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Alameda County  
Environmental Health

July 22, 2009

Mr. Jerry Wickham, Hazardous Materials Specialist  
Alameda County Environmental Health Services  
Environmental Protection Division  
1131 Harbor Bay Parkway, Suite 250  
Alameda, CA 94502-6577

**RE:** *Semi-Annual Groundwater Monitoring Report – Summer 2009*  
Eagle Gas Station  
4301 San Leandro Street  
Oakland, California 94601

LOP StID# 2118  
ACEH Case No. RO0000096  
USTCF Claim No. 014551

Dear Mr. Wickham:

Enclosed please find a copy of the *Semi-Annual Groundwater Monitoring Report – Summer 2009* for the above referenced site. If you have any questions regarding this monitoring report, please do not hesitate to contact the undersigned at (925) 938-1600 ext 108.

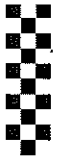
Sincerely,

**ERS**



Jim Ho, Ph.D., P.E.  
Principal Engineer

Enclosure



Mr. Jerry Wickham  
Hazardous Materials Specialist  
Alameda County Health Care Services Agency  
Environmental Health Services  
Environmental Protection  
1131 Harbor Bay Parkway, Suite 250  
Alameda, CA 94502

RE: Eagle Gas Station  
4301 San Leandro Street  
Oakland, California 94601

LOP StID# 2118  
Fuel Leak Case No. RO0000096  
USTCF Claim No. 014551

Dear Mr. Wickham,

As the legally authorized representative of the above-referenced project location, I have reviewed the *Semi-Annual Groundwater Monitoring Report – Summer 2009* prepared by my consultant of record, Environmental Risk Specialties Corporation. I declare, under penalty of perjury, that the information and/or recommendations contained in this report are true and correct to the best of my knowledge.

Sincerely,

*Muhammad Jamil 7-9-09*

Mr. Muhammad Jamil

## Semi-Annual Groundwater Monitoring Report – Summer 2009

Eagle Gas  
4301 San Leandro Street  
Oakland, California 94601

LOP StID# 2118  
Fuel Leak Case No. RO0000096  
USTCF Claim No. 014551

Prepared for:

Ms. Farah Naz  
Mr. Muhammad Jamil

Prepared by:

Environmental Risk Specialties Corporation  
Walnut Creek, California

July 2009

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Appendix A – February 20, 2009 letter to ACEH

Appendix B – Site Investigation History

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## 1. INTRODUCTION

On behalf of Ms. Farah Naz and Mr. Muhammad Jamil, Environmental Risk Specialties Corporation (ERS) conducted a semi-annual groundwater monitoring (Summer 2009) for the subject site located at 4301 San Leandro Street, Oakland, California, and has prepared this document, the *Semi-Annual Groundwater Monitoring Report – Summer 2009*.

Ms. Naz and Mr. Jamil retained ERS as their new consultant in January 2009. In a letter dated February 20, 2009 (included in Appendix A), ERS recommended to convert the quarterly groundwater monitoring program previously adopted by the former consultant, Clearwater Group (Clearwater), into a semi-annual monitoring program. Alameda County Environmental Health (ACEH) reviewed the modifications proposed in the February 20, 2009 letter. ACEH's concurrence of the modifications is included in the April 24, 2009 letter. As a result, following the modifications presented in the February 20, 2009 letter, ERS performed the first semi-annual groundwater monitoring on July 1, 2009, after the Fourth Quarter 2008 (4Q08) monitoring conducted by Clearwater on December 8 and 9, 2008.

Six on-site monitoring wells, MW-4, MW-7, MW-7D, MW-8, MW-11D, and IS-5 and four off-site monitoring wells, MW-9, MW-9D, MW-10, and MW-10D were sampled. The above ten wells were purged and sampled using the Low-Flow Rate Purging (LRP) and Sampling Method (ASTM, 2002; Puls and Barcelona, 1996). The following analytical methods were used to analyze the contaminants of concern: EPA Method 8015M for the total petroleum hydrocarbons as diesel (TPH-d), EPA Method 8260B for total petroleum hydrocarbons as gasoline (TPH-g), Benzene, Toluene, Ethylbenzene, Xylenes (BTEX), and fuel oxygenates including Methyl Tertiary Butyl Ether (MTBE), Tertiary Butyl Alcohol (TBA), Diisopropyl ether (DIPE), Ether-ter-butyl-ether (ETBE), and Tert-amyl methyl ether (TAME). In addition, all of the 25 existing on-site and off-site wells listed in Tables 2 and 3 were also gauged for groundwater depth and checked for the presence of free product according to the modifications included in the February 20, 2009 letter.

### 1.1. Document Purpose

The purpose of this report is to document the Summer 2009 groundwater monitoring activities and the associated monitoring/sampling data and results.

### 1.2. Document Structure

This report includes the following sections:

Section 1 – Introduction

Section 2 – Background Information

Section 3 – Groundwater Monitoring and Sampling Activities

Section 4 – Groundwater Monitoring and Sampling Results

Section 5 – Findings

Section 6 – Recommendation

Section 7 – Forecast Activities

### **1.3. Summary of Findings and Recommendation**

#### **Findings**

- Shallow zone groundwater under the subject site generally flows outward from the station building.
- The distribution of the groundwater head in the deep zone is relatively flat. Significant downward hydraulic gradient exists between the shallow and deep groundwater zones.
- Sheen was found in wells MW-4, IS-3, IS-5, and EW-2. Strong petroleum hydrocarbon odors were identified in on-site shallow well MW-4, MW-8, IS-5, IS-6, and EW-1.
- Strong horizontal gradients exist between wells MW-4 and MW-2, near the north end of the plume, and away from the former UST excavation area. Thus, off-site migration of the contaminant plume in the shallow zone is significant.
- Although downward hydraulic gradient exists between the shallow and deep groundwater zones, similar to the findings of 2006 and 2007 investigation, the deep zone is not significantly contaminated both on-site and off-site.
- Water quality parameters indicate that the local groundwater is likely anaerobic and reductive.
- Shallow groundwater under the site is heavily impacted.
- Deep groundwater, on-site or off-site, is not significantly impacted.

- The detection of TPH-g concentrations of 440 and 110 µg/L in off-site, deep wells MW-9D and MW-10D likely is caused by off-site source(s).

### **Recommendation**

Although deep groundwater is not significantly impacted, the results of the Summer 2009 monitoring event indicate that on-site groundwater in the shallow zone is highly impacted. In addition, off-site migration of the shallow zone plume is relatively high, based on the groundwater flow distribution delineated in the shallow zone. Thus, an interim remedial action focusing on the rapid removal of a significant mass of contaminants of concern in the shallow zone and testing of the High Vacuum Dual Phase Extraction technology/system should be conducted as soon as possible.



## **2. BACKGROUND INFORMATION**

### **2.1. Site Description**

The site is located in the southern portion of the City of Oakland, Alameda County, California, at the southern corner of the intersection of San Leandro Street and High Street. The site is located approximately 1,100 feet northeast of Interstate Highway 880 and approximately 500 feet southeast of the 42<sup>nd</sup> Avenue overpass (Figure 1). The site is located in a mixed industrial/commercial/residential area and is bounded by commercial property to the southeast and southwest, by High Street to the northwest, and by San Leandro Street to the northeast. The elevated Bay Area Rapid Transit (BART) tracks are located northeast of the site (Figure 2). The site is currently operated as a gas station and convenience store,

### **2.2. Local Lithology and Hydrogeology**

The subsurface is heterogeneous. The site lithology consists primarily of interbedded clayey sediments (lean clays to fat clays, and sandy clays) of low permeability, with thin interbeds of relatively more permeable clayey sands and clayey gravels; this is typical of alluvial deposits. The site is underlain predominantly by clays with some clayey/silty gravel and clayey sand at depths to approximately 2 to 7 feet below ground surface (bgs). A relatively continuous clayey gravel layer, having a thickness of approximately 5 to 15 feet, exists in the shallow zone. Below the relatively continuous and more permeable clayey gravel layer is another clayey layer approximately 20 to 30 feet thick. Below this thick clayey layer is another sandy/silt layer. The thickness of this sandy/silty layer has not been determined.

The shallow zone (Zone A) extends from the ground surface to a depth of approximately 25 to 30 feet bgs. It consists primarily of clays with discontinuous layers of clay gravel. The deep zone (Zone B) extends from approximately 25 to 30 feet bgs to at least 58 feet bgs. The lithology of deep zone is primarily sands (poorly graded sand, well graded sand, and silty sand) with thin interbeds of lean clay. The top of Zone B appears to be a hard clayey layer.

Historically, depths to groundwater in the shallow and deep zones have ranged from approximately 6.0 to 20.3 feet bgs and from 6.1 to 19.2 feet bgs, respectively. However, the mean groundwater depths in the shallow and deep zones are 9.4 and 15.5 feet bgs, respectively. Downward gradient exists between the shallow and deep zones. According to historical observations, local groundwater is normally shallowest during the first or second quarter of the year. Since two leaks were detected in the sewer lateral

near well IS-1 and a groundwater mound was identified in 2006 and 2007, local groundwater flow underneath the site has been influenced by the groundwater mound.

### **2.3. Site Investigation History**

A detailed description of former site investigation is included in Appendix B. Well construction details for all groundwater monitoring wells are presented in Table 1.

### **2.4. Contaminants of Concern**

The 2006 site investigation indicates that the MTBE concentration in the shallow zone is generally greater than 10,000 µg/L. Although the TPH-g concentration in the shallow zone is generally less than the concentrations of MTBE and TBA, a large portion of the shallow zone also had TPH-g concentrations greater than 10,000 µg/L. Overall, the benzene concentration in the shallow zone is greater than 100 µg/L.

The 2007 site investigation indicates that the shallow zone is highly contaminated by MTBE, TBA, and TPH-g on site, as well as off site to the south, southwest, and in the general direction of High Street. The deep zone is relatively less contaminated than the shallow zone, but the deep zone groundwater is contaminated at off-site borings SB-18 (14,000 µg/L MTBE and 33,000 µg/L TBA at 40 feet bgs) and SB-13 (TPH-g 23,000 µg/L at 52 feet bgs).

Based on the 2006 and 2007 site investigation results and the historical quarterly groundwater monitoring data, the contaminants of concern (COCs) of the subject are MTBE, TBA, and TPH-g.

### 3. GROUNDWATER MONITORING AND SAMPLING ACTIVITIES

The Summer 2009 groundwater monitoring event was conducted on July 1, 2009. The monitoring event included gauging of groundwater depths, Low-Flow Rate Purging and Sampling, and laboratory analysis of groundwater samples. Following the recommendations presented in the February 20, 2009 letter (Appendix A), ERS staff gauged the groundwater depth and checked the presence of free product in all 25 existing wells on July 1, 2009. An electronic water level indicator accurate to within 0.01 foot was used to measure the depths to groundwater from the top of each well casing.

On July 1, 2009, six on-site monitoring wells, MW-4, MW-7, MW-7D, MW-8, MW-11D, and IS-5 and four off-site monitoring wells, MW-9, MW-9D, MW-10, and MW-10D were purged and sampled using the Low-Flow Rate Purging (LRP) and Sampling Method (ASTM, 2002; Puls and Barcelona, 1996). The purge rate was calibrated prior to the first purge to establish the flow-rate. The pump was set to a rate of 0.25 liters per minute (L/min). Depth to water (DTW) and water quality parameters were measured in three-minute intervals. The water quality parameters of pH, temperature, dissolved oxygen (DO), specific conductance (SC), and oxidation-reduction potential (ORP) were measured within the flow-through cell. The water quality parameters were measured using a YSI 6820 instrument, which was calibrated prior to use and decontaminated between wells. When parameters stabilized according to the low-flow sampling protocol (ASTM, 2002), the purging rate was lowered to approximately 0.2 L/min, the discharge tube was disconnected from the flow-through cell, and samples were collected directly from the dedicated tubing. The groundwater gauging and sample handling was performed in accordance with ERS' Standard Operation Procedures presented in Appendix C. The groundwater depth, well purging data, and water quality data were recorded in the field and are presented in Appendix D.

For the Summer 2009 monitoring, approximately 11.5 gallons of purge water and the decontamination rinseate was stored in a labeled/sealed 55-gallon drum tentatively placed on site for pickup by InStrat, Inc. for off-site disposal. After the low flow rate purging, 200 milli-liters of groundwater was collected from each sampling well. Following ERS' Standard Operation Procedures (Appendix C), collected samples were labeled, documented on a chain-of-custody form, and packed on wet ice in a chilled cooler for transport to a State of California certified laboratory, Kiff Analytical, LLC, of Davis, California, under standard chain-of-custody protocols. Kiff Analytical performed analyses for TPH-g, BTEX, MTBE, and TBA using EPA Method 8260B; and analysis for TPH-d using EPA Method 8015M.

#### 4. GROUNDWATER MONITORING AND SAMPLING RESULTS

LRP was used to purge and sample the selected monitoring wells during this monitoring event. The groundwater purging rate for each well was set at 0.25 liter per minute (L/min). Groundwater gauging indicated that local groundwater was above the top of the well screen for wells MW-4, MW-8, and IS-5 and below the top of the well screen for wells MW-7, MW-9, and MW-10. Thus, the stinger/tubing for purging/sampling for all the shallow wells was placed near to the bottom of the well screen. Although the groundwater heads for all the deep wells were significantly higher than the screen interval, in order to obtain representative concentration data for the deep zone, the stinger/tubing for all the deep wells was also placed near to the bottom of the well screen.

During the Summer 2009 monitoring, strong petroleum hydrocarbon odors were identified in on-site shallow well MW-4, MW-8, IS-5, IS-6, and EW-1. Sheen was found in wells MW-4, IS-3, IS-5, and EW-2. Only slight odors were identified in on-site shallow wells MW-7, MW-8, and IS-5. The observation of sheen in wells MW-4 and IS-5 is consistent with the Summer 2009 laboratory analytical data for TPH-g and TPH-d. It should be noted that liquid product was also observed in well IS-5 during the 2007 investigation. Based on the 2006 and 2007 investigation results, the deep zone is not significantly contaminated. In addition, only slight odors were identified in on-site deep well MW-7D.

Groundwater in deep monitoring wells, MW-7D, MW-9D, MW-10D, and MW-11D, is clear and has low turbidity. Groundwater in shallow wells MW-7, MW-8, MW-9, and MW-10 also has no color and low turbidity. However, groundwater in well MW-4 has moderate turbidity and light gray color. Groundwater in well IS-5 has high turbidity and white color.

The water quality measurements reveal that groundwater on-site and off-site has distinct and/or relatively homogeneous quality. The pH values in on-site and off-site wells are between 6.4 and 6.9. ORP values in off-site wells are consistently positive. ORP values in on-site wells are negative, except for well MW-9. The DO concentration of the local groundwater is consistently less than 0.1 mg/L, except for well MW-7D. These water quality parameters indicate that the local groundwater is likely anaerobic and reductive. In addition to the purging rate and the stinger depth mentioned above, the water quality parameters (pH, DO, ORP, temperature and SC) and the time required for reaching stabilization of water quality are also recorded and included in Appendix D.

#### 4.1. Groundwater Elevation and Flow

The depths to groundwater for the shallow and deep zone wells measured on July 1, 2009, ranged from 7.14 (MW-1 and MW-5) to 14 feet bgs (MW-2) and 13.38 (MW-10D) to 16.75 feet bgs (MW-7D), respectively. Groundwater elevation was calculated by subtracting the measured depths to groundwater from the top-of-casing elevations included in Tables 2 and 3. Calculated groundwater elevations for the Summer 2009 monitoring event are listed in Tables 2 and 3. The calculated groundwater elevations for the shallow and deep zone wells range from 14.54 (MW-2) to 19.83 feet above mean sea level (msl) (MW-5) and 11.17 (MW-7D) to 11.91 feet above msl (MW-10D), respectively. The ranges of groundwater elevations in the shallow and deep zones are 5.29 and 0.74 feet, respectively. The average groundwater elevations for the shallow and deep zone are 18.24 feet with 1.7 feet Standard Deviation (SD) and 11.72 feet with 0.25 feet (SD), respectively. Average groundwater heads in the shallow zone is 6.52 feet higher than the average head of the deep zone. This observation is similar to the head difference of 7.5 feet obtained from the 2007 investigation. The above analysis indicates that:

- Significant downward hydraulic gradient exists between the shallow and deep groundwater zones. Downward gradients consistently appear in all on-site well pairs MW-1/MW-1D, MW-4/MW-4D, MW-5/MW-5D, and MW-7/MW-7D, as well as all off-site well pairs MW-9/MW-9D and MW-10/MW-10D.
- The distribution of groundwater head in the deep zone is relatively flat.

Calculated groundwater elevations for the shallow and deep zones were contoured. The contour maps show that:

- The shallow zone groundwater distribution determined for the Summer 2009 monitoring event is similar to the distribution obtained from the 4Q08 monitoring. Overall, shallow zone groundwater under the subject site flows outward from the station building.
- Like the 4Q08 monitoring, strong horizontal gradients exist in the shallow zone between wells MW-4 and MW-2, and the north end of the plume.

The contoured groundwater elevations in the shallow zone are shown in Figure 3. The contoured deep zone groundwater elevations measured on July 1, 2009 indicate that groundwater in the deep zone is relatively flat, which is similar to the condition observed in 4Q08. However, a hydraulic depression appears in well MW-7D. The depression in well MW-7D creates a conflict of groundwater flow between shallow and deep zones. The cause of this depression is not clear; it could be an anomaly of

groundwater depth measurement. Therefore, groundwater depths of the on-site deep wells were measured again on July 17, 2009. The measured depths were contoured and shown in Figure 4. The contoured groundwater distribution in the deep zone indicates that:

- Groundwater in the deep zone is relatively flat.
- The dominant groundwater flow is in the northeast-east direction, which is similar to the direction delineated in 4Q08.

#### **4.2. Laboratory Analytical Results**

Elevated concentrations of TPH-g (50,000 µg/L), benzene (5,000 and 4,400 µg/L), MTBE (400,000 and 150,000 µg/L), and TBA (240,000 and 150,000 µg/L) were identified in on-site wells MW-4 and IS-4. Additionally, elevated concentrations of MTBE (19,000 and 220,000 µg/L) and TBA (70,000 and 350,000 µg/L) were found in on-site wells MW-7 and MW-8. These four wells are located within the contaminant plume in the shallow zone delineated by the 2007 investigation. Conversely, only relatively low concentrations of TPH-g (1,400 and 7,200 µg/L), benzene (7.9 and 370 µg/L), and TPH-d (360 and 920 µg/L) were detected in the off-site, shallow wells MW-9 and MW-10. The MTBE and TBA concentrations of these two wells are relatively low, less than 410 µg/L and 24 µg/L.

In addition, except for the TPH-g concentrations of 440 and 110 µg/L in wells MW-9D and MW-10D, respectively, all the on-site/off-site deep wells MW-7D, MW-9D, MW-10D, and MW-11D sampled in this monitoring event do not have the TPH-d, benzene, MTBE, and TBA concentrations above their associated Method Detection Limits, 50 or 0.5 µg/L. The TPH-g concentrations of MW-7D and MW-11D are also less than the Method Detection Limit of 50 µg/L. Based on the above sampling data, it is clear that:

- Shallow groundwater under the site is heavily impacted (see Figure 5).
- Deep groundwater, on-site or off-site, is not significantly impacted (see Figures 5 and 6).
- The TPH-g concentrations of 440 and 110 µg/L detected in off-site, deep wells MW-9D and MW-10D likely are caused by off-site source(s) because significant MTBE concentrations of 400 and 410 µg/L, as well as benzene concentrations of 7.9 and 370 µg/L, are found in the shallow zone wells MW-9 and MW-10, respectively. However, MTBE and benzene concentrations are less than their method detection limits in wells MW-9D and MW-10D.

The above findings are consistent with the historical groundwater monitoring data and the 2006/2007 site investigation results.

The Summer 2009 analytical data is included in Tables 3 and 4, and the distribution of the TPH-g, benzene, TPH-d, MTBE, and TBA concentrations are shown in Figures 5 and 6. Copies of the laboratory report and chain-of-custody form for the Summer 2009 samples are attached in Appendix E.

## 5. FINDINGS

1. The shallow zone groundwater head distribution determined based on the Summer 2009 monitoring data is similar to the distribution presented in the 4Q08 monitoring event. Shallow zone groundwater under the subject site generally flows outward from the station building.
2. Significant downward hydraulic gradient exists between the shallow and deep groundwater zones. Downward gradients have been consistently observed in all well pairs.
3. Distribution of groundwater head in the deep zone is relatively flat. The dominant groundwater is in the northeast-east direction.
4. For the summer 2009 monitoring, strong petroleum hydrocarbon odors were identified in on-site shallow well MW-4, MW-8, IS-5, IS-6, and EW-1. Sheen was found in wells MW-4, IS-3, IS-5, and EW-2. All the above wells are located within/near the contaminant plume delineated by the 2007 investigation in the shallow zone. The observation of sheen in wells MW-4 and IS-5 is consistent with the Summer 2009 laboratory analytical data for TPH-g and TPH-d.
5. Results of the Summer 2009 monitoring indicate that groundwater distribution in the shallow zone under the subject site is generally outward. Strong horizontal gradients exist between wells MW-4 and MW-2; near the north end of the plume, and away from the former UST excavation area. Thus, off-site migration of the contaminant plume in the shallow zone is significant. The identified horizontal gradient distribution is consistent with the orientation of the plume in the north-south direction.
6. Both off-site groundwater in the shallow zone and groundwater in the deep zone are clear with low turbidity. Except for slight odors in on-site deep well MW-7D, no sheen and odors were identified in off-site and deep zone wells.
7. Except for a low MTBE concentration of 24 µg/L detected in well MW-7D and low TPH-g concentrations of 440 and 110 µg/L, respectively, in wells MW-9D and MW-10D, no other contaminants of concern with concentrations greater than their detection limits or the associated Maximum Contaminant Levels are detected in deep zone wells. Thus, similar to the findings of 2006 and 2007 investigation, the deep zone is not significantly contaminated both on site and off site.



8. ORP values in off-site wells are consistently positive. ORP values in on-site wells are negative, except for well MW-9. In addition, the DO concentration of the local groundwater is mostly less than 0.1 mg/L, except for well MW-7D. The above water quality parameters indicate that the local groundwater is likely anaerobic and reductive.

9. Based on the Summer 2009 sampling data, it is clear that:

- Shallow groundwater under the site is heavily impacted.
- Deep groundwater, on-site or off-site, is not significantly impacted.
- The detection of TPH-g concentrations of 440 and 110 µg/L in off-site, deep wells MW-9D and MW-10D likely is caused by off-site source(s).

The above findings are consistent with the historical groundwater monitoring data and the 2006/2007 site investigation results.

## 6. RECOMMENDATION

Although deep groundwater is not significantly impacted, results of the Summer 2009 monitoring event again indicate that on-site groundwater in the shallow zone is highly impacted. Also, based on the groundwater flow distribution delineated in the shallow zone, the potential of off-site migration of the shallow zone plume is relatively high. Thus, an interim remedial action focusing on the quick removal of a significant mass of contaminants of concern in the shallow zone and the test of the High Vacuum Dual Phase Extraction technology/system should be conducted as soon as possible.

## 7. FORECAST ACTIVITIES

The implementation of an interim remedial action is urgent when the off-site migration of the contaminants in the shallow zone is significant. ACEH has reviewed the *Interim Remedial Action Work Plan* prepared by ERS for the subject site. The concurrence of the remediation method and the associated pilot test is included in ACEH's July 9, 2009 letter. ACEH also asked for a Work Plan Addendum to detailed the field operation and monitoring during interim remediation and the pilot test. ERS will submit the Work Plan Addendum before September 4, 2009.

ERS is in the process of soliciting bids for the installation of twelve 4-inch dual phase extraction wells. Depending on the availability of drillers and the site business activity, all the dual phase extraction wells likely will be installed in September or October 2009. The 30-day interim remedial action and the pilot test will be conducted in November 2009 before the rainy season. The next semi-annual groundwater monitoring event will be conducted in January 2010.

## REFERENCES

ASTM, *Standard Practice for Low-Flow Purging and Sampling for Wells and Devices Used for Ground-Water Quality Investigations*, ASTM Designation: D 6671 – 02, 2002, p.6.

Puls, R.W. and Barcelona, M. J., *Low-Flow (Minimal Drawdown) Ground-Water Sampling Procedure*, U.S. Environmental Protection Agency, Office of Research and Development, Publication #EPA/540/5-95/504, 1996, pp. 12.

## **DISTRIBUTION LIST**

Mr. Jerry Wickham, Senior Hazardous Materials Specialist (via electronic transmittal)  
Alameda County Health Care Services Agency  
Environmental Health Services  
Environmental Protection  
1131 Harbor Bay Parkway, Suite 250  
Alameda, CA 94502

Ms. Farah Naz (via U.S. Mail)  
C/o Mr. Muhammad Jamil  
40092 Davis Street  
Fremont, CA 94538

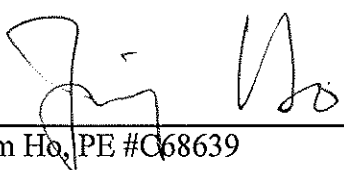
**CERTIFICATION**

This document was prepared under the supervision of a State of California Professional Engineer at Environmental Risk Specialties Corporation (ERS). All statements, conclusions, and recommendations are based solely upon published results from previous consultants, field observations by ERS, and laboratory analysis performed by a California DHS-certified laboratory related to the work performed by ERS.

Information and interpretation presented herein are for the sole use of the client and regulating agency. The service performed by ERS has been conducted in a manner consistent with the level of care and skill ordinarily exercised by members of our profession currently practicing under similar conditions in the area of the property. No other warranty, expressed or implied, is made.

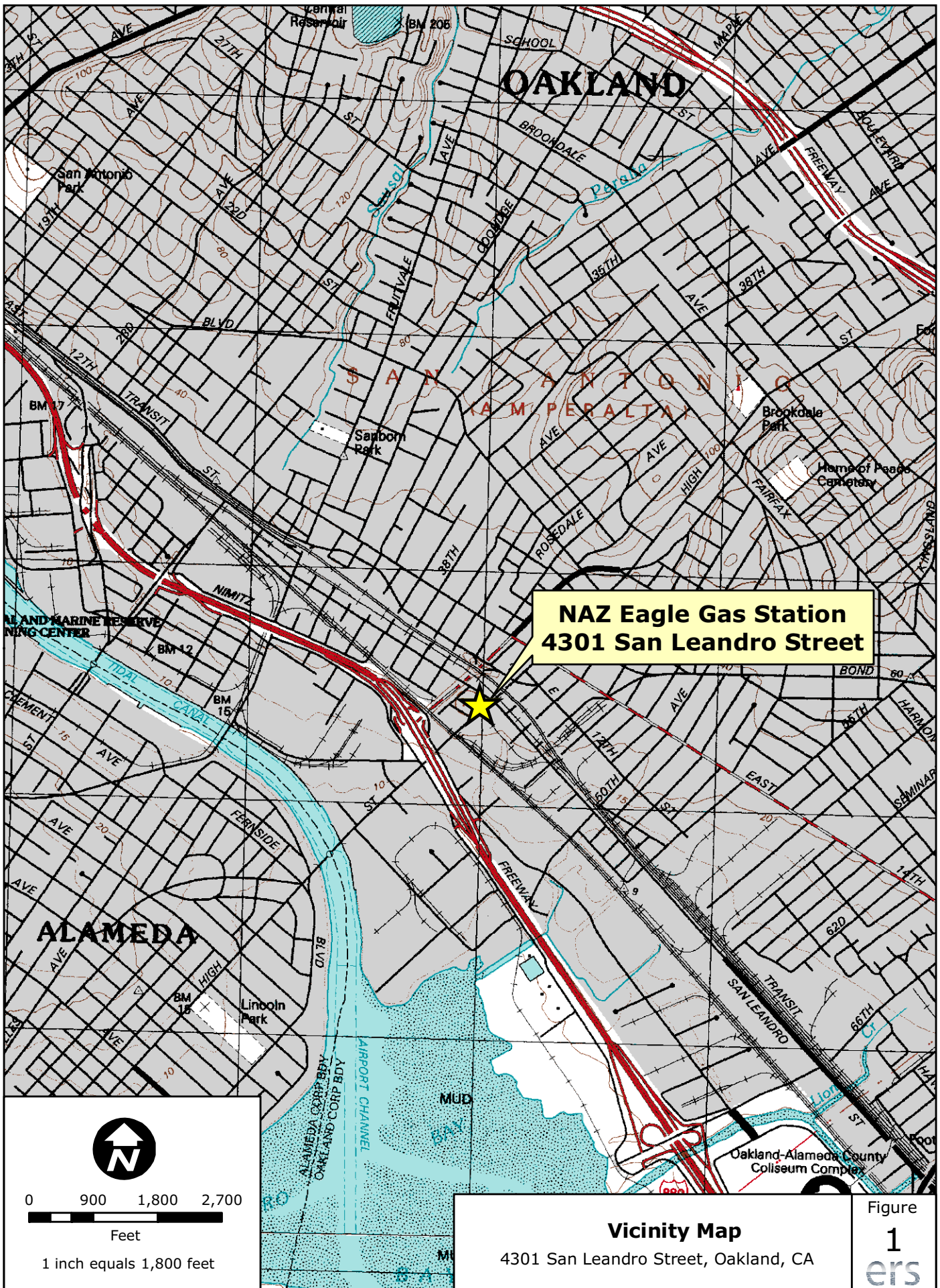
Sincerely,

ENVIRONMENTAL RISK SPECIALTIES CORPORATION

  
Jim Ho, PE #C68639

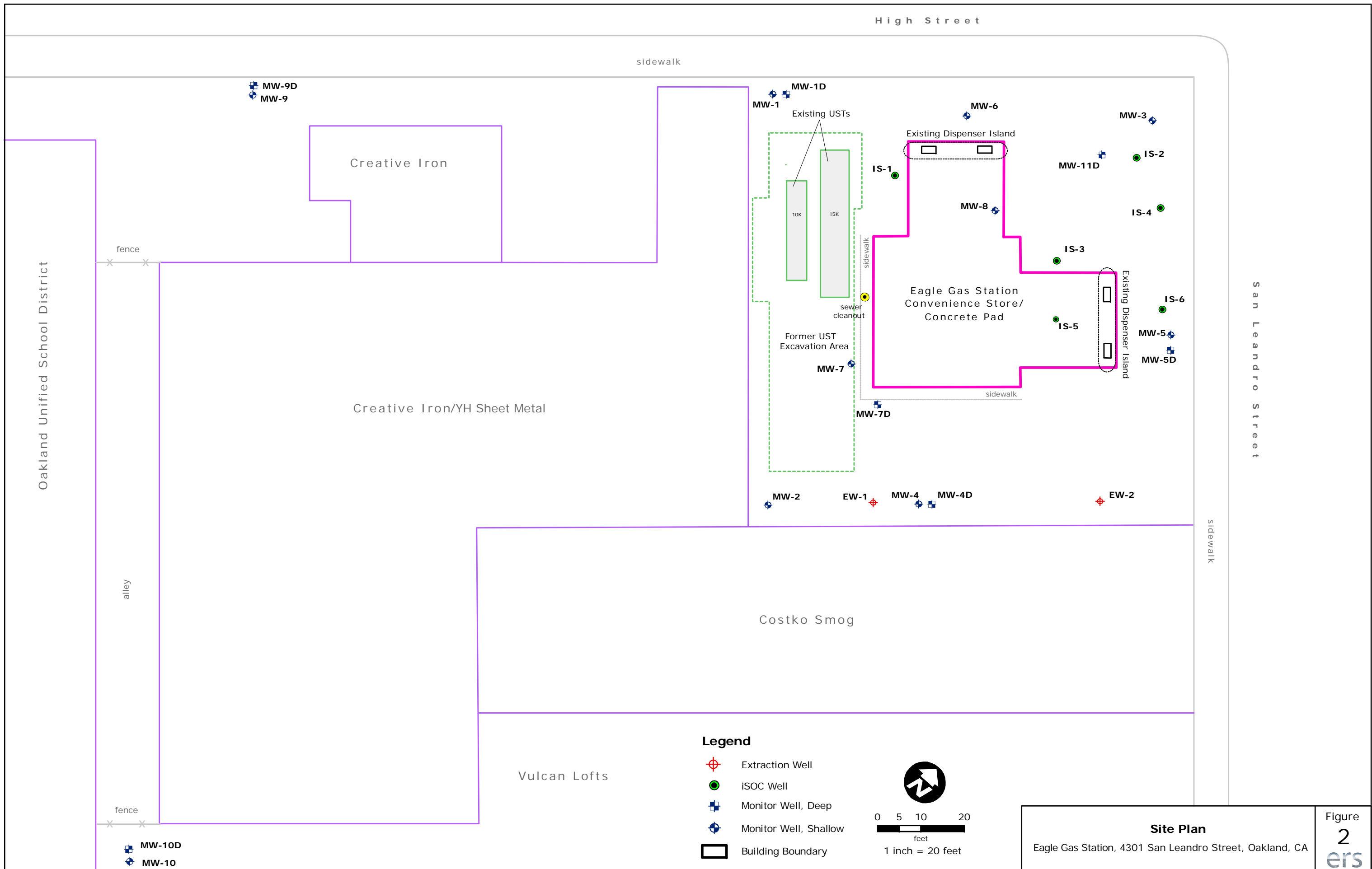


# FIGURES



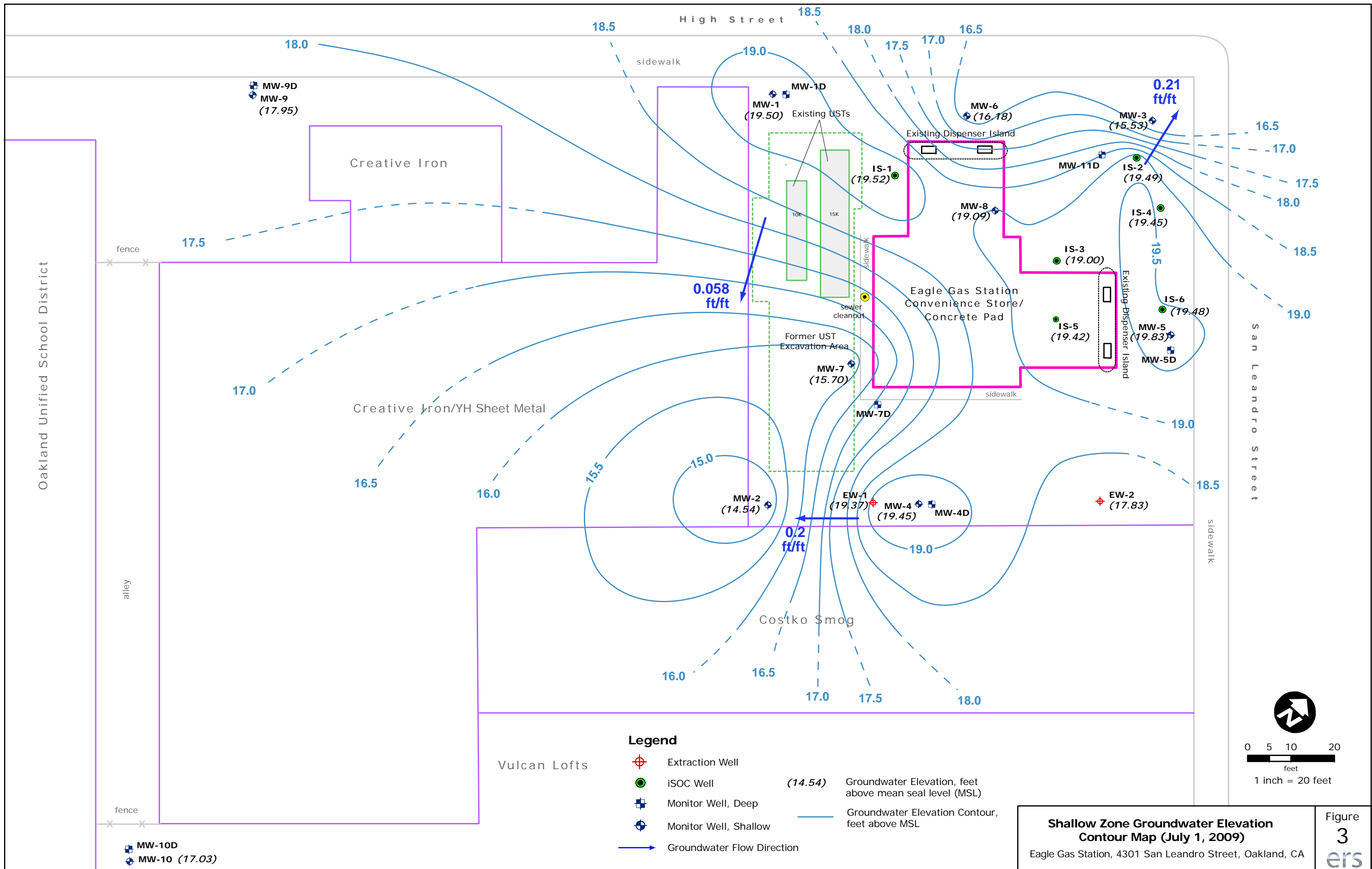
0 900 1,800 2,700  
 Feet  
 1 inch equals 1,800 feet





**Site Plan**  
 Eagle Gas Station, 4301 San Leandro Street, Oakland, CA

Figure  
**2**  
 ers

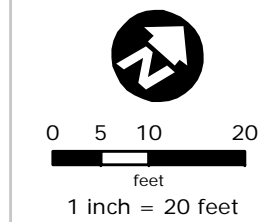


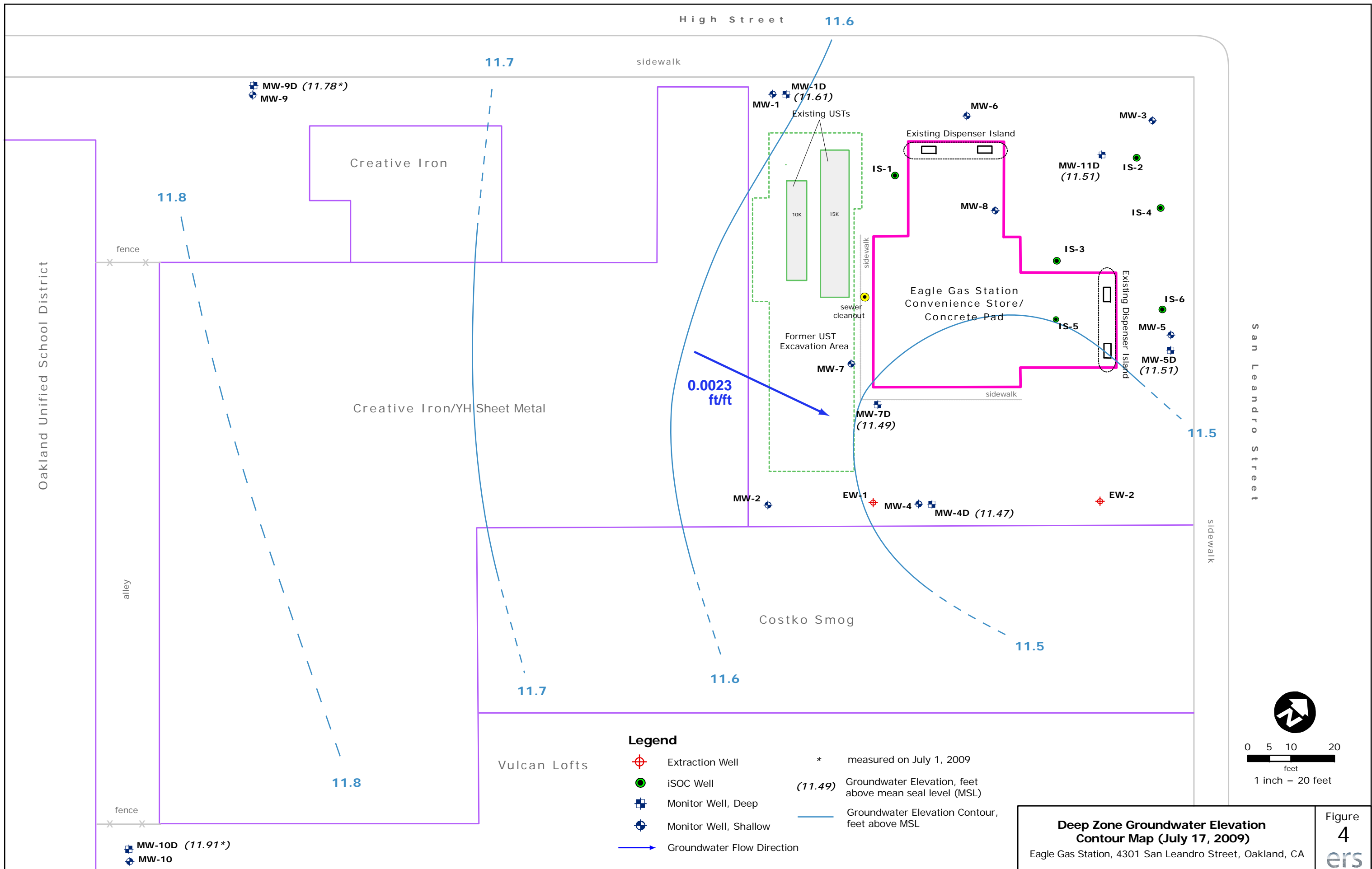
**Legend**

- Extraction Well
- iSOC Well
- Monitor Well, Deep
- Monitor Well, Shallow
- Groundwater Flow Direction
- Groundwater Elevation Contour, feet above MSL

(14.54)

**Shallow Zone Groundwater Elevation Contour Map (July 1, 2009)**  
 Eagle Gas Station, 4301 San Leandro Street, Oakland, CA





**Legend**

- Extraction Well
- iSOC Well
- Monitor Well, Deep
- Monitor Well, Shallow
- Groundwater Flow Direction
- Groundwater Elevation Contour, feet above MSL

\* measured on July 1, 2009

(11.49) Groundwater Elevation, feet above mean seal level (MSL)

**Deep Zone Groundwater Elevation Contour Map (July 17, 2009)**  
 Eagle Gas Station, 4301 San Leandro Street, Oakland, CA

High Street

sidewalk

MTBE:	400
TBA:	24
Benzene:	7.9
TPHg:	1,400
TPHd:	360

Creative Iron

MW-1D  
MW-1  
Existing USTs



MTBE:	220,000
TBA:	350,000
Benzene:	600
TPHg:	< 25,000
TPHd:	4,100

Existing Dispenser Island  
MW-6

MW-11D IS-2

MW-8 IS-4

IS-3

Eagle Gas Station  
Convenience Store/  
Concrete Pad

Existing Dispenser Island

IS-6

MW-5

MW-5D

MTBE:	19,000
TBA:	70,000
Benzene:	< 40
TPHg:	< 4,000
TPHd:	350

Former UST  
Excavation Area

MW-7

MW-7D

MTBE:	150,000
TBA:	150,000
Benzene:	4,400
TPHg:	50,000
TPHd:	7,200

Creative Iron/YH Sheet Metal

MW-2 EW-1 MW-4 MW-4D

EW-2

Costko Smog

MTBE:	400,000
TBA:	240,000
Benzene:	5,000
TPHg:	< 50,000
TPHd:	4,600

Vulcan Lofts

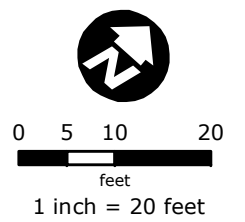
MTBE:	410
TBA:	8.4J
Benzene:	370
TPHg:	7,200
TPHd:	920

MW-10D  
MW-10

Legend

- Extraction Well
- iSOC Well
- Monitor Well, Deep
- Monitor Well, Shallow

Note: Concentrations in units of µg/L



**Contaminants of Concern in Shallow Zone (July 1, 2009)**  
Eagle Gas Station, 4301 San Leandro Street, Oakland, CA

High Street

sidewalk

MTBE:	< 0.50
TBA:	< 5.0
Benzene:	< 0.50
TPHg:	440
TPHd:	< 50

MW-9D  
MW-9

Creative Iron

MW-1D  
MW-1

Existing USTs

10K  
15K

MW-6

MTBE:	2.0
TBA:	< 5.0
Benzene:	< 0.50
TPHg:	< 50
TPHd:	< 50

MW-11D  
MW-3

Existing Dispenser Island

MW-8

IS-2

IS-4

IS-3

Eagle Gas Station  
Convenience Store/  
Concrete Pad

IS-5

IS-6

MW-5

MW-5D

Existing Dispenser Island

Oakland Unified School District

fence

alley

Creative Iron/YH Sheet Metal

Former UST  
Excavation Area

MW-7

MW-7D

MTBE:	24
TBA:	< 5.0
Benzene:	< 0.50
TPHg:	< 50
TPHd:	< 50

MW-2

EW-1

MW-4

MW-4D

EW-2





San Leandro Street

sidewalk

Costko Smog

Vulcan Lofts

Legend

-  Extraction Well
-  iSOC Well
-  Monitor Well, Deep
-  Monitor Well, Shallow

Note: Concentrations in units of µg/L



0 5 10 20  
feet  
1 inch = 20 feet

MTBE:	< 0.50
TBA:	< 5.0
Benzene:	< 0.50
TPHg:	110
TPHd:	< 50

MW-10D  
MW-10

fence

Contaminants of Concern in Deep Zone (July 1, 2009)

Eagle Gas Station, 4301 San Leandro Street, Oakland, CA

Figure 6  
ers

# **TABLES**

**Table 1**  
**WELL CONSTRUCTION DATA**  
**Eagle Gas**  
4301 San Leandro Street  
Oakland, California

<b>Well I.D.</b>	<b>Date Installed</b>	<b>Installed by</b>	<b>Borehole Diameter (inches)</b>	<b>Casing Diameter (inches)</b>	<b>Depth of Borehole (feet bgs)</b>	<b>Cement (feet bgs)</b>	<b>Bentonite Seal (feet bgs)</b>	<b>Filter Pack (feet bgs)</b>	<b>Filter Pack Material</b>	<b>Screen Interval (feet)</b>
MW-1	9/26/2000	Western Hazmat	8	2	25	0-5	5-7	7-25	#2/12 sand	10
MW-1D	10/4/2007	Gregg Drilling	8	2	45	0-31	31-33	33-45	#2/12 sand	35
MW-2	9/26/2000	Western Hazmat	8	2	25	0-5	5-7	7-25	2/12 sand	10
MW-3	9/26/2000	Western Hazmat	8	2	25	0-5	5-7	7-25	2/12 sand	10
MW-4	12/19/2005	HEW Drilling	8	2	25	0-5	5-8	8-25	#3 sand	10
MW-4D	12/19/2005	HEW Drilling	8	2	45	0-30	30-33	33-45	#3 sand	35
MW-5	12/15/2005	HEW Drilling	8	2	25	0-5	5-8	8-25	#3 sand	10
MW-5D	12/15/2005	HEW Drilling	8	2	45	0-30	30-33	33-45	#3 sand	35
MW-6	12/20/2005	HEW Drilling	8	2	25	0-5	5-8	8-25	#3 sand	10
MW-7	12/19/2005	HEW Drilling	8	2	25	0-5	5-8	8-25	#3 sand	10
MW-7D	10/4/2007	Gregg Drilling	8	2	45	0-31	31-33	33-45	#2/12 sand	35
MW-8	12/21/2005	HEW Drilling	8	2	25	0-5	5-8	8-25	#3 sand	10
MW-9	12/3/2008	HEW Drilling	8	2	15	0-2	2-4	4-15	#2/12 sand	5
MW-9D	12/3/2008	HEW Drilling	8	2	40	0-24	24-26*	28-40	#2/12 sand	30
MW-10	12/2/2008	HEW Drilling	8	2	15	0-2	2-4	4-15	#2/12 sand	5
MW-10D	12/2/2008	HEW Drilling	8	2	52	0-36	36-38*	40-52	#2/12 sand	42
MW-11D	12/1/2008	HEW Drilling	8	2	45	0-30	30-32*	38-45	#2/12 sand	40
IS-1	12/20/2005	HEW Drilling	8	2	25	0-3	3-6	6-25	#3 sand	10
IS-2	12/20/2005	HEW Drilling	8	2	25	0-3	3-6	6-25	#3 sand	10
IS-3	12/21/2005	HEW Drilling	8	2	25	0-3	3-6	6-25	#3 sand	10
IS-4	12/20/2005	HEW Drilling	8	2	25	0-3	3-6	6-25	#3 sand	10
IS-5	12/21/2005	HEW Drilling	8	2	25	0-3	3-6	6-25	#3 sand	10
IS-6	12/20/2005	HEW Drilling	8	2	25	0-3	3-6	6-25	#3 sand	10
EW-1	12/16/2005	HEW Drilling	8	4	25	0-3	3-6	6-25	#3 sand	10
EW-2	12/16/2005	HEW Drilling	8	4	25	0-3	3-6	6-25	#3 sand	10

Note: All depths and Intervals are below ground surface (bgs)

\* Borehole partially caved after setting filter pack

**TABLE 2**  
**GROUNDWATER ELEVATIONS (Shallow Zone)**

Eagle Gas Station  
4301 San Leandro Street  
Oakland, California

Well ID	Date	TOC (feet AMSL)	DTW (feet AMSL)	GWE (feet AMSL)
<b>MW-1</b>	10/3/2000	18.37	8.96	9.41
	10/27/2000	18.37	7.27	11.10
	1/26/2001	18.37	7.60	10.77
	5/8/2001	18.37	7.50	10.87
	8/3/2001	18.37	7.09	11.28
	7/1/2003	18.37	7.59	10.78
	10/1/2003	18.37	8.36	10.01
	2/13/2004	18.37	8.80	9.57
	5/17/2004	18.37	10.92	7.45
	8/6/2004	18.37	7.76	10.61
	11/12/2004	18.37	9.25	9.12
	2/15/2005	18.37	10.12	8.25
	5/9/2005	18.37	9.58	8.79
	8/8/2005**	20.08	10.09	9.99
	11/16/2005	20.08	9.81	10.27
	2/22/2006	20.08	9.58	10.50
	5/16/2006	20.08	6.89	13.19
	8/23/2006	20.08	9.21	10.87
	11/13/2006	20.08	8.55	11.53
	2/13/2007	20.08	7.11	12.97
	5/15/2007	20.08	6.63	13.45
	8/15/2007	20.08	9.61	10.47
	11/13/2007	20.08	13.63	6.45
2/19/2008	20.08	6.13	13.95	
6/25/2008	20.08	6.72	13.36	
9/17/2008	20.08	8.45	11.63	
12/8/2008	26.64	6.49	20.15	
<b>7/1/2009</b>	<b>26.64</b>	<b>7.14</b>	<b>19.50</b>	
<b>MW-2</b>	10/3/2000	20.28	20.26	0.02



**TABLE 2**  
**GROUNDWATER ELEVATIONS (Shallow Zone)**

Eagle Gas Station  
4301 San Leandro Street  
Oakland, California

Well ID	Date	TOC (feet AMSL)	DTW (feet AMSL)	GWE (feet AMSL)
	10/27/2000	20.28	13.88	6.40
	1/26/2001	20.28	12.10	8.18
	5/8/2001	20.28	12.05	8.23
	8/3/2001	20.28	13.30	6.98
	7/1/2003	20.28	14.98	5.30
	10/1/2003	20.28	15.99	4.29
	2/13/2004	20.28	13.88	6.40
	5/17/2004	20.38	14.68	5.70
	8/6/2004	20.38	15.36	5.02
	11/12/2004	20.38	15.49	4.89
	2/15/2005	20.38	14.16	6.22
	5/9/2005	20.38	13.62	6.76
	8/8/2005*	22.05	13.36	8.69
	11/16/2005	22.05	14.51	7.54
	2/22/2006	22.05	12.69	9.36
	5/16/2006	22.05	12.01	10.04
	8/23/2006	21.98	11.33	10.65
	11/13/2006	21.98	13.64	8.34
	2/13/2007	21.98	12.78	9.20
	5/16/2007	21.98	13.17	8.81
	8/16/2007	21.98	13.48	8.50
	11/16/2007	21.98	14.11	7.87
	2/19/2008	21.98	14.02	7.96
	6/25/2008	21.98	14.63	7.35
	9/17/2008	21.98	14.76	7.22
	12/8/2008	28.54	15.90	12.64
	<b>7/1/2009</b>	<b>28.54</b>	<b>14.00</b>	<b>14.54</b>
<b>MW-3</b>	10/3/2000	18.98	---	---
	10/27/2000	18.98	18.75	0.23
	1/26/2001	18.98	13.38	5.60

**TABLE 2**  
**GROUNDWATER ELEVATIONS (Shallow Zone)**

Eagle Gas Station  
4301 San Leandro Street  
Oakland, California

Well ID	Date	TOC (feet AMSL)	DTW (feet AMSL)	GWE (feet AMSL)
	5/8/2001	18.98	11.82	7.16
	8/3/2001	18.98	13.44	5.54
	7/1/2003	18.98	12.67	6.31
	10/1/2003	18.98	14.04	4.94
	2/13/2004	18.98	12.20	6.78
	5/17/2004	18.98	11.87	7.11
	8/6/2004	18.98	13.07	5.91
	11/12/2004	18.98	12.83	6.15
	2/15/2005	18.98	11.95	7.03
	5/9/2005	18.98	10.51	8.47
	8/8/2005**	20.73	10.98	9.75
	11/16/2005	20.73	12.89	7.84
	2/22/2006	20.73	10.31	10.42
	5/16/2006	20.73	9.03	11.70
	8/23/2006	20.68	10.81	9.87
	11/13/2006	20.68	12.29	8.39
	2/13/2007	20.68	11.23	9.45
	5/15/2007	20.68	10.39	10.29
	8/15/2007	20.68	11.81	8.87
	11/14/2007	20.68	12.26	8.42
	2/19/2008	20.68	10.72	9.96
	6/25/2008	20.68	11.30	9.38
	9/17/2008	20.68	12.82	7.86
	12/8/2008	27.24	12.91	14.33
	<b>7/1/2009</b>	<b>27.24</b>	<b>11.71</b>	<b>15.53</b>
<b>MW-4</b>	2/22/2006	21.63	7.87	13.76
	5/16/2006	21.63	8.04	13.59
	8/23/2006	21.53	9.77	11.76
	11/13/2006	21.53	8.78	12.75
	2/13/2007	21.53	7.56	13.97
	5/16/2007	21.53	7.97	13.56

**TABLE 2**  
**GROUNDWATER ELEVATIONS (Shallow Zone)**

Eagle Gas Station  
4301 San Leandro Street  
Oakland, California

Well ID	Date	TOC (feet AMSL)	DTW (feet AMSL)	GWE (feet AMSL)
	8/16/2007	21.53	9.03	12.50
	11/16/2007	21.53	8.52	13.01
	2/19/2008	21.53	7.51	14.02
	6/25/2008	21.53	8.10	13.43
	9/17/2008	21.53	9.66	11.87
	12/8/2008	28.09	8.90	19.19
	<b>7/1/2009</b>	<b>28.09</b>	<b>8.64</b>	<b>19.45</b>
<b>MW-5</b>	2/22/2006	20.48	6.63	13.85
	5/16/2006	20.48	6.62	13.86
	8/23/2006	20.41	7.62	12.79
	11/13/2006	20.41	7.31	13.10
	2/13/2007	20.41	6.54	13.87
	5/16/2007	20.41	6.79	13.62
	8/16/2007	20.41	7.99	12.42
	11/16/2007	20.41	7.51	12.90
	2/19/2008	20.41	8.41	12.00
	6/25/2008	20.41	9.00	11.41
	9/17/2008	20.41	8.35	12.06
	12/8/2008	26.97	7.41	19.56
	<b>7/1/2009</b>	<b>26.97</b>	<b>7.14</b>	<b>19.83</b>
<b>MW-6</b>	2/22/2006	20.45	9.88	10.57
	5/16/2006	20.45	9.35	11.10
	8/23/2006	20.47	10.48	9.99
	11/13/2006	20.47	10.86	9.61
	2/13/2007	20.47	10.31	10.16
	5/15/2007	20.47	10.35	10.12
	8/15/2007	20.47	10.74	9.73
	11/14/2007	20.47	10.91	9.56
	2/19/2008	20.47	9.82	10.65
	6/25/2008	20.47	10.43	10.04

**TABLE 2**  
**GROUNDWATER ELEVATIONS (Shallow Zone)**

Eagle Gas Station  
4301 San Leandro Street  
Oakland, California

Well ID	Date	TOC (feet AMSL)	DTW (feet AMSL)	GWE (feet AMSL)
	9/17/2008	20.47	11.76	8.71
	12/8/2008	27.03	11.08	15.95
	<b>7/1/2009</b>	<b>27.03</b>	<b>10.85</b>	<b>16.18</b>
<b>MW-7</b>	2/22/2006	21.13	11.72	9.41
	5/16/2006	21.13	8.72	12.41
	8/23/2006	21.14	11.34	9.80
	11/13/2006	21.14	12.53	8.61
	2/13/2007	21.14	11.83	9.31
	5/15/2007	21.14	10.99	10.15
	8/15/2007	21.14	12.41	8.73
	11/14/2007	21.14	13.41	7.73
	2/19/2008	21.14	9.51	11.63
	6/25/2008	21.14	10.03	11.11
	9/17/2008	21.14	13.68	7.46
	12/8/2008	27.70	14.13	13.57
	<b>7/1/2009</b>	<b>27.70</b>	<b>12.00</b>	<b>15.70</b>
<b>MW-8</b>	2/22/2006	21.03	7.28	13.75
	5/16/2006	21.03	7.48	13.55
	8/23/2006	20.95	8.19	12.76
	11/13/2006	20.95	8.15	12.80
	2/13/2007	20.95	6.58	14.37
	5/16/2007	20.95	7.24	13.71
	8/16/2007	20.95	8.61	12.34
	11/16/2007	20.95	8.21	12.74
	2/19/2008	20.95	7.01	13.94
	6/25/2008	20.95	7.59	13.36
	9/17/2008	20.95	9.24	11.71
	12/8/2008	27.51	8.62	18.89
	<b>7/1/2009</b>	<b>27.51</b>	<b>8.42</b>	<b>19.09</b>

**TABLE 2**  
**GROUNDWATER ELEVATIONS (Shallow Zone)**

Eagle Gas Station  
4301 San Leandro Street  
Oakland, California

Well ID	Date	TOC (feet AMSL)	DTW (feet AMSL)	GWE (feet AMSL)
<b>MW-9</b>	12/8/2008	25.35	6.96	18.39
	<b>7/1/2009</b>	<b>25.35</b>	<b>7.40</b>	<b>17.95</b>
<b>MW-10</b>	12/8/2008	25.23	8.20	17.03
	<b>7/1/2009</b>	<b>25.23</b>	<b>8.20</b>	<b>17.03</b>
<b>IS-1</b>	2/22/2006	20.57	6.91	13.66
	5/16/2006	20.57	7.01	13.56
	8/23/2006	20.58	7.82	12.76
	11/13/2006	20.58	8.21	12.37
	2/13/2007	20.58	6.14	14.44
	5/15/2007	20.58	7.04	13.54
	8/15/2007	20.58	8.06	12.52
	11/13/2007	20.58	7.61	12.97
	2/19/2008	20.58	6.42	14.16
	6/25/2008	20.58	7.04	13.54
	9/17/2008	20.58	8.85	11.73
	12/8/2008	27.14	7.81	19.33
	<b>7/1/2009</b>	<b>27.14</b>	<b>7.62</b>	<b>19.52</b>
<b>IS-2</b>	2/22/2006	20.87	6.92	13.95
	5/16/2006	20.87	6.99	13.88
	8/23/2006	20.78	7.91	12.87
	11/13/2006	20.78	8.23	12.55
	2/13/2007	20.78	6.76	14.02
	5/15/2007	20.78	6.87	13.91
	8/15/2007	20.78	8.08	12.70
	11/14/2007	20.78	7.69	13.09
	2/19/2008	20.78	6.63	14.15
	6/25/2008	20.78	7.21	13.57
	9/17/2008	20.78	8.67	12.11
	12/8/2008	27.34	8.02	19.32

**TABLE 2**  
**GROUNDWATER ELEVATIONS (Shallow Zone)**

Eagle Gas Station  
4301 San Leandro Street  
Oakland, California

Well ID	Date	TOC (feet AMSL)	DTW (feet AMSL)	GWE (feet AMSL)
	<b>7/1/2009</b>	<b>27.34</b>	<b>7.85</b>	<b>19.49</b>
<b>IS-3</b>	2/22/2006	20.99	7.32	13.67
	5/16/2006	20.99	7.86	13.13
	8/23/2006	20.87	8.19	12.68
	11/13/2006	20.87	8.03	12.84
	2/13/2007	20.87	7.03	13.84
	5/16/2007	20.87	7.17	13.70
	8/15/2007	20.87	8.43	12.44
	11/14/2007	20.87	7.93	12.94
	2/19/2008	20.87	6.01	14.86
	6/25/2008	20.87	6.59	14.28
	9/17/2008	20.87	9.12	11.75
	12/8/2008	27.43	8.64	18.79
	<b>7/1/2009</b>	<b>27.43</b>	<b>8.43</b>	<b>19.00</b>
<b>IS-4</b>	2/22/2006	20.79	6.95	13.84
	5/16/2006	20.79	7.17	13.62
	8/23/2006	20.68	7.83	12.85
	11/13/2006	20.68	8.46	12.22
	2/13/2007	20.68	9.02	11.66
	5/15/2007	20.68	6.99	13.69
	8/15/2007	20.68	8.05	12.63
	11/14/2007	20.68	6.38	14.30
	2/19/2008	20.68	6.11	14.57
	6/25/2008	20.68	6.70	13.98
	9/17/2008	20.68	8.59	12.09
	12/8/2008	27.24	7.94	19.30
	<b>7/1/2009</b>	<b>27.24</b>	<b>7.79</b>	<b>19.45</b>
<b>IS-5</b>	2/22/2006	21.02	7.17	13.85
	5/16/2006	21.02	6.81	14.21

**TABLE 2**  
**GROUNDWATER ELEVATIONS (Shallow Zone)**

Eagle Gas Station  
4301 San Leandro Street  
Oakland, California

Well ID	Date	TOC (feet AMSL)	DTW (feet AMSL)	GWE (feet AMSL)
	8/23/2006	20.91	8.12	12.79
	11/13/2006	20.91	8.41	12.50
	2/13/2007	20.91	6.78	14.13
	5/16/2007	20.91	7.15	13.76
	8/15/2007	20.91	8.32	12.59
	11/16/2007	20.91	7.71	13.20
	2/19/2008	20.91	7.35	13.56
	6/25/2008	20.91	7.93	12.98
	9/17/2008	20.91	8.96	11.95
	12/8/2008	27.47	8.38	19.09
	<b>7/1/2009</b>	<b>27.47</b>	<b>8.05</b>	<b>19.42</b>
<b>IS-6</b>	2/22/2006	20.56	6.89	13.67
	5/16/2006	20.56	6.44	14.12
	8/23/2006	20.47	7.69	12.78
	11/13/2006	20.47	7.72	12.75
	2/13/2007	20.47	6.12	14.35
	5/16/2007	20.47	6.67	13.80
	8/15/2007	20.47	7.91	12.56
	11/14/2007	20.47	7.22	13.25
	2/19/2008	20.47	6.49	13.98
	6/25/2008	20.47	7.07	13.40
	9/17/2008	20.47	8.37	12.10
	12/8/2008	27.03	7.75	19.28
	<b>7/1/2009</b>	<b>27.03</b>	<b>7.55</b>	<b>19.48</b>
<b>EW-1</b>	2/22/2006	21.74	8.06	13.68
	5/16/2006	21.74	7.97	13.77
	8/23/2006	21.65	9.61	12.04
	11/13/2006	21.65	8.78	12.87
	2/13/2007	21.65	6.31	15.34
	5/16/2007	21.65	8.13	13.52

**TABLE 2**  
**GROUNDWATER ELEVATIONS (Shallow Zone)**

Eagle Gas Station  
4301 San Leandro Street  
Oakland, California

Well ID	Date	TOC (feet AMSL)	DTW (feet AMSL)	GWE (feet AMSL)
	8/16/2007	21.65	8.71	12.94
	11/16/2007	21.65	8.70	12.95
	2/19/2008	21.65	7.71	13.94
	6/25/2008	21.65	8.30	13.35
	9/17/2008	21.65	9.82	11.83
	12/8/2008	28.21	9.09	19.12
	<b>7/1/2009</b>	<b>28.21</b>	<b>8.84</b>	<b>19.37</b>
<b>EW-2</b>	2/22/2006	20.46	7.31	13.15
	5/16/2006	20.46	7.25	13.21
	8/23/2006	20.37	8.31	12.06
	11/13/2006	20.37	8.18	12.19
	2/13/2007	20.37	7.15	13.22
	5/16/2007	20.37	7.74	12.63
	8/16/2007	20.37	9.45	10.92
	11/16/2007	20.37	9.64	10.73
	2/19/2008	20.37	7.91	12.46
	6/25/2008	20.37	8.50	11.87
	9/17/2008	20.37	10.24	10.13
	12/8/2008	26.93	9.15	17.78
	<b>7/1/2009</b>	<b>26.93</b>	<b>9.10</b>	<b>17.83</b>

**NOTES:**

TOC Top of well casing referenced to City of Oakland datum prior to 3Q2005. Wells re-surveyed on March 28, 2005. Wells MW-9D, MW-10D, and MW-11D were surveyed relative to the North American Vertical Datum of 1988 (NAVD 88) on January 12, 2009. All other well TOC elevations were raised 6.56 feet to match January 12, 2009 survey, beginning in December 2008 (Fourth Quarter 2008).

DTW Depth to water  
GWE Groundwater elevation  
AMSL Above mean sea level  
NA Not Available



**TABLE 3**  
**GROUNDWATER ELEVATIONS (Deep Zone)**

Eagle Gas Station  
4301 San Leandro Street  
Oakland, California

Well ID	Date	TOC (feet AMSL)	DTW (feet AMSL)	GWE (feet AMSL)
<b>MW-1D</b>	11/13/2007	19.98	15.61	4.37
	11/27/2007	19.98	15.52	4.46
	2/19/2008	19.98	13.81	6.17
	6/25/2008	19.98	14.43	5.55
	9/17/2008	19.98	15.77	4.21
	9/22/2008	19.98	15.68	4.30
	12/8/2008	26.54	15.93	10.61
	<b>7/1/2009</b>	<b>26.54</b>	<b>14.65</b>	<b>11.89</b>
	<b>7/17/2009</b>	<b>26.54</b>	<b>14.93</b>	<b>11.61</b>
<b>MW-4D</b>	2/22/2006	21.54	15.58	5.96
	5/16/2006	21.54	13.23	8.31
	8/23/2006	21.44	15.33	6.11
	11/13/2006	21.44	16.23	5.21
	2/13/2007	21.44	15.73	5.71
	5/15/2007	21.44	15.38	6.06
	8/15/2007	21.44	16.42	5.02
	11/13/2007	21.44	17.21	4.23
	11/27/2007	21.44	15.85	5.59
	2/29/2008	21.44	15.41	6.03
	6/25/2008	21.44	16.01	5.43
	9/17/2008	21.44	17.36	4.08
	9/22/2008	21.44	17.23	4.21
	12/8/2008	28.00	17.56	10.44
	<b>7/1/2009</b>	<b>28.00</b>	<b>16.26</b>	<b>11.74</b>
<b>7/17/2009</b>	<b>28.00</b>	<b>16.53</b>	<b>11.47</b>	
<b>MW-5D</b>	2/22/2006	20.32	13.68	6.64
	5/16/2006	20.32	12.72	7.60
	8/23/2006	20.22	14.48	5.74
	11/13/2006	20.22	14.98	5.24
	2/13/2007	20.22	14.48	5.74

**TABLE 3**  
**GROUNDWATER ELEVATIONS (Deep Zone)**

Eagle Gas Station  
4301 San Leandro Street  
Oakland, California

Well ID	Date	TOC (feet AMSL)	DTW (feet AMSL)	GWE (feet AMSL)
	5/15/2007	20.22	14.13	6.09
	8/15/2007	20.22	15.21	5.01
	11/13/2007	20.22	15.94	4.28
	11/27/2007	20.22	15.85	4.37
	2/19/2008	20.22	14.17	6.05
	6/25/2008	20.22	14.77	5.45
	9/17/2008	20.22	6.11	14.11
	9/22/2008	20.22	16.00	4.22
	12/8/2008	26.78	16.33	10.45
	<b>7/1/2009</b>	<b>26.78</b>	<b>15.02</b>	<b>11.76</b>
	<b>7/17/2009</b>	<b>26.78</b>	<b>15.27</b>	<b>11.51</b>
<b>MW-7D</b>	11/13/2007	21.36	19.21	2.15
	11/27/2007	21.36	17.02	4.34
	2/19/2008	21.36	15.78	5.58
	6/25/2008	21.36	16.36	5.00
	9/17/2008	21.36	17.24	4.12
	9/22/2008	21.36	17.39	3.97
	12/8/2008	27.92	17.41	10.51
	<b>7/1/2009</b>	<b>27.92</b>	<b>16.75</b>	<b>11.17</b>
	<b>7/17/2009</b>	<b>27.92</b>	<b>16.43</b>	<b>11.49</b>
<b>MW-9D</b>	12/8/2008	25.49	14.98	10.51
	<b>7/1/2009</b>	<b>25.49</b>	<b>13.71</b>	<b>11.78</b>
<b>MW-10D</b>	12/8/2008	25.29	14.81	10.48
	<b>7/1/2009</b>	<b>25.29</b>	<b>13.38</b>	<b>11.91</b>
<b>MW-11D</b>	12/8/2008	27.23	16.75	10.48
	<b>7/1/2009</b>	<b>27.23</b>	<b>15.45</b>	<b>11.78</b>
	<b>7/17/2009</b>	<b>27.23</b>	<b>15.72</b>	<b>11.51</b>

**TABLE 3  
GROUNDWATER ELEVATIONS (Deep Zone)**

Eagle Gas Station  
4301 San Leandro Street  
Oakland, California

Well ID	Date	TOC (feet AMSL)	DTW (feet AMSL)	GWE (feet AMSL)
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**NOTES:**

TOC	Top of well casing referenced to arbitrary datum prior to Third Quarter 2005. Wells re-surveyed on March 28, 2005. Wells MW-9D, MW-10D, and MW-11D were surveyed relative to the North American Vertical Datum of 1988 (NAVD 88) on January 12, 2009. All other TOC elevations were raised 6.56 feet to match January 12, 2009 survey, beginning in December 2008 (Fourth Quarter 2008)
DTW	Depth to water
GWE	Groundwater elevation
AMSL	Above mean sea level
---	no samples collected, no data available

**TABLE 4**  
**GROUNDWATER ANALYTICAL DATA (Shallow Zone)**

Eagle Gas Station  
4301 San Leandro Street  
Oakland, California

Sample ID	Sample Date	TPH-d (µg/L)	TPH-g (µg/L)	B (µg/L)	T (µg/L)	E (µg/L)	X (µg/L)	MTBE (µg/L)	DIPE (µg/L)	ETBE (µg/L)	TAME (µg/L)	TBA (µg/L)	Methanol (µg/L)	Ethanol (µg/L)	DCA (µg/L)	EDB (µg/L)
	ESL (µg/L)	<b>640</b>	<b>500</b>	<b>46</b>	<b>130</b>	<b>290</b>	<b>100</b>	<b>1,800</b>	--	--	--	<b>18,000</b>	--	<b>50,000</b>	<b>200</b>	<b>150</b>
<b>MW-1</b>	10/3/2000	460	93,000	<500	<500	<500	<500	130,000	<10,000	<10,000	<10,000	<2,000	---	---	---	---
	10/27/2000	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
	1/26/2001	1,600*	51,000	270	<100	<100	<100	77,000	<5,000	<5,000	<5,000	<20,000	---	---	---	---
	5/8/2001	470*	36,000*	<100	<100	<100	<100	15,000	<5,000	<5,000	<5,000	<20,000	---	---	---	---
	8/3/2001	2,200*	19,000*	<50	59	<50	<50	96,000	<5,000	<5,000	<5,000	<20,000	---	---	---	---
	7/1/2003	3,000	<25,000	<250	<250	<250	<250	170,000	<250	<250	980	8,700	---	---	---	---
	10/1/2003	2,600	<20,000	<200	<200	<200	<200	69,000	<200	<200	270	15,000	---	---	---	---
	2/13/2004	1,800	<10,000	<100	<100	<100	<100	85,000	<100	<100	390	79,000	---	---	---	---
	5/17/2004	5,400	<15,000	<150	<150	<150	<150	60,000	<150	<150	260	160,000	---	---	---	---
	8/6/2004	510	<10,000	<100	<100	<100	<100	26,000	<100	<100	100	250,000	---	---	---	---
	11/12/2004	3,500	<5,000	<50	<50	<50	<50	25,000	<50	<50	150	160,000	---	---	---	---
	2/15/2005	2,900	<5,000	<50	<50	<50	<50	12,000	<50	<50	70	160,000	---	---	---	---
	5/9/2005	1,700	<5,000	<50	<50	<50	<50	11,000	<50	<50	53	200,000	---	---	---	---
	8/8/2005**	2,000	<5,000	<50	<50	<50	<50	8,500	<50	<50	<50	250,000	---	---	---	---
	11/16/2005	3,600	<5,000	<50	<50	<50	<50	3,800	<50	<50	<50	140,000	<5,000	<500	<50	<50
	2/22/2006	2,600	<5,000	<50	<50	<50	<50	5,800	<50	<50	<50	120,000	<5,000	<500	<50	<50
	5/16/2006	4,700	<5,000	<50	<50	<50	<50	3,700	<50	<50	<50	150,000	<5,000	<500	<50	<50
	8/23/2006	2,000	<5,000	<50	<50	<50	<50	3,700	<50	<50	<50	110,000	<5,000	<500	<50	<50
	11/13/2006	NA	<4,000	<40	<40	<40	<40	2,000	<40	<40	<40	79,000	NA	NA	NA	NA
	2/13/2007	900	<2,500	<25	<25	<25	<25	3,700	<25	<25	25	63,000	NA	NA	NA	NA
	5/15/2007	3,000	<2,500	<25	<25	<25	<25	1,100	<25	<25	<25	52,000	NA	NA	NA	NA
	8/15/2007	1,000	<1,000	<10	<10	<10	<10	230	<10	<10	<10	34,000	NA	NA	NA	NA
	11/13/2007	170	<150	<1.5	<1.5	<1.5	<1.5	630	<1.5	<1.5	3.1	200	NA	NA	NA	NA
	2/19/2008	1,800	240	<1.5	<1.5	1.7	18	53	<1.5	<1.5	<1.5	2,500	NA	NA	NA	NA
	6/25/2008	1,300	640	<0.50	<0.50	<0.50	<0.50	77	<0.50	<0.50	0.6	3,800	NA	NA	NA	NA
	9/17/2008	2,300	430	<1.5	<1.5	<1.5	<1.5	86	<1.5	<1.5	<1.5	4,100	NA	NA	NA	NA
	12/8/2008	4,600	360	2.4	<1.5	<1.5	<1.5	540	<1.5	<1.5	4.2	15,000	NA	NA	NA	NA
	<b>7/1/2009</b>	<b>No groundwater samples collected, per ACEH April 24, 2009 letter</b>														

**TABLE 4**  
**GROUNDWATER ANALYTICAL DATA (Shallow Zone)**

Eagle Gas Station  
4301 San Leandro Street  
Oakland, California

Sample ID	Sample Date	TPH-d (µg/L)	TPH-g (µg/L)	B (µg/L)	T (µg/L)	E (µg/L)	X (µg/L)	MTBE (µg/L)	DIPE (µg/L)	ETBE (µg/L)	TAME (µg/L)	TBA (µg/L)	Methanol (µg/L)	Ethanol (µg/L)	DCA (µg/L)	EDB (µg/L)
<b>MW-2</b>	10/3/2000	210	250,000	<1,250	<1,250	<1,250	<1,250	400,000	<25,000	<25,000	<25,000	<100,000	---	---	---	---
	10/27/2000	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
	1/26/2001	6,000*	740,000	3,800	<500	940	1,600	1,000,000	<50,000	<50,000	<50,000	<200,000	---	---	---	---
	5/8/2001	2,100*	140,000	2,800	<250	780	640	840,000	<50,000	<50,000	<50,000	<200,000	---	---	---	---
	8/3/2001	2,600*	42,000*	1,100	63	230	130	880,000	<25,000	<25,000	<25,000	<100,000	---	---	---	---
	7/1/2003	2,200	<200,000	<2,000	<2,000	<2,000	<2,000	790,000	<2,000	<2,000	3,400	<20,000	---	---	---	---
	10/1/2003	870	<100,000	<1,000	<1,000	<1,000	<1,000	620,000	<1,000	<1,000	2,700	<20,000	---	---	---	---
	2/13/2004	1200	<20,000	860	<200	260	<200	710,000	<200	<200	2,000	<25,000	---	---	---	---
	5/17/2004	2,500	<50000	860	<500	<500	<500	760,000	<500	<500	2,500	13,000J	---	---	---	---
	8/6/2004	420	<50000	590	<500	<500	<500	810,000	<500	<500	3,600	17,000J	---	---	---	---
	11/12/2004	500	<150,000	<1500	<1500	<1500	<1500	700,000	<1500	<1500	2,800	25,000J	---	---	---	---
	2/15/2005	990	<150,000	<1,500	<1,500	<1,500	<1,500	630,000	<1,500	<1,500	2,600	32,000	---	---	---	---
	5/9/2005	1,100	<150,000	<1,500	<1,500	<1,500	<1,500	570,000	<1,500	<1,500	2,300	32,000	---	---	---	---
	8/8/2005**	770	<150,000	<1,500	<1,500	<1,500	<1,500	770,000	<1,500	<1,500	2,200	85,000	---	---	---	---
	11/16/2005	890	<70,000	<700	<700	<700	<700	430,000	<700	<700	2,100	130,000	<100,000	<7,000	<700	<700
	2/22/2006	<1,500	<70,000	800	<700	<700	<700	400,000	<700	<700	1,700	130,000	<70,000	<7,000	<700	<700
	5/16/2006	1,100	<70,000	<700	<700	<700	<700	250,000	<700	<700	940	140,000	<70,000	<7,000	<700	<700
	8/23/2006	660	<40,000	<400	<400	<400	<400	200,000	<400	<400	830	170,000	<40,000	<4,000	<400	<400
	11/13/2006	NA	<40,000	<400	<400	<400	<400	140,000	<400	<400	490	170,000	NA	NA	NA	NA
	2/13/2007	780	<20,000	250	<200	<200	<200	100,000	<200	<200	240	130,000	NA	NA	NA	NA
	5/16/2007	800	<7,000	150	<70	<70	<70	44,000	<70	<70	120	130,000	NA	NA	NA	NA
	8/16/2007	610	<5,000	100	<50	<50	<50	21,000	<50	<50	<80++	100,000	NA	NA	NA	NA
	11/16/2007	480	<4,000	140	<40	<40	<40	10,000	<40	<40	<40	100,000	NA	NA	NA	NA
2/19/2008	2,600	1,400	88	0.96	4.4	4.4	5,000	<0.50	4.6	14	76,000	NA	NA	NA	NA	
6/25/2008	340	<4,000	<40	<40	<40	<40	1,300	<40	<40	<40	98,000	NA	NA	NA	NA	
9/18/2008	370	410	7.5	<0.50	1.8	2.7	1,200	<0.50	4.9	2.3	120,000	NA	NA	NA	NA	
12/9/2008	<2,000	6,400	940	5.7	390	140	12,000	<0.50	9.7	200	130,000	NA	NA	NA	NA	
	<b>7/1/2009</b>	<b>No groundwater samples collected, per ACEH April 24, 2009 letter</b>														
<b>MW-3</b>	10/3/2000	120	83,000	<500	<500	<500	<500	33,000	<2,500	<2,500	<2,500	<10,000	---	---	---	---

**TABLE 4**  
**GROUNDWATER ANALYTICAL DATA (Shallow Zone)**

Eagle Gas Station  
4301 San Leandro Street  
Oakland, California

Sample ID	Sample Date	TPH-d (µg/L)	TPH-g (µg/L)	B (µg/L)	T (µg/L)	E (µg/L)	X (µg/L)	MTBE (µg/L)	DIPE (µg/L)	ETBE (µg/L)	TAME (µg/L)	TBA (µg/L)	Methanol (µg/L)	Ethanol (µg/L)	DCA (µg/L)	EDB (µg/L)
	10/27/2000	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
	1/26/2001	900*	230,000	930	<500	<500	<500	330,000	<25,000	<25,000	<25,000	<100,000	---	---	---	---
	5/8/2001	1,100*	95,000	840	<250	<250	<250	390,000	<12,500	<12,500	<12,500	<50,000	---	---	---	---
	8/3/2001	290*	30,000*	<50	51	<50	<50	270,000	<12,500	<12,500	<12,500	<50,000	---	---	---	---
	7/1/2003	620	<50,000	<500	<500	<500	<500	230,000	<500	<500	1,800	<5,000	---	---	---	---
	10/1/2003	370	<20,000	<200	<200	<200	<200	120,000	<200	<200	1,200	<5,000	---	---	---	---
	2/13/2004	430	<20,000	280	<200	<200	<200	210,000	<200	<200	1,200	<5000	---	---	---	---
	5/17/2004	920	<25,000	<250	<250	<250	<250	150,000	<250	<250	1,100	5,600J	---	---	---	---
	8/6/2004	78	<20,000	<200	<200	<200	<200	110,000	<200	<200	760	<2,500	---	---	---	---
	11/12/2004	120	<20,000	<200	<200	<200	<200	100,000	<200	<200	660	6,000	---	---	---	---
	2/15/2005	130	<25,000	<250	<250	<250	<250	110,000	<250	<250	760	12,000	---	---	---	---
	5/9/2005	320	<15,000	<150	<150	<150	<150	97,000	<150	<150	780	30,000	---	---	---	---
	8/8/2005**	180	<15,000	<150	<150	<150	<150	75,000	<150	<150	500	44,000	---	---	---	---
	11/16/2005	<200	<5,000	<50	<50	<50	<50	37,000	<50	<50	190	38,000	<5,000	<500	<50	<50
	2/22/2006	<600	<5,000	88	<50	<50	<50	57,000	<50	<50	420	65,000	<9,000	<500	<50	<50
	5/16/2006	<600^	<9,000	110	<90	<90	<90	42,000	<90	<90	340	68,000	<9,000	<900	<90	<90
	8/23/2006	<200^	<4,000	<40	<40	<40	<40	18,000	<40	<40	120	60,000	<4,000	<400	<40	<40
	11/13/2006	NA	<2,000	<20	<20	<20	<20	6,100	<20	<20	30	54,000	NA	NA	NA	NA
	2/13/2007	<200^	<4,000	52	<40	<40	<40	13,000	<40	<40	82	65,000	NA	NA	NA	NA
	5/15/2007	<300^	<4,000	67	<40	<40	<40	12,000	<40	<40	77	71,000	NA	NA	NA	NA
	8/15/2007	<200^	<4,000	42	<40	<40	<40	4,500	<40	<40	<40	64,000	NA	NA	NA	NA
	11/14/2007	<100	<2,000	27	<20	<20	<20	3,300	25	<20	<20	49,000	NA	NA	NA	NA
	2/19/2008	<300	<2,000	64	<20	<20	<20	3,500	<20	<20	31	52,000	NA	NA	NA	NA
	6/25/2008	140	<2,000	<20	<20	<20	<20	1,100	<20	<20	<20	54,000	NA	NA	NA	NA
	9/18/2008	110	<900	<9.0	<9.0	<9.0	<9.0	1,000	19	<9.0	<9.0	29,000	NA	NA	NA	NA
	12/8/2008	94	<900	<9.0	<9.0	<9.0	<9.0	640	16	<9.0	<9.0	24,000	NA	NA	NA	NA
	<b>7/1/2009</b>	<b>No groundwater samples collected, per ACEH April 24, 2009 letter</b>														
<b>MW-4</b>	2/22/2006	<8,000	<150,000	3,200	2,000	1,600	3,800	770,000	<1,500	<1,500	3,300	59,000	<150,000	<15,000	<1,500	<1,500
	5/16/2006	3,800	<70,000	2,100	<700	930	1,500	410,000	<700	<700	2,500	110,000	<70,000	<7,000	<700	<700
	8/23/2006	8,400	89,000	4,500	<700	2,100	2,800	870,000	<700	<700	4,000	89,000	<70,000	<7,000	<700	<700

**TABLE 4**  
**GROUNDWATER ANALYTICAL DATA (Shallow Zone)**

Eagle Gas Station  
4301 San Leandro Street  
Oakland, California

Sample ID	Sample Date	TPH-d (µg/L)	TPH-g (µg/L)	B (µg/L)	T (µg/L)	E (µg/L)	X (µg/L)	MTBE (µg/L)	DIPE (µg/L)	ETBE (µg/L)	TAME (µg/L)	TBA (µg/L)	Methanol (µg/L)	Ethanol (µg/L)	DCA (µg/L)	EDB (µg/L)
	11/13/2006	NA	<150,000	3,700	<1,500	<1,500	2,400	950,000	<1,500	<1,500	4,000	110,000	NA	NA	NA	NA
	2/13/2007	2,000	<150,000	2,000	<1,500	<1,500	<1,500	640,000	<1,500	<1,500	2,900	130,000	NA	NA	NA	NA
	5/16/2007	1,900^^	<70,000	3,200	<700	1,000	940	430,000	<700	<700	2,300	160,000	NA	NA	NA	NA
	8/16/2007	4,400	<150,000	2,400	<1,500	<1,500	<1,500	630,000	<1,500	<1,500	4,300	130,000	NA	NA	NA	NA
	11/16/2007	2,200	<70,000	4,900	<700	1,000	<700	620,000	<700	<700	3,600	150,000	NA	NA	NA	NA
	2/19/2008	3,200	<70,000	3,900	<700	1,400	<1,500	350,000	<700	<700	2,100	130,000	<70,000	<7,000	NA	NA
	6/25/2008	13,000	<70,000	4,000	<700	<700	<700	360,000	<700	<700	2,300	330,000	NA	NA	NA	NA
	9/18/2008	7,600	<40,000	3,500	<400	<400	<400	220,000	<400	<400	1,400	490,000	NA	NA	NA	NA
	12/9/2008	14,000	69,000	3,600	1,400	2,400	10,000	360,000	<150	<150	2,000	660,000	NA	NA	NA	NA
	<b>7/1/2009</b>	<b>4,600</b>	<b>&lt;50,000</b>	<b>5,000</b>	<b>&lt;500</b>	<b>2,200</b>	<b>6,600</b>	<b>400,000</b>	<b>&lt;500</b>	<b>&lt;500</b>	<b>3,400</b>	<b>240,000</b>	<b>NA</b>	<b>NA</b>	<b>NA</b>	<b>NA</b>
<b>MW-5</b>	2/22/2006	<3,000	<10,000	460	<100	170	<100	480,000	<100	<100	3,000	95,000	<90,000	<1,000	<100	<100
	5/16/2006	1,600	<90,000	<900	<900	<900	<900	480,000	<900	<900	2,300	130,000	<90,000	<9,000	<900	<900
	8/23/2006	1,400	<90,000	<900	<900	<900	<900	510,000	<900	<900	2,400	270,000	<90,000	<9,000	<900	<900
	11/13/2006	NA	<90,000	<900	<900	<900	<900	430,000	<900	<900	2,200	350,000	NA	NA	NA	NA
	2/13/2007	1,000	<50,000	<500	<500	<500	<500	260,000	<500	<500	740	350,000	NA	NA	NA	NA
	5/16/2007	2,200^^	<15,000	650	<150	<150	<150	73,000	<150	<150	610	240,000	NA	NA	NA	NA
	8/16/2007	950	<25,000	<250	<250	<250	<250	130,000	<250	<250	550	620,000	NA	NA	NA	NA
	11/16/2007	800	<15,000	<150	<150	<150	<150	92,000	<150	<150	250	300,000	NA	NA	NA	NA
	2/19/2008	3,400	<15,000	160	<150	<150	<150	38,000	<150	<150	<150	480,000	NA	NA	NA	NA
	6/25/2008	850	<15,000	<150	<150	<150	<150	33,000	<150	<150	<150	520,000	NA	NA	NA	NA
	9/17/2008	900	<15,000	<150	<150	<150	<150	22,000	<150	<150	<150	520,000	NA	NA	NA	NA
	12/9/2008	1,600	<9,000	<90	<90	<90	<90	23,000	<90	<90	<90	500,000	NA	NA	NA	NA
	<b>7/1/2009</b>	<b>No groundwater samples collected, per ACEH April 24, 2009 letter</b>														
<b>MW-6</b>	2/22/2006	2,900	<10,000	620	<100	<100	<100	50,000	<100	<100	210	24,000	<10,000	<1,000	<100	<100
	5/16/2006	3,200	<9,000	1,500	<90	<90	<90	50,000	<90	<90	280	27,000	<10,000	<900	<90	<90
	8/23/2006	3,400	<9,000	1,600	<90	<90	<90	39,000	<90	<90	190	55,000	<9,000**	<900	<90	<90
	11/13/2006	NA	<5,000	1,200	<50	<50	<50	17,000	<50	<50	66	71,000	NA	NA	NA	NA
	2/13/2007	2,400	4,900	1,800	<25	<25	<25	14,000	<25	<25	65	55,000	NA	NA	NA	NA
	5/15/2007	2,600	4,900	1,900	21	<20	<20	12,000	<20	<20	55	60,000	NA	NA	NA	NA

**TABLE 4**  
**GROUNDWATER ANALYTICAL DATA (Shallow Zone)**

Eagle Gas Station  
4301 San Leandro Street  
Oakland, California

Sample ID	Sample Date	TPH-d (µg/L)	TPH-g (µg/L)	B (µg/L)	T (µg/L)	E (µg/L)	X (µg/L)	MTBE (µg/L)	DIPE (µg/L)	ETBE (µg/L)	TAME (µg/L)	TBA (µg/L)	Methanol (µg/L)	Ethanol (µg/L)	DCA (µg/L)	EDB (µg/L)
	8/15/2007	2,900	4,000	1,300	<20	<20	<20	7,000	<20	<20	32	69,000	NA	NA	NA	NA
	11/14/2007	2,400	5,400	2,000	<20	<20	<20	3,300	<20	<20	<20	63,000	NA	NA	NA	NA
	2/19/2008	2,300	2,000	660	6.7	<1.5	4.6	280	<1.5	<1.5	2	4,500	NA	NA	NA	NA
	6/25/2008	2,500	2,700	880	<20	<20	<20	1,400	<20	<20	<20	74,000	NA	NA	NA	NA
	9/17/2008	No groundwater samples collected, per ACEH														
	12/8/2008	No groundwater samples collected, per ACEH														
	<b>7/1/2009</b>	<b>No groundwater samples collected, per ACEH April 24, 2009 letter</b>														
<b>MW-7</b>	2/22/2006	400	<10,000	<100	<100	<100	<100	88,000	<100	<100	430	90,000	<10,000	<1,000	<100	<100
	5/16/2006	340	<5,000	<50	<50	<50	<50	28,000	<50	<50	120	47,000	<5,000	<500	<50	<50
	8/23/2006	280	<9,000	<90	<90	<90	<90	62,000	<90	<90	280	160,000	<18,000 <sup>++</sup>	<900	<90	<90
	11/13/2006	NA	<9,000	<90	<90	<90	<90	49,000	<90	<90	280	130,000	NA	NA	NA	NA
	2/13/2007	210	<7,000	<70	<70	<70	<70	33,000	<70	<70	170	130,000	NA	NA	NA	NA
	5/15/2007	250	<5,000	<50	<50	<50	<50	36,000	<50	<50	190	140,000	NA	NA	NA	NA
	8/15/2007	390	<9,000	<90	<90	<90	<90	37,000	<90	<90	170	160,000	NA	NA	NA	NA
	11/14/2007	310	<9,000	<90	<90	<90	<90	45,000	<90	<90	220	150,000	NA	NA	NA	NA
	2/19/2008	190	<500	<5	<5	<5	<5	3,000	<5	<5	15	13,000	NA	NA	NA	NA
	6/25/2008	240	<4,000	<40	<40	<40	<40	21,000	<40	<40	99	100,000	NA	NA	NA	NA
	9/17/2008	230	<9,000	<90	<90	<90	<90	34,000	<90	<90	180	70,000	NA	NA	NA	NA
	12/8/2008	180	<15,000	<150	<150	<150	<150	98,000	<150	<150	740	100,000	NA	NA	NA	NA
	<b>7/1/2009</b>	<b>350</b>	<b>&lt;4,000</b>	<b>&lt;40</b>	<b>&lt;40</b>	<b>&lt;40</b>	<b>&lt;40</b>	<b>19,000</b>	<b>&lt;40</b>	<b>&lt;40</b>	<b>100</b>	<b>70,000</b>	<b>NA</b>	<b>NA</b>	<b>NA</b>	<b>NA</b>
<b>MW-8</b>	2/22/2006	6,800	<10,000	1,200	<100	270	220	400,000	<100	<100	2,100	63,000	<300,000	<1,000	<100	<100
	5/16/2006	3,800	<90,000	1,600	<900	<900	<900	620,000	<900	<900	3,000	46,000	<90,000	<9,000	<900	<900
	8/23/2006	17,000	<90,000	940	<900	<900	<900	340,000	<900	<900	1,200	74,000	<90,000	<9,000	<900	<900
	11/13/2006	NA	<25,000	490	<250	<250	<250	120,000	<250	<250	360	130,000	NA	NA	NA	NA
	2/13/2007	4,100	<90,000	1,700	<900	<900	<900	410,000	<900	<900	1,700	160,000	NA	NA	NA	NA
	5/16/2007	3,300	<50,000	650	<500	<500	<500	190,000	<500	<500	750	170,000	NA	NA	NA	NA
	8/16/2007	4,400	<25,000	420	<250	<250	<250	150,000	<250	<250	460	210,000	NA	NA	NA	NA
	11/16/2007	89,000	<25,000	<250	<250	<250	<250	120,000	<250	<250	<250	250,000	NA	NA	NA	NA
	2/19/2008	120,000	<10,000	650	<100	<100	160	56,000	<100	<100	210	260,000	NA	NA	NA	NA



**TABLE 4**  
**GROUNDWATER ANALYTICAL DATA (Shallow Zone)**

Eagle Gas Station  
4301 San Leandro Street  
Oakland, California

Sample ID	Sample Date	TPH-d (µg/L)	TPH-g (µg/L)	B (µg/L)	T (µg/L)	E (µg/L)	X (µg/L)	MTBE (µg/L)	DIPE (µg/L)	ETBE (µg/L)	TAME (µg/L)	TBA (µg/L)	Methanol (µg/L)	Ethanol (µg/L)	DCA (µg/L)	EDB (µg/L)
	6/25/2008	3,200	<15,000	210	<150	<150	<150	70,000	<150	<150	190	320,000	NA	NA	NA	NA
	9/18/2008	8,300	<25,000	<250	<250	<250	<250	100,000	<250	<250	<250	450,000	NA	NA	NA	NA
	12/9/2008	<2,000,000	1,700,000	2,300	<250	37,000	67,000	91,000	<250	<250	1,500	410,000	NA	NA	NA	NA
	<b>7/1/2009</b>	<b>4,100</b>	<b>&lt;25,000</b>	<b>600</b>	<b>&lt;250</b>	<b>&lt;250</b>	<b>290</b>	<b>220,000</b>	<b>&lt;250</b>	<b>&lt;250</b>	<b>610</b>	<b>350,000</b>	<b>NA</b>	<b>NA</b>	<b>NA</b>	<b>NA</b>
<b>MW-9</b>	12/9/2008	<800	1,200	4.2	<2.5	13	9.4	1,300	<2.5	<2.5	10	240	<300	<25	<2.5	<2.5
	<b>7/1/2009</b>	<b>360</b>	<b>1,400</b>	<b>7.9</b>	<b>1.4</b>	<b>0.86</b>	<b>5.1</b>	<b>400</b>	<b>&lt;0.50</b>	<b>&lt;0.50</b>	<b>3.6</b>	<b>24</b>	<b>NA</b>	<b>NA</b>	<b>NA</b>	<b>NA</b>
<b>MW-10</b>	12/9/2008	<2,000	8,000	560	41	35	150	500	5.1	<1.0	<1.0	13J	<200	<10	78	<1.0
	<b>7/1/2009</b>	<b>920</b>	<b>7,200</b>	<b>370</b>	<b>41</b>	<b>150</b>	<b>200</b>	<b>410</b>	<b>3.1</b>	<b>&lt;0.90</b>	<b>&lt;0.90</b>	<b>8.4J</b>	<b>NA</b>	<b>NA</b>	<b>NA</b>	<b>NA</b>
<b>IS-1</b>	2/22/2006	4,400	<5,000	160	<50	<50	<50	21,000	<50	<50	64	130,000	<5,000	<500	<50	<50
	5/16/2006	3,800	<5,000	150	<50	<50	<50	24,000	<50	<50	58	130,000	<5,000	<500	<50	<50
	8/23/2006	3,800	<5,000	65	<50	<50	<50	5,800	<50	<50	<50	110,000	<5,000	<500	<50	<50
	11/13/2006	NA	<5,000	<50	<50	<50	<50	1,000	<50	<50	<50	100,000	NA	NA	NA	NA
	2/13/2007	1,800	<4,000	<40	<40	<40	<40	3,600	<40	<40	<40	110,000	NA	NA	NA	NA
	5/15/2007	2,000	<4,000	49	<40	<40	<40	2,800	<40	<40	<40	98,000	NA	NA	NA	NA
	8/15/2007	2,700	<4,000	<40	<40	<40	<40	4,200	<40	<40	<40	90,000	NA	NA	NA	NA
	11/13/2007	1,400	<700	<7.0	<7.0	<7.0	<7.0	470	<7.0	<7.0	<7.0	25,000	NA	NA	NA	NA
	2/19/2008	1,800	410	2.0	<0.5	<0.5	<0.5	1,000	<0.5	1.8	2.7	80,000	NA	NA	NA	NA
	6/25/2008	2,500	<4,000	<40	<40	<40	<40	3,300	<40	<40	<40	94,000	NA	NA	NA	NA
	9/17/2008	No groundwater samples collected, per ACEH														
	12/8/2008	No groundwater samples collected, per ACEH														
	<b>7/1/2009</b>	<b>No groundwater samples collected, per ACEH April 24, 2009 letter</b>														
<b>IS-2</b>	2/22/2006	<4,000	8,600	1,200	<9.0	240	17	190,000	<9.0	9	1,700	29,000	<150,000	<90	<9.0	<9.0
	5/16/2006	<3,000^	<15,000	500	<150	<150	<150	130,000	<150	<150	880	24,000	<15,000	<1,500	<150	<150
	8/23/2006	2,700	<40,000	490	<400	<400	<400	150,000	<400	<400	1,200	39,000	<40,000 <sup>++</sup>	<4,000	<400	<400
	11/23/2006	NA	<40,000	<400	<400	<400	<400	160,000	<400	<400	990	120,000	NA	NA	NA	NA
	2/13/2007	<1,500^	<5,000	230	<50	<50	<50	28,000	<50	<50	250	72,000	NA	NA	NA	NA
	5/15/2007	<3,000^	<7,000	690	<70	120	<70	35,000	<70	<70	370	32,000	NA	NA	NA	NA

**TABLE 4**  
**GROUNDWATER ANALYTICAL DATA (Shallow Zone)**

Eagle Gas Station  
4301 San Leandro Street  
Oakland, California

Sample ID	Sample Date	TPH-d (µg/L)	TPH-g (µg/L)	B (µg/L)	T (µg/L)	E (µg/L)	X (µg/L)	MTBE (µg/L)	DIPE (µg/L)	ETBE (µg/L)	TAME (µg/L)	TBA (µg/L)	Methanol (µg/L)	Ethanol (µg/L)	DCA (µg/L)	EDB (µg/L)
	8/15/2007	<3,000^	<7,000	500	<70	<70	<70	20,000	<70	<70	160	160,000	NA	NA	NA	NA
	11/14/2007	<4,000	15,000	1,100	<70	240	<70	29,000	<70	<70	380	25,000	NA	NA	NA	NA
	2/19/2008	<3,000	5,300	550	5	32	7.6	7,400	<0.50	3.2	94	65,000	NA	NA	NA	NA
	6/25/2008	4,300	5,500	440	<40	<40	<40	3,100	<40	<40	<40	110,000	NA	NA	NA	NA
	9/18/2008	No groundwater samples collected, per ACEH														
	12/8/2008	No groundwater samples collected, per ACEH														
	<b>7/1/2009</b>	<b>No groundwater samples collected, per ACEH April 24, 2009 letter</b>														
<b>IS-3</b>	2/22/2006	<4,000	29,000	2,700	820	1,100	2,900	750,000	<100	<100	3,400	40,000	<80,000	<1,000	<100	<100
	5/16/2006	8,000	<20,000	1,110	<200	450	<200	300,000	<200	<200	1,600	65,000	<20,000	<2,000	<200	<200
	8/23/2006	4,800	<50,000	2,900	<500	1,100	660	970,000	<500	<500	3,900	54,000	<50,000	<5,000	<500	<500
	11/13/2006	NA	<200,000	2,800	<2,000	<2,000	<2,000	1,100,000	<2,000	<2,000	4,500	65,000	NA	NA	NA	NA
	2/13/2007	<3,000	<150,000	3,200	<1,500	<1,500	<1,500	600,000	<1,500	<1,500	3,300	49,000	NA	NA	NA	NA
	5/16/2007	<4,000^	<150,000	2,900	<1,500	<1,500	<1,500	630,000	<1,500	<1,500	3,400	88,000	NA	NA	NA	NA
	8/15/2007	<3,000^	<150,000	2,800	<1,500	<1,500	<1,500	960,000	<1,500	<1,500	4,300	98,000	NA	NA	NA	NA
	11/14/2007	1,900	<150,000	2,600	<1,500	<1,500	<1,500	880,000	2,000	<1,500	3,600	130,000	NA	NA	NA	NA
	2/19/2008	1,200	2,700	660	4.8	160	<150	32,000	0.63	1.8	200	3,600	NA	NA	NA	NA
	6/25/2008	3,500	<150,000	3,600	<1,500	<1,500	<1,500	840,000	<1,500	<1,500	4,000	200,000	NA	NA	NA	NA
	9/17/2008	No groundwater samples collected, per ACEH														
	12/8/2008	No groundwater samples collected, per ACEH														
	<b>7/1/2009</b>	<b>No groundwater samples collected, per ACEH April 24, 2009 letter</b>														
<b>IS-4</b>	2/22/2006	3,100	11,000	790	<100	120	<100	280,000	<100	<100	2,400	51,000	<10,000	<1,000	<100	<100
	5/16/2006	5,600	<15,000	610	<150	<150	<150	220,000	<150	<150	1,700	53,000	<15,000	<1,500	<150	<150
	8/23/2006	4,300	6,100	280	<40	<40	<40	270,000	<40	<40	1,600	100,000	<80,000 <sup>++</sup>	<400	<40	<40
	11/13/2006	NA	<50,000	<500	<500	<500	<500	230,000	<500	<500	1,100	220,000	NA	NA	NA	NA
	2/13/2007	1,500	<25,000	380	<250	<250	<250	160,000	<250	<250	570	250,000	NA	NA	NA	NA
	5/15/2007	1,700	<25,000	<250	<250	<250	<250	150,000	<250	<250	820	260,000	NA	NA	NA	NA
	8/15/2007	1,000	<15,000	<150	<150	<150	<150	85,000	<150	<150	360	280,000	NA	NA	NA	NA
	11/14/2007	760	<9,000	<90	<90	<90	<90	45,000	<90	<90	220	110,000	NA	NA	NA	NA
	2/19/2008	1,100	980	39	0.94	3.1	1.2	870	<0.5	3.4	7.6	42,000	NA	NA	NA	NA

**TABLE 4**  
**GROUNDWATER ANALYTICAL DATA (Shallow Zone)**

Eagle Gas Station  
4301 San Leandro Street  
Oakland, California

Sample ID	Sample Date	TPH-d (µg/L)	TPH-g (µg/L)	B (µg/L)	T (µg/L)	E (µg/L)	X (µg/L)	MTBE (µg/L)	DIPE (µg/L)	ETBE (µg/L)	TAME (µg/L)	TBA (µg/L)	Methanol (µg/L)	Ethanol (µg/L)	DCA (µg/L)	EDB (µg/L)
	6/25/2008	4,000	<9,000	<90	<90	<90	<90	6,300	<90	<90	<90	300,000	NA	NA	NA	NA
	9/18/2008	<1,500	2,600	14	0.96	2.6	1.9	3,100	<1.0	9.1	8.4	280,000	NA	NA	NA	NA
	12/9/2008	4,000	20,000	1,100	360	710	3,000	110,000	1.1	20	630	540,000	NA	NA	NA	NA
	<b>7/1/2009</b>	<b>No groundwater samples collected, per ACEH April 24, 2009 letter</b>														
<b>IS-5</b>	2/22/2006	35,000	66,000	4,100	<250	3,100	7,700	420,000	<250	<250	4,600	40,000	<25,000	<2,500	<250	<250
	5/16/2006	11000+	33,000	2,800	<200	1,700	1,900	350,000	<200	<200	3,400	29,000	<20,000	<2,000	<200	<200
	8/23/2006	11,000	71,000	5,200	<500	6,200	4,500	350,000	<500	<500	3,900	32,000	<50,000	<5,000	<500	<500
	11/13/2006	NA	<50,000	930	<500	<500	<500	440,000	<500	<500	2,800	89,000	NA	NA	NA	NA
	2/13/2007	<5,000	<50,000	3,600	<500	2,200	3,800	240,000	<500	<500	3,600	28,000	NA	NA	NA	NA
	5/16/2007	<5,000^	<50,000	4,500	<500	<500	<500	200,000	<500	<500	2,700	24,000	NA	NA	NA	NA
	8/15/2007	<10,000^	<50,000	4,300	<500	2,100	990	310,000	<500	<500	3,400	48,000	NA	NA	NA	NA
	11/16/2007	<5,000	<50,000	2,100	<500	1,900	3,600	260,000	<500	<500	2,600	5,500	NA	NA	NA	NA
	2/19/2008	<18,000	73,000	5,200	67	2,800	5,300	110,000	1.9	8.3	2,500	250,000	NA	NA	NA	NA
	6/25/2008	27,000	<50,000	3,400	<500	740	1,300	180,000	<500	<500	2,600	94,000	NA	NA	NA	NA
	9/18/2008	10,000,000	680,000	2,400	50	18,000	27,000	190,000	<10	13	2,200	240,000	NA	NA	NA	NA
	12/9/2008	140,000	47,000	2,900	44	4,400	7,100	89,000	1.3	14	1,600	230,000	NA	NA	NA	NA
	<b>7/1/2009</b>	<b>7,200</b>	<b>50,000</b>	<b>4,400</b>	<b>&lt;250</b>	<b>2,800</b>	<b>3,200</b>	<b>150,000</b>	<b>&lt;250</b>	<b>&lt;250</b>	<b>2,600</b>	<b>150,000</b>	<b>NA</b>	<b>NA</b>	<b>NA</b>	<b>NA</b>
<b>IS-6</b>	2/22/2006	3,000	11,000	1,000	<100	560	180	130,000	<100	<100	1,400	210,000	<15,000	<1,000	<100	<100
	5/16/2006	3,300	<20,000	1,300	<200	730	<200	96,000	<200	<200	1,300	260,000	<25,000	<2,500	<200	<200
	8/23/2006	2,900	<20,000	580	<200	<200	<200	54,000	<200	<200	500	370,000	<20,000	<2,000	<200	<200
	11/13/2006	NA	<9,000	220	<90	<90	<90	20,000	<90	<90	170	260,000	NA	NA	NA	NA
	2/13/2007	1,600	<9,000	360	<90	<90	<90	28,000	<90	<90	210	310,000	NA	NA	NA	NA
	5/16/2007	1,700	9,100	1,400	<70	300	<70	21,000	<70	<70	240	240,000	NA	NA	NA	NA
	8/15/2007	1,700	<9,000	560	<90	<90	<90	8,000	<90	<90	100	220,000	NA	NA	NA	NA
	11/14/2007	880	<5,000	200	<50	<50	<50	3,700	<50	<50	<50	190,000	NA	NA	NA	NA
	2/19/2008	1,200	3,500	360	2.3	41	1.6	6,100	0.66	8.6	55	220,000	NA	NA	NA	NA
	6/25/2008	1,900	<7,000	200	<70	<70	<70	1,600	<70	<70	<70	250,000	NA	NA	NA	NA
	9/17/2008	No groundwater samples collected, per ACEH														
	12/8/2008	No groundwater samples collected, per ACEH														

**TABLE 4**  
**GROUNDWATER ANALYTICAL DATA (Shallow Zone)**

Eagle Gas Station  
4301 San Leandro Street  
Oakland, California

Sample ID	Sample Date	TPH-d (µg/L)	TPH-g (µg/L)	B (µg/L)	T (µg/L)	E (µg/L)	X (µg/L)	MTBE (µg/L)	DIPE (µg/L)	ETBE (µg/L)	TAME (µg/L)	TBA (µg/L)	Methanol (µg/L)	Ethanol (µg/L)	DCA (µg/L)	EDB (µg/L)	
<b>7/1/2009</b>		<b>No groundwater samples collected, per ACEH April 24, 2009 letter</b>															
<b>EW-1</b>	2/22/2006	3,200	<150,000	3,100	<1,500	<1,500	<1,500	700,000	<1,500	<1,500	5,100	59,000	<150,000	<15,000	<1,500	<1,500	
	5/16/2006	1,600	<100,000	2,000	<1,000	<1,000	<1,000	630,000	<1,000	<1,000	4,700	57,000	<100,000	<10,000	<1,000	<1,000	
	8/23/2006	2,600	<150,000	2,200	<1,500	<1,500	<1,500	1,000,000	<1,500	<1,500	5,200	79,000	<150,000	<15,000	<1,500	<1,500	
	11/13/2006	NA	<100,000	<1,000	<1,000	<1,000	<1,000	610,000	<1,000	<1,000	4,000	110,000	NA	NA	NA	NA	
	2/13/2007	840	<70,000	1,200	<700	<700	<700	530,000	<700	<700	2,500	100,000	NA	NA	NA	NA	
	5/16/2007	1,500	<70,000	1,700	<700	<700	<700	990,000	<700	<700	3,900	150,000	NA	NA	NA	NA	
	8/16/2007	1,400	<80,000	1,900	<800	<800	<800	680,000	<800	<800	3,400	210,000	NA	NA	NA	NA	
	11/16/2007	860	<70,000	<700	<700	<700	<700	440,000	<700	<700	1,700	280,000	NA	NA	NA	NA	
	2/19/2008	800	<25,000	340	1.5	<250	<250	300,000	<5.0	26	1,200	340,000	NA	NA	NA	NA	
	6/25/2008	1,200	<40,000	580	<400	<400	<400	260,000	<400	<400	1,100	450,000	NA	NA	NA	NA	
	9/17/2008		No groundwater samples collected, per ACEH														
	12/8/2008		No groundwater samples collected, per ACEH														
	<b>7/1/2009</b>		<b>No groundwater samples collected, per ACEH April 24, 2009 letter</b>														
<b>EW-2</b>	2/22/2006	<3,000	10,000	1,800	<100	700	670	120,000	<100	<100	1,200	36,000	<80,000	<1,000	<100	<100	
	5/16/2006	<3,000^	<25,000	2,400	<250	1,110	880	180,000	<250	<250	1,400	45,000	<25,000	<2,500	<250	<250	
	8/23/2006	<2,000	<25,000	1,600	<250	520	<250	120,000	<250	<250	930	35,000	<25,000	<2,500	<250	<250	
	11/13/2006	NA	<10,000	610	<100	170	<100	60,000	<100	<100	380	25,000	NA	NA	NA	NA	
	2/13/2007	<2,000	<15,000	1,100	<150	230	<150	81,000	<150	<150	700	49,000	NA	NA	NA	NA	
	5/16/2007	<3,000^	9,900	1,700	<50	460	170	96,000	<50	<50	870	65,000	NA	NA	NA	NA	
	8/16/2007	<2,000^	<15,000	1,300	<150	250	<150	100,000	<150	<150	700	75,000	NA	NA	NA	NA	
	11/16/2007	<1,500	8,100	820	5.5	190	91	30,000	<0.50	4.6	230	47,000	NA	NA	NA	NA	
	2/19/2008	<2,000	11,000	1,500	<50	610	300	78,000	<50	<50	590	130,000	NA	NA	NA	NA	
	6/25/2008	1,600	<5,000	730	<50	<50	<50	11,000	<50	<50	120	130,000	NA	NA	NA	NA	
	9/18/2008	1,300	<5,000	310	<50	<50	<50	3,500	<50	<50	<50	160,000	NA	NA	NA	NA	
	12/9/2008	<1,500	<5,000	650	<50	210	68	9,600	<50	<50	150	140,000	NA	NA	NA	NA	
	<b>7/1/2009</b>		<b>No groundwater samples collected, per ACEH April 24, 2009 letter</b>														

**NOTES:**

**TABLE 4**  
**GROUNDWATER ANALYTICAL DATA (Shallow Zone)**

Eagle Gas Station  
4301 San Leandro Street  
Oakland, California

Sample ID	Sample Date	TPH-d (µg/L)	TPH-g (µg/L)	B (µg/L)	T (µg/L)	E (µg/L)	X (µg/L)	MTBE (µg/L)	DIPE (µg/L)	ETBE (µg/L)	TAME (µg/L)	TBA (µg/L)	Methanol (µg/L)	Ethanol (µg/L)	DCA (µg/L)	EDB (µg/L)
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NA	Not Analyzed															
TPH-d	Total petroleum hydrocarbons as diesel by EPA Method 8015 (modified)															
TPH-g	Total petroleum hydrocarbons as gasoline by EPA Method 8260B															
BTEX	Benzene, toluene, ethylbenzene, total xylenes by EPA Method 8260B															
MTBE	Methyl tertiary butyl ether by EPA Method 8260B															
DIPE	Di-isopropyl ether by EPA Method 8260B															
ETBE	Ethyl tertiary butyl ether by EPA Method 8260B															
TAME	Tertiary amyl methyl ether by EPA Method 8260B															
TBA	Tertiary butyl alcohol by EPA Method 8260B															
DCA	1,2-Dichloroethane															
EDB	1,2-Dibromoethane															
ESL	Environmental Screening Levels for deep soils and groundwater that are not a current or potential source of drinking water, San Francisco Bay Regional Water Quality Control Board, February 2005															
(µg/L)	Micrograms per liter															
#	See Well Gauging/Purging Calculation Data Sheets for date of depth-to-groundwater measurement															
<50	Not detected in concentrations above indicated laboratory reporting limit															
J	Estimated quantity because the MTBE-to-TBA ratio is greater than 20 to 1.															
---	No samples collected, no data available															
--	Not provided															
*	Laboratory note:"Results within quantitation range; chromatographic pattern not typical of fuel"															
^	The method reporting limit for TPH-d is increased due to interference from gasoline-range hydrocarbons.															
^^	Petroleum hydrocarbons reported as TPH-d do not exhibit a typical Diesel chromatogram pattern; they have a lower boiling point than typical Diesel fuel.															
++	The method reporting limit has been increased due to the presence of an interfering compound.															

**TABLE 5**  
**GROUNDWATER ANALYTICAL DATA (Deep Zone)**  
Eagle Gas Station  
4301 San Leandro Street  
Oakland, California

Sample Name	Sample Date	TPH-d (µg/L)	TPH-g (µg/L)	B (µg/L)	T (µg/L)	E (µg/L)	X (µg/L)	MTBE (µg/L)	DIPE (µg/L)	ETBE (µg/L)	TAME (µg/L)	TBA (µg/L)	Methanol (µg/L)	Ethanol (µg/L)	DCA (µg/L)	EDB (µg/L)
<b>ESL (µg/L)</b>		<b>640</b>	<b>500</b>	<b>46</b>	<b>130</b>	<b>290</b>	<b>100</b>	<b>1,800</b>	<b>--</b>	<b>--</b>	<b>--</b>	<b>18,000</b>	<b>--</b>	<b>50,000</b>	<b>200</b>	<b>150</b>
<b>MW-1D</b>	11/13/2007	140	71	<0.50	<0.50	<0.50	<0.50	600	<0.50	<0.50	3.4	550	<50	<5.0	<0.50	<0.50
	11/27/2007	No groundwater samples collected														
	2/19/2008	180	<50	<0.50	<0.50	<0.50	<0.50	1.5	<0.50	<0.50	<0.50	<5.0	NA	NA	NA	NA
	6/25/2008	<50	<50	<0.50	<0.50	<0.50	<0.50	2.8	<0.50	<0.50	<0.50	<5.0	NA	NA	NA	NA
	9/17/2008	<50	<50	<0.50	<0.50	<0.50	<0.50	1.7	<0.50	<0.50	<0.50	<5.0	NA	NA	NA	NA
	12/8/2008	<50	<50	<0.50	<0.50	<0.50	<0.50	0.91	<0.50	<0.50	<0.50	<5.0	NA	NA	NA	NA
	<b>7/1/2009</b>	<b>No groundwater samples collected, per ACEH April 24, 2009 letter</b>														
	<b>MW-4D</b>	2/21/2006	<50	<90	<0.90	<0.90	<0.90	<0.90	440	<0.90	<0.90	1.8	<5.0	<90	<9.0	<0.90
	5/16/2006	<50	<50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<5.0	<50	<5.0	<0.50	<0.50
	8/23/2006	<50	<50	<0.50	<0.50	<0.50	<0.50	1	<0.50	<0.50	<0.50	<5.0	93	8	<0.50	<0.50
	11/13/2006	NA	<50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<5.0	NA	NA	NA	NA
	2/13/2007	<50	<50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<5.0	NA	NA	NA	NA
	5/15/2007	<50	<50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<5.0	NA	NA	NA	NA
	8/15/2007	130^^	<50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<5.0	NA	NA	NA	NA
	11/13/2007	<50	<50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<5.0	NA	NA	NA	NA
	11/27/2007	No groundwater samples collected														
	2/29/2008	170	<50	<0.50	<0.50	<0.50	<1.0	0.64	<0.50	<0.50	<0.50	<5.0	<50	<5.0	NA	NA
	6/25/2008	<50	<50	<0.50	<0.50	<0.50	<0.50	7.90	<0.50	<0.50	<0.50	<5.0	NA	NA	NA	NA
	9/17/2008	72	<50	<0.50	<0.50	<0.50	<0.50	5.7	<0.50	<0.50	<0.50	<5.0	NA	NA	NA	NA
	12/8/2008	<50	<50	<0.50	<0.50	<0.50	<0.50	150	<0.50	<0.50	0.98	74	NA	NA	NA	NA
	<b>7/1/2009</b>	<b>No groundwater samples collected, per ACEH April 24, 2009 letter</b>														
<b>MW-5D</b>	2/21/2006	<50	<50	<0.50	<0.50	<0.50	<0.50	8.1	<0.50	<0.50	<0.50	5.5	<50	<5.0	<0.50	<0.50
	5/16/2006	<50	<50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<5.0	<50	<5.0	<0.50	<0.50
	8/23/2006	<50	<50	<0.50	<0.50	<0.50	<0.50	56	<0.50	<0.50	<0.50	<5.0	120	6	<0.50	<0.50
	11/13/2006	NA	<50	<0.50	<0.50	<0.50	<0.50	81	<0.50	<0.50	<0.50	<5.0	NA	NA	NA	NA
	2/13/2007	<50	<50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<5.0	NA	NA	NA	NA
	5/15/2007	<50	<50	<0.50	<0.50	<0.50	<0.50	1.1	<0.50	<0.50	<0.50	<5.0	NA	NA	NA	NA
	8/15/2007	330^^	<50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<5.0	NA	NA	NA	NA
	11/13/2007	3,700	51	<0.50	<0.50	<0.50	<0.50	3.1	<0.50	<0.50	<0.50	<5.0	NA	NA	NA	NA

**TABLE 5**  
**GROUNDWATER ANALYTICAL DATA (Deep Zone)**  
Eagle Gas Station  
4301 San Leandro Street  
Oakland, California

Sample Name	Sample Date	TPH-d (µg/L)	TPH-g (µg/L)	B (µg/L)	T (µg/L)	E (µg/L)	X (µg/L)	MTBE (µg/L)	DIPE (µg/L)	ETBE (µg/L)	TAME (µg/L)	TBA (µg/L)	Methanol (µg/L)	Ethanol (µg/L)	DCA (µg/L)	EDB (µg/L)
	11/27/2007	No groundwater samples collected														
	2/19/2008	12,000	<50	<0.50	<0.50	<0.50	<0.50	190	<0.50	<0.50	0.83	36	NA	NA	NA	NA
	6/25/2008	74	<50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<5.0	NA	NA	NA	NA
	9/17/2008	65	<50	<0.50	<0.50	<0.50	<0.50	1.1	<0.50	<0.50	<0.50	<5.0	NA	NA	NA	NA
	12/8/2008	<50	<50	<0.50	<0.50	<0.50	<0.50	1.4	<0.50	<0.50	<0.50	<5.0	NA	NA	NA	NA
	<b>7/1/2009</b>	<b>No groundwater samples collected, per ACEH April 24, 2009 letter</b>														
<b>MW-7D</b>	11/13/2007	760	<150	<1.5	<1.5	<1.5	<1.5	760	<1.5	<1.5	5.3	<5.0	<150	31	<1.5	<1.5
	11/27/2008	No groundwater samples collected														
	2/19/2008	280	<150	<1.5	<1.5	<1.5	2.4	1,000	<1.5	<1.5	7.5	17J	NA	NA	NA	NA
	6/25/2008	92	<100	<1.0	<1.0	<1.0	<1.0	690	<1.0	<1.0	5.9	63	NA	NA	NA	NA
	9/17/2008	52	<300	<3.0	<3.0	<3.0	<3.0	1,300	<3.0	<3.0	10	24J	NA	NA	NA	NA
	12/8/2008	<50	<50	<0.50	<0.50	<0.50	<0.50	320	<0.50	<0.50	3.2	<5.0	NA	NA	NA	NA
	<b>7/1/2009</b>	<b>&lt;50</b>	<b>&lt;50</b>	<b>&lt;0.50</b>	<b>&lt;0.50</b>	<b>&lt;0.50</b>	<b>&lt;0.50</b>	<b>24</b>	<b>&lt;0.50</b>	<b>&lt;0.50</b>	<b>&lt;0.50</b>	<b>&lt;5.0</b>	<b>NA</b>	<b>NA</b>	<b>NA</b>	<b>NA</b>
<b>MW-9D</b>	12/9/2008	150	420	0.60	<0.50	1.7	3.4	1.7	<0.50	<0.50	<0.50	<5.0	<50	<5.0	0.54	<0.50
	<b>7/1/2009</b>	<b>&lt;50</b>	<b>440</b>	<b>&lt;0.50</b>	<b>&lt;0.50</b>	<b>&lt;0.50</b>	<b>&lt;0.50</b>	<b>&lt;0.50</b>	<b>&lt;0.50</b>	<b>&lt;0.50</b>	<b>&lt;0.50</b>	<b>&lt;5.0</b>	<b>NA</b>	<b>NA</b>	<b>NA</b>	<b>NA</b>
<b>MW-10D</b>	12/9/2008	120	120	0.64	<0.50	0.63	1.3	1.5	<0.50	<0.50	<0.50	<5.0	<50	<5.0	0.51	<0.50
	<b>7/1/2009</b>	<b>&lt;50</b>	<b>110</b>	<b>&lt;0.50</b>	<b>&lt;0.50</b>	<b>&lt;0.50</b>	<b>&lt;0.50</b>	<b>&lt;0.50</b>	<b>&lt;0.50</b>	<b>&lt;0.50</b>	<b>&lt;0.50</b>	<b>&lt;5.0</b>	<b>NA</b>	<b>NA</b>	<b>NA</b>	<b>NA</b>
<b>MW-11D</b>	12/8/2008	<50	<50	<0.50	<0.50	<0.50	<0.50	3.0	<0.50	<0.50	<0.50	5.0	<50	<50	<0.50	<0.50
	<b>7/1/2009</b>	<b>&lt;50</b>	<b>&lt;50</b>	<b>&lt;0.50</b>	<b>&lt;0.50</b>	<b>&lt;0.50</b>	<b>&lt;0.50</b>	<b>2.0</b>	<b>&lt;0.50</b>	<b>&lt;0.50</b>	<b>&lt;0.50</b>	<b>&lt;5.0</b>	<b>NA</b>	<b>NA</b>	<b>NA</b>	<b>NA</b>

**NOTES:**

- NA Not Analyzed
- TPH-d Total petroleum hydrocarbons as diesel by EPA Method 8015 (modified)
- TPH-g Total petroleum hydrocarbons as gasoline by EPA Method 8260B
- BTEX Benzene, toluene, ethylbenzene, total xylenes by EPA Method 8260B
- MTBE Methyl tertiary butyl ether by EPA Method 8260B

**TABLE 5**  
**GROUNDWATER ANALYTICAL DATA (Deep Zone)**

Eagle Gas Station  
 4301 San Leandro Street  
 Oakland, California

Sample Name	Sample Date	TPH-d (µg/L)	TPH-g (µg/L)	B (µg/L)	T (µg/L)	E (µg/L)	X (µg/L)	MTBE (µg/L)	DIPE (µg/L)	ETBE (µg/L)	TAME (µg/L)	TBA (µg/L)	Methanol (µg/L)	Ethanol (µg/L)	DCA (µg/L)	EDB (µg/L)
DIPE	Di-isopropyl ether by EPA Method 8260B															
ETBE	Ethyl tertiary butyl ether by EPA Method 8260B															
TAME	Tertiary amyl methyl ether by EPA Method 8260B															
TBA	Tertiary butyl alcohol by EPA Method 8260B															
DCA	1,2-Dichloroethane															
EDB	1,2-Dibromoethane															
ESL	Environmental Screening Levels for deep soils and groundwater that are not a current or potential source of drinking water, San Francisco Bay Regional Water Quality Control Board, February 2005															
(µg/L)	Micrograms per liter															
<50	Not detected in concentrations above laboratory reporting limit															
J	Estimated quantity because the MTBE-to-TBA ratio is greater than 20 to 1.															
---	Not provided															
^^	Petroleum hydrocarbons reported as TPH-d do not exhibit a typical Diesel chromatogram pattern; they have a lower boiling point than typical Diesel fuel															
++	The method reporting limit has been increased due to the presence of an interfering compound															



# APPENDIX A

Mr. Jerry Wickham  
Hazardous Materials Specialist

Alameda County Health Care Services Agency  
Environmental Health Services  
Environmental Protection  
1131 Harbor Bay Parkway, Suite 250  
Alameda, CA 94502

**RE: Eagle Gas Station**  
4301 San Leandro Street  
Oakland, California 94601

LOP SID# 2118  
Fuel Leak Case No. RO0000096  
USTCF Claim No. 014551

Dear Mr. Wickham,

As the legally authorized representative of the above-referenced project location, I have reviewed the *Request for Modifying the Quarterly Groundwater Monitoring Program* submitted on February 20, 2009, prepared by Environmental Risk Specialties Corporation (ERS), of Walnut Creek, California. I declare, under penalty of perjury, that the information and/or recommendations contained in this document or report are true and correct to the best of my knowledge.

Sincerely,

  
Mr. Muhammad Jamil

February 20, 2009

Mr. Jerry Wickham, Hazardous Materials Specialist  
Alameda County Environmental Health Services  
Environmental Protection Division  
1131 Harbor Bay Parkway, Suite 250  
Alameda, CA 94502-6577

**RE: Request for Modifying the Quarterly Groundwater Monitoring Program**  
Eagle Gas Station  
4301 San Leandro Street  
Oakland, California 94601

LOP StID# 2118  
ACEH Case No. RO0000096  
USTCF Claim No. 014551

Dear Mr. Wickham:

Ms. Farah Naz and Mr. Muhammad Jamil, claimants of the UST Cleanup Fund #014551, have retained Environmental Risk Specialties Corporation (ERS) as their new consultant. They mailed a letter to your office on January 30, 2009 to introduce our relationship.

ERS has reviewed the *Quarterly Groundwater Monitoring Report – Fourth Quarter 2008* and all the previous groundwater monitoring reports submitted by Clearwater Group following October 31, 2000 (third quarter 2000). Available monitoring reports indicate that Clearwater Group has performed extensive groundwater sampling and monitoring for the subject site since October 2000. Based on the updated Site Conceptual Model developed for the subject site and all the groundwater sampling data, both the concentration level of the contaminants of concern and their lateral/vertical distribution under the subject site have been fully characterized. Although the site lithology is heterogeneous, groundwater in the shallow groundwater zone (ranging from the ground surface to a maximum depth of approximately 25 feet below ground surface) is heavily impacted by MTBE, TBA, TPH-g, and benzene. The deep groundwater zone is not significantly impacted.

Based on the delineated contaminant plumes, level of groundwater impact, and the associated concentration trends, ERS recommends modifying the existing groundwater monitoring program by including the following changes:

- Number of sampling wells
- Frequency of sampling
- Groundwater sampling method

**Number of Sampling Wells**

ERS recommends to only sample the following 10 wells:

Wells	Rationale
MW-4	<ul style="list-style-type: none"> <li>• Highly impacted</li> <li>• Near an identified “hot spot”</li> <li>• Stable concentration trend</li> </ul>
MW-7	<ul style="list-style-type: none"> <li>• Highly impacted</li> <li>• Near the mass center of the plume</li> <li>• Stable concentration trend</li> </ul>
MW-7D	<ul style="list-style-type: none"> <li>• Deep zone well underneath/near the plume center</li> <li>• Slightly impacted by MTBE</li> </ul>
MW-8	<ul style="list-style-type: none"> <li>• Highly impacted</li> <li>• Near the mass center of the plume</li> <li>• Near the northwestern dispenser</li> <li>• Stable concentration trend</li> </ul>
MW-9	<ul style="list-style-type: none"> <li>• Off-site well recently installed in December 2008</li> </ul>
MW-9D	<ul style="list-style-type: none"> <li>• Off-site well recently installed in December 2008</li> </ul>
MW-10	<ul style="list-style-type: none"> <li>• Off-site well recently installed in December 2008</li> </ul>
MW-10D	<ul style="list-style-type: none"> <li>• Off-site well recently installed in December 2008</li> </ul>
MW-11D	<ul style="list-style-type: none"> <li>• Off-site well recently installed in December 2008</li> </ul>
IS-5	<ul style="list-style-type: none"> <li>• Highly impacted</li> <li>• Near the mass center of the plume</li> <li>• Near the northeastern dispenser</li> </ul>

During future sampling events, all 25 existing on-site/off-site wells shown in Figure 2 and Table 3 of the 2008 Fourth Quarter monitoring report (Clearwater, 2008) will be gauged for groundwater depth and also checked for the presence of free product.

### Frequency of Sampling

ERS recommends sampling the 10 wells as described above on a semi-annual basis in January (winter) and July (summer). All the existing 25 on-site/off-site wells will only be sampled annually in October, including the 10 wells to be sampled on a semi-annual basis.

### Groundwater Sampling Method

Since MTBE and TBA are highly soluble in water and are the major contaminants of concern at the subject site, these two compounds tend to be uniformly distributed in the water column as opposed to the light petroleum hydrocarbons. Thus, ERS recommends the use of Low-Flow Rate Purging and Sampling following the ASTM protocol (ASTM, 2002) to replace the three-casing volume purging method currently used for the quarterly groundwater sampling of the subject site. Depending on the depths of the groundwater and the screen interval of the monitoring well, the target sampling depth will be either 2 feet below the water table (if top of the well screen is above the water table) or be 2 feet below the top of the well screen (if the top of the screen is below the water table).

If you have questions, please feel free to call the undersigned at (925) 938-1600 ext. 108. Your concurrence on the proposed changes is much appreciated.

Sincerely,  
ERS



Jim Ho, Ph.D., P.E.  
Principal Engineer



cc: Ms. Farah Naz and Mr. Muhammad Jamil

## References

ASTM, *Standard Practice for Low-Flow Purging and Sampling for Wells and Devices Used for Ground-Water Quality Investigations*, ASTM Designation: D 6671 – 02, 2002, p.6.

Clearwater Group, *Quarterly Groundwater Monitoring Report – Fourth Quarter 2008*, February 2009.

# APPENDIX B

## SITE INVESTIGATION HISTORY

On April 21 and 22, 1999, Clearwater (formerly Artesian Environmental) oversaw the removal of five underground storage tanks (USTs) consisting of two 6,000-gallon gasoline tanks, two 4,000-gallon diesel tanks, and one 300-gallon used-oil tank from the site. Strong petroleum odors were identified at the UST excavation pit. Five soil samples and three groundwater samples were collected from the UST excavation for confirmation. Field observations and laboratory analysis indicated that an unauthorized release of petroleum had occurred. The former UST excavation area is shown in **Figure 2** and was defined by driven steel structural shoring installed to protect on-site and off-site buildings.

In a letter dated May 10, 1999, the Alameda County Environmental Health (ACEH) recommended that soil be remediated by over-excavation and “as much groundwater as possible” be pumped from the excavation site. Approximately 800 tons of petroleum-impacted soil was excavated and disposed of as Class II non-hazardous waste and approximately 1,000 gallons of petroleum-impacted groundwater was pumped and removed from the site. Groundwater did not recharge quickly after the initial pumping due to the steel shoring. Existing on- and off-site structures and associated shoring limited the amount of soil that could be safely excavated. Soil samples collected from the excavation walls and product-piping trenches indicated that residual concentrations of petroleum hydrocarbons and methyl-tert-butyl-ether (MTBE) still existed.

On August 4 and 5, 1999, approximately 100 linear feet of product piping was removed. Vent piping from between the former USTs and the southern corner of the on-site building was also removed. All piping was cut up and disposed of as scrap metal. On August 5, 1999, confirmation soil samples were collected along the piping trench. Six samples were collected from approximately three feet bgs. An additional four samples were collected, one from each of the four former fuel dispensers. Laboratory analysis results indicated that hydrocarbon-related contamination existed along the piping trenches.

On September 26, 2000, West Hazmat of Rancho Cordova, California, used a CME 75 drill rig to advance three borings to approximately 25 feet bgs and collect soil samples. Each of the three borings was converted to a groundwater-monitoring well (see **Figure 2**) using clean, flush-threaded, 2-inch diameter polyvinyl chloride (PVC) for well casing. The construction data for these three wells are presented in **Table 1**.

On October 3 and 10, 2000, Clearwater surveyed the top of the casing elevation for each of the wells relative to an arbitrary datum, and developed the wells for monitoring purposes. Initial groundwater samples collected from these wells contained 83,000 micrograms per liter ( $\mu\text{g/L}$ ) to 250,000  $\mu\text{g/L}$  total petroleum hydrocarbon as gasoline (TPH-g) and 33,000  $\mu\text{g/L}$  to 400,000  $\mu\text{g/L}$  MTBE.

On August 3, 2001, Clearwater submitted its *Groundwater Monitoring Report - Second Quarter 2001* and *Sensitive Receptor Survey and Workplan for Continuing Investigation*.



It was determined at that time that there were no major ecological receptors, permanent surface waters or domestic-use wells within a 2,000-foot radius of the site. The proposed scope of the work plan included the installation of eight groundwater monitoring wells around the site to delineate the MTBE plume in groundwater. In response to Clearwater's work plan, ACEH staff, in a correspondence dated October 18, 2001, recommended that the installation of additional off-site wells not be performed for the time being. Instead, ACEH staff requested that further characterization of subsurface soils and groundwater on the subject site be completed prior to the installation of any off-site wells.

Quarterly monitoring was suspended after the Third Quarter 2001 event that took place on August 3, 2001. Quarterly monitoring resumed in July 2003 and has continued every quarter since then. The historical groundwater monitoring and sampling results are listed in **Table 2**.

On January 9, 2004, after completing its review of the Third Quarter 2003 groundwater monitoring report, ACEH staff requested a work plan to include additional on-site and off-site subsurface investigations and address the extent of groundwater impact on site. Clearwater submitted an *Interim Remedial Action Plan (IRAP)*, as requested by ACEH staff on January 14, 2004.

In order to expedite the implementation of the Interim Remedial Action Plan (IRAP), Clearwater formally requested the Oakland Fire Department to review the IRAP and the *Fourth Quarter 2004 Groundwater Monitoring Report* as well as to oversee the project. The Fire Department verbally agreed to oversee this project. The correspondence is shown in letters to the Fire Department dated December 3 and 15, 2004. The Fire Department turned the project over to ACEH. ACEH provided its review comments for the IRAP and the *First Quarter 2005 Groundwater Monitoring Report* in a letter dated May 26, 2005. Pursuant to ACEH's request described in this letter, Clearwater submitted a *Soil and Groundwater Investigation Workplan* on August 10, 2005. In review letters dated September 21, 2005 and November 1, 2005, ACEH approved the implementation of a modified IRAP proposed in Clearwater's June 13, 2005 letter entitled "*Recommendations for Interim Remedial Actions*" and the August 10, 2005 *Soil and Groundwater Investigation Workplan*. Based on the above documents and correspondences, Clearwater installed 15 additional on-site wells between December 15 to 20, 2005, and conducted Geoprobe<sup>®</sup> soil and groundwater sampling between December 6 to 9, 2005 and from March 29 to April 2, 2006. In order to monitor the level of groundwater impact and the magnitude of vertical migration of contaminants in deeper groundwater, two deep monitoring wells MW-4D and MW-5D were also installed. These wells were screened between 35 to 45 feet bgs. The construction data for all the new wells is also presented in **Table 1**. All the wells were surveyed by Clearwater using a global positioning system (GPS) and laser level on March 16, 2006.

On the basis of apparent on-site groundwater mounding and unusually steep on-site groundwater gradients, ACEH staff requested a check of the groundwater elevation data. Each well's horizontal position was originally determined using a GPS survey in 2005. Clearwater field-checked the well locations of all the groundwater monitoring wells on

August 18, 2006, using a 100 foot-long cloth tape. The horizontal distances between the wells were measured, and the well positions were triangulated from these measurements. Several well locations were adjusted slightly on the base map; the revised base map with the resurveyed well locations is shown in **Figure 2** and has been used throughout reports generated since that time.

The TOC elevations of all the wells were measured again on September 12, 2006, using a survey level and survey staff, accurate to within 0.01 feet. The TOC elevation for well MW-1 (northwestern corner of site) was the starting datum, and the TOC elevation for all the other wells was calculated as the relative difference from MW-1's TOC elevation. The surveyed TOC elevations were compared with the previously used TOC elevations, which were determined using a laser level. The relative difference in the TOC elevation for each well was determined. The maximum vertical difference was found to be 0.12 foot for well IS-3. **Table 2** presents the original elevation values up to May 9, 2005, followed by the resurveyed TOC elevations after that date. The overall groundwater gradient pattern did not significantly change after completion of the monitoring well resurvey.

Sampling analysis for *Escherichia coli* (*E. coli*), total coliform, and water treatment byproducts as residual chlorine was performed in November 2006 on groundwater samples obtained from wells IS-5, MW-8, and MW-7 in an attempt to identify whether on-site groundwater mounding could be caused by water and/or sewer line leaks; both *E. coli* and total coliform were present in IS-5 and MW-8, and water treatment byproducts were present in IS-5, MW-8, and MW-7. Leak testing was performed; both a crack and an off-set in the sewer line were identified to exist near well IS-1. The sampling results for the *E. coli*, total coliform, and water treatment byproducts were reported in the *Quarterly Groundwater Monitoring Report – Fourth Quarter 2006*, and the sewer line leak test results were reported in the *Quarterly Groundwater Monitoring Report – First Quarter 2007*.

On May 30, 2006, Clearwater submitted its *Soil and Groundwater Investigation Report* to the ACEH, which included an updated Site Conceptual Model for the site. In response to the report, ACEH requested a work plan to present proposed additional on- and off-site investigations. ACEH staff also provided technical comments to be addressed in the work plan. Clearwater's *Response to Comments* was sent to ACEH on July 7, 2006.

ACEH responded with a letter on August 11, 2006, containing revised technical comments to be incorporated into the work plan. Clearwater submitted its *Revised Workplan* to the ACEH on December 19, 2006. ACEH responded with technical comments in a letter dated January 4, 2007; these comments were to be addressed and incorporated during the field investigation. Submission of an additional revised work plan was not requested by ACEH staff.

A *Bioremediation Feasibility Study Report* (Feasibility Report) was submitted July 9, 2007. The feasibility report concluded that the bioremediation parameters suggest an environment that is generally anaerobic and reducing. It appears that the general lack of

sufficient oxygen and essential nutrients is limiting the degradation of the petroleum hydrocarbons.

Clearwater submitted its 2007 *Soil and Groundwater Investigation Report* (2007 Report) to the ACEH on December 5, 2007. The scope of work presented in the 2007 report included an inspection of the on-site sanitary sewer lateral, driving and sampling of 15 off-site soil borings, driving of 2 cone-penetrometer test (CPT) borings, installation of additional on-site “deep-zone” groundwater monitoring wells MW-1D and MW-7D, installation and sampling of 6 shallow soil vapor wells, surveying of 8 well and 15 boring locations by GPS, and collection of soil samples for a persulfate bench test.

The 2007 report included a revised Site Conceptual Model (SCM). In the new SCM, the depth of the contact between the clayey gravel layer and the underlying soil has been revised. The site lithology can be conceptually divided into an upper shallow zone and a lower deep zone. The shallow zone is generally richer in clay and the deep zone is generally coarser grained. The separation between the two zones varies from 25 to 30 feet bgs. The groundwater within the shallow zone is highly contaminated, whereas the groundwater within the deep zone is relatively less contaminated. Grab groundwater samples collected from off-site borings indicate that the groundwater contamination within both zones extends off site and that the extent of the off-site contamination has not been defined in either zone.

Clearwater generated the groundwater elevation contours for the 2007 report using the same depth-to-water data used for the Fourth Quarter 2007 Groundwater Monitoring event. With this data set, the groundwater elevation contours for the shallow zone were consistent with previously reported quarterly groundwater elevation contours. The groundwater elevation contours for the deep zone were generated on November 13, 2007, using data from wells MW-1D, MW-4D, MW-5D, and MW-7D. Because the deep zone groundwater elevation contour pattern did not conform to the shallow zone groundwater elevation pattern, the depths to groundwater of deep zone wells were measured a second time on November 27, 2007. Both sets of measurements indicated a partial groundwater depression, with a groundwater flow direction toward the north.

Clearwater submitted its 2008 *Soil and Groundwater Investigation Work Plan* (2008 Work Plan) to the ACEH on July 2, 2008. The 2008 Work Plan proposed conducting an off-site passive soil vapor survey, installing additional groundwater monitoring well, determining whether the 42<sup>nd</sup> Avenue freeway onramp is a groundwater discharge area, and performing a high-vacuum dual phase extraction pilot test. The ACEH approved the 2008 Work Plan in a letter dated September 4, 2008. However, the ACEH did not agree with the proposed passive soil sampling survey.

In January 2009, four groundwater monitoring wells (MW-9, MW-9D, MW-10, and MW-10D) were installed on nearby off-site properties and one additional monitoring well (MW-11D) was installed on site. The well installations were described in the January 21, 2009 *Groundwater Monitoring Well Installation Report*. The new wells and wells MW-3 and IS-4 were surveyed relative to the North American Vertical Datum of 1988 (NAVD

88). After the survey, the top casing elevations of all the site wells were adjusted to NAVD 88.

The finalized design and location of the on-site High Vacuum Dual Phase Extracting test trench and observation wells were submitted to the ACEH for review in January 2009.

# APPENDIX C

## **GROUNDWATER MONITORING AND SAMPLING - STANDARD OPERATING PROCEDURES (SOP)**

### **1. Purposes**

This document focuses on the equipment, field procedures, and level of accuracy and quality control measures required for the groundwater monitoring and sampling program. Development of this SOP is to guide the ERS field staff to perform the groundwater monitoring and sampling jobs properly, to maintain consistency of field procedures, and to facilitate the assurance of the quality and reliability of data obtained from all groundwater monitoring events.

### **2. Equipment**

Groundwater monitoring and sampling need the following equipment and supplies:

- Job description, site maps, chain-of-custody, field data forms and activity logs, indelible ink pen, watch, cell phone
- Hardhead, boots, safety vest/suit, and gloves
- Traffic control cones and tapes
- Water level indicator (sounder)
- Purging pump or bailers
- Water quality meter(s)
- Decon water, soap, and Liquinox<sup>®</sup> solution
- Sampling pump or bailers
- Laboratory-supplied sample bottles/containers
- Ice chest(s) with ice
- Waste storage drums and buckets
- Tools for opening well caps, string, tubing, and duck or Teflon tapes
- Multi-phase sounder, if needed.
- Health & Safety Plan

### **3. Procedures**

Groundwater monitoring and sampling job include the following procedures, and should be performed in the designated order:

1. Job Preparation
2. Equipment Decontamination
3. Gauging of Groundwater Depth
4. Purging of Wells
5. Well Sampling
6. Handling of Groundwater Samples
7. Closing of Monitoring Event

## **Job Preparation**

The following work should be conducted prior to arriving the site:

- Contact project manager
- Review job description, site direction, site maps, list of chemicals to be analyzed, H&SP
- Prepare chain-of-custody and sample labels
- Contact analytical lab for sample pickup
- Contact site manager 24 hours before sampling
- Calibrate water quality instruments daily
- Check equipment, supplies, and vehicle before departure

## **Equipment Decontamination**

After checking in with the site manager, a decontamination area and traffic control cones should be setup prior to well gauging and sampling. Any non-dedicated downhole gauging, purging or sampling equipment should be decontaminated prior to use. Downhole equipment is scrubbed in a Liquinox® solution wash. Wash solution is also pumped through purging pumps and rinsed with potable water. The same equipment should be rinsed again with potable water or de-ionized water if the latter is required.

## **Gauging of Groundwater Depth**

If local groundwater is under confined or semi-confined conditions, caps for all monitoring wells should be opened to allow atmospheric pressure to equalize for about 15 minutes prior to gauging. Depth to bottom for each well should be measured during the first monitoring event at the site. It is typically measured once every year or more frequently, if needed. The static water level is measured to the nearest 0.01 feet with an electronic water indicator. If historical analytical data for monitoring wells are not available, which can be used to establish an order of increasing contamination, the water level indicator should be decontaminated between wells. If floating product or separate-phase hydrocarbons (SPH) are suspected or observed within wells, a clear and open-ended bailer will be used to collect the product or SPH. The thickness is measured to the nearest 0.01 feet in the bailer. SPH may also be measured with an electronic interface probe. Any monitoring well containing a measurable thickness of SPH before or during purging will not be purged and sampled. Unless otherwise determined by the data conditions and specified by the project manager, wells containing hydrocarbon sheen are still sampled. Well conditions, water level and floating product thickness are recoded on appropriate data form.

## **Purging of Wells**

Prior to groundwater sampling, each monitoring well is purged using either a bailer or a submersible pump. Water quality parameters of the purged water including pH, temperature and conductivity are measured during purging activities in order to determine if the water collected from the well is representative of the aquifer. If required, parameters such as dissolved oxygen, total dissolved solids, and turbidity etc. are also measured. Samples are considered representative if data reaches stability. Stability is defined as a change of pH in less than 0.25 pH units, change

of conductivity less than 10% in  $\mu\text{S}$ , and change of temperature less than 1.0 degree centigrade or 1.8 degrees Fahrenheit. Selected quality parameters are measured in a discreet sample decanted from the bailer. Parameters are measured at least four times during purging: one before purging, and one each after purging each one casing volume. Purging continues until three well casing volumes of groundwater have been removed or until the well completely dewatered. Wells that dewater or demonstrate a slow recharge rate may still be sampled after less than three casing volumes have been removed. Well purging information is recorded on appropriate data form. Purge and rinse water is sealed, labeled, and stored on site in D.O.T.-approved 55-gallon drums. These drums are either picked up by a disposal facility pending chemical profiling data provided to the facility or directly transported to the appropriate facility for disposal.

If groundwater recharges slowly during purging, groundwater samples are collected when the well has recovered to at least 80% of its static water level. If recharge rate is extremely slow, the well is allowed to recharge for at least two hours, if practicable, or until sufficient volume of water has accumulated in the well for sampling. A well should be sampled within 24 hours of purging. All purging equipment should be thoroughly decontaminated between each well.

### **Well Sampling**

Groundwater samples are collected immediately after purging using polyethylene bailers, either disposable or dedicated to the well, or a low-rate peristaltic sampling pump. Samples being analyzed for volatile compounds are collected first. During sample collection for volatile organic analysis, the amount of air passing through the sample should be minimized. Sample bottles are filled slowly by running the collected water down the side of the bottle until there is a convex meniscus over the mouth of the bottle. The lid is carefully screwed onto the bottle such that no air bubbles are present within the bottle. If a bubble is present, the cap is removed and additional water is added to the sample container. After resealing the sample container, if bubbles still are present inside the bottle, the sample container should be discarded and the procedure is repeated with a new container.

### **Handling of Groundwater Samples**

Collected samples are placed in appropriate laboratory-supplied containers, labeled, documented on a chain of custody form, and placed on ice in a chilled cooler for transport to a state-certified analytical laboratory. Analytical detection limits should match or surpass standards required by relevant local or regional guidelines.

### **Closing of Monitoring Event**

The following work should be performed prior to leaving the site:

- Decon the equipment
- Cover/lock all wells
- Seal the drums that store purged water, and place them in a secure area
- Remove the cones/tapes and clean the ground
- Checkout with the site manager and call the project manager in the office

## **4. Quality Assurance (QC) Measures**



## Groundwater Monitoring and Sampling SOP

To prevent contamination of the samples in the field, the following measures should be taken:

- Put on a clean pair of latex gloves prior to sampling each well;
- Gauge, purge and sample wells in the determined order of increasing degree of contamination based on historical analytical results; and
- Based on the site conditions, regulatory requirements, or clients' request, include trip blanks and equipment blanks to QC the sample handling and transportation procedures, and include duplicate samples to QC the lab procedures.

Trip blanks are prepared by the laboratory. They are transported to the site in the same manner along with other laboratory-supplied sample bottles/containers. The trip blank are not opened in the field, and are returned to the laboratory with the collected groundwater samples.

Equipment blanks are obtained in the field to determine if the field sampling equipment has been effectively decontaminated. The sampling equipment used to collect the groundwater samples is rinsed with distilled water, which is then decanted into laboratory-supplied containers. The equipment blanks are transported to the laboratory in the same manner along with other collected groundwater samples, and are analyzed for the same chemical constituents as the groundwater samples collected at the site.

Duplicates are collected at the same time with other groundwater samples. They are analyzed for the same chemical constituents in order to verify the repeatability of laboratory procedures. Number of duplicates is determined based on the number of monitoring wells and the size of the monitoring program. The duplicates are assigned identification numbers that are not associated with the well identification.

# APPENDIX D

## Monitoring Well Gauging and Purging Data Sheet

Date: 7-1-09		Project No.		Site: Naz Eagle gas		Location: Oakland, CA		Initials: KB/YR	
Purge Method: Per: w/ ded tube		Gauging (Success) Time: 900		Gauging (EM) Time:		Purge Starting Time: /		Purge Ending Time: /	
Purge Method: Per: w/ ded tube								Sampling Method: Per: w/ ded tube	
Well ID	Diameter (in)	Depth to Bottom (ft)	Initial Depth to Water from TOC (ft)	Equilibrated Depth to Water from TOC (ft)	Static Water Column (ft)	Casing Volume (gal)	Purged Volume (gal)	Depth to Product (ft)	Note:
EW-1	4"	25.24	9.91	<del>8.84</del> 8.64			/	/	Strong T&H odor
* MW-4	2"	24.95	5.59	8.64					
MW-4D	2"	43.09	16.25	16.26					
MW-2	2"	24.86	14.00	14.00					
EW-2	4"	24.34	9.09	9.10					Sheen present
MW-5D	2"	42.77	15.02	15.02					
MW-5	2"	25.33	7.13	7.14					
IS-6	2"	24.57	7.52	7.55					Strong T&H Odor
IS-4	2"	25.15	7.36	7.79					
IS-2	2"	25.46	7.56	7.85					
MW-3	2"	23.30	11.72	11.71					
* MW-1D	2"	45.14	15.42	15.45					
Casing Volume = Static Water Column x Conversion Factor					Conversion Factor: 2-in well = 0.163 gal/ft, 4-in well = 0.653 gal/ft, 6-in well = 1.469 gal/ft				
Total purged volume from all wells (gals):									

## Monitoring Well Gauging and Purging Data Sheet

Date:		Project No.		Site:		Location:			Initials:	
Purge Method:				Gauging Time:	Gauging Time:	Purge Starting Time:		Purge Ending Time:		Sampling Method:
Well ID	Diameter (in)	Depth to Bottom (ft)	Initial Depth to Water from TOC (ft)	Equilibrated Depth to Water from TOC (ft)	Static Water Column (ft)	Casing Volume (gal)	Purged Volume (gal)	Depth to Product (ft)	Note:	
* MW-10	2"	15.12	<del>8.20</del>	<del>8.20</del>						
IS-3	2"	24.42	5.96	8.43					Sheen present	
* IS-5	2"	15.91	8.03	8.05					Strong Odor	
* MW-8	2"	24.81	8.41	8.42					Strong odor	
* MW-7D	2"	43.41	<del>10.05</del>	<del>10.05</del>						
* MW-7	2"	26.12	11.97	12.00					14.00	
MW-6	2"	25.51	10.85	10.85						
IS-1	2"	25.11	7.41	7.62						
MW-1D	2"	43.49	14.65	14.65						
MW-1	2"	24.71	9.40	7.14						
* MW-9D	2"	40.00	13.70	13.71					37.00	
* MW-9	2"	15.09	7.38	7.40					37.00	
* MW-10D	2"	52.36	13.30	13.38					37.00	
Casing Volume = Static Water Column x Conversion Factor					Conversion Factor: 2-in well = 0.163 gal/ft, 4-in well = 0.653 gal/ft, 6-in well = 1.469 gal/ft					
Total purged volume from all wells (gals):										

# Monitoring Well Gauging and Purging Data Sheet

Date: 7-17-09		Project No. NAZ EagleGas		Site: NAZ Eagle Gas		Location: Oakland, CA			Initials: YB/KB	
Purge Method: <hr/>				Gauging Start Time: 1426	Gauging End Time: 1526	Purge Starting Time: <hr/>		Purge Ending Time: <hr/>		Sampling Method: <hr/>
Well ID	Diameter (in)	Depth to Bottom (ft)	Initial Depth to Water from TOC (ft)	Equilibrated Depth to Water from TOC (ft)	Static Water Column (ft)	Casing Volume (gal)	Purged Volume (gal)	Depth to Product (ft)	Note:	
MW-1D	2"		14.95	14.93						
MW-4D	2"		16.52	16.53						
MW-5D	2"		15.29	15.27						
MW-7D	2"		16.46	16.43						
MW-11D	2"		15.72	15.72						
Casing Volume = Static Water Column x Conversion Factor					Conversion Factor: 2-in well = 0.163 gal/ft, 4-in well = 0.653 gal/ft, 6-in well = 1.469 gal/ft					
Total purged volume from all wells (gals):										

**Monitor Well Data Sheet**

Site Name: Eagle Gas Station	Well/Sample ID: MW-4
Location: 4301 San Leandro St, Oakland CA	Initial Depth to Water (DTW): 8.64
Client: Naz Eagle GAS	Total Well Depth (TD): 24.95
Sampler: KB/YB	Well Diameter: 2"
Date: 7-1-09	1 Casing Volume:
Purge Method: Peristaltic Pump	Purge Rate: 0.25
Sample Method: Low Flow	Sampling Rate: 0.2
2" well x 1 foot = 0.6 liters	4" well x 1 foot = 2.4L

Time	pH	SC	DO	Temp	DTW	Cumulative Volume	ORP	Notes
hh:mm	SU	µmhos/cm	mg/l	°C	feet	liters	mV	
1141	6.53	1569	⊖	19.05	9.01	0.75	-61.2	
1144	6.56	1596	⊖	19.08	9.45	1.50	-57.9	
1147	6.47	1576	⊖	18.83	9.57	2.25	-56.9	
1150	6.45	1574	⊖	18.82	9.89	3	-56.5	
1153	6.46	1573	⊖	18.74	10.01	3.75	-60.2	
1156	6.46	1571	⊖	18.76	10.07	4.50	-61.3	
1159	6.43	1571	⊖	18.80	10.10	5.25	-62.1	
Did Well Dewater?	N	Start Purge Time:	1138	DTW prior to sample:	10.10			
Casing volumes Purged:		Stop Purge Time:	1159	Start Sample Time:	1159			
Length of Tubing (ft):	~25'	Total Liters Purged:	5.25	Total Sample Volume:	<del>200</del> 200 mL			
Well Recharge:		Turbidity:	moderate	Color:	Light gray			
Odor:	Strong TPH	Sheen:	yes	Product Thickness (in):	/			

Notes: DO may be malfunctioning after Calibration.

**Monitor Well Data Sheet**

Site Name: Eagle Gas Station	Well/Sample ID: MW-7
Location: 4301 San Leandro St, Oakland CA	Initial Depth to Water (DTW): 11.97
Client: NAZ Eagle GAS	Total Well Depth (TD): 26.12
Sampler: KB/YJB	Well Diameter: 2"
Date: 7-1-09	1 Casing Volume:
Purge Method: Peristaltic Pump	Purge Rate: 0.25
Sample Method: Low Flow	Sampling Rate: 0.2
2" well x 1 foot = 0.6 liters	4" well x 1 foot = 2.4L

Time	pH	SC	DO	Temp	DTW	Cumulative Volume	ORP	Notes
hh:mm	SU	µmhos/cm	mg/l	°C	feet	liters	mV	
1220	6.77	1735	1.35	20.01	12.39	0.75	-47.9	
1223	6.76	1733	1.01	20.49	12.45	1.5	-51.9	
1226	6.76	1739	0.99	20.50	12.69	2.25	-49.3	
1229	6.80	1739	0.98	20.49	12.79	3	-46.2	
1232	6.80	1738	0.97	20.48	12.86	3.75	-46.2	

Did Well Dewater?	N	Start Purge Time:	1217	DTW prior to sample:	12.86
Casing volumes Purged:		Stop Purge Time:	1232	Start Sample Time:	1232
Length of Tubing (ft):	~26	Total Liters Purged:	3.75	Total Sample Volume:	200ml
Well Recharge:		Turbidity:	Very Low	Color:	clear
Odor:	Slight odor	Sheen:	NO	Product Thinkness (in):	—

Notes: Recalibrated DO

**Monitor Well Data Sheet**

Site Name: Eagle Gas Station	Well/Sample ID: MW-8
Location: 4301 San Leandro St, Oakland CA	Initial Depth to Water (DTW): 8.42
Client: NAZ Eagle Gas	Total Well Depth (TD): 24.81
Sampler: YB/KB	Well Diameter: 2"
Date: 7-1-09	1 Casing Volume:
Purge Method: Peristaltic Pump	Purge Rate: 0.25
Sample Method: Low Flow	Sampling Rate: 0.2
2" well x 1 foot = 0.6 liters	4" well x 1 foot = 2.4L

Time	pH	SC	DO	Temp	DTW	Cumulative Volume	ORP	Notes
hh:mm	SU	µmhos/cm	mg/l	°E	feet	liters	mV	
1401	6.60	1684	Ø	18.94	9.05	.75	-73.7	
1404	6.56	1679	Ø	18.84	9.47	1.5	-75.6	
1407	6.54	1657	Ø	18.84	9.87	2.25	-74.2	
1410	6.54	1648	Ø	18.92	10.15	3	-74.2	
1413	6.54	1653	Ø	18.98	10.45	3.75	-74.8	
Did Well Dewater?	N	Start Purge Time:	1358	DTW prior to sample:				
Casing volumes Purged:		Stop Purge Time:	1413	Start Sample Time:	1413			
Length of Tubing (ft):	~25	Total Liters Purged:	3.75	Total Sample Volume:	200L			
Well Recharge:		Turbidity:	Low	Color:	Clear			
Odor:	Slight TPA	Sheen:	NO	Product Thinkness (in):	—			

Notes: - Recalibrated DO prior to purging  
 - DO continues to malfunction



### Monitor Well Data Sheet

Site Name: Eagle Gas Station	Well/Sample ID: MW-9
Location: 4301 San Leandro St, Oakland CA	Initial Depth to Water (DTW): 7.40
Client: Eagle <sup>NAZ</sup> Gas	Total Well Depth (TD): 15.09
Sampler: YB/KB	Well Diameter: 2"
Date: 7-1-09	1 Casing Volume:
Purge Method: Peristaltic Pump	Purge Rate: 0.25
Sample Method: Low Flow	Sampling Rate: 0.2
2" well x 1 foot = 0.6 liters	4" well x 1 foot = 2.4L

Time	pH	SC	DO	Temp	DTW	Cumulative Volume	ORP	Notes
hh:mm	SU	µmhos/cm	mg/l	°C	feet	liters	mV	
1645	6.90	591.7	0	21.40	7.67	.75	100.4	
1648	6.85	590.2	0	21.81	7.84	1.5	91.6	
1651	6.83	588.3	0	22.06	7.99	2.25	85.9	
1654	6.83	587.2	0	22.16	8.12	3.	85.6	
1657	6.83	586.9	0	22.22	8.29	3.75	83.2	

Did Well Dewater?	N	Start Purge Time:	1642	DTW prior to sample:	8.29
Casing volumes Purged:		Stop Purge Time:	1657	Start Sample Time:	1657
Length of Tubing (ft):	~16'	Total Liters Purged:	3.75	Total Sample Volume:	200 mL
Well Recharge:		Turbidity:	Low	Color:	Clear
Odor:	NO	Sheen:	NO	Product Thickness (in):	—

Notes:

**Monitor Well Data Sheet**

Site Name: Eagle Gas Station				Well/Sample ID: MW-10				
Location: 4301 San Leandro St, Oakland CA				Initial Depth to Water (DTW): 8.18				
Client: NAZ Eagle Gas				Total Well Depth (TD): 15.12				
Sampler: KB/YB				Well Diameter: 2"				
Date: 7-1-09				1 Casing Volume:				
Purge Method: Peristaltic Pump				Purge Rate: 0.25				
Sample Method: Low Flow				Sampling Rate: 0.2				
2" well x 1 foot = 0.6 liters				4" well x 1 foot = 2.4L				
Time	pH	SC	DO	Temp	DTW	Cumulative Volume	ORP	Notes
hh:mm	SU	µmhos/cm	mg/l	°C	feet	liters	mV	
1631	6.85	1212	0	18.72	8.71	.75	-27.2	
1634	6.77	1217	0	18.76	8.85	1.5	-24.0	
1637	6.76	1235	0	18.63	8.98	2.25	-19.7	
1640	6.74	1239	0	18.60	9.03	3	-18.8	
1643	6.73	1239	0	18.56	9.10	3.75	-18.3	
1646	6.71	1237	0	18.51	9.21	4.5	-18.7	
Did Well Dewater?		N	Start Purge Time:		1628	DTW prior to sample:		9.21
Casing volumes Purged:			Stop Purge Time:		1646	Start Sample Time:		1646
Length of Tubing (ft):		~18	Total Liters Purged:		4.5	Total Sample Volume:		200mL
Well Recharge:			Turbidity:		NO	Color:		Clear
Odor:		NO	Sheen:		NO	Product Thinkness (in):		—

Notes:

**Monitor Well Data Sheet**

Site Name: Eagle Gas Station	Well/Sample ID: IS-5
Location: 4301 San Leandro St, Oakland CA	Initial Depth to Water (DTW): 8.05
Client: NAZ Eagle Gas	Total Well Depth (TD): 15.91
Sampler: KB/YB	Well Diameter: 2"
Date: 7-1-09	1 Casing Volume:
Purge Method: Peristaltic Pump	Purge Rate: 0.25
Sample Method: Low Flow	Sampling Rate: 0.2
2" well x 1 foot = 0.6 liters	4" well x 1 foot = 2.4L

Time	pH	SC	DO	Temp	DTW	Cumulative Volume	ORP	Notes
hh:mm	SU	µmhos/cm	mg/l	°C	feet	liters	mV	
1334	6.56	1439	2.01	20.10	8.17	0.75	-77.1	
1337	6.56	1441	0.97	19.89	8.17	1.5	-76.9	
1340	6.53	1439	0	19.68	8.17	2.25	-77.0	
1343	6.54	1437	0	19.61	8.17	3	-76.8	
1346	6.54	1436	0	19.56	8.17	3.75	-77.8	

Did Well Dewater?	N	Start Purge Time:	1331	DTW prior to sample:	8.17
Casing volumes Purged:		Stop Purge Time:	1346	Start Sample Time:	1346
Length of Tubing (ft):	~16	Total Liters Purged:	3.75	Total Sample Volume:	200 ML
Well Recharge:		Turbidity:	High	Color:	White
Odor:	Slight	Sheen:	Yes	Product Thinkness (in):	—

Notes: DO malfunction @ 1346

**Monitor Well Data Sheet**

Site Name: Eagle Gas Station	Well/Sample ID: MW-7D
Location: 4301 San Leandro St, Oakland CA	Initial Depth to Water (DTW): <del>16.75</del> 16.75
Client: NAZ Eagle Gas	Total Well Depth (TD): 43.41
Sampler: KB/VB	Well Diameter: 2"
Date: 7-1-09	1 Casing Volume:
Purge Method: Peristaltic Pump	Purge Rate: 0.25
Sample Method: Low Flow	Sampling Rate: 0.2
2" well x 1 foot = 0.6 liters	4" well x 1 foot = 2.4L

Time	pH	SC	DO	Temp	DTW	Cumulative Volume	ORP	Notes
hh:mm	SU	µmhos/cm	mg/l	°C	feet	liters	mV	
1246	7.27	797.9	2.21	20.89	<del>16.75</del>	0.75	-1.4	
1249	7.20	976.7	2.01	20.73	16.28	1.5	5.8	
1252	7.12	957.1	2.01	20.73	16.26	2.25	12.9	
1255	7.19	954.5	1.99	20.73	16.28	3	16.9	
1258	7.13	945.1	1.98	20.73	16.28	3.75	24.5	
1301	7.10	936.3	1.98	20.68	16.28	4.5	28.6	
1304	6.98	929.0	1.97	20.75	16.28	5.25	39.6	
1307	6.94	930.4	1.95	20.67	16.28	6.0	41.1	
1310	6.90	930.9	1.95	20.69	16.28	6.75	40.5	
1313	6.88	925.9	1.95	20.84	16.28	7.5	41.1	
Did Well Dewater?	N	Start Purge Time:	1243	DTW prior to sample:	16.28			
Casing volumes Purged:		Stop Purge Time:	1314	Start Sample Time:	1315			
Length of Tubing (ft):	~45	Total Liters Purged:	7.5	Total Sample Volume:	200ml			
Well Recharge:		Turbidity:	Low	Color:	Clear			
Odor:	Slight THH	Sheen:	NO	Product Thickness (in):	✓			

Notes:

**Monitor Well Data Sheet**

Site Name: Eagle Gas Station				Well/Sample ID: MW-9D				
Location: 4301 San Leandro St, Oakland CA				Initial Depth to Water (DTW): 13.71				
Client: Eagle <sup>NH2</sup> Gas				Total Well Depth (TD): 40.00				
Sampler: VB/KB				Well Diameter: 2"				
Date: 7-1-09				1 Casing Volume:				
Purge Method: Peristaltic Pump				Purge Rate: 0.25				
Sample Method: Low Flow				Sampling Rate: 0.2				
2" well x 1 foot = 0.6 liters				4" well x 1 foot = 2.4L				
Time	pH	SC	DO	Temp	DTW	Cumulative Volume	ORP	Notes
hh:mm	SU	µmhos/cm	mg/l	°C	feet	liters	mV	
1517	6.84	877.2	0	20.57	<del>13.71</del>	0.75	83.8	
1520	6.82	876.1	0	21.57	<del>13.71</del>	1.50	82.7	
1523	6.81	871.1	0	21.00	13.71	2.25	83.6	
1526	6.80	868.9	0	21.53	13.71	3	84.6	
1529	6.80	865.9	0	21.48	13.71	3.75	83.4	
Did Well Dewater?		N	Start Purge Time:		1514	DTW prior to sample:		13.71
Casing volumes Purged:			Stop Purge Time:		1529	Start Sample Time:		1529
Length of Tubing (ft):		~42	Total Liters Purged:		3.75	Total Sample Volume:		200ml
Well Recharge:			Turbidity:		Low	Color:		Clear
Odor:		NO	Sheen:		NO	Product Thinkness (in):		—

Notes:

**Monitor Well Data Sheet**

Site Name: Eagle Gas Station				Well/Sample ID: MW-100				
Location: 4301 San Leandro St, Oakland CA				Initial Depth to Water (DTW): <del>13.38</del> 13.38				
Client: NAZ Eagle Gas				Total Well Depth (TD): 52.36				
Sampler: KB/YB				Well Diameter: 2"				
Date: 7-1-09				1 Casing Volume:				
Purge Method: Peristaltic Pump				Purge Rate: 0.25				
Sample Method: Low Flow				Sampling Rate: 0.2				
2" well x 1 foot = 0.6 liters				4" well x 1 foot = 2.4L				
Time	pH	SC	DO	Temp	DTW	Cumulative Volume	ORP	Notes
hh:mm	SU	µmhos/cm	mg/l	°E	feet	liters	mV	
1658	6.80	978.3	⊖	18.40	13.59	0.75	48.4	
<del>1701</del>	6.79	977.5	⊖	18.37	13.54	<del>1.50</del>	53.3	
1704	6.79	973.6	⊖	18.33	13.54	2.25	57.0	
1707	6.78	972.5	⊖	18.33	13.54	3	60.0	
1710	6.79	970.6	⊖	18.34	13.54	3.75	61.1	
Did Well Dewater?		N	Start Purge Time:		1655	DTW prior to sample:		13.54
Casing volumes Purged:			Stop Purge Time:		1710	Start Sample Time:		1710
Length of Tubing (ft):		~55'	Total Liters Purged:		3.75	Total Sample Volume:		200ml
Well Recharge:			Turbidity:		low	Color:		Clear
Odor:		NO	Sheen:		NO	Product Thickness (in):		—

Notes:

**Monitor Well Data Sheet**

Site Name: Eagle Gas Station	Well/Sample ID: MW-110
Location: 4301 San Leandro St, Oakland CA	Initial Depth to Water (DTW): 15.45
Client: NAZ Eagle Gas	Total Well Depth (TD): 45.14
Sampler: KB/YB	Well Diameter: 2"
Date: 7-1-09	1 Casing Volume:
Purge Method: Peristaltic Pump	Purge Rate: 0.25
Sample Method: Low Flow	Sampling Rate: 0.2
2" well x 1 foot = 0.6 liters	4" well x 1 foot = 2.4L

Time	pH	SC	DO	Temp	DTW	Cumulative Volume	ORP	Notes
hh:mm	SU	µmhos/cm	mg/l	°C	feet	liters	mV	
1427	6.97	840.4	0	21.76	15.45	0.75	11.6	
1430	6.87	842.0	0	21.75	15.45	1.5	33.6	
1433	6.85	842.9	0	21.83	15.45	2.25	42.0	
1436	6.84	842.8	0	21.87	15.45	3	48.4	
1439	6.85	842.0	0	22.02	15.45	3.75	49.4	

Did Well Dewater?	N	Start Purge Time:	1424	DTW prior to sample:	15.45
Casing volumes Purged:		Stop Purge Time:	1439	Start Sample Time:	1439
Length of Tubing (ft):	~46	Total Liters Purged:	375	Total Sample Volume:	<del>200</del> 200ml
Well Recharge:		Turbidity:	Low	Color:	Clear
Odor:	NO	Sheen:	NO	Product Thinkness (in):	—

Notes: DO malfunction

# APPENDIX E





Report Number : 69153

Date : 07/10/2009

Jim Ho  
Environmental Risk Services Corporation  
1600 Riviera Avenue, Suite 310  
Walnut Creek, CA 94596

Subject : 10 Water Samples  
Project Name : Eagle Gas  
Project Number :

Dear Dr. Ho,

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.

Kiff Analytical is certified by the State of California (# 2236). If you have any questions regarding procedures or results, please call me at 530-297-4800.

Sincerely,

A handwritten signature in black ink, appearing to read "Joel Kiff".

Joel Kiff

Subject : 10 Water Samples  
Project Name : Eagle Gas  
Project Number :

## Case Narrative

Tert-Butanol results for sample MW-10 may be biased slightly high and are flagged with a 'J'. A fraction of MtBE (typically less than 1%) converts to Tert-Butanol during the analysis of water samples. We consider this conversion effect to be mathematically significant in samples that contain MtBE/Tert-Butanol in ratios of over 20:1.

Matrix Spike/Matrix Spike Duplicate results associated with sample MW-7 for the analyte Benzene were affected by the analyte concentrations already present in the un-spiked sample.



Report Number : 69153

Date : 07/10/2009

Project Name : **Eagle Gas**

Project Number :

Sample : **MW-4**

Matrix : Water

Lab Number : 69153-01

Sample Date :07/01/2009

Parameter	Measured Value	Method Reporting Limit	Units	Analysis Method	Date Analyzed
<b>Benzene</b>	<b>5000</b>	500	ug/L	EPA 8260B	07/07/2009
<b>Toluene</b>	<b>&lt; 500</b>	500	ug/L	EPA 8260B	07/07/2009
<b>Ethylbenzene</b>	<b>2200</b>	500	ug/L	EPA 8260B	07/07/2009
<b>Total Xylenes</b>	<b>6600</b>	500	ug/L	EPA 8260B	07/07/2009
<b>Methyl-t-butyl ether (MTBE)</b>	<b>400000</b>	700	ug/L	EPA 8260B	07/07/2009
<b>Diisopropyl ether (DIPE)</b>	<b>&lt; 500</b>	500	ug/L	EPA 8260B	07/07/2009
<b>Ethyl-t-butyl ether (ETBE)</b>	<b>&lt; 500</b>	500	ug/L	EPA 8260B	07/07/2009
<b>Tert-amyl methyl ether (TAME)</b>	<b>3400</b>	500	ug/L	EPA 8260B	07/07/2009
<b>Tert-Butanol</b>	<b>240000</b>	2500	ug/L	EPA 8260B	07/07/2009
<b>TPH as Gasoline</b>	<b>&lt; 50000</b>	50000	ug/L	EPA 8260B	07/07/2009
1,2-Dichloroethane-d4 (Surr)	97.5		% Recovery	EPA 8260B	07/07/2009
Toluene - d8 (Surr)	98.7		% Recovery	EPA 8260B	07/07/2009
<b>TPH as Diesel</b>	<b>4600</b>	50	ug/L	M EPA 8015	07/07/2009
(Note: Combination of Gasoline and Diesel-Range-Hydrocarbons)					
Octacosane (Diesel Surrogate)	75.8		% Recovery	M EPA 8015	07/07/2009

Project Name : **Eagle Gas**

Project Number :

Sample : **MW-7**

Matrix : Water

Lab Number : 69153-02

Sample Date :07/01/2009

Parameter	Measured Value	Method Reporting Limit	Units	Analysis Method	Date Analyzed
<b>Benzene</b>	< 40	40	ug/L	EPA 8260B	07/07/2009
<b>Toluene</b>	< 40	40	ug/L	EPA 8260B	07/07/2009
<b>Ethylbenzene</b>	< 40	40	ug/L	EPA 8260B	07/07/2009
<b>Total Xylenes</b>	< 40	40	ug/L	EPA 8260B	07/07/2009
<b>Methyl-t-butyl ether (MTBE)</b>	<b>19000</b>	40	ug/L	EPA 8260B	07/07/2009
<b>Diisopropyl ether (DIPE)</b>	< 40	40	ug/L	EPA 8260B	07/07/2009
<b>Ethyl-t-butyl ether (ETBE)</b>	< 40	40	ug/L	EPA 8260B	07/07/2009
<b>Tert-amyl methyl ether (TAME)</b>	<b>100</b>	40	ug/L	EPA 8260B	07/07/2009
<b>Tert-Butanol</b>	<b>70000</b>	200	ug/L	EPA 8260B	07/07/2009
<b>TPH as Gasoline</b>	< <b>4000</b>	4000	ug/L	EPA 8260B	07/07/2009
1,2-Dichloroethane-d4 (Surr)	99.4		% Recovery	EPA 8260B	07/07/2009
Toluene - d8 (Surr)	97.6		% Recovery	EPA 8260B	07/07/2009
<b>TPH as Diesel</b> (Note: Primarily Diesel-Range-Hydrocarbons)	<b>350</b>	50	ug/L	M EPA 8015	07/07/2009
Octacosane (Diesel Surrogate)	96.8		% Recovery	M EPA 8015	07/07/2009



Report Number : 69153

Date : 07/10/2009

Project Name : **Eagle Gas**

Project Number :

Sample : **MW-7D**

Matrix : Water

Lab Number : 69153-03

Sample Date :07/01/2009

Parameter	Measured Value	Method Reporting Limit	Units	Analysis Method	Date Analyzed
<b>Benzene</b>	< 0.50	0.50	ug/L	EPA 8260B	07/09/2009
<b>Toluene</b>	< 0.50	0.50	ug/L	EPA 8260B	07/09/2009
<b>Ethylbenzene</b>	< 0.50	0.50	ug/L	EPA 8260B	07/09/2009
<b>Total Xylenes</b>	< 0.50	0.50	ug/L	EPA 8260B	07/09/2009
<b>Methyl-t-butyl ether (MTBE)</b>	24	0.50	ug/L	EPA 8260B	07/09/2009
<b>Diisopropyl ether (DIPE)</b>	< 0.50	0.50	ug/L	EPA 8260B	07/09/2009
<b>Ethyl-t-butyl ether (ETBE)</b>	< 0.50	0.50	ug/L	EPA 8260B	07/09/2009
<b>Tert-amyl methyl ether (TAME)</b>	< 0.50	0.50	ug/L	EPA 8260B	07/09/2009
<b>Tert-Butanol</b>	< 5.0	5.0	ug/L	EPA 8260B	07/09/2009
<b>TPH as Gasoline</b>	< 50	50	ug/L	EPA 8260B	07/09/2009
1,2-Dichloroethane-d4 (Surr)	96.7		% Recovery	EPA 8260B	07/09/2009
Toluene - d8 (Surr)	96.1		% Recovery	EPA 8260B	07/09/2009
<b>TPH as Diesel</b>	< 50	50	ug/L	M EPA 8015	07/07/2009
Octacosane (Diesel Surrogate)	107		% Recovery	M EPA 8015	07/07/2009

Project Name : **Eagle Gas**

Project Number :

Sample : **MW-8**

Matrix : Water

Lab Number : 69153-04

Sample Date :07/01/2009

Parameter	Measured Value	Method Reporting Limit	Units	Analysis Method	Date Analyzed
<b>Benzene</b>	<b>600</b>	250	ug/L	EPA 8260B	07/07/2009
<b>Toluene</b>	<b>&lt; 250</b>	250	ug/L	EPA 8260B	07/07/2009
<b>Ethylbenzene</b>	<b>&lt; 250</b>	250	ug/L	EPA 8260B	07/07/2009
<b>Total Xylenes</b>	<b>290</b>	250	ug/L	EPA 8260B	07/07/2009
<b>Methyl-t-butyl ether (MTBE)</b>	<b>220000</b>	500	ug/L	EPA 8260B	07/07/2009
<b>Diisopropyl ether (DIPE)</b>	<b>&lt; 250</b>	250	ug/L	EPA 8260B	07/07/2009
<b>Ethyl-t-butyl ether (ETBE)</b>	<b>&lt; 250</b>	250	ug/L	EPA 8260B	07/07/2009
<b>Tert-amyl methyl ether (TAME)</b>	<b>610</b>	250	ug/L	EPA 8260B	07/07/2009
<b>Tert-Butanol</b>	<b>350000</b>	1500	ug/L	EPA 8260B	07/07/2009
<b>TPH as Gasoline</b>	<b>&lt; 25000</b>	25000	ug/L	EPA 8260B	07/07/2009
1,2-Dichloroethane-d4 (Surr)	102		% Recovery	EPA 8260B	07/07/2009
Toluene - d8 (Surr)	97.5		% Recovery	EPA 8260B	07/07/2009
<b>TPH as Diesel</b>	<b>4100</b>	50	ug/L	M EPA 8015	07/07/2009
(Note: Combination of Gasoline and Diesel-Range-Hydrocarbons)					
Octacosane (Diesel Surrogate)	114		% Recovery	M EPA 8015	07/07/2009



Report Number : 69153

Date : 07/10/2009

Project Name : **Eagle Gas**

Project Number :

Sample : **MW-9**

Matrix : Water

Lab Number : 69153-05

Sample Date :07/01/2009

Parameter	Measured Value	Method Reporting Limit	Units	Analysis Method	Date Analyzed
<b>Benzene</b>	<b>7.9</b>	0.50	ug/L	EPA 8260B	07/09/2009
<b>Toluene</b>	<b>1.4</b>	0.50	ug/L	EPA 8260B	07/09/2009
<b>Ethylbenzene</b>	<b>0.86</b>	0.50	ug/L	EPA 8260B	07/09/2009
<b>Total Xylenes</b>	<b>5.1</b>	0.50	ug/L	EPA 8260B	07/09/2009
<b>Methyl-t-butyl ether (MTBE)</b>	<b>400</b>	2.5	ug/L	EPA 8260B	07/07/2009
<b>Diisopropyl ether (DIPE)</b>	<b>&lt; 0.50</b>	0.50	ug/L	EPA 8260B	07/09/2009
<b>Ethyl-t-butyl ether (ETBE)</b>	<b>&lt; 0.50</b>	0.50	ug/L	EPA 8260B	07/09/2009
<b>Tert-amyl methyl ether (TAME)</b>	<b>3.6</b>	0.50	ug/L	EPA 8260B	07/09/2009
<b>Tert-Butanol</b>	<b>24</b>	5.0	ug/L	EPA 8260B	07/09/2009
<b>TPH as Gasoline</b>	<b>1400</b>	50	ug/L	EPA 8260B	07/09/2009
(Note: Gasoline, but an unusually large proportion of aliphatics)					
1,2-Dichloroethane-d4 (Surr)	94.3		% Recovery	EPA 8260B	07/09/2009
Toluene - d8 (Surr)	95.2		% Recovery	EPA 8260B	07/09/2009
<b>TPH as Diesel</b>	<b>360</b>	50	ug/L	M EPA 8015	07/07/2009
(Note: Primarily Gasoline.)					
Octacosane (Diesel Surrogate)	117		% Recovery	M EPA 8015	07/07/2009



Report Number : 69153

Date : 07/10/2009

Project Name : **Eagle Gas**

Project Number :

Sample : **MW-9D**

Matrix : Water

Lab Number : 69153-06

Sample Date :07/01/2009

Parameter	Measured Value	Method Reporting Limit	Units	Analysis Method	Date Analyzed
<b>Benzene</b>	< 0.50	0.50	ug/L	EPA 8260B	07/07/2009
<b>Toluene</b>	< 0.50	0.50	ug/L	EPA 8260B	07/07/2009
<b>Ethylbenzene</b>	< 0.50	0.50	ug/L	EPA 8260B	07/07/2009
<b>Total Xylenes</b>	< 0.50	0.50	ug/L	EPA 8260B	07/07/2009
<b>Methyl-t-butyl ether (MTBE)</b>	< 0.50	0.50	ug/L	EPA 8260B	07/07/2009
<b>Diisopropyl ether (DIPE)</b>	< 0.50	0.50	ug/L	EPA 8260B	07/07/2009
<b>Ethyl-t-butyl ether (ETBE)</b>	< 0.50	0.50	ug/L	EPA 8260B	07/07/2009
<b>Tert-amyl methyl ether (TAME)</b>	< 0.50	0.50	ug/L	EPA 8260B	07/07/2009
<b>Tert-Butanol</b>	< 5.0	5.0	ug/L	EPA 8260B	07/07/2009
<b>TPH as Gasoline</b> (Note: Primarily Trichloroethene)	<b>440</b>	50	ug/L	EPA 8260B	07/07/2009
1,2-Dichloroethane-d4 (Surr)	97.6		% Recovery	EPA 8260B	07/07/2009
Toluene - d8 (Surr)	96.9		% Recovery	EPA 8260B	07/07/2009
<b>TPH as Diesel</b>	< 50	50	ug/L	M EPA 8015	07/07/2009
Octacosane (Diesel Surrogate)	113		% Recovery	M EPA 8015	07/07/2009



Project Name : **Eagle Gas**

Project Number :

Sample : **MW-10**

Matrix : Water

Lab Number : 69153-07

Sample Date :07/01/2009

Parameter	Measured Value	Method Reporting Limit	Units	Analysis Method	Date Analyzed
<b>Benzene</b>	<b>370</b>	0.90	ug/L	EPA 8260B	07/09/2009
<b>Toluene</b>	<b>41</b>	0.90	ug/L	EPA 8260B	07/09/2009
<b>Ethylbenzene</b>	<b>150</b>	0.90	ug/L	EPA 8260B	07/09/2009
<b>Total Xylenes</b>	<b>200</b>	0.90	ug/L	EPA 8260B	07/09/2009
<b>Methyl-t-butyl ether (MTBE)</b>	<b>410</b>	0.90	ug/L	EPA 8260B	07/09/2009
<b>Diisopropyl ether (DIPE)</b>	<b>3.1</b>	0.90	ug/L	EPA 8260B	07/09/2009
<b>Ethyl-t-butyl ether (ETBE)</b>	<b>&lt; 0.90</b>	0.90	ug/L	EPA 8260B	07/09/2009
<b>Tert-amyl methyl ether (TAME)</b>	<b>&lt; 0.90</b>	0.90	ug/L	EPA 8260B	07/09/2009
<b>Tert-Butanol</b>	<b>8.4 J</b>	5.0	ug/L	EPA 8260B	07/09/2009
<b>TPH as Gasoline</b>	<b>7200</b>	90	ug/L	EPA 8260B	07/09/2009
(Note: Gasoline, but an unusually large proportion of aliphatics)					
1,2-Dichloroethane-d4 (Surr)	90.7		% Recovery	EPA 8260B	07/09/2009
Toluene - d8 (Surr)	92.2		% Recovery	EPA 8260B	07/09/2009
<b>TPH as Diesel</b>	<b>920</b>	50	ug/L	M EPA 8015	07/07/2009
(Note: Primarily Gasoline.)					
Octacosane (Diesel Surrogate)	116		% Recovery	M EPA 8015	07/07/2009



Report Number : 69153

Date : 07/10/2009

Project Name : **Eagle Gas**

Project Number :

Sample : **MW-10D**

Matrix : Water

Lab Number : 69153-08

Sample Date :07/01/2009

Parameter	Measured Value	Method Reporting Limit	Units	Analysis Method	Date Analyzed
<b>Benzene</b>	< 0.50	0.50	ug/L	EPA 8260B	07/07/2009
<b>Toluene</b>	< 0.50	0.50	ug/L	EPA 8260B	07/07/2009
<b>Ethylbenzene</b>	< 0.50	0.50	ug/L	EPA 8260B	07/07/2009
<b>Total Xylenes</b>	< 0.50	0.50	ug/L	EPA 8260B	07/07/2009
<b>Methyl-t-butyl ether (MTBE)</b>	< 0.50	0.50	ug/L	EPA 8260B	07/07/2009
<b>Diisopropyl ether (DIPE)</b>	< 0.50	0.50	ug/L	EPA 8260B	07/07/2009
<b>Ethyl-t-butyl ether (ETBE)</b>	< 0.50	0.50	ug/L	EPA 8260B	07/07/2009
<b>Tert-amyl methyl ether (TAME)</b>	< 0.50	0.50	ug/L	EPA 8260B	07/07/2009
<b>Tert-Butanol</b>	< 5.0	5.0	ug/L	EPA 8260B	07/07/2009
<b>TPH as Gasoline</b> (Note: Primarily Trichloroethene)	<b>110</b>	50	ug/L	EPA 8260B	07/07/2009
1,2-Dichloroethane-d4 (Surr)	95.6		% Recovery	EPA 8260B	07/07/2009
Toluene - d8 (Surr)	96.0		% Recovery	EPA 8260B	07/07/2009
<b>TPH as Diesel</b>	< 50	50	ug/L	M EPA 8015	07/07/2009
Octacosane (Diesel Surrogate)	111		% Recovery	M EPA 8015	07/07/2009



Report Number : 69153

Date : 07/10/2009

Project Name : **Eagle Gas**

Project Number :

Sample : **MW-11D**

Matrix : Water

Lab Number : 69153-09

Sample Date :07/01/2009

Parameter	Measured Value	Method Reporting Limit	Units	Analysis Method	Date Analyzed
<b>Benzene</b>	< 0.50	0.50	ug/L	EPA 8260B	07/07/2009
<b>Toluene</b>	< 0.50	0.50	ug/L	EPA 8260B	07/07/2009
<b>Ethylbenzene</b>	< 0.50	0.50	ug/L	EPA 8260B	07/07/2009
<b>Total Xylenes</b>	< 0.50	0.50	ug/L	EPA 8260B	07/07/2009
<b>Methyl-t-butyl ether (MTBE)</b>	2.0	0.50	ug/L	EPA 8260B	07/07/2009
<b>Diisopropyl ether (DIPE)</b>	< 0.50	0.50	ug/L	EPA 8260B	07/07/2009
<b>Ethyl-t-butyl ether (ETBE)</b>	< 0.50	0.50	ug/L	EPA 8260B	07/07/2009
<b>Tert-amyl methyl ether (TAME)</b>	< 0.50	0.50	ug/L	EPA 8260B	07/07/2009
<b>Tert-Butanol</b>	< 5.0	5.0	ug/L	EPA 8260B	07/07/2009
<b>TPH as Gasoline</b>	< 50	50	ug/L	EPA 8260B	07/07/2009
1,2-Dichloroethane-d4 (Surr)	99.5		% Recovery	EPA 8260B	07/07/2009
Toluene - d8 (Surr)	104		% Recovery	EPA 8260B	07/07/2009
<b>TPH as Diesel</b>	< 50	50	ug/L	M EPA 8015	07/07/2009
Octacosane (Diesel Surrogate)	106		% Recovery	M EPA 8015	07/07/2009

Project Name : **Eagle Gas**

Project Number :

Sample : **IS-5**

Matrix : Water

Lab Number : 69153-10

Sample Date :07/01/2009

Parameter	Measured Value	Method Reporting Limit	Units	Analysis Method	Date Analyzed
<b>Benzene</b>	<b>4400</b>	250	ug/L	EPA 8260B	07/07/2009
<b>Toluene</b>	<b>&lt; 250</b>	250	ug/L	EPA 8260B	07/07/2009
<b>Ethylbenzene</b>	<b>2800</b>	250	ug/L	EPA 8260B	07/07/2009
<b>Total Xylenes</b>	<b>3200</b>	250	ug/L	EPA 8260B	07/07/2009
<b>Methyl-t-butyl ether (MTBE)</b>	<b>150000</b>	250	ug/L	EPA 8260B	07/07/2009
<b>Diisopropyl ether (DIPE)</b>	<b>&lt; 250</b>	250	ug/L	EPA 8260B	07/07/2009
<b>Ethyl-t-butyl ether (ETBE)</b>	<b>&lt; 250</b>	250	ug/L	EPA 8260B	07/07/2009
<b>Tert-amyl methyl ether (TAME)</b>	<b>2600</b>	250	ug/L	EPA 8260B	07/07/2009
<b>Tert-Butanol</b>	<b>150000</b>	1500	ug/L	EPA 8260B	07/07/2009
<b>TPH as Gasoline</b>	<b>50000</b>	25000	ug/L	EPA 8260B	07/07/2009
(Note: Gasoline, but an unusually large proportion of alkyl benzenes)					
1,2-Dichloroethane-d4 (Surr)	102		% Recovery	EPA 8260B	07/07/2009
Toluene - d8 (Surr)	98.8		% Recovery	EPA 8260B	07/07/2009
<b>TPH as Diesel</b>	<b>7200</b>	50	ug/L	M EPA 8015	07/07/2009
(Note: Combination of Gasoline and Diesel-Range-Hydrocarbons)					
Octacosane (Diesel Surrogate)	114		% Recovery	M EPA 8015	07/07/2009

**QC Report : Method Blank Data**Project Name : **Eagle Gas**

Project Number :

Parameter	Measured Value	Method Reporting Limit	Units	Analysis Method	Date Analyzed	Parameter	Measured Value	Method Reporting Limit	Units	Analysis Method	Date Analyzed
TPH as Diesel	< 50	50	ug/L	M EPA 8015	07/07/2009	Benzene	< 0.50	0.50	ug/L	EPA 8260B	07/06/2009
Octacosane (Diesel Surrogate)	95.9		%	M EPA 8015	07/07/2009	Ethylbenzene	< 0.50	0.50	ug/L	EPA 8260B	07/06/2009
Benzene	< 0.50	0.50	ug/L	EPA 8260B	07/06/2009	Toluene	< 0.50	0.50	ug/L	EPA 8260B	07/06/2009
Ethylbenzene	< 0.50	0.50	ug/L	EPA 8260B	07/06/2009	Total Xylenes	< 0.50	0.50	ug/L	EPA 8260B	07/06/2009
Toluene	< 0.50	0.50	ug/L	EPA 8260B	07/06/2009	Diisopropyl ether (DIPE)	< 0.50	0.50	ug/L	EPA 8260B	07/06/2009
Total Xylenes	< 0.50	0.50	ug/L	EPA 8260B	07/06/2009	Ethyl-t-butyl ether (ETBE)	< 0.50	0.50	ug/L	EPA 8260B	07/06/2009
Diisopropyl ether (DIPE)	< 0.50	0.50	ug/L	EPA 8260B	07/06/2009	Methyl-t-butyl ether (MTBE)	< 0.50	0.50	ug/L	EPA 8260B	07/06/2009
Ethyl-t-butyl ether (ETBE)	< 0.50	0.50	ug/L	EPA 8260B	07/06/2009	Tert-Butanol	< 5.0	5.0	ug/L	EPA 8260B	07/06/2009
Methyl-t-butyl ether (MTBE)	< 0.50	0.50	ug/L	EPA 8260B	07/06/2009	Tert-amyl methyl ether (TAME)	< 0.50	0.50	ug/L	EPA 8260B	07/06/2009
Tert-Butanol	< 5.0	5.0	ug/L	EPA 8260B	07/06/2009	TPH as Gasoline	< 50	50	ug/L	EPA 8260B	07/06/2009
Tert-amyl methyl ether (TAME)	< 0.50	0.50	ug/L	EPA 8260B	07/06/2009	1,2-Dichloroethane-d4 (Surr)	98.8		%	EPA 8260B	07/06/2009
TPH as Gasoline	< 50	50	ug/L	EPA 8260B	07/06/2009	Toluene - d8 (Surr)	104		%	EPA 8260B	07/06/2009
1,2-Dichloroethane-d4 (Surr)	101		%	EPA 8260B	07/06/2009	Benzene	< 0.50	0.50	ug/L	EPA 8260B	07/07/2009
Toluene - d8 (Surr)	99.8		%	EPA 8260B	07/06/2009	Ethylbenzene	< 0.50	0.50	ug/L	EPA 8260B	07/07/2009
Benzene	< 0.50	0.50	ug/L	EPA 8260B	07/07/2009	Toluene	< 0.50	0.50	ug/L	EPA 8260B	07/07/2009
Ethylbenzene	< 0.50	0.50	ug/L	EPA 8260B	07/07/2009	Total Xylenes	< 0.50	0.50	ug/L	EPA 8260B	07/07/2009
Toluene	< 0.50	0.50	ug/L	EPA 8260B	07/07/2009	Diisopropyl ether (DIPE)	< 0.50	0.50	ug/L	EPA 8260B	07/07/2009
Total Xylenes	< 0.50	0.50	ug/L	EPA 8260B	07/07/2009	Ethyl-t-butyl ether (ETBE)	< 0.50	0.50	ug/L	EPA 8260B	07/07/2009
Diisopropyl ether (DIPE)	< 0.50	0.50	ug/L	EPA 8260B	07/07/2009	Methyl-t-butyl ether (MTBE)	< 0.50	0.50	ug/L	EPA 8260B	07/07/2009
Ethyl-t-butyl ether (ETBE)	< 0.50	0.50	ug/L	EPA 8260B	07/07/2009	Tert-Butanol	< 5.0	5.0	ug/L	EPA 8260B	07/07/2009
Methyl-t-butyl ether (MTBE)	< 0.50	0.50	ug/L	EPA 8260B	07/07/2009	Tert-amyl methyl ether (TAME)	< 0.50	0.50	ug/L	EPA 8260B	07/07/2009
Tert-Butanol	< 5.0	5.0	ug/L	EPA 8260B	07/07/2009	TPH as Gasoline	< 50	50	ug/L	EPA 8260B	07/07/2009
Tert-amyl methyl ether (TAME)	< 0.50	0.50	ug/L	EPA 8260B	07/07/2009	1,2-Dichloroethane-d4 (Surr)	96.1		%	EPA 8260B	07/07/2009
TPH as Gasoline	< 50	50	ug/L	EPA 8260B	07/07/2009	Toluene - d8 (Surr)	96.5		%	EPA 8260B	07/07/2009
1,2-Dichloroethane-d4 (Surr)	101		%	EPA 8260B	07/07/2009						
Toluene - d8 (Surr)	100		%	EPA 8260B	07/07/2009						

**QC Report : Method Blank Data**Project Name : **Eagle Gas**

Project Number :

Parameter	Measured Value	Method Reporting Limit	Units	Analysis Method	Date Analyzed
Benzene	< 0.50	0.50	ug/L	EPA 8260B	07/08/2009
Ethylbenzene	< 0.50	0.50	ug/L	EPA 8260B	07/08/2009
Toluene	< 0.50	0.50	ug/L	EPA 8260B	07/08/2009
Total Xylenes	< 0.50	0.50	ug/L	EPA 8260B	07/08/2009
Diisopropyl ether (DIPE)	< 0.50	0.50	ug/L	EPA 8260B	07/08/2009
Ethyl-t-butyl ether (ETBE)	< 0.50	0.50	ug/L	EPA 8260B	07/08/2009
Methyl-t-butyl ether (MTBE)	< 0.50	0.50	ug/L	EPA 8260B	07/08/2009
Tert-Butanol	< 5.0	5.0	ug/L	EPA 8260B	07/08/2009
Tert-amyl methyl ether (TAME)	< 0.50	0.50	ug/L	EPA 8260B	07/08/2009
TPH as Gasoline	< 50	50	ug/L	EPA 8260B	07/08/2009
1,2-Dichloroethane-d4 (Surr)	96.0		%	EPA 8260B	07/08/2009
Toluene - d8 (Surr)	96.0		%	EPA 8260B	07/08/2009
Benzene	< 0.50	0.50	ug/L	EPA 8260B	07/09/2009
Ethylbenzene	< 0.50	0.50	ug/L	EPA 8260B	07/09/2009
Toluene	< 0.50	0.50	ug/L	EPA 8260B	07/09/2009
Total Xylenes	< 0.50	0.50	ug/L	EPA 8260B	07/09/2009
Diisopropyl ether (DIPE)	< 0.50	0.50	ug/L	EPA 8260B	07/09/2009
Ethyl-t-butyl ether (ETBE)	< 0.50	0.50	ug/L	EPA 8260B	07/09/2009
Methyl-t-butyl ether (MTBE)	< 0.50	0.50	ug/L	EPA 8260B	07/09/2009
Tert-Butanol	< 5.0	5.0	ug/L	EPA 8260B	07/09/2009
Tert-amyl methyl ether (TAME)	< 0.50	0.50	ug/L	EPA 8260B	07/09/2009
TPH as Gasoline	< 50	50	ug/L	EPA 8260B	07/09/2009
1,2-Dichloroethane-d4 (Surr)	95.4		%	EPA 8260B	07/09/2009
Toluene - d8 (Surr)	95.8		%	EPA 8260B	07/09/2009

Parameter	Measured Value	Method Reporting Limit	Units	Analysis Method	Date Analyzed
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## QC Report : Matrix Spike/ Matrix Spike Duplicate

Project Name : **Eagle Gas**

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 as Diesel	BLANK	<50	1000	1000	941	941	ug/L	M EPA 8015	7/7/09	94.1	94.1	0.0821	70-130	25
Benzene	69140-04	<0.50	40.3	40.4	40.3	40.0	ug/L	EPA 8260B	7/6/09	100	99.2	0.864	70-130	25
Methyl-t-butyl ether	69140-04	150	40.4	40.5	184	188	ug/L	EPA 8260B	7/6/09	92.2	101	8.86	70-130	25
Tert-Butanol	69140-04	31	200	200	228	228	ug/L	EPA 8260B	7/6/09	98.8	98.5	0.266	70-130	25
Toluene	69140-04	<0.50	39.8	39.9	40.4	40.2	ug/L	EPA 8260B	7/6/09	101	101	0.491	70-130	25
Benzene	69139-12	200	40.4	40.4	230	230	ug/L	EPA 8260B	7/7/09	61.2	62.1	1.43	70-130	25
Methyl-t-butyl ether	69139-12	<0.50	40.6	40.6	38.2	38.1	ug/L	EPA 8260B	7/7/09	94.3	94.0	0.315	70-130	25
Tert-Butanol	69139-12	13	200	200	204	199	ug/L	EPA 8260B	7/7/09	95.5	93.0	2.61	70-130	25
Toluene	69139-12	14	39.9	39.9	51.4	51.4	ug/L	EPA 8260B	7/7/09	93.2	93.2	0.0653	70-130	25
Benzene	69139-04	<0.50	40.6	40.6	41.4	40.4	ug/L	EPA 8260B	7/6/09	102	99.6	2.48	70-130	25
Methyl-t-butyl ether	69139-04	4.5	40.7	40.7	43.0	43.2	ug/L	EPA 8260B	7/6/09	94.6	95.0	0.350	70-130	25
Tert-Butanol	69139-04	<5.0	201	201	210	212	ug/L	EPA 8260B	7/6/09	104	105	1.11	70-130	25
Toluene	69139-04	<0.50	40.1	40.1	43.2	42.4	ug/L	EPA 8260B	7/6/09	108	106	1.90	70-130	25
Benzene	69163-02	<0.50	40.6	40.6	40.4	39.0	ug/L	EPA 8260B	7/7/09	99.4	96.1	3.38	70-130	25
Methyl-t-butyl ether	69163-02	<0.50	40.7	40.7	38.2	38.3	ug/L	EPA 8260B	7/7/09	93.8	94.0	0.169	70-130	25
Tert-Butanol	69163-02	<5.0	201	201	204	204	ug/L	EPA 8260B	7/7/09	102	101	0.496	70-130	25
Toluene	69163-02	<0.50	40.1	40.1	40.0	38.6	ug/L	EPA 8260B	7/7/09	99.8	96.4	3.56	70-130	25

**QC Report : Matrix Spike/ Matrix Spike Duplicate**Project Name : **Eagle Gas**

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
Benzene	69169-06	<0.50	40.6	40.6	40.9	39.5	ug/L	EPA 8260B	7/8/09	101	97.2	3.57	70-130	25
Methyl-t-butyl ether	69169-06	<0.50	40.7	40.7	39.5	39.3	ug/L	EPA 8260B	7/8/09	97.0	96.6	0.420	70-130	25
Tert-Butanol	69169-06	<5.0	201	201	205	205	ug/L	EPA 8260B	7/8/09	102	102	0.258	70-130	25
Toluene	69169-06	<0.50	40.1	40.1	40.5	39.1	ug/L	EPA 8260B	7/8/09	101	97.5	3.54	70-130	25
Benzene	69165-04	0.77	40.6	40.6	41.1	40.8	ug/L	EPA 8260B	7/9/09	99.4	98.6	0.754	70-130	25
Methyl-t-butyl ether	69165-04	<0.50	40.7	40.7	38.9	38.9	ug/L	EPA 8260B	7/9/09	95.4	95.5	0.0693	70-130	25
Tert-Butanol	69165-04	<5.0	201	201	200	201	ug/L	EPA 8260B	7/9/09	99.5	99.9	0.429	70-130	25
Toluene	69165-04	<0.50	40.1	40.1	40.0	39.8	ug/L	EPA 8260B	7/9/09	99.9	99.4	0.475	70-130	25



**QC Report : Laboratory Control Sample (LCS)**Project Name : **Eagle Gas**

Project Number :

Parameter	Spike Level	Units	Analysis Method	Date Analyzed	LCS Percent Recov.	LCS Percent Recov. Limit
Benzene	40.6	ug/L	EPA 8260B	7/6/09	99.0	70-130
Methyl-t-butyl ether	40.7	ug/L	EPA 8260B	7/6/09	109	70-130
Tert-Butanol	201	ug/L	EPA 8260B	7/6/09	96.4	70-130
Toluene	40.1	ug/L	EPA 8260B	7/6/09	102	70-130
Benzene	40.6	ug/L	EPA 8260B	7/7/09	95.2	70-130
Methyl-t-butyl ether	40.7	ug/L	EPA 8260B	7/7/09	94.2	70-130
Tert-Butanol	201	ug/L	EPA 8260B	7/7/09	94.4	70-130
Toluene	40.1	ug/L	EPA 8260B	7/7/09	95.5	70-130
Benzene	40.5	ug/L	EPA 8260B	7/6/09	101	70-130
Methyl-t-butyl ether	40.6	ug/L	EPA 8260B	7/6/09	94.7	70-130
Tert-Butanol	201	ug/L	EPA 8260B	7/6/09	103	70-130
Toluene	40.0	ug/L	EPA 8260B	7/6/09	107	70-130
Benzene	39.9	ug/L	EPA 8260B	7/7/09	99.7	70-130
Methyl-t-butyl ether	40.6	ug/L	EPA 8260B	7/7/09	93.8	70-130
Tert-Butanol	201	ug/L	EPA 8260B	7/7/09	98.1	70-130
Toluene	39.9	ug/L	EPA 8260B	7/7/09	99.6	70-130
Benzene	40.0	ug/L	EPA 8260B	7/8/09	94.5	70-130

**QC Report : Laboratory Control Sample (LCS)**Project Name : **Eagle Gas**

Project Number :

Parameter	Spike Level	Units	Analysis Method	Date Analyzed	LCS Percent Recov.	LCS Percent Recov. Limit
Methyl-t-butyl ether	40.7	ug/L	EPA 8260B	7/8/09	93.3	70-130
Tert-Butanol	201	ug/L	EPA 8260B	7/8/09	95.3	70-130
Toluene	40.0	ug/L	EPA 8260B	7/8/09	94.5	70-130
Benzene	39.9	ug/L	EPA 8260B	7/9/09	97.7	70-130
Methyl-t-butyl ether	40.6	ug/L	EPA 8260B	7/9/09	95.1	70-130
Tert-Butanol	201	ug/L	EPA 8260B	7/9/09	98.4	70-130
Toluene	39.9	ug/L	EPA 8260B	7/9/09	97.7	70-130



2795 2nd Street, Suite 300  
 Davis, CA 95618  
 Lab: 530.297.4800  
 Fax: 530.297.4802

SRG # / Lab No. 69153

Page \_\_\_ of \_\_\_

Project Contact (Hardcopy or PDF To): <u>Tim Ho</u>		California EDF Report? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No		Chain-of-Custody Record and Analysis Request  <b>Analysis Request</b> <table border="1" style="width: 100%; border-collapse: collapse; font-size: 8px;"> <tr> <td colspan="13" style="text-align: center;">PLEASE CIRCLE METHOD</td> <td style="text-align: center;">TAT</td> </tr> <tr> <td><input type="checkbox"/></td><td><input type="checkbox"/></td><td><input type="checkbox"/></td><td><input type="checkbox"/></td><td><input type="checkbox"/></td><td><input type="checkbox"/></td><td><input type="checkbox"/></td><td><input type="checkbox"/></td><td><input type="checkbox"/></td><td><input type="checkbox"/></td><td><input type="checkbox"/></td><td><input type="checkbox"/></td><td><input type="checkbox"/></td><td style="text-align: center;">12 hr</td> </tr> <tr> <td><input type="checkbox"/></td><td><input type="checkbox"/></td><td><input type="checkbox"/></td><td><input type="checkbox"/></td><td><input type="checkbox"/></td><td><input type="checkbox"/></td><td><input type="checkbox"/></td><td><input type="checkbox"/></td><td><input type="checkbox"/></td><td><input type="checkbox"/></td><td><input type="checkbox"/></td><td><input type="checkbox"/></td><td><input type="checkbox"/></td><td style="text-align: center;">24 hr</td> </tr> <tr> <td><input type="checkbox"/></td><td><input type="checkbox"/></td><td><input type="checkbox"/></td><td><input type="checkbox"/></td><td><input type="checkbox"/></td><td><input type="checkbox"/></td><td><input type="checkbox"/></td><td><input type="checkbox"/></td><td><input type="checkbox"/></td><td><input type="checkbox"/></td><td><input type="checkbox"/></td><td><input type="checkbox"/></td><td><input type="checkbox"/></td><td style="text-align: center;">48 hr</td> </tr> <tr> <td><input type="checkbox"/></td><td><input type="checkbox"/></td><td><input type="checkbox"/></td><td><input type="checkbox"/></td><td><input type="checkbox"/></td><td><input type="checkbox"/></td><td><input type="checkbox"/></td><td><input type="checkbox"/></td><td><input type="checkbox"/></td><td><input type="checkbox"/></td><td><input type="checkbox"/></td><td><input type="checkbox"/></td><td><input type="checkbox"/></td><td style="text-align: center;">72 hr</td> </tr> </table>													PLEASE CIRCLE METHOD													TAT	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	12 hr	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	24 hr	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	48 hr	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	72 hr
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Company / Address: <u>ERS Corporation</u>		Sampling Company Log Code:																																																																																				
Phone Number: <u>(925) 938-1600</u>		Global ID:																																																																																				
Fax Number: <u>(925) 938-1610</u>		EDF Deliverable To (Email Address): <u>jho@erscorp.us</u>																																																																																				
Project #:	P.O. #:	Bill to: <u>ERS Corporation</u>																																																																																				
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		Sampler Signature:																																																																																				
Project Address: <u>4301 San Leandro Oakland, CA</u>		Sampling		Container				Preservative			Matrix			MTBE @ 0.5 ppb (EPA 8260B) BTEX (EPA 8260B) TPH Gas (EPA 8260B) 5 Oxygenates (MTBE, DIPE, ETBE, TAME, TBA) (EPA 8260B) 7 Oxygenates (5 oxy + EtOH, MeOH) (EPA 8260B) Lead Scav. (1,2 DCA & 1,2 EDB) (EPA 8260B) Volatile Halocarbons (EPA 8260B) Volatile Organics Full List (EPA 8260B) Volatile Organics (EPA 524.2 Drinking Water) TPH as Diesel (EPA 8015M) TPH as Motor Oil (EPA 8015M) CAM 17 Metals (EPA 200.7 / 6010) 5 Waste Oil Metals (Cd,Cr,Ni,Pb,Zn) (EPA 200.7 / 6010) Mercury (EPA 245.1 / 7470 / 7471) Total Lead (EPA 200.7 / 6010) W.E.T. Lead (STLC)																																																																								
		Date	Time	40 ml VOA	Sleeve	Poly	Glass	Tedlar	HCl	HNO <sub>3</sub>	None	Water	Soil		Air																																																																							
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<u>MW-4</u>	<u>7/1/09</u>	<u>1159</u>	5					X	X		X				01																																																																							
<u>MW-7</u>		<u>1232</u>	5					X	X		X				02																																																																							
<u>MW-7D</u>		<u>1315</u>	5					X	X		X				03																																																																							
<u>MW-8</u>		<u>1413</u>	5					X	X		X				04																																																																							
<u>MW-9</u>		<u>1557</u>	5					X	X		X				05																																																																							
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		<u>07/02/09</u>	<u>1539</u>	<u>[Signature]</u> KIFF Analytical		For Lab Use Only: Sample Receipt																																																																																
						Temp °C	Initials	Date	Time	Therm. ID #	Coolant Present																																																																											
							Yes / No																																																																															

**SAMPLE RECEIPT CHECKLIST**

RECEIVER  
LJR  
Initials

SRG#: 69153 Date: 070209  
Project ID: Eagle Gas  
Method of Receipt:  Courier  Over-the-counter  Shipper

**COC Inspection**

Is COC present?  Yes  No  
 Custody seals on shipping container?  Intact  Broken  Not present  N/A  
 Is COC Signed by Relinquisher?  Yes  No Dated?  Yes  No  
 Is sampler name legibly indicated on COC?  Yes  No  
 Is analysis or hold requested for all samples?  Yes  No  
 Is the turnaround time indicated on COC?  Yes  No  
 Is COC free of whiteout and uninitialed cross-outs? LJR  Yes  No, Whiteout  No, Cross-outs

**Sample Inspection**

Coolant Present:  Yes  No (includes water)  
 Temperature °C 1.2 Therm. ID# FR-5 Initial LJR Date/Time 070209/1847  N/A  
 Are there custody seals on sample containers?  Intact  Broken  Not present  
 Do containers match COC?  Yes  No  No, COC lists absent sample(s)  No, Extra sample(s) present  
 Are there samples matrices other than soil, water, air or carbon?  Yes  No  
 Are any sample containers broken, leaking or damaged?  Yes  No  
 Are preservatives indicated?  Yes, on sample containers  Yes, on COC  Not indicated  N/A  
 Are preservatives correct for analyses requested?  Yes  No  N/A  
 Are samples within holding time for analyses requested?  Yes  No  
 Are the correct sample containers used for the analyses requested?  Yes  No  
 Is there sufficient sample to perform testing?  Yes  No  
 Does any sample contain product, have strong odor or are otherwise suspected to be hot?  Yes  No

Receipt Details

Matrix W/A Container type VOA # of containers received 50  
 Matrix \_\_\_\_\_ Container type \_\_\_\_\_ # of containers received \_\_\_\_\_  
 Matrix \_\_\_\_\_ Container type \_\_\_\_\_ # of containers received \_\_\_\_\_  
 Date and Time Sample Put into Temp Storage Date: 070209 Time: 1851

**Quicklog**

Are the Sample ID's indicated:  On COC  On sample container(s)  On Both  Not indicated  
 If Sample ID's are listed on both COC and containers, do they all match?  Yes  No  N/A  
 Is the Project ID indicated:  On COC  On sample container(s)  On Both  Not indicated  
 If project ID is listed on both COC and containers, do they all match?  Yes  No  N/A  
 Are the sample collection dates indicated:  On COC  On sample container(s)  On Both  Not indicated  
 If collection dates are listed on both COC and containers, do they all match?  Yes  No  N/A  
 Are the sample collection times indicated:  On COC  On sample container(s)  On Both  Not indicated  
 If collection times are listed on both COC and containers, do they all match?  Yes  No  N/A

COMMENTS: sample time on COC for 69153-07 (MW-10) is listed as 11:57; on sample labels it is 11:16. MAS 070209 0845