Atlantic Richfield Company

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March 2, 2011

Mr. Paresh Khatri
Alameda County Environmental Health
1131 Harbor Bay Parkway
Alameda, CA 94502-6577

Dear Sir or Madam:

I declare, that to the best of my knowledge at the present time, that the information contained in the attached document is true and correct.

Sincerely,

Chuck Carmel
Remediation Management Project Manager

Attachment: Case Evaluation & Justification for No Further Action

Atlantic Richfield Company

P.O. Box 1257
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January 21, 2011

Mr. Paresh Khatri
Alameda County Environmental Health
1131 Harbor Bay Parkway
Alameda, CA 94502-6577

Re: FORMER BP SERVICE STATION NO. 11104
1716 Webster Street
Alameda, California
Alameda County LOP Case No. RO0000281 (the "Site")

Dear Mr. Khatri

Atlantic Richfield Company (ARC) is pleased to submit this Request for No Further Action Status for Former BP Service Station No. 11104, located at 1716 Webster Street in Alameda, California. ARC is interested in bringing forward those cases that appear to meet low-risk closure criteria, and presenting case precedents that have been established to facilitate a finding of No Further Action. We have retained Closure Solutions Incorporated (Closure Solutions) to facilitate this effort statewide, and to augment the existing project teams.

Based on our review, the environmental case at the aforementioned location does not appear to pose a significant threat to human health, environmental receptors, or reasonably anticipated beneficial uses of water. Furthermore, we believe that if this case were to be considered in relation to the decisional framework and criteria developed by the SWRCB and the SWRCB Task Forces, a finding of No Further Action would be appropriate. As such, we request that the environmental case at this facility be granted No Further Action status at this time.

If you have any questions or would like to discuss this matter in greater detail, please feel free to contact me via email or at the number listed above.

Regards,

Charles Carmel
Environmental Business Manager
Atlantic Richfield Company, a BP-affiliated company

Enclosure: Case Evaluation & Justification for No Further Action

Cc: Mr. John Skance, ARC (electronic copy uploaded to ENFOS)
Ms. Shelby Lathrop, ConocoPhillips (electronic copy uploaded to GeoTracker)
Mr. Tom Sparrowe, Broadbent & Associates, Inc.
(electronic copy uploaded to GeoTracker)

CLOSURE SOLUTIONS, INC.

January 21, 2011

Mr. Charles Carmel
Atlantic Richfield Company
P.O. Box 1257
San Ramon, California 94583

RE: CASE EVALUATION & JUSTIFICATION FOR NO FURTHER ACTION
Former BP Station No. 11104
1716 Webster Street
Alameda, California
Alameda County LOP Case No. RO0000281

Dear Mr. Carmel:

Closure Solutions, Incorporated (Closure Solutions) is submitting this *Case Evaluation & Justification for No Further Action (Closure Evaluation)* for Former BP Station No. 11104, located at 1716 Webster Street, Alameda, California (the Site, Attachment A, Figure 1). A summary of existing Site conditions, the technical justification for a finding of No Further Action Status, and a summary of similar cases that had been closed by the State Water Resources Control Board (SWRCB) is presented in this document.

The subject environmental case has been open for 20 years. Petroleum hydrocarbons were first identified at the Site in September 1990 during dispenser and product piping upgrade activities. Over-excavation of soil and removal of approximately 1,000 gallons of petroleum hydrocarbon impacted water in the vicinity of the dispenser islands appears to have removed the bulk of impacts reported.

Semi-annual groundwater monitoring continues at the Site, although only two onsite wells (located within approximately 12 feet of each other) routinely exhibit concentrations of constituents of concern above Water Quality Objectives. Environmental investigations have been conducted and the impacted groundwater plume appears to be stable, and constituents of concern exhibit decreasing concentrations with respect to time, indicating that Water Quality Objectives will be met within a reasonable time frame. Based on the results of a sensitive receptor survey performed in 2000, no wells or surface water bodies are likely to be affected by the Site contaminants. These observations, plus several additional lines of evidence are the basis for this closure request.

1.0 SITE SUMMARY

1.1 Location and Setting

The Site is an operating 76 Service Station located on the southeast corner of Webster Street and Buena Vista Avenue in Alameda California. The Site is bound to the north, west, and south by retail and commercial businesses, and to the east by single-family and multi-family dwellings. Based on the USGS Topographical Quadrangle, the Site is located at approximately 15 feet above mean sea level.

Chevron Service Station #09-0290, located across Buena Vista Avenue at 1802 Webster Street, also has an open environmental case managed by the Alameda County LOP.

1.2 Current Use

The Site is currently an active 76 Service Station with three unleaded gasoline underground storage tanks (USTs), one used oil UST, two pump islands, eight dispensers and a service station building. The majority of the Site is covered by asphalt with landscaping along the eastern and southern borders (Attachment A, Figure 2).

1.3 Regional Hydrogeology

The Site is located on the island of Alameda, in the Central Sub-area of the East Bay Plain Sub-basin of the Santa Clara Valley Groundwater basin. The Oakland Inner Harbor is located approximately 1-mile northwest (down-gradient) of the Site and the San Francisco Bay is approximately ½-mile south (up-gradient) of the Site.

1.4 Local Hydrogeology

Depth to groundwater at the Site fluctuates seasonally and is typically encountered between 4.5 and 7 feet below ground surface (bgs). Based on groundwater monitoring events conducted since 2006, groundwater flows predominantly toward the north-northwest with an average gradient of 0.005 feet per foot; however, flow was towards the north-northeast during the third quarter 2010 monitoring event.

1.5 Lithology

Based on the description of soil samples collected during well installations, the lithology beneath the Site consists of fill material near the surface, underlain predominantly by silty sand to the total depth explored of approximately 17 bgs. Copies of select boring logs are included in Attachment B.

1.6 Sensitive Receptors

The closest surface water bodies to the Site appears to be the Oakland Inner Harbor, located approximately 1-mile northwest (down-gradient) of the Site, and the San Francisco Bay, located approximately ½-mile south (up-gradient) of the Site. Due to the distance of these water bodies it is not reasonably anticipated that impacted groundwater from beneath the Site would affect these features.

Alisto Engineering Group (Alisto) conducted a sensitive receptor survey for the Site in 2000. The water well search consisted of examining the files of the California Department of Water Resources within a ½-mile radius of the Site. Results of the sensitive receptor survey indicated a total of 26 wells are located within a ½-mile radius of the Site. No domestic or municipal supply wells were identified within the ½-mile search radius. Three of the wells were reportedly irrigation wells with the closest well located approximately 800 feet cross-gradient of the Site. None of the irrigation wells are located down-gradient of the Site. The remaining 23 wells were reportedly testing or monitoring wells. Based on the distance and direction to the wells, it is not reasonably anticipated that impacted groundwater from beneath the Site would affect the wells. A potential receptor well location map and a table summarizing the identified wells are included in Attachment C.

1.7 Summary of Previous Investigations

Based on various environmental documents prepared by Atlantic Richfield Company's (ARC's) current and former consultants, Closure Solutions has prepared the following summary of previous environmental corrective actions at the Site. While Closure Solutions does not have reason to believe that the information is incorrect, Closure Solutions has not independently verified this information for accuracy. It is our understanding that:

- In September 1990, Kaprealian Engineering, Inc. (KEI) oversaw the removal of product delivery lines and the dispense islands. Results of soil and grab groundwater samples indicated that petroleum hydrocarbons were present in the subsurface soil and groundwater. Based on sample results, over-excavation of soil in the vicinity of the dispensers was conducted during three separate events. The volume of soil excavated was not reported; however, it appears that the bulk of petroleum hydrocarbon impacts to soil in the vicinity of the dispenser islands and product piping were removed. Approximately 1,000 gallons of petroleum hydrocarbon impacted water was pumped from the excavation during the activities.

- Between June 1992 and March 1993, Hydro-Environmental Technologies, Inc. (HETI) installed five groundwater monitoring wells (onsite wells MW-1 through MW-3 and offsite wells MW-4 and MW-5) to determine the lateral extent of hydrocarbons in subsurface soil

and groundwater. Petroleum hydrocarbon impacts were only noted in soil and groundwater samples collected from boring MW-1, advanced immediately west of the USTs.

- In August 1993, HETI installed a groundwater and soil vapor recovery well (RW-1) near the northwest corner of the UST complex and two vapor extraction points near (VP-1 and VP-2) within approximately 15 feet east and southwest of the recovery well. Aquifer testing and a soil vapor extraction (SVE) pilot test were performed. Based on the results, it was determined that SVE combined with groundwater extraction would be an effective remedial methodology at the Site.

- In November 1994, a subsurface investigation was conducted to assess groundwater conditions along sewer lines located in the middle of Webster Street and Buena Vista Avenue in the vicinity of the Site. The work was conducted using a cone penetrometer testing rig and groundwater samples were collected at 10 to 13 feet bgs using HydroPunch™ sampling equipment. Benzene was detected in the sample collected from one of the four borings advanced and toluene was detected in two samples. The concentrations were considered de minimis. It was reported that based on the lack of petroleum hydrocarbons in the samples above action levels, the sewer line trenches did not appear to be preferential pathways for hydrocarbon-affected groundwater.

- According to the State's GeoTracker website, in June 1999, a dual-phase extraction (DPE) pilot test was reportedly conducted at the Site.

1.8 Groundwater Constituents of Concern

During the groundwater monitoring and sampling event on August 12, 2010 (Second Semi-Annual Event 2010), groundwater was found to be impacted with gasoline range organics (GRO), benzene, toluene, ethylbenzene, and xylenes (BTEX), MTBE, tert butyl alcohol (TBA), and tert amyl methyl ether (TAME). Although only wells MW-1 and RW-1 were sampled during this monitoring event, these are the only wells that have consistently reported elevated concentrations of petroleum hydrocarbons and fuel oxygenates.

The following table presents the constituents of concern found during the August 12, 2010 sampling event, as well as their respective Water Quality Objectives. Closure Solutions considers the Water Quality Objective for constituents of concern to be the secondary Maximum Contaminant Level (MCL), or the primary MCL if the secondary MCL has not been established. If neither has been established, the San Francisco Regional Water Quality Control Board's (SFRWQCB) Environmental Screening Level (ESL) is used.

Contaminant	Current Maximum Concentration	Water Quality Objective	Water Quality Objective Basis
TPHg/GRO	3,200 ug/L	100 ug/L	SFRWQCB ESL
Benzene	50 ug/L	1.0 ug/L	California Primary MCL
MTBE	76 ug/L	5.0 ug/L	California Secondary MCL

ug/L = micrograms per liter
TPHg = Total petroleum hydrocarbons as gasoline

Toluene, ethylbenzene, and total xylenes are not considered constituents of concern because these constituents were not detected above their respective Primary MCLs.

TAME was detected in wells MW-1 and RW-1 at concentrations of 6.4 ug/L and 0.81 ug/L, respectively. TAME does not have a primary or secondary MCL, and an ESL has not been established. As such, Closure Solutions does not consider TAME to be a constituent of concern.

TBA is not considered to be a constituent of concern at the Site. While the California Department of Public Health (CDPH) has established a Notification Level for TBA at 12 ug/L, it is Closure Solutions' understanding that the SWRCB does not consider CDPH Notification Levels to be actionable criteria that can be used to establish Water Quality Objectives in accordance with Resolution 68-16. TBA was detected at a maximum concentration of 250 ug/L in well RW-1, which is below the Taste and Odor threshold of 290,000 ug/L.

The constituents of concern for the Site are considered to be GRO, benzene, and MTBE.

1.9 Current Regulatory Status

There are currently no regulatory directives for further investigation or remediation. According to information provided on the State's GeoTracker website, impediments to closure include inadequate source control and plume instability. Additionally, the website indicates that confirmation soil sampling is required to evaluate current site conditions and the effectiveness of previously performed pilot testing.

The State website also indicates 'Feasible Source Control Not Performed - *Elevated concentrations of petroleum hydrocarbons detected in soil and groundwater. Pilot testing was conducted at the site. However, source control is feasible and needed to reduce petroleum hydrocarbons at the site.' and* 'Verification Monitoring Not Complete - *SVE/GWE and DPE pilot tests were conducted at the site. Post remediation groundwater monitoring is in progress.'*

Semi-annual groundwater monitoring has been conducted at the Site since 1998. Closure Solutions is unaware of any other Site directives.

2.0 ENVIRONMENTAL CONDITIONS

2.1 Extent of Groundwater Impact

During the third quarter 2010 monitoring event, the maximum concentrations of GRO, benzene, and MTBE were detected in down-gradient well MW-1 at 3,200 ug/L, 50 ug/L, and 76 ug/L, respectively.

Constituents of concern have been defined in the up-gradient direction by well MW-2 and cross-gradient by wells MW-3 MW-4 and MW-5. GRO and MTBE concentrations are above Water Quality Objectives in down-gradient wells MW-1 and RW-1. The dissolved benzene concentrations are restricted to well MW-1, demonstrating that the lateral extent of dissolved benzene is limited.

The existing onsite well network does not adequately define the Former BP Station plume in the down-gradient direction, however plume delineation can be demonstrated by monitoring wells associated with the Chevron Station located immediately down-gradient of the Site (ARCO Station No. 11104 Figure 2 and Chevron Station No. 9-0290 Figure 2 in Attachment A). The GRO and benzene concentrations are delineated to low concentrations by wells B-6 and B-7. The full extent of the subject Site MTBE plume cannot be fully defined because the distal edge is obscured by the Chevron MTBE plume. The extent of the combined MTBE plume can be reasonably delineated in the down-gradient direction using Chevron's May 2010 groundwater monitoring data for wells B-7, B-10, B-14 and B-15. A Summary of groundwater monitoring data is included in Attachment D, Tables 1 through 3.

2.2 Extent of Soil Impact

Based on soil results from the 1990 dispenser and product piping upgrade activities, it appears that the bulk of petroleum hydrocarbon impacts to soil reported were removed by over-excavation. Maximum residual soil impacts in the vicinity of the dispensers and piping were reported in a sidewall sample (TPHg at 73 milligrams per kilogram [mg/kg]) collected at 4 feet bgs and a sample (benzene at 1.6 mg/kg) collected at 8.5 feet bgs from the base of the excavation. MTBE analysis was not performed at that time.

Based on results of the 1992 well installations, TPHg was reported at 3,200 mg/kg in a soil sample collected from boring MW-1 at 6 feet bgs. Because depth to water in the well was reported at 5.9 feet bgs, it is assumed that the sample was collected at the capillary fringe. Soil

sample results and sample locations are shown in Attachment E, Table 1 and Figures 2 and 3 (1990) and Table 1 (1992).

3.0 TECHINCAL JUSTIFICATION FOR NO FURTHER ACTION

Over-excavation activities performed in 1990 appear to have removed the bulk of the petroleum hydrocarbon impacts at the Site. Since that time, the only soil sample showing significant impact (TPHg at 3,200 mg/kg) was collected at the capillary fringe at a depth of 6 feet in 1992. Because groundwater is shallow and the soil impacts limited in extent and magnitude, we can infer that the contaminant mass in soil above the groundwater table is not appreciable, and that the potential for further leaching is limited.

Concentrations of constituents of concern in the most impacted well (MW-1) show decreasing trends with respect to time, which is considered to be a strong indicator of a shrinking plume. The contaminant concentrations are up to two orders of magnitude lower than those reported in 1998, and the decreasing trend may be attributable to both natural attenuation processes and the performance of numerous pilot tests at the Site.

There are no reported domestic or municipal supply wells located within a ½-mile radius of the Site. Because the Site is located in an area already serviced by a public water supply system, it is not reasonably expected that new drinking water wells will be installed in the vicinity of the Site. If a municipal well were to be installed, it is unlikely to draw from shallow groundwater, and the well's sanitary seal would protect against the incursion of contaminants into the well.

Closure Solutions believes that the adverse effect of Site contaminants on shallow groundwater will be minimal and localized, and there will be 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.

4.0 QUALIFICATION AS LOW RISK CASE

Closure Solutions recognizes that SWRCB Resolutions 68-16 (Statement of Policy with Respect to Maintaining High Quality of Waters in California), 88-63 (Sources of Drinking Water), and 92-49 (Policies and Procedures for Investigation and Cleanup and Abatement of Discharges under Water Code Section 13304) require the cleanup of unauthorized releases to background concentrations or the highest water quality protective of the designated beneficial uses. Nevertheless, Closure Solutions believes that the environmental case at the subject Site should

be granted No Further Action status at this time for numerous technical and regulatory reasons. These reasons are outlined in the following sections.

4.1 Qualification as a Low-Risk Environmental Case

On December 8, 1995, Mr. Walter Pettit (Executive Director, State Water Resources Control Board [SWRCB]) issued an advisory to all Regional Water Quality Control Boards indicating that oversight agencies should proceed aggressively to close low risk cases. Supplemental Instructions and Interim Guidance was prepared on January 5, 1996, which defined and explained low risk criteria for environmental UST cases. These low-risk criteria are presented below, with justification why each criteria element is satisfied:

1) The leak has been stopped and ongoing sources, including free product, removed or remediated to the extent practicable.

The cause of the original release has been repaired, and the fuel dispensers and piping have been subsequently replaced and/or upgraded. Free phase product has not been reported at the Site, and there is no evidence of an ongoing release. As such, this criterion is satisfied.

2) The site has been adequately characterized.

For this environmental case, the lateral extent of constituents of concern in groundwater is delineated up-gradient and cross-gradient by the existing monitoring well network. As discussed in Section 2.1, the existing onsite well network does not adequately define the Former BP Station plume in the down-gradient direction, however plume delineation can be demonstrated by monitoring wells associated with the Chevron Station located immediately down-gradient of the Site

Based on soil results from the 1990 dispenser and product piping upgrade activities it appears that the bulk of petroleum hydrocarbon impacts to soil reported in the vicinity of the dispenser islands and product piping were removed by over-excavation.

Closure Solutions believes that further characterization is unnecessary since the groundwater plume is delineated to below laboratory detection limits or to concentrations considered low-risk by the SWRCB for the constituents of concern identified for the environmental case. Irrespective of whether contaminant concentrations exist beneath the Site, the arguments for closure remain the same – the extent of the groundwater plume is adequately delineated, the plume is stable and/or shrinking, concentrations are decreasing with respect to time, and no threat to human health and environmental receptors appears to exist. This position is

supported by the SWRCB Interim Guidance on Required Cleanup at Low Risk Fuel Sites (January 5, 1996), where it states explicitly:

> *"The extent of the subsurface impact should be defined to the degree that is necessary to determine if the site poses a threat to human health, the environment, or other sensitive nearby receptors…. It is assumed that subsurface conditions are highly variable and that there is always some uncertainty with evaluating data at a site. However, the cost of obtaining additional data must be weighed against the benefit of obtaining that data and the effect the data may have on the certainty of decisions to be made at the site."*

Because of this, Closure Solutions believes that the environmental condition has been adequately characterized for the purpose of site closure.

3) The dissolved hydrocarbon plume is not migrating.

As described above, the impacted groundwater plume appears to be stable, and constituents of concern exhibit decreasing concentrations with respect to time, indicating that Water Quality Objectives will be met within a reasonable time frame. Reducing contaminant trends with respect to time for TPHg/GRO, benzene, and MTBE constituents are considered reasonable evidence that the plume is stable and shrinking, and that the contaminant plume is not migrating.

4) No water wells, deeper drinking water aquifers, surface water, or other sensitive receptors are likely to be impacted.

In 2000, a sensitive receptor survey was conducted for the Site by Alisto. A total of 26 wells were indentified within a ½-mile radius of the Site. No domestic or municipal supply wells were identified within the ½-mile search radius. Three of the wells were reportedly irrigation wells with the closest well located approximately 800 feet cross-gradient of the Site. None of the irrigation wells are located down-gradient of the Site. The remaining 23 wells were reportedly testing or monitoring wells. Based on the distance and direction to the wells, it is not reasonably anticipated that impacted groundwater from beneath the Site would affect the wells.

The closest surface water bodies to the Site appears to be the Oakland Inner Harbor, located approximately 1-mile northwest (down-gradient) of the Site, and the San Francisco Bay, located approximately ½-mile south (up-gradient) of the Site. Due to the distance of these

water bodies, it is not reasonably anticipated that impacted groundwater from beneath the Site would affect these water bodies.

5) The site presents no significant risk to human health.

As noted above, contaminants from the Site do not appear to pose a threat to human health through ingestion of drinking water. While vapor intrusion potential has not been directly evaluated at the Site, the Site data suggest that soil vapor does not pose a significant risk to human health. As described in the SFRWQCB *Screening for Environmental Concerns at Sites with Contaminated Soil and Groundwater* (Interim Final, May 2008), the appropriate step-wise approach to evaluating vapor intrusion is to first compare groundwater data to the Environmental Screening Levels in Table E-1 (Groundwater Screening Levels for Evaluation of Potential Vapor Intrusion Concerns), then determine whether vapor samples should be collected.

Benzene is the constituent most likely to cause potential health risks to onsite workers at the Site. According to Table E-1, the Environmental Screening Level (Vapor Concerns) in groundwater for benzene is 1,800 ug/L for commercial/industrial land use. The 1,800 ug/L value is derived using model inputs including high permeability soil: One meter dry sandy soil (92% sand, 5% silt, 3% clay) over one meter moist clayey loam (33% sand, 34% silt, 33% clay) and assumes a vadose-zone thickness/depth to groundwater of three meters (approximately 10 feet).

Although the vadose zone is approximately 5 feet thick at the Site and consists of silty sand, it is capped with asphalt. In addition, well MW-1 is approximately 60 feet from the station building. The highest concentration of benzene detected in the past four years was 220 ug/L in well MW-1 reported during third quarter 2008. This concentration is one order of magnitude lower than the screening level, and appears to indicate that the existing contaminants do not pose a vapor intrusion threat. Closure Solutions believes that the Site presents no significant risk to human health and that no further investigation is warranted.

6) The site presents no significant risk to the environment.

The closest environmental receptors to the Site appear to be the Oakland Inner Harbor, located approximately 1-mile northwest (down-gradient) of the Site, and the San Francisco Bay, located approximately ½-mile south (up-gradient) of the Site. Due to the distance of these water bodies, it is not reasonably anticipated that impacted groundwater from beneath the Site would affect these receptors.

4.2 Qualification as Low-Risk Case Based on Groundwater Concentration

On May 19, 2009 the State Water Resources Control Board formed the Leaking Underground Fuel Tank (LUFT) Task Force under Resolution 2009-042. The Task Force was directed to make recommendations to improve the Underground Storage Tank Cleanup regulatory program, including additional approaches to risk-based cleanup.

The Task Force final report (January 12, 2010) included a recommendation that cases be considered for low-risk closure if the concentration of petroleum hydrocarbons and fuel oxygenates in groundwater are below the following levels:

a. 10 part per million (ppm) for total petroleum hydrocarbon gasoline range (TPHg) and for TPH diesel range (TPHd)

b. 1 ppm for each of the individual petroleum constituents

c. 0.5 ppm for each of the individual oxygenates

It is understood that while these criteria cannot be uniformly applied to all sites, in "the vast majority of cases", unless an existing water well or surface water body is located within 1,000 feet of the source area in the down-gradient direction, cases that exhibit concentrations similar to those established above should be considered strong candidates for low-risk closure. It is also noted that "[i]n cases where the TPH concentration is high, but MTBE and benzene concentrations are low or not present above laboratory detection limits, the case should be considered to be low-risk irrespective of the TPH concentration."

In the subject case, the constituents of concern are GRO, benzene, and MTBE and the concentrations reported at the Site are an order of magnitude lower than the low-risk concentration range. Additionally, the concentrations of GRO, benzene, and MTBE are shown to decrease to Water Quality Objectives within a reasonable period of time (as described in Section 4.3), and therefore the case is considered to be a strong candidate for low-risk closure.

4.3 Achievement of Water Quality Objectives Met Before Resource is Used

SWRCB Resolution 68-16 resolves that any activity that produces a waste discharge will be required to meet waste discharge requirements which will result in the best practicable treatment or control of the discharge necessary to assure that the highest water quality consistent with the maximum benefit to the people of the State will be maintained. SWRCB Resolution 88-63 resolves that virtually all water in California is designated as a drinking water source. Water Code Section 13304 authorizes Regional Boards to require the complete cleanup of all waste discharged and the restoration of affected water to background conditions or the best water

quality reasonable if background levels of water quality cannot be restored. SWRCB Resolution 92-49 sets forth the policies and procedures for the investigation and cleanup of discharges from leaking Underground Storage Tank cases.

Resolution 92-49 does not require, however, that the Water Quality Objectives be met at the time of site closure. Even if the requisite level of water quality has not yet been attained, a site may be closed if the level will be attained within a reasonable time frame. SWRCB Water Quality Order 98-04 (Matthew Walker) explicitly interprets a "reasonable time frame" as "anywhere from a couple of decades to hundreds of years". The Matthew Walker petition further states "…[I]f complete removal of detectable traces of petroleum hydrocarbon constituents becomes the standard for UST corrective actions, the statewide technical and economic implications will be enormous".

SWRCB Resolution 2009-042 states that "[i]t is the responsibility of Regional Water Boards, LOP agencies, and other local agencies to close UST cases that are ready for closure". This Resolution further states "[i]n previous decisions, the State Water Board, when determining a reasonable period, has considered all relevant factors including, but not limited to, existing and anticipated beneficial uses of water". Resolution 2009-081 further clarifies this issue by stating that "[i]n the orders issued by the State Water Board regarding UST case closure, several factors relevant to the particular UST case were considered, such as: (1) whether remaining petroleum constituents would migrate beyond the limited spatial extent, (2) the presence and location of drinking water wells in the area, (3) the likelihood that the impacted groundwater will be used as a source of drinking water in the reasonably foreseeable future, and (4) the protective nature of standard well-construction practices".

SWRCB Resolution 2009-042 makes it clear that the decisional framework used in previous UST closure orders interpreted a "reasonable time frame" to be the amount of time before the resource is actually used, based on *existing* or *anticipated* beneficial use. SWRCB Resolution 2009-081 clarifies that the decisional framework in UST closure orders contemplate whether the impacted groundwater will be used as a source of *drinking water* in the *foreseeable future*. These Resolutions indicate that closure policy based on "potential beneficial use" or "possible future beneficial use" is inappropriate. These Resolutions indicate that the decisional framework previously used by SWRCB when considering UST closure is based on "existing" beneficial use, or "anticipated beneficial use within the foreseeable future". SWRCB Resolution 2009-081 resolves that "[w]hen considering whether a UST cleanup case should be closed, Agencies shall apply the decisional framework established in previous State Water Board UST closure orders".

The first step when evaluating whether Water Quality Objectives will be met (due to natural attenuation processes) within a reasonable timeframe is to perform statistical analysis to demonstrate whether contaminant concentrations are declining with respect to time. For the purposes of this evaluation, Closure Solutions utilized a Mann-Kendall trend test using well MW-1 TPHg/GRO, benzene, and MTBE data from February 2001 (post-inflection point) to the present to determine whether the trend is stable, increasing, or decreasing. The inflection point for GRO and MTBE appears to have been reached in January 1998. It is the point at which GRO and MTBE concentrations in the plume reached equilibrium and the rate of residual constituent loading to groundwater was matched by the rate at which natural attenuation processes are reducing the constituent concentrations. Including historical data prior to plume equilibrium would result in underestimating the current natural attenuation rate. To be conservative elevated concentrations of constituents of concern between the date of the inflection point and 2001 were excluded. Well MW-1 is located north (down-gradient) of the dispenser islands and typically exhibits the highest concentrations onsite. The Mann-Kendall test is a non-parametric test for identifying trends in time series data. The test compares the relative magnitudes of sample data rather than the data values themselves.

Based on the analysis, TPHg/GRO, benzene, and MTBE concentrations in MW-1 exhibit decreasing trends with respect to time. Input data and results from the Mann-Kendall trend tests are presented in Attachment F, and summarized below.

Well ID	Constituent	Number of Samples	Confidence in Trend	Mann-Kendall Trend
MW-1	TPHg/GRO	20	95.7%	Decreasing
MW-1	Benzene	20	96.8%	Decreasing
MW-1	MTBE	20	100%	Decreasing

The Mann-Kendall trend analysis does not account for temporal variation in the data and therefore cannot be used to estimate a time to reach Water Quality Objectives.

The next step is to estimate the amount of time necessary for existing Site contaminants to degrade to Water Quality Objectives. Closure Solutions performed a logarithmic regression analysis of TPHg/GRO, benzene, and MTBE data from well MW-1 to estimate the amount of time necessary for the Site constituents of concern to reach Water Quality Objectives. The regression analysis was performed on the same dataset as used for the Mann-Kendall trends.

Based on the regression analysis for well MW-1 data, TPHg/GRO, benzene, and MTBE are projected to reach their respective Water Quality Objectives by 2042, 2046, and 2013. The results of the regression analysis are presented in Attachment G and summarized in the table below.

Constituent	3Q2010 Concentration	Water Quality Objective	Regression Formula	Projected Date to Achieve WQO's
TPHg/GRO	3,200 ug/L	100 ug/L	$Y = 6E+08e^{-3E-04t}$	2042
Benzene	50 ug/L	1.0 ug/L	$Y = 2E+09e^{-4E-04t}$	2046
MTBE	76 ug/L	5.0 ug/L	$Y = 5E+30e^{-0.0017t}$	2013

Based on the regression analysis, contaminant concentrations at the subject Site are calculated to reach Water Quality Objectives by time periods which are reasonably considered to be protective of the existing and anticipated beneficial uses of water at the subject Site. As such, it is believed that Water Quality Objectives will be reached within a 'reasonable time frame' without the need for active remediation, and the case should be considered a strong candidate for low-risk closure.

5.0 CASE CLOSURE PRECEDENT

Numerous environmental cases have been reviewed and closed by the State Water Resources Control Board under the petition process. These cases can be used to as case precedent for management and closure of environmental UST cases. A brief summary of selected petition cases that pertain to the subject environmental case are presented below, and are merely provided to demonstrate that significant concentrations of constituents of concern may be left in place to naturally attenuate without violating Resolution 68-16, 88-63, and 92-49:

Water Quality Order 98-04 (Matthew Walker)

The Matthew Walker case is considered to be a 'Hot-Spot' case where contaminant concentrations had been defined to insignificant levels in surrounding borings, though highly elevated concentrations of contaminants were known to persist within the former UST cavity. At the time of the petition, concentrations of dissolved hydrocarbons within the UST cavity were found to be up to 94,000 ug/L of TPHd, 140,000 ug/L of total petroleum hydrocarbons as motor oil (TPHmo), 140 ug/L of TPHg, and 29 ug/L of benzene.

SWRCB found that the "residual petroleum constituents…do not adversely affect current or probable beneficial uses", and notes that Resolution 92-49 does not require that Water Quality Objectives "be met at the time of site closure", only within a "reasonable period", which it finds to be "decades to hundreds of years". This Water Quality Order further notes that "[i]f the complete removal of detectable traces of petroleum constituents becomes the standard for UST corrective actions, the statewide technical and economic implications will be enormous". The SWRCB closed the case.

Comparative Analysis: The environmental case at 1716 Webster Street is similar to the Matthew Walker case. In both cases, the contaminants are adequately defined and not expected to migrate sufficiently to impact existing domestic or municipal water wells. In Matthew Walker, the contaminant concentrations were assumed to naturally degrade within hundreds of years; in the subject environmental case, the concentrations are expected to degrade within four decades.

Water Quality Order 98-10 (Margo Hayes)

The Margo Hayes case is similar to the Matthew Walker case, and is also considered to be a 'Hot-Spot' case where contaminant concentrations had been shown to attenuate rapidly with respect to distance from the source. At the time of the petition, concentrations of dissolved hydrocarbons in the source area were found to be up to 64,000 ug/L of TPHg, 2,600 ug/L of ethylbenzene, and 86 ug/L of benzene.

As with Matthew Walker, SWRCB reiterated that Resolution 92-49 does not require that Water Quality Objectives be met at the time of closure, and concluded that the level of site cleanup was consistent with the maximum benefit of the people of the state and will meet the Water Quality Objectives within a reasonable time frame. SWRCB also found that "though longer chain hydrocarbons comprising TPHg biodegrade more slowly than certain petroleum constituents, such as benzene, they are also more recalcitrant (i.e. less volatile, less soluble and highly absorbent), and much less mobile". The SWRCB closed the case.

Comparative Analysis: The environmental case at 1716 Webster Street is similar to the Margo Hayes case; however the contaminant concentrations in the Margo Hayes case are one order of magnitude higher for TPHg/GRO. In the Margo Hayes case, the SWRCB explicitly notes that TPHg concentrations tend to persist in the environment, but due to limited mobility, is unlikely to impact drinking water supplies.

6.0 BENEFIT OF ADDITIONAL WORK

While the concentrations of constituents of concern are currently above Water Quality Objectives, the concentrations are relatively low and the impacts appear to be limited in extent. The lateral extent of constituents of concern in groundwater has been adequately delineated for the purposes of low-risk closure.

Based on regression analysis, well MW-1 is projected to achieve Water Quality Objectives within approximately four decades which is considered to be a reasonable period of time, given that the plume appears to be stable and is not expected to migrate. The nearest public well is greater than ½-mile down-gradient of the Site and is unlikely to be at risk from concentrations remaining onsite. Based on the available Site data, the contaminant plume does not appear to represent a significant threat to existing or reasonably anticipated beneficial uses in the foreseeable future. The Site appears to be adequately characterized and no further investigation appears to be warranted to evaluate potential impacts to human health or environmental receptors.

If ARC were to pursue active remediation of the contaminant plume at the Site, the most likely remedial approach would be the implementation of a DPE system. This type of system would require the installation of numerous DPE wells, extensive remediation system infrastructure, equipment, and ongoing operations and maintenance for an extended period of time before water quality objectives could be met. While pursuing the installation and operation of a robust DPE system would be extremely costly, it is not expected that installation and operation of such a system would confer appreciable benefit to human health or environmental receptors. As noted in Water Quality Order 98-04, "[i]f the complete removal of detectable traces of petroleum hydrocarbon constituents becomes the standard for UST corrective actions, the statewide technical and economic implications will be enormous". As such, it appears that the Site specific benefit of additional work, if any, is dwarfed by the cost and statewide implications for corrective action.

7.0 CLOSURE RECOMMENDATION

This Request for No Further Action presents a summary of the current environmental status of the Site, as well as rationale justifying case closure both from technical and regulatory perspectives. In addition to the technical and regulatory justification, there are strong economic reasons for closing the case. Maintaining a backlog of open low-risk environmental cases diverts available funding from cases with significantly greater threat to human health and the environment. By closing low-risk environmental cases, the available funding for the

investigation and remediation of environmental cases with significantly greater threat to human health and the environment can be increased, which will, in turn accelerate the cleanup of UST cases statewide.

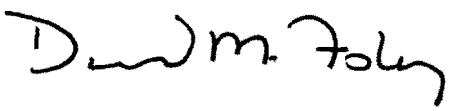
It does not seem reasonable that further investigation of the Site is necessary to ensure that human health and the environment are protected since the plume appears to be stable, and constituents of concern exhibit decreasing concentrations with respect to time, indicating that Water Quality Objectives will be met within a reasonable time frame. Active remediation of the existing contaminants cannot be justified from a technical or economic perspective since the constituents of concern can be shown to degrade naturally to Water Quality Objectives within a reasonable time frame. If further investigation and remediation are not warranted at the Site, then long term groundwater monitoring serves no useful purpose. ***Closure Solutions recommends that ARC formally request that No Further Action status be granted for the environmental case at 1716 Webster Street at this time.***

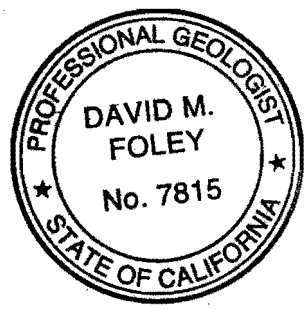
8.0 LIMITATIONS

This report is based on Site conditions, data, and other information available as of the date of the report, and the conclusions and recommendations herein are only applicable to the time frame in which the report was prepared. Background information used to prepare this report including, but not limited to, previous field measurements, analytical results, Site plans and other data have been furnished to Closure Solutions by ARC and their previous consultants. Closure Solutions has relied on this information as furnished, and is neither responsible for nor has confirmed the accuracy of this information.

If you have any questions regarding this submission, please contact the undersigned at (916) 760-7236 (dfoley@closuresolutions.com) or Ms. Kathleen Waldo of Closure Solutions at (916) 760-7025 (kwaldo@closuresolutions.com).

Sincerely,
Closure Solutions





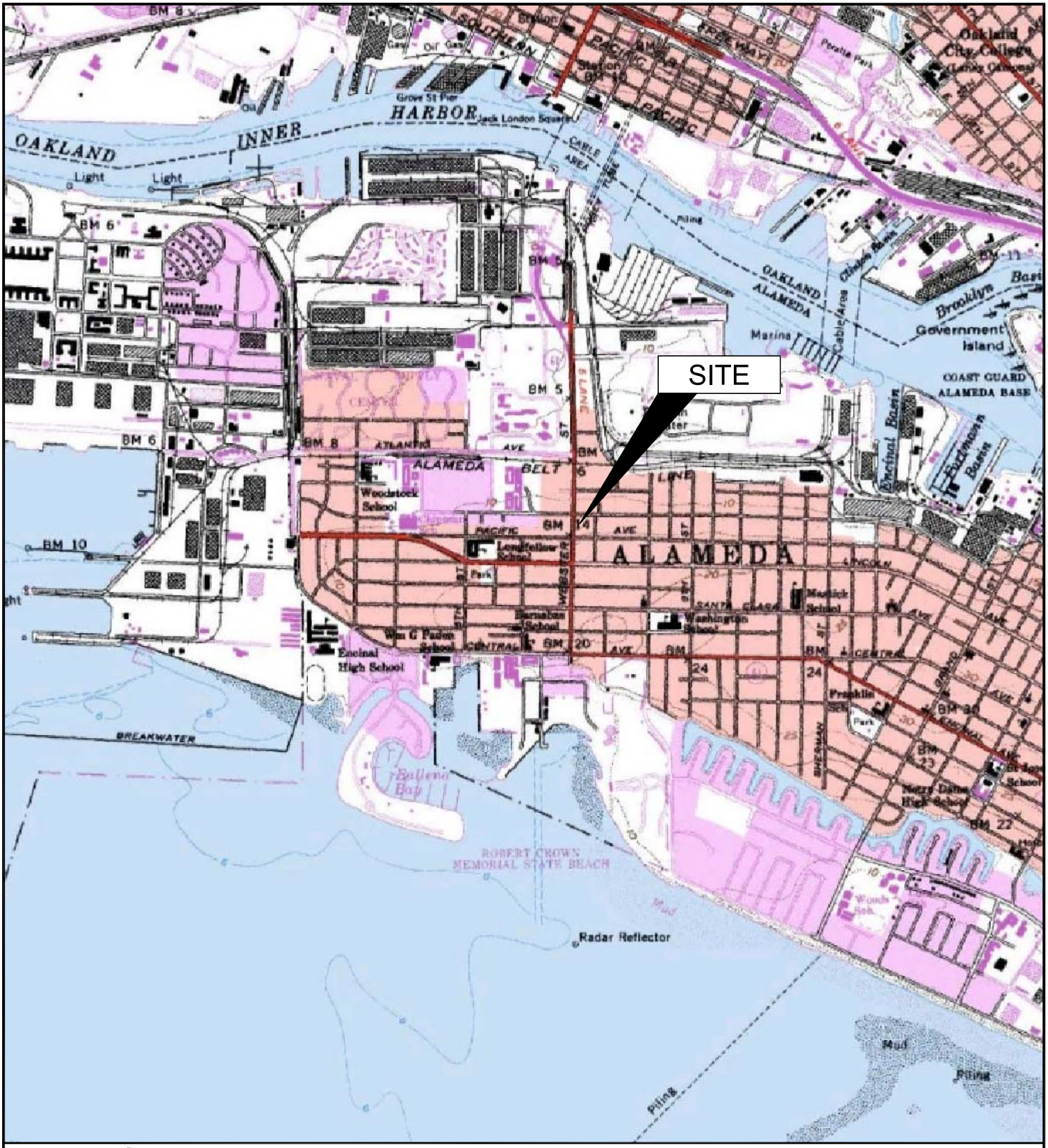
David M. Foley, P.G.
Senior Geologist

Attachments:

Attachment A	Figures
Attachment B	Boring Logs
Attachment C	Potential Receptor Survey Data
Attachment D	Summary of Groundwater Monitoring Data
Attachment E	Soil Sample Data
Attachment F	Mann-Kendall Statistical Analysis
Attachment G	Regression Analysis

ATTACHMENT A

Figures



N

0 2000 4000

APPROXIMATE SCALE (ft)

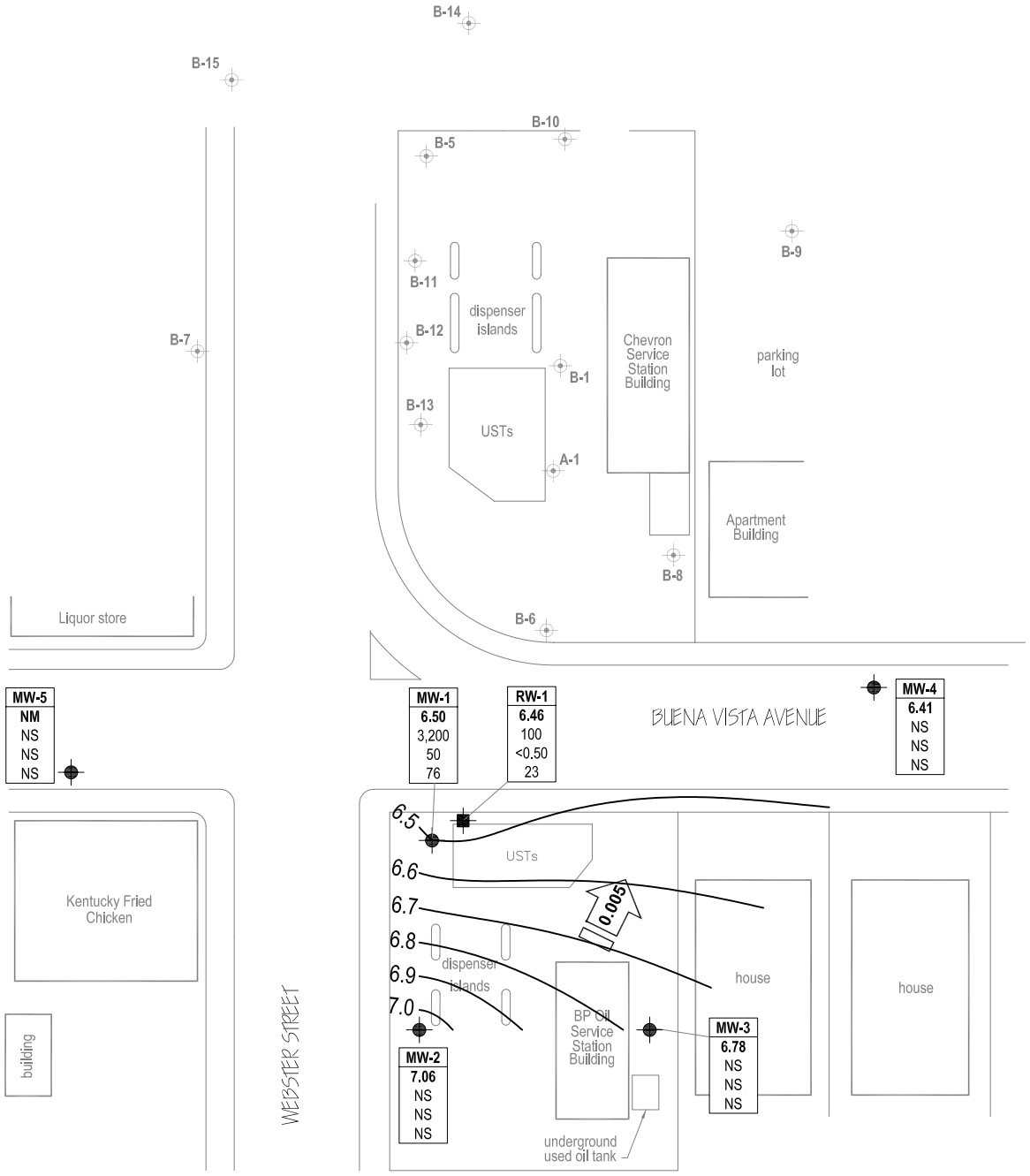
IMAGE SOURCE: USGS

BROADBENT & ASSOCIATES, INC.
ENGINEERING, WATER RESOURCES & ENVIRONMENTAL
1324 Mangrove Ave. Suite 212, Chico, CA 95926
Project No.: 06-88-644 Date: 9/1/09

Station #11104
1716 Webster Street
Alameda, California

Site Location Map

Drawing
1



LEGEND

- Monitoring well
- Ground-water recovery well
- Chevron monitoring well
- 0.005 — Ground-water flow direction and gradient (ft/MSL)
- 7.0 — Ground-water elevation contour (Feet above site datum)
- Well — Well designation
- ELEV — Ground-water elevation (ft/MSL)
- GRO / Benzene / MTBE — GRO, Benzene and MTBE concentrations in ground water (µg/L)
- < — Not detected at or above laboratory reporting limits
- NM/NS — Not Measured/Not sampled
- NA — Not Analyzed
- * — Elevation not used for contouring

NOTE: SITE MAP ADAPTED FROM CAMBRIA ENVIRONMENTAL FIGURES. SITE DIMESIONS AND FACILITY LOCATIONS NOT VERIFIED.

N

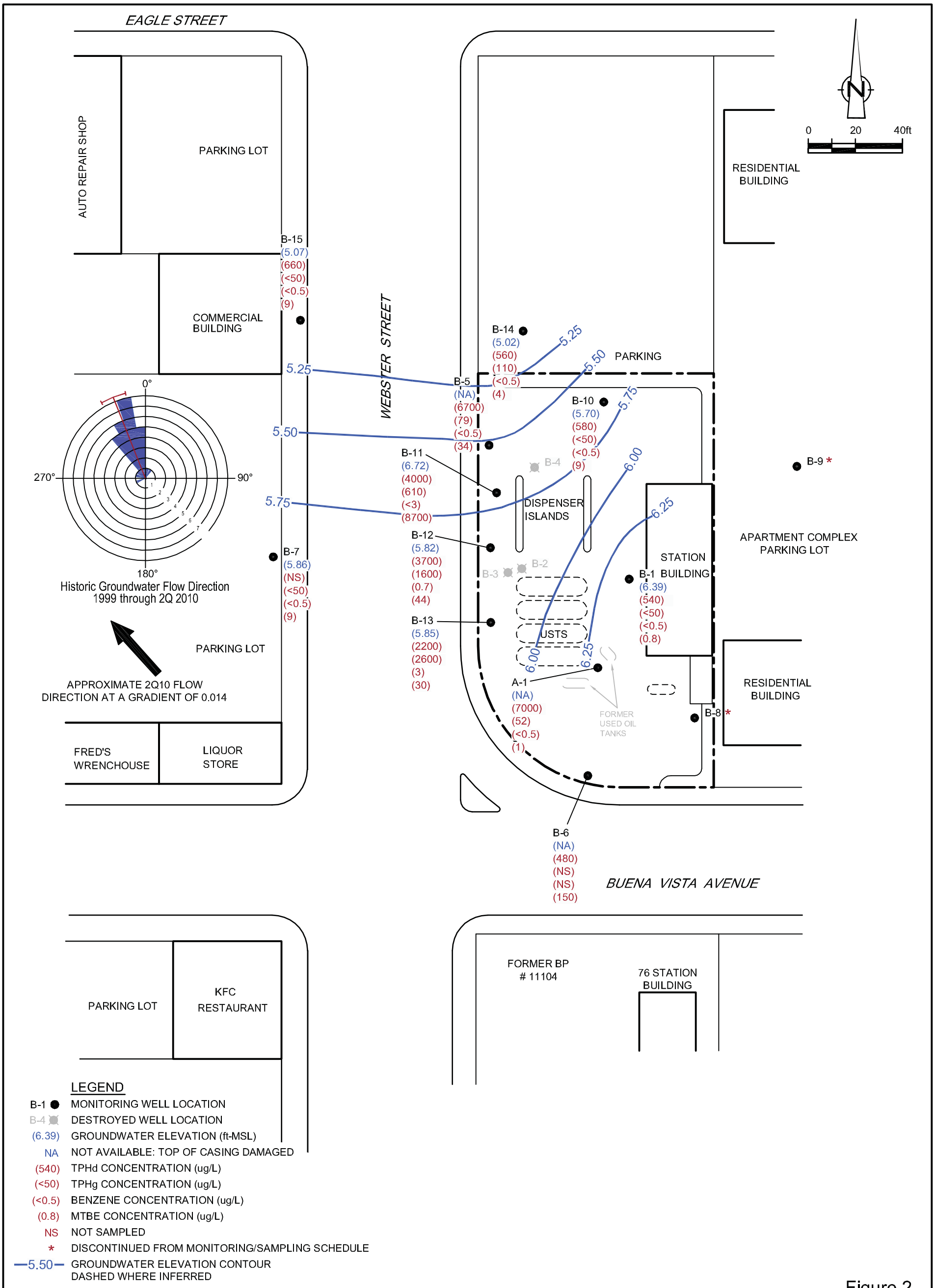
0 60 120
SCALE (ft)

BROADBENT & ASSOCIATES, INC.
ENGINEERING, WATER RESOURCES & ENVIRONMENTAL
1324 Mangrove Ave. Suite 212, Chico, California
Project No.: 06-88-644 Date: 9/10/2010

Station #11104
1716 Webster Street
Alameda, California

Ground-Water Elevation Contour and Analytical Summary Map
August 12, 2010

Drawing
2



LEGEND

B-1 ●	MONITORING WELL LOCATION
B-4 ✱	DESTROYED WELL LOCATION
(6.39)	GROUNDWATER ELEVATION (ft-MSL)
NA	NOT AVAILABLE: TOP OF CASING DAMAGED
(540)	TPHd CONCENTRATION (ug/L)
(<50)	TPHg CONCENTRATION (ug/L)
(<0.5)	BENZENE CONCENTRATION (ug/L)
(0.8)	MTBE CONCENTRATION (ug/L)
NS	NOT SAMPLED
*	DISCONTINUED FROM MONITORING/SAMPLING SCHEDULE
—5.50—	GROUNDWATER ELEVATION CONTOUR DASHED WHERE INFERRED

Figure 2

GROUNDWATER ELEVATION AND HYDROCARBON CONCENTRATION MAP - MAY 19, 2010
CHEVRON SERVICE STATION 9-0290
1802 WEBSTER STREET
Alameda, California

BASEMAP MODIFIED FROM DRAWING PROVIDED BY GETTLER RYAN INC.

311594-2010(006)GN-WA001 JUL 14/2010

ATTACHMENT B

Boring Logs

UNIFIED SOIL CLASSIFICATION SYSTEM - VISUAL CLASSIFICATION OF SOILS
(ASTM D-2488)

MAJOR DIVISIONS		GROUP SYMBOL	GROUP NAME	DESCRIPTION
COARSE GRAINED SOILS	GRAVEL AND GRAVELLY SOILS	GW	Well-graded gravel Well-graded gravel with sand	Well-graded gravels or gravel-sand mixtures, little or no fines.
		GP	Poorly-graded gravel Poorly-graded gravel with sand	Poorly-graded gravels or gravel sand mixture, little or no fines.
		GM	Silty gravel Silty gravel with sand	Silty gravels, gravel-sand-silt mixtures.
		GC	Clayey gravel Clayey gravel with sand	Clayey gravels, gravel-sand-clay mixtures.
	SAND AND SANDY SOILS	SW	Well-graded sand Well-graded sand with gravel	Well-graded sands or gravelly sands, little or no fines.
		SP	Poorly-graded sand Poorly-graded sand with gravel	Poorly-graded sands or gravelly sands, little or no fines.
		SM	Silty sand Silty sand with gravel	Silty sands, sand-silt mixtures.
		SC	Clayey sand Clayey sand with gravel	Clayey sands, sand-clay mixtures.
FINE GRAINED SOILS	SILTS AND CLAYS	ML	Silt; Silt with sand; Silt with gravel Sandy silt; Sandy silt with gravel Gravelly silt; Gravelly silt with sand	Inorganic silts and very fine sands, rock flour, silty or clayey fine sands or clayey silts with slight plasticity.
		CL	Lean clay; Lean clay with sand; Lean clay with gravel Sandy lean clay; Sandy lean clay with gravel Gravelly lean clay; Gravelly lean clay with sand	Inorganic clays of low to medium plasticity, gravelly clays, sandy clays, silty clays, lean clays.
	ELASTIC SILTS AND CLAYS	MH	Elastic silt; Elastic silt with sand; Elastic silt with gravel Sandy elastic silt; Sandy elastic silt with gravel Gravelly elastic silt; Gravelly elastic silt with sand	Inorganic silts, micaceous or diatomaceous fine sandy or silty soils, elastic silts.
		CH	Fat clay; Fat clay with sand; Fat clay with gravel Sandy fat clay; Sandy fat clay with gravel Gravelly fat clay; Gravelly fat clay with sand	Inorganic clays of high plasticity, fat clays.
HIGHLY ORGANIC SOILS		OL/OH	Organic soil; Organic soil with sand; Organic soil with gravel Sandy organic soil; Sandy organic soil with gravel Gravelly organic soil; Gravelly organic soil with sand	Organic silts and organic silt-clays of low plasticity. Organic clays of medium to high plasticity.
		Pt	Peat	Peat and other highly organic soils.

NOTE: Blow count represents the number of blows of a 140-lb hammer falling 30 inches per blow required to drive a sampler through the last 12 inches of an 18-inch penetration.

No warranty is provided as to the continuity of soil strata between borings. Logs represent the soil section observed at the boring location on the date of drilling only.

Retained for Analysis — Sample Interval

S = Sampler sank into medium under the weight of the hammer (no blow count)
P = Sampler was pushed into medium by drilling rig (no blow count)
NR = No Recovery

SANDS & GRAVELS	BLOWS/FT
VERY LOOSE	0 - 5
LOOSE	5 - 12
MED. DENSE	12 - 37
DENSE	37 - 62
VERY DENSE	OVER 62

SILTS & CLAYS	BLOWS/FT
SOFT	0 - 5
FIRM	5 - 10
STIFF	10 - 20
VERY STIFF	20 - 40
HARD	OVER 40

Approximate stabilized water level

Approximate first encountered water level

HYDRO-ENVIRONMENTAL TECHNOLOGIES, INC.

BORING LOG LEGEND

APPENDIX C

PLATE C-1

SITE/LOCATION	BEGUN	BORING DIAMETER	ANGLE/BEARING	BORING NO
1716 Webster Street, Alameda, CA	3/4/93	8 Inches	90 Degrees	MW-4
DRILLING CONTRACTOR	**COMPLETED**	**FIRST ENCOUNTERED WATER DEPTH**		
Bayland Drilling	3/4/93	7 Feet		
OPERATOR	**LOGGED BY**	**STATIC WATER DEPTH/DATE**		
John Atno	H. Hurkmans	4.81 Feet - 3/5/93		
DRILL MAKE & MODEL	**SAMPLING METHOD**			**BOTTOM OF BORING**
CME 55	California modified split spoon			15 Feet
WELL MATERIAL	**SLOT SIZE**	**FILTER PACK**	**WELL SEAL**	**WELL NO.**
2" SCH 40 PVC	0.010"	#2/12	Neat cement over bentonite	MW-4

BLOWS/FOOT	FIELD HEAD-SPACE *	DEPTH	SAMPLE	WATER LEVEL	WELL CONSTR.	GRAPHIC LOG	MATERIAL CLASSIFICATION & PHYSICAL DESCRIPTION
		1					ASPHALT
5	105	5		▼			Silty SAND (SM), tan, loose, moist, poorly graded, fine grained, sub-angular, 20% silt content.
		7		▽			
		10					At 10 feet; as above, wet
		15					At 15 feet; as above, wet
		30					

*PID (ppm)

HYDRO-ENVIRONMENTAL TECHNOLOGIES, INC.

DATE:

APPROVED BY:

SOIL BORING LOG AND WELL CONSTRUCTION MW-4

BP Oil Station No. 11104
1716 Webster Street
Alameda, CA

PLATE
C-2

JOB NO.
9-038

SITE/LOCATION	BEGUN	BORING DIAMETER	ANGLE/BEARING	BORING NO
1716 Webster Street, Alameda, CA	3/31/93	8 Inches	90 Degrees	MW-5
DRILLING CONTRACTOR	**COMPLETED**	**FIRST ENCOUNTERED WATER DEPTH**		
Bayland Drilling	3/31/93	6.5 Feet		
OPERATOR	**LOGGED BY**	**STATIC WATER DEPTH/DATE**		
John Atno	B. Gwinn	4.77 Feet - 4/1/93		
DRILL MAKE & MODEL	**SAMPLING METHOD**			**BOTTOM OF BORING**
CME 55	California modified split spoon			15 Feet
WELL MATERIAL	**SLOT SIZE**	**FILTER PACK**	**WELL SEAL**	**WELL NO.**
2" SCH 40 PVC	0.010"	#2/12	Neat cement over bentonite	MW-5

BLOWS/FOOT	FIELD HEAD-SPACE *	DEPTH	SAMPLE	WATER LEVEL	WELL CONSTR.	GRAPHIC LOG	MATERIAL CLASSIFICATION & PHYSICAL DESCRIPTION
							ASPHALT (6-inches thick)
P	0	1–30		▼ 5 ▽ 6			Silty SAND (SM), tan, loose, moist, poorly graded, fine grained, sub-rounded, 15-20% silt content.
							At 10 feet; as above, wet, silt content increases to 30%.
							At 15 feet; as above, wet.

*PID (ppm)

HYDRO-ENVIRONMENTAL TECHNOLOGIES, INC.

DATE:

APPROVED BY:

SOIL BORING LOG AND WELL CONSTRUCTION MW-5

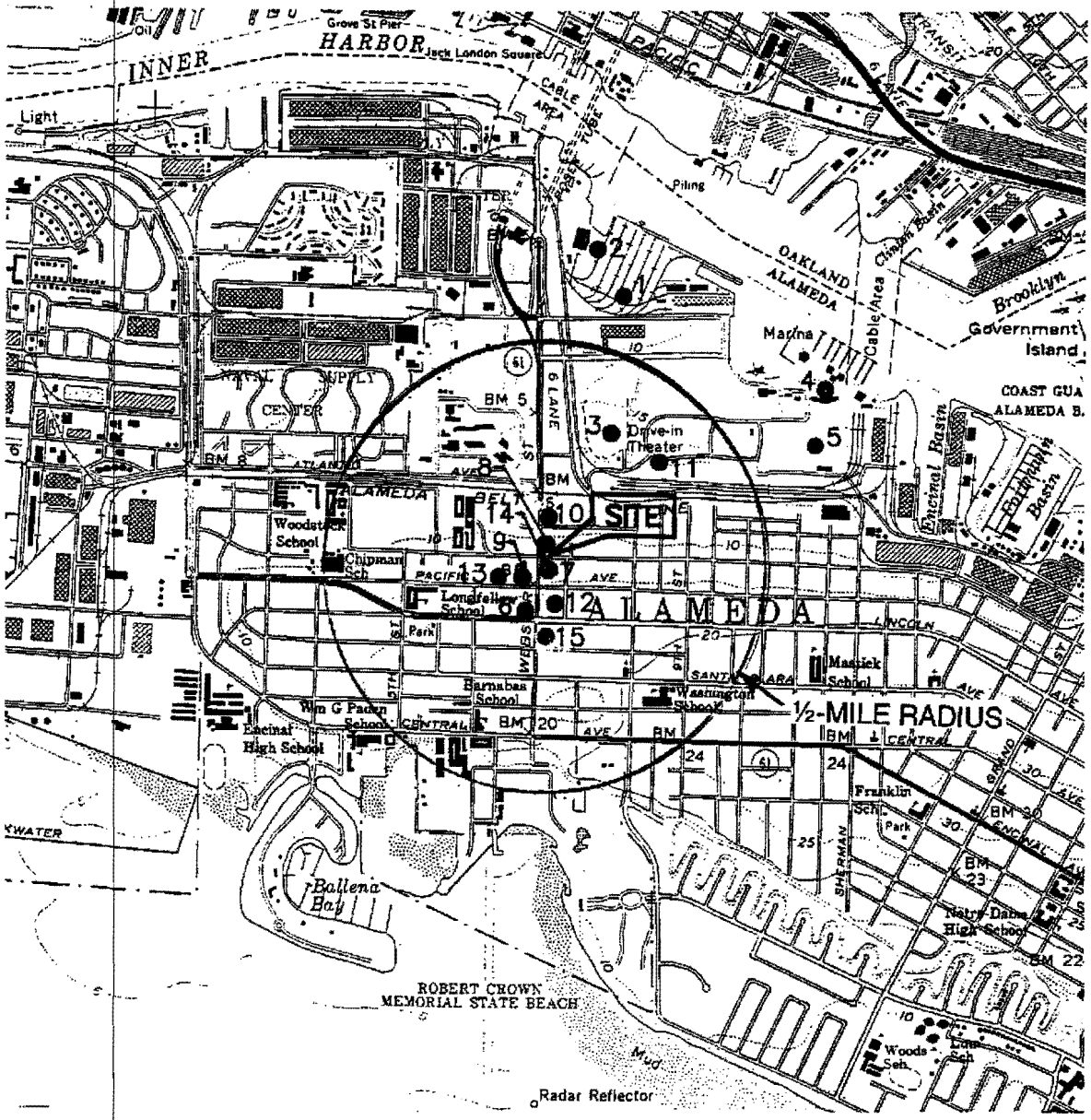
BP Oil Station No. 11104
1716 Webster Street
Alameda, CA

PLATE
C-3

JOB NO.
9-038

ATTACHMENT C

Potential Receptor Survey Data



● WELL LOCATION

SOURCE:
USGS MAP, OAKLAND WEST QUADRANGLE, CALIFORNIA, 7.5 MINUTE SERIES, 1959. PHOTOREVISED 1980.

N

0 1000' 2000'

QUADRANGLE LOCATION

WELL LOCATION MAP

BP OIL SERVICE STATION NO. 11104
1716 WEBSTER STREET
ALAMEDA, CALIFORNIA

PROJECT NO. 10-155

ALISTO ENGINEERING GROUP
WALNUT CREEK, CALIFORNIA

101550--DWG 8-13-93 RNM 1=1

WELL SURVEY
BP Oil Co. Service Station No. 11104
1716 Webster Street
Alameda, California

Alisto Project No. 10-155

COUNTY WELL NO.	ALISTO MAP REFERENCE NO.	OTHER WELL NO.	WELL OWNER	WELL DEPTH (feet)	SEAL DEPTH (feet)	WELL USE	STATUS
2S/4W2Q1	1	8730023A-1	Vintage Properties 1150 Marina Village Parkway Alameda, CA 94501	16.5	3	Test Well	Active
2S/4W2Q3	2	8730023A-3	Vintage Properties 1150 Marina Village Parkway Alameda, CA 94501	14	6	Test Well	Active
2S/4W2Q4	3	8730023A-4	Vintage Properties 1150 Marina Village Parkway Alameda, CA 94501	14	2	Test Well	Active
2S/4W2Q2	4	8730023A-2	Vintage Properties 1150 Marina Village Parkway Alameda, CA 94501	15.5	1.5	Test Well	Active
02S04W02Q05	5	GMW-8	Alameda Real Estate Investments, Inc. 1150 Marina Village Parkway Alameda, CA 94501	18	3	Monitoring	Active
02S04W02Q06	5	GMW-9	Alameda Real Estate Investments, Inc. 1150 Marina Village Parkway Alameda, CA 94501	20	4	Monitoring	Active
02S04W02Q07	5	GMW-10	Alameda Real Estate Investments, Inc. 1150 Marina Village Parkway Alameda, CA 94501	15	2.5	Monitoring	Active
2S/4W11F2	6	MW-1	Shell Oil Company P.O. Box 4848 Anaheim, CA 92803	21	5	Monitoring	Active

2S/4W11F3	6	MW-2	Shell Oil Company P.O. Box 4848 Anaheim, CA 92803	21	5	Monitoring	Active
02S04W11020	7	MW-5	BP Oil Company 16400 Southcenter Parkway, #301 Tukwita, WA 98188	15	3	Monitoring	Active
02S04W11C19	7	MW-4	BP Oil Company 16400 Southcenter Parkway, #301 Tukwita, WA 98188	15	3	Monitoring	Active
02S04W11C16	8	B-7	Chevron USA Inc. P.O. Box 5004 San Ramon, CA 94583-0804	15	2	Monitoring	Active
02S04W11C17	8	B-8	Chevron USA Inc. P.O. Box 5004 San Ramon, CA 94583-0804	15	2	Monitoring	Active
02S04W11C18	8	B-9	Chevron USA Inc. P.O. Box 5004 San Ramon, CA 94583-0804	15	2	Monitoring	Active
2S/4N11C3	9		Benita Leskowski 6319 Castle Drive Oakland, CA 94501	19	0.5	Monitoring	Active
2S/4N11C4	9		Benita Leskowski 6319 Castle Drive Oakland, CA 94501	19	0.5	Monitoring	Active
2S/4W11C8	10	MW-1	Dolan Foster Enterprises 55546 Seaboard Lane Hayward, CA 94545	18	3	Monitoring	Active
2S/4W11C9	10	MW-2	Dolan Foster Enterprises 55546 Seaboard Lane Hayward, CA 94545	18	3	Monitoring	Active
2S/4W11C10	10	MW-3	Dolan Foster Enterprises 55546 Seaboard Lane Hayward, CA 94545	18	3	Monitoring	Active
2S/4W11C11	10	MW-4	Dolan Foster Enterprises 55546 Seaboard Lane Hayward, CA 94545	19	4	Monitoring	Active

2S/4W11C12	10	MW-3	Shell Oil Company P.O. Box 4023 Concord, CA 94524	20	5	Monitoring	Active
2S14W11C6	11	MW-3	Housing Authority of the City of Alameda 701 Atlantic Avenue Alameda, CA 94501	14.5	4.5	Monitoring	Active
2S/4W-11E1	12		Daniel C. Robinson 1614 6th Street Alameda, CA 94501	25	3 "	Irrigation	Active
2S/4W11D1	13		H.W. Moore 693 Pacific Avenue Alameda, CA 94501	29	10	Irrigation	Active
2S/4W11C19	14	MW-4	BP Oil Company 16400 Southcenter Parkway, Suite 301 Tukwila, WA 98188	15	5	Monitoring	Active
	15		F.Takashiima 1541 Webster Street Alameda, CA 94501	200		Irrigation	Unknown

ATTACHMENT D

Summary of Groundwater Data

Table 1. Summary of Groundwater Monitoring Data: Relative Water Elevations and Laboratory Analyses

Former BP Station #11104, 1716 Webster St., Alameda, CA

Well and Sample Date	P/NP	TOC Elevation (feet)	Depth to Water (feet bgs)	Product Thickness (feet)	Water Level Elevation (feet)	Concentrations in (µg/L)						DO (mg/L)	Lab	pH	Comments
						GRO/ TPHg	Benzene	Toluene	Ethyl-Benzene	Total Xylenes	MTBE				
MW-1															
7/21/1992	--	11.98	5.91	--	6.07	34,000	7,000	1,700	2,500	6,900	--	--	--	--	
10/20/1992	--	11.98	6.66	--	5.32	--	--	--	--	--	--	--	--	--	
3/5/1993	--	11.98	4.56	--	7.42	--	--	--	--	--	--	--	--	--	
4/1/1993	--	11.98	4.57	--	7.41	--	--	--	--	--	--	--	--	--	
7/9/1993	--	11.98	--	--	--	79,000	16,000	1,500	2,200	7,700	12,952	--	PACE	--	c, d, k
7/9/1993	--	11.98	5.25	--	6.73	77,000	15,000	1,400	2,100	7,400	11,919	--	PACE	--	c, k
10/8/1993	--	11.98	6.01	--	5.97	42,000	7,100	270	2,700	4,700	--	--	PACE	--	k
1/6/1994	--	11.98	6.24	--	5.74	45,000	12,000	4,300	3,000	6,700	--	--	PACE	--	k
4/26/1994	--	11.98	5.26	--	6.72	39,000	6,500	500	1,800	1,200	16,663	6.3	PACE	--	c, k
7/25/1994	--	11.98	5.60	--	6.38	38,000	6,300	240	1,500	1,100	26,428	1.7	PACE	--	c, k
10/13/1994	--	11.98	--	--	--	25,000	7,300	120	1,200	740	--	--	PACE	--	d, k
10/13/1994	--	11.98	6.15	--	5.83	25,000	6,300	130	1,300	830	--	2.3	PACE	--	k
1/17/1995	--	11.98	4.19	--	7.79	7,800	3,100	1,100	460	850	--	7.9	ATI	--	
1/17/1995	--	11.98	--	--	--	8,400	3,100	1,200	470	1,000	--	--	ATI	--	d
3/31/1995	--	11.98	4.48	--	7.50	37,000	6,700	6,900	1,200	4,500	--	6.4	ATI	--	
3/31/1995	--	11.98	--	--	--	40,000	6,900	7,300	1,300	5,000	--	--	ATI	--	d
5/1/1995	--	11.98	4.39	--	7.59	--	--	--	--	--	--	--	--	--	
7/12/1995	--	11.98	--	--	--	29,000	6,600	380	1,500	3,900	--	--	ATI	--	d
7/12/1995	--	11.98	5.02	--	6.96	29,000	7,000	300	1,500	3,900	--	7.2	ATI	--	
10/12/1995	--	11.98	5.68	--	6.30	20,000	3,400	310	1,100	3,000	15,000	6.3	ATI	--	
10/12/1995	--	11.98	--	--	--	20,000	3,500	310	1,100	3,000	14,000	--	ATI	--	d
2/27/1996	--	11.98	4.18	--	7.80	18,000	4,400	2,900	860	2,380	5,500	7.9	SPL	--	
5/8/1996	--	11.98	4.89	--	7.09	--	--	--	--	--	--	--	--	--	
5/9/1996	--	11.98	--	--	--	14,000	2,300	1,900	540	3,340	2,700	6.1	SPL	--	
8/9/1996	--	11.98	5.13	--	6.85	--	--	--	--	--	--	--	--	--	
8/12/1996	--	11.98	--	--	--	13,000	2,800	190	1,300	3,040	1,800	7.1	SPL	--	
11/7/1996	--	11.98	5.65	--	6.33	12,000	2,100	35	<25	<25	2,100	7.2	SPL	--	
2/10/1997	--	11.98	4.80	--	7.18	180,000	1,900	<500	<500	<500	160,000	6.8	SPL	--	
2/10/1997	--	11.98	--	--	--	180,000	2,100	<500	<500	<500	160,000	--	SPL	--	d
8/4/1997	--	11.98	--	--	--	<25000	2,600	<50	1,200	1,100	260,000	--	SPL	--	d
8/4/1997	--	11.98	5.69	--	6.29	14,000	2,700	<50	1,200	1,220	250,000	7.2	SPL	--	

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Former BP Station #11104, 1716 Webster St., Alameda, CA

Well and Sample Date	P/NP	TOC Elevation (feet)	Depth to Water (feet bgs)	Product Thickness (feet)	Water Level Elevation (feet)	Concentrations in (µg/L)						DO (mg/L)	Lab	pH	Comments
						GRO/ TPHg	Benzene	Toluene	Ethyl-Benzene	Total Xylenes	MTBE				
MW-1 Cont.															
1/27/1998	--	11.98	3.96	--	8.02	390,000	4,400	4,300	1,600	2,890	490,000	6.4	SPL	--	
9/2/1998	--	11.98	5.03	--	6.95	230,000	3,900	<50	1,900	1,000	230,000	6.3	SPL	--	
2/24/1999	--	11.98	4.94	--	7.04	82,000	3,000	520	2,600	3,200	190000/200000	--	SPL	--	h
8/30/1999	--	11.98	6.31	--	5.67	11,000	2,100	<25	1,800	580	48,000	--	SPL	--	
2/21/2000	--	11.98	4.47	--	7.51	12,000 i	1,200	250	930	1,800	31,000	--	PACE	--	i
8/8/2000	--	11.98	5.59	--	6.39	4,500	160	2.8	76	88	60,000	--	PACE	--	
2/12/2001	--	11.98	6.04	--	5.94	14,000	363	<12.5	108	293	18,000	--	PACE	--	
8/13/2001	--	11.98	6.44	--	5.54	14,000	161	17.1	255	545	5,590	--	PACE	--	
2/4/2002	--	11.98	4.49	--	7.49	17,000	176	57.9	538	1,670	2,470	--	PACE	--	
8/29/2002	--	11.98	5.22	--	6.76	4,800 l	180	43	130	540	3,100	--	SEQ	--	l
2/5/2003	--	11.98	5.43	--	6.55	770	29	9.8	4.2	47	590 m,n	--	SEQ	--	m,n
8/14/2003	--	11.98	6.34	--	5.64	5,400	210	<50	90	200	4,500	--	SEQ	--	p
02/12/2004	P	11.98	4.55	--	7.43	2,600	140	20	87	170	1,200	--	SEQM	6.8	
08/12/2004	P	11.98	5.22	--	6.76	5,700	500	12	41	1,400	260	--	SEQM	6.3	
02/10/2005	P	11.98	4.48	--	7.50	2,400	120	10	72	110	730	--	SEQM	6.1	
08/11/2005	P	11.98	4.60	--	7.38	4,600	500	13	44	870	190	--	SEQM	6.8	
02/09/2006	P	11.98	4.47	--	7.51	2,600	180	12	96	230	380	--	SEQM	7.0	
8/10/2006	--	11.98	4.77	--	7.21	7,000	720	17	62	870	47	--	TAMC	6.7	
2/8/2007	P	11.98	5.13	--	6.85	2,200	100	6.3	53	120	130	5.52	TAMC	6.82	
8/8/2007	P	11.98	5.47	--	6.51	1,500	78	4.9	43	120	140	4.32	TAMC	7.04	t (BZ, EBZ, XYLENES, MTBE)
2/22/2008	P	11.98	4.40	--	7.58	4,400	130	71	390	1,200	59	5.01	CEL	7.06	
8/13/2008	P	11.98	5.55	--	6.43	7,500	220	16	130	1,600	370	0.48	CEL	8.13	
2/11/2009	P	11.98	5.51	--	6.47	1,900	26	<2.0	15	35	68	0.57	CEL	6.62	
8/27/2009	P	11.98	5.45	--	6.53	3,300	37	2.4	9.5	650	20	0.61	CEL	7.51	
2/18/2010	P	11.98	4.71	--	7.27	2,700	32	7.6	42	95	48	0.81	CEL	6.80	
8/12/2010	**NP**	**11.98**	**5.48**	**--**	**6.50**	**3,200**	**50**	**2.4**	**52**	**220**	**76**	**1.72**	**CEL**	**6.9**	
MW-2															
7/21/1992	--	12.98	6.44	--	6.54	<50	<0.5	<0.5	<0.5	<0.5	--	--	--	--	
10/20/1992	--	12.98	7.39	--	5.59	--	--	--	--	--	--	--	--	--	
3/5/1993	--	12.98	4.91	--	8.07	--	--	--	--	--	--	--	--	--	

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Well and Sample Date	P/NP	TOC Elevation (feet)	Depth to Water (feet bgs)	Product Thickness (feet)	Water Level Elevation (feet)	Concentrations in (µg/L)						DO (mg/L)	Lab	pH	Comments
						GRO/ TPHg	Benzene	Toluene	Ethyl- Benzene	Total Xylenes	MTBE				
MW-2 Cont.															
4/1/1993	--	12.98	4.92	--	8.06	--	--	--	--	--	--	--	--	--	
7/9/1993	--	12.98	5.60	--	7.38	<50	<0.5	<0.5	<0.5	<0.5	--	--	PACE	--	k
10/8/1993	--	12.98	6.50	--	6.48	<50	<0.5	<0.5	<0.5	<0.5	--	--	PACE	--	k
10/8/1993	--	12.98	--	--	--	<50	<0.5	<0.5	<0.5	<0.5	--	--	PACE	--	d, k
1/6/1994	--	12.98	6.25	--	6.73	<50	<0.5	<0.5	<0.5	<0.5	--	--	PACE	--	k
4/26/1994	--	12.98	5.73	--	7.25	<50	<0.5	<0.5	<0.5	<0.5	<5.0	7.5	PACE	--	k
7/25/1994	--	12.98	6.07	--	6.91	<50	<0.5	<0.5	<0.5	<0.5	11.59	2.4	PACE	--	k
10/13/1994	--	12.98	6.80	--	6.18	<50	<0.5	<0.5	<0.5	<0.5	--	2.4	PACE	--	k
1/17/1995	--	12.98	5.10	--	7.88	--	--	--	--	--	--	--	--	--	
3/31/1995	--	12.98	4.69	--	8.29	<50	<0.50	<0.50	<0.50	<1.0	--	7.3	ATI	--	
5/1/1995	--	12.98	5.23	--	7.75	--	--	--	--	--	--	--	--	--	
7/12/1995	--	12.98	5.40	--	7.58	--	--	--	--	--	--	--	--	--	
10/12/1995	--	12.98	6.06	--	6.92	<50	<0.50	<0.50	<0.50	<1.0	<5.0	6.9	ATI	--	
2/27/1996	--	12.98	4.66	--	8.32	<50	<0.5	<1	<1	<1	<10	8.7	SPL	--	
5/8/1996	--	12.98	5.28	--	7.70	--	--	--	--	--	--	--	--	--	
8/9/1996	--	12.98	5.59	--	7.39	<50	<0.5	<1.0	<1.0	<1.0	<10	7.8	SPL	--	
11/7/1996	--	12.98	6.11	--	6.87	--	--	--	--	--	--	--	--	--	
2/10/1997	--	12.98	5.26	--	7.72	--	--	--	--	--	--	--	--	--	
8/4/1997	--	12.98	6.14	--	6.84	<50	<0.5	<1.0	<1.0	<1.0	<10	6.5	SPL	--	
1/27/1998	--	12.98	4.42	--	8.56	--	--	--	--	--	--	--	--	--	
9/2/1998	--	12.98	5.47	--	7.51	100	0.56	3.6	<1.0	3	110	6.9	SPL	--	
2/24/1999	--	12.98	5.12	--	7.86	<50	<1.0	<1.0	<1.0	<1.0	8.2	--	SPL	--	
8/30/1999	--	12.98	6.60	--	6.38	--	--	--	--	--	--	--	--	--	
2/21/2000	--	12.98	4.64	--	8.34	<50	<0.5	<0.5	<0.5	<0.5	0.72	--	PACE	--	
2/12/2001	--	12.98	5.13	--	7.85	<50	<0.5	<0.5	<0.5	<0.5	<0.5	--	PACE	--	
2/4/2002	--	12.98	5.63	--	7.35	<50	<0.5	<0.5	<0.5	<1.0	<0.5	--	PACE	--	
8/29/2002	--	12.98	5.79	--	7.19	--	--	--	--	--	--	--	--	--	
2/5/2003	--	12.98	5.61	--	7.37	<50	<0.50	<0.50	<0.50	<0.50	<2.5	--	SEQ	--	n
8/14/2003	--	12.98	--	--	--	--	--	--	--	--	--	--	--	--	o
02/12/2004	P	12.98	5.19	--	7.79	<50	<0.50	<0.50	<0.50	<0.50	<0.50	--	SEQM	6.4	p
08/12/2004	--	12.98	6.17	--	6.81	--	--	--	--	--	--	--	--	--	

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Well and Sample Date	P/NP	TOC Elevation (feet)	Depth to Water (feet bgs)	Product Thickness (feet)	Water Level Elevation (feet)	Concentrations in (µg/L)						DO (mg/L)	Lab	pH	Comments
						GRO/ TPHg	Benzene	Toluene	Ethyl- Benzene	Total Xylenes	MTBE				
MW-2 Cont.															
02/10/2005	P	12.98	5.01	--	7.97	<50	<0.50	<0.50	<0.50	<0.50	<0.50	--	SEQM	5.9	
08/11/2005	--	12.98	6.39	--	6.59	--	--	--	--	--	--	--	--	--	
02/09/2006	P	12.98	4.80	--	8.18	<50	<0.50	<0.50	<0.50	<0.50	<0.50	--	SEQM	6.8	
8/10/2006	--	12.98	6.18	--	6.80	--	--	--	--	--	--	--	--	--	
2/8/2007	P	12.98	5.67	--	7.31	<50	<0.50	<0.50	<0.50	<0.50	<0.50	5.94	TAMC	7.04	
8/8/2007	--	12.98	6.00	--	6.98	--	--	--	--	--	--	--	--	--	
2/22/2008	P	12.98	5.15	--	7.83	52	<0.50	<0.50	<0.50	<0.50	<0.50	5.81	CEL	7.12	
8/13/2008	--	12.98	6.20	--	6.78	--	--	--	--	--	--	--	--	--	
2/11/2009	P	12.98	6.02	--	6.96	<50	<0.50	<0.50	<0.50	<0.50	<0.50	0.90	CEL	6.73	
8/27/2009	--	12.98	6.12	--	6.86	--	--	--	--	--	--	--	--	--	
2/18/2010	P	12.98	5.45	--	7.53	<50	<0.50	<0.50	<0.50	<0.50	<0.50	1.31	CEL	6.56	
8/12/2010	--	**12.98**	**5.92**	--	**7.06**	--	--	--	--	--	--	--	--	--	
MW-3															
7/21/1992	--	13.38	7.07	--	6.31	<50	0.95	<0.5	<0.5	<0.5	--	--	--	--	e
10/20/1992	--	13.38	8.06	--	5.32	--	--	--	--	--	--	--	--	--	
3/5/1993	--	13.38	5.16	--	8.22	--	--	--	--	--	--	--	--	--	
4/1/1993	--	13.38	5.25	--	8.13	--	--	--	--	--	--	--	--	--	
7/9/1993	--	13.38	5.80	--	7.58	<50	0.6	<0.5	<0.5	<0.5	--	--	PACE	--	k
10/8/1993	--	13.38	7.17	--	6.21	<50	0.6	<0.5	<0.5	<0.5	--	--	PACE	--	k
1/6/1994	--	13.38	6.94	--	6.44	<50	<0.5	<0.5	<0.5	<0.5	--	--	PACE	--	k
4/26/1994	--	13.38	6.18	--	7.20	<50	<0.5	<0.5	<0.5	<0.5	<5.0	3.1	PACE	--	k
7/25/1994	--	13.38	6.67	--	6.71	<50	<0.5	<0.5	<0.5	<0.5	<5.0	2.2	PACE	--	k
10/13/1994	--	13.38	7.43	--	5.95	<50	<0.5	<0.5	<0.5	<0.5	--	2.1	PACE	--	k
1/17/1995	--	13.38	5.07	--	8.31	--	--	--	--	--	--	--	--	--	
3/31/1995	--	13.38	4.03	--	9.35	<50	<0.50	<0.50	<0.50	<1.0	--	6.6	ATI	--	
5/1/1995	--	13.38	4.94	--	8.44	--	--	--	--	--	--	--	--	--	
7/12/1995	--	13.38	5.80	--	7.58	--	--	--	--	--	--	--	--	--	
10/12/1995	--	13.38	6.64	--	6.74	<50	<0.50	<0.50	<0.50	<1.0	<5.0	6.4	ATI	--	
2/27/1996	--	13.38	4.75	--	8.63	<50	<0.5	<1	<1	<1	<10	8.5	SPL	--	
5/8/1996	--	13.38	5.86	--	7.52	--	--	--	--	--	--	--	--	--	

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						GRO/ TPHg	Benzene	Toluene	Ethyl- Benzene	Total Xylenes	MTBE				
MW-3 Cont.															
8/9/1996	--	13.38	5.70	--	7.68	<50	<0.5	<1.0	<1.0	<1.0	<10	7.9	SPL	--	
11/7/1996	--	13.38	6.21	--	7.17	--	--	--	--	--	--	--	--	--	
2/10/1997	--	13.38	5.14	--	8.24	--	--	--	--	--	--	--	--	--	
8/4/1997	--	13.38	6.01	--	7.37	<50	<0.5	<1.0	<1.0	<1.0	<10	6.6	SPL	--	
1/27/1998	--	13.38	4.30	--	9.08	--	--	--	--	--	--	--	--	--	
9/2/1998	--	13.38	5.80	--	7.58	<50	<0.5	2.2	<1.0	<1.0	<10	6.6	SPL	--	
2/24/1999	--	13.38	4.34	--	9.04	<50	<1.0	<1.0	<1.0	<1.0	<1.0	--	SPL	--	
8/30/1999	--	13.38	6.59	--	6.79	--	--	--	--	--	--	--	--	--	
2/21/2000	--	13.38	4.56	--	8.82	<50	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	PACE	--	
2/12/2001	--	13.38	4.98	--	8.40	--	--	--	--	--	--	--	--	--	j
2/4/2002	--	13.38	6.11	--	7.27	--	--	--	--	--	--	--	--	--	j
8/29/2002	--	13.38	6.22	--	7.16	--	--	--	--	--	--	--	--	--	j
2/5/2003	--	13.38	--	--	--	--	--	--	--	--	--	--	--	--	f
8/14/2003	--	13.38	--	--	--	--	--	--	--	--	--	--	--	--	o
02/12/2004	P	13.38	4.94	--	8.44	<50	<0.50	<0.50	<0.50	<0.50	<0.50	--	SEQM	6.0	p
08/12/2004	--	13.38	6.22	--	7.16	--	--	--	--	--	--	--	--	--	
02/10/2005	P	13.38	5.45	--	7.93	<50	<0.50	<0.50	<0.50	<0.50	<0.50	--	SEQM	5.1	
08/11/2005	--	13.38	5.77	--	7.61	--	--	--	--	--	--	--	--	--	r
02/09/2006	P	13.38	5.17	--	8.21	<50	<0.50	<0.50	<0.50	<0.50	<0.50	--	SEQM	6.7	
8/10/2006	--	13.38	5.86	--	7.52	--	--	--	--	--	--	--	--	--	
2/8/2007	P	13.38	6.00	--	7.38	<50	<0.50	<0.50	<0.50	<0.50	<0.50	5.34	TAMC	7.04	
8/8/2007	--	13.38	6.68	--	6.70	--	--	--	--	--	--	--	--	--	
2/22/2008	P	13.38	5.38	--	8.00	54	<0.50	<0.50	<0.50	<0.50	<0.50	3.81	CEL	6.87	
8/13/2008	--	13.38	6.37	--	7.01	--	--	--	--	--	--	--	--	--	
2/11/2009	P	13.38	6.70	--	6.68	<50	<0.50	<0.50	<0.50	<0.50	<0.50	0.79	CEL	7.18	
8/27/2009	--	13.38	6.78	--	6.60	--	--	--	--	--	--	--	--	--	
2/18/2010	P	13.38	5.80	--	7.58	<50	<0.50	<0.50	<0.50	<0.50	<0.50	1.39	CEL	6.12	
8/12/2010	**--**	**13.38**	**6.60**	**--**	**6.78**	--	--	--	--	--	--	--	--	--	
MW-4															
3/5/1993	--	11.80	4.81	--	6.99	<50	<0.5	<0.5	<0.5	<0.5	--	--	--	--	

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						GRO/ TPHg	Benzene	Toluene	Ethyl-Benzene	Total Xylenes	MTBE				
MW-4 Cont.															
4/1/1993	--	11.80	4.80	--	7.00	--	--	--	--	--	--	--	--	--	
7/9/1993	--	11.80	5.54	--	6.26	<50	<0.5	<0.5	<0.5	<0.5	--	--	PACE	--	k
10/8/1993	--	11.80	6.28	--	5.52	<50	<0.5	<0.5	<0.5	<0.5	--	--	PACE	--	k
1/6/1994	--	11.80	5.82	--	5.98	<50	<0.5	<0.5	<0.5	<0.5	<5.0	--	PACE	--	k
4/26/1994	--	11.80	5.50	--	6.30	<50	<0.5	<0.5	<0.5	<0.5	<5.0	7.4	PACE	--	k
7/25/1994	--	11.80	5.83	--	5.97	<50	<0.5	<0.5	<0.5	<0.5	<5.0	7.2	PACE	--	k
10/13/1994	--	11.80	6.26	--	5.54	<50	<0.5	<0.5	<0.5	<0.5	--	6.7	PACE	--	k
1/17/1995	--	11.80	4.19	--	7.61	--	--	--	--	--	--	--	--	--	
3/31/1995	--	11.80	3.96	--	7.84	<50	<0.50	<0.50	<0.50	<1.0	--	7.1	ATI	--	
5/1/1995	--	11.80	4.49	--	7.31	--	--	--	--	--	--	--	--	--	
7/12/1995	--	11.80	5.16	--	6.64	--	--	--	--	--	--	--	--	--	
10/12/1995	--	11.80	5.80	--	6.00	<50	<0.50	<0.50	<0.50	<1.0	<5.0	6.9	ATI	--	
2/27/1996	--	11.80	4.22	--	7.58	<50	<0.5	<1	<1	<1	<10	8.9	SPL	--	
5/8/1996	--	11.80	5.00	--	6.80	--	--	--	--	--	--	--	--	--	
8/9/1996	--	11.80	5.13	--	6.67	<50	<0.5	<1.0	<1.0	<1.0	<10	8.5	SPL	--	
11/7/1996	--	11.80	5.65	--	6.15	--	--	--	--	--	--	--	--	--	
2/10/1997	--	11.80	4.81	--	6.99	--	--	--	--	--	--	--	--	--	
8/4/1997	--	11.80	5.72	--	6.08	<50	<0.5	<1.0	<1.0	<1.0	<10	6.4	SPL	--	
1/27/1998	--	11.80	4.06	--	7.74	--	--	--	--	--	--	--	--	--	
9/2/1998	--	11.80	4.89	--	6.91	<50	<0.5	<1.0	<1.0	<1.0	<10	5.8	SPL	--	
2/24/1999	--	11.80	3.89	--	7.91	<50	<1.0	<1.0	<1.0	<1.0	<1.0	--	SPL	--	
8/30/1999	--	11.80	5.62	--	6.18	--	--	--	--	--	--	--	--	--	
2/21/2000	--	11.80	4.00	--	7.80	<50	<0.5	<0.5	<0.5	<0.5	0.66	--	PACE	--	
2/12/2001	--	11.80	4.93	--	6.87	<50	<0.5	<0.5	<0.5	<0.5	0.982	--	PACE	--	
2/4/2002	--	11.80	4.49	--	7.31	<50	<0.5	<0.5	<0.5	<1.0	<0.5	--	PACE	--	
8/29/2002	--	11.80	5.38	--	6.42	--	--	--	--	--	--	--	--	--	
2/5/2003	--	11.80	4.50	--	7.30	<50	<0.50	<0.50	<0.50	<0.50	<2.5	--	SEQ	--	n
8/14/2003	--	11.80	--	--	--	--	--	--	--	--	--	--	--	--	o
02/12/2004	P	11.80	4.41	--	7.39	<50	<0.50	<0.50	<0.50	<0.50	<0.50	--	SEQM	6.3	p
08/12/2004	--	11.80	5.20	--	6.60	--	--	--	--	--	--	--	--	--	
02/10/2005	P	11.80	4.43	--	7.37	<50	<0.50	<0.50	<0.50	<0.50	<0.50	--	SEQM	5.5	

Table 1. Summary of Groundwater Monitoring Data: Relative Water Elevations and Laboratory Analyses

Former BP Station #11104, 1716 Webster St., Alameda, CA

Well and Sample Date	P/NP	TOC Elevation (feet)	Depth to Water (feet bgs)	Product Thickness (feet)	Water Level Elevation (feet)	Concentrations in (µg/L)						DO (mg/L)	Lab	pH	Comments
						GRO/ TPHg	Benzene	Toluene	Ethyl-Benzene	Total Xylenes	MTBE				
MW-4 Cont.															
08/11/2005	--	11.80	5.09	--	6.71	--	--	--	--	--	--	--	--	--	
02/09/2006	P	11.80	4.32	--	7.48	<50	<0.50	<0.50	<0.50	<0.50	<0.50	--	SEQM	6.8	
7/26/2006	--	--	--	--	--	--	--	--	--	--	--	--	--	--	
8/10/2006	--	11.80	5.07	--	6.73	--	--	--	--	--	--	--	--	--	
2/8/2007	P	11.80	5.10	--	6.70	<50	<0.50	<0.50	<0.50	<0.50	<0.50	5.63	TAMC	7.07	
8/8/2007	--	11.80	5.55	--	6.25	--	--	--	--	--	--	--	--	--	
2/22/2008	P	11.80	4.35	--	7.45	<50	<0.50	<0.50	<0.50	<0.50	<0.50	3.61	CEL	6.88	
8/13/2008	--	11.80	5.70	--	6.10	--	--	--	--	--	--	--	--	--	
2/11/2009	P	11.80	6.58	--	5.22	<50	<0.50	<0.50	<0.50	<0.50	<0.50	0.66	CEL	6.36	
8/27/2009	--	11.80	5.64	--	6.16	--	--	--	--	--	--	--	--	--	
2/18/2010	P	11.80	4.69	--	7.11	<50	<0.50	<0.50	<0.50	<0.50	<0.50	0.92	CEL	6.37	
8/12/2010	--	**11.80**	**5.39**	--	**6.41**	--	--	--	--	--	--	--	--	--	
MW-5															
4/1/1993	--	11.62	4.77	--	6.85	<50	<0.5	<0.5	<0.5	<0.5	--	--	--	--	
7/9/1993	--	11.62	5.40	--	6.22	<50	<0.5	<0.5	<0.5	<0.5	--	--	PACE	--	k
10/8/1993	--	11.62	5.87	--	5.75	<50	<0.5	<0.5	<0.5	<0.5	--	--	PACE	--	k
1/6/1994	--	11.62	5.75	--	5.87	<50	<0.5	<0.5	<0.5	<0.5	<5.0	--	PACE	--	k
4/26/1994	--	11.62	5.49	--	6.13	<50	<0.5	<0.5	<0.5	<0.5	<5.0	7.1	PACE	--	k
7/25/1994	--	11.62	5.69	--	5.93	<50	<0.5	<0.5	<0.5	<0.5	<5.0	6.6	PACE	--	k
10/13/1994	--	11.62	6.03	--	5.59	<50	<0.5	<0.5	<0.5	<0.5	--	3.0	PACE	--	k
1/17/1995	--	11.62	4.74	--	6.88	--	--	--	--	--	--	--	--	--	
3/31/1995	--	11.62	4.58	--	7.04	<50	<0.50	<0.50	<0.50	<1.0	--	7.1	ATI	--	
5/1/1995	--	11.62	4.79	--	6.83	--	--	--	--	--	--	--	--	--	
7/12/1995	--	11.62	5.32	--	6.30	--	--	--	--	--	--	--	--	--	
10/12/1995	--	11.62	5.70	--	5.92	<50	<0.50	<0.50	<0.50	<1.0	<5.0	6.7	ATI	--	
2/27/1996	--	11.62	--	--	--	--	--	--	--	--	--	--	--	--	f
5/8/1996	--	11.62	4.91	--	6.71	--	--	--	--	--	--	--	--	--	
8/9/1996	--	11.62	5.01	--	6.61	<50	<0.5	<1.0	<1.0	<1.0	<10	7.7	SPL	--	
11/7/1996	--	11.62	5.54	--	6.08	--	--	--	--	--	--	--	--	--	
2/10/1997	--	11.62	4.66	--	6.96	--	--	--	--	--	--	--	--	--	

Table 1. Summary of Groundwater Monitoring Data: Relative Water Elevations and Laboratory Analyses

Former BP Station #11104, 1716 Webster St., Alameda, CA

Well and Sample Date	P/NP	TOC Elevation (feet)	Depth to Water (feet bgs)	Product Thickness (feet)	Water Level Elevation (feet)	Concentrations in (µg/L)						DO (mg/L)	Lab	pH	Comments
						GRO/ TPHg	Benzene	Toluene	Ethyl- Benzene	Total Xylenes	MTBE				
MW-5 Cont.															
8/4/1997	--	11.62	5.51	--	6.11	<50	<0.5	<1.0	<1.0	<1.0	<10	6.9	SPL	--	
1/27/1998	--	11.62	4.01	--	7.61	--	--	--	--	--	--	--	--	--	
9/2/1998	--	11.62	5.17	--	6.45	<50	<0.5	<1.0	<1.0	<1.0	<10	6.4	SPL	--	
2/24/1999	--	11.62	4.52	--	7.10	<50	<1.0	<1.0	<1.0	<1.0	<1.0	--	SPL	--	
8/30/1999	--	11.62	6.02	--	5.60	--	--	--	--	--	--	--	--	--	
2/21/2000	--	11.62	4.62	--	7.00	<50	<0.5	<0.5	<0.5	<0.5	<0.5	--	PACE	--	
2/12/2001	--	11.62	4.80	--	6.82	<50	<0.5	<0.5	<0.5	<0.5	<0.5	--	PACE	--	
2/4/2002	--	11.62	4.63	--	6.99	<50	<0.5	<0.5	<0.5	<1.0	<0.5	--	PACE	--	
8/29/2002	--	11.62	5.15	--	6.47	--	--	--	--	--	--	--	--	--	
2/5/2003	--	11.62	4.36	--	7.26	<50	<0.50	<0.50	<0.50	<0.50	<2.5	--	SEQ	--	
8/14/2003	--	11.62	--	--	--	--	--	--	--	--	--	--	--	--	o
02/12/2004	--	11.62	--	--	--	--	--	--	--	--	--	--	--	--	f
08/12/2004	--	11.62	4.91	--	6.71	--	--	--	--	--	--	--	--	--	
02/10/2005	P	11.62	4.54	--	7.08	<50	<0.50	<0.50	<0.50	<0.50	0.90	--	SEQM	6.1	
08/11/2005	--	11.62	4.92	--	6.70	--	--	--	--	--	--	--	--	--	
02/09/2006	--	11.62	--	--	--	--	--	--	--	--	--	--	--	--	s
8/10/2006	--	11.62	5.07	--	6.55	--	--	--	--	--	--	--	--	--	
2/8/2007	P	11.62	5.10	--	6.52	<50	<0.50	<0.50	<0.50	<0.50	<0.50	6.01	TAMC	7.20	
8/8/2007	--	11.62	5.42	--	6.20	--	--	--	--	--	--	--	--	--	
2/22/2008	P	11.62	4.20	--	7.42	<50	<0.50	<0.50	<0.50	<0.50	<0.50	5.52	CEL	7.25	
8/13/2008	--	11.62	5.27	--	6.35	--	--	--	--	--	--	--	--	--	
2/11/2009	P	11.62	4.81	--	6.81	<50	<0.50	<0.50	<0.50	<0.50	<0.50	0.87	CEL	6.71	
8/27/2009	--	11.62	4.99	--	6.63	--	--	--	--	--	--	--	--	--	
2/18/2010	P	11.62	5.60	--	6.02	<50	<0.50	<0.50	<0.50	<0.50	<0.50	1.35	CEL	6.87	
8/12/2010	--	**11.62**	--	--	--	--	--	--	--	--	--	--	--	--	**f**
QC-2															
7/9/1993	--	--	--	--	--	<50	<0.5	<0.5	<0.5	<0.5	--	--	PACE	--	g,k
10/8/1993	--	--	--	--	--	<50	<0.5	<0.5	<0.5	<0.5	--	--	PACE	--	g,k
1/6/1994	--	--	--	--	--	<50	<0.5	<0.5	<0.5	<0.5	<5.0	--	PACE	--	g,k
4/26/1994	--	--	--	--	--	<50	<0.5	<0.5	<0.5	<0.5	<5.0	--	PACE	--	g,k

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Well and Sample Date	P/NP	TOC Elevation (feet)	Depth to Water (feet bgs)	Product Thickness (feet)	Water Level Elevation (feet)	Concentrations in (µg/L)						DO (mg/L)	Lab	pH	Comments
						GRO/ TPHg	Benzene	Toluene	Ethyl-Benzene	Total Xylenes	MTBE				
QC-2 Cont.															
7/25/1994	--	--	--	--	--	<50	<0.5	<0.5	<0.5	<0.5	<5.0	--	PACE	--	g,k
10/13/1994	--	--	--	--	--	<50	<0.5	<0.5	<0.5	<0.5	--	--	PACE	--	g,k
1/17/1995	--	--	--	--	--	<50	<0.5	<0.5	<0.5	<1	--	--	ATI	--	g
3/31/1995	--	--	--	--	--	<50	<0.50	<0.50	<0.50	<1.0	--	--	ATI	--	g
7/12/1995	--	--	--	--	--	<50	<0.50	<0.50	<0.50	<1.0	--	--	ATI	--	g
10/12/1995	--	--	--	--	--	<50	<0.50	<0.50	<0.50	<1.0	<5.0	--	ATI	--	g
2/27/1996	--	--	--	--	--	<50	<0.5	<1	<1	<1	<10	--	SPL	--	g
5/9/1996	--	--	--	--	--	<50	<0.5	<1	<1	<1	<10	--	SPL	--	g
RW-1															
1/6/1994	--	11.84	--	--	--	24,000	3,700	210	830	2,000	4,562	--	PACE	--	c,d,k
1/6/1994	--	11.84	5.59	--	6.25	23,000	3,800	210	840	2,100	4,663	--	PACE	--	c,k
4/26/1994	--	11.84	5.21	--	6.63	24,000	3,500	120	800	1,700	8,145	6.4	PACE	--	c,k
4/26/1994	--	11.84	--	--	--	22,000	3,300	110	700	1,700	6,909	--	PACE	--	c,d,k
7/25/1994	--	11.84	5.52	--	6.32	31,000	4,800	290	1,100	1,700	<5.0	5.5	PACE	--	c,k
7/25/1994	--	11.84	--	--	--	28,000	4,400	240	960	1,400	20,608	--	PACE	--	c,d,k
10/13/1994	--	11.84	6.05	--	5.79	20,000	4,200	46	990	440	--	6.8	PACE	--	k
1/17/1995	--	11.84	4.02	--	7.82	9,600	1,500	65	300	2,700	--	7.7	ATI	--	
3/31/1995	--	11.84	3.81	--	8.03	16,000	1,500	780	370	2,000	--	7.8	ATI	--	
5/1/1995	--	11.84	4.21	--	7.63	--	--	--	--	--	--	--	--	--	
7/12/1995	--	11.84	4.93	--	6.91	22,000	3,700	150	950	2,800	--	7.2	ATI	--	
10/12/1995	--	11.84	5.46	--	6.38	30,000	1,600	1,500	1,700	8,500	4,300	7.0	ATI	--	
2/27/1996	--	11.84	--	--	--	1,600	30	23	38	420	50	--	SPL	--	d
2/27/1996	--	11.84	4.00	--	7.84	1,800	30	24	41	440	52	7.7	SPL	--	
5/8/1996	--	11.84	4.65	--	7.19	--	--	--	--	--	--	--	--	--	
5/9/1996	--	11.84	--	--	--	3,200	19	19	97	800	<50	7.1	SPL	--	
5/9/1996	--	11.84	--	--	--	2,900	15	15	78	700	<50	--	SPL	--	d
8/9/1996	--	11.84	4.96	--	6.88	--	--	--	--	--	--	--	--	--	
8/12/1996	--	11.84	--	--	--	6,900	210	270	390	1,920	<100	7.9	SPL	--	
8/12/1996	--	11.84	--	--	--	8,200	270	330	450	2,330	<100	--	SPL	--	d
11/7/1996	--	11.84	5.50	--	6.34	6,100	320	45	<10	<10	430	6.9	SPL	--	

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Well and Sample Date	P/NP	TOC Elevation (feet)	Depth to Water (feet bgs)	Product Thickness (feet)	Water Level Elevation (feet)	Concentrations in (µg/L)						DO (mg/L)	Lab	pH	Comments
						GRO/ TPHg	Benzene	Toluene	Ethyl- Benzene	Total Xylenes	MTBE				
RW-1 Cont.															
11/7/1996	--	11.84	--	--	--	6,800	360	45	<10	<10	500	--	SPL	--	d
2/10/1997	--	11.84	3.85	--	7.99	170,000	<120	<250	<250	<250	150,000	6.7	SPL	--	
8/4/1997	--	11.84	4.72	--	7.12	<25000	580	450	630	3,700	230,000	6.9	SPL	--	
1/27/1998	--	11.84	3.80	--	8.04	52,000	380	330	490	2,970	38,000	6.1	SPL	--	
1/27/1998	--	11.84	--	--	--	51,000	380	300	480	2,980	36,000	--	SPL	--	d
9/2/1998	--	11.84	--	--	--	280,000	2,400	<50	1,400	3,170	270,000	--	SPL	--	d
9/2/1998	--	11.84	4.91	--	6.93	260,000	2,500	56	1,400	3,070	250,000	6.6	SPL	--	
2/24/1999	--	11.84	4.16	--	7.68	120	<1.0	<1.0	1.5	13	130/140	--	SPL	--	h
8/30/1999	--	11.84	5.52	--	6.32	3,100	320	<25	120	28	60,000	--	SPL	--	
2/21/2000	--	11.84	3.68	--	8.16	340 i	8.6	1.8	11	66	2,500	--	PACE	--	i
8/8/2000	--	11.84	4.85	--	6.99	1,600	3.2	<0.5	0.82	1.2	19,000	--	PACE	--	
2/12/2001	--	11.84	4.26	--	7.58	1,500	1.33	<0.5	<0.5	5.69	2,420	--	PACE	--	
8/13/2001	--	11.84	5.34	--	6.50	290	<0.5	<0.5	<0.5	<1.5	314	--	PACE	--	
2/4/2002	--	11.84	4.08	--	7.76	570	9.15	0.874	19.2	83.8	97.4	--	PACE	--	
8/29/2002	--	11.84	5.12	--	6.72	<50	0.59	<0.50	<0.50	<0.50	19	--	SEQ	--	
2/5/2003	--	11.84	5.21	--	6.63	<50	<0.50	<0.50	0.68	1.7	18	--	SEQ	--	n
8/14/2003	--	11.84	5.07	--	6.77	<500	<5.0	<5.0	<5.0	5.4	490	--	SEQ	--	p
02/12/2004	P	11.84	4.19	--	7.65	120	1.6	<1.0	3.0	4.1	51	--	SEQM	5.9	
08/12/2004	P	11.84	5.11	--	6.73	170	6.9	<0.50	4.5	10	57	--	SEQM	6.0	
02/10/2005	P	11.84	4.15	--	7.69	64	1.6	<0.50	0.94	<0.50	39	--	SEQM	5.9	
08/11/2005	P	11.84	4.82	--	7.02	480	6.5	<0.50	7.0	14	40	--	SEQM	6.5	
02/09/2006	P	11.84	3.95	--	7.89	<50	1.3	<0.50	0.83	0.80	7.8	--	SEQM	6.9	
8/10/2006	--	11.84	4.90	--	6.94	780	43	<1.0	150	200	9.9	--	TAMC	6.5	
2/8/2007	P	11.84	5.03	--	6.81	140	4.0	<1.0	<1.0	1.8	14	4.17	TAMC	6.99	
8/8/2007	P	11.84	5.40	--	6.44	150	4.4	<0.50	<0.50	1.9	3.0	3.92	TAMC	6.91	
2/22/2008	P	11.84	4.13	--	7.71	120	0.87	<0.50	<0.50	<0.50	13	3.68	CEL	6.78	
8/13/2008	P	11.84	5.50	--	6.34	1,900	60	2.2	4.1	670	9.0	0.45	CEL	8.72	
2/11/2009	P	11.84	5.35	--	6.49	220	14	<0.50	<0.50	<0.50	6.2	0.54	CEL	6.92	
8/27/2009	P	11.84	5.40	--	6.44	630	11	0.87	<0.50	180	9.9	0.58	CEL	7.23	
2/18/2010	NP	11.84	4.57	--	7.27	<50	<0.50	<0.50	<0.50	<0.50	6.1	1.08	CEL	6.73	
8/12/2010	**NP**	**11.84**	**5.38**	**--**	**6.46**	**100**	**<0.50**	**<0.50**	**<0.50**	**<0.50**	**23**	**0.65**	**CEL**	**7.5**	

Table 1. Summary of Groundwater Monitoring Data: Relative Water Elevations and Laboratory Analyses

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Well and Sample Date	P/NP	TOC Elevation (feet)	Depth to Water (feet bgs)	Product Thickness (feet)	Water Level Elevation (feet)	Concentrations in (µg/L)						DO (mg/L)	Lab	pH	Comments
						GRO/ TPHg	Benzene	Toluene	Ethyl-Benzene	Total Xylenes	MTBE				
RW-1															

ABBREVIATIONS AND SYMBOLS:
DO = Dissolved oxygen
ft bgs = Feet below ground surface
ft MSL = Feet above mean sea level
GRO = Gasoline range organics, range C4-C12
mg/L = Milligrams per liter
MTBE = Methyl tert-butyl ether
NP = Well not purged prior to sampling
P = Well purged prior to sampling
TPH-g = Total petroleum hydrocarbons as gasoline
µg/L = Micrograms per liter
--/--- = Not applicable/available/analyzed/measured
< = Not detected at or above specified laboratory reporting limit
PACE = Pace Analytical Services, Inc.
ATI = Analytical Technologies, Inc.
SPL = Southern Petroleum Laboratories
SEQ/SEQM = Sequoia Analytical/Sequoia Morgan Hill (Laboratories)
CEL = CalScience Environmental Laboratories, Inc.
TOC = Top of casing measured in ft MSL
DTW = Depth to water measured in ft bgs
GWE = Groundwater elevation measured in ft MSL

FOOTNOTES:
a = TOC elevations surveyed in reference to USGS benchmark 14.108 ft MSL at northwest corner of Webster Street and Pacific Avenue.
b = Groundwater elevations in ft MSL.
c = A copy of the documentation for this data is included in Appendix C of Alisto report 10-155-07-001
d = Blind duplicate.
e = Sample also analyzed for cadmium, nickel, chromium, lead, and zinc. None were detected above the reported detection limit.
f = Well inaccessible.
g = Travel blank.
h = MTBE by EPA Methods 8020/8260.
i = Gasoline does not include MTBE.
j = Unable to sample.
k = A copy of the documentation for this data can be found in Baline Tech Services report 010813-N-2. No chromatograms could be located for MTBE data from wells MW-2,MW-3, MW-4, MW-5, and QC-2, sampled on July 9, 1993; all wells sampled on October 8, 1993; wells MW-1, MW-2, and MW-3, sampled on January 6, 1994; and all wells sampled on October 13, 1994.
l = Chromatogrom Pattern: Gasoline C6-C10.
m = The concentration indicated for this analyte is an estimated value above the calibration range of the instrument.
n = The closing calibration was outside acceptance limits by 1% high. This should be considered inevaluating the result. The avg. % difference for all analytes met the 15% requirement and the QC suggests that calibration linearity is not a factor.
o = The original scope of work only called for annual gauging of well. This issue has been addressed, and in the future, gauging of this well will be semi-annual 1st and 3rd quarter.
p = Groundwater samples analyzed by EPA Method 8260B for TPH-g, BTEX, and MTBE.
q = Beginning in the fourth quarter 2003, the laboratory modified the reported analyte list. TPH-g was changed to GRO. The resulting data may be impacted by the potential inclusion of non-TPH-g analytes within the requested fuel range resulting in a higher concentration being reported.
r = Possible obstruction in well.
s = Car parked over well.
t = Sample > 4x spike concentration.

NOTES:
During the second quarter of 2002, URS Corporation assumed groundwater monitoring activities for BP.

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.

Note: 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 2. Summary of Fuel Additives Analytical Data

Former BP Station #11104, 1716 Webster St., Alameda, CA

Well and Sample Date	Concentrations in (µg/L)								Comments
	Ethanol	TBA	MTBE	DIPE	ETBE	TAME	1,2-DCA	EDB	
MW-1									
8/14/2003	<10,000	<2,000	4,500	<50	<50	89	<50	<50	a
02/12/2004	<2,000	960	1,200	<10	<10	33	<10	<10	
08/12/2004	<1,000	730	260	<5.0	<5.0	9.3	<5.0	<5.0	
02/10/2005	<1,000	2,300	730	<5.0	<5.0	26	<5.0	<5.0	b
08/11/2005	<1,000	460	190	<5.0	<5.0	10	<5.0	<5.0	
02/09/2006	<3,000	400	380	<5.0	<5.0	18	<5.0	<5.0	b, c
8/10/2006	<3,000	<200	47	<5.0	<5.0	<5.0	<5.0	<5.0	
2/8/2007	<3,000	210	130	<5.0	<5.0	7.8	<5.0	<5.0	
8/8/2007	<300	190	140	<0.50	<0.50	8.7	<0.50	<0.50	d (MTBE)
2/22/2008	<300	51	59	<0.50	<0.50	3.1	<0.50	<0.50	
8/13/2008	<3,000	340	370	<5.0	<5.0	22	<5.0	<5.0	
2/11/2009	<1,200	480	68	<2.0	<2.0	3.4	<2.0	<2.0	
8/27/2009	<1,200	180	20	<2.0	<2.0	<2.0	<2.0	<2.0	
2/18/2010	<1,200	160	48	<2.0	<2.0	2.8	<2.0	<2.0	
8/12/2010	**<1,200**	**140**	**76**	**<2.0**	**<2.0**	**6.4**	**<2.0**	**<2.0**	
MW-2									
02/12/2004	<100	<20	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	
02/10/2005	<100	<20	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	b
02/09/2006	<300	<20	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	b, c
2/8/2007	<300	<20	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	
2/22/2008	<300	<10	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	
2/11/2009	<300	<10	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	
2/18/2010	<300	<10	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	
MW-3									
02/12/2004	<100	<20	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	
02/10/2005	<100	<20	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	b
02/09/2006	<300	<20	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	
2/8/2007	<300	<20	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	
2/22/2008	<300	<10	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	
2/11/2009	<300	<10	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	

Table 2. Summary of Fuel Additives Analytical Data

Former BP Station #11104, 1716 Webster St., Alameda, CA

Well and Sample Date	Concentrations in (µg/L)								Comments
	Ethanol	TBA	MTBE	DIPE	ETBE	TAME	1,2-DCA	EDB	
MW-3 Cont.									
2/18/2010	<300	<10	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	
MW-4									
02/12/2004	<100	<20	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	
02/10/2005	<100	<20	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	b, c
02/09/2006	<300	<20	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	
2/8/2007	<300	<20	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	
2/22/2008	<300	<10	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	
2/11/2009	<300	<10	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	
2/18/2010	<300	<10	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	
MW-5									
02/10/2005	<100	<20	0.90	<0.50	<0.50	<0.50	<0.50	<0.50	b, c
2/8/2007	<300	<20	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	
2/22/2008	<300	<10	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	
2/11/2009	<300	<10	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	
2/18/2010	<300	<10	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	
RW-1									
8/14/2003	<1,000	<200	490	<5.0	<5.0	11	<5.0	<5.0	a
02/12/2004	<200	83	51	<1.0	<1.0	1.2	<1.0	<1.0	
08/12/2004	<100	500	57	<0.50	<0.50	1.0	<0.50	<0.50	
02/10/2005	<100	69	39	<0.50	<0.50	0.68	<0.50	<0.50	b, c
08/11/2005	<100	390	40	<0.50	<0.50	1.3	<0.50	<0.50	c
02/09/2006	<300	31	7.8	<0.50	<0.50	<0.50	<0.50	<0.50	
8/10/2006	<600	190	9.9	<1.0	<1.0	<1.0	<1.0	<1.0	
2/8/2007	<600	220	14	<1.0	<1.0	<1.0	<1.0	<1.0	
8/8/2007	<300	170	3.0	<0.50	<0.50	<0.50	<0.50	<0.50	
2/22/2008	<300	56	13	<0.50	<0.50	<0.50	<0.50	<0.50	
8/13/2008	<300	38	9.0	<0.50	<0.50	<0.50	<0.50	<0.50	
2/11/2009	<300	69	6.2	<0.50	<0.50	<0.50	<0.50	<0.50	
8/27/2009	<300	100	9.9	<0.50	<0.50	<0.50	<0.50	<0.50	
2/18/2010	<300	<10	6.1	<0.50	<0.50	<0.50	<0.50	<0.50	

Table 2. Summary of Fuel Additives Analytical Data

Former BP Station #11104, 1716 Webster St., Alameda, CA

Well and Sample Date	Concentrations in (µg/L)								Comments
	Ethanol	TBA	MTBE	DIPE	ETBE	TAME	1,2-DCA	EDB	
RW-1 Cont.									
8/12/2010	<300	250	23	<0.50	<0.50	0.81	<0.50	<0.50	

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

FOOTNOTES
a = The continuing calibration was outside of client contractual acceptance limits by 3.4% low. However, it was within the method acceptance limit. The data should still be useful for its intended purpose.
b = Possible high bias for 1,2-DCA due to CCV falling outside acceptance criteria.
c = Callibration verification for ethanol was within method limits but outside contract limits.
d = Sample > 4x spike concentration.

NOTES:
All fuel oxygenate compounds analyzed using EPA Method 8260B.

Note: 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 Ground-Water Flow Direction and Gradient

Former BP Station #11104, 1716 Webster St., Alameda, CA

Date Sampled	Approximate Flow Direction	Approximate Hydraulic Gradient
2/9/2006	North-Northwest	0.007
8/10/2006	North-Northwest	0.007
2/8/2007	North-Northwest	0.007
8/8/2007	North-Northwest	0.004
2/22/2008	North-Northwest	0.003
8/13/2008	North-Northwest	0.007
2/11/2009	Northeast	0.004
8/27/2009	Northeast	0.004
2/18/2010	North-Northwest	0.008
8/12/2010	**North-Northeast**	**0.005**

Note: 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.

ATTACHMENT E

Soil Sample Data

Table 1
Summary of Soil Sample Analytical Results
BP Oil Station No. 11104
1716 Webster Street, Alameda, CA

Boring No.	Date	Sample depth (feet)	TOG (ppm)	TPHd (ppm)	TPHg (ppm)	B (ppm)	T (ppm)	E (ppm)	X (ppm)	HVO (ppm)	Cd (ppm)	Cr (ppm)	Pb (ppm)	Ni (ppm)	Zn (ppm)
MW-1	7/8/92	6	–	–	3200	ND<0.5	2	8.1	3.9	–	–	–	–	–	–
MW-2	7/8/92	6	–	–	ND<1.0	ND<0.005	ND<0.005	ND<0.005	ND<0.005	–	–	–	–	–	–
MW-3	7/8/92	6	ND<10	ND<1.0	ND<1.0	ND<0.005	ND<0.005	ND<0.005	ND<0.005	ND<0.005	2	25	4.2	22	29
MW-4	3/4/93	5	–	–	ND<1.0	ND<0.005	ND<0.005	ND<0.005	ND<0.005	–	–	–	–	–	–
MW-5	3/31/93	4.5	–	–	ND<1.0	ND<0.005	ND<0.005	ND<0.005	ND<0.005	–	–	–	–	–	–

Notes:

TOG = Total oil and grease by Standard Method 5520 E&F
TPHd = Total high boiling point petroleum hydrocarbons by EPA Method 8015
TPHg = Total low to medium boiling point petroleum hydrocarbons by EPA Method 8015
BTEX = Benzene, toluene, ethylbenzene and total xylenes by EPA Method 8020
HVO = Halogenated volatile organics by EPA Method 8010
Cd = Cadmium by EPA Method 6010
Cr = Chromium by EPA Method 6010
Pb = Lead by EPA Method 6010
Ni = Nickel by EPA Method 6010
Zn = Zinc by EPA SW-846 Method 7950
ND = Not detected in concentrations exceeding the indicated method detection limit
– = Not tested

KEI-J90-0910.R1
October 16, 1990

TABLE 1

SUMMARY OF LABORATORY ANALYSES
SOIL

(Collected on September 19 & 26, and
October 2, 4 & 8, 1990)

Sample	Depth (feet)	TPH as Gasoline	Benzene	Toluene	Xylenes	Ethyl-benzene	Total Lead
P1	3	3,500	3.9	120	340	55	7.5
P2	3	4.0	ND	0.040	0.19	0.029	4.0
D1	3	3,000	0.60	32	75	35	4.5
D2	3	1,800	0.27	3.5	110	4.6	30
D3	3	3,000	0.63	17	170	20	21
B1	7	110	1.9	3.7	10	2.3	ND
B1(8.5)	8.5	3.7	0.38	0.048	0.19	0.10	ND
B2	8.5	6	0.22	0.027	0.73	0.15	ND
B3	8.5	1.7	0.24	0.21	0.17	0.030	ND
B4	8.5	25	1.6	1.8	2.8	0.57	ND
B5	8.5	6.7	0.25	0.21	0.45	0.14	ND
B6	8.5	280	0.63	8.0	26	5.1	ND
B6(9.25)	9.25	1.7	0.41	0.23	0.11	0.065	9
SW1	5	7,500	9.9	82	560	98	45
SW1(S)	5	2,100	4.3	24	190	36	--
SW1(N)	5	9.3	ND	0.073	0.32	0.056	--
SW1(E)	5	3,400	0.18	17	130	19	--
SW1(E2)	5	ND	ND	ND	ND	ND	--
SW1(W)	5	ND	ND	0.010	ND	ND	--
SW1-B	8.5	ND	0.006	0.022	0.018	0.016	--
SW2	4	73	ND	0.016	0.46	0.030	ND
SW3	5	ND	ND	ND	ND	ND	ND
Detection Limits		1.0	0.0050	0.0050	0.0050	0.0050	0.25

ND = Non-detectable.

Results in parts per million (ppm), unless otherwise indicated.

KAPREALIAN ENGINEERING, INC.
Consulting Engineers
P.O. BOX 996 • BENICIA, CA 94510
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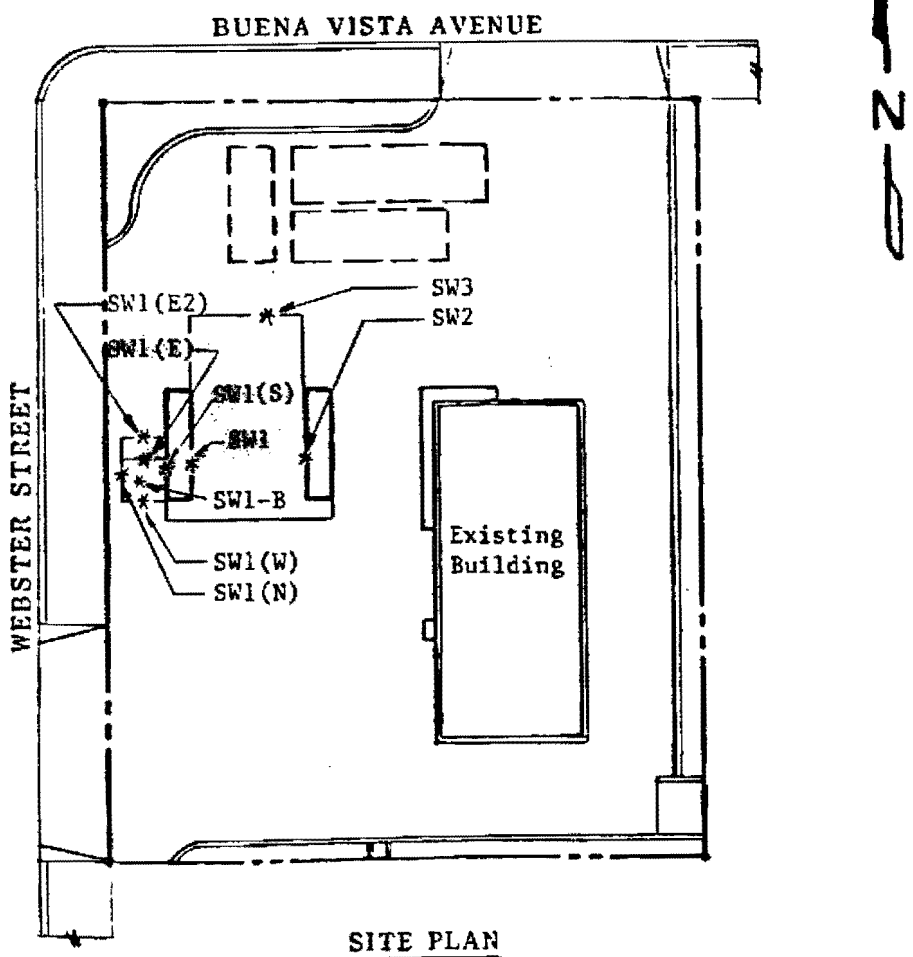

SITE PLAN
Figure 2

LEGEND

* Sample Point Location

0 30 60
Approx. scale feet

BP Service Station
1716 Webster Street
Alameda, CA

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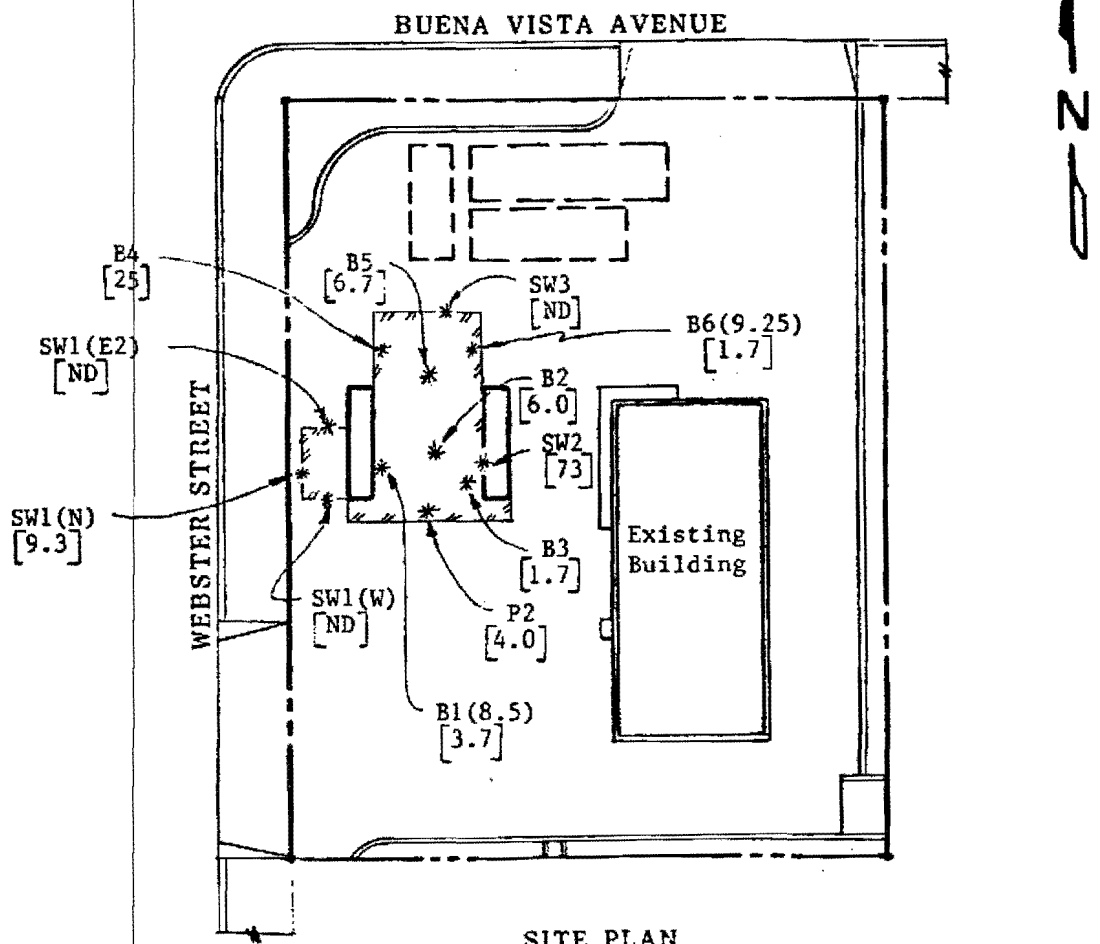


SITE PLAN
Figure 3

LEGEND

* Soil sample location

[ ] TPH as gasoline in PPM

Area excavated to a depth of 9 feet.

0 30 60
Approx. scale feet

BP Service Station
1716 Webster Street
Alameda, CA

ATTACHMENT F

Mann-Kendall Statistical Analysis

Mann-Kendall Analysis - MW-1

Former BP Service Station No. 11104

1716 Webster Street

Alameda, California

Sample Date	TPHg/GRO Concentration (ug/L)	CE1	CE2	CE3	CE4	CE5	CE6	CE7	CE8	CE9	CE10	CE11	CE12	CE13	CE14	CE15	CE16	CE17	CE18	CE19	CE20	CE21	CE22	CE23	CE24	CE25	CE26
02/12/01	14,000																										
08/13/01	14,000	0																									
02/04/02	17,000	+1	+1																								
08/29/02	4,800	-1	-1	-1																							
02/05/03	770	-1	-1	-1	-1																						
08/14/03	5,400	-1	-1	-1	+1	+1																					
02/12/04	2,600	-1	-1	-1	-1	+1	-1																				
08/12/04	5,700	-1	-1	-1	+1	+1	+1	+1																			
02/10/05	2,400	-1	-1	-1	-1	+1	-1	-1	-1																		
08/11/05	4,600	-1	-1	-1	-1	+1	-1	+1	-1	+1																	
02/09/06	2,600	-1	-1	-1	-1	+1	-1	0	-1	+1	-1																
08/10/06	7,000	-1	-1	-1	+1	+1	+1	+1	+1	+1	+1	+1															
02/08/07	2,200	-1	-1	-1	-1	+1	-1	-1	-1	-1	-1	-1	-1														
08/08/07	1,500	-1	-1	-1	-1	+1	-1	-1	-1	-1	-1	-1	-1	-1													
02/22/08	4,400	-1	-1	-1	-1	+1	-1	+1	-1	+1	-1	+1	-1	+1	+1												
08/13/08	7,500	-1	-1	-1	+1	+1	+1	+1	+1	+1	+1	+1	+1	+1	+1	+1											
02/11/09	1,900	-1	-1	-1	-1	+1	-1	-1	-1	-1	-1	-1	-1	-1	+1	-1	-1										
08/27/09	3,300	-1	-1	-1	-1	+1	-1	+1	-1	+1	-1	+1	-1	+1	+1	-1	-1	+1									
02/18/10	2,700	-1	-1	-1	-1	+1	-1	+1	-1	+1	-1	+1	-1	+1	+1	-1	-1	+1	-1								
08/12/10	3,200	-1	-1	-1	-1	+1	-1	+1	-1	+1	-1	+1	-1	+1	+1	-1	-1	+1	-1	+1							

S Value:	**-54**
n:	**20**

Count Pos: 67 Count Neg: 121 Count Zed: 2

Confidence Level of the Trend = 95.70% **(From Hollander and Wolfe, 1973, Appendix A, Table A21)**

Notes:

TPHg/GRO = Total petroleum hydrocarbons as gasoline/gasoline range organics

ug/L = Micrograms per Liter

CE = Comparison Event

Negative Value = Declining Trend, Positive Value = Increasing Trend, Zero = Stable

Source: Hollander M. and D.A. Wolfe, 1973. Nonparametric Statistical Methods. Wiley, New York.

Mann-Kendall Analysis - MW-1

Former BP Service Station No. 11104
1716 Webster Street
Alameda, California

Sample Date	Benzene Concentration (ug/L)	CE1	CE2	CE3	CE4	CE5	CE6	CE7	CE8	CE9	CE10	CE11	CE12	CE13	CE14	CE15	CE16	CE17	CE18	CE19	CE20	CE21	CE22	CE23	CE24	CE25	CE26
02/12/01	363																										
08/13/01	161	-1																									
02/04/02	176	-1	+1																								
08/29/02	180	-1	+1	+1																							
02/05/03	29	-1	-1	-1	-1																						
08/14/03	210	-1	+1	+1	+1	+1																					
02/12/04	140	-1	-1	-1	-1	+1	-1																				
08/12/04	500	+1	+1	+1	+1	+1	+1	+1																			
02/10/05	120	-1	-1	-1	-1	+1	-1	-1	-1																		
08/11/05	500	+1	+1	+1	+1	+1	+1	+1	0	+1																	
02/09/06	180	-1	+1	+1	0	+1	-1	+1	-1	+1	-1																
08/10/06	720	+1	+1	+1	+1	+1	+1	+1	+1	+1	+1	+1															
02/08/07	100	-1	-1	-1	-1	+1	-1	-1	-1	-1	-1	-1	-1														
08/08/07	78	-1	-1	-1	-1	+1	-1	-1	-1	-1	-1	-1	-1	-1													
02/22/08	130	-1	-1	-1	-1	+1	-1	-1	-1	+1	-1	-1	-1	+1	+1												
08/13/08	220	-1	+1	+1	+1	+1	+1	+1	-1	+1	-1	+1	-1	+1	+1	+1											
02/11/09	26	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1										
08/27/09	37	-1	-1	-1	-1	+1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	+1									
02/18/10	32	-1	-1	-1	-1	+1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	+1	-1								
08/12/10	50	-1	-1	-1	-1	+1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	+1	+1	+1							

S Value:	**-58**
n:	**20**

Count Pos: 65 Count Neg: 123 Count Zed: 2

Confidence Level of the Trend = 96.80% (From Hollander and Wolfe, 1973, Appendix A, Table A21)

Notes:

ug/L = Micrograms per Liter

CE = Comparison Event

Negative Value = Declining Trend, Positive Value = Increasing Trend, Zero = Stable

Source: Hollander M. and D.A. Wolfe, 1973. Nonparametric Statistical Methods. Wiley, New York.

Mann-Kendall Analysis - MW-1

Former BP Service Station No. 11104
1716 Webster Street
Alameda, California

Sample Date	MTBE Concentration (ug/L)	CE1	CE2	CE3	CE4	CE5	CE6	CE7	CE8	CE9	CE10	CE11	CE12	CE13	CE14	CE15	CE16	CE17	CE18	CE19	CE20	CE21	CE22	CE23	CE24	CE25	CE26
02/12/01	18,000																										
08/13/01	5,590	-1																									
02/04/02	2,470	-1	-1																								
08/29/02	3,100	-1	-1	+1																							
02/05/03	590	-1	-1	-1	-1																						
08/14/03	4,500	-1	-1	+1	+1	+1																					
02/12/04	1,200	-1	-1	-1	-1	+1	-1																				
08/12/04	260	-1	-1	-1	-1	-1	-1	-1																			
02/10/05	730	-1	-1	-1	-1	+1	-1	-1	+1																		
08/11/05	190	-1	-1	-1	-1	-1	-1	-1	-1	-1																	
02/09/06	380	-1	-1	-1	-1	-1	-1	-1	+1	-1	+1																
08/10/06	47	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1															
02/08/07	130	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	+1														
08/08/07	140	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	+1	+1													
02/22/08	59	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	+1	-1	-1												
08/13/08	370	-1	-1	-1	-1	-1	-1	-1	+1	-1	+1	-1	+1	+1	+1	+1											
02/11/09	68	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	+1	-1	-1	+1	-1										
08/27/09	20	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1									
02/18/10	48	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	+1	-1	-1	-1	-1	-1	+1								
08/12/10	76	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	+1	-1	-1	+1	-1	+1	+1	+1							

S Value:	**-134**
n:	**20**

Count Pos: 28 Count Neg: 162 Count Zed: 0

Confidence Level of the Trend = 100.00% **(From Hollander and Wolfe, 1973, Appendix A, Table A21)**

Notes:

MTBE = Methyl tertiary butyl ether

ug/L = Micrograms per Liter

CE = Comparison Event

Negative Value = Declining Trend, Positive Value = Increasing Trend, Zero = Stable

Source: Hollander M. and D.A. Wolfe, 1973. Nonparametric Statistical Methods. Wiley, New York.

ATTACHMENT G

Regression Analysis

Estimated Time to Reach Water Quality Objective

Former BP Service Station No. 11104, 1716 Webster Street, Alameda, California

Well ID: **MW-1**

Constituent: **TPHg/GRO**

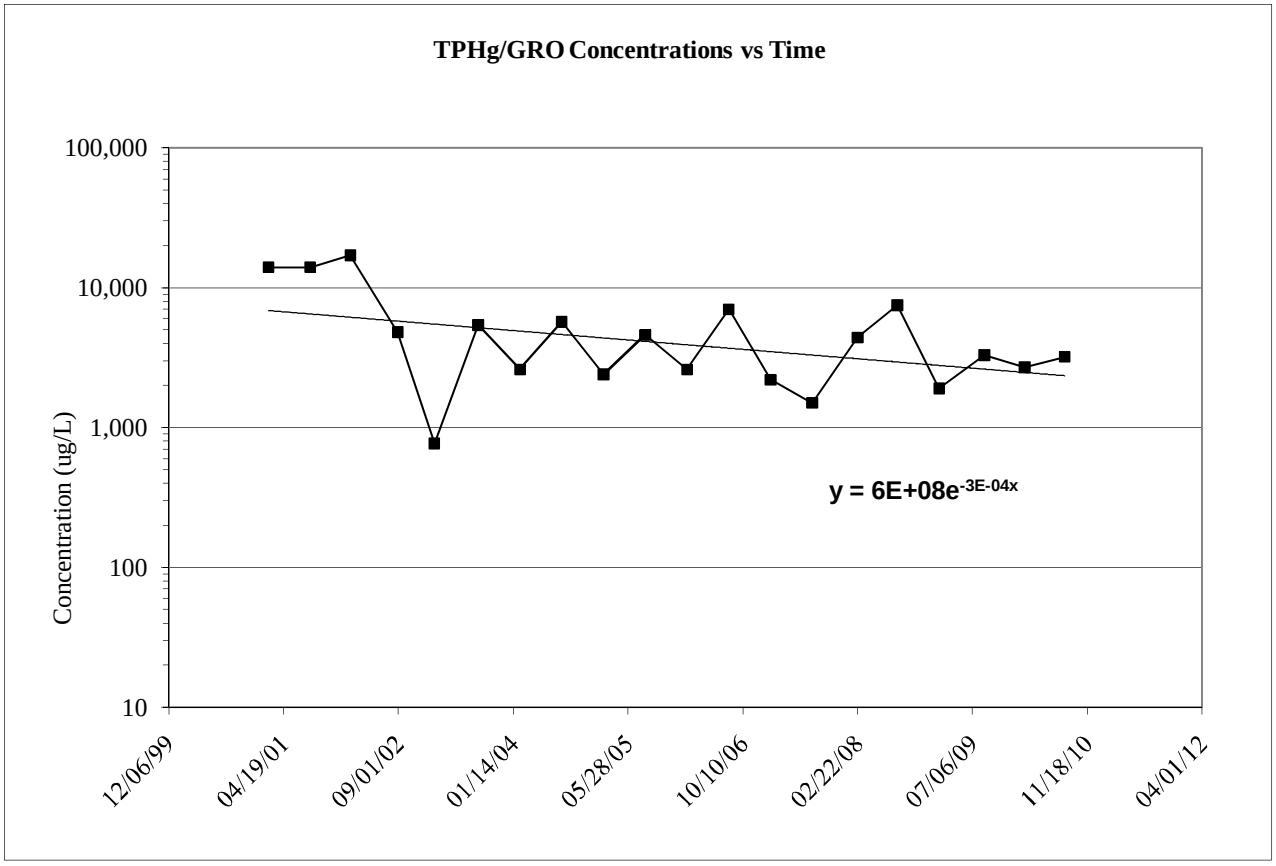
Calculation uses first-order decay equation:

$y = b\,e^{ax}$ **converts to:** $x = \ln(y/b) / a$

Given

Water Quality Objective:	y	100	ug/L
Constant:	b	6.00E+08	
Constant:	a	-3.00E-04	
Date of Peak Concentration:		1/27/1998	

Estimated Date to Reach WQO: (x = ln(y/b) / a) **June 7, 2042**



Estimated Time to Reach Water Quality Objective

Former BP Service Station No. 11104, 1716 Webster Street, Alameda, California

Well ID: **MW-1**

Constituent: **Benzene**

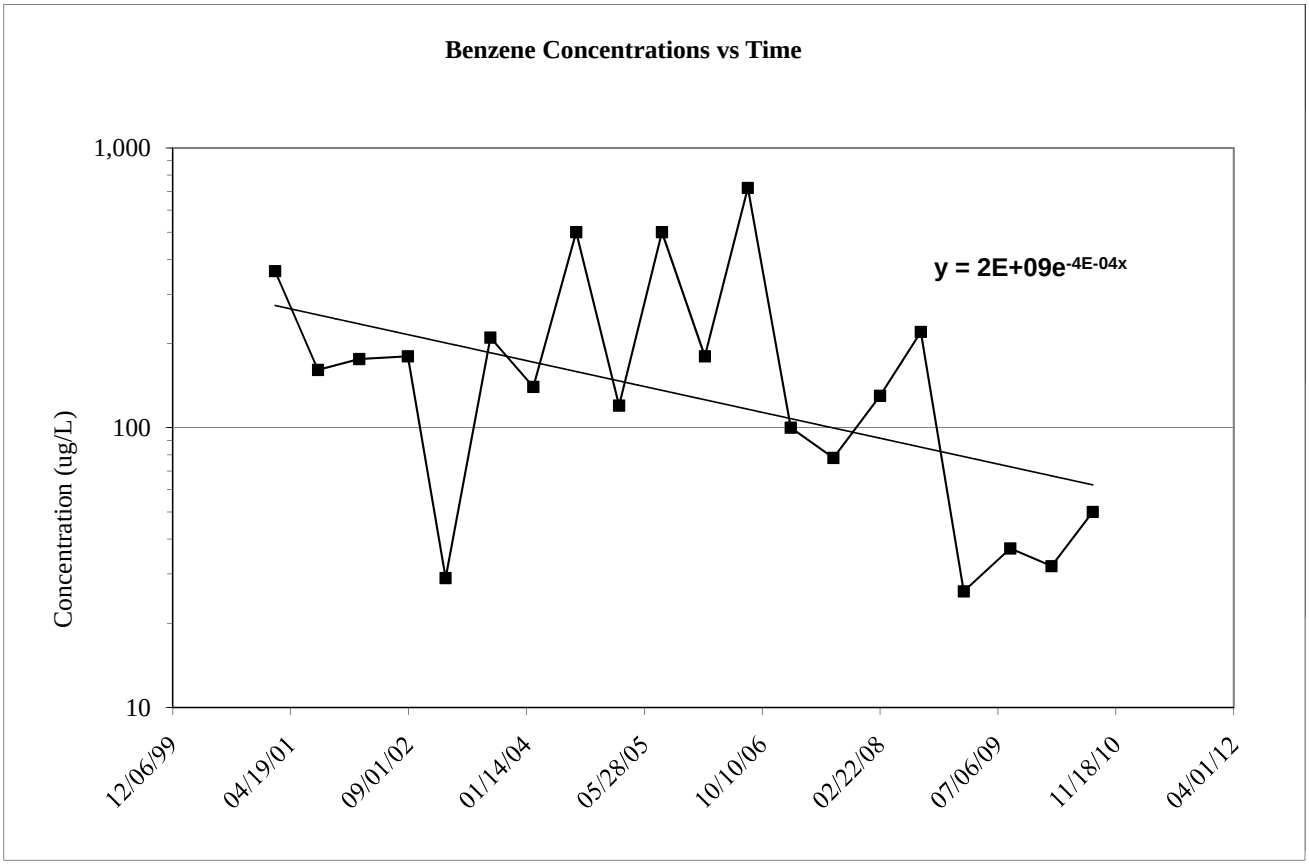
Calculation uses first-order decay equation:

$y = b\,e^{ax}$ **converts to:** $x = \ln(y/b) / a$

Given

Water Quality Objective:	y	1 ug/L
Constant:	b	2.00E+09
Constant:	a	-4.00E-04
Date of Peak Concentration:		7/9/1993

Estimated Date to Reach WQO: **(x = ln(y/b) / a)** **August 2, 2046**



Estimated Time to Reach Water Quality Objective

Former BP Service Station No. 11104, 1716 Webster Street, Alameda, California

Well ID: **MW-1**

Constituent: **MTBE**

Calculation uses first-order decay equation:

$y = b\,e^{ax}$ **converts to:** $x = \ln(y/b) / a$

Given

Water Quality Objective:	y	5 ug/L
Constant:	b	5.00E+30
Constant:	a	-1.67E-03
Date of Peak Concentration:		1/27/1998

Estimated Date to Reach WQO: **(x = ln(y/b) / a)** **August 2, 2013**