Atlantic Richfield Company

Chuck Carmel
Remediation Management Project Manager

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San Ramon, CA 94583
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29 October 2010

Re: Third Quarter 2010 Ground-Water Monitoring Report
Former Richfield Oil Company Station #472
6415 International Boulevard, Oakland, California
ACEH Case #RO0002982

"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
Remediation Management Project Manager

Attachment:

Third Quarter 2010
Ground-Water Monitoring Report
Former Richfield Oil Company Service Station #472
6415 International Boulevard, Oakland, California
ACEH Case #RO0002982

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

29 October 2010

Project No. 09-88-601

Broadbent & Associates, Inc.
1324 Mangrove Ave., Suite 212
Chico, CA 95926
Voice (530) 566-1400
Fax (530) 566-1401

BROADBENT & ASSOCIATES, INC
ENVIRONMENTAL, WATER RESOURCES & ENGINEERING

29 October 2010

Project No. 09-88-601

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

Attn.: Mr. Chuck Carmel

Re: Third Quarter 2010 Ground-Water Monitoring Report, Former Richfield Oil Company Service Station #472, 6415 International Boulevard, Oakland, California; ACEH Case #RO0002982

Dear Mr. Carmel:

Provided herein is the *Third Quarter 2010 Ground-Water Monitoring Report* for Former Richfield Oil Company Service Station #472 (aka Plucky's Liquors) located at 6415 International Boulevard, Oakland, Alameda County, California (Site). This report presents results of the ground-water monitoring conducted at the Site during the Third Quarter of 2010.

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 #472 GROUND-WATER MONITORING REPORT

Facility: #472 Address:	6415 International Boulevard, Oakland, California
Environmental Business Manager:	Mr. Chuck Carmel
Consulting Co./Contact Person:	Broadbent & Associates, Inc.(BAI)/Mr. Tom Venus, PE (530) 566-1400
Consultant Project No.:	09-88-601
Primary Agency/Regulatory ID No.:	Alameda County Environmental Health (ACEH) ACEH Case #RO0002982
Facility Permits/Permitting Agency:	NA

WORK PERFORMED THIS QUARTER (Third Quarter 2010):

1. Prepared and submitted *Second Quarter 20109 Ground-Water Monitoring Report* (BAI, 7/30/2010).
2. Conducted ground-water monitoring/sampling for Third Quarter 2010. Work performed on 3 September 2010 by Broadbent & Associates, Inc. (BAI).

WORK PROPOSED FOR NEXT QUARTER (Fourth Quarter 2010):

1. Prepare and submit *Third Quarter 2010 Ground-Water Monitoring Report* (contained herein).
2. In accordance with the reasons presented within the last three quarterly monitoring reports, no environmental field work is presently scheduled for Fourth Quarter 2010.

QUARTERLY RESULTS SUMMARY:

Current phase of project:	**Ground-water monitoring/sampling**
Frequency of ground-water monitoring:	**Semi-Annually (1Q & 3Q): MW-1, MW-2, and MW-3**
Frequency of ground-water sampling:	**Semi-Annually (1Q & 3Q): MW-1, MW-2, and MW-3**
Is free product (FP) present on-site:	**No**
Current remediation techniques:	**NA**
Depth to ground water (below TOC):	**8.41 ft (MW-3) to 8.99 ft (MW-1)**
General ground-water flow direction:	**North-Northwest**
Approximate hydraulic gradient:	**0.015 ft/ft**

DISCUSSION:

Third Quarter 2010 semi-annual ground-water monitoring and sampling was conducted at Station #472 on 3 September 2010 by BAI. Water levels were gauged in each of the three wells at the Site. No irregularities were noted during water level gauging. Depth-to-water measurements ranged from 8.41 ft at MW-3 to 8.99 ft at MW-1. Resulting ground-water surface elevations ranged from 16.32 ft above datum in well MW-3 to 14.83 ft in well MW-2. Water level elevations are summarized in Table 1. Water level elevations yielded a shallow potentiometric ground-water flow direction and gradient to the north-northwest at approximately 0.015 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.

Consistent with the current ground-water sampling schedule, water samples were collected from wells MW-1, MW-2, and MW-3 on 3 September 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) and Diesel Range Organics (DRO, C10-C28) by EPA Method 8015B; for Benzene, Toluene, Ethylbenzene, Total Xylenes (BTEX), 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. For samples MW-1 and MW-3, the laboratory noted the quantitation of an unknown hydrocarbon(s) in the samples based on both the gasoline and diesel standards. No other significant irregularities were encountered during laboratory analysis of the samples. Ground-water sampling field data sheets and the laboratory analytical report, including chain-of-custody documentation, are provided in Appendix A.

The laboratory noted that hydrocarbons in the GRO range (including hydrocarbons not representative of the GRO reference standard) were detected above the laboratory reporting limit in two wells sampled this quarter at a concentrations of 1,000 micrograms per liter (µg/L) in MW-1 and 200 µg/L in MW-3. Also unknown hydrocarbons in the DRO range (including hydrocarbons not representative of the DRO standard) were detected above the laboratory reporting limit in two wells sampled at concentrations of 190 µg/L in MW-1 and 140 µg/L in MW-3. The remaining analytes were not detected above their laboratory reporting limits in the three wells sampled this quarter. Ground-water monitoring laboratory analytical results are summarized in Table 1 and Table 2. The most recent GRO, Benzene, and MTBE concentrations are also reported 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:

Ground-water elevations, flow direction, and hydraulic gradient were generally consistent through the four previous quarters of monitoring conducted at the Site (Third Quarter 2009 through Second Quarter 2010). Third Quarter 2010 monitoring revealed an anomalously elevated ground-water elevation in well MW-3. Historically, the ground-water elevations have fluctuated in the same same direction (i.e. up or down) during each monitoring event, and by approximately the same amount or at least the same magnitude of difference. However, during the Third Quarter 2010 monitoring event, as MW-1 and MW-2 ground-water elevations dropped (1.38 ft and 1.68 ft respectively) compared to Second Quarter 2010 monitoring results, the ground-water elevation of well MW-3 actually increased 0.23 ft. This resulted in the sharp apparent change in direction and magnitude in the calculated flow direction and gradient. The reason(s) for these changes this quarter cannot be conclusively determined at this time. However, it might be noteworthy that during the Third Quarter 2010 monitoring event, the BAI sampling team encountered what appeared to be a squatter's encampment in this southern area of the property. When contacted about this observation, Ms. Jaleesa Hazzard (who BP has the access agreement with), notified BAI that she had sold the property back on 7 January 2010. Unfortunately, neither BP nor BAI were notified of this change in ownership. The Alameda County Assessor's Office informed BAI that the property is currently owned by International Estates LLC, located at 6207 International Boulevard in Oakland. On behalf of BP, BAI is presently attempting to secure an access agreement to the Site for further work, if necessary.

In the meantime, consistent with the State Water Resources Board Resolution #2009-0042 and recommendations within the last three monitoring reports, subsequent gauging and sampling activities have been modified from a quarterly to a semi-annual schedule, beginning with this Third Quarter 2010 report. The next ground-water monitoring event is scheduled to occur during the First Quarter 2011. BAI awaits a response from ACEH regarding closure for this case as proposed in the *Second Quarter 2010 Ground-Water Monitoring Report* (BAI, 7/30/2010).

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. (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 #472, 6415 International Boulevard, Oakland, California

Drawing 2. Ground-Water Elevation Contour and Analytical Summary Map, 3 September 2010, Station #472, 6415 International Boulevard, Oakland, California

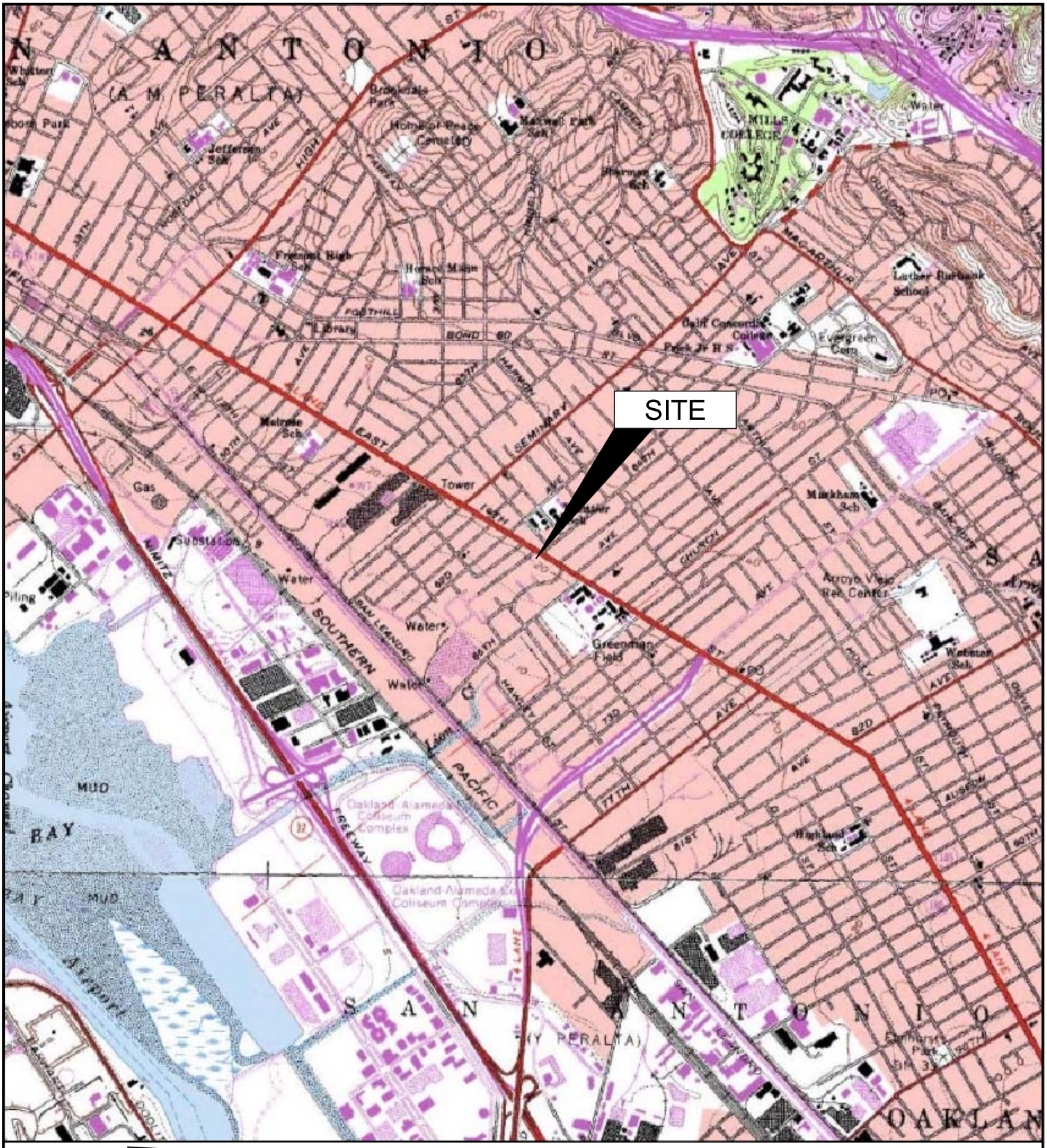
Table 1. Summary of Ground-Water Monitoring Data: Relative Water Elevations and Laboratory Analyses, Station #472, 6415 International Blvd., Oakland, California

Table 2. Summary of Fuel Additives Analytical Data, Station #472, 6415 International Blvd., Oakland, California

Table 3. Historical Ground-Water Flow Direction and Gradient, Station #472, 6415 International Blvd., Oakland, California

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

Appendix B. GeoTracker Upload Confirmation Receipts



N

0 2000 4000

APPROXIMATE SCALE (ft)

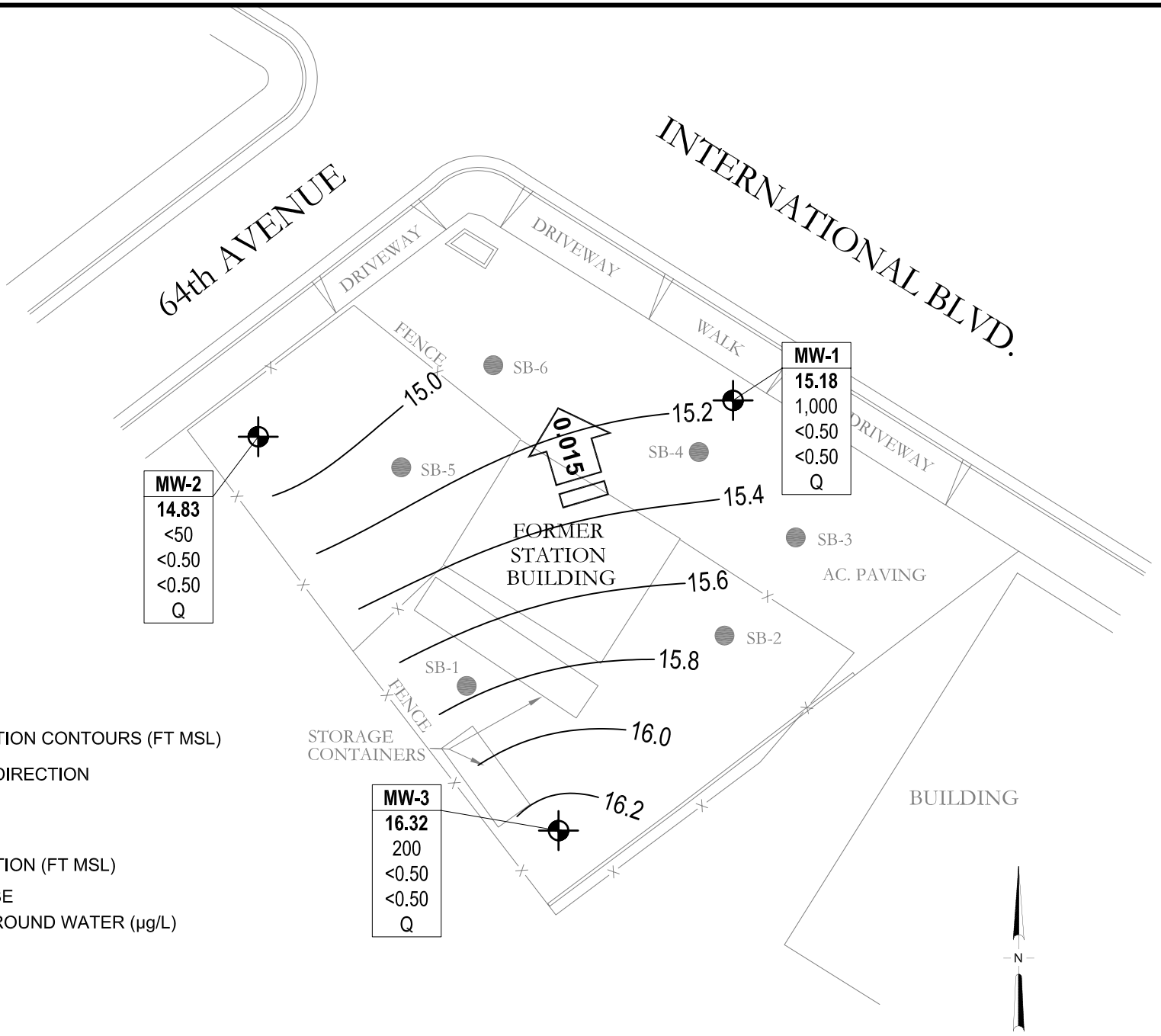
IMAGE SOURCE: USGS

BROADBENT & ASSOCIATES, INC.
ENGINEERING, WATER RESOURCES & ENVIRONMENTAL
1324 Mangrove Ave. Suite 212, Chico, CA 95926
Project No.: 09-88-601 Date: 07/31/09

Former Station #472
6415 International Boulevard
Oakland, California

Site Location Map

Drawing
1



LEGEND

- MONITORING WELL
- SOIL BORING
- 16.5 — GROUND-WATER ELEVATION CONTOURS (FT MSL)
- 0.015 — GROUND-WATER FLOW DIRECTION AND GRADIENT (FT/FT)

Well	WELL DESIGNATION
ELEV	GROUND-WATER ELEVATION (FT MSL)
GRO	GRO, BENZENE AND MTBE CONCENTRATIONS IN GROUND WATER (µg/L)
Benzene	
MTBE	
Q/SA/A	SAMPLING FREQUENCY

Q — SAMPLED QUARTERLY

0 30 60
SCALE (ft)

BROADBENT & ASSOCIATES, INC.
ENGINEERING, WATER RESOURCES & ENVIRONMENTAL
1324 Mangrove Ave. Suite 212, Chico, California
Project No.: 09-88-601 Date: 9/23/2010

Former Station #472
6415 International Boulevard
Oakland, California

Ground-Water Elevation Contour and Analytical Summary Map
3 September 2010

Drawing
2

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

ARCO Service Station #472, 6415 International Boulevard, Oakland, CA

Well and Sample Date	P/NP	Footnote	TOC Elevation (feet)	DTW (feet)	Product Thickness (feet)	Water Level Elevation (feet)	Concentrations in (µg/L)						DO (mg/L)	Lab	pH	DRO/ TPHd (µg/L)	TOG (µg/L)
							GRO/ TPHg	Benzene	Toluene	Ethyl-Benzene	Total Xylenes	MtBE					
MW-1																	
8/25/2009	P	LX (DRO)	24.17	9.29	--	14.88	530	<0.50	<0.50	<0.50	<0.50	0.54	--	CEL	7.21	190	--
11/11/2009	NP		24.17	8.22	--	15.95	<50	<0.50	<0.50	<0.50	<0.50	<0.50	--	CEL	--	--	--
2/17/2010	NP	LX (DRO)	24.17	7.36	--	16.81	<50	<0.50	<0.50	<0.50	<0.50	<0.50	1.69	CEL	7.03	70	--
6/2/2010	NP	LW (GRO), LX (DRO)	24.17	7.61	--	16.56	110	<0.50	<0.50	<0.50	<0.50	<0.50	1.21	CEL	7.0	120	--
9/3/2010	**NP**	**LW (GRO), LX (DRO)**	**24.17**	**8.99**	**--**	**15.18**	**1,000**	**<0.50**	**<0.50**	**<0.50**	**<0.50**	**<0.50**	**0.74**	**CEL**	**7.30**	**190**	**--**
MW-2																	
8/25/2009	P		23.62	9.65	--	13.97	<50	<0.50	<0.50	<0.50	<0.50	<0.50	--	CEL	7.30	<50	--
11/11/2009	NP		23.62	8.09	--	15.53	<50	<0.50	<0.50	<0.50	<0.50	<0.50	--	CEL	--	--	--
2/17/2010	P		23.62	6.80	--	16.82	<50	<0.50	<0.50	<0.50	<0.50	<0.50	2.62	CEL	7.15	<50	--
6/2/2010	NP	LX (DRO)	23.62	7.11	--	16.51	<50	<0.50	<0.50	<0.50	<0.50	<0.50	2.85	CEL	7.3	65	--
9/3/2010	**NP**		**23.62**	**8.79**	**--**	**14.83**	**<50**	**<0.50**	**<0.50**	**<0.50**	**<0.50**	**<0.50**	**1.19**	**CEL**	**7.90**	**<50**	**--**
MW-3																	
8/25/2009	P		24.73	11.07	--	13.66	63	<0.50	1.2	<0.50	<0.50	<0.50	--	CEL	7.09	85	--
11/11/2009	NP	LW (GRO)	24.73	9.56	--	15.17	88	<0.50	<0.50	<0.50	<0.50	<0.50	--	CEL	--	--	--
2/17/2010	NP		24.73	8.52	--	16.21	<50	<0.50	<0.50	<0.50	<0.50	<0.50	2.04	CEL	7.09	<50	--
6/2/2010	NP	LW (GRO), LX (DRO)	24.73	8.64	--	16.09	100	<0.50	<0.50	<0.50	<0.50	<0.50	1.22	CEL	7.1	130	--
9/3/2010	**NP**	**LW (GRO), LX (DRO)**	**24.73**	**8.41**	**--**	**16.32**	**200**	**<0.50**	**<0.50**	**<0.50**	**<0.50**	**<0.50**	**0.87**	**CEL**	**6.9**	**140**	**--**

ABBREVIATIONS & SYMBOLS:
--/--- = Not analyzed/applicable/measured/available
< = Not detected at or above specified laboratory reporting limit
DO = Dissolved oxygen
DRO = Diesel range organics
DTW = Depth to water in ft bgs
GRO = Gasoline range organics, range C4-C12
GWE = Groundwater elevation measured in ft
HVOC = Halogenated volatile organic compounds
mg/L = Milligrams per liter
MTBE = Methyl tert-butyl ether
NP = Well not purged prior to sampling
P = Well purged prior to sampling
TOC = Top of casing measured in ft
TOG = Total oil and grease
TPH-d = Total petroleum hydrocarbons as diesel
TPH-g = Total petroleum hydrocarbons as gasoline
µg/L = Micrograms per liter
CEL = CalScience Environmental Laboratories, Inc.

FOOTNOTES:
LW = Quantitation of unknown hydrocarbon(s) in sample based on gasoline.
LX = Quantitation of unknown hydrocarbon(s) in sample based on diesel.

Table 2. Summary of Fuel Additives Analytical Data

ARCO Service Station #472, 6415 International Boulevard, Oakland, CA

Well and Sample Date	Concentrations in (µg/L)								Comments
	Ethanol	TBA	MTBE	DIPE	ETBE	TAME	1,2-DCA	EDB	
MW-1									
8/25/2009	<300	<10	0.54	<0.50	<0.50	<0.50	<0.50	<0.50	
11/11/2009	<300	<10	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	
2/17/2010	<300	<10	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	
6/2/2010	<50	<10	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	0.72 µg/L sec-Butylbenzene, 1.4 µg/L tert-Butylbenzene
9/3/2010	**<300**	**<10**	**<0.50**	**<0.50**	**<0.50**	**<0.50**	**<0.50**	**<0.50**	
MW-2									
8/25/2009	<300	<10	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	
11/11/2009	<300	<10	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	
2/17/2010	<300	<10	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	
6/2/2010	<50	<10	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	
9/3/2010	**<300**	**<10**	**<0.50**	**<0.50**	**<0.50**	**<0.50**	**<0.50**	**<0.50**	
MW-3									
8/25/2009	<300	<10	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	
11/11/2009	<300	<10	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	
2/17/2010	<300	<20	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	
6/2/2010	<50	<10	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	
9/3/2010	**<300**	**<10**	**<0.50**	**<0.50**	**<0.50**	**<0.50**	**<0.50**	**<0.50**	

ABBREVIATIONS & SYMBOLS:
-- = Not analyzed/applicable/measured/available
< = 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

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

Table 3. Historical Ground-Water Flow Direction and Gradient

ARCO Service Station #472, 6415 International Boulevard, Oakland, CA

Date Sampled	Approximate Flow Direction	Approximate Hydraulic Gradient
8/25/2009	Southwest	0.01
11/11/2009	South-Southwest	0.008
2/17/2010	South	0.006
6/2/2010	South	0.003
9/3/2010	**North-Northwest**	**0.015**

APPENDIX A

BAI GROUND-WATER SAMPLING DATA PACKAGE
(Includes Field Data Sheets, Laboratory Analytical Report with Chain-Of-Custody Documentation, and Field Procedures)

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

FIELD DATA REPORT

DATE: 9/3/10
PERSONNEL: SB + FP
WEATHER: Sunny/clear

PROJECT NO.: 472
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	1140	TOC	8.99									NP
MW-2	1137	↓	8.79									NP
MW-3	1141	↓	8.41									NP

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: 477 Project #: 09-58-601
Sampler's Name: SB & IS 12 Date: 9/3/10
Purging Equipment: —
Sampling Equipment: bailer
Casing Type: PVC
Casing Diameter: 4 inch
Total Well Depth: _____ feet
Depth to Water: - 8.99 feet
Water Column Thickness: = _____ feet
Unit Casing Volume*: x _____ gallon / foot
Casing Water Volume: = _____ gallons
Casing Volume: x 3 each
Estimated Purge Volume: = _____ 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	1150	8.94	216		654.1	75.6	7.30	
		X	X	X				
		X	X	X				
		X	X	X				
		X	X	X				
		X	X	X				
		X	X	X				
		X	X	X				

Total Water Volume Purged: — gallons
Depth to Water at Sample Collection: — feet
Sample Collection Time: 1150 Purged Dry? (Y / (N))

Comments: no purge

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

Groundwater Sampling Data Sheet

Well I.D.: MW-2
Project Name/Location: 472 Project #: 09-88-607
Sampler's Name: SB & ISF Date: 9/3/10
Purging Equipment: —
Sampling Equipment: bailer
Casing Type: PVC
Casing Diameter: 4 inch
Total Well Depth: _____ feet
Depth to Water: - 8.79 feet
Water Column Thickness: = _____ feet
Unit Casing Volume*: x _____ gallon / foot
Casing Water Volume: = _____ gallons
Casing Volume: x 3 each
Estimated Purge Volume: = _____ 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	1155	1.09	182		511.5	76.1	7.90	
		X	X	X				
		X	X	X				
		X	X	X				
		X	X	X				
		X	X	X				
		X	X	X				
		X	X	X				

Total Water Volume Purged: ~ gallons
Depth to Water at Sample Collection: ~ feet
Sample Collection Time: 1155 Purged Dry? (Y / (N))

Comments: No Purge

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

Groundwater Sampling Data Sheet

Well I.D.: MW-3
Project Name/Location: 472 Project #: 09-88-601
Sampler's Name: SB & ESP Date: 9/3/10
Purging Equipment:
Sampling Equipment: Bailer
Casing Type: PVC
Casing Diameter: 4 inch
Total Well Depth: ____ feet
Depth to Water: - 8.41 feet
Water Column Thickness: = ____ feet
Unit Casing Volume*: x ____ gallon / foot
Casing Water Volume: = ____ gallons
Casing Volume: x 3 each
Estimated Purge Volume: = ____ 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	1159	0.87	222	—	973.8	72.4	6.9	
		X	X	X				
		X	X	X				
		X	X	X				
		X	X	X				
		X	X	X				
		X	X	X				
		X	X	X				

Total Water Volume Purged: ____ gallons
Depth to Water at Sample Collection: ____ feet
Sample Collection Time: 1200 Purged Dry? (Y / (N))

Comments: NO purge

Calscience
Environmental
Laboratories, Inc.

September 23, 2010

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

Subject: **Calscience Work Order No.: 10-09-0601**
Client Reference: ARCO 472

Dear Client:

Enclosed is an analytical report for the above-referenced project. The samples included in this report were received 9/9/2010 and analyzed in accordance with the attached chain-of-custody.

Calscience Environmental Laboratories certifies that the test results provided in this report meet all NELAC requirements for parameters for which accreditation is required or available. Any exceptions to NELAC requirements are noted in the case narrative. The original report of subcontracted analysis, if any, is provided herein, and follows the standard Calscience data package. The results in this analytical report are limited to the samples tested and any reproduction thereof must be made in its entirety.

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

Sincerely,

Calscience Environmental
Laboratories, Inc.
Richard Villafania
Project Manager

Calscience Environmental Laboratories, Inc.

Analytical Report

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

Date Received: 09/09/10
Work Order No: 10-09-0601
Preparation: EPA 3510C
Method: EPA 8015B (M)

Project: ARCO 472

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
MW-1	**10-09-0601-1-G**	**09/03/10 11:50**	**Aqueous**	**GC 46**	**09/10/10**	**09/16/10 20:20**	**100910B25**

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

Parameter	Result	RL	DF	Qual	Units
Diesel Range Organics (C10-C28)	190	50	1		ug/L

Surrogates:	REC (%)	Control Limits	Qual
Decachlorobiphenyl	98	68-140	

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
MW-2	**10-09-0601-2-G**	**09/03/10 11:55**	**Aqueous**	**GC 46**	**09/10/10**	**09/16/10 20:35**	**100910B25**

Parameter	Result	RL	DF	Qual	Units
Diesel Range Organics (C10-C28)	ND	50	1		ug/L

Surrogates:	REC (%)	Control Limits	Qual
Decachlorobiphenyl	89	68-140	

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
MW-3	**10-09-0601-3-G**	**09/03/10 12:00**	**Aqueous**	**GC 46**	**09/10/10**	**09/16/10 20:50**	**100910B25**

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

Parameter	Result	RL	DF	Qual	Units
Diesel Range Organics (C10-C28)	140	50	1		ug/L

Surrogates:	REC (%)	Control Limits	Qual
Decachlorobiphenyl	71	68-140	

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
Method Blank	**099-12-699-233**	**N/A**	**Aqueous**	**GC 46**	**09/10/10**	**09/16/10 19:34**	**100910B25**

Parameter	Result	RL	DF	Qual	Units
Diesel Range Organics (C10-C28)	ND	50	1		ug/L

Surrogates:	REC (%)	Control Limits	Qual
Decachlorobiphenyl	97	68-140	

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: 09/09/10
Work Order No: 10-09-0601
Preparation: EPA 5030B
Method: EPA 8015B (M)

Project: ARCO 472

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
MW-1	**10-09-0601-1-E**	**09/03/10 11:50**	**Aqueous**	**GC 4**	**09/10/10**	**09/10/10 12:19**	**100910B01**

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

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

Surrogates:	REC (%)	Control Limits	Qual
1,4-Bromofluorobenzene	125	38-134	

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
MW-2	**10-09-0601-2-E**	**09/03/10 11:55**	**Aqueous**	**GC 4**	**09/10/10**	**09/10/10 14:28**	**100910B01**

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

Surrogates:	REC (%)	Control Limits	Qual
1,4-Bromofluorobenzene	83	38-134	

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
MW-3	**10-09-0601-3-E**	**09/03/10 12:00**	**Aqueous**	**GC 4**	**09/10/10**	**09/10/10 15:00**	**100910B01**

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

Parameter	Result	RL	DF	Qual	Units
Gasoline Range Organics (C6-C12)	200	50	1		ug/L

Surrogates:	REC (%)	Control Limits	Qual
1,4-Bromofluorobenzene	90	38-134	

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
Method Blank	**099-12-695-901**	**N/A**	**Aqueous**	**GC 4**	**09/10/10**	**09/10/10 10:42**	**100910B01**

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

Surrogates:	REC (%)	Control Limits	Qual
1,4-Bromofluorobenzene	84	38-134	

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

Calscience Environmental Laboratories, Inc.

Analytical Report

Broadbent & Associates, Inc.		Date Received:	09/09/10
1324 Mangrove Ave, Ste 212		Work Order No:	10-09-0601
Chico, CA 95926-2642		Preparation:	EPA 5030C
		Method:	EPA 8260C
		Units:	ug/L

Project: ARCO 472

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
MW-1	**10-09-0601-1-A**	**09/03/10 11:50**	**Aqueous**	**GC/MS BB**	**09/17/10**	**09/17/10 16:41**	**100917L01**

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	94	80-128			Dibromofluoromethane	100	80-127		
Toluene-d8	101	80-120			1,4-Bromofluorobenzene	106	68-120		

MW-2	**10-09-0601-2-A**	**09/03/10 11:55**	**Aqueous**	**GC/MS BB**	**09/17/10**	**09/17/10 17:09**	**100917L01**

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	105	80-128			Dibromofluoromethane	105	80-127		
Toluene-d8	99	80-120			1,4-Bromofluorobenzene	97	68-120		

MW-3	**10-09-0601-3-A**	**09/03/10 12:00**	**Aqueous**	**GC/MS BB**	**09/17/10**	**09/17/10 17:38**	**100917L01**

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	105	80-128			Dibromofluoromethane	101	80-127		
Toluene-d8	99	80-120			1,4-Bromofluorobenzene	95	68-120		

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

Calscience Environmental Laboratories, Inc.

Analytical Report

Broadbent & Associates, Inc.	Date Received:	09/09/10
1324 Mangrove Ave, Ste 212	Work Order No:	10-09-0601
Chico, CA 95926-2642	Preparation:	EPA 5030C
	Method:	EPA 8260C
	Units:	ug/L

Project: ARCO 472

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
Method Blank	**099-14-122-2**	**N/A**	**Aqueous**	**GC/MS BB**	**09/17/10**	**09/17/10 14:05**	**100917L01**

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	106	80-128			Dibromofluoromethane	103	80-127		
Toluene-d8	99	80-120			1,4-Bromofluorobenzene	97	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: 09/09/10
Work Order No: 10-09-0601
Preparation: EPA 5030B
Method: EPA 8015B (M)

Project ARCO 472

Quality Control Sample ID	Matrix	Instrument	Date Prepared	Date Analyzed	MS/MSD Batch Number
MW-1	**Aqueous**	**GC 4**	**09/10/10**	**09/10/10**	**100910S01**

Parameter	MS %REC	MSD %REC	%REC CL	RPD	RPD CL	Qualifiers
Gasoline Range Organics (C6-C12)	84	86	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: 09/09/10
Work Order No: 10-09-0601
Preparation: EPA 5030C
Method: EPA 8260C

Project ARCO 472

Quality Control Sample ID	Matrix	Instrument	Date Prepared	Date Analyzed	MS/MSD Batch Number
10-09-0476-2	**Aqueous**	**GC/MS BB**	**09/17/10**	**09/17/10**	**100917S01**

Parameter	MS %REC	MSD %REC	%REC CL	RPD	RPD CL	Qualifiers
Benzene	104	103	76-124	1	0-20	
Carbon Tetrachloride	109	110	74-134	1	0-20	
Chlorobenzene	103	103	80-120	0	0-20	
1,2-Dibromoethane	102	103	80-120	1	0-20	
1,2-Dichlorobenzene	98	98	80-120	0	0-20	
1,2-Dichloroethane	107	108	80-120	1	0-20	
Ethylbenzene	107	106	78-126	1	0-20	
Toluene	106	104	80-120	2	0-20	
Trichloroethene	104	103	77-120	1	0-20	
Methyl-t-Butyl Ether (MTBE)	105	113	67-121	6	0-49	
Tert-Butyl Alcohol (TBA)	106	104	36-162	2	0-30	
Diisopropyl Ether (DIPE)	103	107	60-138	4	0-45	
Ethyl-t-Butyl Ether (ETBE)	101	106	69-123	5	0-30	
Tert-Amyl-Methyl Ether (TAME)	101	102	65-120	1	0-20	
Ethanol	186	164	30-180	13	0-72	LM,AY

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: 10-09-0601
Preparation: EPA 3510C
Method: EPA 8015B (M)

Project: ARCO 472

Quality Control Sample ID	Matrix	Instrument	Date Prepared	Date Analyzed	LCS/LCSD Batch Number
099-12-699-233	**Aqueous**	**GC 46**	**09/10/10**	**09/16/10**	**100910B25**

Parameter	LCS %REC	LCSD %REC	%REC CL	RPD	RPD CL	Qualifiers
Diesel Range Organics (C10-C28)	92	97	75-117	5	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: 10-09-0601
Preparation: EPA 5030B
Method: EPA 8015B (M)

Project: ARCO 472

Quality Control Sample ID	Matrix	Instrument	Date Prepared	Date Analyzed	LCS/LCSD Batch Number
099-12-695-901	**Aqueous**	**GC 4**	**09/10/10**	**09/10/10**	**100910B01**

Parameter	LCS %REC	LCSD %REC	%REC CL	RPD	RPD CL	Qualifiers
Gasoline Range Organics (C6-C12)	97	99	78-120	1	0-20	

RPD - Relative Percent Difference , CL - Control Limit

Calscience Environmental Laboratories, Inc.

Quality Control - LCS/LCS Duplicate

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

Date Received: N/A
Work Order No: 10-09-0601
Preparation: EPA 5030C
Method: EPA 8260C

Project: ARCO 472

Quality Control Sample ID	Matrix	Instrument	Date Prepared	Date Analyzed	LCS/LCSD Batch Number
099-14-122-2	**Aqueous**	**GC/MS BB**	**09/17/10**	**09/17/10**	**100917L01**

Parameter	LCS %REC	LCSD %REC	%REC CL	ME_CL	RPD	RPD CL	Qualifiers
Benzene	106	107	80-120	73-127	0	0-20	
Carbon Tetrachloride	113	114	74-134	64-144	0	0-20	
Chlorobenzene	108	107	80-120	73-127	0	0-20	
1,2-Dibromoethane	106	101	79-121	72-128	5	0-20	
1,2-Dichlorobenzene	103	104	80-120	73-127	1	0-20	
1,2-Dichloroethane	109	109	80-120	73-127	0	0-20	
Ethylbenzene	108	111	80-120	73-127	3	0-20	
Toluene	107	109	80-120	73-127	2	0-20	
Trichloroethene	107	109	79-127	71-135	2	0-20	
Methyl-t-Butyl Ether (MTBE)	103	106	69-123	60-132	3	0-20	
Tert-Butyl Alcohol (TBA)	119	115	63-123	53-133	3	0-20	
Diisopropyl Ether (DIPE)	106	110	59-137	46-150	4	0-37	
Ethyl-t-Butyl Ether (ETBE)	105	108	69-123	60-132	3	0-20	
Tert-Amyl-Methyl Ether (TAME)	102	104	70-120	62-128	1	0-20	
Ethanol	114	133	28-160	6-182	15	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: 10-09-0601

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: 10-09-0601

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

0601

Page 1 of 1

BP/ARC Project Name: ARCO 472
BP/ARC Facility No: 472
Req Due Date (mm/dd/yy): STD-TAT
Rush TAT: Yes ___ No X
Lab Work Order Number:

Lab Name: Cal Science	BP/ARC Facility Address: 6415 International Boulevard	Consultant/Contractor: Broadbent & Associates, Inc.
Lab Address: 7440 Lincoln Way	City, State, ZIP Code: Oakland, CA 94621	Consultant/Contractor Project No: 09-88-601-1-813
Lab PM: Richard Villafania	Lead Regulatory Agency: ACEH	Address: 1324 Mangrove Ave. Ste. 212, Chico, CA 95926
Lab Phone: 714-895-5494 / 714-895-7501 (fax)	California Global ID No.: T10000000417	Consultant/Contractor PM: Tom Venus
Lab Shipping Accnt: 9255	Enfos Proposal No: 004L0-0003	Phone: 530-566-1400 / 530-566-1401 (fax)
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 (813)	Invoice To: BP/ARC X Contractor ___
BP/ARC EBM: Chuck Carmel		
EBM Phone: 925-275-3803		
EBM Email: charles.carmel@bp.com		

Lab No.	Sample Description	Date	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 / DRO (8015M)	Requested Analyses: BTEX, 5 Oxys, EDB, 1,2-DCA, and Ethanol
1	MW-1	9/3/10	1150		X		5	X			X		X	X
2	MW-2	"	1153		X		"	X			X		X	X
3	MW-3	"	1200		X		"	X			X		X	X
4	TB-472-100903				X		2				X			

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.

ON HOLD

Sampler's Name: Eric Flynn	Relinquished By / Affiliation	Date	Time	Accepted By / Affiliation	Date	Time
Sampler's Company: BAI		9/8/10	1400		9/9/10	0815
Shipment Method: GSO Ship Date: 9/8/10						
Shipment Tracking No: 106836644						

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

BP/ARC LaMP COC Rev. 6 01/01/2009

1 FROM

DATE 11/4/10

COMPANY BAE

ADDRESS 1324 [redacted] K.C

ADDRESS STE/ROOM 212

CITY Chico ZIP CODE [redacted]

SENDERS NAME Eric Fong PHONE NUMBER [redacted]

2 TO

COMPANY CAL SCIENCE

NAME PHONE NUMBER (714) 895-5494

ADDRESS 7439 LINCOLN WAY

ADDRESS STE/ROOM

CITY GARDEN GROVE ZIP CODE 92841

3 YOUR INTERNAL BILLING REFERENCE WILL APPEAR ON YOUR INVOICE

SPECIAL INSTRUCTIONS

GSO GOLDEN STATE OVERNIGHT

1-800-322-5555

WWW.GSO.COM

SHIPPING AIR BILL

4 PACKAGE INFORMATION

- ☐ LETTER (MAX 8 OZ)
- ☐ PACKAGE (WT) 40
- ☐ 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 OVER

6 RELEASE SIGNATURE _____ SIGN TO AUTHORIZE DELIVERY WITHOUT OBTAINING SIGNATURE

7

8 PICK UP INFORMATION _____ TIME DRIVER # ROUTE #

106836644

PEEL OFF HERE

9 GSO TRACKING NUMBER

106836644

PACKAGE

1090

Calscience Environmental Laboratories, Inc.

WORK ORDER #: 10-09-0601

SAMPLE RECEIPT FORM

Cooler 1 of 1

CLIENT: BAI

DATE: 09/09/10

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

Temperature 1.9 °C + 0.5 °C (CF) = 2.4 °C ☑ Blank ☐ Sample

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

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

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

Ambient Temperature: ☐ Air ☐ Filter ☐ Metals Only ☐ PCBs Only Initial: WB

CUSTODY SEALS INTACT:

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

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

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

CONTAINER TYPE:

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

Water: ☐VOA ☑VOA**h** ☐VOA**na$_2$** ☐125AGB ☐125AGB**h** ☐125AGB**p** ☑1AGB ☐1AGB**na$_2$** ☐1AGB**s**

☐500AGB ☐500AGJ ☐500AGJ**s** ☐250AGB ☐250CGB ☐250CGB**s** ☐1PB ☐500PB ☐500PB**na**

☐250PB ☐250PB**n** ☐125PB ☐125PB**znna** ☐100PJ ☐100PJ**na$_2$** ☑1AGJ ☐_____ ☐_____

Air: ☐Tedlar® ☐Summa® **Other:** ☐_____ **Trip Blank Lot#:** 100709A **Labeled/Checked by:** JSI

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

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:** WB

Calscience Environmental Laboratories, Inc.

WORK ORDER #: 10-09-0601

SAMPLE ANOMALY FORM

SAMPLES - CONTAINERS & LABELS: **Comments:**

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

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

Sample #	Container ID(s)	# of Vials Received	Sample #	Container ID(s)	# of Vials Received	Sample #	Container ID(s)	# of Cont. received	Analysis
4	B	2							

Comments: _____

*Transferred at Client's request.

Initial / Date: WS 09/09/10

FIELD PROCEDURES

A.1 QUALITY ASSURANCE/QUALITY CONTROL FIELD PROTOCOLS

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

A.1.1 Water Level & Free-Phase Product Measurement

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

A.1.2 Monitor Well Purging

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

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

A.1.3 Ground-Water Sample Collection

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

A.1.4 Surface Water Sample Collection

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

A.1.5 Chain of Custody Procedure

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

Field Custody Procedures

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

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

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

Transfer of Custody and Shipment

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

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

A.1.6 Field Records

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

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:	**3Q10 GEO_WELL 472**
Facility Global ID:	**T10000000417**
Facility Name:	**ARCO # / PLUCKY LIQUORS**
File Name:	**GEO_WELL.zip**
Organization Name:	**Broadbent & Associates, Inc.**
Username:	**BROADBENT-C**
IP Address:	**67.118.40.90**
Submittal Date/Time:	**9/23/2010 2:23:58 PM**
Confirmation Number:	**1790200769**

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:	**3Q10 GW Monitoring**
Facility Global ID:	**T10000000417**
Facility Name:	**ARCO # / PLUCKY LIQUORS**
File Name:	**10090601.zip**
Organization Name:	**Broadbent & Associates, Inc.**
Username:	**BROADBENT-C**
IP Address:	**67.118.40.90**
Submittal Date/Time:	**9/23/2010 2:27:31 PM**
Confirmation Number:	**5643036842**

VIEW QC REPORT

VIEW DETECTIONS REPORT