Atlantic Richfield Company

Chuck Carmel
Environmental Business Manager

PO Box 1257
San Ramon, CA 94583
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July 30, 2010

Re: Second 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

Second 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

1324 Mangrove Avenue, Suite 212
Chico, California 95926
(530) 566-1400
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July 30, 2010

Project No. 08-82-603

Broadbent & Associates, Inc.
1324 Mangrove Ave., Suite 212
Chico, CA 95926
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BROADBENT & ASSOCIATES, INC
ENVIRONMENTAL, WATER RESOURCES & ENGINEERING

July 30, 2010

Project No. 08-82-603

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

Attn.: Mr. Chuck Carmel

Re: Second 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 *Second 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 Second Quarter 2010.

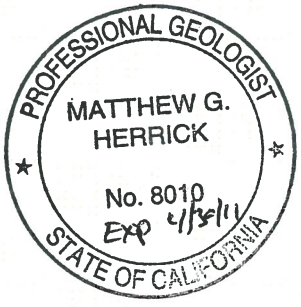
Should you have questions regarding the work performed or results obtained, please do not hesitate to contact us at (530) 566-1400.

Sincerely,

BROADBENT & ASSOCIATES, INC.

Jason Duda
Project Scientist

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



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
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 (Second Quarter 2010):

1. Prepared and submitted *Soil and Groundwater Investigation Work Plan Addendum* (BAI, 04/12/2010).
2. Prepared and submitted *First Quarter 2010 Status Report* (BAI, 04/20/2010).
3. Conducted ground-water monitoring/sampling for Second Quarter 2010. Work performed on 20 May 2010 by BAI.

WORK PROPOSED FOR NEXT QUARTER (Third Quarter 2010):

1. Prepare and submit *Second Quarter 2010 Semi-Annual Ground-Water Monitoring Report* (contained herein).
2. Begin implementation of offsite property access and soil and ground-water investigation work activities following approval by ACEH of the Work Plan Addendum dated 12 April 2010.

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):	**28.94 (MW-1) to 32.07 (MW-2) feet**
General ground-water flow direction:	**South-Southwest**
Approximate hydraulic gradient:	**0.04 ft/ft**

DISCUSSION:

Second Quarter 2010 ground-water monitoring and sampling was conducted at Station #498 on 20 May 2010 by BAI. No irregularities were noted during water level gauging. Depth-to-water measurements ranged from 28.94 ft at MW-1 to 32.07 ft at MW-2. Resulting ground-water surface elevations ranged from 463.28 ft above datum in well MW-2 to 467.78 ft in well MW-1. Water level elevations are summarized in Table 1. Water level elevations yielded a potentiometric ground-water flow direction and gradient to the south-southwest at approximately 0.04 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 20 May 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. No 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 290 micrograms per liter (µg/L) in well MW-4 to 9,400 µg/L in well MW-3. Benzene was detected above the laboratory reporting limit in two of the four wells sampled at concentrations of 4.4 µg/L in well MW-1 and 690 µg/L in well MW-3. Ethylbenzene was detected above the laboratory reporting limit in two of the four wells sampled at concentrations of 0.76 µg/L in well MW-1 and 300 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 0.73 µg/L in well MW-1 and 83 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 10 µg/L in well MW-4 to 77 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 22 µg/L in well MW-2 to 1000 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 Second 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 Second Quarter 2010 water level elevations recorded for wells MW-2, MW-3, and MW-4 reached historic maximum values while the elevation recorded for well MW-1 was between the historic minimum and maximum range. 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 minimum concentration in well MW-2; Benzene reached a historic maximum concentration in well MW-3 and a historic minimum concentration in well MW-2; Toluene reached a historic minimum concentration in well MW-3; Total Xylenes reached a historic minimum concentration in well MW-3; MTBE reached a historic maximum concentration in well MW-3; and TBA reached a historic maximum concentration in well MW-1.

On 28 August 2009 BAI submitted the *Soil and Ground-Water Investigation Work Plan* (Work Plan) to ACEH, as requested in their letter dated 16 March 2009. In response to the Work Plan, ACEH issued the 10 February 2010 letter stating that justification for the proposed monitoring well locations for MW-6 and MW-7 is needed in order to adequately characterize the off-site groundwater contaminant plume. The letter also recommended that direct push borings be used for characterization rather than the installation of permanent monitoring points. The *Soil and Ground-Water Investigation Work Plan*

Addendum was submitted to ACEH on 12 April 2010. Upon approval of this submittal by ACEH, offsite property access negotiations and soil and ground-water investigation activities will proceed. The next semi-annual ground-water monitoring and sampling event is scheduled to be conducted during the Fourth Quarter of 2010.

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

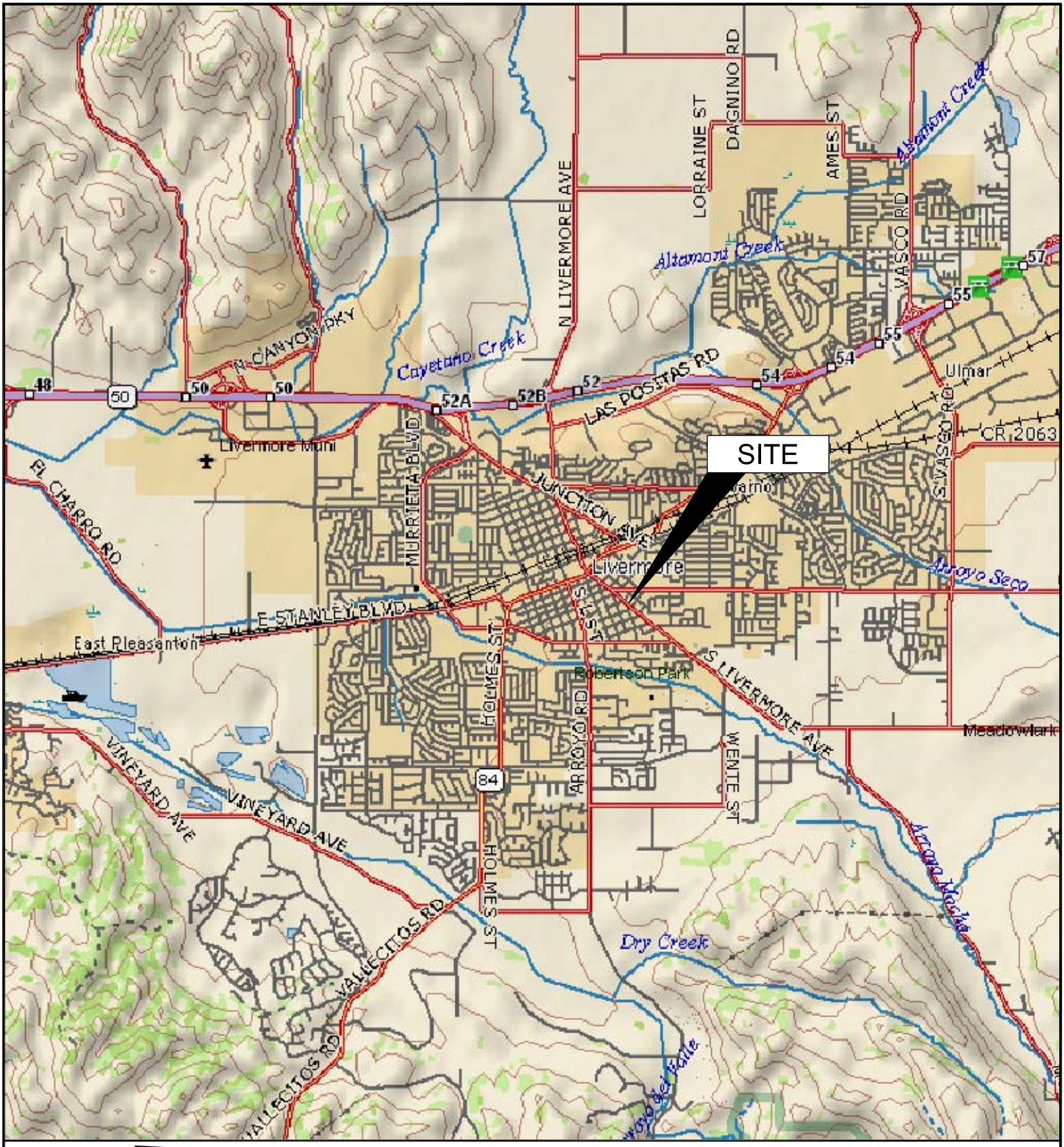
Table 1. Summary of Ground-Water Monitoring Data: Relative Water Elevations and Laboratory Analyses, Station #498, 286 South Livermore Avenue, Livermore, California

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



SITE

0 1 2

APPROXIMATE SCALE (mi)

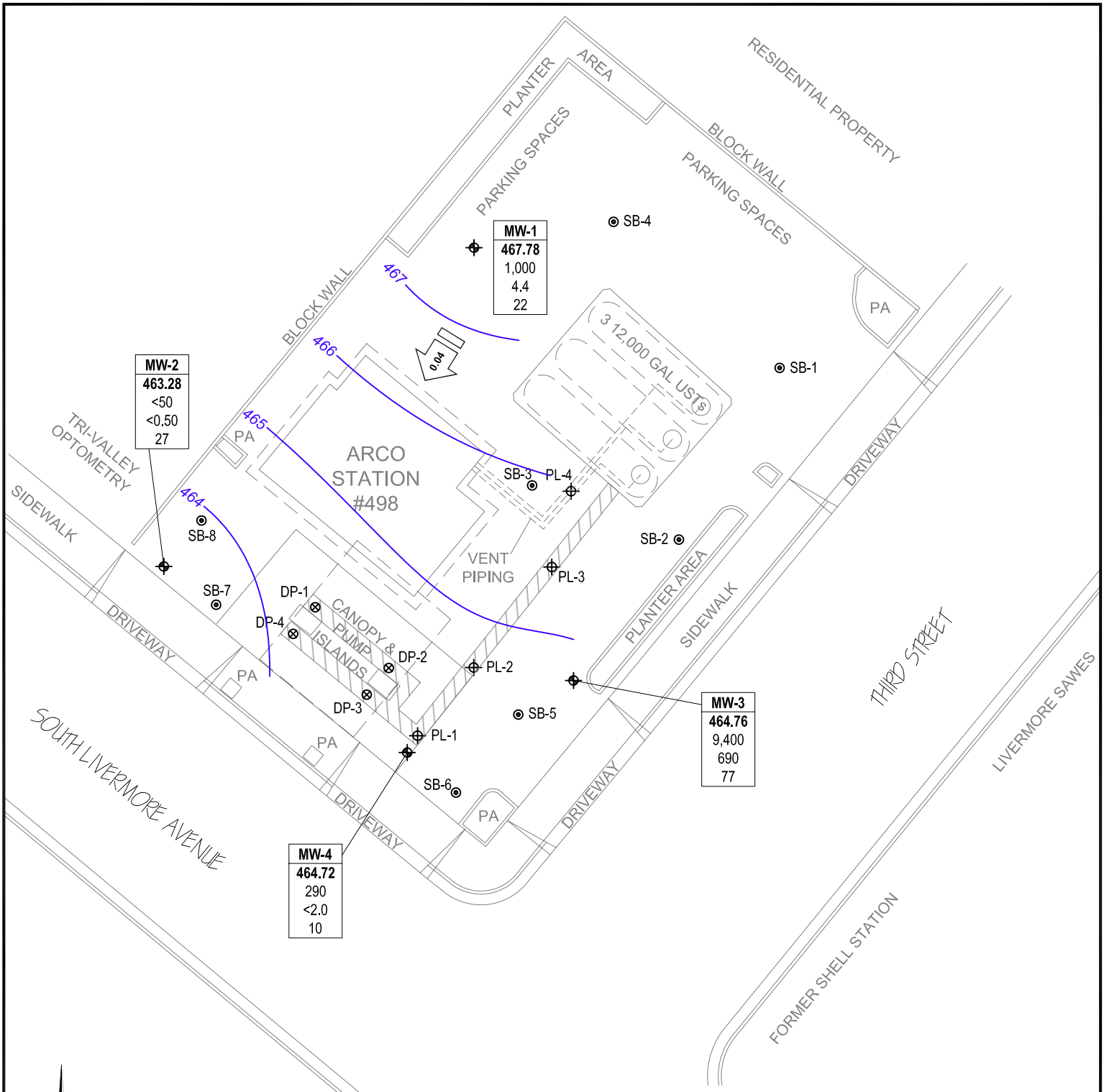
IMAGE SOURCE: DELORME

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)
- 0.04 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: 6/24/2010

Station #498
286 South Livermore Avenue
Livermore, California

Analytical Summary Map with
Historic Sample Locations
May 20, 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**
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**
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**
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	--	--	--	--	--	--	--	--	--	--	--
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**

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.

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**	
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**	
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**	
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**	

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 Ground-Water 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	South-Southwest	0.13
5/20/2010	**South-Southwest**	**0.04**

NOTES:

NA = Not Available

APPENDIX A

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

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

FIELD DATA REPORT

DATE: 5/20/10
PERSONNEL: SB/CF
WEATHER:

PROJECT NO.: BP 1195
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	1320		30.94									
MW-2	1421		32.07									
MW-3	1341		31.56									
MW-4	1403		31.29									

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

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

Groundwater Sampling Data Sheet

Well I.D.: MW-1
Project Name/Location: BP 4198 Project #: 08.92-603
Sampler's Name: SBTEF Date: 5/20/12
Purging Equipment: Bailer
Sampling Equipment: Bailer
Casing Type: PVC
Casing Diameter: 2 inch
Total Well Depth: 40.00 feet
Depth to Water: - 28.94 feet
Water Column Thickness: = 11.06 feet
Unit Casing Volume*: x 0.16 gallon / foot
Casing Water Volume: = 1.77 gallons
Casing Volume: x 3 each
Estimated Purge Volume: = 5.3 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	1324	0.59	-72	—	876.9	76.6	6.6	
2	1328	x	x	x	882.6	72.5	6.6	
3	1330	x	x	x	883.5	71.3	6.6	
		x	x	x				
		x	x	x				
		x	x	x				
		x	x	x				
		x	x	x				

Total Water Volume Purged: 3 gallons
Depth to Water at Sample Collection: 1330 33.10 feet
Sample Collection Time: 1330 Purged Dry? (Y / (N))

Comments:

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

Groundwater Sampling Data Sheet

Well I.D.: MW-2
Project Name/Location: ARCO 498 Project #: 98-82-603
Sampler's Name: SD & RF Date: 5/20/10
Purging Equipment: bailer
Sampling Equipment: bailer
Casing Type: PVC

Casing Diameter:	2	inch	
Total Well Depth:	58.00	feet	
Depth to Water:	- 32.07	feet	
Water Column Thickness:	= 25.93	feet	
Unit Casing Volume*:	x 0.16	gallon / foot	
Casing Water Volume:	= 04.14	gallons	
Casing Volume:	x 3	each	
Estimated Purge Volume:	= 12.45	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	1425	0.61	-39	—	1023	76.3	6.8	
2.5	1428	x	x	x	1057	74.9	6.8	
4.0	1430	x	x	x	1069	72.0	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: 32.06 feet
Sample Collection Time: 1435 Purged Dry? (Y (N))

Comments:

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

Groundwater Sampling Data Sheet

Well I.D.: MW-3
Project Name/Location: ARCO 498 Project #: 08-82-603
Sampler's Name: SD & RF Date: 5/20/10
Purging Equipment: bailer
Sampling Equipment: bailer
Casing Type: PVC

Casing Diameter:	2	inch	
Total Well Depth:	57.00	feet	
Depth to Water:	- 31.56	feet	
Water Column Thickness:	= 25.44	feet	
Unit Casing Volume*:	x 0.16	gallon / foot	
Casing Water Volume:	= 4.07	gallons	
Casing Volume:	x 3	each	
Estimated Purge Volume:	= 12.21	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	1343	0.36	-148	—	639.9	74.8	7.0	
2	1346	X	X	X	709.9	72.6	7.0	
3	1348	X	X	X	723.1	71.5	6.8	
		X	X	X				
		X	X	X				
		X	X	X				
		X	X	X				
		X	X	X				

Total Water Volume Purged: 3 gallons
Depth to Water at Sample Collection: 31.91 feet
Sample Collection Time: 1350 Purged Dry? (Y (N))

Comments:

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

Groundwater Sampling Data Sheet

Well I.D.: MW-4
Project Name/Location: ARCO 498 Project #: 08-82-603
Sampler's Name: SD & RF Date: 5/20/10
Purging Equipment: bailer
Sampling Equipment: bailer
Casing Type: PVC

Casing Diameter:		2"	inch
Total Well Depth:		~~39~~ 40.00	feet
Depth to Water:	-	31.29	feet
Water Column Thickness:	=	8.71	feet
Unit Casing Volume*:	x	0.16	gallon / foot
Casing Water Volume:	=	1.39	gallons
Casing Volume:	x	3	each
Estimated Purge Volume:	=	4.2	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	1405	0.82	-96	—	1302	76.8	6.7	
1.5	1407	x	x	x	1319	78.2	6.6	
2.5	1409	x	x	x	1309	73.7	6.6	
		x	x	x				
		x	x	x				
		x	x	x				
		x	x	x				
		x	x	x				

Total Water Volume Purged: 2.5 gallons
Depth to Water at Sample Collection: 34.90 feet
Sample Collection Time: 1415 Purged Dry? (Y / (N))

Comments:

NO. 857349

NON-HAZARDOUS WASTE DATA FORM

1. BES! #

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 4198
250 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	9.5	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: Eric Farr — Signature: [signature] — Month: 6 Day: 2 Year: 10

TRANSPORTER

13. Transporter Acknowledgment of Receipt of Materials

Transporter 1 Printed/Typed Name: Eric Farr — Signature: [signature] — Month: 6 Day: 2 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.

June 08, 2010

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

Subject: **Calscience Work Order No.: 10-05-1766**
Client Reference: BP 498

Dear Client:

Enclosed is an analytical report for the above-referenced project. The samples included in this report were received 5/22/2010 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,

Calscience Environmental
Laboratories, Inc.
Richard Villafania
Project Manager

Calscience Environmental Laboratories, Inc.

Analytical Report

Broadbent & Associates, Inc.	Date Received: 05/22/10
1324 Mangrove Ave, Ste 212	Work Order No: 10-05-1766
Chico, CA 95926-2642	Preparation: EPA 5030B
	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	**10-05-1766-1-E**	**05/20/10 13:30**	**Aqueous**	**GC 11**	**05/27/10**	**05/28/10 01:05**	**100527B01**

Parameter	Result	RL	DF	Qual	Units
Gasoline Range Organics (C6-C12)	1000	50	1		ug/L

Surrogates:	REC (%)	Control Limits	Qual
1,4-Bromofluorobenzene	109	38-134	

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
MW-2	**10-05-1766-2-D**	**05/20/10 14:35**	**Aqueous**	**GC 11**	**05/27/10**	**05/28/10 11:45**	**100527B02**

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

Surrogates:	REC (%)	Control Limits	Qual
1,4-Bromofluorobenzene	92	38-134	

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
MW-3	**10-05-1766-3-E**	**05/20/10 13:50**	**Aqueous**	**GC 11**	**05/27/10**	**05/28/10 02:12**	**100527B01**

Parameter	Result	RL	DF	Qual	Units
Gasoline Range Organics (C6-C12)	9400	1000	20		ug/L

Surrogates:	REC (%)	Control Limits	Qual
1,4-Bromofluorobenzene	99	38-134	

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
MW-4	**10-05-1766-4-E**	**05/20/10 14:15**	**Aqueous**	**GC 11**	**05/27/10**	**05/28/10 02:46**	**100527B01**

Parameter	Result	RL	DF	Qual	Units
Gasoline Range Organics (C6-C12)	290	50	1		ug/L

Surrogates:	REC (%)	Control Limits	Qual
1,4-Bromofluorobenzene	103	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: 05/22/10
Work Order No: 10-05-1766
Preparation: EPA 5030B
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	**099-12-695-832**	**N/A**	**Aqueous**	**GC 11**	**05/27/10**	**05/27/10 12:09**	**100527B01**

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

Surrogates:	REC (%)	Control Limits	Qual
1,4-Bromofluorobenzene	91	38-134	

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
Method Blank	**099-12-695-833**	**N/A**	**Aqueous**	**GC 11**	**05/27/10**	**05/28/10 05:01**	**100527B02**

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

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

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

Calscience Environmental Laboratories, Inc.

Analytical Report

Broadbent & Associates, Inc.		Date Received:	05/22/10
1324 Mangrove Ave, Ste 212		Work Order No:	10-05-1766
Chico, CA 95926-2642		Preparation:	EPA 5030B
		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	**10-05-1766-1-A**	**05/20/10 13:30**	**Aqueous**	**GC/MS WW**	**06/01/10**	**06/01/10 20:18**	**100601L01**

Parameter	Result	RL	DF	Qual	Parameter	Result	RL	DF	Qual
Benzene	4.4	0.50	1		Methyl-t-Butyl Ether (MTBE)	22	0.50	1	
1,2-Dibromoethane	ND	0.50	1		Tert-Butyl Alcohol (TBA)	75	10	1	
1,2-Dichloroethane	ND	0.50	1		Diisopropyl Ether (DIPE)	ND	0.50	1	
Ethylbenzene	0.76	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)	0.73	0.50	1		Ethanol	ND	300	1	
Surrogates:	REC (%)	Control Limits		Qual	Surrogates:	REC (%)	Control Limits		Qual
1,2-Dichloroethane-d4	101	80-128			Dibromofluoromethane	99	80-127		
Toluene-d8	102	80-120			1,4-Bromofluorobenzene	99	68-120		

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
MW-2	**10-05-1766-2-B**	**05/20/10 14:35**	**Aqueous**	**GC/MS WW**	**06/01/10**	**06/01/10 12:03**	**100601L01**

Parameter	Result	RL	DF	Qual	Parameter	Result	RL	DF	Qual
Benzene	ND	0.50	1		Methyl-t-Butyl Ether (MTBE)	27	0.50	1	
1,2-Dibromoethane	ND	0.50	1		Tert-Butyl Alcohol (TBA)	22	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	97	80-128			Dibromofluoromethane	97	80-127		
Toluene-d8	100	80-120			1,4-Bromofluorobenzene	92	68-120		

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
MW-3	**10-05-1766-3-A**	**05/20/10 13:50**	**Aqueous**	**GC/MS WW**	**06/01/10**	**06/01/10 12:57**	**100601L01**

Parameter	Result	RL	DF	Qual	Parameter	Result	RL	DF	Qual
Benzene	690	10	20		Methyl-t-Butyl Ether (MTBE)	77	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	300	10	20		Ethyl-t-Butyl Ether (ETBE)	ND	10	20	
Toluene	ND	10	20		Tert-Amyl-Methyl Ether (TAME)	ND	10	20	
Xylenes (total)	83	10	20		Ethanol	ND	6000	20	
Surrogates:	REC (%)	Control Limits		Qual	Surrogates:	REC (%)	Control Limits		Qual
1,2-Dichloroethane-d4	96	80-128			Dibromofluoromethane	96	80-127		
Toluene-d8	100	80-120			1,4-Bromofluorobenzene	97	68-120		

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

Calscience Environmental Laboratories, Inc.

Analytical Report

Broadbent & Associates, Inc.	Date Received:	05/22/10
1324 Mangrove Ave, Ste 212	Work Order No:	10-05-1766
Chico, CA 95926-2642	Preparation:	EPA 5030B
	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-4	**10-05-1766-4-A**	**05/20/10 14:15**	**Aqueous**	**GC/MS WW**	**06/01/10**	**06/01/10 13:25**	**100601L01**

Parameter	Result	RL	DF	Qual	Parameter	Result	RL	DF	Qual
Benzene	ND	2.0	4		Methyl-t-Butyl Ether (MTBE)	10	2.0	4	
1,2-Dibromoethane	ND	2.0	4		Tert-Butyl Alcohol (TBA)	1000	100	10	
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	96	80-128			Dibromofluoromethane	97	80-127		
Toluene-d8	100	80-120			1,4-Bromofluorobenzene	95	68-120		

Method Blank	**099-12-703-1,348**	**N/A**	**Aqueous**	**GC/MS WW**	**06/01/10**	**06/01/10 11:35**	**100601L01**

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	95	80-128			Dibromofluoromethane	96	80-127		
Toluene-d8	99	80-120			1,4-Bromofluorobenzene	92	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: 05/22/10
Work Order No: 10-05-1766
Preparation: EPA 5030B
Method: EPA 8015B (M)

Project BP 498

Quality Control Sample ID	Matrix	Instrument	Date Prepared	Date Analyzed	MS/MSD Batch Number
10-05-1762-1	**Aqueous**	**GC 11**	**05/27/10**	**05/27/10**	**100527S01**

Parameter	MS %REC	MSD %REC	%REC CL	RPD	RPD CL	Qualifiers
Gasoline Range Organics (C6-C12)	99	96	38-134	2	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: 05/22/10
Work Order No: 10-05-1766
Preparation: EPA 5030B
Method: EPA 8015B (M)

Project BP 498

Quality Control Sample ID	Matrix	Instrument	Date Prepared	Date Analyzed	MS/MSD Batch Number
10-05-1763-1	**Aqueous**	**GC 11**	**05/27/10**	**05/28/10**	**100527S02**

Parameter	MS %REC	MSD %REC	%REC CL	RPD	RPD CL	Qualifiers
Gasoline Range Organics (C6-C12)	104	100	38-134	4	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: 05/22/10
Work Order No: 10-05-1766
Preparation: EPA 5030B
Method: EPA 8260B

Project BP 498

Quality Control Sample ID	Matrix	Instrument	Date Prepared	Date Analyzed	MS/MSD Batch Number
MW-2	**Aqueous**	**GC/MS WW**	**06/01/10**	**06/01/10**	**100601S01**

Parameter	MS %REC	MSD %REC	%REC CL	RPD	RPD CL	Qualifiers
Benzene	104	103	76-124	1	0-20	
Carbon Tetrachloride	109	108	74-134	0	0-20	
Chlorobenzene	101	101	80-120	1	0-20	
1,2-Dibromoethane	95	90	80-120	6	0-20	
1,2-Dichlorobenzene	100	99	80-120	0	0-20	
1,2-Dichloroethane	99	94	80-120	5	0-20	
Ethylbenzene	104	95	78-126	9	0-20	
Toluene	101	95	80-120	7	0-20	
Trichloroethene	105	104	77-120	1	0-20	
Methyl-t-Butyl Ether (MTBE)	123	92	67-121	8	0-49	LM,AY
Tert-Butyl Alcohol (TBA)	114	112	36-162	1	0-30	
Diisopropyl Ether (DIPE)	104	100	60-138	4	0-45	
Ethyl-t-Butyl Ether (ETBE)	100	95	69-123	5	0-30	
Tert-Amyl-Methyl Ether (TAME)	98	92	65-120	6	0-20	
Ethanol	109	119	30-180	9	0-72	

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: 10-05-1766
Preparation: EPA 5030B
Method: EPA 8015B (M)

Project: BP 498

Quality Control Sample ID	Matrix	Instrument	Date Prepared	Date Analyzed	LCS/LCSD Batch Number
099-12-695-832	**Aqueous**	**GC 11**	**05/27/10**	**05/27/10**	**100527B01**

Parameter	LCS %REC	LCSD %REC	%REC CL	RPD	RPD CL	Qualifiers
Gasoline Range Organics (C6-C12)	109	109	78-120	0	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: 10-05-1766
Preparation: EPA 5030B
Method: EPA 8015B (M)

Project: BP 498

Quality Control Sample ID	Matrix	Instrument	Date Prepared	Date Analyzed	LCS/LCSD Batch Number
099-12-695-833	**Aqueous**	**GC 11**	**05/27/10**	**05/28/10**	**100527B02**

Parameter	LCS %REC	LCSD %REC	%REC CL	RPD	RPD CL	Qualifiers
Gasoline Range Organics (C6-C12)	107	109	78-120	2	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: 10-05-1766
Preparation: EPA 5030B
Method: EPA 8260B

Project: BP 498

Quality Control Sample ID	Matrix	Instrument	Date Prepared	Date Analyzed	LCS/LCSD Batch Number
099-12-703-1,348	**Aqueous**	**GC/MS WW**	**06/01/10**	**06/01/10**	**100601L01**

Parameter	LCS %REC	LCSD %REC	%REC CL	ME_CL	RPD	RPD CL	Qualifiers
Benzene	98	102	80-120	73-127	4	0-20	
Carbon Tetrachloride	104	108	74-134	64-144	4	0-20	
Chlorobenzene	94	101	80-120	73-127	7	0-20	
1,2-Dibromoethane	94	97	79-121	72-128	3	0-20	
1,2-Dichlorobenzene	96	99	80-120	73-127	2	0-20	
1,2-Dichloroethane	99	100	80-120	73-127	1	0-20	
Ethylbenzene	99	106	80-120	73-127	7	0-20	
Toluene	97	102	80-120	73-127	5	0-20	
Trichloroethene	99	102	79-127	71-135	3	0-20	
Methyl-t-Butyl Ether (MTBE)	99	97	69-123	60-132	2	0-20	
Tert-Butyl Alcohol (TBA)	105	103	63-123	53-133	2	0-20	
Diisopropyl Ether (DIPE)	102	103	59-137	46-150	0	0-37	
Ethyl-t-Butyl Ether (ETBE)	101	101	69-123	60-132	0	0-20	
Tert-Amyl-Methyl Ether (TAME)	99	98	70-120	62-128	1	0-20	
Ethanol	107	109	28-160	6-182	3	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.

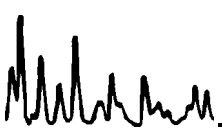
Glossary of Terms and Qualifiers

Work Order Number: 10-05-1766

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.

Work Order Number: 10-05-1766

Qualifier	Definition
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

1766

Page 1 of 1

BP/ARC Project Name: BP 498 **Req Due Date (mm/dd/yy):** _____ **Rush TAT:** Yes ___ No X

BP/ARC Facility No: 498 **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:	Tom Venus
Lab Shipping Accnt:	9225	Enfos Proposal No:	000QX-0004	Phone:	530-566-1400
Lab Bottle Order No:		Accounting Mode:	Provision X OOC-BU ___ OOC-RM ___	Email EDD To:	tvenus@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	Matrix: Water / Liquid	Matrix: Air / Vapor	Matrix:	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	5/20/10	1330		X							X			X	X	X	X	X	X				
2	MW-2	"	1435		X							X			X	X	X	X	X	X				
3	MW-3	"	1350		X							X			X	X	X	X	X	X				
4	MW-4	"	1415		X							X			X	X	X	X	X	X				
5	TB-498-5/20/10																							

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.

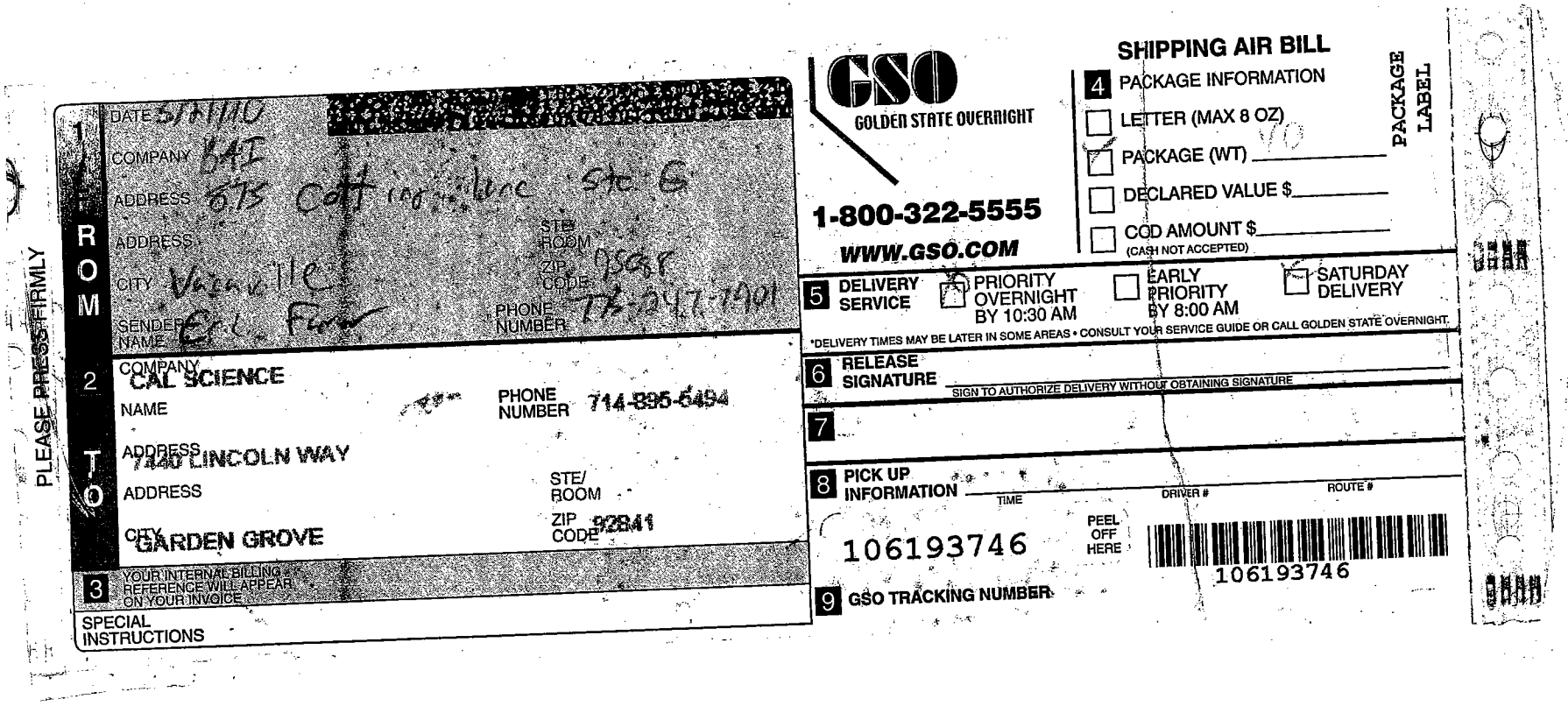
Hold TB

Sampler's Name:	Eric Farrar	Relinquished By / Affiliation	Date	Time	Accepted By / Affiliation	Date	Time
Sampler's Company:	BAI		5/21/10	1600		5/22/10	0900
Shipment Method:	GSO	Ship Date: 5/21/10					
Shipment Tracking No:	106195746						

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

4.



GSO
GOLDEN STATE OVERNIGHT

1-800-322-5555
WWW.GSO.COM

SHIPPING AIR BILL

PACKAGE LABEL

PLEASE PRESS FIRMLY

1 FROM
DATE 5/21/10
COMPANY BAE
ADDRESS 675 Cottonwood Inc Ste G
ADDRESS
STE/ ROOM
CITY Vista
ZIP CODE 92081
SENDER NAME Eric Fuss
PHONE NUMBER 760-247-7901

2 TO
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

4 PACKAGE INFORMATION
☐ LETTER (MAX 8 OZ)
☑ PACKAGE (WT) 10
☐ 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

8 PICK UP INFORMATION
TIME DRIVER # ROUTE #

106193746
9 GSO TRACKING NUMBER

PEEL OFF HERE

106193746

1766

Calscience Environmental Laboratories, Inc.

WORK ORDER #: 10-05-1766

SAMPLE RECEIPT FORM

Cooler 1 of 1

CLIENT: Broadbent & Ass. DATE: 05/22/10

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

Temperature 1.4 °C + 0.5 °C (CF) = 1.9 °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: _____

CUSTODY SEALS INTACT:

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

☐ Sample ☐_____ ☐ No (Not Intact) ☑ Not Present Initial: WSC

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** (6) ☐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#:** 100517A **Labeled/Checked by:** WSC

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

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:** WSC

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:	**2Q10 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:	**6/22/2010 12:08:48 PM**
Confirmation Number:	**1501465797**

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 - Quarterly**
Submittal Title:	**2Q10 GW Monitoring**
Facility Global ID:	**T0600124081**
Facility Name:	**ARCO #0498**
File Name:	**10051766.zip**
Organization Name:	**Broadbent & Associates, Inc.**
Username:	**BROADBENT-C**
IP Address:	**67.118.40.90**
Submittal Date/Time:	**6/22/2010 12:09:47 PM**
Confirmation Number:	**3352320373**

VIEW QC REPORT

VIEW DETECTIONS REPORT