Atlantic Richfield Company

Chuck Carmel
Environmental Business Manager

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January 27, 2011

Re: Fourth Quarter 2010 Semi-Annual Ground-Water Monitoring Report
Atlantic Richfield Company Service Station #498
286 South Livermore Avenue, Livermore, California
ACEH Case No. RO0002873

"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 2010 Semi-Annual
Ground-Water Monitoring Report
Atlantic Richfield Company Station #498
286 South Livermore Avenue, Livermore, California
ACEH Case #RO0002873

Prepared for

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

Prepared by

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

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January 27, 2011

Project No. 08-82-603

Broadbent & Associates, Inc.
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BROADBENT & ASSOCIATES, INC
ENVIRONMENTAL, WATER RESOURCES & ENGINEERING

January 27, 2011

Project No. 08-82-603

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

Attn.: Mr. Chuck Carmel

Re: Fourth Quarter 2010 Semi-Annual Ground-Water Monitoring Report, Atlantic Richfield Company Station #498, 286 South Livermore Avenue, Livermore, California; ACEH Case #RO0002873

Dear Mr. Carmel:

Provided herein is the *Fourth Quarter 2010 Semi-Annual Ground-Water Monitoring Report* for Atlantic Richfield Company (a BP affiliated company) Station #498 (herein referred to as Station #498) located at 286 South Livermore Avenue, Livermore, California (Site). This report presents the results from semi-annual monitoring conducted at the Site during the Fourth Quarter 2010.

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

Sincerely,

BROADBENT & ASSOCIATES, INC.

Jason Duda
Project Scientist

Matthew G. Herrick, P.G., C.HG.
Senior Hydrogeologist

PROFESSIONAL GEOLOGIST
MATTHEW G. HERRICK
No. 901
CERTIFIED HYDROGEOLOGIST
Exp. 4/30/11
STATE OF CALIFORNIA

Enclosures

cc: Mr. Paresh Khatri, Alameda County Environmental Health, 1131 Harbor Bay Parkway, Suite 250, Alameda, CA 84502 (Submitted via ACEH ftp Site)
Electronic copy uploaded to GeoTracker

STATION #498 SEMI-ANNUAL GROUND-WATER MONITORING REPORT

Facility: #498 Address:	286 South Livermore Avenue, Livermore, CA
Environmental Business Manager:	Mr. Chuck Carmel
Consulting Co./Contact Persons:	Broadbent & Associates, Inc. (BAI) / Jason Duda and Matt Herrick (530) 566-1400
Primary Agency/Regulatory ID No.:	Alameda County Environmental Health (ACEH)/ ACEH Case #RO0002873
Consultant Project No.:	08-82-603
Facility Permits/Permitting Agency:	NA

WORK PERFORMED THIS QUARTER (Fourth Quarter 2010):

1. Prepared and submitted *Third Quarter 2010 Status Report* (BAI, 10/27/2010)
2. Conducted ground-water monitoring/sampling for Fourth Quarter 2010. Work performed on November 2, 2010 by BAI.

WORK PROPOSED FOR NEXT QUARTER (First Quarter 2011):

1. Prepare and submit *Fourth Quarter 2010 Semi-Annual Ground-Water Monitoring Report* (contained herein).
2. Continue to pursue off-site property access necessary for implementation of activities documented in the *Soil and Ground-Water Investigation Work Plan Addendum* (BAI, 4/12/2010).
3. No environmental field work is currently scheduled to occur during the First Quarter 2011.

QUARTERLY RESULTS SUMMARY:

Current phase of project:	**Ground-water monitoring/Sampling/Assessment**
Frequency of ground-water monitoring:	**Semi-Annually (2Q & 4Q): MW-1, MW-2, MW-3, and MW-4**
Frequency of ground-water sampling:	**Semi-Annually (2Q & 4Q): MW-1, MW-2, MW-3, and MW-4**
Is free product (FP) present on-site:	**No**
Current remediation techniques:	**NA**
Depth to ground water (below TOC):	**32.03 (MW-1) to 39.23 (MW-2) feet**
General ground-water flow direction:	**West-Northwest**
Approximate hydraulic gradient:	**0.02 ft/ft**

DISCUSSION:

Fourth Quarter 2010 ground-water monitoring and sampling was conducted at Station #498 on November 2, 2010 by BAI. No irregularities were noted during water level gauging. Depth-to-water measurements ranged from 32.03 ft at MW-1 to 39.23 ft at MW-2. Resulting ground-water surface elevations ranged from 456.12 ft above datum in well MW-2 to 464.69 ft in well MW-1. Water level elevations yielded a potentiometric ground-water flow direction and gradient to the west-northwest at approximately 0.02 ft/ft. 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. Current and historic ground-water flow directions and gradients are provided in Table 3. A Site Location Map is presented as Drawing 1. Potentiometric ground-water elevation contours are presented in Drawing 2.

Water samples were collected from wells MW-1 through MW-4 on November 2, 2010. 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-C12) by EPA Method 8015B; for Benzene, Toluene, Ethylbenzene, and Total Xylenes (BTEX) by EPA Method 8260B; and Methyl Tert-Butyl Ether (MTBE), Ethyl Tert-Butyl Ether (ETBE), Tert-Amyl Methyl Ether (TAME), Di-Isopropyl Ether(DIPE), Tert-Butyl Alcohol (TBA), 1,2-Dibromomethane (EDB), 1,2-Dichloroethane (1,2-DCA), and Ethanol by EPA Method 8260B. The laboratory stated that the detected GRO concentrations observed in the samples collected from wells MW-1, MW-3 and MW-4 showed a "quantitation of unknown hydrocarbon(s) in sample based on gasoline." 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.

Concentrations of GRO were detected above the laboratory reporting limit in three of the four wells sampled at concentrations ranging from 51 micrograms per liter (µg/L) in well MW-4 to 4,400 µg/L in well MW-3. Benzene was detected above the laboratory reporting limit in two of the four wells sampled at concentrations of 83 µg/L in well MW-1 and 420 µg/L in well MW-3. Toluene was detected above the laboratory reporting limit in one of the four wells sampled at a concentration of 20 µg/L in well MW-1. Ethylbenzene was detected above the laboratory reporting limit in two of the four wells sampled at concentrations of 40 µg/L in well MW-1 and 110 µg/L in well MW-3. Total Xylenes were detected above the laboratory reporting limit in two of the four wells sampled at concentrations of 61 µg/L in well MW-1 and 33 µg/L in well MW-3. MTBE was detected above the laboratory reporting limit in each of the four wells sampled at concentrations ranging from 5.1 µg/L in well MW-4 to 70 µg/L in well MW-3. TBA was detected above the laboratory reporting limit in three of the four wells sampled at concentrations ranging from 26 µg/L in well MW-2 to 500 µg/L in well MW-4. The remaining analytes were not detected above their respective laboratory reporting limits in the four wells sampled during the Fourth Quarter of 2010. Historic laboratory analytical results are summarized in Table 1 and Table 2. 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 B.

CONCLUSIONS AND RECOMMENDATIONS:

The Fourth Quarter 2010 water level elevations recorded for wells MW-1 and MW-4 reached historic minimum values. The potentiometric ground-water flow direction and gradient to the west-northwest at approximately 0.02 ft/ft was generally consistent with historical data. The data presented in Table 3 for Fourth Quarter 2009 and Second Quarter 2010 have been corrected to eliminate well MW-1 due to anomalous ground-water elevations. Detected concentrations of petroleum hydrocarbons were within the historic minimum and maximum ranges recorded for each well sampled this quarter with the following exceptions: GRO reached a historic maximum concentration in well MW-1 and historic minimum concentration in wells MW-3 and MW-4; Toluene reached a historic maximum concentration in well MW-1; Ethylbenzene reached a historic maximum concentration in well MW-1 and a historic minimum concentration in well MW-3; Total Xylenes reached a historic maximum in MW-1 and a historic minimum concentration in well MW-3; MTBE reached a historic maximum concentration in well MW-2 and a historic minimum concentration in well MW-4; and TBA reached a historic minimum concentration in well MW-4.

In their letter dated August 12, 2010, Alameda County Environmental Health (ACEH) approved the *Soil and Ground-Water Investigation Work Plan Addendum* submitted by BAI on April 12, 2010.

Off-site property access is required in order to complete the scope of work detailed in the Work Plan. Contact with the owner of the property located immediately northwest of the Site has been made. However, a final response granting property access has not yet been received. Further communication with the property owner will be attempted during First Quarter 2011. In email correspondence dated November 4, 2010, ACEH approved a request to postpone the previous deadline of November 10, 2010 established for the submittal of the Soil and Water Investigation Report until official property access is obtained. The next semi-annual ground-water monitoring and sampling event is scheduled to be conducted during the Second Quarter of 2011.

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. 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 #498, 286 South Livermore Avenue, Livermore, California

Drawing 2. Analytical Summary Map with Historic Sample Locations, Station #498, 286 South Livermore Avenue, Livermore, California

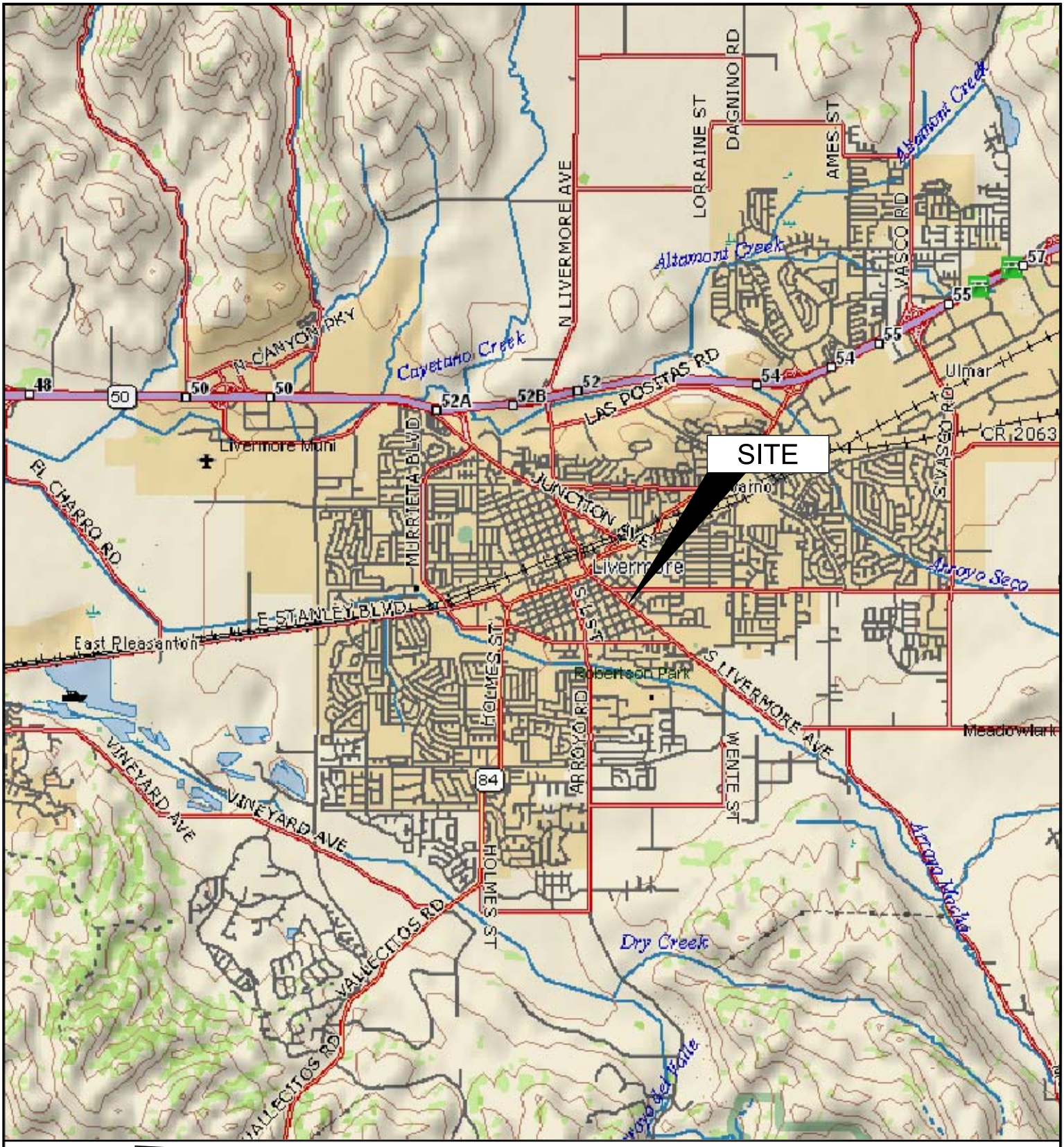
Table 1. Summary of Ground-Water Monitoring Data: Relative Water Elevations and Laboratory Analyses, Station #498, 286 South Livermore Avenue, Livermore, California

Table 2. Summary of Fuel Additives Analytical Data, Station #498, 286 South Livermore Avenue, Livermore, California

Table 3. Historical Ground-Water Flow Direction and Gradient, Station #498, 286 South Livermore Avenue, Livermore, California

Appendix A. BAI Ground-Water Sampling Data (Includes Field Data Sheets, Non-Hazardous Waste Data Form, Certified Laboratory Analytical Results, Chain-of-Custody Documentation, and Field Procedures)

Appendix B. GeoTracker Upload Confirmation Receipts



0 1 2

APPROXIMATE SCALE (mi)

IMAGE SOURCE: DELORME

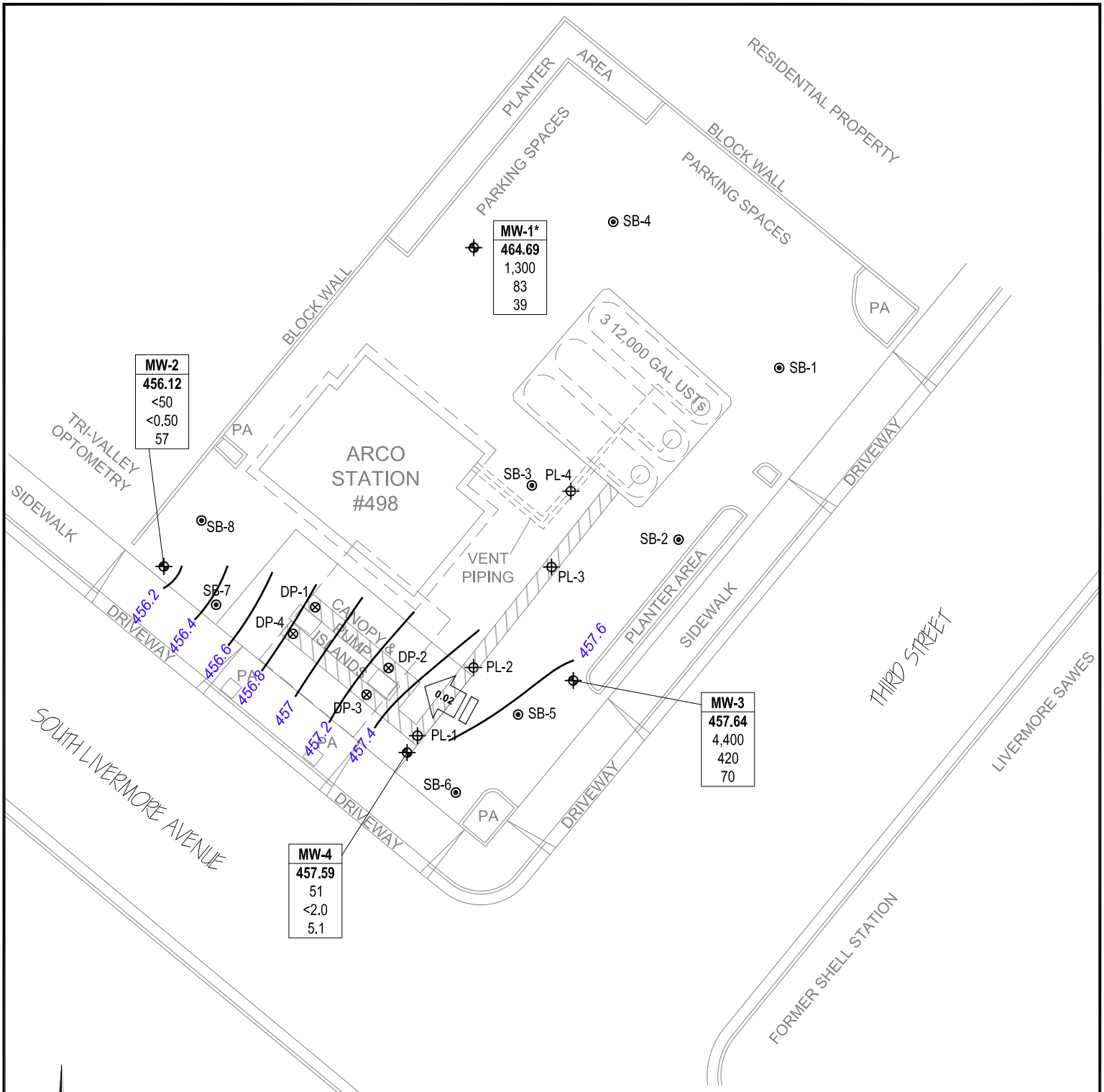
BROADBENT & ASSOCIATES, INC.
ENGINEERING, WATER RESOURCES & ENVIRONMENTAL
1324 Mangrove Ave. Suite 212, Chico, California 95926

Project No.: 08-82-603 Date: 6/22/2010

Station #498
286 South Livermore Avenue
Livermore, California

Site Location Map

Drawing 1



LEGEND

- Monitoring well
- Soil Boring (URS 2005)
- Product Line Soil Sample (Delta 2001)
- Dispenser Pump Soil Sample (Delta 2001)
- Well / ELEV / GRO / Benzene / MTBE — Well designation; Ground-water elevation; Concentration of GRO, Benzene, MTBE and DRO in ground water (µg/L)
- < Not detected at or above laboratory reporting limits
- NS Not sampled
- * Not used in contour interval
- Product Line Excavation Trench
- Ground-Water Elevation Contour (Feet Above Site Datum)
- 0.08 Ground-Water Flow Direction and Gradient (ft/ft)

NOTES: SITE MAP ADAPTED FROM WATSON WEST, DELTA ENVIRONMENTAL AND WOOD RODGERS FIGURES. WOOD RODGERS SURVEY COMPLETED DECEMBER 2, 2008.

BROADBENT & ASSOCIATES, INC.
ENGINEERING, WATER RESOURCES & ENVIRONMENTAL
1324 Mangrove Ave. Suite 212, Chico, California 95926

Project No.: 08-82-603 Date: 12/15/2010

Station #498
286 South Livermore Avenue
Livermore, California

Analytical Summary Map with Historic Sample Locations
November 2, 2010

Drawing
2

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

ARCO Service Station #498, 286 South Livermore Avenue, Livermore, CA

Well and Sample Date	P/NP	Comments	TOC (feet)	Top of Screen (ft bgs)	Bottom of Screen (ft bgs)	DTW (feet)	Product Thickness (feet)	Water Level Elevation (feet)	Concentrations in (µg/L)						DO (mg/L)	pH
									GRO/ TPHg	Benzene	Toluene	Ethyl-Benzene	Total Xylenes	MtBE		
MW-1																
12/29/2008	P		496.72	20	40	28.81	--	467.91	1,100	38	1.2	4.0	3.3	17	2.72	6.83
3/20/2009	P		496.72	20	40	28.95	--	467.77	640	9.1	<0.50	4.1	<0.50	21	0.35	7.28
6/2/2009	P		496.72	20	40	30.90	--	465.82	600	1.6	<0.50	<0.50	<0.50	32	0.59	7.17
9/2/2009	P		496.72	20	40	32.00	--	464.72	570	<0.50	<0.50	<0.50	<0.50	5.3	1.02	7.38
11/9/2009	P		496.72	20	40	31.82	--	464.90	1,000	130	12	35	39	140	1.39	7.02
5/20/2010	P		496.72	20	40	28.94	--	467.78	1,000	4.4	<0.50	0.76	0.73	22	0.59	6.6
11/2/2010	**P**	**b (GRO), c**	**496.72**	**20**	**40**	**32.03**	**--**	**464.69**	**1,300**	**83**	**20**	**40**	**61**	**39**	**0.72**	**6.0**
MW-2																
12/29/2008	P		495.35	37	57	48.76	--	446.59	110	7.1	<0.50	<0.50	0.76	16	1.04	7.67
3/20/2009	P		495.35	37	57	38.78	--	456.57	200	3.9	<1.0	<1.0	<1.0	56	0.41	7.51
6/2/2009	P		495.35	37	57	43.98	--	451.37	110	5.1	<1.0	<1.0	<1.0	44	1.87	7.42
9/2/2009	P		495.35	37	57	50.25	--	445.10	88	0.79	<0.50	<0.50	<0.50	12	1.55	6.91
11/9/2009	P		495.35	37	57	43.79	--	451.56	58	2.0	<0.50	<0.50	<0.50	13	0.86	7.14
5/20/2010	P		495.35	37	57	32.07	--	463.28	<50	<0.50	<0.50	<0.50	<0.50	27	0.61	6.8
11/2/2010	**P**		**495.35**	**37**	**57**	**39.23**	**--**	**456.12**	**<50**	**<0.50**	**<0.50**	**<0.50**	**<0.50**	**57**	**1.34**	**6.8**
MW-3																
12/29/2008	P		496.32	37	57	48.21	--	448.11	28,000	310	200	840	6,200	71	1.95	7.39
3/20/2009	P		496.32	37	57	38.48	--	457.84	11,000	360	84	600	1,500	71	0.56	7.25
6/2/2009	P	a	496.32	37	57	43.33	--	452.99	5,100	310	14	180	310	66	2.06	7.18
9/2/2009	P		496.32	37	57	49.60	--	446.72	25,000	380	150	930	2,900	75	1.35	6.93
11/9/2009	P		496.32	37	57	43.25	--	453.07	6,900	390	27	480	680	69	0.54	6.9
5/20/2010	P		496.32	37	57	31.56	--	464.76	9,400	690	<10	300	83	77	0.36	6.8
11/2/2010	**P**	**b (GRO)**	**496.32**	**37**	**57**	**38.68**	**--**	**457.64**	**4,400**	**420**	**<10**	**110**	**33**	**70**	**0.59**	**6.8**
MW-4																
12/29/2008	--	Dry	496.01	20	40	--	--	--	--	--	--	--	--	--	--	--
3/20/2009	P		496.01	20	40	37.82	--	458.19	410	0.78	<0.50	<0.50	0.64	16	0.52	7.16
6/2/2009	--	Dry	496.01	20	40	--	--	--	--	--	--	--	--	--	--	--
9/2/2009	--	Dry	496.01	20	40	--	--	--	--	--	--	--	--	--	--	--
11/9/2009	--	Dry	496.01	20	40	--	--	--	--	--	--	--	--	--	--	--

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

ARCO Service Station #498, 286 South Livermore Avenue, Livermore, CA

Well and Sample Date	P/NP	Comments	TOC (feet)	Top of Screen (ft bgs)	Bottom of Screen (ft bgs)	DTW (feet)	Product Thickness (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.																
5/20/2010	P		496.01	20	40	31.29	--	464.72	290	<2.0	<2.0	<2.0	<2.0	10	0.82	6.6
11/2/2010	**NP**	**b (GRO), c**	**496.01**	**20**	**40**	**38.42**	**--**	**457.59**	**51**	**<2.0**	**<2.0**	**<2.0**	**<2.0**	**5.1**	**1.12**	**6.4**

SYMBOLS AND ABBREVIATIONS:

-- = Not sampled/analyzed/applicable/measured/ available
< = Not detected at or above specified laboratory reporting limit
DO = Dissolved oxygen
DTW = Depth to water in ft bgs
ft bgs= feet below ground surface
ft MSL= feet above mean sea level
GRO = Gasoline range organics
GWE = Groundwater elevation measured in ft MSL
mg/L = Milligrams per liter
MTBE = Methyl tert-butyl ether
NP = Not purged before sampling
P = Purged before sampling
TOC = Top of casing measured in ft MSL
µg/L = Micrograms per liter

NOTES:

a = Sample preserved improperly.
b = Quantitation of unknown hydrocarbon(s) in sample based on gasoline.
c = Hydrocarbon odor.

Table 2. Summary of Fuel Additives Analytical Data

ARCO Service Station #498, 286 South Livermore Avenue, Livermore, CA

Well and Sample Date	Concentrations in (µg/L)								Comments
	Ethanol	TBA	MTBE	DIPE	ETBE	TAME	1,2-DCA	EDB	
MW-1									
12/29/2008	<300	<10	17	<0.50	<0.50	<0.50	<0.50	<0.50	
3/20/2009	<300	25	21	<0.50	<0.50	<0.50	<0.50	<0.50	
6/2/2009	<300	28	32	<0.50	<0.50	<0.50	<0.50	<0.50	
9/2/2009	<300	17	5.3	<0.50	<0.50	<0.50	<0.50	<0.50	
11/9/2009	<300	47	140	<0.50	<0.50	3.1	<0.50	<0.50	
5/20/2010	<300	75	22	<0.50	<0.50	<0.50	<0.50	<0.50	
11/2/2010	**<300**	**50**	**39**	**<0.50**	**<0.50**	**<0.50**	**<0.50**	**<0.50**	
MW-2									
12/29/2008	<300	22	16	<0.50	<0.50	<0.50	<0.50	<0.50	
3/20/2009	<600	62	56	<1.0	<1.0	<1.0	<1.0	<1.0	
6/2/2009	<600	83	44	<1.0	<1.0	<1.0	<1.0	<1.0	
9/2/2009	<300	37	12	<0.50	<0.50	<0.50	<0.50	<0.50	
11/9/2009	<300	41	13	<0.50	<0.50	<0.50	<0.50	<0.50	
5/20/2010	<300	22	27	<0.50	<0.50	<0.50	<0.50	<0.50	
11/2/2010	**<300**	**26**	**57**	**<0.50**	**<0.50**	**<0.50**	**<0.50**	**<0.50**	
MW-3									
12/29/2008	<30,000	<1,000	71	<50	<50	<50	<50	<50	
3/20/2009	<7,500	<250	71	<12	<12	<12	<12	<12	
6/2/2009	<3,000	100	66	<5.0	<5.0	<5.0	<5.0	<5.0	
9/2/2009	<7,500	<250	75	<12	<12	<12	<12	<12	
11/9/2009	<3,000	<100	69	<5.0	<5.0	<5.0	<5.0	<5.0	
5/20/2010	<6,000	<200	77	<10	<10	<10	<10	<10	
11/2/2010	**<6,000**	**<200**	**70**	**<10**	**<10**	**<10**	**<10**	**<10**	
MW-4									
3/20/2009	<300	2,000	16	<0.50	<0.50	<0.50	<0.50	<0.50	
5/20/2010	<1,200	1,000	10	<2.0	<2.0	<2.0	<2.0	<2.0	
11/2/2010	**<1,200**	**500**	**5.1**	**<2.0**	**<2.0**	**<2.0**	**<2.0**	**<2.0**	

SYMBOLS AND ABBREVIATIONS:
--/--- = Not sampled/analyzed/applicable/measured/avaliable
< = Not detected at or above specified laboratory reporting limit
1,2-DCA = 1,2-Dichloroethane
DIPE = Di-isopropyl ether
EDB= 1,2-Dibromoethane
ETBE = Ethyl tert-butyl ether
MTBE = Methyl tert-butyl ether
TAME = tert-Amyl methyl ether
TBA = tert-Butyl alcohol
µg/L = Micrograms per liter

Table 3. Historical Groundwater Flow Direction and Gradient

ARCO Service Station #498, 286 South Livermore Avenue, Livermore, CA

Date Sampled	Approximate Flow Direction	Approximate Hydraulic Gradient
12/29/2008	NA	NA
3/20/2009	North-Northwest	0.02
6/2/2009	NA	NA
9/2/2009	NA	NA
11/9/2009*	NA	NA
5/20/2010*	West-Northwest	0.02
11/2/2010	**West-Northwest**	**0.02**

NOTES:

NA = Not Available

* = Previous groundwater flow direction and hydraulic gradient corrected Fourth Quarter 2010.

APPENDIX A

BAI GROUND-WATER SAMPLING DATA
(Includes Field Data Sheets, Non-Hazardous Waste Data Form, Certified Laboratory Analytical Results, Chain-Of-Custody Documentation and Field Procedures)

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

Groundwater Sampling Data Sheet

Well I.D.: MW-1
Project Name/Location: BP/ARCO 498 Project #: 08-82-603
Sampler's Name: SB & GF Date: 11/2/10
Purging Equipment: Bailer
Sampling Equipment: Bailer
Casing Type: PVC

Casing Diameter:		2	inch
Total Well Depth:		40.00	feet
Depth to Water:	-	32.03	feet
Water Column Thickness:	=	7.97	feet
Unit Casing Volume*:	x	0.16	gallon / foot
Casing Water Volume:	=	1.27	gallons
Casing Volume:	x	3	each
Estimated Purge Volume:	=	3.82	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	0937	0.72	183	—	819.7	67.9	5.7	
1	0940	X	X	X	816.8	68.7	5.8	
2	0942	X	X	X	815.8	69.7	6.0	
		X	X	X				
		X	X	X				
		X	X	X				
		X	X	X				
		X	X	X				

Total Water Volume Purged: 2.0 gallons
Depth to Water at Sample Collection: — feet
Sample Collection Time: 0945 Purged Dry? (Y / (N))

Comments: HC odor

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

Groundwater Sampling Data Sheet

Well I.D.: MW-2
Project Name/Location: BP/ARCO 498 Project #: 08-82-603
Sampler's Name: SB & ER Date: 11/2/10
Purging Equipment: bailer
Sampling Equipment: bailer
Casing Type: PVC
Casing Diameter: 2 inch
Total Well Depth: ~~58.23~~ feet 58.00
Depth to Water: - 39.23 feet
Water Column Thickness: = 18.77 feet
Unit Casing Volume*: x 0.16 gallon / foot
Casing Water Volume: = 3.00 gallons
Casing Volume: x 3 each
Estimated Purge Volume: = 9.00 gallons
Free product measurement (if present):

***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.

Purged (gallons)	Time (24:00)	DO	ORP (mV)	Fe	Conductance (µS)	Temperature (Fahrenheit)	pH	Observations
0	1016	1.34	157	—	1051	68.1	6.9	
2	1020	X	X	X	1025	68.2	6.8	
4	1024	X	X	X	1018	68.5	6.8	
		X	X	X				
		X	X	X				
		X	X	X				
		X	X	X				
		X	X	X				

Total Water Volume Purged: 4.0 gallons
Depth to Water at Sample Collection: — feet
Sample Collection Time: 1030
Purged Dry? (Y / (N))

Comments:

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

Groundwater Sampling Data Sheet

Well I.D.: MW-3
Project Name/Location: BP/ARCO 4498 Project #: 05-82-603
Sampler's Name: SB & EF Date: 11/2/10
Purging Equipment: bailer
Sampling Equipment: bailer
Casing Type: PVC

Casing Diameter:		2	inch
Total Well Depth:		57.00	feet
Depth to Water:	-	38.68	feet
Water Column Thickness:	=	18.32	feet
Unit Casing Volume*:	x	0.16	gallon / foot
Casing Water Volume:	=	2.93	gallons
Casing Volume:	x	3	each
Estimated Purge Volume:	=	8.79	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	1036	0.59	122	—	738.1	69.2	6.8	
2	1039	X	X	X	718.9	69.3	6.8	
3	1041	X	X	X	748.3	69.0	6.8	
		X	X	X				
		X	X	X				
		X	X	X				
		X	X	X				
		X	X	X				

Total Water Volume Purged: 3.0 gallons
Depth to Water at Sample Collection: — 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-4
Project Name/Location: BP/ARCO 498 Project #: 08-82-603
Sampler's Name: SB + EF Date: 11/2/10
Purging Equipment: bailer
Sampling Equipment: bailer
Casing Type: PVC

Casing Diameter:		2	inch
Total Well Depth:		40.03	feet
Depth to Water:	-	38.42	feet
Water Column Thickness:	=	1.61	feet
Unit Casing Volume*:	x	0.16	gallon / foot
Casing Water Volume:	=	0.25	gallons
Casing Volume:	x	3	each
Estimated Purge Volume:	=	0.77	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	1002	1.12	136	—	1235	68.0	6.4	
		X	X	X				
		X	X	X				
		X	X	X				
		X	X	X				
		X	X	X				
		X	X	X				
		X	X	X				

Total Water Volume Purged: 0 gallons
Depth to Water at Sample Collection: — feet
Sample Collection Time: 1005 Purged Dry? (Y / (N))

Comments: No Purge due to low Volume
H2 odor

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

FIELD DATA REPORT

DATE: 11/2/10
PERSONNEL: SB + BC
WEATHER: Sunny

PROJECT NO.: 08-82-603
COMMENTS:

Equip:	Geosquirt	Tubing	Bailers	DO	wli	Ec/pH

Well ID	Time	MEASURING POINT	DTW (FT)	PRODUCT THICKNESS	pH	Cond. (X100)	Temp. (C/F)	DO (mg/l)	Redox (mV)	Iron (mg/l)	Alk. (mg/l)	WELL HEAD CONDITION: VAULT, BOLTS, CAP, LOCK, ETC
MW-1	0933	TOC	32.03									Good Condition
MW-2	1013	↓	34.23									Good Condition
MW-3	1013	↓	38.68									Good Condition
MW-4	0953	↓	38.42									Good Condition

G:\ADMINISTRATION\BAI FORMS\WATER LVL MEAS FORM

NO. 857321

NON-HAZARDOUS WASTE DATA FORM

1. BEST #

GENERATOR

2. Generator's Name and Mailing Address

BP WEST COAST PRODUCTS, LLC
P.O. BOX 80249
RANCHO SANTA MARGARITA, CA 92688

Generator's Site Address (if different than mailing address)

BP 4/98
256 S. Livermore Ave
Livermore, CA

Generator's Phone: (949) 460-5200

24-HOUR EMERGENCY PHONE: (949) 699-3706

3. Transporter 1 Company Name: Broadbent & Associates, Inc. — Phone #: (530) 566-1400

4. Transporter 2 Company Name: Gomes Excavating — Phone #: (707) 374-2881

5. Designated Facility Name and Site Address: INTRAT, INC. 1105 AIRPORT RD #C RIO VISTA, CA 94571 — Phone #: (530) 753-1829

6. Waste Shipping Name and Description	7. Containers No.	7. Containers Type	8. Total Quantity	9. Unit Wt/Vol	10. Profile No.
A. NON-HAZARDOUS WATER	1	TT	9	G	
B.					
C.					
D.					

11. Special Handling Instructions and Additional Information

WEAR ALL APPROPRIATE PROTECTIVE CLOTHING

WELL PURGING / DECON WATER

12. GENERATOR'S CERTIFICATION: I certify the materials described above on this data form are non-hazardous.

Generator's/Offeror's Printed/Typed Name: BAI / Eric Ferro — Signature: [signature] — Month: 11 — Day: 30 — Year: 10

TRANSPORTER

13. Transporter Acknowledgment of Receipt of Materials

Transporter 1 Printed/Typed Name: BAI / Eric Ferro — Signature: [signature] — Month: 11 — Day: 30 — Year: 10

Transporter 2 Printed/Typed Name — Signature — Month — Day — Year

FACILITY

14. Designated Facility Owner or Operator: Certification of receipt of materials covered by this data form.

Printed/Typed Name — Signature — Month — Day — Year

GENERATOR (ORIGINAL)

Calscience
Environmental
Laboratories, Inc.

November 17, 2010

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

Subject: **Calscience Work Order No.: 10-11-0513**
Client Reference: BP 498

Dear Client:

Enclosed is an analytical report for the above-referenced project. The samples included in this report were received 11/5/2010 and analyzed in accordance with the attached chain-of-custody.

Calscience Environmental Laboratories certifies that the test results provided in this report meet all NELAC requirements for parameters for which accreditation is required or available. Any exceptions to NELAC requirements are noted in the case narrative. 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,

Calscience Environmental
Laboratories, Inc.
Richard Villafania
Project Manager

Calscience Environmental Laboratories, Inc.

Analytical Report

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

Date Received: 11/05/10
Work Order No: 10-11-0513
Preparation: EPA 5030C
Method: EPA 8015B (M)

Project: BP 498

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
MW-1	**10-11-0513-1-E**	**11/02/10 09:45**	**Aqueous**	**GC 1**	**11/06/10**	**11/07/10 09:47**	**101106B02**

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

Parameter	Result	RL	DF	Qual	Units
Gasoline Range Organics (C6-C12)	1300	50	1		ug/L

Surrogates:	REC (%)	Control Limits	Qual
1,4-Bromofluorobenzene	98	38-134	

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
MW-2	**10-11-0513-2-E**	**11/02/10 10:30**	**Aqueous**	**GC 1**	**11/06/10**	**11/07/10 10:18**	**101106B02**

Parameter	Result	RL	DF	Qual	Units
Gasoline Range Organics (C6-C12)	ND	50	1		ug/L

Surrogates:	REC (%)	Control Limits	Qual
1,4-Bromofluorobenzene	72	38-134	

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
MW-3	**10-11-0513-3-E**	**11/02/10 10:45**	**Aqueous**	**GC 1**	**11/06/10**	**11/07/10 10:50**	**101106B02**

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

Parameter	Result	RL	DF	Qual	Units
Gasoline Range Organics (C6-C12)	4400	250	5		ug/L

Surrogates:	REC (%)	Control Limits	Qual
1,4-Bromofluorobenzene	95	38-134	

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
MW-4	**10-11-0513-4-E**	**11/02/10 10:05**	**Aqueous**	**GC 1**	**11/06/10**	**11/07/10 11:22**	**101106B02**

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

Parameter	Result	RL	DF	Qual	Units
Gasoline Range Organics (C6-C12)	51	50	1		ug/L

Surrogates:	REC (%)	Control Limits	Qual
1,4-Bromofluorobenzene	70	38-134	

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

Calscience Environmental Laboratories, Inc.

Analytical Report

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

Date Received: 11/05/10
Work Order No: 10-11-0513
Preparation: EPA 5030C
Method: EPA 8015B (M)

Project: BP 498

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
Method Blank	**099-12-695-935**	**N/A**	**Aqueous**	**GC 1**	**11/06/10**	**11/07/10 02:20**	**101106B02**

Parameter	Result	RL	DF	Qual	Units
Gasoline Range Organics (C6-C12)	ND	50	1		ug/L

Surrogates:	REC (%)	Control Limits	Qual
1,4-Bromofluorobenzene	68	38-134	

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

Calscience Environmental Laboratories, Inc.

Analytical Report

Broadbent & Associates, Inc.		Date Received:	11/05/10
1324 Mangrove Ave, Ste 212		Work Order No:	10-11-0513
Chico , CA 95926-2642		Preparation:	EPA 5030C
		Method:	EPA 8260B
		Units:	ug/L

Project: BP 498

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
MW-1	**10-11-0513-1-A**	**11/02/10 09:45**	**Aqueous**	**GC/MS BB**	**11/10/10**	**11/10/10 14:29**	**101110L01**

Parameter	Result	RL	DF	Qual	Parameter	Result	RL	DF	Qual
Benzene	83	2.0	4		Methyl-t-Butyl Ether (MTBE)	39	0.50	1	
1,2-Dibromoethane	ND	0.50	1		Tert-Butyl Alcohol (TBA)	50	10	1	
1,2-Dichloroethane	ND	0.50	1		Diisopropyl Ether (DIPE)	ND	0.50	1	
Ethylbenzene	40	0.50	1		Ethyl-t-Butyl Ether (ETBE)	ND	0.50	1	
Toluene	20	0.50	1		Tert-Amyl-Methyl Ether (TAME)	ND	0.50	1	
Xylenes (total)	61	0.50	1		Ethanol	ND	300	1	
Surrogates:	REC (%)	Control Limits	Qual		Surrogates:	REC (%)	Control Limits	Qual	
1,2-Dichloroethane-d4	93	80-128			Dibromofluoromethane	95	80-127		
Toluene-d8	98	80-120			1,4-Bromofluorobenzene	97	68-120		

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
MW-2	**10-11-0513-2-A**	**11/02/10 10:30**	**Aqueous**	**GC/MS BB**	**11/10/10**	**11/10/10 16:24**	**101110L01**

Parameter	Result	RL	DF	Qual	Parameter	Result	RL	DF	Qual
Benzene	ND	0.50	1		Methyl-t-Butyl Ether (MTBE)	57	2.0	4	
1,2-Dibromoethane	ND	0.50	1		Tert-Butyl Alcohol (TBA)	26	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	
Surrogates:	REC (%)	Control Limits	Qual		Surrogates:	REC (%)	Control Limits	Qual	
1,2-Dichloroethane-d4	98	80-128			Dibromofluoromethane	93	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	**10-11-0513-3-A**	**11/02/10 10:45**	**Aqueous**	**GC/MS BB**	**11/10/10**	**11/10/10 16:53**	**101110L01**

Parameter	Result	RL	DF	Qual	Parameter	Result	RL	DF	Qual
Benzene	420	10	20		Methyl-t-Butyl Ether (MTBE)	70	10	20	
1,2-Dibromoethane	ND	10	20		Tert-Butyl Alcohol (TBA)	ND	200	20	
1,2-Dichloroethane	ND	10	20		Diisopropyl Ether (DIPE)	ND	10	20	
Ethylbenzene	110	10	20		Ethyl-t-Butyl Ether (ETBE)	ND	10	20	
Toluene	ND	10	20		Tert-Amyl-Methyl Ether (TAME)	ND	10	20	
Xylenes (total)	33	10	20		Ethanol	ND	6000	20	
Surrogates:	REC (%)	Control Limits	Qual		Surrogates:	REC (%)	Control Limits	Qual	
1,2-Dichloroethane-d4	96	80-128			Dibromofluoromethane	102	80-127		
Toluene-d8	99	80-120			1,4-Bromofluorobenzene	99	68-120		

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

Calscience Environmental Laboratories, Inc.

Analytical Report

Broadbent & Associates, Inc.		Date Received:	11/05/10
1324 Mangrove Ave, Ste 212		Work Order No:	10-11-0513
Chico , CA 95926-2642		Preparation:	EPA 5030C
		Method:	EPA 8260B
		Units:	ug/L
Project: BP 498			Page 2 of 2

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
MW-4	**10-11-0513-4-B**	**11/02/10 10:05**	**Aqueous**	**GC/MS L**	**11/12/10**	**11/13/10 04:28**	**101112L02**

Parameter	Result	RL	DF	Qual	Parameter	Result	RL	DF	Qual
Benzene	ND	2.0	4		Methyl-t-Butyl Ether (MTBE)	5.1	2.0	4	
1,2-Dibromoethane	ND	2.0	4		Tert-Butyl Alcohol (TBA)	500	40	4	
1,2-Dichloroethane	ND	2.0	4		Diisopropyl Ether (DIPE)	ND	2.0	4	
Ethylbenzene	ND	2.0	4		Ethyl-t-Butyl Ether (ETBE)	ND	2.0	4	
Toluene	ND	2.0	4		Tert-Amyl-Methyl Ether (TAME)	ND	2.0	4	
Xylenes (total)	ND	2.0	4		Ethanol	ND	1200	4	
Surrogates:	REC (%)	Control Limits		Qual	Surrogates:	REC (%)	Control Limits		Qual
1,2-Dichloroethane-d4	119	80-128			Dibromofluoromethane	103	80-127		
Toluene-d8	102	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
Method Blank	**099-12-703-1,498**	**N/A**	**Aqueous**	**GC/MS BB**	**11/10/10**	**11/10/10 14:00**	**101110L01**

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	
Surrogates:	REC (%)	Control Limits		Qual	Surrogates:	REC (%)	Control Limits		Qual
1,2-Dichloroethane-d4	99	80-128			Dibromofluoromethane	99	80-127		
Toluene-d8	99	80-120			1,4-Bromofluorobenzene	103	68-120		

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
Method Blank	**099-12-703-1,502**	**N/A**	**Aqueous**	**GC/MS L**	**11/12/10**	**11/13/10 01:09**	**101112L02**

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	
Surrogates:	REC (%)	Control Limits		Qual	Surrogates:	REC (%)	Control Limits		Qual
1,2-Dichloroethane-d4	113	80-128			Dibromofluoromethane	101	80-127		
Toluene-d8	93	80-120			1,4-Bromofluorobenzene	93	68-120		

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

Calscience Environmental Laboratories, Inc.

Quality Control - Spike/Spike Duplicate

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

Date Received: 11/05/10
Work Order No: 10-11-0513
Preparation: EPA 5030C
Method: EPA 8015B (M)

Project BP 498

Quality Control Sample ID	Matrix	Instrument	Date Prepared	Date Analyzed	MS/MSD Batch Number
10-11-0232-1	**Aqueous**	**GC 1**	**11/06/10**	**11/07/10**	**101106S02**

Parameter	MS %REC	MSD %REC	%REC CL	RPD	RPD CL	Qualifiers
Gasoline Range Organics (C6-C12)	86	82	38-134	5	0-25	

RPD - Relative Percent Difference , CL - Control Limit

Calscience Environmental Laboratories, Inc.

Quality Control - Spike/Spike Duplicate

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

Date Received: 11/05/10
Work Order No: 10-11-0513
Preparation: EPA 5030C
Method: EPA 8260B

Project BP 498

Quality Control Sample ID	Matrix	Instrument	Date Prepared	Date Analyzed	MS/MSD Batch Number
MW-1	**Aqueous**	**GC/MS BB**	**11/10/10**	**11/10/10**	**101110S01**

Parameter	MS %REC	MSD %REC	%REC CL	RPD	RPD CL	Qualifiers
Benzene	56	43	76-124	2	0-20	LN,AY
Carbon Tetrachloride	101	102	74-134	0	0-20	
Chlorobenzene	104	104	80-120	0	0-20	
1,2-Dibromoethane	101	103	80-120	2	0-20	
1,2-Dichlorobenzene	100	101	80-120	1	0-20	
1,2-Dichloroethane	127	126	80-120	0	0-20	LM,AY
Ethylbenzene	72	58	78-126	3	0-20	LN,AY
Toluene	95	86	80-120	3	0-20	
Trichloroethene	103	102	77-120	1	0-20	
Methyl-t-Butyl Ether (MTBE)	120	115	67-121	1	0-49	
Tert-Butyl Alcohol (TBA)	76	88	36-162	6	0-30	
Diisopropyl Ether (DIPE)	101	101	60-138	0	0-45	
Ethyl-t-Butyl Ether (ETBE)	96	97	69-123	1	0-30	
Tert-Amyl-Methyl Ether (TAME)	106	107	65-120	1	0-20	
Ethanol	67	78	30-180	15	0-72	

RPD - Relative Percent Difference , CL - Control Limit

Calscience Environmental Laboratories, Inc.

Quality Control - Spike/Spike Duplicate

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

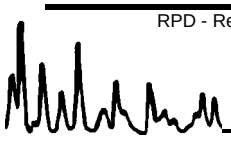
Date Received: 11/05/10
Work Order No: 10-11-0513
Preparation: EPA 5030C
Method: EPA 8260B

Project BP 498

Quality Control Sample ID	Matrix	Instrument	Date Prepared	Date Analyzed	MS/MSD Batch Number
10-11-0770-5	**Aqueous**	**GC/MS L**	**11/12/10**	**11/13/10**	**101112S02**

Parameter	MS %REC	MSD %REC	%REC CL	RPD	RPD CL	Qualifiers
Benzene	102	111	76-124	8	0-20	
Carbon Tetrachloride	99	96	74-134	3	0-20	
Chlorobenzene	109	109	80-120	0	0-20	
1,2-Dibromoethane	115	114	80-120	0	0-20	
1,2-Dichlorobenzene	109	116	80-120	6	0-20	
1,2-Dichloroethane	114	117	80-120	2	0-20	
Ethylbenzene	108	107	78-126	0	0-20	
Toluene	108	106	80-120	2	0-20	
Trichloroethene	105	103	77-120	2	0-20	
Methyl-t-Butyl Ether (MTBE)	105	97	67-121	5	0-49	
Tert-Butyl Alcohol (TBA)	103	95	36-162	6	0-30	
Diisopropyl Ether (DIPE)	103	98	60-138	4	0-45	
Ethyl-t-Butyl Ether (ETBE)	104	101	69-123	3	0-30	
Tert-Amyl-Methyl Ether (TAME)	104	107	65-120	3	0-20	
Ethanol	100	96	30-180	4	0-72	

RPD - Relative Percent Difference , CL - Control Limit



Calscience Environmental Laboratories, Inc.

Quality Control - LCS/LCS Duplicate

Broadbent & Associates, Inc.	Date Received:	N/A
1324 Mangrove Ave, Ste 212	Work Order No:	10-11-0513
Chico , CA 95926-2642	Preparation:	EPA 5030C
	Method:	EPA 8015B (M)

Project: BP 498

Quality Control Sample ID	Matrix	Instrument	Date Prepared	Date Analyzed	LCS/LCSD Batch Number
099-12-695-935	**Aqueous**	**GC 1**	**11/06/10**	**11/07/10**	**101106B02**

Parameter	LCS %REC	LCSD %REC	%REC CL	RPD	RPD CL	Qualifiers
Gasoline Range Organics (C6-C12)	90	91	78-120	1	0-20	

RPD - Relative Percent Difference , CL - Control Limit

Calscience Environmental Laboratories, Inc.

Quality Control - LCS/LCS Duplicate

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

Date Received: N/A
Work Order No: 10-11-0513
Preparation: EPA 5030C
Method: EPA 8260B

Project: BP 498

Quality Control Sample ID	Matrix	Instrument	Date Prepared	Date Analyzed	LCS/LCSD Batch Number
099-12-703-1,498	**Aqueous**	**GC/MS BB**	**11/10/10**	**11/10/10**	**101110L01**

Parameter	LCS %REC	LCSD %REC	%REC CL	ME_CL	RPD	RPD CL	Qualifiers
Benzene	101	104	80-120	73-127	3	0-20	
Carbon Tetrachloride	101	104	74-134	64-144	2	0-20	
Chlorobenzene	101	104	80-120	73-127	4	0-20	
1,2-Dibromoethane	98	101	79-121	72-128	3	0-20	
1,2-Dichlorobenzene	99	102	80-120	73-127	3	0-20	
1,2-Dichloroethane	101	102	80-120	73-127	1	0-20	
Ethylbenzene	102	106	80-120	73-127	3	0-20	
Toluene	100	104	80-120	73-127	3	0-20	
Trichloroethene	98	101	79-127	71-135	3	0-20	
Methyl-t-Butyl Ether (MTBE)	95	97	69-123	60-132	1	0-20	
Tert-Butyl Alcohol (TBA)	102	105	63-123	53-133	3	0-20	
Diisopropyl Ether (DIPE)	98	100	59-137	46-150	2	0-37	
Ethyl-t-Butyl Ether (ETBE)	95	97	69-123	60-132	2	0-20	
Tert-Amyl-Methyl Ether (TAME)	97	99	70-120	62-128	2	0-20	
Ethanol	117	117	28-160	6-182	0	0-57	

Total number of LCS compounds : 15
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

Calscience Environmental Laboratories, Inc.

Quality Control - LCS/LCS Duplicate

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

Date Received: N/A
Work Order No: 10-11-0513
Preparation: EPA 5030C
Method: EPA 8260B

Project: BP 498

Quality Control Sample ID	Matrix	Instrument	Date Prepared	Date Analyzed	LCS/LCSD Batch Number
099-12-703-1,502	**Aqueous**	**GC/MS L**	**11/12/10**	**11/12/10**	**101112L02**

Parameter	LCS %REC	LCSD %REC	%REC CL	ME_CL	RPD	RPD CL	Qualifiers
Benzene	102	100	80-120	73-127	1	0-20	
Carbon Tetrachloride	97	96	74-134	64-144	1	0-20	
Chlorobenzene	103	103	80-120	73-127	0	0-20	
1,2-Dibromoethane	116	112	79-121	72-128	3	0-20	
1,2-Dichlorobenzene	118	114	80-120	73-127	4	0-20	
1,2-Dichloroethane	122	119	80-120	73-127	2	0-20	LQ
Ethylbenzene	101	99	80-120	73-127	2	0-20	
Toluene	102	99	80-120	73-127	2	0-20	
Trichloroethene	103	99	79-127	71-135	3	0-20	
Methyl-t-Butyl Ether (MTBE)	112	110	69-123	60-132	2	0-20	
Tert-Butyl Alcohol (TBA)	95	87	63-123	53-133	8	0-20	
Diisopropyl Ether (DIPE)	101	100	59-137	46-150	1	0-37	
Ethyl-t-Butyl Ether (ETBE)	106	101	69-123	60-132	4	0-20	
Tert-Amyl-Methyl Ether (TAME)	111	106	70-120	62-128	4	0-20	
Ethanol	111	99	28-160	6-182	11	0-57	

Total number of LCS compounds : 15
Total number of ME compounds : 1
Total number of ME compounds allowed : 1
LCS ME CL validation result : Pass

RPD - Relative Percent Difference , CL - Control Limit

Calscience Environmental Laboratories, Inc.

Glossary of Terms and Qualifiers

Work Order Number: 10-11-0513

Qualifier	Definition
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 abovelimit; 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.
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.
ME	LCS Recovery Percentage is within LCS ME Control Limit range.
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.

Atlantic Richfield Company
A BP affiliated company

Laboratory Management Program LaMP Chain of Custody Record

BP/ARC Project Name: BP 498
BP/ARC Facility No: 498
Req Due Date (mm/dd/yy): 10513
Rush TAT: Yes ___ No X
Page ___ of ___
Lab Work Order Number:

Lab Name: Calscience		BP/ARC Facility Address: 286 South Livermore Avenue		Consultant/Contractor: Broadbent & Associates, Inc.	
Lab Address: 7440 Lincoln Way		City, State, ZIP Code: Livermore, CA		Consultant/Contractor Project No: 08-82-603-001-813	
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.: T0600124081		Consultant/Contractor PM: Jason Duda	
Lab Shipping Accnt: 9225		Enfos Proposal No: 000QX-0005		Phone: 530-566-1400	
Lab Bottle Order No:		Accounting Mode: Provision X OOC-BU ___ OOC-RM ___		Email EDD To: jduda@broadbentinc.com	
Other Info:		Stage: Appraise (1) Activity: Monitoring (13)		Invoice To: BP/ARC X Contractor ___	

BP/ARC EBM: Chuck Carmel
EBM Phone:
EBM Email:

Lab No.	Sample Description	Date	Time	Matrix: Soil / Solid	Water / Liquid	Air / Vapor		No. Containers / Preservative: Total Number of Containers	Unpreserved	H_2SO_4	HNO_3	HCl	Methanol		Requested Analyses: GRO (8015)	BTEX (8260)	5 Oxys (8260)	EDB (8260)	1,2-DCA (8260)	Ethanol (8260)				
1	MW-1	11/2/10	0945		X			6				X			X	X	X	X	X	X				
2	MW-2	"	1030		X			6				X			X	X	X	X	X	X				
3	MW-3	"	1045		X			6				X			X	X	X	X	X	X				
4	MW-4	"	1005		X			6				X			X	X	X	X	X	X				
5	TB - 498 - 11/2/10				X			2																

Report Type & QC Level: Standard X; Full Data Package ___

Comments
Note: If sample not collected, indicate "No Sample" in comments and single-strike out and initial any preprinted sample description.

Hold

Sampler's Name: Eric Farr	Relinquished By / Affiliation	Date	Time	Accepted By / Affiliation	Date	Time
Sampler's Company: BAI		11/4/10	1430			
Shipment Method: GSO Ship Date: 11/4/10					11/05/10	1040
Shipment Tracking No: 106836690						

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

BP/ARC LaMP COC Rev. 6 01/01/2005

DATE 11/4/10 SHIPPERS GSO ACCOUNT NO. 9255

COMPANY BAI

ADDRESS 875 Cotting Ln Ste G

ADDRESS STE/ ROOM

CITY Vacaville ZIP CODE 9688

SENDERS NAME Eric Fenn PHONE NUMBER 775-247-7901

COMPANY CAL SCIENCE

NAME PHONE NUMBER 714) 895-5494

ADDRESS 7440 LINCOLN WAY

ADDRESS STE/ ROOM

CITY GARDEN GROVE ZIP CODE 92841

3 YOUR INTERNAL BILLING REFERENCE WILL APPEAR ON YOUR INVOICE

SPECIAL INSTRUCTIONS

GSO GOLDEN STATE OVERNIGHT

1-800-322-5555

WWW.GSO.COM

SHIPPING AIR BILL

GSO COPY

4 PACKAGE INFORMATION

☐ LETTER (MAX 8 OZ)

☒ PACKAGE (WT) 15

☐ DECLARED VALUE $

☐ COD AMOUNT $ (CASH NOT ACCEPTED)

5 DELIVERY SERVICE ☒ PRIORITY OVERNIGHT BY 10:30 AM ☐ EARLY PRIORITY BY 8:00 AM ☐ SATURDAY DELIVERY

*DELIVERY TIMES MAY BE LATER IN SOME AREAS • CONSULT YOUR SERVICE GUIDE OR CALL GOLDEN STATE OVERNIGHT

6 RELEASE SIGNATURE

SIGN TO AUTHORIZE DELIVERY WITHOUT OBTAINING SIGNATURE

7 CREDIT CARD ☐ M/C ☐ VISA ☐ AM EX CREDIT CARD NUMBER EXP. DAT

8 PICK UP INFORMATION TIME DRIVER # ROUTE #

106836690

106836690

9 GSO TRACKING NUMBER

0513

ORC

GSO GOLDEN STATE OVERNIGHT

1-800-322-5555

www.gso.com

PDS

D

GARDEN GROVE

92841 12 lb 3/JV3

86098477 1011042000

D92843A

CSL-06

Calscience Environmental Laboratories, Inc.

WORK ORDER #: 10-11-0513

SAMPLE RECEIPT FORM

Cooler 1 of 1

CLIENT: Broadbent DATE: 11/05/10

TEMPERATURE: Thermometer ID: SC1 (Criteria: 0.0 °C – 6.0 °C, not frozen)

Temperature 2.9 °C + 0.5 °C (CF) = 3.4 °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 Initial: JP

CUSTODY SEALS INTACT:

☑ Cooler	☐_____	☐ No (Not Intact)	☐ Not Present	☐ N/A	Initial: JP
☐ Sample	☐_____	☐ No (Not Intact)	☑ Not Present		Initial: AL

SAMPLE CONDITION:	Yes	No	N/A
Chain-Of-Custody (COC) document(s) received with samples	☑	☐	☐
COC document(s) received complete	☑	☐	☐
☐ Collection date/time, matrix, and/or # of containers logged in based on sample labels.			
☐ No analysis requested. ☐ Not relinquished. ☐ No date/time relinquished.			
Sampler's name indicated on COC	☑	☐	☐
Sample container label(s) consistent with COC	☑	☐	☐
Sample container(s) intact and good condition	☑	☐	☐
Proper containers and sufficient volume for analyses requested	☑	☐	☐
Analyses received within holding time	☑	☐	☐
pH / Residual Chlorine / Dissolved Sulfide received within 24 hours	☐	☐	☑
Proper preservation noted on COC or sample container	☑	☐	☐
☐ Unpreserved vials received for Volatiles analysis			
Volatile analysis container(s) free of headspace	☑	☐	☐
Tedlar bag(s) free of condensation	☐	☐	☑

CONTAINER TYPE:

Solid: ☐4ozCGJ ☐8ozCGJ ☐16ozCGJ ☐Sleeve (_____) ☐EnCores® ☐TerraCores® ☐_____

Water: ☐VOA ☑VOA**h** ☐VOA**na$_2$** ☐125AGB ☐125AGB**h** ☐125AGB**p** ☐1AGB ☐1AGB**na$_2$** ☐1AGB**s** ☐500AGB ☐500AGJ ☐500AGJ**s** ☐250AGB ☐250CGB ☐250CGB**s** ☐1PB ☐500PB ☐500PB**na** ☐250PB ☐250PB**n** ☐125PB ☐125PB**znna** ☐100PJ ☐100PJ**na$_2$** ☐_____ ☐_____ ☐_____

Air: ☐Tedlar® ☐Summa® **Other:** ☐_____ **Trip Blank Lot#:** 101094 **Labeled/Checked by:** AL

Container: **C:** Clear **A:** Amber **P:** Plastic **G:** Glass **J:** Jar **B:** Bottle **Z:** Ziploc/Resealable Bag **E:** Envelope **Reviewed by:** JP

Preservative: **h:** HCL **n:** HNO_3 **na$_2$:** $Na_2S_2O_3$ **na:** NaOH **p:** H_3PO_4 **s:** H_2SO_4 **znna:** $ZnAc_2$+NaOH **f:** Field-filtered **Scanned by:** _____

BROADBENT & ASSOCIATES INC. FIELD PROCEDURES

A.1 QUALITY ASSURANCE/QUALITY CONTROL FIELD PROTOCOLS

Field protocols have been implemented to enhance 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-Product Measurement

Prior to ground-water sample collection from each monitoring well, the presence of separate-phase hydrocarbons (SPH or free product, FP) and depth to ground water shall be measured. Depth to ground water will be measured with a standard water level indicator that has been decontaminated prior to its use in accordance with procedures discussed below. Depth to groundwater will be gauged from a saw cut notch at the top of the well casing on each well head. Where FP is suspected, the initial gauging will be done with an oil-water interface probe. Once depth to water has been measured, the first retrieval of a new disposable bailer will be scrutinized for the presence of SPH/FP.

A.1.2 Monitoring Well Purging

Subsequent to measuring depth to ground water and prior to the collection of ground-water samples, purging of standing water within the monitoring well will be performed if called for. Consistent with the American Society for Testing and Materials (ASTM) Standard D6452-99, Section 7.1, the well will be purged of approximately three wetted-casing volumes of water, or until the well is dewatered, or until monitored field parameters indicate stabilization. The well will be purged using a pre-cleaned disposable bailer or submersible pump 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. So that the sample collected is representative of formation water, several field parameters will be monitored during the purging process. The sample will not be collected until these parameters (i.e. temperature, pH, and conductivity) have stabilized to within 10% of the previously measured value. If a well is purged dry, the sample should not be collected until the well has recovered to a minimum 50% of its initial volume.

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 pre-cleaned, new, disposable bailer and transferred into the appropriate, new, laboratory-prepared containers such that no head space or air bubbles are present in the sample container (if appropriate to the analysis). The samples will be properly labeled (i.e. sample identification, sampler initials, date/time of collection, site location, requested analyses), placed in an ice chest with bagged ice or ice substitute, and delivered to the contracted analytical laboratory.

A.1.4 Surface Water Sample Collection

Unless specified otherwise, surface water samples will be collected from mid-depth in the central area of the associated surface water body. Water samples will be collected into appropriate, new, laboratory-prepared containers by dipping the container into the surface water unless the container has a preservative present. If a sample preservative is present, a new, cleaned non-preserved surrogate

container will be used to obtain the sample which will then be directly transferred into a new, laboratory-provided, preserved container. Samples will be properly labeled and transported as described above.

A.1.5 Decontamination Protocol

Prior to use in each well, re-usable ground-water sampling equipment (e.g., water level indicator, oil-interface probe, purge pump, etc.) will be decontaminated. Decontamination protocol will include thoroughly cleaning with a solution of Liquinox, rinsing with clean water, and final rinsing with control water (potable water of known quality, distilled, or de-ionized water). Pre-cleaned new disposable bailers and disposable plastic tubing will be dedicated to each individual well.

A.1.6 Chain of Custody Procedures

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 individually responsible for the care and custody of the samples collected until they are properly transferred.

Samples will have unique 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 field sampler.

Transfer of Custody and Shipment

A COC will accompany samples during transfer and shipment. When transferring samples, the individual relinquishing and the individual receiving the samples will each sign, date, and note the time on the COC. This 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 responsible courier. When a shipping courier is utilized, the sample shipment number will be identified on the COC.

A.1.7 Field Records

In addition to sample identification numbers and COC records, Daily Field Report records will be maintained by field staff to provide daily records of significant events, observations, and measurements during field investigations. These documents will contain observed information such as: the personnel present, site conditions, sampling procedures, measurement procedures, calibration records, equipment used, supplies used, 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 file records.

APPENDIX B

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!

Submittal Type:	**GEO_WELL**
Submittal Title:	**4Q10 GEO_WELL 498**
Facility Global ID:	**T0600124081**
Facility Name:	**ARCO #0498**
File Name:	**GEO_WELL.zip**
Organization Name:	**Broadbent & Associates, Inc.**
Username:	**BROADBENT-C**
IP Address:	**67.118.40.90**
Submittal Date/Time:	**12/8/2010 10:45:29 AM**
Confirmation Number:	**9210093200**

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!

Submittal Type:	**EDF - Monitoring Report - Semi-Annually**
Submittal Title:	**4Q10 GW Monitoring**
Facility Global ID:	**T0600124081**
Facility Name:	**ARCO #0498**
File Name:	**10110513.zip**
Organization Name:	**Broadbent & Associates, Inc.**
Username:	**BROADBENT-C**
IP Address:	**67.118.40.90**
Submittal Date/Time:	**12/8/2010 10:46:29 AM**
Confirmation Number:	**1873627662**

VIEW QC REPORT

VIEW DETECTIONS REPORT