/L	EPA 8260B	12/26/14	106	70.0-130

**QC Report : Laboratory Control Sample (LCS)**

Project Name : **2705191**

Project Number :

Parameter	Spike Level	Units	Analysis Method	Date Analyzed	LCS Percent Recov.	LCS Percent Recov. Limit
TPH as Gasoline	499	ug/L	EPA 8260B	12/26/14	104	70.0-130
Tert-Butanol	200	ug/L	EPA 8260B	12/26/14	105	70.0-130
Toluene	39.9	ug/L	EPA 8260B	12/26/14	99.4	70.0-130

89994



**COP ELT CHAIN-OF-CUSTODY / Analytical Request Document**  
 The Chain-of-Custody is a LEGAL DOCUMENT. All relevant fields must be completed and accurate.

Page: 1 of 1  
 Cooler # \_\_\_ of \_\_\_

4Q14 GW Event

<b>Required Lab Information:</b>		<b>Required Project Information:</b>				<b>Required Invoice Information:</b>						
Lab Name:	Pace	Site ID #:	2705191	Task:	WG_Q_201412	Send Invoice to:	Sandy Hayes					
Address:	2795 Second Street #300	AnteaGrp proj#:				Address:	11050 White Rock Road, Suite 110		Turn around time (days)	10		
	Davis, CA 95618	Site Address:	449 Hegenberger	City/State:	Rancho Cordova CA 95670	Phone #:	916-638-2085		QC level Required:	Standard	Special	Mark one
Lab PM:	Scott Forbes	City:	Oakland	State:	CA 94621	Reimbursement project?		Non-reimbursement project?	Y	Mark one	NJ Reduced Deliverable Package?	
Phone/Fax:	P: 530-297-4800 F: 530-297-4808	AG PM Name:	Dennis Dettloff			Send EDD to:	agdataview.us@anteagroup.com			MA MCP Cert?	CT RCP Cert?	Mark One
Lab PM email:	SForbes@kiffanalytical.com	Phone/Fax:	P: 916-503-1261 F: 916-638-8385			CC Hardcopy report to						
Applicable Lab Quote #:		AG PM Email:	dennis.dettloff@anteagroup.com			CC Hardcopy report to						

ITEM #	SAMPLE ID One Character per box. (A-Z, 0-9 / .-) Samples IDs MUST BE UNIQUE	Valid Matrix Codes MATRIX DRINKING WATER WP WATER W GROUND WATER WG SURFACE WATER WS WASTE WATER WW WATER QC WQ FREE PRODUCT LF SLUDGE SL SOIL SO RAINWATER WH OIL OL OTHER WH OT WIPE AW ANIMAL TISSUE TA AMBIENT AIR AA AS SVE AIR AS SOIL GAS GS	MATRIX CODE	SAMPLE TYPE G-GRAB C-COMP	SAMPLE DATE	SAMPLE TIME	# OF CONTAINERS	FIELD FILTERED? (Y/N)	Preservatives										Requested Analyses 801/TPH/Diesel/W/Sludge 8280 GC/MS GRD 8280B GC/MS/BA 8280E Ethanol	Comments/Lab Sample I.D.		
									Unpreserved	H2SO4	HNO3	HCl	NaOH	Na2SO3	Methanol	Other						
1	MW-11_20141231		WG	G	12/22/14	12:40	6	N					X					X	X	X	X	01
2	MW-13_20141231		WG	G		13:05	6	N					X					X	X	X	X	02
3	MW-14_20141231		WG	G		12:55	6	N					X					X	X	X	X	03
4	MW-15_20141231		WG	G		13:35	6	N					X					X	X	X	X	04
5	MW-16_20141231		WG	G		14:05	6	N					X					X	X	X	X	05
6	MW-3_20141231		WG	G		12:10	6	N					X					X	X	X	X	06
7	MW-6_20141231		WG	G		12:30	6	N					X					X	X	X	X	07
8	MW-9_20141231		WG	G		11:50	6	N					X					X	X	X	X	08
9																						
10																						
11																						
12																						

Additional Comments/Special Instructions:  <b>Global ID: T0600101476</b>	RELINQUISHED BY / AFFILIATION	DATE	TIME	ACCEPTED BY / AFFILIATION	DATE	TIME	Sample Receipt Conditions			
	<i>Jonathan Fillingame</i>	12/22	17:05	<i>[Signature]</i>			Y/N	Y/N	Y/N	
							Y/N	Y/N	Y/N	
	SHIPPING METHOD (mark as appropriate)	SAMPLER NAME AND SIGNATURE					Temp in °C	Samples on Ice?	Sample intact?	Trip Blank?
	UPS COURIER FEDEX	PRINT Name of SAMPLER:	<i>Jonathan Fillingame</i>							
	US MAIL	SIGNATURE of SAMPLER:	<i>Jonathan Fillingame</i>	DATE signed	12/22	Time:	14:15			



# SAMPLE RECEIPT CHECKLIST

SRG #: 89994

Sample Receipt	Initials/Date: TJB 122214	Storage Time: 1711	Sample Login	Initials/Date: EJ 122314
TAT: <input checked="" type="checkbox"/> Standard	<input type="checkbox"/> Rush	<input type="checkbox"/> Split	<input type="checkbox"/> None	Method of Receipt: <input type="checkbox"/> Courier
<input checked="" type="checkbox"/> Over-the-counter	<input type="checkbox"/> Shipped			
Temp °C 1.2	<input type="checkbox"/> N/A	Therm ID IR-3	Time 1707	Coolant present <input checked="" type="checkbox"/> Yes
<input type="checkbox"/> No		<input type="checkbox"/> Water		<input type="checkbox"/> Temp Excursion
For Shipments Only:	Cooler Receipt Initials/Date/Time:		Custody Seals <input type="checkbox"/> N/A	
				<input type="checkbox"/> Intact <input type="checkbox"/> Broken

Chain-of-Custody:	Yes	No
Is COC present?	X	
Is COC signed by relinquisher?	X	
Is COC dated by relinquisher?	X	
Is the sampler's name on the COC?	X	
Are there analyses or hold for all samples?	X	

Documented on	COC	Labels	Discrepancies:
Sample ID	/	/	
Project ID	/	/	
Sample Date	/	/	
Sample Time	/	/	
Does COC match project history?			<input type="checkbox"/> N/A <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No

Samples:	N/A	Yes	No
Are sample custody seals intact?	X		
Are sample containers intact?		X	
Is preservation documented?		X	
In-house Analysis:	N/A	Yes	No
Are preservatives acceptable?		X	
Are samples within holding time?		X	
Are sample container types correct?		X	
Is there adequate sample volume?		X	

**Comments:**

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**Receipt Details:**

Matrix	Container Type	# of Containers
WA	VOA	48

**Requires client:** Clarification  Approval  Notification

Proceed With Analysis:  YES  NO      Init/Date:

Client Communication:

Page 20 of 20

Is the Data Valid?  
(circle)  
Yes / No

Preservation Temperature  
(if Known): 1.2 °C

## Antea Group Lab Validation Sheet

Project/Client: COP/ELT  
 Project #: 142705191  
 Date of Validation: 1/23/15 Date of Analysis: 12/30/14 Sample Date: 12/22/14  
 Completed By: Jon F. Signature: *Jonathan F. Duizant*  
 Analytical Lab Used and Report # (if any): Pace Analytical 89994

1. Was the analysis the one requested?
2. Do the sample number(s) on the chain-of-custody (COC) match the one(s) that appear on the laboratory data sheet?
3. Were samples prepared (extracted, filtered, etc.) within EPA holding times?
4. Once prepared/extracted, were the samples analyzed within the EPA holding times?
5. Were Laboratory blanks performed, if so, were they below non-detect?
6. Are the units correct? (i.e., soil samples in mg/kg or ug/g, water samples mg/L, ug/L, and air samples in volume mg/m<sup>3</sup>, etc.)
7. Were appropriate Matrix Spike (MS) and Matrix Spike Duplicate (MSD) samples included in the laboratory batch sample?
8. In lieu of MS/ MSD, were surrogate spike (SS) or surrogate spike duplicate (SSD) samples included in the laboratory batch samples?
9. Were MS/ MSD (or SS/SSD) within the acceptable range of % recovery (i.e., approx 80-120% depending on analyte)?
10. Were MS/MSD (or SS/SSD) values used to calculate Relative Percent Difference (RPD)?
11. Were Relative Percent Difference values within the acceptable range (i.e. ± 25%)?

Circle or Highlight Yes/No below
<u>Yes</u> / No
<u>Yes</u> / No
<u>Yes</u> / No
Yes / <u>No</u>
<u>Yes</u> / No
<u>Yes</u> / No
<u>Yes</u> / No
Yes / No <u>N/a</u>
Yes / <u>No</u>
<u>Yes</u> / No
<u>Yes</u> / No

**If any answer is no, explain why and what corrective action was taken:**

4. Sample MW-14 was analyzed outside of hold time for analytes Benzene, Toluene, Methyl-t-butyl ether, Tert-Butanol, and Ethanol by Method EPA 8260B. The hydrochloric acid (HCl) preservation was insufficient to maintain a pH of 2.0 or less required to extend sample hold time from 7 to 14 days.

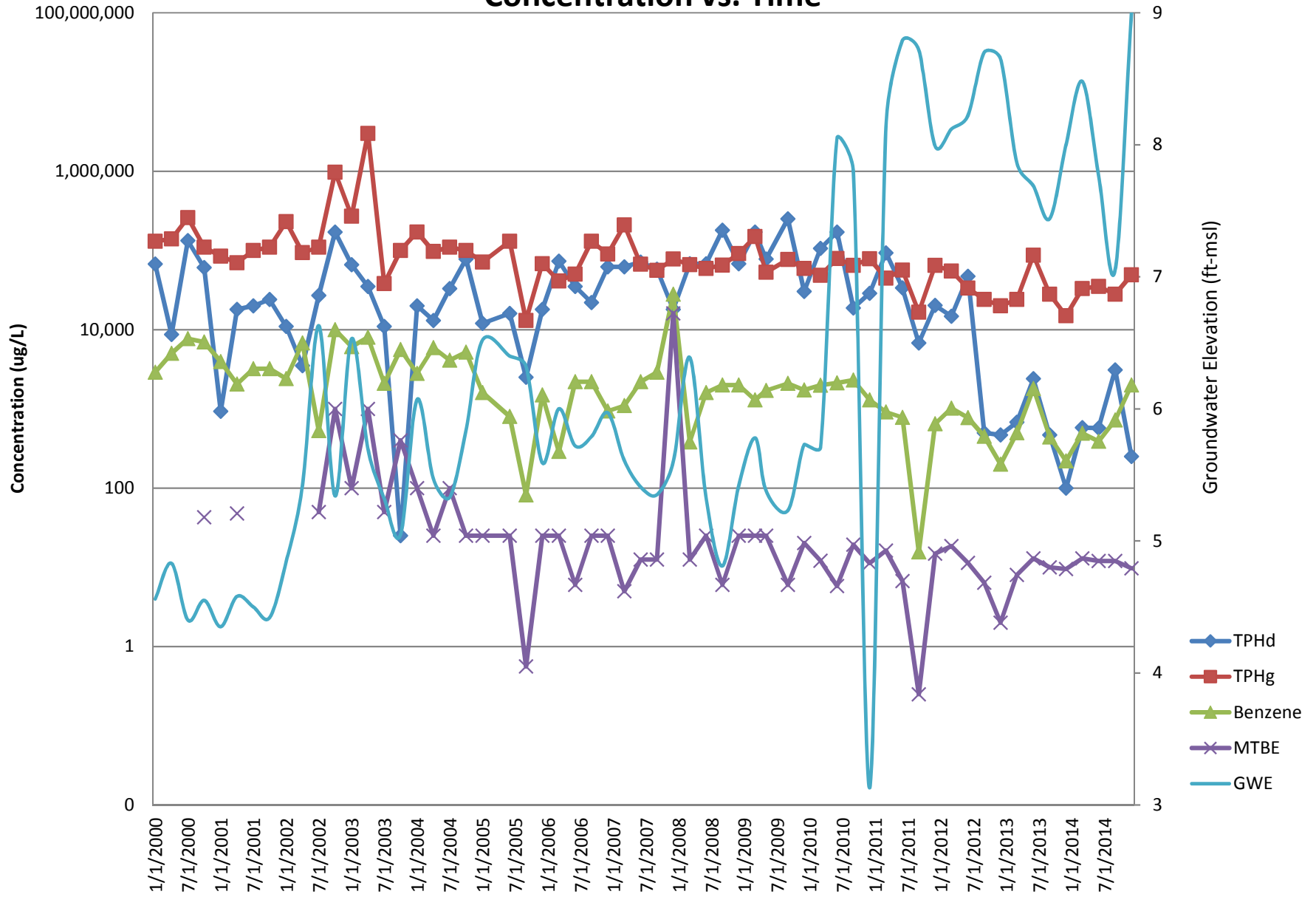
9. Recoveries for some Matrix Spike/Matrix Spike Duplicate analytes (ethanol, MTBE, P + M Xylene, and Toluene) were outside of control limits. This may indicate a bias for the samples that were spiked. Since the LCS recoveries were within control limits, no data are flagged.

## ***Appendix E***

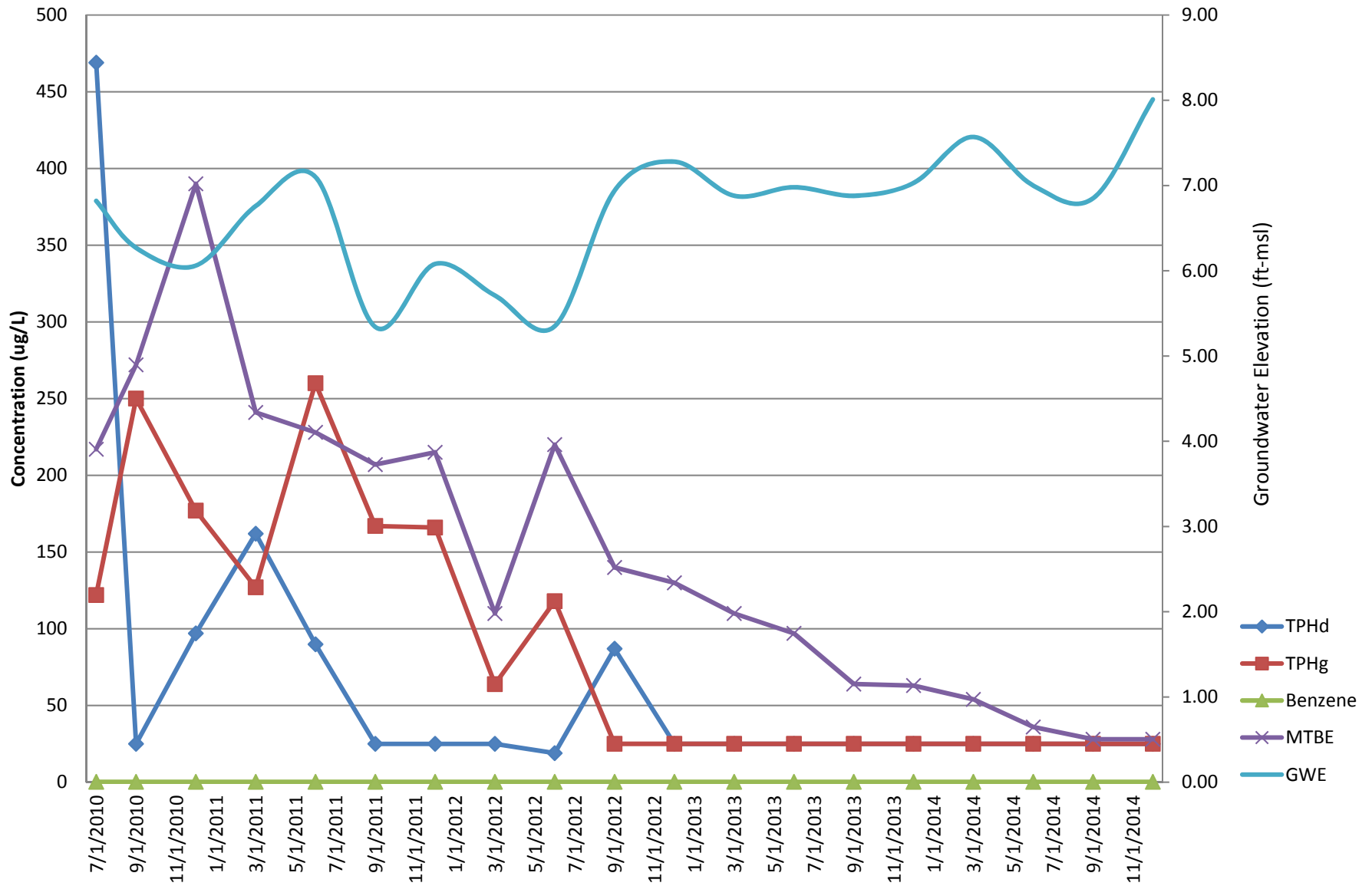
Concentration vs. Time Graphs



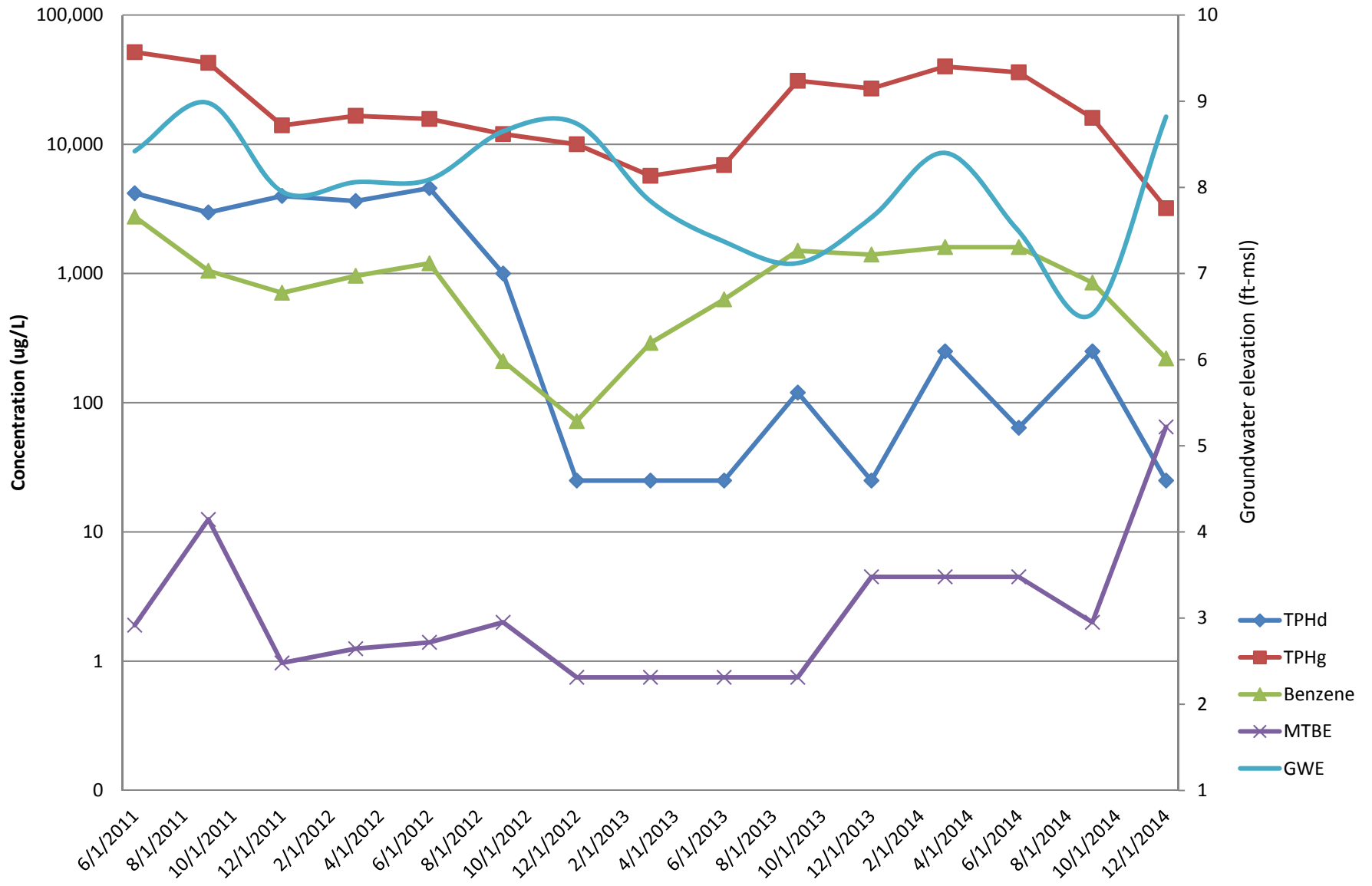
# MW-6 Concentration vs. Time



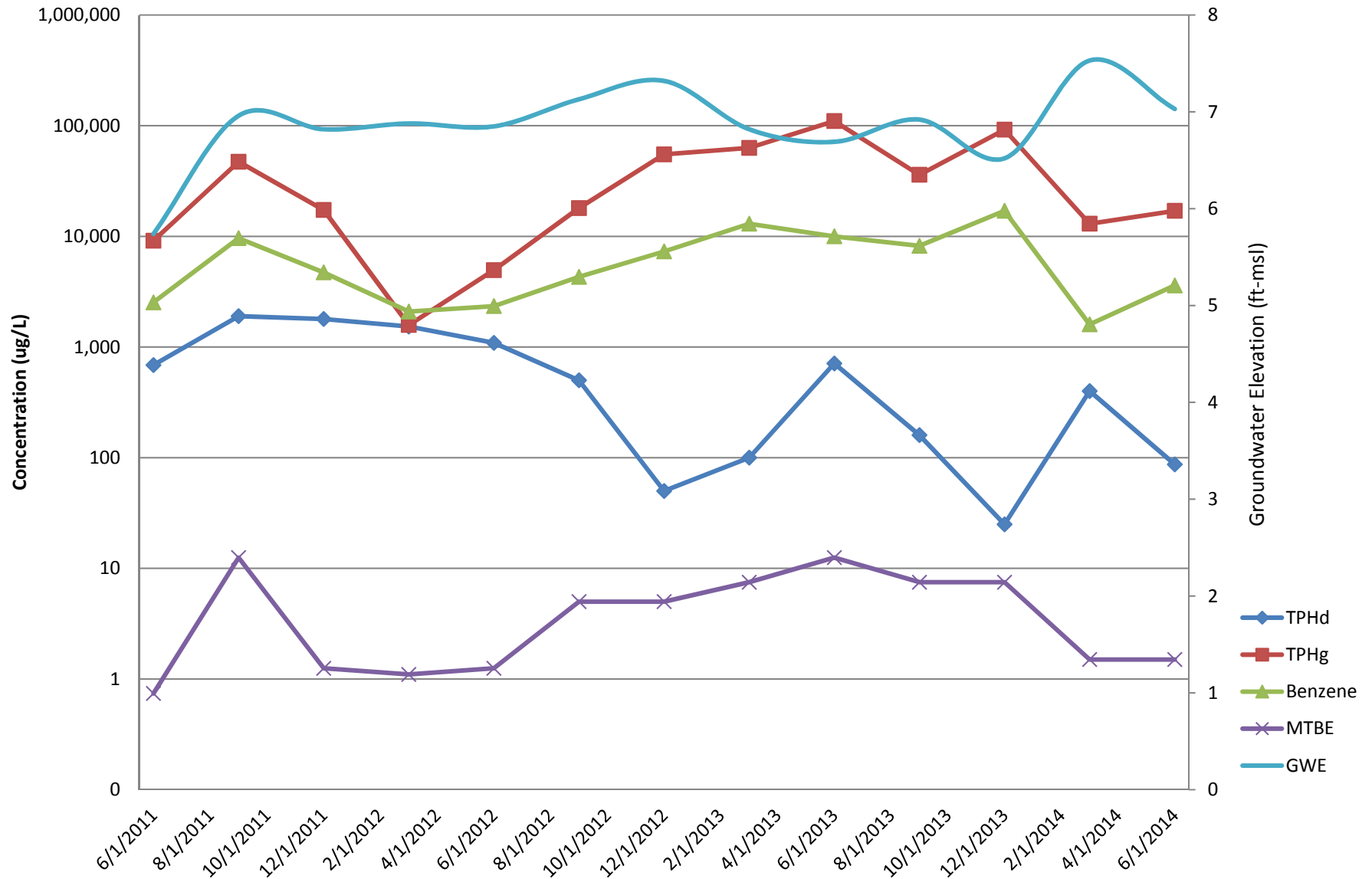
# MW-13 Concentration vs. Time



# MW-14 Concentration vs. Time



# MW-17 Concentration Vs. Time



## ***Appendix F***

Mann-Kendall Statistical Analysis

**Appendix F**  
**Summary of Mann-Kendall Trend Analysis**  
**76 Station No. 5191/5043**  
**449 Hegenberger Road, Oakland, California**

Well ID	Compound	Concentration Trend	Confidence Level (CL)	Comments
MW-6	TPHg	Increasing	85.40%	No Trend/Stable
	Benzene	Increasing	70.00%	No Trend/Stable
	TPHd	Decreasing	90.70%	Probably
	MTBE	Increasing	87.40%	No Trend/Stable
MW-13	TPHg	Decreasing	88.40%	No Trend/Stable
	MTBE	Decreasing	100.00%	Certain
MW-14	TPHg	Increasing	98.60%	Certain
	Benzene	Increasing	99.83%	Certain
	TPHd	Decreasing	72.90%	No Trend/Stable
MW-17	TPHg	Increasing	89.20%	No Trend/Stable
	Benzene	Increasing	81.00%	No Trend/Stable
	TPHd	Decreasing	99.98%	Certain

**Notes:**

TPHg = Total petroleum hydrocarbons as gasoline

TPHd = Total petroleum hydrocarbons as diesel

MTBE = methyl tertiary-butyl ether

CL > 95% = Certain, 90%<CL<95% = Probably, CL<90% = No Trend/Stable

**Appendix F**  
**Detailed Mann Kendall Analysis - Well MW-6**  
76 Station No. 5191/5043  
449 Hegenberger Road, Oakland, California

**Mann-Kendall Statistic "S" Analysis for TPHg Concentration Trend for well MW-6**

MW-6	Event 1	Event 2	Event 3	Event 4	Event 5	Event 6	Event 7	Event 8	Event 9	Event 10	Event 11	-ve	+ve	
Date	6/12/2012	9/6/2012	12/13/2012	3/14/2013	6/11/2013	9/10/2013	12/12/2013	3/4/2014	6/12/2014	9/5/2014	12/22/2014			
TPHg (µg/L)	<b>33,400</b>	<b>24,000</b>	<b>20,000</b>	<b>24,000</b>	<b>87,000</b>	<b>28,000</b>	<b>15,000</b>	<b>33,000</b>	<b>35,000</b>	<b>28,000</b>	<b>49,000</b>			
Compare Event 1		'-1'	'-1'	'-1'	'+1'	'-1'	'-1'	'-1'	'+1'	'-1'	'+1'	7	3	
Compare Event 2			'-1'	0	'+1'	'+1'	'-1'	'+1'	'+1'	'+1'	'+1'	2	6	
Compare Event 3				'+1'	'+1'	'+1'	'-1'	'+1'	'+1'	'+1'	'+1'	1	7	
Compare Event 4					'+1'	'+1'	'-1'	'+1'	'+1'	'+1'	'+1'	1	6	
Compare Event 5						'-1'	'-1'	'-1'	'-1'	'-1'	'-1'	6	0	
Compare Event 6							'-1'	'+1'	'+1'	0	'+1'	1	3	
Compare Event 7								'+1'	'+1'	'+1'	'+1'	0	4	
Compare Event 8									'+1'	'-1'	'+1'	1	2	
Compare Event 9										'-1'	'+1'	1	1	
Compare Event 10											'+1'	0	1	
												SUM	20	33

**Mann-Kendall S Value**

= **13** (Negative Value = Declining Trend, Positive Value = Increasing Trend, Zero = Stable)

**Confidence Level of**

**the Trend = 85.40%** ( From Gilbert R.O., 1987, Appendix A, Table A18)

TPHg = Total petroleum hydrocarbons as gasoline

Source: Gilbert R.O., 1987; Statistical Methods For Environmental Pollution Monitoring; Van Nostrand Reinhold, New York.

**Appendix F**  
**Detailed Mann Kendall Analysis - Well MW-6**  
76 Station No. 5191/5043  
449 Hegenberger Road, Oakland, California

**Mann-Kendall Statistic "S" Analysis for Benzene Concentration Trend for well MW-6**

MW-6	Event 1	Event 2	Event 3	Event 4	Event 5	Event 6	Event 7	Event 8	Event 9	Event 10	Event 11	-ve	+ve	
Date	6/12/2012	9/6/2012	12/13/2012	3/14/2013	6/11/2013	9/10/2013	12/12/2013	3/4/2014	6/12/2014	9/5/2014	12/22/2014			
Benzene (µg/L)	<b>773</b>	<b>450</b>	<b>200</b>	<b>500</b>	<b>1,800</b>	<b>440</b>	<b>220</b>	<b>490</b>	<b>390</b>	<b>720</b>	<b>2,000</b>			
Compare Event 1		'-1'	'-1'	'-1'	'+1'	'-1'	'-1'	'-1'	'-1'	'-1'	'+1'	8	2	
Compare Event 2			'-1'	'+1'	'+1'	'-1'	'-1'	'+1'	'-1'	'+1'	'+1'	4	5	
Compare Event 3				'+1'	'+1'	'+1'	'+1'	'+1'	'+1'	'+1'	'+1'	0	8	
Compare Event 4					'+1'	'-1'	'-1'	'-1'	'-1'	'+1'	'+1'	4	3	
Compare Event 5						'-1'	'-1'	'-1'	'-1'	'-1'	'+1'	5	1	
Compare Event 6							'-1'	'+1'	'-1'	'+1'	'+1'	2	3	
Compare Event 7								'+1'	'+1'	'+1'	'+1'	0	4	
Compare Event 8									'-1'	'+1'	'+1'	1	2	
Compare Event 9										'+1'	'+1'	0	2	
Compare Event 10											'+1'	0	1	
												SUM	24	31

**Mann-Kendall S Value**  
= **7** (Negative Value = Declining Trend, Positive Value = Increasing Trend, Zero = Stable)  
**Confidence Level of the Trend = 70.00%**

Source: Gilbert R.O., 1987; Statistical Methods For Environmental Pollution Monitoring; Van Nostrand Reinhold, New York.



**Appendix F**  
**Detailed Mann Kendall Analysis - Well MW-6**  
76 Station No. 5191/5043  
449 Hegenberger Road, Oakland, California

**Mann-Kendall Statistic "S" Analysis for TPHd Concentration Trend for well MW-6**

MW-6	Event 1	Event 2	Event 3	Event 4	Event 5	Event 6	Event 7	Event 8	Event 9	Event 10	Event 11	-ve	+ve	
Date	6/12/2012	9/6/2012*	12/13/2012	3/14/2013	6/11/2013	9/10/2013	12/12/2013	3/4/2014	6/12/2014	9/5/2014	12/22/2014			
TPHd (µg/L)	<b>47,100</b>	1,000	<b>470</b>	<b>680</b>	<b>2,400</b>	<b>470</b>	<b>100</b>	<b>580</b>	<b>570</b>	<b>3,100</b>	<b>250</b>			
Compare Event 1		'-1'	'-1'	'-1'	'-1'	'-1'	'-1'	'-1'	'-1'	'-1'	'-1'	10	0	
Compare Event 2			'-1'	'-1'	'+1'	'-1'	'-1'	'-1'	'-1'	'+1'	'-1'	7	2	
Compare Event 3				'+1'	'+1'	0	'-1'	'+1'	'+1'	'+1'	'-1'	2	5	
Compare Event 4					'+1'	'-1'	'-1'	'-1'	'-1'	'+1'	'-1'	5	2	
Compare Event 5						'-1'	'-1'	'-1'	'-1'	'+1'	'-1'	5	1	
Compare Event 6							'-1'	'+1'	'+1'	'+1'	'-1'	2	3	
Compare Event 7								'+1'	'+1'	'+1'	'+1'	0	4	
Compare Event 8									'-1'	'+1'	'-1'	2	1	
Compare Event 9										'+1'	'-1'	1	1	
Compare Event 10											'-1'	1	0	
												SUM	35	19

**Mann-Kendall S Value**  
= -16 (Negative Value = Declining Trend, Positive Value = Increasing Trend, Zero = Stable)

**Confidence Level of the Trend = 90.70%**

\* = Laboratory reporting limit used. Actual values expected to be lower than the given number.

TPHd = Total petroleum hydrocarbons as diesel

Source: Gilbert R.O., 1987; Statistical Methods For Environmental Pollution Monitoring; Van Nostrand Reinhold, New York.

**Appendix F**  
**Detailed Mann Kendall Analysis - Well MW-6**  
76 Station No. 5191/5043  
449 Hegenberger Road, Oakland, California

**Mann-Kendall Statistic "S" Analysis for MTBE Concentration Trend for well MW-6**

MW-6	Event 1	Event 2	Event 3	Event 4	Event 5	Event 6	Event 7	Event 8	Event 9	Event 10	Event 11	-ve	+ve	
Date	6/12/2012	9/6/2012	12/13/2012*	3/14/2013	6/11/2013	9/10/2013	12/12/2013	3/4/2014	6/12/2014	9/5/2014	12/22/2014			
MTBE (µg/L)	<b>11</b>	<b>6</b>	<b>4</b>	<b>8.0</b>	<b>13</b>	<b>10</b>	<b>10</b>	<b>13</b>	<b>12</b>	<b>12</b>	<b>10</b>			
Compare Event 1		'-1'	'-1'	'-1'	'+1'	'-1'	'-1'	'+1'	'+1'	'+1'	'-1'	6	4	
Compare Event 2			'-1'	'+1'	'+1'	'+1'	'+1'	'+1'	'+1'	'+1'	'+1'	1	8	
Compare Event 3				'+1'	'+1'	'+1'	'+1'	'+1'	'+1'	'+1'	'+1'	0	8	
Compare Event 4					'+1'	'+1'	'+1'	'+1'	'+1'	'+1'	'+1'	0	7	
Compare Event 5						'-1'	'-1'	0	'-1'	'-1'	'-1'	5	0	
Compare Event 6							0	'+1'	'+1'	'+1'	'-1'	1	3	
Compare Event 7								'+1'	'+1'	'+1'	'-1'	1	3	
Compare Event 8									'-1'	'-1'	'-1'	3	0	
Compare Event 9										0	'-1'	1	0	
Compare Event 10											'-1'	1	0	
												SUM	19	33

**Mann-Kendall S Value**

= **14** (Negative Value = Declining Trend, Positive Value = Increasing Trend, Zero = Stable)

**Confidence Level of**

**the Trend = 87.40%**

\* = Laboratory reporting limit used. Actual values expected to be lower than the given number.

MTBE - Methyl tertiary-butyl ether

Source: Gilbert R.O., 1987; Statistical Methods For Environmental Pollution Monitoring; Van Nostrand Reinhold, New York.

**Appendix F**  
**Detailed Mann Kendall Analysis - Well MW-13**  
76 Station No. 5191/5043  
449 Hegenberger Road, Oakland, California

**Mann-Kendall Statistic "S" Analysis for TPHg Concentration Trend for well MW-13**

MW-13	Event 1	Event 2	Event 3	Event 4	Event 5	Event 6	Event 7	Event 8	Event 9	Event 10	Event 11	-ve	+ve	
Date	6/12/2012	9/6/2012*	12/13/2012*	3/14/2013*	6/11/2013*	9/10/2013*	12/12/2013*	3/4/2014*	6/12/2014*	9/5/2014*	12/22/2014*			
TPHg (µg/L)	<b>118.0</b>	50	50	50	50	50	50	50	50	50	50			
Compare Event 1		'-1'	'-1'	'-1'	'-1'	'-1'	'-1'	'-1'	'-1'	'-1'	'-1'	10	0	
Compare Event 2			0	0	0	0	0	0	0	0	0	0	0	
Compare Event 3				0	0	0	0	0	0	0	0	0	0	
Compare Event 4					0	0	0	0	0	0	0	0	0	
Compare Event 5						0	0	0	0	0	0	0	0	
Compare Event 6							0	0	0	0	0	0	0	
Compare Event 7								0	0	0	0	0	0	
Compare Event 8									0	0	0	0	0	
Compare Event 9										0	0	0	0	
Compare Event 10											0	0	0	
												SUM	10	0

**Mann-Kendall S Value**

= **-10** (Negative Value = Declining Trend, Positive Value = Increasing Trend, Zero = Stable)

**Confidence Level of**

**the Trend = 88.40%** ( From Gilbert R.O., 1987, Appendix A, Table A18)

\* = Laboratory reporting limit used. Actual values expected to be lower than the given number.

TPHg = Total petroleum hydrocarbons as gasoline

Source: Gilbert R.O., 1987; Statistical Methods For Environmental Pollution Monitoring; Van Nostrand Reinhold, New York.

**Appendix F**  
**Detailed Mann Kendall Analysis - Well MW-13**  
76 Station No. 5191/5043  
449 Hegenberger Road, Oakland, California

**Mann-Kendall Statistic "S" Analysis for MTBE Concentration Trend for well MW-13**

MW-13	Event 1	Event 2	Event 3	Event 4	Event 5	Event 6	Event 7	Event 8	Event 9	Event 10	Event 11	-ve	+ve	
Date		6/12/2012	9/6/2012	12/13/2012	3/14/2013	6/11/2013	9/10/2013	12/12/2013	3/4/2014	6/12/2014	9/5/2014			
MTBE (µg/L)	<b>220</b>	<b>140</b>	<b>130</b>	<b>110</b>	<b>97</b>	<b>64</b>	<b>63</b>	<b>54</b>	<b>36</b>	<b>28</b>	<b>28</b>			
Compare Event 1		'-1'	'-1'	'-1'	'-1'	'-1'	'-1'	'-1'	'-1'	'-1'	'-1'	10	0	
Compare Event 2			'-1'	'-1'	'-1'	'-1'	'-1'	'-1'	'-1'	'-1'	'-1'	9	0	
Compare Event 3				'-1'	'-1'	'-1'	'-1'	'-1'	'-1'	'-1'	'-1'	8	0	
Compare Event 4					'-1'	'-1'	'-1'	'-1'	'-1'	'-1'	'-1'	7	0	
Compare Event 5						'-1'	'-1'	'-1'	'-1'	'-1'	'-1'	6	0	
Compare Event 6							'-1'	'-1'	'-1'	'-1'	'-1'	5	0	
Compare Event 7								'-1'	'-1'	'-1'	'-1'	4	0	
Compare Event 8									'-1'	'-1'	'-1'	3	0	
Compare Event 9										'-1'	'-1'	2	0	
Compare Event 10											0	0	0	
												SUM	54	0

**Mann-Kendall S Value**  
= -54 (Negative Value = Declining Trend, Positive Value = Increasing Trend, Zero = Stable)  
**Confidence Level of the Trend = 100.00%**

MTBE - Methyl tertiary-butyl ether

Source: Gilbert R.O., 1987; Statistical Methods For Environmental Pollution Monitoring; Van Nostrand Reinhold, New York.

**Appendix F**  
**Detailed Mann Kendall Analysis - Well MW-14**  
76 Station No. 5191/5043  
449 Hegenberger Road, Oakland, California

**Mann-Kendall Statistic "S" Analysis for TPHg Concentration Trend for well MW-14**

MW-14	Event 1	Event 2	Event 3	Event 4	Event 5	Event 6	Event 7	Event 8	Event 9	Event 10	Event 11	-ve	+ve	
Date	6/12/2012	9/6/2012	12/13/2012	3/14/2013	6/11/2013	9/10/2013	12/12/2013	3/4/2014	6/12/2014	9/5/2014	12/22/2014*			
TPHg (µg/L)	<b>15,700</b>	<b>12,000</b>	<b>10,000</b>	<b>5,700</b>	<b>6,900</b>	<b>31,000</b>	<b>27,000</b>	<b>40,000</b>	<b>36,000</b>	<b>16,000</b>	<50			
Compare Event 1		'-1'	'-1'	'-1'	'-1'	'+1'	'+1'	'+1'	'+1'	'+1'	'+1'	4	6	
Compare Event 2			'-1'	'-1'	'-1'	'+1'	'+1'	'+1'	'+1'	'+1'	'+1'	3	6	
Compare Event 3				'-1'	'-1'	'+1'	'+1'	'+1'	'+1'	'+1'	'+1'	2	6	
Compare Event 4					'+1'	'+1'	'+1'	'+1'	'+1'	'+1'	'+1'	0	7	
Compare Event 5						'+1'	'+1'	'+1'	'+1'	'+1'	'+1'	0	6	
Compare Event 6							'-1'	'+1'	'+1'	'-1'	'+1'	2	3	
Compare Event 7								'+1'	'+1'	'-1'	'+1'	1	3	
Compare Event 8									'-1'	'-1'	'+1'	2	1	
Compare Event 9										'-1'	'+1'	1	1	
Compare Event 10											'+1'	0	1	
												SUM	15	40

**Mann-Kendall S Value**

= **25** (Negative Value = Declining Trend, Positive Value = Increasing Trend, Zero = Stable)

**Confidence Level of**

**the Trend = 98.60%** ( From Gilbert R.O., 1987, Appendix A, Table A18)

\* = Laboratory reporting limit used. Actual values expected to be lower than the given number.

TPHg = Total petroleum hydrocarbons as gasoline

Source: Gilbert R.O., 1987; Statistical Methods For Environmental Pollution Monitoring; Van Nostrand Reinhold, New York.

**Appendix F**  
**Detailed Mann Kendall Analysis - Well MW-14**  
76 Station No. 5191/5043  
449 Hegenberger Road, Oakland, California

**Mann-Kendall Statistic "S" Analysis for Benzene Concentration Trend for well MW-14**

MW-14	Event 1	Event 2	Event 3	Event 4	Event 5	Event 6	Event 7	Event 8	Event 9	Event 10	Event 11	-ve	+ve	
Date	6/12/2012	9/6/2012	12/13/2012	3/14/2013	6/11/2013	9/10/2013	12/12/2013	3/4/2014	6/12/2014	9/5/2014				
Benzene (µg/L)	<b>1,200</b>	<b>210</b>	<b>72</b>	<b>290</b>	<b>630</b>	<b>1,500</b>	<b>1,400</b>	<b>1,600</b>	<b>1,600</b>	<b>850</b>	<b>3,200</b>			
Compare Event 1		'-1'	'-1'	'-1'	'-1'	'+1'	'+1'	'+1'	'+1'	'-1'	'+1'	5	5	
Compare Event 2			'-1'	'+1'	'+1'	'+1'	'+1'	'+1'	'+1'	'+1'	'+1'	1	8	
Compare Event 3				'+1'	'+1'	'+1'	'+1'	'+1'	'+1'	'+1'	'+1'	0	8	
Compare Event 4					'+1'	'+1'	'+1'	'+1'	'+1'	'+1'	'+1'	0	7	
Compare Event 5						'+1'	'+1'	'+1'	'+1'	'+1'	'+1'	0	6	
Compare Event 6							'-1'	'+1'	'+1'	'-1'	'+1'	2	3	
Compare Event 7								'+1'	'+1'	'-1'	'+1'	1	3	
Compare Event 8									0	'-1'	'+1'	1	1	
Compare Event 9										'-1'	'+1'	1	1	
Compare Event 10											'+1'	0	1	
												SUM	11	43

**Mann-Kendall S Value**  
= **32** (Negative Value = Declining Trend, Positive Value = Increasing Trend, Zero = Stable)  
**Confidence Level of the Trend = 99.83%**

Source: Gilbert R.O., 1987; Statistical Methods For Environmental Pollution Monitoring; Van Nostrand Reinhold, New York.

**Appendix F**  
**Detailed Mann Kendall Analysis - Well MW-14**  
76 Station No. 5191/5043  
449 Hegenberger Road, Oakland, California

**Mann-Kendall Statistic "S" Analysis for TPHd Concentration Trend for well MW-14**

MW-14	Event 1	Event 2	Event 3	Event 4	Event 5	Event 6	Event 7	Event 8	Event 9	Event 10	Event 11	-ve	+ve	
Date	6/12/2012	9/6/2012*	12/13/2012*	3/14/2013*	6/11/2013*	9/10/2013	12/12/2013*	3/4/2014	6/12/2014	9/5/2014	12/22/2014*			
TPHd (µg/L)	<b>4,580</b>	2,000	50	50	50	<b>120</b>	50	<b>250</b>	<b>64</b>	<b>250</b>	50			
Compare Event 1		'-1'	'-1'	'-1'	'-1'	'-1'	'-1'	'-1'	'-1'	'-1'	'-1'	10	0	
Compare Event 2			'-1'	'-1'	'-1'	'-1'	'-1'	'-1'	'-1'	'-1'	'-1'	9	0	
Compare Event 3				0	0	'+1'	0	'+1'	'+1'	'+1'	0	0	4	
Compare Event 4					0	'+1'	0	'+1'	'+1'	'+1'	0	0	4	
Compare Event 5						'+1'	0	'+1'	'+1'	'+1'	0	0	4	
Compare Event 6							'-1'	'+1'	'-1'	'+1'	'-1'	3	2	
Compare Event 7								'+1'	'+1'	'+1'	0	0	3	
Compare Event 8									'-1'	0	'-1'	2	0	
Compare Event 9										'+1'	'-1'	1	1	
Compare Event 10											'-1'	1	0	
												SUM	26	18

**Mann-Kendall S Value**

= **-8** (Negative Value = Declining Trend, Positive Value = Increasing Trend, Zero = Stable)

**Confidence Level of**

**the Trend = 72.90%**

\* = Laboratory reporting limit used. Actual values expected to be lower than the given number.

TPHd = Total petroleum hydrocarbons as diesel

Source: Gilbert R.O., 1987; Statistical Methods For Environmental Pollution Monitoring; Van Nostrand Reinhold, New York.

**Appendix F**  
**Detailed Mann Kendall Analysis - Well MW-17**  
76 Station No. 5191/5043  
449 Hegenberger Road, Oakland, California

**Mann-Kendall Statistic "S" Analysis for TPHg Concentration Trend for well MW-17**

MW-17	Event 1	Event 2	Event 3	Event 4	Event 5	Event 6	Event 7	Event 8	Event 9	Event 10	Event 11	-ve	+ve	
Date	12/5/2011	3/6/2012	6/12/2012	9/6/2012	12/13/2012	3/14/2013	6/11/2013	9/10/2013	12/12/2013	3/4/2014	6/12/2014			
TPHg (µg/L)	<b>17,300</b>	<b>1,580</b>	<b>4,950</b>	<b>18,000</b>	<b>55,000</b>	<b>63,000</b>	<b>110,000</b>	<b>36,000</b>	<b>92,000</b>	<b>13,000</b>	<b>17,000</b>			
Compare Event 1		'-1'	'-1'	'+1'	'+1'	'+1'	'+1'	'+1'	'+1'	'-1'	'-1'	4	6	
Compare Event 2			'+1'	'+1'	'+1'	'+1'	'+1'	'+1'	'+1'	'+1'	'+1'	0	9	
Compare Event 3				'+1'	'+1'	'+1'	'+1'	'+1'	'+1'	'+1'	'+1'	0	8	
Compare Event 4					'+1'	'+1'	'+1'	'+1'	'+1'	'-1'	'-1'	2	5	
Compare Event 5						'+1'	'+1'	'-1'	'+1'	'-1'	'-1'	3	3	
Compare Event 6							'+1'	'-1'	'+1'	'-1'	'-1'	3	2	
Compare Event 7								'-1'	'-1'	'-1'	'-1'	4	0	
Compare Event 8									'+1'	'-1'	'-1'	2	1	
Compare Event 9										'-1'	'-1'	2	0	
Compare Event 10											'+1'	0	1	
												SUM	20	35

**Mann-Kendall S Value**

= **15** (Negative Value = Declining Trend, Positive Value = Increasing Trend, Zero = Stable)

**Confidence Level of the Trend =**

**89.20%** ( From Gilbert R.O., 1987, Appendix A, Table A18)

TPHg = Total petroleum hydrocarbons as gasoline

Source: Gilbert R.O., 1987; Statistical Methods For Environmental Pollution Monitoring; Van Nostrand Reinhold, New York.



**Appendix F**  
**Detailed Mann Kendall Analysis - Well MW-17**  
76 Station No. 5191/5043  
449 Hegenberger Road, Oakland, California

**Mann-Kendall Statistic "S" Analysis for Benzene Concentration Trend for well MW-17**

MW-17	Event 1	Event 2	Event 3	Event 4	Event 5	Event 6	Event 7	Event 8	Event 9	Event 10	Event 11	-ve	+ve	
Date	12/5/2011	3/6/2012	6/12/2012	9/6/2012	12/13/2012	3/14/2013	6/11/2013	9/10/2013	12/12/2013	3/4/2014	6/12/2014			
Benzene (µg/L)	<b>4,720</b>	<b>2,090</b>	<b>2,340</b>	<b>4,300</b>	<b>7,300</b>	<b>13,000</b>	<b>10,000</b>	<b>8,200</b>	<b>17,000</b>	<b>1,600</b>	<b>3,600</b>			
Compare Event 1		'-1'	'-1'	'-1'	'+1'	'+1'	'+1'	'+1'	'+1'	'-1'	'-1'	5	5	
Compare Event 2			'+1'	'+1'	'+1'	'+1'	'+1'	'+1'	'+1'	'-1'	'+1'	1	8	
Compare Event 3				'+1'	'+1'	'+1'	'+1'	'+1'	'+1'	'-1'	'+1'	1	7	
Compare Event 4					'+1'	'+1'	'+1'	'+1'	'+1'	'-1'	'-1'	2	5	
Compare Event 5						'+1'	'+1'	'+1'	'+1'	'-1'	'-1'	2	4	
Compare Event 6							'-1'	'-1'	'+1'	'-1'	'-1'	4	1	
Compare Event 7								'-1'	'+1'	'-1'	'-1'	3	1	
Compare Event 8									'+1'	'-1'	'-1'	2	1	
Compare Event 9										'-1'	'-1'	2	0	
Compare Event 10											'+1'	0	1	
												SUM	22	33

**Mann-Kendall S Value**  
= **11** (Negative Value = Declining Trend, Positive Value = Increasing Trend, Zero = Stable)  
**Confidence Level of the Trend = 81.00%**

Source: Gilbert R.O., 1987; Statistical Methods For Environmental Pollution Monitoring; Van Nostrand Reinhold, New York.

**Appendix F**  
**Detailed Mann Kendall Analysis - Well MW-17**  
76 Station No. 5191/5043  
449 Hegenberger Road, Oakland, California

**Mann-Kendall Statistic "S" Analysis for TPHd Concentration Trend for well MW-17**

MW-17	Event 1	Event 2	Event 3	Event 4	Event 5	Event 6	Event 7	Event 8	Event 9	Event 10	Event 11	-ve	+ve	
Date	12/5/2011	3/6/2012	6/12/2012	9/6/2012*	12/13/2012*	3/14/2013*	6/11/2013	9/10/2013	12/12/2013*	3/4/2014	6/12/2014			
TPHd (µg/L)	<b>1,790</b>	<b>1,530</b>	<b>1,090</b>	1,000	100	200	<b>710</b>	<b>160</b>	50	<b>400</b>	<b>87</b>			
Compare Event 1		'-1'	'-1'	'-1'	'-1'	'-1'	'-1'	'-1'	'-1'	'-1'	'-1'	10	0	
Compare Event 2			'-1'	'-1'	'-1'	'-1'	'-1'	'-1'	'-1'	'-1'	'-1'	9	0	
Compare Event 3				'-1'	'-1'	'-1'	'-1'	'-1'	'-1'	'-1'	'-1'	8	0	
Compare Event 4					'-1'	'-1'	'-1'	'-1'	'-1'	'-1'	'-1'	7	0	
Compare Event 5						'+1'	'+1'	'+1'	'-1'	'+1'	'-1'	2	4	
Compare Event 6							'+1'	'-1'	'-1'	'+1'	'-1'	3	2	
Compare Event 7								'-1'	'-1'	'-1'	'-1'	4	0	
Compare Event 8									'-1'	'+1'	'-1'	2	1	
Compare Event 9										'+1'	'+1'	0	2	
Compare Event 10											'-1'	1	0	
												SUM	46	9

**Mann-Kendall S Value**  
= **-37** (Negative Value = Declining Trend, Positive Value = Increasing Trend, Zero = Stable)

**Confidence Level of the Trend = 99.98%**

\* = Laboratory reporting limit used. Actual values expected to be lower than the given number.

TPHd = Total petroleum hydrocarbons as diesel

Source: Gilbert R.O., 1987; Statistical Methods For Environmental Pollution Monitoring; Van Nostrand Reinhold, New York.

**Table A18** Probabilities for the Mann-Kendall Nonparametric Test for Trend

S	Values of n				S	Values of n		
	4	5	8	9		6	7	10
0	0.625	0.592	0.548	0.540	1	0.500	0.500	0.500
2	0.375	0.408	0.452	0.460	3	0.360	0.386	0.431
4	0.167	0.242	0.360	0.381	5	0.235	0.281	0.364
6	0.042	0.117	0.274	0.306	7	0.136	0.191	0.300
8		0.042	0.199	0.238	9	0.068	0.119	0.242
10		0.0 <sup>2</sup> 83	0.138	0.179	11	0.028	0.068	0.190
12			0.089	0.130	13	0.0 <sup>2</sup> 83	0.035	0.146
14			0.054	0.090	15	0.0 <sup>2</sup> 14	0.015	0.108
16			0.031	0.060	17		0.0 <sup>2</sup> 54	0.078
18			0.016	0.038	19		0.0 <sup>2</sup> 14	0.054
20			0.0 <sup>2</sup> 71	0.022	21		0.0 <sup>3</sup> 20	0.036
22			0.0 <sup>2</sup> 28	0.012	23			0.023
24			0.0 <sup>3</sup> 87	0.0 <sup>2</sup> 63	25			0.014
26			0.0 <sup>3</sup> 19	0.0 <sup>2</sup> 29	27			0.0 <sup>2</sup> 83
28			0.0 <sup>4</sup> 25	0.0 <sup>2</sup> 12	29			0.0 <sup>2</sup> 46
30				0.0 <sup>3</sup> 43	31			0.0 <sup>2</sup> 23
32				0.0 <sup>3</sup> 12	33			0.0 <sup>2</sup> 11
34				0.0 <sup>4</sup> 25	35			0.0 <sup>3</sup> 47
36				0.0 <sup>5</sup> 28	37			0.0 <sup>3</sup> 18
					39			0.0 <sup>4</sup> 58
					41			0.0 <sup>4</sup> 15
					43			0.0 <sup>5</sup> 28
					45			0.0 <sup>6</sup> 28

Source: From Kendall, 1975. Used by permission.

Repeated zeros are indicated by powers; for example, 0.0<sup>3</sup>47 stands for 0.00047.

Each table entry is the probability that the Mann-Kendall statistic  $S$  equals or exceeds the specified value of  $S$  when no trend is present.

This table is used in Section 16.4.1.

$N$  = # of events.

1. Take latest  $N$  events
2. Find  $S$  Value from M-K table
3. Use table above to find probability factor (interpolate where necessary)
4.  $1 - \text{probability factor} \times 100\% = \text{confidence level}$

Reference:

"Statistical Methods for Environmental Pollution Monitoring" by Richard Gilbert