

Atlantic Richfield Company

Chuck Carmel
Environmental Business Manager

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1:37 pm, Nov 13, 2009

**Alameda County
Environmental Health**

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11 November 2009

Re: On-Site Soil & Ground-Water Investigation Report
Atlantic Richfield Company Station No. 374
6407 Telegraph Avenue, Oakland, California
ACEH Case No. RO0000078

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

Submitted by,



Chuck Carmel
Environmental Business Manager

Attachment

**ON-SITE SOIL & GROUND-WATER
INVESTIGATION REPORT**
Atlantic Richfield Company Service Station #374
6407 Telegraph Avenue, Oakland, California
ACEH Case #RO0000078

Prepared for:

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

Prepared by:



1324 Mangrove Ave., Suite 212
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(530) 566-1400
www.broadbentinc.com

11 November 2009

Project No. 06-88-602

11 November 2009

Project No. 06-88-602

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

Attn.: Mr. Chuck Carmel

Re: On-Site Soil & Ground-Water Investigation Report, Atlantic Richfield Company Service Station #374, 6407 Telegraph Avenue, Oakland, California; ACEH Case #RO0000078

Dear Mr. Carmel:

Broadbent & Associates, Inc. (BAI) is pleased to submit this *On-Site Soil & Ground-Water Investigation Report* for Atlantic Richfield Company (a BP affiliated company) Service Station #374 located at 6407 Telegraph Avenue, Oakland, California (Site). This report presents a description of field activities conducted and results obtained from the advancement of four soil borings and subsequent collection of soil and ground-water samples at the Site on 21 September 2009. This work was conducted in accordance with the BAI *Work Plan for On-Site Soil Investigation* dated 19 May 2009, as approved with additional comments by the Alameda County Environmental Health (ACEH) in their response letter dated 13 August 2009, and the BAI *Addendum to Work Plan for On-Site Investigation* dated 24 August 2009.

Should you have questions or require additional information, please do not hesitate to contact me at (530) 566-1400.

Sincerely,

BROADBENT & ASSOCIATES, INC.



Thomas A. Venus, P.E.
Senior Engineer



Enclosures

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

ON-SITE SOIL & GROUND-WATER INVESTIGATION REPORT

Atlantic Richfield Company Service Station #374
6407 Telegraph Avenue, Oakland, California
ACEH Case #RO0000078

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ATTACHMENTS

- Drawing 1 Site Location Map
Drawing 2 Site Layout Plan with Soil Boring Locations

APPENDICES

- Appendix A Recent Regulatory Correspondence
Appendix B Stratus Soil Boring Data Package (Includes Field Data Sheets, Boring Logs, Drilling Permit, Site Plan, and Certified Laboratory Analytical Report with Chain-of-Custody Documentation)
Appendix C GeoTracker Upload Confirmation Receipts

ON-SITE SOIL & GROUND-WATER INVESTIGATION REPORT

Atlantic Richfield Company Service Station #374
6407 Telegraph Avenue, Oakland, California
ACEH Case #RO0000078

1.0 INTRODUCTION

On behalf of the Atlantic Richfield Company, RM – a BP affiliated company, Broadbent & Associates, Inc. (BAI) has prepared this *On-Site Soil & Ground-Water Investigation Report* for additional soil and ground-water characterization at the Atlantic Richfield Company (a BP affiliated company) Service Station #374 (hereinafter referred to as Station #374), located at 6407 Telegraph Avenue, Oakland, California (Site). This on-site soil investigation was completed to characterize the vertical and lateral extent of recently discovered petroleum hydrocarbon contamination within soils beneath the dispenser island in the eastern portion of the Site. Investigation activities were conducted in accordance with the BAI *Work Plan for On-Site Soil Investigation* dated 19 May 2009, as approved with additional comments by the Alameda County Environmental Health (ACEH) in their response letter dated 13 August 2009, and the BAI *Addendum to Work Plan for On-Site Investigation* dated 24 August 2009. A copy of the ACEH letter is provided in Appendix A. This report includes discussions on the Site Background, Site Geology and Hydrogeology, Field Activities Performed, Results of the Investigation, Conclusions and Recommendations.

2.0 SITE BACKGROUND

The Site is an active ARCO-brand retail gasoline service station located on the northwestern corner of Telegraph Avenue and Alcatraz Avenue in Oakland, California (Drawing 1 and Drawing 2). The land use in the immediate vicinity of the Site is mixed commercial and residential. Development at the Site consists of a service station building with two 12,000-gallon gasoline underground storage tanks (USTs) with associated piping, and four pump dispensers on two dispenser islands. The Site is primarily covered with asphalt or concrete surfacing.

Numerous subsurface investigations and remedial activities have been conducted on-site since 1988. A comprehensive Site history can be found within the *Work Plan for On-Site Soil Investigation* prepared by BAI dated 27 June 2008, and the *Work Plan for On-Site Soil Investigation* prepared by BAI dated 19 May 2009. Section 4.0 of this report details the most recent subsurface investigation field activities conducted as requested by ACEH.

3.0 SITE GEOLOGY AND HYDROGEOLOGY

According to the *East Bay Plain Groundwater Basin Beneficial Use Evaluation Report* (California Regional Water Quality Control Board – San Francisco Bay Region/SFRWQCB, June 1999), the Site is located within the Oakland Sub-Area of the East Bay Plain of the San Francisco Basin. The Oakland Sub-Area contains a sequence of alluvial fans. The alluvial fill thickness ranges from 300 to 700 feet deep. There are no well-defined aquitards such as estuarine muds. The largest and deepest wells in this sub-area historically pumped one to two million gallons per day at depths greater than 200 feet. Overall, sustainable yields are low due in part to low recharge potential. The Merrit sand in West Oakland was an important part of the

early water supply for the City of Oakland. It is shallow (up to 60 feet), but before the turn of the last century, septic systems contaminated the water supply wells.

Throughout most of the Alameda County portion of the East Bay Plain, from Hayward north to Albany, water level contours show that the general direction of ground-water flow is from east to west or from the Hayward Fault to the San Francisco Bay. Ground-water flow direction generally correlates to topography. Flow direction and velocity are also influenced by buried stream channels that typically are oriented in an east to west direction. The nearest natural drainage is Claremont Creek, located approximately 1.2 miles west-northwest of the Site. Claremont Creek flows generally east to west near the Site vicinity.

The Site elevation is approximately 163 feet above sea level. The water table fluctuates seasonally and over time. Historically, depth-to-water measurements have ranged from approximately five to 11 feet below ground surface (ft bgs). During Third Quarter 2009, depths to ground water in on-site wells MW-1 and MW-2 were approximately 8.5-9.0 ft. Ground-water flow direction during the Third Quarter 2009 monitoring event on 20 August 2009 was to the southwest at a gradient of 0.03 ft/ft, generally typical according to the monitoring record (BAI, 10/30/2009).

According to the *East Bay Plain Groundwater Basin Beneficial Use Evaluation Report*, the majority of East Bay Plain Cities (except the City of Hayward) do not have “any plans to develop local ground-water resources for drinking water purposes, because of existing or potential saltwater intrusion, contamination, or poor or limited quantity.” The SFRWQCB’s basin plan denotes existing beneficial uses of municipal and domestic supply (MUN), industrial process supply (PROC), industrial service supply (IND), and agricultural supply (AGR) for the East Bay Plain ground-water basin.

The Site is typically underlain by silty and sandy clays with intervals also consisting of sands and gravels to a total explored depth of approximately 28 ft bgs. The boring log for MW-1 indicates that intermittent layers of silty clay and sandy clay are present throughout the entire boring with gravels appearing at approximately eight ft bgs and sand appearing at approximately 18 ft bgs. The boring log for MW-2 indicates that intermittent layers of silty clay and sandy clay are present throughout the entire boring with gravels appearing at approximately eight ft bgs. The boring log for MW-3 indicates that silty clay is present throughout the entire boring with minor gravel appearing at approximately 18.5 ft bgs and sand appearing at approximately 27 ft bgs. The boring log for MW-4 indicates that silty clay is present from approximately ground surface to 13 ft bgs. Sandy gravel with some silt appears at 13 ft bgs and transitions into silty clay with some sand and gravel at approximately 22 ft bgs.

4.0 FIELD ACTIVITIES PERFORMED

This on-site soil investigation was completed to characterize the vertical and lateral extent of recently-discovered petroleum hydrocarbon contamination within soils beneath the eastern dispenser island in the eastern portion of the Site. On 21 September 2009, Stratus Environmental, Inc. (Stratus) oversaw RSI Drilling, Inc. of Woodland, California advance four

Geoprobe soil borings (identified as B-13, B-14, B-14A, and B-15) on the Site. Soil boring B-13 was located in close proximity to the December 2008 soil sample D-4, approximately 40 feet north of well MW-2 and approximately 33 feet east of the station building. Soil boring B-14 was located in close proximity to the December 2008 soil samples PL-3 and D-4, approximately 30 feet north of well MW-2 and approximately 25 feet east of the station building. Soil boring B-14A was located approximately six feet east of soil boring B-14, approximately 30 feet north of well MW-2, and approximately 30 feet east of the station building. Soil boring B-15 was located in close proximity to the December 2008 soil sample PL-3, approximately 43 feet north of well MW-2 and approximately 15 feet east of the station building. The soil boring locations from this investigation are shown in Drawing 2.

4.1 Preliminary Field Activities

Prior to initiating field activities, Stratus obtained the necessary drilling permits from the Alameda County Public Works Agency (See Appendix B), prepared a site health and safety plan specific to the work scope; and cleared the boring locations from conflicts with subsurface utilities. The utility clearance included notifying Underground Service Alert of the work a minimum of 48 hours prior to initiating the field investigation, and additionally securing the services of Cruz Brothers, a private utility locating company to confirm the absence of underground utilities at the boring locations. Boreholes were physically cleared to 6.5 ft bgs using an air knife rig on 21 September 2009, consistent with the safety protocols contained within the BP Ground Disturbance Defined Practice.

4.2 Soil Boring Advancement and Sampling Activities

On 21 September 2009, Stratus field personnel observed RSI Drilling (RSI) of Woodland, California advance four soil borings (B-13, B-14, B-14A, and B-15). RSI utilized a Powerprobe 6600 Geoprobe drill rig to advance the soil borings to a maximum depth of 18 ft bgs. Physical soil samples were collected at specific depths for laboratory analysis based on field observations and recommendations from ACEH.

Soil boring B-13 was advanced to a total depth of 18 ft bgs. Soil samples were collected from boring B-13 at 4.5, 6.5, and 8.5 ft bgs. Reportedly, no visual contamination was observed, however hydrocarbon odors were noted between approximately six and nine ft bgs. Screening with the photo-ionization detector (PID) found contamination by volatile organic compounds (VOCs) between approximately four and nine ft bgs, with up to 3,800 parts per million (ppm) at nine ft bgs. Silty clay (CL in Unified Soil Classification System) with some sand was observed from the surface to approximately 5.5 to ft bgs. Clayey sand with silt and gravel (SC) was observed from approximately 5.5 to 7.5 ft bgs, and from approximately 8.5 to 12.5 ft bgs. Clayey silts (ML) were encountered from approximately 7.5 to 8.5 ft bgs. Silty clay with gravel (CL) was observed from approximately 12.5 to 18 ft bgs, the total depth explored to. Following completion of soil boring advancement and collection of soil samples, an unsuccessful attempt to collect a ground-water sample between eight and 18 bgs was made prior to abandoning the dry boring.

Soil boring B-14 was advanced to a total depth of 18 ft bgs. Soil samples were collected from boring B-14 at 4.5, 6.5, and 8.5 ft bgs. Reportedly, no visual contamination was observed, however hydrocarbon odors were noted between approximately 5.5 and 11 ft bgs. Screening with the PID detected contamination by VOCs between approximately seven and 11 ft bgs, at 62 ppm at approximately 8.5 ft bgs. Silty clay with sand (CL) was observed between the surface and approximately 5.5 ft bgs. Clayey silt (ML) was encountered from approximately 5.5 to seven ft bgs. Clayey silt with sand and gravel (ML) was observed from approximately seven to 11 ft bgs. Clayey sand with silt and gravel (SC) was encountered from approximately 11 to 18 ft bgs, the total depth explored to. Following completion of soil boring advancement and collection of soil samples, two unsuccessful attempt to collect groundwater samples between 4.5 and 14.5 ft bgs and eight and 18 bgs were made prior to abandoning the dry boring. Boring B-14A was advanced to a total depth of 18 ft bgs, approximately six feet east of boring B-14 in another attempt to collect a ground-water sample. Soil samples were not collected from boring B-14A, nor were soils logged. Following completion of soil boring advancement, an unsuccessful attempt to collect a ground-water sample between eight and 18 bgs was made prior to abandoning the dry boring.

Soil boring B-15 was advanced to a total depth of 18 ft bgs. Soil samples were collected from boring B-15 at 4.5, 6.5, and 8.5 ft bgs. Reportedly, no visual contamination was observed, however hydrocarbon odors were noted between approximately 5.5 and 11.5 ft bgs. Screening with the PID detected contamination by VOCs between approximately four and nine ft bgs, with up to 163 ppm at four ft bgs. Silty clay with sand (CL) was observed between the surface and approximately 5.5 ft bgs. Clayey silt (ML) was encountered from approximately 5.5 to 9.5 ft bgs. Clayey sand with silt and gravel (SC) was encountered from approximately 9.5 to 15 ft bgs. Silty clay (CL) was observed between approximately 15 and 18 ft bgs, the total depth explored to. Following completion of soil boring advancement, a ground-water sample was successfully collected from temporary PVC well screen set from eight and 18 ft bgs prior to abandoning the boring.

4.3 Investigation-Derived Residuals Management

Residual solids and liquids generated during the Site investigation activities were stored temporarily onsite in Department of Transportation-approved 55-gallon drums pending analytical results and profiling. Following characterization and profiling, Belshire Environmental Services was scheduled to transport the investigation-derived residuals to an Atlantic Richfield Company-approved facility for treatment or disposal.

5.0 RESULTS OF INVESTIGATION

Soil samples and one ground-water sample were shipped to Calscience Environmental Laboratories, Inc. (Garden Grove), a California State-certified laboratory, under chain-of-custody protocol. Samples were analyzed for Gasoline Range Organics (GRO, hydrocarbon chain lengths between C6-C12) by EPA Method 8015B; and for Benzene, Toluene, Ethylbenzene, and Total Xylenes (BTEX), Methyl Tert-Butyl Ether (MTBE), Ethyl Tert-Butyl Ether (ETBE), Tert-Amyl Methyl Ether (TAME), Di-Isopropyl Ether (DIPE), Tert-Butyl

Alcohol (TBA), 1,2-Dichloroethane (1,2-DCA), 1,2-Dibromoethane (EDB), and Ethanol using EPA Method 8260B. No significant irregularities were reported during laboratory analysis of the samples.

- Concentrations of GRO were detected above the laboratory reporting limits in eight of the nine soil samples collected, with concentrations ranging up to 1,800 milligrams per kilogram (mg/kg) in boring B-13 at 8.5 ft bgs.
- Concentrations of Benzene were detected above the laboratory reporting limits in nine of the nine soil samples collected, with concentrations ranging up to 8.2 mg/kg in boring B-13 at 8.5 ft bgs.
- Concentrations of Toluene were detected above the laboratory reporting limits in two of the nine soil samples collected, with concentrations ranging up to 71 mg/kg in boring B-13 at 8.5 ft bgs.
- Concentrations of Ethylbenzene were detected above the laboratory reporting limit in eight of the nine soil samples collected, with concentrations ranging up to 32 mg/kg in boring B-13 at 8.5 ft bgs.
- Concentrations of Total Xylenes were detected above the laboratory reporting limit in seven of the nine soil samples collected, with concentrations ranging up to 190 mg/kg in boring B-13 at 8.5 ft bgs.
- Concentrations of MTBE were detected above the laboratory reporting limit in three of the nine soil samples collected, with concentrations ranging up to 0.025 mg/kg in boring B-14 at 6.5 ft bgs.
- Concentrations of TBA were detected above the laboratory reporting limit in three of the nine soil samples collected, with concentrations ranging up to 0.052 mg/kg in boring B-13 at 4.5 ft bgs.

Concentrations of 1,2-DCA, EDB, DIPE, ETBE, TAME, and Ethanol were not detected above their respective laboratory reporting limits for each sample. Soil and ground-water laboratory analytical results are summarized in Table 1 following conclusion of the report text. Tabulated soil and ground-water sample laboratory analytical results are compared against the residential Environmental Screening Levels (ESLs) established by the San Francisco Regional Water Quality Control Board (SFRWQCB, 2008) for shallow soil under drinking water resource and non-drinking water resource scenarios. A copy of the laboratory analytical report with chain-of-custody documentation is provided in Appendix B. Laboratory analytical results (EDF) were uploaded to the GeoTracker AB2886 database. Upload confirmation pages are provided in Appendix C.

6.0 CONCLUSIONS

On behalf of the Atlantic Richfield Company, BAI prepared this *On-Site Soil & Water Investigation Report* for Station #374, located at 6407 Telegraph Avenue, Oakland, California. Investigation activities were conducted in accordance with the BAI *Work Plan for On-Site Soil Investigation* dated 19 May 2009, as approved with comments by the ACEH in their letter dated 13 August 2009, and the BAI *Addendum to Work Plan for On-Site Investigation* dated 24 August 2009. Based on the findings of this investigation, BAI concludes the following:

- Significant concentrations of GRO, Benzene, Toluene, Ethylbenzene, and Total Xylenes were detected in soil samples collected from borings B-13, B-14, and B-15 between 4.5 to 8.5 ft bgs. The vertical extent was not defined below 8.5 ft bgs. Concentrations in certain soil samples exceeded the residential ESLs for shallow soil scenarios where the ground water is a potential drinking water resource and even several times where the ground water is not a potential drinking water resource.
- The highest concentration of GRO in soil samples from boring B-13 was detected at 8.5 ft bgs (1,800 mg/kg). However, this depth is typical of the measured depth to ground water in on-site monitoring wells and may represent a smear zone at the vadose zone/capillary fringe. Of more interest, the highest concentration of GRO in soil samples from boring B-15 was collected at 4.5 ft bgs (1,400 mg/kg). This concentration is more indicative of a release from the former product piping, and correlates well with the previous high concentration of 6,500 mg/kg GRO detected in product line sample PL-3 5' collected on 4 December 2008 during product line replacement and fuel dispenser upgrades(BAI, 2/19/2009).
- Low concentrations of MTBE and TBA were detected in soil samples collected from borings B-13 and B-14. Two of the three detected MTBE concentrations and none of the three detected TBA concentrations exceeded the residential ESLs for shallow soil scenarios where the ground water is a potential drinking water resource. Neither MTBE nor TBA concentrations in soil exceeded the residential ESLs for shallow soil where the ground water is not a potential drinking water resource.
- Although generally similar in the soil lithology encountered, ground water was not encountered in borings B-13, B-14, or B-14A above 18 ft bgs. This was although the concurrent depth to ground water at the Site in nearby MW-2 was measured at approximately eight ft bgs. Sufficient ground water did percolate into boring B-15 to allow for collection of a grab ground-water sample for laboratory analysis.
- Significant concentrations GRO, Benzene, Toluene, Ethylbenzene, Total Xylenes, and MTBE were detected in ground-water grab sample B-15W. Each of these analytes exceeded the residential ESL where ground water is a potential drinking water resource. The detected concentrations of GRO, Benzene, Ethylbenzene, and Total Xylenes even exceeded the residential ESLs where ground water is not a potential drinking water resource. However, these concentrations were within the range of those historically detected in samples from monitoring wells on the Site, although at approximately one order of magnitude higher than recent concentrations.

7.0 RECOMMENDATIONS

Based on the results obtained during this recent soil and ground-water investigation, BAI recommends that a soil boring be advanced in the area of boring B-15 (perhaps just slightly south of B-15) to collect soil samples below 8.5 ft bgs. BAI further recommends that this proposed boring be converted into a new on-site ground-water well to monitor ground-water conditions and potentially remediate the subsurface below the former pipeline release.

8.0 CLOSURE

This document has been prepared for the exclusive use of Atlantic Richfield Company (a BP affiliated company). The findings presented in this report are based upon the observations of Stratus field personnel, points of investigation and results of laboratory tests performed by Calscience Environmental Laboratories, Inc. (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 groundwater 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.

9.0 REFERENCES

ACEH, 13 August 2009. *Fuel Leak Case No. RO 0000078 and GeoTracker Global ID T0600100106, ARCO #0374, 6407 Telegraph Ave., Oakland, CA 94609.* Letter from Mr. Paresh Khatri (ACEH) to Mr. Paul Supple (Atlantic Richfield Company) approving work plan with technical comments.

BAI, 19 February 2009. *Compliance Soil Sampling Report for Product Line/Fuel Dispenser Upgrades, Atlantic Richfield Company Station #374, 6407 Telegraph Ave., Oakland, CA, ACEH Case #RO0000078.*

BAI, 19 May 2009. *Work Plan for On-Site Soil Investigation, Atlantic Richfield Company Station #374, 6407 Telegraph Ave., Oakland, CA, ACEH Case #RO0000078.*

BAI, 24 August 2009. *Addendum to Work Plan for On-Site Investigation, Atlantic Richfield Company Service Station #374, 6407 Telegraph Ave., Oakland, CA, ACEH Case #RO0000078.*

BAI, 30 October 2009. *Third Quarter 2009 Ground-Water Monitoring Report, Atlantic Richfield Company Service Station #374, 6407 Telegraph Ave., Oakland, CA, ACEH Case #RO0000078.*

SFRWQCB, Groundwater Committee, June 1999. *East Bay Plain Groundwater Basin Beneficial Use Evaluation Report, Alameda County and Contra Costa Counties, CA.*

SFRWQCB, May 2008. *Screening for Environmental Concerns at Sites with Contaminated Soil and Groundwater.* Interim final.

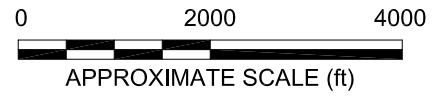
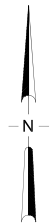
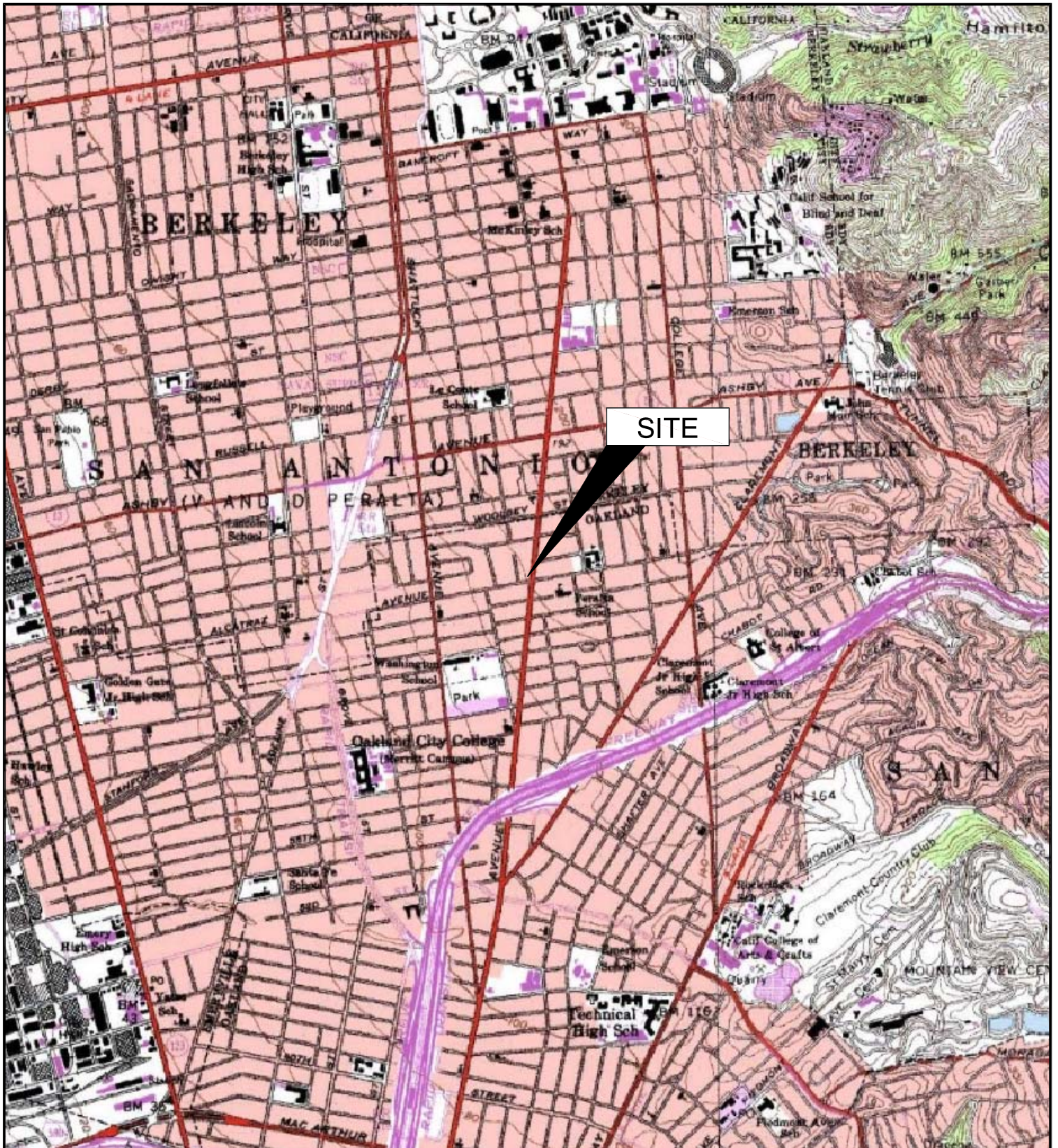


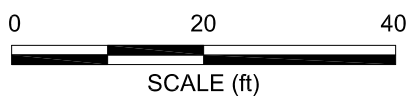
IMAGE SOURCE: USGS

NOTE: SITE SKETCH ADAPTED FROM VARIOUS HISTORIC FIGURES.
 SITE DIMENSIONS AND FACILITY LOCATIONS NOT VERIFIED.



LEGEND

- SOIL BORING LOCATION
- DEC. 2008 SOIL SAMPLE
- ⊕ MONITORING WELL
- ⊕ TANK-PIT WELL
- HISTORIC BORING
- HISTORIC SAMPLE



Laboratory Analytical Results from On-Site Soil & Ground-Water Investigation, 21 September 2009
Atlantic Richfield Company Service Station #374, 6407 Telegraph Avenue, Oakland, California
ACEH Case #RO0000078

Soil Boring Samples
(Concentrations in milligrams per kilogram, mg/kg)

Sample ID	GRO	Benzene	Toluene	Ethyl- benzene	Total Xylenes	MTBE	ETBE	TAME	DIPE	1,2-DCA	EDB	TBA	Ethanol
B-13 4.5'	1.7	<i>0.048</i>	0.0017	0.036	0.019	<i>0.024</i>	<0.0020	<0.0020	<0.0020	<0.0010	<0.0010	0.052	<0.10
B-13 6.5'	67	0.38	<0.10	0.82	1.8	<0.10	<0.20	<0.20	<0.20	<0.10	<0.10	<1.0	<10
B-13 8.5'	1,800	8.2	71	32	190	<1.0	<2.0	<2.0	<2.0	<1.0	<1.0	<10	<100
B-14 4.5'	<0.50	0.0018	<0.0010	<0.0010	<0.0010	0.012	<0.0020	<0.0020	<0.0020	<0.0010	<0.0010	0.014	<0.10
B-14 6.5'	0.73	0.011	<0.0010	0.0023	<0.0010	<i>0.025</i>	<0.0020	<0.0020	<0.0020	<0.0010	<0.0010	0.031	<0.10
B-14 8.5'	390	0.56	<0.10	6.3	0.70	<0.10	<0.20	<0.20	<0.20	<0.10	<0.10	<1.0	<10
B-15 4.5'	1,400	0.87	<0.10	4.3	3.0	<0.10	<0.20	<0.20	<0.20	<0.10	<0.10	<1.0	<10
B-15 6.5'	170	0.91	<0.10	2.8	7.5	<0.10	<0.20	<0.20	<0.20	<0.10	<0.10	<1.0	<10
B-15 8.5'	940	2.2	<1.0	13	52	<1.0	<2.0	<2.0	<2.0	<1.0	<1.0	<10	<100
ESL - DW	83	0.044	2.9	2.3	2.3	0.023	NE	NE	NE	0.0045	0.0033	0.075	NE
ESL - NDW	100	0.12	9.3	2.3	11	8.4	NE	NE	NE	0.22	0.019	100	NE

Ground-Water Grab Sample
(Concentrations in micrograms per Liter, µg/L)

Sample ID	GRO	Benzene	Toluene	Ethyl- benzene	Total Xylenes	MTBE	ETBE	TAME	DIPE	1,2-DCA	EDB	TBA	Ethanol
B-15W	19,000	3,700	<i>54</i>	840	1,600	<i>250</i>	<20	<20	<20	<20	<20	<400	<12,000
ESL - DW	100	1.0	40	30	20	5.0	NE	NE	NE	0.5	0.05	12	NE
ESL - NDW	210	46	130	43	100	1,800	NE	NE	NE	200	150	18,000	NE

Notes for both tables:

GRO: Gasoline Range Organics, hydrocarbon chain lengths C6-C12

MTBE: Methyl-tertiary Butyl Ether

ETBE: Ethyl Tert-Butyl Ether

TAME: Tert-Amyl Methyl Ether

DIPE: Di-Isopropyl Ether

1,2-DCA: 1,2-Dichloroethane

EDB: 1,2-Dibromomethane

TBA: Tert-Butyl Alcohol

<: Analyte not detected above the laboratory reporting limit given

Conc: Concentration in *Italics* exceeds ESL-DW; Concentration in **Bold Italics** exceeds ESL-NDW

ESL - DW: Residential Environmental Screening Level (in soil or ground water, as approp.), for shallow soil, where ground water is potential drinking water resource

ESL - NDW: Residential Environmental Screening Level (in soil or ground water, as approp.), for shallow soil, where ground water is not potential drinking water resource

NE: ESL not established

APPENDIX A

RECENT REGULATORY CORRESPONDENCE



ENVIRONMENTAL HEALTH SERVICES
ENVIRONMENTAL PROTECTION
1131 Harbor Bay Parkway, Suite 250
Alameda, CA 94502-6577
(510) 567-6700
FAX (510) 337-9335

August 13, 2009

Paul Supple (*Sent via E-mail to: paul.supple@bp.com*)
Atlantic Richfield Company
(A BP Affiliated Company)
P.O. Box 1257
San Ramon, CA 94583

Subject: Fuel Leak Case No. RO0000078 and GeoTracker Global ID T0600100106, ARCO
#0374, 6407 Telegraph Avenue, Oakland, CA 94609

Dear Mr. Supple:

Alameda County Environmental Health (ACEH) staff has reviewed the case file for the above-referenced site including the recently submitted document entitled, "Work Plan for On-site Soil Investigation," dated May 19, 2009, which was prepared by Broadbent & Associates, Inc. for the subject site. The above-mentioned work plan was requested in response to product line/fuel dispenser upgrades that were conducted at the site in December 2008. Soil sample analytical results detected TPH-gasoline and benzene as high as 5,300 mg/kg and 19 mg/kg, respectively, significantly above the Regional Water Quality Control Board's Environmental Screening Levels of 83 mg/kg for TPH-gasoline and 0.044 mg/kg benzene indicating that the appears to pose a significant risk to human health and the environment.

In response to ACEH's request for vertical and lateral delineation of petroleum hydrocarbons, BAI has proposed to install three borings at a lateral distance of approximately 10 feet and to a depth of 8 feet below the ground surface (bgs). BAI proposes to collect three soil samples per boring at depths of four feet, six feet, and eight feet bgs.

ACEH generally concurs with the proposed scope of work and the proposed scope of work may be implemented provided that the modifications requested in the technical comments below are addressed and incorporated during the field implementation. Submittal of a revised Work Plan is not required unless an alternate scope of work outside that described in the Work Plan and technical comments below is proposed.

We request that you address the following technical comments, perform the proposed work, and send us the technical reports requested below.

TECHNICAL COMMENTS

1. **"Grab" Groundwater Sampling** – Depth to groundwater at the site typically ranges from approximately six to eight feet bgs. Since significantly elevated concentrations of hydrocarbons have been detected in soil and since no permanent groundwater monitoring points exist in the vicinity of the elevated soil contamination, characterizing groundwater in

the immediate vicinity appears prudent. Therefore, please collect a “grab” groundwater sample from each boring for the same chemical analysis proposed for the soil samples.

NOTIFICATION OF FIELDWORK ACTIVITIES

Please schedule and complete the fieldwork activities by the date specified below and provide ACEH with at least three (3) business days notification prior to conducting the fieldwork.

TECHNICAL REPORT REQUEST

Please submit technical reports to ACEH (Attention: Paresh Khatri), according to the following schedule:

- **November 11, 2009** – Soil and Water Investigation Report
- **October 5 or 30, 2009** – Semi-annual Monitoring Report (3rd Quarter 2009)
- **April 5 or 30, 2010** – Semi-annual Monitoring Report (1st Quarter 2010)

These reports are being requested pursuant to California Health and Safety Code Section 25296.10. 23 CCR Sections 2652 through 2654, and 2721 through 2728 outline the responsibilities of a responsible party in response to an unauthorized release from a petroleum UST system, and require your compliance with this request.

ELECTRONIC SUBMITTAL OF REPORTS

ACEH's Environmental Cleanup Oversight Programs (LOP and SLIC) require submission of reports in electronic form. The electronic copy replaces paper copies and is expected to be used for all public information requests, regulatory review, and compliance/enforcement activities. Instructions for submission of electronic documents to the Alameda County Environmental Cleanup Oversight Program FTP site are provided on the attached “Electronic Report Upload Instructions.” Submission of reports to the Alameda County FTP site is an addition to existing requirements for electronic submittal of information to the State Water Resources Control Board (SWRCB) GeoTracker website. In September 2004, the SWRCB adopted regulations that require electronic submittal of information for all groundwater cleanup programs. For several years, responsible parties for cleanup of leaks from underground storage tanks (USTs) have been required to submit groundwater analytical data, surveyed locations of monitoring wells, and other data to the GeoTracker database over the Internet. Beginning July 1, 2005, these same reporting requirements were added to Spills, Leaks, Investigations, and Cleanup (SLIC) sites. Beginning July 1, 2005, electronic submittal of a complete copy of all reports for all sites is required in GeoTracker (in PDF format). Please visit the SWRCB website for more information on these requirements (http://www.swrcb.ca.gov/ust/electronic_submittal/report_rqmts.shtml).

PERJURY STATEMENT

All work plans, technical reports, or technical documents submitted to ACEH must be accompanied by a cover letter from the responsible party that states, at a minimum, the following: "I declare, under penalty of perjury, that the information and/or recommendations contained in the attached document or report is true and correct to the best of my knowledge." This letter must be signed by an officer or legally authorized representative of your company. Please include a cover letter satisfying these requirements with all future reports and technical documents submitted for this fuel leak case.

PROFESSIONAL CERTIFICATION & CONCLUSIONS/RECOMMENDATIONS

The California Business and Professions Code (Sections 6735, 6835, and 7835.1) requires that work plans and technical or implementation reports containing geologic or engineering evaluations and/or judgments be performed under the direction of an appropriately registered or certified professional. For your submittal to be considered a valid technical report, you are to present site specific data, data interpretations, and recommendations prepared by an appropriately licensed professional and include the professional registration stamp, signature, and statement of professional certification. Please ensure all that all technical reports submitted for this fuel leak case meet this requirement.

UNDERGROUND STORAGE TANK CLEANUP FUND

Please note that delays in investigation, later reports, or enforcement actions may result in your becoming ineligible to receive grant money from the state's Underground Storage Tank Cleanup Fund (Senate Bill 2004) to reimburse you for the cost of cleanup.

AGENCY OVERSIGHT

If it appears as though significant delays are occurring or reports are not submitted as requested, we will consider referring your case to the Regional Board or other appropriate agency, including the County District Attorney, for possible enforcement actions. California Health and Safety Code, Section 25299.76 authorizes enforcement including administrative action or monetary penalties of up to \$10,000 per day for each day of violation.

If you have any questions, please call me at (510) 777-2478 or send me an electronic mail message at paresh.khatri@acgov.org.

Sincerely,

Paresh C. Khatri
Hazardous Materials Specialist

Mr. Supple
RO0000078
August 13, 2009, Page 4

Enclosure: ACEH Electronic Report Upload (ftp) Instructions

cc: Tom Venus, Broadbent & Associates, Inc., 1324 Mangrove Ave., Ste 212, Chico, CA 95926
(Sent via E-mail to: tvenus@broadbentinc.com)

Leroy Griffin, Oakland Fire Department, 250 Frank H. Ogawa Plaza, Ste. 3341, Oakland, CA
94612-2032 (Sent via E-mail to: lgriffin@oaklandnet.com)

Donna Drogos, ACEH (Sent via E-mail to: donna.drogos@acgov.org)

Paresh Khatri, ACEH (Sent via E-mail to: paresh.khatri@acgov.org)

GeoTracker

File

APPENDIX B

STRATUS SOIL BORING DATA PACKAGE

(Includes Field Data Sheets, Boring Logs, Drilling Permit, Site Plan, and Certified Laboratory Analytical Report with Chain-of-Custody Documentation)



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

October 7, 2009

Mr. Tom Venus
Broadbent & Associates, Inc.
1324 Mangrove Avenue
Chico, California 95926

Re: Soil Boring Data Package, ARCO Service Station No. 374, 6407 Telegraph Avenue, Oakland, California (field activities performed between September 2, 2009 and September 21, 2009).

General Information

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

Date: September 2, 2009

On-Site Supplier Representative: Collin Fischer

Scope of Work Performed: Fill out health and safety paperwork. Mark site for Underground Service Alert (USA) notification. Discuss project schedule with station manager.

Variations from Work Scope: None noted

Date: September 14, 2009

On-Site Supplier Representative: Collin Fischer

Scope of Work Performed: Health and safety meeting with utility locating subcontractor (Cruz Brothers Locators). Locate underground utilities near work area and sketch locations on site map per ground disturbance procedures. Clear 3 boring locations and update USA tracking sheet.

Variations from Work Scope: None noted

Date: September 21, 2009

On-Site Supplier Representative: Collin Fischer and Levi Ford

Scope of Work Performed: Health and safety meeting with air knife and geoprobe subcontractor (RSI Drilling). Air knife 3 borings (B-13, B-14 and B-15) to 6.5' bgs. Geoprobe 3 boring locations (B-13, B-14 and B-15) to 18' bgs, collecting soil samples during borehole

October 7, 2009

advancement. Collected a water sample from 1 boring location (B-15W) from temporary PVC well screen set from 8' to 18' bgs.

Variations from Work Scope: A water sample was initially attempted from boring location B-14, with the temporary PVC well screen set from 4.5'-14.5' bgs.; however this water sampling attempt was unsuccessful. The boring was subsequently extended to 18' bgs, and temporary PVC well screen installed from 8' to 18' bgs, and the water sampling attempt again was unsuccessful. The boring was moved 6' east and groundwater sampling was attempted again from this separate boring (B-14A) between 8' and 18' bgs; this water sampling attempt was also unsuccessful. A groundwater sampling attempt from boring B-13 between 8' and 18' bgs was also unsuccessful. After discussions with the scoping contractor, boreholes B-13, B-14, and B-14A were abandoned without collecting a groundwater sample (elected not to advance boreholes deeper).

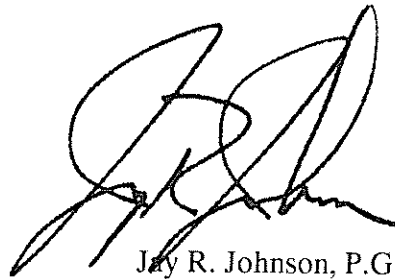
This submittal presents the tabulation of data collected in association with the completion of three soil borings. The attachments include field data sheets, boring logs, an Alameda County Public Works Department Drilling Permit, a site plan depicting the approximate locations of underground utilities near the work areas and soil borings, certified analytical reports, and chain-of-custody 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.



Scott G. Bittinger, P.G.
Project Geologist



Jay R. Johnson, P.G.
Project Manager



Attachments:

- Field Data Sheets
- Boring logs
- Drilling permit
- Site Plan
- Certified Analytical Reports with Chain of Custody Documentation

Cc: Chuck Carmel, BP/ARCO

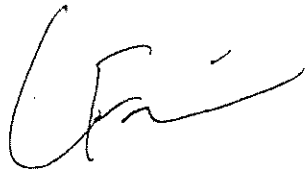
ARCO 3741 - Collins Fescue

090209

1330 → ONSITE, Fill out SAFETY PAPERWORK

1345 → MAKE SITE FOR USA, NOTIFY STATION MANAGER OF
WORK SCHEDULE

1400 → OFFSITE



STRATUS ENV., INC.

Field Data Sheet

Site: AR10 374

Date: 9/14/09

Personnel on site: COLLIN FISHER, CRUZ BROS

Weather Conditions: Sunny, Partly Cloudy

Notes:

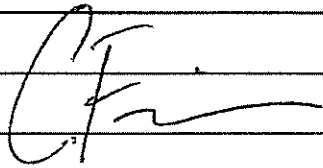
1030 -> ON SITE, SAFETY MEETING.

1100 -> START CLEARING ALL AREA OF UTILITIES.

1200 -> 3 BORING LOCATIONS & SURROUNDING AREA CLEARED,
UTILITIES MARKED & SKETCHED ON MAP.
UPDATE TRACKING SHEET

1415 -> DISCUSS PROJECT SCHEDULE w/ ATHER MANAGER.

1230 -> OFF SITE



Field Data Sheet

Site: **ARLO 374**

Date: **9/21/09**

Personnel on site: **Collin Fischer, Lewi Ford, BSI Drilling**

Weather Conditions: ~~Cloudy~~ **Sunny, Clear.**

Notes:

0800 → ONSITE, SAFETY MEETING, SET UP ON BORING (B-15)

§ BEGIN CORING THROUGH CONCRETE.

0840 → BEGIN WORK ON B-15 w/ CONCRETE CORE, & JACK FRAMEWORK
 @ (B-14)

0900 → START CLEARING (B-14) 10950 PDC CORING (B-14) START CLEARING (B-15)

0920 → DONE CORING (B-15)
 1030 → DONE CLEARING (B-14) & (B-15), MOVE PULL RIG TO (B-14) & ARE MARKS TO (B-13) & BEGINS CORING. START DRILLING @ (B-14).

1115 → @ 14.5' @ (B-14) PUT 10' OF SCREED @ FULL UP TO 4.5' & WAIT FOR H₂O - "20 TAGGED @ (MFW-2) @ 8' BGS.

1150 → NO H₂O @ (B-14) MOVE TO (B-15), PUSH TO 18' & SET SCREEN (8'-18').

1230 → SET WAITING FOR H₂O @ (B-15), (WAITED FROM 1200-1330 B-14)
 1250 → PUSH (B-14) TO 18' BGS & WAIT FOR H₂O AGAIN

1330 → STILL NO H₂O AFTER WORK, REAMPORE (B-14) & MOVE IT 3' EAST & RETRY H₂O SAMPLING @ (B-15) & 1ST (B-14) TAGS.

1430 → START CLEARING NEW (B-14) BORING (B-14A).

1450 → HOLE (B-14A) CLEARED TO 6.5' BGS, PUSH TO 18' BGS & SET SCREEN (8'-18') BGS.

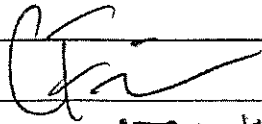
1510 → START DRILLING @ (B-13) SET SCREEN (8'-18') BGS.

1545 → WAITING FOR H₂O @ (B-13) & (B-14A). CALLED OFFICE, WAITING FOR CALL BACK FROM SCOPE ABOUT H₂O SAMPLES. BOTH HOLES ARE DRY.

1610 → ABOUT 1/2" H₂O @ HOLES → CLEANUP
 (B-13) → WAITED FROM (1540-1610)
 (B-14A) → WAITED FROM (1450-1610) } HOLES DRY.

1630 → SECURE AREA & LABEL DRUMS

1715 → OFFSITE.



STRATAS ENV. INC.

SOIL BORING LOG

Boring No. B-13

Sheet: 1 of 1

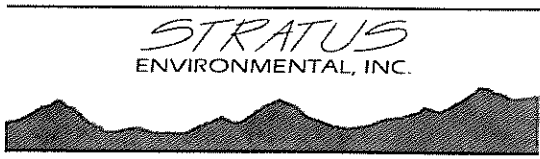
Client	<u>ARCO 374</u>	Date	<u>September 21, 2009</u>	
Address	<u>6407 Telegraph Avenue</u>	Drilling Co.	<u>RSI Drilling</u>	<u>rig type: Powerprobe 6600</u>
	<u>Oakland, CA</u>	Driller	<u>Gilberto</u>	
Project No.	<u>E374</u>	Method	<u>Geoprobe</u>	<u>Hole Diameter: 2 inches</u>
Logged By:	<u>Collin Fischer</u>	Sampler:	<u>Continuous Core</u>	

Sample		Blow Count	Sample		Depth Scale	Lithologic Column	Descriptions of Materials and Conditions	PID (PPM)
Type	No.		Time	Recov.				
					1		Cleared to 6.5' bgs with air knife.	
					2			
					3	CL	Silty clay with sand, CL, (0'-5.5'), dark gray, moist, medium plasticity 60% clay, 30% silt, 10% medium grained sand	
					4			
S	B-13 4.5'	N/A	1120	100	5			18
					6			
S	B-13 6.5'	N/A	1130	100	7	SC	Clayey sand with silt and gravel, SC, (5.5'-7.5'), dark gray, moist, HC odor 50% medium grained sand, 25% clay, 15% silt, 10% medium gravel	48
					8			
S	B-13 8.5'	N/A	1515	100	9	ML	Clayey silt, ML, (7.5'-8.5'), dark gray, moist, medium plasticity, HC odor 60% silt, 40% clay	3800
					10			
					11	SC	Clayey sand with silt and gravel, SC, (8.5'-12.5'), dark gray, moist to wet 50% coarse grained sand, 25% clay, 15% silt, 10% coarse gravel	
					12			
					13			
					14			
					15	CL	Silty clay with gravel, CL, (12.5'-18'), dark yellowish brown, moist, medium plasticity 70% clay 30% silt	
					16			
					17			
					18			
					19			
					20			

Recovery

Sample

Comments: Failed water sample from temporary screen interval from 8'-18' bgs.



SOIL BORING LOG

Boring No. B-14

Sheet: 1 of 1

Client	ARCO 374	Date	September 21, 2009
Address	6407 Telegraph Avenue Oakland, CA	Drilling Co.	RSI Drilling rig type: Powerprobe 6600
Project No.	E374	Driller	Gilberto
Logged By:	Collin Fischer	Method	Geoprobe Hole Diameter: 2 inches
		Sampler:	Continuous Core

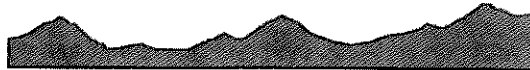
Sample Type	Sample No.	Blow Count	Sample		Depth Scale	Lithologic Column	Descriptions of Materials and Conditions	PID (PPM)
			Time	Recov.				
					1		Cleared to 6.5' bgs with air knife.	
					2			
					3	CL	Silty clay with sand, CL, (0'-5.5'), dark gray, moist, medium plasticity 60% clay, 30% silt, 10% medium grained sand	
S	B-14 4.5'	N/A	0940	100	4			0
					5			
					6			
S	B-14 6.5'	N/A	0950	100	7	ML	Clayey silt, ML, (5.5'-7'), dark gray, moist, medium plasticity, HC odor 60% silt 40% clay	0
					8			
S	B-14 8.5'	N/A	1100	100	9	ML	Clayey silt with sand and gravel, ML, (7'-11'), dark gray, moist, medium plasticity HC odor, 50% silt, 30% clay, 10% fine grained sand, 10% medium gravel	62
					10			
					11			
					12			
					13			
					14			
					15	SC	Clayey sand with silt and gravel, SC, dark yellowish brown, wet 50% coarse grained sand, 25% clay, 15% silt, 10% coarse gravel	
					16			
					17			
					18			
					19			
					20			

Recovery

Sample

Comments: Failed water sample from temporary screen intervals from 4.5'-14.5' and 8'-18' bgs.

STRATUS
ENVIRONMENTAL, INC.



SOIL BORING LOG

Boring No. B-15

Sheet: 1 of 1

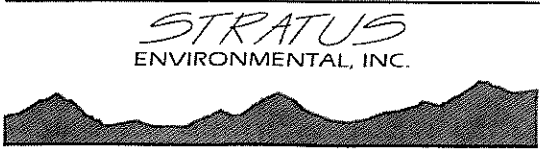
Client	ARCO 374	Date	September 21, 2009
Address	6407 Telegraph Avenue Oakland, CA	Drilling Co.	RSI Drilling rig type: Powerprobe 6600
Project No.	E374	Driller	Gilberto
Logged By:	Collin Fischer	Method	Geoprobe Hole Diameter: 2 inches
		Sampler:	Continuous Core

Sample Type	Sample No.	Blow Count	Sample		Depth Scale	Lithologic Column	Descriptions of Materials and Conditions	PID (PPM)
			Time	Recov.				
					1		Cleared to 6.5' bgs with air knife.	
					2			
					3	CL	Silty clay with sand, CL, (0'-5.5'), dark gray, moist, medium plasticity 60% clay, 30% silt, 10% medium grained sand	
S	B-15 4.5'	N/A	1015	100	4			163
					5			
S	B-15 6.5'	N/A	1025	100	6			82
					7			
					8	ML	Clayey silt, ML, (5.5'-9.5'), dark gray, moist, medium plasticity, HC odor 60% silt, 40% clay	
S	B-15 8.5'	N/A	1210	100	9			146
					10			
					11	SC	Clayey sand with silt and gravel, SC, (9.5'-11.5'), dark gray, wet, HC odor 50% medium grained sand, 25% clay, 15% silt, 10% coarse gravel	
					12			
					13			
					14		Clayey sand with silt and gravel, SC, (11.5'-15'), dark yellowish brown, moist 50% medium to coarse grained sand, 25% clay, 15% silt, 10% coarse gravel	
					15			
					16	CL	Silty clay, CL, (15'-18'), dark yellowish brown, moist, medium plasticity 70% clay, 30% silt	
					17			
					18			
					19			
					20			

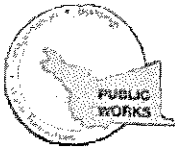
Recovery

Sample

Comments: Water sample taken from temporary screen interval (8'-18') bgs.



Alameda County Public Works Agency - Water Resources Well Permit



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

Application Approved on: 09/10/2009 By jamesy

Permit Numbers: W2009-0785
Permits Valid from 09/21/2009 to 09/22/2009

Application Id: 1251392035177
Site Location: 6407 Telegraph Avenue, Oakland, CA
Project Start Date: 09/21/2009
Assigned Inspector: Contact John Shouldice at (510) 670-5424 or johns@acpwa.org

City of Project Site:Oakland

Completion Date:09/22/2009

Applicant: Stratus Environmental Inc. - Scott Bittinger
3330 Cameron Park Dr, Ste 550, Cameron Park, CA 95682
Phone: 530-676-2062
Property Owner: BP/ ARCO
6 Centerpointe Dr., La Palma, CA 90623
Phone: 925-275-3803
Client: ** same as Property Owner **

Receipt Number: WR2009-0331 Total Due: \$265.00
Payer Name : Stratus Total Amount Paid: \$265.00
Paid By: CHECK PAID IN FULL

Works Requesting Permits:

Borehole(s) for Investigation-Geotechnical Study/CPT's - 3 Boreholes
Driller: RSI - Lic #: 802334 - Method: other

Work Total: \$265.00

Specifications

Permit Number	Issued Dt	Expire Dt	# Boreholes	Hole Diam	Max Depth
W2009-0785	09/10/2009	12/20/2009	3	2.00 in.	20.00 ft

Specific Work Permit Conditions

1. Backfill bore hole by tremie with cement grout or cement grout/sand mixture. Upper two-three feet replaced in kind or with compacted cuttings. All cuttings remaining or unused shall be containerized and hauled off site.
2. Boreholes shall not be left open for a period of more than 24 hours. All boreholes left open more than 24 hours will need approval from Alameda County Public Works Agency, Water Resources Section. All boreholes shall be backfilled according to permit destruction requirements and all concrete material and asphalt material shall be to Caltrans Spec or County/City Codes. No borehole(s) shall be left in a manner to act as a conduit at any time.
3. Permittee shall assume entire responsibility for all activities and uses under this permit and shall indemnify, defend and save the Alameda County Public Works Agency, its officers, agents, and employees free and harmless from any and all expense, cost, liability in connection with or resulting from the exercise of this Permit including, but not limited to, property damage, personal injury and wrongful death.
4. Prior to any drilling activities, it shall be the applicant's responsibility to contact and coordinate an Underground Service Alert (USA), obtain encroachment permit(s), excavation permit(s) or any other permits or agreements required for that Federal, State, County or City, and follow all City or County Ordinances. No work shall begin until all the permits and requirements have been approved or obtained. It shall also be the applicants responsibilities to provide to the Cities or to Alameda County an Traffic Safety Plan for any lane closures or detours planned. No work shall begin until all the permits and requirements have been approved or obtained.
5. Applicant shall contact John Shouldice for an inspection time at 510-670-5424 at least five (5) working days prior to starting, once the permit has been approved. Confirm the scheduled date(s) at least 24 hours prior to drilling.

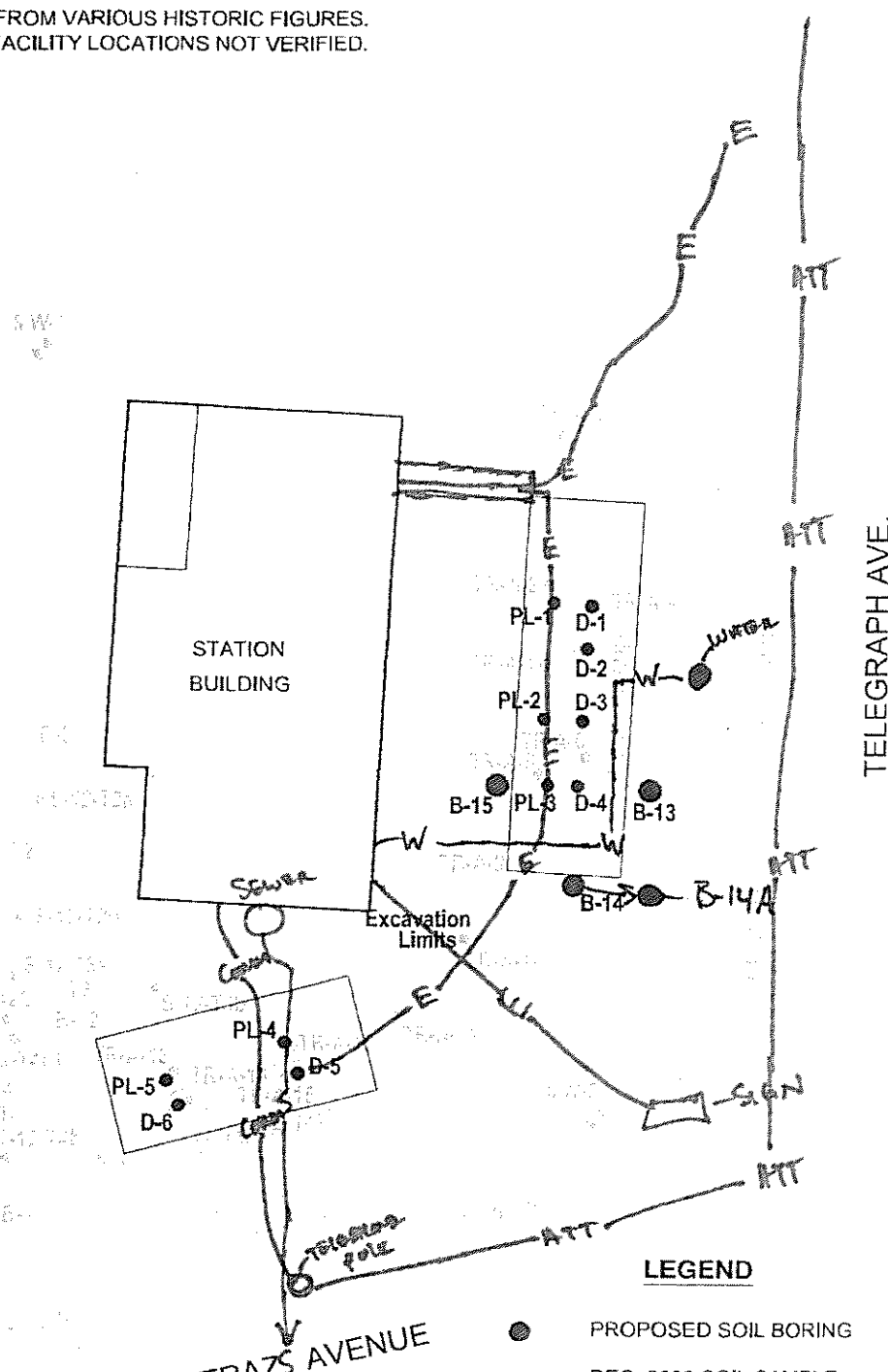
Alameda County Public Works Agency - Water Resources Well Permit

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

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

8. Permit is valid only for the purpose specified herein. No changes in construction procedures, as described on this permit application. Boreholes shall not be converted to monitoring wells, without a permit application process.

NOTE: SITE SKETCH ADAPTED FROM VARIOUS HISTORIC FIGURES.
 SITE DIMENSIONS AND FACILITY LOCATIONS NOT VERIFIED.



LEGEND

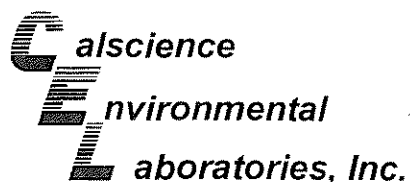
- PROPOSED SOIL BORING
- DEC. 2008 SOIL SAMPLE
- MONITORING WELL
- TANK-PIT WELL
- HISTORIC BORING
- HISTORIC SAMPLE

BROADBENT & ASSOCIATES, INC.
 ENGINEERING, WATER RESOURCES & ENVIRONMENTAL
 1324 Mangrove Ave, Suite 212, Chico, California
 Project No.: 06-08-602 Date: 5/19/09

Station #374
 6407 Telegraph Ave.
 Oakland, California

Site Layout Plan with
 Proposed Soil Boring Locations

Drawing
2



October 05, 2009

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

Subject: **Calscience Work Order No.: 09-09-1601**
Client Reference: **ARCO 374**

Dear Client:

Enclosed is an analytical report for the above-referenced project. The samples included in this report were received 9/22/2009 and analyzed in accordance with the attached chain-of-custody.

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

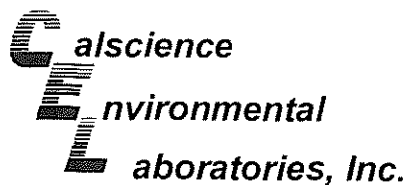
If you have any questions regarding this report, please do not hesitate to contact the undersigned.

Sincerely,

A handwritten signature in black ink, appearing to read "Richard Villafania".

Calscience Environmental
Laboratories, Inc.
Richard Villafania
Project Manager

A handwritten signature in black ink, appearing to read "Richard Villafania".



Analytical Report

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

Date Received: 09/22/09
Work Order No: 09-09-1601
Preparation: EPA 5030B
Method: EPA 8015B (M)

Project: ARCO 374

Page 1 of 1

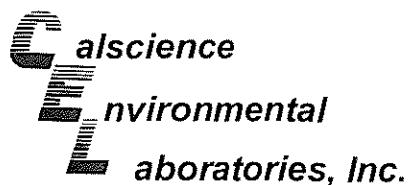
Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
B-15W	09-09-1601-10-F	09/21/09 12:45	Aqueous	GC 1	09/24/09	09/25/09 12:39	090924B02

<u>Parameter</u>	<u>Result</u>	<u>RL</u>	<u>DF</u>	<u>Qual</u>	<u>Units</u>
Gasoline Range Organics (C6-C12)	19000	500	10		ug/L
<u>Surrogates:</u>	<u>REC (%)</u>	<u>Control Limits</u>		<u>Qual</u>	
1,4-Bromofluorobenzene	100	38-134			

Method Blank	099-12-695-670	N/A	Aqueous	GC 1	09/24/09	09/25/09 09:27	090924B02
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<u>Parameter</u>	<u>Result</u>	<u>RL</u>	<u>DF</u>	<u>Qual</u>	<u>Units</u>
Gasoline Range Organics (C6-C12)	ND	50	1		ug/L
<u>Surrogates:</u>	<u>REC (%)</u>	<u>Control Limits</u>		<u>Qual</u>	
1,4-Bromofluorobenzene	74	38-134			

RL - Reporting Limit DF - Dilution Factor Qual - Qualifiers



Analytical Report

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

Date Received: 09/22/09
Work Order No: 09-09-1601
Preparation: EPA 5030B
Method: EPA 8015B (M)

Project: ARCO 374

Page 1 of 3

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
B-13 4.5'	09-09-1601-1-A	09/21/09 11:20	Solid	GC 1	09/22/09	09/24/09 01:42	090923B01

Parameter	Result	RL	DF	Qual	Units
Gasoline Range Organics (C6-C12)	1.7	0.50	1		mg/kg
<u>Surrogates:</u>	<u>REC (%)</u>	<u>Control Limits</u>		<u>Qual</u>	
1,4-Bromofluorobenzene	90	42-126			

B-13 6.5'	09-09-1601-2-A	09/21/09 11:30	Solid	GC 1	09/22/09	09/23/09 21:59	090923B02
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Parameter	Result	RL	DF	Qual	Units
Gasoline Range Organics (C6-C12)	67	10	20		mg/kg
<u>Surrogates:</u>	<u>REC (%)</u>	<u>Control Limits</u>		<u>Qual</u>	
1,4-Bromofluorobenzene	90	42-126			

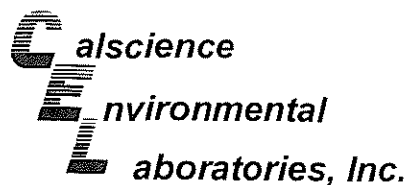
B-13 8.5'	09-09-1601-3-A	09/21/09 15:15	Solid	GC 1	09/22/09	09/23/09 22:30	090923B02
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Parameter	Result	RL	DF	Qual	Units
Gasoline Range Organics (C6-C12)	1800	100	200		mg/kg
<u>Surrogates:</u>	<u>REC (%)</u>	<u>Control Limits</u>		<u>Qual</u>	
1,4-Bromofluorobenzene	98	42-126			

B-14 4.5'	09-09-1601-4-A	09/21/09 09:40	Solid	GC 1	09/22/09	09/23/09 17:44	090923B01
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Parameter	Result	RL	DF	Qual	Units
Gasoline Range Organics (C6-C12)	ND	0.50	1		mg/kg
<u>Surrogates:</u>	<u>REC (%)</u>	<u>Control Limits</u>		<u>Qual</u>	
1,4-Bromofluorobenzene	84	42-126			

RL - Reporting Limit DF - Dilution Factor Qual - Qualifiers

**Analytical Report**

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

Date Received: 09/22/09
Work Order No: 09-09-1601
Preparation: EPA 5030B
Method: EPA 8015B (M)

Project: ARCO 374

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Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
B-14 6.5'	09-09-1601-5-A	09/21/09 09:50	Solid	GC 1	09/22/09	09/23/09 19:20	090923B01

Parameter	Result	RL	DF	Qual	Units
Gasoline Range Organics (C6-C12)	0.73	0.50	1		mg/kg
<u>Surrogates:</u>	<u>REC (%)</u>	<u>Control Limits</u>		<u>Qual</u>	
1,4-Bromofluorobenzene	88	42-126			

B-14 8.5'	09-09-1601-6-A	09/21/09 11:00	Solid	GC 1	09/22/09	09/23/09 23:02	090923B02
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Parameter	Result	RL	DF	Qual	Units
Gasoline Range Organics (C6-C12)	390	50	100		mg/kg
<u>Surrogates:</u>	<u>REC (%)</u>	<u>Control Limits</u>		<u>Qual</u>	
1,4-Bromofluorobenzene	89	42-126			

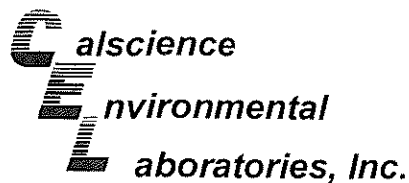
B-15 4.5'	09-09-1601-7-A	09/21/09 10:15	Solid	GC 1	09/22/09	09/23/09 23:34	090923B02
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Parameter	Result	RL	DF	Qual	Units
Gasoline Range Organics (C6-C12)	1400	20	40		mg/kg
<u>Surrogates:</u>	<u>REC (%)</u>	<u>Control Limits</u>		<u>Qual</u>	
1,4-Bromofluorobenzene	169	42-126		LH,AY	

B-15 6.5'	09-09-1601-8-A	09/21/09 10:25	Solid	GC 1	09/22/09	09/24/09 00:06	090923B02
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Parameter	Result	RL	DF	Qual	Units
Gasoline Range Organics (C6-C12)	170	20	40		mg/kg
<u>Surrogates:</u>	<u>REC (%)</u>	<u>Control Limits</u>		<u>Qual</u>	
1,4-Bromofluorobenzene	91	42-126			

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



Analytical Report

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

Date Received: 09/22/09
Work Order No: 09-09-1601
Preparation: EPA 5030B
Method: EPA 8015B (M)

Project: ARCO 374

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Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
B-15 8.5'	09-09-1601-9-A	09/21/09 12:10	Solid	GC 1	09/22/09	09/24/09 00:38	090923B02

Parameter	Result	RL	DF	Qual	Units
Gasoline Range Organics (C6-C12)	940	50	100		mg/kg
<u>Surrogates:</u>	<u>REC (%)</u>	<u>Control Limits</u>		<u>Qual</u>	
1,4-Bromofluorobenzene	91	42-126			

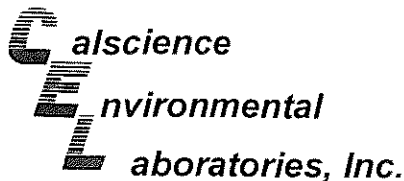
Method Blank	099-12-697-151	N/A	Solid	GC 1	09/22/09	09/23/09 15:36	090923B01
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Parameter	Result	RL	DF	Qual	Units
Gasoline Range Organics (C6-C12)	ND	0.50	1		mg/kg
<u>Surrogates:</u>	<u>REC (%)</u>	<u>Control Limits</u>		<u>Qual</u>	
1,4-Bromofluorobenzene	83	42-126			

Method Blank	099-12-697-152	N/A	Solid	GC 1	09/23/09	09/23/09 17:12	090923B02
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Parameter	Result	RL	DF	Qual	Units
Gasoline Range Organics (C6-C12)	ND	4.0	8		mg/kg
<u>Surrogates:</u>	<u>REC (%)</u>	<u>Control Limits</u>		<u>Qual</u>	
1,4-Bromofluorobenzene	84	42-126			

RL - Reporting Limit DF - Dilution Factor Qual - Qualifiers



Analytical Report

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

Date Received: 09/22/09
 Work Order No: 09-09-1601
 Preparation: EPA 5030B
 Method: EPA 8260B
 Units: ug/L

Project: ARCO 374

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Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
B-15W	09-09-1601-10-B	09/21/09 12:45	Aqueous	GC/MS BB	09/23/09	09/23/09 15:11	090923L01

Parameter	Result	RL	DF	Qual	Parameter	Result	RL	DF	Qual
Benzene	3700	100	200		Methyl-t-Butyl Ether (MTBE)	250	20	40	
1,2-Dibromoethane	ND	20	40		Tert-Butyl Alcohol (TBA)	ND	400	40	
1,2-Dichloroethane	ND	20	40		Diisopropyl Ether (DIPE)	ND	20	40	
Ethylbenzene	840	20	40		Ethyl-t-Butyl Ether (ETBE)	ND	20	40	
Toluene	54	20	40		Tert-Amyl-Methyl Ether (TAME)	ND	20	40	
Xylenes (total)	1600	20	40		Ethanol	ND	12000	40	
<u>Surrogates:</u>	<u>REC (%)</u>	<u>Control Limits</u>		<u>Qual</u>	<u>Surrogates:</u>	<u>REC (%)</u>	<u>Control Limits</u>		<u>Qual</u>
1,2-Dichloroethane-d4	98	80-128			Dibromofluoromethane	104	80-127		
Toluene-d8	98	80-120			1,4-Bromofluorobenzene	92	68-120		

Method Blank	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
	099-12-703-1,092	N/A	Aqueous	GC/MS BB	09/23/09	09/23/09 12:39	090923L01*

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	
<u>Surrogates:</u>	<u>REC (%)</u>	<u>Control Limits</u>		<u>Qual</u>	<u>Surrogates:</u>	<u>REC (%)</u>	<u>Control Limits</u>		<u>Qual</u>
1,2-Dichloroethane-d4	100	80-128			Dibromofluoromethane	105	80-127		
Toluene-d8	97	80-120			1,4-Bromofluorobenzene	89	68-120		

RL - Reporting Limit DF - Dilution Factor Qual - Qualifiers



Analytical Report

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

Date Received: 09/22/09
Work Order No: 09-09-1601
Preparation: EPA 5030B
Method: EPA 8260B
Units: mg/kg

Project: ARCO 374

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Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
B-13 4.5'	09-09-1601-1-A	09/21/09 11:20	Solid	GC/MS X	09/26/09	09/26/09 15:04	090926L01

Parameter	Result	RL	DF	Qual	Parameter	Result	RL	DF	Qual
Benzene	0.048	0.0010	1		Xylenes (total)	0.019	0.0010	1	
1,2-Dibromoethane	ND	0.0010	1		Methyl-t-Butyl Ether (MTBE)	0.024	0.0010	1	
1,2-Dichloroethane	ND	0.0010	1		Tert-Butyl Alcohol (TBA)	0.052	0.010	1	
Ethylbenzene	0.036	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	0.0017	0.0010	1		Tert-Amyl-Methyl Ether (TAME)	ND	0.0020	1	
<u>Surrogates:</u>	<u>REC (%)</u>	<u>Control Limits</u>		<u>Qual</u>	<u>Surrogates:</u>	<u>REC (%)</u>	<u>Control Limits</u>		<u>Qual</u>
Dibromofluoromethane	101	75-141			1,2-Dichloroethane-d4	106	73-151		
Toluene-d8	102	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
B-13 6.5'	09-09-1601-2-A	09/21/09 11:30	Solid	GC/MS X	09/26/09	09/26/09 16:03	090926L02

Parameter	Result	RL	DF	Qual	Parameter	Result	RL	DF	Qual
Benzene	0.38	0.10	100		Xylenes (total)	1.8	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	0.82	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	
<u>Surrogates:</u>	<u>REC (%)</u>	<u>Control Limits</u>		<u>Qual</u>	<u>Surrogates:</u>	<u>REC (%)</u>	<u>Control Limits</u>		<u>Qual</u>
Dibromofluoromethane	101	75-141			1,2-Dichloroethane-d4	102	73-151		
Toluene-d8	103	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
B-13 8.5'	09-09-1601-3-A	09/21/09 15:15	Solid	GC/MS U	09/24/09	09/25/09 09:13	090924L03

Parameter	Result	RL	DF	Qual	Parameter	Result	RL	DF	Qual
Benzene	8.2	1.0	1000		Xylenes (total)	190	1.0	1000	
1,2-Dibromoethane	ND	1.0	1000		Methyl-t-Butyl Ether (MTBE)	ND	1.0	1000	
1,2-Dichloroethane	ND	1.0	1000		Tert-Butyl Alcohol (TBA)	ND	10	1000	
Ethylbenzene	32	1.0	1000		Diisopropyl Ether (DIPE)	ND	2.0	1000	
Ethanol	ND	100	1000		Ethyl-t-Butyl Ether (ETBE)	ND	2.0	1000	
Toluene	71	1.0	1000		Tert-Amyl-Methyl Ether (TAME)	ND	2.0	1000	
<u>Surrogates:</u>	<u>REC (%)</u>	<u>Control Limits</u>		<u>Qual</u>	<u>Surrogates:</u>	<u>REC (%)</u>	<u>Control Limits</u>		<u>Qual</u>
Dibromofluoromethane	92	75-141			1,2-Dichloroethane-d4	97	73-151		
Toluene-d8	105	87-111			1,4-Bromofluorobenzene	101	71-113		

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

Analytical Report

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

Date Received: 09/22/09
Work Order No: 09-09-1601
Preparation: EPA 5030B
Method: EPA 8260B
Units: mg/kg

Project: ARCO 374

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Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
B-14 4.5'	09-09-1601-4-A	09/21/09 09:40	Solid	GC/MS U	09/24/09	09/25/09 09:46	090924L02

Parameter	Result	RL	DF	Qual	Parameter	Result	RL	DF	Qual
Benzene	0.0018	0.0010	1		Xylenes (total)	ND	0.0010	1	
1,2-Dibromoethane	ND	0.0010	1		Methyl-t-Butyl Ether (MTBE)	0.012	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	
<u>Surrogates:</u>	<u>REC (%)</u>	<u>Control Limits</u>		<u>Qual</u>	<u>Surrogates:</u>	<u>REC (%)</u>	<u>Control Limits</u>		<u>Qual</u>
Dibromofluoromethane	99	75-141			1,2-Dichloroethane-d4	106	73-151		
Toluene-d8	103	87-111			1,4-Bromofluorobenzene	92	71-113		

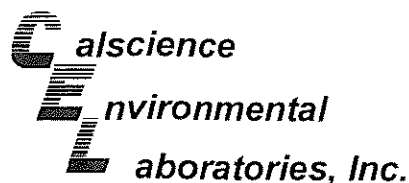
Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
B-14 6.5'	09-09-1601-5-A	09/21/09 09:50	Solid	GC/MS U	09/24/09	09/25/09 10:16	090924L02

Parameter	Result	RL	DF	Qual	Parameter	Result	RL	DF	Qual
Benzene	0.011	0.0010	1		Xylenes (total)	ND	0.0010	1	
1,2-Dibromoethane	ND	0.0010	1		Methyl-t-Butyl Ether (MTBE)	0.025	0.0010	1	
1,2-Dichloroethane	ND	0.0010	1		Tert-Butyl Alcohol (TBA)	0.031	0.010	1	
Ethylbenzene	0.0023	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	
<u>Surrogates:</u>	<u>REC (%)</u>	<u>Control Limits</u>		<u>Qual</u>	<u>Surrogates:</u>	<u>REC (%)</u>	<u>Control Limits</u>		<u>Qual</u>
Dibromofluoromethane	99	75-141			1,2-Dichloroethane-d4	107	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
B-14 8.5'	09-09-1601-6-A	09/21/09 11:00	Solid	GC/MS X	09/26/09	09/26/09 16:32	090926L02

Parameter	Result	RL	DF	Qual	Parameter	Result	RL	DF	Qual
Benzene	0.56	0.10	100		Xylenes (total)	0.70	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	6.3	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	
<u>Surrogates:</u>	<u>REC (%)</u>	<u>Control Limits</u>		<u>Qual</u>	<u>Surrogates:</u>	<u>REC (%)</u>	<u>Control Limits</u>		<u>Qual</u>
Dibromofluoromethane	96	75-141			1,2-Dichloroethane-d4	100	73-151		
Toluene-d8	103	87-111			1,4-Bromofluorobenzene	102	71-113		

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



Analytical Report

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

Date Received: 09/22/09
Work Order No: 09-09-1601
Preparation: EPA 5030B
Method: EPA 8260B
Units: mg/kg

Project: ARCO 374

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Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
B-15 4.5'	09-09-1601-7-A	09/21/09 10:15	Solid	GC/MS X	09/26/09	09/26/09 17:01	090926L02

Parameter	Result	RL	DF	Qual	Parameter	Result	RL	DF	Qual
Benzene	0.87	0.10	100		Xylenes (total)	3.0	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	4.3	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	
<u>Surrogates:</u>	<u>REC (%)</u>	<u>Control Limits</u>		<u>Qual</u>	<u>Surrogates:</u>	<u>REC (%)</u>	<u>Control Limits</u>		<u>Qual</u>
Dibromofluoromethane	102	75-141			1,2-Dichloroethane-d4	108	73-151		
Toluene-d8	97	87-111			1,4-Bromofluorobenzene	88	71-113		

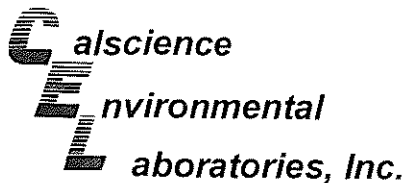
Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
B-15 6.5'	09-09-1601-8-A	09/21/09 10:25	Solid	GC/MS X	09/26/09	09/26/09 17:30	090926L02

Parameter	Result	RL	DF	Qual	Parameter	Result	RL	DF	Qual
Benzene	0.91	0.10	100		Xylenes (total)	7.5	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	2.8	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	
<u>Surrogates:</u>	<u>REC (%)</u>	<u>Control Limits</u>		<u>Qual</u>	<u>Surrogates:</u>	<u>REC (%)</u>	<u>Control Limits</u>		<u>Qual</u>
Dibromofluoromethane	97	75-141			1,2-Dichloroethane-d4	96	73-151		
Toluene-d8	99	87-111			1,4-Bromofluorobenzene	99	71-113		

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
B-15 8.5'	09-09-1601-9-A	09/21/09 12:10	Solid	GC/MS U	09/24/09	09/25/09 12:20	090924L03

Parameter	Result	RL	DF	Qual	Parameter	Result	RL	DF	Qual
Benzene	2.2	1.0	1000		Xylenes (total)	52	1.0	1000	
1,2-Dibromoethane	ND	1.0	1000		Methyl-t-Butyl Ether (MTBE)	ND	1.0	1000	
1,2-Dichloroethane	ND	1.0	1000		Tert-Butyl Alcohol (TBA)	ND	10	1000	
Ethylbenzene	13	1.0	1000		Diisopropyl Ether (DIPE)	ND	2.0	1000	
Ethanol	ND	100	1000		Ethyl-t-Butyl Ether (ETBE)	ND	2.0	1000	
Toluene	ND	1.0	1000		Tert-Amyl-Methyl Ether (TAME)	ND	2.0	1000	
<u>Surrogates:</u>	<u>REC (%)</u>	<u>Control Limits</u>		<u>Qual</u>	<u>Surrogates:</u>	<u>REC (%)</u>	<u>Control Limits</u>		<u>Qual</u>
Dibromofluoromethane	96	75-141			1,2-Dichloroethane-d4	98	73-151		
Toluene-d8	103	87-111			1,4-Bromofluorobenzene	99	71-113		

RL - Reporting Limit DF - Dilution Factor Qual - Qualifiers



Analytical Report

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

Date Received: 09/22/09
Work Order No: 09-09-1601
Preparation: EPA 5030B
Method: EPA 8260B
Units: mg/kg

Project: ARCO 374

Page 4 of 5

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
Method Blank	099-12-709-211	N/A	Solid	GC/MS U	09/24/09	09/25/09 05:39	090924L02

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	
<u>Surrogates:</u>	<u>REC (%)</u>	<u>Control Limits</u>		<u>Qual</u>	<u>Surrogates:</u>	<u>REC (%)</u>	<u>Control Limits</u>		<u>Qual</u>
Dibromofluoromethane	106	75-141			1,2-Dichloroethane-d4	110	73-151		
Toluene-d8	99	87-111			1,4-Bromofluorobenzene	91	71-113		

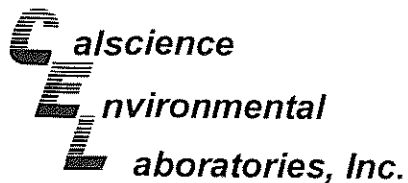
Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
Method Blank	099-12-709-212	N/A	Solid	GC/MS U	09/24/09	09/25/09 05:09	090924L03

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	
<u>Surrogates:</u>	<u>REC (%)</u>	<u>Control Limits</u>		<u>Qual</u>	<u>Surrogates:</u>	<u>REC (%)</u>	<u>Control Limits</u>		<u>Qual</u>
Dibromofluoromethane	105	75-141			1,2-Dichloroethane-d4	107	73-151		
Toluene-d8	100	87-111			1,4-Bromofluorobenzene	90	71-113		

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
Method Blank	099-12-709-214	N/A	Solid	GC/MS X	09/26/09	09/26/09 12:10	090926L01

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	
<u>Surrogates:</u>	<u>REC (%)</u>	<u>Control Limits</u>		<u>Qual</u>	<u>Surrogates:</u>	<u>REC (%)</u>	<u>Control Limits</u>		<u>Qual</u>
Dibromofluoromethane	100	75-141			1,2-Dichloroethane-d4	102	73-151		
Toluene-d8	101	87-111			1,4-Bromofluorobenzene	90	71-113		

RL - Reporting Limit DF - Dilution Factor Qual - Qualifiers

**Analytical Report**

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

Date Received: 09/22/09
Work Order No: 09-09-1601
Preparation: EPA 5030B
Method: EPA 8260B
Units: mg/kg

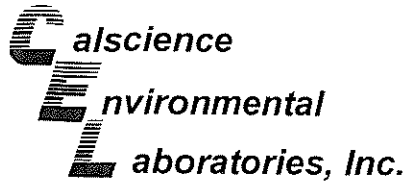
Project: ARCO 374

Page 5 of 5

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
Method Blank	099-12-709-215	N/A	Solid	GC/MS X	09/26/09	09/26/09 11:41	090926L02

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	
<u>Surrogates:</u>	<u>REC (%)</u>	<u>Control Limits</u>		<u>Qual</u>	<u>Surrogates:</u>	<u>REC (%)</u>	<u>Control Limits</u>		<u>Qual</u>
Dibromofluoromethane	102	75-141			1,2-Dichloroethane-d4	103	73-151		
Toluene-d8	100	87-111			1,4-Bromofluorobenzene	89	71-113		

RL - Reporting Limit DF - Dilution Factor Qual - Qualifiers



Quality Control - Spike/Spike Duplicate

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

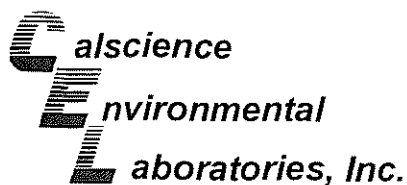
Date Received: 09/22/09
 Work Order No: 09-09-1601
 Preparation: EPA 5030B
 Method: EPA 8015B (M)

Project ARCO 374

Quality Control Sample ID	Matrix	Instrument	Date Prepared	Date Analyzed	MS/MSD Batch Number
09-09-1803-19	Aqueous	GC 1	09/24/09	09/25/09	090924S02

<u>Parameter</u>	<u>MS %REC</u>	<u>MSD %REC</u>	<u>%REC CL</u>	<u>RPD</u>	<u>RPD CL</u>	<u>Qualifiers</u>
Gasoline Range Organics (C6-C12)	98	98	38-134	0	0-25	

RPD - Relative Percent Difference, CL - Control Limit



Quality Control - Spike/Spike Duplicate

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

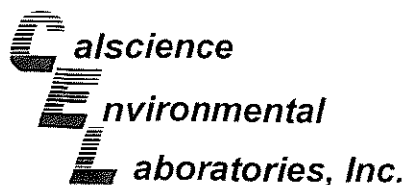
Date Received: 09/22/09
Work Order No: 09-09-1601
Preparation: EPA 5030B
Method: EPA 8015B (M)

Project ARCO 374

Quality Control Sample ID	Matrix	Instrument	Date Prepared	Date Analyzed	MS/MSD Batch Number
B-14 4.5'	Solid	GC 1	09/22/09	09/23/09	090923S01

<u>Parameter</u>	<u>MS %REC</u>	<u>MSD %REC</u>	<u>%REC CL</u>	<u>RPD</u>	<u>RPD CL</u>	<u>Qualifiers</u>
Gasoline Range Organics (C6-C12)	101	101	42-126	0	0-25	

RPD - Relative Percent Difference, CL - Control Limit



Quality Control - Spike/Spike Duplicate

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

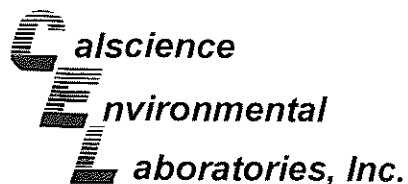
Date Received: 09/22/09
Work Order No: 09-09-1601
Preparation: EPA 5030B
Method: EPA 8260B

Project ARCO 374

Quality Control Sample ID	Matrix	Instrument	Date Prepared	Date Analyzed	MS/MSD Batch Number
09-09-1715-5	Aqueous	GC/MS BB	09/23/09	09/23/09	090923S01

<u>Parameter</u>	<u>MS %REC</u>	<u>MSD %REC</u>	<u>%REC CL</u>	<u>RPD</u>	<u>RPD CL</u>	<u>Qualifiers</u>
Benzene	97	100	76-124	4	0-20	
Carbon Tetrachloride	99	104	74-134	5	0-20	
Chlorobenzene	98	101	80-120	3	0-20	
1,2-Dibromoethane	91	98	80-120	7	0-20	
1,2-Dichlorobenzene	94	96	80-120	2	0-20	
1,1-Dichloroethene	92	98	73-127	6	0-20	
Ethylbenzene	93	95	78-126	2	0-20	
Toluene	95	97	80-120	2	0-20	
Trichloroethene	92	94	77-120	2	0-20	
Vinyl Chloride	85	91	72-126	6	0-20	
Methyl-t-Butyl Ether (MTBE)	81	90	67-121	10	0-49	
Tert-Butyl Alcohol (TBA)	97	98	36-162	1	0-30	
Diisopropyl Ether (DIPE)	89	96	60-138	7	0-45	
Ethyl-t-Butyl Ether (ETBE)	85	92	69-123	8	0-30	
Tert-Amyl-Methyl Ether (TAME)	85	92	65-120	8	0-20	
Ethanol	105	110	30-180	5	0-72	

RPD - Relative Percent Difference, CL - Control Limit



Quality Control - Spike/Spike Duplicate

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

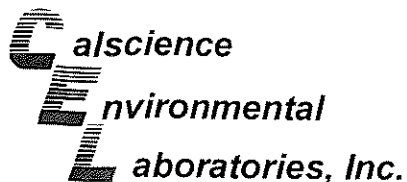
Date Received: 09/22/09
Work Order No: 09-09-1601
Preparation: EPA 5030B
Method: EPA 8260B

Project ARCO 374

Quality Control Sample ID	Matrix	Instrument	Date Prepared	Date Analyzed	MS/MSD Batch Number
09-09-1524-9	Solid	GC/MS U	09/24/09	09/24/09	090924S01

Parameter	MS %REC	MSD %REC	%REC CL	RPD	RPD CL	Qualifiers
Benzene	91	89	78-114	2	0-14	
Chloroform	95	92	80-120	3	0-20	
1,1-Dichloroethane	103	100	80-120	3	0-20	
1,2-Dichloroethane	90	88	80-120	3	0-20	
1,1-Dichloroethene	92	90	73-127	3	0-21	
Ethanol	91	90	45-135	1	0-29	
Tetrachloroethene	68	71	80-120	4	0-20	
Toluene	88	86	74-116	2	0-16	
Trichloroethene	83	82	74-122	0	0-17	
Methyl-t-Butyl Ether (MTBE)	106	103	69-123	2	0-18	

RPD - Relative Percent Difference, CL - Control Limit



Quality Control - Spike/Spike Duplicate

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

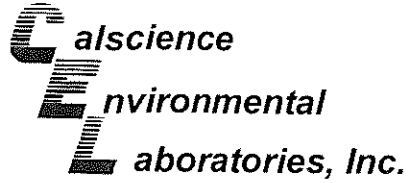
Date Received: 09/22/09
Work Order No: 09-09-1601
Preparation: EPA 5030B
Method: EPA 8260B

Project ARCO 374

Quality Control Sample ID	Matrix	Instrument	Date Prepared	Date Analyzed	MS/MSD Batch Number
09-09-1709-1	Solid	GC/MS X	09/26/09	09/26/09	090926S01

<u>Parameter</u>	<u>MS %REC</u>	<u>MSD %REC</u>	<u>%REC CL</u>	<u>RPD</u>	<u>RPD CL</u>	<u>Qualifiers</u>
Benzene	82	83	78-114	1	0-14	
Chloroform	89	89	80-120	0	0-20	
1,1-Dichloroethane	88	87	80-120	1	0-20	
1,2-Dichloroethane	88	88	80-120	1	0-20	
1,1-Dichloroethene	92	91	73-127	1	0-21	
Ethanol	98	82	45-135	18	0-29	
Tetrachloroethene	104	98	80-120	6	0-20	
Toluene	84	82	74-116	2	0-16	
Trichloroethene	105	101	74-122	4	0-17	
Methyl-t-Butyl Ether (MTBE)	69	72	69-123	3	0-18	

RPD - Relative Percent Difference . CL - Control Limit



Quality Control - LCS/LCS Duplicate

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

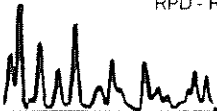
Date Received: N/A
 Work Order No: 09-09-1601
 Preparation: EPA 5030B
 Method: EPA 8015B (M)

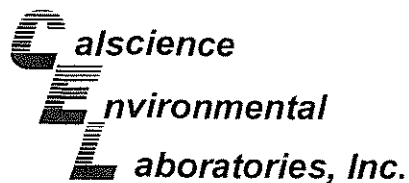
Project: ARCO 374

Quality Control Sample ID	Matrix	Instrument	Date Prepared	Date Analyzed	LCS/LCSD Batch Number
099-12-695-670	Aqueous	GC 1	09/24/09	09/25/09	090924B02

Parameter	LCS %REC	LCSD %REC	%REC CL	RPD	RPD CL	Qualifiers
Gasoline Range Organics (C6-C12)	99	102	78-120	3	0-20	

RPD - Relative Percent Difference . CL - Control Limit





Quality Control - LCS/LCS Duplicate

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

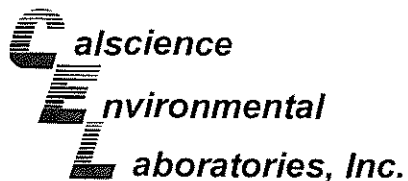
Date Received: N/A
Work Order No: 09-09-1601
Preparation: EPA 5030B
Method: EPA 8015B (M)

Project: ARCO 374

Quality Control Sample ID	Matrix	Instrument	Date Prepared	Date Analyzed	LCS/LCSD Batch Number
099-12-697-152	Solid	GC 1	09/23/09	09/23/09	090923B02

<u>Parameter</u>	<u>LCS %REC</u>	<u>LCSD %REC</u>	<u>%REC CL</u>	<u>RPD</u>	<u>RPD CL</u>	<u>Qualifiers</u>
Gasoline Range Organics (C6-C12)	103	104	70-118	1	0-20	

RPD - Relative Percent Difference, CL - Control Limit



Quality Control - LCS/LCS Duplicate

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

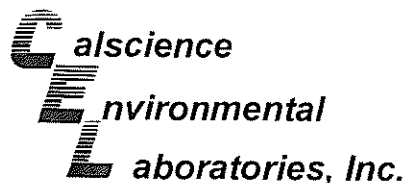
Date Received: N/A
 Work Order No: 09-09-1601
 Preparation: EPA 5030B
 Method: EPA 8015B (M)

Project: ARCO 374

Quality Control Sample ID	Matrix	Instrument	Date Prepared	Date Analyzed	LCS/LCSD Batch Number
099-12-697-151	Solid	GC 1	09/22/09	09/23/09	090923B01

Parameter	LCS %REC	LCSD %REC	%REC CL	RPD	RPD CL	Qualifiers
Gasoline Range Organics (C6-C12)	103	104	70-118	1	0-20	

RPD - Relative Percent Difference, CL - Control Limit



Quality Control - LCS/LCS Duplicate

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

Date Received: N/A
Work Order No: 09-09-1601
Preparation: EPA 5030B
Method: EPA 8260B

Project: ARCO 374

Quality Control Sample ID	Matrix	Instrument	Date Prepared	Date Analyzed	LCS/LCSD Batch Number		
099-12-703-1,092	Aqueous	GC/MS BB	09/23/09	09/23/09	090923L01		
Parameter	LCS %REC	LCSD %REC	%REC CL	ME CL	RPD	RPD CL	Qualifiers
Benzene	103	97	80-120	73-127	7	0-20	
Carbon Tetrachloride	100	93	74-134	64-144	7	0-20	
Chlorobenzene	104	102	80-120	73-127	3	0-20	
1,2-Dibromoethane	97	93	79-121	72-128	4	0-20	
1,2-Dichlorobenzene	100	96	80-120	73-127	4	0-20	
1,1-Dichloroethene	102	95	78-126	70-134	7	0-28	
Ethylbenzene	101	96	80-120	73-127	4	0-20	
Toluene	101	94	80-120	73-127	6	0-20	
Trichloroethene	99	94	79-127	71-135	5	0-20	
Vinyl Chloride	88	82	72-132	62-142	7	0-20	
Methyl-t-Butyl Ether (MTBE)	91	86	69-123	60-132	5	0-20	
Tert-Butyl Alcohol (TBA)	96	100	63-123	53-133	4	0-20	
Diisopropyl Ether (DIPE)	100	91	59-137	46-150	9	0-37	
Ethyl-t-Butyl Ether (ETBE)	95	88	69-123	60-132	8	0-20	
Tert-Amyl-Methyl Ether (TAME)	92	88	70-120	62-128	4	0-20	
Ethanol	103	121	28-160	6-182	16	0-57	

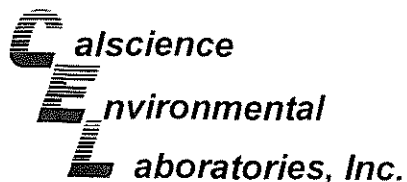
Total number of LCS compounds : 16

Total number of ME compounds : 0

Total number of ME compounds allowed : 1

LCS ME CL validation result : Pass

RPD - Relative Percent Difference . CL - Control Limit



Quality Control - LCS/LCS Duplicate

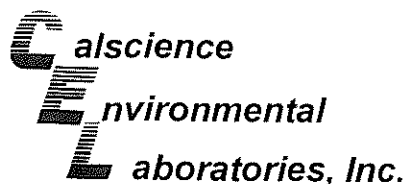
Stratus Environmental, inc.
3330 Cameron Park Drive, Suite 550
Cameron Park, CA 95682-8861

Date Received: N/A
Work Order No: 09-09-1601
Preparation: EPA 5030B
Method: EPA 8260B

Project: ARCO 374

Quality Control Sample ID	Matrix	Instrument	Date Prepared	Date Analyzed	LCS/LCSD Batch Number		
099-12-709-211	Solid	GC/MS U	09/24/09	09/25/09	090924L02		
Parameter	LCS %REC	LCSD %REC	%REC CL	ME CL	RPD	RPD CL	Qualifiers
Benzene	102	102	84-114	79-119	0	0-7	
Bromobenzene	97	98	80-120	73-127	1	0-20	
Bromochloromethane	103	102	80-120	73-127	1	0-20	
Bromodichloromethane	98	97	80-120	73-127	2	0-20	
Bromoform	92	90	80-120	73-127	3	0-20	
Bromomethane	101	99	80-120	73-127	2	0-20	
n-Butylbenzene	100	102	77-123	69-131	2	0-25	
sec-Butylbenzene	108	109	80-120	73-127	0	0-20	
tert-Butylbenzene	97	97	80-120	73-127	0	0-20	
Carbon Disulfide	96	95	80-120	73-127	1	0-20	
Carbon Tetrachloride	100	101	69-135	58-146	1	0-13	
Chlorobenzene	97	98	85-109	81-113	1	0-8	
Chloroethane	94	94	80-120	73-127	0	0-20	
Chloroform	102	102	80-120	73-127	0	0-20	
Chloromethane	92	92	80-120	73-127	0	0-20	
2-Chlorotoluene	102	103	80-120	73-127	0	0-20	
4-Chlorotoluene	101	102	80-120	73-127	1	0-20	
Dibromochloromethane	96	94	80-120	73-127	2	0-20	
1,2-Dibromo-3-Chloropropane	90	88	80-120	73-127	2	0-20	
1,2-Dibromoethane	97	96	80-120	73-127	0	0-20	
Dibromomethane	97	97	80-120	73-127	0	0-20	
1,2-Dichlorobenzene	97	98	80-110	75-115	1	0-10	
1,3-Dichlorobenzene	95	96	80-120	73-127	1	0-20	
1,4-Dichlorobenzene	90	91	80-120	73-127	1	0-20	
Dichlorodifluoromethane	99	99	80-120	73-127	0	0-20	
1,1-Dichloroethane	92	92	80-120	73-127	1	0-20	
1,2-Dichloroethane	96	96	80-120	73-127	1	0-20	
1,1-Dichloroethene	98	98	83-125	76-132	0	0-10	
c-1,2-Dichloroethene	101	100	80-120	73-127	1	0-20	
t-1,2-Dichloroethene	115	115	80-120	73-127	0	0-20	
1,2-Dichloropropane	104	102	79-115	73-121	2	0-25	
1,3-Dichloropropane	99	100	80-120	73-127	0	0-20	
2,2-Dichloropropane	92	92	80-120	73-127	0	0-20	
1,1-Dichloropropene	102	101	80-120	73-127	1	0-20	
c-1,3-Dichloropropene	100	99	80-120	73-127	1	0-20	
t-1,3-Dichloropropene	95	96	80-120	73-127	1	0-20	
Ethylbenzene	108	109	80-120	73-127	1	0-20	
Isopropylbenzene	108	110	80-120	73-127	1	0-20	

RPD - Relative Percent Difference, CL - Control Limit



Quality Control - LCS/LCS Duplicate

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

Date Received: N/A
Work Order No: 09-09-1601
Preparation: EPA 5030B
Method: EPA 8260B

Project: ARCO 374

Quality Control Sample ID	Matrix	Instrument	Date Prepared	Date Analyzed	LCS/LCSD Batch Number		
099-12-709-211	Solid	GC/MS U	09/24/09	09/25/09	090924L02		
Parameter	LCS %REC	LCSD %REC	%REC CL	ME CL	RPD	RPD CL	Qualifiers
p-Isopropyltoluene	104	105	80-120	73-127	1	0-20	
Methylene Chloride	95	94	80-120	73-127	0	0-20	
Naphthalene	83	80	80-120	73-127	4	0-20	
n-Propylbenzene	105	107	80-120	73-127	2	0-20	
Styrene	107	107	80-120	73-127	1	0-20	
Ethanol	101	104	50-134	36-148	3	0-23	
1,1,1,2-Tetrachloroethane	100	100	80-120	73-127	0	0-20	
1,1,2,2-Tetrachloroethane	79	79	80-120	73-127	0	0-20	
Tetrachloroethene	121	122	80-120	73-127	0	0-20	
Toluene	101	101	79-115	73-121	0	0-8	
1,2,3-Trichlorobenzene	86	85	80-120	73-127	0	0-20	
1,2,4-Trichlorobenzene	80	82	80-120	73-127	1	0-20	
1,1,1-Trichloroethane	98	99	80-120	73-127	0	0-20	
1,1,2-Trichloroethane	98	98	80-120	73-127	0	0-20	
Trichloroethene	111	111	87-111	83-115	1	0-7	
Trichlorofluoromethane	98	97	80-120	73-127	1	0-20	
1,2,3-Trichloropropane	94	92	80-120	73-127	3	0-20	
1,2,4-Trimethylbenzene	104	105	80-120	73-127	1	0-20	
1,3,5-Trimethylbenzene	106	108	80-120	73-127	2	0-20	
Vinyl Acetate	29	30	80-120	73-127	6	0-20	
Vinyl Chloride	99	98	72-126	63-135	1	0-10	
p/m-Xylene	110	111	80-120	73-127	1	0-20	
o-Xylene	111	113	80-120	73-127	1	0-20	
Methyl-t-Butyl Ether (MTBE)	105	104	75-129	66-138	1	0-13	
Tert-Butyl Alcohol (TBA)	103	106	66-126	56-136	3	0-24	
Diisopropyl Ether (DIPE)	99	100	77-125	69-133	0	0-13	
Ethyl-t-Butyl Ether (ETBE)	98	99	72-132	62-142	1	0-12	
Tert-Amyl-Methyl Ether (TAME)	97	96	77-125	69-133	1	0-10	

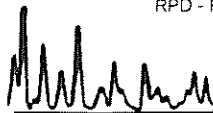
Total number of LCS compounds : 66

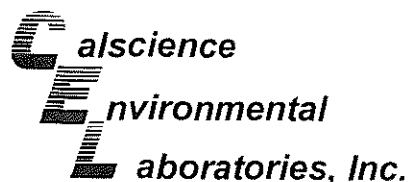
Total number of ME compounds : 2

Total number of ME compounds allowed : 3

LCS ME CL validation result : Pass

RPD - Relative Percent Difference, CL - Control Limit





Quality Control - LCS/LCS Duplicate

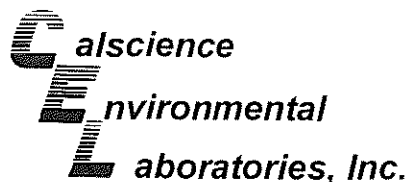
Stratus Environmental, inc.
3330 Cameron Park Drive, Suite 550
Cameron Park, CA 95682-8861

Date Received: N/A
Work Order No: 09-09-1601
Preparation: EPA 5030B
Method: EPA 8260B

Project: ARCO 374

Quality Control Sample ID	Matrix	Instrument	Date Prepared	Date Analyzed	LCS/LCSD Batch Number		
099-12-709-212	Solid	GC/MS U	09/24/09	09/25/09	090924L03		
Parameter	LCS %REC	LCSD %REC	%REC CL	ME CL	RPD	RPD CL	Qualifiers
Benzene	102	102	84-114	79-119	0	0-7	
Bromobenzene	97	98	80-120	73-127	1	0-20	
Bromochloromethane	103	102	80-120	73-127	1	0-20	
Bromodichloromethane	98	97	80-120	73-127	2	0-20	
Bromoform	92	90	80-120	73-127	3	0-20	
Bromomethane	101	99	80-120	73-127	2	0-20	
n-Butylbenzene	100	102	77-123	69-131	2	0-25	
sec-Butylbenzene	108	109	80-120	73-127	0	0-20	
tert-Butylbenzene	97	97	80-120	73-127	0	0-20	
Carbon Disulfide	96	95	80-120	73-127	1	0-20	
Carbon Tetrachloride	100	101	69-135	58-146	1	0-13	
Chlorobenzene	97	98	85-109	81-113	1	0-8	
Chloroethane	94	94	80-120	73-127	0	0-20	
Chloroform	102	102	80-120	73-127	0	0-20	
Chloromethane	92	92	80-120	73-127	0	0-20	
2-Chlorotoluene	102	103	80-120	73-127	0	0-20	
4-Chlorotoluene	101	102	80-120	73-127	1	0-20	
Dibromochloromethane	96	94	80-120	73-127	2	0-20	
1,2-Dibromo-3-Chloropropane	90	88	80-120	73-127	2	0-20	
1,2-Dibromoethane	97	96	80-120	73-127	0	0-20	
Dibromomethane	97	97	80-120	73-127	0	0-20	
1,2-Dichlorobenzene	97	98	80-110	75-115	1	0-10	
1,3-Dichlorobenzene	95	96	80-120	73-127	1	0-20	
1,4-Dichlorobenzene	90	91	80-120	73-127	1	0-20	
Dichlorodifluoromethane	99	99	80-120	73-127	0	0-20	
1,1-Dichloroethane	92	92	80-120	73-127	1	0-20	
1,2-Dichloroethane	96	96	80-120	73-127	1	0-20	
1,1-Dichloroethene	98	98	83-125	76-132	0	0-10	
c-1,2-Dichloroethene	101	100	80-120	73-127	1	0-20	
t-1,2-Dichloroethene	115	115	80-120	73-127	0	0-20	
1,2-Dichloropropane	104	102	79-115	73-121	2	0-25	
1,3-Dichloropropane	99	100	80-120	73-127	0	0-20	
2,2-Dichloropropane	92	92	80-120	73-127	0	0-20	
1,1-Dichloropropene	102	101	80-120	73-127	1	0-20	
c-1,3-Dichloropropene	100	99	80-120	73-127	1	0-20	
t-1,3-Dichloropropene	95	96	80-120	73-127	1	0-20	
Ethylbenzene	108	109	80-120	73-127	1	0-20	
Isopropylbenzene	108	110	80-120	73-127	1	0-20	

RPD - Relative Percent Difference, CL - Control Limit



Quality Control - LCS/LCS Duplicate

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

Date Received: N/A
Work Order No: 09-09-1601
Preparation: EPA 5030B
Method: EPA 8260B

Project: ARCO 374

Quality Control Sample ID	Matrix	Instrument	Date Prepared	Date Analyzed	LCS/LCSD Batch Number		
099-12-709-212	Solid	GC/MS U	09/24/09	09/25/09	090924L03		
Parameter	LCS %REC	LCSD %REC	%REC CL	ME CL	RPD	RPD CL	Qualifiers
p-Isopropyltoluene	104	105	80-120	73-127	1	0-20	
Methylene Chloride	95	94	80-120	73-127	0	0-20	
Naphthalene	83	80	80-120	73-127	4	0-20	
n-Propylbenzene	105	107	80-120	73-127	2	0-20	
Styrene	107	107	80-120	73-127	1	0-20	
Ethanol	101	104	50-134	36-148	3	0-23	
1,1,1,2-Tetrachloroethane	100	100	80-120	73-127	0	0-20	
1,1,2,2-Tetrachloroethane	79	79	80-120	73-127	0	0-20	
Tetrachloroethene	121	122	80-120	73-127	0	0-20	
Toluene	101	101	79-115	73-121	0	0-8	
1,2,3-Trichlorobenzene	86	85	80-120	73-127	0	0-20	
1,2,4-Trichlorobenzene	80	82	80-120	73-127	1	0-20	
1,1,1-Trichloroethane	98	99	80-120	73-127	0	0-20	
1,1,2-Trichloroethane	98	98	80-120	73-127	0	0-20	
Trichloroethene	111	111	87-111	83-115	1	0-7	
Trichlorofluoromethane	98	97	80-120	73-127	1	0-20	
1,2,3-Trichloropropane	94	92	80-120	73-127	3	0-20	
1,2,4-Trimethylbenzene	104	105	80-120	73-127	1	0-20	
1,3,5-Trimethylbenzene	106	108	80-120	73-127	2	0-20	
Vinyl Acetate	29	30	80-120	73-127	6	0-20	
Vinyl Chloride	99	98	72-126	63-135	1	0-10	
p/m-Xylene	110	111	80-120	73-127	1	0-20	
o-Xylene	111	113	80-120	73-127	1	0-20	
Methyl-t-Butyl Ether (MTBE)	105	104	75-129	66-138	1	0-13	
Tert-Butyl Alcohol (TBA)	103	106	66-126	56-136	3	0-24	
Diisopropyl Ether (DIPE)	99	100	77-125	69-133	0	0-13	
Ethyl-t-Butyl Ether (ETBE)	98	99	72-132	62-142	1	0-12	
Tert-Amyl-Methyl Ether (TAME)	97	96	77-125	69-133	1	0-10	

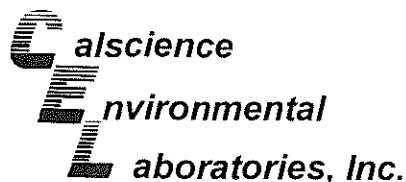
Total number of LCS compounds : 66

Total number of ME compounds : 2

Total number of ME compounds allowed : 3

LCS ME CL validation result : Pass

RPD - Relative Percent Difference, CL - Control Limit



Quality Control - LCS/LCS Duplicate

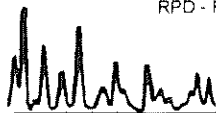
Stratus Environmental, inc.
3330 Cameron Park Drive, Suite 550
Cameron Park, CA 95682-8861

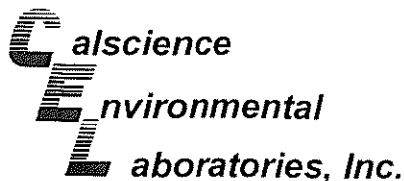
Date Received: N/A
Work Order No: 09-09-1601
Preparation: EPA 5030B
Method: EPA 8260B

Project: ARCO 374

Quality Control Sample ID	Matrix	Instrument	Date Prepared	Date Analyzed	LCS/LCSD Batch Number		
099-12-709-214	Solid	GC/MS X	09/26/09	09/26/09	090926L01		
Parameter	LCS %REC	LCSD %REC	%REC CL	ME CL	RPD	RPD CL	Qualifiers
Benzene	97	97	84-114	79-119	1	0-7	
Bromobenzene	100	100	80-120	73-127	1	0-20	
Bromochloromethane	107	107	80-120	73-127	0	0-20	
Bromodichloromethane	104	106	80-120	73-127	1	0-20	
Bromoform	106	103	80-120	73-127	2	0-20	
Bromomethane	94	92	80-120	73-127	3	0-20	
n-Butylbenzene	93	93	77-123	69-131	0	0-25	
sec-Butylbenzene	92	93	80-120	73-127	1	0-20	
tert-Butylbenzene	96	94	80-120	73-127	2	0-20	
Carbon Disulfide	101	101	80-120	73-127	0	0-20	
Carbon Tetrachloride	100	100	69-135	58-146	1	0-13	
Chlorobenzene	99	98	85-109	81-113	1	0-8	
Chloroethane	109	109	80-120	73-127	1	0-20	
Chloroform	104	103	80-120	73-127	1	0-20	
Chloromethane	72	73	80-120	73-127	1	0-20	
2-Chlorotoluene	95	94	80-120	73-127	1	0-20	
4-Chlorotoluene	92	92	80-120	73-127	0	0-20	
Dibromochloromethane	101	100	80-120	73-127	0	0-20	
1,2-Dibromo-3-Chloropropane	88	88	80-120	73-127	0	0-20	
1,2-Dibromoethane	98	99	80-120	73-127	1	0-20	
Dibromomethane	108	107	80-120	73-127	1	0-20	
1,2-Dichlorobenzene	95	95	80-110	75-115	0	0-10	
1,3-Dichlorobenzene	93	92	80-120	73-127	1	0-20	
1,4-Dichlorobenzene	91	90	80-120	73-127	1	0-20	
Dichlorodifluoromethane	106	109	80-120	73-127	3	0-20	
1,1-Dichloroethane	100	100	80-120	73-127	1	0-20	
1,2-Dichloroethane	104	104	80-120	73-127	0	0-20	
1,1-Dichloroethene	100	99	83-125	76-132	1	0-10	
c-1,2-Dichloroethene	100	100	80-120	73-127	1	0-20	
t-1,2-Dichloroethene	101	101	80-120	73-127	0	0-20	
1,2-Dichloropropane	104	103	79-115	73-121	2	0-25	
1,3-Dichloropropane	98	97	80-120	73-127	1	0-20	
2,2-Dichloropropane	94	93	80-120	73-127	1	0-20	
1,1-Dichloropropene	97	97	80-120	73-127	0	0-20	
c-1,3-Dichloropropene	105	106	80-120	73-127	0	0-20	
t-1,3-Dichloropropene	99	98	80-120	73-127	1	0-20	
Ethylbenzene	95	94	80-120	73-127	1	0-20	
Isopropylbenzene	96	95	80-120	73-127	1	0-20	

RPD - Relative Percent Difference, CL - Control Limit





Quality Control - LCS/LCS Duplicate

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

Date Received: N/A
Work Order No: 09-09-1601
Preparation: EPA 5030B
Method: EPA 8260B

Project: ARCO 374

Quality Control Sample ID	Matrix	Instrument	Date Prepared	Date Analyzed	LCS/LCSD Batch Number		
099-12-709-214	Solid	GC/MS X	09/26/09	09/26/09	090926L01		
Parameter	LCS %REC	LCSD %REC	%REC CL	ME CL	RPD	RPD CL	Qualifiers
p-Isopropyltoluene	93	93	80-120	73-127	0	0-20	
Methylene Chloride	108	110	80-120	73-127	1	0-20	
Naphthalene	85	83	80-120	73-127	3	0-20	
n-Propylbenzene	97	95	80-120	73-127	2	0-20	
Styrene	104	103	80-120	73-127	1	0-20	
Ethanol	111	107	50-134	36-148	4	0-23	
1,1,1,2-Tetrachloroethane	103	104	80-120	73-127	1	0-20	
1,1,2,2-Tetrachloroethane	101	98	80-120	73-127	2	0-20	
Tetrachloroethene	81	85	80-120	73-127	4	0-20	
Toluene	97	96	79-115	73-121	1	0-8	
1,2,3-Trichlorobenzene	87	85	80-120	73-127	2	0-20	
1,2,4-Trichlorobenzene	85	84	80-120	73-127	1	0-20	
1,1,1-Trichloroethane	97	96	80-120	73-127	1	0-20	
1,1,2-Trichloroethane	102	102	80-120	73-127	0	0-20	
Trichloroethene	95	95	87-111	83-115	0	0-7	
Trichlorofluoromethane	101	102	80-120	73-127	1	0-20	
1,2,3-Trichloropropane	99	101	80-120	73-127	2	0-20	
1,2,4-Trimethylbenzene	94	93	80-120	73-127	1	0-20	
1,3,5-Trimethylbenzene	101	100	80-120	73-127	0	0-20	
Vinyl Acetate	111	108	80-120	73-127	2	0-20	
Vinyl Chloride	103	106	72-126	63-135	3	0-10	
p/m-Xylene	98	98	80-120	73-127	1	0-20	
o-Xylene	97	96	80-120	73-127	1	0-20	
Methyl-t-Butyl Ether (MTBE)	86	87	75-129	66-138	0	0-13	
Tert-Butyl Alcohol (TBA)	94	92	66-126	56-136	2	0-24	
Diisopropyl Ether (DIPE)	94	95	77-125	69-133	1	0-13	
Ethyl-t-Butyl Ether (ETBE)	83	83	72-132	62-142	0	0-12	
Tert-Amyl-Methyl Ether (TAME)	84	85	77-125	69-133	1	0-10	

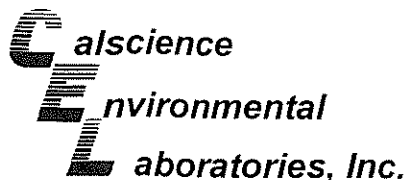
Total number of LCS compounds : 66

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



Quality Control - LCS/LCS Duplicate

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

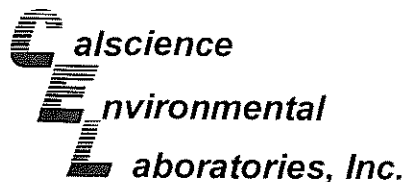
Date Received: N/A
Work Order No: 09-09-1601
Preparation: EPA 5030B
Method: EPA 8260B

Project: ARCO 374

Quality Control Sample ID	Matrix	Instrument	Date Prepared	Date Analyzed	LCS/LCSD Batch Number		
099-12-709-215	Solid	GC/MS X	09/26/09	09/26/09	090926L02		
Parameter	LCS %REC	LCSD %REC	%REC CL	ME CL	RPD	RPD CL	Qualifiers
Benzene	97	97	84-114	79-119	1	0-7	
Bromobenzene	100	100	80-120	73-127	1	0-20	
Bromochloromethane	107	107	80-120	73-127	0	0-20	
Bromodichloromethane	104	106	80-120	73-127	1	0-20	
Bromoform	106	103	80-120	73-127	2	0-20	
Bromomethane	94	92	80-120	73-127	3	0-20	
n-Butylbenzene	93	93	77-123	69-131	0	0-25	
sec-Butylbenzene	92	93	80-120	73-127	1	0-20	
tert-Butylbenzene	96	94	80-120	73-127	2	0-20	
Carbon Disulfide	101	101	80-120	73-127	0	0-20	
Carbon Tetrachloride	100	100	69-135	58-146	1	0-13	
Chlorobenzene	99	98	85-109	81-113	1	0-8	
Chloroethane	109	109	80-120	73-127	1	0-20	
Chloroform	104	103	80-120	73-127	1	0-20	
Chloromethane	72	73	80-120	73-127	1	0-20	
2-Chlorotoluene	95	94	80-120	73-127	1	0-20	
4-Chlorotoluene	92	92	80-120	73-127	0	0-20	
Dibromochloromethane	101	100	80-120	73-127	0	0-20	
1,2-Dibromo-3-Chloropropane	88	88	80-120	73-127	0	0-20	
1,2-Dibromoethane	98	99	80-120	73-127	1	0-20	
Dibromomethane	108	107	80-120	73-127	1	0-20	
1,2-Dichlorobenzene	95	95	80-110	75-115	0	0-10	
1,3-Dichlorobenzene	93	92	80-120	73-127	1	0-20	
1,4-Dichlorobenzene	91	90	80-120	73-127	1	0-20	
Dichlorodifluoromethane	106	109	80-120	73-127	3	0-20	
1,1-Dichloroethane	100	100	80-120	73-127	1	0-20	
1,2-Dichloroethane	104	104	80-120	73-127	0	0-20	
1,1-Dichloroethene	100	99	83-125	76-132	1	0-10	
c-1,2-Dichloroethene	100	100	80-120	73-127	1	0-20	
t-1,2-Dichloroethene	101	101	80-120	73-127	0	0-20	
1,2-Dichloropropane	104	103	79-115	73-121	2	0-25	
1,3-Dichloropropane	98	97	80-120	73-127	1	0-20	
2,2-Dichloropropane	94	93	80-120	73-127	1	0-20	
1,1-Dichloropropene	97	97	80-120	73-127	0	0-20	
c-1,3-Dichloropropene	105	106	80-120	73-127	0	0-20	
t-1,3-Dichloropropene	99	98	80-120	73-127	1	0-20	
Ethylbenzene	95	94	80-120	73-127	1	0-20	
Isopropylbenzene	96	95	80-120	73-127	1	0-20	

RPD - Relative Percent Difference . CL - Control Limit





Quality Control - LCS/LCS Duplicate

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

Date Received: N/A
Work Order No: 09-09-1601
Preparation: EPA 5030B
Method: EPA 8260B

Project: ARCO 374

Quality Control Sample ID	Matrix	Instrument	Date Prepared	Date Analyzed	LCS/LCSD Batch Number		
099-12-709-215	Solid	GC/MS X	09/26/09	09/26/09	090926L02		
Parameter	LCS %REC	LCSD %REC	%REC CL	ME CL	RPD	RPD CL	Qualifiers
p-Isopropyltoluene	93	93	80-120	73-127	0	0-20	
Methylene Chloride	108	110	80-120	73-127	1	0-20	
Naphthalene	85	83	80-120	73-127	3	0-20	
n-Propylbenzene	97	95	80-120	73-127	2	0-20	
Styrene	104	103	80-120	73-127	1	0-20	
Ethanol	111	107	50-134	36-148	4	0-23	
1,1,1,2-Tetrachloroethane	103	104	80-120	73-127	1	0-20	
1,1,2,2-Tetrachloroethane	101	98	80-120	73-127	2	0-20	
Tetrachloroethene	81	85	80-120	73-127	4	0-20	
Toluene	97	96	79-115	73-121	1	0-8	
1,2,3-Trichlorobenzene	87	85	80-120	73-127	2	0-20	
1,2,4-Trichlorobenzene	85	84	80-120	73-127	1	0-20	
1,1,1-Trichloroethane	97	96	80-120	73-127	1	0-20	
1,1,2-Trichloroethane	102	102	80-120	73-127	0	0-20	
Trichloroethene	95	95	87-111	83-115	0	0-7	
Trichlorofluoromethane	101	102	80-120	73-127	1	0-20	
1,2,3-Trichloropropane	99	101	80-120	73-127	2	0-20	
1,2,4-Trimethylbenzene	94	93	80-120	73-127	1	0-20	
1,3,5-Trimethylbenzene	101	100	80-120	73-127	0	0-20	
Vinyl Acetate	111	108	80-120	73-127	2	0-20	
Vinyl Chloride	103	106	72-126	63-135	3	0-10	
p/m-Xylene	98	98	80-120	73-127	1	0-20	
o-Xylene	97	96	80-120	73-127	1	0-20	
Methyl-t-Butyl Ether (MTBE)	86	87	75-129	66-138	0	0-13	
Tert-Butyl Alcohol (TBA)	94	92	66-126	56-136	2	0-24	
Diisopropyl Ether (DIPE)	94	95	77-125	69-133	1	0-13	
Ethyl-t-Butyl Ether (ETBE)	83	83	72-132	62-142	0	0-12	
Tert-Amyl-Methyl Ether (TAME)	84	85	77-125	69-133	1	0-10	

Total number of LCS compounds : 66

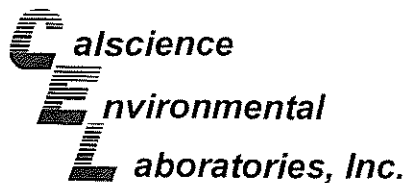
Total number of ME compounds : 0

Total number of ME compounds allowed : 3

LCS ME CL validation result : Pass

RPD - Relative Percent Difference, CL - Control Limit





Glossary of Terms and Qualifiers

Work Order Number: 09-09-1601

<u>Qualifier</u>	<u>Definition</u>
AX	Sample too dilute to quantify surrogate.
BA	Relative percent difference out of control.
BA,AY	BA = Relative percent difference out of control. AY = Matrix interference suspected.
BB	Sample > 4x spike concentration.
BF	Reporting limits raised due to high hydrocarbon background.
BH	Reporting limits raised due to high level of non-target analytes.
BU	Sample analyzed after holding time expired.
BV	Sample received after holding time expired.
BY	Sample received at improper temperature.
BZ	Sample preserved improperly.
CL	Initial analysis within holding time but required dilution.
CQ	Analyte concentration greater than 10 times the blank concentration.
CU	Surrogate concentration diluted to not detectable during analysis.
DF	Reporting limits elevated due to matrix interferences.
DU	Insufficient sample quantity for matrix spike/dup matrix spike.
ET	Sample was extracted past end of recommended max. holding time.
EY	Result exceeds normal dynamic range; reported as a min est.
GR	Internal standard recovery is outside method recovery limit.
IB	CCV recovery above limit; analyte not detected.
IH	Calibrtn. verif. recov. below method CL for this analyte.
IJ	Calibrtn. verif. recov. above method CL for this analyte.
J,DX	J=EPA Flag -Estimated value; DX= Value < lowest standard (MQL), but > than MDL.
LA	Confirmatory analysis was past holding time.
LG,AY	LG= Surrogate recovery below the acceptance limit. AY= Matrix interference suspected.
LH,AY	LH= Surrogate recovery above the acceptance limit. AY= Matrix interference suspected.
LM,AY	LM= MS and/or MSD above acceptance limits. See Blank Spike (LCS). AY= Matrix interference suspected.
LN,AY	LN= MS and/or MSD below acceptance limits. See Blank Spike (LCS). AY= Matrix interference suspected.
LQ	LCS recovery above method control limits.



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





Laboratory Management Program LaMP Chain of Custody Record

189409

Page 1 of 1

BPI/ARC Project Name:

Req Due Date (mm/dd/yy):

BP/ARC Facility No: 374

Lab Work Order Number: 1601

Rush TAT: Yes No X

Lab Name: CAISCIENCE
 Lab Address: 7440 LINCOLN WAY GARWOOD CALIF
 Lab PM: RICHARD V.
 Lab Phone: (714) 895-5494
 Lab Shipping Acct: 9255
 Lab Bottle Order No:
 Other Info:
 BP/ARC EBM: CHUCK CALUMER
 EBM Phone:
 EBM Email:

BP/ARC Facility Address: 6407 TELEGRAPH AVE
 City, State, ZIP Code: OAKLAND, CA
 Lead Regulatory Agency: ACRH
 California Global ID No.: T0600100106
 Enfos Proposal No: 000XK-0006
 Accounting Mode: Provision OOC-BU OOC-RM
 Stage: OPERATE Activity: FIELD CHARACTERIZATION
 Consultant/Contractor: STRATUS
 Consultant/Contractor Project No: E374
 Address: 330 CAMDEN PARK DR #550
 Consultant/Contractor PM: JIM JOHNSON
 Phone: 530 676 6000
 Email EDD To: CHUCK @ STRATUS.WX.NET
 Invoice To: BPI/ARC Contractor

Lab No.	Sample Description	Date	Time	Matrix				No. Containers / Preservative				Requested Analyses						Report Type & QC Level		
				Soil / Solid	Water / Liquid	Air / Vapor	Total Number of Containers	Unpreserved	H ₂ SO ₄	HNO ₃	HCl	Methanol	GPO (8015M)	PERKIN (82603)	50fy (82605)	1.2 DCA (82608)	1.2 DBP (82609)	PERKINOL (82606)	Standard	Full Data Package
1	B-13 4.5'	092109	1120	X			1	X					X	X	X	X	X	X		
2	B-13 6.5'		1130	X			1	X					X	X	X	X	X	X		
3	B-13 8.5'		1515	X			1	X					X	X	X	X	X	X		
4	B-14 4.5'		0940	X			1	X					X	X	X	X	X	X		
5	B-14 6.5'		0950	X			1	X					X	X	X	X	X	X		
6	B-14 8.5'		1100	X			1	X					X	X	X	X	X	X		
7	B-15 4.5'		1015	X			1	X					X	X	X	X	X	X		
8	B-15 6.5'		1025	X			1	X					X	X	X	X	X	X		
9	B-15 8.5'		1210	X			1	X					X	X	X	X	X	X		
10	B-15W		1245	X			6	X					X	X	X	X	X	X		

Sampler's Name: CF
 Sampler's Company: STRATUS
 Shipment Method: GSD Ship Date: 09/21/09
 Shipment Tracking No: 106160245
 Special Instructions: 106160245

Relinquished By / Affiliation: CF Date: 092109 Time: 1830
 Accepted By / Affiliation: [Signature] Date: 9/22/09 Time: 1000

THIS LINE - LAB USE ONLY: Custody Seals In Place: Yes / No
 Temp Blank: Yes / No
 Cooler Temp on Receipt: °F/C
 Trip Blank: Yes / No
 MS/MSD Sample Submitted: Yes / No

Laboratory Copy

SAMPLE RECEIPT FORM

Cooler 1 of 1

CLIENT: Stratus

DATE: 9/22/09

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

Temperature 4.8 °C - 0.2 °C (CF) = 4.6 °C Blank Sample

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

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

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

Ambient Temperature: Air Filter Metals Only PCBs Only Initial: JR

CUSTODY SEALS INTACT:

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

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

SAMPLE CONDITION:

	Yes	No	N/A
Chain-Of-Custody (COC) document(s) received with samples.....	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
COC document(s) received complete.....	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<input type="checkbox"/> Collection date/time, matrix, and/or # of containers logged in based on sample labels.			
<input type="checkbox"/> COC not relinquished. <input type="checkbox"/> No date relinquished. <input type="checkbox"/> No time relinquished.			
Sampler's name indicated on COC.....	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Sample container label(s) consistent with COC.....	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Sample container(s) intact and good condition.....	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Correct containers and volume for analyses requested.....	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Analyses received within holding time.....	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Proper preservation noted on COC or sample container.....	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<input type="checkbox"/> Unpreserved vials received for Volatiles analysis			
Volatile analysis container(s) free of headspace.....	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Tedlar bag(s) free of condensation.....	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

CONTAINER TYPE:

Solid: 4ozCGJ 8ozCGJ 16ozCGJ Sleeve EnCores® TerraCores® _____

Water: VOA VOA⁶h VOAna₂ 125AGB 125AGBh 125AGBp 1AGB 1AGBna₂ 1AGBs

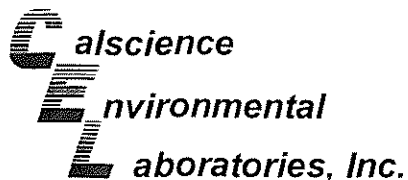
500AGB 500AGJ 500AGJs 250AGB 250CGB 250CGBs 1PB 500PB 500PBna

250PB 250PBn 125PB 125PBz_{na} 100PJ 100PJna₂ _____ _____ _____

Air: Tedlar® Summa® _____ Other: _____ Checked/Labeled by: WSC

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

Preservative: h: HCL n: HNO₃ na₂: Na₂S₂O₃ Na: NaOH p: H₃PO₄ s: H₂SO₄ z_{na}: ZnAc₂+NaOH f: Field-filtered Scanned by: WSC



October 06, 2009

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

Subject: **Calscience Work Order No.: 09-09-1602**
Client Reference: ARCO 374

Dear Client:

Enclosed is an analytical report for the above-referenced project. The samples included in this report were received 9/22/2009 and analyzed in accordance with the attached chain-of-custody.

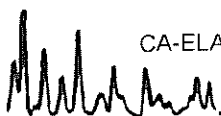
Unless otherwise noted, all analytical testing was accomplished in accordance with the guidelines established in our Quality Systems Manual, applicable standard operating procedures, and other related documentation. The original report of subcontracted analysis, if any, is provided herein, and follows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

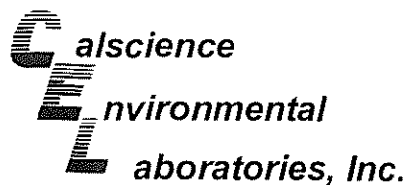
If you have any questions regarding this report, please do not hesitate to contact the undersigned.

Sincerely,

A handwritten signature in black ink, appearing to read 'Richard Villafania'.

Calscience Environmental
Laboratories, Inc.
Richard Villafania
Project Manager



**Analytical Report**

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

Date Received: 09/22/09
Work Order No: 09-09-1602
Preparation: EPA 3050B
Method: EPA 6010B

Project: ARCO 374

Page 1 of 1

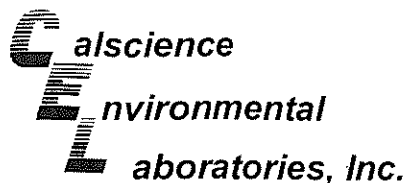
Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
SWC	09-09-1602-1-A	09/21/09 15:30	Solid	ICP 5300	09/23/09	09/28/09 11:23	090923L03

<u>Parameter</u>	<u>Result</u>	<u>RL</u>	<u>DF</u>	<u>Qual</u>	<u>Units</u>
Lead	7.68	0.500	1		mg/kg

Method Blank	097-01-002-12,772	N/A	Solid	ICP 5300	09/23/09	09/28/09 11:07	090923L03
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<u>Parameter</u>	<u>Result</u>	<u>RL</u>	<u>DF</u>	<u>Qual</u>	<u>Units</u>
Lead	ND	0.500	1		mg/kg

RL - Reporting Limit DF - Dilution Factor Qual - Qualifiers



Analytical Report

Stratus Environmental, inc.	Date Received:	09/22/09
3330 Cameron Park Drive, Suite 550	Work Order No:	09-09-1602
Cameron Park, CA 95682-8861	Preparation:	EPA 5030B
	Method:	EPA 8015B (M)

Project: ARCO 374

Page 1 of 1

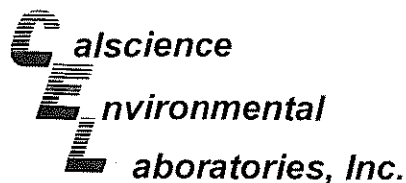
Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
SWC	09-09-1602-1-A	09/21/09 15:30	Solid	GC 1	09/22/09	09/23/09 20:55	090923B01

<u>Parameter</u>	<u>Result</u>	<u>RL</u>	<u>DF</u>	<u>Qual</u>	<u>Units</u>
Gasoline Range Organics (C6-C12)	4.1	0.50	1		mg/kg
<u>Surrogates:</u>	<u>REC (%)</u>	<u>Control Limits</u>		<u>Qual</u>	
1,4-Bromofluorobenzene	92	42-126			

Method Blank	099-12-697-151	N/A	Solid	GC 1	09/22/09	09/23/09 15:36	090923B01
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<u>Parameter</u>	<u>Result</u>	<u>RL</u>	<u>DF</u>	<u>Qual</u>	<u>Units</u>
Gasoline Range Organics (C6-C12)	ND	0.50	1		mg/kg
<u>Surrogates:</u>	<u>REC (%)</u>	<u>Control Limits</u>		<u>Qual</u>	
1,4-Bromofluorobenzene	83	42-126			

RL - Reporting Limit DF - Dilution Factor Qual - Qualifiers



Analytical Report

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

Date Received: 09/22/09
Work Order No: 09-09-1602
Preparation: EPA 5030B
Method: EPA 8260B
Units: ug/kg

Project: ARCO 374

Page 1 of 1

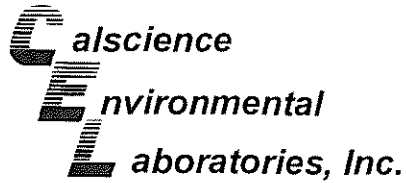
Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
SWC	09-09-1602-1-A	09/21/09 15:30	Solid	GC/MS U	09/30/09	09/30/09 14:53	090930L01

Parameter	Result	RL	DF	Qual	Parameter	Result	RL	DF	Qual
Benzene	6.9	1.0	1		Xylenes (total)	12	1.0	1	
Ethylbenzene	4.4	1.0	1		Methyl-t-Butyl Ether (MTBE)	17	1.0	1	
Toluene	ND	1.0	1						
<u>Surrogates:</u>	<u>REC (%)</u>	<u>Control Limits</u>		<u>Qual</u>	<u>Surrogates:</u>	<u>REC (%)</u>	<u>Control Limits</u>		<u>Qual</u>
Dibromofluoromethane	107	75-141			1,2-Dichloroethane-d4	117	73-151		
Toluene-d8	105	87-111			1,4-Bromofluorobenzene	99	71-113		

Method Blank	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
	099-12-709-216	N/A	Solid	GC/MS U	09/30/09	09/30/09 14:22	090930L01

Parameter	Result	RL	DF	Qual	Parameter	Result	RL	DF	Qual
Benzene	ND	1.0	1		Xylenes (total)	ND	1.0	1	
Ethylbenzene	ND	1.0	1		Methyl-t-Butyl Ether (MTBE)	ND	1.0	1	
Toluene	ND	1.0	1						
<u>Surrogates:</u>	<u>REC (%)</u>	<u>Control Limits</u>		<u>Qual</u>	<u>Surrogates:</u>	<u>REC (%)</u>	<u>Control Limits</u>		<u>Qual</u>
Dibromofluoromethane	112	75-141			1,2-Dichloroethane-d4	117	73-151		
Toluene-d8	103	87-111			1,4-Bromofluorobenzene	96	71-113		

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



Quality Control - Spike/Spike Duplicate

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

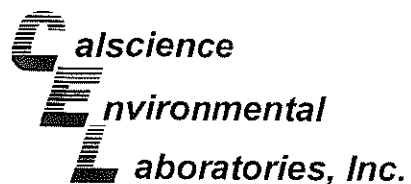
Date Received: 09/22/09
Work Order No: 09-09-1602
Preparation: EPA 3050B
Method: EPA 6010B

Project ARCO 374

Quality Control Sample ID	Matrix	Instrument	Date Prepared	Date Analyzed	MS/MSD Batch Number
09-09-1524-9	Solid	ICP 5300	09/23/09	09/28/09	090923S03

Parameter	MS %REC	MSD %REC	%REC CL	RPD	RPD CL	Qualifiers
Lead	4X	4X	75-125	4X	0-20	BB

RPD - Relative Percent Difference . CL - Control Limit



Quality Control - PDS / PDSD

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

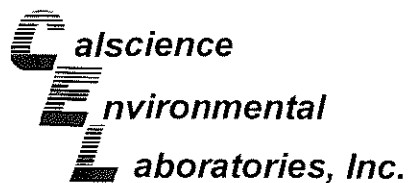
Date Received 09/22/09
Work Order No: 09-09-1602
Preparation: EPA 3050B
Method: EPA 6010B

Project: ARCO 374

Quality Control Sample ID	Matrix	Instrument	Date Prepared	Date Analyzed	PDS/PDS Batch Number
09-09-1524-9	Solid	ICP 5300	09/23/09	09/28/09	090923S03

<u>Parameter</u>	<u>PDS %REC</u>	<u>PDSD %REC</u>	<u>%REC CL</u>	<u>RPD</u>	<u>RPD CL</u>	<u>Qualifiers</u>
Lead	4X	4X	75-125	4X	0-20	BB

RPD - Relative Percent Difference . CL - Control Limit

**Quality Control - Spike/Spike Duplicate**

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

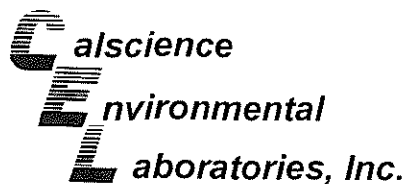
Date Received: 09/22/09
Work Order No: 09-09-1602
Preparation: EPA 5030B
Method: EPA 8015B (M)

Project ARCO 374

Quality Control Sample ID	Matrix	Instrument	Date Prepared	Date Analyzed	MS/MSD Batch Number
09-09-1601-4	Solid	GC 1	09/22/09	09/23/09	090923501

<u>Parameter</u>	<u>MS %REC</u>	<u>MSD %REC</u>	<u>%REC CL</u>	<u>RPD</u>	<u>RPD CL</u>	<u>Qualifiers</u>
Gasoline Range Organics (C6-C12)	101	101	42-126	0	0-25	

RPD - Relative Percent Difference, CL - Control Limit



Quality Control - Spike/Spike Duplicate

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

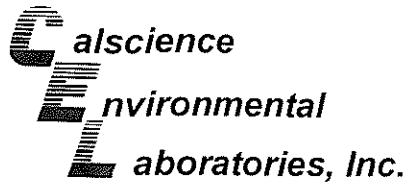
Date Received: 09/22/09
Work Order No: 09-09-1602
Preparation: EPA 5030B
Method: EPA 8260B

Project ARCO 374

Quality Control Sample ID	Matrix	Instrument	Date Prepared	Date Analyzed	MS/MSD Batch Number
SWC	Solid	GC/MS U	09/30/09	09/30/09	090930S01

Parameter	MS %REC	MSD %REC	%REC CL	RPD	RPD CL	Qualifiers
Benzene	80	99	78-114	18	0-14	BA,AY
Chloroform	89	90	80-120	0	0-20	
1,1-Dichloroethane	84	83	80-120	1	0-20	
1,2-Dichloroethane	92	92	80-120	0	0-20	
1,1-Dichloroethene	76	76	73-127	0	0-21	
Ethanol	88	91	45-135	3	0-29	
Tetrachloroethene	74	83	80-120	11	0-20	LN,AY
Toluene	93	95	74-116	2	0-16	
Trichloroethene	87	86	74-122	0	0-17	
Methyl-t-Butyl Ether (MTBE)	62	65	69-123	4	0-18	LN,AY

RPD - Relative Percent Difference . CL - Control Limit



Quality Control - LCS/LCS Duplicate

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

Date Received: N/A
Work Order No: 09-09-1602
Preparation: EPA 3050B
Method: EPA 6010B

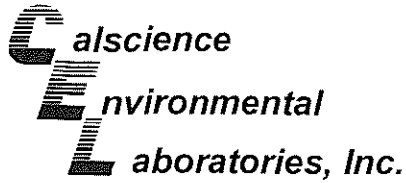
Project: ARCO 374

Quality Control Sample ID	Matrix	Instrument	Date Prepared	Date Analyzed	LCS/LCSD Batch Number
097-01-002-12,772	Solid	ICP 5300	09/23/09	09/28/09	090923L03

<u>Parameter</u>	<u>LCS %REC</u>	<u>LCSD %REC</u>	<u>%REC CL</u>	<u>RPD</u>	<u>RPD CL</u>	<u>Qualifiers</u>
Lead	106	113	80-120	7	0-20	

RPD - Relative Percent Difference, CL - Control Limit





Quality Control - LCS/LCS Duplicate

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

Date Received: N/A
Work Order No: 09-09-1602
Preparation: EPA 5030B
Method: EPA 8015B (M)

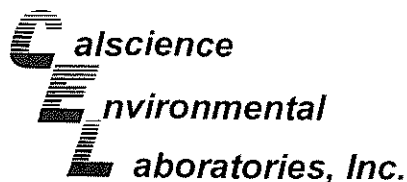
Project: ARCO 374

Quality Control Sample ID	Matrix	Instrument	Date Prepared	Date Analyzed	LCS/LCSD Batch Number
099-12-697-151	Solid	GC 1	09/22/09	09/23/09	090923B01

Parameter	LCS %REC	LCSD %REC	%REC CL	RPD	RPD CL	Qualifiers
Gasoline Range Organics (C6-C12)	103	104	70-118	1	0-20	

RPD - Relative Percent Difference . CL - Control Limit





Quality Control - LCS/LCS Duplicate

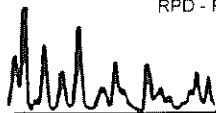
Stratus Environmental, inc.
3330 Cameron Park Drive, Suite 550
Cameron Park, CA 95682-8861

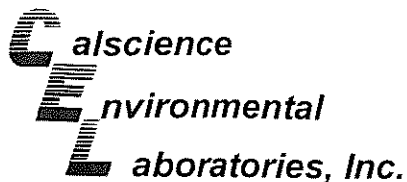
Date Received: N/A
Work Order No: 09-09-1602
Preparation: EPA 5030B
Method: EPA 8260B

Project: ARCO 374

Quality Control Sample ID	Matrix	Instrument	Date Prepared	Date Analyzed	LCS/LCSD Batch Number		
099-12-709-216	Solid	GC/MS U	09/30/09	09/30/09	090930L01		
Parameter	LCS %REC	LCSD %REC	%REC CL	ME CL	RPD	RPD CL	Qualifiers
Benzene	106	103	84-114	79-119	3	0-7	
Bromobenzene	100	98	80-120	73-127	3	0-20	
Bromochloromethane	103	100	80-120	73-127	4	0-20	
Bromodichloromethane	100	101	80-120	73-127	0	0-20	
Bromoform	88	85	80-120	73-127	3	0-20	
Bromomethane	27	28	80-120	73-127	4	0-20	
n-Butylbenzene	106	103	77-123	69-131	3	0-25	
sec-Butylbenzene	105	102	80-120	73-127	3	0-20	
tert-Butylbenzene	108	107	80-120	73-127	1	0-20	
Carbon Disulfide	98	95	80-120	73-127	3	0-20	
Carbon Tetrachloride	89	90	69-135	58-146	1	0-13	
Chlorobenzene	101	97	85-109	81-113	4	0-8	
Chloroethane	94	93	80-120	73-127	1	0-20	
Chloroform	103	102	80-120	73-127	2	0-20	
Chloromethane	88	90	80-120	73-127	2	0-20	
2-Chlorotoluene	108	106	80-120	73-127	2	0-20	
4-Chlorotoluene	101	98	80-120	73-127	3	0-20	
Dibromochloromethane	97	95	80-120	73-127	2	0-20	
1,2-Dibromo-3-Chloropropane	92	93	80-120	73-127	1	0-20	
1,2-Dibromoethane	98	98	80-120	73-127	0	0-20	
Dibromomethane	102	99	80-120	73-127	3	0-20	
1,2-Dichlorobenzene	101	98	80-110	75-115	2	0-10	
1,3-Dichlorobenzene	100	96	80-120	73-127	4	0-20	
1,4-Dichlorobenzene	95	93	80-120	73-127	2	0-20	
Dichlorodifluoromethane	105	105	80-120	73-127	0	0-20	
1,1-Dichloroethane	103	101	80-120	73-127	2	0-20	
1,2-Dichloroethane	104	102	80-120	73-127	2	0-20	
1,1-Dichloroethene	93	90	83-125	76-132	3	0-10	
c-1,2-Dichloroethene	101	98	80-120	73-127	2	0-20	
t-1,2-Dichloroethene	104	100	80-120	73-127	4	0-20	
1,2-Dichloropropane	110	107	79-115	73-121	3	0-25	
1,3-Dichloropropane	105	101	80-120	73-127	4	0-20	
2,2-Dichloropropane	92	92	80-120	73-127	0	0-20	
1,1-Dichloropropene	107	104	80-120	73-127	3	0-20	
c-1,3-Dichloropropene	107	106	80-120	73-127	1	0-20	
t-1,3-Dichloropropene	102	100	80-120	73-127	1	0-20	
Ethylbenzene	112	107	80-120	73-127	4	0-20	
Isopropylbenzene	110	107	80-120	73-127	3	0-20	

RPD - Relative Percent Difference, CL - Control Limit





Quality Control - LCS/LCS Duplicate

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

Date Received: N/A
Work Order No: 09-09-1602
Preparation: EPA 5030B
Method: EPA 8260B

Project: ARCO 374

Quality Control Sample ID	Matrix	Instrument	Date Prepared	Date Analyzed	LCS/LCSD Batch Number		
099-12-709-216	Solid	GC/MS U	09/30/09	09/30/09	090930L01		
Parameter	LCS %REC	LCSD %REC	%REC CL	ME CL	RPD	RPD CL	Qualifiers
p-Isopropyltoluene	105	102	80-120	73-127	3	0-20	
Methylene Chloride	85	84	80-120	73-127	1	0-20	
Naphthalene	97	90	80-120	73-127	7	0-20	
n-Propylbenzene	111	108	80-120	73-127	3	0-20	
Styrene	109	107	80-120	73-127	2	0-20	
Ethanol	111	109	50-134	36-148	2	0-23	
1,1,1,2-Tetrachloroethane	96	95	80-120	73-127	1	0-20	
1,1,2,2-Tetrachloroethane	97	95	80-120	73-127	2	0-20	
Tetrachloroethene	86	84	80-120	73-127	3	0-20	
Toluene	104	101	79-115	73-121	3	0-8	
1,2,3-Trichlorobenzene	102	99	80-120	73-127	3	0-20	
1,2,4-Trichlorobenzene	99	96	80-120	73-127	3	0-20	
1,1,1-Trichloroethane	94	94	80-120	73-127	0	0-20	
1,1,2-Trichloroethane	103	101	80-120	73-127	2	0-20	
Trichloroethene	97	95	87-111	83-115	2	0-7	
Trichlorofluoromethane	88	86	80-120	73-127	2	0-20	
1,2,3-Trichloropropane	97	94	80-120	73-127	3	0-20	
1,2,4-Trimethylbenzene	105	101	80-120	73-127	3	0-20	
1,3,5-Trimethylbenzene	113	111	80-120	73-127	2	0-20	
Vinyl Acetate	94	111	80-120	73-127	17	0-20	
Vinyl Chloride	85	89	72-126	63-135	4	0-10	
p/m-Xylene	115	111	80-120	73-127	3	0-20	
o-Xylene	114	111	80-120	73-127	3	0-20	
Methyl-t-Butyl Ether (MTBE)	99	98	75-129	66-138	1	0-13	
Tert-Butyl Alcohol (TBA)	108	110	66-126	56-136	2	0-24	
Diisopropyl Ether (DIPE)	103	103	77-125	69-133	0	0-13	
Ethyl-t-Butyl Ether (ETBE)	106	104	72-132	62-142	2	0-12	
Tert-Amyl-Methyl Ether (TAME)	104	104	77-125	69-133	0	0-10	

Total number of LCS compounds : 66

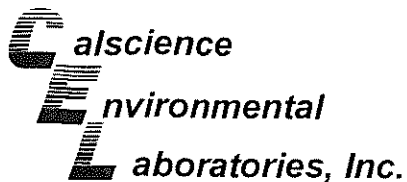
Total number of ME compounds : 0

Total number of ME compounds allowed : 3

LCS ME CL validation result : Pass

RPD - Relative Percent Difference , CL - Control Limit

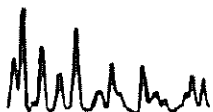




Glossary of Terms and Qualifiers

Work Order Number: 09-09-1602

<u>Qualifier</u>	<u>Definition</u>
AX	Sample too dilute to quantify surrogate.
BA	Relative percent difference out of control.
BA,AY	BA = Relative percent difference out of control. AY = Matrix interference suspected.
BB	Sample > 4x spike concentration.
BF	Reporting limits raised due to high hydrocarbon background.
BH	Reporting limits raised due to high level of non-target analytes.
BU	Sample analyzed after holding time expired.
BV	Sample received after holding time expired.
BY	Sample received at improper temperature.
BZ	Sample preserved improperly.
CL	Initial analysis within holding time but required dilution.
CQ	Analyte concentration greater than 10 times the blank concentration.
CU	Surrogate concentration diluted to not detectable during analysis.
DF	Reporting limits elevated due to matrix interferences.
DU	Insufficient sample quantity for matrix spike/dup matrix spike.
ET	Sample was extracted past end of recommended max. holding time.
EY	Result exceeds normal dynamic range; reported as a min est.
GR	Internal standard recovery is outside method recovery limit.
IB	CCV recovery above limit; analyte not detected.
IH	Calibrtn. verif. recov. below method CL for this analyte.
IJ	Calibrtn. verif. recov. above method CL for this analyte.
J,DX	J=EPA Flag -Estimated value; DX= Value < lowest standard (MQL), but > than MDL.
LA	Confirmatory analysis was past holding time.
LG,AY	LG= Surrogate recovery below the acceptance limit. AY= Matrix interference suspected.
LH,AY	LH= Surrogate recovery above the acceptance limit. AY= Matrix interference suspected.
LM,AY	LM= MS and/or MSD above acceptance limits. See Blank Spike (LCS). AY= Matrix interference suspected.
LN,AY	LN= MS and/or MSD below acceptance limits. See Blank Spike (LCS). AY= Matrix interference suspected.
LQ	LCS recovery above method control limits.



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





Laboratory Management Program LaMP Chain of Custody Record 189409

BP/ARC Project Name: _____

Req Due Date (mm/dd/yy): _____

BP/ARC Facility No: 374

Lab Work Order Number: 1602

Rush TAT: Yes ___ No

Lab Name: <u>CALSCIENCE</u>	BP/ARC Facility Address: <u>6407 TELEGRAPH AVE</u>	Consultant/Contractor: <u>STRATIS</u>
Lab Address: <u>7440 LINCOLN Way, Harbor area</u>	City, State, ZIP Code: <u>OAKLAND, CA</u>	Consultant/Contractor Project No: <u>E374</u>
Lab PM: <u>Richard V.</u>	Lead Regulatory Agency: <u>ACEA</u>	Address: <u>3330 CAMERON PARK DR #500</u>
Lab Phone: <u>(714) 895-5494</u>	California Global ID No: <u>F0600100106</u>	Consultant/Contractor PM: <u>Jay Johnson</u>
Lab Shipping Acct: <u>9255</u>	Enfos Proposal No: <u>000XK-0006</u>	Phone: <u>530 676 6000</u>
Lab Bottle Order No: _____	Accounting Mode: Provision <input checked="" type="checkbox"/> OOC-BU ___ OOC-RM ___	Email EDD To: <u>CHUFF.DSTIMAT@SUNX.NET</u>
Other Info: _____	Stage: <u>Observe</u> Activity: <u>Field Characterization</u>	Invoice To: BP/ARC <input checked="" type="checkbox"/> Contractor ___

Lab No.	Sample Description	Date	Time	Matrix				No. Containers / Preservative				Requested Analyses				Report Type & QC Level		
				Soil / Solid	Water / Liquid	Air / Vapor	Total Number of Containers	Unpreserved	H ₂ SO ₄	HNO ₃	HCl	Methanol	Geo	BTEX	MTBE	TOTAL LEAD	Standard <input checked="" type="checkbox"/>	
1	SWC	092109	1530	X			1	1										

Sampler's Name: <u>CF</u>	Relinquished By / Affiliation: <u>CF</u>	Date: <u>092109</u>	Time: <u>1</u>	Accepted By / Affiliation: <u>[Signature]</u>	Date: <u>9/22/09</u>	Time: <u>1000</u>
Sampler's Company: <u>STRATIS</u>						
Shipment Method: <u>ASO</u>	Ship Date: <u>092109</u>					
Shipment Tracking No: <u>106160243</u>						

Special Instructions: _____

THIS LINE - LAB USE ONLY: Custody Seals In Place: Yes / No Temp Blank: Yes / No Cooler Temp on Receipt: _____ °F/C Trip Blank: Yes / No MS/MSD Sample Submitted: Yes / No

Laboratory Copy

Page 15 of 16

SAMPLE RECEIPT FORM

Cooler 1 of 1

CLIENT: Stratus

DATE: 9/22/09

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

Temperature 4.8 °C - 0.2 °C (CF) = 4.6 °C Blank Sample

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

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

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

Ambient Temperature: Air Filter Metals Only PCBs Only Initial: JF

CUSTODY SEALS INTACT:

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

Sample _____ No (Not Intact) Not Present Initial: JF

SAMPLE CONDITION:

	Yes	No	N/A
Chain-Of-Custody (COC) document(s) received with samples.....	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
COC document(s) received complete.....	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
<input type="checkbox"/> Collection date/time, matrix, and/or # of containers logged in based on sample labels.			
<input type="checkbox"/> COC not relinquished. <input type="checkbox"/> No date relinquished. <input checked="" type="checkbox"/> No time relinquished.			
Sampler's name indicated on COC.....	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Sample container label(s) consistent with COC.....	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Sample container(s) intact and good condition.....	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Correct containers and volume for analyses requested.....	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Analyses received within holding time.....	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Proper preservation noted on COC or sample container.....	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
<input type="checkbox"/> Unpreserved vials received for Volatiles analysis			
Volatile analysis container(s) free of headspace.....	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Tedlar bag(s) free of condensation.....	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

CONTAINER TYPE:

Solid: 4ozCGJ 8ozCGJ 16ozCGJ Sleeve EnCores® TerraCores® _____

Water: VOA VOAh VOAna₂ 125AGB 125AGBh 125AGBp 1AGB 1AGBna₂ 1AGBs

500AGB 500AGJ 500AGJs 250AGB 250CGB 250CGBs 1PB 500PB 500PBna

250PB 250PBn 125PB 125PBzanna 100PJ 100PJna₂ _____ _____ _____

Air: Tedlar® Summa® _____ **Other:** _____ **Checked/Labeled by:** D.V.

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

Preservative: h: HCL n: HNO₃ na₂: Na₂S₂O₃ Na: NaOH p: H₃PO₄ s: H₂SO₄ zanna: ZnAc₂+NaOH f: Field-filtered **Scanned by:** D.V.

APPENDIX C

GEOTRACKER UPLOAD CONFIRMATION RECEIPTS

STATE WATER RESOURCES CONTROL BOARD
GEOTRACKER ESI

UPLOADING A GEO_BORE FILE

SUCCESS

Your GEO_BORE file has been successfully submitted!

<u>Submittal Type:</u>	GEO_BORE
<u>Facility Global ID:</u>	T0600100106
<u>Field Point:</u>	B-13
<u>Facility Name:</u>	ARCO #0374
<u>File Name:</u>	374 GEO_BORE B-13.pdf
<u>Username:</u>	Broadbent & Associates, Inc.
<u>Username:</u>	BROADBENT-C
<u>IP Address:</u>	67.118.40.90
<u>Submittal Date/Time:</u>	11/10/2009 3:25:34 PM
<u>Confirmation Number:</u>	6769888639

STATE WATER RESOURCES CONTROL BOARD
GEOTRACKER ESI

UPLOADING A GEO_BORE FILE

SUCCESS

Your GEO_BORE file has been successfully submitted!

<u>Submittal Type:</u>	GEO_BORE
<u>Facility Global ID:</u>	T0600100106
<u>Field Point:</u>	B-14
<u>Facility Name:</u>	ARCO #0374
<u>File Name:</u>	374 GEO_BORE B-14.pdf
<u>Username:</u>	Broadbent & Associates, Inc.
<u>Username:</u>	BROADBENT-C
<u>IP Address:</u>	67.118.40.90
<u>Submittal Date/Time:</u>	11/10/2009 3:26:04 PM
<u>Confirmation Number:</u>	4198401212

STATE WATER RESOURCES CONTROL BOARD
GEOTRACKER ESI

UPLOADING A GEO_BORE FILE

SUCCESS

Your GEO_BORE file has been successfully submitted!

<u>Submittal Type:</u>	GEO_BORE
<u>Facility Global ID:</u>	T0600100106
<u>Field Point:</u>	B-15
<u>Facility Name:</u>	ARCO #0374
<u>File Name:</u>	374 GEO_BORE B-15.pdf
<u>Username:</u>	Broadbent & Associates, Inc.
<u>Username:</u>	BROADBENT-C
<u>IP Address:</u>	67.118.40.90
<u>Submittal Date/Time:</u>	11/10/2009 3:26:33 PM
<u>Confirmation Number:</u>	4095757901

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!

<u>Submittal Type:</u>	EDF - Soil and Water Investigation Report
<u>Submittal Title:</u>	SWI GW SAMPLING 0909
<u>Facility Global ID:</u>	T0600100106
<u>Facility Name:</u>	ARCO #0374
<u>File Name:</u>	09091601 fix.zip
<u>Organization Name:</u>	Broadbent & Associates, Inc.
<u>Username:</u>	BROADBENT-C
<u>IP Address:</u>	67.118.40.90
<u>Submittal Date/Time:</u>	11/2/2009 11:33:03 AM
<u>Confirmation Number:</u>	5786317229

[VIEW QC REPORT](#)

[VIEW DETECTIONS REPORT](#)