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April 30, 2008

**VIA ALAMEDA COUNTY FTP SITE**

Mr. Steven Plunkett  
Alameda County Environmental Health  
1331 Harbor Bay Parkway, Suite 250  
Alameda, California 94502

Re: **Groundwater Monitoring Report – First Quarter 2008**  
5175 Broadway Street  
Oakland, California  
ACEH Fuel Leak Case No. RO#0000139

Dear Mr. Plunkett:

On behalf of Rockridge Heights LLC, Pangea Environmental Services, Inc., has prepared this *Groundwater Monitoring Report – First Quarter 2008*. The report describes groundwater monitoring, sampling, and other site activities. This report also proposes a reduction in the groundwater monitoring frequency from quarterly to semi-annually to control project costs. To further evaluate subsurface conditions, Pangea also proposes to additional subslab and soil gas sampling as outlined in the Soil Gas Sampling and Well Installation Report dated October 23, 2007.

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 that reads "Bob Clark-Riddell".

Bob Clark-Riddell, P.E.  
Principal Engineer

Attachment: *Groundwater Monitoring Report – First Quarter 2008*

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, California 94612 Telephone 510.836.3700 Facsimile 510.836.3709 [www.pangeaenv.com](http://www.pangeaenv.com)



## GROUNDWATER MONITORING REPORT – FIRST QUARTER 2008

5175 Broadway  
Oakland, California

April 30, 2008

*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 with about 10% of the area occupied by a vacant station/garage structure. 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 show 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.

## **GROUNDWATER MONITORING AND SAMPLING**

On March 15 and 16, 2008, Pangea conducted groundwater monitoring and sampling at the site. 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 night prior to sampling. Groundwater samples were collected from all site monitoring wells this quarter.

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 A.

## **MONITORING RESULTS**

Current and historical groundwater elevation and analytical data are described below and summarized on Table 1, Figure 2 and Figure 3. 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 B.

### **Groundwater Flow Direction**

Based on depth-to-water data collected March 15, 2008, shallow groundwater (A-zone) flows generally southwards to southwestwards throughout most of the site and in the area downgradient from the site, as shown on Figure 2. The relatively high groundwater elevations measured in well MW-6A suggest 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 southwestwards at approximately the same gradient as the A-zone wells, as shown on Figure 3. Except for the wells MW-9A and MW-9C to the south of the property, 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 field technician in monitoring wells MW-1, MW-3C, MW-4A and MW-7B. During previous quarterly monitoring, a thin layer of SPH had been measured in well STMW-4, but no measurable SPH were detected this quarter in well MW-4A, which was installed in the drilled out borehole of STMW-4 but screened over a shallower depth interval than STMW-4.

The maximum TPHg concentration detected this quarter was 36,000 µg/L in deep well MW-3C, while the maximum benzene concentration was 2,400 µg/L in shallow well MW-3A. The highest TPHd concentration was detected in shallow well MW-4A (38,000 µg/L). No hydrocarbons except low concentrations of benzene were detected in downgradient offsite monitoring wells MW-9A (0.85 µg/L) and MW-9C (0.55µg/L); no hydrocarbons were detected in downgradient well MW-10A.

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. The low to non-detect concentrations of hydrocarbons in newly installed 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. High levels of contamination within deeper groundwater (B-zone and C-zone) only appear to be present in the vicinity of wells MW-3C, MW-7B and MW-7C in the central and southern portions of the site. The very low concentrations of petroleum hydrocarbons detected in newly installed offsite well MW-9C indicates that offsite plume migration is minimal.

## Fuel Oxygenate Distribution in Groundwater

No MTBE was detected above reporting limits in any samples obtained from site monitoring wells this quarter. MTBE is not a contaminant of concern at this site. This is not surprising since the UST's were

removed in 1990.

## **OTHER SITE ACTIVITIES**

### **Groundwater Monitoring – Proposed Reduction to Semi-Annual**

To help control project costs, Pangea proposes to reduce the groundwater monitoring frequency from quarterly to semi-annually. Several rounds of monitoring data have been obtained from prior and new monitoring wells, and contaminant concentrations appear to be stable to decreasing in groundwater, despite the elevated concentrations in select wells. Pangea proposes to conduct the semi-annual monitoring in March and September of each year (first and third quarters). Therefore, unless otherwise instructed by the ACEH, Pangea plans to skip the second quarter 2008 monitoring event previously scheduled for June 2008 and the fourth quarter monitoring event scheduled for December 2008. Pangea anticipates resuming quarterly groundwater monitoring during and after completion of site remediation to facilitate evaluation of remedial effectiveness on site conditions.

During the next monitoring event (September 2008), Pangea will conduct gauging and sampling of all site groundwater monitoring wells. Groundwater samples will be analyzed for TPHg/BTEX/MTBE by EPA Method 8015Cm/8021B, and TPHd by EPA Method 8015C with silica gel cleanup. Pangea will summarize groundwater monitoring activities and results in a groundwater monitoring report.

### **Proposed Soil Gas and Subslab Gas Sampling**

Pangea plans to conduct additional soil gas sampling along the eastern edge of the residential building at 5230 Coronado Avenue as recommended in Pangea's *Soil Gas Sampling and Well Installation Report* (Report) dated October 23, 2007. As also recommended in the Report, Pangea plans to resample subslab locations SS-1 and SS-2 using the existing sampling probes, which were retained to facilitate cost-effective additional testing. If contaminant concentrations above ESLs are detected in the subslab locations, Pangea will conduct additional subslab sampling at step-out locations to delineate the extent of elevated contaminant concentrations in subslab gas.

### **Site Remediation**

The relatively low petroleum hydrocarbon concentrations detected in offsite soil gas and groundwater suggest that the hydrocarbon impact is primarily limited to the 5175 Broadway property. Pangea recommends implementing site remediation at the 5175 Broadway property in accordance with Pangea's IRAP dated September 11, 2007. Based on an April 9, 2008 discussion between new case worker Steven Plunkett and

Lucy Armentrout (RP representative), Pangea understands that the ACEH plans to comment on the IRAP in the near future.

### **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)

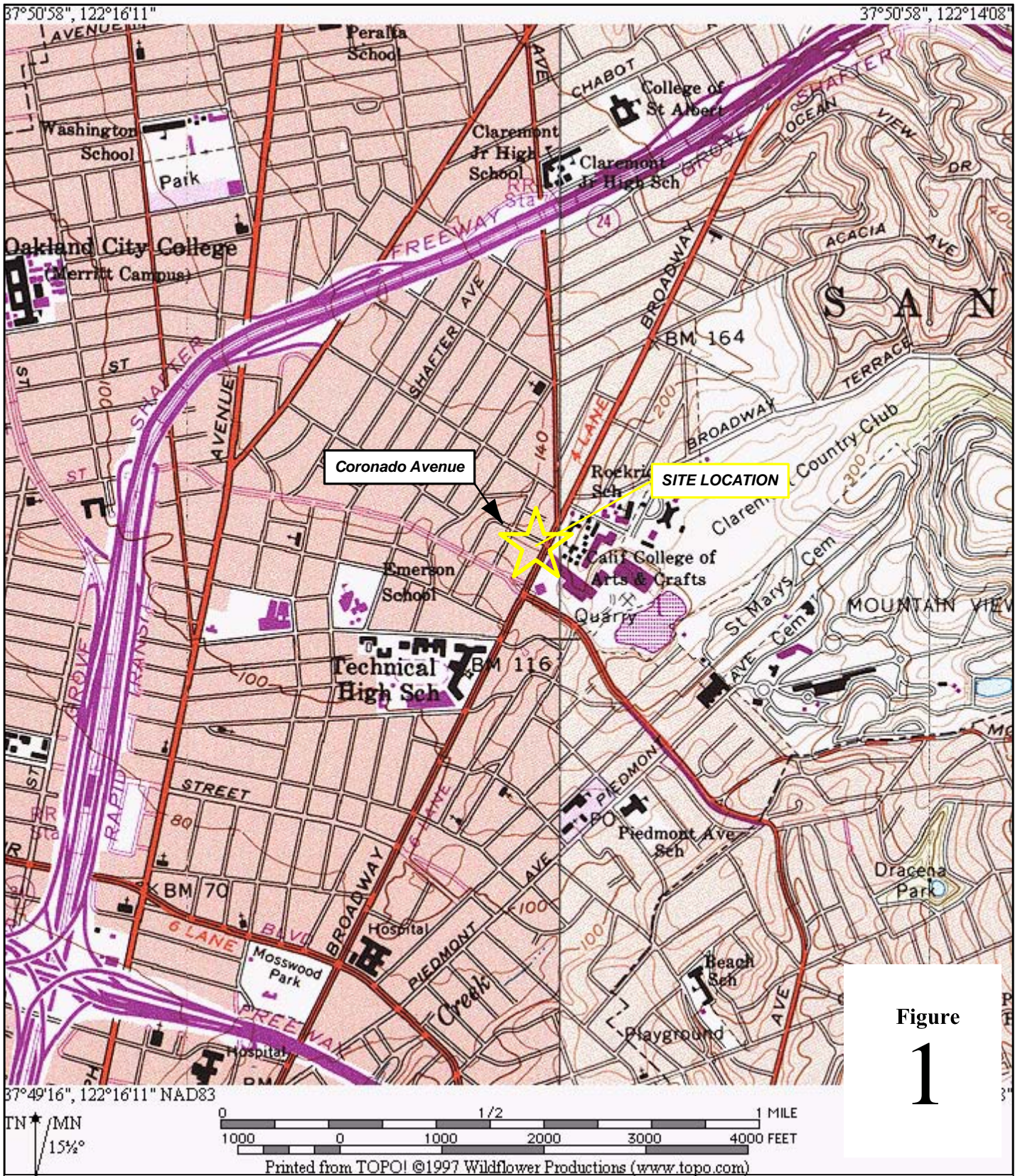
Figure 3 – Groundwater Elevation Contour and Hydrocarbon Concentration Map (Deep)

Table 1 – Groundwater Analytical Data

Appendix A – Groundwater Monitoring Field Data Sheets

Appendix B – Laboratory Analytical Report





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

Former Exxon Station  
5175 Broadway  
Oakland, California



Site Location Map

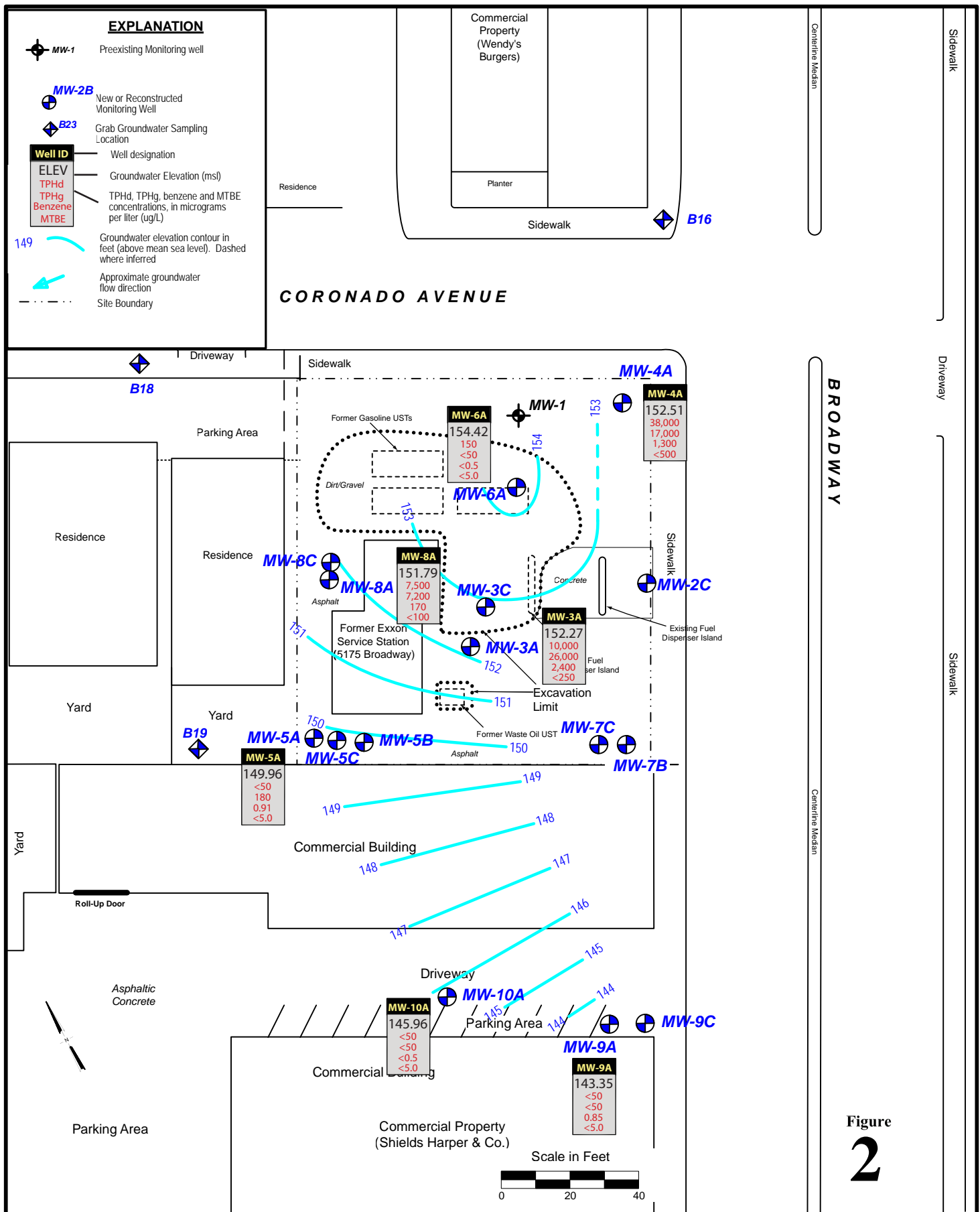


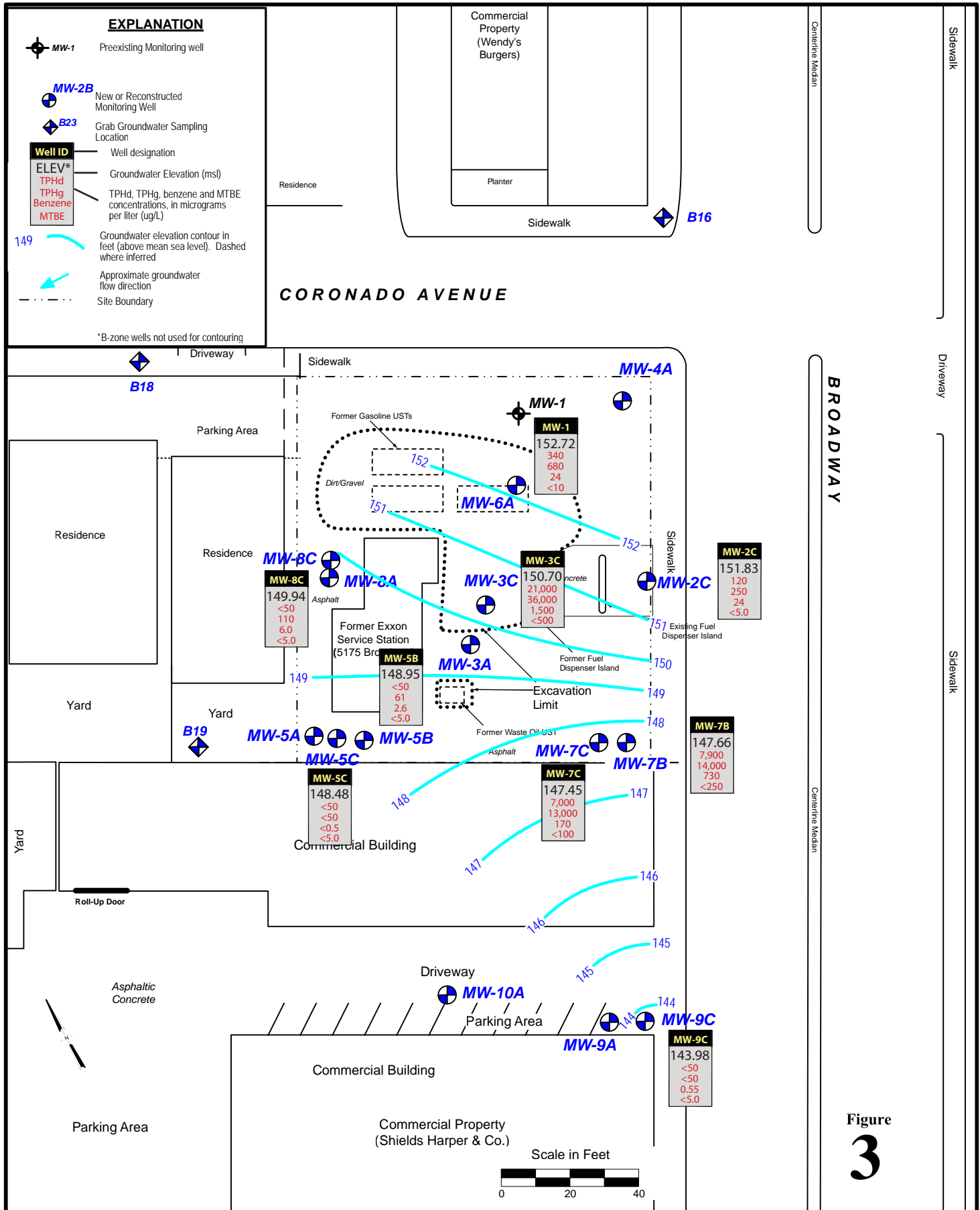
Figure  
**2**

Former Exxon Station  
5175 Broadway  
Oakland, California

Groundwater Elevation Contour and  
Hydrocarbon Concentration Map (Shallow)

March 15, 2008





Former Exxon Station  
5175 Broadway  
Oakland, California

Groundwater Elevation Contour and  
Hydrocarbon Concentration Map (Deep)

March 15, 2008



# Pangea

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

Well ID	Date	SPH (ft)	Groundwater Elevation (ft)	Depth to Water (ft)	TPHd	TPHg	Benzene	Toluene	Ethylbenzene µg/L	Xylenes	MTBE	DIPE	1,2-DCA	Dissolved Oxygen mg/L
TOC Elev (ft)	Sampled													
MW-1	04/30/89	--	--	--	--	200	18	5	2	12	--	--	--	--
(97.71)	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	--	--	--	--
(102.04)	07/03/91	--	92.62	9.42	--	580	32	41	40	55	--	--	--	--
	11/11/91	--	92.59	9.45	--	330	20	2	2	11	--	--	--	--
(101.83)	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	--	--	--	--
	01/11/93	--	94.27	7.56	--	1,700	5.7	6	11	28	--	--	--	--
	08/15/94	--	92.64	9.19	--	2,000	120	3	6	16	--	--	--	--
(97.50)	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	--	--	--
(97.50)	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	--	--	--
(161.03)	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	0.21
	10/16/06	--	151.98	9.05	110	390	16	<0.5	1.5	2.2	<0.5	41	1.6	0.17
(161.10)	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	--	--	--
	<b>03/15/08</b>	--	<b>152.72</b>	<b>8.38</b>	<b>340</b>	<b>680</b>	<b>24</b>	<b>1.1</b>	<b>1.9</b>	<b>2.9</b>	<b>&lt;10</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	--	--	--	--

# 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	Elevation	to Water					µg/L					Oxygen	
(ft)	(ft)	(ft)	(ft)										mg/L	
MW-2	09/28/92	--	91.93	10.09	--	1,600	47	20	47	97	--	--	--	
(continued)	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	--	--	--	
	01/27/98	--	89.11	8.38	<50	<50	<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	--	--	
	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	
	10/16/06	--	150.45	10.53	76	150	16	1.0	3.5	2.2	<0.5	1.2	<0.5	
	01/09/07	--	151.65	9.33	84	210	27	2.6	8.1	6.8	--	--	0.14	
	01/25/07	--				Well Abandoned								
MW-3	04/30/90	--	--	--	--	56,000	3,600	8,600	1,300	7,200	--	--	--	
(98.14)	05/17/90	--	85.72	12.42	--	--	--	--	--	--	--	--	--	
	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	--	--	--	
(102.46)	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	--	--	--	
(102.18)	03/04/92	--	91.92	10.26	--	57,000	720	870	81	3,100	--	--	--	
(97.94)	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	--	--	

# 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 (ft)	Sampled	Elevation (ft)	to Water (ft)					µg/L					Oxygen mg/L	
MW-3	05/17/99	--	87.40	10.54	--	72,000	280	230	320	890	<250	--	--	
(continued)	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	--	--	
	01/11/02	--	88.36	9.58	1,900	9,300	230	200	290	580	<25	--	--	
(161.43)	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 Abandoned									
STMW-4	07/03/91	--	92.58	11.00	--	3,100	610	62	39	150	--	--	--	
(103.58)	11/11/91	--	92.50	11.08	--	3,600	990	15	2.6	180	--	--	--	
(101.08)	03/04/92	--	91.64	9.44	--	5,000	35	20	22	71	--	--	--	
(98.80)	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	
	10/16/06	0.06	151.30	10.83	14,000	14,000	790	28	81	130	<5.0	30	<5.0	
	01/09/07	0.03	152.20	9.93			Not Sampled - SPH						0.24	
	01/26/07						Well Abandoned						0.24	

# 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 (ft)	Sampled	SPH (ft)	Elevation (ft)	to Water (ft)	←-----µg/L-----→									Oxygen mg/L
STMW-5 (101.99) (101.36)	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	--	--	
	06/19/97	--	83.81	13.33	2,300	950	7.4	1	1	7.2	<0.5	--	--	
	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	0.24	
	10/16/06	--	146.91	13.74	240	590	14	1.6	1.3	3.2	<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 Abandoned								
MW-2C (160.65)	03/09/07	--	152.24	8.41	140	450	40	9.3	2.9	16	<10	--	--	
	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	--	--		
MW-3A (161.55)	03/09/07	--	152.20	9.35	4,500	39,000	3,800	220	830	2,800	<500	--	--	
	03/26/07	--	152.33	9.22	--	--	--	--	--	--	--	--	--	
	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	--	--		

# Pangea

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

Well ID	Date	SPH (ft)	Groundwater Elevation (ft)	Depth to Water (ft)	TPHd	TPHg	Benzene	Toluene	Ethylbenzene μg/L	Xylenes	MTBE	DIPE	1,2-DCA	Dissolved Oxygen mg/L
TOC Elev (ft)	Sampled													
MW-3C (161.79)	03/26/07	--	151.15	10.64	--	--	--	--	--	--	--	--	--	--
	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	--	--	--
	<b>03/15/08</b>	--	<b>150.70</b>	<b>11.09</b>	<b>21,000</b>	<b>36,000</b>	<b>1,500</b>	<b>2,400</b>	<b>570</b>	<b>3,700</b>	<b>&lt;500</b>	--	--	--
MW-4A (162.44)	03/09/07	--	152.88	9.56	3,600	16,000	1,600	36	37	150	<250	--	--	--
	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	--	--	--
	<b>03/15/08</b>	--	<b>152.51</b>	<b>9.93</b>	<b>38,000</b>	<b>17,000</b>	<b>1,300</b>	<b>&lt;50</b>	<b>120</b>	<b>380</b>	<b>&lt;500</b>	--	--	--
MW-5A (160.82)	03/09/07	--	150.40	10.42	56	<50	<0.5	<0.5	<0.5	<0.5	<5.0	--	--	--
	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	--	--	--	--	--	--	--	--	--	--
	<b>03/15/08</b>	--	<b>149.96</b>	<b>10.86</b>	<b>&lt;50</b>	<b>180</b>	<b>0.91</b>	<b>&lt;0.5</b>	<b>&lt;0.5</b>	<b>&lt;0.5</b>	<b>&lt;5.0</b>	--	--	--
MW-5B (161.50)	03/09/07	--	146.42	15.08	59	140	1.3	0.77	<0.5	1.6	<5.0	--	--	--
	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	--	--	--
	<b>03/15/08</b>	--	<b>148.95</b>	<b>12.55</b>	<b>&lt;50</b>	<b>61</b>	<b>2.6</b>	<b>1.1</b>	<b>1.1</b>	<b>3.0</b>	<b>&lt;5.0</b>	--	--	--
MW-5C (161.03)	03/09/07	--	148.12	12.91	<50	<50	<0.5	<0.5	<0.5	<0.5	<5.0	--	--	--
	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	--	--	--
	<b>03/15/08</b>	--	<b>148.48</b>	<b>12.55</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-6A (161.58)	03/09/07	--	154.91	6.67	380	<50	<0.5	<0.5	<0.5	<0.5	<5.0	--	--	--
	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	--	--	--
	<b>03/15/08</b>	--	<b>154.42</b>	<b>7.16</b>	<b>150</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-7B (159.15)	03/09/07	--	147.97	11.18	930	18,000	1,500	1,600	140	1,800	<600	--	--	--
	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	--	--	--
	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	--	--	--
	<b>03/15/08</b>	--	<b>147.66</b>	<b>11.36</b>	<b>7,900</b>	<b>14,000</b>	<b>730</b>	<b>820</b>	<b>110</b>	<b>1,200</b>	<b>&lt;250</b>	--	--	--



# Pangea

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

Well ID TOC Elev (ft)	Date Sampled	SPH (ft)	Groundwater Elevation (ft)	Depth to Water (ft)	TPHd ←	TPHg	Benzene	Toluene	Ethylbenzene μg/L	Xylenes	MTBE	DIPE	1,2-DCA →	Dissolved Oxygen mg/L
MW-7C (158.53)	03/09/07	--	145.44	13.09	190	3,600	970	100	12	90	<120	--	--	--
	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	--	--	--
	<b>03/15/08</b>	--	<b>147.45</b>	<b>11.08</b>	<b>7,000</b>	<b>13,000</b>	<b>170</b>	<b>58</b>	<b>170</b>	<b>1,300</b>	<b>&lt;100</b>	--	--	--
MW-8A (161.57)	03/09/07	--	152.05	9.52	4,200	10,000	430	18	<10	88	<100	--	--	--
	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	--	--	--
	12/27/07	--	152.00	9.59	13,000	9,600	290	100	90	360	<100	--	--	--
	<b>03/15/08</b>	--	<b>151.79</b>	<b>9.80</b>	<b>7,500</b>	<b>7,200</b>	<b>170</b>	<b>28</b>	<b>270</b>	<b>110</b>	<b>&lt;100</b>	--	--	--
MW-8C (161.33)	03/09/07	--	149.18	12.15	<50	150	9.8	1.3	2.0	3.9	<5.0	--	--	--
	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	--	--	--
	<b>03/15/08</b>	--	<b>149.94</b>	<b>11.39</b>	<b>&lt;50</b>	<b>110</b>	<b>6.0</b>	<b>1.7</b>	<b>2.4</b>	<b>2.4</b>	<b>&lt;5.0</b>	--	--	--
MW-9A (155.37)	09/29/07	--	142.76	12.61	86	<50	2.6	<0.5	<0.5	<0.5	<5.0	--	--	--
	12/27/07	--	143.51	11.86	<50	<50	<0.5	<0.5	<0.5	<0.5	<5.0	--	--	--
	<b>03/15/08</b>	--	<b>143.35</b>	<b>12.02</b>	<b>&lt;50</b>	<b>&lt;50</b>	<b>0.85</b>	<b>&lt;0.5</b>	<b>&lt;0.5</b>	<b>&lt;0.5</b>	<b>&lt;5.0</b>	--	--	--
MW-9C (154.94)	09/29/07	--	142.67	12.27	390	68	2.2	0.88	<0.5	<0.5	<5.0	--	--	--
	12/27/07	--	143.40	11.54	<50	<50	0.84	<0.5	<0.5	<0.5	<5.0	--	--	--
	<b>03/15/08</b>	--	<b>143.98</b>	<b>10.96</b>	<b>&lt;50</b>	<b>&lt;50</b>	<b>0.55</b>	<b>&lt;0.5</b>	<b>&lt;0.5</b>	<b>&lt;0.5</b>	<b>&lt;5.0</b>	--	--	--
MW-10A (154.88)	09/29/07	--	144.35	10.53	<50	<50	<0.5	<0.5	<0.5	<0.5	<5.0	--	--	--
	12/27/07	--	145.50	9.38	<50	<50	<0.5	<0.5	<0.5	<0.5	<5.0	--	--	--
	<b>03/15/08</b>	--	<b>145.96</b>	<b>8.92</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>	--	--	--

**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.

## **APPENDIX A**

Groundwater Monitoring Field Data Sheets

Well Gauging Data Sheet

Project.Task #: 1145.001 213				Project Name: Feiner			
Address: 5175 Broadway, Oakland, CA						Date: 03/15/08	
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"	10:23			8.38	22.97	TOC
MW-2C	2"	10:20			8.82	23.03	
MW-3A	2"	10:38			9.30	13.83	
MW-3C	2"	10:42			11.09	26.75	
MW-4A	2"	10:35			9.93	14.73	
MW-5A	2"	10:12			10.86	13.52	
MW-5B	2"	10:10			12.55	19.23	
MW-5C	2"	10:08			12.55	26.70	
MW-6A	2"	10:26			7.16	14.92	
MW-7B	2"	10:30			11.36	18.55	
MW-7C	2"	10:32			11.08	24.42	

Comments:

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Well Gauging Data Sheet

Project Task #: 1145.001 213				Project Name: Feiner			
Address: 5175 Broadway, Oakland, CA						Date: 03/15/08	
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"	10:17			9.80	14.90	TOC
MW-8C	2"	10:15			11.39	24.89	
MW-9A	2"	10:03			12.02	15.19	
MW-9C	2"	10:00			10.96	20.45	
MW-10A	2"	10:05			8.92	17.96	

Comments:

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## MONITORING FIELD DATA SHEET

Well ID: **MW-1**

Project Task #: 1145.001 213		Project Name: Feiner							
Address: 5175 Broadway, Oakland, CA									
Date: 03/15/08				Weather: <b>Sunny</b>					
Well Diameter: <b>4"</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>22.97</b>				Depth to Product:					
Depth to Water (DTW): <b>8.38</b>				Product Thickness:					
Water Column Height: <b>14.59</b>				1 Casing Volume: <b>9.48</b>		gallons			
Reference Point: TOC				<b>3</b> Casing Volumes: <b>28.45</b>		gallons			
Purging Device: Disposable Bailer, Check Valve Tubing, <b>3" PVC Bailer</b> , Whal Pump									
Sampling Device: <del>Disposable Bailer, Check Valve Tubing</del>									
Time	Temp @	pH	Cond (µs)	NTU	DO(mg/L)	ORP (mV)	Vol(gal)	DTW	
<b>3:15</b>	<b>18.2</b>	<b>7.52</b>	<b>809</b>				<b>9.5</b>		
<b>3:20</b>	<b>18.6</b>	<b>7.53</b>	<b>799</b>				<b>19</b>		
<b>3:30</b>	<b>18.4</b>	<b>7.57</b>	<b>786</b>				<b>28</b>		

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

**very turbid, silty, heavy sheen, odor**

Sample ID: <b>MW-1</b>	Sample Time: <b>3:35</b>
Laboratory: McCampbell Analytical, INC.	Sample Date: 03/15/08
Containers/Preservative: Voal/HCl, Arped Liter/HCL	
Analyzed for: 8015, 8021	
Sampler Name: Sanjiv Gill	Signature: 


MONITORING FIELD DATA SHEET

Well ID: **MW-2C**

Project.Task #: 1145.001 213		Project Name:Feiner						
Address: 5175 Broadway, Oakland, CA								
Date: 03/15/08				Weather: <i>Sunny</i>				
Well Diameter: <i>2"</i>		Volume/ft.	1" = 0.04	3" = 0.37	6" = 1.47			
		2" = 0.16	4" = 0.65	radius * 0.163				
Total Depth (TD): <i>23.03</i>				Depth to Product:				
Depth to Water (DTW): <i>8.82</i>				Product Thickness:				
Water Column Height: <i>14.21</i>		1 Casing Volume: <i>2.27</i>			gallons			
Reference Point: TOC		3 Casing Volumes: <i>6.82</i>			gallons			
Purging Device: <del>Disposable Bailer</del> , Check Valve Tubing, 3" PVC Bailer, Whal Pump								
Sampling Device: <del>Disposable Bailer</del> , Check Valve Tubing								
Time	Temp @	pH	Cond (µs)	NTU	DO(mg/L)	ORP (mV)	Vol(gal)	DTW
<i>2:45</i>	<i>18.6</i>	<i>7.46</i>	<i>849</i>				<i>2.5</i>	
<i>2:50</i>	<i>18.0</i>	<i>7.45</i>	<i>846</i>				<i>5</i>	
<i>2:55</i>	<i>18.4</i>	<i>7.39</i>	<i>874</i>				<i>7</i>	

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

*very turbid, silty*

Sample ID: <del>300</del> → <i>MW-2C</i>		Sample Time: <i>3:00</i>	
Laboratory: McCampbell Analytical, INC.		Sample Date: <i>03/15/08</i>	
Containers/Preservative: Voa/HCl, Amber Liter/HCL			
Analyzed for: 8015, 8021			
Sampler Name: Sanjiv Gill		Signature: 	

## MONITORING FIELD DATA SHEET

Well ID: **MW-3A**

Project Task #: 1145.001 213			Project Name: Feiner								
Address: 5175 Broadway, Oakland, CA											
Date: 03/15/08			Weather: <b>Sunny</b>								
Well Diameter: <b>2"</b>		Volume/ft. <table border="1" style="display: inline-table; border-collapse: collapse;"><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>13.83</b>		Depth to Product:									
Depth to Water (DTW): <b>9.30</b>		Product Thickness:									
Water Column Height: <b>4.53</b>		1 Casing Volume: <b>0.72</b>		gallons							
Reference Point: TOC		3 Casing Volumes: <b>2.17</b>		gallons							
Purging Device: <u>Disposable Bailer</u> , Check Valve Tubing, 3" PVC Bailer, Whal Pump											
Sampling Device: <u>Disposable Bailer</u> , Check Valve Tubing											
Time	Temp (°C)	pH	Cond (µs)	NTU	DO (mg/L)	ORP (mV)	Vol (gal)	DTW			
8:30	16.0	7.72	703				1				
8:35	16.7	7.69	713				1.5				
8:40	16.9	7.68	680				2				
Comments: YSI 550A DO meter						pre purge DO =			mg/l		
						post purge DO =			mg/l		

Sample ID: <b>MW-3A</b>		Sample Time: <b>8:45</b>	
Laboratory: McCampbell Analytical, INC.		Sample Date: <b>03/15/08</b>	
Containers/Preservative: Voa/HCl, Amber Liter/HCL			
Analyzed for: 8015, 8021			
Sampler Name: Sanjiv Gill		Signature:	


## MONITORING FIELD DATA SHEET

Well ID: **MW-3C**

Project Task #: 1145.001 213		Project Name: Feiner						
Address: 5175 Broadway, Oakland, CA								
Date: 03/15/08		Weather: <b>Sunny</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>26.75</b>	Depth to Product:							
Depth to Water (DTW): <b>11.09</b>	Product Thickness:							
Water Column Height: <b>15.66</b>	1 Casing Volume: <b>2.50</b>		gallons					
Reference Point: TOC	<b>3</b> Casing Volumes: <b>7.50</b>		gallons					
Purging Device: <u>Disposable Bailer</u> , Check Valve Tubing, 3" PVC Bailer, Whal Pump								
Sampling Device: <u>Disposable Bailer</u> , Check Valve Tubing								
Time	Temp @	pH	Cond (µs)	NTU	DO(mg/L)	ORP (mV)	Vol(gal)	DTW
9:00	17.7	6.97	1800				2.5	
9:05	18.4	7.01	1737				5	
9:10	Dewatered						<del>5.5</del> 5.5	

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

**veg + turbid, silty, odor, sheen**

Sample ID: <b>MW-3C</b>	Sample Time: <b>10:45</b>
Laboratory: McCampbell Analytical, INC.	Sample Date: 03/16/08
Containers/Preservative: Voa/HCl, Amber Liter/HCL	
Analyzed for: 8015, 8021	
Sampler Name: Sanjiv Gill	Signature: 




**MONITORING FIELD DATA SHEET**

Well ID: MW-4A

Project Task #: 1145.001 213				Project Name: Feiner				
Address: 5175 Broadway, Oakland, CA								
Date: 03/15/08				Weather: <u>Sunny</u>				
Well Diameter: <u>2"</u>				Volume/ft. <u>1" = 0.04</u> <u>3" = 0.37</u> <u>6" = 1.47</u> <u>2" = 0.16</u> <u>4" = 0.65</u> radius <sup>2</sup> * 0.163				
Total Depth (TD): <u>14.73</u>				Depth to Product:				
Depth to Water (DTW): <u>9.93</u>				Product Thickness:				
Water Column Height: <u>4.80</u>				1 Casing Volume: <u>0.76</u> gallons				
Reference Point: TOC				3 Casing Volumes: <u>2.28</u> gallons				
Purging Device: <u>Disposable Bailer</u> , Check Valve Tubing, 3" PVC Bailer, Whal Pump								
Sampling Device: <u>Disposable Bailer</u> , Check Valve Tubing								
Time	Temp ©	pH	Cond (µs)	NTU	DO(mg/L)	ORP (mV)	Vol(gal)	DTW
<u>8:00</u>	<u>17.1</u>	<u>7.12</u>	<u>1115</u>				<u>1</u>	
<u>8:05</u>	<u>17.5</u>	<u>7.12</u>	<u>1120</u>				<u>1.5</u>	
<u>8:10</u>	<u>17.9</u>	<u>7.06</u>	<u>1126</u>				<u>2</u>	

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


sheen, odor,

Sample ID: <u>MW-4A</u>	Sample Time: <u>8:15</u>
Laboratory: McCampbell Analytical, INC.	Sample Date: <u>03/15/08</u>
Containers/Preservative: <u>Voa/HCl, Amber Liter/HCL</u>	
Analyzed for: <u>8015, 8021</u>	
Sampler Name: Sanjiv Gill	Signature: 

## MONITORING FIELD DATA SHEET

Well ID: **MW-5A**

Project Task #: 1145.001 213				Project Name: Feiner				
Address: 5175 Broadway, Oakland, CA								
Date: 03/15/08				Weather: <b>Sunny</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>13.52</b>				Depth to Product:				
Depth to Water (DTW): <b>10.86</b>				Product Thickness:				
Water Column Height: <b>2.66</b>				1 Casing Volume: <b>0.42</b> gallons				
Reference Point: TOC				<b>3</b> Casing Volumes: <b>1.26</b> gallons				
Purging Device: <u>Disposable Bailer</u> , Check Valve Tubing, 3" PVC Bailer, Whal Pump								
Sampling Device: <u>Disposable Bailer</u> , Check Valve Tubing								
Time	Temp @	pH	Cond (µs)	NTU	DO(mg/L)	ORP (mV)	Vol(gal)	DTW
<b>3:15:08</b> 1:25	14.4	7.12	1947				.5	
1:30	14.6	7.15	1946				1.0	Dewatered
							<del>1.5</del>	
Comments: YSI 550A DO meter				pre purge DO = mg/l				
				post purge DO = mg/l				

Sample ID: <b>MW-5A</b>	Sample Time: <b>9:50</b>
Laboratory: McCampbell Analytical, INC.	Sample Date: 03/16/08
Containers/Preservative: Voa/HCl, Amber Liter/HCL	
Analyzed for: 8015, 8021	
Sampler Name: Sanjiv Gill	Signature: 



MONITORING FIELD DATA SHEET

Well ID: **MW-SB**

Project Task #: 1145.001 213			Project Name:Feiner						
Address: 5175 Broadway, Oakland, CA									
Date: 03/15/08			Weather: <b>Sunny</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>19.23</b>			Depth to Product:						
Depth to Water (DTW): <b>12.55</b>			Product Thickness:						
Water Column Height: <b>6.68</b>			1 Casing Volume: <b>1.06</b>		gallons				
Reference Point: TOC			3 Casing Volumes: <b>3.18</b>		gallons				
Purging Device: <u>Disposable Bailer</u> Check Valve Tubing, 3" PVC Bailer, Whal Pump									
Sampling Device: <u>Disposable Bailer</u> Check Valve Tubing									
Time	Temp @	pH	Cond (µs)	NTU	DO(mg/L)	ORP (mV)	Vol(gal)	DTW	
<b>1:05</b>	<b>16.6</b>	<b>6.91</b>	<b>1464</b>				<b>1</b>		
<b>1:08</b>	<b>Dematerialized</b>						<b><del>1</del> 1.5</b>		
Comments: YSI 550A DO meter pre purge DO = mg/l									
post purge DO = mg/l									

3-15-08

**very turbid, silty**

Sample ID: <b>MW-SB</b>		Sample Time: <b>9:40</b>	
Laboratory: McCampbell Analytical, INC.		Sample Date: 03/16/08	
Containers/Preservative: Voac/HCl, Amber Liter/HCL			
Analyzed for: 8015, 8021			
Sampler Name: Sanjiv Gill		Signature:	




**MONITORING FIELD DATA SHEET**

Well ID: MW-5C

Project Task #: 1145.001 213		Project Name: Feiner							
Address: 5175 Broadway, Oakland, CA									
Date: 03/15/08		Weather: <u>Sunny</u>							
Well Diameter: <u>2"</u>		Volume/ft. <table border="1" style="font-size: small;"> <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): <u>26.70</u>		Depth to Product:							
Depth to Water (DTW): <u>12.55</u>		Product Thickness:							
Water Column Height: <u>14.15</u>		1 Casing Volume: <u>2.26</u> gallons							
Reference Point: TOC		3 Casing Volumes: <u>6.78</u> gallons							
Purging Device: <u>Disposable Bailer</u> , Check Valve Tubing, 3" PVC Bailer, Whal Pump									
Sampling Device: <u>Disposable Bailer</u> , Check Valve Tubing									
Time	Temp @	pH	Cond (µs)	NTU	DO(mg/L)	ORP (mV)	Vol(gal)	DTW	
<u>12:35</u>	<u>17.6</u>	<u>6.98</u>	<u>1737</u>				<u>2.5</u>		
<u>12:40</u>	<u>17.5</u>	<u>7.01</u>	<u>1774</u>				<u>5</u>		
<u>12:45</u>	<u>17.4</u>	<u>6.99</u>	<u>1737</u>				<u>7</u>		

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

very turbid, silty

Sample ID: <u>MW-5C</u>	Sample Time: <u>12:50</u>
Laboratory: McCampbell Analytical, INC.	Sample Date: <u>03/15/08</u>
Containers/Preservative: <u>Voal/HCl, Amber Liter/HCL</u>	
Analyzed for: <u>8015, 8021</u>	
Sampler Name: Sanjiv Gill	Signature: 

## MONITORING FIELD DATA SHEET

Well ID: **MW-6A**

Project Task #: 1145.001 213		Project Name: Feiner						
Address: 5175 Broadway, Oakland, CA								
Date: 03/15/08		Weather: <b>Sunny</b>						
Well Diameter: <b>2"</b>		Volume/ft. 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>7.16</b>		Product Thickness:						
Water Column Height: <b>7.76</b>		1 Casing Volume: <b>1.24</b> gallons						
Reference Point: TOC		3 Casing Volumes: <b>3.72</b> gallons						
Purging Device: <u>Disposable Bailer</u> Check Valve Tubing, 3" PVC Bailer, Whal Pump								
Sampling Device: <u>Disposable Bailer</u> , Check Valve Tubing								
Time	Temp @	pH	Cond (µs)	NTU	DO(mg/L)	ORP (mV)	Vol(gal)	DTW
<b>3:50</b>	<b>16.6</b>	<b>7.18</b>	<b>1125</b>				<b>1.5</b>	
<b>3:55</b>	<b>16.8</b>	<b>7.22</b>	<b>1129</b>				<b>3</b>	
<b>4:00</b>	<b>16.9</b>	<b>7.18</b>	<b>1148</b>				<b>4</b>	

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

*very turbid, very silty*

Sample ID: <b>MW-6A</b>	Sample Time: <b>4:05</b>
Laboratory: McCampbell Analytical, INC.	Sample Date: <b>03/15/08</b>
Containers/Preservative: Voa/HCl, Amber Liter/HCL	
Analyzed for: 8015, 8021	
Sampler Name: Sanjiv Gill	Signature: <i>[Signature]</i>

## MONITORING FIELD DATA SHEET

Well ID: **MW-7B**

Project Task #: 1145.001 213		Project Name: Feiner						
Address: 5175 Broadway, Oakland, CA								
Date: 03/15/08		Weather: <b>Sunny</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>18.55</b>		Depth to Product:						
Depth to Water (DTW): <b>11.36</b>		Product Thickness:						
Water Column Height: <b>7.19</b>		1 Casing Volume: <b>1.15</b> gallons						
Reference Point: TOC		<b>3</b> Casing Volumes: <b>3.45</b> gallons						
Purging Device: <b>Disposable Bailer</b> , Check Valve Tubing, 3" PVC Bailer, What Pump								
Sampling Device: <b>Disposable Bailer</b> , Check Valve Tubing								
Time	Temp @	pH	Cond (µs)	NTU	DO(mg/L)	ORP (mV)	Vol(gal)	DTW
4:20	17.4	7.08	1488				1.5	
4:30	Deoxygenated						<del>2.0</del>	

3-15-08

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

very turbid, very silty, odor, sheen

Sample ID: <b>MW-7B</b>	Sample Time: <b>10:00</b>
Laboratory: McCampbell Analytical, INC.	Sample Date: <b>03/16/08</b>
Containers/Preservative: Voac/HCl, Amber Liter/HCL	
Analyzed for: 8015, 8021	
Sampler Name: Sanjiv Gill	Signature:

### MONITORING FIELD DATA SHEET

Well ID: **MW-7C**

Project Task #: 1145.001 213      Project Name: Feiner  
Address: 5175 Broadway, Oakland, CA

Date: 03/15/08      Weather: **Sunny**  
Well Diameter: **2"**      Volume/ft.  $\frac{1" = 0.04}{2" = 0.16}$   $\frac{3" = 0.37}{4" = 0.65}$   $6" = 1.47$   
radius<sup>2</sup> \* 0.163

Total Depth (TD): **24.42**      Depth to Product:  
Depth to Water (DTW): **11.08**      Product Thickness:

Water Column Height: **13.34**      1 Casing Volume: **2.13** gallons  
Reference Point: TOC      **3** Casing Volumes: **6.36** gallons

Purging Device: Disposable Bailer, Check Valve Tubing, 3" PVC Bailer, Whal Pump

Sampling Device: Disposable Bailer, Check Valve Tubing

3-15-08

Time	Temp @	pH	Cond ( $\mu$ s)	NTU	DO (mg/L)	ORP (mV)	Vol (gal)	DTW
4:45	17.9	7.39	1296				2	
4:55	<b>Dewatered</b>						<del>2</del> 3.5	

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

**very turbid, very silty**

Sample ID: <b>MW-7C</b>	Sample Time: <b>10:10</b>
Laboratory: McCampbell Analytical, INC.	Sample Date: <b>03/16/08</b>
Containers/Preservative: Voa/HCl, Amber Liter/HCL	
Analyzed for: 8015, 8021	
Sampler Name: Sanjiv Gill	Signature: <b>[Signature]</b>


## MONITORING FIELD DATA SHEET

Well ID: **MW-8A**

Project Task #: 1145.001 213				Project Name: Feiner				
Address: 5175 Broadway, Oakland, CA								
Date: 03/15/08				Weather: <b>Sunny</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>14.90</b>				Depth to Product:				
Depth to Water (DTW): <b>9.80</b>				Product Thickness:				
Water Column Height: <b>5.10</b>				1 Casing Volume: <b>0.81</b>		gallons		
Reference Point: TOC				3 Casing Volumes: <b>243</b>		gallons		
Purging Device: <b>Disposable Bailer</b> , Check Valve Tubing, 3" PVC Bailer, Whal Pump								
Sampling Device: <b>Disposable Bailer</b> , Check Valve Tubing								
Time	Temp @	pH	Cond (µs)	NTU	DO(mg/L)	ORP (mV)	Vol(gal)	DTW
<b>2:15</b>	<b>15.3</b>	<b>7.03</b>	<b>1641</b>				<b>1</b>	
<b>2:20</b>	<b>15.5</b>	<b>6.96</b>	<b>1634</b>				<b>1.5</b>	
<b>2:25</b>	<b>15.7</b>	<b>7.01</b>	<b>1631</b>				<b>2.5</b>	

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

**very turbid, very silty, odor**

Sample ID: <b>MW-8A</b>	Sample Time: <b>2:30</b>
Laboratory: McCampbell Analytical, INC.	Sample Date: <b>03/15/08</b>
Containers/Preservative: Voa/HCl, Amber Liter/HCL	
Analyzed for: 8015, 8021	
Sampler Name: Sanjiv Gill	Signature: 





**MONITORING FIELD DATA SHEET**

Well ID: MW-9A

Project Task #: 1145.001 213				Project Name: Feiner				
Address: 5175 Broadway, Oakland, CA								
Date: 03/15/08				Weather: <u>Sunny</u>				
Well Diameter: <u>2"</u>				Volume/ft.	1" = 0.04	3" = 0.37	6" = 1.47	radius <sup>2</sup> * 0.163
					2" = 0.16	4" = 0.65		
Total Depth (TD): <u>15.19</u>				Depth to Product:				
Depth to Water (DTW): <u>12.02</u>				Product Thickness:				
Water Column Height: <u>3.17</u>				1 Casing Volume: <u>0.50</u>		gallons		
Reference Point: TOC				3 Casing Volumes: <u>1.50</u>		gallons		
Purging Device: <u>Disposable Bailer</u> , Check Valve Tubing, 3" PVC Bailer, Whal Pump								
Sampling Device: <u>Disposable Bailer</u> , Check Valve Tubing								
Time	Temp @	pH	Cond (µs)	NTU	DO(mg/L)	ORP (mV)	Vol(gal)	DTW
<u>11:40</u>	<u>18.0</u>	<u>7.61</u>	<u>1314</u>				<u>.5</u>	
<u>11:42</u>	<u>17.9</u>	<u>7.65</u>	<u>1304</u>				<u>1.0</u>	
<u>11:45</u>	<u>17.9</u>	<u>7.63</u>	<u>1310</u>				<u>1.5</u>	

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

very turbid, very silty

Sample ID: <u>MW-9A</u>	Sample Time: <u>11:50</u>
Laboratory: McCampbell Analytical, INC.	Sample Date: <u>03/15/08</u>
Containers/Preservative: <u>Voa/HCl, Amber Liter/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-9C**

Project Task #: 1145.001 213		Project Name: Feiner	
Address: 5175 Broadway, Oakland, CA			
Date: 03/15/08		Weather: <b>Sunny</b>	
Well Diameter: <b>2"</b>	Volume/ft.	1" = 0.04 2" = 0.16	3" = 0.37 4" = 0.65 6" = 1.47 radius <sup>2</sup> * 0.16
Total Depth (TD): <b>20.45</b>	Depth to Product:		
Depth to Water (DTW): <b>10.96</b>	Product Thickness:		
Water Column Height: <b>9.49</b>	1 Casing Volume: <b>1.51</b>		gallons
Reference Point: TOC	3 Casing Volumes: <b>4.53</b>		gallons


Purging Device: Disposable Bailer, Check Valve Tubing, 3" PVC Bailer, Whal Pump

Sampling Device: Disposable Bailer, Check Valve Tubing

Time	Temp (°C)	pH	Cond (µs)	NTU	DO (mg/L)	ORP (mV)	Vol (gal)	DTW
11:15	19.6	7.09	627				1.5	
11:20	18.6	7.20	604				3	
11:25	18.5	7.17	615				4.5	

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

*very turbid, very silty*

Sample ID: <b>MW-9C</b>	Sample Time: <b>11:30</b>
Laboratory: McCampbell Analytical, INC.	Sample Date: <b>03/15/08</b>
Containers/Preservative: Voa/HCl, Amber Liter/HCL	
Analyzed for: 8015, 8021	
Sampler Name: Sanjiv Gill	Signature: 



## **APPENDIX B**

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; Feiner-5175 Broadway Oakland, CA	Date Sampled: 03/15/08-03/16/08
	Client Contact: Bob Clark-Riddell	Date Received: 03/17/08
	Client P.O.:	Date Reported: 03/24/08
		Date Completed: 03/24/08

**WorkOrder: 0803403**

March 24, 2008

Dear Bob:

Enclosed within are:

- 1) The results of the **16** analyzed samples from your project: **#1145.001; Feiner-5175 Broadway O**
- 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.

0803403

1 of 2

## McCAMPBELL ANALYTICAL, INC.

110 2<sup>nd</sup> AVENUE SOUTH, #D7  
PACHECO, CA 94553-5560

Website:

Email: main@mccampbell.com

Telephone: (925) 798-1620

Fax: (925) 798-1622

## CHAIN OF CUSTODY RECORD

TURN AROUND TIME

 RUSH     24 HR     48 HR     72 HR     5 DAY
EDF Required  Yes  No

Report To: Bob Clark-Riddel	Bill To: Pangea Environmental
Company: Pangea Environmental Services Inc.	
1710 Franklin Street Suite 200	
Oakland, CA 94612	E-Mail: bcr@pangeaenv.com
Tele: 510-836-3702	Fax: 510-836-3709
Project #: 1145.001	Project Name: <u>Feiner-5175 Broadway Oakland, CA</u>
Project Location: <u>5175 Broadway, Oakland, CA</u>	
Sampler Signature: Muskan Environmental Sampling	

## Analysis Request

Other

Comments

SAMPLE ID (Field Point Name)	LOCATION	SAMPLING		# Containers	Type Containers	MATRIX					METHOD PRESERVED				MTBE / BTEX & TPH as Gas (602 / 8021 + 8015)	MTBE / BTEX ONLY (EPA 602 / 8021)	TPH as Diesel (8015) with silica gel cleanup	Total Petroleum Oil & Grease (1664 / 5520 E/B&F)	Total Petroleum Hydrocarbons (418.1)	EPA 502.2 / 601 / 8010 / 8021 (HVOCs)	EPA 505 / 608 / 8081 (CI Pesticides)	EPA 608 / 8082 PCB's ONLY; Aroclors / Congeners	EPA 507 / 8141 (NP Pesticides)	EPA 515 / 8151 (Acidic CI Herbicides)	EPA 524.2 / 624 / 8260 (VOCs)	Fuel Additives (MTBE, ETBE, TAME, DIPE, TBA, 1,2-DCA, 1,2-EDB, ethanol) by 8260B	If Mtbe is detected by 8021 confirm by 8260B										
		Date	Time			Water	Soil	Air	Sludge	Other	ICE	HCL	HNO <sub>3</sub>	Other																							
MW-1		3-15-08	3:35	2	VOD (G&D)	X					X	X			X	X																					
MW-2C		3-15-08	3:00																																		
MW-3A		3-16-08	8:45																																		
MW-3C		3-16-08	10:45																																		
MW-4A		3-16-08	8:15																																		
MW-5A		3-16-08	9:50																																		
MW-5B		3-16-08	9:40																																		
MW-5C		3-15-08	12:50																																		
MW-6A		3-15-08	4:05																																		
MW-7B		3-16-08	10:00																																		
MW-7C		3-16-08	10:10																																		
MW-8A		3-15-08	2:30																																		
MW-8C		3-15-08	2:00																																		
MW-9A		3-15-08	11:50																																		
MW-9C		3-15-08	11:30	1	A																																

ICE #

2.8

GOOD CONDITION

HEAD SPACE ABSENT

DECLORINATED IN LAB

PRESERVATION

APPROPRIATE

CONTAINERS

PRESERVED IN LAB

VOAS

O&amp;G

METALS

OTHER

# McCAMPBELL ANALYTICAL, INC.

110 2<sup>nd</sup> AVENUE SOUTH, #D7  
PACHECO, CA 94553-5560

Website: [www.mccampbell.com](http://www.mccampbell.com) Email: main@mccampbell.com  
Telephone: (925) 798-1620 Fax: (925) 798-1622

# CHAIN OF CUSTODY RECORD

TURN AROUND TIME

RUSH 24 HR 48 HR 72 HR 5 DAY

EDF Required? Yes  No

Report To: Bob Clark-Riddell Bill To: Pangea Environmental

Company: Pangea Environmental Services Inc.

1710 Franklin Street Suite 200

Oakland, CA 94612

E-Mail: bcr@pangeaenv.com

Tele: 510-836-3702

Fax: 510-836-3709

Project #: 1145.001

Project Name: *Feiner - 5175 Broadway Oakland, CA*

Project Location: *5175 Broadway, Oakland, CA*

Sampler Signature: Muskan Environmental Sampling

Analysis Request

Other

Comments

SAMPLE ID (Field Point Name)	LOCATION	SAMPLING		# Containers	Type Containers	MATRIX					METHOD PRESERVED				Analysis Request	Other	Comments	
		Date	Time			Water	Soil	Air	Sludge	Other	ICE	HCL	HNO <sub>3</sub>	Other				
11 MU-10A		3/15-08	12:20	3	<i>PSC</i>	X						X			X			Filter Samples for Metals analysis: Yes / No

MTBE / BTEX & TPH as Gas (602 / 8021 + 8015)  
 MTBE / BTEX ONLY (EPA 602 / 8021)  
 TPH as Diesel (8015) *with silicage!*  
 Total Petroleum Oil & Grease (1664 / 5520 E/B&F)  
 Total Petroleum Hydrocarbons (418.1)  
 EPA 502.2 / 601 / 8010 / 8021 (HVOCs)  
 EPA 505 / 608 / 8081 (CI Pesticides)  
 EPA 608 / 8082 PCB's ONLY; Aroclors / Congeners  
 EPA 507 / 8141 (NP Pesticides)  
 EPA 515 / 8151 (Acidic CI Herbicides)  
 EPA 524.2 / 624 / 8260 (VOCs)  
 Fuel Additives (MTBE, ETBE, TAME, DIPP, TBA, 1,2 - DCA, 1,2 - EDB, ethanol) by 8260B  
 If Mtbe is detected by 8021 confirm by 8260B

Relinquished By: *[Signature]* Date: *3/12/08* Time: *1:30* Received By: *[Signature]*

Relinquished By: *[Signature]* Date: *3/12/08* Time: *3:15* Received By: *[Signature]*



# McC Campbell Analytical, Inc.



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

# CHAIN-OF-CUSTODY RECORD

WorkOrder: 0803403

ClientID: PEO

EDF     Excel     Fax     Email     HardCopy     ThirdParty

**Report to:**

Bob Clark-Riddell  
Pangea Environmental Svcs., Inc.  
1710 Franklin Street, Ste. 200  
Oakland, CA 94612

Email: bcr@pangeaenv.com  
TEL: (510) 836-3700    FAX: (510) 836-3709  
ProjectNo: #1145.00; Feiner-5175 Broadway Oakl  
PO:

**Bill to:**

Bob Clark-Riddell  
Pangea Environmental Svcs., Inc.  
1710 Franklin Street, Ste. 200  
Oakland, CA 94612

**Requested TAT: 5 days**

**Date Received: 03/17/2008**

**Date Printed: 03/17/2008**

Sample ID	ClientSampID	Matrix	Collection Date	Hold	Requested Tests (See legend below)												
					1	2	3	4	5	6	7	8	9	10	11	12	
0803403-001	MW-1	Water	3/15/2008 3:35:00	<input type="checkbox"/>	A	A	B										
0803403-002	MW-2C	Water	3/15/2008 3:00:00	<input type="checkbox"/>	A		B										
0803403-003	MW-3A	Water	3/16/2008 8:45:00	<input type="checkbox"/>	A		B										
0803403-004	MW-3C	Water	3/16/2008	<input type="checkbox"/>	A		B										
0803403-005	MW-4A	Water	3/16/2008 8:15:00	<input type="checkbox"/>	A		B										
0803403-006	MW-5A	Water	3/16/2008 9:50:00	<input type="checkbox"/>	A		B										
0803403-007	MW-5B	Water	3/16/2008 9:40:00	<input type="checkbox"/>	A		B										
0803403-008	MW-5C	Water	3/15/2008	<input type="checkbox"/>	A		B										
0803403-009	MW-6A	Water	3/15/2008 4:05:00	<input type="checkbox"/>	A		B										
0803403-010	MW-7B	Water	3/16/2008	<input type="checkbox"/>	A		B										
0803403-011	MW-7C	Water	3/16/2008	<input type="checkbox"/>	A		B										
0803403-012	MW-8A	Water	3/15/2008 2:30:00	<input type="checkbox"/>	A		B										
0803403-013	MW-8C	Water	3/15/2008 2:00:00	<input type="checkbox"/>	A		B										
0803403-014	MW-9A	Water	3/15/2008	<input type="checkbox"/>	A		B										
0803403-015	MW-9C	Water	3/15/2008	<input type="checkbox"/>	A		B										

**Test Legend:**

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

**Prepared by: Ana Venegas**

**Comments:**

NOTE: Samples are discarded 60 days after results are reported unless other arrangements are made. 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: 0803403**

**ClientID: PEO**

EDF     Excel     Fax     Email     HardCopy     ThirdParty

<b>Report to:</b>		<b>Bill to:</b>	<b>Requested TAT: 5 days</b>
Bob Clark-Riddell	Email: bcr@pangeaenv.com	Bob Clark-Riddell	
Pangea Environmental Svcs., Inc.	TEL: (510) 836-3700    FAX: (510) 836-3709	Pangea Environmental Svcs., Inc.	<b>Date Received: 03/17/2008</b>
1710 Franklin Street, Ste. 200	ProjectNo: #1145.00; Feiner-5175 Broadway Oakl	1710 Franklin Street, Ste. 200	<b>Date Printed: 03/17/2008</b>
Oakland, CA 94612	PO:	Oakland, CA 94612	

Sample ID	ClientSampID	Matrix	Collection Date	Hold	Requested Tests (See legend below)												
					1	2	3	4	5	6	7	8	9	10	11	12	
0803403-016	MW-10A	Water	3/15/2008	<input type="checkbox"/>	A		B										

**Test Legend:**

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

**Prepared by: Ana Venegas**

**Comments:**

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



**Sample Receipt Checklist**

Client Name: **Pangea Environmental Svcs., Inc.** Date and Time Received: **3/17/2008 4:31:07 PM**  
Project Name: **#1145.00; Feiner-5175 Broadway Oakland, CA** Checklist completed and reviewed by: **Ana Venegas**  
WorkOrder N°: **0803403** Matrix Water Carrier: Rob Pringle (MAI Courier)

**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: 2.8°C NA   
Water - VOA vials have zero headspace / no bubbles? Yes  No  No VOA vials submitted   
Sample labels checked for correct preservation? Yes  No   
TTLC Metal - pH acceptable upon receipt (pH<2)? Yes  No  NA

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; Feiner-5175 Broadway Oakland, CA	Date Sampled: 03/15/08-03/16/08
	Client Contact: Bob Clark-Riddell	Date Received: 03/17/08
	Client P.O.:	Date Analyzed 03/19/08-03/21/08
		Date Extracted: 03/19/08-03/21/08

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

Extraction method SW5030B

Analytical methods SW8021B/8015Cm

Work Order: 0803403

Lab ID	Client ID	Matrix	TPH(g)	MTBE	Benzene	Toluene	Ethylbenzene	Xylenes	DF	% SS
001A	MW-1	W	680,a,i	ND<10	24	1.1	1.9	2.9	2	97
002A	MW-2C	W	250,a,i	ND	24	2.2	5.2	4.5	1	96
003A	MW-3A	W	26,000,a,i	ND<250	2400	110	700	1200	50	101
004A	MW-3C	W	36,000,a,i	ND<500	1500	2400	570	3700	100	96
005A	MW-4A	W	17,000,a,i	ND<500	1300	ND<50	120	380	100	95
006A	MW-5A	W	180,m,i	ND	0.91	ND	ND	ND	1	101
007A	MW-5B	W	61,a,i	ND	2.6	1.1	1.1	3.0	1	93
008A	MW-5C	W	ND,i	ND	ND	ND	ND	ND	1	90
009A	MW-6A	W	ND,i	ND	ND	ND	ND	ND	1	90
010A	MW-7B	W	14,000,a,i	ND<250	730	820	110	1200	50	94
011A	MW-7C	W	13,000,a,i	ND<100	170	58	170	1300	20	96
012A	MW-8A	W	7200,a,i	ND<100	170	28	270	110	20	100
013A	MW-8C	W	110,a,i	ND	6.0	1.7	2.4	2.4	1	118
014A	MW-9A	W	ND,i	ND	0.85	ND	ND	ND	1	90
015A	MW-9C	W	ND,i	ND	0.55	ND	ND	ND	1	105
016A	MW-10A	W	ND,i	ND	ND	ND	ND	ND	1	92

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	1	µg/L
	S	NA	NA	NA	NA	NA	NA	NA	1	mg/Kg

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

# cluttered chromatogram; sample peak coelutes with surrogate peak.

+The following descriptions of the TPH chromatogram are cursory in nature and McC Campbell Analytical is not responsible for their interpretation: a) unmodified or weakly modified gasoline is significant; b) heavier gasoline range compounds are significant(aged gasoline?); c) lighter gasoline range compounds (the most mobile fraction) are significant; d) gasoline range compounds having broad chromatographic peaks are significant; biologically altered gasoline?; e) TPH pattern that does not appear to be derived from gasoline (stoddard solvent / mineral spirit?); f) one to a few isolated non-target peaks present; g) strongly aged gasoline or diesel range compounds are significant; h) lighter than water immiscible sheen/product is present; i) liquid sample that contains greater than ~1 vol. % sediment; j) reporting limit raised due to high MTBE content; k) TPH pattern that does not appear to be derived from gasoline (aviation gas). m) no recognizable pattern; n) TPH(g) range non-target isolated peaks subtracted out of the TPH(g) concentration at the client's request; p) see attached narrative.



# McC Campbell Analytical, Inc.

"When Quality Counts"

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Pangea Environmental Svcs., Inc.  1710 Franklin Street, Ste. 200  Oakland, CA 94612	Client Project ID: #1145.001; Feiner-5175 Broadway Oakland, CA	Date Sampled: 03/15/08-03/16/08
	Client Contact: Bob Clark-Riddell	Date Received: 03/17/08
	Client P.O.:	Date Analyzed 03/18/08-03/21/08

### Diesel Range (C10-C23) Extractable Hydrocarbons with Silica Gel Clean-Up\*

Extraction method SW3510C/3630C

Analytical methods SW8015C

Work Order: 0803403

Lab ID	Client ID	Matrix	TPH(d)	DF	% SS
0803403-001B	MW-1	W	340,d,i	1	100
0803403-002B	MW-2C	W	120,d,b,i	1	109
0803403-003B	MW-3A	W	10,000,d,i	1	111
0803403-004B	MW-3C	W	21,000,d,i	1	119
0803403-005B	MW-4A	W	38,000,d,i	1	84
0803403-006B	MW-5A	W	ND,i	1	105
0803403-007B	MW-5B	W	ND,i	1	106
0803403-008B	MW-5C	W	ND,i	1	119
0803403-009B	MW-6A	W	150,n,b,i	1	97
0803403-010B	MW-7B	W	7900,d,i	1	115
0803403-011B	MW-7C	W	7000,d,i	1	111
0803403-012B	MW-8A	W	7500,d,i	1	95
0803403-013B	MW-8C	W	ND,i	1	103
0803403-014B	MW-9A	W	ND,i	1	97
0803403-015B	MW-9C	W	ND,i	1	118
0803403-016B	MW-10A	W	ND,i	1	103

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: a) unmodified or weakly modified diesel is significant; b) diesel range compounds are significant; no recognizable pattern; c) aged diesel? is significant; d) gasoline range compounds are significant; e) unknown medium boiling point pattern that does not appear to be derived from diesel; f) one to a few isolated peaks present; g) oil range compounds are significant; h) lighter than water immiscible sheen/product is present; i) liquid sample that contains greater than ~1 vol. % sediment; k) kerosene/kerosene range; l) bunker oil; m) fuel oil; n) stoddard solvent/mineral spirit; p) see attached narrative.



### QC SUMMARY REPORT FOR SW8021B/8015Cm

W.O. Sample Matrix: Water

QC Matrix: Water

WorkOrder: 0803403

EPA Method SW8021B/8015Cm	Extraction SW5030B			BatchID: 34411			Spiked Sample ID: 0803401-007A					
	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	101	103	2.41	99.1	96.9	2.23	70 - 130	20	70 - 130	20
MTBE	ND	10	100	99.3	0.813	95.3	93.2	2.24	70 - 130	20	70 - 130	20
Benzene	ND	10	101	95.8	4.91	91	90.1	0.978	70 - 130	20	70 - 130	20
Toluene	ND	10	112	106	5.69	102	100	2.18	70 - 130	20	70 - 130	20
Ethylbenzene	ND	10	99.1	87.9	12.0	99.1	97.4	1.69	70 - 130	20	70 - 130	20
Xylenes	ND	30	121	112	7.63	109	106	3.59	70 - 130	20	70 - 130	20
%SS:	92	10	96	93	2.25	95	96	1.85	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 34411 SUMMARY

Lab ID	Date Sampled	Date Extracted	Date Analyzed	Lab ID	Date Sampled	Date Extracted	Date Analyzed
0803403-001A	03/15/08 3:35 PM	03/21/08	03/21/08 5:48 AM	0803403-002A	03/15/08 3:00 PM	03/21/08	03/21/08 5:15 AM
0803403-003A	03/16/08 8:45 AM	03/21/08	03/21/08 3:27 AM	0803403-004A	03/16/08 10:45 AM	03/21/08	03/21/08 3:57 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 = 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/8015Cm**

W.O. Sample Matrix: Water

QC Matrix: Water

WorkOrder: 0803403

Analyte	EPA Method SW8021B/8015Cm		Extraction SW5030B			BatchID: 34418			Spiked Sample ID: 0803403-016A			
	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	112	99.3	11.9	111	105	5.10	70 - 130	20	70 - 130	20
MTBE	ND	10	104	99.8	4.36	95.9	103	6.75	70 - 130	20	70 - 130	20
Benzene	ND	10	91.8	95.8	4.23	98.6	106	7.01	70 - 130	20	70 - 130	20
Toluene	ND	10	103	105	1.91	109	116	5.81	70 - 130	20	70 - 130	20
Ethylbenzene	ND	10	97.4	103	5.81	107	110	2.94	70 - 130	20	70 - 130	20
Xylenes	ND	30	104	110	6.03	116	118	1.74	70 - 130	20	70 - 130	20
%SS:	92	10	98	94	3.83	96	101	5.45	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 34418 SUMMARY**

Lab ID	Date Sampled	Date Extracted	Date Analyzed	Lab ID	Date Sampled	Date Extracted	Date Analyzed
0803403-005A	03/16/08 8:15 AM	03/21/08	03/21/08 8:27 AM	0803403-006A	03/16/08 9:50 AM	03/20/08	03/20/08 9:16 AM
0803403-007A	03/16/08 9:40 AM	03/21/08	03/21/08 8:00 AM	0803403-008A	03/15/08 12:50 PM	03/21/08	03/21/08 7:27 AM
0803403-009A	03/15/08 4:05 PM	03/21/08	03/21/08 6:54 AM	0803403-010A	03/16/08 10:00 AM	03/21/08	03/21/08 9:57 AM
0803403-011A	03/16/08 10:10 AM	03/20/08	03/20/08 4:31 PM	0803403-012A	03/15/08 2:30 PM	03/20/08	03/20/08 8:35 AM
0803403-013A	03/15/08 2:00 PM	03/20/08	03/20/08 4:26 PM	0803403-014A	03/15/08 11:50 AM	03/21/08	03/21/08 6:21 AM
0803403-015A	03/15/08 11:30 AM	03/20/08	03/20/08 4:56 PM	0803403-016A	03/15/08 12:20 PM	03/19/08	03/19/08 2:28 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 = 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 SW8015C

W.O. Sample Matrix: Water

QC Matrix: Water

WorkOrder 0803403

EPA Method SW8015C		Extraction SW3510C/3630C			BatchID: 34367			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(d)	N/A	1000	N/A	N/A	N/A	127	123	3.37	N/A	N/A	70 - 130	30
%SS:	N/A	2500	N/A	N/A	N/A	108	105	2.11	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 34367 SUMMARY

Lab ID	Date Sampled	Date Extracted	Date Analyzed	Lab ID	Date Sampled	Date Extracted	Date Analyzed
0803403-001B	03/15/08 3:35 PM	03/17/08	03/20/08 7:47 PM	0803403-002B	03/15/08 3:00 PM	03/17/08	03/18/08 11:42 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 SW8015C

W.O. Sample Matrix: Water

QC Matrix: Water

WorkOrder 0803403

EPA Method SW8015C		Extraction SW3510C/3630C				BatchID: 34419			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(d)	N/A	1000	N/A	N/A	N/A	99.7	103	3.14	N/A	N/A	70 - 130	30
%SS:	N/A	2500	N/A	N/A	N/A	115	118	2.91	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 34419 SUMMARY

Lab ID	Date Sampled	Date Extracted	Date Analyzed	Lab ID	Date Sampled	Date Extracted	Date Analyzed
0803403-003B	03/16/08 8:45 AM	03/17/08	03/19/08 12:48 AM	0803403-004B	03/16/08 10:45 AM	03/17/08	03/19/08 1:54 AM
0803403-005B	03/16/08 8:15 AM	03/17/08	03/19/08 5:13 AM	0803403-006B	03/16/08 9:50 AM	03/17/08	03/19/08 6:19 AM
0803403-007B	03/16/08 9:40 AM	03/17/08	03/19/08 7:25 AM	0803403-008B	03/15/08 12:50 PM	03/17/08	03/18/08 6:10 PM
0803403-009B	03/15/08 4:05 PM	03/17/08	03/21/08 2:43 AM	0803403-010B	03/16/08 10:00 AM	03/17/08	03/18/08 8:23 PM
0803403-011B	03/16/08 10:10 AM	03/17/08	03/19/08 4:38 PM	0803403-012B	03/15/08 2:30 PM	03/17/08	03/19/08 5:45 PM
0803403-013B	03/15/08 2:00 PM	03/17/08	03/21/08 7:21 AM	0803403-014B	03/15/08 11:50 AM	03/17/08	03/19/08 7:57 PM
0803403-015B	03/15/08 11:30 AM	03/17/08	03/19/08 5:13 AM	0803403-016B	03/15/08 12:20 PM	03/17/08	03/19/08 8:31 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.