ARCADIS
Infrastructure, environment, buildings

ARCADIS U.S., Inc.
100 Montgomery Street, Suite 300
San Francisco, CA 94104
Tel 415.374.2744
Fax 415.374.2745
www.arcadis-us.com

Site Investigation Report
Former BP Service Station #11266
1541 Park Street
Alameda, California
ACEH Case #RO0000318

ENVIRONMENT

"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."

Date:
December 1, 2010

Submitted by:

ARCADIS U.S., Inc

Hollis E. Phillips, PG
Project Manager

Contact:
Hollis E. Phillips

Phone:
415.374.2744 ext 13

Email:
Hollis.phillips@arcadis-us.com

Our ref:
GP09BPNA.C001

ARCADIS
2033 North Main Street
Suite 340
Walnut Creek
California 94596
Tel 925.274.1100
Fax 925.274.1103
www.arcadis-us.com

ENVIRONMENT

Mr. Paresh Khatri
Hazardous Materials Specialist
Alameda County Environmental Health
1131 Harbor Bay Parkway, Suite 250
Alameda, CA 94502-6577

Subject:
Site Investigation Report
Former BP Service Station #11266
1541 Park Street
Alameda, California
ACEH Case #RO0000318

Date:
December 1, 2010

Contact:
Hollis Phillips

Phone:
415.374.2744 ext. 13

Email:
Hollis.Phillips@
arcadis-us.com

Our ref:
GP09BPNA.C001

Dear Mr. Khatri:

ARCADIS U.S. (ARCADIS) has prepared this *Soil and Groundwater Investigation Report* (Report) for the Former BP Service Station No. 11266 (Site) located at 1541 Park Street in Alameda California (**Figure 1**). This Report has been prepared to document site assessment activities conducted as proposed in ARCADIS' *Work Plan Addendum for Additional Soil Characterization* dated July 27, 2010. This work was conducted as requested by Alameda County Environmental Health (ACEH) in a letter dated September 3, 2009.

Site Background

The Site is located on the Southwest corner of the intersection of Lincoln Avenue and Park Street in Alameda, California (**Figure 1**). The station is currently an active 76-brand retail gasoline service station. Structures on the site include a service station building with three service bays and four pump islands with associated dispensers. The site is generally flat and surfaced in asphalt and concrete. Properties surrounding the site are primarily commercial and retail. On-site structures below ground surface consist of one 12,000 gallon and two 10,000 gallon double walled fiberglass gasoline underground storage tanks (USTs). A 1,000 gallon double-walled fiberglass UST is used to store waste motor oil on-site. The first documented installation of USTs onsite was in 1987 when older and undocumented USTs were removed (BAI, 2009).

There are currently five on site monitoring wells (MW-1 through MW-5) and one offsite monitoring well (MW-6) located in the Southern lane of Lincoln Avenue. One

recovery well (RW-1) is located on the Northern portion of the site. A site map with soil boring and well locations is provided as **Figure 2**.

Previous Site Investigations

Between 1992 and 1995 soil was excavated during the replacement of the 1987 USTs, fuel dispensers, and associated piping. During UST removal activities, sidewall soil samples collected from the gasoline UST excavation at a depth of 11.5 feet bgs contained Total Petroleum Hydrocarbons in the Gasoline Range (GRO) at concentrations ranging from non-detect to 3,200 milligrams per kilogram (mg/kg), Benzene at concentrations ranging from non-detect to 81 mg/kg, Toluene at concentrations ranging from non-detect to 42 mg/kg, and Total Xylenes at concentrations ranging from non-detect to 450 mg/kg. A recovery well was installed and operated with pump and treat remediation from August 1992 to October 1994. The volume of groundwater treated and the amount of petroleum hydrocarbons removed by pump and treat remediation onsite is unknown (BAI, 2008).

Analytical results from historic soil sample C-1 in the source zone reported concentrations of GRO at 3,200 mg/kg and benzene at 81 mg/kg. Stratus Environmental, Inc. (Stratus) planned to advance soil boring B-01 in the area of historical boring C-1 on March 26, 2009 (**Figure 2**). Resonant Sonic Drilling Incorporated (RSI) encountered pea gravel and an unidentified metal object during the advancement of boring B-01 therefore it was abandoned due to safety concerns related to the proximity of underground objects and the risk of destabilizing and damaging the pump island concrete pad through undermining. Boring B-02 was advanced to a maximum depth of 9.5-feet below ground surface (bgs) near the former waste oil tank excavation pit in the area of the historical sample location W.O.-1 (BAI, 2009). Soil samples were analyzed for GRO by Environmental Protection Agency (EPA) method 8015B; five oxygenates, ethylene dibromide (EDB), and 1,2 Dichloroethane (1,2-DCA) by EPA method 8260; total lead by EPA method 6010B, and halogenated volatile organic compounds (VOCs) by EPA method 8260. Lead was reported in soil samples above the laboratory reporting limit at a maximum concentration of 96.6 milligrams per kilogram (mg/kg), which is below the California Department of Public Health and California EPA reporting limits. ACEH submitted a letter order in September of 2009 for additional subsurface investigation to assess soil conditions at historic sample location C-1.

Groundwater is monitored on a semi-annual basis and samples are analyzed for GRO, benzene, toluene, ethylbenzene, and xylenes (BTEX), five oxygenates, 1,2-DCA, EDB, and halogenated VOCs by EPA method 8260B; ethanol, and total lead by EPA method 6010B. Based on the latest data (third quarter 2010) GRO is the most prevalent contaminant of concern (detected up to 900 micrograms per liter [µg/L]). Other COCs (BTEX, and fuel oxygenates) were detected in groundwater samples at much lower concentrations.

Regional and Site-Specific Geology and Hydrogeology

The site is located along the northeastern edge of the Central Sub-Area of the East Bay Plain of the San Francisco Basin (SFRWQCB, 1999). Alameda is isolated by a tidal canal and is underlain by Holocene and Pleistocene dune sands (Graymer, 2000) which are highly susceptible to salt water intrusion (SFRWQCB, 1999). Throughout most of the Alameda County portion of the East Bay Plain the general direction of groundwater flow is from east to west from the Hayward Fault to the San Francisco Bay. According to the East Bay Plain Groundwater Basin Beneficial Use Evaluation Report prepared by the San Francisco Regional Water Quality Control Board (SFRWQCB), water level measurements show that groundwater is flowing to the south in the shallow aquifer and is flowing to the north within the deeper aquifer of the Alameda Formation (SFRWQCB, 1999).

The site elevation is approximately 29 feet above mean sea level. Groundwater has been measured between 6.24 to 23.40 feet below ground surface and fluctuates seasonally (BAI, 2009). Groundwater flow direction was most recently calculated to the east at 0.02 ft/ft using data from the third quarter 2010 monitoring event. Soil stratigraphy data derived from on-site borings generally indicates that the soils underlying the site consist primarily of poorly graded fine- to medium-grained sands from the surface to the total depth explored (25 feet bgs). A distance of approximately 0.5 miles spans between the site and the Alameda tidal canal which is the closest body of surface water.

Recent Site Activities

On October 26, 2010 ARCADIS supervised WDC Exploration & Wells (WDC) in the advancement of one direct-push soil boring SB-02 (**Figure 2**) to assess the nature and extent of impacts to soil in the area of historic soil sample C-1. A soil sample was

collected from boring SB-02 at a depth of approximately 11.5 ft bgs and submitted for laboratory analysis.

Scope of Work

ARCADIS prepared a site specific Health and Safety Plan (HASP) which was reviewed by the field staff and contractors prior to beginning field operations at the site. A Soil Boring Permit was obtained from Alameda County Public Works Department and is included in **Appendix A**.

Underground Service Alert (USA) was notified at least 48 hours before proposed drilling activities to identify public utilities in the vicinity of the proposed borings. A private contractor, Utility Locating Service (ULS), was utilized to further evaluate the presence of underground utilities in the vicinity of the proposed boring. The ULS ground penetrating radar survey report shows fuel product, electrical, and water lines running directly over the area of historic soil sample location C-1 and the proposed soil boring location SB-01. It was determined in the field that the advancement of SB-01 and Sub-Slab samples SS-01 and SS-02 would be unsafe due to the extent of underground utilities and fuel product lines in the vicinity. The ULS report is included as **Appendix B**. Soil boring SB-02 was proposed as a contingency to SB-01and successfully completed.

Soil boring SB-02 was initially cleared to 6 feet bgs with a hand-auger and was advanced to a maximum depth of 12 feet bgs using direct-push Geoprobe® technology. Soil samples for lithologic description were collected continuously in 5-foot intervals from acetate liners inside 2.2-inch diameter driving rods. The location of soil boring SB-02 is presented on **Figure 2**. A soil sample collected from 11.5-ft bgs was submitted for chemical analysis to a California state certified laboratory under standard chain of custody protocol. The soil sample was analyzed for the following constituents:

- GRO, BTEX, MTBE, Diisopropyl ether (DIPE), Ethyl tert-butyl ether (ETBE), Tert amyl-methyl ether (TAME), TBA, EDB, 1,2-DCA, halogenated VOCs, and ethanol by USEPA Method 8260B.
- Total Lead by EPA method 6010B.

Sampling and boring equipment were retrieved to ground surface and decontaminated using an Alconox® and tap-water solution. The borehole was closed with neat cement

and topped with concrete to match existing grade. Field Documentation is included in **Appendix C**. Investigation-derived waste was containerized in 55-gallon Department of Transportation (DOT)-approved drums and temporarily stored at the site pending transport by Belshire Environmental Services Inc. (BESI) to an appropriate disposal facility.

Site Investigation Results

Subsurface Conditions:

The soil profile generally consisted of sand with variable fractions of silt and clay. A layer of well-sorted sand with silt and trace fractions of gravel was observed to approximately 6-ft bgs and a layer of sand was observed with fractions of clay increasing with depth from 6-ft bgs to 12-ft bgs. The SB-02 boring log is included as **Appendix D**.

Soil Analytical Data:

Soil analytical results for the sample collected from boring SB-02 at 11.5-ft bgs show that concentrations are below the laboratory reporting limits for all constituents except lead which was reported at 2.0 milligrams per kilogram (mg/kg). A copy of the laboratory analytical report and chain-of-custody documentation is included in **Appendix E**.

Conclusion and Recommendations

As stated by ACEH in a letter dated September 3, 2009, the goal of this scope of work was to evaluate subsurface conditions in the vicinity of the former source area as defined by historic soil sample C-1. Soil boring SB-02 was installed considering safety concerns related to underground utilities and is located 12-feet to the north and proximal to historic boring C-1. The concentrations of all contaminants of concern with the exception of lead were reported below laboratory detection limits in a soil sample collected at 11.5-feet bgs in boring SB-02. Lead was reported at 2.0 mg/kg which is below the Regional Water Quality Control Board (RWQCB) environmental screen levels (ESL) of 720 mg/kg for shallow soil in a commercial land use scenario.

The current investigation shows that hydrocarbon impacts to soil proximal to historic boring C-1 and in the source zone are lower than the initial C-1 results by up to four orders of magnitude. Contaminant of concern (COC) concentrations below laboratory reporting limits in soil samples taken from the source area along with reduced COC concentrations reported in groundwater samples collected downgradient of the source area show that impacts have attenuated and are not migrating off site. ARCADIS concludes that this site contains a very low risk and as such should be closed. A Request for Closure will be submitted in the first quarter 2011 based upon the following;

- All the wells that contain (or recently contained) COC concentrations in groundwater indicate decreasing trends.
- The plume does not appear to be migrating.
- The site has been adequately characterized.
- No sensitive receptors are likely to be impacted, including surface-water bodies, municipal wells and drinking water sources.

If you have any questions or comments, please contact Ben McKenna by telephone at 925.296.7857 or by e-mail at Benino.McKenna@arcadis-us.com or Hollis Phillips by telephone at 415.374.2744 ext. 13 or by e-mail at Hollis.Phillips@arcadis-us.com.

Sincerely,

ARCADIS

Ben McKenna
Project Geologis

REGISTERED GEOLOGIST
HOLLIS E. PHILLIPS
HEP
No. 6887
STATE OF CALIFORNIA

Hollis E. Phillips, P.G.
Project Manager

Enclosures:

Table 1	Soil Analytical Data
Figure 1	Site Location Map
Figure 2	Site Map with Monitoring Well and Boring Locations
Appendix A	Alameda County Soil Boring Permit
Appendix B	ULS report
Appendix C	Field Documentation
Appendix D	Soil Boring Log
Appendix E	Laboratory Analytical Report and Chain-of-Custody Documentation

References

ACEH, 3 September 2009. *Fuel Leak Case No. RO0000318 and GeoTracker Global ID T0600100207, ARCO No.11266, 1541 Park Street, Alameda, CA 94501*. Submitted by Mr. Paresh Khatri to the Atlantic Richfield Company, Conoco Phillips, and Raymond Yeung.

Broadbent & Associates, Inc. 15 December 2008. *Work Plan for Soil & water Investigation, Former BP Service Station #11266, 1541 Park Street, Alameda, California, ACEH Case # RO0000318*

Broadbent & Associates, Inc. 14 August 2009. *On-site Soil Investigation and Second Quarter 2009 Groundwater Monitoring Report, Former BP Service Station #11266, 1541 Park Street, Alameda, California, ACEH Case # RO0000318*

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

Graymer, R.W., 2000, Geologic map and map database of the Oakland metropolitan area, Alameda, Contra Costa, and San Francisco Counties, California: U.S. Geological Survey, Miscellaneous Field Studies Map MF-2342, scale 1:50000.

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Tables

Table 1
Soil Analytical Results
Former BP Service Station 11266
1541 Park Street, Alameda, CA

Sample Name	Sample Depth (ft bgs)	Sample Date	EPA 8260B													EPA 6010
			GRO (mg/Kg)	Benzene (mg/Kg)	Toluene (mg/Kg)	Ethylbenzene (mg/Kg)	Xylenes (mg/Kg)	TBA (mg/Kg)	MTBE (mg/Kg)	DIPE (mg/Kg)	EtBE (mg/Kg)	TAME (mg/Kg)	EDB (mg/Kg)	Ethanol (mg/Kg)	1,2 DCA (mg/Kg)	Lead (mg/Kg)
Comercial ESLs for Soil (mg/Kg)[1]			**180**	**0.27**	**9.3**	**4.7**	**11**	**110**	**8.4**	--	--	--	--	--	**0.48**	**750**
SB-02	11.5	10/26/10	<0.240	<0.004	<0.004	<0.004	<0.009	<0.009	<0.004	<0.004	<0.004	<0.004	<0.004	<0.004	<0.004	2.00

Explanation

mg/Kg	Milligrams per kilogram	1,2 DCA	1,2 dichloroethane
--	Not available	EDB	Ethylene dibromide
<0.004	Not detected above laboratory reporting limit displayed	DIPE	Di-isopropyl ether
bgs	Below ground surface	ETBE	Ethyl tert-butyl ether
GRO	Gasoline range organics C6-C12	TAME	Tert-amyl methyl ether
TBA	Tert-butyl ether	ESL	Environmental Screening level
MTBE	Methyl tert-butyl ether		

[1] ESLs reference Table B-2 in California Regional Water Quality Control Board's *Screening for Environmental Concerns at Sites with Contaminated Soil and Groundwater, May 2008.*

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Figures

REFERENCE: BASE MAP USGS 7.5. MIN. TOPO. QUAD.,OAKLAND WEST, CA., 1993, AND SAN LEANDRO, 1993, REVISED 1996.

0 2000' 4000'

Approximate Scale: 1 in. = 2000 ft.

FORMER BP SERVICE STATION #11266
1541 PARK STREET
ALAMEDA, CALIFORNIA

SITE LOCATION MAP

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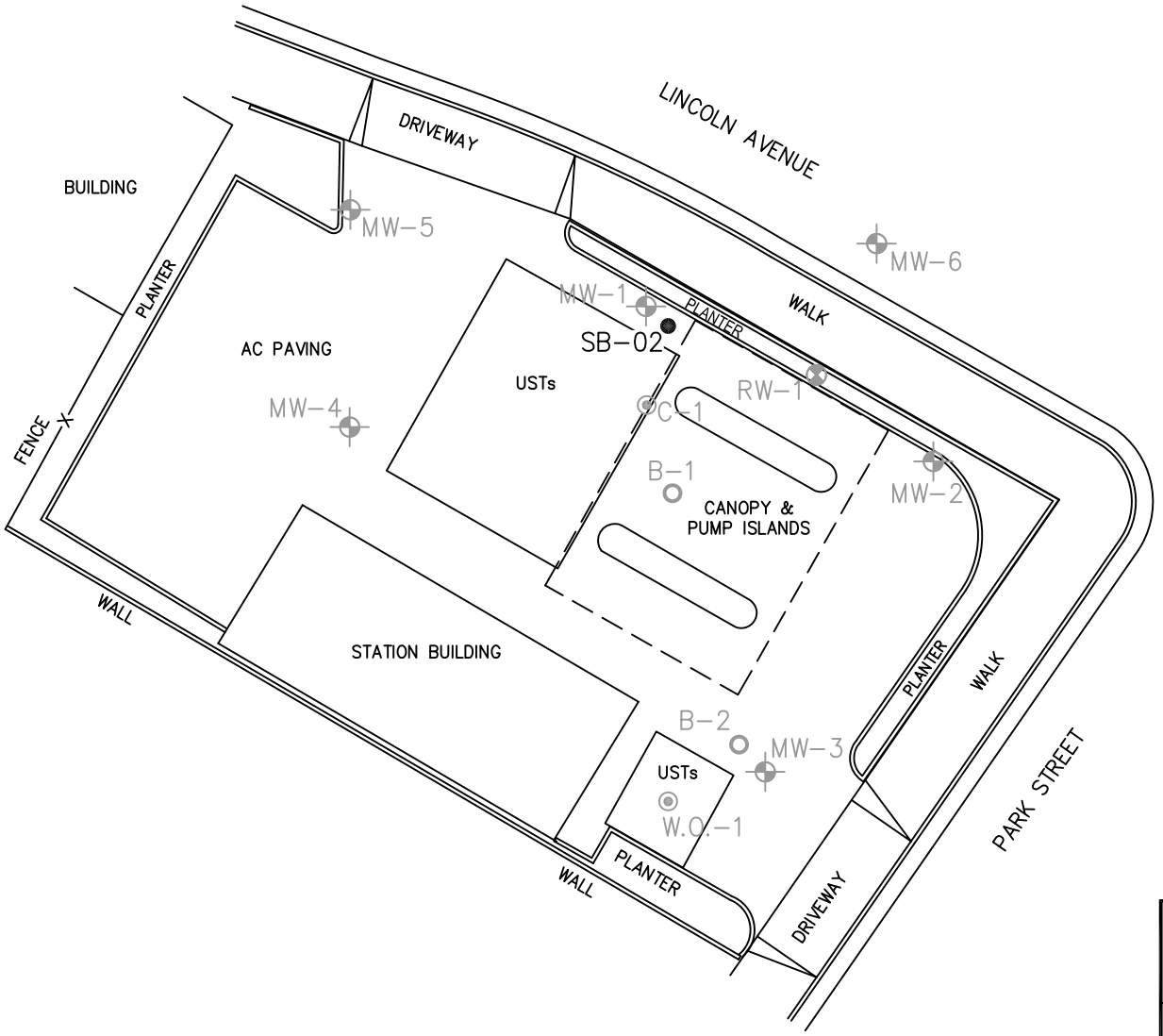
FIGURE
1

CITY: PETALUMA, CA DIV/GROUP: ENV DB: J. HARRIS LD:-- PIC:-- PM: L.A. SMITH TM: C. MEYER LYR:(Opt)ON=*;OFF=*REF*
G:\ENVCAD\Petaluma\ACT\GP09BPNA\C001\C0000\1541 Park Street-Alameda\Soil and GW Inv WP\GP09BPNAC001-P01.dwg LAYOUT: 2 SAVED: 11/19/2010 8:12 AM ACADVER: 18.0S (LMS TECH) PAGESETUP: SETUP1 PLOTSTYLETABLE: ARCADIS.CTB PLOTTED: 11/29/2010 2:29 PM BY: HARRIS, JESSICA
XREFS: IMAGES: PROJECTNAME: ---
GP09BPNAC001-X01



LEGEND

- MONITORING WELL
- RECOVERY WELL
- SOIL BORING BY KAPREALIAN ENGINEERING, INC.
- SOIL BORING BY BROADBENT & ASSOCIATES, INC.
- SOIL BORING LOCATION BY ARCADIS

0 30' 60'

NOTE:
BASEMAP PROVIDED BY BROADBENT & ASSOCIATES, INC., PROJECT REFERENCE NO. 06-88-658, DATED SEPTEMBER 30, 2009, AT A SCALE OF 1"=30'.

FORMER BP SERVICE STATION #11266
1541 PARK STREET
ALAMEDA, CALIFORNIA

SITE MAP WITH MONITORING WELL AND SOIL BORING LOCATIONS

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FIGURE
2

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Appendix A

Alameda County Public Works
Soil Boring Permit

Alameda County Public Works Agency - Water Resources Well Permit

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

Application Approved on: 10/13/2010 By jamesy

Permit Numbers: W2010-0731
Permits Valid from 10/26/2010 to 10/28/2010

Application Id: 1286566046012 **City of Project Site:** Alameda
Site Location: 1541 Park st.
Project Start Date: 10/26/2010 **Completion Date:** 10/28/2010
Assigned Inspector: Contact Ron Smalley at (510) 670-5407 or ronaldws@acpwa.org

Applicant: ARCADIS - Ben McKenna
2033 N. Main St. Ste. 340, Walnut Creek, CA 94596 **Phone:** 925-296-7857
Property Owner: Raymond Yeung
1541 Park st., Alameda, CA 94501 **Phone:** --
Client: Ben McKenna
2033 N.Main st. Ste. 340, Walnut Creek, CA 94596 **Phone:** --

Total Due: $265.00
Receipt Number: WR2010-0341 **Total Amount Paid:** $265.00
Payer Name : Tobin Woodley Paid By: VISA **PAID IN FULL**

Works Requesting Permits:

Borehole(s) for Investigation-Environmental/Monitorinig Study - 2 Boreholes
Driller: WDC - Lic #: 283326 - Method: DP **Work Total: $265.00**

Specifications

Permit Number	Issued Dt	Expire Dt	# Boreholes	Hole Diam	Max Depth
W2010-0731	10/13/2010	01/24/2011	2	3.50 in.	12.00 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. The containers shall be clearly labeled to the ownership of the container and labeled hazardous or non-hazardous.

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, properly damage, personal injury and wrongful death.

4. Applicant shall contact Ron Smalley for an inspection time at 510-670-5407 or email to ronaldws@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.

5. 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.

6. Prior to any drilling activities onto any public right-of-ways, it shall be the applicants responsibilities to contact and

coordinate a Underground Service Alert (USA), obtain encroachment permit(s), excavation permit(s) or any other permits required for that City or to the County and follow all City or County Ordinances. It shall also be the applicants responsibilities to provide to the Cities or to Alameda County a 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.

7. 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.

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Appendix B

ULS Report

ULS SERVICES CORP
GEOMARKOUT LOCATING CO a trade name of ULS

SEATTLE / PORTLAND/ ALASKA/ SAN DIEGO/ LA / SAC
WWW.ULSSERVICES.COM
WWW.GEOMARKOUT.COM

CORPORATE ADDRESS / INQUIRIES
P.O. Box 724, Pocatello, ID 83204 (Mail only)
1465 Los Altos Way, Pocatello, ID 83201 (Parcels only)
Ph. (208) 234-1441 (800) 301-4420 FAX (208) 234-1507

FIELD SERVICES:
SEATTLE/PORTLAND/SACRAMENTO: 1 866 804-5734
SOUTHERN CALIFORNIA 1 800 528-8206

Work Order Agreement

JOB SITE LOCATION	JOB / PO / TO / WA #
1541 Park St	
CITY, STATE	JOB DATE
Alameda, CA	10/13/10

CLIENT	LABOR/REPORT HOURS
Arcadis	3
ADDRESS	FAXED
CITY, STATE, ZIP	TELEPHONED
PHONE/FAX	HAND DELIVERED
E-MAIL	E-MAILED

WORK REQUESTED: utility survey at 4 proposed points

WORK PERFORMED	PRELIMINARY REVIEW OF CLIENT PROVIDED UTILITY DRAWINGS/AS-BUILTS:
VISUAL SITE INSPECTION (MANHOLES/DRAINS): X	EM INSERTION (NOT GENERALLY FEASIBLE DUE TO HEALTH AND SAFETY ISSUES)
EMIMD METAL DETECTION SURVEY: Poor (rebar) AMBIENT NOISE AND SETTINGS NOISE X GAIN X ELV X OPTIMUM 6.5 – 7.0	EMPCL CONDUCTIVE UTILITY SURVEY CHECK GAS: X ELECTRIC: X COMM: X WATER: X
GPR NON-CONDUCTIVE SURVEY: yes	CLIENT ON-SITE REVIEW OF FINDINGS: no

GENERAL LIMITATIONS

NOTE: *The work described herein is performed to industry standards (or higher) using multiple methodology and QA/QC protocol. ULS cannot guarantee the accuracy or the ability to detect all underground facilities and potential interferences. Non-conductive or conductive utilities/facilities may not be detected due to variables and constraints beyond ULS control. Where known, constraints and limitations will be brought to the client's attention. Excavation work may result in injury to persons and/or damage to facilities. Client and/or excavator are advised to take all steps necessary to avoid contact with underground facilities. This includes, but is not limited to, safe digging practices, hand tooling in congested areas and within two feet on side of marked utilities (distance may vary by law), utility drawing review, site facilities representative review, and "one-call" utilities notification. ULS and its representatives are not responsible for injury to persons or damage to facilities. This document and accompanying pages will be delivered to the client before commencement of intrusive work for the client's review. If any questions arise, please notify our office immediately.*

NOTE: *Specific comments/limitations/constraints, known and recognized will be recorded on attached pages (field notes). Caution – some facilities (conductive or non- conductive) may not be detected. Not all limitations and constraints may be recognized.*

SIGNATURE OF ULS REPRESENTATIVE ON-SITE		PAGE OF
Chris Reimer	10/13/10	1

ULS SERVICES CORPORATION

GEOMARKOUT a tradename
WWW. ULSSERVICES.COM
www.geomarkout.com
Limitations / Constraints
Site Information / Notes / Problems
Site Specific Comments below concerning field observations from EMPCL, EMIMD, GPR and EM insertion and Visual Methods

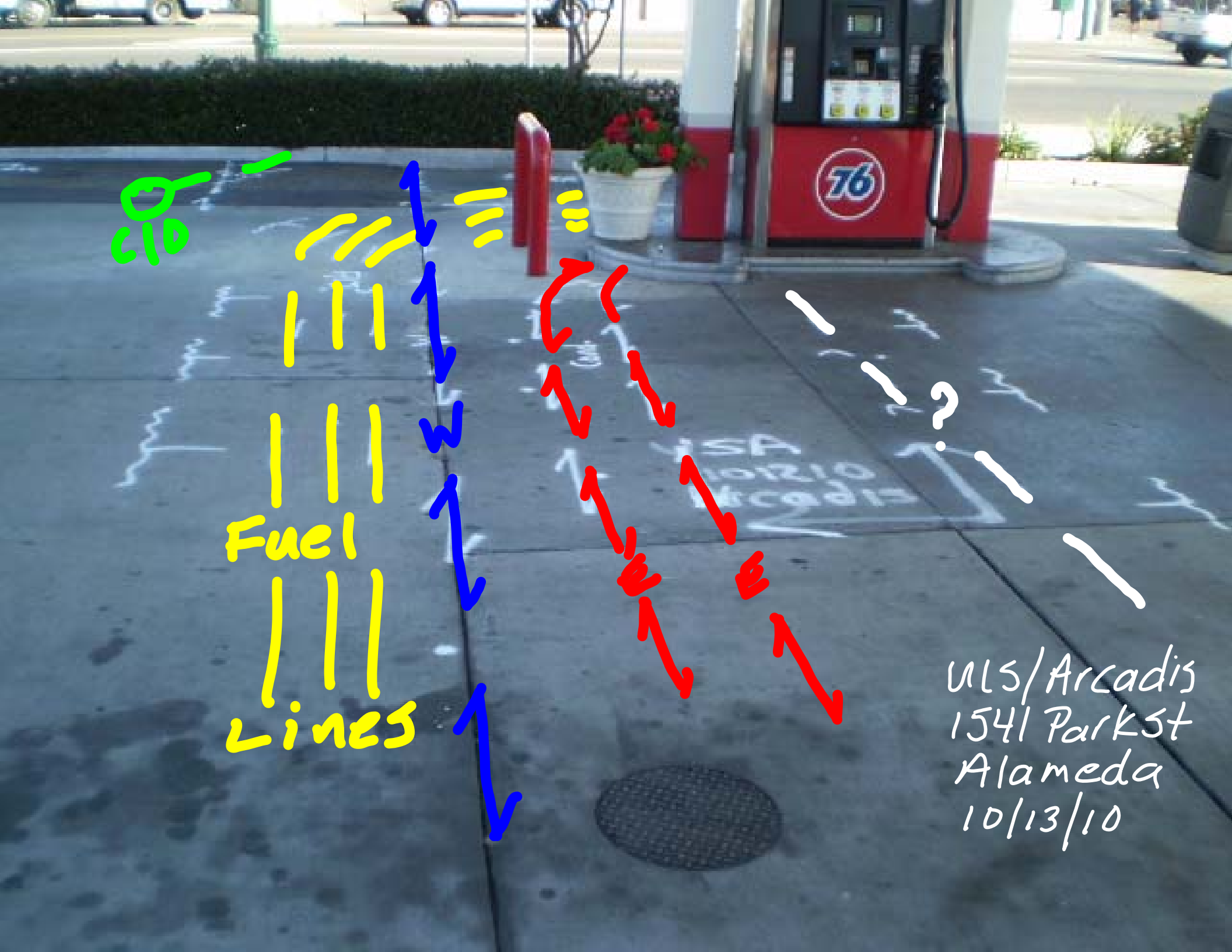
CLIENT	Arcadis
PROJECT	1541 Park St.
LOCATION	Alameda, CA
DATE	10-13-10
JOB PO#	
PRESENT AT SITE	CR
PAGE	2 OF

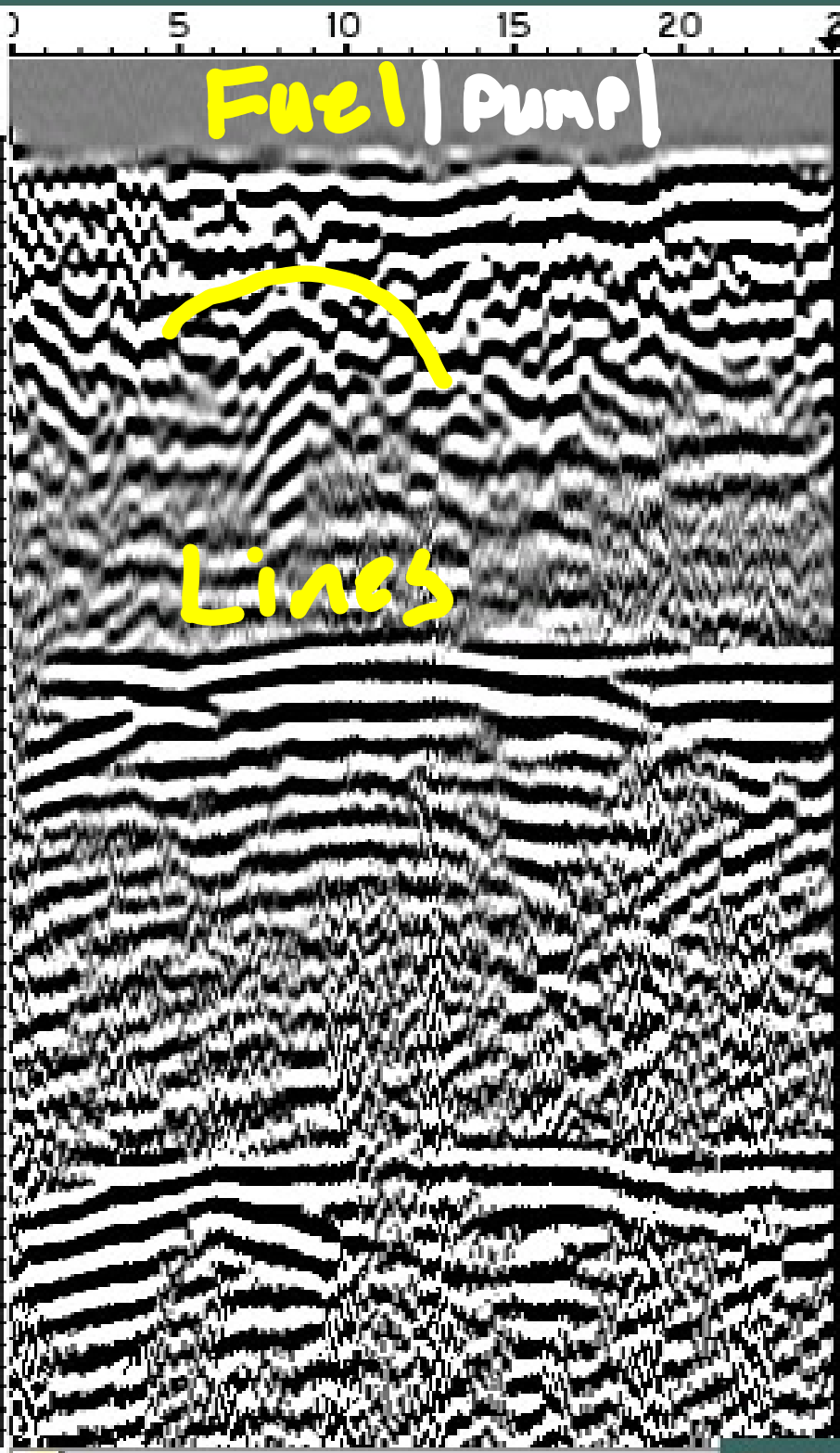
* SS1, SB01 & SS2 locations are not viable due congestion of multiple lines trending north-south, including water, fuel and/or vent lines, multiple conduit and unknown GPR response between north and south pumps. (see attached photo edits and GPR profile)
* SB02 - Caution advised for water line trending north-south. Extreme caution advised for sewer lateral and cleanout. No visual possible. Evidence of previous markout indicate trend northeast. Caution for fuel lines on north and west of pumps. (See attached photo edits)

X	SITE WALK
X	VISUALS
X	USA/DIG ALERT
X	**UTILITY MAINS**
X	ELECTRIC
X	TELEPHONE
X	GAS
X	WATER
X	SEWER/STORM
X	**SECONDARIES**
X	CONDUIT
X	WATER
X	OTHER
X	**FUEL SYSTEM**
X	TANKS/LIMITS
X	PUMPS/VISUAL
X	CONDUIT
X	PIPING
X	VENTS


W
Fuel Lines
Previous markout
unknown
sewer ? C/O
ULS
Arcadis
USA
101210
ULS/Arcadis
1541 Park St
Alameda 10/13


W
E
E
?
W
Fuel line
ULS / Arcadis
1541 Park St
Alameda
10/13/10

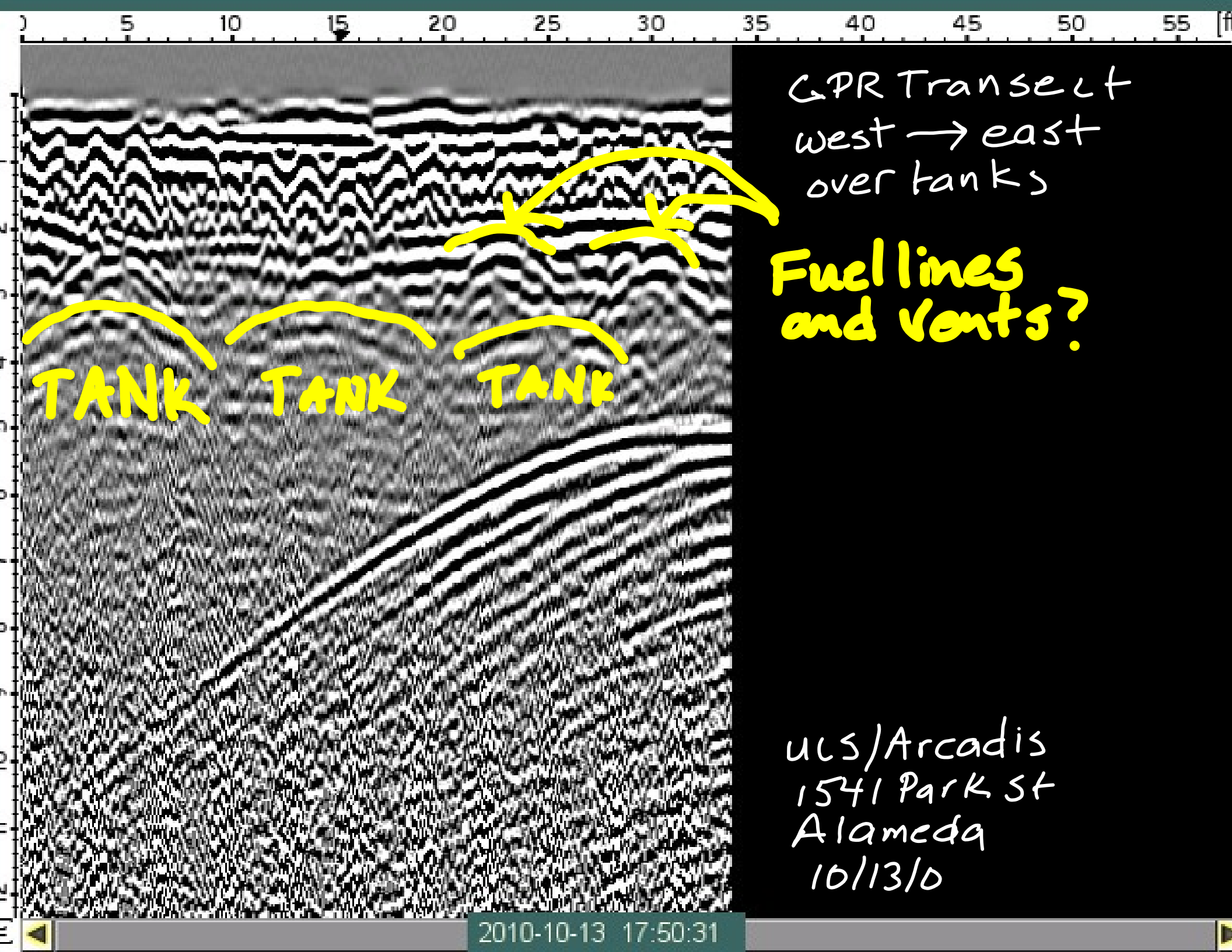

Fuel
Lines
?
ULS/Arcadis
1541 Park St
Alameda
10/13/10



GPR Transect
North to South →
Between north pumps

ULS/Arcadis
1541 Park St
Alameda
10/13/0

2010-10-13 18:18:29


5
10
15
20
25
30
35
40
45
50
55
GPR Transect
west → east
over tanks
Fuel lines
and Vents?
TANK
TANK
TANK
ULS/Arcadis
1541 Park St
Alameda
10/13/10
2010-10-13 17:50:31

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Appendix C

Field Documentation

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Document Control Number:TGM - GP09BPNA.0001.00000-
TGM + *project number plus date as follows: xxxxxxxx.xxxx.xxxxx - dd/mm/year* 26/10/2010

TAILGATE HEALTH & SAFETY MEETING FORM

This form documents the tailgate meeting conducted in accordance with the Project HASP. Personnel who perform work operations on-site during the day are required to attend this meeting and to acknowledge their attendance, at least daily.

Project Name:		Project Location:
BP Site No. 11266		Alameda, CA
Date: 10/26/10	**Time:** 0855	**Conducted by:** Andrea Valdivia
Client:	**Client Contact:**	**Signature/Title:** Andrea Valdivia Geologist
		Subcontractor companies:

TRACKing the Tailgate Meeting

Think through the Tasks (list the tasks for the day):

1 Advance 1 boring to 12'
2 Soil logging/sampling
3
4
5
6

Other Hazardous Activities - Check the box if there are any other ARCADIS, Client or other party activities that may pose hazards to ARCADIS operations ☐ If there are none, write "None" here:

If yes, describe them here: Traffic

How will they be controlled?

Prework Authorization - check activities to be conducted that require permit issuance or completion of a checklist or similar before work begins

	Doc #		Doc #		Doc #
☒ Not applicable		☐ Working at Height		☐ Confined Space	
☐ Energy Isolation (LOTO)		☐ Excavation/Trenching		☐ Hot Work	
☐ Mechanical Lifting Ops		☐ Overhead & Buried Utilities		☐ Other permit	

Discuss following questions (for some review previous day's post activities) **Check if yes**

☐ Incidents from day before to review?	☐ Lessons learned from the day before?	☐ Any Stop Work Interventions yesterday?
☐ Any corrective actions from yesterday?	☐ Will any work deviate from plan?	☐ If deviations, notify PM & client
☐ JLAs or procedures are available?	☐ Field teams to "dirty" JLAs, as needed?	☐ All equipment checked & OK?
☐ Staff has appropriate PPE?	☐ Staff knows Emergency Plan (EAP)?	☐ Staff knows gathering points?

Comments:

Recognize the hazards (check all those that are discussed) (Examples are provided) and **A**ssess the Risks (Low, Medium, High - circle risk level) - Provide an overall assessment of hazards to be encountered today and briefly list them under the hazard category

☒ Gravity (i.e., ladder, scaffold, trips) (L M H) — STF	☒ Motion (i.e., traffic, moving water) (L M H) — traffic - gas station	☒ Mechanical (i.e., augers, motors) (L M H) — pinch points
☐ Electrical (i.e., utilities, lightning) (L M H)	☐ Pressure (i.e., gas cylinders, wells) (L M H)	☐ Environment (i.e., heat, cold, ice) (L M H)
☒ Chemical (i.e., fuel, acid, paint) (L M H) — COCs in soil	☐ Biological (i.e., ticks, poison ivy) (L M H)	☒ Radiation (i.e., alpha, sun, laser) (L M H) — sun
☒ Sound (i.e., machinery, generators) (L M H) — wear ear plugs when drilling	☐ Personal (i.e. alone, night, not fit) (L M H)	☐ Driving (i.e. car, ATV, boat, dozer) (L M H)

Continue TRACK Process on Page 2

TAILGATE HEALTH & SAFETY MEETING FORM - Pg. 2

Control the hazards (Check all and discuss those methods to control the hazards that will be implemented for the day). Review the HASP, applicable JLAs, and other control processes. Discuss and document any additional control processes.

- [x] **STOP WORK AUTHORITY** (Must be addressed in every Tailgate meeting - *(See statements below)*
- [ ] Elimination
- [ ] Engineering controls
- [x] General PPE Usage
- [x] Personal Hygiene
- [ ] Emergency Action Plan (EAP)
- [ ] JLA to be developed/used ***(specify)***
- [ ] Substitution
- [ ] Administrative controls
- [x] Hearing Conservation
- [ ] Exposure Guidelines
- [ ] Fall Protection
- [ ] LPO conducted ***(specify job/JLA)***
- [ ] Isolation
- [ ] Monitoring
- [ ] Respiratory Protection
- [x] Decon Procedures
- [x] Work Zones/Site Control
- [x] Traffic Control
- [ ] Other ***(specify)***

Signature and Certification Section - Site Staff and Visitors

Name/Company/Signature	Initial & Sign in Time	Initial & Sign out Time	I have read and understand the HASP
Andrea Valdivia / ARCADIS / Andrea Valdivia	AV 0855	AV 1220	AV
Max Kanik - UNC -	AK 0855	MK 1220	MK

Important Information and Numbers

All site staff should arrive fit for work. If not, they should report to the supervisor any restrictions or concerns.

In the event of an injury, employees will call WorkCare at 1.800.455.6155 and then notify the field supervisor who will, in turn, notify Corp H&S at 1.720.344.3844.

In the event of a motor-vehicle accident, employees will notify the field supervisor who will then notify Corp H&S at 1.720.344.3844 and then Corp Legal at 1.720.344.3756.

In the event of a utility strike or other damage to property of a client or 3rd party, employees will immediately notify the field supervisor, who will then immediately notify Corp Legal at 1.678.373.9556 and Corp H&S at 1.720.344.3500

Visitor Name/Co - not involved in work

In	Out
In	Out
In	Out
In	Out

I will STOP the job any time anyone is concerned or uncertain about health & safety or if anyone identifies a hazard or additional mitigation not recorded in the site, project, job or task hazard assessment.

I will be alert to any changes in personnel, conditions at the work site or hazards not covered by the original hazard assessments.

If it is necessary to **STOP THE JOB**, I will perform **TRACK**; and then amend the hazard assessments or the HASP as needed.

I will not assist a subcontractor or other party with their work unless it is absolutely necessary and then only after I have done TRACK and I have thoroughly controlled the hazard.

Post Daily Activities Review - Review at end of day or before next day's work (Check those applicable and explain.)

- [x] Lessons learned and best practices learned today: Keep a spotter or cones up while asphalting
- [ ] Incidents that occurred today:
- [ ] Any Stop Work interventions today?
- [ ] Corrective/Preventive Actions needed for future work:
- [ ] Any other H&S issues:

Keep H&S 1st in all things

WorkCare - 1.800.455.6155
Near Loss Hotline - 1.866.242.4304

ARCADIS

Daily Log

Project No.: GP09BPNA.C001.CCCCC Page 1 of 1

Site Location: 1541 Park Street, Alameda, CA

Prepared By: Andrea Valdivia

Date	Time	Description of Activities
10/26/10	0830	ARCADIS on-site
	0840	WDC on-site
	0845	Obtain Access Agreement from property owner
	0855	H&S Tailgate meeting
	0900	Confirm boring location in relation to marked utilities (Water line & ? line) w/ Ben McKenna
	0945	Start advancement of boring SB-02 HA to 6' bgs - not utilities or pea gravel
	1000	Groot inspector, Ron, on-site to discuss grouting - said he will spot check tomorrow and that we can go ahead & grout w/o him
	1010	Ron off-site
	1045	Soil sample collected @ 11.5' (SB-02; TD=12' bgs)
	1100	Waste characterization soil sample collected at SB-02 - composite sample
	1215	Finish clean-up & asphalt patch on SB-02
	1220	H&S wrap-up
	1225	ARCADIS & WDC off-site

ARCADIS

Soil Boring Log

Boring No.: SB-02

Sheet: 1 of 1

Project Name: BP Site No. 11266
Project Number: GP09BPNA.C001.CCCCC
Project Location: Alameda, CA

Date Started: 10/26/10
Date Completed: 10/26/10

Logger: Andrea Valdivia
Editor:
Weather Conditions: Sunny, clear

Depth (feet)	Blow Counts	Sample ID & Time	Recovery (in.)	PID (ppm)	USCS Class.	Description	Construction Details
ASPHALT					ASPHALT	0'-0.5' - Asphalt	
FILL					FILL	0.5'-1.5' - Fill - dark olive gray (5Y3/2); gravelly silt/soil; damp; (25,5,65,5); angular to subangular clasts up to 1cm in diameter; moderately graded	
					SW	1.5'-4.5' - dark olive gray (5Y3/2); sand w/ trace gravel; subangular clasts up to 1cm in diameter;	
					SP	(10,85,5,0); mod. graded 4.5'-6.5' - Δ in color to brown (10YR 4/3); sand w/ some silt (0,95,5,0); damp; medium to coarse-grained sand; well-sorted; poorly graded	
					SC	6.5'-9' - clayey sand; (0,65,5,30); brown (10YR4/3); medium to coarse-grained sand; medium stiff; damp	
						9'-12' - clayey sand; gray (N4/); medium to coarse-grained sand;	
		@11.5' SB-02 Collected			SC	(0,65,0,35); medium stiff; strong hydrocarbon odor TD=12' bgs	

Drilling Co.: WDC Exploration
Driller: Max Karish
Drilling Method: 0'-6'=HA; 6'-12'=Direct push
Drilling Fluid:
Remarks:

Sampling Method: Grab soil
Sampling Interval: 11.5'-12.0'
Water Level Start: N/A
Water Level Finish: N/A
Converted to Well: ☐ Yes ☒ No
Surface Elev:
North Coor:
East Coor:

DAILY TOUR REPORT

WDC JOB #: 131080A LOCATION: Alameda RIG #: 174 DATE: 10/26/10

FROM	TO	TOTAL	DESCRIPTION OF ACTIVITIES
745	800	1/4	load
900	830	1/2	Mob
830	900	1/2	H & S
900	945	3/4	Set up Client Recognizes that boring is 2 feet from Marked utilities and takes responsibility for drilling in their Proximity Andrew Valdovinos for Pam McKenna
945	11:00	1 1/4	Hand auger 0-6 Core 6-12 & grout
11:00	1215	1 1/4	clean up Site down & Repack Rig
1215			Demob

MATERIALS

Record Materials Provided by WDC Exploration & Wells

Item	Unit	Quantity
Gravel Pack Sand	Sack/Foot	/
Transition Sand	Sack/Foot	/
Bentonite Pellets	Bucket/Feet	/
Cement	Sack/Foot	1 1/2 / 12
Bentonite Powder	Sack/Foot	/
Bentonite Chips	Sack/Foot	/
Volclay Grout	Sack/Foot	/
Sand Grout	Yard/Foot	/
Enhanced Grout	Sack/Foot	/
Centralizers	Each	
Threaded Cap	Each	
Slip Cap	Each	
Expansion Plug	Each	
_____" Monument	Each	
_____" Flush Cover	Each	
Asphalt	Sack	Plug
Concrete	Sack	
Rapid Set Grout	Sack	
Lock	Each	
PVC Gloves	Pair	
Tyvek Suits	Each	
Sample Liners	Each	
Core Boxes	Each	
Drums	Each	
Visqueen	Roll	

EQUIPMENT SERVICE RECORD

Record At End Of Shift At The End Of Each Week

Description	Srvc Int.	Equip. #	Last Service	Hours/Miles
Carrier Engine	250 Hrs.			
Deck Engine	250 Hrs.			
Rig Tender	10000 Mls.			
Support Truck	5000 Mls.			
Forklift	250 Hrs.			
Forklift	250 Hrs.			
Compressor	250 Hrs.			
Compressor	250 Hrs.			
Shaker	250 Hrs.			
Mud Pump	250 Hrs.			
Mud Pump	250 Hrs.			
Generator	250 Hrs.			
Welder/Gen.	100 Hrs.			
Steamcleaner	100 Hrs.			

SAFETY & MECHANICAL INSPECTION

Circle Item(s) In Need of Repair or Replacement

Windows Tires Gauges Lights Slings Cables Clamps Brakes
First Aid Kit Fall Device Safety Harness Safety Labels Operating Labels
Equipment Gaurds Back-Up Alarms Safety Shutdowns
Relief Valves Hydraulic Hoses Water Hoses Mud Hoses Air Hoses
Breakout Tongs Pipe Wrenches Chain Tongs Dog Collar Slips/Bowls
Emergency Triangles Fire Extinguishers MSDS Book Safety Manual
Mud Pump Injection Pump Grout Pump 2" Transfer Pump Fuel Transfer Pump
Casing Hammer Sample Hammer Mini-Dumpster Tooling Bit Subs

Equip. #	Action Needed

EXPLANATION OF STANDBY

CLIENT SIGNATURE

RECORD OF INJURY/ACCIDENT/NEAR MISS

DAILY SAFETY TOPIC

DAYS W/O LOST TIME IN 2009

DRILLING STATISTICS

Hole #	From	To	Total
SB-02	0	12	12

COMMENTS

Casing	Type	Schedule	Diameter	Feet	Misc.	Unit	Quan.
Blank	PVC MS SS HDPE	5 10 40 80			Per Diem	Prsn Day	
Blank	PVC MS SS HDPE	5 10 40 80			Level C	Prsn Day	
Screen	PVC MS SS HDPE	5 10 40 80					

CLIENT REP: Andrew Valdovinos
CLIENT JOB #:
OPERATOR: SIGNATURE
RIG HAND: RIG HAND:

ARCADIS

Appendix D

Soil Boring Log

Date Start/Finish: 10/26/2010
Drilling Company: WDC Exploration & Wells
Driller's Name: WDC Exploration & Wells
Drilling Method: Hand Auger / Direct Push
Bit Size: NA
Auger Size: NA
Rig Type: Geoprobe
Sampling Method: Acetate Sleeve

Northing: NA
Easting: NA
Casing Elevation: NA

Borehole Depth: 12 ft
Surface Elevation: NA

Description By: A. Valdivia
Reviewed By: Hollis Phillips, PG

Well/Boring ID: SB-02

Client: British Petroleum

Location: Former BP Station #11266
1541 Park Street
Alameda, California

DEPTH	Sample Run Number	Sample/Int/Type	Recovery (feet)	Blows / 6 Inches	PID Headspace (ppm)	Analytical Sample	Geologic Column	Stratigraphic Description	Well/Boring Construction
0								Asphalt	
								FILL - Gravelly Silt, (25,5,65,5), dark olive gray (5Y 3/2), angular to subangular clasts, up to 4cm in diameter, moderately graded	
		HA						SAND (SW), (10,85,5,0), dark olive gray (5Y 3/2), trace gravel, subangular clasts, up to 1cm in diameter, moderately graded	
5								SAND (SP), (0,95,5,0), brown (10YR 4/3), some silt, medium- to coarse-grained, well-sorted, poorly-graded, moist	
	1	DP	5					CLAYEY SAND (SC), (0,65,5,30), brown (10YR 4/3), medium- to coarse-grained sand, medium stiff, moist	
10								CLAYEY SAND (SC), (0,65,0,35), gray (N4), medium- to coarse-grained, medium stiff, strong PHC odor	
	2	DP	1			X			
								End of boring at 12 ft bgs.	
15									
20									

ARCADIS
Infrastructure, environment, buildings

Remarks: bgs = below ground surface; DP = direct push; ft = feet; HA = hand auger; in = inch; NA = not applicable; PG = professional geologist; PHC = petroleum hydrocarbon odor; PID = photoionization detector; ppm = parts per million; SAA = same as above

Hand auger boring to 6 ft bgs; direct push from 6 ft to 12 ft bgs.

Analtyical samples were collected at 11.5 feet.

ARCADIS

Appendix E

Laboratory Analytical Report and
Chain of Custody Documentation

TestAmerica
THE LEADER IN ENVIRONMENTAL TESTING

ANALYTICAL REPORT

Job Number: 720-31449-1

Job Description: BP #11266, Alameda

For:
ARCADIS U.S., Inc.
155 Montgomery Street
Suite 1500
San Francisco, CA 94104

Attention: Hollis Phillips

Approved for release.
Dimple Sharma
Project Manager I
11/16/2010 3:46 PM

Dimple Sharma
Project Manager I
dimple.sharma@testamericainc.com
11/16/2010
Revision: 1

cc: Mr. Ben McKenna

CA ELAP Certification # 2496
The Chain(s) of Custody are included and are an integral part of this report.
The report shall not be reproduced except in full, without the written approval of the laboratory. The client, by accepting this report, also agrees not to alter any reports whether in the hard copy or electronic format and to use reasonable efforts to preserve the reports in the form and substance originally provided by TestAmerica.
A trip blank is required to be provided for volatile analyses. If trip blank results are not included in the report, either the trip blank was not submitted or requested to be analyzed.

TestAmerica Laboratories, Inc.
TestAmerica San Francisco 1220 Quarry Lane, Pleasanton, CA 94566
Tel (925) 484-1919 Fax (925) 600-3002 www.testamericainc.com

Comments
The report is revised on 11/16/10 to attach correct coc.

Receipt
All samples were received in good condition within temperature requirements.

GC/MS VOA
No analytical or quality issues were noted.

GC VOA
No analytical or quality issues were noted.

Metals
No analytical or quality issues were noted.

EXECUTIVE SUMMARY - Detections

Client: ARCADIS U.S., Inc. Job Number: 720-31449-1

Lab Sample ID / Analyte	Client Sample ID	Result / Qualifier	Reporting Limit	Units	Method
720-31449-1	**SB-02**				
Lead		2.0	1.9	mg/Kg	6010B

METHOD SUMMARY

Client: ARCADIS U.S., Inc. Job Number: 720-31449-1

Description	Lab Location	Method	Preparation Method
Matrix: Solid			
Volatile Organic Compounds (GC/MS)	TAL SF	SW846 8260B	
Purge and Trap	TAL SF		SW846 5030B
Metals (ICP)	TAL SF	SW846 6010B	
Preparation, Metals	TAL SF		SW846 3050B

Lab References:

TAL SF = TestAmerica San Francisco

Method References:

SW846 = "Test Methods For Evaluating Solid Waste, Physical/Chemical Methods", Third Edition, November 1986 And Its Updates.

SAMPLE SUMMARY

Client: ARCADIS U.S., Inc. Job Number: 720-31449-1

Lab Sample ID	Client Sample ID	Client Matrix	Date/Time Sampled	Date/Time Received
720-31449-1	SB-02	Solid	10/26/2010 1045	10/26/2010 1930

Client: ARCADIS U.S., Inc. Job Number: 720-31449-1

Client Sample ID: **SB-02**

Lab Sample ID: 720-31449-1 Date Sampled: 10/26/2010 1045
Client Matrix: Solid Date Received: 10/26/2010 1930

8260B Volatile Organic Compounds (GC/MS)

Method:	8260B	Analysis Batch: 720-80971		Instrument ID:	HP9
Preparation:	5030B	Prep Batch: 720-81073		Lab File ID:	11021009.D
Dilution:	1.0			Initial Weight/Volume:	5.21 g
Date Analyzed:	11/02/2010 1253			Final Weight/Volume:	10 mL
Date Prepared:	11/02/2010 0800				

Analyte	DryWt Corrected: N	Result (ug/Kg)	Qualifier	RL
1,1-Dichloroethene		ND		4.8
Methyl tert-butyl ether		ND		4.8
1,1-Dichloroethane		ND		4.8
Dichlorodifluoromethane		ND		9.6
Vinyl chloride		ND		4.8
Chloroethane		ND		9.6
Trichlorofluoromethane		ND		4.8
Methylene Chloride		ND		9.6
trans-1,2-Dichloroethene		ND		4.8
cis-1,2-Dichloroethene		ND		4.8
Chloroform		ND		4.8
1,1,1-Trichloroethane		ND		4.8
Carbon tetrachloride		ND		4.8
1,2-Dichloroethane		ND		4.8
Trichloroethene		ND		4.8
1,2-Dichloropropane		ND		4.8
Dichlorobromomethane		ND		4.8
trans-1,3-Dichloropropene		ND		4.8
cis-1,3-Dichloropropene		ND		4.8
1,1,2-Trichloroethane		ND		4.8
Tetrachloroethene		ND		4.8
Chlorodibromomethane		ND		4.8
Chlorobenzene		ND		4.8
Bromoform		ND		4.8
1,1,2,2-Tetrachloroethane		ND		4.8
1,3-Dichlorobenzene		ND		4.8
1,4-Dichlorobenzene		ND		4.8
1,2-Dichlorobenzene		ND		4.8
Chloromethane		ND		9.6
Bromomethane		ND		9.6
1,1,2-Trichloro-1,2,2-trifluoroethane		ND		4.8
EDB		ND		4.8
1,2,4-Trichlorobenzene		ND		4.8
Benzene		ND		4.8
Toluene		ND		4.8
Ethylbenzene		ND		4.8
Xylenes, Total		ND		9.6
Gasoline Range Organics (GRO)-C6-C12		ND		240
TBA		ND		9.6
Ethanol		ND		480
DIPE		ND		4.8
TAME		ND		4.8
Ethyl tert-butyl ether		ND		4.8

Surrogate	%Rec	Qualifier	Acceptance Limits
Toluene-d8 (Surr)	113		58 - 140

Client: ARCADIS U.S., Inc. Job Number: 720-31449-1

Client Sample ID: **SB-02**

Lab Sample ID: 720-31449-1 Date Sampled: 10/26/2010 1045
Client Matrix: Solid Date Received: 10/26/2010 1930

8260B Volatile Organic Compounds (GC/MS)

Method:	8260B	Analysis Batch: 720-80971		Instrument ID:	HP9
Preparation:	5030B	Prep Batch: 720-81073		Lab File ID:	11021009.D
Dilution:	1.0			Initial Weight/Volume:	5.21 g
Date Analyzed:	11/02/2010 1253			Final Weight/Volume:	10 mL
Date Prepared:	11/02/2010 0800				

Surrogate	%Rec	Qualifier	Acceptance Limits
1,2-Dichloroethane-d4 (Surr)	103		60 - 140
4-Bromofluorobenzene	102		52 - 140

Client: ARCADIS U.S., Inc. Job Number: 720-31449-1

Client Sample ID: **SB-02**

Lab Sample ID: 720-31449-1 Date Sampled: 10/26/2010 1045
Client Matrix: Solid Date Received: 10/26/2010 1930

6010B Metals (ICP)

Method:	6010B	Analysis Batch: 720-81390		Instrument ID:	Thermo ICP
Preparation:	3050B	Prep Batch: 720-81263		Lab File ID:	11081004.asc
Dilution:	4.0			Initial Weight/Volume:	1.05 g
Date Analyzed:	11/08/2010 1801			Final Weight/Volume:	50 mL
Date Prepared:	11/05/2010 1315				

Analyte	DryWt Corrected: N	Result (mg/Kg)	Qualifier	RL
Lead		2.0		1.9

DATA REPORTING QUALIFIERS

Lab Section	Qualifier	Description

Client: ARCADIS U.S., Inc. Job Number: 720-31449-1

QC Association Summary

Lab Sample ID	Client Sample ID	Report Basis	Client Matrix	Method	Prep Batch
GC/MS VOA					
Analysis Batch:720-80971					
LCS 720-81073/2-A	Lab Control Sample	T	Solid	8260B	720-81073
LCS 720-81073/4-A	Lab Control Sample	T	Solid	8260B	720-81073
LCSD 720-81073/3-A	Lab Control Sample Duplicate	T	Solid	8260B	720-81073
LCSD 720-81073/5-A	Lab Control Sample Duplicate	T	Solid	8260B	720-81073
MB 720-81073/1-A	Method Blank	T	Solid	8260B	720-81073
720-31449-1	SB-02	T	Solid	8260B	720-81073
Prep Batch: 720-81073					
LCS 720-81073/2-A	Lab Control Sample	T	Solid	5030B	
LCS 720-81073/4-A	Lab Control Sample	T	Solid	5030B	
LCSD 720-81073/3-A	Lab Control Sample Duplicate	T	Solid	5030B	
LCSD 720-81073/5-A	Lab Control Sample Duplicate	T	Solid	5030B	
MB 720-81073/1-A	Method Blank	T	Solid	5030B	
720-31449-1	SB-02	T	Solid	5030B	

Report Basis
T = Total

Metals

Prep Batch: 720-81263					
LCS 720-81263/2-A	Lab Control Sample	T	Solid	3050B	
LCSD 720-81263/3-A	Lab Control Sample Duplicate	T	Solid	3050B	
LCSSRM 720-81263/25-A	LCS-Certified Reference Material	T	Solid	3050B	
MB 720-81263/1-A	Method Blank	T	Solid	3050B	
720-31449-1	SB-02	T	Solid	3050B	
Analysis Batch:720-81390					
LCS 720-81263/2-A	Lab Control Sample	T	Solid	6010B	720-81263
LCSD 720-81263/3-A	Lab Control Sample Duplicate	T	Solid	6010B	720-81263
LCSSRM 720-81263/25-A	LCS-Certified Reference Material	T	Solid	6010B	720-81263
MB 720-81263/1-A	Method Blank	T	Solid	6010B	720-81263
720-31449-1	SB-02	T	Solid	6010B	720-81263

Report Basis
T = Total

Client: ARCADIS U.S., Inc. Job Number: 720-31449-1

Method Blank - Batch: 720-81073

Method: 8260B
Preparation: 5030B

Lab Sample ID: MB 720-81073/1-A
Client Matrix: Solid
Dilution: 1.0
Date Analyzed: 11/02/2010 1001
Date Prepared: 11/02/2010 0800

Analysis Batch: 720-80971
Prep Batch: 720-81073
Units: ug/Kg

Instrument ID: HP9
Lab File ID: 11021004.D
Initial Weight/Volume: 5 g
Final Weight/Volume: 10 mL

Analyte	Result	Qual	RL
1,1-Dichloroethene	ND		5.0
Methyl tert-butyl ether	ND		5.0
1,1-Dichloroethane	ND		5.0
Dichlorodifluoromethane	ND		10
Vinyl chloride	ND		5.0
Chloroethane	ND		10
Trichlorofluoromethane	ND		5.0
Methylene Chloride	ND		10
trans-1,2-Dichloroethene	ND		5.0
cis-1,2-Dichloroethene	ND		5.0
Chloroform	ND		5.0
1,1,1-Trichloroethane	ND		5.0
Carbon tetrachloride	ND		5.0
1,2-Dichloroethane	ND		5.0
Trichloroethene	ND		5.0
1,2-Dichloropropane	ND		5.0
Dichlorobromomethane	ND		5.0
trans-1,3-Dichloropropene	ND		5.0
cis-1,3-Dichloropropene	ND		5.0
1,1,2-Trichloroethane	ND		5.0
Tetrachloroethene	ND		5.0
Chlorodibromomethane	ND		5.0
Chlorobenzene	ND		5.0
Bromoform	ND		5.0
1,1,2,2-Tetrachloroethane	ND		5.0
1,3-Dichlorobenzene	ND		5.0
1,4-Dichlorobenzene	ND		5.0
1,2-Dichlorobenzene	ND		5.0
Chloromethane	ND		10
Bromomethane	ND		10
1,1,2-Trichloro-1,2,2-trifluoroethane	ND		5.0
EDB	ND		5.0
1,2,4-Trichlorobenzene	ND		5.0
Benzene	ND		5.0
Toluene	ND		5.0
Ethylbenzene	ND		5.0
m-Xylene & p-Xylene	ND		5.0
o-Xylene	ND		5.0
Xylenes, Total	ND		10
Gasoline Range Organics (GRO)-C6-C12	ND		250
TBA	ND		10
Ethanol	ND		500
DIPE	ND		5.0

Client: ARCADIS U.S., Inc.

Job Number: 720-31449-1

Method Blank - Batch: 720-81073

Method: 8260B
Preparation: 5030B

Lab Sample ID: MB 720-81073/1-A
Client Matrix: Solid
Dilution: 1.0
Date Analyzed: 11/02/2010 1001
Date Prepared: 11/02/2010 0800

Analysis Batch: 720-80971
Prep Batch: 720-81073
Units: ug/Kg

Instrument ID: HP9
Lab File ID: 11021004.D
Initial Weight/Volume: 5 g
Final Weight/Volume: 10 mL

Analyte	Result	Qual	RL
TAME	ND		5.0
Ethyl tert-butyl ether	ND		5.0

Surrogate	% Rec	Acceptance Limits
Toluene-d8 (Surr)	100	58 - 140
1,2-Dichloroethane-d4 (Surr)	105	60 - 140
4-Bromofluorobenzene	85	52 - 140

Client: ARCADIS U.S., Inc. Job Number: 720-31449-1

Lab Control Sample/
Lab Control Sample Duplicate Recovery Report - Batch: 720-81073

Method: 8260B
Preparation: 5030B

LCS Lab Sample ID:	LCS 720-81073/2-A	Analysis Batch:	720-80971	Instrument ID:	HP9
Client Matrix:	Solid	Prep Batch:	720-81073	Lab File ID:	11021005.D
Dilution:	1.0	Units:	ug/Kg	Initial Weight/Volume:	5 g
Date Analyzed:	11/02/2010 1032			Final Weight/Volume:	10 mL
Date Prepared:	11/02/2010 0800				

LCSD Lab Sample ID:	LCSD 720-81073/3-A	Analysis Batch:	720-80971	Instrument ID:	HP9
Client Matrix:	Solid	Prep Batch:	720-81073	Lab File ID:	11021006.D
Dilution:	1.0	Units:	ug/Kg	Initial Weight/Volume:	5 g
Date Analyzed:	11/02/2010 1105			Final Weight/Volume:	10 mL
Date Prepared:	11/02/2010 0800				

	% Rec.						
Analyte	LCS	LCSD	Limit	RPD	RPD Limit	LCS Qual	LCSD Qual
1,1-Dichloroethene	94	94	84 - 120	0	20		
Methyl tert-butyl ether	102	107	71 - 144	4	20		
1,1-Dichloroethane	97	97	85 - 124	0	20		
Dichlorodifluoromethane	76	75	37 - 158	0	20		
Vinyl chloride	87	89	63 - 140	3	20		
Chloroethane	95	95	69 - 141	0	20		
Trichlorofluoromethane	96	96	71 - 139	0	20		
Methylene Chloride	92	92	72 - 134	0	20		
trans-1,2-Dichloroethene	87	88	82 - 118	1	20		
cis-1,2-Dichloroethene	111	112	91 - 131	0	20		
Chloroform	98	98	77 - 127	0	20		
1,1,1-Trichloroethane	101	101	80 - 122	0	20		
Carbon tetrachloride	99	100	81 - 138	0	20		
1,2-Dichloroethane	95	96	74 - 125	1	20		
Trichloroethene	100	100	81 - 133	1	20		
1,2-Dichloropropane	100	101	73 - 127	1	20		
Dichlorobromomethane	105	105	90 - 130	0	20		
trans-1,3-Dichloropropene	104	105	84 - 136	1	20		
cis-1,3-Dichloropropene	103	105	68 - 147	2	20		
1,1,2-Trichloroethane	101	103	82 - 125	2	20		
Tetrachloroethene	102	102	78 - 132	1	20		
Chlorodibromomethane	99	100	75 - 146	1	20		
Chlorobenzene	99	99	87 - 113	0	20		
Bromoform	104	108	59 - 158	3	20		
1,1,2,2-Tetrachloroethane	103	108	82 - 146	5	20		
1,3-Dichlorobenzene	103	104	84 - 131	1	20		
1,4-Dichlorobenzene	98	99	85 - 125	1	20		
1,2-Dichlorobenzene	100	101	84 - 130	1	20		
Chloromethane	90	90	60 - 149	0	20		
Bromomethane	95	94	71 - 136	1	20		
1,1,2-Trichloro-1,2,2-trifluoroethane	91	90	70 - 130	1	20		
EDB	102	103	79 - 140	1	20		
1,2,4-Trichlorobenzene	107	106	70 - 131	1	20		

Client: ARCADIS U.S., Inc. Job Number: 720-31449-1

Lab Control Sample/
Lab Control Sample Duplicate Recovery Report - Batch: 720-81073

Method: 8260B
Preparation: 5030B

LCS Lab Sample ID:	LCS 720-81073/2-A	Analysis Batch:	720-80971	Instrument ID:	HP9
Client Matrix:	Solid	Prep Batch:	720-81073	Lab File ID:	11021005.D
Dilution:	1.0	Units:	ug/Kg	Initial Weight/Volume:	5 g
Date Analyzed:	11/02/2010 1032			Final Weight/Volume:	10 mL
Date Prepared:	11/02/2010 0800				

LCSD Lab Sample ID:	LCSD 720-81073/3-A	Analysis Batch:	720-80971	Instrument ID:	HP9
Client Matrix:	Solid	Prep Batch:	720-81073	Lab File ID:	11021006.D
Dilution:	1.0	Units:	ug/Kg	Initial Weight/Volume:	5 g
Date Analyzed:	11/02/2010 1105			Final Weight/Volume:	10 mL
Date Prepared:	11/02/2010 0800				

	% Rec.						
Analyte	LCS	LCSD	Limit	RPD	RPD Limit	LCS Qual	LCSD Qual
Benzene	100	100	82 - 124	0	20		
Toluene	100	100	83 - 128	0	20		
Ethylbenzene	105	105	80 - 137	0	20		
m-Xylene & p-Xylene	110	109	79 - 146	1	20		
o-Xylene	104	103	84 - 140	1	20		
TBA	96	96	76 - 119	0	20		
Ethanol	96	92	49 - 162	5	20		
DIPE	106	106	83 - 131	0	20		
TAME	92	98	74 - 140	6	20		
Ethyl tert-butyl ether	94	96	76 - 129	2	20		

Surrogate	LCS % Rec	LCSD % Rec	Acceptance Limits
Toluene-d8 (Surr)	109	109	58 - 140
1,2-Dichloroethane-d4 (Surr)	101	102	60 - 140
4-Bromofluorobenzene	108	107	52 - 140

Client: ARCADIS U.S., Inc. Job Number: 720-31449-1

Lab Control Sample/
Lab Control Sample Duplicate Recovery Report - Batch: 720-81073

Method: 8260B
Preparation: 5030B

LCS Lab Sample ID:	LCS 720-81073/4-A	Analysis Batch:	720-80971	Instrument ID:	HP9
Client Matrix:	Solid	Prep Batch:	720-81073	Lab File ID:	11021007.D
Dilution:	1.0	Units:	ug/Kg	Initial Weight/Volume:	5 g
Date Analyzed:	11/02/2010 1137			Final Weight/Volume:	10 mL
Date Prepared:	11/02/2010 0800				

LCSD Lab Sample ID:	LCSD 720-81073/5-A	Analysis Batch:	720-80971	Instrument ID:	HP9
Client Matrix:	Solid	Prep Batch:	720-81073	Lab File ID:	11021008.D
Dilution:	1.0	Units:	ug/Kg	Initial Weight/Volume:	5 g
Date Analyzed:	11/02/2010 1210			Final Weight/Volume:	10 mL
Date Prepared:	11/02/2010 0800				

	% Rec.						
Analyte	LCS	LCSD	Limit	RPD	RPD Limit	LCS Qual	LCSD Qual
Gasoline Range Organics (GRO)-C6-C12	81	80	64 - 107	1	20		

Surrogate	LCS % Rec	LCSD % Rec	Acceptance Limits
Toluene-d8 (Surr)	113	113	58 - 140
1,2-Dichloroethane-d4 (Surr)	104	108	60 - 140
4-Bromofluorobenzene	107	107	52 - 140

Client: ARCADIS U.S., Inc. Job Number: 720-31449-1

Method Blank - Batch: 720-81263

Method: 6010B
Preparation: 3050B

Lab Sample ID:	MB 720-81263/1-A	Analysis Batch:	720-81390	Instrument ID:	Thermo ICP
Client Matrix:	Solid	Prep Batch:	720-81263	Lab File ID:	11081004.asc
Dilution:	1.0	Units:	mg/Kg	Initial Weight/Volume:	1.00 g
Date Analyzed:	11/08/2010 1656			Final Weight/Volume:	50 mL
Date Prepared:	11/05/2010 1315				

Analyte	Result	Qual	RL
Lead	ND		0.50

LCS-Certified Reference Material - Batch: 720-81263

Method: 6010B
Preparation: 3050B

Lab Sample ID:	LCSSRM 720-81263/25-A	Analysis Batch:	720-81390	Instrument ID:	Thermo ICP
Client Matrix:	Solid	Prep Batch:	720-81263	Lab File ID:	11081004.asc
Dilution:	1.0	Units:	mg/Kg	Initial Weight/Volume:	0.99 g
Date Analyzed:	11/08/2010 1851			Final Weight/Volume:	50 mL
Date Prepared:	11/05/2010 1315				

Analyte	Spike Amount	Result	% Rec.	Limit	Qual
Lead	181	151	83	62 - 113	

Lab Control Sample/
Lab Control Sample Duplicate Recovery Report - Batch: 720-81263

Method: 6010B
Preparation: 3050B

LCS Lab Sample ID:	LCS 720-81263/2-A	Analysis Batch:	720-81390	Instrument ID:	Thermo ICP
Client Matrix:	Solid	Prep Batch:	720-81263	Lab File ID:	11081004.asc
Dilution:	1.0	Units:	mg/Kg	Initial Weight/Volume:	1.00 g
Date Analyzed:	11/08/2010 1700			Final Weight/Volume:	50 mL
Date Prepared:	11/05/2010 1315				

LCSD Lab Sample ID:	LCSD 720-81263/3-A	Analysis Batch:	720-81390	Instrument ID:	Thermo ICP
Client Matrix:	Solid	Prep Batch:	720-81263	Lab File ID:	11081004.asc
Dilution:	1.0	Units:	mg/Kg	Initial Weight/Volume:	1.00 g
Date Analyzed:	11/08/2010 1704			Final Weight/Volume:	50 mL
Date Prepared:	11/05/2010 1315				

	% Rec.						
Analyte	LCS	LCSD	Limit	RPD	RPD Limit	LCS Qual	LCSD Qual
Lead	97	98	80 - 120	1	20		

720-31449

127797

ARCADIS
Infrastructure, environment, buildings

ID#:

CHAIN OF CUSTODY & LABORATORY ANALYSIS REQUEST FORM

Page 1 of 1

Lab Work Order #

Send Results to:

Contact & Company Name: Ben McKenna / ARCADIS	Telephone: 925.296.7857
Address: 2033 N. Main St Suite 340	Fax: 925.274.1103
City: Walnut Creek State: CA Zip: 94596	E-mail Address: Ben.McKenna@arcadis-us.com
Project Name/Location (City, State): BP 11266/Alameda, CA	Project #: GP09BPNA.C001.C0000
Sampler's Printed Name: Andrea Valdivia	Sampler's Signature: Andrea Valdivia

Sample ID	Collection Date	Collection Time	Type (✓) Comp	Type (✓) Grab	Matrix
SB-02	10/26	1045		X	SO
~~Waste Characterization~~	10/26	1100	X		SO

Preservative								
Filtered (✓)								
# of Containers								
Container Information								

PARAMETER ANALYSIS & METHOD

TPH-g (EPA 8015M)	BTEX, MTBE, TBA, DIPE, ETBE, TAME, EDB, 1,2-DCA	Halogenated VOCs & Ethanol (EPA 8260B)	Total Lead (EPA 200.7)
X	X	X	X	X	X
X	X	X	X	X	X

Keys

Preservation Key:
A. H_2SO_4
B. HCL
C. HNO_3
D. NaOH
E. None
F. Other: _____
G. Other: _____
H. Other: _____

Container Information Key:
1. 40 ml Vial
2. 1 L Amber
3. 250 ml Plastic
4. 500 ml Plastic
5. Encore
6. 2 oz. Glass
7. 4 oz. Glass
8. 8 oz. Glass
9. Other: _____
10. Other: _____

Matrix Key:
SO - Soil | SE - Sediment | NL - NAPL/Oil
W - Water | SL - Sludge | SW - Sample Wipe
T - Tissue | A - Air | Other: _____

REMARKS

Special Instructions/Comments:

☐ Special QA/QC Instructions(✓):

Laboratory Information and Receipt		Relinquished By	Received By	Relinquished By	Laboratory Received By
Lab Name: Test America	Cooler Custody Seal (✓) ☐ Intact ☐ Not Intact	Printed Name: Andrea Valdivia	Printed Name: Ed Martinez	Printed Name: Ed Martinez	Printed Name: Mullen
☐ Cooler packed with ice (✓) 2.2°C		Signature: Andrea Valdivia	Signature: Ed Martinez	Signature: Ed Martinez	Signature: Tom Mullen
Specify Turnaround Requirements:	Sample Receipt:	Firm: ARCADIS	Firm/Courier: TestAmerica	Firm/Courier: TAF	Firm: TestAmerica
Shipping Tracking #:	Condition/Cooler Temp: _____	Date/Time: 10/26/10 1430	Date/Time: 10.26.10 1930	Date/Time: 10-26-10 1930	Date/Time: 10-26-10 1930

Distribution: WHITE – Laboratory returns with results YELLOW – Lab copy PINK – Retained by ARCADIS

Login Sample Receipt Check List

Client: ARCADIS U.S., Inc.

Job Number: 720-31449-1

Login Number: 31449

List Source: TestAmerica San Francisco

Creator: Mullen, Joan

List Number: 1

Question	T / F/ NA	Comment
Radioactivity either was not measured or, if measured, is at or below background	N/A	
The cooler's custody seal, if present, is intact.	N/A	
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	True	
Cooler Temperature is acceptable.	True	
Cooler Temperature is recorded.	True	
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
Is the Field Sampler's name present on COC?	True	
There are no discrepancies between the sample IDs on the containers and the COC.	True	
Samples are received within Holding Time.	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
Sample Preservation Verified	N/A	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
VOA sample vials do not have headspace or bubble is <6mm (1/4") in diameter.	True	
If necessary, staff have been informed of any short hold time or quick TAT needs	True	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	