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Environmental Health



May 5, 2010

***VIA ALAMEDA COUNTY FTP SITE***

Mr. Paresh Khatri  
Alameda County Environmental Health  
1331 Harbor Bay Parkway, Suite 250  
Alameda, California 94502

Re: **Groundwater Monitoring Report – First Half 2010**  
5175 Broadway Street  
Oakland, California  
ACEH Fuel Leak Case No. RO#0000139

Dear Mr. Khatri:

On behalf of Rockridge Heights LLC, Pangea Environmental Services, Inc., has prepared this *Groundwater Monitoring Report—First Half 2010*. The report describes groundwater monitoring, sampling, and other site activities. Site groundwater monitoring is currently performed during the first and third quarters each year.

The report will be uploaded to the Alameda County FTP site. As requested, Pangea will not submit a hard copy of this report to Alameda County Environmental Health. If you have any questions or comments, please call me at (510) 435-8664.

Sincerely,  
**Pangea Environmental Services, Inc.**

A handwritten signature in blue ink, appearing to read "Bob Clark-Riddell".

Bob Clark-Riddell, P.E.  
Principal Engineer

Attachment: *Groundwater Monitoring Report – First Half 2010*

cc: Rockridge Heights, LLC, C/O Gary Feiner, 34 Schooner Hill, Oakland, California 94618  
SWRCB Geotracker (Electronic copy)

**PANGEA Environmental Services, Inc.**

1710 Franklin Street, Suite 200, Oakland, CA 94612 Telephone 510.836.3700 Facsimile 510.836.3709 [www.pangeaenv.com](http://www.pangeaenv.com)



## GROUNDWATER MONITORING REPORT – FIRST HALF 2010

5175 Broadway  
Oakland, California

May 5, 2010

*Prepared for:*


Rockridge Heights, LLC  
C/O Gary Feiner  
34 Schooner Hill  
Oakland, California 94618


*Prepared by:*

Pangea Environmental Services, Inc.  
1710 Franklin Street, Suite 200  
Oakland, California 94612

*Written by:*



  
Morgan Gillies  
Project Manager

  
Bob Clark-Riddell, P.E.  
Principal Engineer

**PANGEA Environmental Services, Inc.**

## **INTRODUCTION**

On behalf of Rockridge Heights, LLC, Pangea Environmental Services, Inc. (Pangea) conducted groundwater monitoring and sampling at the subject site (Figure 1). The purpose of the monitoring and sampling is to evaluate dissolved contaminant concentrations, determine the groundwater flow direction, and inspect site wells for separate-phase hydrocarbons (SPH). Current groundwater analytical results and elevation data are shown on Figures 2 and 3. Current and historical data are summarized on Table 1.

## **SITE BACKGROUND**

The subject property is located at 5175 Broadway Street, at the southwest corner of the intersection of Broadway and Coronado Avenue in Oakland, California in Alameda County (Figure 1). The site is approximately 0.6 miles south-southeast of Highway 24 and approximately 2.3 miles east of Interstate 80 and the San Francisco Bay. The property is relatively flat lying, with a slight slope to the south-southwest, and lies at an elevation of approximately 160 feet above mean sea level. Topographic relief in the area surrounding the site also slopes generally towards the south-southwest. The western site boundary is the top of an approximately 10 foot high retaining wall that separates the site from an adjacent apartment complex.

The property has been vacant since 1979 and was formerly occupied by an Exxon Service Station used for fuel sales and automobile repair. The site is approximately 13,200 square feet in area and the majority of the ground surface is paved with concrete and/or asphalt, although the former tank location is not paved. Land use to the west and northwest is residential, including apartment buildings and single family homes. Properties to the northeast, east and south of the site are commercial. The site and adjacent properties are shown on Figure 2.

Environmental compliance work commenced when the site USTs were removed in January 1990. Three 8,000-gallon steel single-walled USTs, associated piping, and a 500-gallon steel single-walled waste oil tank were removed. Tank Project Engineering, Inc. (TPE) conducted the tank removal and observed holes in all four tanks. Approximately 700 tons of contaminated soil was excavated during tank removal and was subsequently remediated and reused for onsite backfill by TPE. In April 1990, TPE installed and sampled monitoring wells MW-1, MW-2 and MW-3. In June 1991, Soil Tech Engineering (STE), subsequently renamed Environmental Soil Tech Consultants (ESTC), installed monitoring wells STMW-4 and STMW-5. Groundwater monitoring was conducted on the site intermittently until October 2002. Golden Gate Tank Removal (GGTR) performed additional assessment in January and February 2006. In June 2006, the property was purchased by Rockridge Heights, LLC. Pangea commenced quarterly groundwater monitoring at the site in July 2006. MTBE is not considered to be a contaminant of concern because use of the site for fuel sales

predates widespread use of MTBE in gasoline and because analytical results have not shown significant detections of MTBE.

In January and March 2007, Pangea installed twelve wells (MW-2C, MW-3A, MW-3C, MW-4A, MW-5A, MW-5B, MW-5C, MW-6A, MW-7B, MW-7C, MW-8A and MW-8C) and three offsite soil borings to help define the vertical and lateral extent of groundwater contamination. Pangea also abandoned four monitoring wells (MW-2, MW-3, STMW-4 and STMW-5) to reduce the risk of vertical contaminant migration and improve the quality of monitoring data. New wells installed at the site were categorized according to the depths of their screen intervals. Shallow (A-zone) wells have screen intervals of approximately 10 to 15 feet bgs, which generally straddle the top of the water table and are generally screened in surficial fill and alluvium. Intermediate-depth (B-zone) wells are screened at approximately 15 to 20 feet bgs, either in surficial strata or underlying fractured bedrock, while deep (C-zone) wells are generally screened at approximately 20 to 25 feet bgs and into fractured bedrock. Well MW-1 is screened across both the A-zone and B-zone.

In April 2007, Pangea performed a dual-phase extraction (DPE) pilot test to evaluate whether DPE is an appropriate remedial technology to remove residual hydrocarbons from beneath the site. In July 2007, Pangea submitted an Interim Remedial Action Plan for site corrective action.

In August 2007, Pangea installed three offsite monitoring wells (MW-9A, MW-9C and MW-10A) and conducted subslab vapor sampling in the commercial building located immediately south of the site. The purpose of the offsite well installation was to determine the downgradient extent of contaminant migration, and to help evaluate downgradient effects of any future remediation conducted onsite. The purpose of the subslab vapor sampling was to determine whether vapor migrating from underlying groundwater had impacted soil vapor. Soil gas sampling was also conducted near the southern and western edge of the property. Soil gas sampling and offsite monitoring well installation is described in Pangea's *Soil Gas Sampling and Well Installation Report* dated October 23, 2007. Further subslab/soil gas sampling was conducted at the two adjacent properties in June 2008 and reported in Pangea's *Additional Soil Gas Sampling Report* dated July 14, 2008.

In response to a letter from ACEH dated June 10, 2008, Pangea submitted a *Revised Site Conceptual Model and Corrective Action Plan* (Revised CAP) dated July 23, 2008. ACEH commented on the Revised CAP in a letter dated July 31, 2008 and Pangea prepared a *Corrective Action Plan Addendum* dated August 11, 2008 to address ACEH comments. In a letter dated August 22, 2008, ACEH approved the CAP and Addendum as a 'Draft CAP' and initiated the public-participation process. The *Final Corrective Action Plan* dated March 25, 2009 recommended remediation via DPE and air sparging. In response to an ACEH letter dated April 16, 2009, Pangea submitted a *Final Corrective Action Plan – Addendum* dated May 18, 2009, which provided justification for the recommended remedial action. ACEH approved the *Final CAP Addendum* in a letter dated

June 18, 2009. On August 19, 2009, Pangea oversaw installation of six dual-phase extraction (DPE) wells and one air sparging (AS) well to facilitate implementation of the approved corrective action plan. Installation of the DPE/AS system is in progress.

## **GROUNDWATER MONITORING AND SAMPLING**

On March 28 and 29, 2010, Pangea conducted groundwater monitoring and sampling at the site in accordance with the groundwater monitoring program in Appendix A. The site monitoring program involves semi-annual monitoring of all wells during the first and third quarters.

Site monitoring wells were gauged for depth-to-water and inspected for separate-phase hydrocarbons (SPH). To obtain water levels representative of the piezometric surface, technicians removed all well caps (allowing water levels to equilibrate) the day prior to sampling.

Prior to sample collection, approximately three casing volumes of water were purged using disposable bailers, an electric submersible pump, or a clean PVC bailer (although fewer casing volumes were purged if the well dewatered). During well purging, field technicians measured the pH, temperature and conductivity of the water. A groundwater sample was collected from each well with a disposable bailer and decanted into the appropriate containers supplied by the analytical laboratory. Groundwater samples were labeled, placed in protective plastic bags, and stored on crushed ice at or below 4° C. All samples were transported under chain-of-custody to the State-certified analytical laboratory. Purge water was stored onsite in DOT-approved 55-gallon drums. Groundwater monitoring field data sheets, including purge volumes and field parameter measurements, are presented in Appendix B.

## **MONITORING RESULTS**

Current and historical groundwater elevation and analytical data are described below and summarized on Table 1, Figure 2 and Figure 3. To facilitate data evaluation, well construction details are summarized on Table 2. Groundwater samples were analyzed for total petroleum hydrocarbons as diesel (TPHd) by EPA Method 8015C with silica gel cleanup; total petroleum hydrocarbons as gasoline (TPHg) by modified EPA Method 8015C; and benzene, toluene, ethylbenzene, xylenes (BTEX) and methyl tertiary butyl ether (MTBE) by EPA Method 8021B. Samples were analyzed by McCampbell Analytical, Inc., of Pittsburg, California, a State-certified laboratory. The laboratory analytical report is included in Appendix C.

## Groundwater Flow Direction

Based on depth-to-water data collected on March 28, 2010, shallow groundwater (A-zone) flows generally *southwestwards* to *southwards* throughout most of the site and downgradient from the site, as shown on Figure 2. The relatively high groundwater elevation measured in well MW-6A suggests that shallow groundwater is mounded in the former UST excavation and that the local flow direction radiates outwards away from the former excavation area towards the northeast corner of the site in the direction of MW-4A. These observations are interpreted as indicating that the unpaved former UST excavation has acted as a collector for rainwater and that the asphalt pavement covering the remainder of the site serves to reduce infiltration elsewhere while directing rainwater to the unpaved UST excavation area. The current inferred flow direction in shallow groundwater is generally consistent with previous monitoring results.

Groundwater flow in deep groundwater (C-zone) is generally *southwestward* across the site and turns toward the *south* beneath the adjacent commercial property, as shown on Figure 3. Generally, the elevation of the piezometric surface for C-zone wells is lower than elevations for A-zone wells, indicating that a downward gradient is present. The inferred flow direction is generally consistent with previous monitoring results.

## Hydrocarbon Distribution in Groundwater

No measurable thickness of separate-phase hydrocarbons (SPH) was observed in any monitoring wells this quarter, although an immeasurable sheen was observed by the laboratory in the sample from monitoring well MW-4A. The maximum TPHg and TPHd concentrations detected this quarter were 28,000 µg/L and 10,000 µg/L, respectively, in deep well MW-3C. The maximum benzene concentration was 1,800 µg/L, in shallow well MW-3A. No hydrocarbons were detected in the three downgradient offsite monitoring wells (MW-9A, MW-9C and MW-10A). Historic low concentrations of TPHg were detected in wells MW-3A (16,000 µg/L), MW-3C (28,000 µg/L), MW-4A (13,000 µg/L), MW-7B (10,000 µg/L) and MW-8A (3,500 µg/L). Samples from wells MW-3A and MW-7C contained historic low concentrations of benzene, at 1,800 µg/L and <100 µg/L, respectively. Hydrocarbon concentrations were generally within historic ranges and trends in all site wells.

Shallow (A-zone) groundwater contains petroleum hydrocarbons at elevated concentrations in two primary areas near the former UST excavation: a northern area in the vicinity of well MW-4A, and a southwestern area in the vicinity of wells MW-3A and MW-8A. Prior shallow grab groundwater sampling data also indicates that the southern area of contamination extends to the southern site boundary in the vicinity of wells MW-7B and MW-7C (where *benzene* concentrations are apparently biodegrading in these deeper wells). The non-detect concentrations of hydrocarbons in wells MW-9A and MW-10A indicate that offsite migration of petroleum hydrocarbons in shallow groundwater is minimal. The observed distribution of hydrocarbons in A-zone

groundwater is presumably due to plume migration radially away from the excavation area, likely caused by mounding of groundwater within the uncapped former UST excavation during the rainy season.

Contaminant distribution in deeper groundwater differs significantly from the distribution of hydrocarbons in shallow groundwater. Elevated contaminant concentrations within deeper groundwater (B-zone and C-zone) are apparently present in the vicinity of wells MW-3C, MW-7B and MW-7C in the central and southern portions of the site. Again, the apparent biodegradation of benzene and select other compounds in wells MW-7B and MW-7C suggests that deeper hydrocarbons are attenuating. In addition, the very low to non-detect concentrations of petroleum hydrocarbons detected in newly installed offsite well MW-9C over the last few monitoring events indicates that offsite plume migration is minimal. Well screen intervals for shallow and deep wells are summarized on Table 2.

### **Fuel Oxygenate Distribution in Groundwater**

MTBE was detected at a concentration of 66 µg/L in deep monitoring well MW-7C. This is the first time MTBE has been detected at this site since 2002. The detected MTBE concentration could be from an unknown offsite source, field contamination or laboratory error. MTBE is not a contaminant of concern at this site both due to the lack of detections, and because the USTs were removed in 1990 prior to widespread use of MTBE as a fuel oxygenate.

## **OTHER SITE ACTIVITIES**

### **Site Remediation**

Pangea is coordinating installation of the dual phase extraction/air sparging (DPE/AS) system approved by the ACEH letter dated June 18, 2009. Six DPE wells and one AS well were installed on August 19, 2009. System startup is anticipated in June or July 2010.

### **Groundwater Monitoring**

Pangea will conduct *semi-annual* groundwater monitoring and sampling at the site in accordance with the monitoring program shown in Appendix A. The next monitoring event is scheduled for September 2010. The monitoring program includes onsite and offsite groundwater *monitoring* wells, but no site remediation wells. Groundwater samples will be analyzed for TPHg/BTEX/MTBE by EPA Method 8015Cm/8021B, and for TPHd by EPA Method 8015C with silica gel cleanup. Pangea will summarize groundwater monitoring activities and results in a groundwater monitoring report.

Pangea anticipates resuming *quarterly* groundwater monitoring during and after completion of initial site remediation to facilitate evaluation of remedial effectiveness on site conditions.

### **Electronic Reporting**

This report will be uploaded to the Alameda County FTP site. The report, laboratory data, and other applicable information will also be uploaded to the State Water Resource Control Board's Geotracker database. As requested, report hard copies will no longer be provided to the local agencies.

### **ATTACHMENTS**

Figure 1 – Site Location Map

Figure 2 – Groundwater Elevation Contour and Hydrocarbon Concentration Map (Shallow)

Figure 3 – Groundwater Elevation Contour and Hydrocarbon Concentration Map (Deep)

Table 1 – Groundwater Analytical Data

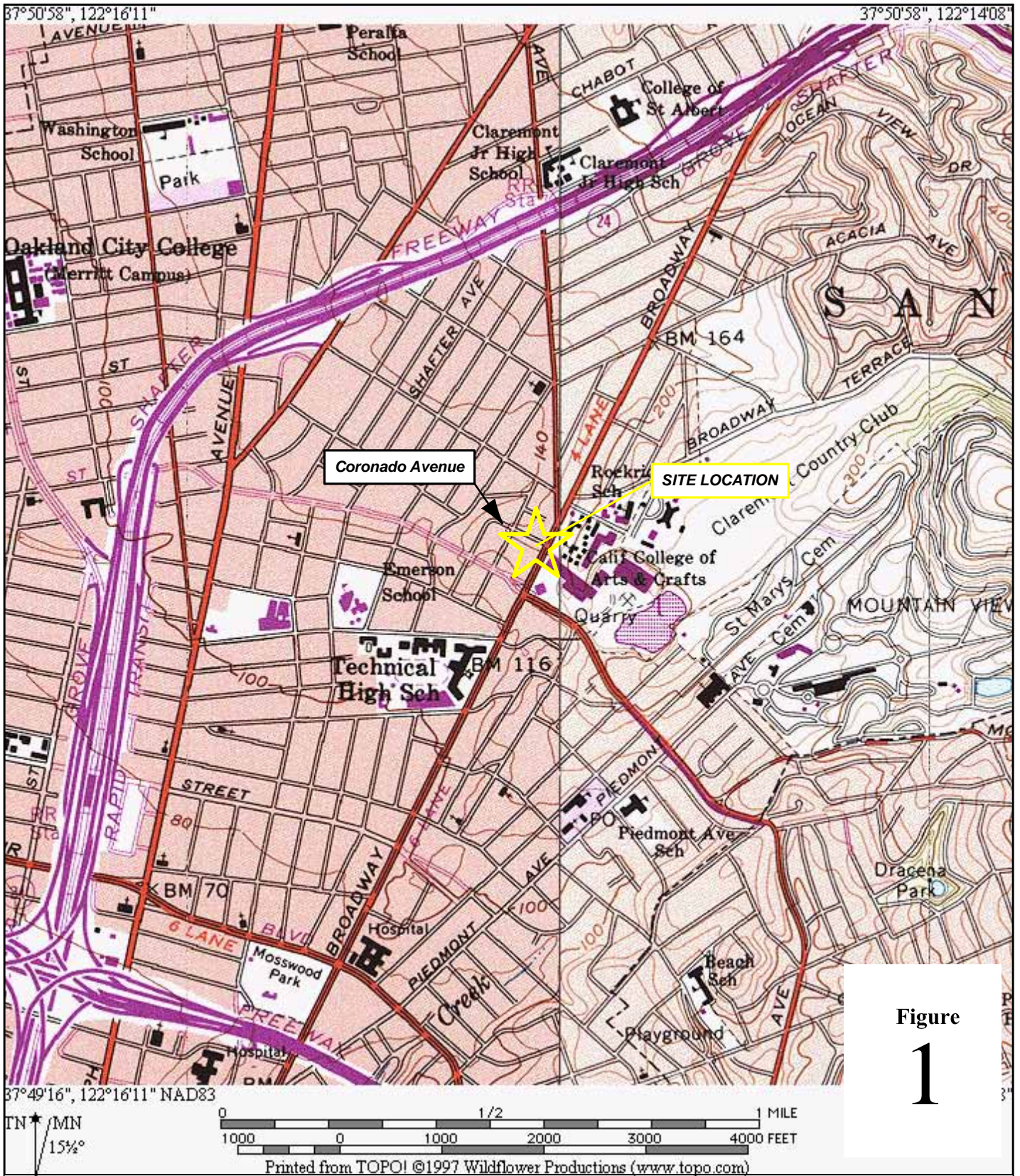
Table 2 – Well Construction Details

Appendix A – Groundwater Monitoring Program

Appendix B – Groundwater Monitoring Field Data Sheets

Appendix C – Laboratory Analytical Reports





Feiner/Broadway site loc.ai 8/30/06

Former Exxon Station  
5175 Broadway  
Oakland, California



Site Location Map

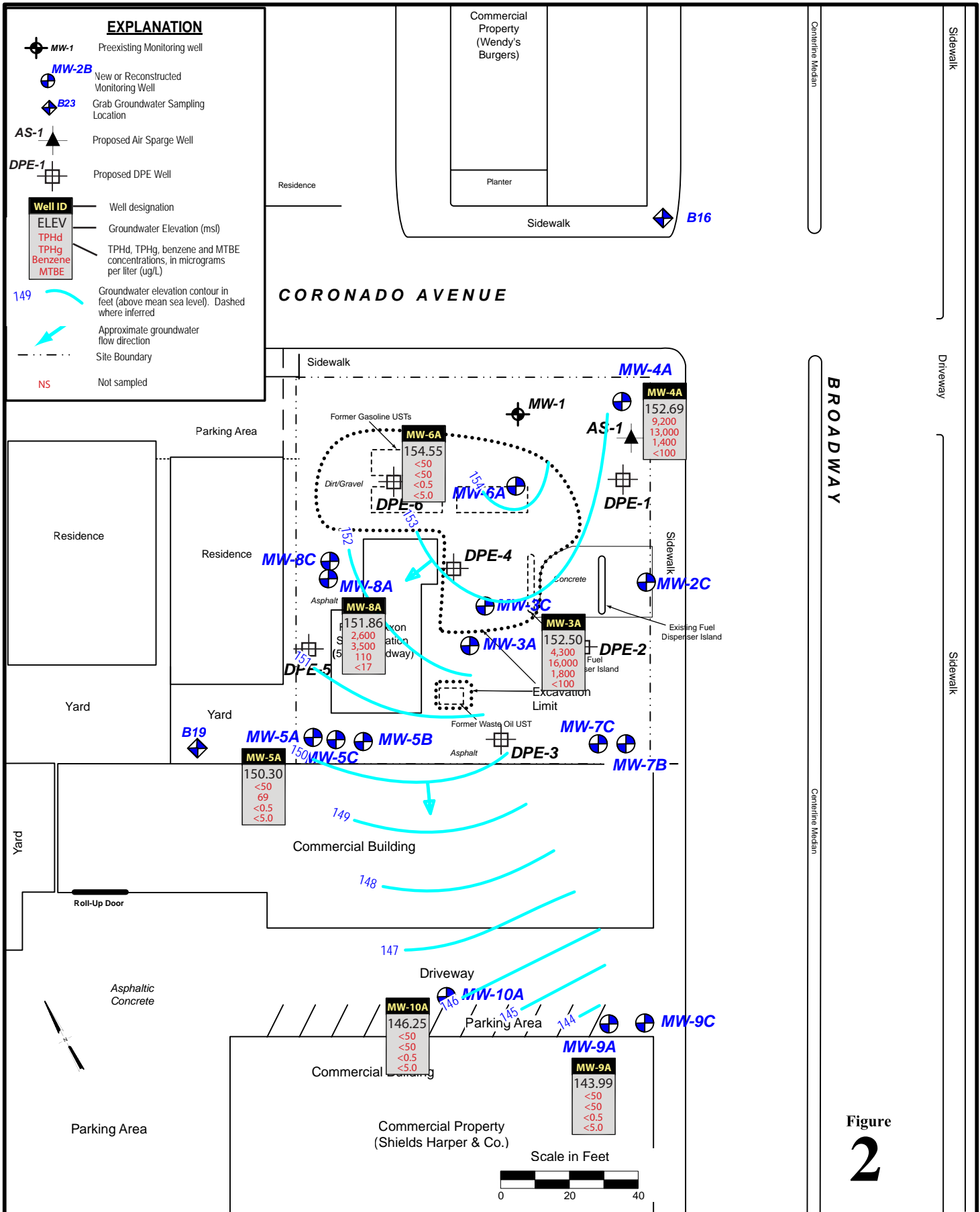
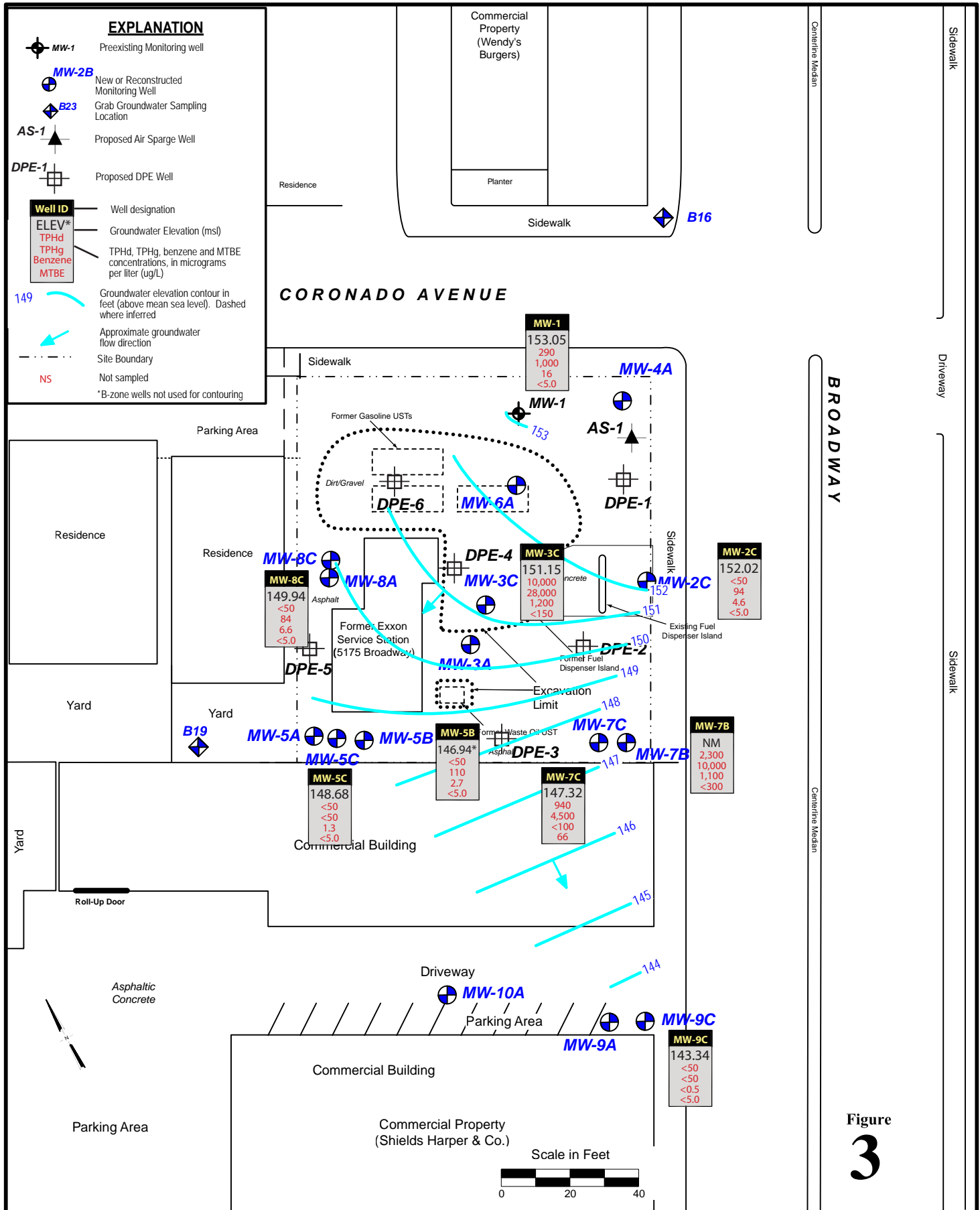


Figure  
**2**

**Former Exxon Station**  
5175 Broadway  
Oakland, California

**Groundwater Elevation Contour and Hydrocarbon Concentration Map (Shallow)**  
March 29, 2010





Former Exxon Station  
5175 Broadway  
Oakland, California

Groundwater Elevation Contour and  
Hydrocarbon Concentration Map (Deep)  
March 29, 2010



# Pangea

**Table 1. Groundwater Analytical Data - Former Exxon Station, 5175 Broadway, Oakland, CA**

Well ID	Date	SPH	Groundwater	Depth	TPHd	TPHg	Benzene	Toluene	Ethylbenzene	Xylenes	MTBE	DIPE	1,2-DCA	Dissolved	
<i>TOC Elev</i>	Sampled	(ft)	Elevation	to Water										Oxygen	
(ft)			(ft)	(ft)	←————— μg/L —————→										mg/L
<b>SHALLOW WELLS</b>															
MW-3A	03/09/07	--	152.20	9.35	4,500	39,000	3,800	220	830	2,800	<500	--	--	--	
(161.55)	03/26/07	--	152.33	9.22	--	--	--	--	--	--	--	--	--	--	
(161.57)	06/24/07	--	151.61	9.94	11,000	34,000	3,200	330	990	3,200	<250	--	--	--	
	09/29/07	--	150.21	11.36	11,000	43,000	3,500	150	730	2,200	<1,000	--	--	--	
	12/27/07	--	150.20	11.37	8,700	30,000	2,500	24	520	930	<100	--	--	--	
	03/15/08	--	152.27	9.30	10,000	26,000	2,400	110	700	1,200	<250	--	--	--	
	09/12/08	--	149.57	12.00	9,000	26,000	2,100	29	560	280	<100	--	--	--	
	03/06/09	--	152.66	8.91	6,500	20,000	2,300	59	740	410	<180	--	--	--	
	09/17/09	--	149.47	12.10	6,900	19,000	2,700	33	660	110	<250	--	--	--	
	<b>03/28/10</b>	<b>--</b>	<b>152.50</b>	<b>9.07</b>	<b>4,300</b>	<b>16,000</b>	<b>1,800</b>	<b>38</b>	<b>220</b>	<b>340</b>	<b>&lt;100</b>	<b>--</b>	<b>--</b>	<b>--</b>	
MW-4A	03/09/07	--	152.88	9.56	3,600	16,000	1,600	36	37	150	<250	--	--	--	
(162.44)	03/26/07	--	152.56	9.88	--	--	--	--	--	--	--	--	--	--	
	06/24/07	--	152.02	10.42	110,000	87,000	1,500	59	290	800	<500	--	--	--	
	09/29/07	--	151.33	11.11	170,000	130,000	2,700	69	400	1,400	<240	--	--	--	
	12/27/07	--	152.33	10.11	19,000	27,000	1,600	31	100	320	<90	--	--	--	
	03/15/08	--	152.51	9.93	38,000	17,000	1,300	<50	120	380	<500	--	--	--	
	09/12/08	--	151.72	10.72	120,000	110,000	1,400	<50	210	660	<500	--	--	--	
	03/06/09	--	153.84	8.60	32,000	17,000	1,100	15	<10	190	<100	--	--	--	
	09/17/09	--	151.44	11.00	25,000	26,000	1,600	63	140	320	<350	--	--	--	
	<b>03/28/10</b>	<b>--</b>	<b>152.69</b>	<b>9.75</b>	<b>9,200</b>	<b>13,000</b>	<b>1,400</b>	<b>29</b>	<b>16</b>	<b>160</b>	<b>&lt;100</b>	<b>--</b>	<b>--</b>	<b>--</b>	
MW-5A	03/09/07	--	150.40	10.42	56	<50	<0.5	<0.5	<0.5	<0.5	<5.0	--	--	--	
(160.82)	03/26/07	--	150.00	10.82	--	--	--	--	--	--	--	--	--	--	
	06/24/07	--	148.94	11.88	<50	180	<0.5	<0.5	<0.5	<0.5	<5.0	--	--	--	
	09/29/07	--	147.86	12.96	--	--	--	--	--	--	--	--	--	--	
	12/27/07	--	148.40	12.42	--	--	--	--	--	--	--	--	--	--	
	03/15/08	--	149.96	10.86	<50	180	0.91	<0.5	<0.5	<0.5	<5.0	--	--	--	
	09/12/08	--	147.50	13.32					Insufficient water to sample						
	03/06/09	--	151.33	9.49	230	460	2.0	3.0	0.68	1.9	<5.0	--	--	--	
	09/17/09	--	148.02	12.80					Insufficient water to sample						
	<b>03/28/10</b>	<b>--</b>	<b>150.30</b>	<b>10.52</b>	<b>&lt;50</b>	<b>69</b>	<b>&lt;0.5</b>	<b>&lt;0.5</b>	<b>&lt;0.5</b>	<b>&lt;0.5</b>	<b>&lt;5.0</b>	<b>---</b>	<b>---</b>	<b>---</b>	
MW-6A	03/09/07	--	154.91	6.67	380	<50	<0.5	<0.5	<0.5	<0.5	<5.0	--	--	--	
(161.58)	03/26/07	--	154.41	7.17	--	--	--	--	--	--	--	--	--	--	
	06/24/07	--	153.79	7.79	590	140	<0.5	<0.5	<0.5	<0.5	<5.0	--	--	--	
	09/29/07	--	152.84	8.74	540	52	<0.5	<0.5	<0.5	<0.5	<5.0	--	--	--	
	12/27/07	--	154.27	7.31	170	94	<0.5	<0.5	<0.5	<0.5	<5.0	--	--	--	
	03/15/08	--	154.42	7.16	150	<50	<0.5	<0.5	<0.5	<0.5	<5.0	--	--	--	
	09/12/08	--	152.92	8.66	510	<50	<0.5	<0.5	<0.5	<0.5	<5.0	--	--	--	

# Pangea

**Table 1. Groundwater Analytical Data - Former Exxon Station, 5175 Broadway, Oakland, CA**

Well ID	Date	SPH	Groundwater	Depth	TPHd	TPHg	Benzene	Toluene	Ethylbenzene	Xylenes	MTBE	DIPE	1,2-DCA	Dissolved
<i>TOC Elev</i>	<i>Sampled</i>		<i>Elevation</i>	<i>to Water</i>										<i>Oxygen</i>
<i>(ft)</i>		<i>(ft)</i>	<i>(ft)</i>	<i>(ft)</i>	←————— μg/L —————→									<i>mg/L</i>
MW-6A	03/06/09	--	155.76	5.82	110	<50	<0.5	<0.5	<0.5	<0.5	<5.0	--	--	--
<i>(cont.)</i>	09/17/09	--	152.89	8.69	280	<50	<0.5	<0.5	<0.5	<0.5	<5.0	--	--	--
	<b>03/28/10</b>	--	<b>154.55</b>	<b>7.03</b>	<b>&lt;50</b>	<b>&lt;50</b>	<b>&lt;0.5</b>	<b>&lt;0.5</b>	<b>&lt;0.5</b>	<b>&lt;0.5</b>	<b>&lt;5.0</b>	--	--	--
MW-8A	03/09/07	--	152.05	9.52	4,200	10,000	430	18	<10	88	<100	--	--	--
<i>(161.57)</i>	03/26/07	--	151.74	9.83	--	--	--	--	--	--	--	--	--	--
	06/24/07	--	151.40	10.17	17,000	12,000	720	500	230	880	<300	--	--	--
	09/29/07	--	150.64	10.95	5,300	7,500	440	67	26	240	<90	--	--	--
<i>(161.59)</i>	12/27/07	--	152.00	9.59	13,000	9,600	290	100	90	360	<100	--	--	--
	03/15/08	--	152.00	9.59	7,500	7,200	170	28	270	110	<100	--	--	--
	09/12/08	--	150.27	11.32	9,900	11,000	220	31	110	180	<50	--	--	--
	03/06/09	--	153.01	8.58	5,500	6,700	98	17	57	63	<50	--	--	--
	09/17/09	--	150.83	10.76	5,200	6,800	150	19	10	35	<25	--	--	--
	<b>03/28/10</b>	--	<b>151.86</b>	<b>9.73</b>	<b>2,600</b>	<b>3,500</b>	<b>110</b>	<b>7.2</b>	<b>&lt;1.7</b>	<b>19</b>	<b>&lt;17</b>	--	--	--
MW-9A	09/29/07	--	142.76	12.61	86	<50	2.6	<0.5	<0.5	<0.5	<5.0	--	--	--
<i>(155.37)</i>	12/27/07	--	143.51	11.86	<50	<50	<0.5	<0.5	<0.5	<0.5	<5.0	--	--	--
	03/15/08	--	143.35	12.02	<50	<50	0.85	<0.5	<0.5	<0.5	<5.0	--	--	--
	09/12/08	--	142.60	12.77	<50	<50	1.2	<0.5	<0.5	<0.5	<5.0	--	--	--
	03/06/09	--	144.18	11.19	<50	<50	<0.5	<0.5	<0.5	<0.5	<5.0	--	--	--
	09/17/09	--	142.91	12.46	<50	<50	<0.5	<0.5	<0.5	<0.5	<5.0	--	--	--
	<b>03/28/10</b>	--	<b>143.49</b>	<b>11.88</b>	<b>&lt;50</b>	<b>&lt;50</b>	<b>&lt;0.5</b>	<b>&lt;0.5</b>	<b>&lt;0.5</b>	<b>&lt;0.5</b>	<b>&lt;5.0</b>	--	--	--
MW-10A	09/29/07	--	144.35	10.53	<50	<50	<0.5	<0.5	<0.5	<0.5	<5.0	--	--	--
<i>(154.88)</i>	12/27/07	--	145.50	9.38	<50	<50	<0.5	<0.5	<0.5	<0.5	<5.0	--	--	--
	03/15/08	--	145.96	8.92	<50	<50	<0.5	<0.5	<0.5	<0.5	<5.0	--	--	--
	09/12/08	--	143.82	11.06	<50	<50	<0.5	<0.5	<0.5	<0.5	<5.0	--	--	--
	03/06/09	--	147.45	7.43	<50	<50	<0.5	<0.5	<0.5	<0.5	<5.0	--	--	--
	09/17/09	--	144.11	10.77	<50	<50	<0.5	<0.5	<0.5	<0.5	<5.0	--	--	--
	<b>03/28/10</b>	--	<b>146.25</b>	<b>8.63</b>	<b>&lt;50</b>	<b>&lt;50</b>	<b>&lt;0.5</b>	<b>&lt;0.5</b>	<b>&lt;0.5</b>	<b>&lt;0.5</b>	<b>&lt;5.0</b>	--	--	--
<b>DEEP WELLS</b>														
MW-1	04/30/89	--	--	--	--	200	18	5	2	12	--	--	--	--
<i>(97.71)</i>	05/17/90	--	88.45	9.26	--	--	--	--	--	--	--	--	--	--
	09/26/90	--	87.79	9.92	--	1,300	55	31	120	100	--	--	--	--
	01/14/91	--	88.17	9.54	--	3,100	350	83	86	130	--	--	--	--
<i>(102.04)</i>	07/03/91	--	92.62	9.42	--	580	32	41	40	55	--	--	--	--
	11/11/91	--	92.59	9.45	--	330	20	2	2	11	--	--	--	--
<i>(101.83)</i>	03/04/92	--	93.90	7.93	--	810	11	5	10	23	--	--	--	--
	06/02/92	--	92.85	8.98	--	2,200	93	32	40	120	--	--	--	--
	09/28/92	--	92.54	9.29	--	2,900	24	78	19	37	--	--	--	--

# Pangea

**Table 1. Groundwater Analytical Data - Former Exxon Station, 5175 Broadway, Oakland, CA**

Well ID	Date	Groundwater	Depth	TPHd	TPHg	Benzene	Toluene	Ethylbenzene	Xylenes	MTBE	DIPE	1,2-DCA	Dissolved	
<i>TOC Elev</i>	<i>Sampled</i>	<i>SPH</i>	<i>Elevation</i>	<i>to Water</i>	<i>µg/L</i>									<i>Oxygen</i>
<i>(ft)</i>		<i>(ft)</i>	<i>(ft)</i>											<i>mg/L</i>
MW-1	01/11/93	--	94.27	7.56	--	1,700	5.7	6	11	28	--	--	--	
<i>(cont.)</i>	08/15/94	--	92.64	9.19	--	2,000	120	3	6	16	--	--	--	
<i>(97.50)</i>	11/07/96	--	88.77	8.73	270	1,200	3	1.1	1.5	3.8	<0.5	--	--	
	02/12/97	--	89.58	7.92	<50	1,800	13	5.7	4.8	17	<0.5	--	--	
	06/16/97	--	88.46	9.04	<50	330	27	<0.5	<0.5	1.2	<0.5	--	--	
	09/30/97	--	89.94	7.56	<50	<50	<0.5	<0.5	<0.5	<0.5	<0.5	--	--	
<i>(97.50)</i>	01/27/98	--	89.54	7.96	<50	<50	<0.5	<0.5	<0.5	<0.5	<0.5	--	--	
	04/24/98	--	89.52	7.98	<50	<50	<0.5	<0.5	<0.5	<0.5	<0.5	--	--	
	08/17/98	--	88.52	8.98	<50	<50	<0.5	<0.5	<0.5	<0.5	<0.5	--	--	
	11/16/98	--	88.60	8.90	<50	<50	<0.5	<0.5	<0.5	<0.5	<0.5	--	--	
	02/16/99	--	88.86	8.64	<50	110	<0.5	<0.5	<0.5	<0.5	<0.5	--	--	
	05/17/99	--	89.00	8.50	--	280	1.1	0.6	<0.5	<0.5	<0.5	--	--	
	08/17/99	--	88.26	9.24	86	790	5.6	4.3	4.5	11	<5.0	--	--	
	11/17/99	--	87.06	10.44	--	1,300	3.6	1.9	2.7	6.6	<1.0	--	--	
	02/17/00	--	89.02	8.48	--	580	1.1	2.3	3.6	4.9	<5.0	--	--	
	05/17/00	--	89.26	8.24	--	1,500	130	6.8	6.1	<5.0	<5.0	--	--	
	08/17/00	--	88.73	8.77	--	550	160	<25	<25	<25	<25	--	--	
	11/15/00	--	88.46	9.04	--	130	<5.0	<5.0	<5.0	<5.0	<5.0	--	--	
	02/16/01	--	89.90	7.60	--	400	26	<5.0	<5.0	<5.0	<5.0	--	--	
	01/11/02	--	89.42	8.08	160	600	74	53	14	52	110	--	--	
<i>(161.03)</i>	07/01/02	--	152.01	9.02	280	670	25	<5.0	<5.0	<5.0	<5.0	--	--	
	10/04/02	--	151.29	9.74	520	1,800	130	7.8	8.1	14	<5.0	--	--	
	07/28/06	--	151.93	9.10	86	250	42	1.7	1.4	3.1	<1.0	51	1.5	
	10/16/06	--	151.98	9.05	110	390	16	<0.5	1.5	2.2	<0.5	41	1.6	
<i>(161.10)</i>	01/09/07	--	152.90	8.20	160	530	21	1.7	2.8	5.1	--	--	0.22	
	03/26/07	--	152.84	8.26	--	--	--	--	--	--	--	--	--	
	06/24/07	--	152.12	8.98	220	500	24	1.1	2.2	4.2	<5.0	--	--	
	09/29/07	--	151.44	9.66	180	540	19	1.2	2.3	5.3	<5.0	--	--	
	12/27/07	--	152.60	8.50	200	290	10	0.65	1.2	3.0	<5.0	--	--	
	03/15/08	--	152.72	8.38	340	680	24	1.1	1.9	2.9	<10	--	--	
	09/12/08	--	151.86	9.24	320	1,000	13	<0.5	0.61	1.4	<5.0	--	--	
	03/06/09	--	154.40	6.70	2,700	2,500	28	3.2	4.8	10	<17	--	--	
	09/17/09	--	151.67	9.43	170	300	4.4	<0.5	<0.5	2.3	<5.0	--	--	
	<b>03/28/10</b>	--	<b>153.05</b>	<b>8.05</b>	<b>290</b>	<b>1,000</b>	<b>16</b>	<b>1.2</b>	<b>1.1</b>	<b>4.2</b>	<b>&lt;5.0</b>	--	--	
MW-2C	03/09/07	--	152.24	8.41	140	450	40	9.3	2.9	16	<10	--	--	
<i>(160.65)</i>	03/26/07	--	151.93	8.72	--	--	--	--	--	--	--	--	--	
	06/24/07	--	151.21	9.44	160	440	30	1.8	5.9	7.4	<5.0	--	--	
	09/29/07	--	150.45	10.20	120	200	13	<0.5	<0.5	2.0	<5.0	--	--	
	12/27/07	--	151.42	9.23	83	190	13	0.83	<0.5	1.9	<5.0	--	--	
	03/15/08	--	151.83	8.82	120	250	24	2.2	5.2	4.5	<5.0	--	--	
	09/12/08	--	150.73	9.92	<50	130	7.1	<0.5	1.2	0.83	<5.0	--	--	

# Pangea

**Table 1. Groundwater Analytical Data - Former Exxon Station, 5175 Broadway, Oakland, CA**

Well ID	Date	SPH	Groundwater	Depth	TPHd	TPHg	Benzene	Toluene	Ethylbenzene	Xylenes	MTBE	DIPE	1,2-DCA	Dissolved
<i>TOC Elev</i>	<i>Sampled</i>		<i>Elevation</i>	<i>to Water</i>										<i>Oxygen</i>
<i>(ft)</i>		<i>(ft)</i>	<i>(ft)</i>	<i>(ft)</i>	←————— μg/L —————→									<i>mg/L</i>
MW-2C	03/06/09	--	153.21	7.44	95	180	8.0	1.1	1.5	2.8	<5.0	--	--	--
<i>(cont.)</i>	09/17/09	--	150.57	10.08	<50	64	4.3	<0.5	0.62	0.88	<5.0	--	--	--
	<b>03/28/10</b>	--	<b>152.02</b>	<b>8.63</b>	<b>&lt;50</b>	<b>94</b>	<b>4.6</b>	<b>&lt;0.5</b>	<b>0.77</b>	<b>1.2</b>	<b>&lt;5.0</b>	--	--	--
MW-3C	03/26/07	--	151.15	10.64	--	--	--	--	--	--	--	--	--	--
<i>(161.79)</i>	04/16/07	--	150.87	10.92	36,000	32,000	1,200	710	600	1,900	<500	--	--	--
	06/24/07	--	149.43	12.36	200,000	50,000	2,200	4,100	860	6,100	<500	--	--	--
	09/29/07	--	148.33	13.46	48,000	37,000	1,700	3,300	830	4,800	<1,000	--	--	--
	12/27/07	--	149.79	12.00	29,000	28,000	590	900	630	2,000	<500	--	--	--
	03/15/08	--	150.70	11.09	21,000	36,000	1,500	2,400	570	3,700	<500	--	--	--
	09/12/08	--	148.37	13.42	11,000	40,000	1,100	1,200	600	3,000	<500	--	--	--
	03/06/09	--	152.04	9.75	13,000	31,000	860	420	540	2,200	<500	--	--	--
	09/17/09	--	148.59	13.20	14,000	37,000	1,400	690	400	4,300	<1,200	--	--	--
	<b>03/28/10</b>	--	<b>151.15</b>	<b>10.64</b>	<b>10,000</b>	<b>28,000</b>	<b>1,200</b>	<b>540</b>	<b>750</b>	<b>3,200</b>	<b>&lt;150</b>	--	--	--
MW-5B	03/09/07	--	146.42	15.08	59	140	1.3	0.77	<0.5	1.6	<5.0	--	--	--
<i>(161.50)</i>	03/26/07	--	148.88	12.62	--	--	--	--	--	--	--	--	--	--
	06/24/07	--	147.98	13.52	53	52	1.1	<0.5	<0.5	<0.5	<5.0	--	--	--
	09/29/07	--	146.60	14.90	<50	<50	0.95	<0.5	<0.5	<0.5	<5.0	--	--	--
	12/27/07	--	148.41	13.09	<50	58	1.4	<0.5	0.60	<0.5	<5.0	--	--	--
	03/15/08	--	148.95	12.55	<50	61	2.6	1.1	1.1	3.0	<5.0	--	--	--
	09/12/08	--	146.35	15.15	<50	<50	<0.5	<0.5	<0.5	<0.5	<5.0	--	--	--
	03/06/09	--	150.36	11.14	<50	67	2.0	1.4	1.3	3.3	<5.0	--	--	--
	09/17/09	--	146.94	14.56	<50	58	0.66	<0.5	<0.5	<0.5	<5.0	--	--	--
	<b>03/28/10</b>	--	<b>149.38</b>	<b>12.12</b>	<b>&lt;50</b>	<b>110</b>	<b>2.7</b>	<b>0.78</b>	<b>&lt;0.5</b>	<b>1.6</b>	<b>&lt;5.0</b>	--	--	--
MW-5C	03/09/07	--	148.12	12.91	<50	<50	<0.5	<0.5	<0.5	<0.5	<5.0	--	--	--
<i>(161.03)</i>	03/26/07	--	148.41	12.62	--	--	--	--	--	--	--	--	--	--
	06/24/07	--	147.58	13.45	<50	<50	<0.5	<0.5	<0.5	<0.5	<5.0	--	--	--
	09/29/07	--	146.41	14.62	66	<50	<0.5	<0.5	<0.5	<0.5	<5.0	--	--	--
	12/27/07	--	148.10	12.93	<50	<50	<0.5	<0.5	<0.5	<0.5	<5.0	--	--	--
	03/15/08	--	148.48	12.55	<50	<50	<0.5	<0.5	<0.5	<0.5	<5.0	--	--	--
	09/12/08	--	146.04	14.99	<50	<50	<0.5	<0.5	<0.5	<0.5	<5.0	--	--	--
	03/06/09	--	149.73	11.30	<50	<50	0.52	<0.5	<0.5	<0.5	<5.0	--	--	--
	09/17/09	--	146.60	14.43	<50	<50	<0.5	<0.5	<0.5	<0.5	<5.0	--	--	--
	<b>03/28/10</b>	--	<b>148.68</b>	<b>12.35</b>	<b>&lt;50</b>	<b>&lt;50</b>	<b>1.3</b>	<b>&lt;0.5</b>	<b>&lt;0.5</b>	<b>&lt;0.5</b>	<b>&lt;5.0</b>	--	--	--
MW-7B	03/09/07	--	147.97	11.18	930	18,000	1,500	1,600	140	1,800	<600	--	--	--
<i>(159.15)</i>	03/26/07	--	148.10	11.05	--	--	--	--	--	--	--	--	--	--
	06/24/07	--	147.54	11.61	40,000	30,000	1,800	2,400	240	2,800	<700	--	--	--
<i>(159.02)</i>	09/29/07	--	146.91	12.11	16,000	37,000	1,300	1,500	180	2,700	<500	--	--	--
	12/27/07	--	147.37	11.65	7,700	18,000	810	880	38	1,600	<50	--	--	--

# Pangea

**Table 1. Groundwater Analytical Data - Former Exxon Station, 5175 Broadway, Oakland, CA**

Well ID	Date	SPH	Groundwater	Depth	TPHd	TPHg	Benzene	Toluene	Ethylbenzene	Xylenes	MTBE	DIPE	1,2-DCA	Dissolved
<i>TOC Elev</i>	<i>Sampled</i>	(ft)	Elevation	to Water	← μg/L →									Oxygen
(ft)			(ft)	(ft)										mg/L
MW-7B	03/15/08	--	147.66	11.36	7,900	14,000	730	820	110	1,200	<250	--	--	--
(cont.)	09/12/08	--	146.87	12.15	27,000	16,000	450	340	19	1,300	<120	--	--	--
	03/06/09	--	147.90	11.12	15,000	15,000	370	270	13	1,000	<150	--	--	--
	09/17/09	--	146.94	12.08	10,000	14,000	470	330	44	1,100	<170	--	--	--
	<b>03/28/10</b>	--	<b>148.17</b>	<b>10.85</b>	<b>2,300</b>	<b>10,000</b>	<b>1,100</b>	<b>750</b>	<b>46</b>	<b>1,100</b>	<b>&lt;300</b>	--	--	--
MW-7C	03/09/07	--	145.44	13.09	190	3,600	970	100	12	90	<120	--	--	--
(158.53)	03/26/07	--	147.53	11.00	--	--	--	--	--	--	--	--	--	--
	06/24/07	--	146.65	11.88	7,100	16,000	510	520	190	1,300	<100	--	--	--
	09/29/07	--	146.21	12.32	11,000	29,000	580	1,400	600	4,800	<1,000	--	--	--
	12/27/07	--	146.74	11.79	56,000	29,000	250	410	430	3,300	<50	--	--	--
	03/15/08	--	147.45	11.08	7,000	13,000	170	58	170	1,300	<100	--	--	--
	09/12/08	--	146.02	12.51	2,600	7,600	260	38	76	330	<50	--	--	--
	03/06/09	--	147.65	10.88	1,900	4,600	140	21	15	93	<15	--	--	--
	09/17/09	--	146.23	12.30	2,200	7,000	830	38	23	90	<100	--	--	--
	<b>03/28/10</b>	--	<b>147.32</b>	<b>11.21</b>	<b>940</b>	<b>4,500</b>	<b>&lt;100</b>	<b>79</b>	<b>2.0</b>	<b>59</b>	<b>66</b>	--	--	--
MW-8C	03/09/07	--	149.18	12.15	<50	150	9.8	1.3	2.0	3.9	<5.0	--	--	--
(161.33)	03/26/07	--	149.56	11.77	--	--	--	--	--	--	--	--	--	--
	06/24/07	--	148.96	12.37	<50	<50	0.57	<0.5	<0.5	<0.5	<5.0	--	--	--
	09/29/07	--	148.35	12.98	<50	<50	<0.5	<0.5	<0.5	<0.5	<5.0	--	--	--
	12/27/07	--	149.84	11.49	<50	<50	<0.5	<0.5	<0.5	<0.5	<5.0	--	--	--
	03/15/08	--	149.94	11.39	<50	110	6.0	1.7	2.4	2.4	<5.0	--	--	--
	09/12/08	--	148.18	13.15	<50	<50	<0.5	<0.5	<0.5	<0.5	<5.0	--	--	--
	03/06/09	--	151.25	10.08	<50	<50	2.1	<0.5	0.87	0.76	<5.0	--	--	--
	09/17/09	--	148.63	12.70	<50	<50	<0.5	<0.5	<0.5	<0.5	<5.0	--	--	--
	<b>03/28/10</b>	--	<b>149.94</b>	<b>11.39</b>	<b>&lt;50</b>	<b>84</b>	<b>6.6</b>	<b>0.89</b>	<b>2.9</b>	<b>2.7</b>	<b>&lt;5.0</b>	--	--	--
MW-9C	09/29/07	--	142.67	12.27	390	68	2.2	0.88	<0.5	<0.5	<5.0	--	--	--
(154.94)	12/27/07	--	143.40	11.54	<50	<50	0.84	<0.5	<0.5	<0.5	<5.0	--	--	--
	03/15/08	--	143.98	10.96	<50	<50	0.55	<0.5	<0.5	<0.5	<5.0	--	--	--
	09/12/08	--	142.53	12.41	<50	<50	<0.5	<0.5	<0.5	<0.5	<5.0	--	--	--
	03/06/09	--	144.09	10.85	<50	<50	<0.5	<0.5	<0.5	<0.5	<5.0	--	--	--
	09/17/09	--	142.84	12.10	<50	<50	<0.5	<0.5	<0.5	<0.5	<5.0	--	--	--
	<b>03/28/10</b>	--	<b>143.34</b>	<b>11.60</b>	<b>&lt;50</b>	<b>&lt;50</b>	<b>&lt;0.5</b>	<b>&lt;0.5</b>	<b>&lt;0.5</b>	<b>&lt;0.5</b>	<b>&lt;5.0</b>	--	--	--
<b>REMEDIATION WELLS</b>														
AS-1	10/04/09	--	--	11.38	--	<50	3.6	<0.5	<0.5	<0.5	<5.0	--	--	--
DPE-1	10/04/09	--	--	10.38	--	1,600	210	4.4	5.1	34	<35	--	--	--



# Pangea

**Table 1. Groundwater Analytical Data - Former Exxon Station, 5175 Broadway, Oakland, CA**

Well ID <i>TOC Elev</i> <i>(ft)</i>	Date Sampled	SPH <i>(ft)</i>	Groundwater Elevation <i>(ft)</i>	Depth to Water <i>(ft)</i>	TPHd ←	TPHg	Benzene	Toluene	μg/L					Dissolved Oxygen mg/L
									Ethylbenzene	Xylenes	MTBE	DIPE	1,2-DCA	
DPE-2	10/04/09	--	--	11.33	--	8,000	590	220	92	760	<250	--	--	--
DPE-3	10/04/09	--	--	11.85	--	49,000	3,600	4,400	1,300	6,500	<2,500	--	--	--
DPE-4	10/04/09	--	--	11.50	--	31,000	1,200	2,900	530	4,700	<1,200	--	--	--
DPE-5	10/04/09	--	--	14.46	--	2,900	78	71	29	260	<50	--	--	--
DPE-6	10/04/09	--	--	11.05	--	1,800	6.7	5.2	2.6	34	<5.0	--	--	--
<b>DESTROYED WELLS</b>														
MW-2	04/30/89	--	--	--	--	230	39	18	5	23	--	--	--	--
(97.78)	05/17/90	--	87.78	10.00	--	--	--	--	--	--	--	--	--	--
	09/29/90	--	86.95	10.83	--	850	970	5	25	47	--	--	--	--
	01/14/91	--	87.15	10.63	--	3,100	30	52	24	34	--	--	--	--
(102.02)	07/03/91	--	91.94	10.08	--	1,590	30	52	24	34	--	--	--	--
	11/11/91	--	91.81	10.21	--	960	320	15	4	29	--	--	--	--
	03/04/92	--	93.32	8.70	--	1,500	9.5	8.4	9.8	22	--	--	--	--
	06/02/92	--	92.50	9.52	--	2,800	84	41	59	95	--	--	--	--
	09/28/92	--	91.93	10.09	--	1,600	47	20	47	97	--	--	--	--
	01/11/93	--	93.50	8.52	--	2,500	8.6	10	17	32	--	--	--	--
(97.49)	08/15/94	--	87.58	9.91	--	6,000	450	60	100	95	--	--	--	--
	11/07/96	--	87.47	10.02	780	4,200	25	4.9	8.1	14	<0.5	--	--	--
	02/12/97	--	88.58	8.91	5,700	1,800	16	3.1	3.4	8.8	<0.5	--	--	--
	06/16/97	--	87.74	9.75	<50	2,500	22	5.1	7.8	11	<0.5	--	--	--
	09/30/97	--	89.60	7.89	<50	<50	<0.5	<0.5	<0.5	<0.5	<0.5	--	--	--
	01/27/98	--	89.11	8.38	<50	<50	<0.5	<0.5	<0.5	<0.5	<0.5	--	--	--
	04/24/98	--	88.81	8.68	1,400	2,100	18	6.5	4.8	21	<0.5	--	--	--
	08/17/98	--	87.75	9.74	<50	2,900	5.1	4.5	5.8	17	<0.5	--	--	--
	11/16/98	--	87.35	10.14	<50	1,400	2.1	1.9	2.3	4.8	<0.5	--	--	--
	02/16/99	--	88.57	8.92	<50	1,600	82	16	<2.5	40	59	--	--	--
	05/17/99	--	88.23	9.26	--	8,200	43	73	140	100	<250	--	--	--
	08/17/99	--	87.45	10.04	260	2,900	20	81	17	38	<5.0	--	--	--
	11/17/99	--	85.97	11.52	<50	2,600	7	3.7	5.3	12.9	<1.0	--	--	--
	02/17/00	--	87.99	9.50	--	1,700	3.2	6.8	11	12.3	<5.0	--	--	--
	05/17/00	--	88.65	8.84	--	3,800	450	65	110	80	<25	--	--	--
	08/17/00	--	88.99	8.50	--	4,300	440	<50	78	<50	<50	--	--	--
	11/15/00	--	87.55	9.94	--	5,800	320	41	78	64	<25	--	--	--
	02/16/01	--	88.97	8.52	--	2,200	110	20	38	33	<5.0	--	--	--
	01/11/02	--	88.67	8.82	620	3,100	280	86	84	110	<50	--	--	--
(160.98)	07/01/02	--	151.34	9.64	940	2,600	300	29	45	27	<10	--	--	--

# Pangea

**Table 1. Groundwater Analytical Data - Former Exxon Station, 5175 Broadway, Oakland, CA**

Well ID	Date	Groundwater	Depth	TPHd	TPHg	Benzene	Toluene	Ethylbenzene	Xylenes	MTBE	DIPE	1,2-DCA	Dissolved	
TOC Elev	Sampled	SPH	Elevation	to Water	µg/L									Oxygen
(ft)	(ft)	(ft)	(ft)	(ft)										mg/L
MW-2 (cont.)	10/04/02	--	150.46	10.52	390	4,000	440	66	140	120	<25	--	--	--
	07/28/06	--	150.96	10.02	340	1,300	150	9.9	6	18	<0.5	3.6	<0.5	0.17
	10/16/06	--	150.45	10.53	76	150	16	1.0	3.5	2.2	<0.5	1.2	<0.5	0.19
	01/09/07	--	151.65	9.33	84	210	27	2.6	8.1	6.8	--	--	--	0.14
	01/25/07	--	Well Destroyed											
MW-3 (98.14)	04/30/90	--	--	--	--	56,000	3,600	8,600	1,300	7,200	--	--	--	--
	05/17/90	--	85.72	12.42	--	--	--	--	--	--	--	--	--	--
(102.46)	09/26/90	--	84.64	13.50	--	54,000	5,100	420	1,600	8,000	--	--	--	--
	01/14/91	--	85.56	12.58	--	35,000	2,600	6,600	1,500	5,700	--	--	--	--
(102.18)	07/03/91	--	90.38	12.08	--	33,000	4,120	4,300	1,400	4,800	--	--	--	--
	11/11/91	--	90.17	12.29	--	57,000	3,900	8,400	2,100	14,000	--	--	--	--
(97.94)	03/04/92	--	91.92	10.26	--	57,000	720	870	81	3,100	--	--	--	--
	06/02/92	--	86.54	11.40	--	50,000	240	240	220	740	--	--	--	--
	09/28/92	--	85.30	12.64	--	64,000	110	93	97	250	--	--	--	--
	01/11/93	--	87.84	10.10	--	68,000	210	280	360	990	--	--	--	--
	08/15/94	--	85.74	12.20	--	50,000	870	1,200	1,300	3,000	--	--	--	--
	11/07/96	--	85.54	12.40	470	68,000	33	27	63	120	<0.5	--	--	--
	02/12/97	--	87.71	10.23	3,500	25,000	39	43	15	91	<0.5	--	--	--
	06/16/97	--	86.15	11.79	<50	9,700	26	29	45	81	<0.5	--	--	--
	09/30/97	--	88.54	9.40	1,600	6,000	43	36	12	11	<0.5	--	--	--
	01/27/98	--	88.14	9.80	560	380	5.7	4.1	1.7	9.1	<0.5	--	--	--
	04/24/98	--	88.04	9.90	680	<50	<0.5	<0.5	<0.5	<0.5	<0.5	--	--	--
	08/17/98	--	86.48	11.46	<50	16,000	200	18	31	82	<0.5	--	--	--
	11/16/98	--	85.54	12.40	<50	68,000	86	54	69	130	<0.5	--	--	--
	02/16/99	--	87.22	10.72	<50	33,000	270	110	<5.0	770	170	--	--	--
	05/17/99	--	87.40	10.54	--	72,000	280	230	320	890	<250	--	--	--
	08/17/99	--	85.99	11.95	1,800	20,000	51	41	61	130	<5.0	--	--	--
	11/17/99	--	84.34	13.60	--	1,700	39	22	31	84	<1.0	--	--	--
	02/17/00	--	87.26	10.68	--	8,800	16	39	74	90	<5.0	--	--	--
	05/17/00	--	87.69	10.25	--	22,000	300	260	410	940	<5.0	--	--	--
	08/17/00	--	86.10	11.84	--	15,000	230	140	470	750	<50	--	--	--
	11/15/00	--	86.12	11.82	--	12,000	250	210	390	700	<25	--	--	--
	02/16/01	--	88.26	9.68	--	7,400	40	72	700	250	<25	--	--	--
(161.43)	01/11/02	--	88.36	9.58	1,900	9,300	230	200	290	580	<25	--	--	--
	07/01/02	--	150.29	11.14	5,200	13,000	230	220	450	890	<13	--	--	--
	10/04/02	--	148.61	12.82	4,900	11,000	280	170	450	730	<25	--	--	--
	07/28/06	--	Not Sampled - Unable to locate well											
	10/16/06	--	Not Sampled - Unable to locate well											
	01/09/07	--	Not Sampled - Unable to locate well											
	01/22/07	--	149.81	11.62	93,000	34,000	770	250	760	2,000	<1,000	--	--	--
	03/16/07	--	Well Destroyed											

# Pangea

**Table 1. Groundwater Analytical Data - Former Exxon Station, 5175 Broadway, Oakland, CA**

Well ID	Date	Groundwater	Depth	TPHd	TPHg	Benzene	Toluene	Ethylbenzene	Xylenes	MTBE	DIPE	1,2-DCA	Dissolved	
<i>TOC Elev</i>	<i>Sampled</i>	<i>SPH</i>	<i>Elevation</i>	<i>to Water</i>	<i>µg/L</i>									<i>Oxygen</i>
<i>(ft)</i>		<i>(ft)</i>	<i>(ft)</i>											<i>mg/L</i>
STMW-4 (103.58) (101.08) (98.80)	07/03/91	--	92.58	11.00	--	3,100	610	62	39	150	--	--	--	
	11/11/91	--	92.50	11.08	--	3,600	990	15	2.6	180	--	--	--	
	03/04/92	--	91.64	9.44	--	5,000	35	20	22	71	--	--	--	
	06/02/92	--	88.48	10.32	--	13,000	140	45	63	210	--	--	--	
	09/28/92	--	88.04	10.76	--	40,000	35	20	48	110	--	--	--	
	01/11/93	--	89.52	9.28	--	24,000	26	88	92	280	--	--	--	
	08/15/94	--	88.26	10.54	--	9,000	500	34	46	130	--	--	--	
	11/07/96	--	88.43	10.37	180	13,000	40	2.9	7.8	19	<0.5	--	--	--
	02/12/97	--	89.44	9.36	5,700	5,300	95	5.3	5.9	18	<0.5	--	--	--
	06/16/97	--	88.40	10.40	<50	5,300	37	6.2	1.7	11	<0.5	--	--	--
	09/30/97	--	90.30	8.50	<50	2,700	42	7.7	5.7	26	<0.5	--	--	--
	01/27/98	--	89.90	8.90	300	3,000	60	17	12	49	<0.5	--	--	--
	04/24/98	--	89.30	9.50	<50	<50	<0.5	<0.5	<0.5	<0.5	<0.5	--	--	--
	08/17/98	--	88.44	10.36	<50	29,000	36	24	59	160	<0.5	--	--	--
	11/16/98	--	88.24	10.56	<50	13,000	26	21	20	41	--	--	--	--
	02/16/99	--	89.16	9.64	<50	32,000	660	16	16	150	<100	--	--	--
	05/17/99	--	88.84	9.96	--	13,000	1600	30	45	78	<250	--	--	--
	08/17/99	--	88.16	10.64	990	12,000	260	22	33	72	<5.0	--	--	--
	11/17/99	--	86.78	12.02	--	7,900	21	12	17	40	<1.0	--	--	--
	02/17/00	--	89.48	9.32	--	4,900	8.9	21	38	50	<5.0	--	--	--
	05/17/00	--	89.15	9.65	--	9,600	840	<50	61	<50	<50	--	--	--
	08/17/00	--	88.46	10.34	--	5,100	680	<50	62	<50	<50	--	--	--
	11/15/00	--	88.28	10.52	--	3,900	640	<25	26	27	<25	--	--	--
	02/16/01	--	89.60	9.20	--	5,700	560	<25	<25	<25	<25	--	--	--
	01/11/02	--	89.22	9.58	930	4,900	560	59	25	<25	<250	--	--	--
(162.13)	07/01/02	--	151.85	10.28	6,700	6,700	470	18	32	45	<13	--	--	
10/04/02	--	151.05	11.08	2,900	13,000	590	26	65	110	<25	--	--	--	
07/28/06	0.04	151.53	10.60	39,000	25,000	960	21	73	130	<5.0	65	<5.0	0.22	
10/16/06	0.06	151.30	10.83	14,000	14,000	790	28	81	130	<5.0	30	<5.0	0.26	
01/09/07	0.03	152.20	9.93	Not Sampled - SPH									0.24	
01/26/07				Well Destroyed									0.24	
STMW-5 (101.99) (101.36) (97.14)	07/03/91	--	88.70	13.29	--	690	99	81	19	98	--	--	--	
	11/11/91	--	87.99	14.00	--	410	61	2.4	1.4	20	--	--	--	
	03/04/92	--	89.56	11.80	--	460	13	6.5	11	18	--	--	--	
	06/02/92	--	88.30	13.06	--	1,800	27	20	21	43	--	--	--	
	09/28/92	--	87.32	14.04	--	1,500	14	6.1	18	22	--	--	--	
	01/11/93	--	89.75	11.61	--	800	1.8	3	3.1	9.4	--	--	--	
	08/15/94	--	87.51	13.85	--	3,000	320	62	34	220	--	--	--	
	11/07/96	--	83.47	13.67	330	1,200	11	1.7	4.4	13	<0.5	--	--	--
02/17/97	--	85.07	12.07	3,700	1,000	11	17	1.7	9.7	<0.5	--	--	--	

# Pangea

**Table 1. Groundwater Analytical Data - Former Exxon Station, 5175 Broadway, Oakland, CA**

Well ID	Date	SPH	Groundwater	Depth	TPHd	TPHg	Benzene	Toluene	Ethylbenzene	Xylenes	MTBE	DIPE	1,2-DCA	Dissolved	
TOC Elev	Sampled	(ft)	Elevation	to Water										Oxygen	
(ft)			(ft)	(ft)	← μg/L →										mg/L
STMW-5	06/19/97	--	83.81	13.33	2,300	950	7.4	1	1	7.2	<0.5	--	--	--	
(cont.)	09/30/97	--	85.90	11.24	1,100	710	5.8	4	1	1	<0.5	--	--	--	
	01/27/98	--	85.50	11.64	1,100	340	2	1.8	1.6	8.2	<0.5	--	--	--	
	04/24/98	--	85.30	11.84	<50	3,300	12	9.4	8.5	37	<0.5	--	--	--	
	08/17/98	--	83.94	13.20	<50	5,300	26	17	14	39	<0.5	--	--	--	
	11/16/98	--	83.40	13.74	<50	<50	<0.5	<0.5	<0.5	<0.5	<0.5	--	--	--	
	02/16/99	--	84.92	12.22	<50	950	150	3.8	1.4	14	11	--	--	--	
	05/17/99	--	84.56	12.58	--	2,800	67	9.4	<2.5	16	30	--	--	--	
	08/17/99	--	83.66	13.48	230	2,800	18	17	18	36	<5.0	--	--	--	
	11/17/99	--	82.26	14.88	--	1,600	3.9	2.3	3.2	7.5	<1.0	--	--	--	
	02/17/00	--	84.58	12.56	--	770	1.5	3.2	5.8	7	<5.0	--	--	--	
	05/17/00	--	85.06	12.08	--	4,500	<25	<25	<25	<25	<25	--	--	--	
	08/17/00	--	83.58	13.56	--	2,900	170	64	100	250	<10	--	--	--	
	11/15/00	--	83.86	13.28	--	2,100	120	24	40	54	<5.0	--	--	--	
	02/16/01	--	85.54	11.60	--	850	58	9.8	9.4	18	<5.0	--	--	--	
	01/11/02	--	85.42	11.72	<50	920	76	16	16	28	13	--	--	--	
(160.65)	07/01/02	--	147.51	13.14	1,500	4,300	71	14	14	36	<5.0	--	--	--	
	10/04/02	--	146.13	14.52	60	1,400	71	17	26	35	<5.0	--	--	--	
	07/28/06	--	147.30	13.35	370	700	22	4.3	1.2	6.6	<0.5	<0.5	<0.5	0.24	
	10/16/06	--	146.91	13.74	240	590	14	1.6	1.3	3.2	<0.5	<0.5	<0.5	0.21	
	01/09/07	--	148.19	12.46	180	390	30	3.2	1.8	3.2	--	--	--	0.17	
	01/18/07				Well Destroyed										
<b>GRAB GROUNDWATER SAMPLING - 2007</b>															
B-18	01/23/07	--	--	7.1	<50	<50	<0.5	<0.5	<0.5	<0.5	<0.5	--	--	--	
B-19	03/19/07	--	--	4	<50	<50	<0.5	<0.5	<0.5	<0.5	<0.5	--	--	--	
<b>GRAB GROUNDWATER SAMPLING - 2006</b>															
B1-W	02/01/06	--	--	9.5	<84	710	(0.52)	(0.59)	(<0.50)	(0.66)	<1.0	<5.0	<0.50	--	
B3-W	02/08/06	--	--	9.63	<280	23,000	(3,300)	(660)	(170)	(910)	<50	380	<25	--	
B4-W	02/08/06	--	--	8.24	--	9,700	(320)	(13)	(200)	(180)	<20	1,300	12	--	
B5-W	02/08/06	--	--	6.96	--	10,000	(150)	(11)	(210)	(190)	<10	<50	<5.0	--	
B6-W	02/06/06	--	--	12.1	--	5,600	(3.9)	(3.1)	(54)	(61)	<5.0	<25	<2.5	--	
B7-W	02/08/06	--	--	11.72	--	8,000	(2,200)	(300)	(240)	(830)	<20	<100	53	--	
B8-W	02/08/06	--	--	9.97	--	18,000	(330)	(53)	(440)	(1,200)	<20	<100	11	--	
B10-W	02/06/06	--	--	13.3	--	6,800	(<5.0)	(5.7)	(170)	(69)	<10	<50	<5.0	--	
B11-W	02/10/06	--	--	14.3	--	230,000	(13,000)	(19,000)	(960)	(20,000)	<200	<1,000	150	--	
B12-W	02/03/06	--	--	7.92	--	460	(1.6)	(2.1)	(1.6)	(3.5)	<1.0	<5.0	0.62	--	
B13-W	02/03/06	--	--	11.67	<60	1,700	(12)	(9.4)	(18)	(22)	<5.0	<25	<2.5	--	
B14-W	02/06/06	--	--	13.1	--	38,000	(410)	(25)	(290)	(95)	<50	<250	<25	--	

# Pangea

**Table 1. Groundwater Analytical Data - Former Exxon Station, 5175 Broadway, Oakland, CA**

Well ID	Date	Groundwater	Depth	TPHd	TPHg	Benzene	Toluene	Ethylbenzene	Xylenes	MTBE	DIPE	1,2-DCA	Dissolved	
<i>TOC Elev</i>	Sampled	SPH	Elevation	to Water	←----- μg/L -----→								Oxygen	
(ft)		(ft)	(ft)	(ft)									mg/L	
B15-W	02/01/06	--	--	8.75	<620	2,700	(3.2)	(2.7)	(22)	(4.3)	<5.0	<25	<2.5	--

**Abbreviations:**

μg/L = Micrograms per liter - approximately equal to parts per billion = ppb.

mg/L = Milligrams per liter - approximately equal to parts per million = ppm.

SPH = Separate-phase hydrocarbons encountered in well (value in parentheses is thickness in feet).

Groundwater elevation is calculated according to the relationship: groundwater elevation = TOC (elevation) - (depth to water) + (0.8)(SPH thickness).

TPHg = Total petroleum hydrocarbons as gasoline by EPA Method 8015Cm.

TPHd = Total petroleum hydrocarbons as diesel by EPA Method 8015C.

BTEX = Benzene, toluene, ethylbenzene, xylenes by EPA Method 8021B.

MTBE = Methyl tertiary-butyl ether by EPA Method 8021B. (Concentrations in parentheses are by EPA Method 8260B).

DIPE = Diisopropyl ether by EPA Method 8260B.

1,2-DCA = 1,2-Dichloroethane by EPA Method 8260B.

**Table 2 – Well Use and Construction Details–5175 Broadway, Oakland, CA**

Well ID	Total Depth of Well (feet bgs)	Screened Interval (ft bgs)	Well Casing Nominal Diameter (inches)	Sand & Slot Size
<b>DPE – Existing Wells</b>				
MW-3A (DPE)	14	9-14	2	#2/12 – 0.01 Slot
MW-4A (DPE)	15	8-15	2	#2/12 – 0.01 Slot
MW-6A (DPE)	17	8-17	2	#2/12 – 0.01 Slot
MW-7B (DPE)	18.5	15.5-18.5	2	#2/12 – 0.01 Slot
MW-8A (DPE)	15	8-15	2	#2/12 – 0.01 Slot
<b>DPE – New Wells</b>				
DPE 1 – DPE 6	19 – 20	10-13/19-20	2	#2/12 – 0.01 Slot
<b>AIR SPARGING – Existing Wells</b>				
MW-1 (AS)	23	13-23	4	8x20 – 0.02 Slot
MW-2C (AS)	23	18-23	2	#2/12 – 0.01 Slot
MW-3C (AS)	27	22-27	2	#2/12 – 0.01 Slot
MW-5B (AS)	20	17-20	2	#2/12 – 0.01 Slot
MW-7C (AS)	25	20-25	2	#2/12 – 0.01 Slot
MW-8C (AS)	25	20-25	2	#2/12 – 0.01 Slot
<b>AIR SPARGING –New Well</b>				
AS-1	20	16-20	1	#2/12 – 0.01 Slot
<b>GROUNDWATER MONITORING ONLY</b>				
MW-5A	14	10-14	2	#2/12 – 0.01 Slot
MW-5C	27	22-27	2	#2/12 – 0.01 Slot
MW-9A	15.5	7.5-15.5	2	#2/12 – 0.01 Slot
MW-9C	21	17-21	2	#2/12 – 0.01 Slot
MW-10A	18	8-18	2	#2/12 – 0.01 Slot

bgs = below ground surface

## **APPENDIX A**

### Groundwater Monitoring Program

**Table A. Groundwater Monitoring Program - Rockridge Heights, 5175 Broadway Street, Oakland, CA**

Well ID	Well Type	Screened Interval (ft bgs)	Well Location for Monitoring	Casing Diam. (in)	Gauge Frequency	Sample Frequency <sup>1</sup>
<b>Shallow Wells</b>						
MW-3A	Mon + DPE	9-14	Downgradient (Onsite)	2	1st, 3rd	1st, 3rd
MW-4A	Mon + DPE	8-15	NE Corner, Upgradient (Onsite)	2	1st, 3rd	1st, 3rd
MW-5A	Mon	10-14	SW Corner, Downgradient (Onsite)	2	1st, 3rd	1st, 3rd
MW-6A	Mon + DPE	8-17	Source Area, Upgradient (Onsite)	2	1st, 3rd	1st, 3rd
MW-8A	Mon + DPE	8-15	W Boundary, Downgradient (Onsite)	2	1st, 3rd	1st, 3rd
MW-9A	Mon	7.5-15.5	Downgradient (Offsite)	2	1st, 3rd	1st, 3rd
MW-10A	Mon	7.5-15.5	Downgradient (Offsite)	2	1st, 3rd	1st, 3rd
<b>Deep Wells</b>						
MW-1	Mon + AS	13-23	N Boundary, Upgradient (Onsite)	2	1st, 3rd	1st, 3rd
MW-2C	Mon + AS	18-23	E Boundary, Downgradient (Onsite)	2	1st, 3rd	1st, 3rd
MW-3C	Mon + AS	22-27	Source Area, Downgradient (Onsite)	2	1st, 3rd	1st, 3rd
MW-5B	Mon + AS	17-20	SW Corner, Downgradient (Onsite)	2	1st, 3rd	1st, 3rd
MW-5C	Mon	22-27	SW Corner, Downgradient (Onsite)	2	1st, 3rd	1st, 3rd
MW-7B	Mon + DPE	15.5-18.5	SE Corner, Downgradient (Onsite)	2	1st, 3rd	1st, 3rd
MW-7C	Mon + AS	20-25	SE Corner, Downgradient (Onsite)	2	1st, 3rd	1st, 3rd
MW-8C	Mon + AS	20-25	W Boundary, Crossgradient (Onsite)	2	1st, 3rd	1st, 3rd
MW-9C	Mon	17-21	Downgradient (Offsite)	2	1st, 3rd	1st, 3rd
AS-1	AS	16-20	NE Corner, Upgradient (Onsite)	1	---	---
DPE-1 - DPE-6	DPE	10-13/19-20	Various (Onsite)	2	---	---

Notes and Abbreviations:

**1= Sample Analytes:** Total Petroleum Hydrocarbons as Gasoline (TPHg), benzene, toluene, ethylbenzene, xylenes (BTEX) and methyl tertiary butyl ether (MTBE) by EPA Method 8015Cm/8021B and Total Petroleum Hydrocarbons as Diesel (TPHd) by EPA Method 8015C with silica gel clean-up.

1st, 3rd= Semi-Annually during 1st and 3rd quarters (Typically March and September)

Mon = Groundwater Monitoring Well

N, S, W, E = Cardinal directions North, South, West, East and other directions (e.g., Northeast = NE)

DPE = Dual Phase Extraction Well


AS = Air Sparge Well



## **APPENDIX B**

Groundwater Monitoring Field Data Sheets

Well Gauging Data Sheet

Project.Task #: 1145.001 <del>220</del> <sup>220</sup>				Project Name: Feiner -5175 Braodway				
Address: 5175 Broadway, Oakland, CA						Date: <del>3/28/10</del> 3/28/10		
Name: Sanjiv Gill				Signature: 				
Well ID	Well Size (in.)	Time	Depth to Immiscible Liquid (ft)	Thickness of Immiscible Liquid (ft)	Depth to Water (ft)	Total Depth (ft)	Measuring Point	
MW-1	4"	7:33			8.05	22.97	TOC	
MW-2C	2"	7:28			8.63	23.03		
MW-3A	2"	7:58			9.07	13.83		
MW-3C	2"	7:54			10.64	26.75		
MW-4A	2"	7:51			9.75	14.73		
MW-5A	2"	7:30			10.52	13.52		
MW-5B	2"	7:25			12.12	19.23		
MW-5C	2"	7:18			12.35	26.70		
MW-6A	2"	7:37			7.03	14.92		
MW-7B	2"	7:48			10.85	18.55		
MW-7C	2"	7:44			11.21	24.42		X

Comments:

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Well Gauging Data Sheet

Project.Task #: 1145.001 <del>220</del> 220			Project Name: Feiner -5175 Braodway				
Address: 5175 Broadway, Oakland, CA						Date: <del>3/28/10</del> 3/28/11	
Name: Sanjiv Gill				Signature: 			
Well ID	Well Size (in.)	Time	Depth to Immiscible Liquid (ft)	Thickness of Immiscible Liquid (ft)	Depth to Water (ft)	Total Depth (ft)	Measuring Point
MW-8A	2"	7:40			9.73	14.90	TWC
MW-8C	2"	7:22			11.39	24.89	
MW-9A	2"	7:05			11.88	15.19	
MW-9C	2"	7:00			11.60	20.45	
MW-10A	2"	7:10			8.63	17.96	

Comments:

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**MONITORING FIELD DATA SHEET**

Well ID: **MW-2C**

Project.Task #: 1145.001 220		Project Name: Feiner - 5175 Broadway	
Address: 5175 Broadway, Oakland, CA			
Date: 3/28/10		Weather: <b>Cloudy</b>	
Well Diameter: <b>2"</b>		Volume/ft. $1" = 0.04$ $3" = 0.37$ $6" = 1.47$ $2" = 0.16$ $4" = 0.65$ radius <sup>2</sup> * 0.163	
Total Depth (TD): <b>23.03</b>		Depth to Product:	
Depth to Water (DTW): <b>8.63</b>		Product Thickness:	
Water Column Height: <b>14.40</b>		1 Casing Volume: <b>2.30</b> gallons	
Reference Point: TOC		<b>3</b> Casing Volumes: <b>6.90</b> gallons	

Purging Device: Disposable Bailer, 3" PVC Bailer, Parastaltic Pump, Whal Pump


Sampling Device: Disposable Bailer

3-28-10

Time	Temp (°C)	pH	Cond (µs)	NTU	DO(mg/L)	ORP (mV)	Vol(gal)	DTW
11:15	18.1	7.69	940				2.5	
11:20	17.4	7.71	929				5.0	
11:25	17.6	7.72	933				7.0	

Comments: YSI 550A DO meter pre purge DO = mg/l  
: post purge DO = mg/l

*very turbid, silty*

Sample ID: <b>MW-2C</b>	Sample Time: <b>10:55</b>
Laboratory: McCampbell Analytical, INC.	Sample Date: <b>3/29/10</b>
Containers/Preservative: Voa/HCl, Amber/HCl	
Analyzed for: 8015, 8021	
Sampler Name: Sanjiv Gill	Signature: 

## MONITORING FIELD DATA SHEET


Well ID: **MW-3A**

Project.Task #: 1145.001 220			Project Name: Feiner - 5175 Broadway								
Address: 5175 Broadway, Oakland, CA											
Date: 3/28/10			Weather: <b>Cloudy</b>								
Well Diameter: <b>2"</b>		Volume/ft. <table border="1"> <tr> <td>1" = 0.04</td> <td>3" = 0.37</td> <td>6" = 1.47</td> </tr> <tr> <td>2" = 0.16</td> <td>4" = 0.65</td> <td>radius* = 0.163</td> </tr> </table>				1" = 0.04	3" = 0.37	6" = 1.47	2" = 0.16	4" = 0.65	radius* = 0.163
1" = 0.04	3" = 0.37	6" = 1.47									
2" = 0.16	4" = 0.65	radius* = 0.163									
Total Depth (TD): <b>13.83</b>			Depth to Product:								
Depth to Water (DTW): <b>9.07</b>			Product Thickness:								
Water Column Height: <b>4.76</b>			1 Casing Volume: <b>0.76</b> gallons								
Reference Point: TOC			<b>3</b> Casing Volumes: <b>2.28</b> gallons								
Purging Device: <u>Disposable Bailer</u> , 3" PVC Bailer, Parastaltic Pump, Whal Pump											
Sampling Device: Disposable Bailer											
Time	Temp (°C)	pH	Cond (µs)	NTU	DO(mg/L)	ORP (mV)	Vol(gal)	DTW			
3:15			10 gallon purged well down to end				1.0				
							<del>1.5</del>				
							<del>2.0</del>				

328-10

Comments: YSI 550A DO meter	pre purge DO =	mg/l
	post purge DO =	mg/l

*ver turbid, very silty*

Sample ID: <b>MW-3A</b>	Sample Time: <b>12:15</b>
Laboratory: McCampbell Analytical, INC.	Sample Date: <b>3/29/10</b>
Containers/Preservative: Voa/HCl, Amber/HCl	
Analyzed for: 8015, 8021	
Sampler Name: Sanjiv Gill	Signature: 



MONITORING FIELD DATA SHEET

Well ID: **MW-3C**

Project, Task #: 1145.001 220	Project Name: Feiner - 5175 Broadway						
Address: 5175 Broadway, Oakland, CA							
Date: 3/28/10	Weather: <b>Cloudy</b>						
Well Diameter: <b>2''</b>	Volume/ft. <table border="1"><tr><td>1" = 0.04</td><td>3" = 0.37</td><td>6" = 1.47</td></tr><tr><td>2" = 0.16</td><td>4" = 0.65</td><td>radius<sup>2</sup> * 0.163</td></tr></table>	1" = 0.04	3" = 0.37	6" = 1.47	2" = 0.16	4" = 0.65	radius <sup>2</sup> * 0.163
1" = 0.04	3" = 0.37	6" = 1.47					
2" = 0.16	4" = 0.65	radius <sup>2</sup> * 0.163					
Total Depth (TD): <b>26.75</b>	Depth to Product:						
Depth to Water (DTW): <b>10.64</b>	Product Thickness:						
Water Column Height: <b>16.11</b>	1 Casing Volume: <b>2.57</b> gallons						
Reference Point: TOC	<b>3</b> Casing Volumes: <b>7.71</b> gallons						

Purging Device: **Disposable Bailer**, 3" PVC Bailer, Parastaltic Pump, Whal Pump

Sampling Device: Disposable Bailer


Time	Temp (°C)	pH	Cond (µs)	NTU	DO(mg/L)	ORP (mV)	Vol(gal)	DTW	
<b>2:40</b>	<b>19.1</b>	<b>7.38</b>	<b>1168</b>				<b>2.5</b>		
<b>2:50</b>		<b>4.0 gallons purged well dewatered</b>					<del><b>5.0</b></del>	<del><b>8.0</b></del>	

37810

Comments: YSI 550A DO meter pre purge DO = mg/l

; post purge DO = mg/l

**very turbid, silty**

Sample ID: <b>MW-3C</b>	Sample Time: <b>12:05</b>
Laboratory: McCampbell Analytical, INC.	Sample Date: <b>3/29/10</b>
Containers/Preservative: Voa/HCl, Amber/HCl	
Analyzed for: 8015, 8021	
Sampler Name: Sanjiv Gill	Signature: 

## MONITORING FIELD DATA SHEET

Well ID: MW-4A

Project Task #: 1145.001 220		Project Name: Feiner - 5175 Broadway	
Address: 5175 Broadway, Oakland, CA			
Date: 3/28/10		Weather: <u>Cloudy</u>	
Well Diameter: <u>2"</u>		Volume/ft. $\frac{1"}{2} = 0.04$ $\frac{3"}{2} = 0.37$ $\frac{6"}{2} = 1.47$ $\frac{2"}{2} = 0.16$ $\frac{4"}{2} = 0.65$ radius <sup>2</sup> * 0.163	
Total Depth (TD): <u>14.73</u>		Depth to Product:	
Depth to Water (DTW): <u>9.75</u>		Product Thickness:	
Water Column Height: <u>4.98</u>		1 Casing Volume: <u>0.79</u> gallons	
Reference Point: TOC		<u>3</u> Casing Volumes: <u>2.37</u> gallons	

Purging Device: Disposable Bailer, 3" PVC Bailer, Parastaltic Pump, Whal Pump


Sampling Device: Disposable Bailer

3-28-10

Time	Temp (°C)	pH	Cond (µs)	NTU	DO(mg/L)	ORP (mV)	Vol(gal)	DTW
<u>2:15</u>	<u>18.9</u>	<u>7.24</u>	<u>1230</u>				<u>1.0</u>	
<u>2:20</u>	<u>18.8</u>	<u>7.29</u>	<u>1234</u>				<u>1.5</u>	
<u>2:25</u>	<u>18.8</u>	<u>7.27</u>	<u>1231</u>				<u>2.5</u>	

Comments: YSI 550A DO meter pre purge DO = mg/l  
post purge DO = mg/l

very turbid, silty

Sample ID: <u>MW-4A</u>	Sample Time: <u>11:35</u>
Laboratory: McCampbell Analytical, INC.	Sample Date: <u>3/29/10</u>
Containers/Preservative: Voa/HCl, Amber/HCl	
Analyzed for: 8015, 8021	
Sampler Name: Sanjiv Gill	Signature: 



**MONITORING FIELD DATA SHEET**

Well ID: **MW-5A**

Project.Task #: 1145.001 220		Project Name: Feiner - 5175 Broadway							
Address: 5175 Broadway, Oakland, CA									
Date: 3/28/10		Weather: <b>Cloudy</b>							
Well Diameter: <b>2''</b>	Volume/ft. <table border="1"> <tr> <td>1" = 0.04</td> <td>3" = 0.37</td> <td>6" = 1.47</td> </tr> <tr> <td>2" = 0.16</td> <td>4" = 0.65</td> <td>radius * 0.163</td> </tr> </table>			1" = 0.04	3" = 0.37	6" = 1.47	2" = 0.16	4" = 0.65	radius * 0.163
1" = 0.04	3" = 0.37	6" = 1.47							
2" = 0.16	4" = 0.65	radius * 0.163							
Total Depth (TD): <b>13.52</b>	Depth to Product:								
Depth to Water (DTW): <b>10.52</b>	Product Thickness:								
Water Column Height: <b>3.00</b>	1 Casing Volume: <b>0.48</b>	gallons							
Reference Point: TOC	<b>3</b> Casing Volumes: <b>1.44</b>	gallons							

Purging Device: Disposable Bailer 3" PVC Bailer, Parastaltic Pump, Whal Pump

Sampling Device: Disposable Bailer

3-28-10

Time	Temp (°C)	pH	Cond (µs)	NTU	DO(mg/L)	ORP (mV)	Vol(gal)	DTW
10:55	17.6	7.03	1094				0.5	
11:00		Decontaminated		1 gallon purged			<del>1.0</del>	
							<del>1.5</del>	

Comments: YSI 550A DO meter pre purge DO = mg/l  
 : post purge DO = mg/l

*very turbid, silty*

Sample ID: <b>MW-5A</b>	Sample Time: <b>10:50</b>
Laboratory: McCampbell Analytical, INC.	Sample Date: <b>3/29/10</b>
Containers/Preservative: Voa/HCl, Amber/HCl	
Analyzed for: 8015, 8021	
Sampler Name: Sanjiv Gill	Signature: <i>[Signature]</i>

**MONITORING FIELD DATA SHEET**

Well ID: MW-5B

Project Task #: 1145.001 220		Project Name: Feiner - 5175 Broadway						
Address: 5175 Broadway, Oakland, CA								
Date: 3/28/10				Weather: <u>Cloudy</u>				
Well Diameter: <u>2"</u>		Volume/ft.		1" = 0.04		3" = 0.37		
				2" = 0.16		4" = 0.65		
				6" = 1.47		radius * 0.163		
Total Depth (TD): <u>19.23</u>		Depth to Product:						
Depth to Water (DTW): <u>12.12</u>		Product Thickness:						
Water Column Height: <u>7.11</u>		1 Casing Volume: <u>1.13</u>		gallons				
Reference Point: TOC		<u>3</u> Casing Volumes: <u>3.39</u>		gallons				
Purging Device: <u>Disposable Bailer</u> , 3" PVC Bailer, Parastaltic Pump, Whal Pump								
Sampling Device: Disposable Bailer								
Time	Temp (°C)	pH	Cond (µs)	NTU	DO(mg/L)	ORP (mV)	Vol(gal)	DTW
<u>10:40</u>	<u>17.8</u>	<u>7.03</u>	<u>1370</u>				<u>1.0</u>	
<u>10:42</u>		<u>1.5 gallons purges well/dewatered</u>					<del><u>2.0</u></del>	
							<del><u>3.0</u></del>	

3-28-10

Comments: YSI 550A DO meter pre purge DO = mg/l  
 ; post purge DO = mg/l

very turbid, silty

Sample ID: <u>MW-5B</u>	Sample Time: <u>10:45</u>
Laboratory: McCampbell Analytical, INC.	Sample Date: <u>3/29 /10</u>
Containers/Preservative: Voa/HCl, Amber/HCl	
Analyzed for: 8015, 8021	
Sampler Name: Sanjiv Gill	Signature: <u>[Signature]</u>

MONITORING FIELD DATA SHEET

Well ID: MW-5C

Project Task #: 1145.001 220				Project Name: Feiner - 5175 Broadway				
Address: 5175 Broadway, Oakland, CA								
Date: 3/28/10				Weather: <u>Cloudy</u>				
Well Diameter: <u>2"</u>			Volume/ft.	1" = 0.04	3" = 0.37	6" = 1.47		radius * 0.163
			2" = 0.16	4" = 0.65				
Total Depth (TD): <u>26.70</u>				Depth to Product:				
Depth to Water (DTW): <u>12.35</u>				Product Thickness:				
Water Column Height: <u>14.35</u>				1 Casing Volume: <u>2.29</u>		gallons		
Reference Point: TOC				3 Casing Volumes: <u>6.87</u>		gallons		
Purging Device: <u>Disposable Bailer</u> , 3" PVC Bailer, Parastaltic Pump, Whal Pump								
Sampling Device: Disposable Bailer								
Time	Temp (°C)	pH	Cond (µs)	NTU	DO(mg/L)	ORP (mV)	Vol(gal)	DTW
<u>10:15</u>	<u>17.7</u>	<u>6.86</u>	<u>1413</u>				<u>2.5</u>	
<u>10:20</u>	<u>17.8</u>	<u>6.89</u>	<u>1417</u>				<u>5.0</u>	
<u>10:25</u>	<u>17.4</u>	<u>6.92</u>	<u>1421</u>				<u>7.0</u>	

3-28-10

Comments: YSI 550A DO meter pre purge DO = mg/l  
 : post purge DO = mg/l  
very turbid

Sample ID: <u>MW-5C</u>	Sample Time: <u>10:40</u>
Laboratory: McCampbell Analytical, INC.	Sample Date: <u>3/29/10</u>
Containers/Preservative: <u>Voa/HCl, Amber/HCl</u>	
Analyzed for: <u>8015, 8021</u>	
Sampler Name: <u>Sanjiv Gill</u>	Signature: <u>[Signature]</u>

## MONITORING FIELD DATA SHEET

Well ID: **MW-6A**

Project.Task #: 1145.001 220		Project Name: Feiner - 5175 Broadway							
Address: 5175 Broadway, Oakland, CA									
Date: 3/28/10		Weather: <b>Cloudy</b>							
Well Diameter: <b>2'</b>		Volume/ft. <table border="1"> <tr> <td>1" = 0.04</td> <td>3" = 0.37</td> <td>6" = 1.47</td> </tr> <tr> <td>2" = 0.16</td> <td>4" = 0.65</td> <td>radius * 0.163</td> </tr> </table>		1" = 0.04	3" = 0.37	6" = 1.47	2" = 0.16	4" = 0.65	radius * 0.163
1" = 0.04	3" = 0.37	6" = 1.47							
2" = 0.16	4" = 0.65	radius * 0.163							
Total Depth (TD): <b>14.92</b>		Depth to Product:							
Depth to Water (DTW): <b>7.03</b>		Product Thickness:							
Water Column Height: <b>7.89</b>		1 Casing Volume: <b>1.26</b> gallons							
Reference Point: TOC		<b>3</b> Casing Volumes: <b>3.78</b> gallons							

Purging Device: Disposable Bailer 3" PVC Bailer, Parastaltic Pump, Whal Pump


Sampling Device: Disposable Bailer

3-28-10

Time	Temp @	pH	Cond (µs)	NTU	DO(mg/L)	ORP (mV)	Vol(gal)	DTW
12:25	18.3	7.50	996				1.5	
12:30	18.4	7.51	990				3.0	
12:35	17.7	7.53	982				4.0	

Comments: YSI 550A DO meter pre purge DO = mg/l  
 ; post purge DO = mg/l

*very turbid, silty*

Sample ID: <b>MW-6A</b>	Sample Time: <b>11:15</b>
Laboratory: McCampbell Analytical, INC.	Sample Date: <b>3/29/10</b>
Containers/Preservative: Voa/HCl, Amber/HCl	
Analyzed for: 8015, 8021	
Sampler Name: Sanjiv Gill	Signature: 

## MONITORING FIELD DATA SHEET

Well ID: **MW-7B**

Project Task #: 1145.001 220	Project Name: Feiner - 5175 Broadway						
Address: 5175 Broadway, Oakland, CA							
Date: 3/28/10	Weather: <b>Cloudy</b>						
Well Diameter: <b>2''</b>	Volume/ft. <table border="1"> <tr> <td>1" = 0.04</td> <td>3" = 0.37</td> <td>6" = 1.47</td> </tr> <tr> <td>2" = 0.16</td> <td>4" = 0.65</td> <td>radius<sup>2</sup> * 0.163</td> </tr> </table>	1" = 0.04	3" = 0.37	6" = 1.47	2" = 0.16	4" = 0.65	radius <sup>2</sup> * 0.163
1" = 0.04	3" = 0.37	6" = 1.47					
2" = 0.16	4" = 0.65	radius <sup>2</sup> * 0.163					
Total Depth (TD): <b>18.55</b>	Depth to Product:						
Depth to Water (DTW): <b>10.85</b>	Product Thickness:						
Water Column Height: <b>7.70</b>	1 Casing Volume: <b>1.23</b> gallons						
Reference Point: TOC	<b>3</b> Casing Volumes: <b>3.69</b> gallons						

Purging Device: Disposable Bailer, 3" PVC Bailer, Parastaltic Pump, Whal Pump


Sampling Device: Disposable Bailer

3-28-10

Time	Temp (°C)	pH	Cond (µs)	NTU	DO(mg/L)	ORP (mV)	Vol(gal)	DTW
1:05							1.5	
							<del>2.5</del>	
							<del>3.5</del>	

Comments: YSI 550A DO meter pre purge DO = mg/l  
 : post purge DO = mg/l

*very turbid, silty*

Sample ID: <b>MW-7B</b>	Sample Time: <b>11:55</b>
Laboratory: McCampbell Analytical, INC.	Sample Date: <b>3/29/10</b>
Containers/Preservative: Voa/HCl, Amber/HCl	
Analyzed for: 8015, 8021	
Sampler Name: Sanjiv Gill	Signature: 

**MONITORING FIELD DATA SHEET**


Well ID: MW-7C

Project.Task #: 1145.001 220		Project Name: Feiner - 5175 Broadway						
Address: 5175 Broadway, Oakland, CA								
Date: 3/28/10				Weather: <u>Cloudy</u>				
Well Diameter: <u>2"</u>		Volume/ft.		1" = 0.04	3" = 0.37	6" = 1.47		
				2" = 0.16	4" = 0.65	radius <sup>2</sup> * 0.163		
Total Depth (TD): <u>24.42</u>		Depth to Product:						
Depth to Water (DTW): <u>11.21</u>		Product Thickness:						
Water Column Height: <u>13.21</u>		1 Casing Volume: <u>2.11</u>		gallons				
Reference Point: TOC		3 Casing Volumes: <u>6.33</u>		gallons				
Purging Device: <u>Disposable Bailer</u> 3" PVC Bailer, Parastaltic Pump, Whal Pump								
Sampling Device: Disposable Bailer								
Time	Temp ©	pH	Cond (µs)	NTU	DO(mg/L)	ORP (mV)	Vol(gal)	DTW
12:50	17.7	7.35	1470				2.0	
12:53		3 gallons purged <sup>well</sup> dewatered					<del>4.0</del>	
							<del>6.0</del>	

3-28-10

Comments: YSI 550A DO meter pre purge DO = mg/l  
 ; post purge DO = mg/l

very turbid, silty

Sample ID: <u>MW-7C</u>	Sample Time: <u>11:45</u>
Laboratory: McCampbell Analytical, INC.	Sample Date: 3/29/10
Containers/Preservative: Voa/HCl, Amber/HCl	
Analyzed for: 8015, 8021	
Sampler Name: Sanjiv Gill	Signature: 

**MONITORING FIELD DATA SHEET**

Well ID: MW-8A

Project.Task #: 1145.001 220				Project Name: Feiner - 5175 Broadway				
Address: 5175 Broadway, Oakland, CA								
Date: 3/28/10				Weather: <u>Cloudy</u>				
Well Diameter: <u>2"</u>			Volume/ft.		1" = 0.04	3" = 0.37	6" = 1.47	
					2" = 0.16	4" = 0.65	radius <sup>2</sup> * 0.163	
Total Depth (TD): <u>14.90</u>			Depth to Product:					
Depth to Water (DTW): <u>9.73</u>			Product Thickness:					
Water Column Height: <u>5.17</u>			1 Casing Volume: <u>0.82</u>			gallons		
Reference Point: TOC			<u>3</u> Casing Volumes: <u>2.46</u>			gallons		
Purging Device: <u>Disposable Bailer</u> , 3" PVC Bailer, Parastaltic Pump, Whal Pump								
Sampling Device: Disposable Bailer								
Time	Temp ©	pH	Cond (µs)	NTU	DO(mg/L)	ORP (mV)	Vol(gal)	DTW
<u>12:00</u>	<u>19.1</u>	<u>7.20</u>	<u>1270</u>				<u>1.0</u>	
<u>12:05</u>	<u>18.5</u>	<u>7.18</u>	<u>1274</u>				<u>2.0</u>	
<u>12:10</u>	<u>18.3</u>	<u>7.17</u>	<u>1279</u>				<u>2.5</u>	

3-28-10

Comments: YSI 550A DO meter pre purge DO = mg/l  
 ; post purge DO = mg/l  
very turbid, silty

Sample ID: <u>MW-8A</u>	Sample Time: <u>11:05</u>
Laboratory: McCampbell Analytical, INC.	Sample Date: <u>3/29/10</u>
Containers/Preservative: Voa/HCl, Amber/HCl	
Analyzed for: 8015, 8021	
Sampler Name: Sanjiv Gill	Signature: <u>[Signature]</u>

**MONITORING FIELD DATA SHEET**

Well ID: **MW-8C**

Project Task #: 1145.001 220 Project Name: Feiner - 5175 Broadway

Address: 5175 Broadway, Oakland, CA

Date: 3/28/10

Weather: **Cloudy**

Well Diameter: **2"**

Volume/ft. 

1" = 0.04	3" = 0.37	6" = 1.47
2" = 0.16	4" = 0.65	radius* 0.163

Total Depth (TD): **24.89**

Depth to Product:

Depth to Water (DTW): **11.39**

Product Thickness:

Water Column Height: **13.50**

1 Casing Volume: **2.16** gallons

Reference Point: TOC

**3** Casing Volumes: **6.48** gallons

Purging Device: **Disposable Bailer**, 3" PVC Bailer, Peristaltic Pump, Whal Pump

Sampling Device: Disposable Bailer

3-28-10

Time	Temp (°C)	pH	Cond (µS)	NTU	DO (mg/L)	ORP (mV)	Vol (gal)	DTW
11:40	17.9	7.50	1361				2.5	
11:43		4 gallons purged well dewatered					<del>5.0</del>	
							<del>6.5</del>	

Comments: YSI 550A DO meter pre purge DO = mg/l  
; post purge DO = mg/l

Sample ID: **MW-8C** Sample Time: **11:00**

Laboratory: McCampbell Analytical, INC. Sample Date: 3/29/10

Containers/Preservative: Voa/HCl, Amber/HCl

Analyzed for: 8015, 8021

Sampler Name: Sanjiv Gill

Signature: *[Handwritten Signature]*



## MONITORING FIELD DATA SHEET


Well ID: MW-9A

Project Task #: 1145.001 220		Project Name: Feiner - 5175 Broadway						
Address: 5175 Broadway, Oakland, CA								
Date: 3/28/10				Weather: <u>Cloudy</u>				
Well Diameter: 2"		Volume/ft. 1" = 0.04 3" = 0.37 6" = 1.47 2" = 0.16 4" = 0.65 radius** 0.163						
Total Depth (TD): 15.19				Depth to Product:				
Depth to Water (DTW): 11.88				Product Thickness:				
Water Column Height: 3.31				1 Casing Volume: 0.52		gallons		
Reference Point: TOC				3 Casing Volumes:		1.56 gallons		
Purging Device: Disposable Bailer, 3" PVC Bailer, Parastaltic Pump, Whal Pump								
Sampling Device: Disposable Bailer								
Time	Temp ©	pH	Cond (µs)	NTU	DO(mg/L)	ORP (mV)	Vol(gal)	DTW
<u>Q:20</u>	17.9	7.48	892				0.5	
<u>Q:22</u>	18.2	7.44	871				1.0	
<u>Q:25</u>	18.4	7.45	876				1.5	

3-28-10

Comments: YSI 550A DO meter pre purge DO = mg/l  
; post purge DO = mg/l

very turbid, silty

Sample ID: MW-9A		Sample Time: 10:20	
Laboratory: McCampbell Analytical, INC.		Sample Date: 3/29/10	
Containers/Preservative: Voa/HCl, Amber/HCl			
Analyzed for: 8015, 8021			
Sampler Name: Sanjiv Gill		Signature: 	

## MONITORING FIELD DATA SHEET


Well ID: MW-9C

Project Task #: 1145.001 220		Project Name: Feiner - 5175 Broadway							
Address: 5175 Broadway, Oakland, CA									
Date: 3/28/10		Weather: <u>Cloudy</u>							
Well Diameter: <u>2"</u>	Volume/ft. <table border="1"> <tr> <td>1" = 0.04</td> <td>3" = 0.37</td> <td>6" = 1.47</td> </tr> <tr> <td>2" = 0.16</td> <td>4" = 0.65</td> <td>radius<sup>2</sup> * 0.163</td> </tr> </table>			1" = 0.04	3" = 0.37	6" = 1.47	2" = 0.16	4" = 0.65	radius <sup>2</sup> * 0.163
1" = 0.04	3" = 0.37	6" = 1.47							
2" = 0.16	4" = 0.65	radius <sup>2</sup> * 0.163							
Total Depth (TD): <u>20.45</u>	Depth to Product:								
Depth to Water (DTW): <u>11.60</u>	Product Thickness:								
Water Column Height: <u>8.85</u>	1 Casing Volume: <u>1.41</u>		gallons						
Reference Point: TOC	3 Casing Volumes: <u>4.23</u>		gallons						
Purging Device: <u>Disposable Bailer</u> 3" PVC Bailer, Parastaltic Pump, Whal Pump									
Sampling Device: Disposable Bailer									
Time	Temp ©	pH	Cond (µs)	NTU	DO(mg/L)	ORP (mV)	Vol(gal)	DTW	
<u>8:55</u>	<u>18.1</u>	<u>7.51</u>	<u>560</u>				<u>1.5</u>		
<u>9:00</u>			<u>2.5 gallons purged well dewatered</u>				<del>4.0</del>		

3-28-10

Comments: YSI 550A DO meter pre purge DO = mg/l  
 ; post purge DO = mg/l

very turbid, silty

Sample ID: <u>MW-9C</u>	Sample Time: <u>10:10</u>
Laboratory: McCampbell Analytical, INC.	Sample Date: <u>3/29/10</u>
Containers/Preservative: <u>Voa/HCl, Amber/HCl</u>	
Analyzed for: <u>8015, 8021</u>	
Sampler Name: <u>Sanjiv Gill</u>	Signature: 

## MONITORING FIELD DATA SHEET

Well ID: MW-10A

Project.Task #: 1145.001 220	Project Name: Feiner - 5175 Broadway		
Address: 5175 Broadway, Oakland, CA			
Date: 3/28/10	Weather: <u>Cloudy</u>		
Well Diameter: <u>2"</u>	Volume/ft.	1" = 0.04	3" = 0.37
		2" = 0.16	4" = 0.65
		6" = 1.47	
		radius <sup>2</sup> * 0.163	
Total Depth (TD): <u>17.96</u>	Depth to Product:		
Depth to Water (DTW): <u>8.63</u>	Product Thickness:		
Water Column Height: <u>9.33</u>	1 Casing Volume: <u>1.49</u>	gallons	
Reference Point: TOC	<u>3</u> Casing Volumes: <u>4.47</u>	gallons	

Purging Device: Disposable Bailer, 3" PVC Bailer, Parastaltic Pump, Whal Pump

Sampling Device: Disposable Bailer

Time	Temp @	pH	Cond (µs)	NTU	DO(mg/L)	ORP (mV)	Vol(gal)	DTW
9:40	18.0	7.63	550				1.5	
9:45	18.4	7.61	554				3.0	
9:50	18.6	7.61	547				4.5	

3-28-10

Comments: YSI 550A DO meter pre purge DO = mg/l  
post purge DO = mg/l

very turbid, silty

Sample ID: <u>MW-10A</u>	Sample Time: <u>10:30</u>
Laboratory: McCampbell Analytical, INC.	Sample Date: <u>3/29/10</u>
Containers/Preservative: Voa/HCl, Amber/HCl	
Analyzed for: 8015, 8021	
Sampler Name: Sanjiv Gill	Signature: <u>[Signature]</u>

## **APPENDIX C**

Laboratory Analytical Report



**McC Campbell Analytical, Inc.**

"When Quality Counts"

1534 Willow Pass Road, Pittsburg, CA 94565-1701  
Web: www.mcccampbell.com E-mail: main@mcccampbell.com  
Telephone: 877-252-9262 Fax: 925-252-9269

Pangea Environmental Svcs., Inc.  1710 Franklin Street, Ste. 200  Oakland, CA 94612	Client Project ID: #1145.001 220; Feiner-5175 Broadway	Date Sampled: 03/29/10
	Client Contact: Morgan Gillies	Date Received: 03/29/10
	Client P.O.:	Date Reported: 04/06/10
		Date Completed: 04/06/10

**WorkOrder: 1003807**

April 06, 2010

Dear Morgan:

Enclosed within are:

- 1) The results of the **16** analyzed samples from your project: **#1145.001 220; Feiner-5175 Broadw**
- 2) A QC report for the above samples,
- 3) A copy of the chain of custody, and
- 4) An invoice for analytical services.

All analyses were completed satisfactorily and all QC samples were found to be within our control limits.

If you have any questions or concerns, please feel free to give me a call. Thank you for choosing

McC Campbell Analytical Laboratories for your analytical needs.

Best regards,

Angela Rydelius  
Laboratory Manager  
McC Campbell Analytical, Inc.



# McCAMPBELL ANALYTICAL, INC.

1534 WILLOW PASS ROAD  
PITTSBURG, CA 94565-1701

Website: [www.mccampbell.com](http://www.mccampbell.com) Email: [main@mccampbell.com](mailto:main@mccampbell.com)  
Telephone: (877) 252-9262 Fax: (925) 252-9269

1003907

es 1 of 2

## CHAIN OF CUSTODY RECORD

TURN AROUND TIME

RUSH  24 HR  48 HR  72 HR  5 DAY

GeoTracker EDF  PDF  Excel  Write On (DW)

Check if sample is effluent and "J" flag is required

Report To: Morgan Gillies Bill To: Pangea  
Company: Pangea Environmental Services Inc.  
1710 Franklin St., Ste: 200  
Oakland, CA E-Mail: mgillies@pangeaenv.com  
Tel: (510) 836-3702 Fax: (510) 836-3709  
Project #: 1145-001 220 Project Name: Feiner 5175 Broadway  
Project Location: 5175 Broadway Oakland, CA  
Sampler Signature: Morgan Gillies

### Analysis Request

### Other

### Comments

SAMPLE ID	LOCATION/ Field Point Name	SAMPLING		# Containers	Type Containers	MATRIX					METHOD PRESERVED				BTX & TPH as Gas (602 / 8021 + 8015) / MTBE TPH as Diesel (8015) Total Petroleum Oil & Grease (1664 / 5520 E/B&F) Total Petroleum Hydrocarbons (418.1) EPA 8260 (HVOCs) MTBE / BTEX ONLY (EPA 602 / 8021) EPA 505/ 608 / 8081 (CI Pesticides) EPA 608 / 8082 PCB's ONLY; Aroclors / Congeners EPA 507 / 8141 (NP Pesticides) EPA 515.3 / 8151 (Acidic CI Herbicides) EPA 524.2 / 624 / 8260 (VOCs) EPA 525.2 / 625 / 8270 (SVOCs) EPA 8270 SIM / 8310 (PAHs / PNAS) CAM 17 Metals (200.8 / 6020) LUFT 5 Metals (200.7 / 200.8 / 6010 / 6020) Lead (200.7 / 200.8 / 6010 / 6020)	Filter Samples for Metals analysis: Yes / No	
		Date	Time			Water	Soil	Air	Sludge	Other	ICE	HCL	HNO <sub>3</sub>	Other			
MW-1		3/29/10	14:25	2	Amb VOA	X					X	X		X	X		
MW-2C			10:55														
MW-3A			12:15														
MW-3C			12:05														
MW-4A			11:35														
MW-5A			10:50														
MW-5B			10:45														
MW-5C			10:40														
MW-6A			11:15														
MW-7B			11:55														
MW-7C			11:45														
MW-8A			11:05														
MW-8C			11:00														
MW-9A			10:20														

Relinquished By: [Signature] Date: 3/29/10 Time: 1337 Received By: [Signature]

Relinquished By: \_\_\_\_\_ Date: \_\_\_\_\_ Time: \_\_\_\_\_ Received By: \_\_\_\_\_

Relinquished By: \_\_\_\_\_ Date: \_\_\_\_\_ Time: \_\_\_\_\_ Received By: \_\_\_\_\_

ICE/t° 34.2 COMMENTS:  
GOOD CONDITION   
HEAD SPACE ABSENT \_\_\_\_\_  
DECHLORINATED IN LAB \_\_\_\_\_  
APPROPRIATE CONTAINERS   
PRESERVED IN LAB \_\_\_\_\_

VOAS O&G METALS OTHER  
PRESERVATION pH<2



McCAMPBELL ANALYTICAL, INC.

1534 WILLOW PASS ROAD  
PITTSBURG, CA 94565-1701

Website: [www.mccampbell.com](http://www.mccampbell.com) Email: [main@mccampbell.com](mailto:main@mccampbell.com)  
Telephone: (877) 252-9262 Fax: (925) 252-9269

CHAIN OF CUSTODY RECORD

TURN AROUND TIME

RUSH  24 HR  48 HR  72 HR  5 DAY

GeoTracker EDF  PDF  Excel  Write On (DW)

Check if sample is effluent and "J" flag is required

232012

Report To: Morgan Gillies Bill To: ~~Phyca~~ Phyca  
Company: Panacea Environmental Services Inc.  
1710 Franklin St., Ste: 200  
Oakland, CA E-Mail: [mgillies@panacemv.com](mailto:mgillies@panacemv.com)  
Tele: (510) 836-3702 Fax: (510) 836-3709  
Project #: 1145-001 220 Project Name: Feiner 5175 Broadway  
Project Location: 5175 Broadway Oakland CA  
Sampler Signature: Muskan Environmental Sampling

Analysis Request Other Comments

SAMPLE ID	LOCATION/ Field Point Name	SAMPLING		# Containers	Type Containers	MATRIX					METHOD PRESERVED								
		Date	Time			Water	Soil	Air	Sludge	Other	ICE	HCL	HNO <sub>3</sub>	Other					
MW-9C		3/29/10	10:10	2	WA	X					X	X	X	X					
MW-10A		3/29/10	10:30	X	X	X					X	X	X	X					

BTEX & TPH as Gas (602 / 8021 + 8015) / MTBE																			
TPH as Diesel (8015) with silicagel cleanup																			
Total Petroleum Oil & Grease (1664 / 5520 E/B&F)																			
Total Petroleum Hydrocarbons (418.1)																			
EPA 8260 (HVOCS)																			
MTBE / BTEX ONLY (EPA 602 / 8021)																			
EPA 805/608 / 8081 (CI Pesticides)																			
EPA 608 / 8082 PCB's ONLY; Aroclors / Congeners																			
EPA 507 / 8141 (NP Pesticides)																			
EPA 515.3 / 8151 (Acidic CI Herbicides)																			
EPA 524.2 / 624 / 8260 (VOCs)																			
EPA 525.2 / 625 / 8270 (SVOCs)																			
EPA 8270 SIM / 8310 (PAHs / PNAs)																			
CAM 17 Metals (200.8 / 6020)																			
LUFT 5 Metals (200.7 / 200.8 / 6010 / 6020)																			
Lead (200.7 / 200.8 / 6010 / 6020)																			

Filter Samples for Metals analysis: Yes / No

Relinquished By: <i>[Signature]</i>	Date: 3/29/10	Time: 1337	Received By: <i>[Signature]</i>
Relinquished By: <i>[Signature]</i>	Date:	Time:	Received By:
Relinquished By:	Date:	Time:	Received By:

ICE/T° \_\_\_\_\_  
 GOOD CONDITION \_\_\_\_\_  
 HEAD SPACE ABSENT \_\_\_\_\_  
 DECHLORINATED IN LAB \_\_\_\_\_  
 APPROPRIATE CONTAINERS \_\_\_\_\_  
 PRESERVED IN LAB \_\_\_\_\_  
 VOAS O&G METALS OTHER  
 PRESERVATION pH<2

COMMENTS:

# McCampbell Analytical, Inc.



1534 Willow Pass Rd  
Pittsburg, CA 94565-1701  
(925) 252-9262

# CHAIN-OF-CUSTODY RECORD

WorkOrder: 1003807

ClientCode: PEO

WaterTrax   
  WriteOn   
  EDF   
  Excel   
  Fax   
  Email   
  HardCopy   
  ThirdParty   
  J-flag

Report to:	Morgan Gillies	Email: mgillies@pangeaenv.com	Bill to:	Bob Clark-Riddell	Requested TAT: 5 days
	Pangea Environmental Svcs., Inc.	cc:		Pangea Environmental Svcs., Inc.	Date Received: 03/29/2010
	1710 Franklin Street, Ste. 200	PO:		1710 Franklin Street, Ste. 200	Date Printed: 03/29/2010
	Oakland, CA 94612	ProjectNo: #1145.001 220; Feiner-5175 Broadway		Oakland, CA 94612	
	(510) 836-3700 FAX (510) 836-3709				

Lab ID	Client ID	Matrix	Collection Date	Hold	Requested Tests (See legend below)											
					1	2	3	4	5	6	7	8	9	10	11	12
1003807-001	MW-1	Water	3/29/2010 11:25	<input type="checkbox"/>	A	A	B									
1003807-002	MW-2C	Water	3/29/2010 10:55	<input type="checkbox"/>	A		B									
1003807-003	MW-3A	Water	3/29/2010 12:15	<input type="checkbox"/>	A		B									
1003807-004	MW-3C	Water	3/29/2010 12:05	<input type="checkbox"/>	A		B									
1003807-005	MW-4A	Water	3/29/2010 11:35	<input type="checkbox"/>	A		B									
1003807-006	MW-5A	Water	3/29/2010 10:50	<input type="checkbox"/>	A		B									
1003807-007	MW-5B	Water	3/29/2010 10:45	<input type="checkbox"/>	A		B									
1003807-008	MW-5C	Water	3/29/2010 10:40	<input type="checkbox"/>	A		B									
1003807-009	MW-6A	Water	3/29/2010 11:15	<input type="checkbox"/>	A		B									
1003807-010	MW-7B	Water	3/29/2010 11:55	<input type="checkbox"/>	A		B									
1003807-011	MW-7C	Water	3/29/2010 11:45	<input type="checkbox"/>	A		B									
1003807-012	MW-8A	Water	3/29/2010 11:05	<input type="checkbox"/>	A		B									
1003807-013	MW-8C	Water	3/29/2010 11:00	<input type="checkbox"/>	A		B									
1003807-014	MW-9A	Water	3/29/2010 10:20	<input type="checkbox"/>	A		B									

**Test Legend:**

1	G-MBTEX_W	2	PREF REPORT	3	TPH(D)WSG_W	4		5	
6		7		8		9		10	
11		12							

Prepared by: Melissa Valles

**Comments:**

NOTE: Soil samples are discarded 60 days after results are reported unless other arrangements are made (Water samples are 30 days).  
Hazardous samples will be returned to client or disposed of at client expense.



# McC Campbell Analytical, Inc.



1534 Willow Pass Rd  
 Pittsburg, CA 94565-1701  
 (925) 252-9262

# CHAIN-OF-CUSTODY RECORD

**WorkOrder: 1003807**

**ClientCode: PEO**

WaterTrax   
  WriteOn   
  EDF   
  Excel   
  Fax   
  Email   
  HardCopy   
  ThirdParty   
  J-flag

<b>Report to:</b> Morgan Gillies Pangea Environmental Svcs., Inc. 1710 Franklin Street, Ste. 200 Oakland, CA 94612 (510) 836-3700    FAX (510) 836-3709	<b>Email:</b> mgillies@pangeaenv.com <b>cc:</b> <b>PO:</b> <b>ProjectNo:</b> #1145.001 220; Feiner-5175 Broadway	<b>Bill to:</b> Bob Clark-Riddell Pangea Environmental Svcs., Inc. 1710 Franklin Street, Ste. 200 Oakland, CA 94612	<b>Requested TAT: 5 days</b>  <b>Date Received: 03/29/2010</b> <b>Date Printed: 03/29/2010</b>
--	---	---	---

Lab ID	Client ID	Matrix	Collection Date	Hold	Requested Tests (See legend below)												
					1	2	3	4	5	6	7	8	9	10	11	12	
1003807-015	MW-9C	Water	3/29/2010 10:10	<input type="checkbox"/>	A		B										
1003807-016	MW-10A	Water	3/29/2010 10:30	<input type="checkbox"/>	A		B										

**Test Legend:**

1	G-MBTX_W	2	PREDF REPORT	3	TPH(D)WGS_W	4		5	
6		7		8		9		10	
11		12							

**Prepared by: Melissa Valles**

**Comments:**

NOTE: Soil samples are discarded 60 days after results are reported unless other arrangements are made (Water samples are 30 days).  
 Hazardous samples will be returned to client or disposed of at client expense.



**Sample Receipt Checklist**

Client Name: **Pangea Environmental Svcs., Inc.**  
Project Name: **#1145.001 220; Feiner-5175 Broadway**  
WorkOrder N°: **1003807** Matrix Water

Date and Time Received: **3/29/2010 2:23:15 PM**  
Checklist completed and reviewed by: **Melissa Valles**  
Carrier: UPS

**Chain of Custody (COC) Information**

Chain of custody present? Yes  No   
Chain of custody signed when relinquished and received? Yes  No   
Chain of custody agrees with sample labels? Yes  No   
Sample IDs noted by Client on COC? Yes  No   
Date and Time of collection noted by Client on COC? Yes  No   
Sampler's name noted on COC? Yes  No

**Sample Receipt Information**

Custody seals intact on shipping container/cooler? Yes  No  NA   
Shipping container/cooler in good condition? Yes  No   
Samples in proper containers/bottles? Yes  No   
Sample containers intact? Yes  No   
Sufficient sample volume for indicated test? Yes  No

**Sample Preservation and Hold Time (HT) Information**

All samples received within holding time? Yes  No   
Container/Temp Blank temperature Cooler Temp: 3.4°C NA   
Water - VOA vials have zero headspace / no bubbles? Yes  No  No VOA vials submitted   
Sample labels checked for correct preservation? Yes  No   
Metal - pH acceptable upon receipt (pH<2)? Yes  No  NA   
Samples Received on Ice? Yes  No   
(Ice Type: WET ICE )

\* NOTE: If the "No" box is checked, see comments below.

-----

Client contacted: Date contacted: Contacted by:

Comments:



# McC Campbell Analytical, Inc.

"When Quality Counts"

1534 Willow Pass Road, Pittsburg, CA 94565-1701  
Web: www.mcccampbell.com E-mail: main@mcccampbell.com  
Telephone: 877-252-9262 Fax: 925-252-9269

Pangea Environmental Svcs., Inc.  1710 Franklin Street, Ste. 200  Oakland, CA 94612	Client Project ID: #1145.001 220; Feiner-5175 Broadway	Date Sampled: 03/29/10
	Client Contact: Morgan Gillies	Date Received: 03/29/10
	Client P.O.:	Date Extracted: 04/01/10-04/05/10
		Date Analyzed: 04/01/10-04/05/10

## Gasoline Range (C6-C12) Volatile Hydrocarbons as Gasoline with BTEX and MTBE\*

Extraction method: SW5030B

Analytical methods: SW8021B/8015Bm

Work Order: 1003807

Lab ID	Client ID	Matrix	TPH(g)	MTBE	Benzene	Toluene	Ethylbenzene	Xylenes	DF	% SS	Comments
001A	MW-1	W	1000	ND	16	1.2	1.1	4.2	1	116	d1
002A	MW-2C	W	94	ND	4.6	ND	0.77	1.2	1	103	d1
003A	MW-3A	W	16,000	ND<100	1800	38	220	340	20	103	d1
004A	MW-3C	W	28,000	ND<150	1200	540	750	3200	20	99	d1
005A	MW-4A	W	13,000	ND<100	1400	29	16	160	20	112	d1,b6
006A	MW-5A	W	69	ND	ND	ND	ND	ND	1	97	d9
007A	MW-5B	W	110	ND	2.7	0.78	ND	1.6	1	103	d1
008A	MW-5C	W	ND	ND	1.3	ND	ND	ND	1	104	
009A	MW-6A	W	ND	ND	ND	ND	ND	ND	1	103	
010A	MW-7B	W	10,000	ND<300	1100	750	46	1100	20	106	d1
011A	MW-7C	W	4500	66	ND<100	79	2.0	59	1	101	d1
012A	MW-8A	W	3500	ND<17	110	7.2	ND<1.7	19	3.3	96	d1
013A	MW-8C	W	84	ND	6.6	0.89	2.9	2.7	1	104	d1
014A	MW-9A	W	ND	ND	ND	ND	ND	ND	1	98	
015A	MW-9C	W	ND	ND	ND	ND	ND	ND	1	100	
016A	MW-10A	W	ND	ND	ND	ND	ND	ND	1	100	

Reporting Limit for DF =1; ND means not detected at or above the reporting limit	W	50	5.0	0.5	0.5	0.5	0.5	0.5	µg/L
	S	1.0	0.05	0.005	0.005	0.005	0.005	0.005	mg/Kg

\* water and vapor samples are reported in ug/L, soil/sludge/solid samples in mg/kg, wipe samples in µg/wipe, product/oil/non-aqueous liquid samples and all TCLP & SPLP extracts in mg/L.

# cluttered chromatogram; sample peak coelutes w/surrogate peak; low surrogate recovery due to matrix interference.

+The following descriptions of the TPH chromatogram are cursory in nature and McC Campbell Analytical is not responsible for their interpretation:

- b6) lighter than water immiscible sheen/product is present
- d1) weakly modified or unmodified gasoline is significant
- d9) no recognizable pattern



# McC Campbell Analytical, Inc.

"When Quality Counts"

1534 Willow Pass Road, Pittsburg, CA 94565-1701  
Web: www.mccampbell.com E-mail: main@mccampbell.com  
Telephone: 877-252-9262 Fax: 925-252-9269

Pangea Environmental Svcs., Inc.  1710 Franklin Street, Ste. 200  Oakland, CA 94612	Client Project ID: #1145.001 220; Feiner-5175 Broadway	Date Sampled: 03/29/10
	Client Contact: Morgan Gillies	Date Received: 03/29/10
	Client P.O.:	Date Analyzed: 04/05/00-04/05/10
		Date Extracted: 03/29/10

### Total Extractable Petroleum Hydrocarbons with Silica Gel Clean-Up\*

Extraction method SW3510C/3630C

Analytical methods: SW8015B

Work Order: 1003807

Lab ID	Client ID	Matrix	TPH-Diesel (C10-C23)	DF	% SS	Comments
1003807-001B	MW-1	W	290	1	94	e4,e2
1003807-002B	MW-2C	W	ND	1	89	
1003807-003B	MW-3A	W	4300	1	102	e4
1003807-004B	MW-3C	W	10,000	1	104	e4
1003807-005B	MW-4A	W	9200	1	92	e11,b6
1003807-006B	MW-5A	W	ND	1	80	
1003807-007B	MW-5B	W	ND	1	81	
1003807-008B	MW-5C	W	ND	1	88	
1003807-009B	MW-6A	W	ND	1	89	
1003807-010B	MW-7B	W	2300	1	80	e4
1003807-011B	MW-7C	W	940	1	80	e4
1003807-012B	MW-8A	W	2600	1	84	e4,e2,e7
1003807-013B	MW-8C	W	ND	1	81	
1003807-014B	MW-9A	W	ND	1	85	
1003807-015B	MW-9C	W	ND	1	93	

Reporting Limit for DF =1; ND means not detected at or above the reporting limit	W	50	µg/L
	S	NA	NA

\* water samples are reported in µg/L, wipe samples in µg/wipe, soil/solid/sludge samples in mg/kg, product/oil/non-aqueous liquid samples in mg/L, and all DISTLC / STLC / SPLP / TCLP extracts are reported in µg/L.

# cluttered chromatogram resulting in coeluted surrogate and sample peaks, or; surrogate peak is on elevated baseline, or; surrogate has been diminished by dilution of original extract/matrix interference.

+The following descriptions of the TPH chromatogram are cursory in nature and McC Campbell Analytical is not responsible for their interpretation:

- b6) lighter than water immiscible sheen/product is present
- e2) diesel range compounds are significant; no recognizable pattern
- e4) gasoline range compounds are significant.
- e7) oil range compounds are significant
- e11) stoddard solvent/mineral spirit (?)



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Pangea Environmental Svcs., Inc.  1710 Franklin Street, Ste. 200  Oakland, CA 94612	Client Project ID: #1145.001 220; Feiner-5175 Broadway	Date Sampled: 03/29/10
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		Date Extracted: 03/29/10

### Total Extractable Petroleum Hydrocarbons with Silica Gel Clean-Up\*

Extraction method SW3510C/3630C

Analytical methods: SW8015B

Work Order: 1003807

Lab ID	Client ID	Matrix	TPH-Diesel (C10-C23)	DF	% SS	Comments
1003807-016B	MW-10A	W	ND	1	90	

Reporting Limit for DF =1; ND means not detected at or above the reporting limit	W	50	µg/L
	S	NA	NA

\* water samples are reported in µg/L, wipe samples in µg/wipe, soil/solid/sludge samples in mg/kg, product/oil/non-aqueous liquid samples in mg/L, and all DISTLC / STLC / SPLP / TCLP extracts are reported in µg/L.

# cluttered chromatogram resulting in coeluted surrogate and sample peaks, or; surrogate peak is on elevated baseline, or; surrogate has been diminished by dilution of original extract/matrix interference.

+The following descriptions of the TPH chromatogram are cursory in nature and McC Campbell Analytical is not responsible for their interpretation:

b6) lighter than water immiscible sheen/product is present  
e2) diesel range compounds are significant; no recognizable pattern  
e4) gasoline range compounds are significant.  
e7) oil range compounds are significant  
e11) stoddard solvent/mineral spirit (?)



**QC SUMMARY REPORT FOR SW8021B/8015Bm**

W.O. Sample Matrix: Water

QC Matrix: Water

BatchID: 49572

WorkOrder 1003807

Analyte	EPA Method SW8021B/8015Bm		Extraction SW5030B						Spiked Sample ID: 1003788-001A			
	Sample	Spiked	MS	MSD	MS-MSD	LCS	LCSD	LCS-LCSD	Acceptance Criteria (%)			
	µg/L	µg/L	% Rec.	% Rec.	% RPD	% Rec.	% Rec.	% RPD	MS / MSD	RPD	LCS/LCSD	RPD
TPH(btex) <sup>£</sup>	ND	60	81.4	90.9	10.9	94.7	97.2	2.62	70 - 130	20	70 - 130	20
MTBE	ND	10	108	100	7.89	99.3	101	1.26	70 - 130	20	70 - 130	20
Benzene	ND	10	97.3	92.8	4.71	99.4	94.4	5.18	70 - 130	20	70 - 130	20
Toluene	ND	10	91	82.2	10.1	87.6	84.9	3.15	70 - 130	20	70 - 130	20
Ethylbenzene	ND	10	85.3	81.4	4.60	87	85	2.37	70 - 130	20	70 - 130	20
Xylenes	ND	30	99.1	93.8	5.50	99.2	97.7	1.57	70 - 130	20	70 - 130	20
%SS:	102	10	109	100	8.11	104	100	4.72	70 - 130	20	70 - 130	20

All target compounds in the Method Blank of this extraction batch were ND less than the method RL with the following exceptions:  
NONE

BATCH 49572 SUMMARY

Lab ID	Date Sampled	Date Extracted	Date Analyzed	Lab ID	Date Sampled	Date Extracted	Date Analyzed
1003807-001A	03/29/10 11:25 AM	04/01/10	04/01/10 2:27 PM	1003807-002A	03/29/10 10:55 AM	04/01/10	04/01/10 3:00 PM
1003807-003A	03/29/10 12:15 PM	04/01/10	04/01/10 3:33 PM	1003807-004A	03/29/10 12:05 PM	04/01/10	04/01/10 4:06 PM
1003807-005A	03/29/10 11:35 AM	04/01/10	04/01/10 4:39 PM	1003807-006A	03/29/10 10:50 AM	04/05/10	04/05/10 2:02 PM

MS = Matrix Spike; MSD = Matrix Spike Duplicate; LCS = Laboratory Control Sample; LCSD = Laboratory Control Sample Duplicate; RPD = Relative Percent Deviation.

% Recovery = 100 \* (MS-Sample) / (Amount Spiked); RPD = 100 \* (MS - MSD) / ((MS + MSD) / 2).

MS / MSD spike recoveries and / or %RPD may fall outside of laboratory acceptance criteria due to one or more of the following reasons: a) the sample is inhomogenous AND contains significant concentrations of analyte relative to the amount spiked, or b) the spiked sample's matrix interferes with the spike recovery.

£ TPH(btex) = sum of BTEX areas from the FID.

# cluttered chromatogram; sample peak coelutes with surrogate peak.

N/A = not enough sample to perform matrix spike and matrix spike duplicate.

NR = matrix interference and/or analyte concentration in sample exceeds spike amount for soil matrix or exceeds 2x spike amount for water matrix or sample diluted due to high matrix or analyte content, or inconsistency in sample containers.



**QC SUMMARY REPORT FOR SW8021B/8015Bm**

W.O. Sample Matrix: Water

QC Matrix: Water

BatchID: 49585

WorkOrder 1003807

EPA Method SW8021B/8015Bm		Extraction SW5030B							Spiked Sample ID: 1003807-014A			
Analyte	Sample	Spiked	MS	MSD	MS-MSD	LCS	LCSD	LCS-LCSD	Acceptance Criteria (%)			
	µg/L	µg/L	% Rec.	% Rec.	% RPD	% Rec.	% Rec.	% RPD	MS / MSD	RPD	LCS/LCSD	RPD
TPH(btex) <sup>£</sup>	ND	60	105	110	4.57	105	104	1.42	70 - 130	20	70 - 130	20
MTBE	ND	10	102	98	4.17	87.2	95	8.62	70 - 130	20	70 - 130	20
Benzene	ND	10	83.7	84.9	1.29	86.9	85.4	1.66	70 - 130	20	70 - 130	20
Toluene	ND	10	87.4	87.9	0.499	87.1	86	1.27	70 - 130	20	70 - 130	20
Ethylbenzene	ND	10	86.4	86.5	0.173	86.4	84.4	2.40	70 - 130	20	70 - 130	20
Xylenes	ND	30	88.9	88.6	0.238	88.9	86.9	2.28	70 - 130	20	70 - 130	20
%SS:	98	10	94	98	3.33	97	96	0.547	70 - 130	20	70 - 130	20

All target compounds in the Method Blank of this extraction batch were ND less than the method RL with the following exceptions:  
NONE

BATCH 49585 SUMMARY

Lab ID	Date Sampled	Date Extracted	Date Analyzed	Lab ID	Date Sampled	Date Extracted	Date Analyzed
1003807-007A	03/29/10 10:45 AM	04/01/10	04/01/10 7:42 PM	1003807-008A	03/29/10 10:40 AM	04/01/10	04/01/10 9:11 PM
1003807-009A	03/29/10 11:15 AM	04/02/10	04/02/10 12:10 AM	1003807-010A	03/29/10 11:55 AM	04/01/10	04/01/10 10:41 PM
1003807-011A	03/29/10 11:45 AM	04/01/10	04/01/10 11:40 PM	1003807-012A	03/29/10 11:05 AM	04/03/10	04/03/10 7:02 AM
1003807-013A	03/29/10 11:00 AM	04/02/10	04/02/10 6:37 PM	1003807-014A	03/29/10 10:20 AM	04/02/10	04/02/10 1:38 AM
1003807-015A	03/29/10 10:10 AM	04/02/10	04/02/10 2:08 AM	1003807-016A	03/29/10 10:30 AM	04/02/10	04/02/10 6:34 AM

MS = Matrix Spike; MSD = Matrix Spike Duplicate; LCS = Laboratory Control Sample; LCSD = Laboratory Control Sample Duplicate; RPD = Relative Percent Deviation.

% Recovery = 100 \* (MS-Sample) / (Amount Spiked); RPD = 100 \* (MS - MSD) / ((MS + MSD) / 2).

MS / MSD spike recoveries and / or %RPD may fall outside of laboratory acceptance criteria due to one or more of the following reasons: a) the sample is inhomogenous AND contains significant concentrations of analyte relative to the amount spiked, or b) the spiked sample's matrix interferes with the spike recovery.

£ TPH(btex) = sum of BTEX areas from the FID.

# cluttered chromatogram; sample peak coelutes with surrogate peak.

N/A = not enough sample to perform matrix spike and matrix spike duplicate.

NR = matrix interference and/or analyte concentration in sample exceeds spike amount for soil matrix or exceeds 2x spike amount for water matrix or sample diluted due to high matrix or analyte content, or inconsistency in sample containers.



### QC SUMMARY REPORT FOR SW8015B

W.O. Sample Matrix: Water

QC Matrix: Water

BatchID: 49551

WorkOrder 1003807

EPA Method SW8015B		Extraction SW3510C/3630C							Spiked Sample ID: N/A			
Analyte	Sample	Spiked	MS	MSD	MS-MSD	LCS	LCSD	LCS-LCSD	Acceptance Criteria (%)			
	µg/L	µg/L	% Rec.	% Rec.	% RPD	% Rec.	% Rec.	% RPD	MS / MSD	RPD	LCS/LCSD	RPD
TPH-Diesel (C10-C23)	N/A	1000	N/A	N/A	N/A	91.6	89.2	2.66	N/A	N/A	70 - 130	30
%SS:	N/A	625	N/A	N/A	N/A	97	93	3.67	N/A	N/A	70 - 130	30

All target compounds in the Method Blank of this extraction batch were ND less than the method RL with the following exceptions:  
NONE

#### BATCH 49551 SUMMARY

Lab ID	Date Sampled	Date Extracted	Date Analyzed	Lab ID	Date Sampled	Date Extracted	Date Analyzed
1003807-001B	03/29/10 11:25 AM	03/29/10	04/03/10 9:20 AM	1003807-002B	03/29/10 10:55 AM	03/29/10	04/03/10 10:30 AM
1003807-003B	03/29/10 12:15 PM	03/29/10	04/04/10 8:58 PM	1003807-004B	03/29/10 12:05 PM	03/29/10	04/04/10 10:08 PM
1003807-005B	03/29/10 11:35 AM	03/29/10	04/04/10 11:16 PM	1003807-006B	03/29/10 10:50 AM	03/29/10	04/04/10 8:58 PM
1003807-007B	03/29/10 10:45 AM	03/29/10	04/04/10 7:49 PM	1003807-008B	03/29/10 10:40 AM	03/29/10	04/03/10 2:00 PM
1003807-009B	03/29/10 11:15 AM	03/29/10	04/03/10 3:10 PM				

MS = Matrix Spike; MSD = Matrix Spike Duplicate; LCS = Laboratory Control Sample; LCSD = Laboratory Control Sample Duplicate; RPD = Relative Percent Deviation.

% Recovery = 100 \* (MS-Sample) / (Amount Spiked); RPD = 100 \* (MS - MSD) / ((MS + MSD) / 2).

MS / MSD spike recoveries and / or %RPD may fall outside of laboratory acceptance criteria due to one or more of the following reasons: a) the sample is inhomogenous AND contains significant concentrations of analyte relative to the amount spiked, or b) the spiked sample's matrix interferes with the spike recovery.

N/A = not enough sample to perform matrix spike and matrix spike duplicate.

NR = analyte concentration in sample exceeds spike amount for soil matrix or exceeds 2x spike amount for water matrix or sample diluted due to high matrix or analyte content.





### QC SUMMARY REPORT FOR SW8015B

W.O. Sample Matrix: Water

QC Matrix: Water

BatchID: 49587

WorkOrder 1003807

EPA Method SW8015B		Extraction SW3510C/3630C							Spiked Sample ID: N/A			
Analyte	Sample	Spiked	MS	MSD	MS-MSD	LCS	LCSD	LCS-LCSD	Acceptance Criteria (%)			
	µg/L	µg/L	% Rec.	% Rec.	% RPD	% Rec.	% Rec.	% RPD	MS / MSD	RPD	LCS/LCSD	RPD
TPH-Diesel (C10-C23)	N/A	1000	N/A	N/A	N/A	91.3	90.5	0.841	N/A	N/A	70 - 130	30
%SS:	N/A	625	N/A	N/A	N/A	97	96	1.14	N/A	N/A	70 - 130	30

All target compounds in the Method Blank of this extraction batch were ND less than the method RL with the following exceptions:  
NONE

#### BATCH 49587 SUMMARY

Lab ID	Date Sampled	Date Extracted	Date Analyzed	Lab ID	Date Sampled	Date Extracted	Date Analyzed
1003807-010B	03/29/10 11:55 AM	03/29/10	04/05/10 6:23 PM	1003807-011B	03/29/10 11:45 AM	03/29/10	04/05/00 1:40 PM
1003807-012B	03/29/10 11:05 AM	03/29/10	04/05/10 5:13 PM	1003807-013B	03/29/10 11:00 AM	03/29/10	04/05/10 7:33 PM
1003807-014B	03/29/10 10:20 AM	03/29/10	04/05/00 2:51 PM	1003807-015B	03/29/10 10:10 AM	03/29/10	04/05/10 12:41 AM
1003807-016B	03/29/10 10:30 AM	03/29/10	04/05/10 1:49 AM				

MS = Matrix Spike; MSD = Matrix Spike Duplicate; LCS = Laboratory Control Sample; LCSD = Laboratory Control Sample Duplicate; RPD = Relative Percent Deviation.

% Recovery = 100 \* (MS-Sample) / (Amount Spiked); RPD = 100 \* (MS - MSD) / ((MS + MSD) / 2).

MS / MSD spike recoveries and / or %RPD may fall outside of laboratory acceptance criteria due to one or more of the following reasons: a) the sample is inhomogenous AND contains significant concentrations of analyte relative to the amount spiked, or b) the spiked sample's matrix interferes with the spike recovery.

N/A = not enough sample to perform matrix spike and matrix spike duplicate.

NR = analyte concentration in sample exceeds spike amount for soil matrix or exceeds 2x spike amount for water matrix or sample diluted due to high matrix or analyte content.