

Atlantic Richfield Company

Chuck Carmel
Environmental Business Manager

PO Box 1257
San Ramon, CA 94583
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5 January 2010

Re: Fourth Quarter 2009 Ground-Water Monitoring Report
Atlantic Richfield Company Service Station #6148
5131 Shattuck Avenue, Oakland, California
ACEH Case #RO0000077

RECEIVED

9:14 am, Jan 06, 2010

Alameda County
Environmental Health

"I declare, that to the best of my knowledge at the present time, that the information and/or recommendations contained in the attached document are true and correct.

Submitted by,



Chuck Carmel
Environmental Business Manager

Attachment

**Fourth Quarter 2009
Ground-Water Monitoring Report**
Atlantic Richfield Company Station #6148
5131 Shattuck Avenue, Oakland, California
ACEH Case #RO0000077

Prepared for

Mr. Chuck Carmel
Environmental Business Manager
Atlantic Richfield Company
P.O. Box 1257
San Ramon, California 94583

Prepared by



1324 Mangrove Avenue, Suite 212
Chico, California 95926
(530) 566-1400
www.broadbentinc.com

5 January 2010

Project No. 06-88-638

5 January 2010

Project No. 06-88-638

Atlantic Richfield Company
P.O. Box 1257
San Ramon, California 94583
Submitted via ENFOS

Attn.: Mr. Chuck Carmel

Re: Fourth Quarter 2009 Ground-Water Monitoring Report, Atlantic Richfield Company
Station #6148, 5131 Shattuck Avenue, Oakland, Alameda County, California;
ACEH Case #RO000077

Dear Mr. Carmel:

Provided herein is the *Fourth Quarter 2009 Ground-Water Monitoring Report* for Atlantic Richfield Company (a BP affiliated company) Station #6148 located at 5131 Shattuck Avenue, Oakland, Alameda County, California (Site). This report presents results of a special ground-water monitoring event conducted at the Site during Fourth Quarter 2009 to investigate anomalous findings reported within the annual ground-water monitoring report for the Third Quarter 2009. Case closure was requested by BP from Alameda County Environmental Health (ACEH) on 13 April 2004. On 15 November 2007, Broadbent & Associates, Inc. provided ACEH with a completed Case Closure Summary document to assist the ACEH with its closure review. BP is currently awaiting a response from ACEH to the case closure request and case closure summary.

Should you have questions regarding the work performed or results obtained, please do not hesitate to contact me at (530) 566-1400.

Sincerely,

BROADBENT & ASSOCIATES, INC.



Thomas A. Venus, P.E.
Senior Engineer



Enclosures

cc: Mr. Paresh Khatri, ACEH (Submitted via ACEH ftp Site)
Electronic copy uploaded to GeoTracker

STATION #6148 GROUND-WATER MONITORING REPORT

Facility: #6148	Address:	5131 Shattuck Avenue, Oakland
Environmental Business Manager:		Mr. Chuck Carmel
Consulting Co./Contact Person:		Broadbent & Associates, Inc.(BAI)/Mr. Tom Venus, PE (530) 566-1400
Consultant Project No.:		06-88-638
Primary Agency/Regulatory ID No.:		Alameda County Environmental Health (ACEH) ACEH Case #RO0000077
Facility Permits/Permitting Agency.:		NA

WORK PERFORMED THIS QUARTER (Fourth Quarter 2009):

1. Prepared and submitted *Third Quarter 2009 Annual Ground-Water Monitoring Report* (BAI, 10/5/2009).
2. Conducted special Fourth Quarter 2009 ground-water monitoring/sampling. Work performed by BAI on 5 November 2009.

WORK PROPOSED FOR NEXT QUARTER (First Quarter 2010):

1. Prepared and submitted this *Fourth Quarter 2009 Ground-Water Monitoring Report* (contained herein).
2. No environmental work activities are scheduled to be conducted at the Site during the First Quarter 2010.

QUARTERLY RESULTS SUMMARY:

Current phase of project:	Ground-water monitoring/sampling
Frequency of ground-water monitoring:	Annually (3Q): Wells MW-1 through MW-7
Frequency of ground-water sampling:	Annually (3Q): Wells MW-1 through MW-7
Is free product (FP) present on-site:	No
FP recovered this quarter:	None
Cumulative FP recovered:	None
Current remediation techniques:	NA
Depth to ground water (below TOC):	12.84 ft (MW-6) to 16.72 ft (MW-1)
General ground-water flow direction:	Southwest
Approximate hydraulic gradient:	0.02 ft/ft

DISCUSSION:

Fourth quarter 2009 ground-water monitoring and sampling was conducted at Station #6148 on 5 November 2009 by BAI personnel. Monitoring during Fourth Quarter 2009 was undertaken to investigate anomalous findings from the annual ground-water monitoring event conducted during Third Quarter 2009. Water levels were gauged in each of the seven wells at the Site on 5 November 2009. No irregularities were noted during water level gauging. Depth to water measurements ranged from 12.84 ft at MW-6 to 16.72 ft at MW-1. Resulting ground-water surface elevations ranged from 99.01 ft above datum in up-gradient well MW-7 to 96.40 ft above mean sea level in down-gradient well MW-3. Water level elevations were between historic minimum and maximum ranges for each well, as summarized in Table 1, with the exception of recorded maximums in wells MW-2, MW-5, MW-6, and MW-7. Water level elevations yielded a potentiometric ground-water flow direction and gradient to the southwest at approximately 0.02 ft/ft, consistent with historical data (see Table 3). Ground-water monitoring field data

sheets are provided within Appendix A. Measured depths to ground-water and respective ground-water elevations are summarized in Table 1. A Site Location Map is provided as Drawing 1. Potentiometric ground-water elevation contours are presented in Drawing 2.

Ground-water samples were collected from each of the seven wells at the Site. No irregularities were reported during sampling. Samples were submitted under chain-of-custody protocol to Calscience Environmental Laboratories, Inc. (Garden Grove, California), for analysis of Gasoline Range Organics (GRO, C6-12) by EPA Method 8015B; for Benzene, Toluene, Ethylbenzene, and Total Xylenes (BTEX) by EPA Method 8260B; and Tert-Amyl Methyl Ether (TAME), Tert-Butyl Alcohol (TBA), Di-Isopropyl Ether (DIPE), 1,2-Dibromomethane (EDB), 1,2-Dichloroethane (1,2-DCA), Ethanol, Ethyl Tert-Butyl Ether (ETBE), and Methyl Tert-Butyl Ether (MTBE) by EPA Method 8260B. Calscience reported that unknown hydrocarbons based on gasoline were detected during GRO analysis in samples from MW-2, MW-3, and MW-5. No other significant irregularities were encountered during laboratory analysis of the samples. Ground-water sampling field data sheets and the laboratory analytical report, including chain of custody documentation, are provided in Appendix A.

GRO were detected above the laboratory reporting limits in three of the seven wells sampled at concentrations of 2,100 micrograms per liter ($\mu\text{g/L}$) in well MW-2, 280 $\mu\text{g/L}$ in well MW-3, and 260 $\mu\text{g/L}$ in well MW-5. BTEX were detected above the laboratory reporting limits in well MW-2 at concentrations of 51.0 $\mu\text{g/L}$, 3.0 $\mu\text{g/L}$, 150 $\mu\text{g/L}$, and 75 $\mu\text{g/L}$, respectively. Benzene alone was detected in well MW-1 at a concentration of 0.51 $\mu\text{g/L}$, barely above the laboratory reporting limit of 0.50 $\mu\text{g/L}$. The remaining fuel additives and oxygenates were not detected above their laboratory reporting limits in the seven wells sampled this quarter. Detected analyte concentrations were within the historic minimum and maximum ranges recorded for each well. Historic laboratory analytical results are summarized in Table 1, Table 2, and Appendix B. The most recent GRO, Benzene, and MTBE concentrations are also presented in Drawing 2. A copy of the Laboratory Analytical Report, including chain of-custody documentation is provided in Appendix A. Ground-water monitoring data (GEO_WELL) and laboratory analytical results (EDF) were uploaded to the GeoTracker AB2886 database. Upload confirmation pages are provided in Appendix C.

CONCLUSIONS AND RECOMMENDATIONS:

The one-time round of ground-water monitoring and sampling conducted this quarter was intended to investigate and refute or confirm the anomalously high petroleum hydrocarbon concentrations detected during the third quarter annual ground-water monitoring and sampling event. Although the petroleum hydrocarbon concentrations detected in wells MW-2, MW-3, and MW-5 continue to be below historical maximums, they do represent a suspicious anomaly to the generally decreasing trends observed in the past several years. This anomaly may be the result of historic high ground-water levels at the site in contact with and mobilizing petroleum hydrocarbons in the lower vadose zone. The results from this special round of ground-water monitoring confirms the annual third quarter ground-water monitoring results.

As a reminder, case closure was requested by BP on 13 April 2004 from ACEH. On 15 November 2007, BAI provided ACEH with a completed Case Closure Summary document to assist the ACEH with its review. BP is currently awaiting a response from the ACEH to the case closure request and case closure summary.

CLOSURE:

The findings presented in this report are based upon: observations of BAI field personnel (see Appendix A), the points investigated, and results of laboratory tests performed by Calscience Environmental Laboratories, Inc. (Garden Grove, CA). Our services were performed in accordance with the generally accepted standard of practice at the time this report was written. No other warranty, expressed or implied was made. This report has been prepared for the exclusive use of Atlantic Richfield Company. It is possible that variations in soil or ground-water conditions could exist beyond points explored in this investigation. Also, changes in site conditions could occur in the future due to variations in rainfall, temperature, regional water usage, or other factors.

ATTACHMENTS:

- Drawing 1. Site Location Map, Station #6148, 5131 Shattuck Avenue, Oakland, California
- Drawing 2. Ground-Water Elevation Contour and Analytical Summary Map, 5 November 2009, Station #6148, 5131 Shattuck Avenue, Oakland, California
- Table 1. Summary of Ground-Water Monitoring Data: Relative Water Elevations and Laboratory Analyses, Station #6148, 5131 Shattuck Ave., Oakland, California
- Table 2. Summary of Fuel Additives Analytical Data, Station #6148, 5131 Shattuck Ave., Oakland, California
- Table 3. Historical Ground-Water Flow Direction and Gradient, Station #6148, 5131 Shattuck Ave., Oakland, California
- Appendix A. BAI Ground-Water Sampling Data Package (Includes Field Data Sheets, Laboratory Analytical Report with Chain-of-Custody Documentation and Field Procedures)
- Appendix B. Historical Ground-Water Monitoring Data
- Appendix C: GeoTracker Upload Confirmation Receipts

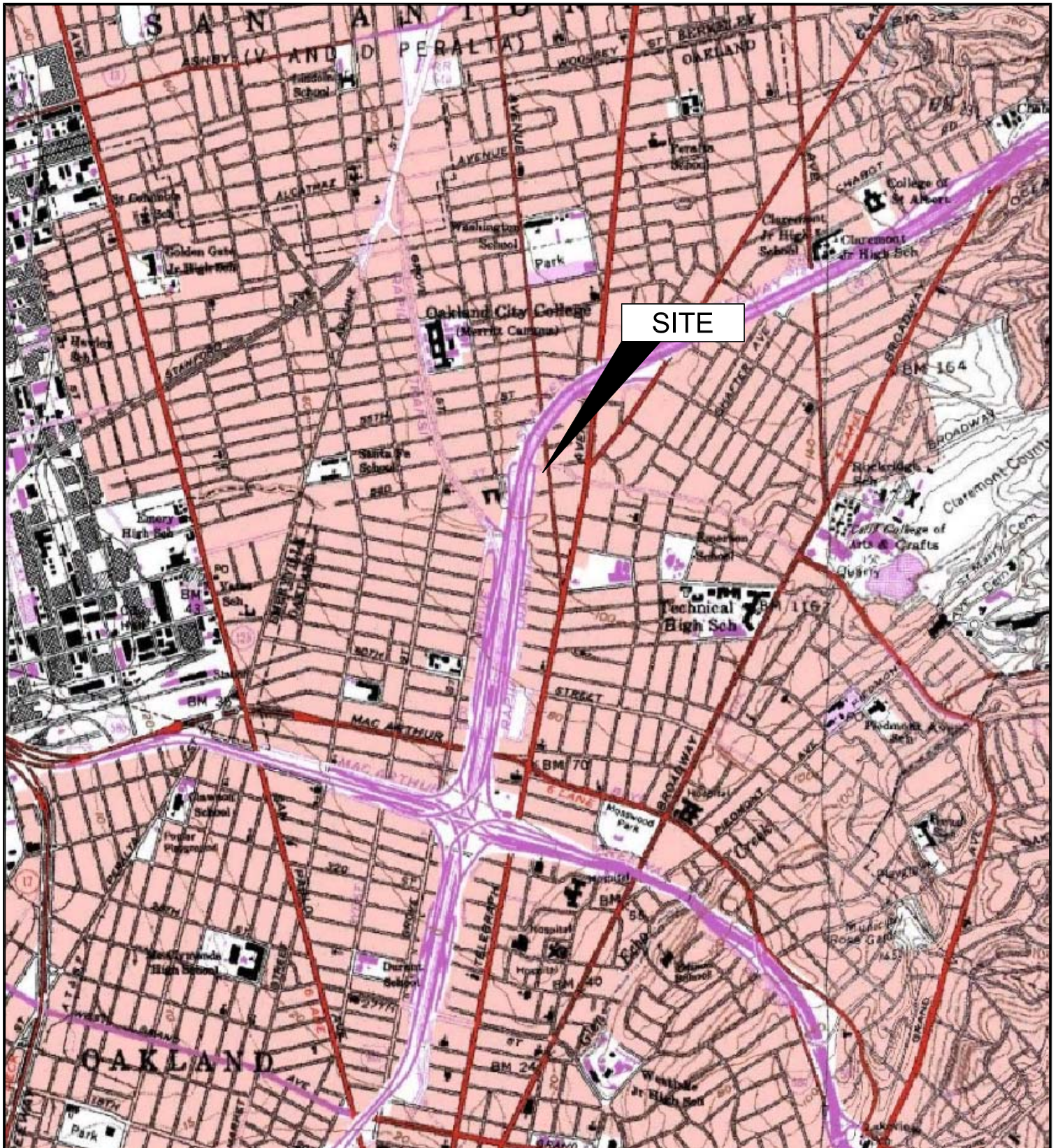
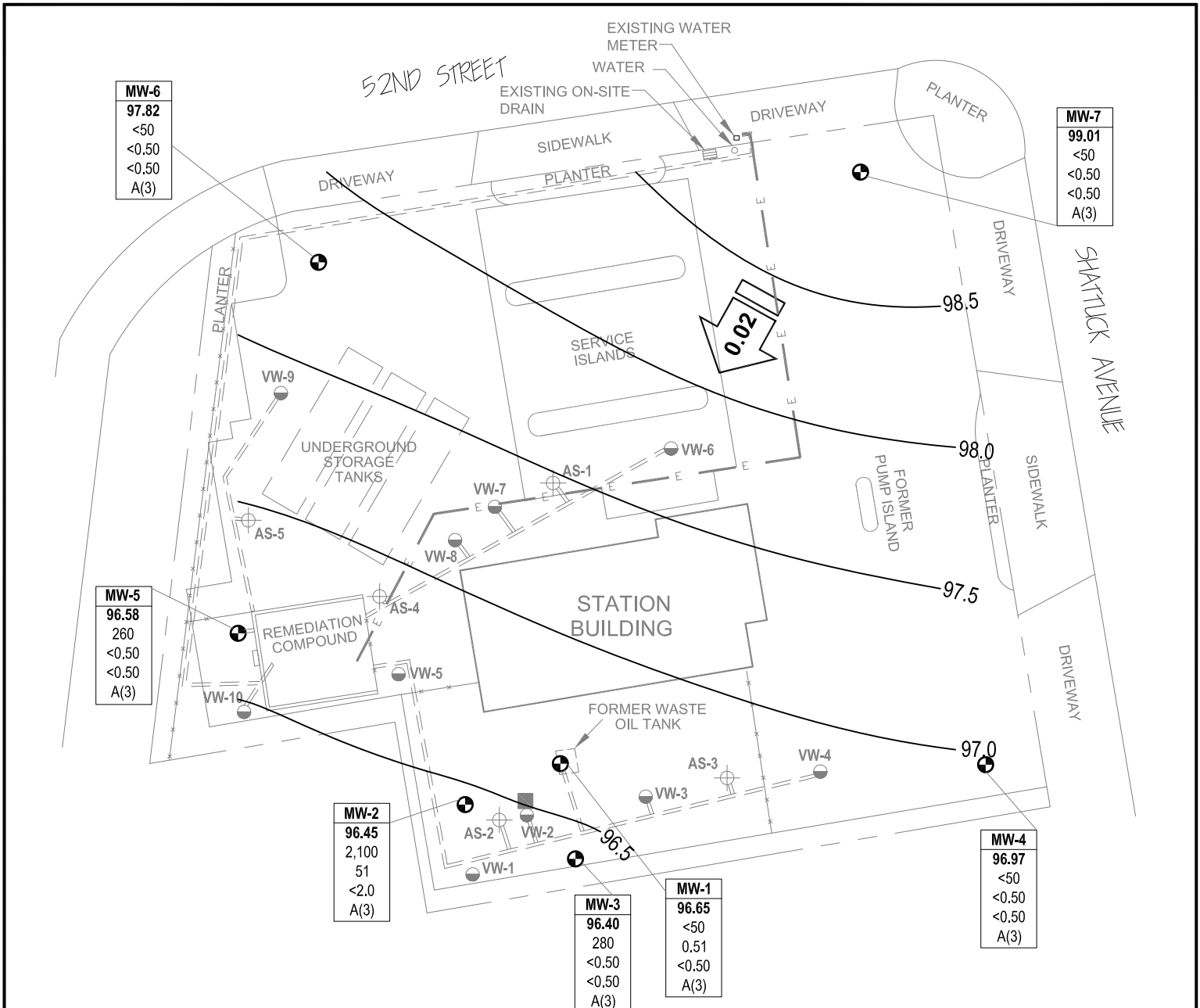


IMAGE SOURCE: USGS



MW-6
97.82
<50
<0.50
<0.50
A(3)

MW-7
99.01
<50
<0.50
<0.50
A(3)

MW-5
96.58
260
<0.50
<0.50
A(3)

MW-2
96.45
2,100
51
<2.0
A(3)

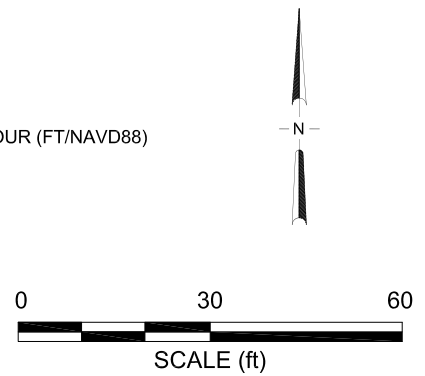
MW-3
96.40
280
<0.50
<0.50
A(3)

MW-1
96.65
<50
0.51
<0.50
A(3)

MW-4
96.97
<50
<0.50
<0.50
A(3)

LEGEND

- MONITORING WELL
 - AIR SPARGING WELL
 - SOIL VAPOR EXTRACTION WELL
 - DESTROYED WELL
 - ELECTRICAL LINE
 - FENCING
 - REMEDIATION PIPING
 - GROUND-WATER FLOW DIRECTION AND GRADIENT (FT/FT)
 - GROUND-WATER ELEVATION CONTOUR (FT/NAVD88)
- | | |
|-------------|---|
| Well | WELL DESIGNATION |
| ELEV | GROUND-WATER ELEVATION (FT ABOVE NAVD88) |
| GRO | CONCENTRATION OF GRO, BENZENE AND MTBE IN GROUND WATER (µg/L) |
| A | SAMPLING FREQUENCY |
- A(3) SAMPLED ANNUALLY, 3RD QUARTER
 - < NOT DETECTED AT OR ABOVE LABORATORY REPORTING LIMITS
 - NS NOT SAMPLED
 - ORC OXYGEN RELEASING COMPOUND SOCK



NOTE: SITE MAP ADAPTED FROM IT CORPORATION FIGURES. SITE DIMENSIONS AND FACILITY LOCATIONS NOT VERIFIED.

Table 1. Summary of Ground-Water Monitoring Data: Relative Water Elevations and Laboratory Analyses

Station #6148, 5131 Shattuck Ave., Oakland, CA

Well and Sample Date	P/NP	Comments	TOC (feet)	Top of Screen (ft bgs)	Bottom of Screen (ft bgs)	DTW (feet)	Water Level Elevation (feet)	Concentrations in (µg/L)						DO (mg/L)	pH
								GRO/TPHg	Benzene	Toluene	Ethyl-Benzene	Total Xylenes	MTBE		
MW-1															
6/21/2000	--		107.80	13.00	26.00	17.49	90.31	<50	<0.5	<0.5	<0.5	<1.0	<3.0	--	--
9/20/2000	--		107.80	13.00	26.00	17.64	90.16	<50	<0.5	0.677	<0.5	0.969	<2.5	--	--
12/22/2000	--		107.80	13.00	26.00	16.87	90.93	186	5.38	0.522	9.52	30.2	8.91	--	--
3/26/2001	--		107.80	13.00	26.00	16.60	91.20	<50	<0.5	<0.5	<0.5	<0.5	9.1	--	--
5/30/2001	--		107.80	13.00	26.00	17.10	90.70	<50	<0.5	<0.5	<0.5	<0.5	<2.5	--	--
9/23/2001	--		107.80	13.00	26.00	17.53	90.27	<50	<0.5	<0.5	<0.5	<0.5	6.7	--	--
12/28/2001	--		107.80	13.00	26.00	15.57	92.23	<50	2.7	<0.5	<0.5	<0.5	20	--	--
3/21/2002	--		107.80	13.00	26.00	15.57	92.23	--	--	--	--	--	--	--	--
4/17/2002	--		107.80	13.00	26.00	16.25	91.55	<50	<0.5	<0.5	<0.5	<0.5	<2.5	--	--
8/19/2002	--		107.80	13.00	26.00	17.69	90.11	<50	<0.5	<0.5	<0.5	<0.5	<2.5	2.0	7.1
11/27/2002	--		107.80	13.00	26.00	17.45	90.35	<50	<0.50	1.8	0.65	3.5	1.7	1.0	6.3
2/5/2003	--	d	107.80	13.00	26.00	16.93	90.87	<50	<0.50	<0.50	<0.50	<0.50	1.1	1.2	7.3
5/13/2003	--		107.80	13.00	26.00	16.95	90.85	<50	<0.50	<0.50	<0.50	<0.50	<0.50	1.0	6.5
7/31/2003	--		107.80	13.00	26.00	17.74	90.06	<50	<0.50	<0.50	<0.50	<0.50	0.55	1.2	6
12/17/2003	NP		107.80	13.00	26.00	17.03	90.77	<50	<0.50	<0.50	<0.50	<0.50	2.5	2.0	6.5
05/05/2004	NP		113.37	13.00	26.00	17.28	96.09	<50	<0.50	<0.50	<0.50	<0.50	0.60	2.6	6.4
08/25/2004	NP		113.37	13.00	26.00	17.72	95.65	<50	<0.50	<0.50	<0.50	<0.50	<0.50	1.2	6.9
11/29/2004	NP		113.37	13.00	26.00	17.45	95.92	<50	<0.50	<0.50	<0.50	<0.50	0.62	0.92	6.8
01/31/2005	NP		113.37	13.00	26.00	16.67	96.70	<50	<0.50	<0.50	<0.50	<0.50	0.59	1.63	6.1
05/09/2005	NP		113.37	13.00	26.00	16.77	96.60	<50	<0.50	<0.50	<0.50	<0.50	0.55	1.03	6.7
08/10/2005	NP		113.37	13.00	26.00	17.76	95.61	<50	<0.50	<0.50	<0.50	<0.50	0.62	0.9	7.0
8/29/2006	P		113.37	13.00	26.00	17.63	95.74	<50	<0.50	<0.50	<0.50	<0.50	<0.50	1.5	6.6
8/15/2007	NP		113.37	13.00	26.00	17.92	95.45	<50	<0.50	<0.50	<0.50	<0.50	<0.50	1.09	7.14
8/20/2008	NP		113.37	13.00	26.00	18.09	95.28	<50	<0.50	<0.50	<0.50	<0.50	<0.50	1.03	6.47
8/4/2009	NP		113.37	13.00	26.00	18.19	95.18	<50	<0.50	<0.50	<0.50	<0.50	<0.50	1.11	6.94
11/5/2009	P		113.37	13.00	26.00	16.72	96.65	<50	0.51	<0.50	<0.50	<0.50	<0.50	0.89	6.54
MW-2															
6/21/2000	--		107.28	14.00	26.00	17.19	90.09	69	<0.5	<0.5	<0.5	<1.0	12	--	--
9/20/2000	--		107.28	14.00	26.00	17.31	89.97	<50	0.964	<0.5	<0.5	<.05	5.05	--	--
12/22/2000	--		107.28	14.00	26.00	16.58	90.70	2,140	174	60.2	118	438	123	--	--

Table 1. Summary of Ground-Water Monitoring Data: Relative Water Elevations and Laboratory Analyses

Station #6148, 5131 Shattuck Ave., Oakland, CA

Well and Sample Date	P/NP	Comments	TOC (feet)	Top of Screen (ft bgs)	Bottom of Screen (ft bgs)	DTW (feet)	Water Level Elevation (feet)	Concentrations in (µg/L)						DO (mg/L)	pH
								GRO/TPHg	Benzene	Toluene	Ethyl-Benzene	Total Xylenes	MTBE		
MW-2 Cont.															
3/26/2001	--		107.28	14.00	26.00	16.45	90.83	8,490	333	148	495	1,660	<250	--	--
5/30/2001	--		107.28	14.00	26.00	16.83	90.45	4,700	200	71	260	780	43	--	--
9/23/2001	--		107.28	14.00	26.00	17.30	89.98	160	5.9	1.8	0.8	41	14	--	--
12/28/2001	--		107.28	14.00	26.00	15.38	91.90	1,800	54	<5.0	<5.0	240	30	--	--
3/21/2002	--		107.28	14.00	26.00	15.36	91.92	--	--	--	--	--	--	--	--
4/17/2002	--		107.28	14.00	26.00	16.01	91.27	<50	<0.5	<0.5	<0.5	<0.5	10	--	--
8/19/2002	--	a	107.28	14.00	26.00	17.53	89.75	170	22	0.92	14	26	<2.5	3.0	6.9
11/27/2002	--		107.28	14.00	26.00	17.21	90.07	340	22	0.68	13	26	<0.50	1.6	6.6
2/5/2003	--	d	107.28	14.00	26.00	16.72	90.56	83	2.7	<0.50	0.97	15	4.3	0.7	7.0
05/13/2003	NP	f	107.28	14.00	26.00	16.72	90.56	<50	0.91	<0.50	<0.50	0.6	2.8	0.7	6.5
7/31/2003	--		107.28	14.00	26.00	17.51	89.77	<50	<0.50	<0.50	<0.50	<0.50	2.0	7.1	6.7
12/17/2003	NP		107.28	14.00	26.00	16.78	90.50	51	1.0	<0.50	<0.50	<0.50	2.4	8.1	7.1
02/13/2004	NP	e	112.87	14.00	26.00	16.63	96.24	50	0.70	<0.50	0.54	0.90	1.6	5.6	6.7
05/05/2004	NP		112.87	14.00	26.00	17.04	95.83	<50	<0.50	<0.50	<0.50	<0.50	0.99	4.3	6.9
08/25/2004	NP		112.87	14.00	26.00	17.55	95.32	<50	<0.50	<0.50	<0.50	<0.50	0.63	7.5	6.6
11/29/2004	NP		112.87	14.00	26.00	17.24	95.63	85	10	<0.50	4.6	1.0	0.55	1.41	6.9
01/31/2005	NP		112.87	14.00	26.00	16.48	96.39	<50	<0.50	<0.50	<0.50	<0.50	1.2	0.76	6.1
05/09/2005	NP		112.87	14.00	26.00	16.52	96.35	<50	0.68	<0.50	<0.50	<0.50	1.8	0.7	6.6
08/10/2005	NP		112.87	14.00	26.00	17.48	95.39	<50	1.8	<0.50	<0.50	<0.50	1.5	0.62	6.7
8/29/2006	P		112.87	14.00	26.00	17.33	95.54	660	6.4	<0.50	1.5	2.5	<0.50	0.8	6.4
8/15/2007	NP		112.87	14.00	26.00	17.60	95.27	<50	<0.50	<0.50	<0.50	<0.50	<0.50	0.75	6.81
8/20/2008	NP		112.87	14.00	26.00	17.80	95.07	220	3.0	<0.50	<0.50	<0.50	<0.50	0.96	6.38
8/4/2009	NP		112.87	14.00	26.00	17.85	95.02	4,300	61	3.9	250	22	<2.0	0.98	6.98
11/5/2009	P	g (GRO)	112.87	14.00	26.00	16.42	96.45	2,100	51	3.0	150	75	<2.0	0.22	6.6
MW-3															
6/21/2000	--		107.61	14.00	26.00	17.52	90.09	200	<0.5	<0.5	<0.5	2.1	24	--	--
9/20/2000	--		107.61	14.00	26.00	17.61	90.00	<50	<0.5	<0.5	<0.5	<0.5	20	--	--
12/22/2000	--		107.61	14.00	26.00	16.85	90.76	227	4.73	1.06	2.58	5.22	27.3	--	--
3/26/2001	--		107.61	14.00	26.00	16.79	90.82	287	6.29	1.58	6.47	12.1	24.2	--	--
5/30/2001	--		107.61	14.00	26.00	17.11	90.50	500	10	<0.5	7.00	16	20	--	--

Table 1. Summary of Ground-Water Monitoring Data: Relative Water Elevations and Laboratory Analyses

Station #6148, 5131 Shattuck Ave., Oakland, CA

Well and Sample Date	P/NP	Comments	TOC (feet)	Top of Screen (ft bgs)	Bottom of Screen (ft bgs)	DTW (feet)	Water Level Elevation (feet)	Concentrations in (µg/L)						DO (mg/L)	pH
								GRO/TPHg	Benzene	Toluene	Ethyl-Benzene	Total Xylenes	MTBE		
MW-3 Cont.															
9/23/2001	--		107.61	14.00	26.00	17.57	90.04	400	6.4	0.74	<0.5	0.62	22	--	--
12/28/2001	--		107.61	14.00	26.00	15.41	92.20	270	2.5	2.4	<0.5	2.3	9.2	--	--
3/21/2002	--		107.61	14.00	26.00	15.58	92.03	--	--	--	--	--	--	--	--
4/17/2002	--		107.61	14.00	26.00	16.25	91.36	360	2.5	0.72	<0.5	<0.5	12	--	--
8/19/2002	--	b	107.61	14.00	26.00	17.66	89.95	750	11	2.1	<0.5	2.4	14	1.4	6.8
11/27/2002	--		107.61	14.00	26.00	17.69	89.92	470	<0.50	<0.50	<0.50	<0.50	<0.50	1.1	6.6
2/5/2003	--	d	107.61	14.00	26.00	16.82	90.79	<50	<0.50	<0.50	<0.50	<0.50	2.4	1.3	6.6
5/13/2003	--		107.61	14.00	26.00	17.12	90.49	300	<0.50	<0.50	<0.50	<0.50	2.2	1.4	6.7
7/31/2003	--		107.61	14.00	26.00	17.72	89.89	320	<0.50	<0.50	<0.50	<0.50	2.1	1.4	6.8
12/17/2003	NP		107.61	14.00	26.00	16.95	90.66	340	0.51	<0.50	<0.50	<0.50	4.8	1.3	6.7
02/13/2004	NP	e	113.05	14.00	26.00	16.77	96.28	<50	<0.50	<0.50	<0.50	<0.50	3.1	2.1	7.1
05/05/2004	NP		113.05	14.00	26.00	17.22	95.83	<50	<0.50	<0.50	<0.50	<0.50	1.3	1.2	6.9
08/25/2004	NP		113.05	14.00	26.00	17.66	95.39	<50	<0.50	<0.50	<0.50	<0.50	3.3	1.2	7.1
11/29/2004	NP		113.05	14.00	26.00	17.47	95.58	110	<0.50	<0.50	<0.50	<0.50	1.4	1.0	6.9
01/31/2005	NP		113.05	14.00	26.00	16.16	96.89	<50	<0.50	<0.50	<0.50	<0.50	2.0	0.87	6.2
05/09/2005	NP		113.05	14.00	26.00	16.64	96.41	50	<0.50	<0.50	<0.50	<0.50	0.80	0.83	6.7
08/10/2005	NP		113.05	14.00	26.00	17.59	95.46	65	<0.50	<0.50	<0.50	<0.50	<0.50	0.82	6.7
8/29/2006	P		113.05	14.00	26.00	17.60	95.45	<50	<0.50	<0.50	<0.50	0.74	0.51	1.0	6.4
8/15/2007	NP		113.05	14.00	26.00	17.88	95.17	<50	<0.50	<0.50	<0.50	<0.50	<0.50	0.74	6.67
8/20/2008	NP		113.05	14.00	26.00	17.93	95.12	560	<0.50	<0.50	<0.50	<0.50	0.56	1.05	6.40
8/4/2009	NP		113.05	14.00	26.00	18.15	94.90	230	<0.50	<0.50	<0.50	<0.50	<0.50	1.08	6.91
11/5/2009	P	g (GRO)	113.05	14.00	26.00	16.65	96.40	280	<0.50	<0.50	<0.50	<0.50	<0.50	0.71	6.6
MW-4															
6/21/2000	--		106.71	11.50	26.50	16.00	90.71	1,400	5.3	7.3	36	85	4	--	--
9/20/2000	--		106.71	11.50	26.50	16.03	90.68	<50	<0.5	<0.5	<0.5	<0.5	<2.5	--	--
12/22/2000	--		106.71	11.50	26.50	--	--	--	--	--	--	--	--	--	--
3/26/2001	--		106.71	11.50	26.50	15.05	91.66	<50	<0.5	<0.5	<0.5	<0.5	<2.5	--	--
5/30/2001	--		106.71	11.50	26.50	15.62	91.09	--	--	--	--	--	--	--	--
9/23/2001	--		106.71	11.50	26.50	16.07	90.64	<50	<0.5	<0.5	<0.5	<0.5	<2.5	--	--
12/28/2001	--		106.71	11.50	26.50	13.68	93.03	--	--	--	--	--	--	--	--

Table 1. Summary of Ground-Water Monitoring Data: Relative Water Elevations and Laboratory Analyses

Station #6148, 5131 Shattuck Ave., Oakland, CA

Well and Sample Date	P/NP	Comments	TOC (feet)	Top of Screen (ft bgs)	Bottom of Screen (ft bgs)	DTW (feet)	Water Level Elevation (feet)	Concentrations in (µg/L)						DO (mg/L)	pH
								GRO/TPHg	Benzene	Toluene	Ethyl-Benzene	Total Xylenes	MTBE		
MW-4 Cont.															
3/21/2002	--		106.71	11.50	26.50	14.04	92.67	<50	<0.5	<0.5	<0.5	<0.5	<2.5	--	--
4/17/2002	--		106.71	11.50	26.50	14.78	91.93	--	--	--	--	--	--	--	--
8/19/2002	--		106.71	11.50	26.50	16.18	90.53	<50	<0.5	<0.5	<0.5	<0.5	<2.5	1.4	6.8
11/27/2002	--		106.71	11.50	26.50	15.89	90.82	--	--	--	--	--	--	--	--
2/5/2003	--	d	106.71	11.50	26.50	15.40	91.31	<50	<0.50	<0.50	<0.50	<0.50	<0.50	1.1	6.6
5/13/2003	--		106.71	11.50	26.50	15.42	91.29	--	--	--	--	--	--	--	--
7/31/2003	--		106.71	11.50	26.50	16.23	90.48	<50	<0.50	<0.50	<0.50	<0.50	<0.50	1.4	6.4
12/17/2003	--		106.71	11.50	26.50	15.57	91.14	--	--	--	--	--	--	--	--
02/13/2004	P	e	112.15	11.50	26.50	15.30	96.85	<50	<0.50	<0.50	<0.50	<0.50	<0.50	1.1	6.3
05/05/2004	--		112.15	11.50	26.50	15.69	96.46	--	--	--	--	--	--	--	--
08/25/2004	P		112.15	11.50	26.50	16.07	96.08	<50	<0.50	<0.50	<0.50	0.51	<0.50	1.6	6.4
11/29/2004	--		112.15	11.50	26.50	15.86	96.29	--	--	--	--	--	--	--	--
01/31/2005	P		112.15	11.50	26.50	15.17	96.98	<50	<0.50	<0.50	<0.50	<0.50	<0.50	1.61	6.2
05/09/2005	--		112.15	11.50	26.50	15.25	96.90	--	--	--	--	--	--	--	--
08/10/2005	P		112.15	11.50	26.50	16.23	95.92	<50	<0.50	0.50	<0.50	1.1	<0.50	0.68	6.5
8/29/2006	P		112.15	11.50	26.50	16.04	96.11	<50	<0.50	<0.50	<0.50	0.53	<0.50	1.2	6.5
8/15/2007	NP		112.15	11.50	26.50	16.20	95.95	<50	<0.50	<0.50	<0.50	<0.50	<0.50	1.09	7.92
8/20/2008	NP		112.15	11.50	26.50	16.37	95.78	<50	<0.50	<0.50	<0.50	<0.50	<0.50	0.99	6.56
8/4/2009	NP		112.15	11.50	26.50	16.57	95.58	<50	<0.50	<0.50	<0.50	<0.50	<0.50	1.03	7.18
11/5/2009	P		112.15	11.50	26.50	15.18	96.97	<50	<0.50	<0.50	<0.50	<0.50	<0.50	0.85	6.48
MW-5															
3/26/2000	--		106.60	10.00	25.00	15.45	91.15	767	12.4	<5.0	<5.0	<5.0	163	--	--
6/21/2000	--		106.60	10.00	25.00	16.52	90.08	67	<0.5	<0.5	<0.5	<1.0	10	--	--
9/20/2000	--		106.60	10.00	25.00	16.34	90.26	<50	<0.5	<0.5	<0.5	<0.5	3.48	--	--
12/22/2000	--		106.60	10.00	25.00	15.58	91.02	341	11.5	2.53	4.02	6.25	146	--	--
5/30/2001	--		106.60	10.00	25.00	15.77	90.83	110	2.3	<0.5	<0.5	0.81	72	--	--
9/23/2001	--		106.60	10.00	25.00	16.16	90.44	<50	<0.5	<0.5	<0.5	<0.5	<2.5	--	--
12/28/2001	--		106.60	10.00	25.00	14.09	92.51	240	2.8	1.9	<0.5	2.6	48	--	--
3/21/2002	--		106.60	10.00	25.00	14.43	92.17	--	<0.5	<0.5	<0.5	<0.5	--	--	--
4/17/2002	--		106.60	10.00	25.00	14.96	91.64	<50	<0.5	<0.5	<0.5	<0.5	<2.5	--	--

Table 1. Summary of Ground-Water Monitoring Data: Relative Water Elevations and Laboratory Analyses

Station #6148, 5131 Shattuck Ave., Oakland, CA

Well and Sample Date	P/NP	Comments	TOC (feet)	Top of Screen (ft bgs)	Bottom of Screen (ft bgs)	DTW (feet)	Water Level Elevation (feet)	Concentrations in (µg/L)						DO (mg/L)	pH
								GRO/TPHg	Benzene	Toluene	Ethyl-Benzene	Total Xylenes	MTBE		
MW-5 Cont.															
8/19/2002	--	c	106.60	10.00	25.00	16.34	90.26	--	--	--	--	--	--	--	--
11/27/2002	--	c	106.60	10.00	25.00	--	--	--	--	--	--	--	--	--	--
2/5/2003	--	c , d	106.60	10.00	25.00	--	--	--	--	--	--	--	--	--	--
5/13/2003	NP	f	106.60	10.00	25.00	15.43	91.17	<50	<0.50	<0.50	<0.50	<0.50	15	1.4	6.2
7/31/2003	--		106.60	10.00	25.00	16.47	90.13	<50	<0.50	<0.50	<0.50	<0.50	1.2	14.1	8.1
12/17/2003	NP		106.60	10.00	25.00	15.99	90.61	<50	<0.50	<0.50	<0.50	<0.50	1.8	15.4	8.5
02/13/2004	NP	e	112.04	10.00	25.00	15.90	96.14	<50	<0.50	<0.50	<0.50	<0.50	2.6	11.1	7.0
05/05/2004	NP		112.04	10.00	25.00	16.28	95.76	51	<0.50	<0.50	<0.50	<0.50	1.2	0.8	7.2
08/25/2004	NP		112.04	10.00	25.00	16.67	95.37	<50	<0.50	<0.50	<0.50	<0.50	1.1	10.5	--
11/29/2004	NP		112.04	10.00	25.00	16.37	95.67	<50	<0.50	<0.50	<0.50	<0.50	0.61	1.0	7.0
01/31/2005	NP		112.04	10.00	25.00	15.73	96.31	<50	<0.50	<0.50	<0.50	<0.50	0.86	1.63	6.3
05/09/2005	NP		112.04	10.00	25.00	15.90	96.14	<50	<0.50	<0.50	<0.50	<0.50	0.60	1.12	7.2
08/10/2005	NP		112.04	10.00	25.00	16.65	95.39	740	<0.50	<0.50	<0.50	<0.50	2.5	--	7.3
8/29/2006	P		112.04	10.00	25.00	16.60	95.44	230	<0.50	<0.50	<0.50	<0.50	1.1	--	6.4
8/20/2008	NP		112.04	10.00	25.00	17.07	94.97	<50	<0.50	<0.50	<0.50	<0.50	<0.50	1.60	6.74
8/4/2009	NP		112.04	10.00	25.00	17.01	95.03	160	<0.50	<0.50	<0.50	<0.50	<0.50	1.49	7.73
11/5/2009	P	g (GRO)	112.04	10.00	25.00	15.46	96.58	260	<0.50	<0.50	<0.50	<0.50	<0.50	0.72	6.4
MW-6															
6/21/2000	--		105.13	12.00	27.00	13.91	91.22	--	--	--	--	--	--	--	--
9/20/2000	--		105.13	12.00	27.00	14.03	91.10	--	--	--	--	--	--	--	--
12/22/2000	--		105.13	12.00	27.00	--	--	--	--	--	--	--	--	--	--
3/26/2001	--		105.13	12.00	27.00	12.59	92.54	<50	<0.5	<0.5	<0.5	<0.5	<2.5	--	--
5/30/2001	--		105.13	12.00	27.00	13.40	91.73	--	--	--	--	--	--	--	--
9/23/2001	--		105.13	12.00	27.00	13.49	91.64	--	--	--	--	--	--	--	--
12/28/2001	--		105.13	12.00	27.00	12.07	93.06	--	--	--	--	--	--	--	--
3/21/2002	--		105.13	12.00	27.00	11.79	93.34	<50	<0.5	<0.5	<0.5	<0.5	<2.5	--	--
4/17/2002	--		105.13	12.00	27.00	12.45	92.68	--	--	--	--	--	--	--	--
8/19/2002	--		105.13	12.00	27.00	13.96	91.17	<50	<0.5	<0.5	<0.5	<0.5	<2.5	2.8	6.9
11/27/2002	--		105.13	12.00	27.00	14.07	91.06	--	--	--	--	--	--	--	--
2/5/2003	--	d	105.13	12.00	27.00	13.55	91.58	--	--	--	--	--	--	--	--

Table 1. Summary of Ground-Water Monitoring Data: Relative Water Elevations and Laboratory Analyses

Station #6148, 5131 Shattuck Ave., Oakland, CA

Well and Sample Date	P/NP	Comments	TOC (feet)	Top of Screen (ft bgs)	Bottom of Screen (ft bgs)	DTW (feet)	Water Level Elevation (feet)	Concentrations in (µg/L)						DO (mg/L)	pH
								GRO/TPHg	Benzene	Toluene	Ethyl-Benzene	Total Xylenes	MTBE		
MW-6 Cont.															
5/13/2003	--		105.13	12.00	27.00	13.57	91.56	--	--	--	--	--	--	--	--
7/31/2003	--		105.13	12.00	27.00	14.18	90.95	67	<0.50	<0.50	<0.50	<0.50	<0.50	1.8	6.5
12/17/2003	--		105.13	12.00	27.00	14.12	91.01	--	--	--	--	--	--	--	--
02/13/2004	--	e	110.66	12.00	27.00	13.51	97.15	--	--	--	--	--	--	--	--
05/05/2004	--		110.66	12.00	27.00	13.95	96.71	--	--	--	--	--	--	--	--
08/25/2004	P		110.66	12.00	27.00	14.42	96.24	55	<0.50	0.98	<0.50	1.5	<0.50	3.6	6.7
11/29/2004	--		110.66	12.00	27.00	14.20	96.46	--	--	--	--	--	--	--	--
01/31/2005	--		110.66	12.00	27.00	13.33	97.33	--	--	--	--	--	--	--	--
05/09/2005	--		110.66	12.00	27.00	13.45	97.21	--	--	--	--	--	--	--	--
08/10/2005	P		110.66	12.00	27.00	14.29	96.37	53	<0.50	1.2	<0.50	2.6	<0.50	2.63	6.5
8/29/2006	P		110.66	12.00	27.00	14.29	96.37	<50	<0.50	<0.50	<0.50	<0.50	<0.50	--	6.5
8/15/2007	NP		110.66	12.00	27.00	14.47	96.19	<50	<0.50	<0.50	<0.50	<0.50	<0.50	2.19	6.81
8/20/2008	NP		110.66	12.00	27.00	14.87	95.79	<50	<0.50	<0.50	<0.50	<0.50	<0.50	3.64	6.63
8/4/2009	NP		110.66	12.00	27.00	14.77	95.89	<50	<0.50	<0.50	<0.50	<0.50	<0.50	2.67	7.44
11/5/2009	P		110.66	12.00	27.00	12.84	97.82	<50	<0.50	<0.50	<0.50	<0.50	<0.50	0.42	6.7
MW-7															
6/21/2000	--		107.05	12.00	27.00	14.57	92.48	--	--	--	--	--	--	--	--
9/20/2000	--		107.05	12.00	27.00	14.58	92.47	--	--	--	--	--	--	--	--
12/22/2000	--		107.05	12.00	27.00	13.21	93.84	--	--	--	--	--	--	--	--
3/26/2001	--		107.05	12.00	27.00	13.18	93.87	71.4	<0.5	<0.5	<0.5	<0.5	<2.5	--	--
5/30/2001	--		107.05	12.00	27.00	13.80	93.25	--	--	--	--	--	--	--	--
9/23/2001	--		107.05	12.00	27.00	14.27	92.78	--	--	--	--	--	--	--	--
12/28/2001	--		107.05	12.00	27.00	12.24	94.81	--	--	--	--	--	--	--	--
3/21/2002	--		107.05	12.00	27.00	12.16	94.89	<50	<0.5	<0.5	<0.5	<0.5	<2.5	--	--
4/17/2002	--		107.05	12.00	27.00	13.08	93.97	--	--	--	--	--	--	--	--
8/19/2002	--		107.05	12.00	27.00	14.73	92.32	<50	<0.5	<0.5	<0.5	<0.5	<2.5	1.4	6.7
11/27/2002	--		107.05	12.00	27.00	14.76	92.29	--	--	--	--	--	--	--	--
2/5/2003	--	d	107.05	12.00	27.00	14.07	92.98	--	--	--	--	--	--	--	--
5/13/2003	--		107.05	12.00	27.00	14.00	93.05	--	--	--	--	--	--	--	--
7/31/2003	--		107.05	12.00	27.00	14.00	93.05	<50	<0.50	<0.50	<0.50	<0.50	<0.50	1.6	6.4

Table 1. Summary of Ground-Water Monitoring Data: Relative Water Elevations and Laboratory Analyses
Station #6148, 5131 Shattuck Ave., Oakland, CA

Well and Sample Date	P/NP	Comments	TOC (feet)	Top of Screen (ft bgs)	Bottom of Screen (ft bgs)	DTW (feet)	Water Level Elevation (feet)	Concentrations in (µg/L)						DO (mg/L)	pH
								GRO/TPHg	Benzene	Toluene	Ethyl-Benzene	Total Xylenes	MTBE		
MW-7 Cont.															
12/17/2003	--		107.05	12.00	27.00	14.10	92.95	--	--	--	--	--	--	--	--
02/13/2004	--	e	112.59	12.00	27.00	13.91	98.68	--	--	--	--	--	--	--	--
05/05/2004	--		112.59	12.00	27.00	14.60	97.99	--	--	--	--	--	--	--	--
08/25/2004	P		112.59	12.00	27.00	15.25	97.34	<50	<0.50	0.53	<0.50	0.91	<0.50	1.2	6.4
11/29/2004	--		112.59	12.00	27.00	15.00	97.59	--	--	--	--	--	--	--	--
01/31/2005	--		112.59	12.00	27.00	13.69	98.90	--	--	--	--	--	--	--	--
05/09/2005	--		112.59	12.00	27.00	13.79	98.80	--	--	--	--	--	--	--	--
08/10/2005	P		112.59	12.00	27.00	15.02	97.57	<50	<0.50	0.51	<0.50	<0.50	<0.50	1.45	6.4
8/29/2006	P		112.59	12.00	27.00	15.00	97.59	<50	<0.50	<0.50	<0.50	<0.50	<0.50	1.6	6.4
8/15/2007	NP		112.59	12.00	27.00	15.10	97.49	<50	<0.50	<0.50	<0.50	<0.50	<0.50	1.00	7.03
8/20/2008	NP		112.59	12.00	27.00	15.75	96.84	<50	<0.50	<0.50	<0.50	<0.50	<0.50	1.17	6.56
8/4/2009	NP		112.59	12.00	27.00	15.67	96.92	<50	<0.50	<0.50	<0.50	<0.50	<0.50	1.15	7.23
11/5/2009	P		112.59	12.00	27.00	13.58	99.01	<50	<0.50	<0.50	<0.50	<0.50	<0.50	0.55	6.56

SYMBOLS AND ABBREVIATIONS:

-- = Not analyzed/applicable/measured/available
< = Not detected at or above specified laboratory reporting limit
DO = Dissolved Oxygen
DTW = Depth to water in feet below ground surface
GWE = Groundwater measured in feet
GRO = Gasoline Range Organics
mg/L = Milligrams per liter or parts per million (ppm)
MTBE = Methyl tertiary butyl ether analyzed by EPA Method 8021B unless otherwise noted (Prior to 2/5/03)
NP = Well not purged prior to sampling
P = Well purged prior to sampling
TOC = Top of casing measured in feet above mean sea level
TPH-g = Total Petroleum Hydrocarbons as Gasoline
ug/L = Micrograms per liter

FOOTNOTES:

a = Hydrocarbon pattern is present in the requested fuel quantitation range but does not resemble the pattern of the requested fuel (TPHg/GRO).
b = Chromatogram Pattern: Gasoline C6-C10 (TPHg/GRO).
c = Well MW-5 not sampled due to ORC sock wedged in well.
d = TPH-g, BTEX, and MTBE analyzed by EPA method 8260B beginning on 1st quarter sampling event (2/5/03).
e = Wells surveyed to NAVD'88 datum on January 29, 2004.
f = During this monitoring event, the oxygen releasing compounds (ORC) were replaced for this well.
g = Quantitation of unknown hydrocarbon(s) in sample based on gasoline.

NOTES:

Beginning in the fourth quarter 2003, the laboratory modified the reported analyte list. TPH-g was changed to GRO. The resulting data may be impacted by the potential inclusion of non-TPH-g analytes within the requested fuel range resulting in a higher concentration being reported. Beginning in the second quarter 2004, the carbon range for GRO was changed from C6-C10 to C4-C12.

The values for pH and DO were obtained from field measurements.

The top and bottom of screen depths for wells MW-1, MW-2 and MW-3 were obtained from EMCON O&M sampling sheets not from well logs.

GRO analysis was completed by EPA method 8260B (C4-C12) for samples collected from the time period April 2006 through February 4, 2008. The analysis for GRO was changed to EPA method 8015B (C6-C12) for samples collected from the time period February 5, 2008 through the present.

Note: The data within this table collected prior to April 2006 was provided to Broadbent & Associates, Inc. by Atlantic Richfield Company and their previous consultants. Broadbent & Associates, Inc. has not verified the accuracy of this information.

Table 2. Summary of Fuel Additives Analytical Data
Station #6148, 5131 Shattuck Ave., Oakland, CA

Well and Sample Date	Concentrations in (µg/L)								Comments
	Ethanol	TBA	MTBE	DIPE	ETBE	TAME	1,2-DCA	EDB	
MW-1									
2/5/2003	<40	<20	1.1	<0.50	<0.50	<0.50	--	--	
5/13/2003	<100	<20	<0.50	<0.50	<0.50	<0.50	--	--	
7/31/2003	<100	<20	0.55	<0.50	<0.50	<0.50	<0.50	<0.50	
12/17/2003	<100	<20	2.5	<0.50	<0.50	<0.50	<0.50	<0.50	
05/05/2004	<100	<20	0.60	<0.50	<0.50	<0.50	<0.50	<0.50	
08/25/2004	<100	<20	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	a
11/29/2004	<100	<20	0.62	<0.50	<0.50	<0.50	<0.50	<0.50	
01/31/2005	<100	<20	0.59	<0.50	<0.50	<0.50	<0.50	<0.50	
05/09/2005	<100	<20	0.55	<0.50	<0.50	<0.50	<0.50	<0.50	
08/10/2005	<100	<20	0.62	<0.50	<0.50	<0.50	<0.50	<0.50	
8/29/2006	<300	<20	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	
8/15/2007	<300	<20	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	b
8/20/2008	<300	<10	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	
8/4/2009	<300	<10	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	
11/5/2009	<300	<10	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	
MW-2									
2/5/2003	<40	<20	4.3	<0.50	<0.50	<0.50	--	--	
5/13/2003	<100	<20	2.8	<0.50	<0.50	<0.50	--	--	
7/31/2003	<100	<20	2.0	<0.50	<0.50	<0.50	<0.50	<0.50	
12/17/2003	<100	<20	2.4	<0.50	<0.50	<0.50	<0.50	<0.50	
02/13/2004	<100	<20	1.6	<0.50	<0.50	<0.50	<0.50	<0.50	
05/05/2004	<100	<20	0.99	<0.50	<0.50	<0.50	<0.50	<0.50	
08/25/2004	<100	<20	0.63	<0.50	<0.50	<0.50	<0.50	<0.50	
11/29/2004	<100	<20	0.55	<0.50	<0.50	<0.50	<0.50	<0.50	
01/31/2005	<100	<20	1.2	<0.50	<0.50	<0.50	<0.50	<0.50	
05/09/2005	<100	<20	1.8	<0.50	<0.50	<0.50	<0.50	<0.50	
08/10/2005	<100	<20	1.5	<0.50	<0.50	<0.50	<0.50	<0.50	
8/29/2006	<300	<20	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	
8/15/2007	<300	<20	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	b
8/20/2008	<300	<10	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	
8/4/2009	<1,200	<40	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	

**Table 2. Summary of Fuel Additives Analytical Data
Station #6148, 5131 Shattuck Ave., Oakland, CA**

Well and Sample Date	Concentrations in (µg/L)								Comments
	Ethanol	TBA	MTBE	DIPE	ETBE	TAME	1,2-DCA	EDB	
MW-2 Cont.									
11/5/2009	<1,200	<40	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	
MW-3									
2/5/2003	<40	<20	2.4	<0.50	<0.50	<0.50	--	--	
5/13/2003	<100	<20	2.2	<0.50	<0.50	<0.50	--	--	
7/31/2003	<100	<20	2.1	<0.50	<0.50	<0.50	<0.50	<0.50	
12/17/2003	<100	<20	4.8	<0.50	<0.50	<0.50	<0.50	<0.50	
02/13/2004	<100	<20	3.1	<0.50	<0.50	<0.50	<0.50	<0.50	
05/05/2004	<100	<20	1.3	<0.50	<0.50	<0.50	<0.50	<0.50	
08/25/2004	<100	<20	3.3	<0.50	<0.50	<0.50	<0.50	<0.50	
11/29/2004	<100	<20	1.4	<0.50	<0.50	<0.50	<0.50	<0.50	
01/31/2005	<100	<20	2.0	<0.50	<0.50	<0.50	<0.50	<0.50	
05/09/2005	<100	<20	0.80	<0.50	<0.50	<0.50	<0.50	<0.50	
08/10/2005	<100	<20	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	
8/29/2006	<300	<20	0.51	<0.50	<0.50	<0.50	<0.50	<0.50	
8/15/2007	<300	<20	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	b
8/20/2008	<300	<10	0.56	<0.50	<0.50	<0.50	<0.50	<0.50	
8/4/2009	<300	<10	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	
11/5/2009	<300	<10	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	
MW-4									
7/31/2003	<100	<20	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	
02/13/2004	<100	<20	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	
08/25/2004	<100	<20	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	
01/31/2005	<100	<20	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	
08/10/2005	<100	<20	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	
8/29/2006	<300	<20	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	
8/15/2007	<300	<20	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	b
8/20/2008	<300	<10	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	
8/4/2009	<300	<10	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	
11/5/2009	<300	<10	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	
MW-5									

**Table 2. Summary of Fuel Additives Analytical Data
Station #6148, 5131 Shattuck Ave., Oakland, CA**

Well and Sample Date	Concentrations in (µg/L)								Comments
	Ethanol	TBA	MTBE	DIPE	ETBE	TAME	1,2-DCA	EDB	
MW-5 Cont.									
5/13/2003	<100	<20	15	<0.50	<0.50	1.1	--	--	
7/31/2003	<100	<20	1.2	<0.50	<0.50	<0.50	<0.50	<0.50	
12/17/2003	<100	<20	1.8	<0.50	<0.50	<0.50	<0.50	<0.50	
02/13/2004	<100	<20	2.6	<0.50	<0.50	<0.50	<0.50	<0.50	
05/05/2004	<100	<20	1.2	<0.50	<0.50	<0.50	<0.50	<0.50	
08/25/2004	<100	<20	1.1	<0.50	<0.50	<0.50	<0.50	<0.50	
11/29/2004	<100	<20	0.61	<0.50	<0.50	<0.50	<0.50	<0.50	
01/31/2005	<100	<20	0.86	<0.50	<0.50	<0.50	<0.50	<0.50	
05/09/2005	<100	<20	0.60	<0.50	<0.50	<0.50	<0.50	<0.50	
08/10/2005	<100	<20	2.5	<0.50	<0.50	<0.50	<0.50	<0.50	
8/29/2006	<300	<20	1.1	<0.50	<0.50	<0.50	<0.50	<0.50	
8/20/2008	<300	<10	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	
8/4/2009	<300	<10	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	
11/5/2009	<300	<10	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	
MW-6									
7/31/2003	<100	<20	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	
08/25/2004	<100	<20	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	
08/10/2005	<100	<20	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	
8/29/2006	<300	<20	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	
8/15/2007	<300	<20	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	b
8/20/2008	<300	<10	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	
8/4/2009	<300	<10	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	
11/5/2009	<300	<10	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	
MW-7									
7/31/2003	<100	<20	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	
08/25/2004	<100	<20	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	
08/10/2005	<100	<20	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	
8/29/2006	<300	<20	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	
8/15/2007	<300	<20	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	b
8/20/2008	<300	<10	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	

**Table 2. Summary of Fuel Additives Analytical Data
Station #6148, 5131 Shattuck Ave., Oakland, CA**

Well and Sample Date	Concentrations in (µg/L)								Comments
	Ethanol	TBA	MTBE	DIPE	ETBE	TAME	1,2-DCA	EDB	
MW-7 Cont.									
8/4/2009	<300	<10	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	
11/5/2009	<300	<10	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	

SYMBOLS AND ABBREVIATIONS:

< = Not detected at or above the specified laboratory reporting limit

-- = Not available/analyzed/applicable

DIPE = Di-isopropyl ether

EDB = 1,2-Dibromoethane

ETBE = Ethyl tert butyl ether

MTBE = Methyl tert-butyl ether

1,2-DCA = 1,2-Dichloroethane

TAME = tert-Amyl methyl ether

TBA = tert-Butyl alcohol

ug/L = micrograms per liter

FOOTNOTES:

a = This sample was analyzed beyond the EPA recommended holding time. The results may still be useful for their intended purpose.

b = Calib. Verif. Is within method limits but outside contract limits for Ethanol.

Note: The data within this table collected prior to April 2006 was provided to Broadbent & Associates, Inc. by Atlantic Richfield Company and their previous consultants. Broadbent & Associates, Inc. has not verified the accuracy of this information.

**Table 3. Historical Ground-Water Flow Direction and Gradient
Station #6148, 5131 Shattuck Ave., Oakland, CA**

Date Sampled	Approximate Flow Direction	Approximate Hydraulic Gradient
6/21/2000	South-Southwest	0.016
9/20/2000	South-Southwest	0.017
12/22/2000	South-Southwest	0.022
3/26/2001	South-Southwest	0.02
5/30/2001	South-Southwest	0.02
9/23/2001	South-Southwest	0.019
12/28/2001	Southwest	0.019
3/21/2002	Southwest	0.019
4/17/2002	Southwest	0.017
8/19/2002	Southwest	0.016
11/27/2002	Southwest	0.015
2/5/2003	Southwest	0.017
5/13/2003	Southwest	0.013
7/31/2003	Southwest	0.014
2/13/2004	Southwest	0.016
5/5/2004	Southwest	0.016
8/25/2004	Southwest	0.013
11/29/2004	Southwest	0.013
1/31/2005	Southwest	0.02
5/9/2005	Southwest	0.02
8/10/2005	Southwest	0.02
8/29/2006	Southwest	0.014
8/15/2007	Southwest	0.015
8/20/2008	Southwest	0.012
8/4/2009	Southwest	0.01
11/5/2009	Southwest	0.02

Note: The data within this table collected prior to April 2006 was provided to Broadbent & Associates, Inc. by Atlantic Richfield Company and their previous consultants. Broadbent & Associates, Inc. has not verified the accuracy of this information.

APPENDIX A

BAI GROUND-WATER SAMPLING DATA PACKAGE

(Includes Field Data Sheets, Laboratory Analytical Report with Chain-Of-Custody Documentation, and Field Procedures)

Project: 2162 Project No.: 06-08-620

Field Representative(s): J. L. Gibbs & E. L. Carver Day: Thurs Date: 11/5/09

Time Onsite: From: _____ To: _____; From: _____ To: _____; From: _____ To: _____

Signed HASP Safety Glasses Hard Hat Steel Toe Boots Safety Vest
 UST Emergency System Shut-off Switches Located Proper Gloves
 Proper Level of Barricading Other PPE (describe) _____

Weather: Clear 60's

Equipment In Use: _____

Visitors: _____

TIME:	WORK DESCRIPTION:
<u>0735</u>	<u>Depart Ucaeville 2436.7 mi</u>
<u>0845</u>	<u>Arrive BP 6148 Sheathock</u>
<u>1240</u>	<u>BP Depart BP 6148 2497.6</u>
<u>1407</u>	<u>Arrive BP W. Sul Dump 2578.6</u>
<u>1455</u>	<u>Depart BP 5786 2578.6</u>
<u>1520</u>	<u>2605</u>

Signature: _____

Facility: 6148
Address: 5131 Shattuck Avenue, Oakland
County: Alameda

Sampler: Doulos
RT Mileage: 228
QM Enfos #: 000V0-0003
Global ID #: T0600100103

Last sampled: Aug-09
Sample Month: 2
System: None

Well ID	Sample Order	WELL SAMPLING SCHEDULE				Purge Method	FIELD TESTING			WELL CONSTRUCTION AND SAMPLING VOLUMES							Fire Watch	Traffic Control	Well Vault > 24"
		1Q	2Q	3Q	4Q		pH/ temp/ cond.	DO	Redox	well dia. (in)	top of screen (ft bgs)	TD (ft bgs)	DTW (ft bgs)	Purge volume (gal)	FP				
MW-1		---	---	GBOE	GBOE	Purge	Y	Y	N	4.0	13.0	25.48	17.63	15.36	N	Y	N		
MW-2		---	---	GBOE	GBOE	Purge	Y	Y	N	4.0	14.0	25.63	17.33	16.25	N	Y	N		
MW-3		---	---	GBOE	GBOE	Purge	Y	Y	N	4.0	14.0	25.62	17.60	15.70	N	Y	N		
MW-4		---	---	GBOE	GBOE	Purge	Y	Y	N	4.0	11.5	26.07	16.04	19.63	N	Y	N		
MW-5		---	---	GBOE	GBOE	Purge	Y	Y	N	4.0	10.0	19.47	16.60	5.62	N	Y	N		
MW-6		---	---	GBOE	GBOE	Purge	Y	Y	N	4.0	12.0	26.65	14.29	24.19	N	Y	N		
MW-7		---	---	GBOE	GBOE	Purge	Y	Y	N	4.0	12.0	27.00	15.00	23.49	N	Y	N		

Take Post-Purge D.O. readings (in a cup) on all sampled wells.

Analyses:

GBOE = GRO by 8015M; BTEX/5 FO + EDB, 1,2-DCA, Ethanol by 8260
QA/QC = Trip & Temp blanks to be submitted with all sampling events. Contact coordinator if blanks are not supplied with bottle set. Trip blanks to be submit "ON HOLD". TB ID = TB -"site#" - "MMDDYYYY" (ex. TB - 6148 - 01012007)

Gauging: All wells annually

Regulatory Agency: Alameda County Environmental Health, Paresh Khatri (510) 777-2478.

Purge Method:
 P = Purge
 NP = No Purge
 TBD = To Be Determined based on DTW vs. Top of Screen

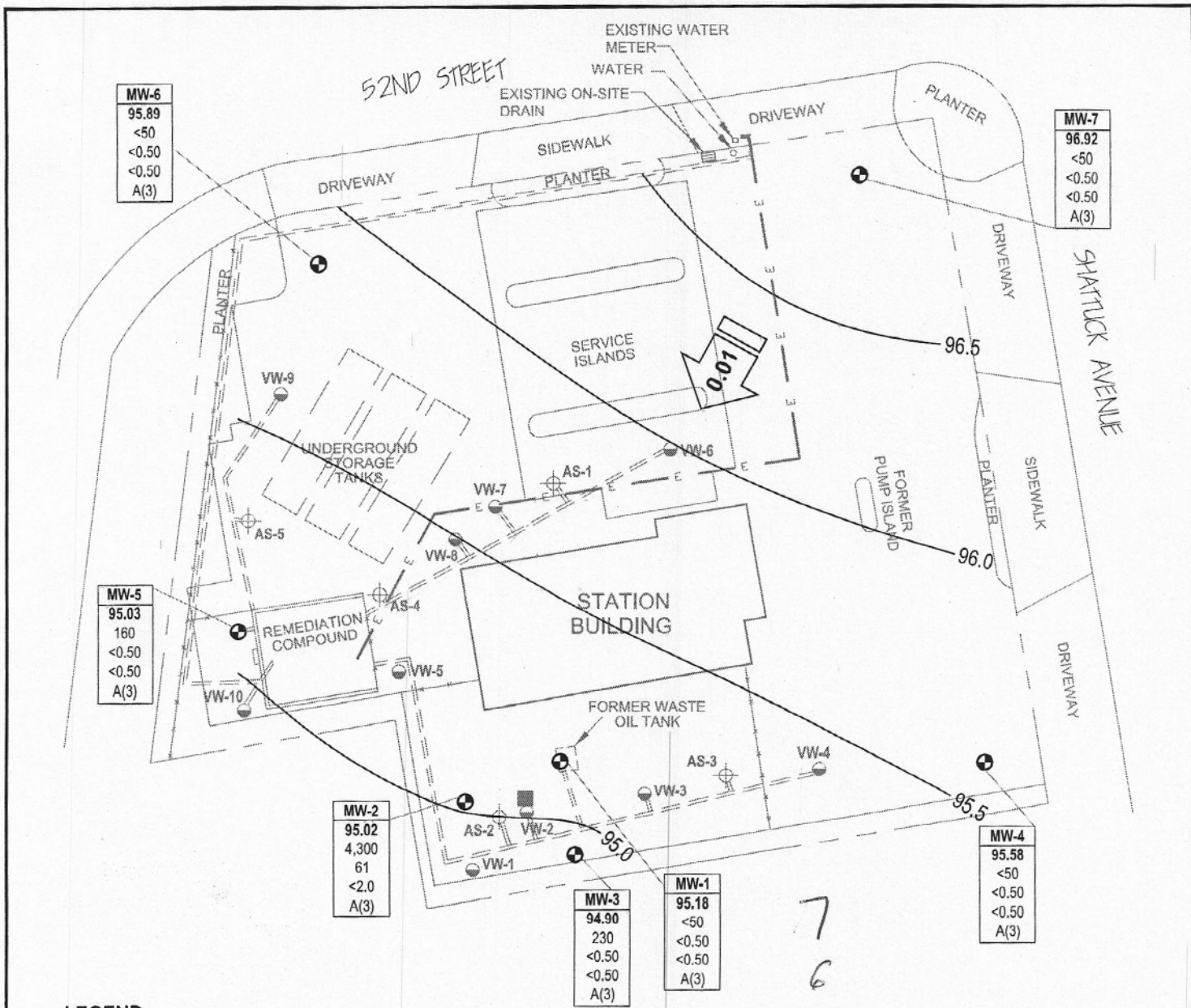
Tenant:
Owner:

Notification: Stratus to provide ACEH at least 3 business days notification prior to conducting field work (email notification can be sent to Paresh Khatri at paresh.khatri@acgov.org)

Permits:

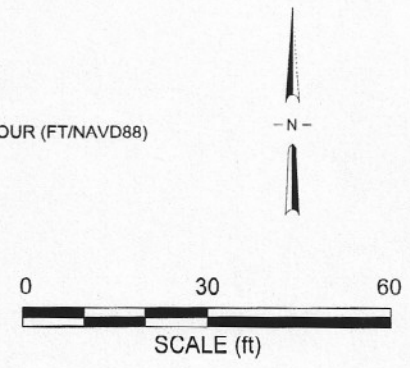
Comments/Notes:
 MW-5 not gauged/sampled in 3Q2007 because it is behind a locked gate without key. Doulos shall cut lock and replace next visit with Station Manager's approval.
 Ask for gate lock key inside the store.
 Special one-time sampling 4Q09 to confirm anomalous findings from 3Q09. Purge all wells prior to sampling.

For Internal Use only
Stratus Submittal Date:
 CH 9/8/2009
Broadbent Approval Date:
 TV 9/23/2009



LEGEND

- MONITORING WELL
 - AIR SPARGING WELL
 - SOIL VAPOR EXTRACTION WELL
 - DESTROYED WELL
 - ELECTRICAL LINE
 - FENCING
 - REMEDIATION PIPING
 - GROUND-WATER FLOW DIRECTION AND GRADIENT (FT/FT)
 - GROUND-WATER ELEVATION CONTOUR (FT/NAVD88)
- | | |
|---------|---|
| Well | WELL DESIGNATION |
| ELEV | GROUND-WATER ELEVATION (FT ABOVE NAVD88) |
| GRO | CONCENTRATION OF GRO, BENZENE AND MTBE IN GROUND WATER (µg/L) |
| Benzene | |
| MTBE | |
| A | SAMPLING FREQUENCY |
| A(3) | SAMPLED ANNUALLY, 3RD QUARTER |
| < | NOT DETECTED AT OR ABOVE LABORATORY REPORTING LIMITS |
| NS | NOT SAMPLED |
| ORC | OXYGEN RELEASING COMPOUND SOCK |



NOTE: SITE MAP ADAPTED FROM IT CORPORATION FIGURES. SITE DIMENSIONS AND FACILITY LOCATIONS NOT VERIFIED.



BROADBENT & ASSOCIATES, INC.
ENGINEERING, WATER RESOURCES & ENVIRONMENTAL

Groundwater Sampling Data Sheet

Well I.D.: MW-1

Project Name/Location: BP 6148 Project #: 09-88-038
 Sampler's Name: CF TG Date: 11/05/09
 Purging Equipment: Bailer
 Sampling Equipment: Bailer

Casing Type: PVC

Casing Diameter: 4 inch

***UNIT CASING VOLUMES**

Total Well Depth: 25.89 feet

2" = 0.16 gal/lin ft.

Depth to Water: - 16.72 feet

3" = 0.37 gal/lin ft.

Water Column Thickness: = 9.17 feet

4" = 0.65 gal/lin ft.

Unit Casing Volume*: x 0.65 gallon / foot

6" = 1.47 gal/lin ft.

Casing Water Volume: = 5.92 gallons

Casing Volume: x 3 each

Estimated Purge Volume: = 17.78 gallons

Free product measurement (if present):

Purged (gallons)	Time (24:00)	DO mg/L	ORP (mV)	Fe	Conductance (µS)	Temperature (Fahrenheit)	pH	Observations
0	1128	0.97	-4		464.3	20.6	6.73	
5	1134	X	X	X	504.4	20.9	6.52	
10	1134	X	X	X	520.8	20.7	6.54	
		X	X	X				
		X	X	X				
		X	X	X				
		X	X	X				
		X	X	X				

Total Water Volume Purged: 10 gallons

Depth to Water at Sample Collection: 18.57 feet

Sample Collection Time: 1154

Purged Dry? (Y/N) (N)

Comments:



BROADBENT & ASSOCIATES, INC.
ENGINEERING, WATER RESOURCES & ENVIRONMENTAL

Groundwater Sampling Data Sheet

Well I.D.: MW-2
 Project Name/Location: T. Geddes E. Farm Project #: 09-88-638
 Sampler's Name: BP 6148 Date: 11/2/09
 Purging Equipment: Boiler
 Sampling Equipment: Boiler

Casing Type: PVC

Casing Diameter: 4" inch
 Total Well Depth: 25.63 feet
 Depth to Water: - 16.42 feet
 Water Column Thickness: = 9.21 feet
 Unit Casing Volume*: x .65 gallon / foot
 Casing Water Volume: = 5.9 gallons
 Casing Volume: x 3 each
 Estimated Purge Volume: = 17.9 gallons

***UNIT CASING VOLUMES**

2" = 0.16 gal/lin ft.
 3" = 0.37 gal/lin ft.
 4" = 0.65 gal/lin ft.
 6" = 1.47 gal/lin ft.

Free product measurement (if present):

Purged (gallons)	Time (24:00)	DO	ORP (mV)	Fe	Conductance (µS)	Temperature (Fahrenheit)	pH	Observations
6	1210	.22	-126		801.3	20.5	6.6	
5	1215	X	X	X	734.5	20.6	6.6	
8	1218	X	X	X	637.4	20.6	6.6	
10	1220	X	X	X	623.3	20.4	6.6	
		X	X	X				
		X	X	X				
		X	X	X				
		X	X	X				

Total Water Volume Purged: 9.10 gallons
 Depth to Water at Sample Collection: 18.18 feet
 Sample Collection Time: 1225

Purged Dry? (Y/N) (N)

Comments:



BROADBENT & ASSOCIATES, INC.
ENGINEERING, WATER RESOURCES & ENVIRONMENTAL

Groundwater Sampling Data Sheet

Well I.D.: MW-3
 Project Name/Location: DP 6148 Project #: 09-88-638
 Sampler's Name: J. Geddes E. Farrar Date: 11/5/09
 Purging Equipment: Bailer
 Sampling Equipment: Bailer

Casing Type: PVC
 Casing Diameter: 4" inch
 Total Well Depth: 25.62 feet
 Depth to Water: - 16.65 feet
 Water Column Thickness: = 8.97 feet
 Unit Casing Volume*: x .65 gallon / foot
 Casing Water Volume: = 5.8 gallons
 Casing Volume: x 3 each
 Estimated Purge Volume: = 17.4 gallons

***UNIT CASING VOLUMES**

2" = 0.16 gal/lin ft.
 3" = 0.37 gal/lin ft.
 4" = 0.65 gal/lin ft.
 6" = 1.47 gal/lin ft.

Free product measurement (if present): _____

Purged (gallons)	Time (24:00)	DO	ORP (mV)	Fe	Conductance (µS)	Temperature (Fahrenheit)	pH	Observations
0	1150	.71	22		585.5	20.5	6.5	
5	1200	X	X	X	619.7	20.6	6.5	
8	1205	X	X	X	632.9	20.5	6.6	
		X	X	X				
		X	X	X				
		X	X	X				
		X	X	X				
		X	X	X				

Total Water Volume Purged: 8 gallons

Depth to Water at Sample Collection: 19.35 feet

Sample Collection Time: 1210 Purged Dry? (Y / N)

Comments: _____



BROADBENT & ASSOCIATES, INC.

ENGINEERING, WATER RESOURCES & ENVIRONMENTAL

Groundwater Sampling Data Sheet

Well I.D.: MW-41

Project Name/Location: BP 6148 Project #: 09-88-638

Sampler's Name: EFTG Date: 11/05/09

Purging Equipment: Bailer

Sampling Equipment: Bailer

Casing Type: PVC

Casing Diameter: 4 inch

Total Well Depth: 26.07 feet

Depth to Water: - 15.18 feet

Water Column Thickness: = 10.89 feet

Unit Casing Volume*: x 0.65 gallon / foot

Casing Water Volume: = 7.07 gallons

Casing Volume: x 3 each

Estimated Purge Volume: = 21.23 gallons

*UNIT CASING VOLUMES

2" = 0.16 gal/lin ft.

3" = 0.37 gal/lin ft.

4" = 0.65 gal/lin ft.

6" = 1.47 gal/lin ft.

Free product measurement (if present):

Purged (gallons)	Time (24:00)	DO (mg/L)	ORP (mV)	Fe	Conductance (µS)	Temperature (Fahrenheit)	pH	Observations
0	1031	0.66	81		491.0	20.9	6.71	
5	1035	X	X	X	486.4	21.6	6.52	
10	1039	0.85	38	X	483.5	22.2	6.49	
		X	X	X				
		X	X	X				
		X	X	X				
		X	X	X				
		X	X	X				

Total Water Volume Purged: 10 gallons

Depth to Water at Sample Collection: 15.25 feet

Sample Collection Time: 1045

Purged Dry? (Y / N)

Comments:



BROADBENT & ASSOCIATES, INC.

ENGINEERING, WATER RESOURCES & ENVIRONMENTAL

Groundwater Sampling Data Sheet

Well I.D.: MW-5
 Project Name/Location: SP 6148 Project #: 09-88-638
 Sampler's Name: T. Geddes E. Farvar Date: 11/5/09
 Purging Equipment: Beiler
 Sampling Equipment: Beiler

Casing Type: PVC

Casing Diameter: 4 1/4 inch

*UNIT CASING VOLUMES

Total Well Depth: 19.47 feet

2" = 0.16 gal/lin ft.

Depth to Water: - 15.46 feet

3" = 0.37 gal/lin ft.

Water Column Thickness: = 4.01 feet

4" = 0.65 gal/lin ft.

Unit Casing Volume*: x .65 gallon / foot

6" = 1.47 gal/lin ft.

Casing Water Volume: = 2.6 gallons

Casing Volume: x 3 each

Estimated Purge Volume: = 7.8 gallons

Free product measurement (if present): _____

Purged (gallons)	Time (24:00)	DO	ORP (mV)	Fe	Conductance (µS)	Temperature (Fahrenheit)	pH	Observations
0	1104	.72	5		566.0	19.7	6.4	
3	1108	X	X	X	572.7	19.7	6.4	
4		X	X	X	575.7	19.7	6.4	
		X	X	X				
		X	X	X				
		X	X	X				
		X	X	X				
		X	X	X				

Total Water Volume Purged: 4 gallons

Depth to Water at Sample Collection: 15.72 feet

Sample Collection Time: 1115 Purged Dry? (Y / N)

Comments: _____



BROADBENT & ASSOCIATES, INC.

ENGINEERING, WATER RESOURCES & ENVIRONMENTAL

Groundwater Sampling Data Sheet

Well I.D.: MW-6
 Project Name/Location: BP 0148 Project #: 09-88-638
 Sampler's Name: T. Goddess E. Farrar Date: 11/5/09
 Purging Equipment: Diaper
 Sampling Equipment: Diaper

Casing Type: PVC
 Casing Diameter: 4" inch
 Total Well Depth: 26.65 feet
 Depth to Water: - 12.84 feet
 Water Column Thickness: = 13.81 feet
 Unit Casing Volume*: x .65 gallon / foot
 Casing Water Volume: = 8.9 gallons
 Casing Volume: x 3 each
 Estimated Purge Volume: = 26.9 gallons

*UNIT CASING VOLUMES

2" = 0.16 gal/lin ft.
 3" = 0.37 gal/lin ft.
 4" = 0.65 gal/lin ft.
 6" = 1.47 gal/lin ft.

Free product measurement (if present):

Purged (gallons)	Time (24:00)	DO	ORP (mV)	Fe	Conductance (μS)	Temperature (Fahrenheit)	pH	Observations
<u>0</u>	<u>1000</u>	<u>.42</u>	<u>25</u>		<u>574.8</u>	<u>20.6</u>	<u>6.7</u>	
<u>5</u>	<u>1007</u>	X	X	X	<u>624.7</u>	<u>20.5</u>	<u>6.7</u>	
<u>10</u>	<u>1012</u>	X	X	X	<u>617.9</u>	<u>21.0</u>	<u>6.7</u>	
		X	X	X				
		X	X	X				
		X	X	X				
		X	X	X				
		X	X	X				

Total Water Volume Purged: 10 gallons

Depth to Water at Sample Collection: 12.87 feet

Sample Collection Time: 1015

Purged Dry? (Y/N) (N)

Comments:



BROADBENT & ASSOCIATES, INC.
ENGINEERING, WATER RESOURCES & ENVIRONMENTAL

Groundwater Sampling Data Sheet

Well I.D.: MW-7
 Project Name/Location: BP C148 Project #: 09-88-638
 Sampler's Name: EFTG Date: 11/05/09
 Purging Equipment: Bailer
 Sampling Equipment: Bailer

Casing Type: PVC
 Casing Diameter: 4 inch
 Total Well Depth: 27.00 feet
 Depth to Water: - 13.58 feet
 Water Column Thickness: = 21.42 feet
 Unit Casing Volume*: x 0.65 gallon / foot
 Casing Water Volume: = 13.92 gallons
 Casing Volume: x 3 each
 Estimated Purge Volume: = 41.7 gallons

***UNIT CASING VOLUMES**

2" = 0.16 gal/lin ft.
 3" = 0.37 gal/lin ft.
 4" = 0.65 gal/lin ft.
 6" = 1.47 gal/lin ft.

Free product measurement (if present):

Purged (gallons)	Time (24:00)	DO	ORP (mV)	Fe	Conductance (µS)	Temperature (Fahrenheit)	pH	Observations
0	0924	0.55	27		608.2	21.3	6.74	
8	0932	X	X	X	644.7	22.0	6.57	
15	0941	X	X	X	662.4	21.7	6.56	
		X	X	X				
		X	X	X				
		X	X	X				
		X	X	X				
		X	X	X				

Total Water Volume Purged: 15 gallons

Depth to Water at Sample Collection: ~~14.67~~ 13.68 feet

Sample Collection Time: 0945

Purged Dry? (Y / N)

Comments:

FIELD PROCEDURES

A.1 QUALITY ASSURANCE/QUALITY CONTROL FIELD PROTOCOLS

Field protocols have been implemented to maximize the accuracy and reliability of data collection, ground-water sample collection, transportation and laboratory analysis. Discussion of these protocols is provided below.

A.1.1 Water Level & Free-Phase Product Measurement

Prior to ground-water sample collection from each monitor well, the presence of free-phase product and depth to ground water shall be measured. Depth to ground water will be measured with a standard M-Scope water level indicator (or equivalent) that has been decontaminated prior to its use in accordance with procedures discussed below. Depth to ground water will be gauged from a saw cut notch at the top of the well casing on each well head. Once depth to water has been measured, a new disposable bailer will be utilized to monitor for the presence and thickness of free-phase product.

A.1.2 Monitor Well Purging

Subsequent to measuring depth to ground water, a minimum of three casing volumes of water will be purged from each monitor well using a Geosquirt submersible pump (or equivalent) and disposable plastic tubing dedicated to each individual well. The well will be purged at a low flow rate to minimize the possibility of purging the well dry. To assure that the sample collected is representative of formation water, several field parameters will be monitored during the purging process and the sample will not be collected until these parameters have stabilized to within 10% of a measured value. These parameters will include temperature, pH, and conductivity. If a well is purged dry, the sample will not be collected until the well has recovered to a minimum 50% of its initial volume.

Ground-water sampling equipment (e.g., M-scope and the Geosquirt purge pump) will be thoroughly cleansed with a solution of Liquinox, rinsed with tap water, and finally rinsed with control water prior to use in each well. Pre-cleaned disposable bailers and disposable plastic tubing will be dedicated to each individual well.

A.1.3 Ground-Water Sample Collection

Once the wells are satisfactorily purged, water samples will be collected from each well. Water samples for organic analyses will be collected using a clean disposable bailer and transferred to laboratory-prepared 40 ml vials, in duplicate; such that no head space or air bubbles are present in the sample. The samples will be properly labeled (sample identification, sampler initials, date and time of collection, site location, and requested analyses), placed in an ice chest with blue ice, and delivered to an analytical laboratory.

A.1.4 Surface Water Sample Collection

Surface water samples will be collected from mid-depth in the central area of the associated stream. Water samples will be collected in laboratory-prepared 40 ml vials by dipping the vial into the stream water. Each vial will be inverted to check that no head space or bubbles are present. The samples will be properly labeled and transported as described above.

A.1.5 Chain of Custody Procedure

Sample identification documents will be carefully prepared so identification and chain of custody can be maintained and sample disposition can be controlled. The sample identification documents include Chain-of-Custody (COC) records and Daily Field Report forms. Chain of custody procedures are outlined below.

Field Custody Procedures

The field sampler is personally responsible for the care and custody of the samples collected until they are properly transferred.

Samples will have individual labels. The information on these labels will correspond to the COC which shows the identification of individual samples and the contents of the shipping container. The original COC will accompany the shipment and a copy will be retained by the sampler for the client.

The staff person conducting the sampling will determine whether proper custody procedures were followed during the field work.

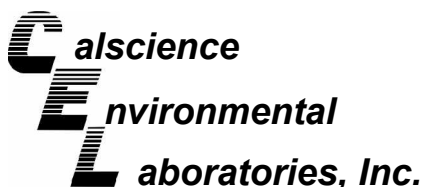
Transfer of Custody and Shipment

A COC will accompany samples during transfer and shipment. When transferring samples, the individual's relinquishing and receiving the samples will sign, date, and note the time on the COC. This COC documents the sample custody transfer.

Samples will be packaged properly for shipment and dispatched to the appropriate laboratory for analysis, with a separate COC accompanying each shipment. Shipments will be accompanied by the original COC. Samples will be delivered by BAI personnel to the laboratory, or shipped by courier.

A.1.6 Field Records

In addition to sample identification numbers and Chain-of Custody records, Daily Field Report records will be maintained by staff personnel to provide daily records of significant events, observations, and measurements during field investigations. These documents will contain information such as: personnel present, site conditions, sampling procedures, measurement procedures, calibration records, etc. Field measurements will be recorded on the appropriate forms. Entries on the data forms will be signed and dated. The data forms will be kept as permanent records.



November 20, 2009

Tom Venus
Broadbent & Associates, Inc.
1324 Mangrove Ave, Ste 212
Chico, CA 95926-2642

Subject: **CalScience Work Order No.: 09-11-0745**
Client Reference: BP 6148

Dear Client:

Enclosed is an analytical report for the above-referenced project. The samples included in this report were received 11/10/2009 and analyzed in accordance with the attached chain-of-custody.

Unless otherwise noted, all analytical testing was accomplished in accordance with the guidelines established in our Quality Systems Manual, applicable standard operating procedures, and other related documentation. The original report of subcontracted analysis, if any, is provided herein, and follows the standard CalScience data package. The results in this analytical report are limited to the samples tested and any reproduction thereof must be made in its entirety.

If you have any questions regarding this report, please do not hesitate to contact the undersigned.

Sincerely,

A handwritten signature in black ink, appearing to read 'Richard Villafania'.

CalScience Environmental
Laboratories, Inc.
Richard Villafania
Project Manager

Analytical Report



Broadbent & Associates, Inc.
1324 Mangrove Ave, Ste 212
Chico, CA 95926-2642

Date Received: 11/10/09
Work Order No: 09-11-0745
Preparation: EPA 5030B
Method: EPA 8015B (M)

Project: BP 6148

Page 1 of 2

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
MW-1	09-11-0745-1-C	11/05/09 11:54	Aqueous	GC 11	11/11/09	11/12/09 01:54	091111B01

<u>Parameter</u>	<u>Result</u>	<u>RL</u>	<u>DF</u>	<u>Qual</u>	<u>Units</u>
Gasoline Range Organics (C6-C12)	ND	50	1		ug/L
<u>Surrogates:</u>	<u>REC (%)</u>	<u>Control Limits</u>		<u>Qual</u>	
1,4-Bromofluorobenzene	49	38-134			

MW-2	09-11-0745-2-C	11/05/09 12:25	Aqueous	GC 11	11/11/09	11/12/09 02:28	091111B01
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Comment(s): -LW = Quantitation of unknown hydrocarbon(s) in sample based on gasoline.

<u>Parameter</u>	<u>Result</u>	<u>RL</u>	<u>DF</u>	<u>Qual</u>	<u>Units</u>
Gasoline Range Organics (C6-C12)	2100	50	1		ug/L
<u>Surrogates:</u>	<u>REC (%)</u>	<u>Control Limits</u>		<u>Qual</u>	
1,4-Bromofluorobenzene	132	38-134			

MW-3	09-11-0745-3-C	11/05/09 12:10	Aqueous	GC 11	11/11/09	11/12/09 03:01	091111B01
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Comment(s): -LW = Quantitation of unknown hydrocarbon(s) in sample based on gasoline.

<u>Parameter</u>	<u>Result</u>	<u>RL</u>	<u>DF</u>	<u>Qual</u>	<u>Units</u>
Gasoline Range Organics (C6-C12)	280	50	1		ug/L
<u>Surrogates:</u>	<u>REC (%)</u>	<u>Control Limits</u>		<u>Qual</u>	
1,4-Bromofluorobenzene	60	38-134			

MW-4	09-11-0745-4-C	11/05/09 10:45	Aqueous	GC 11	11/11/09	11/12/09 03:35	091111B01
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<u>Parameter</u>	<u>Result</u>	<u>RL</u>	<u>DF</u>	<u>Qual</u>	<u>Units</u>
Gasoline Range Organics (C6-C12)	ND	50	1		ug/L
<u>Surrogates:</u>	<u>REC (%)</u>	<u>Control Limits</u>		<u>Qual</u>	
1,4-Bromofluorobenzene	54	38-134			

RL - Reporting Limit , DF - Dilution Factor , Qual - Qualifiers

Analytical Report



Broadbent & Associates, Inc.
1324 Mangrove Ave, Ste 212
Chico, CA 95926-2642

Date Received: 11/10/09
Work Order No: 09-11-0745
Preparation: EPA 5030B
Method: EPA 8015B (M)

Project: BP 6148

Page 2 of 2

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
MW-5	09-11-0745-5-C	11/05/09 11:15	Aqueous	GC 11	11/11/09	11/12/09 04:09	091111B01

Comment(s): -LW = Quantitation of unknown hydrocarbon(s) in sample based on gasoline.

Parameter	Result	RL	DF	Qual	Units
Gasoline Range Organics (C6-C12)	260	50	1		ug/L
<u>Surrogates:</u>	<u>REC (%)</u>	<u>Control Limits</u>		<u>Qual</u>	
1,4-Bromofluorobenzene	57	38-134			

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
MW-6	09-11-0745-6-C	11/05/09 10:15	Aqueous	GC 11	11/11/09	11/12/09 04:43	091111B01

Parameter	Result	RL	DF	Qual	Units
Gasoline Range Organics (C6-C12)	ND	50	1		ug/L
<u>Surrogates:</u>	<u>REC (%)</u>	<u>Control Limits</u>		<u>Qual</u>	
1,4-Bromofluorobenzene	53	38-134			

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
MW-7	09-11-0745-7-C	11/05/09 09:45	Aqueous	GC 11	11/11/09	11/12/09 05:16	091111B01

Parameter	Result	RL	DF	Qual	Units
Gasoline Range Organics (C6-C12)	ND	50	1		ug/L
<u>Surrogates:</u>	<u>REC (%)</u>	<u>Control Limits</u>		<u>Qual</u>	
1,4-Bromofluorobenzene	53	38-134			

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
Method Blank	099-12-695-687	N/A	Aqueous	GC 11	11/11/09	11/11/09 15:47	091111B01

Parameter	Result	RL	DF	Qual	Units
Gasoline Range Organics (C6-C12)	ND	50	1		ug/L
<u>Surrogates:</u>	<u>REC (%)</u>	<u>Control Limits</u>		<u>Qual</u>	
1,4-Bromofluorobenzene	49	38-134			

RL - Reporting Limit , DF - Dilution Factor , Qual - Qualifiers

Analytical Report



Broadbent & Associates, Inc.
1324 Mangrove Ave, Ste 212
Chico, CA 95926-2642

Date Received: 11/10/09
Work Order No: 09-11-0745
Preparation: EPA 5030B
Method: EPA 8260B
Units: ug/L

Project: BP 6148

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Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
MW-1	09-11-0745-1-A	11/05/09 11:54	Aqueous	GC/MS BB	11/13/09	11/13/09 18:44	091113L01

Parameter	Result	RL	DF	Qual	Parameter	Result	RL	DF	Qual
Benzene	0.51	0.50	1		Methyl-t-Butyl Ether (MTBE)	ND	0.50	1	
1,2-Dibromoethane	ND	0.50	1		Tert-Butyl Alcohol (TBA)	ND	10	1	
1,2-Dichloroethane	ND	0.50	1		Diisopropyl Ether (DIPE)	ND	0.50	1	
Ethylbenzene	ND	0.50	1		Ethyl-t-Butyl Ether (ETBE)	ND	0.50	1	
Toluene	ND	0.50	1		Tert-Amyl-Methyl Ether (TAME)	ND	0.50	1	
Xylenes (total)	ND	0.50	1		Ethanol	ND	300	1	
<u>Surrogates:</u>	<u>REC (%)</u>	<u>Control Limits</u>		<u>Qual</u>	<u>Surrogates:</u>	<u>REC (%)</u>	<u>Control Limits</u>		<u>Qual</u>
1,2-Dichloroethane-d4	96	80-128			Dibromofluoromethane	97	80-127		
Toluene-d8	99	80-120			1,4-Bromofluorobenzene	89	68-120		

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
MW-2	09-11-0745-2-B	11/05/09 12:25	Aqueous	GC/MS BB	11/15/09	11/15/09 17:52	091115L01

Parameter	Result	RL	DF	Qual	Parameter	Result	RL	DF	Qual
Benzene	51	2.0	4		Methyl-t-Butyl Ether (MTBE)	ND	2.0	4	
1,2-Dibromoethane	ND	2.0	4		Tert-Butyl Alcohol (TBA)	ND	40	4	
1,2-Dichloroethane	ND	2.0	4		Diisopropyl Ether (DIPE)	ND	2.0	4	
Ethylbenzene	150	2.0	4		Ethyl-t-Butyl Ether (ETBE)	ND	2.0	4	
Toluene	3.0	2.0	4		Tert-Amyl-Methyl Ether (TAME)	ND	2.0	4	
Xylenes (total)	75	2.0	4		Ethanol	ND	1200	4	
<u>Surrogates:</u>	<u>REC (%)</u>	<u>Control Limits</u>		<u>Qual</u>	<u>Surrogates:</u>	<u>REC (%)</u>	<u>Control Limits</u>		<u>Qual</u>
1,2-Dichloroethane-d4	98	80-128			Dibromofluoromethane	101	80-127		
Toluene-d8	99	80-120			1,4-Bromofluorobenzene	100	68-120		

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
MW-3	09-11-0745-3-A	11/05/09 12:10	Aqueous	GC/MS BB	11/13/09	11/13/09 19:41	091113L01

Parameter	Result	RL	DF	Qual	Parameter	Result	RL	DF	Qual
Benzene	ND	0.50	1		Methyl-t-Butyl Ether (MTBE)	ND	0.50	1	
1,2-Dibromoethane	ND	0.50	1		Tert-Butyl Alcohol (TBA)	ND	10	1	
1,2-Dichloroethane	ND	0.50	1		Diisopropyl Ether (DIPE)	ND	0.50	1	
Ethylbenzene	ND	0.50	1		Ethyl-t-Butyl Ether (ETBE)	ND	0.50	1	
Toluene	ND	0.50	1		Tert-Amyl-Methyl Ether (TAME)	ND	0.50	1	
Xylenes (total)	ND	0.50	1		Ethanol	ND	300	1	
<u>Surrogates:</u>	<u>REC (%)</u>	<u>Control Limits</u>		<u>Qual</u>	<u>Surrogates:</u>	<u>REC (%)</u>	<u>Control Limits</u>		<u>Qual</u>
1,2-Dichloroethane-d4	90	80-128			Dibromofluoromethane	95	80-127		
Toluene-d8	99	80-120			1,4-Bromofluorobenzene	95	68-120		

RL - Reporting Limit , DF - Dilution Factor , Qual - Qualifiers



Analytical Report



Broadbent & Associates, Inc.
 1324 Mangrove Ave, Ste 212
 Chico, CA 95926-2642

Date Received: 11/10/09
 Work Order No: 09-11-0745
 Preparation: EPA 5030B
 Method: EPA 8260B
 Units: ug/L

Project: BP 6148

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Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
MW-4	09-11-0745-4-A	11/05/09 10:45	Aqueous	GC/MS BB	11/13/09	11/13/09 20:10	091113L01

Parameter	Result	RL	DF	Qual	Parameter	Result	RL	DF	Qual
Benzene	ND	0.50	1		Methyl-t-Butyl Ether (MTBE)	ND	0.50	1	
1,2-Dibromoethane	ND	0.50	1		Tert-Butyl Alcohol (TBA)	ND	10	1	
1,2-Dichloroethane	ND	0.50	1		Diisopropyl Ether (DIPE)	ND	0.50	1	
Ethylbenzene	ND	0.50	1		Ethyl-t-Butyl Ether (ETBE)	ND	0.50	1	
Toluene	ND	0.50	1		Tert-Amyl-Methyl Ether (TAME)	ND	0.50	1	
Xylenes (total)	ND	0.50	1		Ethanol	ND	300	1	
<u>Surrogates:</u>	<u>REC (%)</u>	<u>Control Limits</u>		<u>Qual</u>	<u>Surrogates:</u>	<u>REC (%)</u>	<u>Control Limits</u>		<u>Qual</u>
1,2-Dichloroethane-d4	94	80-128			Dibromofluoromethane	94	80-127		
Toluene-d8	99	80-120			1,4-Bromofluorobenzene	94	68-120		

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
MW-5	09-11-0745-5-A	11/05/09 11:15	Aqueous	GC/MS BB	11/13/09	11/13/09 20:39	091113L01

Parameter	Result	RL	DF	Qual	Parameter	Result	RL	DF	Qual
Benzene	ND	0.50	1		Methyl-t-Butyl Ether (MTBE)	ND	0.50	1	
1,2-Dibromoethane	ND	0.50	1		Tert-Butyl Alcohol (TBA)	ND	10	1	
1,2-Dichloroethane	ND	0.50	1		Diisopropyl Ether (DIPE)	ND	0.50	1	
Ethylbenzene	ND	0.50	1		Ethyl-t-Butyl Ether (ETBE)	ND	0.50	1	
Toluene	ND	0.50	1		Tert-Amyl-Methyl Ether (TAME)	ND	0.50	1	
Xylenes (total)	ND	0.50	1		Ethanol	ND	300	1	
<u>Surrogates:</u>	<u>REC (%)</u>	<u>Control Limits</u>		<u>Qual</u>	<u>Surrogates:</u>	<u>REC (%)</u>	<u>Control Limits</u>		<u>Qual</u>
1,2-Dichloroethane-d4	91	80-128			Dibromofluoromethane	96	80-127		
Toluene-d8	98	80-120			1,4-Bromofluorobenzene	94	68-120		

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
MW-6	09-11-0745-6-A	11/05/09 10:15	Aqueous	GC/MS BB	11/13/09	11/13/09 21:08	091113L01

Parameter	Result	RL	DF	Qual	Parameter	Result	RL	DF	Qual
Benzene	ND	0.50	1		Methyl-t-Butyl Ether (MTBE)	ND	0.50	1	
1,2-Dibromoethane	ND	0.50	1		Tert-Butyl Alcohol (TBA)	ND	10	1	
1,2-Dichloroethane	ND	0.50	1		Diisopropyl Ether (DIPE)	ND	0.50	1	
Ethylbenzene	ND	0.50	1		Ethyl-t-Butyl Ether (ETBE)	ND	0.50	1	
Toluene	ND	0.50	1		Tert-Amyl-Methyl Ether (TAME)	ND	0.50	1	
Xylenes (total)	ND	0.50	1		Ethanol	ND	300	1	
<u>Surrogates:</u>	<u>REC (%)</u>	<u>Control Limits</u>		<u>Qual</u>	<u>Surrogates:</u>	<u>REC (%)</u>	<u>Control Limits</u>		<u>Qual</u>
1,2-Dichloroethane-d4	93	80-128			Dibromofluoromethane	96	80-127		
Toluene-d8	98	80-120			1,4-Bromofluorobenzene	93	68-120		

RL - Reporting Limit , DF - Dilution Factor , Qual - Qualifiers

Analytical Report

Broadbent & Associates, Inc.
1324 Mangrove Ave, Ste 212
Chico, CA 95926-2642

Date Received: 11/10/09
Work Order No: 09-11-0745
Preparation: EPA 5030B
Method: EPA 8260B
Units: ug/L

Project: BP 6148

Page 3 of 3

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
MW-7	09-11-0745-7-A	11/05/09 09:45	Aqueous	GC/MS BB	11/13/09	11/13/09 21:37	091113L01

Parameter	Result	RL	DF	Qual	Parameter	Result	RL	DF	Qual
Benzene	ND	0.50	1		Methyl-t-Butyl Ether (MTBE)	ND	0.50	1	
1,2-Dibromoethane	ND	0.50	1		Tert-Butyl Alcohol (TBA)	ND	10	1	
1,2-Dichloroethane	ND	0.50	1		Diisopropyl Ether (DIPE)	ND	0.50	1	
Ethylbenzene	ND	0.50	1		Ethyl-t-Butyl Ether (ETBE)	ND	0.50	1	
Toluene	ND	0.50	1		Tert-Amyl-Methyl Ether (TAME)	ND	0.50	1	
Xylenes (total)	ND	0.50	1		Ethanol	ND	300	1	
<u>Surrogates:</u>	<u>REC (%)</u>	<u>Control Limits</u>		<u>Qual</u>	<u>Surrogates:</u>	<u>REC (%)</u>	<u>Control Limits</u>		<u>Qual</u>
1,2-Dichloroethane-d4	95	80-128			Dibromofluoromethane	94	80-127		
Toluene-d8	99	80-120			1,4-Bromofluorobenzene	93	68-120		

Method Blank	099-12-703-1,124	N/A	Aqueous	GC/MS BB	11/13/09	11/13/09 12:58	091113L01
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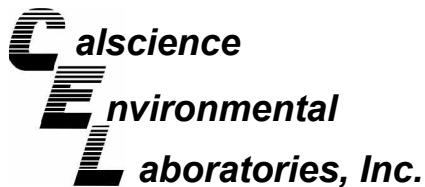
Parameter	Result	RL	DF	Qual	Parameter	Result	RL	DF	Qual
Benzene	ND	0.50	1		Methyl-t-Butyl Ether (MTBE)	ND	0.50	1	
1,2-Dibromoethane	ND	0.50	1		Tert-Butyl Alcohol (TBA)	ND	10	1	
1,2-Dichloroethane	ND	0.50	1		Diisopropyl Ether (DIPE)	ND	0.50	1	
Ethylbenzene	ND	0.50	1		Ethyl-t-Butyl Ether (ETBE)	ND	0.50	1	
Toluene	ND	0.50	1		Tert-Amyl-Methyl Ether (TAME)	ND	0.50	1	
Xylenes (total)	ND	0.50	1		Ethanol	ND	300	1	
<u>Surrogates:</u>	<u>REC (%)</u>	<u>Control Limits</u>		<u>Qual</u>	<u>Surrogates:</u>	<u>REC (%)</u>	<u>Control Limits</u>		<u>Qual</u>
1,2-Dichloroethane-d4	94	80-128			Dibromofluoromethane	95	80-127		
Toluene-d8	100	80-120			1,4-Bromofluorobenzene	94	68-120		

Method Blank	099-12-703-1,127	N/A	Aqueous	GC/MS BB	11/15/09	11/15/09 13:01	091115L01
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Parameter	Result	RL	DF	Qual	Parameter	Result	RL	DF	Qual
Benzene	ND	0.50	1		Methyl-t-Butyl Ether (MTBE)	ND	0.50	1	
1,2-Dibromoethane	ND	0.50	1		Tert-Butyl Alcohol (TBA)	ND	10	1	
1,2-Dichloroethane	ND	0.50	1		Diisopropyl Ether (DIPE)	ND	0.50	1	
Ethylbenzene	ND	0.50	1		Ethyl-t-Butyl Ether (ETBE)	ND	0.50	1	
Toluene	ND	0.50	1		Tert-Amyl-Methyl Ether (TAME)	ND	0.50	1	
Xylenes (total)	ND	0.50	1		Ethanol	ND	300	1	
<u>Surrogates:</u>	<u>REC (%)</u>	<u>Control Limits</u>		<u>Qual</u>	<u>Surrogates:</u>	<u>REC (%)</u>	<u>Control Limits</u>		<u>Qual</u>
1,2-Dichloroethane-d4	102	80-128			Dibromofluoromethane	99	80-127		
Toluene-d8	99	80-120			1,4-Bromofluorobenzene	92	68-120		

RL - Reporting Limit , DF - Dilution Factor , Qual - Qualifiers





Quality Control - Spike/Spike Duplicate



Broadbent & Associates, Inc.
 1324 Mangrove Ave, Ste 212
 Chico, CA 95926-2642

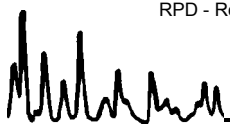
Date Received: 11/10/09
 Work Order No: 09-11-0745
 Preparation: EPA 5030B
 Method: EPA 8015B (M)

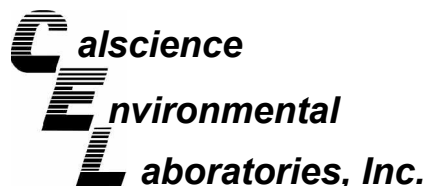
Project BP 6148

Quality Control Sample ID	Matrix	Instrument	Date Prepared	Date Analyzed	MS/MSD Batch Number
09-11-0843-5	Aqueous	GC 11	11/11/09	11/11/09	091111S01

Parameter	MS %REC	MSD %REC	%REC CL	RPD	RPD CL	Qualifiers
Gasoline Range Organics (C6-C12)	76	81	38-134	7	0-25	

RPD - Relative Percent Difference , CL - Control Limit





Quality Control - Spike/Spike Duplicate



Broadbent & Associates, Inc.
1324 Mangrove Ave, Ste 212
Chico, CA 95926-2642

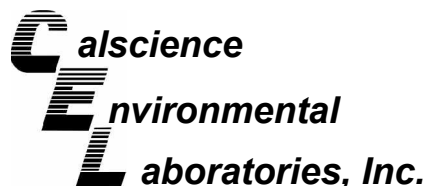
Date Received: 11/10/09
Work Order No: 09-11-0745
Preparation: EPA 5030B
Method: EPA 8260B

Project BP 6148

Quality Control Sample ID	Matrix	Instrument	Date Prepared	Date Analyzed	MS/MSD Batch Number
09-11-1108-6	Aqueous	GC/MS BB	11/13/09	11/13/09	091113S01

Parameter	MS %REC	MSD %REC	%REC CL	RPD	RPD CL	Qualifiers
Benzene	95	91	76-124	4	0-20	
Carbon Tetrachloride	98	95	74-134	3	0-20	
Chlorobenzene	95	93	80-120	2	0-20	
1,2-Dibromoethane	92	92	80-120	0	0-20	
1,2-Dichlorobenzene	93	92	80-120	1	0-20	
1,1-Dichloroethene	100	96	73-127	4	0-20	
Ethylbenzene	93	91	78-126	2	0-20	
Toluene	94	90	80-120	4	0-20	
Trichloroethene	95	92	77-120	3	0-20	
Vinyl Chloride	72	71	72-126	2	0-20	LN,AY
Methyl-t-Butyl Ether (MTBE)	81	80	67-121	1	0-49	
Tert-Butyl Alcohol (TBA)	91	97	36-162	7	0-30	
Diisopropyl Ether (DIPE)	84	82	60-138	2	0-45	
Ethyl-t-Butyl Ether (ETBE)	83	80	69-123	3	0-30	
Tert-Amyl-Methyl Ether (TAME)	85	82	65-120	3	0-20	
Ethanol	92	99	30-180	8	0-72	

RPD - Relative Percent Difference , CL - Control Limit



Quality Control - Spike/Spike Duplicate



Broadbent & Associates, Inc.
1324 Mangrove Ave, Ste 212
Chico, CA 95926-2642

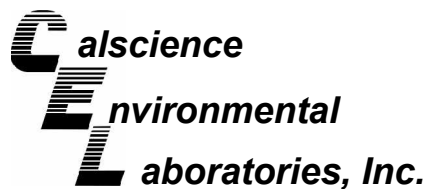
Date Received: 11/10/09
Work Order No: 09-11-0745
Preparation: EPA 5030B
Method: EPA 8260B

Project BP 6148

Quality Control Sample ID	Matrix	Instrument	Date Prepared	Date Analyzed	MS/MSD Batch Number
09-11-0990-3	Aqueous	GC/MS BB	11/15/09	11/15/09	091115S01

Parameter	MS %REC	MSD %REC	%REC CL	RPD	RPD CL	Qualifiers
Benzene	0	0	76-124	1	0-20	LN,AY
Carbon Tetrachloride	107	110	74-134	2	0-20	
Chlorobenzene	100	104	80-120	4	0-20	
1,2-Dibromoethane	94	102	80-120	8	0-20	
1,2-Dichlorobenzene	99	102	80-120	2	0-20	
1,1-Dichloroethene	112	102	73-127	9	0-20	
Ethylbenzene	0	0	78-126	4	0-20	LN,AY
Toluene	103	102	80-120	1	0-20	
Trichloroethene	103	105	77-120	2	0-20	
Vinyl Chloride	80	82	72-126	1	0-20	
Methyl-t-Butyl Ether (MTBE)	0	25	67-121	9	0-49	LN,AY
Tert-Butyl Alcohol (TBA)	69	73	36-162	4	0-30	
Diisopropyl Ether (DIPE)	96	101	60-138	5	0-45	
Ethyl-t-Butyl Ether (ETBE)	84	92	69-123	9	0-30	
Tert-Amyl-Methyl Ether (TAME)	86	95	65-120	11	0-20	
Ethanol	95	76	30-180	22	0-72	

RPD - Relative Percent Difference , CL - Control Limit



Quality Control - LCS/LCS Duplicate



Broadbent & Associates, Inc.
1324 Mangrove Ave, Ste 212
Chico, CA 95926-2642

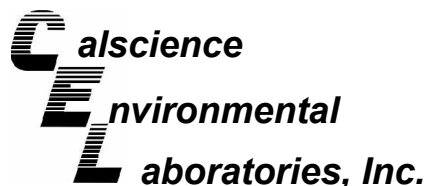
Date Received: N/A
Work Order No: 09-11-0745
Preparation: EPA 5030B
Method: EPA 8015B (M)

Project: BP 6148

Quality Control Sample ID	Matrix	Instrument	Date Prepared	Date Analyzed	LCS/LCSD Batch Number
099-12-695-687	Aqueous	GC 11	11/11/09	11/11/09	091111B01

<u>Parameter</u>	<u>LCS %REC</u>	<u>LCSD %REC</u>	<u>%REC CL</u>	<u>RPD</u>	<u>RPD CL</u>	<u>Qualifiers</u>
Gasoline Range Organics (C6-C12)	79	83	78-120	6	0-20	

RPD - Relative Percent Difference , CL - Control Limit



Quality Control - LCS/LCS Duplicate



Broadbent & Associates, Inc.
1324 Mangrove Ave, Ste 212
Chico, CA 95926-2642

Date Received: N/A
Work Order No: 09-11-0745
Preparation: EPA 5030B
Method: EPA 8260B

Project: BP 6148

Quality Control Sample ID	Matrix	Instrument	Date Prepared	Date Analyzed	LCS/LCSD Batch Number		
099-12-703-1,124	Aqueous	GC/MS BB	11/13/09	11/13/09	091113L01		
<u>Parameter</u>	<u>LCS %REC</u>	<u>LCSD %REC</u>	<u>%REC CL</u>	<u>ME CL</u>	<u>RPD</u>	<u>RPD CL</u>	<u>Qualifiers</u>
Benzene	93	94	80-120	73-127	1	0-20	
Carbon Tetrachloride	98	99	74-134	64-144	0	0-20	
Chlorobenzene	95	94	80-120	73-127	1	0-20	
1,2-Dibromoethane	91	91	79-121	72-128	0	0-20	
1,2-Dichlorobenzene	94	93	80-120	73-127	1	0-20	
1,1-Dichloroethene	99	89	78-126	70-134	11	0-28	
Ethylbenzene	94	93	80-120	73-127	1	0-20	
Toluene	92	93	80-120	73-127	1	0-20	
Trichloroethene	94	94	79-127	71-135	1	0-20	
Vinyl Chloride	73	74	72-132	62-142	2	0-20	
Methyl-t-Butyl Ether (MTBE)	78	84	69-123	60-132	6	0-20	
Tert-Butyl Alcohol (TBA)	100	97	63-123	53-133	3	0-20	
Diisopropyl Ether (DIPE)	82	84	59-137	46-150	3	0-37	
Ethyl-t-Butyl Ether (ETBE)	80	84	69-123	60-132	4	0-20	
Tert-Amyl-Methyl Ether (TAME)	82	87	70-120	62-128	6	0-20	
Ethanol	110	90	28-160	6-182	20	0-57	

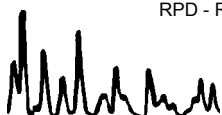
Total number of LCS compounds : 16

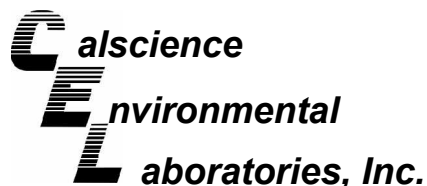
Total number of ME compounds : 0

Total number of ME compounds allowed : 1

LCS ME CL validation result : Pass

RPD - Relative Percent Difference , CL - Control Limit





Quality Control - LCS/LCS Duplicate



Broadbent & Associates, Inc.
1324 Mangrove Ave, Ste 212
Chico, CA 95926-2642

Date Received: N/A
Work Order No: 09-11-0745
Preparation: EPA 5030B
Method: EPA 8260B

Project: BP 6148

Quality Control Sample ID	Matrix	Instrument	Date Prepared	Date Analyzed	LCS/LCSD Batch Number		
099-12-703-1,127	Aqueous	GC/MS BB	11/15/09	11/15/09	091115L01		
<u>Parameter</u>	<u>LCS %REC</u>	<u>LCSD %REC</u>	<u>%REC CL</u>	<u>ME CL</u>	<u>RPD</u>	<u>RPD CL</u>	<u>Qualifiers</u>
Benzene	106	106	80-120	73-127	0	0-20	
Carbon Tetrachloride	117	116	74-134	64-144	0	0-20	
Chlorobenzene	104	103	80-120	73-127	0	0-20	
1,2-Dibromoethane	98	101	79-121	72-128	3	0-20	
1,2-Dichlorobenzene	100	100	80-120	73-127	0	0-20	
1,1-Dichloroethene	120	110	78-126	70-134	9	0-28	
Ethylbenzene	103	101	80-120	73-127	2	0-20	
Toluene	101	103	80-120	73-127	1	0-20	
Trichloroethene	104	106	79-127	71-135	2	0-20	
Vinyl Chloride	87	87	72-132	62-142	1	0-20	
Methyl-t-Butyl Ether (MTBE)	86	90	69-123	60-132	4	0-20	
Tert-Butyl Alcohol (TBA)	105	115	63-123	53-133	9	0-20	
Diisopropyl Ether (DIPE)	98	101	59-137	46-150	3	0-37	
Ethyl-t-Butyl Ether (ETBE)	89	93	69-123	60-132	4	0-20	
Tert-Amyl-Methyl Ether (TAME)	87	92	70-120	62-128	5	0-20	
Ethanol	119	110	28-160	6-182	8	0-57	

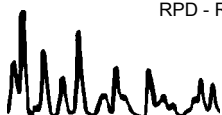
Total number of LCS compounds : 16

Total number of ME compounds : 0

Total number of ME compounds allowed : 1

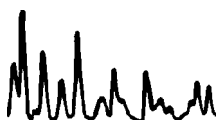
LCS ME CL validation result : Pass

RPD - Relative Percent Difference , CL - Control Limit

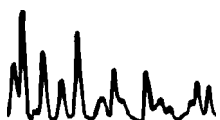


Work Order Number: 09-11-0745

<u>Qualifier</u>	<u>Definition</u>
AX	Sample too dilute to quantify surrogate.
BA	Relative percent difference out of control.
BA,AY	BA = Relative percent difference out of control. AY = Matrix interference suspected.
BB	Sample > 4x spike concentration.
BF	Reporting limits raised due to high hydrocarbon background.
BH	Reporting limits raised due to high level of non-target analytes.
BU	Sample analyzed after holding time expired.
BV	Sample received after holding time expired.
BY	Sample received at improper temperature.
BZ	Sample preserved improperly.
CL	Initial analysis within holding time but required dilution.
CQ	Analyte concentration greater than 10 times the blank concentration.
CU	Surrogate concentration diluted to not detectable during analysis.
DF	Reporting limits elevated due to matrix interferences.
DU	Insufficient sample quantity for matrix spike/dup matrix spike.
ET	Sample was extracted past end of recommended max. holding time.
EY	Result exceeds normal dynamic range; reported as a min est.
GR	Internal standard recovery is outside method recovery limit.
IB	CCV recovery above limit; analyte not detected.
IH	Calibrtn. verif. recov. below method CL for this analyte.
IJ	Calibrtn. verif. recov. above method CL for this analyte.
J,DX	J=EPA Flag -Estimated value; DX= Value < lowest standard (MQL), but > than MDL.
LA	Confirmatory analysis was past holding time.
LG,AY	LG= Surrogate recovery below the acceptance limit. AY= Matrix interference suspected.
LH,AY	LH= Surrogate recovery above the acceptance limit. AY= Matrix interference suspected.
LM,AY	LM= MS and/or MSD above acceptance limits. See Blank Spike (LCS). AY= Matrix interference suspected.
LN,AY	LN= MS and/or MSD below acceptance limits. See Blank Spike (LCS). AY= Matrix interference suspected.
LQ	LCS recovery above method control limits.



<u>Qualifier</u>	<u>Definition</u>
LR	LCS recovery below method control limits.
LW	Quantitation of unknown hydrocarbon(s) in sample based on gasoline.
LX	Quantitation of unknown hydrocarbon(s) in sample based on diesel.
MB	Analyte present in the method blank.
PC	Sample taken from VOA vial with air bubble > 6mm diameter.
PI	Primary and confirm results varied by > than 40% RPD.
RB	RPD exceeded method control limit; % recoveries within limits.
SG	A silica gel cleanup procedure was performed.
	Solid - Unless otherwise indicated, solid sample data is reported on a wet weight basis, not corrected for % moisture.





Laboratory Management Program LaMP Chain of Custody Record

BP/ARC Project Name: BP 6148

Req Due Date (mm/dd/yy): 07/15

Rush TAT: Yes ___ No X

BP/ARC Facility No: _____ 6148

Lab Work Order Number: _____

Lab Name: Calscience	BP/ARC Facility Address: 5131 Shattuck Avenue	Consultant/Contractor: Broadbent & Associates, Inc.
Lab Address: 7440 Lincoln Way	City, State, ZIP Code: Oakland, CA	Consultant/Contractor Project No: 06-88-638-5-822
Lab PM: Richard Villafania	Lead Regulatory Agency: ACEH	Address: 1324 Mangrove Ave. Ste. 212, Chico, CA 95926
Lab Phone: 714-895-5494	California Global ID No.: T0600100103	Consultant/Contractor PM: Tom Venus
Lab Shipping Acct: 9225	Enfos Proposal No: 000V0-0003	Phone: 530-566-1400
Lab Bottle Order No:	Accounting Mode: Provision <u>X</u> OOC-BU ___ OOC-RM ___	Email EDD To: tvenus@broadbentinc.com
Other Info:	Stage: Operate (5) Activity: Monitoring/MNA (22)	Invoice To: BP/ARC <u>X</u> Contractor ___

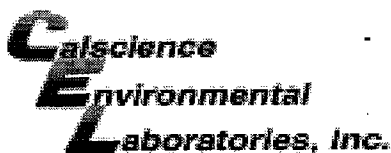
BP/ARC EBM: Chuck Carmel				Matrix			No. Containers / Preservative						Requested Analyses						Report Type & QC Level	
EBM Phone:				Soil / Solid	Water / Liquid	Air / Vapor	Total Number of Containers	Unpreserved	H ₂ SO ₄	HNO ₃	HCl	Methanol	GRO (8015)	BTEX (8260)	5 Oxys (8260)	EDB (8260)	1,2-DCA (8260)	Ethanol (8260)	Standard <u>X</u>	
EBM Email:																			Full Data Package ___	
Lab No.	Sample Description	Date	Time																Comments	
1	MW-1	11/05/09	1154		X						X	X	X	X	X	X				
2	MW-2		1225		X					X										
3	MW-3		1210		X					X										
4	MW-4		1045		X					X										
5	MW-5		1115		X					X										
6	MW-6		1015		X					X										
7	MW-7		0945		X					X										
✓	TRIP Blank																		Hold Trip blank	

Sampler's Name: <u>Eric Ferrer</u>	Relinquished By / Affiliation: <u>Eric Ferrer / BAI</u>	Date: <u>11/09/09</u>	Time: <u>0730</u>	Accepted By / Affiliation: <u>[Signature]</u>	Date: <u>11/10/09</u>	Time: <u>1000</u>
Sampler's Company: <u>BAI</u>						
Shipment Method: <u>GSO</u>	Ship Date: <u>11/09/09</u>					
Shipment Tracking No: <u>106462453</u>						

Special Instructions: _____

THIS LINE - LAB USE ONLY: Custody Seals In Place: Yes / No	Temp Blank: Yes / No	Cooler Temp on Receipt: _____ °F/C	Trip Blank: Yes / No	MS/MSD Sample Submitted: Yes / No
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Page 15 of 17



WORK ORDER #: 09-11-0745

SAMPLE RECEIPT FORM

Cooler 1 of 1

CLIENT: Broadbent

DATE: 11/10/09

TEMPERATURE: (Criteria: 0.0 °C – 6.0 °C, not frozen)

Temperature 5.5 °C - 0.8 °C (CF) = 4.7 °C Blank Sample

Sample(s) outside temperature criteria (PM/APM contacted by: _____).

Sample(s) outside temperature criteria but received on ice/chilled on same day of sampling.

Received at ambient temperature, placed on ice for transport by Courier.

Ambient Temperature: Air Filter Metals Only PCBs Only

Initial: JP

CUSTODY SEALS INTACT:

Cooler _____ No (Not Intact) Not Present N/A

Initial: JP

Sample _____ No (Not Intact) Not Present

Initial: JP

SAMPLE CONDITION:

	Yes	No	N/A
Chain-Of-Custody (COC) document(s) received with samples.....	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
COC document(s) received complete.....	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
<input checked="" type="checkbox"/> Collection date/time, matrix, and/or # of containers logged in based on sample labels.			
<input type="checkbox"/> COC not relinquished. <input type="checkbox"/> No date relinquished. <input type="checkbox"/> No time relinquished.			
Sampler's name indicated on COC.....	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Sample container label(s) consistent with COC.....	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Sample container(s) intact and good condition.....	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Correct containers and volume for analyses requested.....	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Analyses received within holding time.....	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Proper preservation noted on COC or sample container.....	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<input type="checkbox"/> Unpreserved vials received for Volatiles analysis			
Volatile analysis container(s) free of headspace.....	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Tedlar bag(s) free of condensation.....	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

CONTAINER TYPE:

Solid: 4ozCGJ 8ozCGJ 16ozCGJ Sleeve EnCores® TerraCores® _____

Water: VOA VOA^h VOAna₂ 125AGB 125AGBh 125AGBp 1AGB 1AGBna₂ 1AGBs

500AGB 500AGJ 500AGJs 250AGB 250CGB 250CGBs 1PB 500PB 500PBna

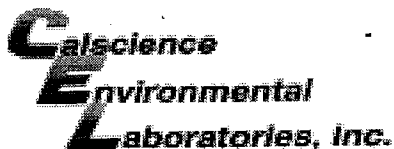
250PB 250PBn 125PB 125PBz₂na 100PJ 100PJna₂ _____ _____ _____

Air: Tedlar® Summa® Other: _____ Trip Blank Lot#: _____

Container: C: Clear A: Amber P: Plastic G: Glass J: Jar B: Bottle Z: Ziploc/Resealable Bag E: Envelop

Preservative: h: HCL n: HNO₃ na₂:Na₂S₂O₃ Na: NaOH p: H₃PO₄ s: H₂SO₄ z₂na: ZnAc₂+NaOH f: Field-filtered

Checked by: JP
 Reviewed by: JP
 Scanned by: JP



WORK ORDER #: 09-11-0745

SAMPLE ANOMALY FORM

SAMPLES - CONTAINERS & LABELS:

Comments:

- Samples NOT RECEIVED but listed on COC
- Samples received but NOT LISTED on COC
- Holding time expired – list sample ID(s) and test
- Insufficient quantities for analysis – list test
- Improper container(s)/preservative used – list test
- No preservative noted on COC or label – list test & notify lab
- Sample labels illegible – note test/container type
- Sample labels do not match COC – Note in comments
 - Sample ID
 - Date and/or Time Collected
 - Project Information
 - # of Containers
 - Analysis
- Sample containers compromised – Note in comments
 - Leaking
 - Broken
 - Without Labels
- Air sample containers compromised – Note in comments
 - Flat
 - Very low in volume
 - Leaking (Not transferred - duplicate bag submitted)
 - Leaking (transferred into Calscience Tedlar® Bag*)
 - Leaking (transferred into Client's Tedlar® Bag*)
- Other: _____

(-8) TRIP BLANK NOT RECEIVED

HEADSPACE – Containers with Bubble > 6mm or ¼ inch:

Sample #	Container ID(s)	# of Vials Received	Sample #	Container ID(s)	# of Vials Received	Sample #	Container ID(s)	# of Cont. received	Analysis

Comments: _____

*Transferred at Client's request.

Initial / Date: 11/10/09

APPENDIX B

HISTORICAL GROUND-WATER MONITORING DATA

Table 2
 Historical Groundwater Elevation Data
 Summary Report

ARCO Service Station 6148
 5131 Shattuck Avenue, Oakland, California

Date: 01-26-95
 Project Number: 0805-135.01

Well Desig- nation	Water Level Field Date	TOC Elevation ft-MSL	Depth to Water feet	Ground- Water Elevation ft-MSL	Floating Product Thickness feet	Ground- Water Flow Direction MWN	Hydraulic Gradient foot/foot
MW-1	12-23-91	108.03	18.26	89.77	Sheen	NR	NR
MW-1	01-07-92	108.03	17.44	90.59	Sheen	NR	NR
MW-1	01-19-92	108.03	17.17	90.86	ND	NR	NR
MW-1	02-19-92	108.03	16.52	91.51	ND	NR	NR
MW-1	03-18-92	108.03	16.81	91.22	ND	NR	NR
MW-1	04-20-92	108.03	17.56	90.47	ND	NR	NR
MW-1	05-15-92	108.03	17.96	90.07	ND	NR	NR
MW-1	06-12-92	108.03	18.16	89.87	ND	NR	NR
MW-1	07-15-92	108.03	18.32	89.71	ND	NR	NR
MW-1	08-07-92	108.03	18.34	89.69	ND	NR	NR
MW-1	09-14-92	108.03	18.46	89.57	ND	NR	NR
MW-1	10-07-92	108.03	18.52	89.51	ND	NR	NR
MW-1	11-12-92	108.03	18.11	89.92	ND	NR	NR
MW-1	12-09-92	108.03	17.10	90.93	ND	NR	NR
MW-1	01-21-93	108.03	15.44	92.59	ND	NR	NR
MW-1	02-22-93	108.03	16.54	91.49	ND	NR	NR
MW-1	03-25-93	108.03	17.05	90.98	ND	NR	NR
MW-1	04-14-93	108.03	17.45	90.58	ND	NR	NR
MW-1	05-22-93	108.03	17.78	90.25	ND	NR	NR
MW-1	06-17-93	108.03	17.90	90.13	ND	NR	NR
MW-1	07-27-93	108.03	18.10	89.93	ND	NR	NR
MW-1	08-29-93	108.03	18.31	89.72	ND	NR	NR
MW-1	09-30-93	108.03	18.24	89.79	ND	NR	NR
MW-1	11-16-93	108.03	18.17	89.86	ND	NR	NR
MW-1	02-02-94	108.03	17.31	90.72	ND	NR	NR
MW-1	04-29-94	108.03	17.31	90.72	ND	NR	NR
MW-1	08-02-94	108.03	17.95	90.08	ND	SW	0.017
MW-1	11-16-94	108.03	17.04	90.99	ND	SW	0.02

Table 2
 Historical Groundwater Elevation Data
 Summary Report

ARCO Service Station 6148
 5131 Shattuck Avenue, Oakland, California

Date: 01-26-95
 Project Number: 0805-135.01

Well Designation	Water Level Field Date	TOC Elevation ft-MSL	Depth to Water feet	Ground-Water Elevation ft-MSL	Floating Product Thickness feet	Ground-Water Flow Direction MWN	Hydraulic Gradient foot/foot
MW-2	12-23-91	107.43	17.98	89.45	Sheen	NR	NR
MW-2	01-07-92	107.43	17.15	90.28	Sheen	NR	NR
MW-2	01-19-92	107.43	17.47	89.96	ND	NR	NR
MW-2	02-19-92	107.43	16.28	91.15	ND	NR	NR
MW-2	03-18-92	107.43	16.52	90.91	ND	NR	NR
MW-2	04-20-92	107.43	17.27	90.16	ND	NR	NR
MW-2	05-15-92	107.43	17.62	89.81	ND	NR	NR
MW-2	06-12-92	107.43	^17.63	^89.80	0.05	NR	NR
MW-2	07-15-92	107.43	17.65	89.78	ND	NR	NR
MW-2	08-07-92	107.43	17.80	89.63	ND	NR	NR
MW-2	09-14-92	107.43	^18.09	^89.34	0.55	NR	NR
MW-2	10-07-92	107.43	^18.55	^88.88	0.31	NR	NR
MW-2	11-12-92	107.43	17.95	89.48	Sheen	NR	NR
MW-2	12-09-92	107.43	^16.85	^90.58	0.02	NR	NR
MW-2	01-21-93	107.43	^15.08	^92.35	0.01	NR	NR
MW-2	02-22-93	107.43	^16.20	^91.23	0.01	NR	NR
MW-2	03-25-93	107.43	^16.72	^90.71	0.01	NR	NR
MW-2	04-14-93	107.43	^17.15	^90.28	ND	NR	NR
MW-2	05-22-93	107.43	^17.44	^89.99	ND	NR	NR
MW-2	06-17-93	107.43	17.57	89.86	ND	NR	NR
MW-2	07-27-93	107.43	^17.71	^89.72	ND	NR	NR
MW-2	08-29-93	107.43	^18.20	^89.23	ND	NR	NR
MW-2	09-30-93	107.43	^18.14	^89.29	ND	NR	NR
MW-2	11-16-93	107.43	^17.85	^89.58	ND	NR	NR
MW-2	02-02-94	107.43	16.96	90.47	ND	NR	NR
MW-2	04-29-94	107.43	16.95	90.48	ND	NR	NR
MW-2	08-02-94	107.43	17.59	89.84	ND	SW	0.017
MW-2	11-16-94	107.43	16.73	90.70	ND	SW	0.02

Table 2
Historical Groundwater Elevation Data
Summary Report

ARCO Service Station 6148
5131 Shattuck Avenue, Oakland, California

Date: 01-26-95
Project Number: 0805-135.01

Well Desig- nation	Water Level Field Date	TOC Elevation ft-MSL	Depth to Water feet	Ground- Water Elevation ft-MSL	Floating Product Thickness feet	Ground- Water Flow Direction MWN	Hydraulic Gradient foot/foot
MW-3	12-23-91	107.77	18.14	89.63	Sheen	NR	NR
MW-3	01-07-92	107.77	17.26	90.51	Sheen	NR	NR
MW-3	01-19-92	107.77	17.63	90.14	ND	NR	NR
MW-3	02-19-92	107.77	16.34	91.43	ND	NR	NR
MW-3	03-18-92	107.77	16.62	91.15	ND	NR	NR
MW-3	04-20-92	107.77	17.38	90.39	ND	NR	NR
MW-3	05-15-92	107.77	17.80	89.97	ND	NR	NR
MW-3	06-12-92	107.77	18.01	89.76	ND	NR	NR
MW-3	07-15-92	107.77	18.17	89.60	ND	NR	NR
MW-3	08-07-92	107.77	18.23	89.54	ND	NR	NR
MW-3	09-14-92	107.77	18.36	89.41	ND	NR	NR
MW-3	10-07-92	107.77	18.90	88.87	Sheen	NR	NR
MW-3	11-12-92	107.77	18.00	89.77	Sheen	NR	NR
MW-3	12-09-92	107.77	16.85	90.92	Droplets	NR	NR
MW-3	01-21-93	107.77	15.24	92.53	ND	NR	NR
MW-3	02-22-93	107.77	16.36	91.41	ND	NR	NR
MW-3	03-25-93	107.77	16.89	90.88	ND	NR	NR
MW-3	04-14-93	107.77	17.29	90.48	ND	NR	NR
MW-3	05-22-93	107.77	17.64	90.13	ND	NR	NR
MW-3	06-17-93	107.77	17.75	90.02	ND	NR	NR
MW-3	07-27-93	107.77	17.98	89.79	ND	NR	NR
MW-3	08-29-93	107.77	18.14	89.63	ND	NR	NR
MW-3	09-30-93	107.77	18.14	89.63	ND	NR	NR
MW-3	11-16-93	107.77	18.30	89.47	ND	NR	NR
MW-3	02-02-94	107.77	17.16	90.61	ND	NR	NR
MW-3	04-29-94	107.77	17.14	90.63	ND	NR	NR
MW-3	08-02-94	107.77	17.81	89.96	ND	SW	0.017
MW-3	11-16-94	107.77	16.91	90.86	ND	SW	0.02

Table 2
Historical Groundwater Elevation Data
Summary Report

ARCO Service Station 6148
5131 Shattuck Avenue, Oakland, California

Date: 01-26-95
Project Number: 0805-135.01

Well Designation	Water Level Field Date	TOC Elevation ft-MSL	Depth to Water feet	Ground-Water Elevation ft-MSL	Floating Product Thickness feet	Ground-Water Flow Direction MWN	Hydraulic Gradient foot/foot
MW-4	11-12-92	106.58	16.08	90.50	ND	NR	NR
MW-4	12-09-92	106.58	15.00	91.58	ND	NR	NR
MW-4	01-21-93	106.58	13.35	93.23	ND	NR	NR
MW-4	02-22-93	106.58	14.48	92.10	ND	NR	NR
MW-4	03-25-93	106.58	15.06	91.52	ND	NR	NR
MW-4	04-14-93	106.58	15.50	91.08	ND	NR	NR
MW-4	05-22-93	106.58	15.79	90.79	ND	NR	NR
MW-4	06-17-93	106.58	14.90	91.68	ND	NR	NR
MW-4	07-27-93	106.58	16.11	90.47	ND	NR	NR
MW-4	08-29-93	106.58	16.21	90.37	ND	NR	NR
MW-4	09-30-93	106.58	16.23	90.35	ND	NR	NR
MW-4	11-16-93	106.58	16.30	90.28	ND	NR	NR
MW-4	02-02-94	106.58	15.36	91.22	ND	NR	NR
MW-4	04-29-94	106.58	15.36	91.22	ND	NR	NR
MW-4	08-02-94	106.58	15.94	90.64	ND	SW	0.017
MW-4	11-16-94	106.58	14.99	91.59	ND	SW	0.02
MW-5	11-12-92	106.68	16.81	89.87	ND	NR	NR
MW-5	12-09-92	106.68	16.40	90.28	ND	NR	NR
MW-5	01-21-93	106.68	14.58	92.10	ND	NR	NR
MW-5	02-22-93	106.68	15.65	91.03	ND	NR	NR
MW-5	03-25-93	106.68	16.07	90.61	ND	NR	NR
MW-5	04-14-93	106.68	16.34	90.34	ND	NR	NR
MW-5	05-22-93	106.68	16.56	90.12	ND	NR	NR
MW-5	06-17-93	106.68	Not surveyed:				
MW-5	07-27-93	106.68	16.80	89.88	ND	NR	NR
MW-5	08-29-93	106.68	16.93	89.75	ND	NR	NR
MW-5	09-30-93	106.68	16.97	89.71	ND	NR	NR
MW-5	11-16-93	106.68	17.03	89.65	ND	NR	NR
MW-5	02-02-94	106.68	16.38	90.30	ND	NR	NR
MW-5	04-29-94	106.68	16.41	90.27	ND	NR	NR
MW-5	08-02-94	106.68	16.81	89.87	ND	SW	0.017
MW-5	11-16-94	106.68	16.12	90.56	ND	SW	0.02

Table 2
Historical Groundwater Elevation Data
Summary Report

ARCO Service Station 6148
5131 Shattuck Avenue, Oakland, California

Date: 01-26-95
Project Number: 0805-135.01

Well Designation	Water Level Field Date	TOC	Depth to Water	Ground-Water Elevation	Floating Product Thickness	Ground-Water	Hydraulic Gradient
		Elevation				Flow Direction	
		ft-MSL	feet	ft-MSL	feet	MWN	foot/foot
MW-6	11-12-92	105.16	14.05	91.11	ND	NR	NR
MW-6	12-09-92	105.16	13.37	91.79	ND	NR	NR
MW-6	01-21-93	105.16	11.76	93.40	ND	NR	NR
MW-6	02-22-93	105.16	12.62	92.54	ND	NR	NR
MW-6	03-25-93	105.16	13.04	92.12	ND	NR	NR
MW-6	04-14-93	105.16	13.47	91.69	ND	NR	NR
MW-6	05-22-93	105.16	13.80	91.36	ND	NR	NR
MW-6	06-17-93	105.16	13.88	91.28	ND	NR	NR
MW-6	07-27-93	105.16	14.13	91.03	ND	NR	NR
MW-6	08-29-93	105.16	14.19	90.97	ND	NR	NR
MW-6	09-30-93	105.16	14.34	90.82	ND	NR	NR
MW-6	11-16-93	105.16	14.41	90.75	ND	NR	NR
MW-6	02-02-94	105.16	13.60	91.56	ND	NR	NR
MW-6	04-29-94	105.16	13.66	91.50	ND	NR	NR
MW-6	08-02-94	105.16	13.99	91.17	ND	SW	0.017
MW-6	11-16-94	105.16	13.11	92.05	ND	SW	0.02
MW-7	11-12-92	107.08	14.75	92.33	ND	NR	NR
MW-7	12-09-92	107.08	12.55	94.53	ND	NR	NR
MW-7	01-21-93	107.08	11.52	95.56	ND	NR	NR
MW-7	02-22-93	107.08	12.82	94.26	ND	NR	NR
MW-7	03-25-93	107.08	13.43	93.65	ND	NR	NR
MW-7	04-14-93	107.08	13.98	93.10	ND	NR	NR
MW-7	05-22-93	107.08	14.41	92.67	ND	NR	NR
MW-7	06-17-93	107.08	14.50	92.58	ND	NR	NR
MW-7	07-27-93	107.08	14.82	92.26	ND	NR	NR
MW-7	08-29-93	107.08	15.05	92.03	ND	NR	NR
MW-7	09-30-93	107.08	15.04	92.04	ND	NR	NR
MW-7	11-16-93	107.08	15.12	91.96	ND	NR	NR
MW-7	02-02-94	107.08	14.04	93.04	ND	NR	NR
MW-7	04-29-94	107.08	14.10	92.98	ND	NR	NR
MW-7	08-02-94	107.08	14.61	92.47	ND	SW	0.017
MW-7	11-16-94	107.08	13.37	93.71	ND	SW	0.02
AS-2	09-30-93	NR	18.31	NR	ND	NR	NR

TOC = Top of casing

ft-MSL = Elevation in feet, relative to mean sea level

MWN = Ground-water flow direction and gradient apply to the entire monitoring well network

NR = Not reported; data not available

ND = None detected

SW = Southwest

^ = Groundwater elevation (GWE) and depth to water (DTW) adjusted to include 30 percent of the floating product thickness (FPT):

$$[GWE = (TOC - DTW) + (FPT \times 0.8)]$$

Table 3
Historical Groundwater Analytical Data
(TPHG, BTEX, and TRPH)

ARCO Service Station 6148
5131 Shattuck Avenue, Oakland, California

Date: 01-26-95
Project Number: 0805-135.01

Well Designation	Water Sample Field Date	TPHG	Benzene	Toluene	Ethylbenzene	Total Xylenes	TOG or TRPH
		ppb	ppb	ppb	ppb	ppb	ppm
MW-1	03-18-92	790	310	26	12	44	<0.5 (1.4)
MW-1	06-12-92	1000	290	15	10	30	<0.5
MW-1	09-14-92	1000	370	6.5	6.5	17	0.9
MW-1	10-07-92	590	200	19	6.7	19	<0.5
MW-1	01-22-93	1200	370	57	18	39	NA
MW-1	04-14-93	140	46	<2.5	<2.5	<2.5	NA
MW-1	09-30-93	220	64	0.9	2.2	4	NA
MW-1	11-16-93	180	53	0.7	1.7	4.1	NA
MW-1	02-02-94	250	93	<0.5	1.9	1	NA
MW-1	04-29-94	350	99	1.3	3.9	11	NA
MW-1	08-02-94	210	82	<1	<1	2.5	NA
MW-1	11-16-94	650	260	38	6.1	15	NA
MW-2	03-18-92	8400	1400	1000	220	870	1.2 (3.0)
MW-2	06-12-92	Not sampled: well contained floating product					
MW-2	09-14-92	Not sampled: well contained floating product					
MW-2	10-07-92	Not sampled: well contained floating product					
MW-2	01-22-93	Not sampled: well contained floating product					
MW-2	04-14-93	Not sampled: well contained floating product					
MW-2	09-30-93	Not sampled: well contained floating product					
MW-2	11-16-93	Not sampled: well contained floating product					
MW-2	02-02-94	16000	1300	2500	540	2700	NA
MW-2	04-29-94	11000	1400	1200	360	1400	NA
MW-2	08-02-94	4900	800	290	120	620	NA
MW-2	11-16-94	49000	3300	8300	1400	7200	NA
MW-3	03-18-92	20000	3200	560	380	1000	7.8 (8.1)
MW-3	06-12-92	46000	3400	4200	1300	5400	16
MW-3	09-14-92	53000	4300	5700	1300	7300	5.5
MW-3	10-07-92	Not sampled: well contained floating product					
MW-3	01-22-93	35000	2100	1400	1200	4400	31
MW-3	04-14-93	13000	1800	390	990	3500	26
MW-3	09-30-93	79000	2400	3400	1900	8100	23
MW-3	11-16-93	72000	1400	2100	1900	8300	38
MW-3	02-02-94	26000	1400	1200	1200	4400	7.7 (7.8)
MW-3	04-29-94	22000	1400	620	910	3400	10
MW-3	08-02-94	17000	530	410	720	2600	6.6
MW-3	11-16-94	18000	1400	560	790	2800	2.3

Table 3
Historical Groundwater Analytical Data
(TPHG, BTEX, and TRPH)

ARCO Service Station 6148
5131 Shattuck Avenue, Oakland, California

Date: 01-26-95
Project Number: 0805-135.01

Well Designation	Water Sample Field Date	TPHG ppb	Benzene ppb	Toluene ppb	Ethylbenzene ppb	Total Xylenes ppb	TOG or TRPH ppm
MW-4	11-12-92	77	32	<0.5	<0.5	<0.5	NA
MW-4	01-22-93	170	66	0.8	<0.5	1.5	NA
MW-4	04-14-93	<50	4.6	<0.5	<0.5	<0.5	NA
MW-4	09-30-93	52	13	<0.5	<0.5	<0.5	NA
MW-4	11-16-93	230	34	<0.5	<0.5	<0.5	NA
MW-4	02-02-94	<50	3.9	<0.5	<0.5	<0.5	NA
MW-4	04-29-94	<50	4.2	<0.5	<0.5	<0.5	NA
MW-4	08-02-94	<50	3.8	<0.5	<0.5	<0.5	NA
MW-4	11-16-94	110	31	<0.5	<0.5	<0.5	NA
MW-5	11-12-92	2900	1300	12	67	18	NA
MW-5	01-22-93	17000	5000	780	260	330	NA
MW-5	04-14-93	12000	4600	<50	180	130	NA
MW-5	09-30-93	4500	1100	<10	39	16	NA
MW-5	11-16-93	3300	700	<10	22	<10	NA
MW-5	02-02-94	10000	3000	65	240	78	NA
MW-5	04-29-94	7600	2400	27	130	44	NA
MW-5	08-02-94	1900	680	<10	24	<10	NA
MW-5	11-16-94	17000	5900	700	440	320	NA
MW-6	11-12-92	51	2.6	<0.5	<0.5	<0.5	NA
MW-6	01-22-93	<50	1.2	<0.5	<0.5	<0.5	NA
MW-6	04-14-93	<50	<0.5	<0.5	<0.5	<0.5	NA
MW-6	09-30-93	74	2	<0.5	<0.5	<0.5	NA
MW-6	11-16-93	72	2.6	<0.5	<0.5	<0.5	NA
MW-6	02-02-94	61	2.2	<0.5	<0.5	<0.5	NA
MW-6	04-29-94	<50	0.6	<0.5	<0.5	<0.5	NA
MW-6	08-02-94	<50	<0.5	<0.5	<0.5	<0.5	NA
MW-6	11-16-94	<50	1.1	<0.5	<0.5	<0.5	NA

Table 3
 Historical Groundwater Analytical Data
 (TPHG, BTEX, and TRPH)

ARCO Service Station 6148
 5131 Shattuck Avenue, Oakland, California

Date: 01-26-95
 Project Number: 0805-135.01

Well Designation	Water Sample Field Date	TPHG	Benzene	Toluene	Ethyl- benzene	Total Xylenes	TOG or TRPH
		ppb	ppb	ppb	ppb	ppb	ppm
MW-7	11-12-92	<50	1.8	<0.5	<0.5	<0.5	NA
MW-7	01-22-93	<50	<0.5	<0.5	<0.5	<0.5	NA
MW-7	04-14-93	<50	<0.5	<0.5	<0.5	<0.5	NA
MW-7	09-30-93	<50	<0.5	<0.5	<0.5	<0.5	NA
MW-7	11-16-93	<50	<0.5	<0.5	<0.5	<0.5	NA
MW-7	02-02-94	<50	<0.5	<0.5	<0.5	<0.5	NA
MW-7	04-29-94	<50	<0.5	<0.5	<0.5	<0.5	NA
MW-7	08-02-94	<50	<0.5	<0.5	<0.5	<0.5	NA
MW-7	11-16-94	<50	<0.5	<0.5	<0.5	<0.5	NA
AS-2	09-30-93	<50	1.2	<0.5	<0.5	<0.5	NA

TPHG = Total petroleum hydrocarbons as gasoline

TOG = Total oil and grease measured by EPA Method 5520 C&F

TRPH = Total recoverable petroleum hydrocarbons measured by EPA Method 418.1

ppb = Parts per billion or micrograms per liter ($\mu\text{g/l}$)

ppm = Parts per million or milligrams per liter (mg/l)

NA = Not analyzed

Table 1
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Well Number	Date Gauged/ Sampled	Top of Casing Elevation (ft-MSL)	Depth to Water (feet)	FP Thickness (feet)	Groundwater Elevation (ft-MSL)	TPH Gasoline (µg/L)	Benzene (µg/L)	Toluene (µg/L)	Ethyl- benzene (µg/L)	Total Xylenes (µg/L)	MTBE (µg/L)	TRPH (mg/L)	Dissolved Oxygen (mg/L)	Purged/ Not Purged (P/NP)
MW-1	03-20-95	108.03	15.75	ND	92.28	830	140	5	41	110	--	--		
MW-1	06-06-95	108.03	17.68	ND	90.35	210	30	<0.5	7.3	16	--	--		
MW-1	08-24-95	107.80	17.45	ND	90.35	Not sampled: well was inaccessible due to construction								
MW-1	11-16-95	107.80	17.64	ND	90.16	<50	5.6	<0.5	1.4	1.2	55	--		
MW-1	02-27-96	107.80	15.21	ND	92.59	1,400	240	88	44	110	200	--		
MW-1	05-15-96	107.80	17.53	ND	90.27	Not sampled: well sampled semi-annually, during the first and third quarter								
MW-1	08-14-96	107.80	17.15	ND	90.65	98	18	<0.5	1.9	1	45	--		
MW-1	11-11-96	107.80	17.78	ND	90.02	Not sampled: well sampled semi-annually, during the first and third quarter								
MW-1	03-25-97	107.80	17.68	ND	90.12	<50	<0.5	<0.5	<0.5	<0.5	<3	--		
MW-1	05-15-97	107.80	17.91	ND	89.89	Not sampled: well sampled semi-annually, during the first and third quarter								
MW-1	10-26-97	107.80	18.85	ND	88.95	<50	<0.5	<0.5	<0.5	<0.5	<3	--		
MW-1	11-10-97	107.80	18.10	ND	89.70	<50	<0.5	<0.5	<0.5	<0.5	4	--		
MW-1	02-13-98	107.80	13.15	ND	94.65	<100	8.4	<1	<1	14	130	--		
MW-1	05-12-98	107.80	12.30	ND	95.50	<50	<0.5	<0.5	<0.5	<0.5	<3	--		
MW-1	07-28-98	107.80	17.04	ND	90.76	<50	<0.5	<0.5	<0.5	<0.5	<3	--		
MW-1	10-28-98	107.80	18.10	ND	89.70	<50	<0.5	<0.5	<0.5	<0.5	<3	--		
MW-1	02-12-99	107.80	15.84	ND	91.96	72	<0.5	<0.5	<0.5	<0.5	23	--		
MW-1	06-03-99	107.80	17.62	ND	90.18	890	33	1.5	12	2.8	250	--	1.44	NP
MW-1	10-26-99	107.80	16.92	ND	90.88	<50	<0.5	<0.5	<0.5	<1	9	--	9.58	NP
MW-1	02-02-00	107.80	15.70	ND	92.10	<50	<0.5	<0.5	<0.5	<1	<3	--	8.9	NP
MW-2	03-20-95	107.43	15.50	ND#	91.93	Not sampled: floating product entered well during purging								
MW-2	06-06-95	107.43	17.43	ND	90.00	1,200	60	21	35	140	--	--		
MW-2	08-24-95	107.28	17.22	ND	90.06	Not sampled: well was inaccessible due to construction								
MW-2	11-16-95	107.28	17.36	ND	89.92	360	45	1.3	7.1	7.5	210	--		
MW-2	02-27-96	107.28	14.82	ND	92.46	8,900	1,400	980	150	550	940	--		
MW-2	05-15-96	107.28	17.40	ND	89.88	480	82	48	8	48	87	--		

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Well Number	Date Gauged/ Sampled	Top of Casing Elevation (ft-MSL)	Depth to Water (feet)	FP Thickness (feet)	Groundwater Elevation (ft-MSL)	TPH			Ethyl- benzene (µg/L)	Total Xylenes (µg/L)	MTBE (µg/L)	TRPH (mg/L)	Dissolved Oxygen (mg/L)	Purged/ Not Purged (P/NP)
						Gasoline (µg/L)	Benzene (µg/L)	Toluene (µg/L)						
MW-2	08-14-96	107.28	17.00	ND	90.28	130	22	4	2	9	120	--		
MW-2	11-11-96	107.28	17.55	ND	89.73	1,200	150	120	21	160	110	--		
MW-2	03-25-97	107.28	17.32	ND	89.96	670	23	58	13	120	28	--		
MW-2	05-15-97	107.28	17.61	ND	89.67	<50	<0.5	<0.5	<0.5	<0.5	23	--		
MW-2	10-26-97	107.28	18.43	ND	88.85	<50	<0.5	<0.5	<0.5	<0.5	<3	--		
MW-2	11-10-97	107.28	17.84	ND	89.44	<100	<1	<1	<1	1	74	--		
MW-2	02-13-98	107.28	12.75	ND	94.53	220	9.5	3.9	3.7	48	84	--		
MW-2	05-12-98	107.28	17.02	ND	90.26	3,900	210	280	86	910	35	--		
MW-2	07-28-98	107.28	17.30	ND	89.98	<50	<0.5	<0.5	<0.5	<0.5	<3	--		
MW-2	10-28-98	107.28	17.80	ND	89.48	170	17	<0.5	1.7	5.0	24	--		
MW-2	02-12-99	107.28	15.55	ND	91.73	12,000	620	95	490	2,200	270	--		
MW-2	06-03-99	107.28	17.31	ND	89.97	<50	<0.5	<0.5	<0.5	1.1	8	--	2.53	NP
MW-2	10-26-99	107.28	16.58	ND	90.70	<50	1.0	<0.5	<0.5	3	<3	--	8.17	NP
MW-2	02-02-00	107.28	15.30	ND	91.98	<50	<0.5	<0.5	<0.5	<1	<3	--	9.1	NP
MW-3	03-20-95	107.77	15.60	ND	92.17	29,000	880	190	760	2,000	--	16		
MW-3	06-06-95	107.77	17.54	ND	90.23	22,000	450	54	380	1,300	--	7.1		
MW-3	08-24-95	107.61	17.42	ND	90.19	Not sampled: well was inaccessible due to construction								
MW-3	11-16-95	107.61	17.58	ND	90.03	13,000	210	<20	320	1,000	790	8.3		
MW-3	02-27-96	107.61	15.03	ND	92.58	9,700	94	15	290	720	430	10		
MW-3	05-15-96	107.61	17.35	ND	90.26	5,600	66	12	37	67	230	--		
MW-3	08-14-96	107.61	17.10	ND	90.51	830	17	<1*	8	7	110	--		
MW-3	11-11-96	107.61	17.73	ND	89.88	500	28	3	12	13	150	--		
MW-3	03-25-97	107.61	17.99	ND	89.62	<50	<0.5	<0.5	<0.5	<0.5	94	--		
MW-3	05-15-97	107.61	17.84	ND	89.77	<50	<0.5	<0.5	<0.5	<0.5	65	--		
MW-3	10-26-97	107.61	18.50	ND	89.11	220	4	<1	<1	<1	160	--		
MW-3	11-10-97	107.61	18.00	ND	89.61	350	8	<2	3	3	230	--		

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MW-3	02-13-98	107.61	13.00	ND	94.61	<50	1.3	<0.5	<0.5	1	21	--		
MW-3	05-12-98	107.61	17.20	ND	90.41	120	<0.5	<0.5	<0.5	<0.9	71	--		
MW-3	07-28-98	107.61	17.46	ND	90.15	<50	1.4	<0.5	<0.5	<0.5	52	--		
MW-3	10-28-98	107.61	18.00	ND	89.61	170	<0.5	<0.5	<0.5	0.7	35	--		
MW-3	02-12-99	107.61	15.76	ND	91.85	120	2.0	0.6	<0.5	1.3	37	--		
MW-3	06-03-99	107.61	Well inaccessible: Surveyed well VW-1 as an alternative											
MW-3	10-26-99	107.61	16.69	ND	90.92	630	14	0.7	13	2	38	--	1.24	NP
MW-3	02-02-00	107.61	15.65	ND	91.96	290	18	0.5	45	56	46	--	0.4	NP
MW-4	03-20-95	106.58	13.85	ND	92.73	88	1	<0.5	<0.5	0.7	--	--		
MW-4	06-06-95	106.58	15.70	ND	90.88	<50	<0.5	<0.5	<0.5	<0.5	--	--		
MW-4	08-24-95	106.71	15.86	ND	90.85	Not sampled: well was inaccessible due to construction								
MW-4	11-16-95	106.71	16.10	ND	90.61	<50	<0.5	<0.5	<0.5	<0.5	6	--		
MW-4	02-27-96	106.71	13.72	ND	92.99	<50	<0.5	<0.5	<0.5	<0.5	10	--		
MW-4	05-15-96	106.71	15.90	ND	90.81	Not sampled: well sampled semi-annually, during the first and third quarter								
MW-4	08-14-96	106.71	15.68	ND	91.03	<50	<0.5	<0.5	<0.5	<0.5	<3	--		
MW-4	11-11-96	106.71	16.19	ND	90.52	Not sampled: well sampled semi-annually, during the first and third quarter								
MW-4	03-25-97	106.71	16.10	ND	90.61	<50	<0.5	<0.5	<0.5	<0.5	<3	--		
MW-4	05-15-97	106.71	16.38	ND	90.33	Not sampled: well sampled semi-annually, during the first and third quarter								
MW-4	10-26-97	106.71	17.78	ND	88.93	<50	<0.5	<0.5	<0.5	<0.5	<3	--		
MW-4	11-10-97	106.71	16.43	ND	90.28	Not sampled: well sampled semi-annually, during the first and third quarter								
MW-4	02-13-98	106.71	13.05	ND	93.66	<50	1.3	0.7	<0.5	2.3	19	--		
MW-4	05-12-98	106.71	15.69	ND	91.02	Not sampled: well sampled semi-annually, during the first and third quarter								
MW-4	07-28-98	106.71	15.93	ND	90.78	<50	<0.5	<0.5	<0.5	<0.5	<3	--		
MW-4	10-28-98	106.71	16.40	ND	90.31	Not sampled: well sampled semi-annually, during the first and third quarter								
MW-4	02-12-99	106.71	14.13	ND	92.58	<50	<0.5	<0.5	<0.5	<0.5	<3	--		
MW-4	06-03-99	106.71	16.00	ND	90.71	Not sampled: well sampled semi-annually, during the first and third quarter								

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Well Number	Date Gauged/ Sampled	Top of Casing Elevation (ft-MSL)	Depth to Water (feet)	FP Thickness (feet)	Groundwater Elevation (ft-MSL)	TPH Gasoline (µg/L)	Benzene (µg/L)	Toluene (µg/L)	Ethyl- benzene (µg/L)	Total Xylenes (µg/L)	MTBE (µg/L)	TRPH (mg/L)	Dissolved Oxygen (mg/L)	Purged/ Not Purged (P/NP)
MW-4	10-26-99	106.71	15.76	ND	90.95	Not sampled: well sampled semi-annually, during the first and third qtr.						1.72		
MW-4	02-02-00	106.71	14.32	ND	92.39	<50	<0.5	<0.5	<0.5	<1	<3	--	0.7	NP
MW-5	03-20-95	106.68	14.92	ND	91.76	21,000	6,900	450	800	1,300	--	--		
MW-5	06-06-95	106.68	16.61	ND	90.07	6,500	1,700	<20	120	69	--	--		
MW-5	08-24-95	106.60	16.47	ND	90.13	Not sampled: well was inaccessible due to construction								
MW-5	11-16-95	106.60	16.69	ND	89.91	1,800	470	<5	17	5	1,000	--		
MW-5	02-27-96	106.60	14.35	ND	92.25	10,000	1,000	71	690	1,000	440/450*	--		
MW-5	05-15-96	106.60	16.58	ND	90.02	3,400	350	6	72	20	220	--		
MW-5	08-14-96	106.60	17.26	ND	89.34	2,100	130	2.7	47	4.7	220	--		
MW-5	11-11-96	106.60	16.62	ND	89.98	1,200	31	1	8	2	130	--		
MW-5	03-25-97	106.60	16.38	ND	90.22	<50	<0.5	<0.5	<0.5	<0.5	5	--		
MW-5	05-15-97	106.60	16.54	ND	90.06	<50	<0.5	<0.5	<0.5	<0.5	<3	--		
MW-5	10-26-97	106.60	17.60	ND	89.00	<50	<0.5	<0.5	<0.5	<0.5	7	--		
MW-5	11-10-97	106.60	16.78	ND	89.82	<50	<0.5	<0.5	<0.5	<0.5	24	--		
MW-5	02-13-98	106.60	12.21	ND	94.39	11,200	51	<10	<10	<10	2,000	--		
MW-5	05-12-98	106.60	NR	ND	NR	Not sampled: well inaccessible								
MW-5	07-28-98	106.60	16.47	ND	90.13	<50	<0.5	<0.5	<0.5	<0.5	<3	--		
MW-5	10-28-98	106.60	16.80	ND	89.80	<50	0.8	<0.5	<0.5	<0.5	99	--		
MW-5	02-12-99	106.60	14.88	ND	91.72	<1,000	<10	<10	<10	<10	1,100	--		
MW-5	06-03-99	106.60	16.65	ND	89.95	290	10	<0.5	<0.5	0.6	200	--	2.45	NP
MW-5	10-26-99	106.60	16.10	ND	90.50	<50	<0.5	<0.5	<0.5	<1	11	--	NM	NP
MW-5	02-02-00	106.60	14.65	ND	91.95	<50	<0.5	<0.5	<0.5	<1	39	--	8.6	NP
MW-6	03-20-95	105.16	12.13	ND	93.03	<50	<0.5	<0.5	<0.5	<0.5	--	--		
MW-6	06-06-95	105.16	13.95	ND	91.21	<50	<0.5	<0.5	<0.5	<0.5	--	--		
MW-6	08-24-95	105.13	14.07	ND	91.06	<50	<0.5	<0.5	<0.5	<0.5	<3	--		

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						Gasoline (µg/L)	Benzene (µg/L)	Toluene (µg/L)	benzene (µg/L)	Xylenes (µg/L)						
MW-6	11-16-95	105.13	14.34	ND	90.79	<60	<0.5	<0.5	<0.5	<0.5	--	--	--	--		
MW-6	02-27-96	105.13	12.00	ND	93.13	<50	<0.5	<0.5	<0.5	<0.5	<3	--	--			
MW-6	05-15-96	105.13	14.10	ND	91.03	Not sampled: well sampled annually, during the first quarter										
MW-6	08-14-96	105.13	13.70	ND	91.43	Not sampled: well sampled annually, during the first quarter										
MW-6	11-11-96	105.13	14.11	ND	91.02	Not sampled: well sampled annually, during the first quarter										
MW-6	03-25-97	105.13	14.15	ND	90.98	<50	<0.5	<0.5	<0.5	<0.5	<3	--	--			
MW-6	05-15-97	105.13	14.44	ND	90.69	Not sampled: well sampled annually, during the first quarter										
MW-6	10-26-97	105.13	16.02	ND	89.11	Not sampled: well sampled annually, during the first quarter										
MW-6	11-10-97	105.13	14.52	ND	90.61	Not sampled: well sampled annually, during the first quarter										
MW-6	02-13-98	105.13	10.06	ND	95.07	<50	<0.5	<0.5	<0.5	<0.5	8	--	--			
MW-6	05-12-98	105.13	13.75	ND	91.38	Not sampled: well sampled annually, during the first quarter										
MW-6	07-28-98	105.13	14.06	ND	91.07	Not sampled: well sampled annually, during the first quarter										
MW-6	10-28-98	105.13	14.71	ND	90.42	Not sampled: well sampled annually, during the first quarter										
MW-6	02-12-99	105.13	12.22	ND	92.91	<100	<1	<1	<1	<1	110	--	--			
MW-6	06-03-99	105.13	13.95	ND	91.18	Not sampled: well sampled annually, during the first quarter										
MW-6	10-26-99	105.13	14.06	ND	91.07	Not sampled: well sampled annually, during the first quarter										
MW-6	02-02-00	105.13	12.03	ND	93.10	<50	<0.5	<0.5	<0.5	<1	<3	--	3.94	1.2	NP	
MW-7	03-20-95	107.08	12.32	ND	94.76	<50	<0.5	<0.5	<0.5	<0.5	--	--	--			
MW-7	06-06-95	107.08	14.59	ND	92.49	Not sampled: well sampled semi-annually, during the first and third quarters										
MW-7	08-24-95	107.05	14.64	ND	92.41	<50	<0.5	<0.5	<0.5	<0.5	<3	--	--			
MW-7	11-16-95	107.05	15.30	ND	91.75	Not sampled: well sampled semi-annually, during the first and third quarters										
MW-7	02-27-96	107.05	12.24	ND	94.81	<50	<0.5	<0.5	<0.5	<0.5	<3	--	--			
MW-7	05-15-96	107.05	14.65	ND	92.40	Not sampled: well sampled annually, during the first quarter										
MW-7	08-14-96	107.05	14.35	ND	92.70	Not sampled: well sampled annually, during the first quarter										
MW-7	11-11-96	107.05	14.92	ND	92.13	Not sampled: well sampled annually, during the first quarter										
MW-7	03-25-97	107.05	14.80	ND	92.25	<50	<0.5	<0.5	<0.5	<0.5	<3	--	--			

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MW-7	05-15-97	107.05	15.27	ND	91.78	Not sampled: well sampled annually, during the first quarter								
MW-7	10-26-97	107.05	16.68	ND	90.37	Not sampled: well sampled annually, during the first quarter								
MW-7	11-10-97	107.05	15.37	ND	91.68	Not sampled: well sampled annually, during the first quarter								
MW-7	02-13-98	107.05	10.80	ND	96.25	<50	<0.5	<0.5	<0.5	<0.5	<3	--		
MW-7	05-12-98	107.05	14.32	ND	92.73	Not sampled: well sampled annually, during the first quarter								
MW-7	07-28-98	107.05	14.79	ND	92.26	Not sampled: well sampled annually, during the first quarter								
MW-7	10-28-98	107.05	15.57	ND	91.48	Not sampled: well sampled annually, during the first quarter								
MW-7	02-12-99	107.05	12.46	ND	94.59	<50	<0.5	<0.5	<0.5	<0.5	<3	--		
MW-7	06-03-99	107.05	14.53	ND	92.52	Not sampled: well sampled annually, during the first quarter								
MW-7	10-26-99	107.05	14.74	ND	92.31	Not sampled: well sampled annually, during the first quarter								
MW-7	02-02-00	107.05	12.57	ND	94.48	<50	<0.5	<0.5	<0.5	<1	<3	--	0.7	NP
VW-1	06-03-99	NR	17.51	ND	NR	420	2.3	0.6	2.0	2.2	74	--	1.28	P

ft-MSL: elevation in feet, relative to mean sea level

TPH: total petroleum hydrocarbons as gasoline, California DHS LUFT Method

BTEX: Benzene, toluene, ethylbenzene, total xylenes by EPA method 8021B. (EPA method 8020 prior to 10/26/99)

MTBE: Methyl tert-butyl ether by EPA method 8021B. (EPA method 8020 prior to 10/26/99).

TRPH: total recoverable petroleum hydrocarbons

µg/L: micrograms per liter

mg/L: milligrams per liter

NR: not reported; data not available

ND: none detected

#: floating product entered the well during purging

--: not analyzed or not applicable

*: confirmed by EPA 8240

** : For previous historical groundwater elevation and analytical data please refer to *Fourth Quarter 1995 Groundwater Monitoring Program Results and Remediation System Performance Evaluation Report, ARCO Service Station 6148, Oakland, California*, (EMCON, March 4, 1996)

APPENDIX C

GEOTRACKER UPLOAD CONFIRMATION RECEIPTS

STATE WATER RESOURCES CONTROL BOARD
GEOTRACKER ESI

UPLOADING A GEO_WELL FILE

SUCCESS

Processing is complete. No errors were found!
Your file has been successfully submitted!

<u>Submittal Type:</u>	GEO_WELL
<u>Submittal Title:</u>	4Q09 GEO_WELL 6148
<u>Facility Global ID:</u>	T0600100103
<u>Facility Name:</u>	ARCO #6148
<u>File Name:</u>	GEO_WELL.zip
<u>Organization Name:</u>	Broadbent & Associates, Inc.
<u>Username:</u>	BROADBENT-C
<u>IP Address:</u>	67.118.40.90
<u>Submittal Date/Time:</u>	12/8/2009 4:00:18 PM
<u>Confirmation Number:</u>	6795548796

STATE WATER RESOURCES CONTROL BOARD
GEOTRACKER ESI

UPLOADING A EDF FILE

SUCCESS

Processing is complete. No errors were found!
Your file has been successfully submitted!

<u>Submittal Type:</u>	EDF - Monitoring Report - Quarterly
<u>Submittal Title:</u>	4Q09 GW Monitoring
<u>Facility Global ID:</u>	T0600100103
<u>Facility Name:</u>	ARCO #6148
<u>File Name:</u>	09110745.zip
<u>Organization Name:</u>	Broadbent & Associates, Inc.
<u>Username:</u>	BROADBENT-C
<u>IP Address:</u>	67.118.40.90
<u>Submittal Date/Time:</u>	12/8/2009 4:01:18 PM
<u>Confirmation Number:</u>	6429391324

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