Atlantic Richfield Company

Chuck Carmel
Environmental Business Manager

PO Box 1257
San Ramon, CA 94583
Phone: (925) 275-3803
Fax: (925) 275-3815
E-Mail: charles.carmel@bp.com

30 October 2009

Re: Third Quarter 2009 Ground-Water Monitoring Report
Atlantic Richfield Company Station #2107
3310 Park Boulevard, Oakland, California
ACEH Case #RO0002526

"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:

Third Quarter 2009 Ground-Water Monitoring Report
Atlantic Richfield Company Station #2107
3310 Park Boulevard, Oakland, California
ACEH Case #RO0002526

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
www.broadbentinc.com

30 October 2009

Project No. 06-88-614

Broadbent & Associates, Inc.
1324 Mangrove Ave., Suite 212
Chico, CA 95926
Voice (530) 566-1400
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BROADBENT & ASSOCIATES, INC
ENVIRONMENTAL, WATER RESOURCES & ENGINEERING

30 October 2009

Project No. 06-88-614

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

Attn.: Mr. Chuck Carmel

Re: Third Quarter 2009 Ground-Water Monitoring Report, Atlantic Richfield Company
Station #2107, 3310 Park Boulevard, Oakland, California; ACEH Case No.RO0002526

Dear Mr. Supple:

Attached is the *Third Quarter 2009 Ground-Water Monitoring Report* for Atlantic Richfield Company (a BP affiliated company) Station #2107 located at, 3310 Park Boulevard, Oakland, Alameda County, California (Site). This report presents results of ground-water monitoring conducted at the Site during the Third Quarter of 2009.

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

Sincerely,

BROADBENT & ASSOCIATES, INC.

Thomas A. Venus, P.E.
Senior Engineer

Enclosures

cc: Mr. Paresh Khatri, Alameda County Environmental Health (Submitted via ACEH ftp site)
Electronic copy uploaded to GeoTracker

STATION # 2107 QUARTERLY GROUND-WATER MONITORING REPORT

Facility: #2107 Address:	3310 Park Boulevard, Oakland, California
Environmental Business Manager:	Mr. Chuck Carmel
Consulting Co./Contact Persons:	Broadbent & Associates, Inc.(BAI)/Rob Miller & Tom Venus (530) 566-1400
Consultant Project No.:	06-88-614
Primary Agency/Regulatory ID No.:	Alameda County Environmental Health (ACEH) ACEH Case # RO0002526
Facility Permits/Permitting Agency:	NA

WORK PERFORMED THIS QUARTER (Third Quarter 2009):

1. Prepared and submitted *Ground-Water Investigation and Second Quarter 2009 Ground-Water Monitoring Report* (BAI, 7/30/2009).
2. Conducted ground-water monitoring/sampling for Third Quarter 2009. Work performed on 1 September 2009 by Stratus Environmental, Inc. (Stratus).

WORK PROPOSED FOR NEXT QUARTER (Fourth Quarter 2009):

1. Prepared and submitted this *Third Quarter 2009 Ground-Water Monitoring Report* (contained herein).
2. Conduct ground-water monitoring/sampling for Fourth Quarter 2009.

QUARTERLY RESULTS SUMMARY:

Current phase of project:	**Ground-Water Monitoring/Sampling**
Frequency of ground-water monitoring:*	**Quarterly: MW-11A, MW-11B, MW-12A, MW-12B, MW-13A, MW-13B**
Frequency of ground-water sampling:*	**Quarterly: MW-11A, MW-11B, MW-12A, MW-12B, MW-13A, MW-13B**
Is free product (FP) present on-site:	**No**
FP recovered this quarter:	**None**
Current remediation techniques:	**NA**
Depth to ground water (below TOC):	**3.31 ft (MW-13A) to 9.54 ft (MW-12B)**
General ground-water flow direction:	**North-Northwest ('B' wells)**
Approximate hydraulic gradient:	**0.03 ft/ft ('B' wells)**

* Current schedule through First Quarter 2010. Proposed modifications discussed below.

DISCUSSION:

Third quarter 2009 ground-water monitoring and sampling was conducted at Station #2107 on 1 September 2009 by Stratus personnel. Water levels were gauged in the six wells associated with the Site. No irregularities were noted during water level gauging. Depth to water measurements ranged from 3.31 ft at MW-13A to 9.54 ft at MW-12B. Resulting ground-water surface elevations ranged from 113.65 ft above datum (NAVD88) in well MW-11B to 111.24 ft at well MW-13A. Water level elevations are summarized in Table 1. A review of the Third Quarter 2009 ground-water level elevations shows an upward vertical hydraulic gradient between paired wells MW-11A and MW-11B, a slight upward vertical hydraulic gradient (almost negligible) between paired wells MW-13A and MW-13B, but a downward vertical hydraulic gradient between paired wells MW-12A and MW-12B. These vertical gradients are similar to those documented during the Second Quarter 2009. Water level elevations in the three 'B'

wells yielded a potentiometric ground-water flow direction and gradient to the north-northwest at approximately 0.03 ft/ft, slightly west of the few previous monitoring rounds (see Table 3). Continued ground-water monitoring should determine whether this flow direction and gradient are representative of normal conditions at the Site and vicinity. Ground-water monitoring field data sheets are provided within Appendix A. Measured depths to ground water and respective ground-water elevations are summarized in Table 1. A Site Location Map is provided as Drawing 1. Potentiometric ground-water elevation contours are presented in Drawing 2.

Ground-water samples were collected from wells MW-11A, MW-11B, MW-12A, MW-12B, MW-13A, and MW-13B. Wells MW-11A, MW-12B, and MW-13A purged dry before three casing volumes were removed, but allowed to sufficiently recover before sampling. No other irregularities were reported during sampling. Samples were submitted under chain-of-custody protocol to Calscience Environmental Laboratories, Inc. (Garden Grove, California), for analysis of Gasoline Range Organics (GRO, C6-12) by EPA Method 8015B; for Benzene, Toluene, Ethylbenzene, and Total Xylenes (BTEX) by EPA Method 8260B; and Methyl Tert-Butyl Ether (MTBE), Ethyl Tert-Butyl Ether (ETBE), Tert-Amyl Methyl Ether (TAME), Di-Isopropyl Ether (DIPE), 1,2-Dibromomethane (EDB), 1,2-Dicholorethane (1,2-DCA), Tert-Butyl Alcohol (TBA) 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 six wells sampled at concentrations of 1,400 micrograms per liter (µg/L) in well MW-11A, 69 µg/L in well MW-11B and 89 µg/L in well MW-12B. Benzene, Toluene, Ethylbenzene, and Total Xylenes were detected above the laboratory reporting limit in Well MW-11A sampled at concentrations of 28 µg/L, 20 µg/L, 61 µg/L, and 6.7µg/L, respectively. MTBE was detected above the laboratory reporting limit in each of the six wells sampled at concentrations up to 460 µg/L in well MW-12B. The remaining fuel additives and oxygenates were not detected above their laboratory reporting limits in the six wells sampled this quarter.

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. Ground-water monitoring data (GEO_WELL) and laboratory analytical results (EDF) were uploaded to the GeoTracker AB2886 database. Upload confirmation receipts are provided in Appendix B.

CONCLUSIONS AND RECOMMENDATIONS:

Preliminary review of the vertical gradients documented between co-located well pairs after two rounds of monitoring appears to show an upward vertical gradient at MW-11A/MW-11B, a negligible vertical gradient at MW-13A/MW-13B, and downward vertical gradient at MW-12A/MW-12B. As was mentioned in the *Ground-Water Investigation and First Quarter 2009 Ground-Water Monitoring Report* (BAI, 4/30/2009), over-drilling of well MW-13A to 24 ft bgs, then partially backfilling with bentonite to 19 ft bgs, and constructing the well screen from 11.5-16.5 ft bgs was a variation from the planned scope of work. The validity of data distinguishing ground-water conditions between wells MW-13A and MW-13B is therefore suspect.

In accordance with the letter sent by Atlantic Richfield Company to ACEH dated 26 June 2009, BAI recommends continued quarterly monitoring and sampling (for at least two more calendar quarters through First Quarter 2010) to seek trends in the ground-water flow direction, vertical and horizontal gradients, contaminant concentrations, and to evaluate the reliability of data from the MW-13A/MW-13B

paired wells. Subsequent gauging/sampling and reporting is recommended during the first and third calendar quarters, consistent with the State Water Resources Control Board Resolution No.2009-0042.

CLOSURE:

The findings presented in this report are based upon: observations of Stratus field personnel (see Appendix A), the points investigated, and results of laboratory tests performed by Calscience Environmental Laboratories, Inc. (Garden Grove, California). 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 #2107, 3310 Park Boulevard, Oakland, California

Drawing 2. Ground-Water Elevation Contour and Analytical Summary Map, 1 September 2009, Station #2107, 3310 Park Boulevard, Oakland, California

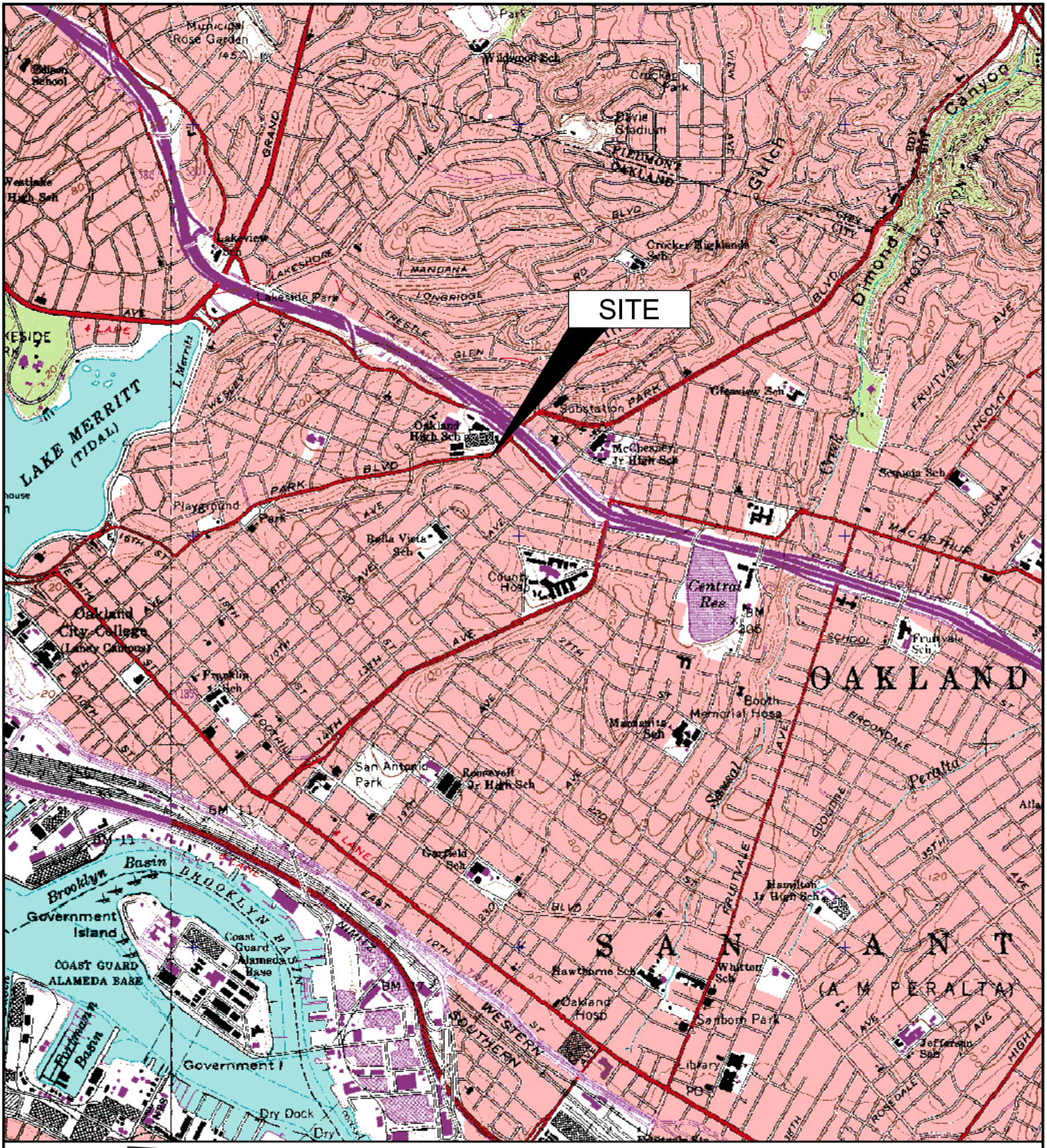
Table 1. Summary of Ground-Water Monitoring Data: Relative Water Elevations and Laboratory Analyses, Station #2107, 3310 Park Boulevard, Oakland, California

Table 2. Summary of Fuel Additives Analytical Data, Station #2107, 3310 Park Boulevard, Oakland, California

Table 3. Historical Ground-Water Flow Direction and Gradient Data, Station #2107, 3310 Park Boulevard, Oakland, California

Appendix A. Stratus Ground-Water Sampling Data Package (Includes Field Data Sheets, Laboratory Analytical Report with Chain-of-Custody Documentation, and Field Procedures).

Appendix B. GeoTracker Upload Confirmation Receipts

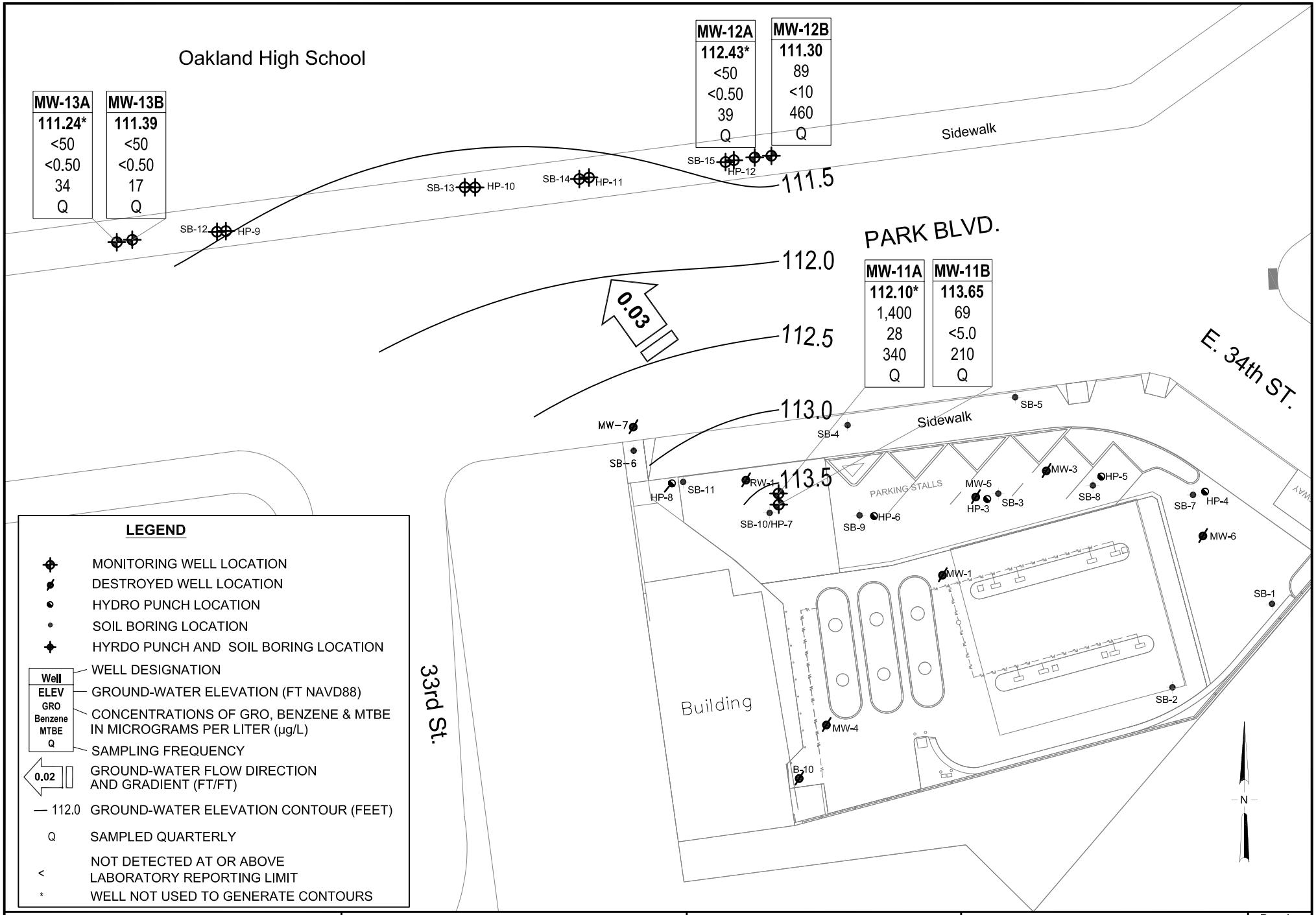


BROADBENT & ASSOCIATES, INC.
ENGINEERING, WATER RESOURCES & ENVIRONMENTAL
1324 Mangrove Ave. Suite 212, Chico, CA 95926
Project No.: 06-88-614 Date: 07/22/09

Station #2107
3310 Park Boulevard
Oakland, California

Site Location Map

Drawing
1



LEGEND

- MONITORING WELL LOCATION
- DESTROYED WELL LOCATION
- HYDRO PUNCH LOCATION
- SOIL BORING LOCATION
- HYRDO PUNCH AND SOIL BORING LOCATION

Well
ELEV
GRO
Benzene
MTBE
Q

- WELL DESIGNATION
- GROUND-WATER ELEVATION (FT NAVD88)
- CONCENTRATIONS OF GRO, BENZENE & MTBE IN MICROGRAMS PER LITER (µg/L)
- SAMPLING FREQUENCY
- 0.02 — GROUND-WATER FLOW DIRECTION AND GRADIENT (FT/FT)
- 112.0 — GROUND-WATER ELEVATION CONTOUR (FEET)
- Q — SAMPLED QUARTERLY
- < — NOT DETECTED AT OR ABOVE LABORATORY REPORTING LIMIT
- * — WELL NOT USED TO GENERATE CONTOURS

0 30 60
SCALE (ft)

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

Project No.: 06-88-614 Date: 9/28/09

Station #2107
3310 Park Boulevard
Oakland, California

Ground-Water Elevation Contours and Analytical Summary Map
1 September 2009

Drawing
2

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

Station #2107, 3310 Park Boulevard, Oakland, CA

Well and Sample Date	P/NP	Comments	TOC (feet)	Top of Screen (ft bgs)	Bottom of Screen (ft bgs)	DTW (feet)	Water Level Elevation (feet)	Concentrations in (µg/L)						DO (mg/L)	pH
								GRO/ TPHg	Benzene	Toluene	Ethyl-Benzene	Total Xylenes	MTBE		
MW-11A															
3/9/2009	P		120.85	16	20	12.41	108.44	1,000	1.5	<1.0	13	4.8	60	9.20	12.74
6/18/2009	P	a	120.85	16	20	14.58	106.27	260	11	<5.0	6.8	<5.0	280	--	9.83
9/1/2009	**P**		**120.85**	**16**	**20**	**8.75**	**112.10**	**1,400**	**28**	**20**	**61**	**6.7**	**340**	**1.40**	**7.84**
MW-11B															
3/9/2009	P		121.31	26	30	7.33	113.98	280	1.3	1.3	7.6	<0.50	240	9.56	7.14
6/18/2009	P	a	121.31	26	30	7.38	113.93	130	<5.0	<5.0	<5.0	<5.0	200	--	6.96
9/1/2009	**P**		**121.31**	**26**	**30**	**7.66**	**113.65**	**69**	**<5.0**	**<5.0**	**<5.0**	**<5.0**	**210**	**1.01**	**7.01**
MW-12A															
3/9/2009	P		120.64	13	18	8.70	111.94	<50	<0.50	<0.50	<0.50	<0.50	41	4.62	6.76
6/18/2009	P	a	120.64	13	18	8.58	112.06	<50	<1.0	<1.0	<1.0	<1.0	40	--	7.92
9/1/2009	**P**		**120.64**	**13**	**18**	**9.21**	**111.43**	**<50**	**<0.50**	**<0.50**	**<0.50**	**<0.50**	**39**	**1.06**	**6.97**
MW-12B															
3/9/2009	P		120.84	27	30	14.89	105.95	<50	<0.50	0.55	<0.50	<0.50	150	5.87	7.74
6/18/2009	P	a	120.84	27	30	13.51	107.33	140	<2.5	<2.5	<2.5	<2.5	380	--	8.60
9/1/2009	**P**		**120.84**	**27**	**30**	**9.54**	**111.30**	**89**	**<10**	**<10**	**<10**	**<10**	**460**	**0.99**	**6.88**
MW-13A															
3/9/2009	P		114.55	11.5	16.5	9.53	105.02	<50	<0.50	<0.50	<0.50	<0.50	13	9.39	7.64
6/18/2009	P	a	114.55	11.5	16.5	2.88	111.67	<50	<0.50	<0.50	<0.50	<0.50	23	--	7.21
9/1/2009	**P**		**114.55**	**11.5**	**16.5**	**3.31**	**111.24**	**<50**	**<0.50**	**<0.50**	**<0.50**	**<0.50**	**34**	**0.96**	**6.90**
MW-13B															
3/9/2009	P		114.75	18.5	22.5	2.96	111.79	<50	<0.50	<0.50	<0.50	<0.50	13	8.44	6.99
6/18/2009	P	a	114.75	18.5	22.5	2.85	111.90	<50	<0.50	<0.50	<0.50	<0.50	12	--	6.92
9/1/2009	**P**		**114.75**	**18.5**	**22.5**	**3.36**	**111.39**	**<50**	**<0.50**	**<0.50**	**<0.50**	**<0.50**	**17**	**0.96**	**7.29**

ABBREVIATIONS AND SYMBOLS:
--/--- = Not measured/applicable/analyzed/sampled
µg/L = Micrograms per liter
DO = Dissolved oxygen
DTW = Depth to water in ft below TOC
ft bgs = Feet below ground surface
GRO = Gasoline range organics
mg/L = Milligrams per liter
MTBE = Methyl tert butyl ether
< = Not detected at or above specified laboratory reporting limit
NP = Well not purged prior to sampling
P = Well purged prior to sampling
TOC = Top of casing in ft above NAVD88 datum

FOOTNOTES:

NOTES:
a = DO meter not working.

Values for DO and pH were obtained through field measurements.

Table 2. Summary of Fuel Additives Analytical Data

Station #2107, 3310 Park Boulevard, Oakland, CA

Well and Sample Date	Concentrations in (µg/L)								Comments
	Ethanol	TBA	MTBE	DIPE	ETBE	TAME	1,2-DCA	EDB	
MW-11A									
3/9/2009	--	<20	60	<1.0	<1.0	<1.0	--	--	
6/18/2009	<3,000	<100	280	<5.0	<5.0	<5.0	<5.0	<5.0	
9/1/2009	**<3,000**	**<100**	**340**	**<5.0**	**<5.0**	**5.3**	**<5.0**	**<5.0**	
MW-11B									
3/9/2009	--	<10	240	<0.50	<0.50	3.1	--	--	
6/18/2009	<3,000	<100	200	<5.0	<5.0	<5.0	<5.0	<5.0	
9/1/2009	**<3,000**	**<100**	**210**	**<5.0**	**<5.0**	**<5.0**	**<5.0**	**<5.0**	
MW-12A									
3/9/2009	--	<10	41	<0.50	<0.50	<0.50	--	--	
6/18/2009	<600	<20	40	<1.0	<1.0	<1.0	<1.0	<1.0	
9/1/2009	**<300**	**<10**	**39**	**<0.50**	**<0.50**	**<0.50**	**<0.50**	**<0.50**	
MW-12B									
3/9/2009	--	<10	150	<0.50	<0.50	<0.50	--	--	
6/18/2009	<1,500	<50	380	<2.5	<2.5	<2.5	<2.5	<2.5	
9/1/2009	**<6,000**	**<200**	**460**	**<10**	**<10**	**<10**	**<10**	**<10**	
MW-13A									
3/9/2009	--	<10	13	<0.50	<0.50	<0.50	--	--	
6/18/2009	<300	<10	23	<0.50	<0.50	<0.50	<0.50	<0.50	
9/1/2009	**<300**	**<10**	**34**	**<0.50**	**<0.50**	**<0.50**	**<0.50**	**<0.50**	
MW-13B									
3/9/2009	--	<10	13	<0.50	<0.50	<0.50	--	--	
6/18/2009	<300	<10	12	<0.50	<0.50	<0.50	<0.50	<0.50	
9/1/2009	**<300**	**<10**	**17**	**<0.50**	**<0.50**	**<0.50**	**<0.50**	**<0.50**	

ABBREVIATIONS AND SYMBOLS:
-- = Not analyzed/applicable/measurable
< = Not detected above reported detection limit
1,2-DCA = 1,2-Dichloroethane
µg/L = Micrograms per Liter
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

FOOTNOTES:

NOTES:
All volatile organic compounds analyzed using EPA Method 8260B.

Table 3. Historical Ground-Water Flow Direction and Gradient

Station #2107, 3310 Park Boulevard, Oakland, CA

Date Sampled	Approximate Flow Direction	Approximate Hydraulic Gradient
3/9/2009	Northeast	0.06
6/18/2009	Northeast	0.06
9/1/2009	**North-Northwest**	**0.03**

APPENDIX A

STRATUS GROUND-WATER SAMPLING DATA PACKAGE
(INCLUDES FIELD DATA SHEETS, LABORATORY ANALYTICAL REPORT WITH CHAIN-OF-CUSTODY DOCUMENTATION, AND FIELD PRODEDURES)

STRATUS
ENVIRONMENTAL, INC.

3330 Cameron Park Drive, Ste 550
Cameron Park, California 95682
(530) 676-6004 ~ Fax: (530) 676-6005

September 21, 2009

Mr. Rob Miller
Broadbent & Associates, Inc.
2000 Kirman Avenue
Reno, NV 89502

Re: Groundwater Sampling Data Package, ARCO Service Station No. 2107, located at 3310 Park Boulevard, Oakland, California.

General Information

Data Submittal Prepared / Reviewed by: Carol Huff / Jay Johnson
Phone Number: (530) 676-6000
On-Site Supplier Representative: Tony Hill

Sampling Date: September 1, 2009

Unusual Field Conditions: None noted.

Scope of Work Performed: Quarterly monitoring and sampling.

Variations from Work Scope: Wells MW-11A, MW-12B, and MW-13A purged dry before three casing volumes were removed.

This submittal presents the data collected in association with routine groundwater monitoring. The attachments include field data sheets, non-hazardous waste data form, chain of custody documentation, certified analytical results, and field procedures for groundwater sampling. The information is being provided to BP-ARCO's Scoping Supplier for use in preparing a report for regulatory submittal. This submittal is limited to presentation of collected data and does not include data interpretation or conclusions or recommendations.

Any questions concerning this submittal should be addressed to the Preparer/Reviewer identified above.

Sincerely,

STRATUS ENVIRONMENTAL, INC.

Jay R. Johnson, P.G.
Project Manager

Attachments:

- Field Data Sheets
- Non-Hazardous Waste Data Form
- Chain of Custody Documentation
- Certified Analytical Results
- Field Procedures for Groundwater Monitoring

CC: Mr. Paul Supple, BP/ARCO

STRATUS ENVIRONMENTAL, INC.

Site Address 3310 York Blvd
City Oakland, CA
Sampled by: TH
Signature

Site Number Arco 2107
Project Number E 2107
Project PM Jay Johnson
DATE 9/1/09

Water Level Data					Purge Volume Calculations					Purge Method				Sample Record			Field Data
Well ID	Time	Depth to Product (feet)	Depth to Water (feet)	Total Depth (feet)	Water column (feet)	Diameter (inches)	Multiplier	3 casing volumes (gallons)	Actual water purged (gallons)	No Purge	Bailer	Pump	other	DTW at sample time (feet)	Sample I.D	Sample Time	DO (mg/L)
16 MW-11A	0956		8.75	18.47	9.72	2	.5	4.86	2		X	Dry@2		17.24	MW-11A	0330	1.40
26 11B	0100		7.66	29.04	21.38	2	.5	10.69	10.5		X			7.88	11B	0150	1.01
13 12A	0050		9.21	17.67	8.46	2	.5	4.23	4		X			9.21	12A	0315	1.06
27 12B	0046		9.54	30.00	20.46	2	.5	10.23	4.5		X	Dry@4.5		12.85	12B	0415	.99
11.5 13A	0040		3.31	16.35	13.04	2	.5	6.52	2.5		X	Dry@2.5		3.39	13A	0445	.96
19.5 MW-13B	0036		3.36	22.42	19.06	2	.5	9.53	9.5		X			3.46	MW-13B	0245	.96

X All Dry wells let recharge at least 2 hrs. before sampling

Multiplier
2" = 0.5 3" = 1.0 4" = 2.0 6" = 4.4

Please refer to groundwater sampling field procedures
pH/Conductivity/temperature Meter - Oakton Model PC-10
DO Meter - Oakton 300 Series (DO is always measured before purge)

CALIBRATION DATE
pH All 8/09/09
Conductivity
DO

T:\Forms

ENVIRONMENTAL, INC.

Site Address 3310 Ourk Blvd
City Oakland, CA
Site Sampled by TH

Site Number Arco 2107
Project No. E 2107
Project PM Gary Johnson
Date Sampled 9/16/04

Well ID MW-11A				0330
purge start time bailer				No odor
	Temp C	pH	cond	gallons
time	23.6	7.84	10.6m	Ø
time	Dry @ 2			
time	22.8	11.08	10.31	(2)
time				
purge stop time 0120			ORP	

Well ID MW-11B				0150
purge start time bailer				No odor
	Temp C	pH	cond	gallons
time	21.4	7.34	535	Ø
time	21.3	7.06	596	5
time	21.1	7.01	599	10.5
time				
pugre stop time			ORP	

Well ID MW-12A				0315
purge start time bailer				No odor
	Temp C	pH	cond	gallons
time	22.8	6.89	580	Ø
time	22.3	6.84	589	2
time	23.3	6.97	605	4
time				
purge stop time 0200			ORP	

Well ID MW-12B				0415
purge start time bailer				No odor
	Temp C	pH	cond	gallons
time	21.8	6.87	977	Ø
time	Dry @ 4.5			
time	2020	6.88	990	(4.5)
time				
purge stop time 0215			ORP	

Well ID MW-13B				0245
purge start time bailer				No odor
	Temp C	pH	cond	gallons
time	22.2	6.89	793	Ø
time	21.4	6.91	809	5
time	22.4	6.90	813	9.5
time				
purge stop time			ORP	

Well ID MW-15A				0450
purge start time bailer				No odor
	Temp C	pH	cond	gallons
time	23.4	6.93	814	Ø
time	Dry @ 2.5			
time	23.8	7.09	827	2.5
time				
purge stop time 0248			ORP	

Well ID				
purge start time				
	Temp C	pH	cond	gallons
time				
time				
time				
time				
purge stop time				

Well ID				
purge start time				
	Temp C	pH	cond	gallons
time				
time				
time				
time				
purge stop time				

WELLHEAD OBSERVATION FORM

Site Name/Number: ARW 2107 *Date:* 9/1/09 *Technican:* A. Li

STRATUS ENVIRONMENTAL, INC.

Well I.D.	Box in Good Condition? X = Yes Blank = No	Well lid secure? X=Yes If not call PM prior to departure	Lock Missing? X = Yes (replaced) Blank = No	Water in Wellbox? X = Yes Blank = No	Water Level Relative to Cap? A = Above cap B = Below cap L = Level w/cap	Well Cap? I = Intact M = Missing or Compromised (replaced)	Bolts Missing? # of missing/ Total # *	Bolts Stripped? # of stripped/ Total # *	Bolt Holes Stripped? # of stripped/ Total # *	Cracked or Broken Lid? X = Yes Blank = No *	Cracked or Broken Box? X = Yes Blank = No *	Grout Level more than 1ft below TOC? X = Yes Blank = No *	Additional Comments (such as missing lid, concrete needs replacement, or other - explain)
MW-11A	X												
11B	X												
12A	X												
12B	X												
13A	X												
MW-13B	X												

* Explain corrective action taken (replaced bolt/tapped bolt hole etc…) or if a safety issue, please call PM

DRUM INVENTORY

Drums on site? Yes (No) (circle)

Type and # Steel: _____ Plastic: _____

Note whether drums are full or empty, solids or liquids:

_____

_____

Drum label info (description, date, contact info):

_____

_____

GENERAL SITE CONDITIONS

Make notes on housekeeping conditions (such as trash around remediation system enclosure/compound, bent or missing bollards, signs missing from compound fences, grafitti on compound, etc.)

_____

_____

_____

_____

_____

_____

(updated 7-09-09, CH)

NO. [illegible]

NON-HAZARDOUS WASTE DATA FORM

1. BESI #

GENERATOR

2. Generator's Name and Mailing Address

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

Generator's Phone:

3. Transporter 1 Company Name

Phone #

4. Transporter 2 Company Name

Phone #

5. Designated Facility Name and Site Address

Phone #

6. Waste Shipping Name and Description	7. Containers No.	7. Containers Type	8. Total Quantity	9. Unit Wt/Vol	10. Profile No.
A.					
B.					
C.					
D.					

11. Special Handling Instructions and Additional Information

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

Generator's/Offeror's Printed/Typed Name | Signature | Month | Day | Year

TRANSPORTER

13. Transporter Acknowledgment of Receipt of Materials

Transporter 1 Printed/Typed Name | Signature | Month | Day | Year

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

Atlantic Richfield Company
A BP affiliated company

Laboratory Management Program LaMP Chain of Custody Record

BP/ARC Project Name: ARCO 2107
BP/ARC Facility No: 2107
Req Due Date (mm/dd/yy): STD - TAT
Lab Work Order Number:
Rush TAT: Yes ___ No X
Page 1 of 1

Lab Name: Cal Science	BP/ARC Facility Address: 3310 Park Blvd.	Consultant/Contractor: Stratus Environmental
Lab Address: 7440 Lincoln Way	City, State, ZIP Code: Oakland, CA	Consultant/Contractor Project No: E2107-QM/O&M
Lab PM: Richard Villafania	Lead Regulatory Agency:	Address: 3330 Cameron Park Dr., Cameron Park, CA 95682
Lab Phone: 714-895-5494 / 714-895-7501 (fax)	California Global ID No.: T06019734306	Consultant/Contractor PM: Jay Johnson
Lab Shipping Acct:	Enfos Proposal No: 000TK-0003	Phone: 530-676-6000 / 530-676-6005 (fax)
Lab Bottle Order No:	Accounting Mode: Provision X OOC-BU ___ OOC-RM ___	Email EDD To: chuff@stratusinc.net
Other Info:	Stage: Appraise Activity: Monitor	Invoice To: BP/ARC ___ Contractor ___
BP/ARC EBM: Paul Supple		
EBM Phone: 925-275-3506		
EBM Email: paul.supple@bp.com		

Lab No.	Sample Description	Date 2009	Time	Matrix: Soil / Solid	Matrix: Water / Liquid	Matrix: Air / Vapor	No. Containers / Preservative: Total Number of Containers	Unpreserved	H_2SO_4	HNO_3	HCl	Methanol	Requested Analyses: 8260 by 8015	BTEX 15 OXY's	EDB / 1,2 DCA	Ethanol	Report Type & QC Level
	MW-11A	9/1	0330		X		6				X		X	X	X	X	Standard X
	11B		0150														Full Data Package ___
	12A		0315														
	12B		0415														Comments
	13A		0445														Note: If sample not collected, indicate "No Sample" in comments and single-strike out and initial any preprinted sample description.
	MW-13B		0245														
	TB-2107-09012009						2										ON Hold

Sampler's Name: A. Hill	Relinquished By / Affiliation	Date	Time	Accepted By / Affiliation	Date	Time
Sampler's Company: Stratus		9/2/09	1450	CEL	9-2-09	1450
Shipment Method: GSO Ship Date: 9/2/09						
Shipment Tracking No:						

Special Instructions: Please cc results to bpedf@broadbentinc.com

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

Calscience
Environmental
Laboratories, Inc.

September 18, 2009

Jay Johnson
Stratus Environmental, inc.
3330 Cameron Park Drive, Suite 550
Cameron Park, CA 95682-8861

Subject: **Calscience Work Order No.:** **09-09-0263**
Client Reference: **ARCO 2107**

Dear Client:

Enclosed is an analytical report for the above-referenced project. The samples included in this report were received 9/3/2009 and analyzed in accordance with the attached chain-of-custody.

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

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

Sincerely,

Calscience Environmental
Laboratories, Inc.
Richard Villafania
Project Manager

Calscience Environmental Laboratories, Inc.

Analytical Report

Stratus Environmental, inc.
3330 Cameron Park Drive, Suite 550
Cameron Park, CA 95682-8861

Date Received: 09/03/09
Work Order No: 09-09-0263
Preparation: EPA 5030B
Method: EPA 8015B (M)

Project: ARCO 2107

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
MW-11A	**09-09-0263-1-E**	**09/01/09 03:30**	**Aqueous**	**GC 4**	**09/04/09**	**09/04/09 16:43**	**090904B01**

Parameter	Result	RL	DF	Qual	Units
Gasoline Range Organics (C6-C12)	1400	50	1		ug/L
Surrogates:	REC (%)	Control Limits		Qual	
1,4-Bromofluorobenzene	87	38-134			

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
MW-11B	**09-09-0263-2-E**	**09/01/09 01:50**	**Aqueous**	**GC 4**	**09/04/09**	**09/04/09 17:16**	**090904B01**

Parameter	Result	RL	DF	Qual	Units
Gasoline Range Organics (C6-C12)	69	50	1		ug/L
Surrogates:	REC (%)	Control Limits		Qual	
1,4-Bromofluorobenzene	87	38-134			

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
MW-12A	**09-09-0263-3-E**	**09/01/09 03:15**	**Aqueous**	**GC 4**	**09/04/09**	**09/04/09 14:31**	**090904B01**

Parameter	Result	RL	DF	Qual	Units
Gasoline Range Organics (C6-C12)	ND	50	1		ug/L
Surrogates:	REC (%)	Control Limits		Qual	
1,4-Bromofluorobenzene	75	38-134			

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
MW-12B	**09-09-0263-4-E**	**09/01/09 04:15**	**Aqueous**	**GC 4**	**09/04/09**	**09/04/09 17:49**	**090904B01**

Parameter	Result	RL	DF	Qual	Units
Gasoline Range Organics (C6-C12)	89	50	1		ug/L
Surrogates:	REC (%)	Control Limits		Qual	
1,4-Bromofluorobenzene	81	38-134			

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

Calscience Environmental Laboratories, Inc.

Analytical Report

Stratus Environmental, inc.	Date Received:	09/03/09
3330 Cameron Park Drive, Suite 550	Work Order No:	09-09-0263
Cameron Park, CA 95682-8861	Preparation:	EPA 5030B
	Method:	EPA 8015B (M)

Project: ARCO 2107

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
MW-13A	**09-09-0263-5-D**	**09/01/09 04:45**	**Aqueous**	**GC 4**	**09/04/09**	**09/04/09 18:22**	**090904B01**

Parameter	Result	RL	DF	Qual	Units
Gasoline Range Organics (C6-C12)	ND	50	1		ug/L
Surrogates:	**REC (%)**	**Control Limits**		**Qual**	
1,4-Bromofluorobenzene	81	38-134			

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
MW-13B	**09-09-0263-6-E**	**09/01/09 02:45**	**Aqueous**	**GC 4**	**09/04/09**	**09/04/09 18:55**	**090904B01**

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
Method Blank	**099-12-695-655**	**N/A**	**Aqueous**	**GC 4**	**09/04/09**	**09/04/09 12:52**	**090904B01**

Parameter	Result	RL	DF	Qual	Units
Gasoline Range Organics (C6-C12)	ND	50	1		ug/L
Surrogates:	**REC (%)**	**Control Limits**		**Qual**	
1,4-Bromofluorobenzene	61	38-134			

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

Calscience Environmental Laboratories, Inc.

Analytical Report

Stratus Environmental, inc.
3330 Cameron Park Drive, Suite 550
Cameron Park, CA 95682-8861

Date Received: 09/03/09
Work Order No: 09-09-0263
Preparation: EPA 5030B
Method: EPA 8260B
Units: ug/L

Project: ARCO 2107

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
MW-11A	**09-09-0263-1-B**	**09/01/09 03:30**	**Aqueous**	**GC/MS U**	**09/05/09**	**09/05/09 18:21**	**090905L01**

Parameter	Result	RL	DF	Qual	Parameter	Result	RL	DF	Qual
Benzene	28	5.0	10		Methyl-t-Butyl Ether (MTBE)	340	5.0	10	
1,2-Dibromoethane	ND	5.0	10		Tert-Butyl Alcohol (TBA)	ND	100	10	
1,2-Dichloroethane	ND	5.0	10		Diisopropyl Ether (DIPE)	ND	5.0	10	
Ethylbenzene	61	5.0	10		Ethyl-t-Butyl Ether (ETBE)	ND	5.0	10	
Toluene	20	5.0	10		Tert-Amyl-Methyl Ether (TAME)	5.3	5.0	10	
Xylenes (total)	6.7	5.0	10		Ethanol	ND	3000	10	
Surrogates:	REC (%)	Control Limits		Qual	Surrogates:	REC (%)	Control Limits		Qual
1,2-Dichloroethane-d4	92	80-128			Dibromofluoromethane	23	80-127		LG,AY
Toluene-d8	102	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-11B	**09-09-0263-2-A**	**09/01/09 01:50**	**Aqueous**	**GC/MS U**	**09/04/09**	**09/05/09 08:59**	**090904L02**

Parameter	Result	RL	DF	Qual	Parameter	Result	RL	DF	Qual
Benzene	ND	5.0	10		Methyl-t-Butyl Ether (MTBE)	210	5.0	10	
1,2-Dibromoethane	ND	5.0	10		Tert-Butyl Alcohol (TBA)	ND	100	10	
1,2-Dichloroethane	ND	5.0	10		Diisopropyl Ether (DIPE)	ND	5.0	10	
Ethylbenzene	ND	5.0	10		Ethyl-t-Butyl Ether (ETBE)	ND	5.0	10	
Toluene	ND	5.0	10		Tert-Amyl-Methyl Ether (TAME)	ND	5.0	10	
Xylenes (total)	ND	5.0	10		Ethanol	ND	3000	10	
Surrogates:	REC (%)	Control Limits		Qual	Surrogates:	REC (%)	Control Limits		Qual
1,2-Dichloroethane-d4	102	80-128			Dibromofluoromethane	104	80-127		
Toluene-d8	98	80-120			1,4-Bromofluorobenzene	86	68-120		

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
MW-12A	**09-09-0263-3-B**	**09/01/09 03:15**	**Aqueous**	**GC/MS U**	**09/05/09**	**09/05/09 18:51**	**090905L01**

Parameter	Result	RL	DF	Qual	Parameter	Result	RL	DF	Qual
Benzene	ND	0.50	1		Methyl-t-Butyl Ether (MTBE)	39	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	94	80-128			Dibromofluoromethane	102	80-127		
Toluene-d8	97	80-120			1,4-Bromofluorobenzene	90	68-120		

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

Calscience Environmental Laboratories, Inc.

Analytical Report

Stratus Environmental, inc.
3330 Cameron Park Drive, Suite 550
Cameron Park, CA 95682-8861

Date Received: 09/03/09
Work Order No: 09-09-0263
Preparation: EPA 5030B
Method: EPA 8260B
Units: ug/L

Project: ARCO 2107

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
MW-12B	**09-09-0263-4-A**	**09/01/09 04:15**	**Aqueous**	**GC/MS U**	**09/04/09**	**09/05/09 09:57**	**090904L02**

Parameter	Result	RL	DF	Qual	Parameter	Result	RL	DF	Qual
Benzene	ND	10	20		Methyl-t-Butyl Ether (MTBE)	460	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	ND	10	20		Ethyl-t-Butyl Ether (ETBE)	ND	10	20	
Toluene	ND	10	20		Tert-Amyl-Methyl Ether (TAME)	ND	10	20	
Xylenes (total)	ND	10	20		Ethanol	ND	6000	20	
Surrogates:	REC (%)	Control Limits		Qual	Surrogates:	REC (%)	Control Limits		Qual
1,2-Dichloroethane-d4	102	80-128			Dibromofluoromethane	102	80-127		
Toluene-d8	99	80-120			1,4-Bromofluorobenzene	87	68-120		

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
MW-13A	**09-09-0263-5-A**	**09/01/09 04:45**	**Aqueous**	**GC/MS U**	**09/04/09**	**09/05/09 10:27**	**090904L02**

Parameter	Result	RL	DF	Qual	Parameter	Result	RL	DF	Qual
Benzene	ND	0.50	1		Methyl-t-Butyl Ether (MTBE)	34	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	107	80-128			Dibromofluoromethane	103	80-127		
Toluene-d8	99	80-120			1,4-Bromofluorobenzene	85	68-120		

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
MW-13B	**09-09-0263-6-A**	**09/01/09 02:45**	**Aqueous**	**GC/MS U**	**09/04/09**	**09/05/09 10:56**	**090904L02**

Parameter	Result	RL	DF	Qual	Parameter	Result	RL	DF	Qual
Benzene	ND	0.50	1		Methyl-t-Butyl Ether (MTBE)	17	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	107	80-128			Dibromofluoromethane	107	80-127		
Toluene-d8	99	80-120			1,4-Bromofluorobenzene	87	68-120		

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

Calscience Environmental Laboratories, Inc.

Analytical Report

Stratus Environmental, inc.	Date Received: 09/03/09
3330 Cameron Park Drive, Suite 550	Work Order No: 09-09-0263
Cameron Park, CA 95682-8861	Preparation: EPA 5030B
	Method: EPA 8260B
	Units: ug/L
Project: ARCO 2107	Page 3 of 3

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
Method Blank	**099-12-703-1,069**	**N/A**	**Aqueous**	**GC/MS U**	**09/04/09**	**09/05/09 02:07**	**090904L02**

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	102	80-128			Dibromofluoromethane	97	80-127		
Toluene-d8	99	80-120			1,4-Bromofluorobenzene	88	68-120		

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
Method Blank	**099-12-703-1,070**	**N/A**	**Aqueous**	**GC/MS U**	**09/05/09**	**09/05/09 13:54**	**090905L01**

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	107	80-128			Dibromofluoromethane	106	80-127		
Toluene-d8	98	80-120			1,4-Bromofluorobenzene	86	68-120		

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

Calscience Environmental Laboratories, Inc.

Quality Control - Spike/Spike Duplicate

Stratus Environmental, inc.	Date Received: 09/03/09
3330 Cameron Park Drive, Suite 550	Work Order No: 09-09-0263
Cameron Park, CA 95682-8861	Preparation: EPA 5030B
	Method: EPA 8015B (M)

Project ARCO 2107

Quality Control Sample ID	Matrix	Instrument	Date Prepared	Date Analyzed	MS/MSD Batch Number
MW-12A	**Aqueous**	**GC 4**	**09/04/09**	**09/04/09**	**090904S01**

Parameter	MS %REC	MSD %REC	%REC CL	RPD	RPD CL	Qualifiers
Gasoline Range Organics (C6-C12)	91	85	38-134	7	0-25	

RPD - Relative Percent Difference , CL - Control Limit

Calscience Environmental Laboratories, Inc.

Quality Control - Spike/Spike Duplicate

Stratus Environmental, inc.	Date Received: 09/03/09
3330 Cameron Park Drive, Suite 550	Work Order No: 09-09-0263
Cameron Park, CA 95682-8861	Preparation: EPA 5030B
	Method: EPA 8260B

Project ARCO 2107

Quality Control Sample ID	Matrix	Instrument	Date Prepared	Date Analyzed	MS/MSD Batch Number
09-09-0016-8	**Aqueous**	**GC/MS U**	**09/04/09**	**09/05/09**	**090904S02**

Parameter	MS %REC	MSD %REC	%REC CL	RPD	RPD CL	Qualifiers
Benzene	102	106	76-124	4	0-20	
Carbon Tetrachloride	89	96	74-134	7	0-20	
Chlorobenzene	104	108	80-120	3	0-20	
1,2-Dibromoethane	98	101	80-120	4	0-20	
1,2-Dichlorobenzene	105	111	80-120	5	0-20	
1,1-Dichloroethene	97	98	73-127	1	0-20	
Ethylbenzene	109	115	78-126	6	0-20	
Toluene	101	107	80-120	5	0-20	
Trichloroethene	97	98	77-120	1	0-20	
Vinyl Chloride	100	108	72-126	8	0-20	
Methyl-t-Butyl Ether (MTBE)	98	96	67-121	2	0-49	
Tert-Butyl Alcohol (TBA)	97	107	36-162	10	0-30	
Diisopropyl Ether (DIPE)	110	111	60-138	1	0-45	
Ethyl-t-Butyl Ether (ETBE)	109	109	69-123	0	0-30	
Tert-Amyl-Methyl Ether (TAME)	101	103	65-120	2	0-20	
Ethanol	89	102	30-180	13	0-72	

RPD - Relative Percent Difference , CL - Control Limit

Calscience Environmental Laboratories, Inc.

Quality Control - Spike/Spike Duplicate

Stratus Environmental, inc.		Date Received:	09/03/09
3330 Cameron Park Drive, Suite 550		Work Order No:	09-09-0263
Cameron Park, CA 95682-8861		Preparation:	EPA 5030B
		Method:	EPA 8260B

Project ARCO 2107

Quality Control Sample ID	Matrix	Instrument	Date Prepared	Date Analyzed	MS/MSD Batch Number
09-09-0016-6	**Aqueous**	**GC/MS U**	**09/05/09**	**09/05/09**	**090905S01**

Parameter	MS %REC	MSD %REC	%REC CL	RPD	RPD CL	Qualifiers
Benzene	112	112	76-124	0	0-20	
Carbon Tetrachloride	107	107	74-134	0	0-20	
Chlorobenzene	106	105	80-120	2	0-20	
1,2-Dibromoethane	109	105	80-120	3	0-20	
1,2-Dichlorobenzene	106	108	80-120	2	0-20	
1,1-Dichloroethene	109	112	73-127	2	0-20	
Ethylbenzene	114	114	78-126	0	0-20	
Toluene	113	112	80-120	1	0-20	
Trichloroethene	106	103	77-120	3	0-20	
Vinyl Chloride	105	107	72-126	2	0-20	
Methyl-t-Butyl Ether (MTBE)	104	107	67-121	2	0-49	
Tert-Butyl Alcohol (TBA)	106	106	36-162	0	0-30	
Diisopropyl Ether (DIPE)	115	117	60-138	2	0-45	
Ethyl-t-Butyl Ether (ETBE)	116	117	69-123	1	0-30	
Tert-Amyl-Methyl Ether (TAME)	112	111	65-120	1	0-20	
Ethanol	87	106	30-180	20	0-72	

RPD - Relative Percent Difference , CL - Control Limit

Calscience Environmental Laboratories, Inc.

Quality Control - LCS/LCS Duplicate

Stratus Environmental, inc.	Date Received: N/A
3330 Cameron Park Drive, Suite 550	Work Order No: 09-09-0263
Cameron Park, CA 95682-8861	Preparation: EPA 5030B
	Method: EPA 8015B (M)

Project: ARCO 2107

Quality Control Sample ID	Matrix	Instrument	Date Prepared	Date Analyzed	LCS/LCSD Batch Number
099-12-695-655	Aqueous	GC 4	09/04/09	09/04/09	090904B01

Parameter	LCS %REC	LCSD %REC	%REC CL	RPD	RPD CL	Qualifiers
Gasoline Range Organics (C6-C12)	84	88	78-120	4	0-20	

RPD - Relative Percent Difference , CL - Control Limit

Calscience Environmental Laboratories, Inc.

Quality Control - LCS/LCS Duplicate

Stratus Environmental, inc.	Date Received: N/A
3330 Cameron Park Drive, Suite 550	Work Order No: 09-09-0263
Cameron Park, CA 95682-8861	Preparation: EPA 5030B
	Method: EPA 8260B

Project: ARCO 2107

Quality Control Sample ID	Matrix	Instrument	Date Prepared	Date Analyzed	LCS/LCSD Batch Number
099-12-703-1,069	Aqueous	GC/MS U	09/04/09	09/05/09	090904L02

Parameter	LCS %REC	LCSD %REC	%REC CL	ME_CL	RPD	RPD CL	Qualifiers
Benzene	101	103	80-120	73-127	2	0-20	
Carbon Tetrachloride	92	94	74-134	64-144	3	0-20	
Chlorobenzene	100	105	80-120	73-127	4	0-20	
1,2-Dibromoethane	96	103	79-121	72-128	7	0-20	
1,2-Dichlorobenzene	101	106	80-120	73-127	5	0-20	
1,1-Dichloroethene	94	97	78-126	70-134	3	0-28	
Ethylbenzene	106	111	80-120	73-127	4	0-20	
Toluene	99	100	80-120	73-127	1	0-20	
Trichloroethene	104	112	79-127	71-135	8	0-20	
Vinyl Chloride	99	104	72-132	62-142	5	0-20	
Methyl-t-Butyl Ether (MTBE)	96	101	69-123	60-132	6	0-20	
Tert-Butyl Alcohol (TBA)	90	94	63-123	53-133	5	0-20	
Diisopropyl Ether (DIPE)	107	107	59-137	46-150	0	0-37	
Ethyl-t-Butyl Ether (ETBE)	107	109	69-123	60-132	1	0-20	
Tert-Amyl-Methyl Ether (TAME)	101	100	70-120	62-128	0	0-20	
Ethanol	72	89	28-160	6-182	21	0-57	

Total number of LCS compounds : 16
Total number of ME compounds : 0
Total number of ME compounds allowed : 1
LCS ME CL validation result : Pass

RPD - Relative Percent Difference , CL - Control Limit

Calscience Environmental Laboratories, Inc.

Quality Control - LCS/LCS Duplicate

Stratus Environmental, inc.	Date Received: N/A
3330 Cameron Park Drive, Suite 550	Work Order No: 09-09-0263
Cameron Park, CA 95682-8861	Preparation: EPA 5030B
	Method: EPA 8260B

Project: ARCO 2107

Quality Control Sample ID	Matrix	Instrument	Date Prepared	Date Analyzed	LCS/LCSD Batch Number
099-12-703-1,070	**Aqueous**	**GC/MS U**	**09/05/09**	**09/05/09**	**090905L01**

Parameter	LCS %REC	LCSD %REC	%REC CL	ME_CL	RPD	RPD CL	Qualifiers
Benzene	106	105	80-120	73-127	1	0-20	
Carbon Tetrachloride	101	102	74-134	64-144	1	0-20	
Chlorobenzene	104	105	80-120	73-127	0	0-20	
1,2-Dibromoethane	105	104	79-121	72-128	1	0-20	
1,2-Dichlorobenzene	105	104	80-120	73-127	1	0-20	
1,1-Dichloroethene	101	104	78-126	70-134	3	0-28	
Ethylbenzene	110	113	80-120	73-127	3	0-20	
Toluene	105	106	80-120	73-127	1	0-20	
Trichloroethene	101	102	79-127	71-135	1	0-20	
Vinyl Chloride	96	97	72-132	62-142	1	0-20	
Methyl-t-Butyl Ether (MTBE)	98	100	69-123	60-132	2	0-20	
Tert-Butyl Alcohol (TBA)	95	90	63-123	53-133	5	0-20	
Diisopropyl Ether (DIPE)	104	109	59-137	46-150	5	0-37	
Ethyl-t-Butyl Ether (ETBE)	103	107	69-123	60-132	4	0-20	
Tert-Amyl-Methyl Ether (TAME)	104	105	70-120	62-128	0	0-20	
Ethanol	77	89	28-160	6-182	14	0-57	

Total number of LCS compounds : 16
Total number of ME compounds : 0
Total number of ME compounds allowed : 1
LCS ME CL validation result : Pass

RPD - Relative Percent Difference , CL - Control Limit

Calscience Environmental Laboratories, Inc.

Glossary of Terms and Qualifiers

Work Order Number: 09-09-0263

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.

Work Order Number: 09-09-0263

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

Atlantic Richfield Company
A BP affiliated company

Laboratory Management Program LaMP Chain of Custody Record

BP/ARC Project Name: ARCO 2107
BP/ARC Facility No: 2107
Req Due Date (mm/dd/yy): STD - TAT
Rush TAT: Yes ___ No X
Lab Work Order Number: 09-09-0263

Lab Name: Cal Science		BP/ARC Facility Address: 3310 Park Blvd.		Consultant/Contractor: Stratus Environmental	
Lab Address: 7440 Lincoln Way		City, State, ZIP Code: Oakland, CA		Consultant/Contractor Project No: E2107-QM/O&M	
Lab PM: Richard Villafania		Lead Regulatory Agency:		Address: 3330 Cameron Park Dr., Cameron Park, CA 95682	
Lab Phone: 714-895-5494 / 714-895-7501 (fax)		California Global ID No.: T06019734306		Consultant/Contractor PM: Jay Johnson	
Lab Shipping Accnt:		Enfos Proposal No: 000TK-0003		Phone: 530-676-6000 / 530-676-6005 (fax)	
Lab Bottle Order No:		Accounting Mode: Provision X OOC-BU ___ OOC-RM ___		Email EDD To: chuff@stratusinc.net	
Other Info:		Stage: Appraise Activity: Monitor		Invoice To: BP/ARC ___ Contractor ___	
BP/ARC EBM: Paul Supple					
EBM Phone: 925-275-3506					
EBM Email: paul.supple@bp.com					

Lab No.	Sample Description	Date 2009	Time	Matrix: Soil / Solid	Matrix: Water / Liquid	Matrix: Air / Vapor	No. Containers / Preservative: Total Number of Containers	Unpreserved	H_2SO_4	HNO_3	HCl	Methanol	Requested Analyses: GRO by 8015	BTEX, 15 OXY's by 8260	EDB/1,2 DCA	Ethanol	Report Type & QC Level / Comments
1	MW-11A	9/1	0330		X		6				X		X	X	X	X	
2	11B		0150														
3	12A		0315														
4	12B		0415														
5	13A		0445				5										
6	MW-13B		0245														
7	TB-2107-09012009						2										ON Hold

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.

Sampler's Name: A. Hill	Relinquished By / Affiliation	Date	Time	Accepted By / Affiliation	Date	Time
Sampler's Company: Stratus		9/2/09	1450	CEL	9-2-09	1450
Shipment Method: GSO Ship Date: 9/2/09	to GSO	9-2-09	1730	CEL	9-3-09	1030
Shipment Tracking No: 512567776						

Special Instructions: Please cc results to bpedf@broadbentinc.com

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

Calscience Environmental Laboratories, Inc.

WORK ORDER #: 09-09-0213

SAMPLE RECEIPT FORM

Cooler 1 of 1

CLIENT: STratus

DATE: 09/03/09

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

Temperature 3.0 °C - 0.2 °C (CF) = 2.8 °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: YL

CUSTODY SEALS INTACT:

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

☐ 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.			
☐ COC not relinquished. ☐ No date relinquished. ☐ No time relinquished.			
Sampler's name indicated on COC	☑	☐	☐
Sample container label(s) consistent with COC	☑	☐	☐
Sample container(s) intact and good condition	☑	☐	☐
Correct containers and volume for analyses requested	☑	☐	☐
Analyses received within holding time	☑	☐	☐
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 ☐6☐8ozCGJ ☐16ozCGJ ☐Sleeve ☐EnCores® ☐TerraCores® ☐_____

Water: ☐VOA ☑VOAh ☐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:** ☐_____ Checked/Labeled by: WSC

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

Preservative: h: HCL n: HNO3 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

ATTACHMENT

FIELD PROCEDURES FOR GROUNDWATER SAMPLING

The sampling procedures for groundwater monitoring events are contained in this appendix.

Groundwater and Liquid-Phase Petroleum Hydrocarbon Depth Assessment

Prior to measuring the depth to liquid in the well, the well caps are removed and the liquid level allowed to stabilize. A water/hydrocarbon interface probe is used to assess the liquid-phase petroleum hydrocarbon (LPH) thickness, if present, and a water level indicator is used to measure the groundwater depth in monitoring wells that do not contain LPH. Depth to groundwater or LPH is measured from a datum point at the top of each monitoring well casing. The datum point is typically a notch cut in the north side of the casing edge. If a water level indicator is used, the tip is subjectively analyzed for hydrocarbon sheen.

Subjective Analysis of Groundwater

Prior to purging, a water sample is collected from the monitoring well for subjective assessment. The sample is retrieved by gently lowering a clean, disposable bailer to approximately one-half the bailer length past the air/liquid interface. The bailer is then retrieved, and the sample contained within the bailer is examined for floating LPH and the appearance of a LPH sheen.

Monitoring Well Sampling

In many cases, determining whether to purge or not to purge wells prior to sample collection is made in the field and is often based on depth to water relative to the screen interval of the well. Site-specific field data sheets present details associated with the purge method and equipment used.

Monitoring wells, when purged, use a pump or bailer until pH, temperature, and conductivity of the purge water has stabilized and a minimum of three well volumes of water has been removed. Field measuring equipment is calibrated and maintained according to the manufacturer's instructions. If three well volumes cannot be removed in one half hour's time the well is allowed to recharge to 80% of original level. After recharging, a groundwater sample is then collected from each of the wells using disposable bailers.

A Teflon bailer, electric submersible or bladder pump will be the only equipment used for well sampling. When samples for volatile organic analysis are being collected, the pump flow will be regulated at approximately 100 milliliters per minute to minimize pump effluent turbulence and aeration. Glass bottles of at least 40-milliliters volume and fitted with Teflon-lined septa will be used in sampling for volatile organics. These

bottles will be filled completely to prevent air accumulation in the bottle. A positive meniscus forms when the bottle is completely full. A convex Teflon septum will be placed over the positive meniscus to eliminate air. After the bottle is capped, it is inverted and tapped to verify that it contains no air bubbles. The sample containers for other parameters will be filled, filtered as required, and capped. Glass and plastic bottles used by Stratus to collect groundwater samples are supplied by the laboratory.

Groundwater Sample Labeling and Preservation

Samples are collected in appropriate containers supplied by the laboratory. All required chemical preservation is added to the bottles prior to delivery to Stratus. Sample label information includes a unique sample identification number, job identification number, date, and time. After labeling, all groundwater samples are placed in a Ziploc® type bag and placed in an ice chest cooled to approximately 4° Celsius. Upon arriving at Stratus' office the samples are transferred to a locked refrigerator cooled to approximately 4° Celsius. Chemical preservation is controlled by the required analysis and is noted on the chain-of-custody form. Trip and temperature blanks supplied by the laboratory accompany the groundwater sample containers and groundwater samples.

Sample Identification and Chain-of-Custody Procedures

Sample identification and chain-of-custody procedures document sample possession from the time of collection to ultimate disposal. Each sample container submitted for analysis has a label affixed to identify the job number, sampler, date and time of sample collection, and a sample number unique to that sample. This information, in addition to a description of the sample, field measurements made, sampling methodology, names of on-site personnel, and any other pertinent field observations, is recorded in the field records. The samples are analyzed by a California-certified laboratory.

A chain-of-custody form is used to record possession of the sample from time of collection to its arrival at the laboratory. When the samples are shipped, the person in custody of them relinquishes the samples by signing the chain-of-custody form and noting the time. The sample-control officer at the laboratory verifies sample integrity and confirms that the samples are collected in the proper containers, preserved correctly, and contain adequate volumes for analysis. These conditions are noted on a Laboratory Sample Receipt Checklist that becomes part of the laboratory report upon request.

If these conditions are met, each sample is assigned a unique log number for identification throughout analysis and reporting. The log number is recorded on the chain-of-custody form and in the legally-required log book maintained by the laboratory. The sample description, date received, client's name, and other relevant information is also recorded.

Equipment Cleaning

All reusable sampling equipments are cleaned using phosphate-free detergents and rinsed with de-ionized water.

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:	**3Q09 GEO_WELL 2107**
Facility Global ID:	**T06019734306**
Facility Name:	**ARCO #2107**
File Name:	**GEO_WELL.zip**
Organization Name:	**Broadbent & Associates, Inc.**
Username:	**BROADBENT-C**
IP Address:	**67.118.40.90**
Submittal Date/Time:	**9/24/2009 9:52:02 AM**
Confirmation Number:	**4876183629**

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:	**3Q09 GW Monitoring**
Facility Global ID:	**T06019734306**
Facility Name:	**ARCO #2107**
File Name:	**09090263.zip**
Organization Name:	**Broadbent & Associates, Inc.**
Username:	**BROADBENT-C**
IP Address:	**67.118.40.90**
Submittal Date/Time:	**9/24/2009 9:53:56 AM**
Confirmation Number:	**4736757576**

VIEW QC REPORT

VIEW DETECTIONS REPORT