Atlantic Richfield Company
(a BP affiliated company)

P.O. Box 1257
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February 6, 2009

Re: Soil and Ground-Water Investigation and Fourth Quarter, 2008 Quarterly Monitoring Report
Atlantic Richfield Company Station #498
286 South Livermore Avenue
Livermore, CA
ACWD Case No. RO0002873

"I declare, that to the best of my knowledge at the present time, that the information and/or recommendations contained in the attached document are true and correct."

Submitted by:

Paul Supple
Environmental Business Manager

Soil and Ground-Water Investigation
and Fourth Quarter, 2008
Quarterly Monitoring Report
Atlantic Richfield Company Station #498
286 South Livermore Avenue, Livermore, California

Prepared for

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

Prepared by

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

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February, 2009

Project No. 08-82-603

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BROADBENT & ASSOCIATES, INC
ENVIRONMENTAL, WATER RESOURCES & ENGINEERING

February 6, 2009

Project No. 08-82-603

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

Attn.: Mr. Paul Supple

Re: Soil and Ground-Water Investigation and Fourth Quarter, 2008 Quarterly Monitoring Report, Atlantic Richfield Company (a BP affiliated company) Station #498, 286 South Livermore Avenue, Livermore, California. ACWD Case No. RO0002873.

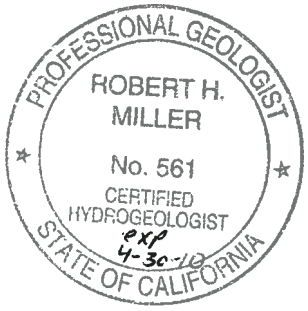
Dear Mr. Supple:

Broadbent & Associates, Inc. (BAI) is pleased to submit this *Soil and Ground-Water Investigation and Fourth Quarter, 2008 Quarterly Monitoring Report* for Station #498 (herein referred to as Station #498) located at 286 South Livermore Avenue, Livermore, California (Property).

Should you have questions concerning this Report, please due not hesitate to contact us at (530) 566-1400.

Sincerely,
BROADBENT & ASSOCIATES, INC.

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



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

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

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Appendix A: Historic Soil Analytical Data

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Appendix C: Status Environmental, Inc. Ground-Water Sampling Data Package (Includes Field Data Sheets, Non-Hazardous Waste Data Form, Chain of Custody

Documentation, Certified Analytical Results, and Field Procedures for Ground-Water Sampling)

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I. Background

Soil and ground-water investigation work activities were conducted in accordance with the BAI September 2, 2008 *Soil and Ground-Water Investigation Work Plan* and October 8, 2008 *Addendum Soil and Ground-Water Investigation Work Plan*. ACEH approved work plan activities in their September 17, 2008 Letter and November 5, 2008 and December 22, 2008 emails. The *Addendum Soil and Ground-Water Investigation Work Plan* was completed in response to the ACEH September 17, 2008 Letter which requested the addition of a fourth monitor well. The Property is currently an operational gas station located in an area of mixed commercial and residential use. The Property consists of a relatively flat asphalt and concrete covered lot. A site vicinity map is provided in Drawing 1.

During product line and dispenser upgrade activities completed in June 2001 Delta Environmental Consultants, Inc. (Delta) collected soil samples beneath the product line and dispenser islands. Total purgeable hydrocarbons as gasoline (TPHg) were detected in two of the four dispenser island samples at 1.8 milligrams per kilogram (mg/Kg) in sample DP-1 and 87 mg/Kg in sample DP-3. Benzene, toluene, ethylbenzene, and total xylenes (BTEX), and methyl tertiary butyl ether (MTBE) were also detected in dispenser island sample DP-3. Only toluene and total xylenes were detected in product line sample PL-2 at relatively low concentrations. Historic soil analytical data are provided in Appendix A. Historic soil sample locations are depicted in Drawing 2. Product line and Dispenser Island Sampling activities are summarized in the Delta September 19, 2001 *Product Line and Dispenser Island Sampling Results* Report.

In January 2005 URS completed a site assessment to fulfill a due diligence audit as part of the sale of the Property. Field activities were conducted to assess whether subsurface soils in the vicinity of the underground storage tanks (USTs) and fuel dispensers had been impacted by petroleum hydrocarbons. The work was not required as part of a regulatory agency directive. Eight soil borings were advanced using a direct push Geoprobe® 6600 drill rig. URS stated in the February 15, 2005 *Site Assessment Report* that the proposed total depth of all borings was 30 feet below land surface (bls); however, due to difficult drilling conditions encountered, the borings were only advanced to depths ranging from 15 to 25 feet bls. Ground water was not encountered in any of the borings. Only MTBE and TBA were detected in four of the soil samples (SB-1-22', SB-1-24', SB-3-25', and SB-8-25') at maximum concentrations of 0.022 mg/kg for MTBE (SB-8-25') and 0.031 mg/kg for TBA (SB-1-22'), respectively. Historic soil analytical data are provided in Appendix A and sample locations are depicted in Drawing 2.

The purpose of this investigation was to further define the vertical and lateral extent of impacted soil and complete an initial ground water investigation.

II. Scope of Work

Four borings were installed and completed as monitor wells (MW-1 through MW-4) to facilitate collection of soil samples and representative ground-water samples. Well locations are depicted in Drawing 2.

III. Project Setup

In accordance with the current contract with Atlantic Richfield Company, Stratus Environmental, Inc. (Stratus) executed the field work associated with this soil and ground-water investigation (i.e., drilling, gauging, and sampling). Stratus obtained a drilling permit from the Zone 7 Water Agency prior to initiation of field work. Upon completion of the field work, Stratus completed a Well Installation Data

Package and Ground-Water Sampling Data Package. The Well Installation Data Package included field data sheets, drilling permit, boring logs, DWR well completion reports, certified analytical results, site plan, and waste disposal certificates. The Ground-Water Sampling Data Package included field data sheets, non-hazardous waste data form, chain of custody documentation, certified analytical results, and field procedures for ground-water sampling. The Well Installation Data Package and Ground-Water Sampling Data Package are provided in Appendix B and C, respectively.

IV. Soil Investigation

Soil borings were advanced using a hollow steam auger drilling technique. Soil samples were collected at five foot intervals beginning five feet bls and continuing to just above the capillary fringe using a split-spoon sampler and brass sleeves. In accordance with the September 2, 2008 Work Plan a minimum of three soil samples were submitted for laboratory analysis from each boring. The three soil samples included: (1) the deepest sample collected just above the capillary fringe, (2) the sample with the highest PID reading, and (3) a sample to be determined in the field. Soil samples were submitted for laboratory analysis from the four borings at the following depths:

- MW-1 - 25, 30, 40 feet bls.
- MW-2 – 40, 45, and 50 feet bls.
- MW-3 – 15, 20, 25, 30, 35, and 40 feet bls
- MW-4 – 30, 35, and 40 feet bls

Soil samples were submitted to Calscience Environmental Laboratories, Inc., a California State-certified laboratory, for analysis of gasoline range organics (GRO) via EPA Method 8015B and benzene, toluene, ethylbenzene, and total xylenes (BTEX) via EPA Method 8260B; and fuel additives methyl tertiary butyl ether (MTBE), tert-butyl alcohol (TBA), ethyl tert-butyl ether (ETBE), tert-amyl methyl ether (TAME), di-isopropyl ether (DIPE), 1,2-dichloroethane (1,2-DCA), 1,2-dibromoethane (EDB), and ethanol via EPA Method 8260B.

Additional details regarding soil boring advancement and the collection of soil samples are provided in the Stratus Data Package included in Appendix B.

V. Ground-Water Investigation

The four soil borings were completed as monitor wells MW-1 through MW-4. As stated in the September 2, 2008 Work Plan depth to ground water was expected to be approximately 20 to 35 feet bls (based on the range of historic depth to static ground water measurements from wells at the former Shell Station located across 3rd Street to the southeast of the Property from the time period 2001 through 2006). However, depth to static ground water at other Atlantic Richfield Company sites in Livermore has historically varied by up to 40 feet. For well screen interval and total well depth, the goal of the investigation was to complete wells with 20 feet of screen with the screened portion of the well crossing the first encountered water bearing zone.

Drilling was initiated on MW-2. Silty gravel was observed to an approximate depth of 15 feet bls. Alternating layers of silty clay, silty clayey/sandy gravel, and clayey silts were noted from 15 feet bls to approximately 50 feet bls. A layer of clayey sand with some gravels were observed from 50 feet bls to approximately 54 feet bls. Ground water was first encountered at approximately 50 feet bls in the borehole. The clayey sand with some gravel layer observed at approximately 50 to 54 feet bls was thought to be the first encountered water bearing zone in the subsurface. Well MW-2 was completed to a

total depth of 57 feet with 20 feet of well screen from total depth to 37 feet bls. The depth to first encountered ground water in MW-2 was much deeper than the expected depth of static water (20 to 35 feet bls) discussed above.

The second well drilled at the site was MW-1. The lithology encountered in MW-1 was generally the same as MW-2 with the exception of slightly lesser fine grained material in MW-1 relative to MW-2. Depth to first encountered ground water in MW-1 was noted at 32 feet bls. The well was completed to 40 feet bls with 20 feet of well screen from total depth to 20 feet bls.

With two wells completed at the site to different total depths (MW-1 to 40 feet and MW-2 to 57 feet) it was thought that the remaining two wells could be completed similar to MW-1 with a total depth of 40 feet. The silty clayey/sandy gravels encountered in both MW-1 and MW-2 at depths of 25 to 35 feet bls were believed to be water bearing zones with very slow recharge into the wells.

The third well drilled was MW-4. Again, the lithology encountered was generally consistent with what had been observed in MW-1 and MW-2. It appeared that water was present in the borehole at 32 feet bls which was consistent with observations in MW-1. The well was completed to 40 feet bls with 20 feet of well screen from total depth to 20 feet bls. With well construction completed Stratus noted that water was not present in the well, despite earlier observations made during drilling.

The fourth and last well drilled was MW-3. Stratus was directed to make sure ground water was present in the borehole before a decision was make on total depth and screen interval. Ground water was first encountered at 52 feet bls. MW-3 was completed to a total depth of 57 feet with 20 feet of well screen from total depth to 37 feet bls.

It is also important to note that the September 2, 2008 Work Plan specified wells constructed using four-inch diameter PVC well casings. Stratus failed to relay this information to the drilling contractor and the wells were ultimately completed with two-inch diameter PVC well casings.

Following completion of well construction, wells were developed by surging/bailing and pumping. After development, the wells were left to hydraulically equilibrate prior to water level measurement and sampling. Ground-water monitoring and sampling was completed on December 29, 2008, 18 days following well development. In accordance with the ACEH September 17, 2008 Letter, the initial monitoring/sampling of wells also serves as the Fourth Quarter, 2008 monitoring/sampling event.

Ground water samples were submitted to Calscience Environmental Laboratories, Inc. for analysis of GRO via EPA Method 8015B; BTXE via EPA Method 8260B; and fuel additives MTBE, TBA, ETBE, TAME, DIPE, 1,2-DCA, EDB, and ethanol via EPA Method 8260B.

Additional details regarding well construction including boring logs and well completion reports are provided in the Stratus Data Package included in Appendix B. Additional details regarding ground-water monitoring/sampling is included in the Stratus Data Package included in Appendix C.

VI. Results of Investigation

Soil Analytical Results

Soil sample analytical results collected from soil borings are provided in Table 1. A Review of Table 1 is summarized as follows:

- GRO were detected in soil samples MW-1 25', MW-1 30', MW-2 45', MW-3 15', MW-3 20', MW-3 25', MW-3 30', MW-4 30', and MW-4 35'. GRO concentrations ranged from 530 mg/kg in MW-3 25' to 0.84 mg/kg in MW-3 30' It is important to note that the number after the space in the sample identification denotes the depth at which the sample was collected in feet bls (i.e., MW-1 25' was collected at a depth of 25 feet bls).
- Ethylbenzene was detected in samples MW-3 20' and MW-3 25' at 0.88 mg/kg and 1.5 mg/kg, respectively.
- Total xylenes were detected in MW-3 25' at 0.17 mg/kg.
- MTBE was detected in samples MW-1 40', MW-2 40', MW-2 45', MW-3 40', and MW-4 35' at concentrations ranging from 0.0019 mg/kg in MW-2 45' to 0.16 mg/kg in MW-1 40'.
- Ethanol was detected in samples MW-1 40', MW-2 45', and MW-4 30' at concentrations ranging from 0.23 mg/kg in MW-1 40' to 0.44 mg/kg in MW-2 25'.
- TBA was detected in soil samples MW-1 40', MW-2 40', MW-2 45', MW-3 15', MW-3 35', MW-3 40', MW-4 30', MW-4 35', and MW-4 40' at concentrations ranging from 0.014 mg/kg (MW-3 40') to 0.65 mg/kg (MW-4 35').

Ground-Water Analytical Results

Drawing 2 depicts an analytical summary map for ground-water samples collected during Fourth Quarter, 2008. Laboratory analytical data are also summarized in Tables 2 and 3. A review of the laboratory analytical data is as follows:

- GRO were detected in MW-1, MW-2, and MW-3 at 1,100 µg/L, 110 µg/L, and 28,000 µg/L, respectively.
- Benzene was detected in MW-1, MW-2, and MW-3 at 38 µg/L, 7.1 µg/L, and 310 µg/L, respectively.
- Toluene was detected in MW-1 at 1.2 µg/L and MW-3 at 200 µg/L
- Ethylbenzene was detected in MW-1 at 4.0 µg/L and MW-3 at 840 µg/L.
- Xylenes were detected in MW-1, MW-2, and MW-3 at 3.3 µg/L, 0.76 µg/L, and 6,200 µg/L, respectively.
- MTBE was detected in MW-1 (17 µg/L), MW-2 (16 µg/L), and MW-3 (71 µg/L)
- TBA was detected in MW-2 at 22 µg/L.

A ground-water sample was not collected from well MW-4 during Fourth Quarter, 2008 as the well was dry.

VII. Summary and Recommendations

Soil sample analytical results show the presence of petroleum hydrocarbon impacted soil at all four sample locations at depths ranging from 15 to 35 feet bls. However, as the water table is historically believed to be present at depths of 25 feet bls, it is presumed that detected soil concentrations below this depth are a result of a fluctuating water table that has likely "smeared" contaminants in soils up to the high water mark. GRO concentrations exceeding the 100 mg/kg San Francisco Bay Regional Water

Quality Control Board Environmental Screening Level (ESL) for deep soils (>3 meters bls) were detected at location MW-3 20' at 210 mg/kg and MW-3 25' at 530 mg/kg.

Elevated ground-water concentrations were detected in well MW-3 and moderately elevated concentrations were detected in wells MW-1 and MW-2. As stated above, well MW-4 was found to be dry. Although three wells were gauged for depth to ground water, a ground-water contour map could not be generated from the data. The ground-water elevation in MW-1 was approximately 20 feet higher than wells MW-2 and MW-3. The discrepancy in ground-water elevations in attributed to the higher screen interval MW-1 relative to the screen intervals in wells MW-2 and MW-3. One possible explanation for the discrepancy could be the presence of localized perched ground-water in the area of MW-1. Future investigations should help determine the exact cause of the discrepancy.

At this point in time it, appears that additional ground water investigation work activities are warranted to better understand the hydrogeology and further define the extent in impacted ground water. However, it is not recommended that an investigation work plan be prepared at this time. Alternatively, it is recommended that two additional quarters (First and Second Quarter, 2009) of ground-water monitoring/sampling be completed. It is possible that ground-water elevations will rebound during the wet winter months to allow the gauging of depth to water and collection of ground-water samples from MW-4. This additional data point will further the understanding of the hydrogeology at the site which should assist in placement of sample locations for future ground-water investigation work activities.

VIII. Closure

This report has been prepared for the exclusive use of Atlantic Richfield Company. Findings presented in this report are based upon: observations of Stratus Environmental, Inc. field personnel and points of investigation and results of laboratory tests performed by Calscience Environmental Laboratories, Inc. in Garden Grove, California. Services were performed in accordance with the generally accepted standard of practice at the time this report was written. No warranty, expressed or implied, is intended. It is possible that variations in the soil or ground-water conditions could exist beyond the points explored in this investigation. Also, changes in site conditions could occur at some time in the future due to variations in rainfall, temperature, regional water usage, or other factors.

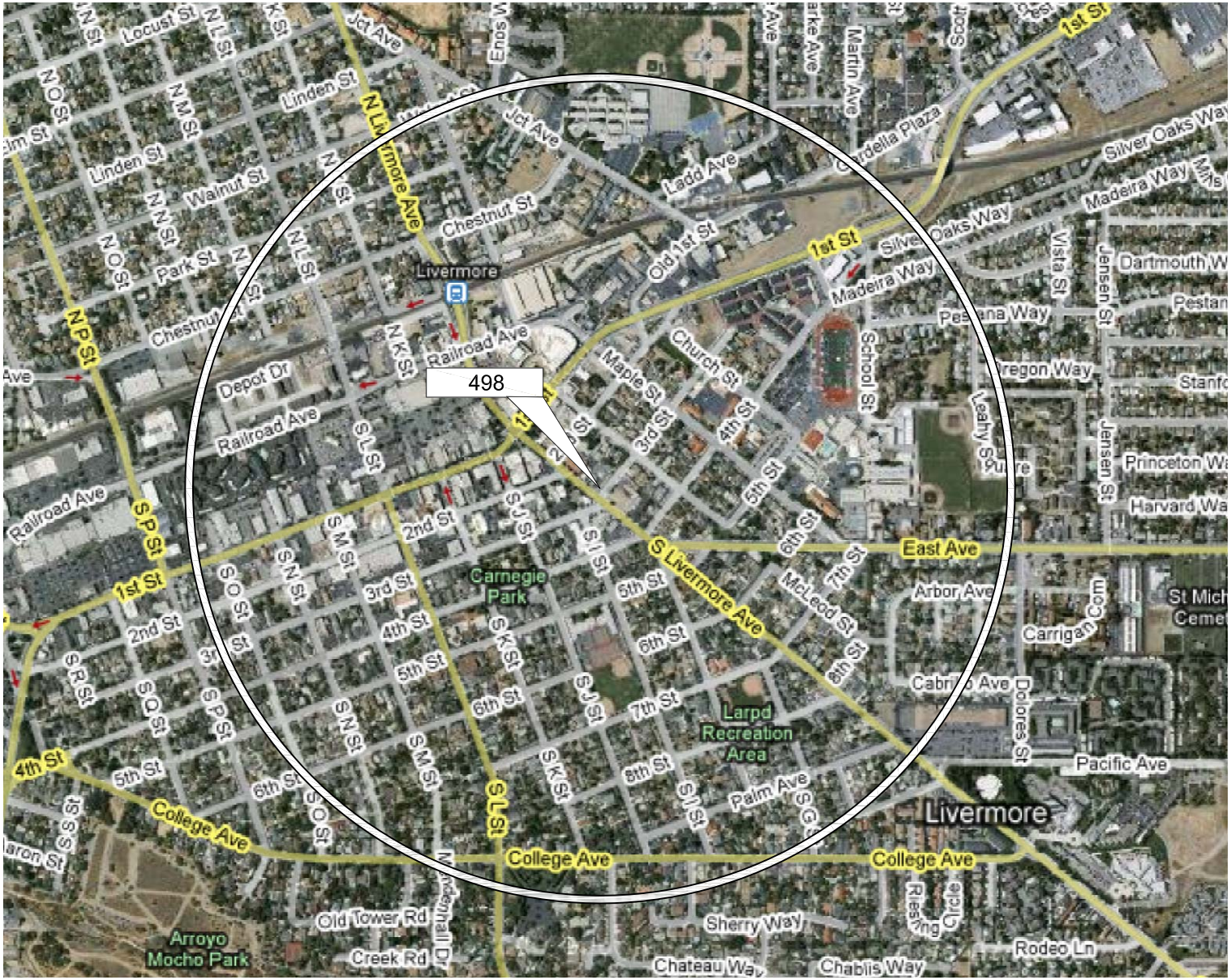
References:

Delta. September 19, 2001. *Product Line and Dispenser Island Sampling Results ARCO Station No. 498.*

URS. February 15, 2005. *Site Assessment Report ARCO Service Station #0498.*

Broadbent & Associates, Inc. September 2, 2008. *Soil and Ground-Water Investigation Work Plan, Atlantic Richfield Company Station #498.*

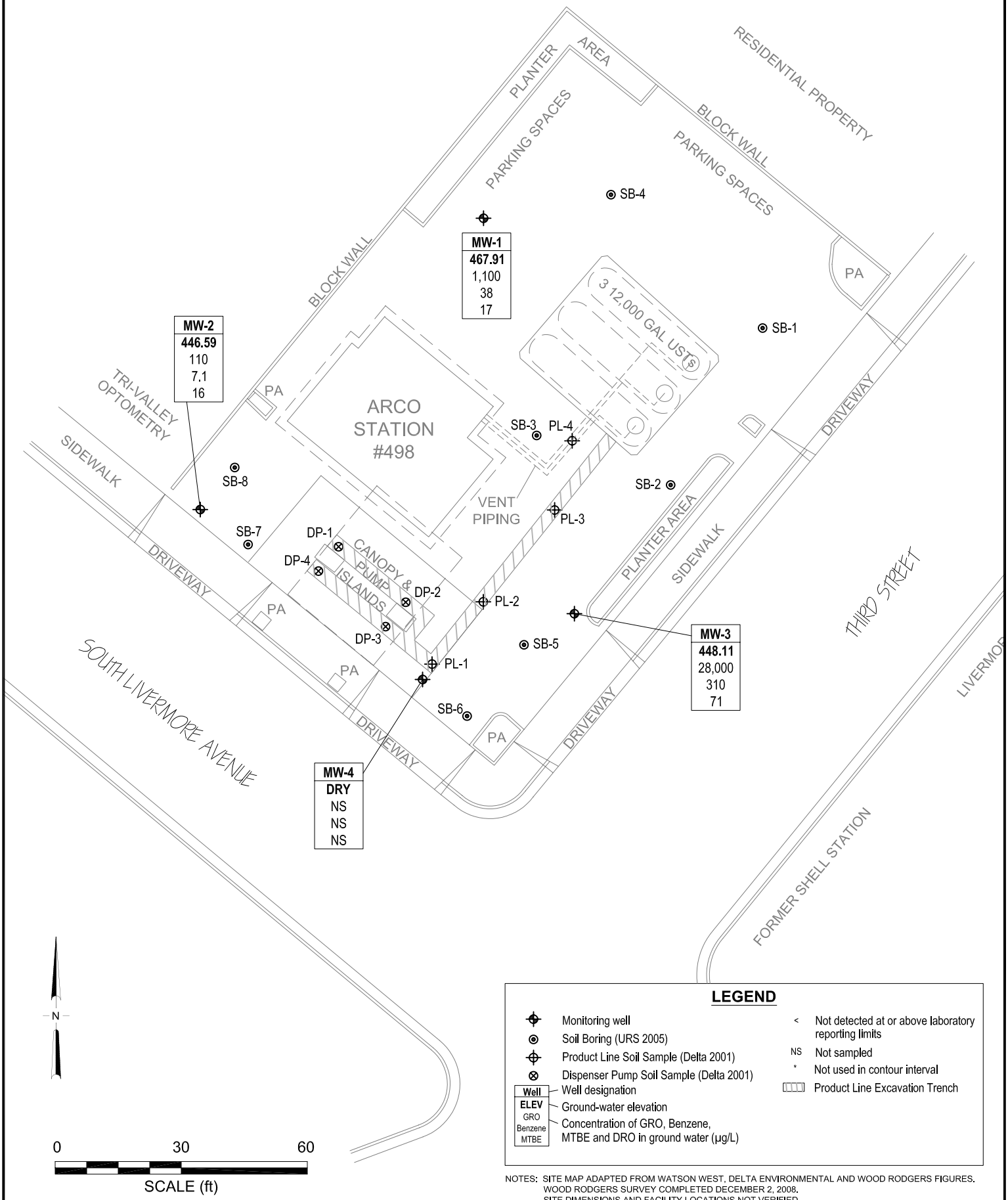
Broadbent & Associates, Inc. October 8, 2008. *Addendum Soil and Ground-Water Investigation Work Plan, Atlantic Richfield Company Station #498.*



BROADBENT & ASSOCIATES, INC. ENGINEERING, WATER RESOURCES & ENVIRONMENTAL 1324 Mangrove Ave. Suite 212, Chico, California Project No.: 08-82-603 Date: 9/2/2008	Station #498 268 South Livermore Avenue Livermore, California	Site Vicinity Map

Drawing

1



LEGEND

- Monitoring well
- Soil Boring (URS 2005)
- Product Line Soil Sample (Delta 2001)
- Dispenser Pump Soil Sample (Delta 2001)
- Well designation
- Ground-water elevation
- Concentration of GRO, Benzene, MTBE and DRO in ground water (µg/L)
- < Not detected at or above laboratory reporting limits
- NS Not sampled
- * Not used in contour interval
- Product Line Excavation Trench

NOTES: SITE MAP ADAPTED FROM WATSON WEST, DELTA ENVIRONMENTAL AND WOOD RODGERS FIGURES. WOOD RODGERS SURVEY COMPLETED DECEMBER 2, 2008. SITE DIMENSIONS AND FACILITY LOCATIONS NOT VERIFIED.

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

Station #498
286 South Livermore Avenue
Livermore, California

Analytical Summary Map with Historic Sample Locations
Project No.: 08-82-603 Date: 12/29/08

Drawing 2

Table 1. Summary of Soil Sample Analytical Data

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

Boring and Sample Date	Sample ID	Concentrations in (mg/kg)								Comments
		GRO/ TPHg	Benzene	Toluene	Ethyl-Benzene	Total Xylenes	MTBE	Ethanol	TBA	
MW-1										
11/24/2008	MW-1 25'	**45**	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.10	<0.010	
11/24/2008	MW-1 30'	**0.86**	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.10	<0.010	
11/24/2008	MW-1 40'	<0.50	<0.0010	<0.0010	<0.0010	<0.0010	**0.16**	**0.23**	**0.036**	
MW-2										
11/24/2008	MW-2 40'	<0.50	<0.0010	<0.0010	<0.0010	<0.0010	**0.010**	<0.10	**0.022**	
11/24/2008	MW-2 45'	**18**	<0.0010	<0.0010	<0.0010	<0.0010	**0.0019**	**0.44**	**0.022**	
11/24/2008	MW-2 50'	<0.50	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.10	<0.010	
MW-3										
11/26/2008	MW-3 15'	**6.7**	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.10	**0.14**	
11/26/2008	MW-3 20'	**210**	<0.0010	<0.0010	**0.88**	<0.0010	<0.0010	<0.10	<0.010	
11/26/2008	MW-3 25'	**530**	<0.10	<0.10	**1.5**	**0.17**	<0.10	<10	<1.0	
11/26/2008	MW-3 30'	**0.84**	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.10	<0.010	
11/26/2008	MW-3 35'	<0.50	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.10	**0.028**	
11/26/2008	MW-3 40'	<0.50	<0.0010	<0.0010	<0.0010	<0.0010	**0.013**	<0.10	**0.014**	
MW-4										
11/25/2008	MW-4 30'	**2.0**	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	**0.35**	**0.054**	
11/25/2008	MW-4 35'	**75**	<0.0010	<0.0010	<0.0010	<0.0010	**0.0030**	<0.10	**0.65**	
11/25/2008	MW-4 40'	<0.50	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.10	**0.14**	

SYMBOLS AND ABBREVIATIONS:

< = Not detected at or above specified laboratory reporting limit
GRO = Gasoline range organics
MTBE = Methyl tert-butyl ether
TBA = Tert-Butyl Alcohol
mg/kg = Milligrams per Kilogram

NOTES:

1,2-dibromoethane (EDB), 1,2-dichloroethane (1,2 DCA), Di-isopropyl ether (DIPE), ethyl tert-butyl ether (ETBE) and ter-amyl methyl ether (TAME) were not detected at or above their respective laboratory reporting limits.

GRO (C6-C12) analyzed using EPA method 8015B.

Benzene, toluene, ethylbenzene, total xylenes, MTBE, ethanol and TBA analyzed using EPA method 8260B.

The number after space in Sample ID denotes the depth at which the sample was collected in feet bls.

Table 2. Summary of Ground-Water Monitoring Data: Relative Water Elevations and Laboratory Analyses

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

Well and Sample Date	P/NP	Comments	TOC (feet msl)	Top of Screen (ft bgs)	Bottom of Screen (ft bgs)	DTW (feet bgs)	Product Thickness (feet)	Water Level Elevation (feet msl)	Concentrations in (µg/L)						DO (mg/L)	pH
									GRO/ TPHg	Benzene	Toluene	Ethyl-Benzene	Total Xylenes	MtBE		
MW-1																
12/29/2008	P		496.72	20	40	28.81	--	467.91	1,100	38	1.2	4.0	3.3	17	2.72	6.83
MW-2																
12/29/2008	P		495.35	37	57	48.76	--	446.59	110	7.1	<0.50	<0.50	0.76	16	1.04	7.67
MW-3																
12/29/2008	P		496.32	37	57	48.21	--	448.11	28,000	310	200	840	6,200	71	1.95	7.39
MW-4																
12/29/2008	--	Dry	496.01	20	40	--	--	--	--	--	--	--	--	--	--	--

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

Table 3. Summary of Fuel Additives Analytical Data

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

Well and Sample Date	Concentrations in (µg/L)								Comments
	Ethanol	TBA	MTBE	DIPE	ETBE	TAME	1,2-DCA	EDB	
MW-1									
12/29/2008	<300	<10	17	<0.50	<0.50	<0.50	<0.50	<0.50	
MW-2									
12/29/2008	<300	22	16	<0.50	<0.50	<0.50	<0.50	<0.50	
MW-3									
12/29/2008	<30,000	<1,000	71	<50	<50	<50	<50	<50	

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

APPENDIX A

HISTORIC SOIL ANALYTICAL DATA

TABLE 1

SOIL SAMPLE LABORATORY ANALYTICAL RESULTS

ARCO Service Station No. 498
286 South Livermore Avenue
Livermore, California

Sample ID	Date	Depth (ft)	Benzene (mg/kg)	Toluene (mg/kg)	Ethyl-benzene (mg/kg)	Total Xylenes (mg/kg)	TPH as gasoline (mg/kg)	MTBE (mg/kg)	Total Lead (mg/kg)
Dispenser Island Samples									
DP-1	06/01/01	3.0	<0.0050	<0.0050	<0.0050	0.019	1.8	<0.050	23
DP-2	06/01/01	3.5	<0.0050	<0.0050	<0.0050	<0.0050	<1.0	<0.050	3.7
DP-3	06/01/01	3.5	0.11	2.8	1.2	8.9	87	3.7	17
DP-4	06/01/01	3.5	<0.0050	<0.0050	<0.0050	<0.0050	<1.0	<0.050	4.2
Product Line Samples									
PL-1	06/01/01	3.8	<0.0050	<0.0050	<0.0050	<0.0050	<1.0	<0.050	2.3
PL-2	06/01/01	4.5	<0.0050	0.011	<0.0050	0.010	<1.0	<0.050	13
PL-3	06/01/01	5.0	<0.0050	<0.0050	<0.0050	<0.0050	<1.0	<0.050	5.4
PL-4	06/01/01	2.5	<0.0050	<0.0050	<0.0050	<0.0050	<1.0	<0.050	190
Soil Stockpile Results									
SP-1,2,3,4	06/01/01	Composite	<0.0050	<0.0050	<0.0050	0.13	5.6	<0.050	32

TPH = Total purgeable hydrocarbons.
MTBE = Methyl tertiary butyl ether (analyzed by DHS LUFT Methods)
NA = Not Analyzed

Table 1 - Soil Analytical Data
ARCO Service Station #0498
286 South Livermore Avenue, Livermore California

Sample Name	Sample Depth (ft)	Date Sampled	TPH-GRO (mg/kg)	Benzene (mg/kg)	Toluene (mg/kg)	Ethylbenzene (mg/kg)	Xylenes (mg/kg)
SB-1-7'	7.0	01/20/05	ND <1.0	ND <0.005	ND <0.005	ND <0.005	ND <0.005
SB-1-12'	12.0	01/20/05	ND <1.0	ND <0.005	ND <0.005	ND <0.005	ND <0.005
SB-1-17'	17.0	01/20/05	ND <1.0	ND <0.005	ND <0.005	ND <0.005	ND <0.005
SB-1-22'	22.0	01/20/05	ND <1.0	ND <0.005	ND <0.005	ND <0.005	ND <0.005
SB-1-24'	24.0	01/20/05	ND <1.0	ND <0.005	ND <0.005	ND <0.005	ND <0.005
SB-2-10'	10.0	01/19/05	ND <1.0	ND <0.005	ND <0.005	ND <0.005	ND <0.005
SB-2-15'	15.0	01/19/05	ND <1.0	ND <0.005	ND <0.005	ND <0.005	ND <0.005
SB-2-18.5'	18.5	01/19/05	ND <1.0	ND <0.005	ND <0.005	ND <0.005	ND <0.005
SB-3-10'	10.0	01/19/05	ND <1.0	ND <0.005	ND <0.005	ND <0.005	ND <0.005
SB-3-15'	15.0	01/19/05	ND <1.0	ND <0.005	ND <0.005	ND <0.005	ND <0.005
SB-3-20'	20.0	01/19/05	ND <1.0	ND <0.005	ND <0.005	ND <0.005	ND <0.005
SB-3-25'	25.0	01/19/05	ND <1.0	ND <0.005	ND <0.005	ND <0.005	ND <0.005
SB-4-7'	7.0	01/19/05	ND <1.0	ND <0.005	ND <0.005	ND <0.005	ND <0.005
SB-4-12'	12.0	01/19/05	ND <1.0	ND <0.005	ND <0.005	ND <0.005	ND <0.005
SB-4-17'	17.0	01/19/05	ND <1.0	ND <0.005	ND <0.005	ND <0.005	ND <0.005
SB-4-22'	22.0	01/19/05	ND <1.0	ND <0.005	ND <0.005	ND <0.005	ND <0.005
SB-5-10'	10.0	01/20/05	ND <1.0	ND <0.005	ND <0.005	ND <0.005	ND <0.005
SB-5-15'	15.0	01/20/05	ND <1.0	ND <0.005	ND <0.005	ND <0.005	ND <0.005
SB-6-10'	10.0	01/20/05	ND <1.0	ND <0.005	ND <0.005	ND <0.005	ND <0.005
SB-6-15'	15.0	01/20/05	ND <1.0	ND <0.005	ND <0.005	ND <0.005	ND <0.005
SB-6-22'	22.0	01/20/05	ND <1.0	ND <0.005	ND <0.005	ND <0.005	ND <0.005
SB-7-10'	10.0	01/20/05	ND <1.0	ND <0.005	ND <0.005	ND <0.005	ND <0.005
SB-7-14.5'	14.5	01/20/05	ND <1.0	ND <0.005	ND <0.005	ND <0.005	ND <0.005
SB-7-20'	20.0	01/20/05	ND <1.0	ND <0.005	ND <0.005	ND <0.005	ND <0.005
SB-8-10'	10.0	01/20/05	ND <1.0	ND <0.005	ND <0.005	ND <0.005	ND <0.005
SB-8-15'	15.0	01/20/05	ND <1.0	ND <0.005	ND <0.005	ND <0.005	ND <0.005
SB-8-20'	20.0	01/20/05	ND <1.0	ND <0.005	ND <0.005	ND <0.005	ND <0.005
SB-8-25'	25	01/20/05	ND <1.0	ND <0.005	ND <0.005	ND <0.005	ND <0.005

Notes:
ND = Not Detected at or above the laboratory reporting limit
mg/kg = milligrams per kilogram
TPH-GRO = Total Petroleum Hydrocarbons gasoline range organics
BTEX = Benzene, toluene, ethylbenzene, and xylenes

Table 2 Soil Analytical Data-Oxygenates
ARCO Service Station #0498
286 South Livermore Avenue, Livermore California

Sample Name	Sample Depth (ft)	Date Sampled	Ethanol (mg/kg)	TBA (mg/kg)	MTBE (mg/kg)	DIPE (mg/kg)	ETBE (mg/kg)	TAME (mg/kg)	1,2-DCA (mg/kg)	EDB (mg/kg)
SB-1-7'	7.0	01/20/05	ND <0.1	ND <0.01	ND <0.005	ND <0.01	ND <0.005	ND <0.005	ND <0.005	ND <0.005
SB-1-12'	12.0	01/20/05	ND <0.1	ND <0.01	ND <0.005	ND <0.01	ND <0.005	ND <0.005	ND <0.005	ND <0.005
SB-1-17'	17.0	01/20/05	ND <0.1	ND <0.01	ND <0.005	ND <0.01	ND <0.005	ND <0.005	ND <0.005	ND <0.005
SB-1-22'	22.0	01/20/05	ND <0.1	**0.031**	**0.015**	ND <0.01	ND <0.005	ND <0.005	ND <0.005	ND <0.005
SB-1-24'	24.0	01/20/05	ND <0.1	**0.025**	**0.006**	ND <0.01	ND <0.005	ND <0.005	ND <0.005	ND <0.005
SB-2-10'	10.0	01/19/05	ND <0.1	ND <0.01	ND <0.005	ND <0.01	ND <0.005	ND <0.005	ND <0.005	ND <0.005
SB-2-15'	15.0	01/19/05	ND <0.1	ND <0.01	ND <0.005	ND <0.01	ND <0.005	ND <0.005	ND <0.005	ND <0.005
SB-2-18.5'	18.5	01/19/05	ND <0.1	ND <0.01	ND <0.005	ND <0.01	ND <0.005	ND <0.005	ND <0.005	ND <0.005
SB-3-10'	10.0	01/19/05	ND <0.1	ND <0.01	ND <0.005	ND <0.01	ND <0.005	ND <0.005	ND <0.005	ND <0.005
SB-3-15'	15.0	01/19/05	ND <0.1	ND <0.01	ND <0.005	ND <0.01	ND <0.005	ND <0.005	ND <0.005	ND <0.005
SB-3-20'	20.0	01/19/05	ND <0.1	ND <0.01	ND <0.005	ND <0.01	ND <0.005	ND <0.005	ND <0.005	ND <0.005
SB-3-25'	25.0	01/19/05	ND <0.1	**0.021**	**0.011**	ND <0.01	ND <0.005	ND <0.005	ND <0.005	ND <0.005
SB-4-7'	7.0	01/19/05	ND <0.1	ND <0.01	ND <0.005	ND <0.01	ND <0.005	ND <0.005	ND <0.005	ND <0.005
SB-4-12'	12.0	01/19/05	ND <0.1	ND <0.01	ND <0.005	ND <0.01	ND <0.005	ND <0.005	ND <0.005	ND <0.005
SB-4-17'	17.0	01/19/05	ND <0.1	ND <0.01	ND <0.005	ND <0.01	ND <0.005	ND <0.005	ND <0.005	ND <0.005
SB-4-22'	22.0	01/19/05	ND <0.1	ND <0.01	ND <0.005	ND <0.01	ND <0.005	ND <0.005	ND <0.005	ND <0.005
SB-5-10'	10.0	01/20/05	ND <0.1	ND <0.01	ND <0.005	ND <0.01	ND <0.005	ND <0.005	ND <0.005	ND <0.005
SB-5-15'	15.0	01/20/05	ND <0.1	ND <0.01	ND <0.005	ND <0.01	ND <0.005	ND <0.005	ND <0.005	ND <0.005
SB-6-10'	10.0	01/20/05	ND <0.1	ND <0.01	ND <0.005	ND <0.01	ND <0.005	ND <0.005	ND <0.005	ND <0.005
SB-6-15'	15.0	01/20/05	ND <0.1	ND <0.01	ND <0.005	ND <0.01	ND <0.005	ND <0.005	ND <0.005	ND <0.005
SB-6-22'	22.0	01/20/05	ND <0.1	ND <0.01	ND <0.005	ND <0.01	ND <0.005	ND <0.005	ND <0.005	ND <0.005
SB-7-10'	10.0	01/20/05	ND <0.1	ND <0.01	ND <0.005	ND <0.01	ND <0.005	ND <0.005	ND <0.005	ND <0.005
SB-7-14.5'	14.5	01/20/05	ND <0.1	ND <0.01	ND <0.005	ND <0.01	ND <0.005	ND <0.005	ND <0.005	ND <0.005
SB-7-20'	20.0	01/20/05	ND <0.1	ND <0.01	ND <0.005	ND <0.01	ND <0.005	ND <0.005	ND <0.005	ND <0.005
SB-8-10'	10.0	01/20/05	ND <0.1	ND <0.01	ND <0.005	ND <0.01	ND <0.005	ND <0.005	ND <0.005	ND <0.005
SB-8-15'	15.0	01/20/05	ND <0.1	ND <0.01	ND <0.005	ND <0.01	ND <0.005	ND <0.005	ND <0.005	ND <0.005
SB-8-20'	20.0	01/20/05	ND <0.1	ND <0.01	ND <0.005	ND <0.01	ND <0.005	ND <0.005	ND <0.005	ND <0.005
SB-8-25'	25	01/20/05	ND <0.1	**0.012**	**0.022**	ND <0.01	ND <0.005	ND <0.005	ND <0.005	ND <0.005

Notes:

ND = Not Detected at or above the laboratory reporting limit
mg/kg = milligrams per kilogram
TBA = Tert-butyl alcohol
MTBE = Methyl tertiary butyl ether
DIPE = Di-isopropyl ether
ETBE = Ethyl tertiary butyl ether
TAME = Tert-amyl methyl ether
1,2-DCA = 1,2-Dichloroethane
EDB = 1,2-Dibromoethane

APPENDIX B

STRATUS ENVIRONMENTAL, INC. WELL INSTALLATION DATA PACKAGE (INCLUES FIELD DATA SHEETS, DRILLING PERMIT, BORING LOGS, DWR WELL COMPLETION REPORTS, CERTIFIED ANALYTICAL RESULTS, SITE PLAN, AND WASTE DISPOSAL CERTIFICATES)

STRATUS
ENVIRONMENTAL, INC.

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

January 22, 2009

Mr. Matt Herrick
Broadbent & Associates, Inc.
2000 Kirman Avenue
Reno, NV 89502

Re: Well Installation Data Package, ARCO Service Station No. 498, located at 286 South Livermore Avenue, Livermore California (field activities performed between October 17 and December 11, 2008)

General Information

Data Submittal Prepared / Reviewed by: Collin Fischer / Scott Bittinger
Phone Number: (530) 676-2062 (Scott Bittinger)

Date: October 17, 2008 *Arrival:* 12:00 *Departure:* 14:15
On-Site Supplier Representative: Collin Fischer
Scope of Work Performed: Health and safety meeting. Meet with utility locating subcontractor (Cruz Brothers Locators). Clear 4 locations (MW-1 through MW-4). Call to Broadbent and Associates, Inc. to discuss placement of MW-4.
Variations from Work Scope: None noted
Weather Conditions: Sunny, clear
Unusual Field Conditions: None noted

Date: November 20, 2008 *Arrival:* 08:00 *Departure:* 15:00
On-Site Supplier Representative: Collin Fischer
Scope of Work Performed: Health and safety meeting. Meet with air knife subcontractor (Woodward Drilling Company). Air knife clear 2 locations (MW-1 and MW-2) to 5 feet bgs.
Variations from Work Scope: None noted
Weather Conditions: Cloudy
Unusual Field Conditions: Subsurface materials encountered in the upper 5 feet included large rock cobbles and asphalt/concrete debris backfill.

Date: November 21, 2008 *Arrival:* 07:00 *Departure:* 16:30
On-Site Supplier Representative: Collin Fischer
Scope of Work Performed: Health and safety meeting. Meet with air knife subcontractor. Air knife clear 2 locations (MW-3 and MW-4) to 5 feet bgs. Concrete core 1 location (MW-4).
Variations from Work Scope: None noted

Weather Conditions: Sunny, clear
Unusual Field Conditions: While clearing MW-3, large thick layers of asphalt and concrete found. Permission was granted onsite from BP/ARCO personnel to break through these layers and the boring was cleared to 5 feet bgs.

Date: November 24, 2008 *Arrival:* 07:00 *Departure:* 15:00
On-Site Supplier Representative: Collin Fischer and Josh Slater
Scope of Work Performed: Health and safety meeting. Meet with drilling subcontractor (Woodward Drilling Company). Install one well (MW-2) to 57 feet bgs. MW-1 well boring was drilled to 40 feet bgs and left overnight in order to allow for water to enter the boring (request from Broadbent and Associates).
Variations from Work Scope: None noted
Weather Conditions: Sunny, clear
Unusual Field Conditions: None noted

Date: November 25, 2008 *Arrival:* 07:00 *Departure:* 16:45
On-Site Supplier Representative: Collin Fischer and Josh Slater
Scope of Work Performed: Health and safety meeting with drilling subcontractor. Finish installing well MW-1 at 40 feet bgs. Install well MW-4 to 40 feet bgs. Started drilling at location MW-3, advanced boring to 40 feet bgs. Augers were left in ground overnight to allow for groundwater to enter the boring (request from Broadbent and Associates).
Variations from Work Scope: None noted
Weather Conditions: Sunny, clear
Unusual Field Conditions: No water was encountered at location MW-4. After discussions with Broadbent and Associates, well MW-4 was installed to 40 feet bgs.

Date: November 26, 2008 *Arrival:* 07:00 *Departure:* 12:00
On-Site Supplier Representative: Collin Fischer
Scope of Work Performed: Health and safety meeting. Meet with drilling subcontractor. Call to Broadbent and Associates to discuss desired well depth, after checking depth to groundwater in the borehole. Extend boring to 57 feet bgs and install well MW-3.
Variations from Work Scope: None noted
Weather Conditions: Sunny, clear
Unusual Field Conditions: None noted

Date: December 11, 2008 *Arrival:* Not Noted *Departure:* Not Noted
On-Site Supplier Representative: Levi Ford
Scope of Work Performed: Health and safety meeting. Developed well MW-1 through MW-4
Variations from Work Scope: None noted
Weather Conditions: Sunny, clear

Unusual Field Conditions: Due to low groundwater recharge rates, or the absence of groundwater in the well casing, municipal water was added to the well casing to facilitate development (with concurrence from Broadbent and Associates). The approximate quantities of water added to the wells, and the amount of water evacuated from the well during development/purging, are documented in an attached field data sheet.

This submittal presents the tabulation of data collected in association with the installation and development of four monitoring wells. The attachments include field data sheets, drilling permit, boring logs, DWR well completion reports, certified analytical results, site plan and waste disposal certificates. 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
- Drilling Permit
- Boring logs
- DWR well completion reports
- Certified analytical results
- Site Plan
- Waste disposal certificates

Cc: Paul Supple, BP/ARCO

ARCO 498 - Collin Fischer

SUNNY
CLEAR
10/17/08

1200 -> ONSITE, SAFETY MEETING

1230 -> CLEAR BORING LOCATIONS, CALL MATT HERRICK OF BLOOD BENT REGARDING MW-4 LOCATION

1330 -> SKETCH UTILITIES ONTO SITE MAP FOR BLOODBENT'S REQUEST

1415 -> OFFSITE

Collin F

Field Data Sheet

Site: BP/Arco 498 **Date:** 4/20/08

Personnel on site: Collin Fischer

Weather Conditions: [redacted] Cloudy

Notes:

0800 → ONSITE, SAFETY MEETING, DISCUSS SCOPE, SITE WALK.

0830 → SET UP ON MW-1, SET UP EXCLUSION ZONE

0850 → START JACKHAMMER / AIR KNIFE ON MW-1

1015 → STARTS TO PUSH LIQUID, CONTINUE WORK

1130 → (MW-1) CLEANED TO 5' BGS, SWEEP TOP & FILL & PATCH, TAKE LUNCH BEFORE STARTING (MW-2)

200 → MOVE TO (MW-2) SET UP EXCLUSION ZONE, JACKHAMMER

1245 → BEGIN AIR KNIFE.

1400 → HOLE CLEANED, FILL & PATCH SURFACE.

1430 → CLEANUP & SECURE SITE

1500 → OFFSITE

[signature]

STRATUS ENV., INC.

Field Data Sheet

Site: BP/Arco 498 **Date:** 11/21/08

Personnel on site: Collin Fischer

Weather Conditions: Sunny, Clear

Notes:

0700 ONSITE, SAFETY MEETING: DISCUSS SCOPE, CONCRETE CUTTER WILL BE HERE @ 8AM.

0800 SET UP ON (MW-3) W/ AIR, ON (MW-4) W/ CONCRETE CORER

SAFETY MEETING W/ CONCRETE CREW.

0830 BEGIN CORING & AIR ENTERING

0900 SAME BOULDERS, COBBLES IN A CLAYEY SILT MATRIX, MAKE AIR USE SLOW & TIME CONSUMING.

CONCRETE CORER DONE W/ (MW-4) CLEANUP AREA, & REMOVE CORES.

0910 → MILLER EXPL OFFICE TO PICK UP SAMPLES THEN OFFSITE.

0915 CAN OFFICE ABOUT LAYER OF THICK CONCRETE @ 1'5" DEPTH @ MW-3. PERMISSION GIVEN TO BREAK UP & PUSH THROUGH.

0930 → DEL SECO CONCRETE CORER OFFSITE, MADE IT THROUGH FILL LAYER MW-3 NO PROBLEM, OLD ASPHALT LAYER USED AS BACKFILL.

1000 → CALL FROM MATT TURNER OF BROADBENT REGARDING MONDAY & START TIME SO HE CAN BE PRESENT ONSITE.

1015 → CALL TO WISEMAN HOME TO SCHEDULE ABOUT INSPECTIONS. WILL BE APPROVED

1030 → CALL TO OFFICE ABOUT MORE ASPHALT LAYERS, PAUL SUPPLE SOON.

1045 → PAUL SUPPLE ONSITE, SAFETY MEETING; DISCUSS MW-3, HE WILL MAKE SOME CALLS REGARDING MW-3, AIR LANCE CONTINUES CLEARING ATTEMPT.

1145 → FINISH CLEANING TO 5' BGS. FILL & PATCH, MOVE TO (MW-4), TAKE LUNCH.

1215 WOODWARD OFFSITE TO GET SAND DURING LUNCH

1330 → IN W/ BACK, SAFETY MEETING & RESUME WORK ON (MW-4)

1400 → BEGIN AIR ENTERING (MW-4)

1500 → @ 5' BGS @ (MW-4), FILL & PATCH

1520 → FILL DRUMS, & TAKE DOWN EXCLUSION ZONE

1600 → LABEL DRUMS

1615 → SECURE SITE

1630 → OFFSITE

STRATUS ENV, INC.

530 819 7541

Field Data Sheet

Site: BP/Arco 498 **Date:** 11/24/08

Personnel on site: Collin Fischer, Josh Slater

Weather Conditions: Clear Sunny

Notes:

0700 -> ONSITE, JOSH SLATER ONSITE, WAITING FOR WOODWARD TO ARRIVE

0800 -> WOODWARD ARRIVES, SAFETY MEETING, SET UP EXCLUSION ZONE & PULL ONTO MW-2

0845 -> CALL TO OFFICE TO DISCUSS WHY 2" CASING WAS SENT, NOT 4" AS DISCUSSED IN THE WORK PLAN. CALL TO MATT HERLICK TO DISCUSS WHAT THE PLAN IS. WAITING FOR CALL BACK.

0900 -> BROADBENT ARRIVES, SAFETY MEETING, DISCUSS 2"-4" WELL PROBLEMS.

0930 -> PERMISSION GIVEN FOR 2" WELLS, MOVE TO MW-2 & SET UP. BROADBENT WILL OVERSEE THE FIRST WELL BEING INSTALLED.

0945 -> BEGIN DRILLING.

1130 -> WAITING FOR H_2O TO COME INTO HOLE, TAKE LUNCH

1210 -> BROADBENT BACK ONSITE, DISCUSS SCREEN INTERVAL

1230 -> H_2O @ 53.57', SCREEN SAND 57-34 BENT 34-31 CEMENT 0-31 57-37', SAMPLES 40-45 & 50 SENT FOR ANALYSES. MW-2

1300 -> BROADBENT OFFSITE TO GO CHECK OUT RAISE & REBUILD OF STATION # 6113 DOWN THE STREET.

1330 -> WELL SET @ 57', TAG H_2O @ 49.37' BGS. SURGE WELL & SET BENTONITE.

1400 -> AUGERS PULLED. GROUT USING TREMIE-PIPE, START MIXING GROUT.

1425 -> DECON AUGERS WHILE MIXING GROUT.

1500 -> WELL TAGGED @ 47.67' DTW. JOSH OFFSITE, TALKED W/ LAB THEY WILL BE BY TO PICK UP SAMPLES TOM, POSSIBLY END OF DAY TO PICK UP ALL OF THEM @ ONCE.

1530 -> START DRILLING MW-1, will log TOM DUE TO TIMECONSTRAINTS RESPONSIBILITIES.

1615 -> DRILLED TO 46'. PULLED BACK TO 35' & LET SIT OVERNIGHT TO SEE IF H_2O COMES INTO HOLE.

1630 CLEANUP & SECURE SITE

1500 OFFSITE.

Collin Fischer

STRATUS ENV., INC.

ARCO 498 – Commissioner
JOSH SLATER

11/25/08
OVERCAST

0700 → ONSITE, START INVENTORY, TAG MW-1, H2O @ 32', CALL BROADBENT & DISCUSS WHERE WELL SHOULD BE SET, AWAITING CALL BACK, IN MEANTIME, SET UP & TOWER UP.

0730 → TALK W/ MATT OF BROADBENT, TAG H2O @ (MW-2) UPON REQUEST, H2O @ 44.6', MATT STILL WANTS (MW-1) & REMAINING WELLS SET @ 40' W/ SCREEN (20'-40').

0745 → CONTINUE DRILLING MW-1 & TAKE 40' SAMPLE.

0800 → SET WELL @ 40' BGS.

(MW-1)

SCREEN	20-40
SAND	40-17
BENT	17-14
GROUT	0-14

0900 → MOVE TO & SET UP ON (MW-4), (MW-1) H2O TAGGED @ (21.8' BGS).

0920 → BEGIN DRILLING.

1000 → @ 40' BGS, PULL 15' & WAIT FOR H2O, DO A RECHARGE TEST ON (MW-1) IT IS RECHARGING @ 17 SEC PER .1 FEET

1115 → TALK W/ MATT OF BROADBENT, HE SAYS SET WELL @ 40' BGS. I WILL SURGE & SEE IF WELL RECHARGES.

1200 → WELL SET @ 40'

(BILL HAZLETTY OF WW ONSITE TO DO AN AUDIT OF WOODWARD WORKERS)

(MW-4)

SCREEN	20-40
SAND	17-40
BENT	14-17
GROUT	0-14

1220 → NO H2O IN WELL, POUR IN 10 GALLONS & SURGE FOR 5 MINUTES TO TRY & PARTIALLY DEVELOP WELL, & SET FILTER PACK. THE [illegible] 24.95

1230 → PULL OF MW-4 & MOVE TO MW-3.

1300 → CUSTOMER @ GAS STATION HITS PUMP WHILE BACKING OUT OF PUMP, PARTIALLY BREAKS PUMP HOLDER OFF OF PUMP, DOCUMENT A NEAR MISS. PICTURES TAKEN

1320 → START DRILLING (MW-3) 1330 → SLIGHT DRIZZLE, HAVE TAILGATE TO DISCUSS USE CAUTION ON WET SURFACES

1430 → @ 40', CALL BROADBENT, AWAITING CALL BACK ABOUT WELL DEPTH.

1450 → PULL 20' OF AUGER & GROUT OTHER HOLES, IF NO H2O BY TIME DONE WAIT OVERNIGHT, THEN CALL W/ RESULTS.

1545 → DONE W/ GROUT, STILL NO H2O IN HOLE, TOWER DOWN, CLEANUP & SECURE HOLE FOR THE NIGHT, (MW-4) IS RECHARGING AT A VERY SLOW RATE 10-15 MIN PER .1 FEET

1615 → SECURE SITE (SECURE MW'S W/ BENTONITE & COVER W/ DRUM TO SEAL IT.)

TAGGED @ 38.50 H2O

1645 → OFFSITE

[signature]

STRATUS ENV., INC.

AR10 498 - COLLIN FISCHER

11/26/08
OVERCAST

0700 → ONSITE, SAFETY MEETING, CHECK (MW-4) H_2O LEVEL
CHECK TO SEE IF H_2O IN (MW-3) BOREHOLE.
(MW-3) HAS NO H_2O IN BOREHOLE, (MW-4) DROPPED FROM
38.50 @ 1620 ON 11/25/08 TO 39.20 @ 0720 ON 11/26/08

0725 → CALL BROADBENT TO DISCUSS PLAN OF ACTION, MEANWHILE SET UP
ON (MW-3). AWAITING CALL BACK.

0735 → DECIDED THAT WE NEED TO DRILL 5' & WAIT FOR H_2O &
REPEAT UNTIL WE GET H_2O. TOWER UP & DRILL TO 45' BGS.

0805 → @ 45' BGS PULL 5' & WAIT FOR H_2O.

0825 → RESUME DRILLING. & DRILL TO 50' BGS, PULL 5' & WAIT FOR H_2O

0845 → RESUME DRILLING, & DRILL TO 55' BGS, PULL 5' & WAIT FOR H_2O

0850 → CALL BROADBENT, H_2O @ 51.91, TALK ABOUT WELL SPECS WELL SET 57'
TAG (MW-1) @ 29.73' BGS H_2O

(MW-3)
SCREEN 37-57
SAND 34-57
BENT 31-34
GROUT 0-31

0900 BEGIN SETTING WELL → (MW-3)

0940 → WELL SET @ 57' START MIXING GROUT.

1030 → WELL GROUTED TO SURFACE, TOP OF (MW-1) & (MW-4), TAG H_2O @ 48.80 IN (MW-3)

1050 → SET BOX, CLEAN OUT GROUT & DECON TANK & DRUM WASTE.

1130 → LABEL DRUMS & CLEANUP WORK AREA

1145 → SECURE SITE

1200 → OFFSITE

STRATUS ENV., INC.

ENVIRONMENTAL, INC.

Developed / Sampled by: Levi Ford
Signature

Site Number 498
Project Number E-498
Project PM Scott Bittinger
DATE 12/11/08

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	10 ¾ 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)
MW-1	1045	N/A	29.98	36.92	6.94	2	1.67	11.59	11.50		X	Added approx 5 gal tap H_2O					
-2	1318		49.88	56.46 ~~55.05~~	6.78	2	1.67	11.32	11.0		X	Well recharged ncs H_2O					Added
-3	1139		49.11	~~49.98~~	5.94	2	1.67	9.92	10.00		X	Added approx 5 gal tap H_2O					
-4	1238		Dry	39.60	0	2	1.67	0	3.0		X	Added approx 5 gal tap H_2O					
												Surge purge well 15 min then bail out approx 3 gal H_2O					
MW-1	1130			40.12													
-2	1352			57.02													
-3	1221			55.33													
-4	1307			N/A													

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
Conductivity
DO

ZONE 7 WATER AGENCY

100 NORTH CANYONS PARKWAY, LIVERMORE, CALIFORNIA 94551 VOICE (925) 454-5000 FAX (925) 245-9306
E-MAIL whong@zone7water.com

DRILLING PERMIT APPLICATION

FOR APPLICANT TO COMPLETE

FOR OFFICE USE

LOCATION OF PROJECT 286 South Livermore Avenue, Livermore

Coordinates Source Google earth ft. Accuracy Unknown ft.
LAT: 37° 40' 52.67" N ft. LONG: 121° 45' 59.45" W ft.
APN 97-109-6

CLIENT
Name BP/ARCO
Address 6 Centerpointe Drive Phone 925-275-3801
City La Palma Zip 90623

APPLICANT
Name Strahs Environmental, Inc.
Email SBittinger@strahsinc.net Fax 530-676-6005
Address 3330 Cameron Park Dr. #550 Phone 530-676-2062
City Cameron Park, CA Zip 95682

TYPE OF PROJECT:

Well Construction	(9)	Geotechnical Investigation	9
Well Destruction	9	Contamination Investigation	9
Cathodic Protection	9	Other	9

PROPOSED WELL USE:

Domestic	9	Irrigation	9
Municipal	9	Remediation	9
Industrial	9	Groundwater Monitoring	(9)
Dewatering	9	Other	9

DRILLING METHOD:

Mud Rotary	9	Air Rotary	9	Hollow Stem Auger	(9)
Cable Tool	9	Direct Push	9	Other	9

DRILLING COMPANY Woodward Drilling Company
DRILLER'S LICENSE NO. 710079
WELL SPECIFICATIONS:
Drill Hole Diameter 8 in. Maximum Depth 60 (probably 40'-45') ft.
Casing Diameter 2 in.
Surface Seal Depth to be determined ft. Number MW-1 TO MW-4

SOIL BORINGS:
Number of Borings _____ Maximum
Hole Diameter _____ in. Depth _____ ft.

ESTIMATED STARTING DATE 11-24-08
ESTIMATED COMPLETION DATE 11-24-08

I hereby agree to comply with all requirements of this permit and Alameda County Ordinance No. 73-68.

APPLICANT'S SIGNATURE Scott Bittinger Date 10-7-08
Scott Bittinger

ATTACH SITE PLAN OR SKETCH

PERMIT NUMBER 28148
WELL NUMBER 3S/2E-9N17 to 9N20 (MW-1 to MW-4)
APN 097-0109-006-00

PERMIT CONDITIONS
(Circled Permit Requirements Apply)

(A) GENERAL
1. A permit application should be submitted so as to arrive at the Zone 7 office five days prior to your proposed starting date.
2. Submit to Zone 7 within 60 days after completion of permitted work the original Department of Water Resources Water Well Drillers Report (DWR Form 188), signed by the driller.
3. Permit is void if project not begun within 90 days of approval date.

B. WATER SUPPLY WELLS
1. Minimum surface seal diameter is four inches greater than the well casing diameter.
2. Minimum seal depth is 50 feet for municipal and industrial wells or 20 feet for domestic and irrigation wells unless a lesser depth is specially approved.
3. Grout placed by tremie.
4. An access port at least 0.5 inches in diameter is required on the wellhead for water level measurements.
5. A sample port is required on the discharge pipe near the wellhead.

(C) GROUNDWATER MONITORING WELLS INCLUDING PIEZOMETERS
1. Minimum surface seal diameter is four inches greater than the well or piezometer casing diameter.
2. Minimum seal depth for monitoring wells is the maximum depth practicable or 20 feet.
3. Grout placed by tremie.

D. GEOTECHNICAL. Backfill bore hole with compacted cuttings or heavy bentonite and upper two feet with compacted material. In areas of known or suspected contamination, tremied cement grout shall be used in place of compacted cuttings.

E. CATHODIC. Fill hole above anode zone with concrete placed by tremie.

F. WELL DESTRUCTION. See attached.

G. SPECIAL CONDITIONS. Submit to Zone 7 within 60 days after completion of permitted work the well installation report **including all soil and water laboratory analysis results**.

Approved Wyman Hong Date 10/21/08
Wyman Hong

Revised: April 23, 2008

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)

REMOVED

CONFIDENTIAL

STATE OF CALIFORNIA DWR
WELL COMPLETION REPORT
(WELL LOGS)

REMOVED

SOIL BORING LOG **Boring No. MW-1** **Sheet: 1 of 3**

Client	Arco 498	Date	11/24/2008 - 11/25/2008
Address	286 South Livermore Avenue	Drilling Co.	Woodward Drilling rig type:BK-81
	Livermore, CA	Driller	Dave
Project No.	E-498	Method	Hollow Stem Auger Hole Diameter: 8 inches
Logged By:	Collin Fischer	Sampler:	18" x 2" Split Spoon
Well Pack	sand: 40 ft. to 17 ft	Well Construction	Casing Material: Schedule 40 PVC Screen Interval: 20 ft. to 40 ft.
	bent.: 17 ft. to 14 ft		Casing Diameter: 2 in. Screen Slot Size: 0.020-in.
	grout: 14 ft. to 0 ft.	Depth to GW:	▽ first encountered 32' static ▼

Sample Type	Sample No.	Blow Count	Sample Time	Sample Recov.	Well Details	Depth Scale	Lithologic Column	Descriptions of Materials and Conditions	PID (PPM)
						1		Cleared to 5' bgs with air knife	
						2			
						3			
						4			
						5			
						6			
						7			
						8			
						9			
						10			
	MW-1 10'	50/3"	1550	0		11		No recovery	
						12			
						13			
						14			
						15	GC	Gravel with silty clay matrix	
S	MW-1 15'	14	1555	100		16			0
		14							
		16				17		Silty sand with clay, SM, dark yellowish brown, dense, moist 60% coarse sand, 40% clayey silt	
						18	SM		
						19			
						20			

Recovery

Sample

Comments:

STRATUS ENVIRONMENTAL, INC.

SOIL BORING LOG **Boring No. MW-1** **Sheet: 2 of 3**

Client	Arco 498	Date	11/24/2008 - 11/25/2008
Address	286 South Livermore Avenue	Drilling Co.	Woodward Drilling rig type:BK-81
	Livermore, CA	Driller	Dave
Project No.	E-498	Method	Hollow Stem Auger Hole Diameter: 8 inches
Logged By:	Collin Fischer	Sampler:	18" x 2" Split Spoon
Well Pack	sand: 40 ft. to 17 ft	Well Construction	Casing Material: Schedule 40 PVC Screen Interval: 20 ft. to 40 ft.
	bent.: 17 ft. to 14 ft		Casing Diameter: 2 in. Screen Slot Size: 0.020-in.
	grout: 14 ft. to 0 ft.	Depth to GW:	▽ first encountered 32' static ▼

Sample Type	Sample No.	Blow Count	Sample Time	Sample Recov.	Well Details	Depth Scale	Lithologic Column	Descriptions of Materials and Conditions	PID (PPM)
S	MW-1 20'	50/5.5"	1600	0		21	SM	Silty sand with clay, SM, dark yellowish brown, dense, moist 60% coarse sand, 40% clayey silt	0
						22			
						23			
						24			
						25			
S	MW-1 25'	41 50/5"	1605	100		26		Gravel with clayey silt, GM, dark grayish brown, very dense, moist 70% gravel, 30% clayey silt	0
						27			
						28	GM		
						29			
						30			
S	MW-1 30'	12 15 18	1610	67		31		Gravel with clayey silt, GM, dark grayish brown, very dense, moist 70% gravel, 30% clayey silt	0
						32	▽		
						33			
						34			
						35			
S	MW-1 35'	6 7 9	1615	67		36	ML	Clayey silt, ML, dark yellowish brown, very stiff, medium plasticity, moist 60% silt, 40% clay	0
						37			
						38			
						39			
						40			

Recovery

Sample

Comments:

STRATUS ENVIRONMENTAL, INC.

SOIL BORING LOG **Boring No. MW-1** **Sheet: 3 of 3**

Client	Arco 498	Date	11/24/2008 - 11/25/2008
Address	286 South Livermore Avenue	Drilling Co.	Woodward Drilling rig type:BK-81
	Livermore, CA	Driller	Dave
Project No.	E-498	Method	Hollow Stem Auger Hole Diameter: 8 inches
Logged By:	Collin Fischer	Sampler:	18" x 2" Split Spoon
Well Pack	sand: 40 ft. to 17 ft	Well Construction	Casing Material: Schedule 40 PVC Screen Interval: 20 ft. to 40 ft.
	bent.: 17 ft. to 14 ft		Casing Diameter: 2 in. Screen Slot Size: 0.020-in.
	grout: 14 ft. to 0 ft.	Depth to GW:	▽ first encountered 32' static ▼

Sample Type	Sample No.	Blow Count	Sample Time	Sample Recov.	Well Details	Depth Scale	Lithologic Column	Descriptions of Materials and Conditions	PID (PPM)
	MW-1 40'	9 10	0755	100		41	ML	Clayey silt, ML, dark yellowish brown, very stiff, medium plasticity moist, 60% silt, 40% clay	2
		12				42			
						43			
						44			
						45			
						46			
						47			
						48			
						49			
						50			
						51			
						52			
						53			
						54			
						55			
						56			
						57			
						58			
						59			
						60			

Recovery

Sample

Comments:

STRATUS ENVIRONMENTAL, INC.

SOIL BORING LOG **Boring No. MW-2** **Sheet: 1 of 3**

Client	Arco 498	Date	November 24, 2008
Address	286 South Livermore Avenue	Drilling Co.	Woodward Drilling rig type:BK-81
	Livermore, CA	Driller	Dave
Project No.	E-498	Method	Hollow Stem Auger Hole Diameter: 8 inches
Logged By:	Collin Fischer	Sampler:	18" x 2" Split Spoon
Well Pack	sand: 57 ft. to 34 ft	Well Construction	Casing Material: Schedule 40 PVC Screen Interval: 37 ft. to 57 ft.
	bent.: 34 ft. to 31 ft		Casing Diameter: 2 in. Screen Slot Size: 0.020-in.
	grout: 31 ft. to 0 ft.	Depth to GW:	▽ first encountered static ▼

Sample Type	Sample No.	Blow Count	Sample Time	Sample Recov.	Well Details	Depth Scale	Lithologic Column	Descriptions of Materials and Conditions	PID (PPM)
						1		Cleared to 5' bgs with air knife	
						2			
						3			
						4			
						5			
						6			
						7			
						8			
						9			
						10			
S	MW-2 10'	50/5.5"	1000	100		11	GM	Silty gravel, GM, dark yellowish brown, very dense, dry 75% medium to course grained gravel, 25% silt	0
						12			
						13			
						14			
						15			
S	MW-2 15'	16 10 11	1005	67		16			
						17	CL	Silty clay, CL, dark yellowish brown, very stiff, medium plasticity, moist 70% clay, 30% silt	0
						18			
						19	GC		
						20			

Recovery

Sample

Comments:

STRATUS ENVIRONMENTAL, INC.

SOIL BORING LOG **Boring No. MW-2** **Sheet: 2 of 3**

Client	Arco 498	Date	November 24, 2008
Address	286 South Livermore Avenue	Drilling Co.	Woodward Drilling rig type:BK-81
	Livermore, CA	Driller	Dave
Project No.	E-498	Method	Hollow Stem Auger Hole Diameter: 8 inches
Logged By:	Collin Fischer	Sampler:	18" x 2" Split Spoon
Well Pack	sand: 57 ft. to 34 ft	Well Construction	Casing Material: Schedule 40 PVC Screen Interval: 37 ft. to 57 ft.
	bent.: 34 ft. to 31 ft		Casing Diameter: 2 in. Screen Slot Size: 0.020-in.
	grout: 31 ft. to 0 ft.	Depth to GW:	▽ first encountered static ▼

Sample Type	Sample No.	Blow Count	Sample Time	Sample Recov.	Well Details	Depth Scale	Lithologic Column	Descriptions of Materials and Conditions	PID (PPM)
S	MW-2 20'	16 21 30	1010	67		21 22 23 24 25	GC	Silty clayey gravel, GC, dark yellowish brown, very dense, moist to wet 75% medium gravel, 25% silty clay	0
S	MW-2 25'	19 19 25	1015	67		26 27 28 29 30	GP	Silty sandy gravel, GP, dark yellowish brown, dense, moist to wet 70% medium gravel, 30% silty coarse grained sand	0
S	MW-2 30'	12 12 16	1020	67		31 32 33 34 35 36 37	GC	Silty clayey gravel, GC, dark yellowish brown, very dense, moist to wet 75% medium gravel, 25% silty clay	0
S	MW-2 37'	10 12 12	1028	100		38 39 40	ML	Clayey silt, ML, dark yellowish brown, very stiff, medium plasticity, moist 60% silt, 40% clay	1.4

Recovery

Sample

Comments:

STRATUS ENVIRONMENTAL, INC.

SOIL BORING LOG **Boring No. MW-2** **Sheet: 3 of 3**

Client	Arco 498	Date	November 24, 2008
Address	286 South Livermore Avenue	Drilling Co.	Woodward Drilling rig type:BK-81
	Livermore, CA	Driller	Dave
Project No.	E-498	Method	Hollow Stem Auger Hole Diameter: 8 inches
Logged By:	Collin Fischer	Sampler:	18" x 2" Split Spoon
Well Pack	sand: 57 ft. to 34 ft	Well Construction	Casing Material: Schedule 40 PVC Screen Interval: 37 ft. to 57 ft.
	bent.: 34 ft. to 31 ft		Casing Diameter: 2 in. Screen Slot Size: 0.020-in.
	grout: 31 ft. to 0 ft.	Depth to GW:	▽ first encountered static ▼

Sample Type	Sample No.	Blow Count	Sample Time	Sample Recov.	Well Details	Depth Scale	Lithologic Column	Descriptions of Materials and Conditions	PID (PPM)
S	MW-2 40'	9 10	1035	100		41		Clayey silt, ML, dark yellowish brown, very stiff, medium plasticity, moist 60% silt, 40% clay	2.3
		10				42			
						43	ML		
						44			
						45			
S	MW-2 45'	10 12	1040	100		46			38
		13				47	CL	Silty clay, CL, dark yellowish brown, very stiff, medium plasticity, moist 80% clay, 20% silt	
						48			
						49			
						50		Clayey sand with gravel,	
S	MW-2 50'	9 21	1050	100		51	SW-SC	dark grayish brown, dense, moist 40% clay, 35% medium grained sand, 25% medium gravel	46
		22				52			
						53			
						54			
						55			
S	MW-2 55'	32 50/5"	1100	100		56	GW-GC	Gravel with clayey sand, GC, dark grayish brown, very dense, wet 60% medium to coarse gravel, 40% clayey medium to coarse grained sand	0
						57			
						58			
						59			
						60			

Recovery

Sample

Comments:

STRATUS ENVIRONMENTAL, INC.

SOIL BORING LOG **Boring No. MW-3** **Sheet: 1 of 3**

Client	ARCO 498	Date	11/25/2008 - 11/26/2008
Address	2186 S. Livermore Aveune	Drilling Co.	Woodward Drilling rig type:BK-81
	Livermore, CA	Driller	Dave
Project No.	E498	Method	Hollow Stem Auger Hole Diameter: 8 inches
Logged By:	Collin Fischer	Sampler:	
Well Pack	sand: 34 ft. to 57 ft	Well Construction	Casing Material: Schedule 40 PVC Screen Interval: 37 ft. to 57 ft.
	bent.: 31 ft. to 34 ft.		Casing Diameter: 2 in. Screen Slot Size: 0.020-in.
	grout: 0 ft. to 31 ft.	Depth to GW:	▽ first encountered 52 static ▼

Sample Type	Sample No.	Blow Count	Sample Time	Sample Recov.	Well Details	Depth Scale	Lithologic Column	Descriptions of Materials and Conditions	PID (PPM)
								Cleared to 5' bgs with air knife.	
S	MW-3 10'	6 7 7	1335	67		10 11 12 13 14	GC	Gravel with silty clay, GC, dark yellowish brown, medium dense, moist 70% medium gravel, 30% silty clay	0
	MW-3 15'	10 10 11	1340	33		15 16 17 18 19	ML GC	Clayey silt, ML, dark grayish brown, very stiff, low plasticity, moist 60% silt, 40% clay	82
						20			

Recovery

Sample

Comments:

STRATUS ENVIRONMENTAL, INC.

SOIL BORING LOG **Boring No. MW-3** **Sheet: 2 of 3**

Client	ARCO 498	Date	11/25/2008 - 11/26/2008
Address	2186 S. Livermore Aveune	Drilling Co.	Woodward Drilling rig type:BK-81
	Livermore, CA	Driller	Dave
Project No.	E498	Method	Hollow Stem Auger Hole Diameter: 8 inches
Logged By:	Collin Fischer	Sampler:	
Well Pack	sand: 34 ft. to 57 ft	Well Construction	Casing Material: Schedule 40 PVC Screen Interval: 37 ft. to 57 ft.
	bent.: 31 ft. to 34 ft.		Casing Diameter: 2 in. Screen Slot Size: 0.020-in.
	grout: 0 ft. to 31 ft.	Depth to GW:	▽ first encountered 52 static ▼

Sample Type	Sample No.	Blow Count	Sample Time	Sample Recov.	Well Details	Depth Scale	Lithologic Column	Descriptions of Materials and Conditions	PID (PPM)
S	MW-3 20'	9 12 15	1345	67		21		Gravel with silty clay, GC, dark yellowish brown, medium dense, moist 70% medium gravel, 30% silty clay	216
						22			
						23			
						24			
						25			
S	MW-3 25'	12 15 17	1350	67		26	GC	Gravel with silty clay, GC, dark yellowish brown, dense, moist 70% medium gravel, 30% silty clay	106
						27			
						28			
						29			
						30			
S	MW-3 30'	12 12 15	1355	67		31	GC	Gravel with silty clay, GC, dark yellowish brown, medium dense, moist 70% medium gravel, 30% silty clay	76
						32			
						33			
						34			
						35			
S	MW-3 35'	12 12 15	1400	100		36	ML	Clayey silt, ML, dark grayish brown, very stiff, low plasticity, moist 60% silt, 40% silt	14.8
						37			
						38			
						39			
						40			

Comments:

STRATUS ENVIRONMENTAL, INC.

SOIL BORING LOG **Boring No. MW-3** **Sheet: 3 of 3**

Client	ARCO 498	Date	11/25/2008 - 11/26/2008
Address	2186 S. Livermore Aveune	Drilling Co.	Woodward Drilling rig type:BK-81
	Livermore, CA	Driller	Dave
Project No.	E498	Method	Hollow Stem Auger Hole Diameter: 8 inches
Logged By:	Collin Fischer	Sampler:	
Well Pack	sand: 34 ft. to 57 ft	Well Construction	Casing Material: Schedule 40 PVC Screen Interval: 37 ft. to 57 ft.
	bent.: 31 ft. to 34 ft.		Casing Diameter: 2 in. Screen Slot Size: 0.020-in.
	grout: 0 ft. to 31 ft.	Depth to GW:	▽ first encountered 52 static ▼

Sample Type	Sample No.	Blow Count	Sample Time	Sample Recov.	Well Details	Depth Scale	Lithologic Column	Descriptions of Materials and Conditions	PID (PPM)
S	MW-3 40'	6 10	1405	100		41		Clayey silt, ML, dark grayish brown, very stiff, low plasticity, moist 70% silt, 30% silt	20
		12				42	ML		
						43			
						44			
						45		Clayey silt, ML, dark grayish brown, very stiff, low plasticity, moist 70% silt, 30% silt	
S	MW-3 45'	13 13	0805	100		46			4.8
		15				47	CL	Silty clay, CL, dark yellowish brown, very stiff, medium plasticity, moist 80% clay, 20% silt	
						48			
						49			
						50			
S	MW-3 50'	15 15	0830	100		51		Clayey silt with coarse sand trace gravel, ML, dark yellowish brown, hard low plasticity, wet, 50% silt, 30% clay, 20% coarse grained sand	7
		17				52		10% fine gravel	
						53	ML		
						54			
						55			
S	MW-3 55'	30 32	0850	100		56		Clayey silt with coarse sand trace gravel, ML, dark yellowish brown, hard low plasticity, wet, 50% silt, 30% clay, 20% coarse grained sand	
		50/3"				57		10% fine gravel	
						58			
						59			
						60			

Comments:

STRATUS ENVIRONMENTAL, INC.

SOIL BORING LOG **Boring No. MW-4** **Sheet: 1 of 3**

Client	Arco 498	Date	November 25, 2008
Address	286 South Livermore Avenue	Drilling Co.	Woodward Drilling rig type:BK-81
	Livermore, CA	Driller	Dave
Project No.	E-498	Method	Hollow Stem Auger Hole Diameter: 8 inches
Logged By:	Collin Fischer	Sampler:	18" x 2" Split Spoon
Well Pack	sand: 40 ft. to 17 ft	Well Construction	Casing Material: Schedule 40 PVC Screen Interval: 20 ft. to 40 ft.
	bent.: 17 ft. to 14 ft		Casing Diameter: 2 in. Screen Slot Size: 0.020-in.
	grout: 14 ft. to 0 ft.	Depth to GW:	▽ first encountered 32' static ▼

Sample Type	Sample No.	Blow Count	Sample Time	Sample Recov.	Well Details	Depth Scale	Lithologic Column	Descriptions of Materials and Conditions	PID (PPM)
						1–10		Cleared to 5' bgs with air knife	
S	MW-4 10'	9 16 17	0925	67		11	GC	Gravel with silty clay, GC, dark yellowish brown, hard 70% medium to coarse gravel, 30% silty clay	0
S	MW-4 15'	9 10 10	0930	67		16	CL	Silty clay, CL, dark yellowish brown, very stiff, medium plasticity, moist 60% clay, 40% silt	0
						19	GM		

Recovery

Sample

Comments:

STRATUS ENVIRONMENTAL, INC.

SOIL BORING LOG **Boring No. MW-4** **Sheet: 2 of 3**

Client	Arco 498	Date	November 25, 2008
Address	286 South Livermore Avenue	Drilling Co.	Woodward Drilling rig type:BK-81
	Livermore, CA	Driller	Dave
Project No.	E-498	Method	Hollow Stem Auger Hole Diameter: 8 inches
Logged By:	Collin Fischer	Sampler:	18" x 2" Split Spoon
Well Pack	sand: 40 ft. to 17 ft	Well Construction	Casing Material: Schedule 40 PVC Screen Interval: 20 ft. to 40 ft.
	bent.: 17 ft. to 14 ft		Casing Diameter: 2 in. Screen Slot Size: 0.020-in.
	grout: 14 ft. to 0 ft.	Depth to GW:	▽ first encountered 32' static ▼

Sample Type	Sample No.	Blow Count	Sample Time	Sample Recov.	Well Details	Depth Scale	Lithologic Column	Descriptions of Materials and Conditions	PID (PPM)
S	MW-4 20'	12 14	0935	67		21	GM	Gravel with clayey silt, dark grayish brown, medium dense, moist 70% medium gravel, 30% clayey silt	0
		14				22			
						23			
						24			
						25			
S	MW-4 25'	16 18	0940	67		26	GP	Gravel with silty sand, GP, dark grayish brown, dense, moist to wet 70% medium gravel, 30% fine to medium grained silty sand	0
		20				27			
						28			
						29			
						30			
S	MW-4 30'	16 17	0945	67		31	GM	Gravel with clayey silt, dark grayish brown, medium dense, moist 70% medium gravel, 30% clayey silt	0
		19				32	▽		
						33			
						34			
						35			
S	MW-4 35'	6 10	0950	67		36	ML	Clayey silt, ML, dark yellowish brown, very stiff, medium plasticity, moist 60% silt, 40% clay	212
		16				37			
						38			
						39			
						40			

Recovery

Sample

Comments:

STRATUS ENVIRONMENTAL, INC.

SOIL BORING LOG **Boring No. MW-4** **Sheet: 3 of 3**

Client	Arco 498	Date	November 25, 2008
Address	286 South Livermore Avenue	Drilling Co.	Woodward Drilling rig type:BK-81
	Livermore, CA	Driller	Dave
Project No.	E-498	Method	Hollow Stem Auger Hole Diameter: 8 inches
Logged By:	Collin Fischer	Sampler:	18" x 2" Split Spoon
Well Pack	sand: 40 ft. to 17 ft	Well Construction	Casing Material: Schedule 40 PVC Screen Interval: 20 ft. to 40 ft.
	bent.: 17 ft. to 14 ft		Casing Diameter: 2 in. Screen Slot Size: 0.020-in.
	grout: 14 ft. to 0 ft.	Depth to GW:	▽ first encountered 32' static ▼

Sample Type	Sample No.	Blow Count	Sample Time	Sample Recov.	Well Details	Depth Scale	Lithologic Column	Descriptions of Materials and Conditions	PID (PPM)
	MW-4 40'	10 10	0955	100		41	ML	Clayey silt, ML, dark yellowish brown, very stiff, medium plasticity, moist 60% silt, 40% clay	13.4
		12				42			
						43			
						44			
						45			
						46			
						47			
						48			
						49			
						50			
						51			
						52			
						53			
						54			
						55			
						56			
						57			
						58			
						59			
						60			

Recovery

Sample

Comments:

STRATUS ENVIRONMENTAL, INC.

Calscience
Environmental
Laboratories, Inc.

December 05, 2008

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

Subject: **Calscience Work Order No.: 08-11-2092**
Client Reference: ARCO 498

Dear Client:

Enclosed is an analytical report for the above-referenced project. The samples included in this report were received 11/22/2008 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.	Date Received:	11/22/08
3330 Cameron Park Drive, Suite 550	Work Order No:	08-11-2092
Cameron Park, CA 95682-8861	Preparation:	EPA 3050B
	Method:	EPA 6010B

Project: ARCO 498

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
SWC	**08-11-2092-1-A**	**11/21/08 08:30**	**Solid**	**ICP 5300**	**12/02/08**	**12/03/08 10:36**	**081202L04**

Parameter	Result	RL	DF	Qual	Units
Lead	36.2	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	**097-01-002-11,774**	**N/A**	**Solid**	**ICP 5300**	**12/02/08**	**12/03/08 10:17**	**081202L04**

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:	11/22/08
3330 Cameron Park Drive, Suite 550		Work Order No:	08-11-2092
Cameron Park, CA 95682-8861		Preparation:	EPA 5030B
		Method:	EPA 8015B (M)

Project: ARCO 498

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
SWC	**08-11-2092-1-A**	**11/21/08 08:30**	**Solid**	**GC 1**	**11/22/08**	**11/26/08 20:15**	**081126B01**

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	82	42-126			

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
Method Blank	**099-12-697-52**	**N/A**	**Solid**	**GC 1**	**11/21/08**	**11/26/08 13:53**	**081126B01**

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	84	42-126			

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

Calscience Environmental Laboratories, Inc.

Analytical Report

Stratus Environmental, inc.	Date Received:	11/22/08
3330 Cameron Park Drive, Suite 550	Work Order No:	08-11-2092
Cameron Park, CA 95682-8861	Preparation:	EPA 5030B
	Method:	EPA 8260B
	Units:	mg/kg
Project: ARCO 498		Page 1 of 1

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
SWC	**08-11-2092-1-A**	**11/21/08 08:30**	**Solid**	**GC/MS Z**	**12/02/08**	**12/03/08 00:54**	**081202L01**

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	112	75-141			1,2-Dichloroethane-d4	108	73-151		
Toluene-d8	103	87-111			1,4-Bromofluorobenzene	97	71-113		

Method Blank	099-12-709-70	N/A	Solid	GC/MS Z	12/02/08	12/02/08 22:19	081202L01

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	111	75-141			1,2-Dichloroethane-d4	102	73-151		
Toluene-d8	102	87-111			1,4-Bromofluorobenzene	100	71-113		

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

Calscience Environmental Laboratories, Inc.

Quality Control - Spike/Spike Duplicate

Stratus Environmental, inc.	Date Received:	11/22/08
3330 Cameron Park Drive, Suite 550	Work Order No:	08-11-2092
Cameron Park, CA 95682-8861	Preparation:	EPA 3050B
	Method:	EPA 6010B

Project ARCO 498

Quality Control Sample ID	Matrix	Instrument	Date Prepared	Date Analyzed	MS/MSD Batch Number
08-12-0101-1	**Solid**	**ICP 5300**	**12/02/08**	**12/03/08**	**081202S04**

Parameter	MS %REC	MSD %REC	%REC CL	RPD	RPD CL	Qualifiers
Lead	135	131	75-125	1	0-20	LM

RPD - Relative Percent Difference , CL - Control Limit

Calscience Environmental Laboratories, Inc.

Quality Control - PDS / PDSD

Stratus Environmental, inc.	Date Received	11/22/08
3330 Cameron Park Drive, Suite 550	Work Order No:	08-11-2092
Cameron Park, CA 95682-8861	Preparation:	EPA 3050B
	Method:	EPA 6010B

Project: ARCO 498

Quality Control Sample ID	Matrix	Instrument	Date Prepared	Date Analyzed	PDS/PDSD Batch Number
08-12-0101-1	**Solid**	**ICP 5300**	**12/02/08**	**12/03/08**	**081202S04**

Parameter	PDS %REC	PDSD %REC	%REC CL	RPD	RPD CL	Qualifiers
Lead	98	94	75-125	1	0-20	

RPD - Relative Percent Difference , CL - Control Limit

Calscience Environmental Laboratories, Inc.

Quality Control - Spike/Spike Duplicate

Stratus Environmental, inc.		Date Received:	11/22/08
3330 Cameron Park Drive, Suite 550		Work Order No:	08-11-2092
Cameron Park, CA 95682-8861		Preparation:	EPA 5030B
		Method:	EPA 8015B (M)

Project ARCO 498

Quality Control Sample ID	Matrix	Instrument	Date Prepared	Date Analyzed	MS/MSD Batch Number
08-11-1842-14	**Solid**	**GC 1**	**11/21/08**	**11/26/08**	**081126S01**

Parameter	MS %REC	MSD %REC	%REC CL	RPD	RPD CL	Qualifiers
Gasoline Range Organics (C6-C12)	82	80	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:	11/22/08
3330 Cameron Park Drive, Suite 550	Work Order No:	08-11-2092
Cameron Park, CA 95682-8861	Preparation:	EPA 5030B
	Method:	EPA 8260B

Project ARCO 498

Quality Control Sample ID	Matrix	Instrument	Date Prepared	Date Analyzed	MS/MSD Batch Number
08-12-0101-2	**Solid**	**GC/MS Z**	**12/02/08**	**12/02/08**	**081202S01**

Parameter	MS %REC	MSD %REC	%REC CL	RPD	RPD CL	Qualifiers
Benzene	81	80	78-114	1	0-14	
Chloroform	97	63	80-120	43	0-20	LN,BA
1,1-Dichloroethane	66	96	80-120	38	0-20	LN,BA
1,2-Dichloroethane	91	91	80-120	0	0-20	
1,1-Dichloroethene	85	88	73-127	4	0-21	
Ethanol	99	103	45-135	4	0-29	
Tetrachloroethene	60	57	80-120	5	0-20	LN
Toluene	77	76	74-116	1	0-16	
Trichloroethene	75	73	74-122	3	0-17	LN
Methyl-t-Butyl Ether (MTBE)	84	110	69-123	27	0-18	BA

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:	08-11-2092
Cameron Park, CA 95682-8861		Preparation:	EPA 3050B
		Method:	EPA 6010B

Project: ARCO 498

Quality Control Sample ID	Matrix	Instrument	Date Prepared	Date Analyzed	LCS/LCSD Batch Number
097-01-002-11,774	**Solid**	**ICP 5300**	**12/02/08**	**12/03/08**	**081202L04**

Parameter	LCS %REC	LCSD %REC	%REC CL	RPD	RPD CL	Qualifiers
Lead	107	106	80-120	1	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:	08-11-2092
Cameron Park, CA 95682-8861		Preparation:	EPA 5030B
		Method:	EPA 8015B (M)

Project: ARCO 498

Quality Control Sample ID	Matrix	Instrument	Date Prepared	Date Analyzed	LCS/LCSD Batch Number
099-12-697-52	**Solid**	**GC 1**	**11/21/08**	**11/26/08**	**081126B01**

Parameter	LCS %REC	LCSD %REC	%REC CL	RPD	RPD CL	Qualifiers
Gasoline Range Organics (C6-C12)	102	101	70-118	1	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:	08-11-2092
Cameron Park, CA 95682-8861		Preparation:	EPA 5030B
		Method:	EPA 8260B

Project: ARCO 498

Quality Control Sample ID	Matrix	Instrument	Date Prepared	Date Analyzed	LCS/LCSD Batch Number
099-12-709-70	**Solid**	**GC/MS Z**	**12/02/08**	**12/02/08**	**081202L01**

Parameter	LCS %REC	LCSD %REC	%REC CL	ME_CL	RPD	RPD CL	Qualifiers
Benzene	92	100	84-114	79-119	7	0-7	
Bromobenzene	97	100	80-120	73-127	3	0-20	
Bromochloromethane	76	79	80-120	73-127	3	0-20	LR
Bromodichloromethane	97	100	80-120	73-127	3	0-20	
Bromoform	96	97	80-120	73-127	1	0-20	
Bromomethane	87	98	80-120	73-127	12	0-20	
n-Butylbenzene	93	103	77-123	69-131	10	0-25	
sec-Butylbenzene	96	104	80-120	73-127	7	0-20	
tert-Butylbenzene	97	104	80-120	73-127	7	0-20	
Carbon Disulfide	92	102	80-120	73-127	10	0-20	
Carbon Tetrachloride	94	103	69-135	58-146	10	0-13	
Chlorobenzene	95	99	85-109	81-113	4	0-8	
Chloroethane	100	112	80-120	73-127	11	0-20	
Chloroform	90	68	80-120	73-127	27	0-20	LR,BA
Chloromethane	86	95	80-120	73-127	10	0-20	
2-Chlorotoluene	96	100	80-120	73-127	4	0-20	
4-Chlorotoluene	93	101	80-120	73-127	8	0-20	
Dibromochloromethane	100	101	80-120	73-127	1	0-20	
1,2-Dibromo-3-Chloropropane	94	99	80-120	73-127	5	0-20	
1,2-Dibromoethane	100	101	80-120	73-127	2	0-20	
Dibromomethane	95	98	80-120	73-127	4	0-20	
1,2-Dichlorobenzene	95	101	80-110	75-115	6	0-10	
1,3-Dichlorobenzene	94	101	80-120	73-127	7	0-20	
1,4-Dichlorobenzene	92	99	80-120	73-127	7	0-20	
Dichlorodifluoromethane	98	105	80-120	73-127	7	0-20	
1,1-Dichloroethane	98	104	80-120	73-127	6	0-20	
1,2-Dichloroethane	98	100	80-120	73-127	2	0-20	
1,1-Dichloroethene	95	104	83-125	76-132	9	0-10	
c-1,2-Dichloroethene	89	98	80-120	73-127	9	0-20	
t-1,2-Dichloroethene	91	102	80-120	73-127	11	0-20	
1,2-Dichloropropane	95	101	79-115	73-121	6	0-25	
1,3-Dichloropropane	98	100	80-120	73-127	2	0-20	
2,2-Dichloropropane	90	94	80-120	73-127	4	0-20	
1,1-Dichloropropene	94	103	80-120	73-127	9	0-20	
c-1,3-Dichloropropene	100	103	80-120	73-127	3	0-20	
t-1,3-Dichloropropene	100	100	80-120	73-127	1	0-20	
Ethylbenzene	95	101	80-120	73-127	6	0-20	
Isopropylbenzene	98	102	80-120	73-127	5	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:	08-11-2092
Cameron Park, CA 95682-8861		Preparation:	EPA 5030B
		Method:	EPA 8260B

Project: ARCO 498

Quality Control Sample ID	Matrix	Instrument	Date Prepared	Date Analyzed	LCS/LCSD Batch Number
099-12-709-70	**Solid**	**GC/MS Z**	**12/02/08**	**12/02/08**	**081202L01**

Parameter	LCS %REC	LCSD %REC	%REC CL	ME_CL	RPD	RPD CL	Qualifiers
p-Isopropyltoluene	96	104	80-120	73-127	8	0-20	
Methylene Chloride	96	99	80-120	73-127	3	0-20	
Naphthalene	96	98	80-120	73-127	3	0-20	
n-Propylbenzene	96	101	80-120	73-127	5	0-20	
Styrene	97	101	80-120	73-127	4	0-20	
Ethanol	101	109	50-134	36-148	7	0-23	
1,1,1,2-Tetrachloroethane	97	102	80-120	73-127	5	0-20	
1,1,2,2-Tetrachloroethane	100	99	80-120	73-127	1	0-20	
Tetrachloroethene	91	101	80-120	73-127	10	0-20	
Toluene	95	102	79-115	73-121	7	0-8	
1,2,3-Trichlorobenzene	94	99	80-120	73-127	5	0-20	
1,2,4-Trichlorobenzene	95	99	80-120	73-127	4	0-20	
1,1,1-Trichloroethane	96	105	80-120	73-127	8	0-20	
1,1,2-Trichloroethane	97	101	80-120	73-127	4	0-20	
Trichloroethene	93	100	87-111	83-115	7	0-7	
Trichlorofluoromethane	98	108	80-120	73-127	9	0-20	
1,2,3-Trichloropropane	99	95	80-120	73-127	4	0-20	
1,2,4-Trimethylbenzene	96	104	80-120	73-127	8	0-20	
1,3,5-Trimethylbenzene	96	101	80-120	73-127	5	0-20	
Vinyl Acetate	97	95	80-120	73-127	1	0-20	
Vinyl Chloride	93	104	72-126	63-135	11	0-10	BA
p/m-Xylene	92	98	80-120	73-127	6	0-20	
o-Xylene	96	101	80-120	73-127	5	0-20	
Methyl-t-Butyl Ether (MTBE)	100	103	75-129	66-138	3	0-13	
Tert-Butyl Alcohol (TBA)	97	103	66-126	56-136	6	0-24	
Diisopropyl Ether (DIPE)	100	103	77-125	69-133	3	0-13	
Ethyl-t-Butyl Ether (ETBE)	103	105	72-132	62-142	2	0-12	
Tert-Amyl-Methyl Ether (TAME)	100	101	77-125	69-133	1	0-10	

Total number of LCS compounds : 66
Total number of ME compounds : 1
Total number of ME compounds allowed : 3
LCS ME CL validation result : Pass

RPD - Relative Percent Difference , CL - Control Limit

Calscience Environmental Laboratories, Inc.

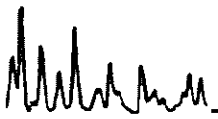
Glossary of Terms and Qualifiers

Work Order Number: 08-11-2092

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: 08-11-2092

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.



Chain of Custody Record

2092

Project Name: ARCO 498
BP BU/AR Region/Enfos Segment:
State or Lead Regulatory Agency:
Requested Due Date (mm/dd/yy):

On-site Time:	7 AM	Temp	55°
Off-site Time:		Temp	
Sky Conditions:			
Meteorological Events:			
Wind Speed:		Direction	

Lab Name: CALSCIENCE ENV. LABORATORIES	BP/AR Facility No.: 498	Consultant/Contractor: STANTEC ENV., INC.
Address: 7440 LINCOLN WAY GARDEN GROVE, CA. 92841	BP/AR Facility Address: 286 S LIVERMORE AVE	Address: 3330 CAMERON PARK DR. #550 CAMERON PARK, CA 95682
Lab PM: LINDA SUKOPENBERG	Site Lat/Long: LIVERMORE, CA.	Consultant/Contractor Project No.: E498
Tele/Fax: (714) 895 5494	California Global ID No.: T0600124081	Consultant/Contractor PM: JAY JOHNSON
BP/AR PM Contact: PAUL SUPPLE	Enfos Project No.: GRCIL-0006	Tele/Fax: (530) 676 6005 (530) 676 6005
Address:	Provision or RRR (circle one)	Report Type & QC Level: LEVEL 1 GW EDF
	Phase/WBS: COMPLIANCE	E-mail EDD To: STUGES@STANTEC.NET
Tele/Fax: (714) 895 5494	Sub Phase/Task: ANALYTICAL COST	Invoice to: Consultant or BP (Atlantic Richfield Co. (circle one))
	Cost Element: CONTRACTOR CHECK	

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: [redacted]	Requested Analysis: [redacted]	Requested Analysis: [redacted]	Requested Analysis: [redacted]	Requested Analysis: [redacted]	Requested Analysis: GRO	Requested Analysis: BTEX	Requested Analysis: MTBE	Requested Analysis: TOTAL LEAD	Sample Point Lat/Long and Comments
1	SCVC	11/21/08	0830	X				1	X										X	X	X	X	PRE COMPOSITED
2																							
3																							
4																							
5																							
6																							
7																							
8																							
9																							
10																							

Sampler's Name: Colin Fischer	Relinquished By / Affiliation	Date	Time	Accepted By / Affiliation	Date	Time
Sampler's Company: Stantec Env., Inc.	[signature] Geologist	11/21/08	0900	[signature] CEC	11-21-08	0900
Shipment Date:	[signature] TO GSO	11-21-08	1030			
Shipment Method:				[signature]	11/22/08	0930
Shipment Tracking No: 951079 1329						

Special Instructions:

Custody Seals In Place Yes No Temp Blank Yes No Cooler Temperature on Receipt °F/°C Trip Blank Yes No

Distribution: White Copy - Laboratory / Yellow Copy - BP/Atlantic Richfield Co. / Pink Copy - Consultant/Contractor

BP COC Rev. 4 10/1/04

Calscience Environmental Laboratories, Inc.

WORK ORDER #: 08-11-2092

SAMPLE RECEIPT FORM

Cooler 1 of 1

CLIENT: Stratus DATE: 11/22/08

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

Temperature 3.8 °C - 0.2 °C (CF) = 3.6 °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 ☐ Metals Only ☐ PCBs Only **Initial:** JH

CUSTODY SEALS INTACT:

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

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

SAMPLE CONDITION:	Yes	No	N/A
Chain-Of-Custody document(s) received with samples	☑	☐	☐
COC document(s) received complete	☑	☐	☐
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 sample label(s)	☐	☐	☑
Volatile analysis container(s) free of headspace	☐	☐	☑
Tedlar bag(s) free of condensation	☐	☐	☑

CONTAINER TYPE:

Solid: ☐4ozCGJ ☐8ozCGJ ☐16ozCGJ ☑Sleeve ☐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:$ZnAc_2$+NaOH

Checked/Labeled by: RN

Reviewed by: WSC

Scanned by: RN

Calscience
Environmental
Laboratories, Inc.

December 10, 2008

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

Subject: **Calscience Work Order No.: 08-11-2370**
Client Reference: ARCO 498

Dear Client:

Enclosed is an analytical report for the above-referenced project. The samples included in this report were received 11/26/2008 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.	Date Received:	11/26/08
3330 Cameron Park Drive, Suite 550	Work Order No:	08-11-2370
Cameron Park, CA 95682-8861	Preparation:	EPA 5030B
	Method:	EPA 8015B (M)

Project: ARCO 498

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
MW-2 40'	**08-11-2370-1-A**	**11/24/08 10:35**	**Solid**	**GC 1**	**11/26/08**	**12/02/08 18:55**	**081201B02**

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	81	42-126			

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
MW-2 45'	**08-11-2370-2-A**	**11/24/08 10:40**	**Solid**	**GC 1**	**11/26/08**	**12/02/08 12:33**	**081201B03**

Parameter	Result	RL	DF	Qual	Units
Gasoline Range Organics (C6-C12)	18	5.0	10		mg/kg
Surrogates:	**REC (%)**	**Control Limits**		**Qual**	
1,4-Bromofluorobenzene	87	42-126			

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
MW-2 50'	**08-11-2370-3-A**	**11/24/08 10:50**	**Solid**	**GC 1**	**11/26/08**	**12/02/08 19:27**	**081201B02**

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	82	42-126			

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
MW-1 25'	**08-11-2370-4-A**	**11/24/08 16:05**	**Solid**	**GC 1**	**11/26/08**	**12/02/08 13:37**	**081201B03**

Parameter	Result	RL	DF	Qual	Units
Gasoline Range Organics (C6-C12)	45	5.0	10		mg/kg
Surrogates:	**REC (%)**	**Control Limits**		**Qual**	
1,4-Bromofluorobenzene	98	42-126			

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

Calscience Environmental Laboratories, Inc.

Analytical Report

Stratus Environmental, inc.	Date Received:	11/26/08
3330 Cameron Park Drive, Suite 550	Work Order No:	08-11-2370
Cameron Park, CA 95682-8861	Preparation:	EPA 5030B
	Method:	EPA 8015B (M)

Project: ARCO 498

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
MW-1 30'	**08-11-2370-5-A**	**11/24/08 16:10**	**Solid**	**GC 1**	**11/26/08**	**12/02/08 19:59**	**081201B02**

Parameter	Result	RL	DF	Qual	Units
Gasoline Range Organics (C6-C12)	0.86	0.50	1		mg/kg
Surrogates:	**REC (%)**	**Control Limits**		**Qual**	
1,4-Bromofluorobenzene	85	42-126			

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
MW-1 40'	**08-11-2370-6-A**	**11/25/08 07:55**	**Solid**	**GC 1**	**11/26/08**	**12/02/08 20:31**	**081201B02**

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	81	42-126			

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
MW-4 30'	**08-11-2370-7-A**	**11/25/08 09:45**	**Solid**	**GC 1**	**11/26/08**	**12/02/08 21:02**	**081201B02**

Parameter	Result	RL	DF	Qual	Units
Gasoline Range Organics (C6-C12)	2.0	0.50	1		mg/kg
Surrogates:	**REC (%)**	**Control Limits**		**Qual**	
1,4-Bromofluorobenzene	88	42-126			

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
MW-4 35'	**08-11-2370-8-A**	**11/25/08 09:50**	**Solid**	**GC 1**	**11/26/08**	**11/29/08 15:27**	**081129B01**

Parameter	Result	RL	DF	Qual	Units
Gasoline Range Organics (C6-C12)	75	50	100		mg/kg
Surrogates:	**REC (%)**	**Control Limits**		**Qual**	
1,4-Bromofluorobenzene	84	42-126			

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

Calscience Environmental Laboratories, Inc.

Analytical Report

Stratus Environmental, inc.	Date Received:	11/26/08
3330 Cameron Park Drive, Suite 550	Work Order No:	08-11-2370
Cameron Park, CA 95682-8861	Preparation:	EPA 5030B
	Method:	EPA 8015B (M)

Project: ARCO 498

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
MW-4 40'	**08-11-2370-9-A**	**11/25/08 09:55**	**Solid**	**GC 1**	**11/26/08**	**12/02/08 21:34**	**081201B02**

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	82	42-126			

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
MW-3 15'	**08-11-2370-10-A**	**11/25/08 13:40**	**Solid**	**GC 1**	**11/26/08**	**12/02/08 22:06**	**081201B02**

Parameter	Result	RL	DF	Qual	Units
Gasoline Range Organics (C6-C12)	6.7	0.50	1		mg/kg
Surrogates:	**REC (%)**	**Control Limits**		**Qual**	
1,4-Bromofluorobenzene	99	42-126			

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
MW-3 20'	**08-11-2370-11-A**	**11/25/08 13:45**	**Solid**	**GC 1**	**11/26/08**	**11/29/08 18:06**	**081129B01**

Parameter	Result	RL	DF	Qual	Units
Gasoline Range Organics (C6-C12)	210	25	50		mg/kg
Surrogates:	**REC (%)**	**Control Limits**		**Qual**	
1,4-Bromofluorobenzene	100	42-126			

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
MW-3 25'	**08-11-2370-12-A**	**11/25/08 13:50**	**Solid**	**GC 1**	**11/26/08**	**11/29/08 18:38**	**081129B01**

Parameter	Result	RL	DF	Qual	Units
Gasoline Range Organics (C6-C12)	530	25	50		mg/kg
Surrogates:	**REC (%)**	**Control Limits**		**Qual**	
1,4-Bromofluorobenzene	125	42-126			

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

Calscience Environmental Laboratories, Inc.

Analytical Report

Stratus Environmental, inc.		Date Received:	11/26/08
3330 Cameron Park Drive, Suite 550		Work Order No:	08-11-2370
Cameron Park, CA 95682-8861		Preparation:	EPA 5030B
		Method:	EPA 8015B (M)

Project: ARCO 498

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
MW-3 30'	**08-11-2370-13-A**	**11/25/08 13:55**	**Solid**	**GC 1**	**11/26/08**	**12/02/08 22:38**	**081201B02**

Parameter	Result	RL	DF	Qual	Units
Gasoline Range Organics (C6-C12)	0.84	0.50	1		mg/kg
Surrogates:	**REC (%)**	**Control Limits**		**Qual**	
1,4-Bromofluorobenzene	83	42-126			

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
MW-3 35'	**08-11-2370-14-A**	**11/25/08 14:00**	**Solid**	**GC 1**	**11/26/08**	**12/02/08 23:10**	**081201B02**

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	81	42-126			

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
MW-3 40'	**08-11-2370-15-A**	**11/25/08 14:05**	**Solid**	**GC 1**	**11/26/08**	**12/02/08 23:41**	**081201B02**

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	81	42-126			

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
Method Blank	**099-12-697-53**	**N/A**	**Solid**	**GC 1**	**11/26/08**	**11/29/08 11:12**	**081129B01**

Parameter	Result	RL	DF	Qual	Units
Gasoline Range Organics (C6-C12)	ND	5.0	10		mg/kg
Surrogates:	**REC (%)**	**Control Limits**		**Qual**	
1,4-Bromofluorobenzene	85	42-126			

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

Calscience Environmental Laboratories, Inc.

Analytical Report

Stratus Environmental, inc.		Date Received:	11/26/08
3330 Cameron Park Drive, Suite 550		Work Order No:	08-11-2370
Cameron Park, CA 95682-8861		Preparation:	EPA 5030B
		Method:	EPA 8015B (M)

Project: ARCO 498

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
Method Blank	**099-12-697-54**	**N/A**	**Solid**	**GC 1**	**12/02/08**	**12/02/08 09:23**	**081201B02**

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	82	42-126	

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
Method Blank	**099-12-697-55**	**N/A**	**Solid**	**GC 1**	**12/02/08**	**12/02/08 10:58**	**081201B03**

Parameter	Result	RL	DF	Qual	Units
Gasoline Range Organics (C6-C12)	ND	5.0	10		mg/kg

Surrogates:	REC (%)	Control Limits	Qual
1,4-Bromofluorobenzene	81	42-126	

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

Calscience Environmental Laboratories, Inc.

Analytical Report

Stratus Environmental, inc.		Date Received:	11/26/08
3330 Cameron Park Drive, Suite 550		Work Order No:	08-11-2370
Cameron Park, CA 95682-8861		Preparation:	EPA 5030B
		Method:	EPA 8260B
		Units:	mg/kg
Project: ARCO 498			Page 1 of 7

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
MW-2 40'	**08-11-2370-1-A**	**11/24/08 10:35**	**Solid**	**GC/MS Z**	**12/05/08**	**12/05/08 20:27**	**081205L01**

Parameter	Result	RL	DF	Qual	Parameter	Result	RL	DF	Qual
Benzene	ND	0.0010	1		Xylenes (total)	ND	0.0010	1	
1,2-Dibromoethane	ND	0.0010	1		Methyl-t-Butyl Ether (MTBE)	0.010	0.0010	1	
1,2-Dichloroethane	ND	0.0010	1		Tert-Butyl Alcohol (TBA)	0.022	0.010	1	
Ethylbenzene	ND	0.0010	1		Diisopropyl Ether (DIPE)	ND	0.0020	1	
Ethanol	ND	0.10	1		Ethyl-t-Butyl Ether (ETBE)	ND	0.0020	1	
Toluene	ND	0.0010	1		Tert-Amyl-Methyl Ether (TAME)	ND	0.0020	1	
Surrogates:	REC (%)	Control Limits		Qual	Surrogates:	REC (%)	Control Limits		Qual
Dibromofluoromethane	106	75-141			1,2-Dichloroethane-d4	112	73-151		
Toluene-d8	100	87-111			1,4-Bromofluorobenzene	102	71-113		

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
MW-2 45'	**08-11-2370-2-A**	**11/24/08 10:40**	**Solid**	**GC/MS Z**	**12/06/08**	**12/06/08 19:56**	**081206L01**

Parameter	Result	RL	DF	Qual	Parameter	Result	RL	DF	Qual
Benzene	ND	0.0010	1		Xylenes (total)	ND	0.0010	1	
1,2-Dibromoethane	ND	0.0010	1		Methyl-t-Butyl Ether (MTBE)	0.0019	0.0010	1	
1,2-Dichloroethane	ND	0.0010	1		Tert-Butyl Alcohol (TBA)	0.022	0.010	1	
Ethylbenzene	ND	0.0010	1		Diisopropyl Ether (DIPE)	ND	0.0020	1	
Ethanol	0.44	0.10	1		Ethyl-t-Butyl Ether (ETBE)	ND	0.0020	1	
Toluene	ND	0.0010	1		Tert-Amyl-Methyl Ether (TAME)	ND	0.0020	1	
Surrogates:	REC (%)	Control Limits		Qual	Surrogates:	REC (%)	Control Limits		Qual
Dibromofluoromethane	88	75-141			1,2-Dichloroethane-d4	107	73-151		
Toluene-d8	105	87-111			1,4-Bromofluorobenzene	101	71-113		

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
MW-2 50'	**08-11-2370-3-A**	**11/24/08 10:50**	**Solid**	**GC/MS Z**	**12/05/08**	**12/05/08 21:29**	**081205L01**

Parameter	Result	RL	DF	Qual	Parameter	Result	RL	DF	Qual
Benzene	ND	0.0010	1		Xylenes (total)	ND	0.0010	1	
1,2-Dibromoethane	ND	0.0010	1		Methyl-t-Butyl Ether (MTBE)	ND	0.0010	1	
1,2-Dichloroethane	ND	0.0010	1		Tert-Butyl Alcohol (TBA)	ND	0.010	1	
Ethylbenzene	ND	0.0010	1		Diisopropyl Ether (DIPE)	ND	0.0020	1	
Ethanol	ND	0.10	1		Ethyl-t-Butyl Ether (ETBE)	ND	0.0020	1	
Toluene	ND	0.0010	1		Tert-Amyl-Methyl Ether (TAME)	ND	0.0020	1	
Surrogates:	REC (%)	Control Limits		Qual	Surrogates:	REC (%)	Control Limits		Qual
Dibromofluoromethane	81	75-141			1,2-Dichloroethane-d4	114	73-151		
Toluene-d8	102	87-111			1,4-Bromofluorobenzene	97	71-113		

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

Calscience Environmental Laboratories, Inc.

Analytical Report

Stratus Environmental, inc.	Date Received:	11/26/08
3330 Cameron Park Drive, Suite 550	Work Order No:	08-11-2370
Cameron Park, CA 95682-8861	Preparation:	EPA 5030B
	Method:	EPA 8260B
	Units:	mg/kg
Project: ARCO 498		Page 2 of 7

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
MW-1 25'	**08-11-2370-4-A**	**11/24/08 16:05**	**Solid**	**GC/MS Z**	**12/05/08**	**12/05/08 22:00**	**081205L01**

Parameter	Result	RL	DF	Qual	Parameter	Result	RL	DF	Qual
Benzene	ND	0.0010	1		Xylenes (total)	ND	0.0010	1	
1,2-Dibromoethane	ND	0.0010	1		Methyl-t-Butyl Ether (MTBE)	ND	0.0010	1	
1,2-Dichloroethane	ND	0.0010	1		Tert-Butyl Alcohol (TBA)	ND	0.010	1	
Ethylbenzene	ND	0.0010	1		Diisopropyl Ether (DIPE)	ND	0.0020	1	
Ethanol	ND	0.10	1		Ethyl-t-Butyl Ether (ETBE)	ND	0.0020	1	
Toluene	ND	0.0010	1		Tert-Amyl-Methyl Ether (TAME)	ND	0.0020	1	
Surrogates:	REC (%)	Control Limits		Qual	Surrogates:	REC (%)	Control Limits		Qual
Dibromofluoromethane	75	75-141			1,2-Dichloroethane-d4	122	73-151		
Toluene-d8	104	87-111			1,4-Bromofluorobenzene	101	71-113		

MW-1 30'	**08-11-2370-5-A**	**11/24/08 16:10**	**Solid**	**GC/MS Z**	**12/05/08**	**12/05/08 22:31**	**081205L01**

Parameter	Result	RL	DF	Qual	Parameter	Result	RL	DF	Qual
Benzene	ND	0.0010	1		Xylenes (total)	ND	0.0010	1	
1,2-Dibromoethane	ND	0.0010	1		Methyl-t-Butyl Ether (MTBE)	ND	0.0010	1	
1,2-Dichloroethane	ND	0.0010	1		Tert-Butyl Alcohol (TBA)	ND	0.010	1	
Ethylbenzene	ND	0.0010	1		Diisopropyl Ether (DIPE)	ND	0.0020	1	
Ethanol	ND	0.10	1		Ethyl-t-Butyl Ether (ETBE)	ND	0.0020	1	
Toluene	ND	0.0010	1		Tert-Amyl-Methyl Ether (TAME)	ND	0.0020	1	
Surrogates:	REC (%)	Control Limits		Qual	Surrogates:	REC (%)	Control Limits		Qual
Dibromofluoromethane	105	75-141			1,2-Dichloroethane-d4	112	73-151		
Toluene-d8	101	87-111			1,4-Bromofluorobenzene	98	71-113		

MW-1 40'	**08-11-2370-6-A**	**11/25/08 07:55**	**Solid**	**GC/MS Z**	**12/06/08**	**12/06/08 17:21**	**081206L01**

Parameter	Result	RL	DF	Qual	Parameter	Result	RL	DF	Qual
Benzene	ND	0.0010	1		Xylenes (total)	ND	0.0010	1	
1,2-Dibromoethane	ND	0.0010	1		Methyl-t-Butyl Ether (MTBE)	0.16	0.0010	1	
1,2-Dichloroethane	ND	0.0010	1		Tert-Butyl Alcohol (TBA)	0.036	0.010	1	
Ethylbenzene	ND	0.0010	1		Diisopropyl Ether (DIPE)	ND	0.0020	1	
Ethanol	0.23	0.10	1		Ethyl-t-Butyl Ether (ETBE)	ND	0.0020	1	
Toluene	ND	0.0010	1		Tert-Amyl-Methyl Ether (TAME)	ND	0.0020	1	
Surrogates:	REC (%)	Control Limits		Qual	Surrogates:	REC (%)	Control Limits		Qual
Dibromofluoromethane	132	75-141			1,2-Dichloroethane-d4	112	73-151		
Toluene-d8	100	87-111			1,4-Bromofluorobenzene	99	71-113		

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

Calscience Environmental Laboratories, Inc.

Analytical Report

Stratus Environmental, inc.	Date Received:	11/26/08
3330 Cameron Park Drive, Suite 550	Work Order No:	08-11-2370
Cameron Park, CA 95682-8861	Preparation:	EPA 5030B
	Method:	EPA 8260B
	Units:	mg/kg
Project: ARCO 498		Page 3 of 7

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
MW-4 30'	**08-11-2370-7-A**	**11/25/08 09:45**	**Solid**	**GC/MS Z**	**12/06/08**	**12/06/08 20:27**	**081206L01**

Parameter	Result	RL	DF	Qual	Parameter	Result	RL	DF	Qual
Benzene	ND	0.0010	1		Xylenes (total)	ND	0.0010	1	
1,2-Dibromoethane	ND	0.0010	1		Methyl-t-Butyl Ether (MTBE)	ND	0.0010	1	
1,2-Dichloroethane	ND	0.0010	1		Tert-Butyl Alcohol (TBA)	0.054	0.010	1	
Ethylbenzene	ND	0.0010	1		Diisopropyl Ether (DIPE)	ND	0.0020	1	
Ethanol	0.35	0.10	1		Ethyl-t-Butyl Ether (ETBE)	ND	0.0020	1	
Toluene	ND	0.0010	1		Tert-Amyl-Methyl Ether (TAME)	ND	0.0020	1	
Surrogates:	REC (%)	Control Limits		Qual	Surrogates:	REC (%)	Control Limits		Qual
Dibromofluoromethane	118	75-141			1,2-Dichloroethane-d4	111	73-151		
Toluene-d8	101	87-111			1,4-Bromofluorobenzene	100	71-113		

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
MW-4 35'	**08-11-2370-8-A**	**11/25/08 09:50**	**Solid**	**GC/MS Z**	**12/06/08**	**12/06/08 20:57**	**081206L01**

Parameter	Result	RL	DF	Qual	Parameter	Result	RL	DF	Qual
Benzene	ND	0.0010	1		Xylenes (total)	ND	0.0010	1	
1,2-Dibromoethane	ND	0.0010	1		Methyl-t-Butyl Ether (MTBE)	0.0030	0.0010	1	
1,2-Dichloroethane	ND	0.0010	1		Tert-Butyl Alcohol (TBA)	0.65	0.010	1	
Ethylbenzene	ND	0.0010	1		Diisopropyl Ether (DIPE)	ND	0.0020	1	
Ethanol	ND	0.10	1		Ethyl-t-Butyl Ether (ETBE)	ND	0.0020	1	
Toluene	ND	0.0010	1		Tert-Amyl-Methyl Ether (TAME)	ND	0.0020	1	
Surrogates:	REC (%)	Control Limits		Qual	Surrogates:	REC (%)	Control Limits		Qual
Dibromofluoromethane	125	75-141			1,2-Dichloroethane-d4	105	73-151		
Toluene-d8	103	87-111			1,4-Bromofluorobenzene	101	71-113		

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
MW-4 40'	**08-11-2370-9-A**	**11/25/08 09:55**	**Solid**	**GC/MS Z**	**12/08/08**	**12/09/08 05:43**	**081208L03**

Parameter	Result	RL	DF	Qual	Parameter	Result	RL	DF	Qual
Benzene	ND	0.0010	1		Xylenes (total)	ND	0.0010	1	
1,2-Dibromoethane	ND	0.0010	1		Methyl-t-Butyl Ether (MTBE)	ND	0.0010	1	
1,2-Dichloroethane	ND	0.0010	1		Tert-Butyl Alcohol (TBA)	0.14	0.010	1	
Ethylbenzene	ND	0.0010	1		Diisopropyl Ether (DIPE)	ND	0.0020	1	
Ethanol	ND	0.10	1		Ethyl-t-Butyl Ether (ETBE)	ND	0.0020	1	
Toluene	ND	0.0010	1		Tert-Amyl-Methyl Ether (TAME)	ND	0.0020	1	
Surrogates:	REC (%)	Control Limits		Qual	Surrogates:	REC (%)	Control Limits		Qual
Dibromofluoromethane	130	75-141			1,2-Dichloroethane-d4	94	73-151		
Toluene-d8	101	87-111			1,4-Bromofluorobenzene	102	71-113		

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

Calscience Environmental Laboratories, Inc.

Analytical Report

Stratus Environmental, inc.	Date Received:	11/26/08
3330 Cameron Park Drive, Suite 550	Work Order No:	08-11-2370
Cameron Park, CA 95682-8861	Preparation:	EPA 5030B
	Method:	EPA 8260B
	Units:	mg/kg
Project: ARCO 498		Page 4 of 7

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
MW-3 15'	**08-11-2370-10-A**	**11/25/08 13:40**	**Solid**	**GC/MS Z**	**12/08/08**	**12/09/08 06:14**	**081208L03**

Parameter	Result	RL	DF	Qual	Parameter	Result	RL	DF	Qual
Benzene	ND	0.0010	1		Xylenes (total)	ND	0.0010	1	
1,2-Dibromoethane	ND	0.0010	1		Methyl-t-Butyl Ether (MTBE)	ND	0.0010	1	
1,2-Dichloroethane	ND	0.0010	1		Tert-Butyl Alcohol (TBA)	0.14	0.010	1	
Ethylbenzene	ND	0.0010	1		Diisopropyl Ether (DIPE)	ND	0.0020	1	
Ethanol	ND	0.10	1		Ethyl-t-Butyl Ether (ETBE)	ND	0.0020	1	
Toluene	ND	0.0010	1		Tert-Amyl-Methyl Ether (TAME)	ND	0.0020	1	
Surrogates:	REC (%)	Control Limits		Qual	Surrogates:	REC (%)	Control Limits		Qual
Dibromofluoromethane	131	75-141			1,2-Dichloroethane-d4	97	73-151		
Toluene-d8	104	87-111			1,4-Bromofluorobenzene	103	71-113		

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
MW-3 20'	**08-11-2370-11-A**	**11/25/08 13:45**	**Solid**	**GC/MS Z**	**12/08/08**	**12/09/08 04:41**	**081208L04**

Parameter	Result	RL	DF	Qual	Parameter	Result	RL	DF	Qual
Benzene	ND	0.10	100		Xylenes (total)	ND	0.10	100	
1,2-Dibromoethane	ND	0.10	100		Methyl-t-Butyl Ether (MTBE)	ND	0.10	100	
1,2-Dichloroethane	ND	0.10	100		Tert-Butyl Alcohol (TBA)	ND	1.0	100	
Ethylbenzene	0.88	0.10	100		Diisopropyl Ether (DIPE)	ND	0.20	100	
Ethanol	ND	10	100		Ethyl-t-Butyl Ether (ETBE)	ND	0.20	100	
Toluene	ND	0.10	100		Tert-Amyl-Methyl Ether (TAME)	ND	0.20	100	
Surrogates:	REC (%)	Control Limits		Qual	Surrogates:	REC (%)	Control Limits		Qual
Dibromofluoromethane	100	75-141			1,2-Dichloroethane-d4	101	73-151		
Toluene-d8	107	87-111			1,4-Bromofluorobenzene	108	71-113		

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
MW-3 25'	**08-11-2370-12-A**	**11/25/08 13:50**	**Solid**	**GC/MS Z**	**12/08/08**	**12/09/08 05:12**	**081208L04**

Parameter	Result	RL	DF	Qual	Parameter	Result	RL	DF	Qual
Benzene	ND	0.10	100		Xylenes (total)	0.17	0.10	100	
1,2-Dibromoethane	ND	0.10	100		Methyl-t-Butyl Ether (MTBE)	ND	0.10	100	
1,2-Dichloroethane	ND	0.10	100		Tert-Butyl Alcohol (TBA)	ND	1.0	100	
Ethylbenzene	1.5	0.10	100		Diisopropyl Ether (DIPE)	ND	0.20	100	
Ethanol	ND	10	100		Ethyl-t-Butyl Ether (ETBE)	ND	0.20	100	
Toluene	ND	0.10	100		Tert-Amyl-Methyl Ether (TAME)	ND	0.20	100	
Surrogates:	REC (%)	Control Limits		Qual	Surrogates:	REC (%)	Control Limits		Qual
Dibromofluoromethane	87	75-141			1,2-Dichloroethane-d4	95	73-151		
Toluene-d8	105	87-111			1,4-Bromofluorobenzene	103	71-113		

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

Calscience Environmental Laboratories, Inc.

Analytical Report

Stratus Environmental, inc.	Date Received:	11/26/08
3330 Cameron Park Drive, Suite 550	Work Order No:	08-11-2370
Cameron Park, CA 95682-8861	Preparation:	EPA 5030B
	Method:	EPA 8260B
	Units:	mg/kg
Project: ARCO 498		Page 5 of 7

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
MW-3 30'	**08-11-2370-13-A**	**11/25/08 13:55**	**Solid**	**GC/MS Z**	**12/08/08**	**12/08/08 21:29**	**081208L01**

Parameter	Result	RL	DF	Qual	Parameter	Result	RL	DF	Qual
Benzene	ND	0.0010	1		Xylenes (total)	ND	0.0010	1	
1,2-Dibromoethane	ND	0.0010	1		Methyl-t-Butyl Ether (MTBE)	ND	0.0010	1	
1,2-Dichloroethane	ND	0.0010	1		Tert-Butyl Alcohol (TBA)	ND	0.010	1	
Ethylbenzene	ND	0.0010	1		Diisopropyl Ether (DIPE)	ND	0.0020	1	
Ethanol	ND	0.10	1		Ethyl-t-Butyl Ether (ETBE)	ND	0.0020	1	
Toluene	ND	0.0010	1		Tert-Amyl-Methyl Ether (TAME)	ND	0.0020	1	
Surrogates:	REC (%)	Control Limits		Qual	Surrogates:	REC (%)	Control Limits		Qual
Dibromofluoromethane	78	75-141			1,2-Dichloroethane-d4	95	73-151		
Toluene-d8	101	87-111			1,4-Bromofluorobenzene	102	71-113		

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
MW-3 35'	**08-11-2370-14-A**	**11/25/08 14:00**	**Solid**	**GC/MS Z**	**12/08/08**	**12/08/08 22:00**	**081208L01**

Parameter	Result	RL	DF	Qual	Parameter	Result	RL	DF	Qual
Benzene	ND	0.0010	1		Xylenes (total)	ND	0.0010	1	
1,2-Dibromoethane	ND	0.0010	1		Methyl-t-Butyl Ether (MTBE)	ND	0.0010	1	
1,2-Dichloroethane	ND	0.0010	1		Tert-Butyl Alcohol (TBA)	0.028	0.010	1	
Ethylbenzene	ND	0.0010	1		Diisopropyl Ether (DIPE)	ND	0.0020	1	
Ethanol	ND	0.10	1		Ethyl-t-Butyl Ether (ETBE)	ND	0.0020	1	
Toluene	ND	0.0010	1		Tert-Amyl-Methyl Ether (TAME)	ND	0.0020	1	
Surrogates:	REC (%)	Control Limits		Qual	Surrogates:	REC (%)	Control Limits		Qual
Dibromofluoromethane	114	75-141			1,2-Dichloroethane-d4	138	73-151		
Toluene-d8	102	87-111			1,4-Bromofluorobenzene	101	71-113		

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
MW-3 40'	**08-11-2370-15-A**	**11/25/08 14:05**	**Solid**	**GC/MS Z**	**12/08/08**	**12/08/08 22:31**	**081208L01**

Parameter	Result	RL	DF	Qual	Parameter	Result	RL	DF	Qual
Benzene	ND	0.0010	1		Xylenes (total)	ND	0.0010	1	
1,2-Dibromoethane	ND	0.0010	1		Methyl-t-Butyl Ether (MTBE)	0.013	0.0010	1	
1,2-Dichloroethane	ND	0.0010	1		Tert-Butyl Alcohol (TBA)	0.014	0.010	1	
Ethylbenzene	ND	0.0010	1		Diisopropyl Ether (DIPE)	ND	0.0020	1	
Ethanol	ND	0.10	1		Ethyl-t-Butyl Ether (ETBE)	ND	0.0020	1	
Toluene	ND	0.0010	1		Tert-Amyl-Methyl Ether (TAME)	ND	0.0020	1	
Surrogates:	REC (%)	Control Limits		Qual	Surrogates:	REC (%)	Control Limits		Qual
Dibromofluoromethane	125	75-141			1,2-Dichloroethane-d4	93	73-151		
Toluene-d8	101	87-111			1,4-Bromofluorobenzene	100	71-113		

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

Calscience Environmental Laboratories, Inc.

Analytical Report

Stratus Environmental, inc.	Date Received:	11/26/08
3330 Cameron Park Drive, Suite 550	Work Order No:	08-11-2370
Cameron Park, CA 95682-8861	Preparation:	EPA 5030B
	Method:	EPA 8260B
	Units:	mg/kg
Project: ARCO 498		Page 6 of 7

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
Method Blank	**099-12-709-71**	**N/A**	**Solid**	**GC/MS Z**	**12/05/08**	**12/05/08 15:18**	**081205L01**

Parameter	Result	RL	DF	Qual	Parameter	Result	RL	DF	Qual
Benzene	ND	0.0010	1		Xylenes (total)	ND	0.0010	1	
1,2-Dibromoethane	ND	0.0010	1		Methyl-t-Butyl Ether (MTBE)	ND	0.0010	1	
1,2-Dichloroethane	ND	0.0010	1		Tert-Butyl Alcohol (TBA)	ND	0.010	1	
Ethylbenzene	ND	0.0010	1		Diisopropyl Ether (DIPE)	ND	0.0020	1	
Ethanol	ND	0.10	1		Ethyl-t-Butyl Ether (ETBE)	ND	0.0020	1	
Toluene	ND	0.0010	1		Tert-Amyl-Methyl Ether (TAME)	ND	0.0020	1	
Surrogates:	REC (%)	Control Limits		Qual	Surrogates:	REC (%)	Control Limits		Qual
Dibromofluoromethane	106	75-141			1,2-Dichloroethane-d4	108	73-151		
Toluene-d8	102	87-111			1,4-Bromofluorobenzene	98	71-113		

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
Method Blank	**099-12-709-72**	**N/A**	**Solid**	**GC/MS Z**	**12/06/08**	**12/06/08 16:50**	**081206L01**

Parameter	Result	RL	DF	Qual	Parameter	Result	RL	DF	Qual
Benzene	ND	0.0010	1		Xylenes (total)	ND	0.0010	1	
1,2-Dibromoethane	ND	0.0010	1		Methyl-t-Butyl Ether (MTBE)	ND	0.0010	1	
1,2-Dichloroethane	ND	0.0010	1		Tert-Butyl Alcohol (TBA)	ND	0.010	1	
Ethylbenzene	ND	0.0010	1		Diisopropyl Ether (DIPE)	ND	0.0020	1	
Ethanol	ND	0.10	1		Ethyl-t-Butyl Ether (ETBE)	ND	0.0020	1	
Toluene	ND	0.0010	1		Tert-Amyl-Methyl Ether (TAME)	ND	0.0020	1	
Surrogates:	REC (%)	Control Limits		Qual	Surrogates:	REC (%)	Control Limits		Qual
Dibromofluoromethane	125	75-141			1,2-Dichloroethane-d4	104	73-151		
Toluene-d8	100	87-111			1,4-Bromofluorobenzene	93	71-113		

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
Method Blank	**099-12-709-73**	**N/A**	**Solid**	**GC/MS Z**	**12/08/08**	**12/08/08 13:23**	**081208L01**

Parameter	Result	RL	DF	Qual	Parameter	Result	RL	DF	Qual
Benzene	ND	0.0010	1		Xylenes (total)	ND	0.0010	1	
1,2-Dibromoethane	ND	0.0010	1		Methyl-t-Butyl Ether (MTBE)	ND	0.0010	1	
1,2-Dichloroethane	ND	0.0010	1		Tert-Butyl Alcohol (TBA)	ND	0.010	1	
Ethylbenzene	ND	0.0010	1		Diisopropyl Ether (DIPE)	ND	0.0020	1	
Ethanol	ND	0.10	1		Ethyl-t-Butyl Ether (ETBE)	ND	0.0020	1	
Toluene	ND	0.0010	1		Tert-Amyl-Methyl Ether (TAME)	ND	0.0020	1	
Surrogates:	REC (%)	Control Limits		Qual	Surrogates:	REC (%)	Control Limits		Qual
Dibromofluoromethane	136	75-141			1,2-Dichloroethane-d4	101	73-151		
Toluene-d8	103	87-111			1,4-Bromofluorobenzene	101	71-113		

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

Calscience Environmental Laboratories, Inc.

Analytical Report

Stratus Environmental, inc.	Date Received:	11/26/08
3330 Cameron Park Drive, Suite 550	Work Order No:	08-11-2370
Cameron Park, CA 95682-8861	Preparation:	EPA 5030B
	Method:	EPA 8260B
	Units:	mg/kg
Project: ARCO 498		Page 7 of 7

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
Method Blank	**099-12-709-75**	**N/A**	**Solid**	**GC/MS Z**	**12/08/08**	**12/09/08 02:38**	**081208L03**

Parameter	Result	RL	DF	Qual	Parameter	Result	RL	DF	Qual
Benzene	ND	0.0010	1		Xylenes (total)	ND	0.0010	1	
1,2-Dibromoethane	ND	0.0010	1		Methyl-t-Butyl Ether (MTBE)	ND	0.0010	1	
1,2-Dichloroethane	ND	0.0010	1		Tert-Butyl Alcohol (TBA)	ND	0.010	1	
Ethylbenzene	ND	0.0010	1		Diisopropyl Ether (DIPE)	ND	0.0020	1	
Ethanol	ND	0.10	1		Ethyl-t-Butyl Ether (ETBE)	ND	0.0020	1	
Toluene	ND	0.0010	1		Tert-Amyl-Methyl Ether (TAME)	ND	0.0020	1	
Surrogates:	REC (%)	Control Limits		Qual	Surrogates:	REC (%)	Control Limits		Qual
Dibromofluoromethane	135	75-141			1,2-Dichloroethane-d4	103	73-151		
Toluene-d8	103	87-111			1,4-Bromofluorobenzene	97	71-113		

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
Method Blank	**099-12-709-76**	**N/A**	**Solid**	**GC/MS Z**	**12/08/08**	**12/09/08 02:07**	**081208L04**

Parameter	Result	RL	DF	Qual	Parameter	Result	RL	DF	Qual
Benzene	ND	0.10	100		Xylenes (total)	ND	0.10	100	
1,2-Dibromoethane	ND	0.10	100		Methyl-t-Butyl Ether (MTBE)	ND	0.10	100	
1,2-Dichloroethane	ND	0.10	100		Tert-Butyl Alcohol (TBA)	ND	1.0	100	
Ethylbenzene	ND	0.10	100		Diisopropyl Ether (DIPE)	ND	0.20	100	
Ethanol	ND	10	100		Ethyl-t-Butyl Ether (ETBE)	ND	0.20	100	
Toluene	ND	0.10	100		Tert-Amyl-Methyl Ether (TAME)	ND	0.20	100	
Surrogates:	REC (%)	Control Limits		Qual	Surrogates:	REC (%)	Control Limits		Qual
Dibromofluoromethane	136	75-141			1,2-Dichloroethane-d4	98	73-151		
Toluene-d8	102	87-111			1,4-Bromofluorobenzene	97	71-113		

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

Calscience Environmental Laboratories, Inc.

Quality Control - Spike/Spike Duplicate

Stratus Environmental, inc.	Date Received:	11/26/08
3330 Cameron Park Drive, Suite 550	Work Order No:	08-11-2370
Cameron Park, CA 95682-8861	Preparation:	EPA 5030B
	Method:	EPA 8015B (M)

Project ARCO 498

Quality Control Sample ID	Matrix	Instrument	Date Prepared	Date Analyzed	MS/MSD Batch Number
08-12-0101-2	**Solid**	**GC 1**	**12/02/08**	**12/02/08**	**081201S02**

Parameter	MS %REC	MSD %REC	%REC CL	RPD	RPD CL	Qualifiers
Gasoline Range Organics (C6-C12)	81	83	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:	11/26/08
3330 Cameron Park Drive, Suite 550	Work Order No:	08-11-2370
Cameron Park, CA 95682-8861	Preparation:	EPA 5030B
	Method:	EPA 8260B

Project ARCO 498

Quality Control Sample ID	Matrix	Instrument	Date Prepared	Date Analyzed	MS/MSD Batch Number
08-12-0612-5	**Solid**	**GC/MS Z**	**12/05/08**	**12/05/08**	**081205S01**

Parameter	MS %REC	MSD %REC	%REC CL	RPD	RPD CL	Qualifiers
Benzene	93	92	78-114	1	0-14	
Chloroform	77	74	80-120	3	0-20	LN
1,1-Dichloroethane	98	98	80-120	1	0-20	
1,2-Dichloroethane	112	110	80-120	1	0-20	
1,1-Dichloroethene	110	105	73-127	4	0-21	
Ethanol	100	102	45-135	1	0-29	
Tetrachloroethene	73	70	80-120	4	0-20	LN
Toluene	95	94	74-116	2	0-16	
Trichloroethene	94	91	74-122	2	0-17	
Methyl-t-Butyl Ether (MTBE)	118	115	69-123	2	0-18	

RPD - Relative Percent Difference , CL - Control Limit

Calscience Environmental Laboratories, Inc.

Quality Control - Spike/Spike Duplicate

Stratus Environmental, inc.	Date Received:	11/26/08
3330 Cameron Park Drive, Suite 550	Work Order No:	08-11-2370
Cameron Park, CA 95682-8861	Preparation:	EPA 5030B
	Method:	EPA 8260B

Project ARCO 498

Quality Control Sample ID	Matrix	Instrument	Date Prepared	Date Analyzed	MS/MSD Batch Number
MW-1 40'	**Solid**	**GC/MS Z**	**12/06/08**	**12/06/08**	**081206S01**

Parameter	MS %REC	MSD %REC	%REC CL	RPD	RPD CL	Qualifiers
Benzene	72	64	78-114	12	0-14	LN
Chloroform	81	66	80-120	19	0-20	LN
1,1-Dichloroethane	79	65	80-120	19	0-20	LN
1,2-Dichloroethane	77	65	80-120	16	0-20	LN
1,1-Dichloroethene	79	68	73-127	15	0-21	LN
Ethanol	89	65	45-135	20	0-29	
Tetrachloroethene	72	63	80-120	12	0-20	LN
Toluene	72	63	74-116	13	0-16	LN
Trichloroethene	74	65	74-122	12	0-17	LN
Methyl-t-Butyl Ether (MTBE)	0	0	69-123	7	0-18	LN

RPD - Relative Percent Difference , CL - Control Limit

Calscience Environmental Laboratories, Inc.

Quality Control - Spike/Spike Duplicate

Stratus Environmental, inc.	Date Received:	11/26/08
3330 Cameron Park Drive, Suite 550	Work Order No:	08-11-2370
Cameron Park, CA 95682-8861	Preparation:	EPA 5030B
	Method:	EPA 8260B

Project ARCO 498

Quality Control Sample ID	Matrix	Instrument	Date Prepared	Date Analyzed	MS/MSD Batch Number
08-12-0245-5	**Solid**	**GC/MS Z**	**12/08/08**	**12/08/08**	**081208S01**

Parameter	MS %REC	MSD %REC	%REC CL	RPD	RPD CL	Qualifiers
Benzene	71	80	78-114	12	0-14	LN
Chloroform	76	88	80-120	15	0-20	LN
1,1-Dichloroethane	69	79	80-120	14	0-20	LN
1,2-Dichloroethane	73	81	80-120	11	0-20	LN
1,1-Dichloroethene	65	75	73-127	15	0-21	LN
Ethanol	53	65	45-135	21	0-29	
Tetrachloroethene	60	68	80-120	13	0-20	LN
Toluene	74	83	74-116	12	0-16	
Trichloroethene	75	83	74-122	11	0-17	
Methyl-t-Butyl Ether (MTBE)	77	89	69-123	15	0-18	

RPD - Relative Percent Difference , CL - Control Limit

Calscience Environmental Laboratories, Inc.

Quality Control - Spike/Spike Duplicate

Stratus Environmental, inc.	Date Received:	11/26/08
3330 Cameron Park Drive, Suite 550	Work Order No:	08-11-2370
Cameron Park, CA 95682-8861	Preparation:	EPA 5030B
	Method:	EPA 8260B

Project ARCO 498

Quality Control Sample ID	Matrix	Instrument	Date Prepared	Date Analyzed	MS/MSD Batch Number
08-12-0767-1	**Solid**	**GC/MS Z**	**12/08/08**	**12/09/08**	**081208S02**

Parameter	MS %REC	MSD %REC	%REC CL	RPD	RPD CL	Qualifiers
Benzene	83	81	79-115	3	0-13	
Carbon Tetrachloride	89	87	55-139	2	0-15	
Chlorobenzene	78	76	79-115	2	0-17	LN
1,2-Dibromoethane	80	80	70-130	1	0-30	
1,2-Dichlorobenzene	58	53	63-123	10	0-23	LN
1,1-Dichloroethene	81	81	69-123	0	0-16	
Ethylbenzene	80	80	70-130	1	0-30	
Toluene	82	80	79-115	2	0-15	
Trichloroethene	85	81	66-144	4	0-14	
Vinyl Chloride	75	76	60-126	1	0-14	
Methyl-t-Butyl Ether (MTBE)	94	93	68-128	1	0-14	
Tert-Butyl Alcohol (TBA)	80	77	44-134	4	0-37	
Diisopropyl Ether (DIPE)	73	74	75-123	2	0-12	LN
Ethyl-t-Butyl Ether (ETBE)	82	82	75-117	0	0-12	
Tert-Amyl-Methyl Ether (TAME)	92	91	79-115	1	0-12	
Ethanol	36	28	42-138	24	0-28	LN

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:	08-11-2370
Cameron Park, CA 95682-8861		Preparation:	EPA 5030B
		Method:	EPA 8015B (M)

Project: ARCO 498

Quality Control Sample ID	Matrix	Instrument	Date Prepared	Date Analyzed	LCS/LCSD Batch Number
099-12-697-53	**Solid**	**GC 1**	**11/26/08**	**11/29/08**	**081129B01**

Parameter	LCS %REC	LCSD %REC	%REC CL	RPD	RPD CL	Qualifiers
Gasoline Range Organics (C6-C12)	90	90	70-118	0	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:	08-11-2370
Cameron Park, CA 95682-8861		Preparation:	EPA 5030B
		Method:	EPA 8015B (M)

Project: ARCO 498

Quality Control Sample ID	Matrix	Instrument	Date Prepared	Date Analyzed	LCS/LCSD Batch Number
099-12-697-55	**Solid**	**GC 1**	**12/02/08**	**12/02/08**	**081201B03**

Parameter	LCS %REC	LCSD %REC	%REC CL	RPD	RPD CL	Qualifiers
Gasoline Range Organics (C6-C12)	95	97	70-118	1	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:	08-11-2370
Cameron Park, CA 95682-8861		Preparation:	EPA 5030B
		Method:	EPA 8015B (M)

Project: ARCO 498

Quality Control Sample ID	Matrix	Instrument	Date Prepared	Date Analyzed	LCS/LCSD Batch Number
099-12-697-54	**Solid**	**GC 1**	**12/02/08**	**12/02/08**	**081201B02**

Parameter	LCS %REC	LCSD %REC	%REC CL	RPD	RPD CL	Qualifiers
Gasoline Range Organics (C6-C12)	95	97	70-118	1	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:	08-11-2370
Cameron Park, CA 95682-8861		Preparation:	EPA 5030B
		Method:	EPA 8260B

Project: ARCO 498

Quality Control Sample ID	Matrix	Instrument	Date Prepared	Date Analyzed	LCS/LCSD Batch Number
099-12-709-71	**Solid**	**GC/MS Z**	**12/05/08**	**12/05/08**	**081205L01**

Parameter	LCS %REC	LCSD %REC	%REC CL	ME_CL	RPD	RPD CL	Qualifiers
Benzene	98	101	84-114	79-119	3	0-7	
Bromobenzene	101	100	80-120	73-127	1	0-20	
Bromochloromethane	98	95	80-120	73-127	3	0-20	
Bromodichloromethane	112	110	80-120	73-127	1	0-20	
Bromoform	123	119	80-120	73-127	4	0-20	LQ
Bromomethane	105	91	80-120	73-127	15	0-20	
n-Butylbenzene	97	100	77-123	69-131	3	0-25	
sec-Butylbenzene	94	98	80-120	73-127	4	0-20	
tert-Butylbenzene	107	107	80-120	73-127	0	0-20	
Carbon Disulfide	141	153	80-120	73-127	8	0-20	LQ
Carbon Tetrachloride	115	117	69-135	58-146	1	0-13	
Chlorobenzene	96	97	85-109	81-113	1	0-8	
Chloroethane	91	104	80-120	73-127	14	0-20	
Chloroform	80	80	80-120	73-127	0	0-20	
Chloromethane	57	73	80-120	73-127	25	0-20	LR,BA
2-Chlorotoluene	99	102	80-120	73-127	2	0-20	
4-Chlorotoluene	98	102	80-120	73-127	3	0-20	
Dibromochloromethane	114	108	80-120	73-127	5	0-20	
1,2-Dibromo-3-Chloropropane	103	107	80-120	73-127	4	0-20	
1,2-Dibromoethane	107	103	80-120	73-127	4	0-20	
Dibromomethane	108	106	80-120	73-127	2	0-20	
1,2-Dichlorobenzene	100	100	80-110	75-115	0	0-10	
1,3-Dichlorobenzene	99	101	80-120	73-127	2	0-20	
1,4-Dichlorobenzene	100	101	80-120	73-127	1	0-20	
Dichlorodifluoromethane	80	101	80-120	73-127	23	0-20	BA
1,1-Dichloroethane	102	105	80-120	73-127	3	0-20	
1,2-Dichloroethane	110	109	80-120	73-127	1	0-20	
1,1-Dichloroethene	112	118	83-125	76-132	5	0-10	
c-1,2-Dichloroethene	101	103	80-120	73-127	1	0-20	
t-1,2-Dichloroethene	115	115	80-120	73-127	0	0-20	
1,2-Dichloropropane	91	92	79-115	73-121	1	0-25	
1,3-Dichloropropane	102	99	80-120	73-127	3	0-20	
2,2-Dichloropropane	118	117	80-120	73-127	0	0-20	
1,1-Dichloropropene	96	98	80-120	73-127	3	0-20	
c-1,3-Dichloropropene	107	105	80-120	73-127	2	0-20	
t-1,3-Dichloropropene	108	102	80-120	73-127	5	0-20	
Ethylbenzene	98	100	80-120	73-127	2	0-20	
Isopropylbenzene	99	100	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.		Date Received:	N/A
3330 Cameron Park Drive, Suite 550		Work Order No:	08-11-2370
Cameron Park, CA 95682-8861		Preparation:	EPA 5030B
		Method:	EPA 8260B

Project: ARCO 498

Quality Control Sample ID	Matrix	Instrument	Date Prepared	Date Analyzed	LCS/LCSD Batch Number
099-12-709-71	**Solid**	**GC/MS Z**	**12/05/08**	**12/05/08**	**081205L01**

Parameter	LCS %REC	LCSD %REC	%REC CL	ME CL	RPD	RPD CL	Qualifiers
p-Isopropyltoluene	101	102	80-120	73-127	2	0-20	
Methylene Chloride	106	110	80-120	73-127	3	0-20	
Naphthalene	96	95	80-120	73-127	1	0-20	
n-Propylbenzene	98	100	80-120	73-127	2	0-20	
Styrene	96	97	80-120	73-127	1	0-20	
Ethanol	82	111	50-134	36-148	29	0-23	BA
1,1,1,2-Tetrachloroethane	111	107	80-120	73-127	3	0-20	
1,1,2,2-Tetrachloroethane	105	102	80-120	73-127	3	0-20	
Tetrachloroethene	85	95	80-120	73-127	10	0-20	
Toluene	100	102	79-115	73-121	2	0-8	
1,2,3-Trichlorobenzene	107	104	80-120	73-127	3	0-20	
1,2,4-Trichlorobenzene	106	104	80-120	73-127	2	0-20	
1,1,1-Trichloroethane	110	115	80-120	73-127	5	0-20	
1,1,2-Trichloroethane	100	98	80-120	73-127	3	0-20	
Trichloroethene	98	103	87-111	83-115	5	0-7	
Trichlorofluoromethane	118	127	80-120	73-127	8	0-20	LQ
1,2,3-Trichloropropane	105	107	80-120	73-127	2	0-20	
1,2,4-Trimethylbenzene	100	101	80-120	73-127	2	0-20	
1,3,5-Trimethylbenzene	101	102	80-120	73-127	2	0-20	
Vinyl Acetate	140	129	80-120	73-127	8	0-20	LQ
Vinyl Chloride	68	87	72-126	63-135	25	0-10	LR,BA
p/m-Xylene	96	98	80-120	73-127	2	0-20	
o-Xylene	101	102	80-120	73-127	1	0-20	
Methyl-t-Butyl Ether (MTBE)	120	113	75-129	66-138	6	0-13	
Tert-Butyl Alcohol (TBA)	97	99	66-126	56-136	2	0-24	
Diisopropyl Ether (DIPE)	83	80	77-125	69-133	4	0-13	
Ethyl-t-Butyl Ether (ETBE)	97	92	72-132	62-142	6	0-12	
Tert-Amyl-Methyl Ether (TAME)	103	98	77-125	69-133	5	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.

Quality Control - LCS/LCS Duplicate

Stratus Environmental, inc.		Date Received:	N/A
3330 Cameron Park Drive, Suite 550		Work Order No:	08-11-2370
Cameron Park, CA 95682-8861		Preparation:	EPA 5030B
		Method:	EPA 8260B

Project: ARCO 498

Quality Control Sample ID	Matrix	Instrument	Date Prepared	Date Analyzed	LCS/LCSD Batch Number
099-12-709-72	**Solid**	**GC/MS Z**	**12/06/08**	**12/06/08**	**081206L01**

Parameter	LCS %REC	LCSD %REC	%REC CL	ME CL	RPD	RPD CL	Qualifiers
Benzene	97	96	84-114	79-119	1	0-7	
Bromobenzene	104	100	80-120	73-127	4	0-20	
Bromochloromethane	96	92	80-120	73-127	5	0-20	
Bromodichloromethane	106	103	80-120	73-127	3	0-20	
Bromoform	107	102	80-120	73-127	4	0-20	
Bromomethane	88	86	80-120	73-127	2	0-20	
n-Butylbenzene	102	103	77-123	69-131	1	0-25	
sec-Butylbenzene	102	104	80-120	73-127	1	0-20	
tert-Butylbenzene	102	101	80-120	73-127	1	0-20	
Carbon Disulfide	97	98	80-120	73-127	1	0-20	
Carbon Tetrachloride	101	101	69-135	58-146	0	0-13	
Chlorobenzene	99	99	85-109	81-113	0	0-8	
Chloroethane	102	103	80-120	73-127	1	0-20	
Chloroform	101	102	80-120	73-127	1	0-20	
Chloromethane	95	100	80-120	73-127	5	0-20	
2-Chlorotoluene	105	104	80-120	73-127	0	0-20	
4-Chlorotoluene	100	99	80-120	73-127	0	0-20	
Dibromochloromethane	105	101	80-120	73-127	4	0-20	
1,2-Dibromo-3-Chloropropane	97	101	80-120	73-127	4	0-20	
1,2-Dibromoethane	102	100	80-120	73-127	2	0-20	
Dibromomethane	100	98	80-120	73-127	3	0-20	
1,2-Dichlorobenzene	99	97	80-110	75-115	1	0-10	
1,3-Dichlorobenzene	100	99	80-120	73-127	2	0-20	
1,4-Dichlorobenzene	100	100	80-120	73-127	0	0-20	
Dichlorodifluoromethane	100	103	80-120	73-127	3	0-20	
1,1-Dichloroethane	99	98	80-120	73-127	1	0-20	
1,2-Dichloroethane	103	100	80-120	73-127	3	0-20	
1,1-Dichloroethene	98	100	83-125	76-132	2	0-10	
c-1,2-Dichloroethene	90	92	80-120	73-127	2	0-20	
t-1,2-Dichloroethene	90	93	80-120	73-127	4	0-20	
1,2-Dichloropropane	102	99	79-115	73-121	3	0-25	
1,3-Dichloropropane	102	97	80-120	73-127	5	0-20	
2,2-Dichloropropane	101	100	80-120	73-127	1	0-20	
1,1-Dichloropropene	96	97	80-120	73-127	1	0-20	
c-1,3-Dichloropropene	105	102	80-120	73-127	3	0-20	
t-1,3-Dichloropropene	105	103	80-120	73-127	3	0-20	
Ethylbenzene	102	102	80-120	73-127	1	0-20	
Isopropylbenzene	104	105	80-120	73-127	0	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:	08-11-2370
Cameron Park, CA 95682-8861		Preparation:	EPA 5030B
		Method:	EPA 8260B

Project: ARCO 498

Quality Control Sample ID	Matrix	Instrument	Date Prepared	Date Analyzed	LCS/LCSD Batch Number
099-12-709-72	**Solid**	**GC/MS Z**	**12/06/08**	**12/06/08**	**081206L01**

Parameter	LCS %REC	LCSD %REC	%REC CL	ME_CL	RPD	RPD CL	Qualifiers
p-Isopropyltoluene	103	102	80-120	73-127	0	0-20	
Methylene Chloride	98	98	80-120	73-127	1	0-20	
Naphthalene	101	102	80-120	73-127	0	0-20	
n-Propylbenzene	105	104	80-120	73-127	0	0-20	
Styrene	102	102	80-120	73-127	0	0-20	
Ethanol	110	103	50-134	36-148	6	0-23	
1,1,1,2-Tetrachloroethane	103	100	80-120	73-127	3	0-20	
1,1,2,2-Tetrachloroethane	105	101	80-120	73-127	4	0-20	
Tetrachloroethene	94	99	80-120	73-127	6	0-20	
Toluene	98	98	79-115	73-121	1	0-8	
1,2,3-Trichlorobenzene	100	98	80-120	73-127	2	0-20	
1,2,4-Trichlorobenzene	97	97	80-120	73-127	0	0-20	
1,1,1-Trichloroethane	115	108	80-120	73-127	7	0-20	
1,1,2-Trichloroethane	101	98	80-120	73-127	3	0-20	
Trichloroethene	100	100	87-111	83-115	0	0-7	
Trichlorofluoromethane	101	104	80-120	73-127	3	0-20	
1,2,3-Trichloropropane	99	98	80-120	73-127	1	0-20	
1,2,4-Trimethylbenzene	101	102	80-120	73-127	1	0-20	
1,3,5-Trimethylbenzene	102	102	80-120	73-127	0	0-20	
Vinyl Acetate	101	94	80-120	73-127	7	0-20	
Vinyl Chloride	89	91	72-126	63-135	2	0-10	
p/m-Xylene	101	101	80-120	73-127	0	0-20	
o-Xylene	103	103	80-120	73-127	0	0-20	
Methyl-t-Butyl Ether (MTBE)	99	97	75-129	66-138	2	0-13	
Tert-Butyl Alcohol (TBA)	96	95	66-126	56-136	2	0-24	
Diisopropyl Ether (DIPE)	96	96	77-125	69-133	0	0-13	
Ethyl-t-Butyl Ether (ETBE)	99	99	72-132	62-142	1	0-12	
Tert-Amyl-Methyl Ether (TAME)	103	98	77-125	69-133	5	0-10	

Total number of LCS compounds : 66
Total number of ME compounds : 0
Total number of ME compounds allowed : 3
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:	08-11-2370
Cameron Park, CA 95682-8861		Preparation:	EPA 5030B
		Method:	EPA 8260B

Project: ARCO 498

Quality Control Sample ID	Matrix	Instrument	Date Prepared	Date Analyzed	LCS/LCSD Batch Number
099-12-709-73	**Solid**	**GC/MS Z**	**12/08/08**	**12/08/08**	**081208L01**

Parameter	LCS %REC	LCSD %REC	%REC CL	ME CL	RPD	RPD CL	Qualifiers
Benzene	92	94	84-114	79-119	2	0-7	
Bromobenzene	96	98	80-120	73-127	2	0-20	
Bromochloromethane	94	94	80-120	73-127	1	0-20	
Bromodichloromethane	102	103	80-120	73-127	1	0-20	
Bromoform	96	102	80-120	73-127	6	0-20	
Bromomethane	99	95	80-120	73-127	3	0-20	
n-Butylbenzene	97	97	77-123	69-131	1	0-25	
sec-Butylbenzene	94	94	80-120	73-127	0	0-20	
tert-Butylbenzene	95	93	80-120	73-127	2	0-20	
Carbon Disulfide	98	98	80-120	73-127	0	0-20	
Carbon Tetrachloride	100	98	69-135	58-146	1	0-13	
Chlorobenzene	97	100	85-109	81-113	4	0-8	
Chloroethane	93	92	80-120	73-127	2	0-20	
Chloroform	101	100	80-120	73-127	1	0-20	
Chloromethane	71	69	80-120	73-127	3	0-20	LR
2-Chlorotoluene	101	102	80-120	73-127	1	0-20	
4-Chlorotoluene	94	95	80-120	73-127	1	0-20	
Dibromochloromethane	96	100	80-120	73-127	4	0-20	
1,2-Dibromo-3-Chloropropane	91	94	80-120	73-127	2	0-20	
1,2-Dibromoethane	93	96	80-120	73-127	3	0-20	
Dibromomethane	96	99	80-120	73-127	3	0-20	
1,2-Dichlorobenzene	91	90	80-110	75-115	1	0-10	
1,3-Dichlorobenzene	91	93	80-120	73-127	2	0-20	
1,4-Dichlorobenzene	92	91	80-120	73-127	1	0-20	
Dichlorodifluoromethane	97	96	80-120	73-127	1	0-20	
1,1-Dichloroethane	91	92	80-120	73-127	1	0-20	
1,2-Dichloroethane	89	92	80-120	73-127	3	0-20	
1,1-Dichloroethene	88	87	83-125	76-132	2	0-10	
c-1,2-Dichloroethene	90	89	80-120	73-127	1	0-20	
t-1,2-Dichloroethene	89	87	80-120	73-127	3	0-20	
1,2-Dichloropropane	93	94	79-115	73-121	1	0-25	
1,3-Dichloropropane	94	98	80-120	73-127	4	0-20	
2,2-Dichloropropane	100	98	80-120	73-127	2	0-20	
1,1-Dichloropropene	98	98	80-120	73-127	0	0-20	
c-1,3-Dichloropropene	102	105	80-120	73-127	3	0-20	
t-1,3-Dichloropropene	100	103	80-120	73-127	3	0-20	
Ethylbenzene	100	100	80-120	73-127	0	0-20	
Isopropylbenzene	98	99	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.	Date Received:	N/A
3330 Cameron Park Drive, Suite 550	Work Order No:	08-11-2370
Cameron Park, CA 95682-8861	Preparation:	EPA 5030B
	Method:	EPA 8260B

Project: ARCO 498

Quality Control Sample ID	Matrix	Instrument	Date Prepared	Date Analyzed	LCS/LCSD Batch Number
099-12-709-73	**Solid**	**GC/MS Z**	**12/08/08**	**12/08/08**	**081208L01**

Parameter	LCS %REC	LCSD %REC	%REC CL	ME_CL	RPD	RPD CL	Qualifiers
p-Isopropyltoluene	95	94	80-120	73-127	1	0-20	
Methylene Chloride	101	101	80-120	73-127	1	0-20	
Naphthalene	90	95	80-120	73-127	6	0-20	
n-Propylbenzene	101	101	80-120	73-127	1	0-20	
Styrene	99	102	80-120	73-127	3	0-20	
Ethanol	68	81	50-134	36-148	17	0-23	
1,1,1,2-Tetrachloroethane	95	96	80-120	73-127	1	0-20	
1,1,2,2-Tetrachloroethane	98	101	80-120	73-127	4	0-20	
Tetrachloroethene	82	92	80-120	73-127	11	0-20	
Toluene	97	97	79-115	73-121	1	0-8	
1,2,3-Trichlorobenzene	89	93	80-120	73-127	4	0-20	
1,2,4-Trichlorobenzene	88	91	80-120	73-127	3	0-20	
1,1,1-Trichloroethane	112	111	80-120	73-127	1	0-20	
1,1,2-Trichloroethane	95	97	80-120	73-127	2	0-20	
Trichloroethene	98	100	87-111	83-115	2	0-7	
Trichlorofluoromethane	101	99	80-120	73-127	2	0-20	
1,2,3-Trichloropropane	91	94	80-120	73-127	3	0-20	
1,2,4-Trimethylbenzene	92	93	80-120	73-127	1	0-20	
1,3,5-Trimethylbenzene	96	97	80-120	73-127	1	0-20	
Vinyl Acetate	98	98	80-120	73-127	0	0-20	
Vinyl Chloride	79	75	72-126	63-135	5	0-10	
p/m-Xylene	98	98	80-120	73-127	0	0-20	
o-Xylene	101	102	80-120	73-127	1	0-20	
Methyl-t-Butyl Ether (MTBE)	98	101	75-129	66-138	3	0-13	
Tert-Butyl Alcohol (TBA)	82	86	66-126	56-136	5	0-24	
Diisopropyl Ether (DIPE)	79	81	77-125	69-133	3	0-13	
Ethyl-t-Butyl Ether (ETBE)	88	89	72-132	62-142	1	0-12	
Tert-Amyl-Methyl Ether (TAME)	100	103	77-125	69-133	3	0-10	

Total number of LCS compounds : 66
Total number of ME compounds : 0
Total number of ME compounds allowed : 3
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:	08-11-2370
Cameron Park, CA 95682-8861		Preparation:	EPA 5030B
		Method:	EPA 8260B

Project: ARCO 498

Quality Control Sample ID	Matrix	Instrument	Date Prepared	Date Analyzed	LCS/LCSD Batch Number
099-12-709-75	**Solid**	**GC/MS Z**	**12/08/08**	**12/09/08**	**081208L03**

Parameter	LCS %REC	LCSD %REC	%REC CL	ME_CL	RPD	RPD CL	Qualifiers
Benzene	95	97	84-114	79-119	1	0-7	
Bromobenzene	98	100	80-120	73-127	1	0-20	
Bromochloromethane	98	100	80-120	73-127	2	0-20	
Bromodichloromethane	103	106	80-120	73-127	2	0-20	
Bromoform	99	100	80-120	73-127	1	0-20	
Bromomethane	113	109	80-120	73-127	3	0-20	
n-Butylbenzene	95	98	77-123	69-131	3	0-25	
sec-Butylbenzene	96	98	80-120	73-127	1	0-20	
tert-Butylbenzene	93	92	80-120	73-127	1	0-20	
Carbon Disulfide	100	104	80-120	73-127	4	0-20	
Carbon Tetrachloride	95	102	69-135	58-146	7	0-13	
Chlorobenzene	102	103	85-109	81-113	1	0-8	
Chloroethane	98	101	80-120	73-127	3	0-20	
Chloroform	99	104	80-120	73-127	4	0-20	
Chloromethane	72	75	80-120	73-127	5	0-20	LR
2-Chlorotoluene	102	103	80-120	73-127	1	0-20	
4-Chlorotoluene	94	96	80-120	73-127	2	0-20	
Dibromochloromethane	102	102	80-120	73-127	0	0-20	
1,2-Dibromo-3-Chloropropane	92	97	80-120	73-127	5	0-20	
1,2-Dibromoethane	99	98	80-120	73-127	0	0-20	
Dibromomethane	101	101	80-120	73-127	1	0-20	
1,2-Dichlorobenzene	92	94	80-110	75-115	2	0-10	
1,3-Dichlorobenzene	92	94	80-120	73-127	2	0-20	
1,4-Dichlorobenzene	90	92	80-120	73-127	2	0-20	
Dichlorodifluoromethane	95	102	80-120	73-127	6	0-20	
1,1-Dichloroethane	91	95	80-120	73-127	4	0-20	
1,2-Dichloroethane	92	93	80-120	73-127	1	0-20	
1,1-Dichloroethene	86	91	83-125	76-132	6	0-10	
c-1,2-Dichloroethene	93	99	80-120	73-127	6	0-20	
t-1,2-Dichloroethene	92	97	80-120	73-127	5	0-20	
1,2-Dichloropropane	95	97	79-115	73-121	2	0-25	
1,3-Dichloropropane	100	101	80-120	73-127	1	0-20	
2,2-Dichloropropane	83	89	80-120	73-127	7	0-20	
1,1-Dichloropropene	96	100	80-120	73-127	4	0-20	
c-1,3-Dichloropropene	101	101	80-120	73-127	1	0-20	
t-1,3-Dichloropropene	98	100	80-120	73-127	2	0-20	
Ethylbenzene	102	103	80-120	73-127	1	0-20	
Isopropylbenzene	100	102	80-120	73-127	2	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:	08-11-2370
Cameron Park, CA 95682-8861		Preparation:	EPA 5030B
		Method:	EPA 8260B

Project: ARCO 498

Quality Control Sample ID	Matrix	Instrument	Date Prepared	Date Analyzed	LCS/LCSD Batch Number
099-12-709-75	Solid	GC/MS Z	12/08/08	12/09/08	081208L03

Parameter	LCS %REC	LCSD %REC	%REC CL	ME CL	RPD	RPD CL	Qualifiers
p-Isopropyltoluene	95	96	80-120	73-127	1	0-20	
Methylene Chloride	105	109	80-120	73-127	4	0-20	
Naphthalene	94	98	80-120	73-127	3	0-20	
n-Propylbenzene	102	103	80-120	73-127	1	0-20	
Styrene	103	105	80-120	73-127	2	0-20	
Ethanol	89	95	50-134	36-148	6	0-23	
1,1,1,2-Tetrachloroethane	98	102	80-120	73-127	4	0-20	
1,1,2,2-Tetrachloroethane	101	94	80-120	73-127	7	0-20	
Tetrachloroethene	108	121	80-120	73-127	11	0-20	LQ
Toluene	99	101	79-115	73-121	2	0-8	
1,2,3-Trichlorobenzene	87	91	80-120	73-127	5	0-20	
1,2,4-Trichlorobenzene	83	85	80-120	73-127	3	0-20	
1,1,1-Trichloroethane	109	89	80-120	73-127	20	0-20	
1,1,2-Trichloroethane	101	101	80-120	73-127	1	0-20	
Trichloroethene	102	109	87-111	83-115	7	0-7	
Trichlorofluoromethane	97	104	80-120	73-127	7	0-20	
1,2,3-Trichloropropane	97	97	80-120	73-127	0	0-20	
1,2,4-Trimethylbenzene	94	96	80-120	73-127	2	0-20	
1,3,5-Trimethylbenzene	98	99	80-120	73-127	2	0-20	
Vinyl Acetate	85	58	80-120	73-127	38	0-20	LR,BA
Vinyl Chloride	81	85	72-126	63-135	5	0-10	
p/m-Xylene	100	101	80-120	73-127	1	0-20	
o-Xylene	104	105	80-120	73-127	1	0-20	
Methyl-t-Butyl Ether (MTBE)	101	103	75-129	66-138	2	0-13	
Tert-Butyl Alcohol (TBA)	88	88	66-126	56-136	0	0-24	
Diisopropyl Ether (DIPE)	80	84	77-125	69-133	5	0-13	
Ethyl-t-Butyl Ether (ETBE)	90	92	72-132	62-142	2	0-12	
Tert-Amyl-Methyl Ether (TAME)	102	105	77-125	69-133	2	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.

Quality Control - LCS/LCS Duplicate

Stratus Environmental, inc.		Date Received:	N/A
3330 Cameron Park Drive, Suite 550		Work Order No:	08-11-2370
Cameron Park, CA 95682-8861		Preparation:	EPA 5030B
		Method:	EPA 8260B

Project: ARCO 498

Quality Control Sample ID	Matrix	Instrument	Date Prepared	Date Analyzed	LCS/LCSD Batch Number
099-12-709-76	**Solid**	**GC/MS Z**	**12/08/08**	**12/09/08**	**081208L04**

Parameter	LCS %REC	LCSD %REC	%REC CL	ME CL	RPD	RPD CL	Qualifiers
Benzene	95	97	84-114	79-119	1	0-7	
Bromobenzene	98	100	80-120	73-127	1	0-20	
Bromochloromethane	98	100	80-120	73-127	2	0-20	
Bromodichloromethane	103	106	80-120	73-127	2	0-20	
Bromoform	99	100	80-120	73-127	1	0-20	
Bromomethane	113	109	80-120	73-127	3	0-20	
n-Butylbenzene	95	98	77-123	69-131	3	0-25	
sec-Butylbenzene	96	98	80-120	73-127	1	0-20	
tert-Butylbenzene	93	92	80-120	73-127	1	0-20	
Carbon Disulfide	100	104	80-120	73-127	4	0-20	
Carbon Tetrachloride	95	102	69-135	58-146	7	0-13	
Chlorobenzene	102	103	85-109	81-113	1	0-8	
Chloroethane	98	101	80-120	73-127	3	0-20	
Chloroform	99	104	80-120	73-127	4	0-20	
Chloromethane	72	75	80-120	73-127	5	0-20	LR
2-Chlorotoluene	102	103	80-120	73-127	1	0-20	
4-Chlorotoluene	94	96	80-120	73-127	2	0-20	
Dibromochloromethane	102	102	80-120	73-127	0	0-20	
1,2-Dibromo-3-Chloropropane	92	97	80-120	73-127	5	0-20	
1,2-Dibromoethane	99	98	80-120	73-127	0	0-20	
Dibromomethane	101	101	80-120	73-127	1	0-20	
1,2-Dichlorobenzene	92	94	80-110	75-115	2	0-10	
1,3-Dichlorobenzene	92	94	80-120	73-127	2	0-20	
1,4-Dichlorobenzene	90	92	80-120	73-127	2	0-20	
Dichlorodifluoromethane	95	102	80-120	73-127	6	0-20	
1,1-Dichloroethane	91	95	80-120	73-127	4	0-20	
1,2-Dichloroethane	92	93	80-120	73-127	1	0-20	
1,1-Dichloroethene	86	91	83-125	76-132	6	0-10	
c-1,2-Dichloroethene	93	99	80-120	73-127	6	0-20	
t-1,2-Dichloroethene	92	97	80-120	73-127	5	0-20	
1,2-Dichloropropane	95	97	79-115	73-121	2	0-25	
1,3-Dichloropropane	100	101	80-120	73-127	1	0-20	
2,2-Dichloropropane	83	89	80-120	73-127	7	0-20	
1,1-Dichloropropene	96	100	80-120	73-127	4	0-20	
c-1,3-Dichloropropene	101	101	80-120	73-127	1	0-20	
t-1,3-Dichloropropene	98	100	80-120	73-127	2	0-20	
Ethylbenzene	102	103	80-120	73-127	1	0-20	
Isopropylbenzene	100	102	80-120	73-127	2	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:	08-11-2370
Cameron Park, CA 95682-8861		Preparation:	EPA 5030B
		Method:	EPA 8260B

Project: ARCO 498

Quality Control Sample ID	Matrix	Instrument	Date Prepared	Date Analyzed	LCS/LCSD Batch Number
099-12-709-76	**Solid**	**GC/MS Z**	**12/08/08**	**12/09/08**	**081208L04**

Parameter	LCS %REC	LCSD %REC	%REC CL	ME_CL	RPD	RPD CL	Qualifiers
p-Isopropyltoluene	95	96	80-120	73-127	1	0-20	
Methylene Chloride	105	109	80-120	73-127	4	0-20	
Naphthalene	94	98	80-120	73-127	3	0-20	
n-Propylbenzene	102	103	80-120	73-127	1	0-20	
Styrene	103	105	80-120	73-127	2	0-20	
Ethanol	89	95	50-134	36-148	6	0-23	
1,1,1,2-Tetrachloroethane	98	102	80-120	73-127	4	0-20	
1,1,2,2-Tetrachloroethane	101	94	80-120	73-127	7	0-20	
Tetrachloroethene	108	121	80-120	73-127	11	0-20	LQ
Toluene	99	101	79-115	73-121	2	0-8	
1,2,3-Trichlorobenzene	87	91	80-120	73-127	5	0-20	
1,2,4-Trichlorobenzene	83	85	80-120	73-127	3	0-20	
1,1,1-Trichloroethane	109	89	80-120	73-127	20	0-20	
1,1,2-Trichloroethane	101	101	80-120	73-127	1	0-20	
Trichloroethene	102	109	87-111	83-115	7	0-7	
Trichlorofluoromethane	97	104	80-120	73-127	7	0-20	
1,2,3-Trichloropropane	97	97	80-120	73-127	0	0-20	
1,2,4-Trimethylbenzene	94	96	80-120	73-127	2	0-20	
1,3,5-Trimethylbenzene	98	99	80-120	73-127	2	0-20	
Vinyl Acetate	85	58	80-120	73-127	38	0-20	LR,BA
Vinyl Chloride	81	85	72-126	63-135	5	0-10	
p/m-Xylene	100	101	80-120	73-127	1	0-20	
o-Xylene	104	105	80-120	73-127	1	0-20	
Methyl-t-Butyl Ether (MTBE)	101	103	75-129	66-138	2	0-13	
Tert-Butyl Alcohol (TBA)	88	88	66-126	56-136	0	0-24	
Diisopropyl Ether (DIPE)	80	84	77-125	69-133	5	0-13	
Ethyl-t-Butyl Ether (ETBE)	90	92	72-132	62-142	2	0-12	
Tert-Amyl-Methyl Ether (TAME)	102	105	77-125	69-133	2	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

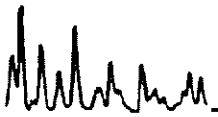
Calscience Environmental Laboratories, Inc.

Glossary of Terms and Qualifiers

Work Order Number: 08-11-2370

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.

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.



bp

Chain of Custody Record (2370) 1/2

Project Name: ARCO 498
BP BU/AR Region/Enfos Segment:
State or Lead Regulatory Agency: Alameda County
Requested Due Date (mm/dd/yy):

Onsite Time: 0700 Temp
Offsite Time: 1700 Temp
Sky Cond: Sunny
Meteorological Events: None
Windspeed 0-5 Direction [redacted] W

Lab Name: Calscience Env. Laboratories	BP/AR Facility No.: 498
Address: 7440 Lincoln Way	BP/AR Facility Address: 286 S Livermore Ave
Garden Grove, CA.	Site Lat/Long: Livermore, CA.
Lab PM: Linda Scharpenberg	California Global ID No.: (G0C1L-0006
Tele/Fax:	Enfos Project No.: T06001-24081)
BP/AR PM Contact: Paul Supple	Provision or (OOC) (circle one)
Address:	Phase/WBS: Compliance
	Sub Phase/Task: Analytical Cost
Tele/Fax: (925) 275 3801	Cost Element: Contractor Labor

Consultant: Stratus Env. Inc.
Address: 3330 Cameron Park Dr. #550
Consultant Project #: E498
Consultant PM: Jay Johnson
Tele/Fax: (530) 676 6000 (530) 676 6005
Report Type & QC: Level I w/ EDF
E-mail EDD To: Staylor@stratusinc.net
Invoice To: (Atlantic Richfield)

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	H_2SO_4	HNO_3	HCl	Methanol	~~BTEX 8021~~	~~BTEX/TPH~~	~~BTEX/TPH~~	~~EPA 8260~~	~~EPA 8270~~	GRO, BTEX 8260B	MTBE, ETBE, DIPE, TAME	TBA, 1,2-DCA, EDB	Ethanol	Comments
1	MW-2 40'	1035	11/24/08	X				1	X										X	X	X	X	Analyze using
2	MW-2 45'	1040	↓	X				1	X										X	X	X	X	EPA 8260B
3	MW-2 50'	1050	↓	X				1	X										X	X	X	X	
4	MW-1 25'	1605	↓	X				1	X										X	X	X	X	
5	MW-1 30'	1610	↓	X				1	X										X	X	X	X	
6																							
7																							
8																							
9																							
10																							

Sampler's Name: Collin Fischer
Sampler's Company: Stratus Env. Inc.
Shipment Date: 11/25/08
Shipment Method:
Shipment Tracking No: 510810876

Relinquished By / Affiliation	Date	Time	Accepted By / Affiliation	Date	Time
[signature]	11/25/08	1510	[signature] CEL	11-25-08	1510
[signature] To GSO	11-25-08	1730	[signature] CEL	11/26/08	1130

Special Instructions:

Custody Seals In Place Yes No | Temp Blank Yes No | Cooler Temperature on Receipt | Trip Blank

Distribution: White Copy - Laboratory / Yellow Copy - BP/Atlantic Richfield Co. / Pink Copy - Consultant/Contractor

Chain of Custody Record

2370 2/2

Project Name: ARCO 498
BP BU/AR Region/Enfos Segment:
State or Lead Regulatory Agency: ALAMEDA COUNTY
Requested Due Date (mm/dd/yy):

ONSITE TIME: 0700 TEMP
OFFSITE TIME: TEMP
SKY CONDITIONS Cloudy
METEOROLOGICAL EVENTS NONE
WIND SPEED 0-5 DIRECTION W

Lab Name: CALSCIENCE ENV. LABORATORIES	BP/AR Facility No.: 498
Address: 7440 LINCOLN WAY GARDEN GROVE, CA.	BP/AR Facility Address: 286 SOUTH LIVERMORE AVE
	Site Lat/Long: LIVERMORE, CA.
Lab PM: LINDA SCHARPENBERG	California Global ID No.: T0600I-24081
Tele/Fax:	Enfos Project No.: G0CL1-0006
BP/AR PM Contact: PAUL SUPPLE	Provision or OOC (circle one)
Address:	Phase/WBS: COMPLIANCE
	Sub Phase/Task: ANALYTICAL COST
Tele/Fax: (925) 275 3801	Cost Element: CONTRACTOR LABOR

CONSULTANT: STRATUS ENV. INC.
ADDRESS: 3330 CAMERON PARK DR. # 550
CONSULTANT PROJECT #: E498
CONSULTANT PM: JAY JOHNSON
TELE/FAX (530) 676 6000 (530) 676 6008
REPORT TYPE & QC: LEVEL I w/ EDF
EMAIL EDD TO: [illegible] @STRATUSINC.NET
INVOICE TO: ATLANTIC RICHFIELD CO

Lab Bottle Order No:

	Item No.	Sample Description	Time	Date	Soil/Solid	Water/Liquid	Air	Laboratory No.	No. of Containers	Unpreserved	H_2SO_4	HNO_3	HCl	Methanol	BTEX 8021	BTEX/TPH	BTEX/Oxy/TPH		EPA 8270	GRO, BENZENE 8260B	MTBE, BTEX, TAME, DIPE, TBA, 1,2-DCA EDB	ETHANOL	Comments
6	1	MW-1 40'	0755	11/25/08	X				1	X										X	X	X X	ANALYZE USING EPA 8260B
7	2	MW-4 30'	0945	↓	X				1	X										X	X	X X	
8	3	MW-4 35'	0950	↓	X				1	X										X	X	X X	
9	4	MW-4 40'	0955	↓	X				1	X										X	X	X X	
10	5	MW-3 15'	1340	↓	X				1	X										X	X	X X	
11	6	MW-3 20'	1345	↓	X				1	X										X	X	X X	
12	7	MW-3 25'	1350	↓	X				1	X										X	X	X X	
13	8	MW-3 30'	1355	↓	X				1	X										X	X	X X	
14	9	MW-3 35'	1400	↓	X				1	X										X	X	X X	
15	10	MW-3 40'	1405	↓	X				1	X										X	X	X X	

Sampler's Name: Allen Fischer
Sampler's Company: STRATUS
Shipment Date: 11/25/08
Shipment Method:
Shipment Tracking No: 510810846

Relinquished By / Affiliation	Date	Time	Accepted By	Date
[signature]	11/25/08	1510	[signature] CEL	11-25-08 1510
[signature] TO GSO	11-25-08	1730		
GSO	11/26/08	1130	W[illegible] CEL	11/26/08 1130

Special Instructions:

Custody Seals In Place Yes No   Temp Blank Yes No   Cooler Temperature on Receipt °F/C   TRIP BLANK

Distribution: White Copy - Laboratory / Yellow Copy - BP/Atlantic Richfield Co. / Pink Copy - Consultant/Contractor

Calscience Environmental Laboratories, Inc.

WORK ORDER #: 08-11-2376

SAMPLE RECEIPT FORM

Cooler 1 of 1

CLIENT: Stratus

DATE: 11/26/08

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

Temperature 2.5 °C - 0.2 °C (CF) = 2.3 °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:** NC

CUSTODY SEALS INTACT:

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

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

SAMPLE CONDITION:	Yes	No	N/A
Chain-Of-Custody document(s) received with samples	☑	☐	☐
COC document(s) received complete	☑	☐	☐
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 sample label(s)	☐	☐	☑
Volatile analysis container(s) free of headspace	☐	☐	☑
Tedlar bag(s) free of condensation	☐	☐	☑

CONTAINER TYPE:

Solid: ☐4ozCGJ ☐8ozCGJ ☐16ozCGJ ☑Sleeve ☐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® ☐_____

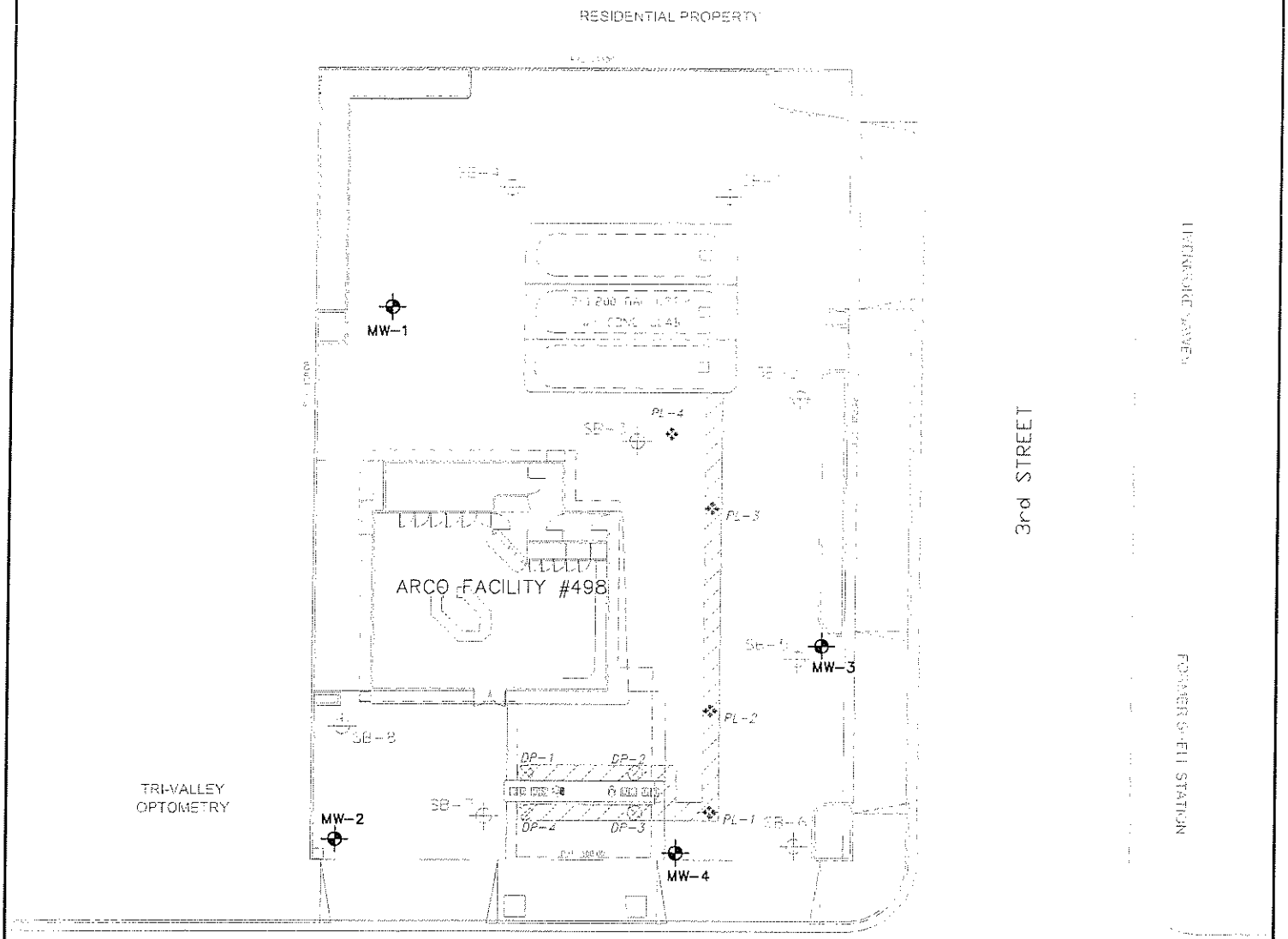
Checked/Labeled by: RN

Reviewed by: AD

Scanned by: RN

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:$ZnAc_2$+NaOH



NOTE: SITE MAP ADAPTED FROM WATSON WEST AND DELTA ENVIRONMENTAL FIGURES. SITE DIMENSIONS AND FACILITY LOCATIONS NOT VERIFIED.

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

Station #498
286 South Livermore Avenue
Livermore, California

Addendum Site Map with Historic and Proposed Sample Locations
Project No.: 08-02-603 Date: 09/29/08

Drawing
1

ORIGINAL

NO. 669840

NON-HAZARDOUS WASTE DATA FORM

TO BE COMPLETED BY GENERATOR

SITE

EPA I.D. NO.

NAME BP WEST COAST PRODUCTS LLC ARCO # 4414

PROFILE NO.

ADDRESS P.O. BOX 80249

RANCHO SANTA MARGARITA

CITY, STATE, ZIP CA 92688

PHONE NO. ( )

CONTAINERS: No. _____ VOLUME 55 Gal WEIGHT _____

TYPE: ☐ TANK TRUCK ☐ DUMP TRUCK ☐ DRUMS ☐ CARTONS ☐ OTHER _____

WASTE DESCRIPTION NON-HAZARDOUS WATER GENERATING PROCESS WELL PURGING/DECON WATER

COMPONENTS OF WASTE	PPM	%	COMPONENTS OF WASTE	PPM	%
1. WATER		98-100%	5.		
2. TPH		<1%	6.		
3.			7. BTEX		
4.			8.		

PROPERTIES: 7-11 pH ☐ SOLID ☐ LIQUID ☐ SLUDGE ☐ SLURRY ☐ OTHER _____

HANDLING INSTRUCTIONS: WEAR ALL APPROPRIATE PROTECTIVE CLOTHING

THE GENERATOR CERTIFIES THAT THE WASTE AS DESCRIBED IS 100% NON-HAZARDOUS.

Larry Markhart BESI for BP 12/11/06

TYPED OR PRINTED FULL NAME & SIGNATURE DATE

TRANSPORTER

Transporter #1 Transporter #2

EPA I.D. NO.

NAME STRATUS ENVIRONMENTAL

ADDRESS 3330 CAMERON PARK DR SERVICE ORDER NO. _____

CITY, STATE, ZIP CAMERON PARK, CA 95682 PICK UP DATE _____

PHONE NO. 530-676-2091

TRUCK, UNIT, I.D. NO. 12/11/06

TYPED OR PRINTED FULL NAME & SIGNATURE DATE

TSD FACILITY

EPA I.D. NO.

NAME INSTRAT, INC

DISPOSAL METHOD

ADDRESS 1109 AIRPORT RD #C ☐ LANDFILL ☐ OTHER _____

CITY, STATE, ZIP RIO VISTA, CA 94571

PHONE NO. 530-753-1829

TYPED OR PRINTED FULL NAME & SIGNATURE DATE

GEN	OLD/NEW	L A	TONS
TRANS		S B	
C/O		RT/CD	HWDF NONE

DISCREPANCY

Manifest

TPST Soil Recyclers of CA
Non-Hazardous Soils

↓ Manifest # ↓

Date of Shipment:	Responsible for Payment:	Transporter Truck #:	Facility #:	Given by TPST:	Load #
1/7/09		111-733	A07	32374	001

Generator and/or Consultant

Generator's Name and Billing Address:	Generator's Phone #:	Generator's US EPA ID No.
BP WEST COAST PRODUCTS, LLC P.O. BOX 80249 RANCHO SANTA MARGARITA, CA 92688	949-460-6200	CAL000226027
	Person to Contact:	
	FAX#:	Customer Account Number with TPST:

Consultant's Name and Billing Address:	Consultant's Phone #:	
	Person to Contact:	
	FAX#:	Customer Account Number with TPST:

Generation Site (Transport from): *(name & address)*	Site Phone #:	BTEX Levels
00498 286 S LIVERMORE AVE LIVERMORE, CA 94550	Person to Contact:	TPH Levels
	FAX#:	AVG. Levels

Designated Facility (Transport to): *(name & address)*	Facility Phone #:	Facility Permit Numbers
TPST SOIL RECYCLERS OF CALIFORNIA 12328 HIBISCUS AVENUE ADELANTO, CA 92301	(800) 862-8001	
	Person to Contact: DELLENA JEFFREY	
	FAX#: (760) 246-8004	

Transporter Name and Mailing Address:	Transporter's Phone #:	Transporter's US EPA ID No.:
BELSHIRE 26971 TOWNE CENTRE DRIVE FOOTHILL RANCH, CA 92610 BESI: 162709	(949) 460-6200	CAR000183913
	Person to Contact: LARRY MOOTHART	Transporter's DOT No.: 460847
	FAX#: (949) 460-5210	Customer Account Number with TPST:

Description of Soil	Moisture Content	Contaminated by:	Approx. Qty:	Description of Delivery	Gross Weight	Tare Weight	Net Weight
Sand ☐ Organic ☐ Clay ☐ Other ☐	0 - 10% ☐ 10 - 20% ☐ 20% - over ☐	Gas ☐ Diesel ☐ Other ☐	20 dms		21920	11200	10720
Sand ☐ Organic ☐ Clay ☐ Other ☐	0 - 10% ☐ 10 - 20% ☐ 20% - over ☐	Gas ☐ Diesel ☐ Other ☐					5.36

List any exception to items listed above: Scale Ticket# 6888

Generator's and/or consultant's certification: I/We certify that the soil referenced herein is taken entirely from those soils described in the Soil Data Sheet completed and certified by me/us for the Generation Site shown above and nothing has been added or done to such soil that would alter it in any way. #16CT

Print or Type Name: Generator ☐ Consultant ☐	Signature and date:	Month	Day	Year
Larry Moothart of BESI on behalf of generator		12	30	08

Transporter

Transporter's certification: I/We acknowledge receipt of the soil described above and certify that such soil is being delivered in exactly the same condition as when received. I/We further certify that this soil is being directly transported from the Generation Site to the Designated Facility without off-loading, adding to, subtracting from or in any way delaying delivery to such site.

Print or Type Name:	Signature and date:	Month	Day	Year
Bruce K Peddicord		1	7	09

Recycling Facility

Discrepancies:

Recycling Facility certifies the receipt of the soil covered by this manifest except as noted above:

Print or Type Name:	Signature and date:
D. JEFFREY/J. PROVANSAL	1-7-9

Please print or type.

TRANSPORTER COPY

NO. 677422

NON-HAZARDOUS WASTE DATA FORM

TO BE COMPLETED BY GENERATOR

GENERATING SITE:

EPA I.D. NO. CAL000226077

NAME BP WEST COAST PRODUCTS, LLC 00488

ADDRESS P.O. BOX 80249 286 S LIVERMORE AVE PROFILE NO.

CITY, STATE, ZIP RANCHO SANTA MARGARITA, CA 92688 LIVERMORE, CA 94550

PHONE NO. (949) 460 5200

CONTAINERS: No. 3 VOLUME 165 WEIGHT

TYPE: ☐ TANK TRUCK ☐ DUMP TRUCK ☐ DRUMS ☒ CARTONS ☐ OTHER

WASTE DESCRIPTION: NON-HAZARDOUS WATER GENERATING PROCESS: WELL PURGING / DECON WATER

COMPONENTS OF WASTE	PPM	%	COMPONENTS OF WASTE	PPM	%
1. WATER		99-100%	5.		
2. TPH		<1%	6.		
3.			7.		
4.			8.		

BESI: 162709

PROPERTIES: pH 7-10 ☐ SOLID ☒ LIQUID ☐ SLUDGE ☐ SLURRY ☐ OTHER

HANDLING INSTRUCTIONS: 24-HOUR EMERGENCY PHONE: 800-424-9300

THE GENERATOR CERTIFIES THAT THE WASTE AS DESCRIBED IS 100% NON-HAZARDOUS.

Larry Moothart of BESI on behalf of generator 12/30/08

TYPED OR PRINTED FULL NAME & SIGNATURE DATE

NAME BELSHIRE NIETO & SONS EPA I.D. NO.

ADDRESS 25871 TOWNE CENTRE DRIVE 1281 BREA CANYON ROAD SERVICE ORDER NO.

CITY, STATE, ZIP FOOTHILL RANCH, CA 92610 BREA, CA 92821 PICK UP DATE 12/30/08

PHONE NO. (949) 460-5200 (714) 990-6885

TRUCK, UNIT, I.D. NO. 251-367 Jack Lynch 1/5/09

TYPED OR PRINTED FULL NAME & SIGNATURE DATE

NAME DEMENNO KERDOON EPA I.D. NO.

DISPOSAL METHOD

ADDRESS 2000 N. ALAMEDA ST. ☐ LANDFILL ☐ OTHER

CITY, STATE, ZIP COMPTON, CA 90222

PHONE NO. 310-537-7100

FOR AL POSADA 1-5-09

TYPED OR PRINTED FULL NAME & SIGNATURE DATE

GEN	OLD/NEW	L A	TONS
TRANS		S B	
C/O		RT/CD	HW/DF NONE

DISCREPANCY

APPENDIX C

STRATUS ENVIRONMENTAL, INC. GROUND-WATER SAMPLING DATA PACKAGE (INCLUDES FIELD DATA SHEETS, NON-HAZARDOUS WASTE DATA FORM, CHAIN OF CUSTODY DOCUMENTATION, CERTIFIED ANALYTICAL RESULTS, AND FIELD PROCEDURES FOR GROUNDWATER SAMPLING)

STRATUS
ENVIRONMENTAL, INC.

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

January 13, 2009

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

Re: Groundwater Sampling Data Package, ARCO Service Station No.498, located at 286 Livermore Ave. Livermore, California.

General Information

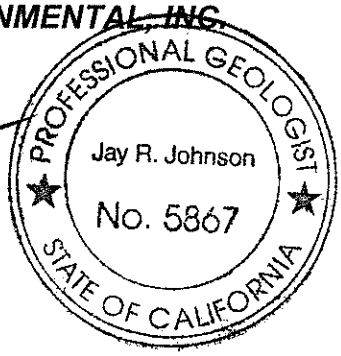
Data Submittal Prepared / Reviewed by: Becky Carroll / Jay Johnson
Phone Number: (530) 676-6000
On-Site Supplier Representative: Levi Ford

Sampling Date: December 29, 2008
Arrival: 08:30 *Departure:* 12:00
Weather Conditions: Clear/Sunny
Unusual Field Conditions: None
Scope of Work Performed: Quarterly groundwater monitoring and sampling
Variations from Work Scope: Well MW-4 was dry.

This submittal presents the tabulation of 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 documentation. 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 Sampling

cc: Mr. Paul Supple, BP/ARCO

ENVIRONMENTAL, INC.

[illegible] South Livermore Ave.
City: Livermore
Sampled by: Levi Ford
Signature: [signature]

Site Number: 498
Project Number: E-498-01
Project PM: Scott Bittinger
DATE: 12/29/08

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)
MW-1	0921	N/A	28.81	40.14	11.33	2"	0.50	5.67	5.50		X			35.97	MW-1	1005	2.72
-2	0935	↓	48.76	57.04	8.28	2"	0.50	4.14	4.00		X			48.78	-2	1115	1.04
-3	0928	↓	48.21	55.26	7.05	2"	0.50	3.53	3.60		X			50.81	↓ -3	1043	1.95
-4	0932	↓	Dry	39.85	0	→	→	→	→	Well Dry					N/A		

13 gal total

ORIGINAL

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 LL
pH
Conductivity
DO

STRATUS ENVIRONMENTAL, INC.

Site Address 286 S. Livermore Ave Site Number 498
City Livermore Project No. E-498-01
Site Sampled by Levi Ford Project PM Scott Bittinger
Date Sampled 12/29/08

Well ID MW-1				Slight odor
purge start time	Bailer		1005	
	Temp C	pH	cond	gallons
time	20.1	6.68	911u	0
time	20.2	6.83	856u	5.50
time				
time				
purge stop time				

Well ID MW-2				
purge start time	Bailer			
	Temp C	pH	cond	gallons
time	19.7	7.64	1201	0
time	19.6	7.67	955	4.0
time				
time				
pugre stop time				

Well ID MW-3				Slight odor
purge start time	Bailer		1043	
	Temp C	pH	cond	gallons
time	19.3	7.43	992u	0
time	19.8	7.39	1102u	3.5
time				
time				
purge stop time				

Well ID MW-4	NO			
purge start time				
	Temp C	pH	cond	gallons
time	SAMPLE			
time				
time	WELL	DRY		
time				
purge stop time				

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	ORIGINAL			
time				
time				
time				
purge stop time				

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				

ORIGINAL

NO. 669907

NON-HAZARDOUS WASTE DATA FORM

TO BE COMPLETED BY GENERATOR

SITE:

EPA I.D. NO.

NAME BP WEST COAST PRODUCTS LLC ARCO # 4912

ADDRESS P.O. BOX 80249 PROFILE NO.
RANCHO SANTA MARGARITA

CITY, STATE, ZIP CA 92688 PHONE NO. ( )

CONTAINERS: No. VOLUME 12 WEIGHT

TYPE: ☐ TANK TRUCK ☐ DUMP TRUCK ☐ DRUMS ☐ CARTONS ☐ OTHER

WASTE DESCRIPTION NON-HAZARDOUS WATER GENERATING PROCESS WELL PURGING/DSCON WATER

COMPONENTS OF WASTE	PPM	%	COMPONENTS OF WASTE	PPM	%
1. WATER	99-100%		5.		
2. TPH	<1%		6.		
3.			7. BESI#		
4.			8.		

PROPERTIES: 7-10 pH ☐ SOLID ☐ LIQUID ☐ SLUDGE ☐ SLURRY ☐ OTHER

HANDLING INSTRUCTIONS: WEAR ALL APPROPRIATE PROTECTIVE CLOTHING

THE GENERATOR CERTIFIES THAT THE WASTE AS DESCRIBED IS 100% NON-HAZARDOUS.

Larry Meckhart BESI for BP — TYPED OR PRINTED FULL NAME & SIGNATURE — DATE

TRANSPORTER

Transporter #1 Transporter #2

NAME STRATUS ENVIRONMENTAL EPA I.D. NO.

ADDRESS 2330 CAMERON PARK DR SERVICE ORDER NO.

CITY, STATE, ZIP CAMERON PARK, CA 95682 PICK UP DATE

PHONE NO. 530-676-2031

TRUCK, UNIT, I.D. NO. TYPED OR PRINTED FULL NAME & SIGNATURE DATE

TSD FACILITY

NAME INSTRAT, INC EPA I.D. NO.

ADDRESS 1105 AIRPORT RD #C DISPOSAL METHOD

☐ LANDFILL ☐ OTHER

CITY, STATE, ZIP RIO VISTA, CA 94571

PHONE NO. 530-753-1825

TYPED OR PRINTED FULL NAME & SIGNATURE DATE

GEN	OLD/NEW	L A	TONS	
TRANS		S B		
C/Q		RT/CD	HWDF NONE	DISCREPANCY

WELLHEAD OBSERVATION FORM

STRATUS ENVIRONMENTAL, INC.

Site Name/Number: 498 *Date:* 12/29/08 *Technican:* Levi Ford

Well I.D.	Box in Good Condition? X = Yes Blank = No	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? X = Yes Blank = No	Bolts Stripped? X = Yes Blank = No	Bolt Holes Stripped? X = Yes Blank = No	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-1	X											
-2	X											
-3	X											
-4	X											
											ORIGINAL	

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):

_____

_____

(updated 3-28-08, SS)

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.)

_____

_____

_____

_____

_____

Atlantic Richfield Company

A BP affiliated company

Chain of Custody Record

ORIGINAL

Project Name: AR 498

BP BU/AR Region/Enfos Segment: BP > Americas > West > Retail > Alameda 498

State or Lead Regulatory Agency: Zone 7 water Agency

Requested Due Date (mm/dd/yy): 01/12/09

On-site Time:	0830	Temp:	50's
Off-site Time:	1200	Temp:	60's
Sky Conditions:	clear, sunny		
Meteorological Events:	—		
Wind Speed:	—	Direction:	—

Lab Name:	Cal Science
Address:	7440 Lincoln Way
	Garden Grove, Ca. 92841-1427
Lab PM:	Linda Sharpenburg
Tele/Fax:	714-895-7501 714-0895-7501 (fax)
BP/AR PM Contact:	Paul Supple
Address:	2010 Crow Canyon Place, Suite 150
	San Ramon, CA
Tele/Fax:	925-275-3506

BP/AR Facility No.:	498
BP/AR Facility Address:	286 S. Livermore Ave. Livermore Ca.
Site Lat/Long:	
California Global ID No.:	
Enfos Project No.:	
Provision or OOC (circle one)	Provision
Phase/WBS:	04-Monitoring
Sub Phase/Task:	03-Analytical
Cost Element:	01-Contractor labor

Consultant/Contractor:	Stratus Environmental, Inc.
Address:	3330 Cameron Park Drive, Suite 550
	Cameron Park, CA 95682
Consultant/Contractor Project No.:	
Consultant/Contractor PM:	Jay Johnson
Tele/Fax:	(530) 676-6000 / (530) 676-6005
Report Type & QC Level:	Level 1 with EDF
E-mail EDD To:	bcarroll@stratusinc.net
Invoice to:	Atlantic Richfield Co.

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/BTEX/Oxy*	Requested Analysis: 1,2-DCA	Requested Analysis: Ethanol	Requested Analysis: EDB	Requested Analysis: DRO	Sample Point Lat/Long and Comments
1	MW-1 1005	~~0927~~ 0921	12/29		X			6				X		X	X	X	X		
2	MW-2 1115	~~0955~~ 0953	"		X			6				X		X	X	X	X		
3	MW-3	1043	"		X			6				X		X	X	X	X		
4																			
5	TB498 12292008	1459	12/29		X			2				X		X	X	X	X	—	ON HOLD
6																			
7																			
8																			
9																			
10																			

Sampler's Name:	Levi Ford
Sampler's Company:	Stratus Environmental
Shipment Date:	12/29/08
Shipment Method:	GSO
Shipment Tracking No:	925535 1989

Relinquished By / Affiliation	Date	Time	Accepted By / Affiliation	Date	Time
Levi Ford	12/29/08	1459			

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

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.

January 12, 2009

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

Subject: **Calscience Work Order No.: 08-12-2528**
Client Reference: ARCO 498

Dear Client:

Enclosed is an analytical report for the above-referenced project. The samples included in this report were received 12/30/2008 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.	Date Received:	12/30/08
3330 Cameron Park Drive, Suite 550	Work Order No:	08-12-2528
Cameron Park, CA 95682-8861	Preparation:	EPA 5030B
	Method:	EPA 8015B (M)

Project: ARCO 498

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
MW-1	**08-12-2528-1-E**	**12/29/08 10:05**	**Aqueous**	**GC 4**	**12/31/08**	**01/01/09 00:42**	**081231B01**

Parameter	Result	RL	DF	Qual	Units
Gasoline Range Organics (C6-C12)	1100	50	1		ug/L
Surrogates:	**REC (%)**	**Control Limits**		**Qual**	
1,4-Bromofluorobenzene	72	38-134			

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
MW-2	**08-12-2528-2-E**	**12/29/08 11:15**	**Aqueous**	**GC 4**	**12/31/08**	**01/01/09 01:16**	**081231B01**

Parameter	Result	RL	DF	Qual	Units
Gasoline Range Organics (C6-C12)	110	50	1		ug/L
Surrogates:	**REC (%)**	**Control Limits**		**Qual**	
1,4-Bromofluorobenzene	74	38-134			

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
MW-3	**08-12-2528-3-D**	**12/29/08 10:43**	**Aqueous**	**GC 4**	**01/02/09**	**01/02/09 16:51**	**090102B01**

Parameter	Result	RL	DF	Qual	Units
Gasoline Range Organics (C6-C12)	28000	1200	25		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
Method Blank	**099-12-695-385**	**N/A**	**Aqueous**	**GC 4**	**12/31/08**	**12/31/08 14:16**	**081231B01**

Parameter	Result	RL	DF	Qual	Units
Gasoline Range Organics (C6-C12)	ND	50	1		ug/L
Surrogates:	**REC (%)**	**Control Limits**		**Qual**	
1,4-Bromofluorobenzene	63	38-134			

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

Calscience Environmental Laboratories, Inc.

Analytical Report

Stratus Environmental, inc.	Date Received:	12/30/08
3330 Cameron Park Drive, Suite 550	Work Order No:	08-12-2528
Cameron Park, CA 95682-8861	Preparation:	EPA 5030B
	Method:	EPA 8015B (M)

Project: ARCO 498

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
Method Blank	**099-12-695-387**	**N/A**	**Aqueous**	**GC 4**	**01/02/09**	**01/02/09 13:31**	**090102B01**

Parameter	Result	RL	DF	Qual	Units
Gasoline Range Organics (C6-C12)	ND	50	1		ug/L
Surrogates:	**REC (%)**	**Control Limits**		**Qual**	
1,4-Bromofluorobenzene	64	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: 12/30/08
Work Order No: 08-12-2528
Preparation: EPA 5030B
Method: EPA 8260B
Units: ug/L

Project: ARCO 498

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
MW-1	**08-12-2528-1-A**	**12/29/08 10:05**	**Aqueous**	**GC/MS BB**	**01/07/09**	**01/07/09 23:05**	**090107L01**

Parameter	Result	RL	DF	Qual	Parameter	Result	RL	DF	Qual
Benzene	38	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	4.0	0.50	1		Ethyl-t-Butyl Ether (ETBE)	ND	0.50	1	
Toluene	1.2	0.50	1		Tert-Amyl-Methyl Ether (TAME)	ND	0.50	1	
Xylenes (total)	3.3	0.50	1		Ethanol	ND	300	1	
Surrogates:	REC (%)	Control Limits		Qual	Surrogates:	REC (%)	Control Limits		Qual
1,2-Dichloroethane-d4	82	73-157			Dibromofluoromethane	93	82-142		
Toluene-d8	96	82-112			1,4-Bromofluorobenzene	97	75-105		

MW-2	**08-12-2528-2-A**	**12/29/08 11:15**	**Aqueous**	**GC/MS BB**	**01/07/09**	**01/07/09 23:35**	**090107L01**

Parameter	Result	RL	DF	Qual	Parameter	Result	RL	DF	Qual
Benzene	7.1	0.50	1		Methyl-t-Butyl Ether (MTBE)	16	0.50	1	
1,2-Dibromoethane	ND	0.50	1		Tert-Butyl Alcohol (TBA)	22	10	1	
1,2-Dichloroethane	ND	0.50	1		Diisopropyl Ether (DIPE)	ND	0.50	1	
Ethylbenzene	ND	0.50	1		Ethyl-t-Butyl Ether (ETBE)	ND	0.50	1	
Toluene	ND	0.50	1		Tert-Amyl-Methyl Ether (TAME)	ND	0.50	1	
Xylenes (total)	0.76	0.50	1		Ethanol	ND	300	1	
Surrogates:	REC (%)	Control Limits		Qual	Surrogates:	REC (%)	Control Limits		Qual
1,2-Dichloroethane-d4	84	73-157			Dibromofluoromethane	93	82-142		
Toluene-d8	96	82-112			1,4-Bromofluorobenzene	90	75-105		

MW-3	**08-12-2528-3-C**	**12/29/08 10:43**	**Aqueous**	**GC/MS L**	**01/09/09**	**01/09/09 16:33**	**090109L01**

Parameter	Result	RL	DF	Qual	Parameter	Result	RL	DF	Qual
Benzene	310	50	100		Methyl-t-Butyl Ether (MTBE)	71	50	100	
1,2-Dibromoethane	ND	50	100		Tert-Butyl Alcohol (TBA)	ND	1000	100	
1,2-Dichloroethane	ND	50	100		Diisopropyl Ether (DIPE)	ND	50	100	
Ethylbenzene	840	50	100		Ethyl-t-Butyl Ether (ETBE)	ND	50	100	
Toluene	200	50	100		Tert-Amyl-Methyl Ether (TAME)	ND	50	100	
Xylenes (total)	6200	50	100		Ethanol	ND	30000	100	
Surrogates:	REC (%)	Control Limits		Qual	Surrogates:	REC (%)	Control Limits		Qual
1,2-Dichloroethane-d4	98	73-157			Dibromofluoromethane	97	82-142		
Toluene-d8	92	82-112			1,4-Bromofluorobenzene	97	75-105		

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

Calscience Environmental Laboratories, Inc.

Analytical Report

Stratus Environmental, inc.	Date Received:	12/30/08
3330 Cameron Park Drive, Suite 550	Work Order No:	08-12-2528
Cameron Park, CA 95682-8861	Preparation:	EPA 5030B
	Method:	EPA 8260B
	Units:	ug/L

Project: ARCO 498

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
Method Blank	**099-12-703-636**	**N/A**	**Aqueous**	**GC/MS BB**	**01/07/09**	**01/07/09 18:35**	**090107L01**

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	92	73-157			Dibromofluoromethane	95	82-142		
Toluene-d8	99	82-112			1,4-Bromofluorobenzene	91	75-105		

Method Blank	**099-12-703-640**	**N/A**	**Aqueous**	**GC/MS L**	**01/09/09**	**01/09/09 14:43**	**090109L01**

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	73-157			Dibromofluoromethane	100	82-142		
Toluene-d8	86	82-112			1,4-Bromofluorobenzene	89	75-105		

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

Calscience Environmental Laboratories, Inc.

Quality Control - Spike/Spike Duplicate

Stratus Environmental, inc.		Date Received:	12/30/08
3330 Cameron Park Drive, Suite 550		Work Order No:	08-12-2528
Cameron Park, CA 95682-8861		Preparation:	EPA 5030B
		Method:	EPA 8015B (M)

Project ARCO 498

Quality Control Sample ID	Matrix	Instrument	Date Prepared	Date Analyzed	MS/MSD Batch Number
08-12-2538-1	**Aqueous**	**GC 4**	**12/31/08**	**12/31/08**	**081231S01**

Parameter	MS %REC	MSD %REC	%REC CL	RPD	RPD CL	Qualifiers
Gasoline Range Organics (C6-C12)	90	87	38-134	3	0-25	

RPD - Relative Percent Difference , CL - Control Limit

Calscience Environmental Laboratories, Inc.

Quality Control - Spike/Spike Duplicate

Stratus Environmental, inc.		Date Received:	12/30/08
3330 Cameron Park Drive, Suite 550		Work Order No:	08-12-2528
Cameron Park, CA 95682-8861		Preparation:	EPA 5030B
		Method:	EPA 8015B (M)

Project ARCO 498

Quality Control Sample ID	Matrix	Instrument	Date Prepared	Date Analyzed	MS/MSD Batch Number
08-12-2630-2	**Aqueous**	**GC 4**	**01/02/09**	**01/02/09**	**090102S01**

Parameter	MS %REC	MSD %REC	%REC CL	RPD	RPD CL	Qualifiers
Gasoline Range Organics (C6-C12)	109	105	38-134	2	0-25	

RPD - Relative Percent Difference , CL - Control Limit

Calscience Environmental Laboratories, Inc.

Quality Control - Spike/Spike Duplicate

Stratus Environmental, inc.		Date Received:	12/30/08
3330 Cameron Park Drive, Suite 550		Work Order No:	08-12-2528
Cameron Park, CA 95682-8861		Preparation:	EPA 5030B
		Method:	EPA 8260B

Project ARCO 498

Quality Control Sample ID	Matrix	Instrument	Date Prepared	Date Analyzed	MS/MSD Batch Number
09-01-0132-2	**Aqueous**	**GC/MS BB**	**01/07/09**	**01/07/09**	**090107S01**

Parameter	MS %REC	MSD %REC	%REC CL	RPD	RPD CL	Qualifiers
Benzene	100	100	86-122	0	0-8	
Carbon Tetrachloride	104	101	78-138	3	0-9	
Chlorobenzene	107	106	90-120	1	0-9	
1,2-Dibromoethane	93	84	70-130	10	0-30	
1,2-Dichlorobenzene	101	101	89-119	0	0-10	
1,1-Dichloroethene	100	102	52-142	2	0-23	
Ethylbenzene	113	116	70-130	3	0-30	
Toluene	103	102	85-127	1	0-12	
Trichloroethene	101	101	78-126	0	0-10	
Vinyl Chloride	83	86	56-140	5	0-21	
Methyl-t-Butyl Ether (MTBE)	88	82	64-136	7	0-28	
Tert-Butyl Alcohol (TBA)	106	110	27-183	1	0-60	
Diisopropyl Ether (DIPE)	96	93	78-126	3	0-16	
Ethyl-t-Butyl Ether (ETBE)	95	90	67-133	5	0-21	
Tert-Amyl-Methyl Ether (TAME)	91	85	63-141	6	0-21	
Ethanol	95	108	11-167	14	0-64	

RPD - Relative Percent Difference , CL - Control Limit

Calscience Environmental Laboratories, Inc.

Quality Control - Spike/Spike Duplicate

Stratus Environmental, inc.		Date Received:	12/30/08
3330 Cameron Park Drive, Suite 550		Work Order No:	08-12-2528
Cameron Park, CA 95682-8861		Preparation:	EPA 5030B
		Method:	EPA 8260B

Project ARCO 498

Quality Control Sample ID	Matrix	Instrument	Date Prepared	Date Analyzed	MS/MSD Batch Number
09-01-0131-2	**Aqueous**	**GC/MS L**	**01/09/09**	**01/09/09**	**090109S01**

Parameter	MS %REC	MSD %REC	%REC CL	RPD	RPD CL	Qualifiers
Benzene	108	112	86-122	4	0-8	
Carbon Tetrachloride	111	110	78-138	1	0-9	
Chlorobenzene	104	104	90-120	0	0-9	
1,2-Dibromoethane	101	100	70-130	1	0-30	
1,2-Dichlorobenzene	103	102	89-119	2	0-10	
1,1-Dichloroethene	101	102	52-142	2	0-23	
Ethylbenzene	113	113	70-130	0	0-30	
Toluene	101	114	85-127	12	0-12	
Trichloroethene	95	102	78-126	7	0-10	
Vinyl Chloride	82	87	56-140	6	0-21	
Methyl-t-Butyl Ether (MTBE)	92	89	64-136	2	0-28	
Tert-Butyl Alcohol (TBA)	99	93	27-183	6	0-60	
Diisopropyl Ether (DIPE)	97	98	78-126	1	0-16	
Ethyl-t-Butyl Ether (ETBE)	94	94	67-133	1	0-21	
Tert-Amyl-Methyl Ether (TAME)	101	105	63-141	4	0-21	
Ethanol	81	90	11-167	11	0-64	

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:	08-12-2528
Cameron Park, CA 95682-8861		Preparation:	EPA 5030B
		Method:	EPA 8015B (M)

Project: ARCO 498

Quality Control Sample ID	Matrix	Instrument	Date Prepared	Date Analyzed	LCS/LCSD Batch Number
099-12-695-385	**Aqueous**	**GC 4**	**12/31/08**	**12/31/08**	**081231B01**

Parameter	LCS %REC	LCSD %REC	%REC CL	RPD	RPD CL	Qualifiers
Gasoline Range Organics (C6-C12)	100	96	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:	08-12-2528
Cameron Park, CA 95682-8861		Preparation:	EPA 5030B
		Method:	EPA 8015B (M)

Project: ARCO 498

Quality Control Sample ID	Matrix	Instrument	Date Prepared	Date Analyzed	LCS/LCSD Batch Number
099-12-695-387	**Aqueous**	**GC 4**	**01/02/09**	**01/02/09**	**090102B01**

Parameter	LCS %REC	LCSD %REC	%REC CL	RPD	RPD CL	Qualifiers
Gasoline Range Organics (C6-C12)	99	106	78-120	7	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:	08-12-2528
Cameron Park, CA 95682-8861		Preparation:	EPA 5030B
		Method:	EPA 8260B

Project: ARCO 498

Quality Control Sample ID	Matrix	Instrument	Date Prepared	Date Analyzed	LCS/LCSD Batch Number
099-12-703-636	Aqueous	GC/MS BB	01/07/09	01/07/09	090107L01

Parameter	LCS %REC	LCSD %REC	%REC CL	ME CL	RPD	RPD CL	Qualifiers
Benzene	98	97	87-117	82-122	1	0-7	
Carbon Tetrachloride	100	103	78-132	69-141	3	0-8	
Chlorobenzene	99	104	88-118	83-123	5	0-8	
1,2-Dibromoethane	90	101	80-120	73-127	11	0-20	
1,2-Dichlorobenzene	102	103	88-118	83-123	1	0-8	
1,1-Dichloroethene	99	102	71-131	61-141	3	0-14	
Ethylbenzene	105	112	80-120	73-127	7	0-20	
Toluene	100	101	85-127	78-134	1	0-7	
Trichloroethene	102	103	85-121	79-127	1	0-11	
Vinyl Chloride	83	87	64-136	52-148	5	0-10	
Methyl-t-Butyl Ether (MTBE)	94	93	67-133	56-144	1	0-16	
Tert-Butyl Alcohol (TBA)	98	96	34-154	14-174	2	0-19	
Diisopropyl Ether (DIPE)	95	91	80-122	73-129	5	0-8	
Ethyl-t-Butyl Ether (ETBE)	98	92	73-127	64-136	6	0-11	
Tert-Amyl-Methyl Ether (TAME)	95	94	69-135	58-146	2	0-12	
Ethanol	106	109	34-124	19-139	3	0-44	

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:	08-12-2528
Cameron Park, CA 95682-8861		Preparation:	EPA 5030B
		Method:	EPA 8260B

Project: ARCO 498

Quality Control Sample ID	Matrix	Instrument	Date Prepared	Date Analyzed	LCS/LCSD Batch Number
099-12-703-640	Aqueous	GC/MS L	01/09/09	01/09/09	090109L01

Parameter	LCS %REC	LCSD %REC	%REC CL	ME_CL	RPD	RPD CL	Qualifiers
Benzene	96	101	87-117	82-122	5	0-7	
Carbon Tetrachloride	107	105	78-132	69-141	2	0-8	
Chlorobenzene	100	105	88-118	83-123	5	0-8	
1,2-Dibromoethane	99	104	80-120	73-127	5	0-20	
1,2-Dichlorobenzene	103	104	88-118	83-123	1	0-8	
1,1-Dichloroethene	108	101	71-131	61-141	6	0-14	
Ethylbenzene	111	115	80-120	73-127	4	0-20	
Toluene	107	107	85-127	78-134	0	0-7	
Trichloroethene	99	105	85-121	79-127	7	0-11	
Vinyl Chloride	92	85	64-136	52-148	8	0-10	
Methyl-t-Butyl Ether (MTBE)	93	96	67-133	56-144	3	0-16	
Tert-Butyl Alcohol (TBA)	111	90	34-154	14-174	21	0-19	BA
Diisopropyl Ether (DIPE)	98	98	80-122	73-129	0	0-8	
Ethyl-t-Butyl Ether (ETBE)	97	99	73-127	64-136	2	0-11	
Tert-Amyl-Methyl Ether (TAME)	95	103	69-135	58-146	8	0-12	
Ethanol	105	87	34-124	19-139	19	0-44	

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: 08-12-2528

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: 08-12-2528

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

A BP affiliated company

Chain of Custody Record

2528

Project Name: AR 498

BP BU/AR Region/Enfos Segment: BP > Americas > West > Retail > Alameda 498

State or Lead Regulatory Agency: Zone 7 water Agency

Requested Due Date (mm/dd/yy): 01/12/09

On-site Time:	0830	Temp:	50's
Off-site Time:	1200	Temp:	60's
Sky Conditions:	clear, sunny		
Meteorological Events:	—		
Wind Speed:	—	Direction:	—

Lab Name: Cal Science	BP/AR Facility No.: 498	Consultant/Contractor: Stratus Environmental, Inc.
Address: 7440 Lincoln Way	BP/AR Facility Address: 286 S. Livermore Ave. Livermore Ca.	Address: 3330 Cameron Park Drive, Suite 550
Garden Grove, Ca. 92841-1427	Site Lat/Long:	Cameron Park, CA 95682
Lab PM: Linda Sharpenburg	California Global ID No.:	Consultant/Contractor Project No.:
Tele/Fax: 714-895-7501 714-0895-7501 (fax)	Enfos Project No.:	Consultant/Contractor PM: Jay Johnson
BP/AR PM Contact: Paul Supple	Provision or OOC (circle one) Provision	Tele/Fax: (530) 676-6000 / (530) 676-6005
Address: 2010 Crow Canyon Place, Suite 150	Phase/WBS: 04-Monitoring	Report Type & QC Level: Level 1 with EDF
San Ramon, CA	Sub Phase/Task: 03-Analytical	E-mail EDD To: bcarroll@stratusinc.net
Tele/Fax: 925-275-3506	Cost Element: 01-Contractor labor	Invoice to: Atlantic Richfield Co.

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/BTEX/Oxy*	Requested Analysis: 1,2-DCA	Requested Analysis: Ethanol	Requested Analysis: EDB	Requested Analysis: DRO	Sample Point Lat/Long and Comments
1	MW-1 1005	0927	12/29		X			6				X		X	X	X	X		
2	MW-2 1115	0935	↓		X			6				X		X	X	X	X		
3	MW-3	1043	↓		X			6				X		X	X	X	X		
4																			
5	TB498 12292008	1459	12/29		X			2				X		X	X	X	X	—	ON HOLD
6																			
7																			
8																			
9																			
10																			

Sampler's Name:	Levi Ford	Relinquished By / Affiliation	Date	Time	Accepted By / Affiliation	Date	Time
Sampler's Company:	Stratus Environmental	Levi Ford	12/29/08	1459			
Shipment Date:	12/29/08						
Shipment Method:	GSO						
Shipment Tracking No:	925535 1989	GSO	12/30/08	0815	[illegible]	12/30/08	0815

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

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 #: 08-12-2528

SAMPLE RECEIPT FORM

Cooler 1 of 1

CLIENT: STRATUS

DATE: 12 / 30 / 08

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

Temperature 3.7 °C - 0.2 °C (CF) = 3.5 °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:** PS

SAMPLE CONDITION:	Yes	No	N/A
Chain-Of-Custody (COC) document(s) received with samples	☑	☐	☐
COC document(s) received complete	☑	☐	☐
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	☑	☐	☐
Volatile analysis container(s) free of headspace	☑	☐	☐
Tedlar bag(s) free of condensation	☐	☐	☑

CONTAINER TYPE:

Solid: ☐4ozCGJ ☑8ozCGJ ☐16ozCGJ ☐Sleeve ☐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® ☐_____

Checked/Labeled by: PS

Reviewed by: AM

Scanned by: PS

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:$ZnAc_2$+NaOH

ATTACHMENT

FIELD PROCEDURES FOR GROUNDWATER SAMPLING

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

Equipment Calibration

Standard groundwater sampling equipment – pH/Conductivity/Temperature meter, and dissolved oxygen (DO) meters are calibrated prior to all field work. All calibration is conducted in accordance with equipment manufacturer's recommended procedure and buffer solutions. MSDS for all buffer solutions are maintained in Stratus vehicles. Calibration is completed everyday prior to field work and also once a week. The pH probe is calibrated for a pH of 7.0 daily and for 4.0, 7.0 and 10.0 weekly. The conductivity probe is calibrated for 1413 µs daily and 1413 µs and 447 µs weekly. The temperature probe is calibrated weekly with a NIST-traceable thermometer. The DO probe is calibrated for 100% oxygen daily and 0% and 100% oxygen weekly. All calibration logs are maintained in the Stratus office.

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 D

GEOTRACKER UPLOAD CONFIRMATIONS

STATE WATER RESOURCES CONTROL BOARD

GEOTRACKER ESI

UPLOADING A GEO_BORE FILE

SUCCESS

Your GEO_BORE file has been successfully submitted!

Submittal Type:	**GEO_BORE**
Facility Global ID:	**T0600124081**
Field Point:	**MW-1**
Facility Name:	**ARCO #0498**
File Name:	**MW-1.pdf**
Username:	**Broadbent & Associates, Inc.**
Username:	**BROADBENT-C**
IP Address:	**67.118.40.90**
Submittal Date/Time:	**2/3/2009 2:46:03 PM**
Confirmation Number:	**5304638087**

STATE WATER RESOURCES CONTROL BOARD

GEOTRACKER ESI

UPLOADING A GEO_BORE FILE

SUCCESS

Your GEO_BORE file has been successfully submitted!

Submittal Type:	**GEO_BORE**
Facility Global ID:	**T0600124081**
Field Point:	**MW-3**
Facility Name:	**ARCO #0498**
File Name:	**MW-3.pdf**
Username:	**Broadbent & Associates, Inc.**
Username:	**BROADBENT-C**
IP Address:	**67.118.40.90**
Submittal Date/Time:	**2/3/2009 2:48:03 PM**
Confirmation Number:	**8699172079**

STATE WATER RESOURCES CONTROL BOARD

GEOTRACKER ESI

UPLOADING A GEO_BORE FILE

SUCCESS

Your GEO_BORE file has been successfully submitted!

Submittal Type:	**GEO_BORE**
Facility Global ID:	**T0600124081**
Field Point:	**MW-2**
Facility Name:	**ARCO #0498**
File Name:	**MW-2.pdf**
Username:	**Broadbent & Associates, Inc.**
Username:	**BROADBENT-C**
IP Address:	**67.118.40.90**
Submittal Date/Time:	**2/3/2009 2:46:51 PM**
Confirmation Number:	**2655947029**

STATE WATER RESOURCES CONTROL BOARD

GEOTRACKER ESI

UPLOADING A GEO_BORE FILE

SUCCESS

Your GEO_BORE file has been successfully submitted!

Submittal Type:	**GEO_BORE**
Facility Global ID:	**T0600124081**
Field Point:	**MW-4**
Facility Name:	**ARCO #0498**
File Name:	**MW-4.pdf**
Username:	**Broadbent & Associates, Inc.**
Username:	**BROADBENT-C**
IP Address:	**67.118.40.90**
Submittal Date/Time:	**2/3/2009 2:49:02 PM**
Confirmation Number:	**7963067173**

STATE WATER RESOURCES CONTROL BOARD

GEOTRACKER ESI

UPLOADING A GEO_MAP FILE

SUCCESS

Your GEO_MAP file has been successfully submitted!

Submittal Type:	**GEO_MAP**
Facility Global ID:	**T0600124081**
Facility Name:	**ARCO #0498**
File Name:	**286 South Livermore_2008-12-02.pdf**
Username:	**Broadbent & Associates, Inc.**
Username:	**BROADBENT-C**
IP Address:	**67.118.40.90**
Submittal Date/Time:	**2/3/2009 2:23:53 PM**
Confirmation Number:	**4647493660**

STATE WATER RESOURCES CONTROL BOARD

GEOTRACKER ESI

UPLOADING A GEO_XY FILE

SUCCESS

Processing is complete. No errors were found!
Your file has been successfully submitted!

Submittal Type:	**GEO_XY**
Submittal Title:	**MW-1 to MW-4**
Facility Global ID:	**T0600124081**
Facility Name:	**ARCO #0498**
File Name:	**GEO_XY.zip**
Organization Name:	**Broadbent & Associates, Inc.**
Username:	**BROADBENT-C**
IP Address:	**67.118.40.90**
Submittal Date/Time:	**2/3/2009 2:12:58 PM**
Confirmation Number:	**2148024618**

STATE WATER RESOURCES CONTROL BOARD

GEOTRACKER ESI

UPLOADING A GEO_Z FILE

SUCCESS

Processing is complete. No errors were found!
Your file has been successfully submitted!

Submittal Type:	**GEO_Z**
Submittal Title:	**MW-1 to MW-4**
Facility Global ID:	**T0600124081**
Facility Name:	**ARCO #0498**
File Name:	**GEO_Z.zip**
Organization Name:	**Broadbent & Associates, Inc.**
Username:	**BROADBENT-C**
IP Address:	**67.118.40.90**
Submittal Date/Time:	**2/3/2009 2:20:13 PM**
Confirmation Number:	**2013009190**

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:	**4Q08 GEO_WELL 498**
Facility Global ID:	**T0600124081**
Facility Name:	**ARCO #0498**
File Name:	**GEO_WELL.zip**
Organization Name:	**Broadbent & Associates, Inc.**
Username:	**BROADBENT-C**
IP Address:	**67.118.40.90**
Submittal Date/Time:	**2/3/2009 10:27:07 AM**
Confirmation Number:	**6214355945**

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:	**4Q08 GW Monitoring**
Facility Global ID:	**T0600124081**
Facility Name:	**ARCO #0498**
File Name:	**08122528.zip**
Organization Name:	**Broadbent & Associates, Inc.**
Username:	**BROADBENT-C**
IP Address:	**67.118.40.90**
Submittal Date/Time:	**2/3/2009 10:27:47 AM**
Confirmation Number:	**4519440174**

VIEW QC REPORT

VIEW DETECTIONS REPORT

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 - Soil and Water Investigation Report**
Submittal Title:	**1108 Soil Samples**
Facility Global ID:	**T0600124081**
Facility Name:	**ARCO #0498**
File Name:	**08112370 fix.zip**
Organization Name:	**Broadbent & Associates, Inc.**
Username:	**BROADBENT-C**
IP Address:	**67.118.40.90**
Submittal Date/Time:	**2/3/2009 10:48:19 AM**
Confirmation Number:	**7058105945**

VIEW QC REPORT

VIEW DETECTIONS REPORT

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 - Soil and Water Investigation Report**
Submittal Title:	**1108 SWC**
Facility Global ID:	**T0600124081**
Facility Name:	**ARCO #0498**
File Name:	**08112092.zip**
Organization Name:	**Broadbent & Associates, Inc.**
Username:	**BROADBENT-C**
IP Address:	**67.118.40.90**
Submittal Date/Time:	**2/3/2009 10:36:51 AM**
Confirmation Number:	**2399765491**

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