Atlantic Richfield Company
(a BP affiliated company)

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

2 June 2009

Re: On-Site Soil & Ground-Water Investigation Report
Atlantic Richfield Company Station No.2162
15135 Hesperian Boulevard
San Leandro, California
ACEH Case #RO0000190

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

Submitted by:

Paul Supple
Environmental Business Manager

ON-SITE SOIL & GROUND-WATER INVESTIGATION REPORT

Atlantic Richfield Company Station No. 2162
15135 Hesperian Boulevard
San Leandro, California
ACEH Case No. RO0000190

Prepared for:

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

Prepared by:

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

1324 Mangrove Ave., Suite 212
Chico, California 95926
(530) 566-1400
www.broadbentinc.com

2 June 2009

Project No. 06-88-620

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

BROADBENT & ASSOCIATES, INC
ENVIRONMENTAL, WATER RESOURCES & ENGINEERING

2 June 2009

Project No. 06-88-620

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

Attn.: Mr. Paul Supple

Re: On-Site Soil & Ground-Water Investigation Report, Atlantic Richfield Company Station No.2162, 15135 Hesperian Boulevard, San Leandro, California; ACEH Case #RO0000190

Dear Mr. Supple:

Broadbent & Associates, Inc. (BAI) is pleased to submit this *On-Site Soil & Ground-Water Investigation Report* for Atlantic Richfield Company Station No. 2162 (herein referred to as Station No.2162) located at 15135 Hesperian Boulevard, San Leandro, California (Site). This report presents a description of the field activities conducted during the installation of ground-water monitoring wells at the Site during April 2009. This work was conducted in accordance with the *Work Plan for On-Site Soil & Ground-Water Investigation* (BAI, 25 November 2008), as approved by Alameda County Environmental Health (ACEH) in their letter dated 27 March 2009.

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

Sincerely,

BROADBENT & ASSOCIATES, INC.

Thomas A. Venus, P.E.
Senior Engineer

REGISTERED PROFESSIONAL ENGINEER
THOMAS A. VENUS
No. 54698
Expires 12-31-09
CIVIL
STATE OF CALIFORNIA

Enclosures

cc: Mr. Paresh Khatri, Alameda County Environmental Health (Submitted via ACEH ftp site)
Mr. Karl Busche, City of San Leandro Environmental Services Division (Electronic copy uploaded to GeoTracker)

ON-SITE SOIL & GROUND-WATER INVESTIGATION REPORT
Atlantic Richfield Company Station No.2162
15135 Hesperian Boulevard
San Leandro, California

TABLE OF CONTENTS

ATTACHMENTS

APPENDICES

ON-SITE SOIL & GROUND-WATER INVESTIGATION REPORT
Atlantic Richfield Company Station No.2162
15135 Hesperian Boulevard
San Leandro, California

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 ground-water characterization at the Atlantic Richfield Company Station No.2162, located at 15135 Hesperian Boulevard, San Leandro, California (Site). This investigation was completed to further characterize ground-water contaminant concentrations at the Site and supplement the case for Site closure. Investigation activities were conducted in accordance with the BAI *Work Plan for On-Site Soil & Ground-Water Investigation* dated 25 November 2008, as approved by Alameda County Environmental Health (ACEH) in their response letter dated 27 March 2009. A copy of this letter is provided in Appendix A. This report includes discussions on the Site Background, Site Geology and Hydrogeology, Field Activities Performed, Conclusions and Recommendations.

2.0 SITE BACKGROUND

The Site is an active ARCO-brand gasoline retail station that consists of a station building, four 10,000 gallon double-wall fiberglass underground storage tanks (USTs), and eight pump dispensers on four dispenser islands. The Site is located on the west side of Hesperian Boulevard south of Ruth Court in Oakland, California (Drawing 1). The land use in the immediate vicinity of the Site is commercial. The Site is predominantly covered with concrete and asphalt. A comprehensive Site history can be found within the *Work Plan for On-Site Soil & Ground-Water Investigation* prepared by BAI dated 5 January 2009.

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 San Leandro Sub-Area, near the northern boundary of the San Lorenzo Sub-Area, in the East Bay Plain of the San Francisco Basin. These Sub-Areas share the same hydrogeologic characteristics, yet are separated by the junction of the surface trace between the San Leandro and San Lorenzo alluvial fans. These Sub-Areas consist primarily of alluvial fan sediments with the distinction of the Yerba Buena Mud extending west into the San Leandro and San Lorenzo Sub-Areas, unlike the northern Sub-Areas. The Yerba Buena Mud forms a major aquitard between the shallow and deep aquifers throughout much of southwestern area of the East Bay Plain. The San Leandro and San Lorenzo Sub-Areas alluvial fans are finer grained and produce less groundwater than the Niles Cone basin to the south.

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-west direction. In the southern end of the

study area however, near the San Lorenzo Sub-Area, the direction of flow may not be this simple. According to information presented in *East Bay Plain Groundwater Basin Beneficial Use Evaluation Report*, the small set of water level measurements available seemed to show that the ground water in the upper aquifers may be flowing south, with the deeper aquifers, the Alameda Formation, moving north. The nearest surface water drainage is the Estudillo Canal, located approximately 1,100 feet southeast of the Site. The Estudillo Canal's overall general flow direction is from east to west; however, specific flow directions of the canal vary to the southwest near the Site, eventually turning to the west-northwest prior to entering the San Francisco Bay via the San Leandro Flood Control Channel.

The Site elevation is approximately 34 feet above mean sea level. The water table fluctuates seasonally with recorded static depths to water in monitor wells at the Site ranging between a historic minimum depth of 7.10 feet (MW-3 on 4/14/2005) and maximum depth of 10.08 feet (MW-4 on 10/9/2002). Historically, depth-to-water measurements have typically ranged between 7.0 and 9.5 feet. Ground-water flow direction during the third quarter 2006 monitoring event on 31 July 2006 was to the south-southwest at a gradient of 0.003 ft/ft (BAI, 10/27/2006). Based on this information, the local ground-water flow direction is generally to the southwest which is similar to the surface topography and towards the San Francisco Bay.

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.

4.0 FIELD ACTIVITIES PERFORMED

On 24 April 2009, Stratus oversaw RSI Drilling, Inc. advance two Geoprobe/hollow-stem auger soil borings (identified as MW-5 and MW-6) at the Site. Boring MW-5 (completed as well MW-5) was located in close proximity of the previous boring CB-2, slightly north of the former waste oil tank and southwest of the USTs. Previous boring CB-2 had been advanced in July 2007 within the source area. Total Petroleum Hydrocarbons in the Diesel Range (TPH-D) were detected in the soil sample collected from boring CB-2 at a concentration of 1,300 milligrams per kilogram (mg/kg). Total Petroleum Hydrocarbons in the Gasoline Range (TPH-G) and TPH-D were detected in the grab ground-water sample collected from CB-2 at concentrations of 1,900 micrograms per liter (µg/L) and 2,000 µg/L, respectively. Boring MW-6 (completed as well MW-6) was located in close proximity of previous boring CB-5, directly south of well VW-1 and west of previous boring CB-5. TPH-G was detected in the soil sample collected from boring CB-5 at a concentration of 1,100 mg/kg, and TPH-G and TPH-D were detected in the grab ground-water sample from boring CB-5 at concentrations of 490 µg/L and 360 µg/L, respectively. The soil boring/monitor well locations from this investigation are shown in Drawing 2.

4.1 Preliminary Field Activities

Prior to initiating field activities, Stratus obtained the necessary well 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 Site for 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 feet below ground surface (ft bgs) using an air knife rig on 23 April 2009 in accordance with the safety protocols within BP's Ground Disturbance Defined Practice.

4.2 Soil Boring Advancement

On 24 April 2009, Stratus field personnel observed RSI Drilling (RSI) of Woodland, California advance two soil borings (MW-5 and MW-6). RSI utilized a Geoprobe 6600 drill rig equipped with a hollow-stem auger to advance each soil boring to a total depth of 16 ft bgs. Physical soil samples were not collected for laboratory analysis due to the recent soil and ground-water investigation conducted on-site. However, soil cuttings were classified according to the Unified Soil Classification System (USCS), and examined using visual and manual methods for parameters including odor, staining, color, grain size, and moisture content. After advancing the 1.25-inch diameter Geoprobe soil borings, the holes were reamed out with the ten-inch diameter hollow-stem augers. Ground-water monitoring wells were then installed in each soil boring.

Soil boring MW-5 was advanced to a total depth of 16 ft bgs. Soil samples were collected during drilling activities for the purpose of soil classification only. Sandy clay was observed from approximately 6.5 to 8.5 ft bgs. Silty clay was observed from approximately 8.5 to 10.5 ft bgs. Silty sand with clay was observed from approximately 10.5 to 15.0 ft bgs. Clayey silt was encountered from approximately 15 to 16 ft bgs, the final depth of the boring. Following completion of soil boring advancement and soil classification, well installation activities began for well MW-5.

Soil boring MW-6 was advanced to a total depth of 16 ft bgs. Soil samples were collected during drilling activities for the purpose of soil classification only. Sandy clay was observed from approximately 6.5 to 8.5 ft bgs. Silty clay was observed from approximately 8.5 to 10.0 ft bgs. Silty sand with gravel was observed from approximately 10.0 to 14.0 ft bgs. Silty sand with clay was encountered from approximately 14.0 to 15.5 ft bgs. Clay was observed from approximately 15.5 to 16 ft bgs, the final depth of the boring. Following completion of soil boring advancement and soil classification, well installation activities began for well MW-6.

4.3 Monitoring Well Construction

Monitoring wells MW-5 and MW-6 were constructed using flush-threaded, four-inch diameter Schedule 40 PVC pipe. The factory-slotted 0.010-inch screen intervals extend from eight ft bgs to 16 ft bgs in each well. The filter packs surrounding the screen intervals consist of No.2/12 silica sand from six ft bgs to 16 ft bgs in each well. Each well was sealed with bentonite from

three ft bgs to six ft bgs, and with Portland cement grout from three ft bgs to slightly below ground surface. Each wellhead was secured with a locking well cap, and protected by a traffic-rated well vault set flush with the local ground surface. Additional details of well construction are provided in the field notes, lithologic boring logs and well construction logs provided in Appendix B. Well construction information was uploaded to the GeoTracker AB2886 database. Copies of GeoTracker upload confirmation reports are provided within Appendix C.

4.4 Well Development and Surveying

Monitor wells MW-5 and MW-6 were developed on 29 April 2009. Well development activities for each well consisted of surging and bailing the well until relatively silt-free water was removed. Approximately 50 gallons were purged from each well, which met the targeted goal of 10 wetted casing volumes. Field sheets from the well development activities are provided within Appendix B. The well ID for well MW-6 was inadvertently written as MW-4 in the well development field notes.

The site was resurveyed, incorporating new wells MW-5 and MW-6, by Wood Rodgers of Sacramento, California on 11 May 2009. The survey map from Wood Rodgers is provided within Appendix B. The well survey information was uploaded to the GeoTracker AB2886 database. Copies of the GeoTracker upload confirmation reports (GEO_MAP, GEO_XY, and GEO_Z files) are provided within Appendix C.

Ground-water samples were collected later during the second quarter ground-water monitoring event and will be reported under separate cover.

4.5 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 CONCLUSIONS

Monitoring well MW-5 was installed near the previous source area boring CB-2, and monitoring well MW-6 was installed near the previous downgradient boring CB-5, generally in accordance with the approved work plan. Subsurface geology logged in borings MW-5 and MW-6 was generally consistent with that encountered during the previous logging of nearby site wells and borings. The wells were constructed generally in accordance with the approved work plan. Upon completion of quarterly monitoring and sampling activities, the location of these two monitoring wells should provide data that will add to the definition of the contaminant plume at the Site.

6.0 RECOMMENDATIONS

In accordance with the ACEH letter dated 27 March 2009, BAI recommends initiating second quarter and fourth quarter semi-annual ground-water monitoring from the on-site wells in order to assess the contaminant plume.

7.0 CLOSURE

This document has been prepared for the exclusive use of Atlantic Richfield 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 ground-water conditions could exist beyond the points explored in this investigation. Also, changes in site conditions could occur at some time in the future due to variations in rainfall, temperature, regional water usage or other factors.

8.0 REFERENCES

ACEH, 1 October 2008. *Fuel Leak Case No. RO 0000190 and GeoTracker Global ID T0600100084, ARCO #02162, 15135 Hesperian Boulevard, San Leandro, CA 94578.* Letter from Mr. Paresh Khatri (ACEH) to Mr. Paul Supple (Atlantic Richfield Company) requesting work plan.

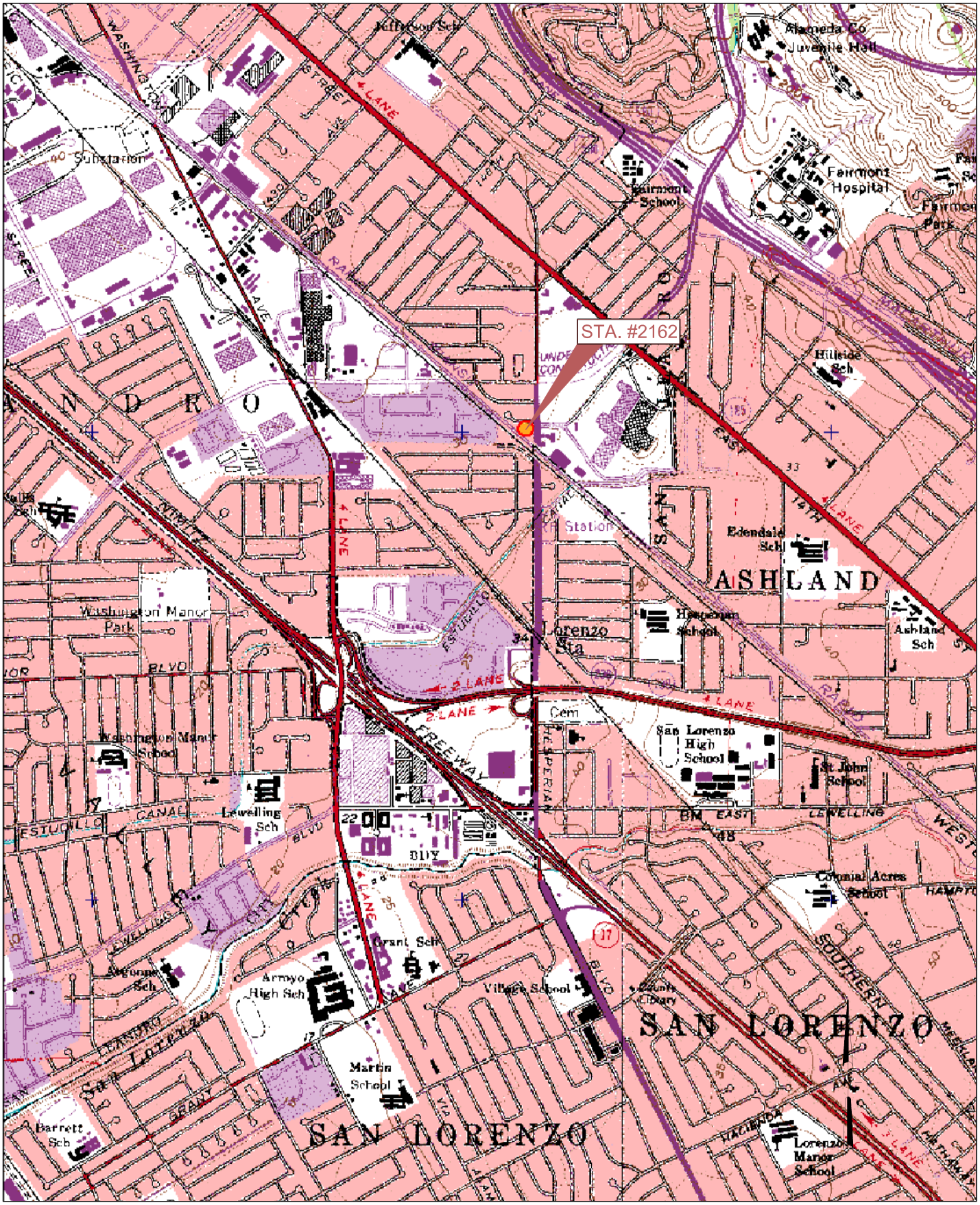
ACEH, 27 March 2009. *Fuel Leak Case No. RO 0000190 and GeoTracker Global ID T0600100084, ARCO #02162, 15135 Hesperian Boulevard, San Leandro, CA 94578.* Letter from Mr. Paresh Khatri (ACEH) to Mr. Paul Supple (Atlantic Richfield Company) approving work plan.

Broadbent & Associates, Inc., 27 October 2006. *Third Quarter 2006 Annual Ground-Water Monitoring Report, Atlantic Richfield Company (a BP affiliated company) Station #2162, 15135 Hesperian Boulevard, San Leandro, CA, ACEH Case No. RO0000190.*

Broadbent & Associates, Inc., 14 September 2007. *Soil & Ground-Water Investigation Report, Atlantic Richfield Company Station No. 2162, 15135 Hesperian Boulevard, San Leandro, CA, ACEH Case No. RO0000190.*

Broadbent & Associates, Inc., 25 November 2008. *Work Plan for On-Site Soil & Ground-Water Investigation, Atlantic Richfield Company Station No. 2162, 15135 Hesperian Boulevard, San Leandro, CA, ACEH Case No. RO0000190.*

California Regional Water Quality Control Board, San Francisco Bay Region, Groundwater Committee, June 1999. *East Bay Plain Groundwater Basin Beneficial Use Evaluation Report, Alameda County and Contra Costa Counties, CA.*



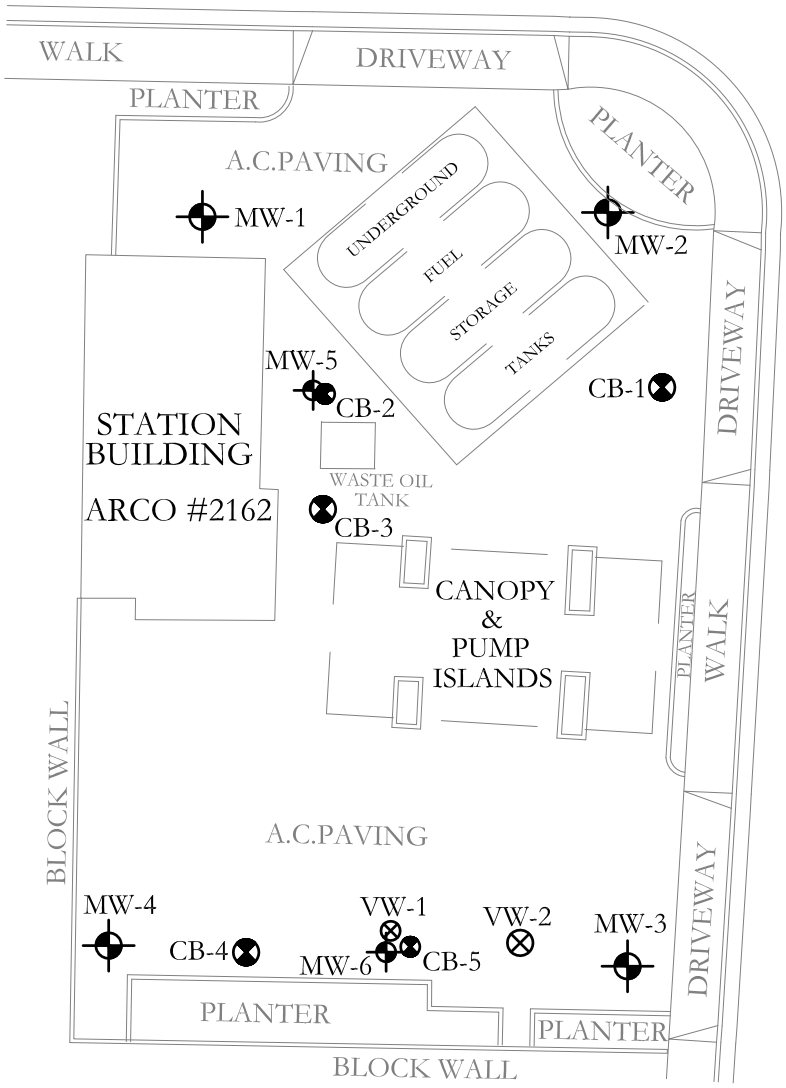
BROADBENT & ASSOCIATES, INC.
ENGINEERING, WATER RESOURCES & ENVIRONMENTAL
1324 Mangrove Ave. Suite 212, Chico, California
Project No.: 06-08-620 Date: 11/20/08

Station #2162
15135 Hesperian Boulevard
San Leandro, California

Site Location Map

Drawing
1

RUTH COURT



HESPERIAN BLVD.

LEGEND

MW-6	MONITORING WELL
CB-5	SOIL/GROUND-WATER BORING
VW-2	SOIL VAPOR EXTRACTION WELL

N

0 30 60

SCALE (ft)

NOTE: SITE MAP ADAPTED FROM STRATUS/WOOD RODGERS.
SITE DIMENSIONS AND FACILITY LOCATIONS NOT VERIFIED.

BROADBENT & ASSOCIATES, INC.
ENGINEERING, WATER RESOURCES & ENVIRONMENTAL
1324 Mangrove Ave. Suite 212, Chico, California
Project No.: 06-88-620 Date: 6/1/09

Station #2162
15135 Hesperian Boulevard
San Leandro, California

Site Layout Plan with
Monitoring Well Locations

Drawing
2

APPENDIX A

RECENT REGULATORY CORRESPONDENCE

ALAMEDA COUNTY
HEALTH CARE SERVICES
AGENCY
DAVID J. KEARS, Agency Director

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

March 27, 2009

Paul Supple
Atlantic Richfield Company
(A BP Affiliated Company)
P.O. Box 1257
San Ramon, CA 94583

Subject: Fuel Leak Case No. RO0000190 and GeoTracker Global ID T0600100084, ARCO #2162, 15135 Hesperian Boulevard, San Leandro, CA 94578

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 & Ground-Water Investigation," dated November 25, 2008, which was prepared by Broadbent & Associates, Inc. (BAI) for the subject Site. BAI proposes to install two groundwater monitoring wells (MW-5 and MW-6) to adequately define the groundwater contaminant plume at the site.

ACEH generally concurs with the proposed scope of work and requests perform the proposed work, and send us the technical reports described below.

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:

- **June 25, 2009** – Soil and Water Investigation Report
- **July 30, 2009** – Semi-annual Monitoring Report (2nd Quarter 2009)
- **January 30, 2010** – Semi-annual Monitoring Report (4th Quarter 2009)

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

Donna L. Drogos, PE
Supervising Hazardous Materials Specialist

Enclosure: ACEH Electronic Report Upload (ftp) Instructions

cc: Tom Venus, Broadbent & Associates, Inc., 1324 Mangrove Ave., Suite. 212, Chico, CA 95926
Donna Drogos, ACEH
Paresh Khatri, ACEH
File

Alameda County Environmental Cleanup Oversight Programs (LOP and SLIC)	**ISSUE DATE:** July 5, 2005
	REVISION DATE: March 27, 2009
	PREVIOUS REVISIONS: December 16, 2005, October 31, 2005
SECTION: Miscellaneous Administrative Topics & Procedures	**SUBJECT:** Electronic Report Upload (ftp) Instructions

The Alameda County Environmental Cleanup Oversight Programs (LOP and SLIC) require submission of all reports in electronic form to the county's ftp site. Paper copies of reports will no longer be accepted. The electronic copy replaces the paper copy and will be used for all public information requests, regulatory review, and compliance/enforcement activities.

REQUIREMENTS

- Entire report including cover letter must be submitted to the ftp site as **a single portable document format (PDF) with no password protection**. (Please do not submit reports as attachments to electronic mail.)
- It is **preferable** that reports be converted to PDF format from their original format, (e.g., Microsoft Word) rather than scanned.
- Signature pages and perjury statements **must** be included and have either original or electronic signature.
- **Do not password protect the document**. Once indexed and inserted into the correct electronic case file, the document will be secured in compliance with the County's current security standards and a password. **Documents with password protection will not be accepted**.
- Each page in the PDF document should be rotated in the direction that will make it easiest to read on a computer monitor.
- Reports must be named and saved using the following naming convention:
  RO#_Report Name_Year-Month-Date (e.g., RO#5555_WorkPlan_2005-06-14)

Additional Recommendations

- A separate copy of the tables in the document should be submitted by e-mail to your Caseworker in **Excel** format. These are for use by assigned Caseworker only.

Submission Instructions

1) Obtain User Name and Password:
   a) Contact the Alameda County Environmental Health Department to obtain a User Name and Password to upload files to the ftp site.
      i) Send an e-mail to dehloptoxic@acgov.org
         Or
      ii) Send a fax on company letterhead to (510) 337-9335, to the attention of My Le Huynh.
   b) In the subject line of your request, be sure to include **"ftp PASSWORD REQUEST"** and in the body of your request, include the **Contact Information, Site Addresses**, and the **Case Numbers (RO# available in Geotracker) you will be posting for**.

2) Upload Files to the ftp Site
   a) Using Internet Explorer (IE4+), go to ftp://alcoftp1.acgov.org
      (i) Note: Netscape and Firefox browsers will not open the FTP site.
   b) Click on File, then on Login As.
   c) Enter your User Name and Password. (Note: Both are Case Sensitive.)
   d) Open "My Computer" on your computer and navigate to the file(s) you wish to upload to the ftp site.
   e) With both "My Computer" and the ftp site open in separate windows, drag and drop the file(s) from "My Computer" to the ftp window.

3) Send E-mail Notifications to the Environmental Cleanup Oversight Programs
   a) Send email to dehloptoxic@acgov.org notify us that you have placed a report on our ftp site.
   b) Copy your Caseworker on the e-mail. Your Caseworker's e-mail address is the entire first name then a period and entire last name @acgov.org. (e.g., firstname.lastname@acgov.org)
   c) The subject line of the e-mail must start with the RO# followed by **Report Upload**. (e.g., Subject: RO1234 Report Upload) If site is a new case without an RO# use the street address instead.
   d) If your document meets the above requirements and you follow the submission instructions, you will receive a notification by email indicating that your document was successfully uploaded to the ftp site.

APPENDIX B

STRATUS MONITORING WELL INSTALLATION DATA PACKAGE
(Includes Field Data Sheets, Boring Logs, Well Permit, Surveyed Site Plan, and Certified Laboratory Analytical Report with Chain-of-Custody Documentation)

STRATUS
ENVIRONMENTAL, INC.

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

May 22, 2009

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

Re: Monitoring Well Installation and Well Development Data Package, ARCO Service Station No. 2162, located at 15135 Hesperian Boulevard, San Leandro, California (field activities performed between April 13 and 29, 2009)

General Information

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

Date: April 13, 2009
On-Site Supplier Representative: Collin Fischer
Scope of Work Performed: Health and safety meeting with utility locating subcontractor (Cruz Brothers Locators). Clear 2 boring locations and mark for Underground Service Alert (USA). Prepare map illustrating locations of underground utilities identified by Cruz Brothers Locators.
Variations from Work Scope: None noted

Date: April 16, 2009
On-Site Supplier Representative: Collin Fischer
Scope of Work Performed: Fill out health and safety forms. Check USA markings and mark additional utility locations on site map for ground disturbance procedure requirements. Talk with manager about project work dates and work times.
Variations from Work Scope: None noted

Date: April 23, 2009
On-Site Supplier Representative: Collin Fischer
Scope of Work Performed: Health and safety meeting with air knife subcontractor (RSI Drilling). Concrete core 1 boring location (MW-5). Air knife 2 boring locations (MW-5 and MW-6) to 6.5 feet bgs.
Variations from Work Scope: None noted

Date: April 24, 2009
On-Site Supplier Representative: Collin Fischer
Scope of Work Performed: Health and safety meeting with drilling subcontractor (RSI Drilling). Drill and install 2 monitoring wells (MW-5 and MW-6).
Variations from Work Scope: None noted

Date: April 29, 2009
On-Site Supplier Representative: Collin Fischer
Scope of Work Performed: Complete health and safety forms. Develop 2 monitoring wells (MW-5 and MW-6).
Variations from Work Scope: None noted

This submittal presents the data collected in association with the installation of two monitoring wells. The attachments include field data sheets, boring logs, DWR well completion reports, a copy of the drilling permit, a site plan, a description of standard field procedures used for well development, certified analytical results for a waste composite soil sample collected during the investigation, and chain-of-custody documentation for this sample. 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
- DWR Well Completion Reports
- Drilling Permit
- Site Plan
- Field Procedures for Well Development
- Certified Analytical Results
- Chain-of-Custody Documentation

cc: Paul Supple, BP/ARCO

Field Data Sheet

Site: ARCO 2162 Date: 9/13/09

Personnel on site: COLLIN FISHER, CRUZ BROS

Weather Conditions: SUNNY, CLEAR

Notes:

1230 → ONSITE, SAFETY MEETING

1300 → START CLEARING BORINGS.

1410 → CALL TO OFFICE ABOUT LOCATION OF (MW-5), DISCUSS W/ SCOTT, WE WILL DETERMINE BEST LOCATION ON PROJECT START DAY, CLEAR LARGE BOX AROUND.

1430 → OFFSITE, ALL UTILITIES LOCATED & MARKED OUT ON MAP.

STRATUS ENV., INC.

Field Data Sheet

Site: ARCO 2162 Date: 4/16/09

Personnel on site: Collin Fischer

Weather Conditions: Sunny, Clear

Notes:

1300 → ONSITE, FILL OUT SAFETY PAPERWORK.

1315 → MEASURE ALL UTILITY LOCATIONS FROM LANDMARKS TO CREATE A UTILITY SERVICES MAP.

& ALSO UPDATE USA TRACKING SHEET.

1400 → OFFSITE

Collin Fischer

STANTEC ENV, INC.

Field Data Sheet

Site: ARCO 2167 **Date:** 4/23/09

Personnel on site: Collin Fischer, RSI Drilling

Weather Conditions: Sunny, Partly Cloudy

Notes:

1500 → Onsite, Fill out paperwork, Do site walk

1530 → RSI onsite, Safety Meeting.

1600 → Set up on (MW-6) & Begin AK.

1730 → (MW-6) Cleaned to 6.5' BGS, Fill w/ Sand & Patch Surface.

1800 → Move to (MW-5) & Set up.

1830 → Begin Concrete coring.

1845 → Done coring, Begin AK on (MW-5).

1945 → Done Cleaning (MW-5) to 6.5' BGS, Backfill w/ Sand & patch surface

2000 → Cleaned out vac tank into drums.

2030 → Clean up & Secure Site

2045 → Offsite

Stantec Env., Inc.

Field Data Sheet

Site: ARCO 2162 Date: 4/24/09

Personnel on site: Collin Fischer, PSI Drilling

Weather Conditions: Partly Cloudy

Notes:

0530 → ONSITE, SAFETY MEETING, SET UP ON (MW-5) & BEGIN SAMPLING

0605 → SAMPLING DONE TO 16' BGS BEGIN DRILLING.

0645 → TO DEPTH START SETTING WELL (MW-5). SCREEN 8-16, SAND 6-16, BENT 3-6, GROUT 0-3

0730 → (MW-5) SET, SET BOX & MOUNT & MOVE TO (MW-6) & START SAMPLING.

0805 → SAMPLING DONE, BEGIN DRILLING.

0840 → TO DEPTH START SETTING (MW-6) SCREEN 8-16, SAND 6-16, BENT 3-6, GROUT 0-3

0900 → WELL SET, HYDRATE & WAIT TO GROUT

0945 → SET BOX & CLEAN UP AREA

1015 → DECON & CLEAN UP SITE

1030 → SECURE AREA & LABEL DRUMS.

1045 → OFFSITE

Collin Fischer

STRATUS ENV., INC.

STRATUS ENVIRONMENTAL, INC.

Site Address 15135 HESPERIAN BLVD
City SAN LEANDRO, CA
Sampled by: CF
Signature

Site Number 2162
Project Number E2162
Project PM Jay JOHNSON
DATE 04/29/09

Water Level Data					Purge Volume Calculations					Purge Method				Sample Record			Field Data
Well ID	Time	Depth to Product (feet)	Depth to Water (feet)	Total Depth (feet)	Water column (feet)	Diameter (inches)	Multiplier	1 casing volumes (gallons)	Actual water purged (gallons)	No Purge	Bailer	Pump	other	DTW at sample time (feet)	Sample I.D	Sample Time	DO (mg/L)
MW-5	1003		9.01	16.02	7.01	4"	6.67	47	50		X			9.20	—	—	3.33
MW-4	1058		8.81	16.15	7.34	4"	6.67	49			X			8.96			6.53

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

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

CALIBRATION DATE
pH
Conductivity
DO

time					time				
purge stop time					pugre stop time				
Well ID MW-5					Well ID MW-4				
purge start time 1003					purge start time [redacted] 1058				
	Temp C	pH	cond	gallons		Temp C	pH	cond	gallons
time 1009	17.6	8.15	611	0	time 1102	[redacted]	7.43	453	0
time 1018	17.3	7.6	459	15	time 1109	19.3	7.35	440	15
time 1031	17.1	7.56	443	30	time 1119	19.0	7.43	189	30
time 1040	17.0	7.58	183	45	time 1128	19.1	7.42	185	45
purge stop time					purge stop time				
Well ID					Well ID				
purge start time					purge start time				
	Temp C	pH	cond	gallons		Temp C	pH	cond	gallons
time 1043	17.0	7.57	183	50	time 1131	19.0	7.40	187	50
time					time				
time					time				
time					time				
purge stop time					purge stop time				
Well ID					Well ID				
purge start time					purge start time				
	Temp C	pH	cond	gallons		Temp C	pH	cond	gallons
time					time				
time					time				
time					time				
time					time				
purge stop time					purge stop time				

[redacted]

SOIL BORING LOG **Boring No. MW-5** **Sheet: 1 of 1**

Client	Arco 2162	Date	April 24, 2009
Address	15135 Hesperian Boulevard	Drilling Co.	RSI Drilling rig type: Geoprobe 6600
	San Leandro, CA	Driller	Fernando
Project No.	E2162	Method	Hollow Stem Auger Hole Diameter: 10 inches
Logged By:	Collin Fischer	Sampler:	1 1/4" geoprobe tubing
Well Pack	sand: 6 ft. to 16 ft	Well Construction	Casing Material: Schedule 40 PVC Screen Interval: 8 ft. to 16 ft.
	bent.: 3 ft. to 6 ft.		Casing Diameter: 4 in. Screen Slot Size: 0.010-in.
	grout: 0 ft. to 3 ft.	Depth to GW:	▽ first encountered 10.5' bgs static ▼

Sample Type	Sample No.	Blow Count	Sample Time	Sample Recov.	Well Details	Depth Scale	Lithologic Column	Descriptions of Materials and Conditions	PID (PPM)
						1		Cleared to 6.5' bgs. with air knife	
						2			
						3			
						4			
						5	CL		
						6			
						7			
			0530	100		8		Sandy clay, CL, (6.5'-8.5' bgs), dark grayish brown, moist, medium plasticity 70% clay, 30% fine to medium grained sand	
						9			
						10		Silty clay, CL, (8.5'-10.5' bgs), dark grayish brown, moist, medium plasticity 80% clay, 20% silt	
			0540	100		11	▽	Silty sand with clay, SM, (10.5'-12' bgs), dark grayish brown, wet	
						12		60% medium grained sand, 25% silt, 10% clay, 5% fine gravel Silty sand with clay, SM, (12'-13.5' bgs), dark yellowish brown, wet	
						13	SM	60% medium grained sand, 25% silt, 10% clay, 5% fine gravel	
			0555	100		14		Silty sand with clay, SM, (12'-13.5' bgs), dark yellowish brown, wet 60% medium grained sand, 30% silt, 20% clay	
						15			
						16	ML	Clayey silt, ML, (15'-16' bgs), dark yellowish brown, moist, medium plasticity 60% silt, 40% clay	
						17			
						18			
						19			
						20			

Recovery

Sample

Comments: Boring sampled to 16' bgs with geoprobe, then drilled to 16' bgs with 10" hollow stem augers.

STRATUS ENVIRONMENTAL, INC.

SOIL BORING LOG **Boring No. MW-6** **Sheet: 1 of 1**

Client	Arco 2162	Date	April 24, 2009
Address	15135 Hesperian Boulevard	Drilling Co.	RSI Drilling rig type: Geoprobe 6600
	San Leandro, CA	Driller	Fernando
Project No.	E2162	Method	Hollow Stem Auger Hole Diameter: 10 inches
Logged By:	Collin Fischer	Sampler:	1 1/4" geoprobe tubing
Well Pack	sand: 6 ft. to 16 ft	Well Construction	Casing Material: Schedule 40 PVC Screen Interval: 8 ft. to 16 ft.
	bent.: 3 ft. to 6 ft.		Casing Diameter: 4 in. Screen Slot Size: 0.010-in.
	grout: 0 ft. to 3 ft.	Depth to GW:	▽ first encountered 10' bgs static ▼

Sample Type	Sample No.	Blow Count	Sample Time	Sample Recov.	Well Details	Depth Scale	Lithologic Column	Descriptions of Materials and Conditions	PID (PPM)
						1		Cleared to 6.5' bgs. with air knife	
						2			
						3			
						4			
						5	CL		
						6			
						7			
			0730	100		8		Sandy clay, CL, (6.5'-8.5' bgs), dark yellowish brown, moist medium plasticity, 70% clay, 30% fine to medium grained sand	
						9			
						10 ▽		Silty clay, CL, (8.5'-10' bgs), dark grayish brown, moist, medium plasticity 100% clay	
			0740	100		11			
						12	SM	Silty sand with gravel, SM, (10'-13.5' bgs), dark grayish brown, wet 60% medium to coarse grained sand, 30% silt, 10% fine gravel	
						13			
			0755	100		14			
						15		Silty sand with clay, SM, (13.5'-15.5' bgs), dark yellowish brown, wet 50% fine to medium grained sand, 30% silt, 20% clay	
						16	CL	Clay, CL, (15.5'-16' bgs), dark yellowish brown, moist, medium plasticity 100% clay	
						17			
						18			
						19			
						20			

Recovery

Sample

Comments: Boring sampled to 16' bgs with geoprobe, then drilled to 16' bgs with 10" hollow stem augers.

STRATUS ENVIRONMENTAL, INC.

CONFIDENTIAL

STATE OF CALIFORNIA DWR
WELL COMPLETION REPORT
(WELL LOGS)

REMOVED

CONFIDENTIAL

STATE OF CALIFORNIA DWR
WELL COMPLETION REPORT
(WELL LOGS)

REMOVED

Alameda County Public Works Agency - Water Resources Well Permit

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

Application Approved on: 04/15/2009 By jamesy

Permit Numbers: W2009-0284 to W2009-0285
Permits Valid from 04/24/2009 to 04/27/2009

Application Id:	1239809616415	**City of Project Site:**	San Leandro
Site Location:	15135 Hesperian Blvd, San Leandro		
Project Start Date:	04/22/2009	**Completion Date:**	04/23/2009
Assigned Inspector:	Contact Vicky Hamlin at (510) 670-5443 or vickyh@acpwa.org		
Extension Start Date:	04/24/2009	**Extension End Date:**	04/27/2009
Extension Count:	1	**Extended By:**	vickyh1

Applicant:	Stratus Environmental - Scott Bittinger 3330 Cameron Park, # 550, Cameron, CA 95682	**Phone:**	530-676-2062
Property Owner:	BP/ ARCO 6 Centerpoint Dr, La Palma, CA 90623	**Phone:**	925-275-3801
Client:	** same as Property Owner **		
Contact:	Scott Bittinger	**Phone:** **Cell:**	530-676-2062 --

	Total Due:	$690.00
Receipt Number: WR2009-0138	**Total Amount Paid:**	$690.00
Payer Name : Stratus Environmental	Paid By: CHECK	**PAID IN FULL**

Works Requesting Permits:

Well Construction-Monitoring-Monitoring - 2 Wells
Driller: RSI, Inc - Lic #: 802334 - Method: auger

Work Total: $690.00

Specifications

Permit #	Issued Date	Expire Date	Owner Well Id	Hole Diam.	Casing Diam.	Seal Depth	Max. Depth
W2009-0284	04/15/2009	07/21/2009	MW-5	10.00 in.	4.00 in.	5.00 ft	20.00 ft
W2009-0285	04/15/2009	07/21/2009	MW-6	10.00 in.	4.00 in.	5.00 ft	20.00 ft

Specific Work Permit Conditions

1. 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, properly damage, personal injury and wrongful death.

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

3. 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.

4. Compliance with the well-sealing specifications shall not exempt the well-sealing contractor from complying with appropriate State reporting-requirements related to well construction or destruction (Sections 13750 through 13755 (Division 7, Chapter 10, Article 3) of the California Water Code). Contractor must complete State DWR Form 188 and mail original to the Alameda County Public Works Agency, Water Resources Section, within 60 days. Including permit number and site map.

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

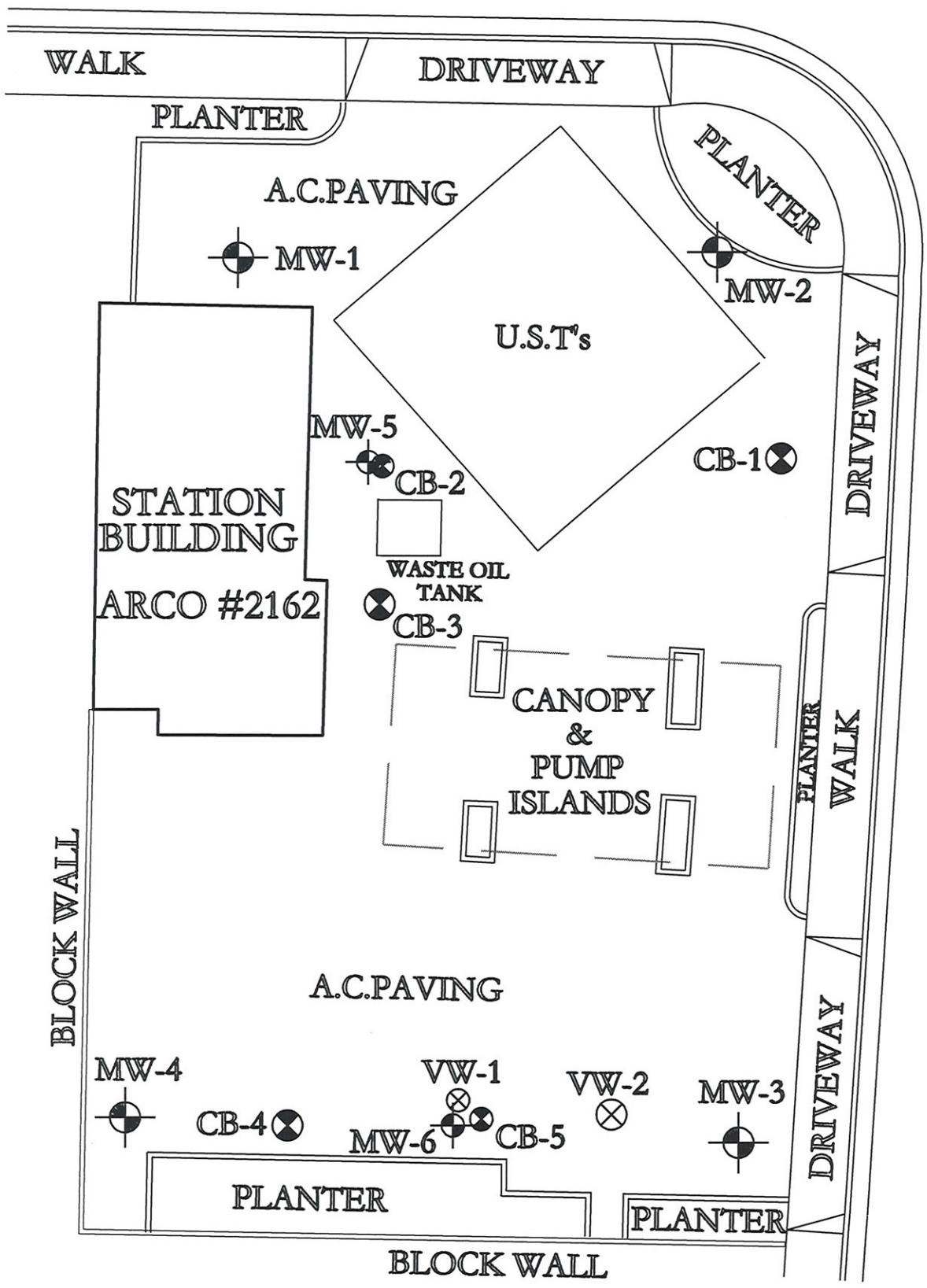
6. Wells shall have a Christy box or similar structure with a locking cap or cover. Well(s) shall be kept locked at all times. Well(s) that become damaged by traffic or construction shall be repaired in a timely manner or destroyed immediately (through permit process). No well(s) shall be left in a manner to act as a conduit at any time.

7. Minimum surface seal thickness is two inches of cement grout placed by tremie

8. Minimum seal (Neat Cement seal) depth for monitoring wells is 5 feet below ground surface(BGS) or the maximum depth practicable or 20 feet.

9. 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.

RUTH COURT



HESPERIAN BLVD.

PROFESSIONAL LAND SURVEYOR
CRAIG E. SPIESS
Exp. 12/31/09
No 7944
STATE OF CALIFORNIA
5/20/09

MONITORING WELL EXHIBIT

PREPARED FOR

STRATUS ENVIRONMENTAL

ARCO STATION # 2162, LOCATED AT 15135 HESPERIAN BLVD.
CITY OF SAN LEANDRO, COUNTY OF ALAMEDA, STATE OF CALIFORNIA

0 10 20 40

SCALE 1"=20'

WOOD RODGERS
ENGINEERING • MAPPING • PLANNING • SURVEYING
3301 C St., Bldg. 100-B Tel 916.341.7760
Sacramento, CA 95816 Fax 916.341.7767

MAY 11, 2009

Sheet 1 of 1 # 2479.016

GLOBAL_ID	FIELD_PT_NAME	FIELD_PT_	XY_SURVEY	LATITUDE	LONGITUDE	XY_METHOD	XY_DATUM	XY_ACC_VAL	XY_SURVEY_ORG	GPS_EQUIP_TY	XY_SURVEY_DES
T0600100084	MW-1	MW	5/11/2009	37.7002994	-122.1304252	CGPS	NAD83	30	WOOD RODGERS PLS 7944	TR	
T0600100084	MW-2	MW	5/11/2009	37.7003043	-122.1302064	CGPS	NAD83	30	WOOD RODGERS PLS 7944	TR	
T0600100084	MW-3	MW	5/11/2009	37.6999811	-122.1301887	CGPS	NAD83	30	WOOD RODGERS PLS 7944	TR	
T0600100084	MW-4	MW	5/11/2009	37.6999861	-122.1304690	CGPS	NAD83	30	WOOD RODGERS PLS 7944	TR	
T0600100084	MW-5	MW	5/11/2009	37.7002257	-122.1303639	CGPS	NAD83	30	WOOD RODGERS PLS 7944	TR	
T0600100084	MW-6	MW	5/11/2009	37.6999853	-121.1303191	CGPS	NAD83	30	WOOD RODGERS PLS 7944	TR	
T0600100084	CB-1		5/11/2009	37.7002296	-122.1301754	CGPS	NAD83	30	WOOD RODGERS PLS 7944	TR	
T0600100084	CB-2		5/11/2009	37.7002243	-122.1303573	CGPS	NAD83	30	WOOD RODGERS PLS 7944	TR	
T0600100084	CB-3		5/11/2009	37.7001749	-122.1303574	CGPS	NAD83	30	WOOD RODGERS PLS 7944	TR	
T0600100084	CB-4		5/11/2009	37.6999842	-122.1303947	CGPS	NAD83	30	WOOD RODGERS PLS 7944	TR	
T0600100084	CB-5		5/11/2009	37.6999878	-122.1303061	CGPS	NAD83	30	WOOD RODGERS PLS 7944	TR	
T0600100084	VW-1		5/11/2009	37.6999945	-122.1303169	CGPS	NAD83	30	WOOD RODGERS PLS 7944	TR	
T0600100084	VW-2		5/11/2009	37.6999903	-122.1302468	CGPS	NAD83	30	WOOD RODGERS PLS 7944	TR	

GLOBAL_ID	FIELD_PT_NAME	ELEV_SURVEY_	ELEVATION	ELEV_METHOD	ELEV_DATUM	ELEV_ACC_VAL	ELEV_SURVEY_ORG	RISER_HT	ELEV_DESC	EFF_DATE
T0600100084	MW-1	5/11/2009	33.70	DIG	NAVD88	0.01	WOOD RODGERS PLS 7944	-0.27		
T0600100084	MW-2	5/11/2009	32.95	DIG	NAVD88	0.01	WOOD RODGERS PLS 7944	-0.36		
T0600100084	MW-3	5/11/2009	32.88	DIG	NAVD88	0.01	WOOD RODGERS PLS 7944	-0.24		
T0600100084	MW-4	5/11/2009	33.97	DIG	NAVD88	0.01	WOOD RODGERS PLS 7944	-0.24		
T0600100084	MW-5	5/11/2009	33.96	DIG	NAVD88	0.01	WOOD RODGERS PLS 7944	-0.24		
T0600100084	MW-6	5/11/2009	33.48	DIG	NAVD88	0.01	WOOD RODGERS PLS 7944	-0.34		
T0600100084	CB-1	5/11/2009		DIG	NAVD88	0.01	WOOD RODGERS PLS 7944			
T0600100084	CB-2	5/11/2009		DIG	NAVD88	0.01	WOOD RODGERS PLS 7944			
T0600100084	CB-3	5/11/2009		DIG	NAVD88	0.01	WOOD RODGERS PLS 7944			
T0600100084	CB-4	5/11/2009		DIG	NAVD88	0.01	WOOD RODGERS PLS 7944			
T0600100084	CB-5	5/11/2009		DIG	NAVD88	0.01	WOOD RODGERS PLS 7944			
T0600100084	VW-1	5/11/2009	33.17	DIG	NAVD88	0.01	WOOD RODGERS PLS 7944	-0.58		
T0600100084	VW-2	5/11/2009	33.05	DIG	NAVD88	0.01	WOOD RODGERS PLS 7944	-0.29		

ATTACHMENT
FIELD PROCEDURES FOR WELL DEVELOPMENT

The procedures typically used for development of monitoring or remediation wells are contained in this appendix.

Subjective Analysis of Groundwater and Well Condition

Following installation of a monitoring or remediation well, a minimum of approximately 48 to 72 hours is allotted to allow for curing of liquid neat cement placed in the upper portion of the borehole annulus around the well casing. Upon return to the site to complete development of the well, Stratus personnel will measure depth to groundwater within the well casing and the total depth of the well. These data will be compared with well construction information recorded at the time that the well is installed. If groundwater levels and well depths correspond to construction information, well development will proceed. If the water levels and well depths differ significantly from construction information, personnel developing the well will contact the project manager to discuss the situation prior to proceeding with development activities. Using the well depth and water level measurement, the volume of water situated within the well casing is calculated.

Prior to development, a sample of groundwater is collected from the well for subjective assessment. The sample is retrieved by gently lowering a clean, disposable bailer to the air/liquid interface. The bailer is then retrieved, and the sample contained within the bailer is examined for floating liquid petroleum hydrocarbons (LPH) and the appearance of a LPH sheen. If measureable LPH is present within the well, the field representative completing the work will discuss with the project manager whether or not to proceed with development of the well.

Well Development

Monitoring and remediation wells are typically developed by surging and bailing, followed by groundwater pumping. Stratus personnel typically develop small diameter wells (2-inch to 4-inch) by manually raising and lowering a bailer or surge block across the screened interval of the well. Wells larger than 4-inches in diameter are typically developed using a truck mounted well development rig to complete surging and bailing activities. This well surging activity forces water movement through the filter pack sand placed around the well screen. Following surging of the well, water from the well is bailed in order to recover sediment that may have settled near the base of the well casing.

Once the surging and bailing activities have been completed, a submersible pump is placed inside of the well casing to allow for pumping of groundwater. Groundwater pumping is typically continued until the water removed from the well appears free of suspended sediment. A minimum of 10 well casing volumes are typically extracted from the well during development. However, less water may be removed from the well if insufficient recharge only allows for intermittent groundwater pumping.

Groundwater generated during development is containerized and transported off-site for disposal at an appropriate facility.

Equipment Cleaning

All reusable equipment used in well development is cleaned using phosphate-free detergents and rinsed with de-ionized water following use at each specific well.

Calscience
Environmental
Laboratories, Inc.

May 07, 2009

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

Subject: **Calscience Work Order No.: 09-04-2328**
Client Reference: BP/ARCO 2162

Dear Client:

Enclosed is an analytical report for the above-referenced project. The samples included in this report were received 4/25/2009 and analyzed in accordance with the attached chain-of-custody.

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

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

Sincerely,

Calscience Environmental
Laboratories, Inc.
Richard Villafania
Project Manager

Calscience Environmental Laboratories, Inc.

Analytical Report

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

Date Received: 04/25/09
Work Order No: 09-04-2328
Preparation: EPA 3050B
Method: EPA 6010B

Project: BP/ARCO 2162

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
SWC	**09-04-2328-1-A**	**04/24/09 08:30**	**Solid**	**ICP 5300**	**05/06/09**	**05/07/09 11:05**	**090506L01**

Parameter	Result	RL	DF	Qual	Units
Lead	4.58	0.500	1		mg/kg

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
Method Blank	**097-01-002-12,284**	**N/A**	**Solid**	**ICP 5300**	**05/06/09**	**05/07/09 10:54**	**090506L01**

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

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

Calscience Environmental Laboratories, Inc.

Analytical Report

Stratus Environmental, inc.	Date Received:	04/25/09
3330 Cameron Park Drive, Suite 550	Work Order No:	09-04-2328
Cameron Park, CA 95682-8861	Preparation:	EPA 5030B
	Method:	EPA 8015B (M)

Project: BP/ARCO 2162

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
SWC	**09-04-2328-1-A**	**04/24/09 08:30**	**Solid**	**GC 1**	**04/25/09**	**04/27/09 14:34**	**090427B01**

Parameter	Result	RL	DF	Qual	Units
Gasoline Range Organics (C6-C12)	19	0.50	1		mg/kg

Surrogates:	REC (%)	Control Limits	Qual
1,4-Bromofluorobenzene	128	42-126	LH,AY

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
Method Blank	**099-12-697-106**	**N/A**	**Solid**	**GC 1**	**04/25/09**	**04/27/09 11:15**	**090427B01**

Parameter	Result	RL	DF	Qual	Units
Gasoline Range Organics (C6-C12)	ND	0.50	1		mg/kg

Surrogates:	REC (%)	Control Limits	Qual
1,4-Bromofluorobenzene	90	42-126	

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

Calscience Environmental Laboratories, Inc.

Analytical Report

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

Date Received: 04/25/09
Work Order No: 09-04-2328
Preparation: EPA 5030B
Method: EPA 8260B
Units: ug/kg

Project: BP/ARCO 2162

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
SWC	**09-04-2328-1-A**	**04/24/09 08:30**	**Solid**	**GC/MS Z**	**04/28/09**	**04/28/09 18:36**	**090428L02**

Comment(s): -BH

Parameter	Result	RL	DF	Qual	Parameter	Result	RL	DF	Qual
Benzene	ND	100	100		Xylenes (total)	ND	100	100	
Ethylbenzene	ND	100	100		Methyl-t-Butyl Ether (MTBE)	ND	100	100	
Toluene	ND	100	100						

Surrogates:	REC (%)	Control Limits	Qual	Surrogates:	REC (%)	Control Limits	Qual
Dibromofluoromethane	96	75-141		1,2-Dichloroethane-d4	114	73-151	
Toluene-d8	115	87-111		LH,AY1,4-Bromofluorobenzene	101	71-113	

Method Blank	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
Method Blank	**099-12-709-135**	**N/A**	**Solid**	**GC/MS Z**	**04/28/09**	**04/28/09 12:19**	**090428L02**

Parameter	Result	RL	DF	Qual	Parameter	Result	RL	DF	Qual
Benzene	ND	100	100		Xylenes (total)	ND	100	100	
Ethylbenzene	ND	100	100		Methyl-t-Butyl Ether (MTBE)	ND	100	100	
Toluene	ND	100	100						

Surrogates:	REC (%)	Control Limits	Qual	Surrogates:	REC (%)	Control Limits	Qual
Dibromofluoromethane	97	75-141		1,2-Dichloroethane-d4	108	73-151	
Toluene-d8	104	87-111		1,4-Bromofluorobenzene	95	71-113	

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

Calscience Environmental Laboratories, Inc.

Quality Control - Spike/Spike Duplicate

Stratus Environmental, inc.	Date Received:	04/25/09
3330 Cameron Park Drive, Suite 550	Work Order No:	09-04-2328
Cameron Park, CA 95682-8861	Preparation:	EPA 3050B
	Method:	EPA 6010B

Project BP/ARCO 2162

Quality Control Sample ID	Matrix	Instrument	Date Prepared	Date Analyzed	MS/MSD Batch Number
SWC	**Solid**	**ICP 5300**	**05/06/09**	**05/07/09**	**090506S01**

Parameter	MS %REC	MSD %REC	%REC CL	RPD	RPD CL	Qualifiers
Lead	98	99	75-125	1	0-20	

RPD - Relative Percent Difference , CL - Control Limit

Calscience Environmental Laboratories, Inc.

Quality Control - PDS / PDSD

Stratus Environmental, inc.	Date Received	04/25/09
3330 Cameron Park Drive, Suite 550	Work Order No:	09-04-2328
Cameron Park, CA 95682-8861	Preparation:	EPA 3050B
	Method:	EPA 6010B

Project: BP/ARCO 2162

Quality Control Sample ID	Matrix	Instrument	Date Prepared	Date Analyzed	PDS/PDSD Batch Number
SWC	**Solid**	**ICP 5300**	**05/06/09**	**05/07/09**	**090506S01**

Parameter	PDS %REC	PDSD %REC	%REC CL	RPD	RPD CL	Qualifiers
Lead	94	93	75-125	1	0-20	

RPD - Relative Percent Difference , CL - Control Limit

Calscience Environmental Laboratories, Inc.

Quality Control - Spike/Spike Duplicate

Stratus Environmental, inc.	Date Received:	04/25/09
3330 Cameron Park Drive, Suite 550	Work Order No:	09-04-2328
Cameron Park, CA 95682-8861	Preparation:	EPA 5030B
	Method:	EPA 8015B (M)

Project BP/ARCO 2162

Quality Control Sample ID	Matrix	Instrument	Date Prepared	Date Analyzed	MS/MSD Batch Number
SWC	**Solid**	**GC 1**	**04/25/09**	**04/27/09**	**090427S01**

Parameter	MS %REC	MSD %REC	%REC CL	RPD	RPD CL	Qualifiers
Gasoline Range Organics (C6-C12)	0	7	42-126	4	0-25	LN,AY

RPD - Relative Percent Difference , CL - Control Limit

Calscience Environmental Laboratories, Inc.

Quality Control - Spike/Spike Duplicate

Stratus Environmental, inc.	Date Received:	04/25/09
3330 Cameron Park Drive, Suite 550	Work Order No:	09-04-2328
Cameron Park, CA 95682-8861	Preparation:	EPA 5030B
	Method:	EPA 8260B

Project BP/ARCO 2162

Quality Control Sample ID	Matrix	Instrument	Date Prepared	Date Analyzed	MS/MSD Batch Number
09-04-2282-11	**Solid**	**GC/MS Z**	**04/28/09**	**04/28/09**	**090428S01**

Parameter	MS %REC	MSD %REC	%REC CL	RPD	RPD CL	Qualifiers
Benzene	91	93	79-115	2	0-13	
Carbon Tetrachloride	97	96	55-139	1	0-15	
Chlorobenzene	97	97	79-115	1	0-17	
1,2-Dibromoethane	116	101	70-130	14	0-30	
1,2-Dichlorobenzene	95	93	63-123	2	0-23	
1,1-Dichloroethene	103	95	69-123	9	0-16	
Ethylbenzene	99	99	70-130	0	0-30	
Toluene	110	89	79-115	21	0-15	BA,AY
Trichloroethene	104	102	66-144	1	0-14	
Vinyl Chloride	87	81	60-126	6	0-14	
Methyl-t-Butyl Ether (MTBE)	110	103	68-128	7	0-14	
Tert-Butyl Alcohol (TBA)	91	89	44-134	2	0-37	
Diisopropyl Ether (DIPE)	90	84	75-123	8	0-12	
Ethyl-t-Butyl Ether (ETBE)	97	89	75-117	8	0-12	
Tert-Amyl-Methyl Ether (TAME)	97	97	79-115	0	0-12	
Ethanol	91	81	42-138	12	0-28	

RPD - Relative Percent Difference , CL - Control Limit

Calscience Environmental Laboratories, Inc.

Quality Control - LCS/LCS Duplicate

Stratus Environmental, inc.		Date Received:	N/A
3330 Cameron Park Drive, Suite 550		Work Order No:	09-04-2328
Cameron Park, CA 95682-8861		Preparation:	EPA 3050B
		Method:	EPA 6010B

Project: BP/ARCO 2162

Quality Control Sample ID	Matrix	Instrument	Date Prepared	Date Analyzed	LCS/LCSD Batch Number
097-01-002-12,284	**Solid**	**ICP 5300**	**05/06/09**	**05/07/09**	**090506L01**

Parameter	LCS %REC	LCSD %REC	%REC CL	RPD	RPD CL	Qualifiers
Lead	102	102	80-120	0	0-20	

RPD - Relative Percent Difference , CL - Control Limit

Calscience Environmental Laboratories, Inc.

Quality Control - LCS/LCS Duplicate

Stratus Environmental, inc.		Date Received:	N/A
3330 Cameron Park Drive, Suite 550		Work Order No:	09-04-2328
Cameron Park, CA 95682-8861		Preparation:	EPA 5030B
		Method:	EPA 8015B (M)

Project: BP/ARCO 2162

Quality Control Sample ID	Matrix	Instrument	Date Prepared	Date Analyzed	LCS/LCSD Batch Number
099-12-697-106	**Solid**	**GC 1**	**04/25/09**	**04/27/09**	**090427B01**

Parameter	LCS %REC	LCSD %REC	%REC CL	RPD	RPD CL	Qualifiers
Gasoline Range Organics (C6-C12)	91	92	70-118	1	0-20	

RPD - Relative Percent Difference , CL - Control Limit

Calscience Environmental Laboratories, Inc.

Quality Control - LCS/LCS Duplicate

Stratus Environmental, inc.		Date Received:	N/A
3330 Cameron Park Drive, Suite 550		Work Order No:	09-04-2328
Cameron Park, CA 95682-8861		Preparation:	EPA 5030B
		Method:	EPA 8260B

Project: BP/ARCO 2162

Quality Control Sample ID	Matrix	Instrument	Date Prepared	Date Analyzed	LCS/LCSD Batch Number
099-12-709-135	**Solid**	**GC/MS Z**	**04/28/09**	**04/28/09**	**090428L02**

Parameter	LCS %REC	LCSD %REC	%REC CL	ME_CL	RPD	RPD CL	Qualifiers
Benzene	103	102	84-114	79-119	1	0-7	
Bromobenzene	99	99	80-120	73-127	0	0-20	
Bromochloromethane	99	98	80-120	73-127	0	0-20	
Bromodichloromethane	107	109	80-120	73-127	2	0-20	
Bromoform	105	104	80-120	73-127	0	0-20	
Bromomethane	116	111	80-120	73-127	4	0-20	
n-Butylbenzene	106	109	77-123	69-131	3	0-25	
sec-Butylbenzene	104	105	80-120	73-127	1	0-20	
tert-Butylbenzene	105	104	80-120	73-127	0	0-20	
Carbon Disulfide	105	102	80-120	73-127	3	0-20	
Carbon Tetrachloride	102	102	69-135	58-146	0	0-13	
Chlorobenzene	103	102	85-109	81-113	0	0-8	
Chloroethane	95	94	80-120	73-127	1	0-20	
Chloroform	106	105	80-120	73-127	1	0-20	
Chloromethane	102	97	80-120	73-127	4	0-20	
2-Chlorotoluene	102	103	80-120	73-127	1	0-20	
4-Chlorotoluene	104	105	80-120	73-127	1	0-20	
Dibromochloromethane	101	104	80-120	73-127	3	0-20	
1,2-Dibromo-3-Chloropropane	109	111	80-120	73-127	1	0-20	
1,2-Dibromoethane	102	103	80-120	73-127	1	0-20	
Dibromomethane	105	106	80-120	73-127	1	0-20	
1,2-Dichlorobenzene	104	104	80-110	75-115	0	0-10	
1,3-Dichlorobenzene	102	104	80-120	73-127	2	0-20	
1,4-Dichlorobenzene	100	103	80-120	73-127	3	0-20	
Dichlorodifluoromethane	108	106	80-120	73-127	2	0-20	
1,1-Dichloroethane	104	102	80-120	73-127	2	0-20	
1,2-Dichloroethane	107	110	80-120	73-127	3	0-20	
1,1-Dichloroethene	108	108	83-125	76-132	0	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	102	102	79-115	73-121	0	0-25	
1,3-Dichloropropane	101	102	80-120	73-127	1	0-20	
2,2-Dichloropropane	104	102	80-120	73-127	2	0-20	
1,1-Dichloropropene	102	100	80-120	73-127	1	0-20	
c-1,3-Dichloropropene	109	111	80-120	73-127	1	0-20	
t-1,3-Dichloropropene	101	103	80-120	73-127	2	0-20	
Ethylbenzene	105	105	80-120	73-127	1	0-20	
Isopropylbenzene	103	104	80-120	73-127	0	0-20	

RPD - Relative Percent Difference , CL - Control Limit

Calscience Environmental Laboratories, Inc.

Quality Control - LCS/LCS Duplicate

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

Date Received: N/A
Work Order No: 09-04-2328
Preparation: EPA 5030B
Method: EPA 8260B

Project: BP/ARCO 2162

Quality Control Sample ID	Matrix	Instrument	Date Prepared	Date Analyzed	LCS/LCSD Batch Number
099-12-709-135	Solid	GC/MS Z	04/28/09	04/28/09	090428L02

Parameter	LCS %REC	LCSD %REC	%REC CL	ME CL	RPD	RPD CL	Qualifiers
p-Isopropyltoluene	105	107	80-120	73-127	1	0-20	
Methylene Chloride	102	102	80-120	73-127	1	0-20	
Naphthalene	98	103	80-120	73-127	5	0-20	
n-Propylbenzene	105	106	80-120	73-127	1	0-20	
Styrene	103	104	80-120	73-127	1	0-20	
Ethanol	94	90	50-134	36-148	4	0-23	
1,1,1,2-Tetrachloroethane	102	104	80-120	73-127	2	0-20	
1,1,2,2-Tetrachloroethane	99	99	80-120	73-127	1	0-20	
Tetrachloroethene	90	99	80-120	73-127	10	0-20	
Toluene	107	108	79-115	73-121	1	0-8	
1,2,3-Trichlorobenzene	99	102	80-120	73-127	3	0-20	
1,2,4-Trichlorobenzene	101	106	80-120	73-127	4	0-20	
1,1,1-Trichloroethane	104	107	80-120	73-127	2	0-20	
1,1,2-Trichloroethane	97	99	80-120	73-127	1	0-20	
Trichloroethene	104	105	87-111	83-115	1	0-7	
Trichlorofluoromethane	113	109	80-120	73-127	3	0-20	
1,2,3-Trichloropropane	107	106	80-120	73-127	1	0-20	
1,2,4-Trimethylbenzene	104	106	80-120	73-127	2	0-20	
1,3,5-Trimethylbenzene	107	107	80-120	73-127	0	0-20	
Vinyl Acetate	108	106	80-120	73-127	2	0-20	
Vinyl Chloride	102	98	72-126	63-135	5	0-10	
p/m-Xylene	106	106	80-120	73-127	0	0-20	
o-Xylene	105	108	80-120	73-127	2	0-20	
Methyl-t-Butyl Ether (MTBE)	102	104	75-129	66-138	2	0-13	
Tert-Butyl Alcohol (TBA)	95	93	66-126	56-136	3	0-24	
Diisopropyl Ether (DIPE)	98	99	77-125	69-133	1	0-13	
Ethyl-t-Butyl Ether (ETBE)	99	101	72-132	62-142	1	0-12	
Tert-Amyl-Methyl Ether (TAME)	98	100	77-125	69-133	3	0-10	

Total number of LCS compounds : 66
Total number of ME compounds : 0
Total number of ME compounds allowed : 3
LCS ME CL validation result : Pass

RPD - Relative Percent Difference , CL - Control Limit

Calscience Environmental Laboratories, Inc.

Glossary of Terms and Qualifiers

Work Order Number: 09-04-2328

Qualifier	Definition
AX	Sample too dilute to quantify surrogate.
AZ	Surrogate recovery outside of acceptance limits due to matrix interference.
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.
CL	Initial analysis within holding time but required dilution.
CQ	Analyte concentration greater than 10 times the blank concentration.
CU	Surrogate concentration diluted to not detectable during analysis.
DF	Reporting limits elevated due to matrix interferences.
DU	Insufficient sample quantity for matrix spike/dup matrix spike.
ET	Sample was extracted past end of recommended max. holding time.
EY	Result exceeds normal dynamic range; reported as a min est.
GR	Internal standard recovery is outside method recovery limit.
IB	CCV recovery abovelimit; analyte not detected.
IH	Calibrtn. verif. recov. below method CL for this analyte.
IJ	Calibrtn. verif. recov. above method CL for this analyte.
J,DX	J=EPA Flag -Estimated value; DX= Value < lowest standard (MQL), but > than MDL.
LA	Confirmatory analysis was past holding time.
LG,AY	LG= Surrogate recovery below the acceptance limit. AY= Matrix interference suspected.
LH,AY	LH= Surrogate recovery above the acceptance limit. AY= Matrix interference suspected.
LM,AY	LM= MS and/or MSD above acceptance limits. See Blank Spike (LCS). AY= Matrix interference suspected.
LN,AY	LN= MS and/or MSD below acceptance limits. See Blank Spike (LCS). AY= Matrix interference suspected.
LQ	LCS recovery above method control limits.

Work Order Number: 09-04-2328

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

Calscience Environmental Laboratories, Inc.

WORK ORDER #: 09-04- 2 3 2 8

SAMPLE RECEIPT FORM

Cooler 1 of 1

CLIENT: Stratus. DATE: 4/28/09

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

Temperature 5.2 °C - 0.2 °C (CF) = 5.0 °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: WSC

CUSTODY SEALS INTACT:

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

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

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

CONTAINER TYPE:

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

Water: ☐VOA ☐VOA**h** ☐VOA**na$_2$** ☐125AGB ☐125AGB**h** ☐125AGB**p** ☐1AGB ☐1AGB**na$_2$** ☐1AGB**s** ☐500AGB ☐500AGJ ☐500AGJ**s** ☐250AGB ☐250CGB ☐250CGB**s** ☐1PB ☐500PB ☐500PB**na** ☐250PB ☐250PB**n** ☐125PB ☐125PB**znna** ☐100PB ☐100PB**na$_2$** ☐_____ ☐_____ ☐_____

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

Container: C: Clear A: Amber P: Plastic G: Glass J: Jar (Wide-mouth) B: Bottle (Narrow-mouth) **Reviewed by:** TD

Preservative: h: HCL n: HNO3 na$_2$: $Na_2S_2O_3$ Na: NaOH p: H_3PO_4 s: H_2SO_4 znna: $ZnAc_2$+NaOH f: Field-filtered **Scanned by:** WSC

Atlantic Richfield Company
A BP affiliated company

Laboratory Management Program LaMP Chain of Custody Record

190414

Page 1 of 1

BP/ARC Project Name: [illegible]
BP/ARC Facility No: 2162
Req Due Date (mm/dd/yy): ____ Rush TAT: Yes ___ No X
Lab Work Order Number: 09-04-2328

Lab Name: CALSCIENCE	BP/ARC Facility Address: 15135 HESPERIAN BLVD	Consultant/Contractor: STRATUS
Lab Address: 7440 LINCOLN WAY	City, State, ZIP Code: SAN LEANDRO, CA.	Consultant/Contractor Project No: E2162
Lab PM: GARDEN GROVE, CA.	Lead Regulatory Agency: ALAMEDA County	Address: 3330 CAMERON PARK DR. #550
Lab Phone: 714 895 5494	California Global ID No.: T0600100084	Consultant/Contractor PM: JAY JOHNSON
Lab Shipping Accnt: 9255	Enfos Proposal No:	Phone: 530 676 6000
Lab Bottle Order No:	Accounting Mode: Provision ___ OOC-BU ___ OOC-RM ___	Email EDD To: CHUFF@STRATUSINC.NET
Other Info:	Stage: Activity:	Invoice To: BP/ARC X Contractor ___
BP/ARC EBM: PAUL SUPPLE		
EBM Phone:		
EBM Email: PAUL.SUPPLE@BP.COM		

Lab No.	Sample Description	Date	Time	Matrix: Soil / Solid	Matrix: Water / Liquid	Matrix: Air / Vapor	No. Containers / Preservative: Total Number of Containers	Unpreserved	H_2SO_4	HNO_3	HCl	Methanol	Requested Analyses: GRO	BTEX	MTBE	TOTAL LEAD
1	SWC	04/24/09	0830	X			1	X					+	+	+	+

Report Type & QC Level: Standard X; Full Data Package ___

Comments: Note: If sample not collected, indicate "No Sample" in comments and single-strike out and initial any preprinted sample description.

Sampler's Name: COLLIN FISCHER	Relinquished By / Affiliation	Date	Time	Accepted By / Affiliation	Date	Time
Sampler's Company: STRATUS ENV., INC.	Collin Fischer	04/24/09	1700			
Shipment Method: GSO Ship Date: 04/24/09				[illegible] CBL	4/27/09	8:25
Shipment Tracking No: 106160207						

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

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

APPENDIX C

GEOTRACKER UPLOAD CONFIRMATION RECEIPTS

STATE WATER RESOURCES CONTROL BOARD

GEOTRACKER ESI

UPLOADING A GEO_MAP FILE

SUCCESS

Your GEO_MAP file has been successfully submitted!

Submittal Type:	**GEO_MAP**
Facility Global ID:	**T0600100084**
Facility Name:	**ARCO #2162**
File Name:	**15135 Hesperian Blvd_2009-05-11.pdf**
Username:	**Broadbent & Associates, Inc.**
Username:	**BROADBENT-C**
IP Address:	**67.118.40.90**
Submittal Date/Time:	**5/20/2009 2:28:53 PM**
Confirmation Number:	**3635003209**

STATE WATER RESOURCES CONTROL BOARD

GEOTRACKER ESI

UPLOADING A GEO_BORE FILE

SUCCESS

Your GEO_BORE file has been successfully submitted!

Submittal Type:	**GEO_BORE**
Facility Global ID:	**T0600100084**
Field Point:	**MW-5**
Facility Name:	**ARCO #2162**
File Name:	**GEO_BORE MW-5.pdf**
Username:	**Broadbent & Associates, Inc.**
Username:	**BROADBENT-C**
IP Address:	**67.118.40.90**
Submittal Date/Time:	**5/29/2009 9:45:54 AM**
Confirmation Number:	**6239025294**

STATE WATER RESOURCES CONTROL BOARD

GEOTRACKER ESI

UPLOADING A GEO_BORE FILE

SUCCESS

Your GEO_BORE file has been successfully submitted!

Submittal Type:	**GEO_BORE**
Facility Global ID:	**T0600100084**
Field Point:	**MW-6**
Facility Name:	**ARCO #2162**
File Name:	**GEO_BORE MW-6.pdf**
Username:	**Broadbent & Associates, Inc.**
Username:	**BROADBENT-C**
IP Address:	**67.118.40.90**
Submittal Date/Time:	**5/29/2009 9:47:20 AM**
Confirmation Number:	**1695229649**

STATE WATER RESOURCES CONTROL BOARD

GEOTRACKER ESI

UPLOADING A GEO_XY FILE

SUCCESS

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

Submittal Type:	**GEO_XY**
Submittal Title:	**GEO_XY MW-1 to 5, CB-1 to 5, VW-1, VW-2**
Facility Global ID:	**T0600100084**
Facility Name:	**ARCO #2162**
File Name:	**GEO_XY.zip**
Organization Name:	**Broadbent & Associates, Inc.**
Username:	**BROADBENT-C**
IP Address:	**67.118.40.90**
Submittal Date/Time:	**5/20/2009 2:15:47 PM**
Confirmation Number:	**5505774259**

STATE WATER RESOURCES CONTROL BOARD

GEOTRACKER ESI

UPLOADING A GEO_XY FILE

SUCCESS

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

Submittal Type:	**GEO_XY**
Submittal Title:	**GEO_XY MW-6**
Facility Global ID:	**T0600100084**
Facility Name:	**ARCO #2162**
File Name:	**GEO_XY.zip**
Organization Name:	**Broadbent & Associates, Inc.**
Username:	**BROADBENT-C**
IP Address:	**67.118.40.90**
Submittal Date/Time:	**5/29/2009 9:14:03 AM**
Confirmation Number:	**9820580601**

STATE WATER RESOURCES CONTROL BOARD

GEOTRACKER ESI

UPLOADING A GEO_Z FILE

SUCCESS

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

Submittal Type:	GEO_Z
Submittal Title:	GEO_Z MW-1 to 5, VW-1, VW-2
Facility Global ID:	T0600100084
Facility Name:	ARCO #2162
File Name:	GEO_Z.zip
Organization Name:	Broadbent & Associates, Inc.
Username:	BROADBENT-C
IP Address:	67.118.40.90
Submittal Date/Time:	5/20/2009 2:24:26 PM
Confirmation Number:	4970602750

STATE WATER RESOURCES CONTROL BOARD

GEOTRACKER ESI

UPLOADING A GEO_Z FILE

SUCCESS

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

Submittal Type:	**GEO_Z**
Submittal Title:	**GEO_Z MW-6**
Facility Global ID:	**T0600100084**
Facility Name:	**ARCO #2162**
File Name:	**GEO_Z.zip**
Organization Name:	**Broadbent & Associates, Inc.**
Username:	**BROADBENT-C**
IP Address:	**67.118.40.90**
Submittal Date/Time:	**5/29/2009 9:14:57 AM**
Confirmation Number:	**7322564244**