## RECEIVED

By dehloptoxic at 8:47 am, Jan 19, 2007



76 Broadway Sacramento, California 95818

January 16, 2007

Mr. Don Hwang Alameda County Health Agency 1131 Harbor Bay Parkway Alameda, California 94502

Re:

Report Transmittal Quarterly Report Fourth Quarter – 2006 76 Service Station #6129 3420 35<sup>th</sup> Avenue Oakland, CA

Dear Mr. Hwang:

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

If you have any questions or need additional information, please contact

Shelby S. Lathrop (Contractor) ConocoPhillips Risk Management & Remediation 76 Broadway Sacramento, CA 95818 Phone: 916-558-7609

Phone: 916-558-7609 Fax: 916-558-7639

Sincerely,

Thomas Kosel

Risk Management & Remediation

me H. Koal

Attachment

January 16, 2007

Mr. Donald Hwang Alameda County Health Agency 1131 Harbor Bay Parkway, Suite 250 Alameda, California 94502

Re: Quarterly Summary Report – Fourth Quarter 2006

And Sensitive Receptor Survey

Delta Project Number: C106129031

Dear Mr. Hwang:

On behalf of ConocoPhillips (COP), Delta Consultants (Delta) is forwarding the quarterly summary report for the following location:

### **Service Station**

### **Location**

76 Service Station No. 6129

3420 35<sup>th</sup> Avenue Oakland, California

> DENNIS SHANNON DETTLOFF No. 7480

> > OF CALL

Sincerely,

**Delta Consultants** 

Ben Wright Staff Geologist

Dennis S. Dettloff, P.G. Senior Project Manager

California Registered Professional Geologist No. 7480

cc: Ms. Shelby Lathrop, ConocoPhillips (electronic copy)

QUARTERLY SUMMARY REPORT Sensitive Receptor Survey Fourth Quarter 2006 76 Service Station No. 6129 3420 35<sup>th</sup> Avenue Oakland, California

### **PREVIOUS ASSESSMENT**

According to Kaprealian Engineering, Inc. (KEI), in 1989 two 10,000-gallon gasoline underground storage tanks (USTs) and one 550-gallon waste oil UST were removed from the site. Analytical data from soil samples collected beneath the former gasoline USTs, used-oil UST, and product piping indicated that low concentrations of petroleum hydrocarbons were present in each of the sampling areas. Three groundwater monitoring wells (MW-1 through MW-3) were constructed in 1989 to depths of approximately 44 feet below ground surface (bgs).

In 1990, four soil borings (EB1 through EB4) were advanced at the site in the vicinity of MW-3 in an attempt to define the hydrocarbon impact to soil. Based on the results of the soil sampling, approximately 230 cubic yards of soil were excavated from an area between the dispenser islands and around well MW-3 in 1991. The excavation was completed as to not destroy well MW-3. Analytical data from confirmation soil samples indicated that the majority of the impacted soil had been removed.

On November 12 and 13, 2003, as part of a due diligence investigation, four soil borings (SB-1 and SB-3 through SB-5) were advanced to total depths of approximately 31.5 to 36.5 feet bgs. Proposed boring SB-2 was unable to be advanced due to the presence of subsurface utilities and/or structures. Groundwater was encountered in the borings at a depth of approximately 35 feet bgs. Methyl tertiary butyl ether (MTBE) was reported at concentrations ranging from 0.37 to 0.41 milligrams per kilogram (mg/kg) in the soil samples collected at depths between 26 and 31 feet bgs. All other constituents were reported below the laboratory reporting limit for the soil samples analyzed. The three existing groundwater monitoring wells were sampled on November 13, 2003. Analytical data indicated that MTBE was present at concentrations ranging from 240 and 3,700 micrograms per liter ( $\mu$ g/L), with the most elevated concentrations found in monitoring wells MW-2 (2,100  $\mu$ g/L) and MW-3 (3,700  $\mu$ g/L).

### **SENSITIVE RECEPTORS**

2004 - A 1,000-foot radius well search was completed by the request of the Alameda County Public Works Agency (ACPWA). The search indicated that a six-inch diameter irrigation well was located at 3397 Arkansas Street, approximately 800 feet west-northwest of the site. The well was drilled in August 1977 to total depth 62 feet bgs with depth to water reported at 18 feet bgs. Alameda County Health Care Services update of July 30, 1984 reported the well owner as Arthur Smith.

2006 – A survey entailing a visit to the DWR office in Sacramento was conducted to examine well log records and to identify domestic wells within the survey area. The DWR survey provided three potential receptors within one mile of the site; two irrigation wells located 0.5 mile and 0.8 mile north of the site and one

### Quarterly Summary Report – Fourth Quarter 2006 Sensitive Receptor Survey

76 Service Station No. 6129

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domestic/irrigation well located 0.8 mile northeast of the site. Two additional potential receptors were identified although the specific addresses could not be located.

The 2006 sensitive receptor survey data are presented in Attachment A.

### MONITORING AND SAMPLING

Groundwater monitoring and sampling activities were conducted at the site from January 1990 through May 1991. Sampling activities were re-initiated during the third quarter 2004. The monitoring well network is currently sampled on a quarterly basis.

During the most recent groundwater monitoring event, conducted on December 14, 2006, depths to groundwater ranged from 28.62 feet (MW-3) to 29.49 feet (MW-1) below top of casing (TOC). The groundwater flow direction was southwest at a gradient of 0.01 foot per foot (ft/ft), consistent with historic events. Historic groundwater flow directions presented as a rose diagram is included as Attachment B.

During the December 2006 groundwater sampling event, maximum detectable hydrocarbon concentrations were as follows: total petroleum hydrocarbons as gasoline (TPH-G) (520  $\mu$ g/L in MW-2) and MTBE (1,300  $\mu$ g/L in MW-3). Analytical data from the groundwater samples collected during this quarterly groundwater sampling event indicated that benzene was not present above the laboratories' indicated reporting limits. However, the reporting limit for benzene in the sample collected from monitoring well MW-3 was elevated (<10  $\mu$ g/L).

### **REMEDIATION STATUS**

Remediation is not currently being conducted at the site.

### **CHARACTERIZATION STATUS**

MTBE in soil and groundwater are above environmental screening levels (ESLs). ESLs are considered to be conservative and to not pose a significant long term threat to human health and the environment.

### RECENT CORRESPONDENCE

No recent correspondence was documented during this reporting period.

### THIS QUARTER ACTIVITIES (Fourth Quarter 2006)

- 1. TRC conducted the quarterly monitoring and sampling event at the site.
- 2. Delta completed an assessment to delineate petroleum hydrocarbons in soil and groundwater at the site

### Quarterly Summary Report – Fourth Quarter 2006 Sensitive Receptor Survey

76 Service Station No. 6129

Page 4

### **WASTE DISPOSAL SUMMARY**

In 1991, based on the analytical results of soil samples from borings EB1 through EB4, approximately 230 cubic yards of soil were excavated from the area between the dispensers and the pump islands in the area around MW-3.

Thirty three (33) drums of nonhazardous soil and water produced during recent field activities were transported off-site for disposal on 10/19/06 and 12/29/06.

### **NEXT QUARTER ACTIVITIES (First Quarter 2007)**

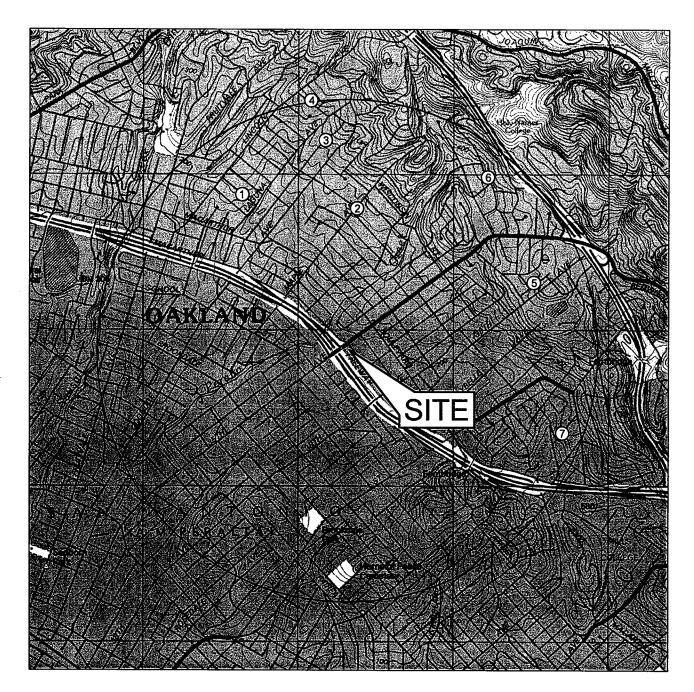
- 1. TRC will conduct the quarterly groundwater monitoring and sampling event at the site.
- 2. Delta will submit a complete assessment report incorporating the data presented in the interim report dated December 7, 2006 and data from the more recent soil and groundwater assessment.

**CONSULTANT:** Delta Consultants

Attachment A - Sensitive Receptor Survey Data

Attachment B - Historic Groundwater Flow Directions

Attachment A
Sensitive Receptor Survey Data



0 1000 FT 2000 FI

SCALE: 1 : 24,000





### FIGURE 1

SITE LOCATOR SENSITIVE RECEPTOR MAP

76 STATION NO. 6129 3420 35th AVENUE OAKLAND, CA

PROJECT NO. C106-129	DRAWN BY JH 12/12/06
FILE NO.	PREPARED BY JH
REVISION NO.	REVIEWED BY



SOURCE: USGS 7.5 MINUTE TOPOGRAPHIC MAP, OAKLAND EAST QUADRANGLE, 1983

Table 1 One-Mile Agency Receptor Survey ConocoPhillips Station No.6129 3420 35th Avenue, Oakland, California

	DWR <sup>1</sup> Well No.	Address	City	State	Zip	Owner	Well Type	Distance from Site (miles)	Direction Relative to Site
1-	1S/3W- 32H1	Scenic Ave. at Laguna Ave.	Oakland	CA		PG&E	Cathodic protection	0.7	NW
2-	1S/3W-33L1	3062 Arizona St.	Oakland	CA	94602	Steven C. Olsen	Irrigation	0.5	N
3-	1S/3W-33E2	4010 Coolidge Ave.	Oakland	CA		Herman Volz	Irrigation	0.8	N
4-	1S/3W-33D80	Alida St., 35' south of Lincoln Ave	Oakland	CA		PG&E	Cathodic protection	1.0	NW
5-	1S/3W-33R1	Monterey Blvd. west of Dunsmuir Ave	Oakland	CA		PG&E	Cathodic protection	0.8	NE
6-	1S/3W-33G1	4374 Norton Ave	Oakland	CA		Zeber Zel	Domestic/Irrigation	0.8	NE
7-	2S/3W-3E1	Steele St. 160' east of Enos Ave	Oakland	CA		PG&E	Cathodic protection	0.9	SE
<sup>2</sup> 8-	1S/3W-33F1	2051 W?	Oakland	CA					
<sup>2</sup> 9-	2S/3W-3N?	Mills College on 64th Ave	Oakland	CA					

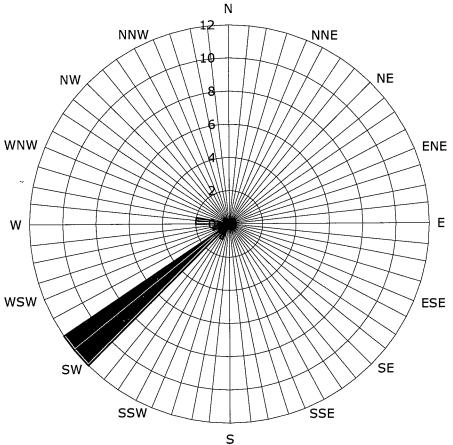
DWR: Department of Water Resources

<sup>&</sup>lt;sup>1</sup>Well Locations shown on Figure 1. <sup>2</sup>Specific address cannot be located on map.

# Attachment B Historic Groundwater Flow Directions

### Historic Groundwater Flow Directions ConocoPhillips Site No. 6129

3420 35th Avenue Oakland, California



■ Groundwater Flow Direction

Legend
Concentric circles represent
quarterly montoring events
First Quarter 1990 through Fourth
Quarter 2006
16 data points shown



January 8, 2007

ConocoPhillips Company 76 Broadway Sacramento, CA 94563

ATTN:

MR. THOMAS KOSEL

SITE:

76 STATION 6129 3420 35<sup>TH</sup> AVENUE

OAKLAND, CALIFORNIA

RE:

QUARTERLY MONITORING REPORT OCTOBER THROUGH DECEMBER 2006

Dear Mr. Kosel:

Please find enclosed our Quarterly Monitoring Report for 76 Station 6129, located at 3420 35<sup>th</sup> Avenue, Oakland, California. If you have any questions regarding this report, please call us at (949) 753-0101.

Sincerely,

**TRC** 

Anju Farfan

QMS Operations Manager

CC: Mr. Dennis Dettloff, Delta Environmental Consultants, Inc. (1 copy)

Enclosures: 20-0400/6129R012.QMS



### QUARTERLY MONITORING REPORT OCTOBER THROUGH DECEMBER 2006

76 STATION 6129 3420 35<sup>th</sup> Avenue Oakland, California

Prepared For:

Mr. Thomas Kosel CONOCOPHILLIPS COMPANY 76 Broadway Sacramento, CA 94563

By:

Senior Project Geologist, Irvine Operations January 3, 2007

	LIST OF ATTACHMENTS									
Summary Sheet	Summary of Gauging and Sampling Activities									
Tables	Table Key									
	Contents of Tables									
	Table 1: Current Fluid Levels and Selected Analytical Results									
	Table 1a: Additional Current Analytical Results									
	Table 2: Historic Fluid Levels and Selected Analytical Results									
	Table 2a: Additional Historic Analytical Results									
Figures	Figure 1: Vicinity Map									
	Figure 2: Groundwater Elevation Contour Map									
	Figure 3: Dissolved-Phase TPH-G (GC/MS) Concentration Man									
	Figure 4: Dissolved-Phase Benzene Concentration Map									
	Figure 5: Dissolved-Phase MTBE Concentration Map									
Graphs	Groundwater Elevations vs. Time									
	Benzene Concentrations vs. Time									
	MTBE 8260B Concentrations vs. Time									
Field Activities	General Field Procedures									
	Field Monitoring Data Sheet – 12/14/06									
<del></del>	Groundwater Sampling Field Notes – 12/14/06									
Laboratory	Official Laboratory Reports									
Reports	Quality Control Reports									
~:	Chain of Custody Records									
Statements	Purge Water Disposal									
	Limitations									

## Summary of Gauging and Sampling Activities October 2006 through December 2006 76 Station 6129 3420 35th Ave.

Oakland, CA

Project Coordinator: Thomas Kosel Telephone: 916-558-7666	Water Sampling Contractor: <i>TRC</i> Compiled by: <b>Daniel Lee</b>						
Date(s) of Gauging/Sampling Event: 12/14/06	James 200						
Sample Points							
Groundwater wells: <b>3</b> onsite, <b>0</b> offsite Purging method: <b>Submersible pump</b>	Wells gauged: 3 Wells sampled: 3						
Purge water disposal: Onyx/Rodeo Unit 100							
Other Sample Points: 0 Type: n/a							
Liquid Phase Hydrocarbons (LPH)							
Wells with LPH: <b>0</b> Maximum thickness (feet): <b>n/</b>	a						
LPH removal frequency: n/a	Method: <b>n/a</b>						
Treatment or disposal of water/LPH: n/a							
Hydrogeologic Parameters							
Depth to groundwater (below TOC): Minimum: 28.  Average groundwater elevation (relative to available local Average change in groundwater elevation since previous Interpreted groundwater gradient and flow direction:  Current event: 0.01 ft/ft, southwest  Previous event: 0.02 ft/ft, southwest (09/15/6)	cal datum): <b>72.39 feet</b> s event: <b>-0.15 feet</b>						
Selected Laboratory Results							
Wells with detected <b>Benzene: 0</b> Wells Maximum reported benzene concentration: <b>n/a</b>	s above MCL (1.0 μg/l): <b>n/a</b>						
Wells with TPH-G by GC/MS 1 Maxi	mum: <b>520 μg/l (MW-2)</b>						
	mum: 1,300 μg/l (MW-3)						
Notes:							

# TABLES

### TABLE KEY

### STANDARD ABBREVIATIONS

= not analyzed, measured, or collected

LPH = liquid-phase hydrocarbons

Trace = less than 0.01 foot of LPH in well

ug/l = micrograms per liter (approx. e3quivalent to parts per billion, ppb)
mg/l = milligrams per liter (approx. equivalent to parts per million, ppm)

ND< = not detected at or above laboratory detection limit TOC = top of casing (surveyed reference elevation)

### **ANALYTES**

BTEX = benzene, toluene, ethylbenzene, and (total) xylenes

DIPE = di-isopropyl ether

ETBE = ethyl tertiary butyl ether

MTBE = methyl tertiary butyl ether

PCB = polychlorinated biphenyls

PCE = tetrachloroethene
TBA = tertiary butyl alcohol
TCA = trichloroethane
TCE = trichloroethene

TPH-G = total petroleum hydrocarbons with gasoline distinction

TPH-G (GC/MS) = total petroleum hydrocarbons with gasoline distinction utilizing EPA Method 8260B

TPH-D = total petroleum hydrocarbons with diesel distinction

TRPH = total recoverable petroleum hydrocarbons

TAME = tertiary amyl methyl ether 1,1-DCA = 1,1-dichloroethane

1,2-DCA = 1,2-dichloroethane (same as EDC, ethylene dichloride)

1,1-DCE = 1,1-dichloroethene

1,2-DCE = 1,2-dichloroethene (cis- and trans-)

### **NOTES**

- 1. Elevations are in feet above mean sea level. Depths are in feet below surveyed top-of-casing.
- 2. Groundwater elevations for wells with LPH are calculated as: Surface Elevation Measured Depth to Water + (Dp x LPH Thickness), where Dp is the density of the LPH, if known. A value of 0.75 is used for gasoline and when the density is not known. A value of 0.83 is used for diesel.
- 3. Wells with LPH are generally not sampled for laboratory analysis (see General Field Procedures).
- 4. Comments shown on tables are general. Additional explanations may be included in field notes and laboratory reports, both of which are included as part of this report.
- 5. A "J" flag indicates that a reported analytical result is an estimated concentration value between the method detection limit (MDL) and the practical quantification limit (PQL) specified by the laboratory.
- 6. Other laboratory flags (qualifiers) may have been reported. See the official laboratory report (attached) for a complete list of laboratory flags.
- Concentration graphs based on tables (presented following Figures) show non-detect results prior to the Second
  Quarter 2000 plotted at fixed values for graphical display. Non-detect results reported since that time are plotted at
  reporting limits stated in the official laboratory report.
- 8. Groundwater vs. Time graphs may be corrected for apparent level changes due to re-survey.

#### REFERENCE

TRC began groundwater monitoring and sampling 76 Station 6129 in August 2004.

# **Contents of Tables Site: 76 Station 6129**

Cu	rrent	<b>Event</b>	
vu	IIGIIL		

Table 1	Well/ Date	Depth to Water	LPH Thickness	Ground- water Elevation	Change in Elevation	TPH-G (8015M)	TPH-G (GC/MS)	Benzene	Toluene	Ethyl- benzene	Total Xylenes	MTBE (8260B)	Comm	ents
Table 1a	Well/ Date	TBA	Ethanol (8260B)	Ethylene- dibromide (EDB)	1,2-DCA (EDC)	DIPE	ETBE	TAME						
Historic D	ata													
Table 2	Well/ Date	Depth to Water	LPH Thickness	Ground- water Elevation	Change in Elevation	TPH-G (8015M)	TPH-G (GC/MS)	Benzene	Toluene	Ethyl- benzene	Total Xylenes	MTBE (8260B)	Comme	∍nts
Table 2a	Well/ Date	TBA	Ethanol (8260B)	Ethylene- dibromide (EDB)	1,2-DCA (EDC)	DIPE	ETBE	TAME						

Table 1
CURRENT FLUID LEVELS AND SELECTED ANALYTICAL RESULTS
December 14, 2006
76 Station 6129

Date Sampled	TOC Elevation	Depth to Water	LPH Thickness				TPH-G (GC/MS)	Benzene	Toluene	Ethyl- benzene	Total Xylenes	MTBE (8260B)	Comments
	(feet)	(feet)	(feet)	(feet)	(feet)	(μg/l)	(μg/l)	(μg/l)	(μg/l)	(µg/l)	(μg/l)	(µg/l)	
MW-1											(10)	(F-8 -)	<del></del>
12/14/0	6 102.24	29.49	0.00	72.75	-0.63		ND<50	ND<0.50	ND<0.50	ND<0.50	ND<0.50	3.5	
MW-2													
12/14/06	5 102.16	29.11	0.00	73.05	0.06		520	ND<0.50	ND<0.50	ND<0.50	ND<0.50	770	
MW-3													
12/14/06	5 100.00	28.62	0.00	71.38	0.11		ND<1000	ND<10	ND<10	ND<10	ND<10	1300	

Table 1 a
ADDITIONAL CURRENT ANALYTICAL RESULTS
76 Station 6129

Date Sampled	TBA	Éthanol (8260B)	Ethylene- dibromide (EDB)	1,2-DCA (EDC)	DIPE	ETBE	TAME	
	(μg/l)	(μg/l)	(μg/l)	(μg/l)	(μg/l)	(µg/l)	(μg/l)	
<b>MW-1</b> 12/14/06	ND<10	ND<250	ND<0.50	ND<0.50	ND<0.50	ND<0.50	ND<0.50	
MW-2 12/14/06	27	ND<250	ND<0.50	ND<0.50	20	ND<0.50	ND<0.50	
<b>MW-3</b> 12/14/06	ND<200	ND<5000	ND<10	ND<10	ND<10	ND<10	ND<10	

Table 2
HISTORIC FLUID LEVELS AND SELECTED ANALYTICAL RESULTS
January 1990 Through December 2006
76 Station 6129

Date Sampled	TOC Elevation	Depth to Water	LPH Thickness	Ground- water Elevation	Change in Elevation		TPH-G (GC/MS)	Benzene	Toluene	Ethyl- benzene	Total Xylenes	MTBE (8260B)	Comments
	(feet)	(feet)	(feet)	(feet)	(feet)	(μg/l)	(μg/l)	(µg/l)	(μg/l)	(μg/l)	(μg/l)	(μg/l)	
MW-1											(18.7)	(F-& -)	
01/05/9						ND		ND	ND	ND	ND		
05/11/9	0					ND		ND	7.1	ND	ND		
08/09/9						ND		ND	ND	ND	ND		
11/14/90						ND		ND	ND	ND	ND		
02/12/9	1					ND		0.32	ND	ND	ND		
05/09/9		- <b>-</b>				ND		ND	ND	ND	ND		
11/13/03							180	ND<1.0	ND<1.0	ND<1.0	ND<2.0	240	
08/27/04		30.65	0.00	71.59		<del></del>	ND<50	ND<0.50	ND<0.50	ND<0.50	ND<1.0	ND<0.50	
11/23/04		29.35	0.00	72.89	1.30		ND<50	ND<0.50	ND<0.50	ND<0.50	ND<1.0	ND<0.50	
02/09/05		26.89	0.00	75.35	2.46		ND<50	ND<0.50	ND<0.50	ND<0.50	ND<1.0	9.3	
05/17/05		26.56	0.00	75.68	0.33		ND<50			ND<0.50	ND<1.0	1.9	
07/27/05		27.33	0.00	74.91	-0.77		ND<50	ND<0.50	ND<0.50	ND<0.50	ND<1.0	ND<0.50	
12/06/05		29.59	0.00	72.65	-2.26		ND<50	ND<0.50	0.93	ND<0.50	1.8	ND<0.50	
02/21/06		28.27	0.00	73.97	1.32		ND<50	ND<0.50	ND<0.50	ND<0.50	ND<1.0	2.6	
06/08/06		26.07	0.00	76.17	2.20		ND<50	ND<0.50	ND<0.50	ND<0.50	ND<1.0	11	
09/15/06		28.86	0.00	73.38	<b>-</b> 2.79		ND<50	ND<0.50	ND<0.50	ND<0.50	ND<0.50	1.4	
12/14/06	102.24	29.49	0.00	72.75	-0.63		ND<50			ND<0.50		3.5	
MW-2													
01/05/90						ND		ND	ND	ND	ND		
05/11/90						ND		ND	ND	ND	ND		
08/09/90		==				ND		ND	ND	ND	ND		
11/14/90						ND		ND	ND	ND	ND		
02/12/91						ND		ND	0.42	ND	0.51		

Table 2
HISTORIC FLUID LEVELS AND SELECTED ANALYTICAL RESULTS
January 1990 Through December 2006
76 Station 6129

Date Sampled	TOC Elevation	Depth to Water	LPH Thickness	Ground- water Elevation	Change in Elevation		TPH-G (GC/MS)	Benzene	e Toluene	Ethyl- benzene	Total Xylenes	MTBE (8260B)		Comments
	(feet)	(feet)	(feet)	(feet)	(feet)	(μg/l)	(μg/l)	(μg/l)	(μg/l)	(μg/l)	(µg/l)	(µg/l)		
	continued													
05/09/91						ND		ND	ND	ND	ND			
11/13/03							ND<2000	ND<20	ND<20	ND<20	ND<40	2100		
08/27/04		30.28	0.00	71.88			950	ND<5.0	ND<5.0	ND<5.0	ND<10	1400		
11/23/04		28.75	0.00	73.41	1.53		53	ND<0.50	ND<0.50			4.2		
02/09/05		26.08	0.00	76.08	2.67		ND<500		ND<0.50		ND<1.0	400		
05/17/05		24.53	0.00	77.63	1.55		ND<50		ND<0.50			330		
07/27/05		27.51	0.00	74.65	-2.98		ND<500	ND<5.0	ND<5.0	ND<5.0	ND<10	580		
12/06/05		29.13	0.00	73.03	-1.62		340	ND<0.50	ND<0.50		ND<1.0	780	•	
02/21/06		29.23	0.00	72.93	-0.10		190		ND<0.50		ND<1.0	340		
06/08/06		25.76	0.00	76.40	3.47		ND<500	ND<5.0	ND<5.0	ND<5.0	ND<1.0	440		
09/15/06		29.17	0.00	72.99	-3.41		ND<500	ND<5.0	ND<5.0	ND<5.0	ND<5.0	570		
12/14/06	102.16	29.11	0.00	73.05	0.06		520				ND<0.50			
MW-3									112 10.50	11D <0.50	ND~0.30	770		
01/05/90		~-	0.00			ND		ND	ND	ND	ND			
05/11/90						ND		ND	ND	ND ND	ND	-		,
08/09/90						ND		ND	ND	ND ND	ND			
11/14/90						ND		ND	ND		ND			
02/12/91						ND		ND	ND	ND	ND			
05/09/91	~~					ND		ND	ND	ND	ND		•	
11/13/03							2600	ND<20	ND<20	ND <20	ND			
08/27/04	100.00	29.61	0.00	70.39			1700	ND<10	ND<10	ND<20	ND<40	3700		
11/23/04	100.00	28.48	0.00	71.52	1.13		1500	ND<10		ND<10	ND<20	2600		
02/09/05	100.00	26.45	0.00	73.55	2.03		ND<1000		ND<10	ND<10	ND<20	1800		
05/17/05	100.00	25.61	0.00	74.39	0.84					ND<0.50	ND<1.0	2100		
6129					,		1000 × 1000	Page 2		ND<0.50	ND<1.0	1200		
								rage 2	01.3					

Table 2
HISTORIC FLUID LEVELS AND SELECTED ANALYTICAL RESULTS
January 1990 Through December 2006
76 Station 6129

Date Sampled	TOC Elevation	Depth to Water	LPH Thickness		Change in Elevation		TPH-G (GC/MS)	Benzene	Toluene	Ethyl- benzene	Total Xylenes	MTBE (8260B)	Comments
	(feet)	(feet)	(feet)	(feet)	(feet)	(μg/l)	(μg/l)	(μg/l)	(μg/l)	(µg/l)	(µg/l)	(μg/l)	
MW-3	continued											., 0 /	
07/27/0	5 100.00	27.35	0.00	72.65	-1.74		ND<1000	ND<10	ND<10	ND<10	ND<20	1400	
12/06/0	5 100.00	28.78	0.00	71.22	-1.43		430	ND<0.50	1.6	ND<0.50	3.6	1800	
02/21/0	6 100.00	28.91	0.00	71.09	-0.13					ND<0.50	ND<1.0	1100	
06/08/0	6 100.00	25.97	0.00	74.03	2.94		ND<1200		ND<12				
09/15/0	6 100.00	28.73	0.00	71.27	-2.76					ND<12	ND<25	1000	
12/14/0					-2.70		ND<1200	ND<12	ND<12	ND<12	ND<12	1200	
12/14/0	6 100.00	28.62	0.00	71.38	0.11		ND<1000	ND<10	ND<10	ND<10	ND<10	1300	

Table 2 a
ADDITIONAL HISTORIC ANALYTICAL RESULTS
76 Station 6129

Date Sampled	TBA .	Ethanol (8260B)	Ethylene- dibromide (EDB)	1,2-DCA (EDC)	DIPE	ЕТВЕ	TAME	
<del></del>	(μg/l)	(μg/l)	(μg/l)	(µg/l)	(μg/l)	(μg/l)	(μg/l)	
MW-1								
11/13/03	ND<200	ND<1000	ND<4.0	ND<4.0	ND<4.0	ND<4.0	ND<4.0	
08/27/04	ND<5.0	ND<50	ND<0.50	ND<0.50	ND<1.0	ND<0.50	ND<0.50	
11/23/04	ND<5.0	ND<50	ND<0.50	ND<0.50	ND<1.0	ND<0.50	ND<0.50	
02/09/05	ND<5.0	ND<50	ND<0.50	ND<0.50	ND<0.50	ND<0.50	ND<0.50	
05/17/05	ND<5.0	ND<50	ND<0.50	ND<0.50	ND<0.50	ND<0.50	ND<0.50	
07/27/05	ND<5.0	ND<50	ND<0.50	ND<0.50	ND<0.50	ND<0.50	ND<0.50	
12/06/05	ND<10	ND<250	ND<0.50	ND<0.50	ND<0.50	ND<0.50	ND<0.50	
02/21/06	ND<10	ND<250	ND<0.50	ND<0.50	ND<0.50	ND<0.50	ND<0.50	
06/08/06	ND<10	ND<250	ND<0.50	ND<0.50	ND<0.50	ND<0.50	ND<0.50	
09/15/06	ND<10	ND<250	ND<0.50	ND<0.50	ND<0.50	ND<0.50	ND<0.50	
12/14/06	ND<10	ND<250	ND<0.50	ND<0.50	ND<0.50	ND<0.50	ND<0.50	
MW-2								
11/13/03	ND<4000	ND<20000	ND<80	ND<80	ND<80	ND<80	ND<80	
08/27/04	ND<50	ND<500	ND<5.0	ND<5.0	24	ND<5.0	ND<5.0	
11/23/04	ND<5.0	ND<50	ND<0.50	ND<0.50	18	ND<0.50	ND<0.50	
02/09/05	ND<50	ND<500	ND<5.0	ND<5.0	19	ND<5.0	ND<5.0	
05/17/05	ND<5.0	ND<50	ND<0.50	ND<0.50	12	ND<0.50	ND<0.50	
07/27/05	140	ND<500	ND<5.0	ND<5.0	16	ND<5.0	ND<5.0	
12/06/05	61	ND<250	ND<0.50	ND<0.50	15	ND<0.50	ND<0.50	
02/21/06	ND<10	ND<250	ND<0.50	ND<0.50	18	ND<0.50	ND<0.50	
06/08/06	ND<100	ND<2500	ND<5.0	ND<5.0	14	ND<5.0	ND<5.0	
09/15/06	ND<100	ND<2500	ND<5.0	ND<5.0	17	ND<5.0	ND<5.0	
12/14/06	27	ND<250	ND<0.50	ND<0.50	20	ND<0.50	ND<0.50	
MW-3								
11/13/03	ND<4000	ND<20000	ND<80	ND<80	ND<80	ND<80	ND<80	

Table 2 a
ADDITIONAL HISTORIC ANALYTICAL RESULTS
76 Station 6129

Date Sampled	TBA	Ethanol (8260B)	Ethylene- dibromide (EDB)	1,2-DCA (EDC)	DIPE	ETBE	TAME	
	(μg/l)	(μg/l)	(μg/l)	(μg/l)	(μg/l)	(µg/l)	(µg/l)	
MW-3	continued			<u></u>				
08/27/04	ND<100	ND<1000	ND<10	ND<10	ND<20	ND<10	ND<10	
11/23/04	ND<100	ND<1000	ND<10	ND<10	ND<20	ND<10	ND<10	
02/09/05	130	ND<1000	ND<10	ND<10	ND<10	ND<10	ND<10	
05/17/05	ND<100	ND<1000	ND<10	ND<10	ND<10	ND<10	ND<10	
07/27/05	360	ND<1000	ND<10	ND<10	ND<10	ND<10	ND<10	
12/06/05	160	ND<250	ND<0.50	ND<0.50	ND<0.50	ND<0.50	ND<0.50	
02/21/06	88	ND<250	ND<0.50	ND<0.50	ND<0.50	ND<0.50	0.58	
06/08/06	ND<250	ND<6200	ND<12	ND<12	ND<12	ND<12	ND<12	
09/15/06	ND<250	ND<6200	ND<12	ND<12	ND<12	ND<12	ND<12	
12/14/06	ND<200	ND<5000	ND<10	ND<10	ND<10	ND<10	ND<10	

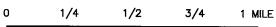


PS = 1:1 L:\ VICINITY MAPS\6129m.dwg Oct 05, 2006 - 11:09am lwinters

SOURCE:

United States Geological Survey 7.5 Minute Topographic Map: Oakland East Quadrangle



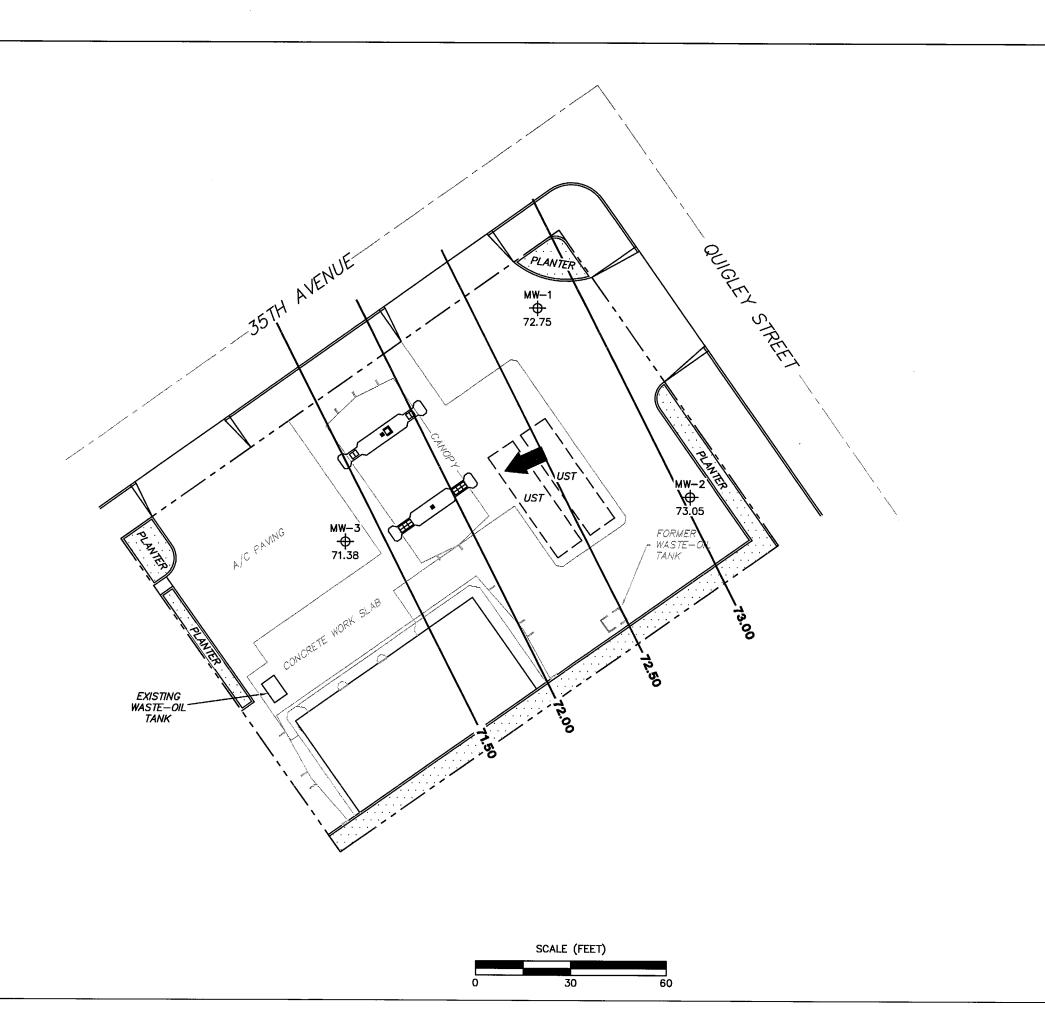


SCALE 1:24,000



**VICINITY MAP** 

76 Station 6129 3420 35th Avenue Oakland, California





MW-3 + Monitoring Well with
Groundwater Elevation (feet)

73.00 — Groundwater Elevation Contour



General Direction of Groundwater Flow

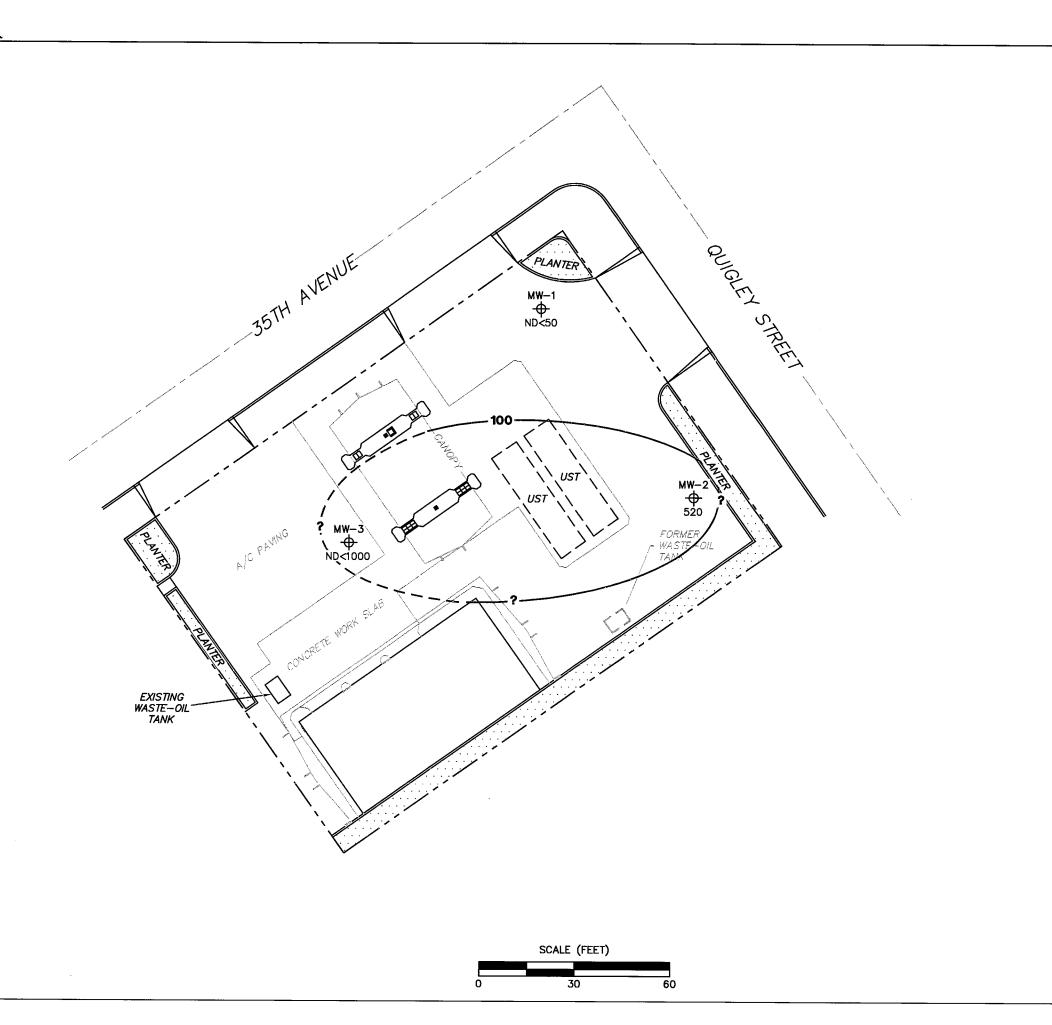
### NOTES:

Contour lines are interpretive and based on fluid levels measured in monitoring wells. Elevations are in feet above mean sea level. UST = underground storage tank.

GROUNDWATER ELEVATION
CONTOUR MAP
December 14, 2006

76 Station 6129 3420 35th Avenue Oakland, California

TRC





MW-3 + Monitoring Well with
Dissolved-Phase TPH-G (GC/MS) Concentration ( $\mu$ g/I)

\_\_\_\_\_\_ Dissolved—Phase TPH—G (GC/MS) Contour (µg/l)

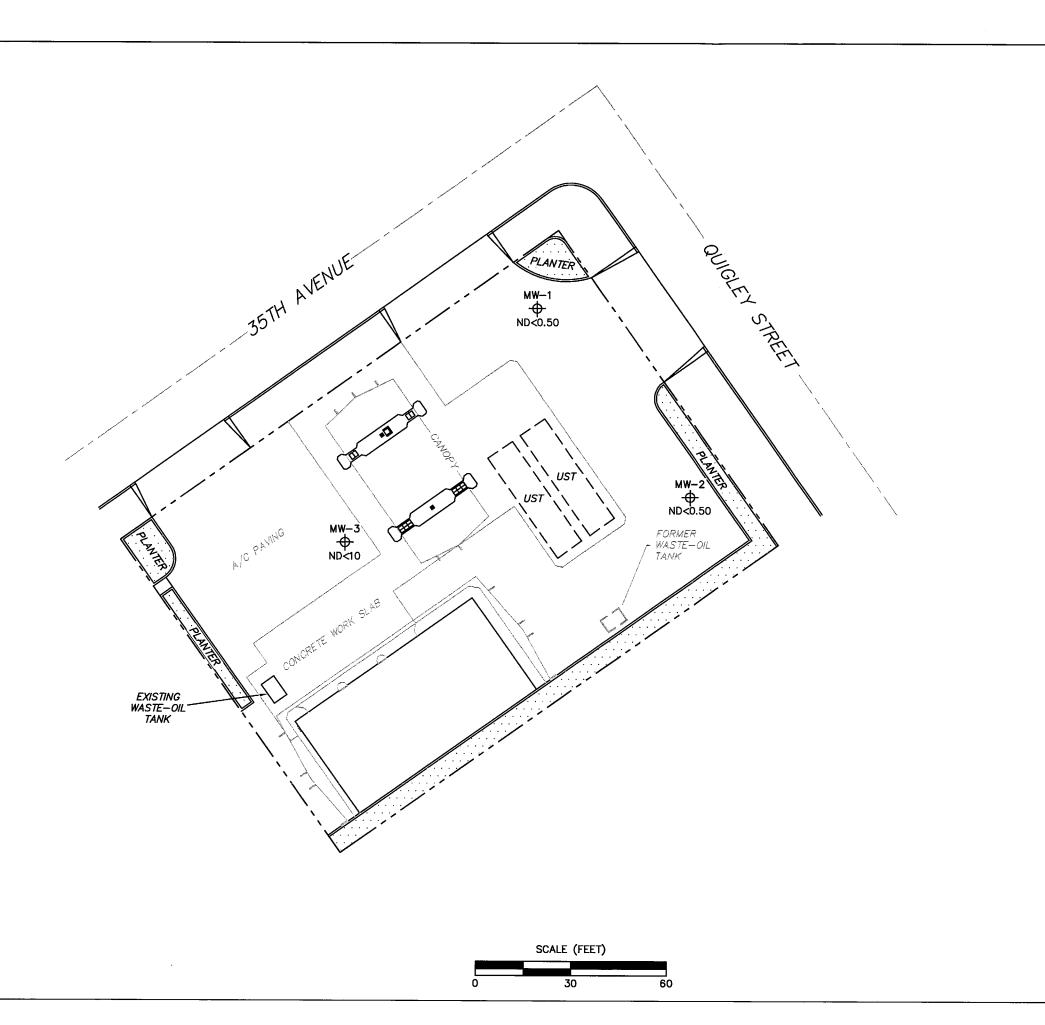
### NOTES:

Contour lines are interpretive and based on laboratory analysis results of groundwater samples. TPH-G (GC/MS) = total petroleum hydrocarbons with gasoline distinction utilizing EPA Method 8260B.  $\mu g/l = \text{micrograms per liter.}$  ND = not detected at limit indicated on official laboratory report. Dashes indicate contour based on non-detect at elevated detection limit. UST = underground storage tank.

> **DISSOLVED-PHASE** TPH-G (GC/MS) **CONCENTRATION MAP** December 14, 2006

76 Station 6129 3420 35th Avenue Oakland, California

TRC





MW-3 + Monitoring Well with
Dissolved-Phase Benzene
Concentration (µg/l)

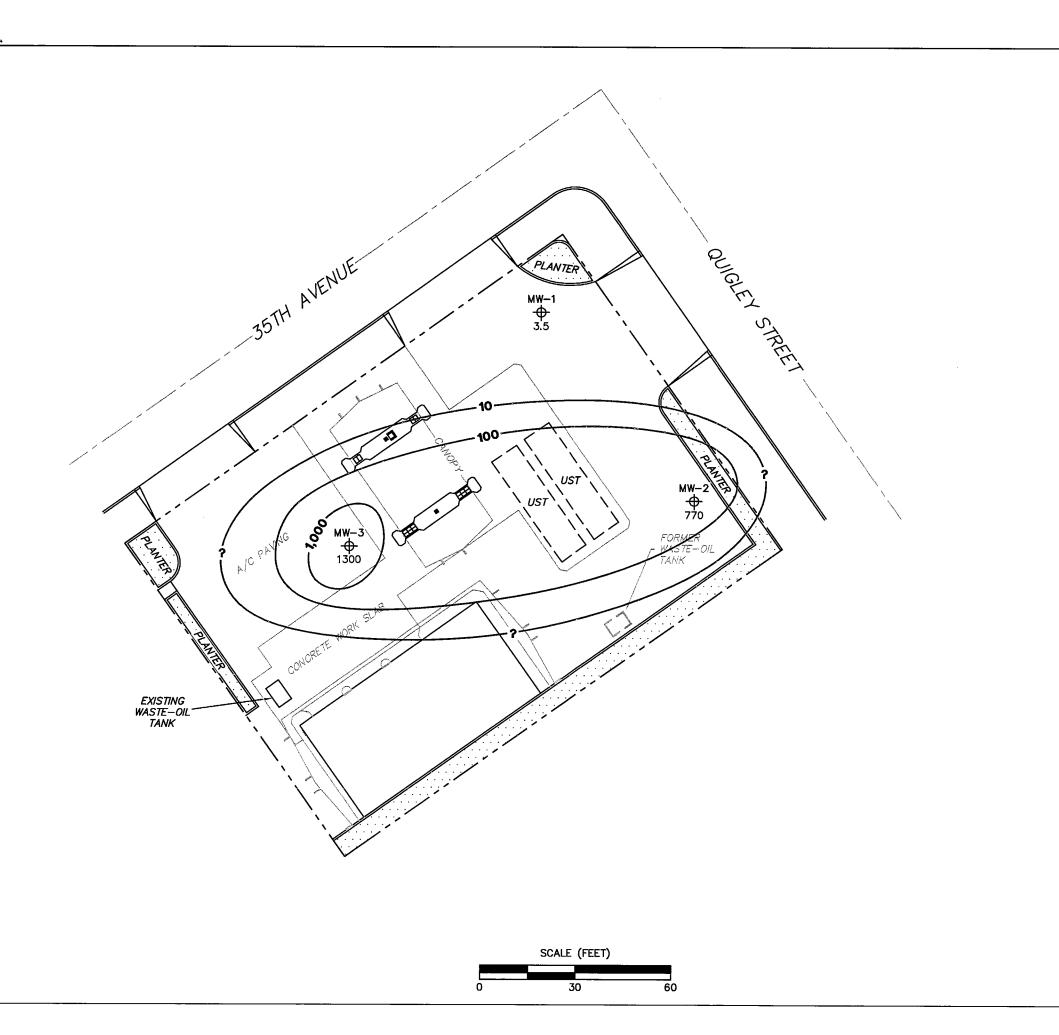
### NOTES:

 $\mu$ g/l = micrograms per liter. ND = not detected at limit indicated on official laboratory report. UST = underground storage tank.

DISSOLVED-PHASE BENZENE CONCENTRATION MAP December 14, 2006

> 76 Station 6129 3420 35th Avenue Oakland, California

TRC





MW-3 Monitoring Well with Dissolved—Phase MTBE Concentration (µg/l)

### NOTES:

Contour lines are interpretive and based on laboratory analysis results of groundwater samples.

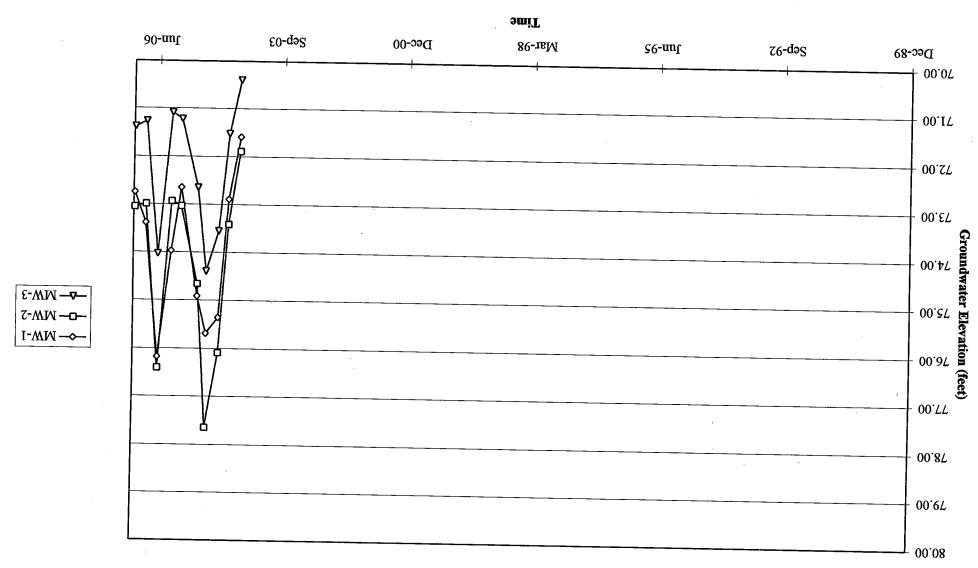
MTBE = methyl tertiary butyl ether. µg/l = micrograms per liter. UST = underground storage tank. Results obtained using EPA Method 8260B.

DISSOLVED-PHASE MTBE CONCENTRATION MAP December 14, 2006

> 76 Station 6129 3420 35th Avenue Oakland, California

TRC

# **GRAPHS**

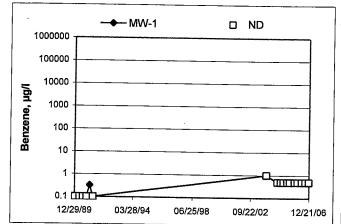


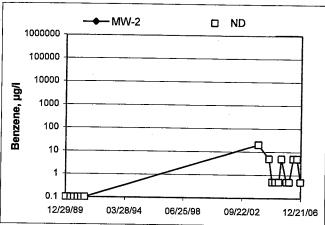
9213 noitst2 37

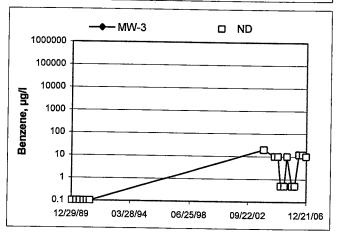
Groundwater Elevations vs. Time

## **Benzene Concentrations vs Time**

76 Station 6129

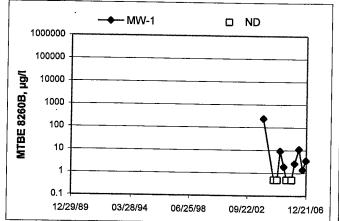


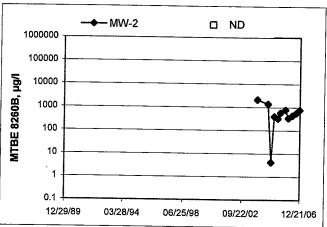


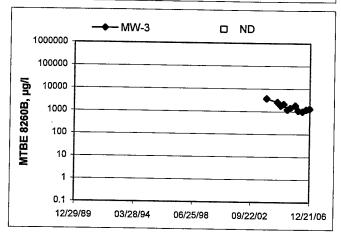


## MTBE 8260B Concentrations vs Time

76 Station 6129







## GENERAL FIELD PROCEDURES

## **Groundwater Monitoring and Sampling Assignments**

For each site, TRC technicians are provided with a Technical Service Request (TSR) that specifies activities required to complete the groundwater monitoring and sampling assignment for the site. TSRs are based on client directives, instructions from the primary environmental consultant for the site, regulatory requirements, and TRC's previous experience with the site.

### Fluid Level Measurements

Initial site activities include determination of well locations based on a site map provided with the TSR. Well boxes are opened and caps are removed. Indications of well or well box damage or of pressure buildup in the well are noted.

Fluid levels in each well are measured using a coated cloth tape equipped with an electronic interface probe, which distinguishes between liquid phase hydrocarbon (LPH) and water. The depth to LPH (if it is present), to water, and to the bottom of the well are measured from the top of the well casing (surveyors mark or notch if present) to the nearest 0.01 foot. Unless otherwise instructed, a well with less than 0.67 foot between the measured top of water and the measured bottom of the well casing is considered dry, and is not sampled. If the well contains 0.67 foot or more of water, an attempt is made to bail and/or sample as specified on the TSR.

Wells that are found to contain LPH are not purged or sampled. Instead, one casing volume of fluid is bailed from the well and the well is re-sealed. Bailed fluids are placed in a container separate from normal purge water, and properly disposed.

## Purging and Groundwater Parameter Measurement

TSR instructions may specify that a well not be purged (no-purge sampling), be purged using low-flow methods, or be purged using conventional pump and/or bail methods. Conventional purging generally consists of pumping or bailing until a minimum of three casing volumes of water have been removed or until the well has been pumped dry. Pumping is generally accomplished using submersible electric or pneumatic diaphragm pumps.

During conventional purging, three groundwater parameters (temperature, pH, and conductivity) are measured after removal of each casing volume. Stabilization of these parameters, to within 10 percent, confirm that sufficient purging has been completed. In some cases, the TSR indicates that other parameters are also to be measured during purging. TRC commonly measures dissolved oxygen (DO), oxidation-reduction potential (ORP), and/or turbidity. Instruments used for groundwater parameter measurements are calibrated daily according to manufacturer's instructions.

Low-flow purging utilizes a bladder or peristaltic pump to remove water from the well at a low rate. Groundwater parameters specified by the TSR are measured continuously until they become stable in general accordance with EPA guidelines.

Purge water is generally collected in labeled drums for disposal. Drums may be left on site for disposal by others, or transported to a collection location for eventual transfer to a licensed treatment or recycling facility. In some cases, purge water may be collected directly from the site by a licensed vacuum truck company, or may be treated on site by an active remediation system, if so directed.

## **Groundwater Sample Collection**

After wells are purged, or not purged, according to TSR instructions, samples are collected for laboratory analysis. For wells that have been purged using conventional pump or bail methods, sampling is conducted after the well has recovered to 80 percent of its original volume or after two hours if the well does not recover to at least 80 percent. If there is insufficient recharge of water in the well after two hours, the well is not sampled.

Samples are collected by lowering a new, disposable, ½-inch to 4-inch polyethylene bottom-fill bailer to just below the water level in the well. The bailer is retrieved and the water sample is carefully transferred to containers specified for the laboratory analytical methods indicated by the TSR. Particular care is given to containers for volatile organic analysis (VOAs) which require filling to zero headspace and fitting with Teflon-sealed caps.

After filling, all containers are labeled with project number (or site number), well designation, sample date, sample time, and the sampler's initials, and placed in an insulated chest with ice. Samples remain chilled prior to and during transport to a state-certified laboratory for analysis. Sample container descriptions and requested analyses are entered onto a chain-of-custody form in order to provide instructions to the laboratory. The chain-of-custody form accompanies the samples during transportation to provide a continuous record of possession from the field to the laboratory. If a freight or overnight carrier transports the samples, the carrier is noted on the form.

For wells that have been purged using low-flow methods, sample containers are filled from the effluent stream of the bladder or peristaltic pump. In some cases, if so specified by the TSR, samples are taken from the sample ports of actively pumping remediation wells.

## Sequence of Gauging, Purging and Sampling

The sequence in which monitoring activities are conducted are specified on the TSR. In general, wells are gauged beginning with the least affected well and ending with the well that has the highest concentration based on previous analytic results. After all gauging for the site is completed, wells are purged and/or sampled from the least-affected to the most-affected well.

### Decontamination

In order to reduce the possibility of cross contamination between wells, strict isolation and decontamination procedures are observed. Portable pumps are not used in wells with LPH. Technicians wear nitrile gloves during all gauging, purging and sampling activities. Gloves are changed between wells and more often if warranted. Any equipment that could come in contact with fluids are either dedicated to a particular wells, decontaminated prior to each use, or discarded after a single use. Decontamination consists of washing in a solution of Liqui-nox and water and rinsing twice. The final rinse is in deionized water.

### **Exceptions**

Additional tasks or non-standard procedures, if any, that may be requested or required for a particular site, and noted on the site TSR, are documented in field notes on the following pages.

1/5/04 version

## **FIELD MONITORING DATA SHEET**

 Technician: JOE
 Job #/Task #: 41060001
 Date: 12-14-06

 Site # 6129
 Project Manager A - Collins
 Page 1 of 1

				Depth	Depth	Product		
384 44 11	Time	700	Total	to	to	Thickness	Time	i <b>ķ</b>
Well #	Gauged		Depth	Water	Product	(feet)	Sampled	Misc. Well Notes
Mw-1	0840			29.49			0925	<b>ン</b>
mw-Z	0845	X	43.56	29.11			0947	
mw-2 mw-3	0851	X	42.60	28.62			1020	2"
				<del>00</del>				
					<del></del>			
	·							
						<i>'</i>		
	-							
FIELD DATA	COMPLE	1 TF	QA/ØC			1		
. /	7 22	•	anyuc		coc	- VV E	ELL ROX CC	ONDITION SHEETS
WTT CERTIF	FICATE	<del></del>	MANIFES	<del></del> Т	DRUM INY	ENTORY	TOAT	EIC CONTROL
					<u> </u>		INAF	FIC CONTROL
		_ :		<del>`</del> _				

## **GROUNDWATER SAMPLING FIELD NOTES**

Technician:	JOE
Site: 6129 Project No.: 4	1060001 Date: 12-14-06
Well No. MW-/	Purge Method: Scuß
Depth to Water (feet): 29.49	Depth to Product (feet):
Total Depth (feet) 43.47	LPH & Water Recovered (gallons):
Water Column (feet): 13.98	Casing Diameter (Inches): 2 //
80% Recharge Depth(feet): 32.28	1 Well Volume (gallons): 2

Staff   Stop   (feet)   (gallons)   (uS/cm)   (F(C)   pH   D.O.   ORP   Turb	Time Start	Time	Depth to Water	Volume Purged	Conduc- tivity	Temperature			<u> </u>	
09/0 2 938.6 18.4 7.05 4 675.3 19.1 7.02 6 771.7 19.2 6.92		Stop			1		рН	D.O.	ORP	Turbidity
0915 4 675.3 19.1 7.02 6.92						18.4	7.05			
6 771.7 19.2 6.92	entre e e e			4	675.3					
		0915		6	771.7	19.2				
CALL ATT O				·			-/-			
Static at Time Sampled Total Gallons Purged Sample Time	Statio	c at Time Sa	mpled	Tota	l Gallons Pur	ged		Sample	Time	
20.20				6	• **			2020		
Comments:	Comments:	:				······································		723		

Well No. Mw-2	Purge Method: 54B
Depth to Water (feet): 29.11  Total Depth (feet) 43.56  Water Column (feet): 14.95  80% Recharge Depth(feet): 32.	Depth to Product (feet):

Time Start	Time Stop	Depth to Water (feet)	Volume Purged (gallons)	Conduc- tivity (uS/cm)	Temperature ( F C	рН	D.O.	ORP	Turbidity
0 135	0937		2 9 6	794.1 799.8 789.7	18.2 18.5 19.0	6.75 6.73 6.69			
Station Statio	c at Time Sa	impled	Tota	l Gallons Pun	ged		Sample	Time 7	

## **GROUNDWATER SAMPLING FIELD NOTES**

		1 e	chnician:	102		<del></del>		•	
Site: <u>6</u> /		Pro	oject No.: <u>4</u>	106000	/		· Date	: 12-	14-06
	Mu			Purge Met	hod:	SUB			
Depth to V	Vater (feet):_	28.62	<del></del>	Depth to P	roduct (feet):_				
Total Dept	h (feet)	42.60 13.48			ter Recovered				•
Water Col	umn (feet):	13.48	<del></del>	Casing Dia	meter (Inches	1: 2"			
80% Rech	arge Depth(f	eet): 31.41		1 Well Volu	ıme (gallons):	2			
Time Start	Time Stop	Depth to Water (feet)	Volume Purged (gallons)	Conduc- tivity (uS/cm)	Temperatu	re pH	D.O.	ORP	Turbidit
0956			2	624.9	18.8	7.06		<del> </del>	-
*** · *	1002		4	628.4	19.4	6.96	<del>                                     </del>		+
	1002		6	724.3	19.3	6.96			<del>                                     </del>
Sta	tic at Time S	ampled	Tot	al Gallons Pu			<u> </u>		
	31.41		100	6	ngea		Sample		<del></del>
Comments	s:		<del> </del>		·	· <del></del>	102		
epth to W	ater (feet):				od:				
otal Depth	(feet)				r Recovered				
Vater Colu	mn (feet):	<u> </u>	<del></del>	Casing Diam	eter (Inches):			_	
0% Recha	rge Depth(fe	et):		1 Well Volum				<del></del>	
									-14
Time Start	Time Stop	Depth to Water (feet)	Volume Purged (gallons)	Conduc- tivity (uS/cm)	Temperature (F,C)	pH	D.O.	ORP	Turbidity
					<u> </u>				
C4 - 41						-			
Statio	at Time Sar	npled	Total	Gallons Pun	ged		Sample	Time	
omments:		<u> </u>					<del> </del>		



Date of Report: 12/22/2006

Anju Farfan

TRC Alton Geoscience 21 Technology Drive Irvine, CA 92618-2302

RE: 6129

BC Work Order: 0613160

Enclosed are the results of analyses for samples received by the laboratory on 12/14/2006 21:00. If you have any questions concerning this report, please feel free to contact me.

Sincerely,

Contact Person: Vanessa Hooker

Client Service Rep

Authorized Signature



Project: 6129

Project Number: [none]
Project Manager: Anju Farfan

Reported: 12/22/2006 16:13

## **Laboratory / Client Sample Cross Reference**

Laboratory	Client Sample Information											
0613160-01	COC Number:		Receive Date:	12/15/2006 00:00	Delivery Work Order:							
	Project Number: Sampling Location:	6129 MW-1	Sampling Date:	12/14/2006 09:25	Global ID: T0600101465							
	Sampling Point: Sampled By:	MW-1 Joe of TRCI	Sample Depth: Sample Matrix:	Water	Matrix: W Samle QC Type (SACode): CS Cooler ID:							
0613160-02	COC Number:		Receive Date:	12/15/2006 00:00	Delivery Work Order:							
	Project Number:	6129	Sampling Date:	12/14/2006 09:47	Global ID: T0600101465							
•	Sampling Location:	MW-2	Sample Depth:		Matrix: W							
	Sampling Point:	MW-2	Sample Matrix:	Water	Samle QC Type (SACode): CS							
	Sampled By:	Joe of TRCI			Cooler ID:							
0613160-03	COC Number:	***	Receive Date:	12/15/2006 00:00	Delivery Work Order:							
	Project Number:	6129	Sampling Date:	12/14/2006 10:20	Global ID: T0600101465							
	Sampling Location:	MW-3	Sample Depth:		Matrix: W							
	Sampling Point:	MW-3	Sample Matrix:	Water	Samle QC Type (SACode): CS							
	Sampled By:	Joe of TRCI	·		Cooler ID:							



Project: 6129

Project Number: [none]
Project Manager: Anju Farfan

Reported: 12/22/2006 16:13

# Volatile Organic Analysis (EPA Method 8260)

<b>BCL Sample ID:</b> 0613160-01	Client Sam	ple Name	e: 6129, MW-1, MV	<i>V</i> -1, 12/14/20	06 9:25:0	DOAM, Joe						
					Prep	Run		Instru-		QC	МВ	Lab
Constituent	Result	Units	PQL MDL	Method	Date	Date/Time	Analyst	ment ID	Dilution	Batch ID	Bias	Quals
Benzene	ND	ug/L	0.50	EPA-8260	12/19/06	12/20/06 06:33	DKC	MS-V6	11	BPL0996	ND	
1,2-Dibromoethane	ND	ug/L	0.50	EPA-8260	12/19/06	12/20/06 06:33	DKC	MS-V6	1	BPL0996		
1,2-Dichloroethane	ND	ug/L	0.50	EPA-8260	12/19/06	12/20/06 06:33	DKC	MS-V6	1	BPL0996		
Ethylbenzene	ND	ug/L	0.50	EPA-8260	12/19/06	12/20/06 06:33	DKC	MS-V6	1	BPL0996	NĎ	
Methyl t-butyl ether	3.5	ug/L	0.50	EPA-8260	12/19/06	12/20/06 06:33	DKC	MS-V6	1	BPL0996	ND	
Toluene	ND	ug/L	0.50	EPA-8260	12/19/06	12/20/06 06:33	DKC	MS-V6	1	BPL0996	ND	
Total Xylenes	ND	ug/L	0.50	EPA-8260	12/19/06	12/20/06 06:33	DKC	MS-V6	1	BPL0996	ND	
t-Amyl Methyl ether	ND	ug/L	0.50	EPA-8260	12/19/06	12/20/06 06:33	DKC	MS-V6	1	BPL0996	ND	
t-Butyl alcohol	ND	ug/L	10	EPA-8260	12/19/06	12/20/06 06:33	DKC	MS-V6	1	BPL0996	ND	
Diisopropyl ether	ND	ug/L	0.50	EPA-8260	12/19/06	12/20/06 06:33	DKC	MS-V6	1	BPL0996	ND	
Ethanol	ND	ug/L	250	EPA-8260	12/19/06	12/20/06 06:33	DKC	MS-V6	1	BPL0996	ND	
Ethyl t-butyl ether	ND	ug/L	0.50	EPA-8260	12/19/06	12/20/06 06:33	DKC	MS-V6	1	BPL0996	ND	
Total Purgeable Petroleum Hydrocarbons	ND	ug/L	50	EPA-8260	12/19/06	12/20/06 06:33	DKC	MS-V6	1	BPL0996	ND	
1,2-Dichloroethane-d4 (Surrogate)	100	%	76 - 114 (LCL - UCL	) EPA-8260	12/19/06	12/20/06 06:33	DKC	MS-V6	1	BPL0996		
Toluene-d8 (Surrogate)	101	%	88 - 110 (LCL - UCL	) EPA-8260	12/19/06	12/20/06 06:33	DKC	MS-V6	1	BPL0996		
4-Bromofluorobenzene (Surrogate)	100	%	86 - 115 (LCL - UCL	) EPA-8260	12/19/06	12/20/06 06:33	DKC	MS-V6	1	BPL0996		

Project: 6129

Project Number: [none]
Project Manager: Anju Farfan

Reported: 12/22/2006 16:13

# **Volatile Organic Analysis (EPA Method 8260)**

<b>BCL Sample ID:</b> 0613160-02	Client Sam	ple Name	: 6129, MW-2, M\	V-2, 12/14/20	06 9:47:0	OOAM, Joe						
					Prep	Run		Instru-		QC	МВ	Lab
Constituent	Result	Units	PQL MDI	<u>. Method</u>	Date	Date/Time	Analyst	ment ID	Dilution	Batch ID	Bias	Quais
Benzene	ND ND	ug/L	0.50	EPA-8260	12/19/06	12/20/06 06:58	DKC	MS-V6	1	BPL0996	ND	
1,2-Dibromoethane	ND	ug/L	0.50	EPA-8260	12/19/06	12/20/06 06:58	DKC	MS-V6	1	BPL0996		
1,2-Dichloroethane	ND	ug/L	0.50	EPA-8260	12/19/06	12/20/06 06:58	DKC	MS-V6	1	BPL0996		
Ethylbenzene	ND	ug/L	0.50	EPA-8260	12/19/06	12/20/06 06:58	DKC	MS-V6	1	BPL0996	ND	
Methyl t-butyl ether	770	ug/L	5.0	EPA-8260	12/19/06	12/20/06 22:18	DKC	MS-V6	10	BPL0996	ND	A01
Toluene	ND	ug/L	0.50	EPA-8260	12/19/06	12/20/06 06:58	DKC	MS-V6	1	BPL0996	ND	
Total Xylenes	ND	ug/L	0.50	EPA-8260	12/19/06	12/20/06 06:58	DKC	MS-V6	1	BPL0996	ND	
t-Amyl Methyl ether	ND	ug/L	0.50	EPA-8260	12/19/06	12/20/06 06:58	DKC	MS-V6	1	BPL0996	ND	
t-Butyl alcohol	27	ug/L	10	EPA-8260	12/19/06	12/20/06 06:58	DKC	MS-V6	1	BPL0996	ND .	
Diisopropyl ether	20	ug/L	0.50	EPA-8260	12/19/06	12/20/06 06:58	DKC	MS-V6	1	BPL0996	ND	
Ethanol	ND	ug/L	250	EPA-8260	12/19/06	12/20/06 06:58	DKC	MS-V6	1	BPL0996	ND	
Ethyl t-butyl ether	ND	ug/L	0.50	EPA-8260	12/19/06	12/20/06 06:58	DKC	MS-V6	1	BPL0996	ND	
Total Purgeable Petroleum Hydrocarbons	520	ug/L	50	EPA-8260	12/19/06	12/20/06 06:58	DKC	MS-V6	1	BPL0996	ND	A53
1,2-Dichloroethane-d4 (Surrogate)	97.0	%	76 - 114 (LCL - UCI	-) EPA-8260	12/19/06	12/20/06 22:18	DKC	MS-V6	10	BPL0996		
1,2-Dichloroethane-d4 (Surrogate)	94.9	%	76 - 114 (LCL - UCI	.) EPA-8260	12/19/06	12/20/06 06:58	DKC	MS-V6	1	BPL0996		
Toluene-d8 (Surrogate)	102	%	88 - 110 (LCL - UCI	.) EPA-8260	12/19/06	12/20/06 06:58	DKC	MS-V6	1	BPL0996		
Toluene-d8 (Surrogate)	99.7	%	88 - 110 (LCL - UCI	.) EPA-8260	12/19/06	.12/20/06 22:18	DKC	MS-V6	10	BPL0996		
4-Bromofluorobenzene (Surrogate)	89.1	%	86 - 115 (LCL - UCI	.) EPA-8260	12/19/06	12/20/06 22:18	DKC	MS-V6	10	BPL0996		
4-Bromofluorobenzene (Surrogate)	95.2	%	86 - 115 (LCL - UCI	.) EPA-8260	12/19/06	12/20/06 06:58	DKC	MS-V6	1	BPL0996	,	



Project: 6129

Project Number: [none]
Project Manager: Anju Farfan

Reported: 12/22/2006 16:13

Page 4 of 8

## **Volatile Organic Analysis (EPA Method 8260)**

BCL Sample ID: 061	13160-03	Client Sam	ple Name	: 6129, MW-3	, MW-:	3, 12/14/200	06 10:20:0	DOAM, Joe						
							Prep	Run		Instru-		QC	MB	Lab
Constituent		Result	Units	PQL N	<b>IDL</b>	Method	Date	Date/Time	Analyst	ment ID	Dilution	Batch ID	Bias	Quals
Benzene		ND	ug/L	10		EPA-8260	12/19/06	12/20/06 20:12	DKC	MS-V6	20	BPL0996	ND	A01
1,2-Dibromoethane		ND	ug/L	10		EPA-8260	12/19/06	12/20/06 20:12	DKC	MS-V6	20	BPL0996		A01
1,2-Dichloroethane		ND	ug/L	10		EPA-8260	12/19/06	12/20/06 20:12	DKC	MS-V6	20	BPL0996		A01
Ethylbenzene		ND	ug/L	10		EPA-8260	12/19/06	12/20/06 20:12	DKC	MS-V6	20	BPL0996	ND	A01
Methyl t-butyl ether		1300	ug/L	10		EPA-8260	12/19/06	12/20/06 20:12	DKC	MS-V6	20	BPL0996	ND	A01
Toluene		ND	ug/L	10		EPA-8260	12/19/06	12/20/06 20:12	DKC	MS-V6	20	BPL0996	ND	A01
Total Xylenes		ND	ug/L	10		EPA-8260	12/19/06	12/20/06 20:12	DKC	MS-V6	20	BPL0996	ND	A01
t-Amyl Methyl ether		ND	ug/L	10	•	EPA-8260	12/19/06	12/20/06 20:12	DKC	MS-V6	20	BPL0996	ND	A01
t-Butyl alcohol		ND	ug/L	200		EPA-8260	12/19/06	12/20/06 20:12	DKC	MS-V6	20	BPL0996	ND	A01
Diisopropyl ether		ND	ug/L	10		EPA-8260	12/19/06	12/20/06 20:12	DKC	MS-V6	20	BPL0996	ND	A01
Ethanol		ND	ug/L	5000		EPA-8260	12/19/06	12/20/06 20:12	DKC	MS-V6	20	BPL0996	ND	A01,V11
Ethyl t-butyl ether		ND	ug/L	10		EPA-8260	12/19/06	12/20/06 20:12	DKC	MS-V6	20	BPL0996	ND	A01
Total Purgeable Petroleum Hydrocarbons		ND	ug/L	1000		EPA-8260	12/19/06	12/20/06 20:12	DKC	MS-V6	20	BPL0996	ND	A01,A53
1,2-Dichloroethane-d4 (Sur	rogate)	99.0	%	76 - 114 (LCL -	UCL)	EPA-8260	12/19/06	12/20/06 20:12	DKC	MS-V6	20	BPL0996		
Toluene-d8 (Surrogate)	7	99.4	%	88 - 110 (LCL -	UCL)	EPA-8260	12/19/06	12/20/06 20:12	DKC	MS-V6	20	BPL0996		
4-Bromofluorobenzene (Su	rrogate)	87.6	%	86 - 115 (LCL -	UCL)	EPA-8260	12/19/06	12/20/06 20:12	DKC	MS-V6	20	BPL0996		



Project: 6129

Project Number: [none]

Reported: 12/22/2006 16:13

Project Manager: Anju Farfan

## **Volatile Organic Analysis (EPA Method 8260)**

#### **Quality Control Report - Precision & Accuracy**

										Contr	ol Limits
Constituent	Batch ID	QC Sample Type	Source Sample ID	Source Result	Result	Spike Added	Units	RPD	Percent Recovery	RPD	Percent Recovery Lab Quals
Benzene	BPL0996	Matrix Spike	0613085-01	0	30.205	25.000	ug/L		121		70 - 130
		Matrix Spike Duplicat	e 0613085-01	0	32.122	25.000	ug/L	5.6	128	20	70 - 130
Toluene	BPL0996	Matrix Spike	0613085-01	0	25.463	25.000	ug/L		102		70 - 130
		Matrix Spike Duplicat	e 0613085-01	0	26.457	25.000	ug/L	3.8	106	20	70 - 130
1,2-Dichloroethane-d4 (Surrogate)	BPL0996	Matrix Spike	0613085-01	ND	9.4751	10.000	ug/L		94.8		76 - 114
		Matrix Spike Duplicat	e 0613085-01	ND	9.9464	10.000	ug/L		99.5		76 - 114
Toluene-d8 (Surrogate)	BPL0996	Matrix Spike	0613085-01	ND	9.9457	10.000	ug/L		99.5		88 - 110
		Matrix Spike Duplicat	e 0613085-01	ND	9.7863	10.000	ug/L		97.9		88 - 110
4-Bromofluorobenzene (Surrogate)	BPL0996	Matrix Spike	0613085-01	ND	9.6573	10.000	ug/L	*	96.6		86 - 115
		Matrix Spike Duplicat	e 0613085-01	ND	9.5373	10.000	ug/L		95.4		86 - 115

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Project: 6129

Project Number: [none]
Project Manager: Anju Farfan

Reported: 12/22/2006 16:13

# **Volatile Organic Analysis (EPA Method 8260)**

## **Quality Control Report - Laboratory Control Sample**

				Contro							ol Limits		
Constituent	Batch ID	QC Sample ID	QC Type	Result	Spike Level	PQL	Units	Percent Recovery	RPD	Percent Recovery	RPD	Lab Quals	
Benzene	BPL0996	BPL0996-BS1	LCS	29.552	25.000	0.50	ug/L	118		70 - 130			
Toluene	BPL0996	BPL0996-BS1	LCS	25.506	25.000	0.50	ug/L	102		70 - 130			
1,2-Dichloroethane-d4 (Surrogate)	BPL0996	BPL0996-BS1	LCS	9.1037	10.000		ug/L	91.0		76 - 114			
Toluene-d8 (Surrogate)	BPL0996	BPL0996-BS1	LCS	9.8352	10.000		ug/L	98.4		88 - 110	P. 12		
4-Bromofluorobenzene (Surrogate)	BPL0996	BPL0996-BS1	LCS	9.9558	10.000		ug/L	99.6		86 - 115			



Project: 6129

Project Number: [none]

Project Manager: Anju Farfan

Reported: 12/22/2006 16:13

## **Volatile Organic Analysis (EPA Method 8260)**

## **Quality Control Report - Method Blank Analysis**

Constituent	Batch ID	QC Sample ID	MB Result	Units	PQL	MDL	Lab Quals
Benzene	BPL0996	BPL0996-BLK1	ND	ug/L	0.50		
Ethylbenzene	BPL0996	BPL0996-BLK1	ND	ug/L	0.50		
Methyl t-butyl ether	BPL0996	BPL0996-BLK1	ND	ug/L	0.50		•
Toluene	BPL0996	BPL0996-BLK1	ND	ug/L	0.50		
Total Xylenes	BPL0996	BPL0996-BLK1	ND	ug/L	0.50		
t-Amyl Methyl ether	BPL0996	BPL0996-BLK1	ND	ug/L	0.50		
t-Butyl alcohol	BPL0996	BPL0996-BLK1	ND	ug/L	10		
Diisopropyl ether	BPL0996	BPL0996-BLK1	ND	ug/L	0.50		
Ethanol	BPL0996	BPL0996-BLK1	ND	ug/L	250		
Ethyl t-butyl ether	BPL0996	BPL0996-BLK1	ND	ug/L	0.50		
Total Purgeable Petroleum Hydrocarbons	BPL0996	BPL0996-BLK1	ND	ug/L	50		
1,2-Dichloroethane-d4 (Surrogate)	BPL0996	BPL0996-BLK1	99.1	%	76 - 114 (L0	CL - UCL)	
Toluene-d8 (Surrogate)	BPL0996	BPL0996-BLK1	102	%	88 - 110 (Le	CL - UCL)	
4-Bromofluorobenzene (Surrogate)	BPL0996	BPL0996-BLK1	94.0	%	86 - 115 (LC	CL - UCL)	



TRC Alton Geoscience

21 Technology Drive Irvine, CA 92618-2302 Project: 6129

Project Number: [none]

Project Manager: Anju Farfan

Reported: 12/22/2006 16:13

#### **Notes And Definitions**

MDL Method Detection Limit

ND Analyte Not Detected at or above the reporting limit

PQL Practical Quantitation Limit

RPD Relative Percent Difference

A01 PQL's and MDL's are raised due to sample dilution.

A53 Chromatogram not typical of gasoline.

V11 The Continuing Calibration Verification (CCV) recovery is not within established control limits.

BC LABORATORIES INC.		SAI	MPLE REC	CEIPT FO	RM	Rev. No.	10	01/21/0	4	Page	Of				
Submission #: 16-13/60		Project (	Code:			TB	Batch	#							
SHIPPING INFORMATION															
SHIPPING INFORMATION Federal Express  UPS  Hand Delivery				SHIPPING CONTAINER											
BC Lab Field Service Other [ (Specify)				Ice Chest □ None □  Box □ Other □ (Spec											
				<u> </u>											
Refrigerant: Ice Blue Ice	] Non	e []	Other 🛘	Comm	ents:										
Custody Seals: Ice Chest □	Containe	ers 🗆	None &	Comm	ents:										
Intact? Yes 🗆 No 🖸	Intact? Ye	s D No C													
All samples received? Yes 🗖 No 🛘	All sample	es containe	ers intact?	Yes 🛭 N	o 🖸	Descrip	tion(s) n	natch C	OC? \	es 🗗 No	0				
COC Received		Ice (	Chest ID	RIW	F,		7-95	T							
YES ONO	Temperature:			<u>3.8</u> •c		ntainer <u>V</u>		. [	Date/Time _/2/)9/6						
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BC LABORATORIES, INC.

4100 Atlas Court □ Bakersfield, CA 93308 (661) 327-4911 □ FAX (661) 327-1918

## **CHAIN OF CUSTODY**

		# 06-1	3/60	100		An	aly	/sis	Re	que	este	∍d		
Circle one: Phillips 66 / Unocal			Consultant Firm: TRC											
Address:.3420 35TH Aue.			21 Technology Drive Irvine, CA 92618-2302 Attn: Anju Farfan		BTEX/MTBE by 8021B, TPH-g by 8015	TPH -g by 8015M	8015	TPH-g by GC/MS	BTEX/MTBE/OXYs BY 8260B					nested
City: Oakland			4-digit site#: 6129 Work Order# 04583 + Re 502							60B	8260B			Turnaround Time Requested
State: CA	State: CA Zip: Project #: 410600			water (SL)						oy 82	by 8			d Tin
COP Mana	ager:Thomas Kosel		Sampler Name: JoE LEWIS		MTBE	yd r	) by	by 0	MTB	DC	NO NO			Louno
Lab#	Sample Description	Field Point Name	Date & Time Sampled		BTEX	TPH -	TPH -D by 8015	TPH-g	ВТЕХ	EDB/EDC by 8260B	ETHANOL			Turna
		MW-1 ~1	12-14-06 0925	GW				$\overline{\times}$	X	X	X			\$70
		mw-2-2	12-14-06 0947	GW				$\overline{\times}$	X	X	X			STD
		mw-3 -3	12-14-06 1020	GW				$\times$	$\times$	$\geq$	$\times$			STD
			CHK BY	DISTRIBUTI AHB-OH										
Comments:		Relinquished by:	Relinquished by:  Relinquished by (Signature):  Relinquished by (Signature):			Received by:  Received by:  Received by:  Received by:				8	Date & Time: 1300			
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#### **STATEMENTS**

#### **Purge Water Disposal**

Non-hazardous groundwater produced during purging and sampling of monitoring was accumulated at TRC's groundwater monitoring facility at Concord, California, for transportation by Onyx Transportation, Inc., to the ConocoPhillips Refinery at Rodeo, California. Disposal at the Rodeo facility was authorized by ConocoPhillips in accordance with "ESD Standard Operating Procedures — Water Quality and Compliance", as revised on February 7, 2003. Documentation of compliance with ConocoPhillips requirements is provided by an ESD Form R-149, which is on file at TRC's Concord Office. Purge water containing a significant amount of liquid-phase hydrocarbons was accumulated separately in drums for transportation and disposal by Filter Recycling, Inc.

#### Limitations

The fluid level monitoring and groundwater sampling activities summarized in this report have been performed under the responsible charge of a California Registered Geologist or Registered Civil Engineer and have been conducted in accordance with current practice and the standard of care exercised by geologists and engineers performing similar tasks in this area. No warranty, express or implied, is made regarding the conclusions and professional opinions presented in this report. The conclusions are based solely upon an analysis of the observed conditions. If actual conditions differ from those described in this report, our office should be notified.