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Alameda County
Environmental Health

June 10, 2008

VIA ALAMEDA COUNTY FTP SITE

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

Re: Groundwater Monitoring Report – Second Quarter 2008

Guy's Service Station
3820 San Leandro Street
Oakland, California
ACEH Fuel Leak Case No. RO0000089
Global ID T0600102250

Dear Mr. Kharti:

On behalf of Kelly Engineer, Pangea Environmental Services, Inc. (Pangea) has prepared this *Groundwater Monitoring Report – Second Quarter 2008*. The report describes groundwater monitoring, sampling, and other site activities.

Since current groundwater monitoring results suggest that contaminant concentrations are decreasing, Pangea recommends conducting groundwater monitoring on a semi-annual basis (second and fourth quarter). Pangea respectfully requests that the Alameda County Environmental Health (ACEH) concur with this recommendation. If you have any questions or comments, please call me at (510) 435-8664 or email briddell@pangeaenv.com.

Sincerely,
Pangea Environmental Services, Inc.

Bob Clark-Riddell, P.E.
Principal Engineer

Attachment: *Groundwater Monitoring Report – Second Quarter 2008*

cc: Kelly Engineer, All Star, Inc., 1791 Pine Street, Concord, California, 94520
SWRCB Geotracker (electronic copy)

PANGEA Environmental Services, Inc.



GROUNDWATER MONITORING REPORT – SECOND QUARTER 2008

**Guy's Service Station
3820 San Leandro Street
Oakland, California**

June 10, 2008

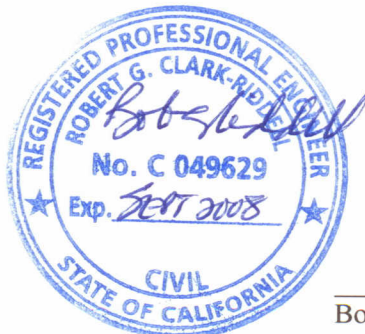
Prepared for:

Kelly Engineer
1791 Pine Street
Concord, CA 94520


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 Kelly Engineer, Pangea Environmental Services, Inc. (Pangea) performed groundwater monitoring and sampling during the current quarter at the Guy's service station located at 3820 San Leandro Street, Oakland, California. The purpose of the monitoring and sampling is to evaluate dissolved contaminant concentrations and groundwater flow direction. Monitoring well locations, current groundwater analytical results, elevation data, and the estimated groundwater flow direction are shown on Figure 1. Current and historical data are summarized on Table 1.

SITE BACKGROUND

The site is a relatively level parcel occupying approximately 5,500 square feet on the northern corner of San Leandro Street and 39th Avenue in Oakland, California. The surrounding properties are primarily residential, although commercial/retail businesses occupy San Leandro Street east and west of the site. The site has operated as a retail gasoline/diesel service station since at least 1993 when Mr. Engineer commenced operations, and also includes a very small convenience store. A Phillips 66 station operated at the site for many years beforehand.

Four fuel (two diesel and two gasoline) underground storage tanks (USTs) were reportedly removed by American Consulting Remediation and Construction in January 1998 and new 20,000-gallon fuel USTs were installed. Soil samples collected during tank removal activities contained elevated concentrations of petroleum hydrocarbons. Total petroleum hydrocarbons as gasoline (TPHg) concentrations in soil ranged from 34 to 2,600 parts per million (ppm), while total petroleum hydrocarbons as diesel (TPHd) ranged from 11 to 3,700 ppm. As a result of the detected contamination an unauthorized release form (URF) was issued for the site and excavation of petroleum impacted soil was conducted to the extent practicable onsite as shown on Figure 1. According to Mr. Engineer, no final excavation report was prepared but the excavation extended to the property boundary in all directions except the northwestern direction. Based on the approximate 16 ft depth of the excavation, a total of approximately 1,200 tons of soil was excavated and disposed off site. During UST installation, the excavation was backfilled with pea gravel.

Soil and groundwater investigations have been conducted at the site since 1998. In July 1998, Brunsing Associates, Inc. drilled six soil borings and installed three groundwater monitoring wells to assess soil and groundwater conditions. ACC Environmental Consultants, Inc. (ACC) conducted periodic groundwater monitoring at the site from September 2000 to June 2004. In August 2003, ACC completed eight direct-push borings to further characterize the presence of petroleum hydrocarbons and MTBE in onsite and offsite soil and groundwater at the site. Pangea began groundwater monitoring at the site in May 2008. Pangea has commenced preparation of a preferential pathway evaluation and site conceptual model, as requested by the Alameda County Environmental Health (ACEH).

GROUNDWATER MONITORING AND SAMPLING

On May 7, 2008, onsite monitoring wells and one backfill well were gauged for depth-to-water and inspected for separate-phase hydrocarbons (SPH) prior to collection of groundwater samples. Well caps were removed from all monitoring wells and technicians allowed at least 15 minutes for water-level equilibration before measuring depth to water.

Prior to sample collection, approximately three casing volumes of water were purged using disposable bailers, an electric submersible pump, or a peristaltic pump. During well purging, field technicians measured the pH, temperature and conductivity. 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 data and analytical results are described below and summarized on Table 1. Groundwater samples were analyzed for total petroleum hydrocarbons as gasoline (TPHg) by EPA Method 8015Cm, benzene, toluene, ethylbenzene, and 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 on May 7, 2008, the overall groundwater flow direction onsite is generally towards the south at a gradient of approximately 0.02 ft/ft. Groundwater elevation data and the inferred groundwater flow direction are shown on Figure 1. The inferred groundwater flow direction is generally consistent with previous monitoring results. Depth-to-water and groundwater elevation data are presented in Table 1.

Hydrocarbon Distribution in Groundwater

No SPH was observed in any site wells. The maximum TPHg and benzene concentrations detected were 35,000 µg/L and 8,300 µg/L, respectively, in onsite downgradient well MW-3. Significantly lower hydrocarbon concentrations were detected in wells MW-2 and BW-1. No petroleum hydrocarbons were

detected in upgradient onsite well MW-1. The lack of hydrocarbons in well MW-1 and concentration reductions in other site wells may be due to natural attenuation of residual hydrocarbons since the prior monitoring event in 2004. Hydrocarbon concentrations were generally within historic ranges in site monitoring wells this quarter. Hydrocarbon concentration data are summarized in Table 1 and on Figure 1.

Fuel Oxygenate Distribution in Groundwater

The maximum MTBE concentration was detected in well MW-3 at 20,000 µg/L. A very low (7.5 µg/L) MTBE concentration was detected in well MW-1. No MTBE was detected in offsite, crossgradient well MW-2 or in backfill well BW-1. As shown on Table 1, MTBE concentrations recorded this quarter are generally within historical ranges, although results for wells MW-1 and MW-2 are at or near *historic low* concentrations. The low MTBE concentrations may be due to natural attenuation.

OTHER SITE ACTIVITIES

Upcoming Monitoring

Since current groundwater monitoring results suggest that contaminant concentrations are decreasing, Pangea recommends conducting groundwater monitoring on a semi-annual basis (second and fourth quarter). Pangea respectfully requests that the ACEH concur with this recommendation. During the next monitoring event (fourth quarter 2008), all site monitoring wells will be gauged for depth to water and inspected for SPH. Groundwater samples will be collected from each well and analyzed for TPHg, BTEX and MTBE. Pangea will summarize groundwater monitoring activities and results in a groundwater monitoring report following completion of each future groundwater monitoring event.

Site Conceptual Model

Consistent with the April 10, 2008 letter from ACEH, Pangea has begun preparation of a Site Conceptual Model with Preferential Pathway Evaluation & Soil and Water Investigation Work Plan (SCM). In an email dated May 15, 2008, ACEH caseworker Paresh Kharti approved Pangea's 60-day extension request for SCM completion by July 11, 2008.

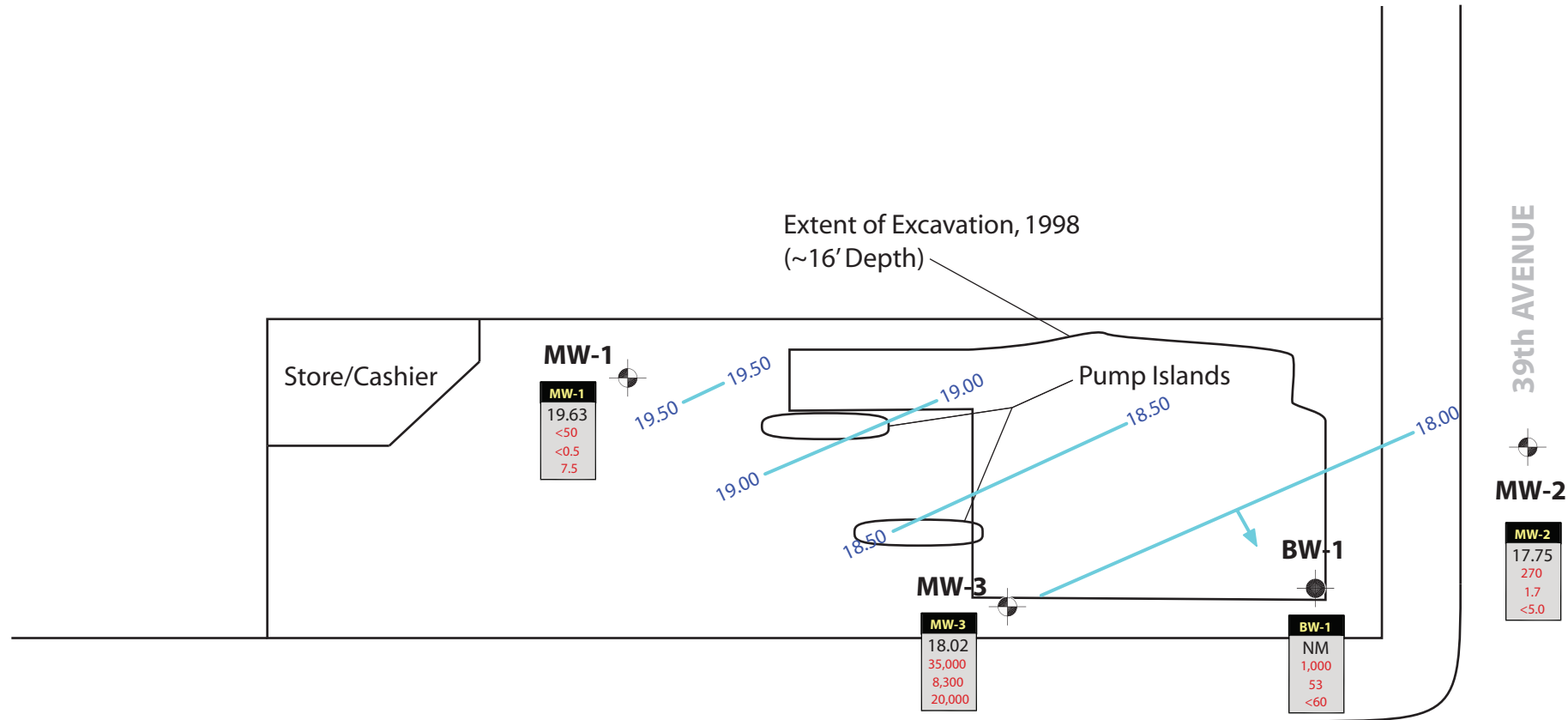
ATTACHMENTS

Figure 1 – Groundwater Elevation and Hydrocarbon Concentration Map

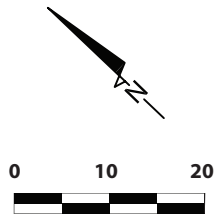
Table 1 – Groundwater Elevation and Analytical Data

Appendix A – Groundwater Monitoring Field Data Sheets

Appendix B – Laboratory Analytical Report



SAN LEANDRO STREET



EXPLANATION

MW-1 Groundwater monitoring well

BW-1 Backfill well

Well ID	Well designation
ELEV	Groundwater elevation
TPHg	TPHg, benzene and MTBE concentrations in micrograms per liter (ug/L)
Benzene	
MTBE	

NM Not measured

Groundwater elevation contour in feet

Approximate groundwater flow direction

Figure
1

Pangea

Table 1. Groundwater Analytical Data: Petroleum Hydrocarbons - Guy's Gas Station, 3820 San Leandro Street, Oakland, California

Well ID <i>TOC Elev</i> (ft)	Date Sampled	Groundwater Elevation (ft)	Depth to Water (ft)	TPHd	TPHg	Benzene	Toluene	Ethylbenzene	Xylenes	MTBE
				← μg/L →						
Monitoring Wells										
BW-1	5/7/2008	--	8.13	--	1,000	53	5.5	<0.5	1.1	<60
MW-1 (27.54)	7/6/1998	19.77	7.77	<100	4,100	36	53	<5.0	20	80
	9/10/2000	--	--	1,800	1,000	4.8	<0.50	6.2	1.2	<5.0
	4/10/2001	20.20	7.34	--	1,100	12	7.7	<2.5	<2.5	73
	7/17/2001	18.54	9.00	320	920	6.2	1.1	<0.50	<0.50	49
	1/15/2003	20.60	6.94	86	360	5.5	<0.50	4.3	1.3	19
	4/17/2003	20.53	7.01	<50	<50	<0.50	<0.50	<0.50	<1.0	11
	7/17/2003	18.83	8.71	95	380	19	<0.50	3.7	1.5	5.6
	11/21/2003	17.93	9.61	160	600	4.7	<0.50	8.8	2	4.3
	3/23/2004	20.23	7.31	120	140	1.3	<0.50	1.2	<1.0	11
	6/9/2004	18.89	8.65	84	570	1.6	<0.50	1.5	<1.0	11
	5/7/2008	19.63	7.91	--	<50	<0.5	<0.5	<0.5	<0.5	7.5
MW-2 (25.97)	7/6/1998	17.82	8.15	<100	6,400	190	14	13	12	210
	9/10/2000	--	--	270	760	19	<0.50	<0.50	<0.50	110
	4/10/2001	18.65	7.32	--	320	3.6	1.1	1.2	0.79	<5.0
	7/17/2001	17.01	8.96	68	440	6.0	<0.50	6.2	<0.50	<5.0
	1/15/2003	18.72	7.25	250	750	13	<0.50	<0.50	<0.50	78
	4/17/2003	18.54	7.43	120	180	<0.50	<0.50	<0.50	<1.0	8.1
	7/17/2003	17.08	8.89	400	640	10	<0.50	<0.50	<1.0	27
	11/21/2003	16.56	9.41	1,100	980	2.2	0.62	<0.50	1.1	54
	3/23/2004	18.38	7.59	350	660	0.81	<0.50	<0.50	<1.0	7.7
	6/9/2004	17.22	8.75	1,300	1,000	8.9	0.55	<0.50	<1.0	28
	5/7/2008	17.75	8.22	--	270	1.7	3.6	<0.5	0.77	<5.0
MW-3 (26.52)	7/6/1998	18.10	8.42	<100	36,000	6,700	72	6.2	530	13,000
	9/10/2000	--	--	4,200	20,000	9,200	70	710	79	6,400
	4/10/2001	18.79	7.73	--	15,000	4,500	27	320	140	8,800
	7/17/2001	18.10	8.42	8,000	28,000	7,000	<50	270	75	15,000
	1/15/2003	18.92	7.60	11,000	40,000	10,000	110	680	210	20,000
	4/17/2003	18.45	8.07	3,200	39,000	11,000	<100	870	<200	34,000
	7/17/2003	17.45	9.07	5,100	58,000	16,000	<250	850	<500	28,000
	11/21/2003	16.79	9.73	7,500	80,000	15,000	<200	1,300	<400	27,000
	3/23/2004	18.67	7.85	12,000	41,000	12,000	130	1,100	<200	27,000
	6/9/2004	17.52	9.00	13,000	50,000	16,000	<250	1,200	<500	32,000
	5/7/2008	18.02	8.50	--	35,000	8,300	74	140	28	20,000
Grab Groundwater Sampling										
B9-W	8/6/2003	--	--	8,600	27,000	3,100	210	1,600	780	96
B10-W	8/6/2003	--	--	840,000	130,000	15,000	<250	5,200	5,100	40,000
B13-W	8/6/2003	--	--	1,700	4,100	25	<2.5	21	<5.0	28
B16-W	8/6/2003	--	--	18,000,000	180,000	99	<50	<50	<100	7,000

Abbreviations:

μg/L = Micrograms per liter [commonly referred to as parts per billion (ppb)].

TPHd = Total petroleum hydrocarbons as diesel by EPA Method 8260B.

TPHg = Total petroleum hydrocarbons as gasoline by EPA Method 8260B on and prior to 6/9/2004, and by EPA Method 8015Cm thereafter.

BTEX = Benzene, toluene, ethylbenzene, xylenes by EPA Method 8260B on and prior to 6/9/2004, and by EPA Method 8021B thereafter.

MTBE = Methyl tert butyl ether by EPA Method 8260B on and prior to 6/9/2004, and by EPA Method 8021B thereafter.

APPENDIX A

Groundwater Monitoring Field Data Sheets

Well Gauging Data Sheet

Project.Task #: 1260.001.215				Project Name: Engineer - Oakland			
Address: 3820 San Leandro St., Oakland, CA						Date: 5/7/2008	
Name: Morgan Gillies				Signature: <i>[Signature]</i>			
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	2	1037	—		7.91	19.90	N side TOC
MW-2	2	1041	—		8.22	19.90	↓
MW-3	2	1045	—		8.50	19.45	
BW-1	4	1049	—		8.13	12.35	

Comments: Well caps removed 15 min prior to measuring water level.

MONITORING FIELD DATA SHEET

Well ID: *MW-1*

Project.Task #: 1260.001.215 Project Name: Engineer - Oakland

Address: 3820 San Leandro St., Oakland, CA

Date: 5/7/2008

Weather: *Partly Cloudy, Cool*

Well Diameter: *2*

Volume/ft.	1" = 0.04	3" = 0.37	6" = 1.47
	2" = 0.16	4" = 0.65	radius ² * 0.163

Total Depth (TD): *19.90*

Depth to Product: *—*

Depth to Water (DTW): *7.91*

Product Thickness: *—*

Water Column Height: *11.99*

1 Casing Volume: *1.9* gallons

Reference Point: *N TOC*

3 Casing Volumes: *5.7* gallons

Purging Device: Disposable Bailer

Sampling Device: Disposable Bailer

Time	Temp ©	pH	Cond (µs)	NTU	DO(mg/L)	ORP (mV)	Vol(gal)	DTW
<i>1121</i>	<i>21.0</i>	<i>6.9</i>	<i>745</i>	<i>Cloudy</i>	<i>—</i>	<i>—</i>	<i>2.0</i>	
<i>1124</i>	<i>20.5</i>	<i>7.0</i>	<i>733</i>	<i>"</i>	<i>—</i>	<i>—</i>	<i>4.0</i>	
<i>1127</i>	<i>20.5</i>	<i>7.0</i>	<i>729</i>	<i>"</i>	<i>—</i>	<i>—</i>	<i>6.0</i>	

Comments:

Sample ID: <i>MW-1</i>	Sample Time: <i>1130</i>
Laboratory: McCampbell	Sample Date: 5/7/2008
Containers/Preservative: 3 HCl Voas	
Analyzed for: TPHg, BTEX and MTBE by 8015Cm/8021B	
Sampler Name: Morgan Gillies	Signature: <i>[Signature]</i>

MONITORING FIELD DATA SHEET

Well ID: *MW-2*

Project.Task #: 1260.001.215				Project Name: Engineer - Oakland				
Address: 3820 San Leandro St., Oakland, CA								
Date: 5/7/2008				Weather: <i>Partly Cloudy, Cool</i>				
Well Diameter: <i>2</i>				Volume/ft.	1" = 0.04	3" = 0.37	6" = 1.47	
				2" = 0.16	4" = 0.65	radius ² * 0.163		
Total Depth (TD): <i>19.90</i>				Depth to Product: <i>—</i>				
Depth to Water (DTW): <i>8.22</i>				Product Thickness: <i>—</i>				
Water Column Height: <i>11.68</i>				1 Casing Volume: <i>1.9</i>		gallons		
Reference Point: <i>N TOC</i>				3 Casing Volumes: <i>5.7</i>		gallons		
Purging Device: Disposable Bailer								
Sampling Device: Disposable Bailer								
Time	Temp ©	pH	Cond (µs)	NTU	DO(mg/L)	ORP (mV)	Vol(gal)	DTW
<i>1155</i>	<i>18.8</i>	<i>7.0</i>	<i>832</i>	<i>Grey</i>	<i>—</i>	<i>—</i>	<i>2.0</i>	
<i>1158</i>	<i>18.5</i>	<i>6.9</i>	<i>835</i>	<i>"</i>	<i>—</i>	<i>—</i>	<i>4.0</i>	
<i>1201</i>	<i>18.4</i>	<i>7.0</i>	<i>833</i>	<i>"</i>	<i>—</i>	<i>—</i>	<i>6.0</i>	

Comments: *Hydrocarbon odor*

Sample ID: <i>MW-2</i>		Sample Time: <i>1205</i>	
Laboratory: McCampbell		Sample Date: 5/7/2008	
Containers/Preservative: 3 HCl Voas			
Analyzed for: TPHg, BTEX and MTBE by 8015Cm/8021B			
Sampler Name: Morgan Gillies		Signature: <i>[Signature]</i>	

MONITORING FIELD DATA SHEET

Well ID: *MW-3*

Project.Task #: 1260.001.215				Project Name: Engineer - Oakland				
Address: 3820 San Leandro St., Oakland, CA								
Date: 5/7/2008				Weather: <i>Partly Cloudy, Cool</i>				
Well Diameter: <i>2</i>				Volume/ft.	1" = 0.04	3" = 0.37	6" = 1.47	
				2" = 0.16	4" = 0.65	radius ² * 0.163		
Total Depth (TD): <i>19.45</i>				Depth to Product: <i>—</i>				
Depth to Water (DTW): <i>8.50</i>				Product Thickness: <i>—</i>				
Water Column Height: <i>10.95</i>				1 Casing Volume: <i>1.8</i>		gallons		
Reference Point: <i>N TOC</i>				3 Casing Volumes: <i>5.4</i>		gallons		
Purging Device: Disposable Bailer								
Sampling Device: Disposable Bailer								
Time	Temp ©	pH	Cond (µs)	NTU	DO(mg/L)	ORP (mV)	Vol(gal)	DTW
<i>1227</i>	<i>19.4</i>	<i>6.7</i>	<i>1490</i>	<i>Cloudy</i>	<i>—</i>	<i>—</i>	<i>2.0</i>	
<i>1230</i>	<i>19.6</i>	<i>6.8</i>	<i>1489</i>	<i>"</i>	<i>—</i>	<i>—</i>	<i>3.5</i>	
<i>1232</i>	<i>19.6</i>	<i>6.8</i>	<i>1485</i>	<i>"</i>	<i>—</i>	<i>—</i>	<i>5.5</i>	

Comments: *Hydrocarbon odor, sheen*

Sample ID: <i>MW-3</i>	Sample Time: <i>1255</i>
Laboratory: McCampbell	Sample Date: 5/7/2008
Containers/Preservative: 3 HCl Voas	
Analyzed for: TPHg, BTEX and MTBE by 8015Cm/8021B	
Sampler Name: Morgan Gillies	Signature: <i>[Signature]</i>

MONITORING FIELD DATA SHEET

Well ID: *BW-1*

Project.Task #: 1260.001.215				Project Name: Engineer - Oakland				
Address: 3820 San Leandro St., Oakland, CA								
Date: 5/7/2008				Weather: <i>Partly Cloudy, Cool</i>				
Well Diameter: <i>4</i>				Volume/ft.	1" = 0.04	3" = 0.37	6" = 1.47	
				2" = 0.16	4" = 0.65	radius ² * 0.163		
Total Depth (TD): <i>12.35</i>				Depth to Product: <i>—</i>				
Depth to Water (DTW): <i>8.13</i>				Product Thickness: <i>—</i>				
Water Column Height: <i>4.22</i>				1 Casing Volume: <i>2.7</i>		gallons		
Reference Point: <i>N TOC</i>				<i>3</i> Casing Volumes: <i>8.1</i>		gallons		
Purging Device: Disposable Bailer								
Sampling Device: Disposable Bailer								
Time	Temp ©	pH	Cond (µs)	NTU	DO(mg/L)	ORP (mV)	Vol(gal)	DTW
<i>1303</i>	<i>19.5</i>	<i>7.1</i>	<i>616</i>	<i>Clear</i>	<i>—</i>	<i>—</i>	<i>3.0</i>	
<i>1308</i>	<i>19.6</i>	<i>6.9</i>	<i>586</i>	<i>"</i>	<i>—</i>	<i>—</i>	<i>6.0</i>	
<i>1313</i>	<i>19.6</i>	<i>6.9</i>	<i>580</i>	<i>"</i>	<i>—</i>	<i>—</i>	<i>8.5</i>	

Comments:

Sample ID: <i>BW-1</i>		Sample Time: <i>1320</i>	
Laboratory: McCampbell		Sample Date: 5/7/2008	
Containers/Preservative: 3 HCl Voas			
Analyzed for: TPHg, BTEX and MTBE by 8015Cm/8021B			
Sampler Name: Morgan Gillies		Signature: <i>[Signature]</i>	

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: # 1260.001;Engineer-Oakland	Date Sampled: 05/07/08
	Client Contact: Morgan Gillies	Date Received: 05/08/08
	Client P.O.:	Date Reported: 05/14/08
		Date Completed: 05/14/08

WorkOrder: 0805223

May 14, 2008

Dear Morgan:

Enclosed within are:

- 1) The results of the **4** analyzed samples from your project: **# 1260.001;Engineer-Oakland,**
- 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.

0805223

McCAMPBELL ANALYTICAL, INC.

1534 Willow Pass Road
Pittsburg, CA 94565

Website: www.mccampbell.com Email: main@mccampbell.com

Telephone: (925) 252-9262 Fax: (925) 252-9269

CHAIN OF CUSTODY RECORD

TURN AROUND TIME

RUSH 24 HR 48 HR 72 HR 5 DAY

EDF Required? Coelt (Normal) No Write On (DW) No

Report To: Morgan Gillies Bill To: Pangea
Company: Pangea Environmental Services, Inc.
1710 Franklin Street, Suite 200, Oakland, CA 94612
E-Mail: mgillies@pangeaenv.com
Tele: (510) 836-3702 Fax: (510) 836-3709
Project #: 1260.001 Project Name: Engineer - Oakland
Project Location: 3820 San Leandro St., Oakland, CA
Sampler Signature: *[Signature]*

Analysis Request Other Comments

SAMPLE ID (Field Point Name)	LOCATION	SAMPLING		# Containers	Type Containers	MATRIX					METHOD PRESERVED				BTEX & TPH as Gas (602/8020 + 8015)/MTBE	TPH as Diesel (8015)	Total Petroleum Oil & Grease (5520 E&F/B&F)	Total Petroleum Hydrocarbons (418.1)	EPA 601 / 8010 / 8021	BTEX ONLY (EPA 602 / 8020)	EPA 608 / 8081	EPA 608 / 8082 PCB's ONLY	EPA 8140 / 8141	EPA 8150 / 8151	EPA 524.2 / 624 / 8260	EPA 525 / 625 / 8270	PAH's / PNA's by EPA 625 / 8270 / 8310	CAM-17 Metals (6010 / 6020)	LUFT 5 Metals (6010 / 6020)	Lead (200.8 / 200.9 / 6010)	Filter Samples for Metals analysis: Yes / No			
		Date	Time			Water	Soil	Air	Sludge	Other	ICE	HCL	HNO ₃	Other																				
MW-1		5/7/08	1130	3	HELL VIAL	X					X	X	X																					
MW-2			1205			X					X	X	X																					
MW-3			1255			X					X	X	X																					
BW-1			1320			X					X	X	X																					

Relinquished By: *[Signature]* Date: 5/8/08 Time: 1501 Received By: *[Signature]*
Relinquished By: *[Signature]* Date: 5/8/08 Time: 630 Received By: H. Burks
Relinquished By: _____ Date: _____ Time: _____ Received By: _____

ICE/°S: 5.0
GOOD CONDITION ✓
HEAD SPACE ABSENT ✓
DECHLORINATED IN LAB ✓
APPROPRIATE CONTAINERS ✓
PRESERVED IN LAB ✓
VOAS O&G METALS OTHER
PRESERVATION pH<2

+
+
+
+

McC Campbell Analytical, Inc.



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

CHAIN-OF-CUSTODY RECORD

WorkOrder: 0805223

ClientCode: PEO

WriteOn
 EDF
 Excel
 Fax
 Email
 HardCopy
 ThirdParty
 J-flag

Report to:		Bill to:	Requested TAT: 5 days
Morgan Gillies	Email: mgillies@pangeaenv.com	Bob Clark-Riddell	
Pangea Environmental Svcs., Inc.	cc:	Pangea Environmental Svcs., Inc.	<i>Date Received: 05/08/2008</i>
1710 Franklin Street, Ste. 200	PO:	1710 Franklin Street, Ste. 200	<i>Date Printed: 05/08/2008</i>
Oakland, CA 94612	ProjectNo: # 1260.001;Engineer-Oakland	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	
0805223-001	MW-1	Water	5/7/2008 11:30	<input type="checkbox"/>	A	A											
0805223-002	MW-2	Water	5/7/2008 12:05	<input type="checkbox"/>	A												
0805223-003	MW-3	Water	5/7/2008 12:55	<input type="checkbox"/>	A												
0805223-004	BW-1	Water	5/7/2008 13:20	<input type="checkbox"/>	A												

Test Legend:

1	G-MBTX_W	2	PREDF REPORT	3		4		5	
6		7		8		9		10	
11		12							

Prepared by: Kimberly Burks

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.**

Date and Time Received: **5/8/2008 6:38:35 PM**

Project Name: **# 1260.001; Engineer-Oakland**

Checklist completed and reviewed by: **Kimberly Burks**

WorkOrder N°: **0805223** 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: 5°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: # 1260.001;Engineer-Oakland	Date Sampled: 05/07/08
		Date Received: 05/08/08
	Client Contact: Morgan Gillies	Date Extracted: 05/12/08-05/14/08
	Client P.O.:	Date Analyzed 05/12/08-05/14/08

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

Extraction method SW5030B

Analytical methods SW8021B/8015Cm

Work Order: 0805223

Lab ID	Client ID	Matrix	TPH(g)	MTBE	Benzene	Toluene	Ethylbenzene	Xylenes	DF	% SS
001A	MW-1	W	ND	7.5	ND	ND	ND	ND	1	93
002A	MW-2	W	270,a	ND	1.7	3.6	ND	0.77	1	101
003A	MW-3	W	35,000,a,h	20,000	8300	74	140	28	50	96
004A	BW-1	W	1000,a	ND<60	53	5.5	ND	1.1	1	115

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	1	µg/L
	S	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.



QC SUMMARY REPORT FOR SW8021B/8015Cm

W.O. Sample Matrix: Water

QC Matrix: Water

WorkOrder: 0805223

EPA Method SW8021B/8015Cm	Extraction SW5030B			BatchID: 35496			Spiked Sample ID: 0805214-010B					
	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) [£]	780	60	130	120	2.77	71.5	79.9	11.1	70 - 130	20	70 - 130	20
MTBE	490	10	NR	NR	NR	107	111	3.45	70 - 130	20	70 - 130	20
Benzene	4.1	10	96	94.3	1.64	95.6	95	0.586	70 - 130	20	70 - 130	20
Toluene	5.0	10	96.8	94.3	2.34	93.5	93	0.513	70 - 130	20	70 - 130	20
Ethylbenzene	250	10	83.7	74.2	1.61	91.5	89.8	1.89	70 - 130	20	70 - 130	20
Xylenes	240	30	97.6	94.1	1.35	81.3	79	2.97	70 - 130	20	70 - 130	20
%SS:	104	10	110	109	0.903	108	104	3.90	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 35496 SUMMARY

Lab ID	Date Sampled	Date Extracted	Date Analyzed	Lab ID	Date Sampled	Date Extracted	Date Analyzed
0805223-001A	05/07/08 11:30 AM	05/14/08	05/14/08 4:45 AM	0805223-002A	05/07/08 12:05 PM	05/13/08	05/13/08 10:32 PM
0805223-003A	05/07/08 12:55 PM	05/12/08	05/12/08 4:14 PM	0805223-004A	05/07/08 1:20 PM	05/12/08	05/12/08 9:26 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.