Atlantic Richfield Company

Chuck Carmel
Operations Project Manager

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November 21, 2013

Re: Addendum to Conceptual Site Model and Case Closure Request
Atlantic Richfield Company Station #2112
1260 Park Street, Alameda, California
ACEH Case #RO0000044

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

Submitted by,

Chuck Carmel
Operations Project Manager

BROADBENT
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broadbentinc.com

November 21, 2013 Project No. 06-88-616

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

Attn.: Mr. Chuck Carmel

Re: Addendum to the Conceptual Site Model and Case Closure Request, Atlantic Richfield Company Station No.2112, 1260 Park Street, Alameda, California; ACEH Case No. RO0000044

Dear Mr. Carmel

Broadbent & Associates, Inc. (Broadbent) is pleased to submit this *Addendum to the Conceptual Site Model and Case Closure Request* (Addendum) for Atlantic Richfield Company (ARC) Station No.2112 located at 1260 Park Street, Alameda, California (Site). The preceding document entitled *Conceptual Site Model and Case Closure Request* (Closure Request) was submitted to the Alameda County Environmental Health Agency (ACEH) on June 13, 2013. This Closure Request was prepared in order to evaluate this Site for case closure under the *Low Threat Underground Storage Tank Case Closure Policy* (LTCP, 2012). The Closure Request was discussed at a meeting with the ACEH on September 11, 2013. During this meeting, the ACEH identified certain aspects of the Closure Request that required clarification. This Addendum is intended to clarify how the Site meets the LTCP and should ultimately obtain Site closure.

During the September 11, 2013 meeting, several items from the Closure Request were identified and discussed that needed additional clarification to ensure the Site understanding and conceptual site model (CSM) was sufficient to allow Site closure. These items included:

- Minor modifications to Site drawings including an aerial photo underlay for the Site Map with nearby businesses included and inclusion of a rose diagram on the groundwater elevation map
- Collection of additional groundwater samples from three wells downgradient of the former waste oil tank and analyzing these samples for poly aromatic hydrocarbons (PAHs) and a full suite of volatile organic compounds (VOCs)
- Additional hydrogeologic evaluation of how groundwater levels have changed over time as it relates to previous remedial activities including groundwater extraction
- Attempt to determine the missing well logs for Site wells and evaluate the validity and/or appropriateness of the well screen intervals for monitoring groundwater beneath the Site
- Determine if any root removal and/or well development activities have occurred in well AR-3
- Preparation of a historical soil table and further evaluation of remaining hydrocarbon concentrations in soil

Each of these items is discussed in detail below. A Site Location Map is included as Drawing 1. A Site Map is included as Drawing 2. A Surrounding Site Use Map with an aerial photo underlay is included as

Drawing 3. A groundwater elevation map from the most recent groundwater monitoring event, which includes a rose diagram, is included as Drawing 4. The Conceptual Site Model (previously submitted) is included as Table 1.

Additional Drawing Elements

As noted above, a Surrounding Site Use Map and a Groundwater Elevation Map with a rose diagram have been prepared and are included as Drawings 3 and 4.

Additional Groundwater Sampling of Well Downgradient of the Former Waste Oil Tank

One concern brought up by the ACEH during the September 11, 2013 meeting was that soil sampling when the former waste oil tank was removed in 1987 indicated that a release had occurred. Although Broadbent maintained that the impacted soil was overexcavated and therefore any potential residual hydrocarbons from the waste oil tank had been removed by these activities. However, the ACEH asserted that since the confirmation soils samples from this waste oil tank removal had not been tested for VOCs and PAHs, groundwater needed to be sampled for these constituents to determine if impacts from the former waste oil tank were impacting groundwater and potentially soil beneath the Site. Since groundwater levels are shallow at the Site, it is assumed that any residual soil impacts will result in residual groundwater impacts. Likewise, if groundwater impacts are not present, then soil likely no longer contains impacts of VOCs and PAHs.

On October 2, 2013 Broadbent staff sampled monitoring wells A-1, A-2 and AR-2 using standard low-flow methods. Standard Field Methods are included in Appendix A. Groundwater field sampling sheets are included as Appendix B. The laboratory analytical report from this sampling is included in Appendix C. No VOCs or PAHs were detected above the laboratory reporting limits. The only compound detected was 1,2-Dichloroethane (1,2-DCA) in well A-2 slightly above reporting limits, which is consistent with previous sampling. These data indicate that hydrocarbon impacts from the former waste oil tank are not impacting soil and groundwater beneath the Site. This data completes the CSM for the former waste oil tank release. It appears, based on the previously submitted CSM and this current data, that what impacts were present from the former waste oil tank were primarily removed from soil during overexcavation activities conducted after tank removal, and minor residual amounts have decreased/ degraded over time as a result of previous Site remediation and natural attenuation.

Additional Historical Groundwater Elevation Evaluation

During the recent meeting with the ACEH, a question arose regarding lower water levels in well A-1 from 1991 (first groundwater monitoring event after installation) to 1997. The reason for this lower water level was first thought to be the result of the effects of nearby groundwater pumping in adjacent groundwater recovery well AR-2. Additionally, it is noted in the Site History (Appendix D) that well A-1 was used as a soil vapor extraction (SVE) well for pilot testing and for the SVE system operation. Pilot testing activities happened sporadically from 1991 to 1993 and the system operated from 1993 to 1995. Groundwater levels began to rise in this well in August of 1994 (groundwater levels rose by almost 6 feet), and has had depth to groundwater levels of 9.25 to 12.11 since that time. It is not entirely clear why the groundwater rise occurred one year prior to system shutdown, but likely has to do with cycling on and off of each SVE well. In general, the lower groundwater levels in well A-1 from 1991 to 1994 are very likely related to the use of A-1 as an SVE well, and its proximity to recovery well AR-2 during

groundwater extraction. Table 2 shows groundwater levels over time for site wells, including well A-1. Appendix D includes a detailed Site history including available details on the previous remedial activities.

Missing Well Logs

During the recent meeting with the ACEH it was discussed that well logs for the Site were not available and the report documenting Site well installation had not been located despite attempts by ARC and the ACEH. In an attempt to locate boring logs for the Site, a California Department of Water Resources (DWR) well records search was conducted. DWR form 188 well completion reports were retrieved for each of the Site wells. These are not included herein due to being confidential records. However, screened intervals were obtained from these forms. Screened intervals of 8 feet below ground surface (bgs) to 30 feet bgs were obtained for all Site monitoring wells. These screened intervals have been added to Table 2, Summary of Groundwater Monitoring Data. Additionally, all lithology descriptions in the DWR logs were noted as "Sand."

In comparing groundwater levels over time (Table 2) with screen intervals, well screens have not been flooded during monitoring activities and the uniformity of the lithology noted indicates that these well screens are appropriate for monitoring first-encountered groundwater.

AR-3 Development

Available records were reviewed and obstruction removal activities and/or redevelopment appear to have occurred for this well. If necessary, the integrity of this well can be considered when choosing the appropriate manner of well destruction once Site closure is obtained. If it appears an obstruction remains present in this well, it may be more appropriate to remove this well by drill out rather than pressure grouting.

Historical Soil Table

As requested by the ACEH, a table with all available historical soil data was prepared, and is included as Table 3. The LTCP maximum levels for soil are also listed in this table. As indicated in this table, there are samples that exceeded their respective LTCP value. However each of these soil samples are from 1990 tank removal and trenching activities prior to site remediation. Furthermore, each of the locations with the elevated concentrations in soil are locations where an SVE remediation well was later installed and operated, and three of four are located near where a confirmation soil boring was advanced in 2009. The table below identifies sample locations where concentrations exceeded the LTCP maximum concentrations, and the corresponding remedial well/ boring which was later installed/advanced near each location. The approximate distance (based on the maps included in Appendix E) between the soil sample and the nearby remediation well is also indicated below.

FORMER SOIL SAMPLE LOCATION WITH ELEVATED CONCENTRATIONS AND IDENTIFIED NEARBY REMEDIATION WELL

Soil Sample Location	Depth (feet below ground surface)	Soil Sample Type	Nearby Remediation Well	Distance to Remediation Well (feet)	Adjacent 2009 Soil Sample Location Below LTCP Levels
AX1-2[a]	10	Excavation Confirmation	AV-4	~5-10	B-8
AX1-3	10	Excavation Confirmation	AV-1	~5-10	B-7
AX1-7[a]	10	Excavation Confirmation	AV-4/AR-1	~15-20/~15-20	B-8/B-9
AT-36	3	Trench Sample	AV-3	~5-10	NA

As indicated in this table, each soil sample location that historically contains compounds elevated above the LTCP maximums has an SVE well within 20 feet. In addition, each of the soil samples collected near the former UST pit were confirmed to no longer be present in soil in 2009 when boring B-7 through B-9 were advanced. All soil sample results are included in Table 3. To summarize:

- Soil sample AX1-2[a] contained benzene at 60 milligrams per kilogram (mg/kg) when collected in 1990; in 2009, no benzene was detected at 5 or 8 feet bgs and only a minor concentration at 11 feet bgs in boring B-8, which is located in close proximity to the former soil sample AX1-2[a.]
- Soil sample AX1-3 contained benzene at 130 mg/kg in 1990; in 2009 boring B-7 contained no benzene at 5, 8, or 11 feet bgs
- Soil sample AX1-7[a] contained benzene at 96 mg/kg at 10 feet bgs; in 2009 boring B-8 contained 0.23 mg/kg benzene at 11 feet bgs and none at 5 and 8 feet bgs
- Boring B-9 is also located reasonably close to AX1-7[a,] and no benzene was reported at this location at depths of 5, 8, and 11 feet bgs in 2009

The same decrease is noted for other fuel compounds. Recent data from borings B-7 through B-9 indicates that soil at the Site has been effectively remediated by the SVE system, and concentrations of benzene and ethylbenzene remaining do not exceed levels specified in the LTCP. Current soil samples near former sample AT-36 noted in the above table were not available in the historical record, however due to the proximity of the SVE well to this former sample and the fact that the SVE has effectively reduced the concentrations to near non-detect in soil at other locations, it is assumed that soil in the area of this former sample does not exceed LTCP levels. Maps of these former soil sampling locations are included in Appendix E.

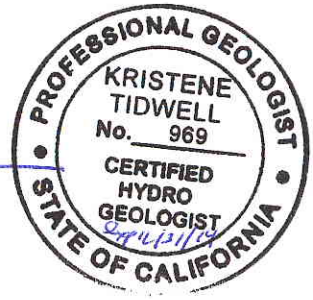
Closing

The data and Site evaluation presented in this Addendum as well as the Closure Request indicate that this Site meets the criteria of the Low Threat Closure UST Policy. Residual impacts in groundwater beneath the Site have degraded and petroleum compounds are no longer present in groundwater or soil at the Site. We recommend that a No Further Action Letter be issued for this Site. Well

decommissioning and final closure activities will be coordinated upon concurrence with the Closure Request and this Addendum from the ACEH.

Should you have questions or require additional information, please do not hesitate to contact us at (707) 455-7290.

Sincerely,
BROADBENT & ASSOCIATES, INC.



Kristene Tidwell, P.G., C.Hg.
Senior Geologist

Attachment

Drawing 1: Site Location Map
Drawing 2: Site Map with Monitoring Well, Soil Boring, and Soil Vapor Probe Locations
Drawing 3: Surrounding Site Use Map
Drawing 4: Groundwater Elevation Contours and Analytical Summary Map – 8 Februar 2011

Table 1: Conceptual Site Model
Table 2: Summary of Groundwater Monitoring Data: Relative Water Elevations and Laboratory Analyses
Table 3: Historical Soil Analytical Data

Appendix A: Field Methods for Groundwater Sampling
Appendix B: Groundwater Sampling Field Data Sheets
Appendix C: Groundwater Laboratory Analytical Report
Appendix D: Detailed Site History
Appendix E: Maps of Historical Soil Locations

cc: Ms. Dilan Roe, PE, Alameda County Environmental Health (Submitted via ACEH ftp site)
Electronic copy uploaded to GeoTracker

References

State Water Resources Control Board (SWRCB), 2012. Low-Threat Underground Storage Tank Case Closure Policy, August 17.

All Appropriate Inquiries Environmental Corporation (AAI), 2007. Report For Phase I Site Assessment. May 9.

Geocon Consultants , Inc. (Geocon), 2008. Limited Soil and Grab Groundwater Sampling Report. May 7.

ATTACHMENTS

DRAWINGS

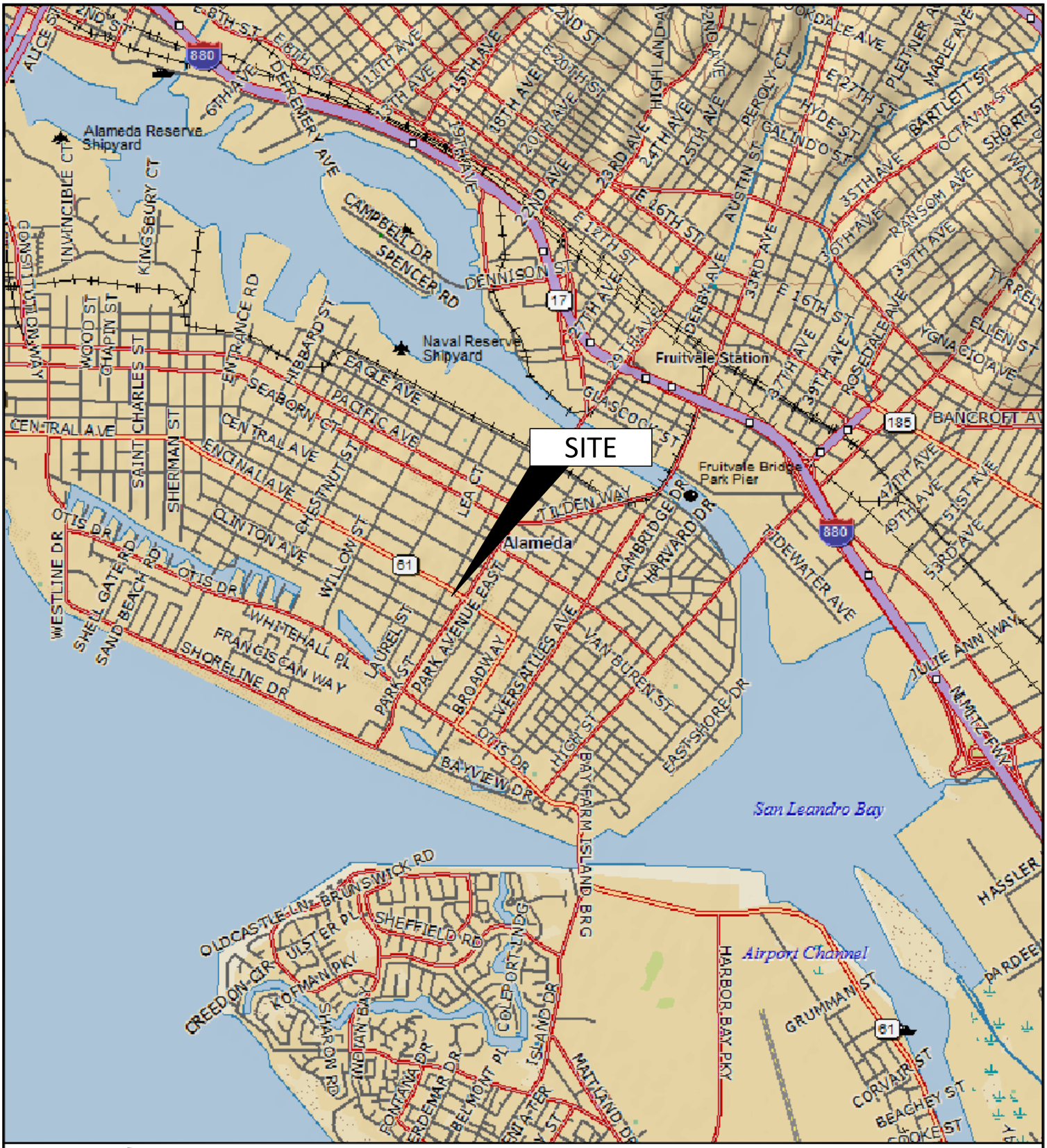
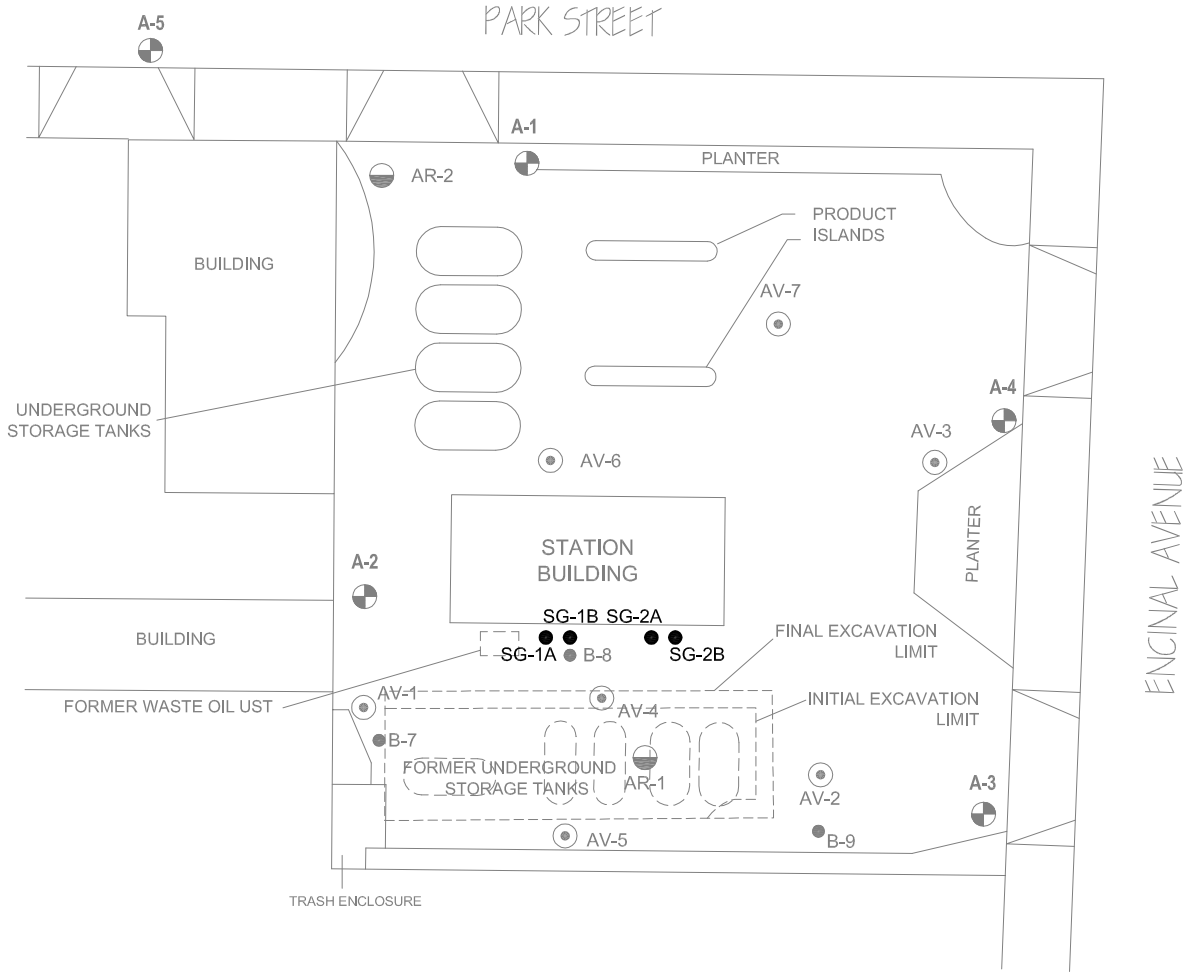


IMAGE SOURCE: USGS

BROADBENT 1370 Ridgewood Dr., Suite 5 Chico, California 95973 Project No.: 06-88-616 Date: 4/8/2013	Station #2112 1260 Park Street Alameda, California	Site Location Map	Drawing 1



LEGEND:

SG-2B	SOIL VAPOR PROBE
A-1	MONITORING WELL LOCATION
AR-1	GROUND-WATER EXTRACTION WELL LOCATION
AV-1	VAPOR EXTRACTION WELL LOCATION
B-9	RECENT BORING LOCATION
- - - - - -	EXCAVATED AREA

N

0 40 80

SCALE (ft)

BROADBENT & ASSOCIATES, INC.
ENGINEERING, WATER RESOURCES & ENVIRONMENTAL
1324 Mangrove Ave. Suite 212, Chico, California 95926
Project No.: 06-88-616 Date: 7/20/2012

Station #2112
1260 Park Street
Alameda, California

Site Map with Monitoring Well, Soil Boring and Soil Vapor Probe Locations

Drawing
2

FINE DEN-
BAR & GRILL

KAI'S
JAPANESE RESTAURANT

SANDWICH
SHOP

JACK IN
THE BOX

LUCKY 13
BAR

CAFE

HOBNOB
BAR

PARK STREET

61

A-5

AR-2

A-1

PLANTER

NAIL SALON

ARCO 2112

B-6

AV-7

AV-6

AV-3

A-4

PLANTER

ENCINAL AVENUE

COUNSELERS
OFFICE

A-2

AV-1

AV-4

B-1

B-2

AR-2

B-5

AV-2

T1

B-4

AV-5

B-3

A-3

CITY OF ALAMEDA
FIRE STATION

DENTIST
OFFICE

RESIDENTIAL
HOMES

RESIDENTIAL
HOMES

MONTESSORI
SCHOOL

KFC RESTAURANT

ALAMEDA
CELLARS

LEGEND:

A-1	MONITORING WELL LOCATION
AR-1	GROUNDWATER EXTRACTION WELL LOCATION
B-1	BORING LOCATION
AV-1	VAPOR EXTRACTION WELL LOCATION

NOTE: SITE MAP ADAPTED FROM URS FIGURES. SITE DIMENSIONS AND FACILITY LOCATIONS NOT VERIFIED.

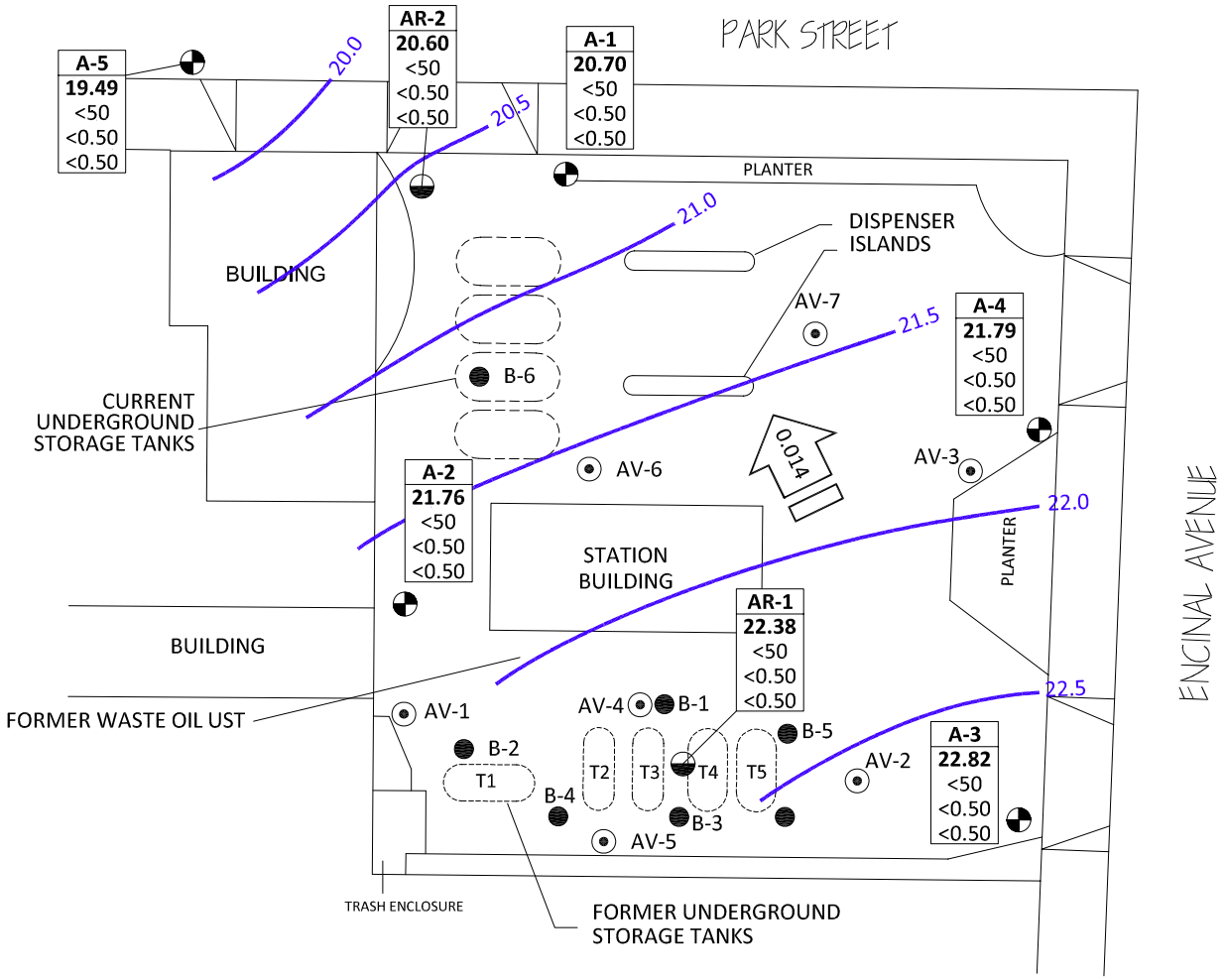
0 50 100
SCALE (ft)

Drawing 3

Sorrounding Site Use Map

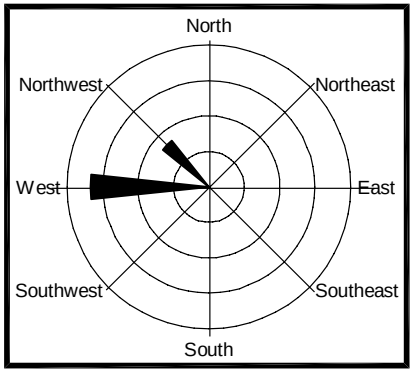
Station #2112
1260 Park Street
Alameda, California

BROADBENT
875 Cotting Lane, Suite G
Vacaville, California 95688
Project No.: 07-10-101 Date: 9/11/2013



LEGEND:

A-1	MONITORING WELL LOCATION
AR-1	GROUNDWATER EXTRACTION WELL LOCATION
B-1	BORING LOCATION
AV-1	VAPOR EXTRACTION WELL LOCATION
20.50	GROUNDWATER ELEVATION CONTOURS (FT MSL)
0.014	GROUNDWATER FLOW DIRECTION AND GRADIENT (FT/FT)
Well ELEV GRO Benzene MTBE	WELL DESIGNATION GROUNDWATER ELEVATION (FT MSL) GRO, BENZENE AND MTBE CONCENTRATIONS IN GROUNDWATER (µg/L)
NM/MS	NOT MEASURED/NOT SAMPLED
<	NOT DETECTED AT OR ABOVE LABORATORY REPORTING LIMITS
OT	ONE TIME, PER ACEH REQUEST



0 40 80

SCALE (ft)

BROADBENT
1370 Ridgewood Dr., Suite 5
Chico, California 95973
Project No.: 06-88-616 Date: 5/3/2013

Station #2112
1260 Park Street
Alameda, California

Groundwater Elevation Contours and Analytical Summary Map
8 February 2011

Drawing
4

TABLES

TABLE 1

CONCEPTUAL SITE MODEL
Atlantic Richfield Company Station 2112
1260 Park Street
Alameda, California

CSM Element	CSM Sub-Element	Description	Data Gap	How to Address
Geology and Hydrogeology	Regional	According to the *East Bay Plain Groundwater Basin Beneficial Use Evaluation Report* (SFRWQCB, June 1999), the Site is located along the northeastern edge of the Central Sub-Area of the East Bay Plain of the San Francisco Basin. The Central Sub-Area extends beneath San Francisco Bay. The boundaries of the sub-area are based on the Young Bay Mud which has a sharp "edge" in some areas, and in other areas the boundary is less defined. Alameda Island and Bay Farm Island (presently known as Harbor Bay Island) are located along the northeastern edge of the Sub-Area. 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 groundwater flow is from east to west or from the Hayward Fault to the San Francisco Bay. Groundwater flow direction generally correlates to topography. Flow direction and velocity are also influenced by buried stream channels that typically are oriented in an east to west direction. In the southern end of the study area (as defined in the above-referenced document) however, near the San Lorenzo Sub-Area, the direction of flow may not be this simple. According to information presented in the *East Bay Plain Groundwater Basin Beneficial Use Evaluation Report*, the small set of water level measurements available seemed to show that the groundwater in the upper aquifers may be flowing south, with the deeper aquifers, the Alameda Formation, moving north (SFRWQCB, 1999).	None	NA
	Site	Historical monitoring well logs were not available, however, sediments encountered during previous Site investigations generally consists of layers of silty sand, clayey sand, and sand with clay of varying thickness. This lithology is consistent to a total explored depth of 25.5 ft bgs. The lithology of the Site is consistent with the geologic environment	None	NA

TABLE 1

CONCEPTUAL SITE MODEL
Atlantic Richfield Company Station 2112
1260 Park Street
Alameda, California

CSM Element	CSM Sub-Element	Description	Data Gap	How to Address
Geology and Hydrogeology (Continued)	Site (Continued)	of alluvial deposits, and consistent with the regional geologic environment. Historical depth to groundwater in Site wells have ranged from 6.76 to 18.43 ft bgs. Groundwater has historically flown predominately to the west at an average gradient of 0.01 ft/ft. This groundwater flow direction is consistent with regional groundwater flow towards the San Francisco Bay .		
Surface Water Bodies		The closest surface water body to the Site in the downgradient direction appears to be an unnamed impounded lagoon surrounded by residential houses approximately 2,600 ft to the west-southwest. The strait between Alameda and Harbor Bay Island into the San Leandro Bay is approximately 3,500 ft to the south-southwest. The Oakland Inner Harbor's Tidal Canal is approximately 4,000 ft to the north-northeast.	None	NA
Nearby Wells		A Sensitive Receptor Survey was carried out in May 2011 to identify the presence of water wells located within a 0.5 mile radius of the Site. Based on a review of well completion reports furnished by the Department of Water Resources, 88 wells were identified within a 0.5 mile radius of the Site. Of the 88 wells, there are 76 environmental monitoring/remediation wells (including those at the Site), 11 irrigation water supply wells, and one cathodic protection well. Six of the irrigation water supply wells are located downgradient of the Site. The closest irrigation water supply well from the Site is 0.25 mile to the northwest.	None	NA
Constituents of Concern	LNAPL	LNAPL has not been reported at the Site.	None	NA
	GRO	GRO have only been detected in wells A-1 and A-2 with the last detection above laboratory reporting limits in well A-1 in November 1994. GRO has not been detected in the remaining wells at the Site, and not at all since 1994.	None	NA

TABLE 1

CONCEPTUAL SITE MODEL
Atlantic Richfield Company Station 2112
1260 Park Street
Alameda, California

CSM Element	CSM Sub-Element	Description	Data Gap	How to Address
Constituents of Concern (continued)	Benzene	Benzene has only been detected in wells A-1, A-2, and A-4 with the last detection above laboratory reporting limits in well A-1 in November 1995. Benzene has not been detected in the remaining wells at the Site, and not at all since 1995.	None	NA
	MTBE	MTBE in groundwater has only been detected in well A-1 at 22 µg/L on July 17, 2006. MTBE has not been detected during other sampling events from this well or any other wells across the Site. It is believed that the one-time MTBE detection is anomalous.	None	NA
Potential Sources	Onsite	The source and mechanism of the original hydrocarbon release is not explicitly known or quantified, but it is believed to be the former underground storage tanks and product delivery system. This assumption is based on location of hydrocarbon impacts and observed field conditions during UST removals, carried out in 1990. The cause of the original release has been repaired, and the USTs, fuel dispensers, and piping have been subsequently replaced and/or upgraded, from the southeastern portion of the Site. During replacement and/or upgrading activities, approximately 2000 cubic yards of hydrocarbon contaminated soil were removed from these source areas and replaced with clean soil. There is no evidence of an ongoing release since the replacement/upgrading and overexcavation activities took place on Site.	None	NA
	Offsite	The Fire Station for the Alameda Fire Department, located across Encinal Avenue and northeast of the Site, is currently a closed LUST case. No additional offsite potential sources have been identified for this Site.	None	NA

TABLE 1

CONCEPTUAL SITE MODEL
Atlantic Richfield Company Station 2112
1260 Park Street
Alameda, California

CSM Element	CSM Sub-Element	Description	Data Gap	How to Address
Nature and Extent of Environmental Impacts	Extent in Soil	Soil appears defined at the Site. GRO in shallow soil (<10 feet bgs) was defined to 26 mg/kg, and benzene and MTBE were not detected at this depth interval during the 2009 soil boring investigation (borings B-7 through B-9; see Appendix A) in soil samples collected near the former UST pits (Broadbent, 2009). The GRO detection of 26 mg/kg is well below its respective ESL, therefore, soil is considered to be delineated laterally. Higher petroleum concentrations were reported in deeper soil (11 and 14 feet bgs), but these concentrations were assumed to represent groundwater and smear-zone conditions rather than remaining concentrations in. Since petroleum compounds in nearby groundwater monitoring wells have not been reported for almost 10 years, the extent of the petroleum present in the smear zone near the former USTs appears small, and will continue to degrade over time. The highest concentrations of petroleum concentrations were detected near the former UST complex and the former waste oil tank pit. Since these higher concentrations were reported, soil in the vicinity has been removed during tank removal and overexcavation activities. Additionally, soil vapor extraction activities removed 334.6 pounds of hydrocarbons. Since source areas have been removed and these concentrations were representative of overall groundwater concentrations at the time of sampling, it is likely that these concentrations have further attenuated over the last 20 years. Based on the data and the observation of current groundwater conditions, soil at the Site appears to be adequately defined.	None	NA

TABLE 1

CONCEPTUAL SITE MODEL
Atlantic Richfield Company Station 2112
1260 Park Street
Alameda, California

CSM Element	CSM Sub-Element	Description	Data Gap	How to Address
Nature and Extent of Environmental Impacts (continued)	Extent in Shallow Groundwater	The groundwater monitoring network at the Site includes source area wells (AR-1, A-2, and A-4); one upgradient well (A-3); and downgradient wells (AR-2, A-1, and A-5). Petroleum hydrocarbons have not been detected in groundwater samples since 1995 or since their installation, with the exception of a single MTBE detection in 2006. Since hydrocarbons in groundwater samples have not been detected at the Site, the petroleum hydrocarbon plume is considered defined. Additionally, free product has never been present at the Site. Logs are not available for Site wells, and there is a possibility screens are or have been periodically flooded due to fluctuations in groundwater levels over time. However, due to the overall lack of hydrocarbon concentrations in groundwater, it is unlikely that these potentially flooded screens would significantly change the conceptual model at the Site.	None	NA
	Extent in Deeper Groundwater	Petroleum hydrocarbons have been adequately delineated to concentrations below laboratory reporting limits in wells downgradient of the Site. Because impacts to shallow groundwater have been minimal, there is likely no adverse effect on the groundwater contained in deeper aquifers, given the physical and chemical characteristics of petroleum constituents, the hydrogeological characteristics of the groundwater, and direction of groundwater flow.	None	NA
	Extent in Soil Vapor	Petroleum hydrocarbons have been adequately delineated to concentrations below ESLs in the Site. Soil gas data collected from four soil gas probes (SG-1A, SG-1B, SG-2A, and SG-2B) screened between 3.5 and 6 ft bgs have maximum detection concentrations of petroleum hydrocarbons well below the ESL. Thus, the absence of petroleum hydrocarbon contaminants in soil gas above the ESLs indicates that the vapor intrusion to indoor air pathway does not present a risk for exposure within the Site.	None	NA

TABLE 1

CONCEPTUAL SITE MODEL
Atlantic Richfield Company Station 2112
1260 Park Street
Alameda, California

CSM Element	CSM Sub-Element	Description	Data Gap	How to Address
Migration Pathways	Potential Conduits	A preferential pathway study has not been performed on Site. However, since petroleum concentrations are currently minimal or no longer present, there is no threat of contaminants travelling offsite via preferential pathways.	None	NA
Potential Receptors	Onsite	No on Site water wells are present at the Site. No other receptors are present on Site. In addition, due to low or non-detect petroleum hydrocarbon concentrations in soil gas, vapor intrusion is not considered to be an indoor air pathway at the Site.	None	NA
	Offsite)	There are no potable water supply wells known to exist within 0.5 miles of the Site. According to well logs provided by the DWR, eleven irrigation supply wells and one cathodic protection well are located within 0.5 miles of the Site. Of the eleven irrigation water supply wells, six are located in the downgradient direction. The closest irrigation water supply well, located approximately 0.25 miles to the northwest, has a protective double casing from the surface down to 135 ft of its total 525 ft depth. Deeper drinking water aquifers, surface waters, or other sensitive receptors are unlikely to be impacted by the past release at the Site. The closest down-gradient surface water body appears to the unnamed lagoon impoundment located approximately 2,600 ft to the west-southwest. However, due to non-detect to very low petroleum hydrocarbon concentrations currently present at the Site, no offsite receptors are threatened.	None	NA

TABLE 1

CONCEPTUAL SITE MODEL
Atlantic Richfield Company Station 2112
1260 Park Street
Alameda, California

Notes:
bgs = below ground surface
DWR = California Department of Water Resources
ESL = Environmental Screening Limits by SFRWQCB in Screening for Environmental Concerns at Sites with Contaminated Soil and Groundwater
ft = foot
GRO = Gasoline Range Organics
LNAPL = Light-Non Aqueous Phase Liquid
LUST = Leaking Underground Storage Tank
mg/kg = milligrams per kilogram
MTBE = Methyl tert-butyl Ether
NA = Not Applicable
SFRWQCB = California Regional Water Quality Control Board – San Francisco Bay Region
UST = Underground Storage Tank
µg/L = micrograms per liter
All report references are included in Section 3 of the preceding report

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

ARCO Service Station #2112, 1260 Park Street, Alameda, CA

Well ID and Date Monitored	P/NP	TOC (feet)	Top of Screen (ft bgs)	Bottom of Screen (ft bgs)	DTW (feet)	Water Level Elevation (feet)	Concentrations in µg/L						DO (mg/L)	pH	Footnote
							GRO/ TPHg	Benzene	Toluene	Ethyl-Benzene	Total Xylenes	MTBE			
A-1															
10/7/1991	--	28.39	8.00	30.00	16.47	11.92	470	48	34	7.5	82	--	--	--	
2/18/1992	--		8.00	30.00	17.16	11.23	<30	5.4	0.82	<0.3	<0.3	--	--	--	
5/22/1992	--		8.00	30.00	17.14	11.25	38	15	0.92	1.3	0.51	--	--	--	
8/14/1992	--		8.00	30.00	16.63	11.76	<50	14	<0.5	1.5	<0.5	--	--	--	
10/23/1992	--		8.00	30.00	16.28	12.11	66	22	4.6	2	4.3	--	--	--	
1/28/1993	--		8.00	30.00	17.34	11.05	750	120	120	16	96	--	--	--	
2/24/1993	--		8.00	30.00	18.43	9.96	--	--	--	--	--	--	--	--	
4/28/1993	--		8.00	30.00	17.71	10.68	6,700	1,900	1,700	240	1,300	--	--	--	
5/28/1993	--		8.00	30.00	17.18	11.21	--	--	--	--	--	--	--	--	
6/16/1993	--		8.00	30.00	16.63	11.76	--	--	--	--	--	--	--	--	
7/27/1993	--		8.00	30.00	16.60	11.79	--	--	--	--	--	--	--	--	
8/24/1993	--		8.00	30.00	16.44	11.95	1,800	230	88	34	160	--	--	--	
9/28/1993	--		8.00	30.00	16.66	11.73	--	--	--	--	--	--	--	--	
10/22/1993	--		8.00	30.00	16.67	11.72	2,500	79	<10	<10	160	--	--	--	
11/16/1993	--		8.00	30.00	16.56	11.83	--	--	--	--	--	--	--	--	
12/16/1993	--		8.00	30.00	16.96	11.43	--	--	--	--	--	--	--	--	
2/7/1994	--		8.00	30.00	17.62	10.77	61	24	<0.5	2.1	0.8	--	--	--	
5/2/1994	--		8.00	30.00	17.17	11.22	58	17	0.7	2.2	4.2	--	--	--	
8/5/1994	--		8.00	30.00	11.40	16.99	<50	5.1	1.4	0.6	2.5	--	--	--	
11/30/1994	--		8.00	30.00	9.43	18.96	130	16	8.4	0.6	27	--	--	--	
2/22/1995	--		8.00	30.00	10.76	17.63	<50	1.2	<0.50	<0.50	<0.50	--	--	--	
5/23/1995	--		8.00	30.00	9.25	19.14	<50	4.9	0.95	0.61	3.9	--	--	--	
8/9/1995	--		8.00	30.00	11.33	17.06	<50	2.3	<0.50	<0.50	0.53	<2.5	--	--	
11/16/1995	--		8.00	30.00	12.11	16.28	<50	3.3	1.5	<0.50	1.9	--	--	--	
1/15/1996	--		8.00	30.00	11.18	17.21	<50	<0.50	<0.50	<0.50	<0.50	--	--	--	
4/8/1996	--		8.00	30.00	10.61	17.78	<50	<0.50	<0.50	<0.50	<0.50	--	--	--	
7/2/1996	--		8.00	30.00	11.28	17.11	<50	<0.50	<0.50	<0.50	<0.50	<2.5	--	--	
10/1/1996	--		8.00	30.00	11.70	16.69	<50	<0.50	<0.50	<0.50	<0.50	<2.5	--	--	
4/8/1997	--		8.00	30.00	10.98	17.41	<50	<0.50	<0.50	<0.50	<0.50	<2.5	--	--	
6/14/1997	--		8.00	30.00	11.35	17.04	<50	<0.50	<0.50	<0.50	<0.50	<2.5	--	--	

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

ARCO Service Station #2112, 1260 Park Street, Alameda, CA

Well ID and Date Monitored	P/NP	TOC (feet)	Top of Screen (ft bgs)	Bottom of Screen (ft bgs)	DTW (feet)	Water Level Elevation (feet)	Concentrations in µg/L						DO (mg/L)	pH	Footnote
							GRO/ TPHg	Benzene	Toluene	Ethyl-Benzene	Total Xylenes	MTBE			
A-1 Cont.															
7/17/2006	--	30.81	8.00	30.00	10.92	19.89	<50	<0.50	<0.50	<0.50	<0.50	22	--	6.6	a
9/10/2010	P		8.00	30.00	10.90	19.91	<50	<0.50	<0.50	<0.50	<0.50	<0.50	--	6.9	
2/8/2011	**P**		**8.00**	**30.00**	**10.11**	**20.70**	**<50**	**<0.50**	**<0.50**	**<0.50**	**<0.50**	**<0.50**	**0.39**	**7.1**	
A-2															
10/7/1991	--	29.28	8.00	30.00	12.74	16.54	31	7.4	0.39	<0.3	0.93	--	--	--	
2/18/1992	--		8.00	30.00	11.55	17.73	490	120	<1.5	<1.5	17	--	--	--	
5/22/1992	--		8.00	30.00	11.71	17.57	100	2.4	<0.3	<0.3	0.89	--	--	--	
8/14/1992	--		8.00	30.00	12.54	16.74	110	5	<0.5	<0.5	<0.5	--	--	--	
10/23/1992	--		8.00	30.00	12.64	16.64	<50	<0.5	<0.5	<0.5	<0.5	--	--	--	
1/28/1993	--		8.00	30.00	10.29	18.99	280	130	<2.5	<2.5	<2.5	--	--	--	
2/24/1993	--		8.00	30.00	11.05	18.23	--	--	--	--	--	--	--	--	
4/28/1993	--		8.00	30.00	10.91	18.37	210	32	0.89	5.2	2.3	--	--	--	
5/28/1993	--		8.00	30.00	11.27	18.01	--	--	--	--	--	--	--	--	
6/16/1993	--		8.00	30.00	12.20	17.08	--	--	--	--	--	--	--	--	
7/27/1993	--		8.00	30.00	11.27	18.01	--	--	--	--	--	--	--	--	
8/24/1993	--		8.00	30.00	12.25	17.03	<50	<0.5	<0.5	<0.5	<0.5	--	--	--	
9/28/1993	--		8.00	30.00	12.36	16.92	--	--	--	--	--	--	--	--	
10/22/1993	--		8.00	30.00	12.18	17.10	<50	<0.5	<0.5	<0.5	<0.5	--	--	--	
11/16/1993	--		8.00	30.00	12.34	16.94	--	--	--	--	--	--	--	--	
12/16/1993	--		8.00	30.00	11.74	17.54	--	--	--	--	--	--	--	--	
2/7/1994	--		8.00	30.00	10.56	18.72	<50	<0.5	<0.5	<0.5	<0.5	--	--	--	
5/2/1994	--		8.00	30.00	11.48	17.80	<50	<0.5	<0.5	<0.5	<0.5	--	--	--	
8/5/1994	--		8.00	30.00	12.26	17.02	<50	<0.5	<0.5	<0.5	<0.5	--	--	--	
11/30/1994	--		8.00	30.00	10.93	18.35	<50	<0.5	<0.5	<0.5	<0.5	--	--	--	
2/22/1995	--		8.00	30.00	10.55	18.73	<50	0.68	1.3	<0.5	0.52	--	--	--	
5/23/1995	--		8.00	30.00	11.05	18.23	<50	<0.50	<0.50	<0.50	<0.50	--	--	--	
8/9/1995	--		8.00	30.00	11.70	17.58	<50	<0.50	<0.50	<0.50	<0.50	<2.5	--	--	
11/16/1995	--		8.00	30.00	12.64	16.64	<50	<0.50	<0.50	<0.50	<0.50	--	--	--	
1/15/1996	--		8.00	30.00	11.17	18.11	<50	<0.50	<0.50	<0.50	<0.50	--	--	--	
4/8/1996	--		8.00	30.00	10.45	18.83	<50	<0.50	<0.50	<0.50	<0.50	--	--	--	

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

ARCO Service Station #2112, 1260 Park Street, Alameda, CA

Well ID and Date Monitored	P/NP	TOC (feet)	Top of Screen (ft bgs)	Bottom of Screen (ft bgs)	DTW (feet)	Water Level Elevation (feet)	Concentrations in µg/L						DO (mg/L)	pH	Footnote
							GRO/ TPHg	Benzene	Toluene	Ethyl-Benzene	Total Xylenes	MTBE			
A-2 Cont.															
7/2/1996	--	29.28	8.00	30.00	11.40	17.88	<50	<0.50	<0.50	<0.50	<0.50	<2.5	--	--	
10/1/1996	--		8.00	30.00	12.10	17.18	<50	<0.50	<0.50	<0.50	<0.50	<2.5	--	--	
4/8/1997	--		8.00	30.00	11.05	18.23	<50	<0.50	<0.50	<0.50	<0.50	<2.5	--	--	
6/14/1997	--		8.00	30.00	11.65	17.63	<50	<0.50	<0.50	<0.50	<0.50	<2.5	--	--	
7/17/2006	--	31.26	8.00	30.00	11.00	20.26	<50	<0.50	<0.50	<0.50	<0.50	<0.50	--	7.1	
9/10/2010	P		8.00	30.00	10.84	20.42	<50	<0.50	<0.50	<0.50	<0.50	<0.50	--	6.8	
2/8/2011	**P**		**8.00**	**30.00**	**9.50**	**21.76**	**<50**	**<0.50**	**<0.50**	**<0.50**	**<0.50**	**<0.50**	**1.15**	**7.0**	
A-3															
10/7/1991	--	27.87	8.00	30.00	10.55	17.32	<30	<0.3	<0.3	<0.3	<0.3	--	--	--	
2/18/1992	--		8.00	30.00	9.12	18.75	<30	<0.3	<0.3	<0.3	<0.3	--	--	--	
5/22/1992	--		8.00	30.00	9.41	18.46	<30	<0.3	<0.3	<0.3	<0.3	--	--	--	
8/14/1992	--		8.00	30.00	10.31	17.56	<50	<0.5	<0.5	<0.5	<0.5	--	--	--	
10/23/1992	--		8.00	30.00	10.57	17.30	<50	<0.5	<0.5	<0.5	<0.5	--	--	--	
1/28/1993	--		8.00	30.00	7.66	20.21	<50	<0.5	<0.5	<0.5	<0.5	--	--	--	
2/24/1993	--		8.00	30.00	8.28	19.59	--	--	--	--	--	--	--	--	
4/28/1993	--		8.00	30.00	6.76	21.11	<50	<0.5	<0.5	<0.5	<0.5	--	--	--	
5/28/1993	--		8.00	30.00	8.98	18.89	--	--	--	--	--	--	--	--	
6/16/1993	--		8.00	30.00	9.69	18.18	--	--	--	--	--	--	--	--	
7/27/1993	--		8.00	30.00	9.66	18.21	--	--	--	--	--	--	--	--	
8/24/1993	--		8.00	30.00	9.85	18.02	<50	<0.5	<0.5	<0.5	<0.5	--	--	--	
9/28/1993	--		8.00	30.00	10.21	17.66	--	--	--	--	--	--	--	--	
10/22/1993	--		8.00	30.00	10.05	17.82	<50	<0.5	<0.5	<0.5	<0.5	--	--	--	
11/16/1993	--		8.00	30.00	9.42	18.45	--	--	--	--	--	--	--	--	d
11/16/1993	--		8.00	30.00	11.20	16.67	--	--	--	--	--	--	--	--	
11/16/1993	--		8.00	30.00	9.42	18.45	--	--	--	--	--	--	--	--	
11/16/1993	--		8.00	30.00	11.20	16.67	--	--	--	--	--	--	--	--	d
2/7/1994	--		8.00	30.00	8.29	19.58	<50	<0.5	<0.5	<0.5	<0.5	--	--	--	
5/2/1994	--		8.00	30.00	9.08	18.79	<50	<0.5	<0.5	<0.5	<0.5	--	--	--	
8/5/1994	--		8.00	30.00	10.02	17.85	<50	<0.5	<0.5	<0.5	<0.5	--	--	--	
11/30/1994	--		8.00	30.00	8.53	19.34	<50	<0.5	<0.5	<0.5	<0.5	--	--	--	

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ARCO Service Station #2112, 1260 Park Street, Alameda, CA

Well ID and Date Monitored	P/NP	TOC (feet)	Top of Screen (ft bgs)	Bottom of Screen (ft bgs)	DTW (feet)	Water Level Elevation (feet)	Concentrations in µg/L						DO (mg/L)	pH	Footnote
							GRO/ TPHg	Benzene	Toluene	Ethyl- Benzene	Total Xylenes	MTBE			
A-3 Cont.															
2/22/1995	--	27.87	8.00	30.00	7.90	19.97	<50	<0.50	<0.50	<0.50	<0.50	--	--	--	
5/23/1995	--		8.00	30.00	8.60	19.27	<50	<0.50	<0.50	<0.50	<0.50	--	--	--	
8/9/1995	--		8.00	30.00	9.30	18.57	<50	<0.50	<0.50	<0.50	<0.50	<2.5	--	--	
11/16/1995	--		8.00	30.00	--	--	--	--	--	--	--	--	--	--	e
1/15/1996	--		8.00	30.00	8.66	19.21	--	--	--	--	--	--	--	--	e
4/8/1996	--		8.00	30.00	7.86	20.01	--	--	--	--	--	--	--	--	e
7/2/1996	--		8.00	30.00	9.03	18.84	<50	<0.50	<0.50	<0.50	<0.50	<2.5	--	--	
10/1/1996	--		8.00	30.00	9.88	17.99	--	--	--	--	--	--	--	--	e
4/8/1997	--		8.00	30.00	8.55	19.32	--	--	--	--	--	--	--	--	e
6/14/1997	--		8.00	30.00	9.43	18.44	--	--	--	--	--	--	--	--	e
7/17/2006	--	30.20	8.00	30.00	--	--	--	--	--	--	--	--	--	--	c
9/10/2010	--		8.00	30.00	--	--	--	--	--	--	--	--	--	--	c
2/8/2011	**NP**		**8.00**	**30.00**	**7.38**	**22.82**	**<50**	**<0.50**	**<0.50**	**<0.50**	**<0.50**	**<0.50**	**1.05**	**6.7**	**f**
A-4															
10/7/1991	--	28.54	8.00	30.00	11.40	17.14	<30	0.32	0.69	<0.3	1.1	--	--	--	
2/18/1992	--		8.00	30.00	10.52	18.02	<30	<0.3	<0.3	<0.3	<0.3	--	--	--	
5/22/1992	--		8.00	30.00	10.45	18.09	<30	<0.3	<0.3	<0.3	<0.3	--	--	--	
8/14/1992	--		8.00	30.00	11.22	17.32	<50	<0.5	<0.5	<0.5	<0.5	--	--	--	
10/23/1992	--		8.00	30.00	11.44	17.10	<50	<0.5	<0.5	<0.5	<0.5	--	--	--	
1/28/1993	--		8.00	30.00	9.12	19.42	<50	<0.5	<0.5	<0.5	<0.5	--	--	--	
2/24/1993	--		8.00	30.00	9.91	18.63	--	--	--	--	--	--	--	--	
4/28/1993	--		8.00	30.00	8.29	20.25	<50	<0.5	<0.5	<0.5	<0.5	--	--	--	
5/28/1993	--		8.00	30.00	9.92	18.62	--	--	--	--	--	--	--	--	
6/16/1993	--		8.00	30.00	10.64	17.90	--	--	--	--	--	--	--	--	
7/27/1993	--		8.00	30.00	10.81	17.73	--	--	--	--	--	--	--	--	
8/24/1993	--		8.00	30.00	10.98	17.56	<50	<0.5	<0.5	<0.5	<0.5	--	--	--	
9/28/1993	--		8.00	30.00	11.08	17.46	--	--	--	--	--	--	--	--	
10/22/1993	--		8.00	30.00	11.06	17.48	<50	<0.5	<0.5	<0.5	<0.5	--	--	--	
11/16/1993	--		8.00	30.00	10.27	18.27	--	--	--	--	--	--	--	--	
12/16/1993	--		8.00	30.00	10.64	17.90	--	--	--	--	--	--	--	--	

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							GRO/ TPHg	Benzene	Toluene	Ethyl-Benzene	Total Xylenes	MTBE			
A-4 Cont.															
2/7/1994	--	28.54	8.00	30.00	9.42	19.12	<50	<0.5	<0.5	<0.5	<0.5	--	--	--	
5/2/1994	--		8.00	30.00	10.33	18.21	<50	<0.5	<0.5	<0.5	<0.5	--	--	--	
8/5/1994	--		8.00	30.00	10.94	17.60	<50	<0.5	<0.5	<0.5	<0.5	--	--	--	
11/30/1994	--		8.00	30.00	9.89	18.65	<50	<0.5	<0.5	<0.5	<0.5	--	--	--	
2/22/1995	--		8.00	30.00	9.44	19.10	<50	<0.50	<0.50	<0.50	<0.50	--	--	--	
5/23/1995	--		8.00	30.00	9.80	18.74	<50	<0.50	0.59	<0.50	<0.50	--	--	--	
8/9/1995	--		8.00	30.00	10.39	18.15	<50	<0.50	<0.50	<0.50	<0.50	<2.5	--	--	
11/16/1995	--		8.00	30.00	--	--	--	--	--	--	--	--	--	--	e
1/15/1996	--		8.00	30.00	10.00	18.54	--	--	--	--	--	--	--	--	e
4/8/1996	--		8.00	30.00	9.34	19.20	--	--	--	--	--	--	--	--	e
7/2/1996	--		8.00	30.00	10.22	18.32	<50	<0.50	<0.50	<0.50	<0.50	<2.5	--	--	
10/1/1996	--		8.00	30.00	10.85	17.69	--	--	--	--	--	--	--	--	e
4/8/1997	--		8.00	30.00	9.88	18.66	--	--	--	--	--	--	--	--	e
6/14/1997	--		8.00	30.00	10.43	18.11	--	--	--	--	--	--	--	--	e
7/17/2006	--	30.73	8.00	30.00	9.02	21.71	<50	<0.50	<0.50	<0.50	<0.50	<0.50	--	7.0	a,b
9/10/2010	P		8.00	30.00	9.96	20.77	<50	<0.50	<0.50	<0.50	<0.50	<0.50	--	6.8	
2/8/2011	**P**		**8.00**	**30.00**	**8.94**	**21.79**	**<50**	**<0.50**	**<0.50**	**<0.50**	**<0.50**	**<0.50**	**0.59**	**7.0**	
A-5															
6/26/1992	--	27.29	10.00	30.00	10.77	16.52	<50	<0.5	<0.5	<0.5	<0.5	--	--	--	
8/14/1992	--		10.00	30.00	11.04	16.25	<50	<0.5	<0.5	<0.5	<0.5	--	--	--	
10/23/1992	--		10.00	30.00	11.12	16.17	<50	<0.5	<0.5	<0.5	<0.5	--	--	--	
1/28/1993	--		10.00	30.00	9.94	17.35	<50	<0.5	<0.5	<0.5	<0.5	--	--	--	
2/24/1993	--		10.00	30.00	10.63	16.66	--	--	--	--	--	--	--	--	
4/28/1993	--		10.00	30.00	10.70	16.59	<50	<0.5	<0.5	<0.5	<0.5	--	--	--	
5/28/1993	--		10.00	30.00	10.35	16.94	--	--	--	--	--	--	--	--	
6/16/1993	--		10.00	30.00	10.76	16.53	--	--	--	--	--	--	--	--	
7/27/1993	--		10.00	30.00	10.78	16.51	--	--	--	--	--	--	--	--	
8/24/1993	--		10.00	30.00	10.97	16.32	<50	<0.5	<0.5	<0.5	<0.5	--	--	--	
9/28/1993	--		10.00	30.00	10.90	16.39	--	--	--	--	--	--	--	--	
10/22/1993	--		10.00	30.00	10.82	16.47	<50	<0.5	<0.5	<0.5	<0.5	--	--	--	

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

ARCO Service Station #2112, 1260 Park Street, Alameda, CA

Well ID and Date Monitored	P/NP	TOC (feet)	Top of Screen (ft bgs)	Bottom of Screen (ft bgs)	DTW (feet)	Water Level Elevation (feet)	Concentrations in µg/L						DO (mg/L)	pH	Footnote
							GRO/ TPHg	Benzene	Toluene	Ethyl-Benzene	Total Xylenes	MTBE			
A-5 Cont.															
11/16/1993	--	27.29	10.00	30.00	10.98	16.31	--	--	--	--	--	--	--	--	
12/16/1993	--		10.00	30.00	10.70	16.59	--	--	--	--	--	--	--	--	
2/7/1994	--		10.00	30.00	9.96	17.33	<50	<0.5	0.9	<0.5	0.7	--	--	--	
5/2/1994	--		10.00	30.00	10.59	16.70	<50	<0.5	<0.5	<0.5	<0.5	--	--	--	
8/5/1994	--		10.00	30.00	10.91	16.38	<50	<0.5	<0.5	<0.5	<0.5	--	--	--	
11/30/1994	--		10.00	30.00	10.69	16.60	<50	<0.5	<0.5	<0.5	<0.5	--	--	--	
2/22/1995	--		10.00	30.00	10.71	16.58	<50	<0.50	<0.50	<0.50	<0.50	--	--	--	
5/23/1995	--		10.00	30.00	10.75	18.33	<50	<0.50	<0.50	<0.50	<0.50	--	--	--	
8/9/1995	--		10.00	30.00	10.78	18.30	<50	<0.50	<0.50	<0.50	<0.50	<2.5	--	--	
11/16/1995	--		10.00	30.00	11.33	15.96	<50	<0.50	<0.50	<0.50	<0.50	--	--	--	
1/15/1996	--		10.00	30.00	10.61	16.68	<50	<0.50	<0.50	<0.50	<0.50	--	--	--	
4/8/1996	--		10.00	30.00	10.59	16.70	<50	<0.50	<0.50	<0.50	<0.50	--	--	--	
7/2/1996	--		10.00	30.00	10.73	16.56	<50	<0.50	<0.50	<0.50	<0.50	<2.5	--	--	
10/1/1996	--		10.00	30.00	10.84	16.45	<50	<0.50	<0.50	<0.50	<0.50	<2.5	--	--	
4/8/1997	--		10.00	30.00	10.68	16.61	<50	<0.50	<0.50	<0.50	<0.50	<2.5	--	--	
6/14/1997	--		10.00	30.00	10.70	16.59	<50	<0.50	<0.50	<0.50	<0.50	<2.5	--	--	
7/17/2006	--	29.53	10.00	30.00	10.67	18.86	<50	<0.50	<0.50	<0.50	<0.50	<0.50	--	7.0	a
9/10/2010	P		10.00	30.00	10.21	19.32	<50	<0.50	<0.50	<0.50	<0.50	<0.50	--	7.0	
2/8/2011	**P**		**10.00**	**30.00**	**10.04**	**19.49**	**<50**	**<0.50**	**<0.50**	**<0.50**	**<0.50**	**<0.50**	**0.55**	**7.5**	
AR-1															
9/10/2010	P	31.17	9.00	30.00	10.24	20.93	<50	<0.50	<0.50	<0.50	<0.50	<0.50	--	6.6	
2/8/2011	**P**		**9.00**	**30.00**	**8.79**	**22.38**	**<50**	**<0.50**	**<0.50**	**<0.50**	**<0.50**	**<0.50**	**0.82**	**6.9**	
AR-2															
9/10/2010	P	30.19	10.00	30.00	10.37	19.82	<50	<0.50	<0.50	<0.50	<0.50	<0.50	--	7.0	
2/8/2011	**P**		**10.00**	**30.00**	**9.59**	**20.60**	**<50**	**<0.50**	**<0.50**	**<0.50**	**<0.50**	**<0.50**	**0.93**	**7.5**	

Symbols & Abbreviations:
-- = Not analyzed/applicable/measured/available
< = Not detected at or above laboratory reporting limit
ft bgs = Feet below ground surface
BTEX = Benzene, toluene, ethylbenzene and xylenes
DO = Dissolved oxygen
DTW = Depth to water in ft bgs
GRO = Gasoline range organics, range C4-C12
GWE = Groundwater elevation measured in ft
mg/L = Milligrams per liter
MTBE = Methyl tert butyl ether
NP = Not purged before sampling
P = Purged before sampling
TOC = Top of casing measured in ft
TPH-g = Total petroleum hydrocarbons as gasoline, analyzed using EPA Method 8015, Modified
µg/L = Micrograms per liter
SEQ/SEQM = Sequoia Analytical/Sequoia Morgan Hill Laboratories

Footnotes:
a = Hydrocarb. in req. fuel range, but doesn't resemble req. fuel
b = Surrogate recovery above the acceptance limits. Matrix interference suspected
c = Well obstructed
d = Date believed to be erroneous; date likely to be 12/16/1993
e = Well sampled annually
f = NP due to blockage

Notes:
GRO analysis was completed by EPA method 8260B (C4-C12) for samples collected from the time period April 2006 through February 4, 2008. The analysis for GRO was changed to EPA method 8015B (C6-C12) for samples collected from the time period February 5, 2008 through the present

The data within this table collected prior to April 2006 was provided to Broadbent & Associates, Inc. by Atlantic Richfield Company and their previous consultants. Broadbent & Associates, Inc. has not verified the accuracy of this information

Table 3
Historical Soil Analytical Data
Station No. 2112
1260 Park Street
Alameda, California

Sample Number	Depth (ft)	Sample Date	Gasoline Range Organics/ Total Petrolem Hydrocarbons as Gasoline	Benzene	Toluene	Ethylbenzene	Total Xylenes
			mg/kg	mg/kg	mg/kg	mg/kg	mg/kg
S-6-B1	6	2/20/1990	12	0.16	0.34	0.14	1.3
S-10-B1	10	2/20/1990	1,700	15	72	22	180
S-6-B2	6	2/20/1990	<2.0	<0.050	<0.050	<0.050	<0.050
S-11-B2	11	2/20/1990	570	3.9	13	11	82
S-6-B3	6	2/20/1990	<2.0	0.097	<0.050	<0.050	0.20
S-11-B3	11	2/20/1990	10,000	47	350	120	940
S-6-B4	6	2/20/1990	<2.0	0.063	0.096	<0.050	0.20
S-11-B4	11	2/20/1990	21,000	210	1,100	320	2,600
S-6-B5	6	2/20/1990	3.7	<0.050	0.081	<0.050	0.18
S-11-B5	11	2/20/1990	5,400	8.8	27	66	160
S-5.5-B6	5.5	2/20/1990	<2.0	<0.050	<0.050	<0.050	<0.050
S-10-B6	10	2/20/1990	<2.0	<0.050	<0.050	<0.050	<0.050
AX1-1	6	7/26/1990	14	<0.005	<0.005	<0.005	1
AX1-1	10	8/10/1990	27	0.12	1.1	0.7	4.4
AX1-2	6	7/26/1990	1,700	<0.005	16	4.8	76
AX1-2[a]	10	8/10/1990	7,700	**60**	360	150	930
AX1-3	6	7/26/1990	<1	<0.005	<0.005	<0.005	<0.005
AX1-3	10	8/9/1990	15,000	**130**	850	**330**	1,900
AX1-3	12	7/26/1990	23,000	150	490	940	2,700
AX1-4	6	7/26/1990	<1	<0.005	<0.005	<0.005	<0.005
AX1-4	12	7/26/1990	1.2	<0.005	0.011	0.018	0.062
AX1-5	6	7/26/1990	<1	0.019	<0.005	<0.005	0.032
AX1-6	6	7/26/1990	<1	0.067	0.011	0.042	0.055
AX1-6	12	8/10/1990	1,000	2.0	24	18	110
AX1-7	6	7/26/1990	50	<0.005	<0.005	<0.005	<0.005
AX1-7[a]	10	8/10/1990	9,400	**96**	570	**200**	1,200
AX1-8	10	7/27/1990	*7,300*	***20***	*130*	*98*	*650*
AX1-8[a]	10	8/10/1990	320	<0.4	<0.4	3.8	12
AX1-9	10	7/27/1990	<1	0.014	<0.005	0.02	0.017
AX1-9a	10	8/10/1990	1.6	0.037	0.057	0.01	0.051
AX1-10	10	7/27/1990	*2,700*	***36***	*51*	***180***	*320*
AX1-10[a]	10	8/10/1990	120	0.56	4.3	2.5	15
AX1-11	10	7/27/1990	<1	12	6	14	35
AX2-1	6	7/31/1990	<1	<0.005	<0.005	0.007	0.007
AX2-1	12	7/31/1990	2.0	0.024	0.073	0.048	0.110
AX2-2	11	7/31/1990	2.0	0.470	0.180	0.005	0.013
AX2-3	6	7/31/1990	<1	<0.005	<0.005	<0.005	<0.005
AX2-3	11.5	7/31/1990	<1	<0.005	<0.005	<0.005	<0.005
AX2-4	6	7/31/1990	<1	<0.005	<0.005	<0.005	<0.005
AX2-4	11	7/31/1990	<1	<0.005	<0.005	<0.005	<0.005
AX2-5	6	7/31/1990	<1	<0.005	<0.005	<0.005	<0.005
AX2-5	11	7/31/1990	<1	<0.005	<0.005	<0.005	<0.005
AX2-6	11	7/31/1990	<1	0.013	0.011	<0.005	<0.005
AX2-7	11	7/31/1990	<1	<0.005	<0.005	<0.005	<0.005
AT-1	3.5	8/17/1990	2,000	<0.8	23	28	210
AT-2	2.5	8/17/1990	6.7	0.023	0.088	0.11	0.84
AT-3	3.5	8/17/1990	<1	<0.005	<0.005	<0.005	<0.005
AT-4	2.5	8/17/1990	5.8	0.034	0.12	0.057	0.52
AT-7	2	8/8/1990	2.0	0.008	0.017	0.008	0.061
AT-8	2.5	8/8/1990	14	0.11	0.15	0.28	1.6
AT-9	9.5	8/20/1990	<1	<0.01	<0.01	<0.01	<0.01
AT-10	2.5	8/15/1990	<1	<0.003	<0.003	<0.003	<0.003
AT-10	9.5	8/20/1990	<1	<0.005	<0.005	0.008	0.014
AT-11	2.5	8/15/1990	<1	<0.003	<0.003	<0.003	<0.003
AT-12	2.5	8/15/1990	<1	<0.003	<0.003	<0.003	<0.003
AT-34	3.0	8/25/1990	<1.0	<0.003	<0.003	<0.003	<0.003
AT-35	3.0	8/25/1990	<1.0	<0.003	<0.003	<0.003	<0.003
AT-36	3.0	8/25/1990	15,000	**71**	710	**200**	1,300
UT-37	4.0	3/5/1991	<1.0	<0.0050	<0.0050	<0.0050	<0.0050
UT-38	4.0	3/5/1991	<1.0	<0.0050	<0.0050	<0.0050	<0.0050
UT-39	4.0	3/5/1991	<1.0	<0.0050	<0.0050	<0.0050	<0.0050
UT-40	3.5	3/5/1991	<1.0	<0.0050	<0.0050	<0.0050	<0.0050
UT-41	3.5	3/5/1991	<1.0	<0.0050	<0.0050	<0.0050	<0.0050
AV-1	5.5	9/23/1991	<1.0	<0.005	<0.005	<0.005	<0.005

Table 3
Historical Soil Analytical Data
Station No. 2112
1260 Park Street
Alameda, California

Sample Number	Depth (ft)	Sample Date	Gasoline Range Organics/ Total Petrolem Hydrocarbons as Gasoline	Benzene	Toluene	Ethylbenzene	Total Xylenes
			mg/kg	mg/kg	mg/kg	mg/kg	mg/kg
AV-1	11	9/23/1991	2,900	<5.0	12	6.0	34
AV-2	6	9/24/1991	<1.0	<0.005	<0.005	<0.005	<0.005
AV-2	11	9/24/1991	<1.0	<0.005	<0.005	<0.005	<0.005
AV-3	6.5	9/25/1991	<1.0	<0.005	<0.005	<0.005	<0.005
AV-3	11.5	9/25/1991	540	5.3	12	7.6	35
A-1	5	9/25/1991	<1.0	<0.005	<0.005	<0.005	<0.005
A-1	11	9/25/1991	730	6.4	24	11	56
A-2	12	9/24/1991	<1.0	0.038	0.038	0.038	0.038
A-3	11.5	9/24/1991	<1.0	<0.005	<0.005	<0.005	<0.005
A-4	11	9/25/1991	<1.0	<0.005	<0.005	<0.005	<0.005
AV-4	10.5	1/2/1992	21,000	190	860	290	1,700
AV-5	10.5	1/2/1992	<1	0.0070	0.018	0.0060	0.031
AV-6	10.5	1/2/1992	<1	<0.0050	<0.0050	<0.0050	<0.0050
AV-7	10.5	1/2/1992	<1	<0.0050	<0.0050	<0.0050	<0.0050
B-7	5	6/10/2009	<0.50	<0.001	<0.001	<0.001	<0.001
B-7	8	6/10/2009	<0.50	<0.001	<0.001	<0.001	<0.001
B-7	11	6/10/2009	2.8	<0.10	0.14	<0.10	<0.10
B-7	14	6/10/2009	8.6	<0.001	0.0016	0.0063	0.04
B-8	5	6/10/2009	<0.50	<0.001	<0.001	<0.001	<0.001
B-8	8	6/10/2009	<0.50	<0.001	<0.001	<0.001	0.0015
B-8	11	6/10/2009	2,000	0.23	14	18	210
B-8	14	6/10/2009	3.2	<0.001	0.005	0.0044	0.0031
B-9	5	6/10/2009	26	<0.10	<0.10	0.31	2.8
B-9	8	6/10/2009	<0.50	<0.001	<0.001	<0.001	0.0015
B-9	11	6/10/2009	<0.50	<0.001	<0.001	<0.001	0.0022
B-9	14	6/10/2009	<0.50	<0.001	<0.001	<0.001	0.0023
LTCP Maximum Concentrations - Shallow Soil*			NA	8.2	NA	89	NA
LTCP Maximum Concentrations - Deeper Soil**			NA	12	NA	134	NA
LTCP Maximum Concentrations - Utility Worker			NA	14	NA	314	NA
ESL - Shallow Soil[i]			100	0.044	2.9	3.3	2.3
ESL - Deeper Soil[ii]			100	0.044	2.9	3.3	2.3

Notes:

TPHg = total petroluem hydrocarbons as gasoline

mg/kg = milligrams per kilogram

[a]confirmation samples collected after additional overexcavation activities

grey = Samples deeper than 10 feet bgs and not included in the LTCP

bold = samples that exceed their LTCP value for their depth

Italics = removed by overexcavation

LTCP - Low Threat UST Closure Policy

*LTCP Shallow Soils - defined as 0-5 feet below ground surface (bgs)

**LTCP Deeper Soils - defined as 5-10 feet bgs

ESLs = Environmental Screening Levels assuming commercial/industrial exposure scenario and groundwater is a potential drinking water resource

[i]ESL Shallow Soils - Defined as 0 -3 meters (approxima +

[ii]ESL Shallow Soils - Defined a sgreater than 3 meters (below approximatley 10 feet bgs)

References:

Low Threat UST Closure Policy (August 17, 2013), California State Water Resources Control Board, http://www.swrcb.ca.gov/ust/lt_cls_plcy.shtml#policy081712

Screening for Environmental Concerns at Sites with Contaminated Soil and Groundwater (February 2005), San Francisco Bay Regional Groundwater Quality Control Board, California EPA, http://www.waterboards.ca.gov/sanfranciscobay/esl.htm

APPENDIX A

Field Methods for Groundwater Sampling

QUALITY ASSURANCE/QUALITY CONTROL
FIELD METHODS

Field methods discussed herein were implemented to provide for accuracy and reliability of field activities, data collection, sample collection, and handling. Discussion of these methods is provided below.

1.0 Equipment Calibration

Equipment calibration was performed per equipment manufacturer specifications before use.

2.0 Depth to Groundwater and Light Non-Aqueous Phase Liquid Measurement

Depth to groundwater was measured in wells identified for gauging in the scope of work using a decontaminated water level indicator. The depth to water measurement was taken from a cut notch or permanent mark at the top of the well casing to which the well head elevation was originally surveyed.

Once depth to water was measured, an oil/water interface meter or a new disposable bailer was utilized to evaluate the presence and, if present, to measure the "apparent" thickness of light non-aqueous phase liquid (LNAPL) in the well. If LNAPL was present in the well, groundwater purging and sampling were not performed, unless sampling procedures in the scope of work specified collection of samples in the presence of LNAPL. Otherwise, time allowing, LNAPL was bailed from the well using either a new disposable bailer, or the disposal bailer previously used for initial LNAPL assessment. Bailing of LNAPL continued until the thickness of LNAPL (or volume) stabilized in each bailer pulled from the well, or LNAPL was no longer present. After LNAPL thickness either stabilized or was eliminated, periodic depth to water and depth to LNAPL measurements were collected as product came back into the well to evaluate product recovery rate and to aid in further assessment of LNAPL in the subsurface. LNAPL thickness measurements were recorded as "apparent." If a bailer was used for LNAPL thickness measurement, the field sampler noted the bailer entry diameter and chamber diameter to enable correction of thickness measurements. Recovered LNAPL was stored on-site in a labeled steel drum(s) or other appropriate container(s) prior to disposal.

3.0 Well Purging and Groundwater Sample Collection

Well purging and groundwater sampling were performed in wells specified in the scope of work after measuring depth to groundwater and evaluating the presence of LNAPL. Purging and sampling were performed using one of the methods detailed below. The method used was noted in the field records. Purge water was stored on-site in labeled steel drum(s) or other appropriate container(s) prior to disposal or on-site treatment (in cases where treatment using an on-site system is authorized).

3.1 Purging a Predetermined Well Volume

Purging a predetermined well volume is performed per ASTM International (ASTM) D4448-01. This purging method has the objective of removing a predetermined volume of stagnant water from the well prior to sampling. The volume of stagnant water is defined as either the volume of water contained within the well casing, or the volume within the well casing and sand/gravel in the annulus if natural flow through these is deemed insufficient to keep them flushed out.

This purging method involves removal of a minimum of three stagnant water volumes from the well using a decontaminated pump with new disposable plastic discharge or suction tubing, dedicated well tubing, or using a new disposable or decontaminated reusable bailer. If a new disposable bailer was used for assessment of LNAPL, that bailer may be used for purging. The withdrawal rate used is one that minimizes drawdown while satisfying time constraints.

To evaluate when purging is complete, one or more groundwater stabilization parameters are monitored and recorded during purging activities until stabilization is achieved. Most commonly, stabilization parameters include temperature, conductivity, and pH, but field procedures detailed in the scope of work may also include monitoring of dissolved oxygen concentrations, oxidation reduction potential, and/or turbidity[1]. Parameters are considered stable when two (2) consecutive readings recorded three (3) minutes apart fall within ranges provided below in Table 1. In the event that the parameters have not stabilized and five (5) well casing volumes have been removed, purging activities will cease and be considered complete. Once the well is purged, a groundwater sample(s) is collected from the well using a new disposable bailer. If a new disposable bailer was used for purging, that bailer may be used to collect the sample(s). A sample is not collected if the well is inadvertently purged dry.

Table 1. Criteria for Defining Stabilization of Water-Quality Indicator Parameters

Parameter	Stabilization Criterion
Temperature	± 0.2ºC (± 0.36ºF)
pH	± 0.1 standard units
Conductivity	± 3%
Dissolved oxygen	± 10%
Oxidation reduction potential	± 10 mV
Turbidity[1]	± 10% or 1.0 NTU (whichever is greater)

3.2 Low-Flow Purging and Sampling

“Low-Flow”, “Minimal Drawdown”, or "Low-Stress” purging is performed per ASTM D6771-02. It is a method of groundwater removal from within a well’s screened interval that is intended to minimize drawdown and mixing of the water column in the well casing. This is accomplished by pumping the well using a decontaminated pump with new disposable plastic discharge or

[1] As stated in ASTM D6771-02, turbidity is not a chemical parameter and not indicative of when formation-quality water is being purged; however, turbidity may be helpful in evaluating stress on the formation during purging. Turbidity measurements are taken at the same time that stabilization parameter measurements are made, or, at a minimum, once when purging is initiated and again just prior to sample collection, after stabilization parameters have stabilized. To avoid artifacts in sample analysis, turbidity should be as low as possible when samples are collected. If turbidity values are persistently high, the withdrawal rate is lowered until turbidity decreases. If high turbidity persists even after lowering the withdrawal rate, the purging is stopped for a period of time until turbidity settles, and the purging process is then restarted. If this fails to solve the problem, the purging/sampling process for the well is ceased, and well maintenance or redevelopment is considered.

suction tubing or dedicated well tubing at a low flow rate while evaluating the groundwater elevation during pumping.

The low flow pumping rate is well specific and is generally established at a volume that is less than or equal to the natural recovery rate of the well. A pump with adjustable flow rate control is positioned with the intake at or near the mid-point of the submerged well screen. The pumping rate used during low-flow purging is low enough to minimize mobilization of particulate matter and drawdown (stress) of the water column. Low-flow purging rates will vary based on the individual well characteristics; however, the purge rate should not exceed 1.0 Liter per minute (L/min) or 0.25 gallon per minute (gal/min). Low-flow purging should begin at a rate of approximately 0.1 L/min (0.03 gal/min)[2], or the lowest rate possible, and be adjusted based on an evaluation of drawdown. Water level measurements should be recorded at approximate one (1) to two (2) minute intervals until the low-flow rate has been established, and drawdown is minimized. As a general rule, drawdown should not exceed 25% of the distance between the top of the water column and the pump in-take.

To evaluate when purging is complete, one or more groundwater stabilization parameters are monitored and recorded during purging activities until stabilization is achieved. Most commonly, stabilization parameters include temperature, conductivity, and pH, but field procedures detailed in the scope of work may also include monitoring of dissolved oxygen concentrations, oxidation reduction potential, and/or turbidity[1]. The frequency between measurements will be at an interval of one (1) to three (3) minutes; however, if a flow cell is used, the frequency will be determined based on the time required to evacuate one cell volume. Stabilization is defined as three (3) consecutive readings recorded several minutes apart falling within ranges provided in Table 1. Samples will be collected by filling appropriate containers from the pump discharge tubing at a rate not to exceed the established pumping rate.

3.3 Minimal Purge, Discrete Depth, and Passive Sampling

Per ASTM D4448-01, sampling techniques that do not rely on purging, or require only minimal purging, may be used if a particular zone within a screened interval is to be sampled or if a well is not capable of yielding sufficient groundwater for purging. To properly use these sampling techniques, a water sample is collected within the screened interval with little or no mixing of the water column within the casing. These techniques include minimal purge sampling which uses a dedicated sampling pump capable of pumping rates of less than 0.1 L/min (0.03 gal/min)[2], discrete depth sampling using a bailer that allows groundwater entry at a controlled depth (e.g. differential pressure bailer), or passive (diffusion) sampling. These techniques are based on certain studies referenced in ASTM D4448-01 that indicate that under certain conditions, natural groundwater flow is laminar and horizontal with little or no mixing within the well screen.

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[2] According to ASTM D4448-01, studies have indicated that at flow rates of 0.1 L/min, low-density polyethylene (LDPE) and plasticized polypropylene tubing materials are prone to sorption. Therefore, TFE-fluorocarbon or other appropriate tubing material is used, particularly when tubing lengths of 50 feet or longer are used.

4.0 Decontamination

Reusable groundwater sampling equipment were cleaned using a solution of Alconox or other acceptable detergent, rinsed with tap water, and finally rinsed with distilled water prior to use in each well. Decontamination water was stored on-site in labeled steel drum(s) or other appropriate container(s) prior to disposal.

5.0 Sample Containers, Labeling, and Storage

Samples were collected in laboratory prepared containers with appropriate preservative (if preservative was required). Samples were properly labeled (site name, sample I.D., sampler initials, date, and time of collection) and stored chilled (refrigerator or ice chest with ice) until delivery to a certified laboratory, under chain of custody procedures.

6.0 Chain of Custody Record and Procedure

The field sampler was personally responsible for care and custody of the samples collected until they were properly transferred to another party. To document custody and transfer of samples, a Chain of Custody Record was prepared. The Chain of Custody Record provided identification of the samples corresponding to sample labels and specified analyses to be performed by the laboratory. The original Chain of Custody Record accompanied the shipment, and a copy of the record was stored in the project file. When the samples were transferred, the individuals relinquishing and receiving them signed, dated, and noted the time of transfer on the record.

7.0 Field Records

Daily Report and data forms were completed by staff personnel to provide daily record of significant events, observations, and measurements. Field records were signed, dated, and stored in the project file.

APPENDIX B

Groundwater Sampling Field Data Sheets

BROADBENT

GROUNDWATER MONITORING SITE SHEET

Project: BP 2112 Project No.: 06-88-616 Date: 10/2/13

Field Representative: AM/JR Elevation: —

Formation recharge rate is historically: (High) Low *(circle one)*

W. L. Indicator ID #: — Oil/Water Interface ID #: — *(List #s of all equip used.)*

WELL ID RECORD					WELL GAUGING RECORD					LAB ANALYSES					
Well ID	Well Sampling Order	As-Built Well Diameter (inches)	As-Built Well Screen Interval (ft)	Previous Depth to Water (ft)	Time (24:00)	Depth to LNAPL (ft)	Apparent LNAPL Thickness (ft)*	Depth to Water (ft)	Well Total Depth (ft)						
A-1			8		1003			10.92	29.51						
A-2			8		1041			11.24	29.50						
AR-2			8		0914			10.10	27.95						

* Device used to measure LNAPL thickness: Bailer Oil/Water Interface Meter *(circle one)*

If bailer used, note bailer dimensions (inches): Entry Diameter _____ Chamber Diameter _____

Signature: Alex Martinez

BROADBENT

GROUNDWATER SAMPLING DATA SHEET

Project: BP 2112 Project No.: 06-86-616 Date: 10/02/2013

Field Representative: JR/AM

Well ID: A-1 Start Time: - End Time: - Total Time (minutes): -

PURGE EQUIPMENT ___ Disp. Bailer ___ 120V Pump X Flow Cell
X Disp. Tubing ___ 12V Pump X Peristaltic Pump Other/ID#:

WELL HEAD INTEGRITY (cap, lock, vault, etc.) Comments:
Good Improvement Needed *(circle one)*

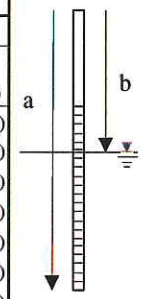
PURGING/SAMPLING METHOD Predetermined Well Volume (Low-Flow) Other: *(circle one)*

PREDETERMINED WELL VOLUME

Casing Diameter | Unit Volume (gal/ft) *(circle one)*

1" | (0.04) 1.25" | (0.08) 2" | (0.17) 3" | (0.38) Other:
4" | (0.66) 6" | (1.50) 8" | (2.60) 12" | (5.81) ___" | (___)

Total Well Depth (a): ___(ft)
Initial Depth to Water (b): ___(ft)
Water Column Height (WCH) = (a - b): ___(ft)
Water Column Volume (WCV) = WCH x Unit Volume: ___(gal)
Three Casing Volumes = WCV x 3: ___(gal)
Five Casing Volumes = WCV x 5: ___(gal)
Pump Depth (if pump used): ___(ft)



LOW-FLOW

Previous Low-Flow Purge Rate: ___(lpm)
Total Well Depth (a): 29.51 (ft)
Initial Depth to Water (b): 10.92 (ft)
Pump In-take Depth = b + (a-b)/2: 20.21 (ft)
Maximum Allowable Drawdown = (a-b)/8: 2.32 (ft)
Low-Flow Purge Rate: 0.25 (Lpm)*
Comments:

**Low-flow purge rate should be within range of instruments used but should not exceed 0.25 gpm. Drawdown should not exceed Maximum Allowable Drawdown.*

GROUNDWATER STABILIZATION PARAMETER RECORD

Time (24:00)	Cumulative Vol. gal or (L)	Temperature °C	pH	Conductivity µS or (mS)	DO mg/L	ORP mV	Turbidity NTU	NOTES Odor, color, sheen or other
1012	0	20.24	7.06	0.387	4.37	-61	240	
1014	0.5	20.57	7.17	0.387	4.13	-78	—	
1016	1.0	20.94	7.27	0.385	3.95	-91	—	
1018	1.5	21.12	7.31	0.384	3.87	-95	—	
1020	2.0	21.30	7.36	0.383	3.81	-100	163	
Previous Stabilized Parameters								

PURGE COMPLETION RECORD X Low Flow & Parameters Stable ___ 3 Casing Volumes & Parameters Stable ___ 5 Casing Volumes
___ Other:

SAMPLE COLLECTION RECORD

Depth to Water at Sampling: 11.17 (ft)
Sample Collected Via: ___ Disp. Bailer ___ Dedicated Pump Tubing
X Disp. Pump Tubing Other:
Sample ID: A-1 Sample Collection Time: 1020 (24:00)
Containers (#): 3 VOA (X preserved or ___ unpreserved) ___ Liter Amber
2 Other: 1L NP Amber ___ Other:
___ Other: ___ Other:

GEOCHEMICAL PARAMETERS

Parameter	Time	Measurement
DO (mg/L)		
Ferrous Iron (mg/L)		
Redox Potential (mV)		
Alkalinity (mg/L)		
Other:		
Other:		

Signature:

Revision: 3/15/2013

BROADBENT

GROUNDWATER SAMPLING DATA SHEET

Project: BP 2112 Project No.: 06-88-616 Date: 10/2/13

Field Representative: JR/AM

Well ID: A-2 Start Time: — End Time: — Total Time (minutes): —

PURGE EQUIPMENT ___ Disp. Bailer ___ 120V Pump Y Flow Cell
X Disp. Tubing ___ 12V Pump X Peristaltic Pump Other/ID#:

WELL HEAD INTEGRITY (cap, lock, vault, etc.) Comments:
(Good) Improvement Needed *(circle one)*

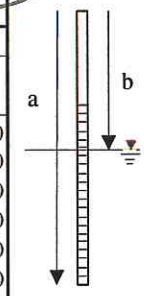
PURGING/SAMPLING METHOD Predetermined Well Volume (Low-Flow) Other: *(circle one)*

PREDETERMINED WELL VOLUME

Casing Diameter | Unit Volume (gal/ft) *(circle one)*

1" | (0.04) 1.25" | (0.08) 2" | (0.17) 3" | (0.38) Other:
4" | (0.66) 6" | (1.50) 8" | (2.60) 12" | (5.81) ___" | (___)

Total Well Depth (a): ___(ft)
Initial Depth to Water (b): ___(ft)
Water Column Height (WCH) = (a - b): ___(ft)
Water Column Volume (WCV) = WCH x Unit Volume: ___(gal)
Three Casing Volumes = WCV x 3: ___(gal)
Five Casing Volumes = WCV x 5: ___(gal)
Pump Depth (if pump used): ___(ft)



LOW-FLOW

Previous Low-Flow Purge Rate: ___(lpm)
Total Well Depth (a): 29.50 (ft)
Initial Depth to Water (b): 11.21 (ft)
Pump In-take Depth = b + (a-b)/2: 20.37 (ft)
Maximum Allowable Drawdown = (a-b)/8: 2.28 (ft)
Low-Flow Purge Rate: 0.25 (Lpm)*
Comments:

**Low-flow purge rate should be within range of instruments used but should not exceed 0.25 gpm. Drawdown should not exceed Maximum Allowable Drawdown.*

GROUNDWATER STABILIZATION PARAMETER RECORD

Time (24:00)	Cumulative Volume (L or G)	Temperature °C	pH	Conductivity µS or (mS)	DO mg/L	ORP mV	Turbidity NTU	NOTES Odor, color, sheen or other
1047	0	21.12	7.381	0.482	4.13	7	188	
1049	0.5	21.93	7.32	0.482	4.09	1	—	
1051	1.0	21.26	7.21	0.483	4.05	-10	—	
1053	1.5	21.21	7.25	0.483	4.03	-18	—	
1055	2.0	21.91	7.20	0.483	4.00	-25	179	
Previous Stabilized Parameters								

PURGE COMPLETION RECORD X Low Flow & Parameters Stable ___ 3 Casing Volumes & Parameters Stable ___ 5 Casing Volumes
___ Other:

SAMPLE COLLECTION RECORD

Depth to Water at Sampling: 11.30 (ft)
Sample Collected Via: ___ Disp. Bailer ___ Dedicated Pump Tubing
X Disp. Pump Tubing Other:
Sample ID: A-2 Sample Collection Time: 1055 (24:00)
Containers (#): 3 VOA (X preserved or ___ unpreserved) ___ Liter Amber
2 Other: 1L ND AMBER ___ Other: ___
___ Other: ___ ___ Other: ___

GEOCHEMICAL PARAMETERS

Parameter	Time	Measurement
DO (mg/L)		
Ferrous Iron (mg/L)		
Redox Potential (mV)		
Alkalinity (mg/L)		
Other:		
Other:		

Signature:

Revision: 7/3/12

BROADBENT

GROUNDWATER SAMPLING DATA SHEET

Project: BP 2112 Project No.: 06-88-616 Date: 10/2/13

Field Representative: AM/JR

Well ID: AR-2 Start Time: - End Time: - Total Time (minutes): -

PURGE EQUIPMENT ___ Disp. Bailer ___ 120V Pump X Flow Cell
X Disp. Tubing ___ 12V Pump X Peristaltic Pump Other/ID#:

WELL HEAD INTEGRITY (cap, lock, vault, etc.) Comments:
Good / Improvement Needed *(circle one)*

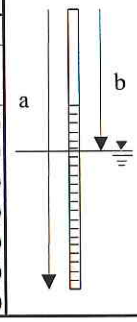
PURGING/SAMPLING METHOD Predetermined Well Volume Low-Flow Other: *(circle one)*

PREDETERMINED WELL VOLUME

Casing Diameter | Unit Volume (gal/ft) *(circle one)*

1" | (0.04) 1.25" | (0.08) 2" | (0.17) 3" | (0.38) Other:
4" | (0.66) 6" | (1.50) 8" | (2.60) 12" | (5.81) ___" | (___)

Total Well Depth (a): ___(ft)
Initial Depth to Water (b): ___(ft)
Water Column Height (WCH) = (a - b): ___(ft)
Water Column Volume (WCV) = WCH x Unit Volume: ___(gal)
Three Casing Volumes = WCV x 3: ___(gal)
Five Casing Volumes = WCV x 5: ___(gal)
Pump Depth (if pump used): ___(ft)



LOW-FLOW

Previous Low-Flow Purge Rate: ___(lpm)
Total Well Depth (a): 27.95 (ft)
Initial Depth to Water (b): 10.14 (ft)
Pump In-take Depth = b + (a-b)/2: 19.02 (ft)
Maximum Allowable Drawdown = (a-b)/8: 2.23 (ft)
Low-Flow Purge Rate: 0.25 (gpm)*
Comments:

**Low-flow purge rate should be within range of instruments used but should not exceed 0.25 gpm. Drawdown should not exceed Maximum Allowable Drawdown.*

GROUNDWATER STABILIZATION PARAMETER RECORD

Time (24:00)	Cumulative Vol. gal or L	Temperature °C or °F	pH	Conductivity µS or mS	DO mg/L	ORP mV	Turbidity NTU	NOTES Odor, color, sheen or other
0927	0	19.91	7.50	0.221	4.59	-150	465	
0929	0.5	20.25	7.37	0.219	3.93	-177		
0931	1.0	20.45	7.35	0.218	3.80	-180		
0933	1.5	20.67	7.34	0.218	3.71	-188	—	
0935	2.0	20.75	7.32	0.218	3.63	-195	201	
Previous Stabilized Parameters								

PURGE COMPLETION RECORD X Low Flow & Parameters Stable ___ 3 Casing Volumes & Parameters Stable ___ 5 Casing Volumes
___ Other:

SAMPLE COLLECTION RECORD

Depth to Water at Sampling: 10.14 (ft)
Sample Collected Via: ___ Disp. Bailer ___ Dedicated Pump Tubing
X Disp. Pump Tubing Other:
Sample ID: AR-2 Sample Collection Time: 0935 (24:00)
Containers (#): 3 VOA (X preserved or ___ unpreserved) ___ Liter Amber
2 Other: NP 1L AMBERS ___ Other:
___ Other: ___ Other:

GEOCHEMICAL PARAMETERS

Parameter	Time	Measurement
DO (mg/L)		
Ferrous Iron (mg/L)		
Redox Potential (mV)		
Alkalinity (mg/L)		
Other:		
Other:		

Signature:

APPENDIX C

Groundwater Laboratory Analytical Report

TestAmerica

THE LEADER IN ENVIRONMENTAL TESTING

ANALYTICAL REPORT

TestAmerica Laboratories, Inc.
TestAmerica Irvine
17461 Derian Ave
Suite 100
Irvine, CA 92614-5817
Tel: (949)261-1022

TestAmerica Job ID: 440-58588-1
Client Project/Site: ARCO 2112, Alameda
Revision: 2

For:
Broadbent & Associates, Inc.
875 Cotting Lane
Suite G
Vacaville, California 95688

Attn: Kristene Tidwell

Authorized for release by:
10/25/2013 5:45:46 PM
Lena Davidkova, Project Manager I
lena.davidkova@testamericainc.com

Designee for

Kathleen Robb, Project Manager II
(949)261-1022
kathleen.robb@testamericainc.com

Table of Contents

Sample Summary

Client: Broadbent & Associates, Inc.
Project/Site: ARCO 2112, Alameda

TestAmerica Job ID: 440-58588-1

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
440-58588-1	A-1	Water	10/02/13 10:20	10/03/13 10:10
440-58588-2	A-2	Water	10/02/13 10:55	10/03/13 10:10
440-58588-3	AR-2	Water	10/02/13 09:35	10/03/13 10:10

Client: Broadbent & Associates, Inc.
Project/Site: ARCO 2112, Alameda

TestAmerica Job ID: 440-58588-1

Job ID: 440-58588-1

Laboratory: TestAmerica Irvine

Narrative

Job Narrative
440-58588-1

Comments
This report was amended to include 8260B-Default/Oxy/Et results per client request

Receipt
The samples were received on 10/3/2013 10:10 AM; the samples arrived in good condition, properly preserved and, where required, on ice. The temperature of the cooler at receipt was 3.2º C.

Except:

The container labels for the Trip Blanks list TB-2112-10022013 The COC lists BP-2112-10022013.

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

GC/MS Semi VOA
Method(s) 8270C SIM: Insufficient sample volume was available to perform batch matrix spike/matrix spike duplicate (MS/MSD) associated with batch 136051. The laboratory control sample (LCS) was performed in duplicate to provide precision data for this batch.

Method(s) 8270C SIM: The laboratory control sample (LCS) for batch 136051 recovered outside control limits for several analytes. Low recoveries are possibly due to less than optimal extraction conditions such as fluctuations in heating mantle temp, condenser water temp, ambient light, angle of apparatus, spike solvent, final volume measurements, etc. There is a potential low bias to sample results. Some samples were not re-extracted because they were outside of hold time or there was no remaining sample to re-extract.

Method(s) 8270C SIM: The %RPD of the laboratory control sample (LCS) and laboratory control standard duplicate (LCSD) for preparation batch 136051 recovered outside control limits for seversl analytes. High RPD results are due to low LCS recoveries.

No other analytical or quality issues were noted.

Organic Prep
No analytical or quality issues were noted.

VOA Prep
No analytical or quality issues were noted.

Client: Broadbent & Associates, Inc.
Project/Site: ARCO 2112, Alameda

TestAmerica Job ID: 440-58588-1

Client Sample ID: A-1
Date Collected: 10/02/13 10:20
Date Received: 10/03/13 10:10

Lab Sample ID: 440-58588-1
Matrix: Water

Method: 8260B - Volatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Naphthalene	ND		0.50		ug/L			10/13/13 12:59	1
Benzene	ND		0.50		ug/L			10/13/13 12:59	1
tert-Butyl alcohol (TBA)	ND		10		ug/L			10/13/13 12:59	1
Toluene	ND		0.50		ug/L			10/13/13 12:59	1
o-Xylene	ND		0.50		ug/L			10/13/13 12:59	1
Methyl-t-Butyl Ether (MTBE)	ND		0.50		ug/L			10/13/13 12:59	1
Ethylbenzene	ND		0.50		ug/L			10/13/13 12:59	1
Ethyl-t-butyl ether (ETBE)	ND		0.50		ug/L			10/13/13 12:59	1
Xylenes, Total	ND		1.0		ug/L			10/13/13 12:59	1
Isopropyl Ether (DIPE)	ND		0.50		ug/L			10/13/13 12:59	1
Ethanol	ND		150		ug/L			10/13/13 12:59	1
Tert-amyl-methyl ether (TAME)	ND		0.50		ug/L			10/13/13 12:59	1
m,p-Xylene	ND		1.0		ug/L			10/13/13 12:59	1
1,1,1-Trichloroethane	ND		0.50		ug/L			10/13/13 12:59	1
cis-1,3-Dichloropropene	ND		0.50		ug/L			10/13/13 12:59	1
Bromochloromethane	ND		0.50		ug/L			10/13/13 12:59	1
Bromoform	ND		0.50		ug/L			10/13/13 12:59	1
Tetrachloroethene	ND		0.50		ug/L			10/13/13 12:59	1
1,1-Dichloroethane	ND		0.50		ug/L			10/13/13 12:59	1
1,2-Dichloroethane	ND		0.50		ug/L			10/13/13 12:59	1
1,2-Dichloropropane	ND		0.50		ug/L			10/13/13 12:59	1
1,1,2-Trichloroethane	ND		0.50		ug/L			10/13/13 12:59	1
Dichlorodifluoromethane	ND		0.50		ug/L			10/13/13 12:59	1
Methylene Chloride	ND		1.0		ug/L			10/13/13 12:59	1
Hexachlorobutadiene	ND		0.50		ug/L			10/13/13 12:59	1
n-Butylbenzene	ND		0.50		ug/L			10/13/13 12:59	1
Chloromethane	ND		0.50		ug/L			10/13/13 12:59	1
1,2,4-Trimethylbenzene	ND		0.50		ug/L			10/13/13 12:59	1
Bromomethane	ND		0.50		ug/L			10/13/13 12:59	1
2-Chlorotoluene	ND		0.50		ug/L			10/13/13 12:59	1
Dibromochloromethane	ND		0.50		ug/L			10/13/13 12:59	1
Dibromomethane	ND		0.50		ug/L			10/13/13 12:59	1
1,1-Dichloropropene	ND		0.50		ug/L			10/13/13 12:59	1
1,2,4-Trichlorobenzene	ND		0.50		ug/L			10/13/13 12:59	1
Chlorobenzene	ND		0.50		ug/L			10/13/13 12:59	1
1,2-Dibromo-3-Chloropropane	ND		1.0		ug/L			10/13/13 12:59	1
1,3-Dichlorobenzene	ND		0.50		ug/L			10/13/13 12:59	1
Styrene	ND		0.50		ug/L			10/13/13 12:59	1
4-Chlorotoluene	ND		0.50		ug/L			10/13/13 12:59	1
trans-1,2-Dichloroethene	ND		0.50		ug/L			10/13/13 12:59	1
Bromobenzene	ND		0.50		ug/L			10/13/13 12:59	1
1,2,3-Trichlorobenzene	ND		0.50		ug/L			10/13/13 12:59	1
1,1,2,2-Tetrachloroethane	ND		0.50		ug/L			10/13/13 12:59	1
Chloroethane	ND		0.50		ug/L			10/13/13 12:59	1
1,1-Dichloroethene	ND		0.50		ug/L			10/13/13 12:59	1
1,2-Dichlorobenzene	ND		0.50		ug/L			10/13/13 12:59	1
Trichloroethene	ND		0.50		ug/L			10/13/13 12:59	1
1,1,1,2-Tetrachloroethane	ND		0.50		ug/L			10/13/13 12:59	1
sec-Butylbenzene	ND		0.50		ug/L			10/13/13 12:59	1

Client Sample ID: A-1
Date Collected: 10/02/13 10:20
Date Received: 10/03/13 10:10

Lab Sample ID: 440-58588-1
Matrix: Water

Method: 8260B - Volatile Organic Compounds (GC/MS) (Continued)

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Isopropylbenzene	ND		0.50	ug/L			10/13/13 12:59	1
2,2-Dichloropropane	ND		0.50	ug/L			10/13/13 12:59	1
N-Propylbenzene	ND		0.50	ug/L			10/13/13 12:59	1
Trichlorofluoromethane	ND		0.50	ug/L			10/13/13 12:59	1
p-Isopropyltoluene	ND		0.50	ug/L			10/13/13 12:59	1
1,2,3-Trichloropropane	ND		0.50	ug/L			10/13/13 12:59	1
1,3,5-Trimethylbenzene	ND		0.50	ug/L			10/13/13 12:59	1
trans-1,3-Dichloropropene	ND		0.50	ug/L			10/13/13 12:59	1
cis-1,2-Dichloroethene	ND		0.50	ug/L			10/13/13 12:59	1
Chloroform	ND		0.50	ug/L			10/13/13 12:59	1
Vinyl chloride	ND		0.50	ug/L			10/13/13 12:59	1
1,2-Dibromoethane (EDB)	ND		0.50	ug/L			10/13/13 12:59	1
tert-Butylbenzene	ND		0.50	ug/L			10/13/13 12:59	1
Carbon tetrachloride	ND		0.50	ug/L			10/13/13 12:59	1
1,4-Dichlorobenzene	ND		0.50	ug/L			10/13/13 12:59	1
1,3-Dichloropropane	ND		0.50	ug/L			10/13/13 12:59	1
Bromodichloromethane	ND		0.50	ug/L			10/13/13 12:59	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Toluene-d8 (Surr)	*102*		*80 - 128*		*10/13/13 12:59*	*1*
4-Bromofluorobenzene (Surr)	*109*		*80 - 120*		*10/13/13 12:59*	*1*
Dibromofluoromethane (Surr)	*88*		*76 - 132*		*10/13/13 12:59*	*1*

Method: 8270C SIM - Semivolatile Organic Compounds (GC/MS SIM)

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Acenaphthene	ND	LR BA	0.19	ug/L		10/08/13 15:43	10/10/13 18:17	1
Acenaphthylene	ND	LR BA	0.19	ug/L		10/08/13 15:43	10/10/13 18:17	1
Anthracene	ND	LR BA	0.19	ug/L		10/08/13 15:43	10/10/13 18:17	1
Benzo[a]anthracene	ND		0.19	ug/L		10/08/13 15:43	10/10/13 18:17	1
Benzo[a]pyrene	ND		0.19	ug/L		10/08/13 15:43	10/10/13 18:17	1
Benzo[b]fluoranthene	ND		0.19	ug/L		10/08/13 15:43	10/10/13 18:17	1
Benzo[g,h,i]perylene	ND		0.19	ug/L		10/08/13 15:43	10/10/13 18:17	1
Benzo[k]fluoranthene	ND		0.19	ug/L		10/08/13 15:43	10/10/13 18:17	1
Chrysene	ND		0.19	ug/L		10/08/13 15:43	10/10/13 18:17	1
Dibenz(a,h)anthracene	ND		0.19	ug/L		10/08/13 15:43	10/10/13 18:17	1
Fluoranthene	ND		0.19	ug/L		10/08/13 15:43	10/10/13 18:17	1
Fluorene	ND	LR BA	0.19	ug/L		10/08/13 15:43	10/10/13 18:17	1
Indeno[1,2,3-cd]pyrene	ND		0.19	ug/L		10/08/13 15:43	10/10/13 18:17	1
Naphthalene	ND	LR BA	0.19	ug/L		10/08/13 15:43	10/10/13 18:17	1
Phenanthrene	ND	LR BA	0.19	ug/L		10/08/13 15:43	10/10/13 18:17	1
Pyrene	ND		0.19	ug/L		10/08/13 15:43	10/10/13 18:17	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
2-Fluorobiphenyl (Surr)	*57*		*50 - 120*	*10/08/13 15:43*	*10/10/13 18:17*	*1*
Nitrobenzene-d5	*58*		*45 - 120*	*10/08/13 15:43*	*10/10/13 18:17*	*1*
Terphenyl-d14	*40*		*17 - 100*	*10/08/13 15:43*	*10/10/13 18:17*	*1*

Client: Broadbent & Associates, Inc.
Project/Site: ARCO 2112, Alameda

TestAmerica Job ID: 440-58588-1

Client Sample ID: A-2
Date Collected: 10/02/13 10:55
Date Received: 10/03/13 10:10

Lab Sample ID: 440-58588-2
Matrix: Water

Method: 8260B - Volatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Naphthalene	ND		0.50		ug/L			10/13/13 13:26	1
Benzene	ND		0.50		ug/L			10/13/13 13:26	1
tert-Butyl alcohol (TBA)	ND		10		ug/L			10/13/13 13:26	1
Toluene	ND		0.50		ug/L			10/13/13 13:26	1
o-Xylene	ND		0.50		ug/L			10/13/13 13:26	1
Methyl-t-Butyl Ether (MTBE)	ND		0.50		ug/L			10/13/13 13:26	1
Ethylbenzene	ND		0.50		ug/L			10/13/13 13:26	1
Ethyl-t-butyl ether (ETBE)	ND		0.50		ug/L			10/13/13 13:26	1
Xylenes, Total	ND		1.0		ug/L			10/13/13 13:26	1
Isopropyl Ether (DIPE)	ND		0.50		ug/L			10/13/13 13:26	1
Ethanol	ND		150		ug/L			10/13/13 13:26	1
Tert-amyl-methyl ether (TAME)	ND		0.50		ug/L			10/13/13 13:26	1
m,p-Xylene	ND		1.0		ug/L			10/13/13 13:26	1
1,1,1-Trichloroethane	ND		0.50		ug/L			10/13/13 13:26	1
cis-1,3-Dichloropropene	ND		0.50		ug/L			10/13/13 13:26	1
Bromochloromethane	ND		0.50		ug/L			10/13/13 13:26	1
Bromoform	ND		0.50		ug/L			10/13/13 13:26	1
Tetrachloroethene	ND		0.50		ug/L			10/13/13 13:26	1
1,1-Dichloroethane	ND		0.50		ug/L			10/13/13 13:26	1
1,2-Dichloroethane	**0.74**		0.50		ug/L			10/13/13 13:26	1
1,2-Dichloropropane	ND		0.50		ug/L			10/13/13 13:26	1
1,1,2-Trichloroethane	ND		0.50		ug/L			10/13/13 13:26	1
Dichlorodifluoromethane	ND		0.50		ug/L			10/13/13 13:26	1
Methylene Chloride	ND		1.0		ug/L			10/13/13 13:26	1
Hexachlorobutadiene	ND		0.50		ug/L			10/13/13 13:26	1
n-Butylbenzene	ND		0.50		ug/L			10/13/13 13:26	1
Chloromethane	ND		0.50		ug/L			10/13/13 13:26	1
1,2,4-Trimethylbenzene	ND		0.50		ug/L			10/13/13 13:26	1
Bromomethane	ND		0.50		ug/L			10/13/13 13:26	1
2-Chlorotoluene	ND		0.50		ug/L			10/13/13 13:26	1
Dibromochloromethane	ND		0.50		ug/L			10/13/13 13:26	1
Dibromomethane	ND		0.50		ug/L			10/13/13 13:26	1
1,1-Dichloropropene	ND		0.50		ug/L			10/13/13 13:26	1
1,2,4-Trichlorobenzene	ND		0.50		ug/L			10/13/13 13:26	1
Chlorobenzene	ND		0.50		ug/L			10/13/13 13:26	1
1,2-Dibromo-3-Chloropropane	ND		1.0		ug/L			10/13/13 13:26	1
1,3-Dichlorobenzene	ND		0.50		ug/L			10/13/13 13:26	1
Styrene	ND		0.50		ug/L			10/13/13 13:26	1
4-Chlorotoluene	ND		0.50		ug/L			10/13/13 13:26	1
trans-1,2-Dichloroethene	ND		0.50		ug/L			10/13/13 13:26	1
Bromobenzene	ND		0.50		ug/L			10/13/13 13:26	1
1,2,3-Trichlorobenzene	ND		0.50		ug/L			10/13/13 13:26	1
1,1,2,2-Tetrachloroethane	ND		0.50		ug/L			10/13/13 13:26	1
Chloroethane	ND		0.50		ug/L			10/13/13 13:26	1
1,1-Dichloroethene	ND		0.50		ug/L			10/13/13 13:26	1
1,2-Dichlorobenzene	ND		0.50		ug/L			10/13/13 13:26	1
Trichloroethene	ND		0.50		ug/L			10/13/13 13:26	1
1,1,1,2-Tetrachloroethane	ND		0.50		ug/L			10/13/13 13:26	1
sec-Butylbenzene	ND		0.50		ug/L			10/13/13 13:26	1

Client Sample ID: A-2
Date Collected: 10/02/13 10:55
Date Received: 10/03/13 10:10

Lab Sample ID: 440-58588-2
Matrix: Water

Method: 8260B - Volatile Organic Compounds (GC/MS) (Continued)

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Isopropylbenzene	ND		0.50	ug/L			10/13/13 13:26	1
2,2-Dichloropropane	ND		0.50	ug/L			10/13/13 13:26	1
N-Propylbenzene	ND		0.50	ug/L			10/13/13 13:26	1
Trichlorofluoromethane	ND		0.50	ug/L			10/13/13 13:26	1
p-Isopropyltoluene	ND		0.50	ug/L			10/13/13 13:26	1
1,2,3-Trichloropropane	ND		0.50	ug/L			10/13/13 13:26	1
1,3,5-Trimethylbenzene	ND		0.50	ug/L			10/13/13 13:26	1
trans-1,3-Dichloropropene	ND		0.50	ug/L			10/13/13 13:26	1
cis-1,2-Dichloroethene	ND		0.50	ug/L			10/13/13 13:26	1
Chloroform	ND		0.50	ug/L			10/13/13 13:26	1
Vinyl chloride	ND		0.50	ug/L			10/13/13 13:26	1
1,2-Dibromoethane (EDB)	ND		0.50	ug/L			10/13/13 13:26	1
tert-Butylbenzene	ND		0.50	ug/L			10/13/13 13:26	1
Carbon tetrachloride	ND		0.50	ug/L			10/13/13 13:26	1
1,4-Dichlorobenzene	ND		0.50	ug/L			10/13/13 13:26	1
1,3-Dichloropropane	ND		0.50	ug/L			10/13/13 13:26	1
Bromodichloromethane	ND		0.50	ug/L			10/13/13 13:26	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Toluene-d8 (Surr)	*101*		*80 - 128*		*10/13/13 13:26*	*1*
4-Bromofluorobenzene (Surr)	*107*		*80 - 120*		*10/13/13 13:26*	*1*
Dibromofluoromethane (Surr)	*88*		*76 - 132*		*10/13/13 13:26*	*1*

Method: 8270C SIM - Semivolatile Organic Compounds (GC/MS SIM)

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Acenaphthene	ND	LR BA	0.19	ug/L		10/08/13 15:43	10/10/13 18:37	1
Acenaphthylene	ND	LR BA	0.19	ug/L		10/08/13 15:43	10/10/13 18:37	1
Anthracene	ND	LR BA	0.19	ug/L		10/08/13 15:43	10/10/13 18:37	1
Benzo[a]anthracene	ND		0.19	ug/L		10/08/13 15:43	10/10/13 18:37	1
Benzo[a]pyrene	ND		0.19	ug/L		10/08/13 15:43	10/10/13 18:37	1
Benzo[b]fluoranthene	ND		0.19	ug/L		10/08/13 15:43	10/10/13 18:37	1
Benzo[g,h,i]perylene	ND		0.19	ug/L		10/08/13 15:43	10/10/13 18:37	1
Benzo[k]fluoranthene	ND		0.19	ug/L		10/08/13 15:43	10/10/13 18:37	1
Chrysene	ND		0.19	ug/L		10/08/13 15:43	10/10/13 18:37	1
Dibenz(a,h)anthracene	ND		0.19	ug/L		10/08/13 15:43	10/10/13 18:37	1
Fluoranthene	ND		0.19	ug/L		10/08/13 15:43	10/10/13 18:37	1
Fluorene	ND	LR BA	0.19	ug/L		10/08/13 15:43	10/10/13 18:37	1
Indeno[1,2,3-cd]pyrene	ND		0.19	ug/L		10/08/13 15:43	10/10/13 18:37	1
Naphthalene	ND	LR BA	0.19	ug/L		10/08/13 15:43	10/10/13 18:37	1
Phenanthrene	ND	LR BA	0.19	ug/L		10/08/13 15:43	10/10/13 18:37	1
Pyrene	ND		0.19	ug/L		10/08/13 15:43	10/10/13 18:37	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
2-Fluorobiphenyl (Surr)	*67*		*50 - 120*	*10/08/13 15:43*	*10/10/13 18:37*	*1*
Nitrobenzene-d5	*73*		*45 - 120*	*10/08/13 15:43*	*10/10/13 18:37*	*1*
Terphenyl-d14	*38*		*17 - 100*	*10/08/13 15:43*	*10/10/13 18:37*	*1*

Client: Broadbent & Associates, Inc.
Project/Site: ARCO 2112, Alameda

TestAmerica Job ID: 440-58588-1

Client Sample ID: AR-2
Date Collected: 10/02/13 09:35
Date Received: 10/03/13 10:10

Lab Sample ID: 440-58588-3
Matrix: Water

Method: 8260B - Volatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Naphthalene	ND		0.50		ug/L			10/13/13 13:53	1
Benzene	ND		0.50		ug/L			10/13/13 13:53	1
tert-Butyl alcohol (TBA)	ND		10		ug/L			10/13/13 13:53	1
Toluene	ND		0.50		ug/L			10/13/13 13:53	1
o-Xylene	ND		0.50		ug/L			10/13/13 13:53	1
Methyl-t-Butyl Ether (MTBE)	ND		0.50		ug/L			10/13/13 13:53	1
Ethylbenzene	ND		0.50		ug/L			10/13/13 13:53	1
Ethyl-t-butyl ether (ETBE)	ND		0.50		ug/L			10/13/13 13:53	1
Xylenes, Total	ND		1.0		ug/L			10/13/13 13:53	1
Isopropyl Ether (DIPE)	ND		0.50		ug/L			10/13/13 13:53	1
Ethanol	ND		150		ug/L			10/13/13 13:53	1
Tert-amyl-methyl ether (TAME)	ND		0.50		ug/L			10/13/13 13:53	1
m,p-Xylene	ND		1.0		ug/L			10/13/13 13:53	1
1,1,1-Trichloroethane	ND		0.50		ug/L			10/13/13 13:53	1
cis-1,3-Dichloropropene	ND		0.50		ug/L			10/13/13 13:53	1
Bromochloromethane	ND		0.50		ug/L			10/13/13 13:53	1
Bromoform	ND		0.50		ug/L			10/13/13 13:53	1
Tetrachloroethene	ND		0.50		ug/L			10/13/13 13:53	1
1,1-Dichloroethane	ND		0.50		ug/L			10/13/13 13:53	1
1,2-Dichloroethane	ND		0.50		ug/L			10/13/13 13:53	1
1,2-Dichloropropane	ND		0.50		ug/L			10/13/13 13:53	1
1,1,2-Trichloroethane	ND		0.50		ug/L			10/13/13 13:53	1
Dichlorodifluoromethane	ND		0.50		ug/L			10/13/13 13:53	1
Methylene Chloride	ND		1.0		ug/L			10/13/13 13:53	1
Hexachlorobutadiene	ND		0.50		ug/L			10/13/13 13:53	1
n-Butylbenzene	ND		0.50		ug/L			10/13/13 13:53	1
Chloromethane	ND		0.50		ug/L			10/13/13 13:53	1
1,2,4-Trimethylbenzene	ND		0.50		ug/L			10/13/13 13:53	1
Bromomethane	ND		0.50		ug/L			10/13/13 13:53	1
2-Chlorotoluene	ND		0.50		ug/L			10/13/13 13:53	1
Dibromochloromethane	ND		0.50		ug/L			10/13/13 13:53	1
Dibromomethane	ND		0.50		ug/L			10/13/13 13:53	1
1,1-Dichloropropene	ND		0.50		ug/L			10/13/13 13:53	1
1,2,4-Trichlorobenzene	ND		0.50		ug/L			10/13/13 13:53	1
Chlorobenzene	ND		0.50		ug/L			10/13/13 13:53	1
1,2-Dibromo-3-Chloropropane	ND		1.0		ug/L			10/13/13 13:53	1
1,3-Dichlorobenzene	ND		0.50		ug/L			10/13/13 13:53	1
Styrene	ND		0.50		ug/L			10/13/13 13:53	1
4-Chlorotoluene	ND		0.50		ug/L			10/13/13 13:53	1
trans-1,2-Dichloroethene	ND		0.50		ug/L			10/13/13 13:53	1
Bromobenzene	ND		0.50		ug/L			10/13/13 13:53	1
1,2,3-Trichlorobenzene	ND		0.50		ug/L			10/13/13 13:53	1
1,1,2,2-Tetrachloroethane	ND		0.50		ug/L			10/13/13 13:53	1
Chloroethane	ND		0.50		ug/L			10/13/13 13:53	1
1,1-Dichloroethene	ND		0.50		ug/L			10/13/13 13:53	1
1,2-Dichlorobenzene	ND		0.50		ug/L			10/13/13 13:53	1
Trichloroethene	ND		0.50		ug/L			10/13/13 13:53	1
1,1,1,2-Tetrachloroethane	ND		0.50		ug/L			10/13/13 13:53	1
sec-Butylbenzene	ND		0.50		ug/L			10/13/13 13:53	1

Client Sample ID: AR-2
Date Collected: 10/02/13 09:35
Date Received: 10/03/13 10:10

Lab Sample ID: 440-58588-3
Matrix: Water

Method: 8260B - Volatile Organic Compounds (GC/MS) (Continued)

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Isopropylbenzene	ND		0.50	ug/L			10/13/13 13:53	1
2,2-Dichloropropane	ND		0.50	ug/L			10/13/13 13:53	1
N-Propylbenzene	ND		0.50	ug/L			10/13/13 13:53	1
Trichlorofluoromethane	ND		0.50	ug/L			10/13/13 13:53	1
p-Isopropyltoluene	ND		0.50	ug/L			10/13/13 13:53	1
1,2,3-Trichloropropane	ND		0.50	ug/L			10/13/13 13:53	1
1,3,5-Trimethylbenzene	ND		0.50	ug/L			10/13/13 13:53	1
trans-1,3-Dichloropropene	ND		0.50	ug/L			10/13/13 13:53	1
cis-1,2-Dichloroethene	ND		0.50	ug/L			10/13/13 13:53	1
Chloroform	ND		0.50	ug/L			10/13/13 13:53	1
Vinyl chloride	ND		0.50	ug/L			10/13/13 13:53	1
1,2-Dibromoethane (EDB)	ND		0.50	ug/L			10/13/13 13:53	1
tert-Butylbenzene	ND		0.50	ug/L			10/13/13 13:53	1
Carbon tetrachloride	ND		0.50	ug/L			10/13/13 13:53	1
1,4-Dichlorobenzene	ND		0.50	ug/L			10/13/13 13:53	1
1,3-Dichloropropane	ND		0.50	ug/L			10/13/13 13:53	1
Bromodichloromethane	ND		0.50	ug/L			10/13/13 13:53	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Toluene-d8 (Surr)	*99*		*80 - 128*		*10/13/13 13:53*	*1*
4-Bromofluorobenzene (Surr)	*107*		*80 - 120*		*10/13/13 13:53*	*1*
Dibromofluoromethane (Surr)	*91*		*76 - 132*		*10/13/13 13:53*	*1*

Method: 8270C SIM - Semivolatile Organic Compounds (GC/MS SIM)

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Acenaphthene	ND	LR BA	0.19	ug/L		10/08/13 15:43	10/10/13 18:57	1
Acenaphthylene	ND	LR BA	0.19	ug/L		10/08/13 15:43	10/10/13 18:57	1
Anthracene	ND	LR BA	0.19	ug/L		10/08/13 15:43	10/10/13 18:57	1
Benzo[a]anthracene	ND		0.19	ug/L		10/08/13 15:43	10/10/13 18:57	1
Benzo[a]pyrene	ND		0.19	ug/L		10/08/13 15:43	10/10/13 18:57	1
Benzo[b]fluoranthene	ND		0.19	ug/L		10/08/13 15:43	10/10/13 18:57	1
Benzo[g,h,i]perylene	ND		0.19	ug/L		10/08/13 15:43	10/10/13 18:57	1
Benzo[k]fluoranthene	ND		0.19	ug/L		10/08/13 15:43	10/10/13 18:57	1
Chrysene	ND		0.19	ug/L		10/08/13 15:43	10/10/13 18:57	1
Dibenz(a,h)anthracene	ND		0.19	ug/L		10/08/13 15:43	10/10/13 18:57	1
Fluoranthene	ND		0.19	ug/L		10/08/13 15:43	10/10/13 18:57	1
Fluorene	ND	LR BA	0.19	ug/L		10/08/13 15:43	10/10/13 18:57	1
Indeno[1,2,3-cd]pyrene	ND		0.19	ug/L		10/08/13 15:43	10/10/13 18:57	1
Naphthalene	ND	LR BA	0.19	ug/L		10/08/13 15:43	10/10/13 18:57	1
Phenanthrene	ND	LR BA	0.19	ug/L		10/08/13 15:43	10/10/13 18:57	1
Pyrene	ND		0.19	ug/L		10/08/13 15:43	10/10/13 18:57	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
2-Fluorobiphenyl (Surr)	*62*		*50 - 120*	*10/08/13 15:43*	*10/10/13 18:57*	*1*
Nitrobenzene-d5	*68*		*45 - 120*	*10/08/13 15:43*	*10/10/13 18:57*	*1*
Terphenyl-d14	*18*		*17 - 100*	*10/08/13 15:43*	*10/10/13 18:57*	*1*

Method Summary

Client: Broadbent & Associates, Inc.
Project/Site: ARCO 2112, Alameda

TestAmerica Job ID: 440-58588-1

Method	Method Description	Protocol	Laboratory
8260B	Volatile Organic Compounds (GC/MS)	SW846	TAL IRV
8270C SIM	Semivolatile Organic Compounds (GC/MS SIM)	SW846	TAL IRV

Protocol References:

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

Laboratory References:

TAL IRV = TestAmerica Irvine, 17461 Derian Ave, Suite 100, Irvine, CA 92614-5817, TEL (949)261-1022

Lab Chronicle

Client: Broadbent & Associates, Inc.
Project/Site: ARCO 2112, Alameda

TestAmerica Job ID: 440-58588-1

Client Sample ID: A-1

Lab Sample ID: 440-58588-1

Date Collected: 10/02/13 10:20

Matrix: Water

Date Received: 10/03/13 10:10

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260B		1	10 mL	10 mL	137229	10/13/13 12:59	TN	TAL IRV
Total/NA	Prep	3520C			1050 mL	1 mL	136051	10/08/13 15:43	AG	TAL IRV
Total/NA	Analysis	8270C SIM		1	1050 mL	1 mL	136639	10/10/13 18:17	AI	TAL IRV

Client Sample ID: A-2

Lab Sample ID: 440-58588-2

Date Collected: 10/02/13 10:55

Matrix: Water

Date Received: 10/03/13 10:10

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260B		1	10 mL	10 mL	137229	10/13/13 13:26	TN	TAL IRV
Total/NA	Prep	3520C			1050 mL	1 mL	136051	10/08/13 15:43	AG	TAL IRV
Total/NA	Analysis	8270C SIM		1	1050 mL	1 mL	136639	10/10/13 18:37	AI	TAL IRV

Client Sample ID: AR-2

Lab Sample ID: 440-58588-3

Date Collected: 10/02/13 09:35

Matrix: Water

Date Received: 10/03/13 10:10

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260B		1	10 mL	10 mL	137229	10/13/13 13:53	TN	TAL IRV
Total/NA	Prep	3520C			1055 mL	1 mL	136051	10/08/13 15:43	AG	TAL IRV
Total/NA	Analysis	8270C SIM		1	1055 mL	1 mL	136639	10/10/13 18:57	AI	TAL IRV

Laboratory References:

TAL IRV = TestAmerica Irvine, 17461 Derian Ave, Suite 100, Irvine, CA 92614-5817, TEL (949)261-1022

Method: 8260B - Volatile Organic Compounds (GC/MS)

Lab Sample ID: MB 440-137229/4
Matrix: Water
Analysis Batch: 137229

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Naphthalene	ND		0.50		ug/L			10/13/13 08:24	1
Benzene	ND		0.50		ug/L			10/13/13 08:24	1
tert-Butyl alcohol (TBA)	ND		10		ug/L			10/13/13 08:24	1
Toluene	ND		0.50		ug/L			10/13/13 08:24	1
o-Xylene	ND		0.50		ug/L			10/13/13 08:24	1
Methyl-t-Butyl Ether (MTBE)	ND		0.50		ug/L			10/13/13 08:24	1
Ethylbenzene	ND		0.50		ug/L			10/13/13 08:24	1
Ethyl-t-butyl ether (ETBE)	ND		0.50		ug/L			10/13/13 08:24	1
Xylenes, Total	ND		1.0		ug/L			10/13/13 08:24	1
Isopropyl Ether (DIPE)	ND		0.50		ug/L			10/13/13 08:24	1
Ethanol	ND		150		ug/L			10/13/13 08:24	1
Tert-amyl-methyl ether (TAME)	ND		0.50		ug/L			10/13/13 08:24	1
m,p-Xylene	ND		1.0		ug/L			10/13/13 08:24	1
1,1,1-Trichloroethane	ND		0.50		ug/L			10/13/13 08:24	1
cis-1,3-Dichloropropene	ND		0.50		ug/L			10/13/13 08:24	1
Bromochloromethane	ND		0.50		ug/L			10/13/13 08:24	1
Bromoform	ND		0.50		ug/L			10/13/13 08:24	1
Tetrachloroethene	ND		0.50		ug/L			10/13/13 08:24	1
1,1-Dichloroethane	ND		0.50		ug/L			10/13/13 08:24	1
1,2-Dichloroethane	ND		0.50		ug/L			10/13/13 08:24	1
1,2-Dichloropropane	ND		0.50		ug/L			10/13/13 08:24	1
1,1,2-Trichloroethane	ND		0.50		ug/L			10/13/13 08:24	1
Dichlorodifluoromethane	ND		0.50		ug/L			10/13/13 08:24	1
Methylene Chloride	ND		1.0		ug/L			10/13/13 08:24	1
Hexachlorobutadiene	ND		0.50		ug/L			10/13/13 08:24	1
n-Butylbenzene	ND		0.50		ug/L			10/13/13 08:24	1
Chloromethane	ND		0.50		ug/L			10/13/13 08:24	1
1,2,4-Trimethylbenzene	ND		0.50		ug/L			10/13/13 08:24	1
Bromomethane	ND		0.50		ug/L			10/13/13 08:24	1
2-Chlorotoluene	ND		0.50		ug/L			10/13/13 08:24	1
Dibromochloromethane	ND		0.50		ug/L			10/13/13 08:24	1
Dibromomethane	ND		0.50		ug/L			10/13/13 08:24	1
1,1-Dichloropropene	ND		0.50		ug/L			10/13/13 08:24	1
1,2,4-Trichlorobenzene	ND		0.50		ug/L			10/13/13 08:24	1
Chlorobenzene	ND		0.50		ug/L			10/13/13 08:24	1
1,2-Dibromo-3-Chloropropane	ND		1.0		ug/L			10/13/13 08:24	1
1,3-Dichlorobenzene	ND		0.50		ug/L			10/13/13 08:24	1
Styrene	ND		0.50		ug/L			10/13/13 08:24	1
4-Chlorotoluene	ND		0.50		ug/L			10/13/13 08:24	1
trans-1,2-Dichloroethene	ND		0.50		ug/L			10/13/13 08:24	1
Bromobenzene	ND		0.50		ug/L			10/13/13 08:24	1
1,2,3-Trichlorobenzene	ND		0.50		ug/L			10/13/13 08:24	1
1,1,2,2-Tetrachloroethane	ND		0.50		ug/L			10/13/13 08:24	1
Chloroethane	ND		0.50		ug/L			10/13/13 08:24	1
1,1-Dichloroethene	ND		0.50		ug/L			10/13/13 08:24	1
1,2-Dichlorobenzene	ND		0.50		ug/L			10/13/13 08:24	1
Trichloroethene	ND		0.50		ug/L			10/13/13 08:24	1
1,1,1,2-Tetrachloroethane	ND		0.50		ug/L			10/13/13 08:24	1

Method: 8260B - Volatile Organic Compounds (GC/MS) (Continued)

Lab Sample ID: MB 440-137229/4
Matrix: Water
Analysis Batch: 137229

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
sec-Butylbenzene	ND		0.50		ug/L			10/13/13 08:24	1
Isopropylbenzene	ND		0.50		ug/L			10/13/13 08:24	1
2,2-Dichloropropane	ND		0.50		ug/L			10/13/13 08:24	1
N-Propylbenzene	ND		0.50		ug/L			10/13/13 08:24	1
Trichlorofluoromethane	ND		0.50		ug/L			10/13/13 08:24	1
p-Isopropyltoluene	ND		0.50		ug/L			10/13/13 08:24	1
1,2,3-Trichloropropane	ND		0.50		ug/L			10/13/13 08:24	1
1,3,5-Trimethylbenzene	ND		0.50		ug/L			10/13/13 08:24	1
trans-1,3-Dichloropropene	ND		0.50		ug/L			10/13/13 08:24	1
cis-1,2-Dichloroethene	ND		0.50		ug/L			10/13/13 08:24	1
Chloroform	ND		0.50		ug/L			10/13/13 08:24	1
Vinyl chloride	ND		0.50		ug/L			10/13/13 08:24	1
1,2-Dibromoethane (EDB)	ND		0.50		ug/L			10/13/13 08:24	1
tert-Butylbenzene	ND		0.50		ug/L			10/13/13 08:24	1
Carbon tetrachloride	ND		0.50		ug/L			10/13/13 08:24	1
1,4-Dichlorobenzene	ND		0.50		ug/L			10/13/13 08:24	1
1,3-Dichloropropane	ND		0.50		ug/L			10/13/13 08:24	1
Bromodichloromethane	ND		0.50		ug/L			10/13/13 08:24	1

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Toluene-d8 (Surr)	*101*		*80 - 128*		*10/13/13 08:24*	*1*
4-Bromofluorobenzene (Surr)	*105*		*80 - 120*		*10/13/13 08:24*	*1*
Dibromofluoromethane (Surr)	*87*		*76 - 132*		*10/13/13 08:24*	*1*

Lab Sample ID: LCS 440-137229/5
Matrix: Water
Analysis Batch: 137229

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Naphthalene	25.0	26.9		ug/L		108	60 - 140
Benzene	25.0	24.8		ug/L		99	68 - 130
tert-Butyl alcohol (TBA)	125	120		ug/L		96	70 - 130
Toluene	25.0	24.8		ug/L		99	70 - 130
o-Xylene	25.0	27.1		ug/L		108	70 - 130
Methyl-t-Butyl Ether (MTBE)	25.0	24.5		ug/L		98	63 - 131
Ethylbenzene	25.0	28.4		ug/L		113	70 - 130
Ethyl-t-butyl ether (ETBE)	25.0	21.6		ug/L		86	60 - 136
Isopropyl Ether (DIPE)	25.0	18.6		ug/L		74	58 - 139
Ethanol	250	186		ug/L		74	50 - 149
Tert-amyl-methyl ether (TAME)	25.0	23.4		ug/L		93	57 - 139
m,p-Xylene	50.0	56.8		ug/L		114	70 - 130
1,1,1-Trichloroethane	25.0	26.6		ug/L		106	70 - 130
cis-1,3-Dichloropropene	25.0	25.8		ug/L		103	70 - 133
Bromochloromethane	25.0	21.9		ug/L		87	70 - 130
Bromoform	25.0	31.8		ug/L		127	60 - 148
Tetrachloroethene	25.0	28.1		ug/L		112	70 - 130
1,1-Dichloroethane	25.0	21.2		ug/L		85	64 - 130
1,2-Dichloroethane	25.0	28.6		ug/L		114	57 - 138

Method: 8260B - Volatile Organic Compounds (GC/MS) (Continued)

Lab Sample ID: LCS 440-137229/5
Matrix: Water
Analysis Batch: 137229

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
1,2-Dichloropropane	25.0	23.0		ug/L		92	67 - 130
1,1,2-Trichloroethane	25.0	24.8		ug/L		99	70 - 130
Dichlorodifluoromethane	25.0	26.7		ug/L		107	29 - 150
Methylene Chloride	25.0	21.5		ug/L		86	52 - 130
Hexachlorobutadiene	25.0	27.6		ug/L		110	10 - 150
n-Butylbenzene	25.0	28.0		ug/L		112	65 - 150
Chloromethane	25.0	21.0		ug/L		84	47 - 140
1,2,4-Trimethylbenzene	25.0	27.2		ug/L		109	70 - 135
Bromomethane	25.0	23.5		ug/L		94	64 - 139
2-Chlorotoluene	25.0	25.9		ug/L		104	70 - 130
Dibromochloromethane	25.0	29.8		ug/L		119	69 - 145
Dibromomethane	25.0	27.1		ug/L		109	70 - 130
1,1-Dichloropropene	25.0	27.0		ug/L		108	70 - 130
1,2,4-Trichlorobenzene	25.0	25.7		ug/L		103	60 - 140
Chlorobenzene	25.0	26.2		ug/L		105	70 - 130
1,2-Dibromo-3-Chloropropane	25.0	32.5		ug/L		130	52 - 140
1,3-Dichlorobenzene	25.0	25.7		ug/L		103	70 - 130
Styrene	25.0	26.9		ug/L		107	70 - 134
4-Chlorotoluene	25.0	26.5		ug/L		106	70 - 130
trans-1,2-Dichloroethene	25.0	23.5		ug/L		94	70 - 130
Bromobenzene	25.0	25.8		ug/L		103	70 - 130
1,2,3-Trichlorobenzene	25.0	25.4		ug/L		102	60 - 140
1,1,2,2-Tetrachloroethane	25.0	26.4		ug/L		106	63 - 130
Chloroethane	25.0	23.3		ug/L		93	64 - 135
1,1-Dichloroethene	25.0	24.2		ug/L		97	70 - 130
1,2-Dichlorobenzene	25.0	25.6		ug/L		102	70 - 130
Trichloroethene	25.0	26.1		ug/L		104	70 - 130
1,1,1,2-Tetrachloroethane	25.0	27.7		ug/L		111	60 - 141
sec-Butylbenzene	25.0	28.0		ug/L		112	70 - 138
Isopropylbenzene	25.0	27.3		ug/L		109	70 - 136
2,2-Dichloropropane	25.0	26.1		ug/L		104	68 - 141
N-Propylbenzene	25.0	27.1		ug/L		109	67 - 139
Trichlorofluoromethane	25.0	29.2		ug/L		117	60 - 150
p-Isopropyltoluene	25.0	27.4		ug/L		110	70 - 132
1,2,3-Trichloropropane	25.0	27.9		ug/L		112	63 - 130
1,3,5-Trimethylbenzene	25.0	27.3		ug/L		109	70 - 136
trans-1,3-Dichloropropene	25.0	27.6		ug/L		110	70 - 132
cis-1,2-Dichloroethene	25.0	24.3		ug/L		97	70 - 133
Chloroform	25.0	24.9		ug/L		100	70 - 130
Vinyl chloride	25.0	22.9		ug/L		91	59 - 133
1,2-Dibromoethane (EDB)	25.0	28.2		ug/L		113	70 - 130
tert-Butylbenzene	25.0	26.3		ug/L		105	70 - 130
Carbon tetrachloride	25.0	31.3		ug/L		125	60 - 150
1,4-Dichlorobenzene	25.0	26.0		ug/L		104	70 - 130
1,3-Dichloropropane	25.0	26.4		ug/L		106	70 - 130
Bromodichloromethane	25.0	28.1		ug/L		113	70 - 132

Method: 8260B - Volatile Organic Compounds (GC/MS) (Continued)

Lab Sample ID: LCS 440-137229/5
Matrix: Water
Analysis Batch: 137229

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
Toluene-d8 (Surr)	*99*		*80 - 128*
4-Bromofluorobenzene (Surr)	*109*		*80 - 120*
Dibromofluoromethane (Surr)	*88*		*76 - 132*

Lab Sample ID: 440-58871-C-4 MS
Matrix: Water
Analysis Batch: 137229

Client Sample ID: Matrix Spike
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Naphthalene	ND		25.0	29.1		ug/L		116	60 - 140
Benzene	ND		25.0	26.2		ug/L		105	66 - 130
tert-Butyl alcohol (TBA)	ND		125	133		ug/L		107	70 - 130
Toluene	ND		25.0	26.6		ug/L		107	70 - 130
o-Xylene	ND		25.0	28.3		ug/L		113	70 - 133
Methyl-t-Butyl Ether (MTBE)	ND		25.0	26.2		ug/L		105	70 - 130
Ethylbenzene	ND		25.0	29.2		ug/L		117	70 - 130
Ethyl-t-butyl ether (ETBE)	ND		25.0	22.9		ug/L		91	70 - 130
Isopropyl Ether (DIPE)	ND		25.0	20.0		ug/L		80	64 - 138
Ethanol	ND		250	ND		ug/L		59	54 - 150
Tert-amyl-methyl ether (TAME)	ND		25.0	24.8		ug/L		99	68 - 133
m,p-Xylene	ND		50.0	58.0		ug/L		116	70 - 133
1,1,1-Trichloroethane	ND		25.0	28.0		ug/L		112	70 - 130
cis-1,3-Dichloropropene	ND		25.0	27.8		ug/L		111	70 - 133
Bromochloromethane	ND		25.0	23.4		ug/L		93	70 - 130
Bromoform	ND		25.0	34.2		ug/L		137	59 - 150
Tetrachloroethene	1.1		25.0	30.1		ug/L		116	70 - 137
1,1-Dichloroethane	ND		25.0	21.8		ug/L		87	65 - 130
1,2-Dichloroethane	ND		25.0	31.6		ug/L		126	56 - 146
1,2-Dichloropropane	ND		25.0	25.0		ug/L		100	69 - 130
1,1,2-Trichloroethane	ND		25.0	27.8		ug/L		111	70 - 130
Dichlorodifluoromethane	ND		25.0	27.4		ug/L		110	25 - 142
Methylene Chloride	ND		25.0	22.0		ug/L		88	52 - 130
Hexachlorobutadiene	ND		25.0	28.6		ug/L		114	10 - 150
n-Butylbenzene	ND		25.0	29.1		ug/L		116	61 - 149
Chloromethane	ND		25.0	21.9		ug/L		88	39 - 144
1,2,4-Trimethylbenzene	ND		25.0	27.4		ug/L		110	70 - 130
Bromomethane	ND		25.0	24.2		ug/L		97	62 - 131
2-Chlorotoluene	ND		25.0	26.4		ug/L		106	70 - 130
Dibromochloromethane	ND		25.0	31.9		ug/L		128	70 - 148
Dibromomethane	ND		25.0	30.1		ug/L		121	70 - 130
1,1-Dichloropropene	ND		25.0	28.7		ug/L		115	64 - 130
1,2,4-Trichlorobenzene	ND		25.0	28.5		ug/L		114	60 - 140
Chlorobenzene	ND		25.0	27.2		ug/L		109	70 - 130
1,2-Dibromo-3-Chloropropane	ND		25.0	35.2	LM	ug/L		141	48 - 140
1,3-Dichlorobenzene	ND		25.0	27.6		ug/L		111	70 - 130
Styrene	ND		25.0	25.2		ug/L		101	29 - 150
4-Chlorotoluene	ND		25.0	27.5		ug/L		110	70 - 130
trans-1,2-Dichloroethene	ND		25.0	24.4		ug/L		98	70 - 130

Method: 8260B - Volatile Organic Compounds (GC/MS) (Continued)

Lab Sample ID: 440-58871-C-4 MS
Matrix: Water
Analysis Batch: 137229

Client Sample ID: Matrix Spike
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Bromobenzene	ND		25.0	26.5		ug/L		106	70 - 130
1,2,3-Trichlorobenzene	ND		25.0	27.6		ug/L		110	60 - 140
1,1,2,2-Tetrachloroethane	ND		25.0	28.8		ug/L		115	63 - 130
Chloroethane	ND		25.0	22.9		ug/L		92	68 - 130
1,1-Dichloroethene	0.64		25.0	24.1		ug/L		94	70 - 130
1,2-Dichlorobenzene	ND		25.0	27.0		ug/L		108	70 - 130
Trichloroethene	180		25.0	212	BB	ug/L		106	70 - 130
1,1,1,2-Tetrachloroethane	ND		25.0	29.1		ug/L		117	60 - 149
sec-Butylbenzene	ND		25.0	28.5		ug/L		114	67 - 134
Isopropylbenzene	ND		25.0	27.7		ug/L		111	70 - 132
2,2-Dichloropropane	ND		25.0	27.1		ug/L		108	69 - 138
N-Propylbenzene	ND		25.0	27.8		ug/L		111	66 - 135
Trichlorofluoromethane	17		25.0	46.9		ug/L		120	60 - 150
p-Isopropyltoluene	ND		25.0	27.4		ug/L		109	70 - 130
1,2,3-Trichloropropane	ND		25.0	30.2		ug/L		121	60 - 130
1,3,5-Trimethylbenzene	ND		25.0	28.3		ug/L		113	70 - 130
trans-1,3-Dichloropropene	ND		25.0	30.4		ug/L		122	70 - 138
cis-1,2-Dichloroethene	ND		25.0	26.0		ug/L		104	70 - 130
Chloroform	ND		25.0	26.7		ug/L		105	70 - 130
Vinyl chloride	ND		25.0	23.7		ug/L		95	50 - 137
1,2-Dibromoethane (EDB)	ND		25.0	29.8		ug/L		119	70 - 131
tert-Butylbenzene	ND		25.0	27.0		ug/L		108	70 - 130
Carbon tetrachloride	ND		25.0	33.4		ug/L		133	60 - 150
1,4-Dichlorobenzene	ND		25.0	27.1		ug/L		108	70 - 130
1,3-Dichloropropane	ND		25.0	27.9		ug/L		111	70 - 130
Bromodichloromethane	ND		25.0	31.3		ug/L		125	70 - 138

Surrogate	*MS %Recovery*	*MS Qualifier*	*Limits*
Toluene-d8 (Surr)	*103*		*80 - 128*
4-Bromofluorobenzene (Surr)	*105*		*80 - 120*
Dibromofluoromethane (Surr)	*89*		*76 - 132*

Lab Sample ID: 440-58871-C-4 MSD
Matrix: Water
Analysis Batch: 137229

Client Sample ID: Matrix Spike Duplicate
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Naphthalene	ND		25.0	26.1		ug/L		104	60 - 140	11	30
Benzene	ND		25.0	24.0		ug/L		96	66 - 130	9	20
tert-Butyl alcohol (TBA)	ND		125	125		ug/L		100	70 - 130	7	25
Toluene	ND		25.0	24.4		ug/L		98	70 - 130	9	20
o-Xylene	ND		25.0	26.1		ug/L		105	70 - 133	8	20
Methyl-t-Butyl Ether (MTBE)	ND		25.0	24.7		ug/L		99	70 - 130	6	25
Ethylbenzene	ND		25.0	27.7		ug/L		111	70 - 130	5	20
Ethyl-t-butyl ether (ETBE)	ND		25.0	21.9		ug/L		87	70 - 130	4	25
Isopropyl Ether (DIPE)	ND		25.0	18.9		ug/L		76	64 - 138	6	25
Ethanol	ND		250	163		ug/L		65	54 - 150	11	30
Tert-amyl-methyl ether (TAME)	ND		25.0	23.3		ug/L		93	68 - 133	6	30

Method: 8260B - Volatile Organic Compounds (GC/MS) (Continued)

Lab Sample ID: 440-58871-C-4 MSD
Matrix: Water
Analysis Batch: 137229

Client Sample ID: Matrix Spike Duplicate
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
m,p-Xylene	ND		50.0	54.3		ug/L		109	70 - 133	7	25
1,1,1-Trichloroethane	ND		25.0	26.5		ug/L		106	70 - 130	5	20
cis-1,3-Dichloropropene	ND		25.0	26.0		ug/L		104	70 - 133	6	20
Bromochloromethane	ND		25.0	22.1		ug/L		88	70 - 130	6	25
Bromoform	ND		25.0	32.5		ug/L		130	59 - 150	5	25
Tetrachloroethene	1.1		25.0	29.1		ug/L		112	70 - 137	4	20
1,1-Dichloroethane	ND		25.0	20.8		ug/L		83	65 - 130	5	20
1,2-Dichloroethane	ND		25.0	29.2		ug/L		117	56 - 146	8	20
1,2-Dichloropropane	ND		25.0	22.9		ug/L		92	69 - 130	9	20
1,1,2-Trichloroethane	ND		25.0	25.5		ug/L		102	70 - 130	8	25
Dichlorodifluoromethane	ND		25.0	26.1		ug/L		104	25 - 142	5	30
Methylene Chloride	ND		25.0	20.7		ug/L		83	52 - 130	6	20
Hexachlorobutadiene	ND		25.0	26.3		ug/L		105	10 - 150	8	20
n-Butylbenzene	ND		25.0	26.9		ug/L		108	61 - 149	8	20
Chloromethane	ND		25.0	21.0		ug/L		84	39 - 144	4	25
1,2,4-Trimethylbenzene	ND		25.0	25.9		ug/L		104	70 - 130	5	25
Bromomethane	ND		25.0	23.1		ug/L		92	62 - 131	5	25
2-Chlorotoluene	ND		25.0	25.5		ug/L		102	70 - 130	4	20
Dibromochloromethane	ND		25.0	29.8		ug/L		119	70 - 148	7	25
Dibromomethane	ND		25.0	26.8		ug/L		107	70 - 130	12	25
1,1-Dichloropropene	ND		25.0	25.6		ug/L		102	64 - 130	11	20
1,2,4-Trichlorobenzene	ND		25.0	25.5		ug/L		102	60 - 140	11	20
Chlorobenzene	ND		25.0	25.3		ug/L		101	70 - 130	7	20
1,2-Dibromo-3-Chloropropane	ND		25.0	32.7		ug/L		131	48 - 140	7	30
1,3-Dichlorobenzene	ND		25.0	26.0		ug/L		104	70 - 130	6	20
Styrene	ND		25.0	23.4		ug/L		94	29 - 150	7	35
4-Chlorotoluene	ND		25.0	26.0		ug/L		104	70 - 130	5	20
trans-1,2-Dichloroethene	ND		25.0	23.2		ug/L		93	70 - 130	5	20
Bromobenzene	ND		25.0	25.6		ug/L		103	70 - 130	3	20
1,2,3-Trichlorobenzene	ND		25.0	25.2		ug/L		101	60 - 140	9	20
1,1,2,2-Tetrachloroethane	ND		25.0	28.5		ug/L		114	63 - 130	1	30
Chloroethane	ND		25.0	22.2		ug/L		89	68 - 130	3	25
1,1-Dichloroethene	0.64		25.0	24.7		ug/L		96	70 - 130	3	20
1,2-Dichlorobenzene	ND		25.0	25.0		ug/L		100	70 - 130	8	20
Trichloroethene	180		25.0	195	BB	ug/L		39	70 - 130	8	20
1,1,1,2-Tetrachloroethane	ND		25.0	27.4		ug/L		109	60 - 149	6	20
sec-Butylbenzene	ND		25.0	27.2		ug/L		109	67 - 134	5	20
Isopropylbenzene	ND		25.0	26.8		ug/L		107	70 - 132	3	20
2,2-Dichloropropane	ND		25.0	26.0		ug/L		104	69 - 138	4	25
N-Propylbenzene	ND		25.0	26.7		ug/L		107	66 - 135	4	20
Trichlorofluoromethane	17		25.0	44.7		ug/L		111	60 - 150	5	25
p-Isopropyltoluene	ND		25.0	26.4		ug/L		106	70 - 130	3	20
1,2,3-Trichloropropane	ND		25.0	28.7		ug/L		115	60 - 130	5	30
1,3,5-Trimethylbenzene	ND		25.0	26.8		ug/L		107	70 - 130	6	20
trans-1,3-Dichloropropene	ND		25.0	27.1		ug/L		108	70 - 138	12	25
cis-1,2-Dichloroethene	ND		25.0	24.2		ug/L		97	70 - 130	7	20
Chloroform	ND		25.0	25.1		ug/L		99	70 - 130	6	20
Vinyl chloride	ND		25.0	22.8		ug/L		91	50 - 137	4	30

Method: 8260B - Volatile Organic Compounds (GC/MS) (Continued)

Lab Sample ID: 440-58871-C-4 MSD
Matrix: Water
Analysis Batch: 137229

Client Sample ID: Matrix Spike Duplicate
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
1,2-Dibromoethane (EDB)	ND		25.0	27.1		ug/L		108	70 - 131	10	25
tert-Butylbenzene	ND		25.0	25.9		ug/L		104	70 - 130	4	20
Carbon tetrachloride	ND		25.0	30.5		ug/L		122	60 - 150	9	25
1,4-Dichlorobenzene	ND		25.0	25.5		ug/L		102	70 - 130	6	20
1,3-Dichloropropane	ND		25.0	25.6		ug/L		102	70 - 130	9	25
Bromodichloromethane	ND		25.0	28.6		ug/L		114	70 - 138	9	20

Surrogate	*MSD %Recovery*	*MSD Qualifier*	*Limits*
Toluene-d8 (Surr)	*100*		*80 - 128*
4-Bromofluorobenzene (Surr)	*104*		*80 - 120*
Dibromofluoromethane (Surr)	*91*		*76 - 132*

Method: 8270C SIM - Semivolatile Organic Compounds (GC/MS SIM)

Lab Sample ID: MB 440-136051/1-A
Matrix: Water
Analysis Batch: 136639

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 136051

Analyte	MB Result	MB Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Acenaphthene	ND		0.20		ug/L		10/08/13 11:13	10/10/13 11:50	1
Acenaphthylene	ND		0.20		ug/L		10/08/13 11:13	10/10/13 11:50	1
Anthracene	ND		0.20		ug/L		10/08/13 11:13	10/10/13 11:50	1
Benzo[a]anthracene	ND		0.20		ug/L		10/08/13 11:13	10/10/13 11:50	1
Benzo[a]pyrene	ND		0.20		ug/L		10/08/13 11:13	10/10/13 11:50	1
Benzo[b]fluoranthene	ND		0.20		ug/L		10/08/13 11:13	10/10/13 11:50	1
Benzo[g,h,i]perylene	ND		0.20		ug/L		10/08/13 11:13	10/10/13 11:50	1
Benzo[k]fluoranthene	ND		0.20		ug/L		10/08/13 11:13	10/10/13 11:50	1
Chrysene	ND		0.20		ug/L		10/08/13 11:13	10/10/13 11:50	1
Dibenz(a,h)anthracene	ND		0.20		ug/L		10/08/13 11:13	10/10/13 11:50	1
Fluoranthene	ND		0.20		ug/L		10/08/13 11:13	10/10/13 11:50	1
Fluorene	ND		0.20		ug/L		10/08/13 11:13	10/10/13 11:50	1
Indeno[1,2,3-cd]pyrene	ND		0.20		ug/L		10/08/13 11:13	10/10/13 11:50	1
Naphthalene	ND		0.20		ug/L		10/08/13 11:13	10/10/13 11:50	1
Phenanthrene	ND		0.20		ug/L		10/08/13 11:13	10/10/13 11:50	1
Pyrene	ND		0.20		ug/L		10/08/13 11:13	10/10/13 11:50	1

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
2-Fluorobiphenyl (Surr)	*66*		*50 - 120*	*10/08/13 11:13*	*10/10/13 11:50*	*1*
Nitrobenzene-d5	*67*		*45 - 120*	*10/08/13 11:13*	*10/10/13 11:50*	*1*
Terphenyl-d14	*43*		*17 - 100*	*10/08/13 11:13*	*10/10/13 11:50*	*1*

Lab Sample ID: LCS 440-136051/2-A
Matrix: Water
Analysis Batch: 136639

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 136051

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits		
Acenaphthene			1.00	0.527	LR	ug/L		53	60 - 120		

Method: 8270C SIM - Semivolatile Organic Compounds (GC/MS SIM) (Continued)

Lab Sample ID: LCS 440-136051/2-A
Matrix: Water
Analysis Batch: 136639

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 136051

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Acenaphthylene	1.00	0.527	LR	ug/L		53	60 - 120
Anthracene	1.00	0.617	LR	ug/L		62	65 - 120
Benzo[a]anthracene	1.00	0.681		ug/L		68	65 - 120
Benzo[a]pyrene	1.00	0.697		ug/L		70	55 - 130
Benzo[b]fluoranthene	1.00	0.742		ug/L		74	55 - 125
Benzo[g,h,i]perylene	1.00	0.840		ug/L		84	45 - 135
Benzo[k]fluoranthene	1.00	0.786		ug/L		79	50 - 125
Chrysene	1.00	0.757		ug/L		76	65 - 120
Dibenz(a,h)anthracene	1.00	0.791		ug/L		79	50 - 135
Fluoranthene	1.00	0.742		ug/L		74	60 - 120
Fluorene	1.00	0.564	LR	ug/L		56	65 - 120
Indeno[1,2,3-cd]pyrene	1.00	0.790		ug/L		79	45 - 135
Naphthalene	1.00	0.462	LR	ug/L		46	55 - 120
Phenanthrene	1.00	0.618	LR	ug/L		62	65 - 120
Pyrene	1.00	0.606		ug/L		61	55 - 125

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
2-Fluorobiphenyl (Surr)	*52*		*50 - 120*
Nitrobenzene-d5	*51*		*45 - 120*
Terphenyl-d14	*42*		*17 - 100*

Lab Sample ID: LCSD 440-136051/3-A
Matrix: Water
Analysis Batch: 136639

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 136051

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Acenaphthene	1.00	0.706	BA	ug/L		71	60 - 120	29	20
Acenaphthylene	1.00	0.712	BA	ug/L		71	60 - 120	30	20
Anthracene	1.00	0.792	BA	ug/L		79	65 - 120	25	20
Benzo[a]anthracene	1.00	0.785		ug/L		79	65 - 120	14	20
Benzo[a]pyrene	1.00	0.727		ug/L		73	55 - 130	4	25
Benzo[b]fluoranthene	1.00	0.782		ug/L		78	55 - 125	5	25
Benzo[g,h,i]perylene	1.00	0.829		ug/L		83	45 - 135	1	25
Benzo[k]fluoranthene	1.00	0.797		ug/L		80	50 - 125	1	20
Chrysene	1.00	0.799		ug/L		80	65 - 120	5	20
Dibenz(a,h)anthracene	1.00	0.788		ug/L		79	50 - 135	0	25
Fluoranthene	1.00	0.881		ug/L		88	60 - 120	17	20
Fluorene	1.00	0.751	BA	ug/L		75	65 - 120	29	20
Indeno[1,2,3-cd]pyrene	1.00	0.822		ug/L		82	45 - 135	4	25
Naphthalene	1.00	0.643	BA	ug/L		64	55 - 120	33	20
Phenanthrene	1.00	0.796	BA	ug/L		80	65 - 120	25	20
Pyrene	1.00	0.733		ug/L		73	55 - 125	19	25

Surrogate	*LCSD %Recovery*	*LCSD Qualifier*	*Limits*
2-Fluorobiphenyl (Surr)	*71*		*50 - 120*
Nitrobenzene-d5	*63*		*45 - 120*
Terphenyl-d14	*45*		*17 - 100*

QC Association Summary

Client: Broadbent & Associates, Inc.
Project/Site: ARCO 2112, Alameda

TestAmerica Job ID: 440-58588-1

GC/MS VOA

Analysis Batch: 137229

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
440-58588-1	A-1	Total/NA	Water	8260B	
440-58588-2	A-2	Total/NA	Water	8260B	
440-58588-3	AR-2	Total/NA	Water	8260B	
440-58871-C-4 MS	Matrix Spike	Total/NA	Water	8260B	
440-58871-C-4 MSD	Matrix Spike Duplicate	Total/NA	Water	8260B	
LCS 440-137229/5	Lab Control Sample	Total/NA	Water	8260B	
MB 440-137229/4	Method Blank	Total/NA	Water	8260B	

GC/MS Semi VOA

Prep Batch: 136051

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
440-58588-1	A-1	Total/NA	Water	3520C	
440-58588-2	A-2	Total/NA	Water	3520C	
440-58588-3	AR-2	Total/NA	Water	3520C	
LCS 440-136051/2-A	Lab Control Sample	Total/NA	Water	3520C	
LCSD 440-136051/3-A	Lab Control Sample Dup	Total/NA	Water	3520C	
MB 440-136051/1-A	Method Blank	Total/NA	Water	3520C	

Analysis Batch: 136639

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
440-58588-1	A-1	Total/NA	Water	8270C SIM	136051
440-58588-2	A-2	Total/NA	Water	8270C SIM	136051
440-58588-3	AR-2	Total/NA	Water	8270C SIM	136051
LCS 440-136051/2-A	Lab Control Sample	Total/NA	Water	8270C SIM	136051
LCSD 440-136051/3-A	Lab Control Sample Dup	Total/NA	Water	8270C SIM	136051
MB 440-136051/1-A	Method Blank	Total/NA	Water	8270C SIM	136051

Qualifiers

GC/MS VOA

Qualifier	Qualifier Description
LM	MS and/or MSD above acceptance limits. See Blank Spike (LCS)
BB	Sample > 4X spike concentration

GC/MS Semi VOA

Qualifier	Qualifier Description
BA	Relative percent difference out of control
LR	LCS/LCSD recovery below method control limits

Glossary

Abbreviation	These commonly used abbreviations may or may not be present in this report.
¤	Listed under the "D" column to designate that the result is reported on a dry weight basis
%R	Percent Recovery
CNF	Contains no Free Liquid
DER	Duplicate error ratio (normalized absolute difference)
Dil Fac	Dilution Factor
DL, RA, RE, IN	Indicates a Dilution, Re-analysis, Re-extraction, or additional Initial metals/anion analysis of the sample
DLC	Decision level concentration
MDA	Minimum detectable activity
EDL	Estimated Detection Limit
MDC	Minimum detectable concentration
MDL	Method Detection Limit
ML	Minimum Level (Dioxin)
NC	Not Calculated
ND	Not detected at the reporting limit (or MDL or EDL if shown)
PQL	Practical Quantitation Limit
QC	Quality Control
RER	Relative error ratio
RL	Reporting Limit or Requested Limit (Radiochemistry)
RPD	Relative Percent Difference, a measure of the relative difference between two points
TEF	Toxicity Equivalent Factor (Dioxin)
TEQ	Toxicity Equivalent Quotient (Dioxin)

Certification Summary

Client: Broadbent & Associates, Inc.
Project/Site: ARCO 2112, Alameda

TestAmerica Job ID: 440-58588-1

Laboratory: TestAmerica Irvine

All certifications held by this laboratory are listed. Not all certifications are applicable to this report.

Authority	Program	EPA Region	Certification ID	Expiration Date
Alaska	State Program	10	CA01531	06-30-14
Arizona	State Program	9	AZ0671	10-13-14
California	LA Cty Sanitation Districts	9	10256	01-31-14
California	NELAP	9	1108CA	01-31-14
California	State Program	9	2706	06-30-14
Guam	State Program	9	Cert. No. 12.002r	01-28-14 *
Hawaii	State Program	9	N/A	01-31-14
Nevada	State Program	9	CA015312007A	07-31-14
New Mexico	State Program	6	N/A	01-31-14
Northern Mariana Islands	State Program	9	MP0002	01-31-14
Oregon	NELAP	10	4005	09-12-14
USDA	Federal		P330-09-00080	06-06-14
USEPA UCMR	Federal	1	CA01531	01-31-15

* Expired certification is currently pending renewal and is considered valid.

bp rm — Laboratory Management Program LaMP Chain of Custody Record

BP Site Node Path: BP 2112 | Req Due Date (mm/dd/yy): | Rush TAT: Yes ___ No X

BP Facility No: 2112 | Lab Work Order Number:

Lab Name: Test America	Facility Address: 1260 Park Street	Consultant/Contractor: Broadbent & Associates Inc.
Lab Address: 17461 Derian Avenue, Suite 100, Irvine, CA	City, State, ZIP Code: Alameda, CA	Consultant/Contractor Project No: 06-88-616
Lab PM: Kathleen Robb	Lead Regulatory Agency: ACEH	Address: 875 Cotting Lane, Suite G, Vacaville, California
Lab Phone: 949-261-1022	California Global ID No.: T0600100083	Consultant/Contractor PM: Kristene Tidwell
Lab Shipping Accnt: Fed ex#: 11103-6633-7	Enfos Proposal No/ WR#: 005Y2-0003 / WR261396	Phone: 707-455-7290 / 707-455-7295 (f) Email: ktidwell@broadbentinc.com
Lab Bottle Order No:	Accounting Mode: Provision X OOC-BU ___ OOC-RM ___	Email EDD To: ktidwell@broadbentinc.com and to lab enfosdoc@bp.com
Other Info:	Stage: Execute (40) Activity: Project Spend (80)	Invoice To: BP x Contractor ___
BP Project Manager (PM): Chuck Carmel		
BP PM Phone: 925-275-3803		
BP PM Email: charles.carmel@bp.com		

Lab No.	Sample Description	Date	Time	Matrix: Soil / Solid	Water / Liquid	Air / Vapor	Is this location a well?	No. Containers / Preservative: Total Number of Container	Unpreserved	H2SO4	HNO3	HCl	Methanol	Requested Analyses: Naphthalene by 8260	PAHs by 8270C
	A-1	10/2/13	1020		x		y	5	x			x		x	x
	A-2	↓	1055		x		y	5	x			x		x	x
	AR-2	↓	0935		x		y	5	x			x		x	x
	BP-2112-10022013	—	—		x		n	2				x			

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

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

ON HOLD

440-58588 Chain of Custody

2:05

10-03-13

Sampler's Name: James Ramos / Alex Martinez	Relinquished By / Affiliation	Date	Time	Accepted By / Affiliation	Date	Time
Sampler's Company: Broadbent and Associates	BAI	10/2/13	1700			
Shipment Method: Fed EX Ship Date: 10/2/2013	BAI	10/2/13	1700			
Shipment Tracking No: 8738 8386 3860					10/3/13	10:10

Special Instructions:

THIS LINE - LAB USE ONLY: Custody Seals In Place: Yes / No | Temp Blank: Yes / No | Cooler Temp on Receipt: 3.7/3.2 °F/C | Trip Blank: Yes / No | MS/MSD Sample Submitted: Yes / No

Login Sample Receipt Checklist

Client: Broadbent & Associates, Inc.

Job Number: 440-58588-1

Login Number: 58588

List Source: TestAmerica Irvine

List Number: 1

Creator: Sung, Hubert

Question	Answer	Comment
Radioactivity wasn't checked or is </= background as measured by a survey meter.	N/A	
The cooler's custody seal, if present, is intact.	True	
Sample custody seals, if present, are 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	James Ramos/Alex Martinez
There are no discrepancies between the containers received 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	
Containers requiring zero headspace have no headspace or bubble is <6mm (1/4").	True	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Residual Chlorine Checked.	N/A	

APPENDIX D

Detailed Site History

Previous Environmental Activities at Site

On May 15, 1987, a 550-gallon capacity waste oil tank was removed from the Site by Crosby & Overton Environmental. Laboratory analytical tests performed on soil samples collected beneath the waste oil tank indicated the presence of Total Petroleum Hydrocarbons (TPH) as Diesel (TPHd) at concentrations up to 430 milligrams per kilogram (mg/kg) and TPH as Motor Oil (TPHmo) at up to 2,400 mg/kg. Approximately 14 cubic yards of petroleum hydrocarbon impacted soil from the underground storage tanks (UST) excavation was reportedly* removed and transported offsite for disposal. Confirmation samples collected following the excavation activities did not contain TPHmo, indicating TPHmo impacted soil had been removed. The UST pit was backfilled with imported clean sand.

On January 22 and 29, 1990, Applied GeoSystems, Inc. performed a subsurface investigation prior to removal and replacement of the existing five gasoline USTs in the southeastern portion of the Site. The USTs removed included one 10,000 gal (T1), two 4,000 gal (T2 and T3), and two 6,000 gal (T4 and T5). Five soil borings (B1-B5) were advanced in the vicinity of the gasoline USTs, and one boring (B6) was advanced in the location of the proposed new UST complex in the northwestern portion of the Site. Total boring depths ranged from 11.5 to 13 feet (ft) below ground surface (bgs) with the exception of boring B1, which was advanced to a total depth of 25 ft bgs. Groundwater was encountered at approximately 12 ft bgs. Petroleum hydrocarbons were reported in samples collected from each boring, with the exception of B6. Maximum detected concentrations include TPH as Gasoline (TPHg) at 21,000 mg/kg, benzene at 210 mg/kg, toluene at 1,100 mg/kg, ethylbenzene at 320 mg/kg, and total xylenes at 2,600 mg/kg. No petroleum hydrocarbons were reported in boring B6, located near the proposed new UST.

Between July 27 and September 30, 1990, gasoline USTs and product piping was removed. During excavation activities, soil samples were collected from the sidewalls and bottoms of each tank complex excavation, the new UST complex location, and within the product line trenches. The existing UST complex was excavated to approximately 13 ft bgs in an area approximately 23 by 77 ft. Soil samples were collected between 6 and 12 ft bgs. Based on the soil analytical results, the excavation was expanded slightly to an area of approximately 27 by 81 ft. Maximum detected concentrations include TPHg at 23,000 mg/kg, benzene at 150 mg/kg, toluene at 490 mg/kg, ethylbenzene at 940 mg/kg, and total xylenes at 2,700 mg/kg in the sample from the southwest sidewall of the excavation at a depth of 12 ft bgs. Product line trenches were generally excavated to 3 ft bgs except in locations of observed contamination. Sample AT-36, northeast of the Station Building, contained concentrations of TPHg at 15,000 mg/kg, benzene at 71 mg/kg, toluene at 710 mg/kg, ethylbenzene at 200 mg/kg, and total xylenes at 1,300 mg/kg. In order to remove the impacted soil, excavation in trenches were extended to a depth of 9.5 ft bgs where contamination was noted. A total of approximately 1,950 cubic yards of soil was removed from the Site during this time and transported to an offsite facility for treatment and/or disposal (GeoStrategies, Inc., 1990).

In September 1991, GeoStrategies, Inc. installed four monitoring wells (A-1 through A-4), one recovery well (AR-1), and three vapor extraction wells (AV-1 through AV-3) at the Site. In January 1992, four additional vapor extraction wells (AV-4 through AV-7) were installed. In June 1992, one downgradient monitoring well (A-5) and one recovery well (AR-2) were additionally installed. These wells were installed to evaluate the vertical and lateral extent of petroleum hydrocarbon contamination at the Site and provide extraction wells for use with interim soil vapor and groundwater remediation systems. Results of these investigations were provided within the *Aquifer Test/Vapor Well Installation Report*

prepared by GeoStrategies, Inc. dated August 27, 1992, and the *Quarterly Monitoring/Well Installation Report* prepared by GeoStrategies, Inc. dated September 25, 1992.

A vapor extraction pilot test was conducted in October 1991. In December 1991, a 4-hr Step followed by a 24-hr constant-rate drawdown aquifer pumping tests were performed. These results were published within the *Aquifer Test/Vapor Well Installation Report* prepared by GeoStrategies, Inc. dated August 27, 1992.

In 1992, Soil Vapor Extraction (SVE) and Groundwater Extraction and Treatment (GWET) systems were installed at the Site. The GWET system consisted of two existing recovery wells (AR-1 and AR-2) and an onsite treatment facility. The GWET system became operational on January 5, 1993. The SVE system consisted of eight vapor extraction wells (AV-1 through AV-7 and A-1) and began SVE system operation on January 7, 1993. In August 1995, both the GWET and SVE systems were shutdown due to low influent concentrations. By that time an estimated total of 334.6 pounds (~54.9 gallons) of Total Purgeable Petroleum Hydrocarbons as Gasoline (TPPHg) had been removed by the SVE system, and 0.81 pounds of TPPH-G had been removed by the GWET system. The systems were decommissioned and removed from the Site in 1997.

On November 20, 1996, a *Case Closure Summary* report was prepared and submitted by Pacific Environmental Group, Inc.. The report stated that "remediation and site assessment are complete." However, Site closure was not approved by the Alameda County Environmental Health (ACEH).

On July 31, 2001, Delta Environmental Consultants, Inc. conducted soil sampling during product line and dispenser removal and upgrade activities. Soil samples were collected beneath the dispensers following their removal (PL-1 through PL-4) and along the product line trenches at depths ranging from 3.6 to 4.8 ft bgs (DP-1 through DP-4). Petroleum hydrocarbon were reported in sample PL-3 (southwest dispenser) at concentrations of 1,400 mg/kg TPHg, 0.32 mg/kg benzene, 15 mg/kg toluene, 15 mg/kg ethylbenzene, and 94 mg/kg total xylenes. At the request of ACEH, UST soil samples were collected on the east side of the current UST pit at approximately three ft bgs (UST-1 and UST-2). Petroleum hydrocarbons were reported in sample UST-1 (close to sample PL-3) at concentrations of 1,400 mg/kg TPHg, 2.4 mg/kg benzene, 31 mg/kg toluene, 17 mg/kg ethylbenzene, and 110 mg/kg total xylenes. Approximately seven cubic yards of soil were excavated in the area of sample PL-3. A confirmation soil sample was collected from the base of the excavation at approximately 9 ft bgs. No soil was excavated immediately adjacent to the locations of the UST samples due to the proximity of the USTs. Approximately 9.8 cubic yards of soil was removed from the Site during product line and dispenser upgrades and transported to an offsite facility for disposal and/or treatment (Delta Environmental Consultants, Inc., 2001).

Groundwater monitoring and sampling of the Site wells began in October 1991. Groundwater monitoring and sampling was discontinued following the Second Quarter 1997. During five consecutive monitoring and sampling events between First Quarter 1996 and Second Quarter 1997, no petroleum hydrocarbon contaminants were detected above the laboratory reporting limits (Pacific Environmental Group, Inc., 1997). As requested by ACEH in their letter dated June 20, 2006 the wells associated with the Site were redeveloped and sampled during the Third Quarter of 2006. Sampling was consistent with results previously reported prior to and following the case closure request, with the exception that monitoring since 2006 has included analysis for fuel oxygenates, methyl tertiary butyl ether (MTBE), ethyl tertiary butyl ether (ETBE), tertiary amyl methyl ether (TAME), di-isopropyl ether (DIPE), tertiary butyl alcohol (TBA), ethanol, and the minor lead-scavenging additives 1,2-dichloroethane (1,2-DCA), and

ethylene dibromide (EDB). Gasoline range organics (GRO), petroleum hydrocarbon constituents, and oxygenates have not been detected in groundwater samples since 1995 in wells A-1, A-2, A-4, and A-5, and since their installation in the remainder wells, with the exception of an MTBE concentration of 22 µg/L in well A-1 (July 17, 2006). Since no detections of MTBE have been observed prior to and after the July 17, 2006 sampling event, it is assumed that the single detection was an anomaly. Fuel additives have not been detected in groundwater samples from wells A-3, A-4, A-5, and AR-2 since sampling for these constituents started. TAME and 1,2-DCA have been observed at maximum detected concentrations of 3.3 and 1.2 µg/L, respectively, in wells A-1, A-2, and AR-1 (Broadbent & Associates Inc. [Broadbent], 2011).

On June 10, 2009, Stratus field personnel observed Resonant Sonic International Drilling advance three soil borings (B-7, B-8, and B-9) on the eastern side of the Station Building around the former UST pits. A total of 12 soil samples were collected from the three borings at depths of 5, 8, 11, and 14 ft bgs, with the deeper two samples (11 and 14 ft bgs) being below the water table. Maximum detected concentrations include GRO at 2,000 mg/kg, benzene at 0.23 mg/kg, toluene at 14 mg/kg, ethylbenzene at 18 mg/kg, and total xylenes at 210 mg/kg (Broadbent, 2009). The maximum detections were from boring B-8 at 11 ft bgs, closest to the back side of the Station Building. Almost no petroleum compounds were detected in the shallower, vadose samples (5 and 8 ft bgs).

On June 15, 2012,Broadbent observed WDC Exploration & Wells installed four soil vapor probes (SG-1A, SG-1B, SG-2A, and SG-2B) between the station building and the former UST location. Soil vapor probes SG-1A and SG-2A were screened between 3.5 and 4 ft bgs, and SG-1B and SG-2B were screened between 5.5 and 6 ft bgs. Soil samples were collected between June 28 and 29, 2012, by Broadbent and analyzed for GRO, benzene, toluene, ethylbenzene, total xylenes (BTEX), MTBE, ETBE, DIPE, TAME, TBA, and ethanol. Maximum detected concentrations include benzene at 2.2 µg/ m^3, toluene at 11 µg/ m^3, ethylbenzene at 3.1 µg/ m^3, TBA at 36 µg/ m^3, and ethanol at 16 µg/ m^3. The maximum detected concentrations were well below the environmental screening limits (ESLs). No other analyzed constituents were detected. GRO concentrations were not detected above the laboratory reporting limits; however, the laboratory reporting limits for GRO (38 mg/m^3) are above the ESLs for residential land use (10 mg/m^3) and commercial or industrial land use (29 mg/m^3). Since all of the analyzed constituents were reported well below ESLs, it is assumed that the elevated laboratory reporting limits for GRO concentrations are not a risk for exposure (Broadbent, 2012).

Notes:
* = Prior to 1992, majority of historical reports were not available and summaries of these activities were found in proceeding reports from the Site histories.

References

Alameda County Environmental Health, 20 June 2006. *Fuel Leak Case No. RO0000044 ARCO #2112, 1260 Park Street, Alameda, CA 94501*.

Applied GeoSystems, Inc., 20 February 1990. *Limited Environmental Site Assessment, ARCO Service Station No. 2112, 1260 Park Street, Alameda, California.*

Broadbent & Associates, Inc., 29 April 2011. *First Quarter 2011 Ground-Water Monitoring Report, Atlantic Richfield Company Station No. 2112, 1260 Park Street, Alameda, California.*

Broadbent & Associates, Inc., 10 August 2009. *On-Site Soil Investigation Report, Atlantic Richfield Company Station No. 2112, 1260 Park Street, Alameda, California, ACEHS Case No. RO0000044.*

Broadbent & Associates, Inc., 7 September 2012. *Vapor Intrusion Assessment Report, Atlantic Richfield Company Station # 2112, 1260 Park Street, Alameda County, California;, ACEHS Case No. RO0000044.*

Delta Environmental Consultants, Inc., 20 November 2001. *Product Line and Dispenser Island Sampling Results, ARCO Station No. 2112, 1260 Park Street, Alameda, California.*

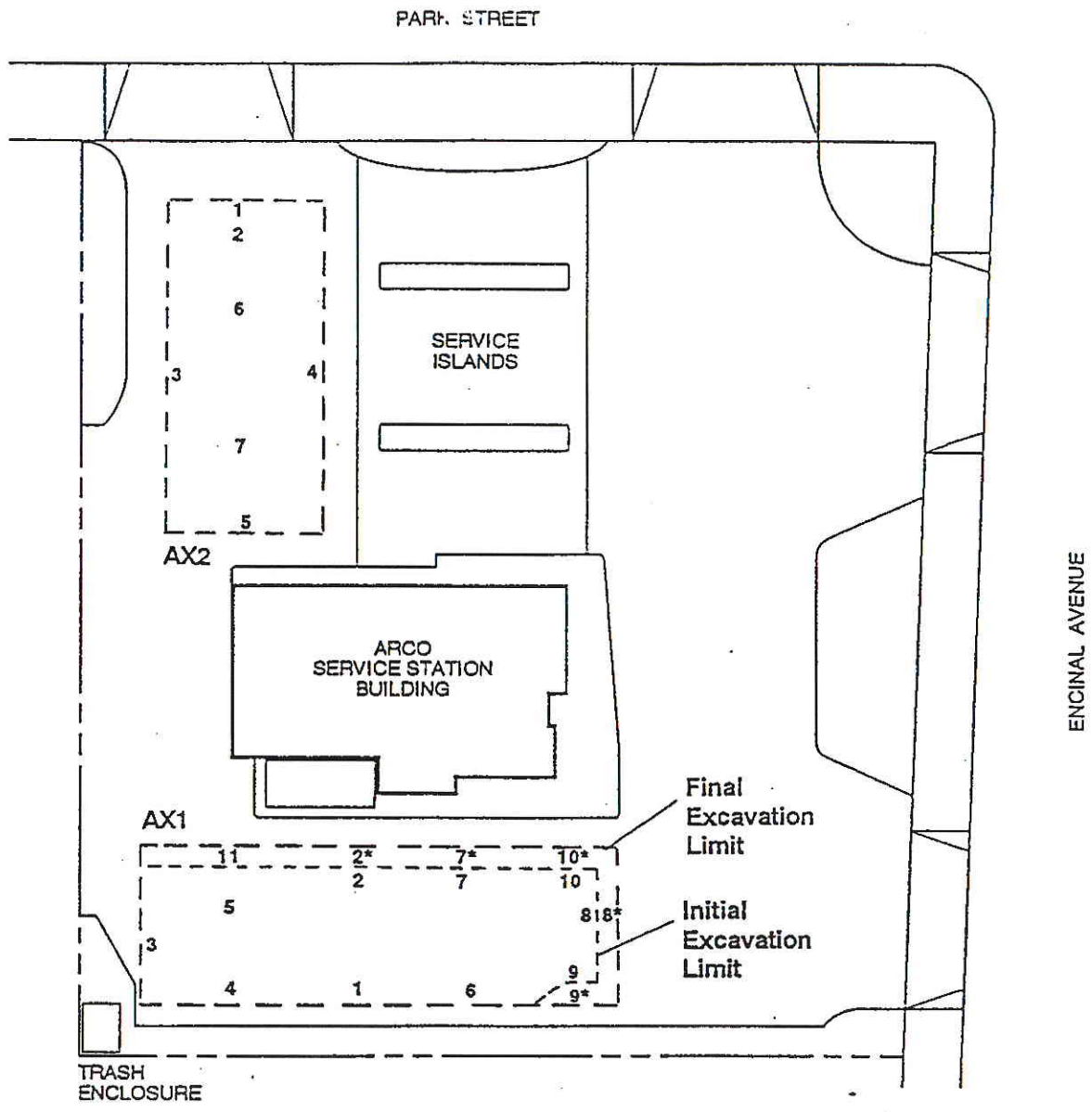
GeoStrategies, Inc., 7 November 1990. *Tank Replacement Observation Report, ARCO Service Station No. 2112, 1260 Park Street, Alameda, California.*

Pacific Environmental Group, Inc., 20 November 1996. *Case Closure Summary, ARCO Service Station No. 2112, 1260 Park Street at Encinal Avenue, Alameda, California.*

Pacific Environmental Group, Inc., 26 September 1997. *Quarterly Ground-Water Monitoring Report and Remedial System Performance Evaluation – Second Quarter 1997, ARCO Service Station No. 2112, 1260 Park Street at Encinal Avenue, Alameda, California.*

APPENDIX E

Maps of Historical Soil Locations

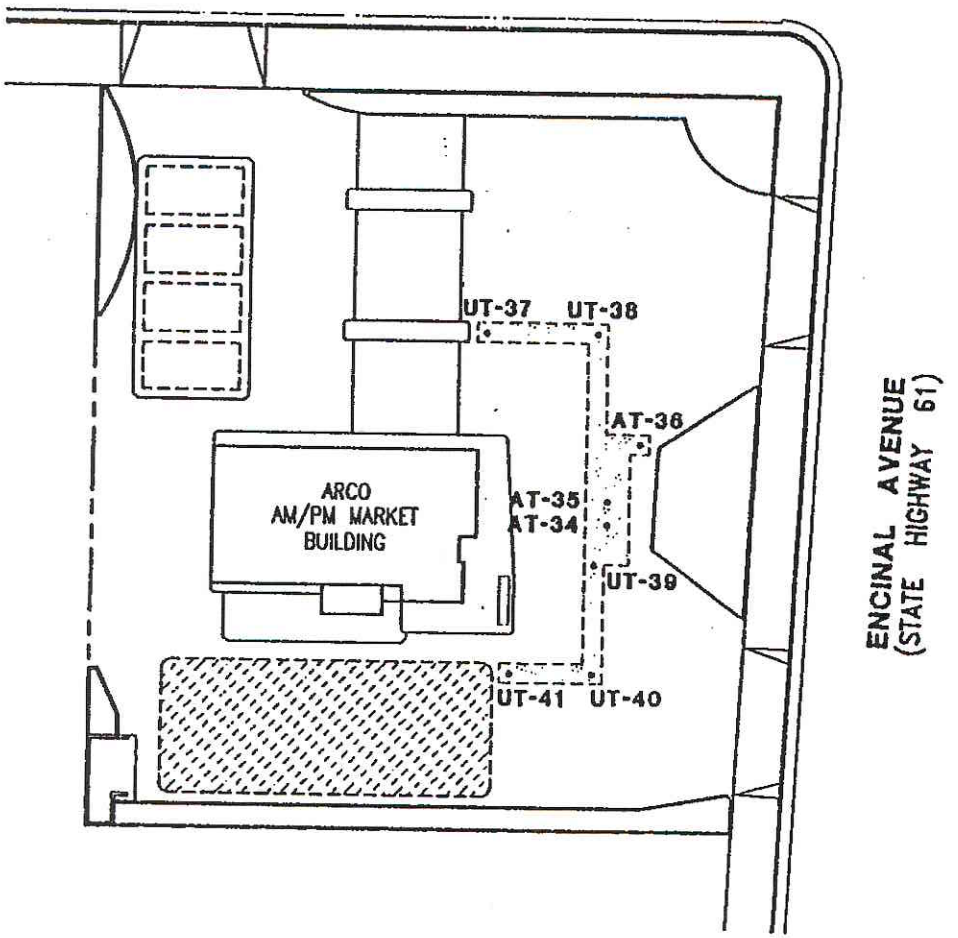


GeoStrategies Inc.

Excavation Soil Sample Map
ARCO Service Station #2112
1260 Park Street
Alameda, California

PLATE 3

JOB NUMBER	REVIEWED BY RG/CEG	DATE	REVISED DATE	REVISED DATE
7920	RG CEG 12/92	10/90		



EXPLANATION

- Trench Samples
- Approximate location of trench
- Soil Stockpile

Base Map: ARCO Site Plans dated 3-19-86 and 2-21-90

0 40

Scale in Feet

GSI GeoStrategies Inc.

SOIL SAMPLING MAP
ARCO Service Station #2112
1260 Park Street
Alameda, California

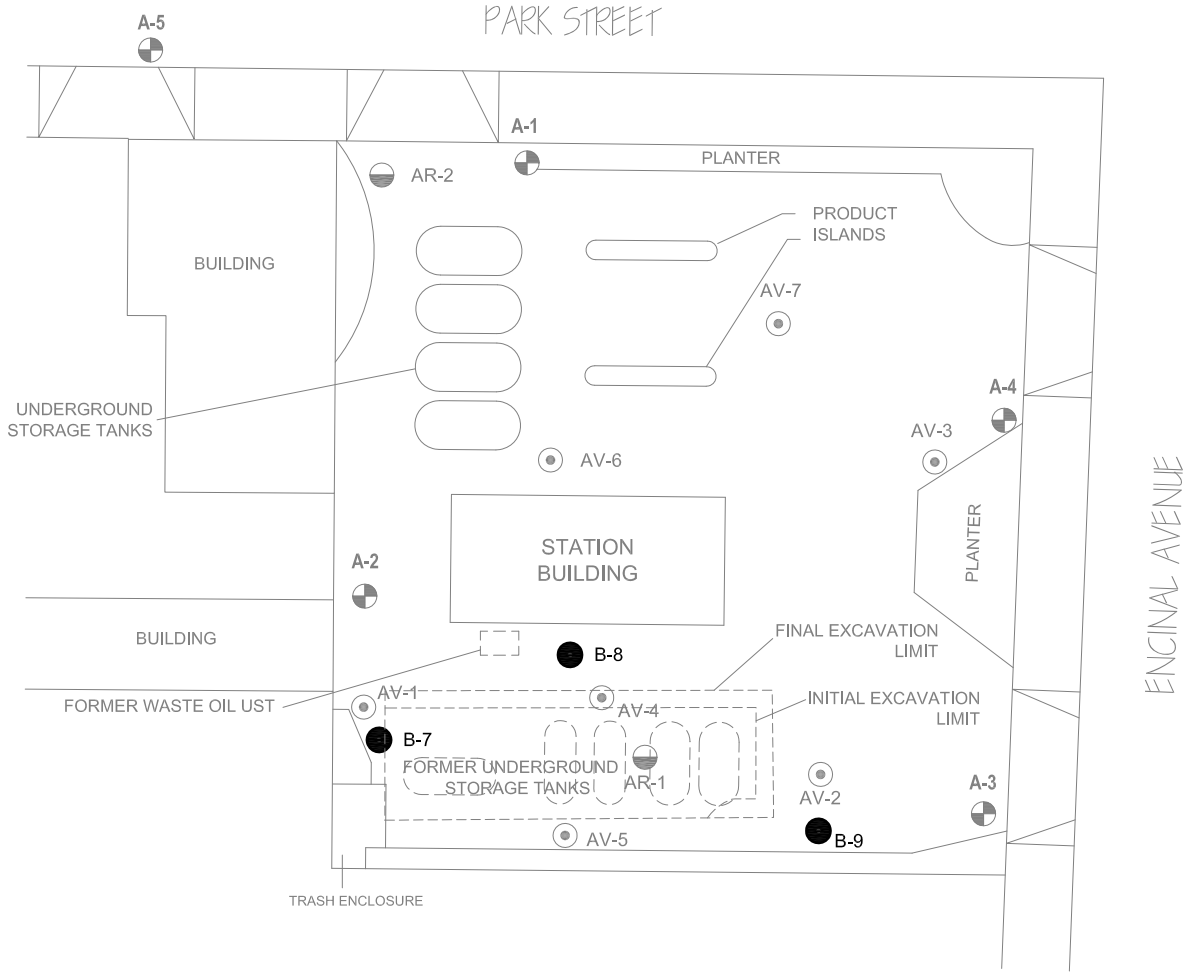
PLATE 3

JOB NUMBER 792001-3

REVIEWED BY DHP

DATE 3/91

REVISED DATE



LEGEND:

A-1	MONITORING WELL LOCATION
AR-1	GROUND-WATER EXTRACTION WELL LOCATION
AV-1	VAPOR EXTRACTION WELL LOCATION
B-9	BORING LOCATION
- - - - - -	EXCAVATED AREA

0 40 80

SCALE (ft)

BROADBENT & ASSOCIATES, INC.
ENGINEERING, WATER RESOURCES & ENVIRONMENTAL
1324 Mangrove Ave. Suite 212, Chico, California 95926
Project No.: 06-88-616 Date: 4/30/09

Station #2112
1260 Park Street
Alameda, California

Site Map with Soil Boring Locations and Excavation Limits

Drawing
2