Atlantic Richfield Company
(a BP affiliated company)

P.O. Box 1257
San Ramon, CA 94583
Phone: (925) 275-3801
Fax: (925) 275-3815

3 December 2008

Re: Well Decommissioning Report
Atlantic Richfield Company Station #4494
566 Hegenberger Road
Oakland, California
ACEH Case #RO0000204

"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:

Paul Supple
Environmental Business Manger

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

3 December 2008

Project No. 06-08-623

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

Attn.: Mr. Paul Supple

Re: Well Decommissioning Report, Atlantic Richfield Company (a BP affiliated company) Station #4494, 566 Hegenberger Road, Oakland, California; ACEH Case #RO0000204

Dear Mr. Supple:

Broadbent & Associates, Inc. (BAI) is pleased to submit this *Well Decommissioning Report* for Atlantic Richfield Company Station #4494 (herein referred to as Station #4494) located at 566 Hegenberger Road, Oakland, California. The Alameda County Environmental Health (ACEH) letter dated 12 September 2008 stated that both ACEH and the California Regional Water Quality Control Board had reviewed the case file for Station #4494 and concurred that no further action related to the underground storage tank fuel release was required at this time. The letter also stated that prior to the issuance of a remedial action completion certificate the monitoring wells installed at the Site were to be properly abandoned, per California Water Code.

Stratus Environmental, Inc. (Stratus) completed well abandonment activities on October 23-24, 2008 for the wells associated with ACEH Case #RO0000204. The attached Drawing 1 depicts Station #4494 and locations of the wells that were abandoned. The Stratus *Well Destruction Data Package* documenting formal well abandonment of the seven wells (MW-1, MW-3, MW-4, MW-5, MW-6, MW-7, and RW-1) associated with the Site is provided in Attachment A.

Should you have questions or require additional assistance to help expedite case closure, please do not hesitate to contact us at (530) 566-1400.

Sincerely,
BROADBENT & ASSOCIATES, INC.

Thomas A. Venus, P.E.
Senior Engineer

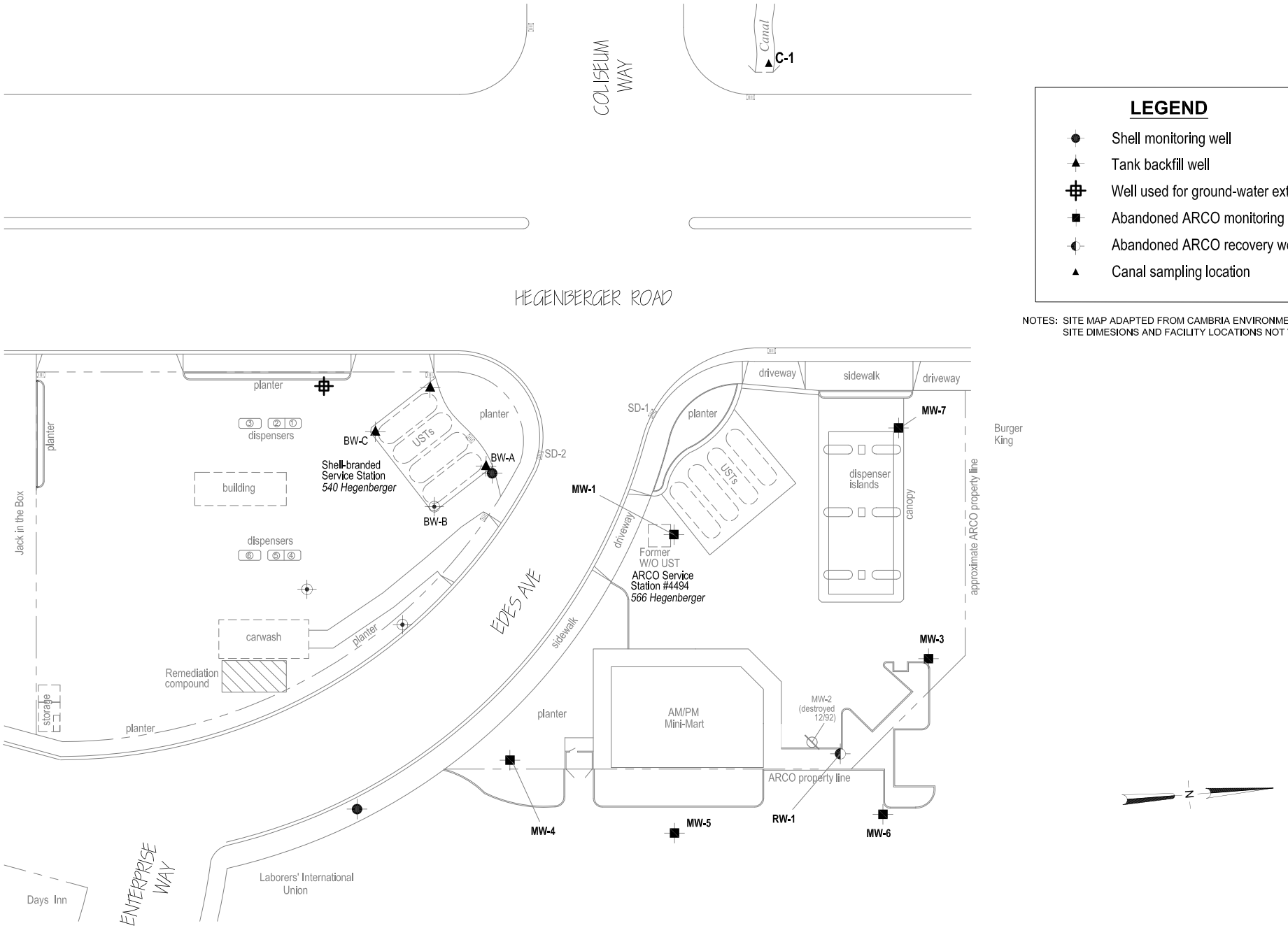
Robert H. Miller, P.G., C.HG.
Principal Hydrogeologist

Enclosures

Drawing 1: Site Map with Abandoned Well Locations

Attachment A: Stratus Well Destruction Data Package (Includes Field Data Sheets, Well Destruction Reports, Site Plan, Drilling Permits, and Certified Analytical Report with Chain of Custody Documentation)

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



0 60 120 SCALE (ft)	BROADBENT & ASSOCIATES, INC. ENGINEERING, WATER RESOURCES & ENVIRONMENTAL 1324 Mangrove Ave. Suite 212, Chico, California 95926 Project No.: 06-02-623 Date: 3/5/08	Station #4494 566 Hegenberger Road Oakland, California	Site Map with Abandoned Well Locations	Drawing 1

ATTACHMENT A

Stratus Well Destruction Data Package
(Includes Field Data Sheets, Well Destruction Reports, Site Plan, Drilling Permits, and Certified Analytical Report with Chain-of-Custody Documentation)

STRATUS
ENVIRONMENTAL, INC.

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

November 21, 2008

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

Re: Well Destruction Data Package, BP Service Station No. 4494, located at 566 Hegenberger Road, Oakland, California (Field activities performed October 13, 2008 through October 24, 2008)

General Information

Data Submittal Prepared / Reviewed by: Collin Fischer / Jay Johnson
Phone Number: (530) 676-6000

On-Site Supplier Representative: Collin Fischer

Date: October 13, 2008
Arrival: 09:30 *Departure:* 11:30
Weather Conditions: Sunny
Unusual Field Conditions: None
Scope of Work Performed: Health and safety meeting with subgrade utility locating subcontractor (Cruz Brothers Locators). Characterize the areas near 7 wells scheduled for destruction for the presence of underground utilities.
Variations from Work Scope: None noted

On-Site Supplier Representative: Allan Dudding and Levi Ford

Date: October 23, 2008
Arrival: 06:45 *Departure:* 16:45
Weather Conditions: Partly Cloudy
Unusual Field Conditions: None
Scope of Work Performed: Health and safety meeting with air knife/well destruction subcontractor (RSI Drilling, Inc.). Air knife 2 well locations (MW-6 and MW-7), overdrill 1 well location (MW-6), pressure grout 1 well location (RW-1).
Variations from Work Scope: None noted

On-Site Supplier Representative: Allan Dudding and Collin Fischer

Date: October 24, 2008
Arrival: 06:30 *Departure:* 16:30
Weather Conditions: Sunny
Unusual Field Conditions: Very hard clay found at approximately 2-3 feet bgs making air knife work difficult.
Scope of Work Performed: Attempt air knife at 3 well locations (MW-3, MW-4 and MW-5), overdrill 1 well location (MW-7), pressure grout 4 well locations (MW-3, MW-4, MW-5 and MW-1).
Variations from Work Scope: Due to the presence of hard clay at 2-3 feet bgs, Alameda County Public Works Department granted permission to pressure grout wells MW-3, MW-4 and MW-5, instead of proceeding with overdrilling.

This submittal presents the tabulation of data collected in association with routine groundwater monitoring. The attachments include field data sheets, a site plan, Department of Water Resources well destruction notices, and certified analytical results with chain of custody documentation for a waste composite soil sample collected during the work activities. 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.

Scott G. Bittinger, P.G.
Project Geologist

Jay R. Johnson, P.G.
Project Manager

Attachments:

- Field Data Sheets
- Chain of Custody Documentation
- Certified Analytical Results
- DWR Well Completion Reports
- Site Plan

CC: Mr. Paul Supple, BP/ARCO

ARCO 4494 - Collin Fischer

10/13/08
Sunny
Clear

0930 -> onsite, safety meeting

1000 -> Clear 7 boring locations w/ Cruz Bros.

1130 -> offsite

Stratus Env., Inc.

Field Data Sheet

Site: 4494 Date: 10/23/08

Personnel on site: Levi Ford, Allen Dudding

Weather Conditions: Clear, Sunny High approx 80°

Notes:

0645 Stratus on site ; talk to Store Mgr. Walk site

0715 RSI on site

0715 - 0745 Safety Meeting

0745 - 0800 Set up on RW-1 (Removed Well Box only for pressure grout

0800 Set up on MW-6

0915 Arco fuel truck on site (Break)
~1005 Vicky (inspector on site)

1013 fuel truck off site

1015 pressure grout RW-1

1102 done with Clearing MW-6 , Set up to drill MW-6

1158 RW-1 Completed

1200-1230 lunch

1210 Airknife set up on MW-7

1427 Done with MW-6

1527 Air Knife done on MW-7, Set up to drill out MW-7

1620 MW-7 Drilled out , Site Secured

1645 off Site

10/23/08

Stratus Env

Field Data Sheet

Site: Arco 4494	Date: 10/24/06
Personnel on site: Allan Dudding, Colin Fischer	
Weather Conditions: Sunny	

Notes:

0630 → arrive onsite

0650 → H&S [illegible] safety meeting

0715 → set up on MW-3 with airknife. Set up on MW-7 to [illegible]

completely [illegible]

– Colin Fischer onsite → short safety meeting

0910 → MW-3 – clearance w/ [illegible] unsuccessful. Ct [illegible] w/ office

– trying to contact Alameda city for possible [illegible]

→ we can proceed [illegible] [illegible] w/ Alameda.

0925 → Alameda [illegible] onsite

0953 → [illegible] offsite.

– pressure grout [illegible] for [illegible]

1010 → MW-7 completed, moving to MW-1 for pressure grout

1023 → [illegible] another [illegible] stop work

1130 → [illegible] onsite, [illegible] BP/Arco [illegible] onsite

1215 → [illegible] offsite. Air knife to MW-4

1240 → MW-1 completed. Now grouting to MW-3

1310 → Grouting to MW-4

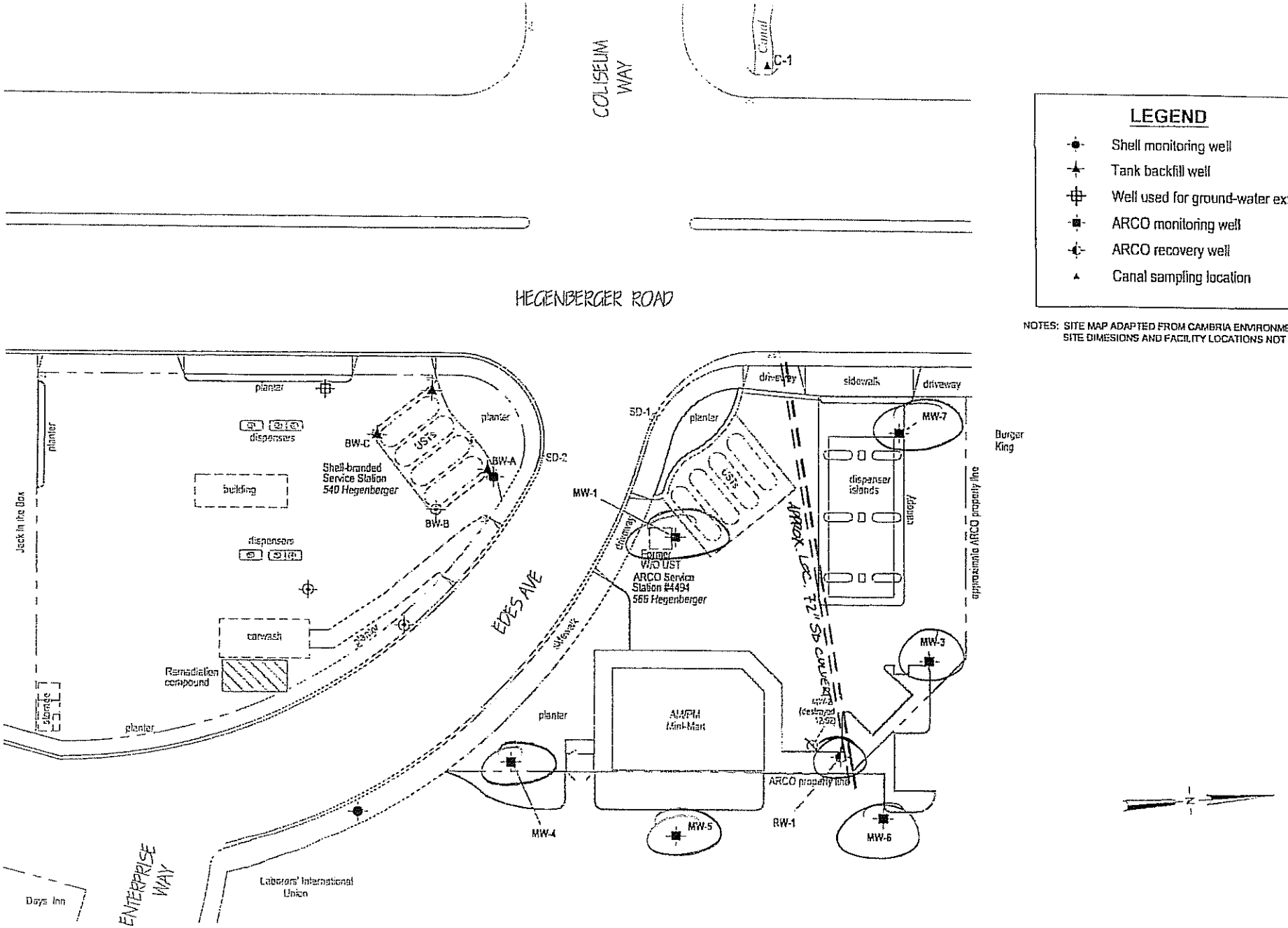
1350 → Grouting to MW-3 [illegible] [illegible]

1410 → Colin Fischer offsite.

1630 → Allan Dudding offsite

Left margin: [illegible] moving to MW-3 [illegible]

Drum total → ~~9~~ 8 solid



0 60 120

SCALE (ft)

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

Project No.: 06-02-623 Date: 3/5/08

Station #4494
566 Hegenberger Road
Oakland, California

Site Map

Drawing
2

CONFIDENTIAL

STATE OF CALIFORNIA DWR
WELL COMPLETION REPORT
(WELL LOGS)

REMOVED

CONFIDENTIAL

STATE OF CALIFORNIA DWR
WELL COMPLETION REPORT
(WELL LOGS)

REMOVED

CONFIDENTIAL

STATE OF CALIFORNIA DWR
WELL COMPLETION REPORT
(WELL LOGS)

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STATE OF CALIFORNIA DWR
WELL COMPLETION REPORT
(WELL LOGS)

REMOVED

CONFIDENTIAL

STATE OF CALIFORNIA DWR
WELL COMPLETION REPORT
(WELL LOGS)

REMOVED

Alameda County Public Works Agency - Water Resources Well Permit

399 Elmhurst Street
Hayward, CA 94544-1395
Telephone: (510)670-6633 Fax:(510)782-1939

Application Approved on: 10/10/2008 By jamesy

Permit Numbers: W2008-0743 to W2008-0747
Permits Valid from 10/23/2008 to 10/24/2008

Application Id: 1223491103789
Site Location: 566 Hegenberger Rd, Oakland, CA
City of Project Site: Oakland
Project Start Date: 10/23/2008
Completion Date: 10/24/2008
Requested Inspection: 10/23/2008
Scheduled Inspection: 10/23/2008 at 3:00 PM (Contact your inspector, Vicky Hamlin at (510) 670-5443, to confirm.)

Applicant: STRATUS ENVR - Scott Bittiger
3330 Cameron Park Dr #550, Cameron Park, CA 95682
Phone: 530-676-2062

Property Owner: BP West Coast Products LLC
6 Centerpointe Dr., La Palma, CA 90623
Phone: 925-275-3801

Client: ** same as Property Owner **

Total Due: $1725.00
Receipt Number: WR2008-0358 **Total Amount Paid:** $1725.00
Payer Name : STRATUS INC. Paid By: CHECK **PAID IN FULL**

Works Requesting Permits:

Well Destruction-Monitoring - 5 Wells
Driller: R.S.I - Lic #: 802334 - Method: auger

Work Total: $1725.00

Specifications

Permit #	Issued Date	Expire Date	Owner Well Id	Hole Diam.	Casing Diam.	Seal Depth	Max. Depth	State Well #	Orig. Permit #	DWR #
W2008-0743	10/10/2008	01/21/2009	MW-1	10.00 in.	4.00 in.	0.00 ft	23.00 ft			
W2008-0744	10/10/2008	01/21/2009	MW-3	10.00 in.	4.00 in.	0.00 ft	18.00 ft			
W2008-0745	10/10/2008	01/21/2009	MW-4	10.00 in.	4.00 in.	0.00 ft	18.00 ft			
W2008-0746	10/10/2008	01/21/2009	MW-7	10.00 in.	4.00 in.	0.00 ft	15.00 ft			
W2008-0747	10/10/2008	01/21/2009	RW-1	0.00 in.	6.00 in.	0.00 ft	20.00 ft			

Specific Work Permit Conditions

1. Drilling Permit(s) can be voided/ cancelled only in writing. It is the applicant's responsibility to notify Alameda County Public Works Agency, Water Resources Section in writing for an extension or to cancel the drilling permit application. No drilling permit application(s) shall be extended beyond ninety (90) days from the original start date. Applicants may not cancel a drilling permit application after the completion date of the permit issued has passed.

2. Prior to any drilling activities, it shall be the applicant's responsibility to contact and coordinate an Underground Service Alert (USA), obtain encroachment permit(s), excavation permit(s) or any other permits or agreements required for that Federal, State, County or City, and follow all City or County Ordinances. No work shall begin until all the permits and requirements have been approved or obtained. It shall also be the applicants responsibilities to provide to the Cities or to Alameda County an Traffic Safety Plan for any lane closures or detours planned. No work shall begin until all the permits and requirements have been approved or obtained.

3. Compliance with the well-sealing specifications shall not exempt the well-sealing contractor from complying with appropriate State reporting-requirements related to well construction or destruction (Sections 13750 through 13755 (Division 7, Chapter 10, Article 3) of the California Water Code). Contractor must complete State DWR Form 188 and

mail original to the Alameda County Public Works Agency, Water Resources Section, within 60 days. Including permit number and site map.

4. Permittee shall assume entire responsibility for all activities and uses under this permit and shall indemnify, defend and save the Alameda County Public Works Agency, its officers, agents, and employees free and harmless from any and all expense, cost and liability in connection with or resulting from the exercise of this Permit including, but not limited to, property damage, personal injury and wrongful death.

5. Applicant shall contact Vicky Hamlin for an inspection time at 510-670-5443 or email to vickyh@acpwa.org at least five (5) working days prior to starting, once the permit has been approved. Confirm the scheduled date(s) at least 24 hours prior to drilling.

6. Permitte, permittee's contractors, consultants or agents shall be responsible to assure that all material or waters generated during drilling, boring destruction, and/or other activities associated with this Permit will be safely handled, properly managed, and disposed of according to all applicable federal, state, and local statutes regulating such. In no case shall these materials and/or waters be allowed to enter, or potentially enter, on or off-site storm sewers, dry wells, or waterways or be allowed to move off the property where work is being completed.

7. Remove the Christy box or similar structure.

Destroy well by grouting neat cement with a tremie pipe or pressure grouting (25 psi for 5min.) to the bottom of the well and by filling with neat cement to three (3-5) feet below surface grade. Allow the sealing material to spill over the top of the casing to fill any annular space between casing and soil.

After the seal has set, backfill the remaining hole with concrete or compacted material to match existing conditions.

8. Copy of approved drilling permit must be on site at all times. Failure to present or show proof of the approved permit application on site shall result in a fine of $500.00.

Alameda County Public Works Agency - Water Resources Well Permit

399 Elmhurst Street
Hayward, CA 94544-1395
Telephone: (510)670-6633 Fax:(510)782-1939

Application Approved on: 10/10/2008 By jamesy

Permit Numbers: W2008-0741 to W2008-0742
Permits Valid from 10/23/2008 to 10/24/2008

Application Id: 1223490477463
Site Location: 580 Hegenberger Road, Oakland, CA
Project Start Date: 10/23/2008
Requested Inspection: 10/23/2008
City of Project Site: Oakland
Completion Date: 10/24/2008
Scheduled Inspection: 10/23/2008 at 12:00 PM (Contact your inspector, Vicky Hamlin at (510) 670-5443, to confirm.)

Applicant: STRATUS ENVR - Scott Bittinger
3330 Cameron Park Dr #550, Cameron Park, CA 95682
Phone: 530-676-2062

Property Owner: Thomas & Janet McManus Trust Whitehurst
Mgmt
4037 Natasha Drive, Lafayette, CA 94549
Phone: --

Client: ** same as Property Owner **

	Total Due:	$690.00
Receipt Number: WR2008-0357	**Total Amount Paid:**	$690.00
Payer Name : STRATUS ENVR	Paid By: CHECK	**PAID IN FULL**

Works Requesting Permits:

Well Destruction-Monitoring - 2 Wells
Driller: R. S. I - Lic #: 802334 - Method: auger

Work Total: $690.00

Specifications

Permit #	Issued Date	Expire Date	Owner Well Id	Hole Diam.	Casing Diam.	Seal Depth	Max. Depth	State Well #	Orig. Permit #	DWR #
W2008-0741	10/10/2008	01/21/2009	MW-5	8.00 in.	2.00 in.	0.00 ft	17.00 ft			
W2008-0742	10/10/2008	01/21/2009	MW-6	8.00 in.	2.00 in.	0.00 ft	18.00 ft			

Specific Work Permit Conditions

1. Drilling Permit(s) can be voided/ cancelled only in writing. It is the applicant's responsibility to notify Alameda County Public Works Agency, Water Resources Section in writing for an extension or to cancel the drilling permit application. No drilling permit application(s) shall be extended beyond ninety (90) days from the original start date. Applicants may not cancel a drilling permit application after the completion date of the permit issued has passed.

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and save the Alameda County Public Works Agency, its officers, agents, and employees free and harmless from any and all expense, cost and liability in connection with or resulting from the exercise of this Permit including, but not limited to, property damage, personal injury and wrongful death.

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6. Permitte, permittee's contractors, consultants or agents shall be responsible to assure that all material or waters generated during drilling, boring destruction, and/or other activities associated with this Permit will be safely handled, properly managed, and disposed of according to all applicable federal, state, and local statutes regulating such. In no case shall these materials and/or waters be allowed to enter, or potentially enter, on or off-site storm sewers, dry wells, or waterways or be allowed to move off the property where work is being completed.

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Destroy well by grouting neat cement with a tremie pipe or pressure grouting (25 psi for 5min.) to the bottom of the well and by filling with neat cement to three (3-5) feet below surface grade. Allow the sealing material to spill over the top of the casing to fill any annular space between casing and soil.

After the seal has set, backfill the remaining hole with concrete or compacted material to match existing conditions.

8. Copy of approved drilling permit must be on site at all times. Failure to present or show proof of the approved permit application on site shall result in a fine of $500.00.

Calscience
Environmental
Laboratories, Inc.

November 10, 2008

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

Subject: **Calscience Work Order No.: 08-10-2269**
Client Reference: ARCO 4494

Dear Client:

Enclosed is an analytical report for the above-referenced project. The samples included in this report were received 10/25/2008 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: 10/25/08
Work Order No: 08-10-2269
Preparation: EPA 3050B
Method: EPA 6010B

Project: ARCO 4494

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
COMPOSITE (SWC)	**08-10-2269-5-A**	**10/24/08 09:00**	**Solid**	**ICP 5300**	**11/05/08**	**11/06/08 10:57**	**081105L01**

Parameter	Result	RL	DF	Qual	Units
Lead	6.56	0.500	1		mg/kg

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
Method Blank	**097-01-002-11,696**	**N/A**	**Solid**	**ICP 5300**	**11/05/08**	**11/06/08 10:24**	**081105L01**

Parameter	Result	RL	DF	Qual	Units
Lead	ND	0.500	1		mg/kg

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

Calscience Environmental Laboratories, Inc.

Analytical Report

Stratus Environmental, inc.	Date Received:	10/25/08
3330 Cameron Park Drive, Suite 550	Work Order No:	08-10-2269
Cameron Park, CA 95682-8861	Preparation:	EPA 5030B
	Method:	EPA 8015B (M)

Project: ARCO 4494

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
COMPOSITE (SWC)	**08-10-2269-5-A**	**10/24/08 09:00**	**Solid**	**GC 1**	**10/27/08**	**10/27/08 17:07**	**081027B01**

Parameter	Result	RL	DF	Qual	Units
Gasoline Range Organics (C6-C12)	ND	0.50	1		mg/kg
Surrogates:	**REC (%)**	**Control Limits**		**Qual**	
1,4-Bromofluorobenzene	75	42-126			

Method Blank	**099-12-697-47**	**N/A**	**Solid**	**GC 1**	**10/27/08**	**10/27/08 14:28**	**081027B01**

Parameter	Result	RL	DF	Qual	Units
Gasoline Range Organics (C6-C12)	ND	0.50	1		mg/kg
Surrogates:	**REC (%)**	**Control Limits**		**Qual**	
1,4-Bromofluorobenzene	74	42-126			

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: 10/25/08
Work Order No: 08-10-2269
Preparation: EPA 5030B
Method: EPA 8260B
Units: mg/kg

Project: ARCO 4494

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
COMPOSITE (SWC)	**08-10-2269-5-A**	**10/24/08 09:00**	**Solid**	**GC/MS Z**	**11/07/08**	**11/07/08 15:24**	**081107L01**

Parameter	Result	RL	DF	Qual	Parameter	Result	RL	DF	Qual
Benzene	ND	0.0010	1		Xylenes (total)	ND	0.0010	1	
Ethylbenzene	ND	0.0010	1		Methyl-t-Butyl Ether (MTBE)	ND	0.0010	1	
Toluene	ND	0.0010	1						

Surrogates:	REC (%)	Control Limits	Qual	Surrogates:	REC (%)	Control Limits	Qual
Dibromofluoromethane	110	75-141		1,2-Dichloroethane-d4	111	73-151	
Toluene-d8	100	87-111		1,4-Bromofluorobenzene	94	71-113	

Method Blank	099-12-709-64	N/A	Solid	GC/MS Z	11/07/08	11/07/08 14:21	081107L01

Parameter	Result	RL	DF	Qual	Parameter	Result	RL	DF	Qual
Benzene	ND	0.0010	1		Xylenes (total)	ND	0.0010	1	
Ethylbenzene	ND	0.0010	1		Methyl-t-Butyl Ether (MTBE)	ND	0.0010	1	
Toluene	ND	0.0010	1						

Surrogates:	REC (%)	Control Limits	Qual	Surrogates:	REC (%)	Control Limits	Qual
Dibromofluoromethane	102	75-141		1,2-Dichloroethane-d4	100	73-151	
Toluene-d8	97	87-111		1,4-Bromofluorobenzene	93	71-113	

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

Calscience Environmental Laboratories, Inc.

Quality Control - Spike/Spike Duplicate

Stratus Environmental, inc.	Date Received:	10/25/08
3330 Cameron Park Drive, Suite 550	Work Order No:	08-10-2269
Cameron Park, CA 95682-8861	Preparation:	EPA 3050B
	Method:	EPA 6010B

Project ARCO 4494

Quality Control Sample ID	Matrix	Instrument	Date Prepared	Date Analyzed	MS/MSD Batch Number
08-11-0127-5	**Solid**	**ICP 5300**	**11/05/08**	**11/06/08**	**081105S01**

Parameter	MS %REC	MSD %REC	%REC CL	RPD	RPD CL	Qualifiers
Lead	95	96	75-125	1	0-20	

RPD - Relative Percent Difference , CL - Control Limit

Calscience Environmental Laboratories, Inc.

Quality Control - PDS / PDSD

Stratus Environmental, inc.		Date Received	10/25/08
3330 Cameron Park Drive, Suite 550		Work Order No:	08-10-2269
Cameron Park, CA 95682-8861		Preparation:	EPA 3050B
		Method:	EPA 6010B

Project: ARCO 4494

Quality Control Sample ID	Matrix	Instrument	Date Prepared	Date Analyzed	PDS/PDSD Batch Number
08-11-0127-5	**Solid**	**ICP 5300**	**11/05/08**	**11/06/08**	**081105S01**

Parameter	PDS %REC	PDSD %REC	%REC CL	RPD	RPD CL	Qualifiers
Lead	107	98	75-125	7	0-20	

RPD - Relative Percent Difference , CL - Control Limit

Calscience Environmental Laboratories, Inc.

Quality Control - Spike/Spike Duplicate

Stratus Environmental, inc.		Date Received:	10/25/08
3330 Cameron Park Drive, Suite 550		Work Order No:	08-10-2269
Cameron Park, CA 95682-8861		Preparation:	EPA 5030B
		Method:	EPA 8015B (M)

Project ARCO 4494

Quality Control Sample ID	Matrix	Instrument	Date Prepared	Date Analyzed	MS/MSD Batch Number
COMPOSITE (SWC)	**Solid**	**GC 1**	**10/27/08**	**10/27/08**	**081027S01**

Parameter	MS %REC	MSD %REC	%REC CL	RPD	RPD CL	Qualifiers
Gasoline Range Organics (C6-C12)	86	84	42-126	2	0-25	

RPD - Relative Percent Difference , CL - Control Limit

Calscience Environmental Laboratories, Inc.

Quality Control - Spike/Spike Duplicate

Stratus Environmental, inc.	Date Received:	10/25/08
3330 Cameron Park Drive, Suite 550	Work Order No:	08-10-2269
Cameron Park, CA 95682-8861	Preparation:	EPA 5030B
	Method:	EPA 8260B

Project ARCO 4494

Quality Control Sample ID	Matrix	Instrument	Date Prepared	Date Analyzed	MS/MSD Batch Number
08-11-0127-5	**Solid**	**GC/MS Z**	**11/07/08**	**11/07/08**	**081107S01**

Parameter	MS %REC	MSD %REC	%REC CL	RPD	RPD CL	Qualifiers
Benzene	94	91	78-114	4	0-14	
Chloroform	96	91	80-120	5	0-20	
1,1-Dichloroethane	96	93	80-120	3	0-20	
1,2-Dichloroethane	93	89	80-120	4	0-20	
1,1-Dichloroethene	99	94	73-127	4	0-21	
Ethanol	90	82	45-135	9	0-29	
Tetrachloroethene	108	104	80-120	4	0-20	
Toluene	93	91	74-116	3	0-16	
Trichloroethene	101	97	74-122	4	0-17	
Methyl-t-Butyl Ether (MTBE)	100	97	69-123	3	0-18	

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:	08-10-2269
Cameron Park, CA 95682-8861		Preparation:	EPA 3050B
		Method:	EPA 6010B

Project: ARCO 4494

Quality Control Sample ID	Matrix	Instrument	Date Prepared	Date Analyzed	LCS/LCSD Batch Number
097-01-002-11,696	**Solid**	**ICP 5300**	**11/05/08**	**11/06/08**	**081105L01**

Parameter	LCS %REC	LCSD %REC	%REC CL	RPD	RPD CL	Qualifiers
Lead	102	105	80-120	3	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:	08-10-2269
Cameron Park, CA 95682-8861		Preparation:	EPA 5030B
		Method:	EPA 8015B (M)

Project: ARCO 4494

Quality Control Sample ID	Matrix	Instrument	Date Prepared	Date Analyzed	LCS/LCSD Batch Number
099-12-697-47	**Solid**	**GC 1**	**10/27/08**	**10/27/08**	**081027B01**

Parameter	LCS %REC	LCSD %REC	%REC CL	RPD	RPD CL	Qualifiers
Gasoline Range Organics (C6-C12)	98	96	70-118	3	0-20	

RPD - Relative Percent Difference , CL - Control Limit

Calscience Environmental Laboratories, Inc.

Quality Control - LCS/LCS Duplicate

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

Date Received: N/A
Work Order No: 08-10-2269
Preparation: EPA 5030B
Method: EPA 8260B

Project: ARCO 4494

Quality Control Sample ID	Matrix	Instrument	Date Prepared	Date Analyzed	LCS/LCSD Batch Number
099-12-709-64	**Solid**	**GC/MS Z**	**11/07/08**	**11/07/08**	**081107L01**

Parameter	LCS %REC	LCSD %REC	%REC CL	ME CL	RPD	RPD CL	Qualifiers
Benzene	102	102	84-114	79-119	0	0-7	
Bromobenzene	104	103	80-120	73-127	1	0-20	
Bromochloromethane	103	104	80-120	73-127	1	0-20	
Bromodichloromethane	109	105	80-120	73-127	4	0-20	
Bromoform	103	103	80-120	73-127	0	0-20	
Bromomethane	85	132	80-120	73-127	44	0-20	LQ,BA
n-Butylbenzene	109	109	77-123	69-131	0	0-25	
sec-Butylbenzene	109	111	80-120	73-127	1	0-20	
tert-Butylbenzene	124	112	80-120	73-127	10	0-20	LQ
Carbon Disulfide	106	108	80-120	73-127	2	0-20	
Carbon Tetrachloride	97	96	69-135	58-146	1	0-13	
Chlorobenzene	101	99	85-109	81-113	2	0-8	
Chloroethane	128	126	80-120	73-127	1	0-20	LQ
Chloroform	105	102	80-120	73-127	3	0-20	
Chloromethane	104	106	80-120	73-127	2	0-20	
2-Chlorotoluene	106	107	80-120	73-127	1	0-20	
4-Chlorotoluene	104	105	80-120	73-127	1	0-20	
Dibromochloromethane	100	100	80-120	73-127	0	0-20	
1,2-Dibromo-3-Chloropropane	100	104	80-120	73-127	4	0-20	
1,2-Dibromoethane	101	101	80-120	73-127	0	0-20	
Dibromomethane	100	97	80-120	73-127	3	0-20	
1,2-Dichlorobenzene	102	102	80-110	75-115	0	0-10	
1,3-Dichlorobenzene	102	103	80-120	73-127	1	0-20	
1,4-Dichlorobenzene	100	100	80-120	73-127	0	0-20	
Dichlorodifluoromethane	88	89	80-120	73-127	1	0-20	
1,1-Dichloroethane	104	104	80-120	73-127	0	0-20	
1,2-Dichloroethane	97	96	80-120	73-127	1	0-20	
1,1-Dichloroethene	105	105	83-125	76-132	0	0-10	
c-1,2-Dichloroethene	110	111	80-120	73-127	0	0-20	
t-1,2-Dichloroethene	99	101	80-120	73-127	2	0-20	
1,2-Dichloropropane	103	101	79-115	73-121	2	0-25	
1,3-Dichloropropane	101	103	80-120	73-127	2	0-20	
2,2-Dichloropropane	98	95	80-120	73-127	3	0-20	
1,1-Dichloropropene	104	105	80-120	73-127	0	0-20	
c-1,3-Dichloropropene	112	111	80-120	73-127	1	0-20	
t-1,3-Dichloropropene	107	106	80-120	73-127	1	0-20	
Ethylbenzene	108	109	80-120	73-127	1	0-20	
Isopropylbenzene	113	111	80-120	73-127	1	0-20	

RPD - Relative Percent Difference , CL - Control Limit

Calscience Environmental Laboratories, Inc.

Quality Control - LCS/LCS Duplicate

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

Date Received: N/A
Work Order No: 08-10-2269
Preparation: EPA 5030B
Method: EPA 8260B

Project: ARCO 4494

Quality Control Sample ID	Matrix	Instrument	Date Prepared	Date Analyzed	LCS/LCSD Batch Number
099-12-709-64	**Solid**	**GC/MS Z**	**11/07/08**	**11/07/08**	**081107L01**

Parameter	LCS %REC	LCSD %REC	%REC CL	ME CL	RPD	RPD CL	Qualifiers
p-Isopropyltoluene	111	111	80-120	73-127	0	0-20	
Methylene Chloride	104	103	80-120	73-127	0	0-20	
Naphthalene	105	105	80-120	73-127	0	0-20	
n-Propylbenzene	108	108	80-120	73-127	0	0-20	
Styrene	110	110	80-120	73-127	0	0-20	
Ethanol	101	97	50-134	36-148	3	0-23	
1,1,1,2-Tetrachloroethane	102	103	80-120	73-127	1	0-20	
1,1,2,2-Tetrachloroethane	98	98	80-120	73-127	0	0-20	
Tetrachloroethene	85	93	80-120	73-127	9	0-20	
Toluene	105	103	79-115	73-121	2	0-8	
1,2,3-Trichlorobenzene	106	105	80-120	73-127	1	0-20	
1,2,4-Trichlorobenzene	107	107	80-120	73-127	0	0-20	
1,1,1-Trichloroethane	105	98	80-120	73-127	7	0-20	
1,1,2-Trichloroethane	97	96	80-120	73-127	1	0-20	
Trichloroethene	102	102	87-111	83-115	0	0-7	
Trichlorofluoromethane	113	112	80-120	73-127	0	0-20	
1,2,3-Trichloropropane	98	98	80-120	73-127	0	0-20	
1,2,4-Trimethylbenzene	110	110	80-120	73-127	0	0-20	
1,3,5-Trimethylbenzene	111	111	80-120	73-127	0	0-20	
Vinyl Acetate	137	137	80-120	73-127	0	0-20	LQ
Vinyl Chloride	105	101	72-126	63-135	4	0-10	
p/m-Xylene	109	109	80-120	73-127	0	0-20	
o-Xylene	108	110	80-120	73-127	1	0-20	
Methyl-t-Butyl Ether (MTBE)	105	104	75-129	66-138	1	0-13	
Tert-Butyl Alcohol (TBA)	99	96	66-126	56-136	3	0-24	
Diisopropyl Ether (DIPE)	96	96	77-125	69-133	0	0-13	
Ethyl-t-Butyl Ether (ETBE)	104	103	72-132	62-142	1	0-12	
Tert-Amyl-Methyl Ether (TAME)	108	107	77-125	69-133	1	0-10	

Total number of LCS compounds : 66
Total number of ME compounds : 2
Total number of ME compounds allowed : 3
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: 08-10-2169

Qualifier	Definition
AX	Sample too dilute to quantify surrogate.
BA	There was no MS/MSD analyzed with this batch due to insufficient sample volume (NR = not reported). See Blank Spike/Blank Spike Duplicate.
BA,AY	Relative percent difference out of control, 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.
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.
ET	Sample was extracted past end of recommended max. holding time.
EY	Result exceeds normal dynamic range; reported as a min est.
GS	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	Surrogate recovery below the acceptance limit.
LH	Surrogate recovery above the acceptance limit.
LM,AY	MS and/or MSD above acceptance limits. See Blank Spike (LCS). Matrix interfence suspected.
LN,AY	MS and/or MSD below acceptance limits. See Blank Spike (LCS). Matrix interfence suspected.
LQ	LCS recovery above method control limits.
LR	LCS recovery below method control limits.

Work Order Number: 08-10-2169

Qualifier	Definition
MB	Analyte present in the method blank.
MG	Analyte is a suspected lab contaminate.
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.

Atlantic Richfield Company

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A BP affiliated company

172774

Chain of Custody Record

2269

Page 1 of 1

Project Name: ARCO 4494
BP BU/AR Region/Enfos Segment: BP West Coast Retail 4494
State or Lead Regulatory Agency:
Requested Due Date (mm/dd/yy):

On-site Time: 0700	Temp: 60
Off-site Time:	Temp:
Sky Conditions: CLEAR	
Meteorological Events: NONE	
Wind Speed:	Direction:

Lab Name: CALSCIENCE	BP/AR Facility No.: 4494	Consultant/Contractor: STANTEC ENV., INC.
Address: 7440 LINCOLN WAY GARDEN GROVE, CA. 92841-1427	BP/AR Facility Address: 566 HEGENBERGER RD.	Address: 3330 CAMERON PARK DR. #550 CAMERON PARK, CA. 95682
Lab PM: LINDA SCHARPENBERG	Site Lat/Long: OAKLAND, CA.	Consultant/Contractor Project No.: E4494
Tele/Fax: (714) 895-5494 / (714) 895-7501	California Global ID No.: T0600100104	Consultant/Contractor PM: JAY JOHNSON
BP/AR EBM: PAUL SUPPLE	Enfos Project No.: G0C2G-0017	Tele/Fax: (530) 676 6004
Address:	Provision or OOC (circle one)	Report Type & QC Level: LEVEL 2 w/ EDF
	Phase/WBS: Site Closure	E-mail EDD To: STAYES@STANTECINC.NET
Tele/Fax: (925) 275-3801	Sub Phase/Task: ANALYTICAL	Invoice to: Consultant or BP or Atlantic Richfield Co. (circle one)
	Cost Element: CONTRACTOR LABOR	

Lab Bottle Order No:

Item No.	Sample Description	Time	Date	Matrix: Soil/Solid	Matrix: Water/Liquid	Matrix: Air	Laboratory No.	No. of Containers	Preservative: Unpreserved	Preservative: H_2SO_4	Preservative: HNO_3	Preservative: HCl	Preservative: Methanol	Requested Analysis: GRO	Requested Analysis: BTEX	Requested Analysis: MTBE	Requested Analysis: TOTAL LEAD	Sample Point Lat/Long and Comments
1	SWC	0900	10/24/08	X				4						X	X	X	X	
2																		
3																		
4																		
5																		
6																		
7																		
8																		
9																		
10																		

Sampler's Name: ALLAN DUDDING	Relinquished By / Affiliation	Date	Time	Accepted By / Affiliation	Date	Time
Sampler's Company: STANTEC ENV., INC.	Stantec ENV.	10/24/08	1300	CEL	10-24-08	1300
Shipment Date: 10/24/08	CEL TO GSO	10/24/08	1730			
Shipment Method: GSO				GSO	10/25/08	9:00
Shipment Tracking No: 518617061						

Special Instructions:

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

Laboratory

BP COC Rev. 5 10/11/2006

Calscience Environmental Laboratories, Inc.

WORK ORDER #: 08-10-2269

SAMPLE RECEIPT FORM

Cooler 1 of 1

CLIENT: STRATUS

DATE: 10 / 25 / 08

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

Temperature 2.8 °C + 1.8 °C (CF) = 4.6 °C ☐Blank ☑Sample

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

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

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

Ambient Temperature: ☐Air ☐Filter Initial: _____

CUSTODY SEALS INTACT:

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

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

SAMPLE CONDITION:

	Yes	No	N/A
Chain-Of-Custody document(s) received with samples	☑	☐	☐
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	☑	☐	☐
Proper preservation noted on sample label(s)	☐	☐	☑
Volatile analysis container(s) free of headspace	☐	☐	☑
Tedlar bag(s) free of condensation	☐	☐	☑

CONTAINER TYPE:

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

Water: ☐VOA ☐VOAh ☐VOAna_2 ☐125AGB ☐125AGBh ☐125AGBpo_4 ☐1AGB ☐1AGBna_2 ☐1AGBs ☐500AGB ☐500AGBs ☐250CGB ☐250CGBs ☐1PB ☐500PB ☐500PBna ☐250PB ☐250PBn ☐125PB ☐125PBznna ☐100PBsterile ☐100PBna_2 ☐_____ ☐_____ ☐_____

Air: ☐Tedlar® ☐Summa® ☐_____

Container: C:Clear A:Amber P:Poly/Plastic G:Glass J:Jar B:Bottle

Preservative: h:HCL n:HNO_3 na_2:$Na_2S_2O_3$ na:NaOH po_4:H_3PO_4 s:H_2SO_4 znna:ZnAc +NaOH

Checked/Labeled by: DL

Reviewed by: NC

Scanned by: DL

Calscience Environmental Laboratories, Inc.

WORK ORDER #: 08-10-2269

SAMPLE ANOMALY FORM

CHAIN OF CUSTODY (COC):

- ☐ Not relinquished by client – no signature
- ☐ No date/time relinquished
- ☐ COC not received with samples – notify PM
- ☑ Incomplete information regarding samples, tests, etc.

Comments:

Received 4 sleeves - not indicated if samples need to be composited

SAMPLES - CONTAINERS & LABELS:

- ☐ Samples NOT RECEIVED but listed on COC
- ☐ Samples received but NOT LISTED on COC
- ☐ Holding time expired – list sample ID(s) and test
- ☐ Insufficient quantities for analysis – list test
- ☐ Improper container(s) used – list test
- ☐ No preservative noted on label – list test and notify lab
- ☐ Sample labels illegible – note test/container type
- ☐ Sample labels do not match COC – Note in comments
  - ☐ Sample ID's
  - ☐ Date and Time Collected
  - ☐ Project Information
  - ☐ # of containers
- ☐ Sample containers compromised – Note in comments
  - ☐ Leaking
  - ☐ Broken
  - ☐ Without Labels

Other

Comments:

VOA HEADSPACE – Containers with Bubble > 6mm:

Sample #	Container ID(s)	Vials Received	Sample #	Container ID(s)	Vials Received	Sample #	Container ID(s)	Vials Received

Comments:

Initial and Date MC 10/25/08