CAMBRIA

April 17, 2006

Mr. Jerry Wickham
Hazardous Materials Specialist
Alameda County Health Care Services Agency
1131 Harbor Bay Parkway, Suite 250
Alameda, California 94502-6577

Re: **Risk Evaluation and Request for Closure**
Temporarily Out-of-Service Shell Station
350 Grand Avenue
Oakland, California
SAP Code 135698
Incident No. 98995755
ACHCSA No. RO0000428

Dear Mr. Wickham:

Cambria Environmental Technology, Inc. (Cambria) is submitting this risk evaluation and request for case closure for the above referenced facility on behalf of Equilon Enterprises LLC dba Shell Oil Products US (Shell). This document is submitted in response to Alameda County Health Care Services Agency (ACHCSA) request for an evaluation for closure in correspondence dated February 8, 2006. Based on our review of the site background and conditions, this site meets the Regional Water Quality Control Board (RWQCB) definition of a low-risk fuel site, as described in their memorandum "*Interim Guidance on Required Cleanup at Low-Risk Fuel Sites*", dated January 5, 1996. A summary of the site background, site conditions, and documentation that this case meets the low-risk fuel site criteria are addressed below. A Site Closure Summary form and associated attachments is included in Appendix A.

SITE LOCATION AND DESCRIPTION

The site is a temporarily out-of-service Shell-branded Service Station, located at the northeast corner of the intersection of Grand Avenue and Perkins Street in Oakland, California (Figure 1). The station is currently closed while Shell is assessing the viability of the station to determine if they will re-open it or permanently close it. The fuel in the underground storage tanks (UST"S) has been pumped out and currently there is no product being stored at the site. The station layout consists of three gasoline USTs, four fuel dispensers, and a kiosk (Figure 2). The site also previously contained a diesel UST. The area surrounding the site consists of commercial and residential properties. Lakeside Park is located at the southwest corner of this intersection.

SITE BACKGROUND AND PROJECT HISTORY

The locations of borings and wells from which samples have been historically collected, and the locations of underground utilities discussed below are presented on Figure 2, for reference. The locations of all historical samples are presented on the figures in Attachment 1 of Appendix A.

Cambria Environmental Technology, Inc.

270 Perkins Street
Sonoma, CA 95476
Tel (707) 935-4850
Fax (707) 935-6649

Cumulative soil and grab groundwater analytical data are presented on Tables 1 and 2, respectively, in Attachment 2 of Appendix A. The historical groundwater monitoring data table is included in Attachment 3 of Appendix A. The construction specifications for each boring and well at this site is summarized on Table 3 in Attachment 4 of Appendix A, as well as all associated boring logs. A list of all known environmental documents associated with this site is included in Attachment 5 of Appendix A.

1990 Soil Borings: On May 11, 1990, GeoStrategies Inc. of Hayward, California (GSI) drilled five exploratory soil borings (S-A through S-E) at the site. The highest hydrocarbon concentration in soil was in boring S-A, located at the southwest corner of the property in the vicinity of the gasoline USTs. Constituents detected at a depth of 9.5 feet below grade (fbg) in this area were 2,900 milligrams per kilogram (mg/kg) total petroleum hydrocarbons as gasoline (TPHg), 2,400 mg/kg total petroleum hydrocarbons as diesel (TPHd), and 13 mg/kg benzene.

1991 Monitoring Well Installation: On January 7, 1991, GSI installed three monitoring wells (S-1, S-2, and S-3) at the site. Groundwater was encountered between 7 and 9 fbg. The highest hydrocarbon concentrations in soil and groundwater were reported in well S-2, located at the southwest corner of the property in the vicinity of the gasoline USTs. The maximum concentrations in soil at S-2 were 440 mg/kg TPHg, 360 mg/kg TPHd, and 4.5 mg/kg benzene in soil at 8.5 fbg. Groundwater from S-2 contained 2,500 micrograms per liter (µg/l) TPHg, 1,200 µg/l TPHd, and 550 µg/l benzene in groundwater. No TPHg, TPHd, or benzene was detected in the groundwater sample from wells S-1 or S-3.

1993 Hydropunch Borings: On January 27, 1993, GSI installed three Hydropunch ® borings (HP-1 through HP-3) at the site. The highest hydrocarbon concentrations were detected in boring HP-1, located crossgradient of the USTs. Maximum concentrations in HP-1 were 1,500 mg/kg TPHg, 18 mg/kg TPHd, and 0.11 mg/kg benzene in soil at 6.5 fbg; and 22,000 µg/l TPHg, 14,000 µg/l TPHd, and 2,500 µg/l benzene in groundwater. TPHg and benzene were not detected in soil or groundwater samples from borings HP-2 and HP-3, located downgradient of the USTs.

1996 Tank Removal: On April 22, 1996, Weiss Associates of Emeryville, California (WA) observed the removal of three 10,000-gallon gasoline USTs and one 10,000-gallon diesel UST and collected soil samples. Up to 4,800 mg/kg TPHg, 2,800 mg/kg TPHd, and 22 mg/kg benzene were detected in samples collected from the UST excavation, product piping trenches, and beneath the product dispensers (sample locations on figure in Attachment 1 of Appendix A).

1998 Potential Receptor Survey: In April 1998, Cambria identified wells and surface water bodies within a ½-mile radius of the site. As depicted on Figure 1, three water producing wells

are located between 2,075 feet and 2,540 feet cross gradient of the site. Lake Merritt is located approximately 900 feet south (downgradient) of the site. The potential receptor survey results were presented to the ACHCSA in Cambria's May 31, 1998 *MTBE Investigation Report.*

1998 Conduit Study: In September 1998, Cambria performed an investigation to locate underground utilities and local drainage systems near the site in an effort to identify potential preferential pathways for contaminant migration. Cambria contacted Underground Service Alert and used a private utility line locator to identify underground utilities. The City of Oakland was contacted to research locations, depths, and construction information of water, storm drain, and sanitary sewer conduits. The *Watershed Map of the Oakland-Berkeley Area* was reviewed to identify buried creeks, underground culverts, storm drains, and engineered channels in the area. The results of the study are depicted graphically on Figure 2.

1998 Geoprobe Well Installation: On April 16, 1998, Cambria installed two ¾-inch diameter pre-packed wells (S-4 and S-5) within the Grand Avenue right-of-way, downgradient of the site. No TPHg, benzene, toluene, ethylbenzene, or xylenes (BTEX), or methyl tertiary butyl ether (MTBE) were detected in soil or groundwater from wells S-4 and S-5.

1999 Geoprobe Boring Installation: In March 1999, Cambria installed three Geoprobe borings to evaluate whether utility conduit trenches serve as preferential pathways for the migration of impacted groundwater. Two borings (HP-4 and HP-5) were advanced within the sanitary sewer conduit trench along the north sidewalk on Grand Ave, and the third boring (HP-6) was advanced within Perkins Street. The maximum TPHg, TPHd, benzene, and MTBE concentration detected by EPA Method 8020 in soil was 408 mg/kg, 140 mg/kg, 2.22 mg/kg, and 2.52 mg/kg, respectively, in soil sample HP-4-10. Grab groundwater samples collected from HP-4 contained 83,000 µg/l TPHg, 100,000 µg/l TPHd, 1,000 µg/l benzene, and 2,000 µg/l MTBE (by EPA Method 8020). Grab groundwater samples from HP-5, near the diesel UST complex, contained 160 µg/l TPHg, but was below detection limits for TPHd, benzene, and MTBE. TPHg, BTEX, and MTBE were below detection limits in grab groundwater sample from HP-6.

2001 Dual-Phase Vapor Extraction (DVE) Pilot Test: In June 2001, Cambria conducted an 8-hour DVE pilot test on groundwater monitoring well S-2. DVE is the process of applying high vacuum through an airtight well seal to simultaneously extract soil vapors from the vadose zone and enhance groundwater extraction from the saturated zone. Approximately 50 gallons of groundwater were extracted during the 8-hour test. This data is consistent with the low permeability soil (sandy silt and silt) encountered at this site. Estimated mass removal through groundwater extraction of TPHg, benzene, and MTBE was 0.008, 0.0004, and 0.009 pounds, respectively. Estimated mass removal through vapor extraction of TPHg, benzene, and MTBE

was 2.44, 0.002, and 0.005 pounds, respectively. Based on this data, DVE from monitoring well S-2 does not appear to effectively recover hydrocarbons and MTBE from the subsurface.

July 2002 - Tank Backfill Wells: On July 10, 2002, two UST backfill wells were installed (T-1 and T-2). The installation activities were documented in Cambria's *Tank Backfill Well Installation Report and Investigation Work Plan Addendum* dated September 26, 2002.

2002 Groundwater Remediation: Cambria initiated mobile groundwater extraction (GWE) from the tank backfill wells using a vacuum truck at the site in October 2002 and continued until January 2004. The cumulative estimated volume of water removed from the site through GWE is 54,679 gallons which corresponds to the removal of approximately 2.56 pounds of MTBE.

2003 Interim Remediation: In an attempt to reduce the elevated concentrations of contaminants localized at well S-2, Cambria conducted DVE from groundwater monitoring well S-2 between September 16 and September 18, 2003. Approximately 35 gallons of groundwater were extracted during approximately 50 hours of DVE from S-2. Estimated mass removal through groundwater extraction is considered negligible. Cambria also conducted soil vapor extraction (SVE) from tank backfill well T-1 on September 18 in an effort to maximize mass removal and gain additional information about the site. Estimated mass removal from the site through vapor extraction of TPHg, benzene, and MTBE was 0.152, 0.0009, and 0.0042 pounds, respectively.

2004 Site Investigation: On April 13, 2004, Cambria installed four soil borings (HP-7 through HP-10) to assess the lateral extent of hydrocarbons in the soil and groundwater downgradient of the current dispensers, the USTs, and in the vicinity of utility lines. TPHg was detected in soil samples from HP-7 at 5, 10, and 15 fbg at concentrations ranging from 3.3 to 85 mg/kg; and from HP-9 at 10 fbg at 4,300 mg/kg. MTBE was detected in HP-7 at 5 and 15 fbg at 0.045 and 0.023 mg/kg, respectively. No benzene was detected in HP-7, no BTEX or MTBE were detected in HP-9, and no TPHg, BTEX, or MTBE were detected in HP-8 or HP-10. TPHg was reported in water samples from all four borings at concentrations ranging from 57 µg/l to the 89,000 µg/l in HP-9. The laboratory noted that the material reported as TPHg in HP-8 and HP-10 did not resemble their gasoline standard. Benzene was only detected in HP-9 at 480 µg/l. MTBE was reported in HP-7, HP-8, and HP-9 at concentrations of 89, 6.2, and 730 µg/l, respectively. No MTBE was detected in HP-10. Cambria concluded that the elevated contaminant concentrations observed near well S-2 and HP-4 are not laterally extensive to the east, the south, the southwest, the west, or the north. Based on the data from this and previous investigative activities, Cambria also concluded that the petroleum impacted groundwater is limited in its lateral extent to a relatively short distance from the source area. The borings installed near the subsurface utilities do not suggest that preferential contaminant migration is occurring via the water, electrical or

sanitary sewer lines. The groundwater near the storm drain lines located in Perkins Street was not assessed during this investigation. These activities were documented in Cambria's *Site Investigation Report* dated September 20, 2004.

2005 Site Investigation: On September 20 and 21, 2005, Cambria installed five hand-augered soil borings (B-1 through B-5) and one Cone Penetration Test (CPT) boring (CPT-1) at the site in an effort to assess the soil vapor potential near the kiosk, the vertical extent of groundwater impact in the source area, and the presence of petroleum constituents near the storm drains in Perkins Street (south of Grand). TPHg was detected in the soil sample from boring B-2 at 6 fbg at 2.4 mg/kg. The laboratory noted that the result represented the quantity of unknown hydrocarbons in the sample based on gasoline carbon range. MTBE was detected in soil samples from B-2 at 3, 6, and 9.5 fbg at 0.0054, 0.17, and 0.15 mg/kg, respectively. Benzene was not detected in any of the soil samples above minimum laboratory detection limits. The groundwater sample collected from CPT-1 at 36 fbg contained 240 µg/l TPHg and 17 µg/l MTBE. Again for TPHg, the laboratory noted that the result represented the quantity of unknown hydrocarbons in the sample based on gasoline carbon range. No benzene was detected in this sample. The groundwater sample collected from CPT-1 at 58 fbg did not contain any detectable constituents.

Cambria concluded that the subsurface conditions at this site do not pose a vapor threat to onsite commercial workers in the kiosk because:

1. The extent of impacted soil beneath the dispensers is not laterally extensive;
2. The concentrations of contaminants reported in the shallow soils near the kiosk do not pose a potential vapor threat; and,
3. The groundwater impact at this site appears to be limited to the areas near the UST complex (downgradient of the kiosk).

Cambria also concluded that because the petroleum constituents in groundwater near source area well S-2 attenuate significantly with depth, and are below laboratory method detection limits at 58 fbg, that the vertical extent of groundwater impact has been defined.

Cambria further concluded that the storm drains along Perkins Street are not likely acting as conduits for preferential migration of contamination, and may in fact be acting more as a hydraulic barrier to groundwater flow. This was based on the very tight formation with low groundwater yield near well S-2 (confirmed by past extraction attempts), a review of groundwater flow on and off the site, the absence of contamination in offsite wells S-4 and S-5 (on either side of the storm drains), and a review of contour maps which suggested that any migration via groundwater would be detectable in well S-4. These activities were documented in Cambria's *Site Investigation Report* dated December 2, 2005.

2005 Drinking Water Assessment: During the first quarter of 2005 groundwater sampling event, monitoring wells were analyzed for total dissolved solid (TDS) and salinity. TDS ranged from 440 to 1,600 mg/l and salinity ranged from 0.29 to 0.9 (unitless). Thus, the groundwater cannot be eliminated as a potential drinking water source based on TDS or salinity. These results were presented in Cambria's May 31, 2005 *Groundwater Monitoring Report – First Quarter 2005.*

Groundwater Monitoring: Groundwater monitoring has been conducted at the site since well installation in 1991. The highest concentrations of constituents have consistently been found in the onsite source area well S-2 with historical maximum concentrations of 120,000 µg/l TPHg, 36,000 µg/l TPHd, 10,000 µg/l benzene, 30,200 µg/l MTBE, and 6,000 µg/l tertiary butyl alcohol (TBA) (analyzed by EPA Method 8260). As of October 2005, the current onsite maximum concentrations of constituents (also in well S-2) have decreased to 11,000 µg/l TPHg, 3,200 µg/l TPHd, 230 µg/l benzene, 1,200 µg/l MTBE, and 1,400 µg/l TBA (by EPA Method 8260). Although still somewhat elevated, the concentrations in well S-2 continue to decline, indicating a shrinking plume, and the remaining wells (S-1, S-3, S-4, and S-5) delineate the extent of the plume in their respective directions.

The majority of the TPHd reported in historical and current samples collected from well S-2, which monitors the source area of the historical release at the site, contain laboratory notes stating that the compounds reported as TPHd appear to be the less volatile constituents of gasoline, or are primarily due to the presence of lighter petroleum product, possibly gasoline, or is early in the diesel range and does not match the laboratory standard. Cambria asserts that the TPHd currently reported at this site can be attributed to the heavier portion of weathered gasoline that falls in the TPHd range, and **that TPHd is not a chemical of concern (COC) at this site**.

SITE CONDITIONS

Hydrogeology: Historically, depth to water at the site has been observed as high as 3.76 fbg and as low as 14.67 fbg. As demonstrated by the Rose Diagram on Figure 2, groundwater flow direction at the site is fairly consistent to the south with a typical gradient of 0.02.

Water Basin Setting: According to the *East Bay Plain Groundwater Basin Beneficial Use Evaluation Report,* (California Regional Water Quality Control Board – San Francisco Bay Region, June 1999), the site is located within the Oakland Sub-Area of the San Francisco Basin of the East Bay Plain. The Oakland Sub-Area contains a sequence of alluvial fans. The alluvial fill is thickness ranges from 300 to 700 feet deep. There are no well-defined aquitards such as the estuarine muds. The largest and deepest wells in this Sub-Area historically pumped 1 to 2 million gallons per day at depths greater than 200 feet. Overall, sustainable yields are low due to low

recharge potential. Primary surface water bodies in the vicinity of the site are the San Francisco Bay, which is located approximately 2.5 miles west-northwest of the site, the Oakland Inner Harbor located approximately 1.5 miles south of the site, and Lake Merritt, a tidal lake, located approximately 900 feet south (downgradient) of the site. Designated existing beneficial uses of groundwater in the East Bay Plain are municipal and domestic, industrial process, industrial service and agricultural water supply.

Geologic Setting: The elevation of the site is approximately 24 feet above mean sea level. Topography in the area slopes to the south and toward Lake Merritt. United States Geological Survey (USGS) publications and maps indicate that the site area is underlain by Holocene and Pleistocene Era Merritt Sand (symbol Q_{ms}) (*Geologic Map and Map Database of the Oakland Metropolitan Area, Alameda, Contra Costa, and San Francisco Counties, California, USGS,* R.W. Graymer, 2000). USGS describes Merritt sand (Holocene and Pleistocene) as fine-grained, very well sorted well drained eolian deposits of western Alameda County. The Merritt sand outcrops in three large areas in Oakland and Alameda. Previously thought to be only of Pleistocene age, the Merritt sand is probably time-correlative with unit Q_{ds}, based on similar interfingering with Holocene bay mud (Q_{hmb}) and presumably similar depositional environments associated with long-term sea-level fluctuations. The Merritt sand displays different morphology from unit Q_{ds}, however, forming large sheets up to 15 meters high with yardang morphology. Soil types encountered while drilling at the site generally consisted of layers of clay and silty clay (CL), silt and clayey silt (ML), and clayey sandy silt (ML) interbedded with layers of sandy gravel (GW) to approximately 20 fbg, underlain by predominantly silt (ML) interbedded with occasional layers of sandy silt (SM) up to 3 feet in thickness to the explored depth of 60 fbg.

Hydrocarbon Distribution in Soil

Historical soil sampling performed at the site (102 samples analyzed between 1990 and 2005) indicate that residual soil impacts at the site are not laterally extensive and are mainly confined to the vicinity of the USTs and the dispenser area (Table 1 in Attachment 2 of Appendix A). Soil impacts in these areas have been predominantly found in shallow soils (less than 10 fbg), but have been reported at low concentrations between 15 to 20 fbg. The deeper impact at most locations likely represents groundwater impact, since the soils were below the soil water interface. Historically, maximum concentrations of COC have been reported at 4,800 mg/kg of TPHg, 22 mg/kg of benzene, and 2.52 mg/kg of MTBE.

Hydrocarbon Distribution in Groundwater:

Similar to site soil impacts, petroleum impacted groundwater at the site also appears limited in its' lateral extent to a relatively short distance from the source area of the gasoline fuel UST's. Groundwater impacts at this site at concentrations of concern have been reported mainly southwest of the gasoline fuel UST's, specifically in the onsite source well S-2, the tank backfill wells T-1 and T-2, the Hydropunch ® boring HP-1, and the Geoprobe ® borings HP-4 and HP-9 (Table 2 in Attachment 2, and Attachment 3, of Appendix A). Of the five groundwater monitoring wells located both on and offsite, the highest concentrations of COC have consistently been found in the onsite source area well S-2 with historical maximum concentrations of 120,000 µg/l TPHg, 10,000 µg/l benzene, 30,200 µg/l MTBE, and 6,000 TBA. As of October 2005, the onsite maximum concentrations of COC (also in well S-2) have decreased to 11,000 µg/l TPHg, 230 µg/l benzene, 1,200 µg/l MTBE, and 1,400 µg/l TBA (Attachment 3 of Appendix A). Although still somewhat elevated, the concentrations in well S-2 continue to decline, indicating a shrinking plume. Also as of October 2005, the remaining wells (S-1, S-3, S-4, and S-5) delineate the extent of the plume in their respective directions to below the lowest Environmental Screening Levels (ESLs) published in San Francisco Bay RWQCB's *Screening For Environmental Concerns At Sites With Contaminated Soil and Groundwater* (Interim Final – February 2005) of 100 µg/l TPHg, 1.0 µg/l benzene, 5.0 µg/l MTBE, and 12 µg/l TBA.

The vertical extent of groundwater impact has been delineated by the groundwater samples collected from CPT-1, located adjacent to source well S-2, which has been monitoring the most impacted water zone. The groundwater results from CPT-1 (Table 2 in Attachment 2 of Appendix A) indicate that all the petroleum constituents attenuate significantly with depth and are below laboratory method detection limits at 58 fbg.

REGULATORY STATUS AND RECOMMENDATIONS

The site conditions associated with the Shell operations meet the RWQCB criteria for a low-risk fuel site. As described by the January 5, 1995 RWQCB memorandum Regional Board Supplemental Instructions to State Water Board December 8, 1995, Interim Guidance on Required Cleanup at Low-Risk Fuel Sites, a low-risk groundwater case has the following general characteristics:

- The leak has stopped and ongoing sources, including free product, have been removed or remediated;
- The site has been adequately characterized;

- The dissolved hydrocarbon plume is not migrating;
- No water wells, deeper drinking water aquifers, surface water, or other sensitive receptors are likely to be impacted; and
- The site presents no significant risk to human health or the environment.

Each of these low-risk groundwater case characteristics, as they relate to the site, is discussed below.

The Leak Has Stopped and Ongoing Sources, Including Free Product, Have Been Removed

Soil borings and monitoring wells installed and sampled at this site between 1990 and 1993 reported soil and groundwater impacts at the site with the highest concentrations of petroleum hydrocarbon constituents in the soil and groundwater reported at the southwest corner of the property in the immediate vicinity of the gasoline UST's. The release was attributed to gasoline fuel UST's. In April of 1996, the three gasoline fuel UST's and a diesel UST were removed from the site, and replaced with three gasoline fuel UST's, and the piping and dispensers were replaced and upgraded. No free product has been observed in during any of the subsurface investigation activities performed at the site. With the replacement and upgrade of all the station facilities the source of hydrocarbons at the site has been removed. The continued declining concentration trends observed through the groundwater monitoring program at the site confirm that there has been no new or recent releases from the site.

The Site Has Been Adequately Characterized

As summarized above, the lateral and vertical extent of petroleum constituents in soil and groundwater are not laterally or vertically extensive, appear to be limited to the southwest corner of the property near the gasoline fuel UST's, and have been delineated to the degree necessary to determine whether the site presents a current threat to human health or the environment.

The Dissolved Hydrocarbon Plume Is Not Migrating

The groundwater flow direction at the site has been consistently toward the south. Historically, the maximum concentrations of COCs have consistently been reported in the source area well S-2. Investigative activities and on-going monitoring at the site since the year 1990 has

demonstrated that the extent of the plume is limited and elevated concentrations in S-2 are now declining. Declining trends in concentrations suggest that natural attenuation is occurring, and should continue to degrade the plume. Since the downgradient sampling activities (S-4 and S-5) showed that the petroleum plume never detached from the source area (i.e. maximum concentrations have always been, and continue to be, onsite), and a declining trend is observed onsite, the dissolved hydrocarbon plume is shrinking, and is anticipated to continue to shrink.

No Water Wells, Deeper Drinking Water Aquifers, Surface Water, or Other Sensitive Receptors are Likely to be Impacted

Based on the results of a sensitive receptor survey performed by Cambria in 1998, three water producing wells and a surface water body were identified within a ½ mile radius of the site (Figure 1). These findings were supported by a follow-up sensitive receptor survey performed by Cambria in October of 2003. One of the wells is located about approximately 2,540 feet west-southwest of the site and the other two wells are located approximately 2,075 feet west of the site. All three wells are located cross-gradient and across Lake Merritt from the site and therefore are unlikely to be impacted. The closest receptor identified was the surface water body of Lake Merritt, a tidal lake, located approximately 900 feet south of the site, and it is also not likely to be impacted. Thus, no water wells, drinking water aquifers, surface water, or other sensitive receptors are likely to be impacted from the Shell's operations at the site.

The Site Presents No Significant Risk to Human Health or the Environment

In order to evaluate potential risks to human health and environment by the residual soil and groundwater impacts at the site, and thus the potential for case closure of this site, Cambria compared the maximum concentrations of COCs in soil and groundwater samples to the Environmental Screening Levels (ESLs) published in San Francisco Bay RWQCB's *Screening For Environmental Concerns At Sites With Contaminated Soil and Groundwater* (Interim Final – February 2005). The nearest receptor offsite has been identified as the surface water body Lake Merritt, a tidal lake located about 900 feet south of the site (downgradient), which flows south through a tide gate into the Oakland Inner Harbor and then ultimately into San Francisco Bay. The site is a commercial property bounded by commercial buildings to the east, Grand Avenue to the south, Perkins Street to the west, and residential property to the north. The surrounding areas are a mix of commercial and residential use, and it is very unlikely that the subject property use, or local land use, will change in the foreseeable future. Although groundwater in this area cannot be precluded from being a potential future source of drinking water, it is not currently a source of drinking water. Given the mostly commercial nature of the local land use, the proximity to Lake Merritt, Oakland Inner Harbor and San Francisco Bay, and the shallow depth, it is unlikely that

the first water-bearing zone would be used as a source of drinking water in the foreseeable future. Further, in accordance with the June 1999 California Regional Water Quality Control Board, San Francisco Bay Region Groundwater Committee "East Bay Plain Groundwater Basin Beneficial Use Evaluation Report for Alameda and Contra Costa Counties, CA", the City of Oakland (among other cities) does not have plans to develop local groundwater resources for drinking water purposes, because of existing or potential saltwater intrusion, contamination, or poor or limited quantity. Thus, drinking water ELS's will not be evaluated.

Evaluation of Risk to Onsite Commercial Workers – Indoor Air

Petroleum impacted soil and groundwater needs to be evaluated in relation to its potential for risk to onsite commercial workers in the station building via migration of vapors to indoor air. For soils, Table A (below) presents the maximum concentrations of chemicals of concern (COCs) in the vadose zone soils collected in the vicinity of the site station building (kiosk) during the September 2005 site investigation, along with the applicable ESLs for protection of commercial workers to migration of vapors from soil to indoor air. For groundwater, Table A presents the groundwater concentrations in the grab groundwater sample collected from Geoprobe boring HP-7 near the kiosk in April of 2004, along with the applicable ESLs for indoor commercial air where soils are of low permeability (since site soils are known to be primarily clays and silts).

TABLE A

Constituents of Concern	Maximum Concentrations in Vadose Zone Soils Near Kiosk [Sample ID/Date] Units in mg/kg	ESLs for Protection of Onsite Commercial Worker/Indoor Air (Table E-1b) Units in mg/kg	Concentrations in Site Groundwater Near Kiosk [HP-7, 04/04] Units in µg/l	ESLs for Protection of Onsite Commercial Worker/Indoor Air Low Permeability Soils (Table E-1a) Units in µg/l
TPHg	2.4/<50 [B-2-6'/B-1-5.5', 09/05]	Not Available Use soil gas	1,300	Not Available Use soil gas
Benzene	<0.50 [B-1-5.5', 09/05]	0.51	<1.0	6,400
Toluene	<0.50 [B-1-5.5', 09/05]	310	<1.0	530,000
Ethylbenzene	<0.50 [B-1-5.5', 09/05]	390	25	170,000
Xylenes	<0.50 [B-1-5.5', 09/05]	420	17	160,000
MTBE	0.17 [B-2-6', 09/05]	5.6	89	150,000

Based on the above data, **the residual impacted soils and groundwater in the vicinity of the onsite commercial building do not appear to pose a threat to onsite receptors** (specifically onsite commercial workers by migration of vapors to indoor air), for those constituents where ESLs are provided. For TPHg there are currently no ESLs established for protection of indoor air, and the use of specific soil gas samples is recommended for some cases. For this site, the maximum residual soil contaminants were reported for samples collected in 2005 from borings adjacent to the kiosk and residual groundwater contaminants were reported from samples collected in 2004 from boring HP-7 also located in the vicinity of the kiosk. Given the limited extent of soil impact, the tight soils which would limit vapor migration, the ambient concentrations of petroleum constituents from onsite fueling operations, and based on Cambria's experience at similar sites where soil gas sampling has been performed, Cambria asserts that the potential impact to indoor commercial air from the impacted soil and groundwater is very low and **does not warrant soil gas sampling** for TPHg.

Evaluation of Risk to Onsite Construction Workers

Petroleum impacted soil also needs to be evaluated in relation to its potential for risk to construction workers that may come in contact with the impacted soils onsite. Table B presents the maximum concentrations of COCs in the vadose zone soils historically reported on the site and the applicable ESLs for protection of the occasional construction worker coming in contact with impacted soil at this site.

TABLE B

Constituents of Concern	Maximum Concentrations in Vadose Zone Soils [Sample ID/Date] Units in mg/kg	ESLs for Protection of Construction Worker (Table K-3) Units in mg/kg
TPHg	4,800 [Disp-7@2', 04/96]	6,000
Benzene	**22** [P-2@3', 04/96]	16
Toluene	210 [P-9@2', 04/96]	650
Ethylbenzene	74 [P-9@2', 04/96]	400
Xylenes	**490** [P-9@2', 04/96]	420
MTBE	2.52 [HP-4-10', 03/99]	2,500
Total Lead	38 [S-B-6.5', 05/90]	750

Based on the above data, only benzene and xylenes slightly exceed the ESL's for construction worker. With regard to benzene and xylenes, the samples shown are the only samples of each constituent out of the 102 samples historically analyzed (1990 through 2005) which exceed the ESL. Given that these two samples only slightly exceed the respective ESL, that they were analyzed in 1996, and the natural attenuation documented at this site, it is highly likely that the concentration of these constituents at these locations are currently below their respective ESLs. Therefore, **the residual impacted soils do not appear to pose a threat to construction workers that may occasionally come in contact with the impacted soils onsite.** Further, any worker doing trenching or excavating at a gasoline station would be properly trained and prepared for encountering impacted soil.

Evaluation of Risk to Offsite Receptors from Impacted Groundwater

As presented previously in this document, the nearest offsite receptor has been identified as a tidal lake (Lake Merritt) located about 900 feet south and downgradient of the site, which connects via tidal gate through a tidal channel to the Oakland Inner Harbor and then San Francisco Bay. Given the distance from the site and the decreasing concentrations in site groundwater it is unlikely that constituents from this site would reach this receptor. Further, as previously noted, migration of constituents via utility conduits is not likely. However, an evaluation of the potential risk to marine surface water bodies is prudent to evaluate the possible, although unlikely, potential for site groundwater to reach this receptor. Table C below presents the maximum concentrations of COC's in shallow groundwater found in well S-2, which monitors the site source area in the southwestern corner of the property and is located the near the property boundary, collected during the most recent sampling of this well in October of 2005, and a comparison to the ESLs for protection of marine surface water bodies.

TABLE C

Constituents of Concern	Maximum Concentrations in Site Groundwater Source Area and Near Property Boundary [S-2, 10/05] Units in µg/l	ESLs for Protection of Surface Water Bodies – Marine Habitat (Table F-2b) Units in µg/l
TPHg	**11,000**	3,700
Benzene	230	350
Toluene	38	2,500
Ethylbenzene	**320**	290
Xylenes	21	100
MTBE	1,200	8,000
TBA	1,400	18,000

Based on the data in Table C, with the exception of the TPHg and the ethylbenzene results, the maximum concentrations of COC's reported in source area well S-2 near the property boundary **do not exceed any of the ESLs for protection of a marine habitat surface water body.** Although the concentrations of TPHg and ethylbenzene reported in well S-2 (October 2005) exceed the respective ESL's, the downgradient delineation of the plume by offsite borings HP-2, HP-3, and HP-8, and by offsite wells S-4 and S-5 to below detection limits (with the exception of 57 µg/l TPHg in HP-8) demonstrate that the plume has not migrated off site to potentially impact any offsite receptors. Thus, given the delineation and shrinking nature of the plume, and expected continuation of natural attenuation to reduce concentrations of COC's, the groundwater conditions at this site do not appear to pose a threat to offsite receptors.

Risk Evaluation Conclusions

The site use is likely to remain a gasoline station and the area is likely to remain in it's current commercial residential mix of land use. Specifically, the residential uses will likely remain predominantly upgradient of the site, and the properties bounding the subject site will likely remain as predominantly commercial and streets. Given the concentrations of contaminants in site soil and groundwater in relation to the ESLs presented above, the distance to the nearest receptor and the absence of conduits acting as preferential pathways, and given decreasing concentration trends, shrinking groundwater plume, and natural attenuation that is occurring, Cambria concludes that the residual petroleum impacts at this site pose very little, or no risk to human health or the environment currently, or in the foreseeable future.

RECOMMENDATION FOR CASE CLOSURE

Petroleum impacts have been adequately delineated, the groundwater plume has been shown to be shrinking and not migrating, the nearby conduits do not appear to be acting as preferential pathways, and the risk evaluation effectively demonstrates that the residual petroleum impacted soil and groundwater at the site do not pose a threat to human health or the environment. Natural attenuation is occurring at this site and is expected to continue to reduce residual concentrations of petroleum constituents with or without monitoring. Therefore, additional investigation and monitoring at this site are not warranted and would only provide redundant information. Cambria recommends that the ACHCSA consider granting case closure. Since additional monitoring is not warranted and would not provide new data for the site, Cambria recommends that the monitoring program be suspended during the agency's review of this submittal and consideration of closure

CLOSING

Please contact Dennis Baertschi at (707) 268-3813, or Ana Friel at (707) 268-3812, if you have any questions or comments regarding this report.

Sincerely,
Cambria Environmental Technology, Inc.

Dennis Baertschi
Project Geologist

Ana Friel, PG
Senior Project Geologist

Attachments

Figure 1. Vicinity/Area Well Survey Map
Figure 2. Historical Boring Location Map

Appendix A. Site Closure Summary Form with Attachments 1 - 5

cc: Mr. Denis Brown, Shell Oil Products US

I:\Oakland 350 Grand Ave\REPORTS\Risk Eval Closure Doc Apr 06\350 Risk Eval NFAR APr 06.doc

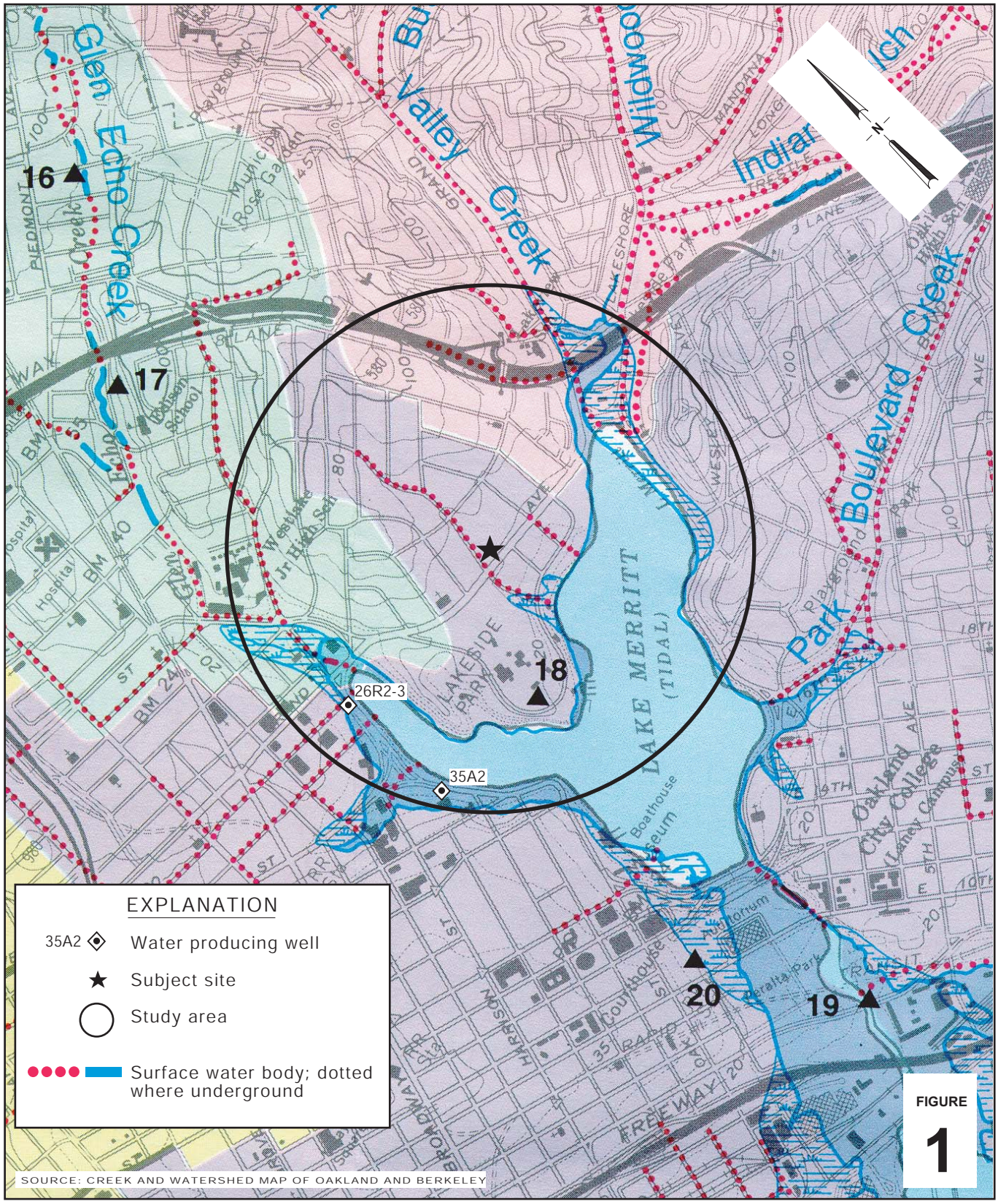


FIGURE
1

Shell-branded Service Station
350 Grand Avenue
Oakland, California

CAMBRIA

Vicinity/Area Well Survey Map

30-Mar-06

Historical Boring Location Map

EXPLANATION

- Groundwater monitoring well
- Soil boring location
- Tank backfill well location
- E — Electric utility line
- W — Water main utility line
- G — Gas utility line
- SS — Sanitary sewer utility line
- SD — Storm drain utility line
- PB — Pacific Bell utility line
- Manhole

Apartments

SD 30"ϕ

SD 18"ϕ

SS 8"ϕ

W 6"ϕ

HP-10

Planter

Trash Enclosure

S-3

B-2

Planter

Canopy

Dispensers

8 7 6 5

B-4

Kiosk

B-3

2 1 4 3

B-1

Planter

Commercial Building

Commercial Building

Commercial Building

HP-1

T-1

HP-7

Commercial Building

Former Diesel UST

S-A

UST

S-C

S-E

HP-6

CPT-1

T-2

S-B

S-D

S-2

Planter

HP-5

S-1

HP-9

SS 8"ϕ

E

SS 8"ϕ

HP-4

HP-8

HP-2

PB

G

SS 10"ϕ

GRAND AVENUE

S-5

G

E

SS 8"ϕ

Planter

S-4

W 36"ϕ

G

E

SS 8"ϕ

G

G

Planter

Planter

B-5

Apartments

Ta-Ke Sushi

Apartments

Lakeside Park

PERKINS STREET

HP-3

SD

SD 33"ϕ

W 18"ϕ

N

E

W

S

Groundwater Flow Direction
(1Q98 to 1Q03)

N

E

W

S

One Irrigation Well and One Domestic Well ~ 1,980'

Lake Merritt ~ 1,350'

One Irrigation Well ~ 2,560'

N

Scale (ft)

0 25 50 100

FIGURE

2

Shell-branded Service Station
350 Grand Avenue
Oakland, California

CAMBRIA

0715

Appendix A

Site Closure Summary Form

And Attachments 1 - 5

SITE CLOSURE SUMMARY

I. AGENCY INFORMATION

Date: April 17, 2006

Agency Name: Alameda County Health Care Services Agency	Address: 1131 Harbor Bay Parkway, Suite 250
City/State/Zip: Alameda, CA 95402-6577	Phone: (510) 567-6791
Responsible Staff Person: Mr. Jerry Wickham	Title: Hazardous Material Specialist

II. SITE INFORMATION

Site Facility Name: Shell branded Service Station		
Site Facility Address: 350 Grand Avenue, Oakland, California		
RB Case Nos.: 01-1360	Local or LOP Case No.: RO0000428	Priority:
URF Filing Date: 4/25/91	SWEEPS No.	
Responsible Parties (include addresses and phone numbers)		
Shell Oil Products US, 20945 S. Wilmington Avenue, Carson, CA 90810, (707) 865-0251		

Tank No.	Size in Gallons	Contents	Closed In—Place/Removed?	Date
1	10,000	Gasoline	Removed	4/22/96
2	10,000	Gasoline	Removed	4/22/96
3	10,000	Gasoline	Removed	4/22/96
4	10,000	Diesel	Removed	4/22/96
5	10,000	Gasoline		
6	10,000	Gasoline		
7	10,000	Gasoline		

III. RELEASE AND SITE CHARACTERIZATION INFORMATION

Cause and Type of Release: Petroleum Hydrocarbon (Gasoline) release from loss of integrity of UST(s) at site		
Site characterization complete? YES	Date Approved by Oversight Agency:	
Monitoring wells installed? YES	Number: 5	Proper screened interval? YES
Highest GW Depth Below Ground Surface: 3.76 ft	Lowest Depth: 14.67 ft	Flow Direction: Southerly
Most Sensitive Current Use: Commercial		
Most Sensitive Potential Use and Probability of Use = Commercial	Drinking water potential = Unlikely	
Are drinking water wells affected? NO	Aquifer Name: NA	

Is surface water affected? NO	Nearest surface water name: Lake Merritt -900 ft south of site
Off-Site Beneficial Use Impacts (Addresses/Locations): NONE	
Report(s) on file? YES	Where is report(s) filed? ACHCSA & SFBRWQCB

TREATMENT AND DISPOSAL OF AFFECTED MATERIAL

Material	Amount (Include Units)	Action (Treatment or Disposal w/Destination)	Date
Tank	4 tanks	Removed and hauled to approved landfill	4/22/96
Piping	From 1996 upgrades	Removed and hauled to approved landfill	4/22/96
Free Product	NA		
Soil	1,600 tons	Hauled to Forward Landfill	4/24-5/9/96
	0.26 Tons	Hauled to Forward Landfill	4/29/04
Groundwater	54,679 gallons	Recycled at Shell Martinez Refinery	6/21/01 – 1/12/04

MAXIMUM DOCUMENTED POLLUTANT CONCENTRATIONS—BEFORE AND AFTER CLEANUP

POLLUTANT	Soil (ppm)		Water (ppb)		POLLUTANT	Soil (ppm)		Water (ppb)	
	Before	After	Before	After		Before	After	Before	After
TPHg	4,800	2.4	120,000	11,000	Xylenes	490	<0.50	4,900	21
TPHd	2,800	NA	36,000	3,200	MTBE	2.52	0.17	30,200	1,200
Benzene	22	<0.50	10,000	230	TBA	NA	NA	6,000	1,400
Toluene	210	<0.50	1,200	38					
Ethyl benzene	74	<0.50	4,400	320					

Comments (Depth of Remediation, etc.):

The vertical and lateral extent of impact at the site has been delineated and does not indicate significant offsite impact. Site investigations have shown that onsite concentrations of petroleum hydrocarbon constituents are continuing to decline through natural attenuation processes, and that the groundwater plume is shrinking. Residual concentrations in soil and groundwater pose no threat to current onsite use or anticipated future uses, to occasional onsite construction worker, or to nearest receptor, therefore pose little or no risk to human health or the environment.

IV. CLOSURE

Does completed corrective action protect existing beneficial uses per the Regional Board Basin Plan? YES		
Does completed corrective action protect potential beneficial uses per the Regional Board Basin Plan? YES		
Does corrective action protect public health for current land use? YES		
Site Management Requirements: Destroy wells upon receipt of Agency approval.		
Monitoring Wells Decommissioned: No	Number Decommissioned: NA	Number Retained: 5
List Enforcement Actions Taken: NA		
List Enforcement Actions Rescinded: NA		

V. TECHNICAL REPORTS, CORRESPONDENCE, ETC.,THAT THIS CLOSURE RECOMMENDATION WAS BASED UPON: See Attachment 5

VI. ADDITIONAL COMMENTS, DATA, ETC.

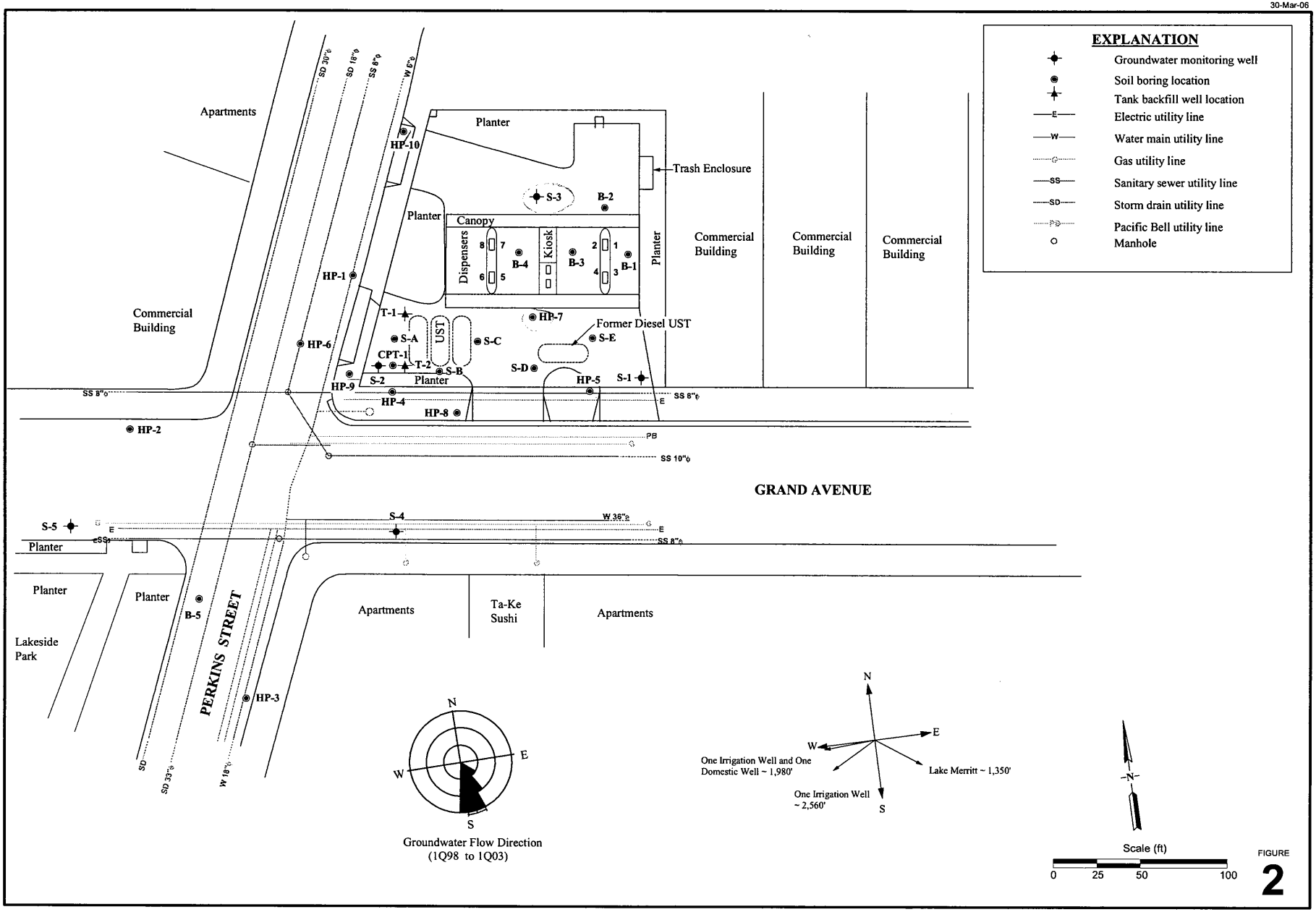
Attachment 1 Historical Sample Location Figures
Attachment 2 Historical Soil and Grab Groundwater Data Tables
Attachment 3 Historical Groundwater Monitoring Data Table
Attachment 4 Well/Boring Table and Boring Logs
Attachment 5 List of Known Environmental Documents

This document and the related CASE CLOSURE LETTER shall be retained by the lead agency as part of the official site file.

Attachment 1

Historical Sample Location Figures

30-Mar-06



Historical Boring Location Map

Shell-branded Service Station
350 Grand Avenue
Oakland, California

CAMBRIA

FIGURE
2

0715

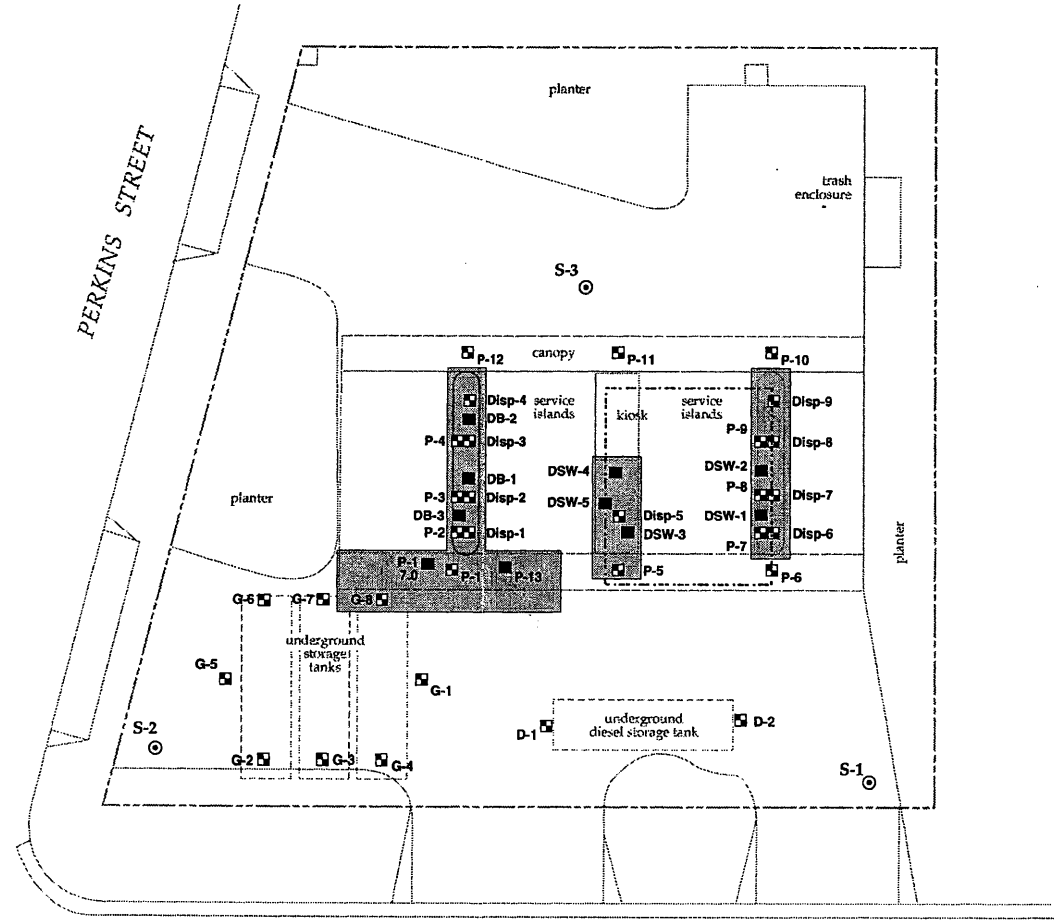


Figure 2. Soil Sampling and Existing Monitoring Well Locations - Shell Service Station WIC #204-5510-0204, 350 Grand Avenue, Oakland, California

Attachment 2

Historical Soil and Grab Groundwater Data Tables

Table 1. Historical Soil Analytical Data, Shell-branded Service Station, 350 Grand Avenue, Oakland, California

Sample ID	Date Sampled	Depth fbg	TPHg mg/kg	TPHd mg/kg	B mg/kg	T mg/kg	E mg/kg	X mg/kg	MTBE mg/kg	Lead mg/kg	Comments Work performed by
B-1-3'	21-Sep-05	**3.0**	<1.0	NA	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	NA	Cambria
B-1-5.5'	21-Sep-05	**5.5**	<50	NA	<0.50	<0.50	<0.50	<0.50	<0.50	NA	Cambria
B-2-3'	21-Sep-05	**3.0**	<1.0	NA	<0.0050	<0.0050	<0.0050	<0.0050	**0.054**	NA	Cambria
B-2-6'	21-Sep-05	**6.0**	**2.4**[a]	NA	<0.0050	<0.0050	<0.0050	<0.0050	**0.17**	NA	Cambria
B-2-9.5'	21-Sep-05	**9.5**	<1.0	NA	<0.0050	<0.0050	<0.0050	<0.0050	**0.15**	NA	Cambria
B-3-2.5'	21-Sep-05	**2.5**	<1.0	NA	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	NA	Cambria
B-4-1.5'	21-Sep-05	**1.5**	<1.0	NA	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	NA	Cambria
B-5-5'	20-Sep-05	**5.0**	<1.0	NA	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	NA	Cambria
B-5-9.5'	20-Sep-05	**9.5**	<1.0	NA	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	NA	Cambria
HP-7-5'	13-Apr-04	5.0	**4.0**	NA	<0.0050	<0.0050	**0.013**	**0.019**	**0.045**	NA	Cambria
HP-7-10'	13-Apr-04	10.0	**85**	NA	<0.50	<0.50	**0.53**	**0.68**	<0.50	NA	Cambria
HP-7-15'	13-Apr-04	15.0	**3.3**	NA	<0.0050	<0.0050	**0.036**	**0.025**	**0.023**	NA	Cambria
HP-7-19.5'	13-Apr-04	19.5	<1.0	NA	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	NA	Cambria
HP-8-5'	13-Apr-04	5.0	<1.0	NA	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	NA	Cambria
HP-8-10'	13-Apr-04	10.0	<1.0	NA	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	NA	Cambria
HP-8-11'	13-Apr-04	11.0	<1.0	NA	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	NA	Cambria
HP-8-14.5'	13-Apr-04	14.5	<1.0	NA	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	NA	Cambria
HP-9-5'	13-Apr-04	5.0	<1.0	NA	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	NA	Cambria
HP-9-10'	13-Apr-04	10.0	**4,300**	NA	<5.0	<5.0	<5.0	<5.0	<5.0	NA	Cambria
HP-10-5'	13-Apr-04	5.0	<1.0	NA	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	NA	Cambria
HP-10-9.5'	13-Apr-04	9.5	<1.0	NA	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	NA	Cambria

Table 1. Historical Soil Analytical Data, Shell-branded Service Station, 350 Grand Avenue, Oakland, California

Sample ID	Date Sampled	Depth fbg	TPHg mg/kg	TPHd mg/kg	B mg/kg	T mg/kg	E mg/kg	X mg/kg	MTBE mg/kg	Lead mg/kg	Comments Work performed by
HP-4-5.5'	17-Mar-99	5.5	<1.00	<1.0	<0.00500	<0.00500	<0.00500	<0.00500	<0.0500	NA	Cambria
HP-4-10'	17-Mar-99	10.0	**408**	**140**	**2.22**	**2.57**	<0.250	**0.35**	**2.52**	NA	Cambria
HP-4-15'	17-Mar-99	15.0	**1.91**	<1.0	<0.00500	<0.00500	**0.0151**	**0.00510**	**0.132**	NA	Cambria
HP-4-15.5'	17-Mar-99	15.5	<1.00	**5.1**	**0.00560**	<0.00500	<0.00500	<0.00500	**0.110**	NA	Cambria
HP-5-5'	17-Mar-99	5.0	<1.00	**1.1**	<0.00500	<0.00500	<0.00500	<0.00500	<0.0500	NA	Cambria
HP-5-7'	17-Mar-99	7.0	<1.00	**4.8**	<0.00500	<0.00500	<0.00500	<0.00500	<0.0500	NA	Cambria
HP-5-10.5'	17-Mar-99	10.5	<1.00	**1.8**	<0.00500	<0.00500	<0.00500	<0.00500	<0.0500	NA	Cambria
HP-5-14.5'	17-Mar-99	14.5	<1.00	**5.6**	<0.00500	<0.00500	<0.00500	<0.00500	<0.0500	NA	Cambria
HP-5-15'	17-Mar-99	15.0	<1.00	<1.0	<0.00500	<0.00500	<0.00500	<0.00500	<0.0500	NA	Cambria
HP-6-5'	17-Mar-99	5.0	<1.00	<1.0	<0.00500	<0.00500	<0.00500	<0.00500	<0.0500	NA	Cambria
HP-6-8'	17-Mar-99	8.0	<1.00	**5.2**	<0.00500	<0.00500	<0.00500	<0.00500	<0.0500	NA	Cambria
HP-6-10'	17-Mar-99	10.0	<1.00	**3.1**	<0.00500	<0.00500	<0.00500	<0.00500	<0.0500	NA	Cambria
HP-6-15'	17-Mar-99	15.0	<1.00	**3.8**	<0.00500	<0.00500	<0.00500	<0.00500	<0.0500	NA	Cambria
HP-6-19.5'	17-Mar-99	19.5	<1.00	**5.8**	<0.00500	<0.00500	<0.00500	<0.00500	<0.0500	NA	Cambria
HP-6-20'	17-Mar-99	20.0	<1.00	**1.4**	<0.00500	<0.00500	<0.00500	<0.00500	<0.0500	NA	Cambria
SB-1-7.5' (S-5)	16-Apr-98	7.5	<1.0	NA	<0.0050	<0.0050	<0.0050	<0.0050	<0.025	NA	Cambria
SB-2-6.0' (S-4)	16-Apr-98	6.0	<1.0	NA	<0.0050	<0.0050	<0.0050	<0.0050	<0.025	NA	Cambria
G-1	22-Apr-96	7.0	**840**	**430**	<1.5	<1.5	**7.0**	**5.0**	NA	NA	Weiss Associates
G-2	22-Apr-96	7.0	**9.1**	**17**	**0.025**	**0.34**	**0.072**	**0.93**	NA	NA	Weiss Associates
G-3	22-Apr-96	7.0	**4.4**	**11**	**0.0087**	**0.020**	<0.005	**0.014**	NA	NA	Weiss Associates
G-4	22-Apr-96	7.0	**830**	**420**	<1.5	<1.5	**10**	**5.5**	NA	NA	Weiss Associates
G-5	22-Apr-96	7.0	**130**	**100**	<0.10	<0.10	**0.17**	**0.74**	NA	NA	Weiss Associates
G-6	22-Apr-96	7.0	**4,100**	**1,600**	<10	<10	**17**	**12**	NA	NA	Weiss Associates
G-7	22-Apr-96	7.0	**2,700**	**1,900**	<3.0	<3.0	**8.8**	**14**	NA	NA	Weiss Associates
G-8	22-Apr-96	7.0	**340**	**210**	<0.25	<0.25	**0.77**	**0.94**	NA	NA	Weiss Associates

Table 1. Historical Soil Analytical Data, Shell-branded Service Station, 350 Grand Avenue, Oakland, California

Sample ID	Date Sampled	Depth fbg	TPHg mg/kg	TPHd mg/kg	B mg/kg	T mg/kg	E mg/kg	X mg/kg	MTBE mg/kg	Lead mg/kg	Comments Work performed by
D-1	22-Apr-96	8.5	**250**	**59**	<0.25	<0.25	**0.89**	**2.7**	NA	NA	Weiss Associates
D-2	22-Apr-96	8.5	**230**	**230**	<0.12	<0.12	**0.46**	**1.3**	NA	NA	Weiss Associates
DISP-1	22-Apr-96	2.0	**0.57**	**2.0**	<0.005	<0.005	<0.005	<0.005	NA	NA	Weiss Associates
DISP-2	22-Apr-96	2.0	**420**	**64**	<0.5	**1.4**	**5.1**	**22**	NA	NA	Weiss Associates
DISP-3	22-Apr-96	2.0	**9.2**	**49**	<0.012	**0.018**	**0.059**	**0.29**	NA	NA	Weiss Associates
DISP-4	22-Apr-96	2.0	**2.6**	**14**	**0.065**	<0.005	**0.053**	**0.095**	NA	NA	Weiss Associates
DISP-5	22-Apr-96	2.0	**1.4**	**3.3**	<0.005	**0.0056**	<0.005	**0.0085**	NA	NA	Weiss Associates
DISP-6	22-Apr-96	2.0	**7.2**	**4.6**	**0.0072**	**0.012**	**0.012**	**0.0075**	NA	NA	Weiss Associates
DISP-7	22-Apr-96	2.0	**4,800**	**2,800**	<10	**85**	**35**	**280**	NA	NA	Weiss Associates
DISP-8	22-Apr-96	2.0	**4,000**	**1,400**	<5.0	**120**	**49**	**420**	NA	NA	Weiss Associates
DISP-9	22-Apr-96	2.0	**770**	**2,800**	**3.6**	**11**	**8**	**61**	NA	NA	Weiss Associates
P-1	22-Apr-96	4.0	**1,300**	**820**	**5.5**	**57**	**24**	**140**	NA	NA	Weiss Associates
P-1	23-Apr-96	7.0	**68**	**6.2**	**0.80**	<0.05	**0.32**	**0.28**	NA	NA	Weiss Associates
P-2	22-Apr-96	3.0	**3,200**	**1,000**	**22**	**130**	**48**	**290**	NA	NA	Weiss Associates
P-3	22-Apr-96	3.0	**12**	**5.8**	**0.31**	**0.032**	**0.37**	**1.0**	NA	NA	Weiss Associates
P-4	22-Apr-96	3.0	**11**	**10**	**0.23**	**0.085**	**0.26**	**0.83**	NA	NA	Weiss Associates
P-5	22-Apr-96	2.5	**1.5**	**2.1**	<0.005	<0.005	<0.005	**0.0077**	NA	NA	Weiss Associates
P-6	22-Apr-96	2.0	**1.1**	**1.6**	<0.005	<0.005	<0.005	**0.0055**	NA	NA	Weiss Associates
P-7	22-Apr-96	2.0	**21**	**3.7**	<0.010	<0.010	**0.075**	**0.20**	NA	NA	Weiss Associates
P-8	22-Apr-96	2.0	**1,400**	**650**	<2.5	**17**	**11**	**83**	NA	NA	Weiss Associates
P-9	22-Apr-96	2.0	**4,200**	**610**	**6.8**	**210**	**74**	**490**	NA	NA	Weiss Associates
P-10	22-Apr-96	2.0	**2.3**	**3.7**	<0.005	**0.017**	**0.010**	**0.055**	NA	NA	Weiss Associates
P-11	22-Apr-96	2.5	**360**	**13**	**1.9**	**17**	**6.5**	**45**	NA	NA	Weiss Associates
P-12	22-Apr-96	2.5	**240**	**460**	**4.7**	<0.5	**4.8**	**2.1**	NA	NA	Weiss Associates
P-13	23-Apr-96	5.5	**3.8**	**1.6**	**0.053**	**0.0083**	**0.0098**	**0.020**	NA	NA	Weiss Associates

Table 1. Historical Soil Analytical Data, Shell-branded Service Station, 350 Grand Avenue, Oakland, California

Sample ID	Date Sampled	Depth fbg	TPHg mg/kg	TPHd mg/kg	B mg/kg	T mg/kg	E mg/kg	X mg/kg	MTBE mg/kg	Lead mg/kg	Comments Work performed by
DSW-1	23-Apr-96	2.5	**510**	**130**	<0.5	<0.5	**1.2**	**3.0**	NA	NA	Weiss Associates
DSW-2	23-Apr-96	2.5	**87**	**13**	**0.34**	**2.2**	**0.94**	**7.1**	NA	NA	Weiss Associates
DSW-3	23-Apr-96	2.5	<1.0	**1.6**	<0.005	<0.005	<0.005	<0.005	NA	NA	Weiss Associates
DSW-4	23-Apr-96	2.5	**3.8**	**2.5**	<0.005	**0.014**	**0.028**	**0.077**	NA	NA	Weiss Associates
DSW-5	23-Apr-96	2.0	**270**	**31**	<0.25	<0.25	**0.68**	**1.6**	NA	NA	Weiss Associates
DB-1	23-Apr-96	4.0	**46**	**5.2**	**0.091**	**0.13**	**0.66**	**1.7**	NA	NA	Weiss Associates
DB-2	23-Apr-96	4.0	**8.1**	**4.5**	**0.081**	**0.078**	**0.11**	**0.34**	NA	NA	Weiss Associates
DB-3	23-Apr-96	3.5	**33**	**3.6**	**0.34**	**0.077**	**0.20**	**0.14**	NA	NA	Weiss Associates
HP-1-6.5	27-Jan-93	6.5	**1,500**	**18.0**	**0.11**	**0.81**	**0.86**	**1.2**	NA	NA	GeoStrategies
HP-2-6.5	27-Jan-93	6.5	<1.0	<1	<0.0025	<0.0025	<0.0025	<0.0025	NA	NA	GeoStrategies
HP-3-6.5	27-Jan-93	6.5	<1.0	<1	<0.0025	<0.0025	<0.0025	<0.0025	NA	NA	GeoStrategies
S-1-4.5	07-Jan-91	4.5	<1.0	<1.0	<0.005	**0.005**	<0.005	<0.005	NA	NA	GeoStrategies
S-1-9.5	07-Jan-91	9.5	<1.0	<1.0	<0.005	<0.005	<0.005	<0.005	NA	NA	GeoStrategies
S-2-4.5	07-Jan-91	4.5	<1.0	**2.9**[b]	**0.031**	**0.006**	<0.005	**0.007**	NA	NA	GeoStrategies
S-2-8.5	07-Jan-91	8.5	**440**	**360**[b]	**4.5**	**1.6**	**11**	**12**	NA	NA	GeoStrategies
S-2-14.5	07-Jan-91	14.5	<1.0	<1.0	<0.005	<0.005	<0.005	<0.005	NA	NA	GeoStrategies
S-2-17.5	07-Jan-91	17.5	<1.0	<1.0	<0.005	<0.005	<0.005	<0.005	NA	NA	GeoStrategies
S-3-4.5	07-Jan-91	4.5	**20**	**23**[b]	**0.33**	**0.17**	**0.50**	**2.0**	NA	NA	GeoStrategies
S-3-9.0	07-Jan-91	9.0	<1.0	<1.0	<0.005	<0.005	<0.005	<0.005	NA	NA	GeoStrategies
S-A-4.5	11-May-90	4.5	<2.5	<5	**0.045**	<0.025	<0.025	<0.05	NA	**5.3**	GeoStrategies
S-A-9.5	11-May-90	9.5	**2,900**	**2,400**[b]	**13**	**7**	**44**	**210**	NA	**8.7**	GeoStrategies
S-A-13.5	11-May-90	13.5	<2.5	<5	<0.025	<0.025	<0.025	<0.05	NA	**5.7**	GeoStrategies

Table 1. Historical Soil Analytical Data, Shell-branded Service Station, 350 Grand Avenue, Oakland, California

Sample ID	Date Sampled	Depth fbg	TPHg mg/kg	TPHd mg/kg	B mg/kg	T mg/kg	E mg/kg	X mg/kg	MTBE mg/kg	Lead mg/kg	Comments Work performed by
S-B-6.5	11-May-90	6.5	**21**	**42***	**0.082**	<0.025	**0.24**	**0.91**	NA	**38**	GeoStrategies
S-B-9.0	11-May-90	9.0	**1,400**	**1,300[b]**	**7**	**3**	**31**	**130**	NA	**6.3**	GeoStrategies
S-B-13.5	11-May-90	13.5	**2.5**	<5	0.30	<0.025	**0.027**	**0.09**	NA	**9.3**	GeoStrategies
S-C-9.5	11-May-90	9.5	**22**	**20[b]**	**0.30**	**0.052**	**0.57**	**1.3**	NA	**3.5**	GeoStrategies
S-D-4.5	11-May-90	4.5	<2.5	<5	<0.025	<0.025	<0.025	<0.05	NA	**7.6**	GeoStrategies
S-D-9.0	11-May-90	9.0	<2.5	**36[b]**	<0.025	<0.025	<0.025	<0.05	NA	**9.2**	GeoStrategies
S-D-15.0	11-May-90	15.0	<2.5	<5	<0.025	<0.025	<0.025	<0.05	NA	**6.8**	GeoStrategies
S-E-9.5	11-May-90	9.5	<2.5	<5	**0.10**	<0.025	<0.025	**0.21**	NA	**2.6**	GeoStrategies
S-E-13.5	11-May-90	13.5	<2.5	<5	<0.025	<0.025	<0.025	<0.05	NA	**8.1**	GeoStrategies

Abbreviations:

Lead by EPA Method 7421

The following constituents analyzed by EPA Method 8015M, 8020, or 8260B:

TPHg = Total petroleum hydrocarbons as gasoline

TPHd = Total petroleum hydrocarbons as diesel

BTEX = Benzene, toluene, ethylbenzene, and xylenes

MTBE = Methyl tertiary butyl ether

mg/kg = Milligrams per kilogram

NA = Not analyzed

[a] = Quantity of unknown hydrocarbons in sample based on gasoline

[b] = Does not match typical diesel chromatograph pattern

<x = Not detected at reporting limit x

Table 2. Historical Grab Groundwater Analytical Data, Shell-branded Service Station, 350 Grand Avenue, Oakland, California

Sample ID	Date Sampled	TPHg µg/L	TPHd µg/L	B µg/L	T µg/L	E µg/L	X µg/L	MTBE µg/L
CPT-1-36-W	20-Sep-05	**240[a]**	NA	<0.50	<0.50	**4.6**	<1.0	**17**
CPT-1-58-W	21-Sep-05	<50	NA	<0.50	<0.50	<0.50	<1.0	<0.50
HP-7-W	13-Apr-04	**1,300**	NA	<1.0	<1.0	**25**	**17**	**89**
HP-8-W	13-Apr-04	**57[b]**	NA	<0.50	<0.50	<0.50	<1.0	**6.2**
HP-9-W	13-Apr-04	**89,000**	NA	**480**	**68**	**280**	**<100**	**730**
HP-10-W	13-Apr-04	**67[b]**	NA	<0.50	<0.50	<0.50	<1.0	<0.50
HP-4	17-Mar-99	**83,000**	**100,000**	**1,000**	**420**	**590**	**280**	**2,000**
HP-5	17-Mar-99	**160**	<50	<0.50	<0.50	<0.50	<0.50	<2.5
HP-6	17-Mar-99	<50	<50	<0.50	<0.50	<0.50	<0.50	<2.5 (<2.0)
SB-1	16-Apr-98	<50	**140[b]**	<0.50	<0.50	<0.50	<0.50	<2.5 (<2.0)
SB-2	16-Apr-98	<50	NA	<0.50	<0.50	<0.50	<0.50	NA
HP-1	06-Jan-93	**22,000**	**14,000**	**2,500**	**130**	**1,400**	**140**	NA
HP-2	06-Jan-93	<50	NA	<0.5	**4.4**	<0.5	<0.5	NA
HP-3	06-Jan-93	<50	NA	<0.5	<0.5	<0.5	<0.5	NA

Abbreviations:

The following constituents analyzed by EPA Method 8260B:

TPHg = Total petroleum hydrocarbons as gasoline

BTEX = Benzene, toluene, ethylbenzene, and xylenes

MTBE = Methyl tertiary butyl ether

µg/L = Micrograms per liter

<x = Not detected at reporting limit x

NA = Not analyzed

a = Quantity of unknown hydrocarbon(s) in sample

b = TPHg does not match laboratory standard

Attachment 3

Historical Groundwater Monitoring Data Table

WELL CONCENTRATIONS
Shell-branded Service Station
350 Grand Avenue
Oakland, CA

Well ID	Date	TPPH (ug/L)	TEPH (ug/L)	B (ug/L)	T (ug/L)	E (ug/L)	X (ug/L)	MTBE 8020 (ug/L)	MTBE 8260 (ug/L)	DIPE (ug/L)	ETBE (ug/L)	TAME (ug/L)	TBA (ug/L)	TOC (MSL)	Depth to Water (ft.)	GW Elevation (MSL)	DO Reading (ppm)
S-1	01/23/1991	<50	<50	<0.5	<0.5	<0.5	<0.5	NA	NA	NA	NA	NA	NA	20.84	9.73	11.11	NA
S-1	04/25/1991	<50	<50	<0.5	<0.5	<0.5	<0.5	NA	NA	NA	NA	NA	NA	20.84	7.37	13.47	NA
S-1	07/19/1991	<50	<50	6.8	<0.5	<0.5	<0.5	NA	NA	NA	NA	NA	NA	20.84	8.92	11.92	NA
S-1	10/09/1991	120	260d	10	<0.5	<0.5	<0.5	NA	NA	NA	NA	NA	NA	20.84	9.62	11.22	NA
S-1	01/23/1992	<50	<50	<0.5	<0.5	<0.5	<0.5	NA	NA	NA	NA	NA	NA	20.84	8.94	11.90	NA
S-1	04/27/1992	<50	70b	1.2	<0.5	<0.5	<0.5	NA	NA	NA	NA	NA	NA	20.84	7.06	13.78	NA
S-1	07/10/1992	<50	930	13	<0.5	<0.5	<0.5	NA	NA	NA	NA	NA	NA	20.84	8.31	12.53	NA
S-1	10/06/1992	62	110	<0.5	<0.5	<0.5	<0.5	NA	NA	NA	NA	NA	NA	20.84	9.55	11.29	NA
S-1	01/06/1993	85	81	1.1	<0.5	<0.5	<0.5	NA	NA	NA	NA	NA	NA	20.84	9.86	10.98	NA
S-1	04/26/1993	<50	53c	<0.5	<0.5	<0.5	<0.5	NA	NA	NA	NA	NA	NA	20.84	6.30	14.54	NA
S-1 (D)	04/26/1993	<50	53c	<0.5	<0.5	<0.5	<0.5	NA	NA	NA	NA	NA	NA	20.84	6.30	14.54	NA
S-1	07/20/1993	<50	140	<0.5	<0.5	<0.5	<0.5	NA	NA	NA	NA	NA	NA	20.84	8.78	12.06	NA
S-1	10/18/1993	<50	210	<0.5	<0.5	<0.5	<0.5	NA	NA	NA	NA	NA	NA	20.84	9.20	11.64	NA
S-1	01/07/1994	<50	<50	1.4	1.5	0.55	2.8	NA	NA	NA	NA	NA	NA	20.84	9.53	11.31	NA
S-1 (D)	01/07/1994	<50	53	1.2	1.5	<0.5	2.7	NA	NA	NA	NA	NA	NA	20.84	9.53	11.31	NA
S-1	04/11/1994	<50	320	2.8	<0.5	<0.5	<0.5	NA	NA	NA	NA	NA	NA	20.84	8.50	12.34	NA
S-1 (D)	04/11/1994	<50	220	2.6	<0.5	<0.5	<0.5	NA	NA	NA	NA	NA	NA	20.84	8.50	12.34	NA
S-1	07/14/1994	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	20.84	8.45	12.39	NA
S-1	07/19/1994	<50	110	<0.5	<0.5	<0.5	<0.5	NA	NA	NA	NA	NA	NA	20.84	9.07	11.77	NA
S-1	10/06/1994	110	370	1.4	<0.5	<0.5	<0.5	NA	NA	NA	NA	NA	NA	20.84	11.68	9.16	NA
S-1	01/04/1995	120	1,000	2.5	<0.5	1.5	1.7	NA	NA	NA	NA	NA	NA	20.84	8.51	12.33	NA
S-1	04/12/1995	<50	290	2.1	<0.5	<0.5	<0.5	NA	NA	NA	NA	NA	NA	20.84	6.66	14.18	NA
S-1 (D)	04/12/1995	<50	480	<0.5	<0.5	<0.5	<0.5	NA	NA	NA	NA	NA	NA	20.84	6.66	14.18	NA
S-1	07/07/1995	<50	370	5.5	<0.5	<0.5	<0.5	NA	NA	NA	NA	NA	NA	20.84	6.95	13.89	NA
S-1 (D)	07/07/1995	<50	450	6.5	<0.5	<0.5	<0.5	NA	NA	NA	NA	NA	NA	20.84	6.95	13.89	NA
S-1	10/05/1995	<50	200	3.9	1.2	<0.5	2.4	NA	NA	NA	NA	NA	NA	20.84	8.50	12.34	NA

WELL CONCENTRATIONS
Shell-branded Service Station
350 Grand Avenue
Oakland, CA

Well ID	Date	TPPH (ug/L)	TEPH (ug/L)	B (ug/L)	T (ug/L)	E (ug/L)	X (ug/L)	MTBE 8020 (ug/L)	MTBE 8260 (ug/L)	DIPE (ug/L)	ETBE (ug/L)	TAME (ug/L)	TBA (ug/L)	TOC (MSL)	Depth to Water (ft.)	GW Elevation (MSL)	DO Reading (ppm)
S-1	01/12/1996	230	1,500	2.5	<0.5	0.9	0.6	NA	NA	NA	NA	NA	NA	20.84	8.02	12.82	NA
S-1	04/02/1996	95	2,000	0.91	<0.5	<0.5	<0.5	140	NA	NA	NA	NA	NA	20.84	4.98	15.86	NA
S-1	07/30/1996	<50	510	<0.5	<0.5	<0.5	<0.5	67	NA	NA	NA	NA	NA	20.84	6.40	14.44	NA
S-1 (D)	07/30/1996	<50	380	<0.5	<0.5	<0.5	<0.5	68	NA	NA	NA	NA	NA	20.84	6.40	14.44	NA
S-1	10/02/1996	<50	250	<0.5	<0.5	<0.5	<0.5	96	NA	NA	NA	NA	NA	20.84	7.53	13.31	NA
S-1	09/19/1997	<50	120	<0.50	<0.50	<0.50	<0.50	37	NA	NA	NA	NA	NA	20.84	8.54	12.30	0.8
S-1	01/08/1998	<50	210	<0.50	<0.50	<0.50	<0.50	74	NA	NA	NA	NA	NA	20.84	9.09	11.75	2.6
S-1	07/17/1998	<50	99	<0.50	<0.50	<0.50	<0.50	25	NA	NA	NA	NA	NA	20.86	6.48	14.38	2.6
S-1	01/28/1999	92.7	212	4.5	1.83	1.59	12.1	2.17	NA	NA	NA	NA	NA	20.86	10.46	10.40	2.2
S-1	07/23/1999	537	<50	81.1	91.3	24.8	81.6	47.9	NA	NA	NA	NA	NA	20.86	10.02	10.84	2.1
S-1	01/24/2000	<50.0	79.6	<0.500	<0.500	<0.500	<0.500	8.41	NA	NA	NA	NA	NA	20.86	8.42	12.44	2.2
S-1	07/27/2000	<50.0	127	<0.500	<0.500	<0.500	<0.500	31.9	NA	NA	NA	NA	NA	20.86	7.34	13.52	1.6
S-1	01/12/2001	<50.0	225	<0.500	<0.500	<0.500	<0.500	35.9	NA	NA	NA	NA	NA	20.86	8.15	12.71	1.8
S-1	02/16/2001	<50	140	<0.50	<0.50	<0.50	1.0	NA	24	NA	NA	NA	NA	20.86	7.42	13.44	6.1
S-1	07/09/2001	<50	57	<0.50	<0.50	<0.50	<0.50	NA	19	NA	NA	NA	NA	20.86	7.95	12.91	5.4
S-1	08/07/2001	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	20.86	7.67	13.19	NA
S-1	10/02/2001	NA	NA	NA	NA	NA	NA	NA	2.5	NA	NA	NA	NA	20.86	7.74	13.12	4.6
S-1	01/18/2002	<50	68	<0.50	<0.50	<0.50	<0.50	NA	31	NA	NA	NA	NA	20.86	6.37	14.49	6.7
S-1	04/17/2002	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	20.86	6.58	14.28	NA
S-1	07/16/2002	<50	100	<0.50	<0.50	<0.50	0.99	NA	35	NA	NA	NA	NA	23.66	7.38	16.28	7.0
S-1	10/10/2002	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	23.26	7.89	15.37	NA
S-1	01/16/2003	<50	54	<0.50	<0.50	<0.50	<0.50	NA	17	NA	NA	NA	NA	23.26	6.52	16.74	0.7
S-1	05/02/2003	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	23.26	6.44	16.82	NA
S-1	07/17/2003	<50	93 j	<0.50	<0.50	<0.50	<1.0	NA	19	NA	NA	NA	NA	23.26	6.96	16.30	0.9
S-1	11/04/2003	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	23.26	8.09	15.17	NA
S-1	01/13/2004	<50	150 j	<0.50	<0.50	<0.50	<1.0	NA	14	NA	NA	NA	NA	23.26	6.40	16.86	NA

WELL CONCENTRATIONS
Shell-branded Service Station
350 Grand Avenue
Oakland, CA

Well ID	Date	TPPH (ug/L)	TEPH (ug/L)	B (ug/L)	T (ug/L)	E (ug/L)	X (ug/L)	MTBE 8020 (ug/L)	MTBE 8260 (ug/L)	DIPE (ug/L)	ETBE (ug/L)	TAME (ug/L)	TBA (ug/L)	TOC (MSL)	Depth to Water (ft.)	GW Elevation (MSL)	DO Reading (ppm)
S-1	01/22/2004	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	23.26	6.41	16.85	3.1
S-1	04/05/2004	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	23.26	5.92	17.34	NA
S-1	07/02/2004	<50	66 j	<0.50	<0.50	<0.50	<1.0	NA	2.1	<2.0	<2.0	<2.0	<5.0	23.26	6.66	16.60	1.6
S-1	10/26/2004	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	23.26	7.36	15.90	NA
S-1	01/13/2005	<50	<50	<0.50	<0.50	<0.50	<1.0	NA	4.6	NA	NA	NA	NA	23.26	5.73	17.53	1.8
S-1	04/15/2005	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	23.26	5.64	17.62	NA
S-1	08/01/2005	<50	<50	<0.50	<0.50	<0.50	<1.0	NA	<0.50	<2.0	<2.0	<2.0	<5.0	23.26	6.65	16.61	NA
S-1	**10/05/2005**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**23.26**	**7.53**	**15.73**	**NA**
S-2	01/23/1991	2,500	1,200	550	15	33	42	NA	NA	NA	NA	NA	NA	21.24	10.55	10.69	NA
S-2	04/25/1991	32,000	20,000b	2,900	480	1,400	2,300	NA	NA	NA	NA	NA	NA	21.24	8.24	13.00	NA
S-2	07/19/1991	21,000	30,000b	4,700	430	1,200	2,400	NA	NA	NA	NA	NA	NA	21.24	9.55	11.69	NA
S-2	10/09/1991	29,000	32,000b	6,300	510	1,700	2,400	NA	NA	NA	NA	NA	NA	21.24	10.26	10.98	NA
S-2	01/23/1992	31,000	36,000b	5,800	480	2,000	2,700	NA	NA	NA	NA	NA	NA	21.24	9.51	11.73	NA
S-2	04/27/1992	21,000d	12,000b	4,800	320	1,600	1,400	NA	NA	NA	NA	NA	NA	21.24	7.83	13.41	NA
S-2	07/10/1992	31,000	3,700e	7,500	940	3,400	3,500	NA	NA	NA	NA	NA	NA	21.24	8.57	12.67	NA
S-2	10/06/1992	57,000	4,500e	9,300	1,200	4,000	4,900	NA	NA	NA	NA	NA	NA	21.24	9.49	11.75	NA
S-2	01/06/1993	55,000	5,600	5,600	360	3,000	3,000	NA	NA	NA	NA	NA	NA	21.24	8.56	12.68	NA
S-2	04/26/1993	32,000	9,400e	10,000	500	4,400	3,600	NA	NA	NA	NA	NA	NA	21.24	6.84	14.40	NA
S-2	07/20/1993	25,000	8,400e	5,800	300	2,700	1,400	NA	NA	NA	NA	NA	NA	21.24	8.52	12.72	NA
S-2 (D)	07/20/1993	25,000	8,900e	5,900	310	2,800	1,400	NA	NA	NA	NA	NA	NA	21.24	8.52	12.72	NA
S-2	10/18/1993	23,000	18,000e	3,700	200	2,100	1,600	NA	NA	NA	NA	NA	NA	21.24	9.36	11.88	NA
S-2 (D)	10/18/1993	28,000	14,000e	3,700	210	2,100	1,600	NA	NA	NA	NA	NA	NA	21.24	9.36	11.88	NA
S-2	01/07/1994	120,000	22,000e	6,900	400	3,100	2,600	NA	NA	NA	NA	NA	NA	21.24	8.37	12.87	NA
S-2	04/11/1994	34,000	17,000e	4,800	170	1,900	880	NA	NA	NA	NA	NA	NA	21.24	6.96	14.28	NA
S-2	07/14/1994	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	21.24	7.49	13.75	NA

WELL CONCENTRATIONS
Shell-branded Service Station
350 Grand Avenue
Oakland, CA

Well ID	Date	TPPH (ug/L)	TEPH (ug/L)	B (ug/L)	T (ug/L)	E (ug/L)	X (ug/L)	MTBE 8020 (ug/L)	MTBE 8260 (ug/L)	DIPE (ug/L)	ETBE (ug/L)	TAME (ug/L)	TBA (ug/L)	TOC (MSL)	Depth to Water (ft.)	GW Elevation (MSL)	DO Reading (ppm)
S-2	07/19/1994	23,000	NA	4,300	210	1,100	1,000	NA	NA	NA	NA	NA	NA	21.24	8.02	13.22	NA
S-2 (D)	07/19/1994	29,000	NA	4,700	270	1,200	1,200	NA	NA	NA	NA	NA	NA	21.24	8.02	13.22	NA
S-2	10/06/1994	61,000	NA	4,600	290	1,900	1,900	NA	NA	NA	NA	NA	NA	21.24	11.00	10.24	NA
S-2 (D)	10/06/1994	52,000	NA	5,200	270	2,100	1,900	NA	NA	NA	NA	NA	NA	21.24	11.00	10.24	NA
S-2	01/04/1994	23,000	NA	4,500	49	1,300	500	NA	NA	NA	NA	NA	NA	21.24	8.07	13.17	NA
S-2 (D)	01/04/1995	18,000	NA	3,800	33	1,100	390	NA	NA	NA	NA	NA	NA	21.24	8.07	13.17	NA
S-2	04/12/1995	29,000	NA	4,300	210	990	700	NA	NA	NA	NA	NA	NA	21.24	6.12	15.12	NA
S-2	07/07/1995	26,000	NA	4,200	180	1,100	730	NA	NA	NA	NA	NA	NA	21.24	6.35	14.89	NA
S-2	10/05/1995	26,000	10,000	3,500	150	1,100	640	NA	NA	NA	NA	NA	NA	21.24	7.36	13.88	NA
S-2 (D)	10/05/1995	33,000	9,400	4,200	210	1,500	850	NA	NA	NA	NA	NA	NA	21.24	7.36	13.88	NA
S-2	01/12/1996	36,000	13,000	4,100	240	1,400	790	NA	NA	NA	NA	NA	NA	21.24	7.64	13.60	NA
S-2 (D)	01/12/1996	40,000	11,000	4,100	260	1,400	860	NA	NA	NA	NA	NA	NA	21.24	7.64	13.60	NA
S-2	04/02/1996	12,000	7,300	1,300	120	460	150	4,000	NA	NA	NA	NA	NA	21.24	6.18	15.06	NA
S-2 (D)	04/02/1996	17,000	5,800	1,800	29	590	140	7,600	NA	NA	NA	NA	NA	21.24	6.18	15.06	NA
S-2	07/30/1996	18,000	13,000	3,000	100	1,200	420	17,000	19,000	NA	NA	NA	NA	21.24	7.22	14.02	NA
S-2	10/02/1996	28,000	18,000	3,700	110	1,100	260	20,000	NA	NA	NA	NA	NA	21.24	7.60	13.64	NA
S-2 (D)	10/02/1996	25,000	31,000	3,500	100	1,100	260	19,000	NA	NA	NA	NA	NA	21.24	7.60	13.64	NA
S-2	09/19/1997	21,000	11,000	2,300	120	500	110	11,000	NA	NA	NA	NA	NA	21.24	7.45	13.79	2.1
S-2	01/08/1998	35,000	8,100	3,200	260	850	320	23,000	NA	NA	NA	NA	NA	21.24	6.96	14.28	2.3
S-2 (D)	01/08/1998	27,000	5,400	3,400	190	860	200	23,000	NA	NA	NA	NA	NA	21.24	6.96	14.28	2.3
S-2	07/17/1998	19,000	12,000	1,700	130	610	130	13,000	NA	NA	NA	NA	NA	21.24	6.67	14.57	2.3
S-2	01/28/1999	482	99	24	7.52	5.41	63.7	11	NA	NA	NA	NA	NA	21.24	10.63	10.61	2.4
S-2	07/23/1999	320	223	52.0	54.5	14.7	48.6	33.9	NA	NA	NA	NA	NA	21.24	10.12	11.12	2.6
S-2	01/24/2000	18,500	7,600	1,440	140	472	68.9	6,940	NA	NA	NA	NA	NA	21.24	8.63	12.61	1.6
S-2	07/27/2000	14,900	10,200	1,250	98.8	437	<50.0	22,200	30,200	NA	NA	NA	NA	21.24	7.94	13.30	2.0
S-2	01/12/2001 h	17,200	8,050	930	88.8	497	57.0	23,200	18,500	NA	NA	NA	NA	21.24	8.82	12.42	1.9

WELL CONCENTRATIONS
Shell-branded Service Station
350 Grand Avenue
Oakland, CA

Well ID	Date	TPPH (ug/L)	TEPH (ug/L)	B (ug/L)	T (ug/L)	E (ug/L)	X (ug/L)	MTBE 8020 (ug/L)	MTBE 8260 (ug/L)	DIPE (ug/L)	ETBE (ug/L)	TAME (ug/L)	TBA (ug/L)	TOC (MSL)	Depth to Water (ft.)	GW Elevation (MSL)	DO Reading (ppm)
S-2	02/16/2001	20,000	<5,000	990	93	450	63	NA	21,000	NA	NA	NA	NA	21.24	7.10	14.14	1.6
S-2	07/09/2001	16,000	26,000	690	62	210	<50	NA	27,000	NA	NA	NA	NA	21.24	8.35	12.89	2.1
S-2	08/07/2001	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	21.24	8.19	13.05	NA
S-2	10/02/2001	18,000	<12,000	810	89	470	69	NA	23,000	NA	NA	NA	NA	21.24	8.50	12.74	2.0
S-2	01/18/2002	21,000	21,000	750	79	470	69	NA	23,000	NA	NA	NA	NA	21.24	6.96	14.28	5.9
S-2	04/17/2002	34,000	<26,000	620	70	390	60	NA	17,000	NA	NA	NA	NA	21.24	7.39	13.85	0.6
S-2	07/16/2002	14,000	<10,000	630	75	310	33	NA	20,000	NA	NA	NA	NA	24.03	7.95	16.08	6.0
S-2	10/10/2002	11,000	<6,000	480	50	190	<50	NA	15,000	NA	NA	NA	NA	23.73	8.36	15.37	1.0
S-2	01/16/2003	16,000	<8,000	720	88	290	89	NA	17,000	NA	NA	NA	NA	23.73	6.98	16.75	0.7
S-2	05/02/2003	12,000 j	4,800 j	560	<50	<50	<100	NA	14,000	NA	NA	NA	NA	23.73	7.02	16.71	1.1
S-2	07/17/2003	26,000	4,800 j	850	85	240	<100	NA	13,000	NA	NA	NA	NA	23.73	8.06	15.67	2.1
S-2	11/04/2003	10,000	3,600 j	560	62	250	<100	NA	10,000	NA	NA	NA	NA	23.73	8.69	15.04	0.8
S-2	01/13/2004	17,000	5,400 j	740	<100	350	<200	NA	11,000	NA	NA	NA	NA	23.73	6.30	17.43	NA
S-2	01/22/2004	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	23.73	6.64	17.09	0.3
S-2	04/05/2004	16,000	7,000 j	650	53	<50	<100	NA	10,000	NA	NA	NA	NA	23.73	6.61	17.12	0.2
S-2	07/02/2004	11,000	7,900 j	470	<50	240	<100	NA	6,800	<200	<200	<200	6,000	23.73	7.45	16.28	2.7
S-2	10/26/2004	12,000	6,900 k	370	<50	240	<100	NA	7,400	NA	NA	NA	4,900	23.73	7.80	15.93	0.5
S-2	01/13/2005	13,000	3,100 k	430	40	370	<25	NA	4,000	NA	NA	NA	2,700	23.73	5.90	17.83	0.3
S-2	04/15/2005	17,000	4,300 k	390	<25	580	<50	NA	2,100	NA	NA	NA	2,500	23.73	5.93	17.80	1.81
S-2	08/01/2005	12,000	3,200 k	160	38	380	<40	NA	1,600	<80	<80	<80	1,300	23.73	7.37	16.36	NA
S-2	**10/05/2005**	**11,000**	**3,200 k**	**230**	**38**	**320**	**21**	**NA**	**1,200**	**NA**	**NA**	**NA**	**1,400**	**23.73**	**8.16**	**15.57**	**1.75**
S-3	01/23/1991	<50	NA	<0.5	<0.5	<0.5	<0.5	NA	NA	NA	NA	NA	NA	22.70	14.67	8.03	NA
S-3	04/25/1991	<50	NA	<0.5	<0.5	<0.5	<0.5	NA	NA	NA	NA	NA	NA	22.70	12.96	9.74	NA
S-3	07/19/1991	<50	NA	<0.5	<0.5	<0.5	<0.5	NA	NA	NA	NA	NA	NA	22.70	12.45	10.25	NA
S-3	10/09/1991	<50	NA	<0.5	<0.5	<0.5	<0.5	NA	NA	NA	NA	NA	NA	22.70	12.98	9.72	NA
S-3	01/23/1992	<50	NA	<0.5	<0.5	<0.5	<0.5	NA	NA	NA	NA	NA	NA	22.70	13.06	9.64	NA

WELL CONCENTRATIONS
Shell-branded Service Station
350 Grand Avenue
Oakland, CA

Well ID	Date	TPPH (ug/L)	TEPH (ug/L)	B (ug/L)	T (ug/L)	E (ug/L)	X (ug/L)	MTBE 8020 (ug/L)	MTBE 8260 (ug/L)	DIPE (ug/L)	ETBE (ug/L)	TAME (ug/L)	TBA (ug/L)	TOC (MSL)	Depth to Water (ft.)	GW Elevation (MSL)	DO Reading (ppm)
S-3	04/27/1992	<50	100	<0.5	<0.5	<0.5	<0.5	NA	NA	NA	NA	NA	NA	22.70	7.25	15.45	NA
S-3	07/10/1992	<50	68	<0.5	<0.5	<0.5	<0.5	NA	NA	NA	NA	NA	NA	22.70	8.46	14.24	NA
S-3	10/06/1992	<50	<10	<0.5	<0.5	<0.5	<0.5	NA	NA	NA	NA	NA	NA	22.70	11.77	10.93	NA
S-3	01/06/1993	<50	<10	<0.5	<0.5	<0.5	<0.5	NA	NA	NA	NA	NA	NA	22.70	12.53	10.17	NA
S-3	04/26/1993	<50	69	<0.5	<0.5	<0.5	<0.5	NA	NA	NA	NA	NA	NA	22.70	4.28	18.42	NA
S-3	07/20/1993	<50	120	<0.5	0.6	<0.5	<0.5	NA	NA	NA	NA	NA	NA	22.70	5.70	17.00	NA
S-3	10/18/1993	<50	160	<0.5	<0.5	<0.5	<0.5	NA	NA	NA	NA	NA	NA	22.70	10.30	12.40	NA
S-3	01/07/1994 a	160	58	59	26	4.9	22	NA	NA	NA	NA	NA	NA	22.70	12.40	10.30	NA
S-3	04/11/1994	<50	<50	<0.52	<0.5	<0.5	<0.5	NA	NA	NA	NA	NA	NA	22.70	10.94	11.76	NA
S-3	07/14/1994	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	22.70	7.90	14.80	NA
S-3	07/19/1994	<50	110d	<0.5	<0.5	<0.5	<0.5	NA	NA	NA	NA	NA	NA	22.70	8.12	14.58	NA
S-3	10/06/1994	<50	<50	<0.5	<0.5	<0.5	<0.5	NA	NA	NA	NA	NA	NA	22.70	12.15	10.55	NA
S-3	01/04/1995	<50	<50	<0.5	<0.5	<0.5	<0.5	NA	NA	NA	NA	NA	NA	22.70	11.18	11.52	NA
S-3	04/12/1995	<50	110	<0.5	<0.5	<0.5	<0.5	NA	NA	NA	NA	NA	NA	22.70	3.76	18.94	NA
S-3	07/07/1995	<50	410	<0.5	<0.5	<0.5	<0.5	NA	NA	NA	NA	NA	NA	22.70	4.72	17.98	NA
S-3	10/05/1995	<50	160	<0.5	<0.5	<0.5	<0.5	NA	NA	NA	NA	NA	NA	22.70	5.80	16.90	NA
S-3	01/12/1996	100	<50	<0.5	<0.5	<0.5	<0.5	NA	NA	NA	NA	NA	NA	22.70	7.00	15.70	NA
S-3	04/02/1996	<50	170	<0.5	<0.5	<0.5	<0.5	3.4	NA	NA	NA	NA	NA	22.70	3.42	19.28	NA
S-3	07/30/1996	<50	92	<0.5	<0.5	<0.5	<0.5	4.3	NA	NA	NA	NA	NA	22.70	5.89	16.81	NA
S-3	10/02/1996	<50	160	<0.5	<0.5	<0.5	<0.5	4.1	NA	NA	NA	NA	NA	22.70	7.20	15.50	NA
S-3	09/19/1997	<50	260	<0.50	<0.50	<0.50	<0.50	4.3	NA	NA	NA	NA	NA	22.70	6.92	15.78	1.4
S-3 (D)	09/19/1997	<50	290	<0.50	<0.50	<0.50	<0.50	5.2	NA	NA	NA	NA	NA	22.70	6.92	15.78	1.4
S-3	01/08/1998	<50	170	<0.50	<0.50	<0.50	0.92	120	NA	NA	NA	NA	NA	22.70	5.77	16.93	2.7
S-3	07/17/1998	<50	97	<0.50	<0.50	<0.50	<0.50	33	NA	NA	NA	NA	NA	22.71	4.17	18.54	2.7
S-3	01/28/1999	656	<50.0	45.4	10.2	4.98	83.2	87.2	NA	NA	NA	NA	NA	22.71	8.15	14.56	1.8
S-3	07/23/1999	<50.0	77.3	<0.500	<0.500	<0.500	<0.500	39.3	NA	NA	NA	NA	NA	22.71	7.46	15.25	1.9

WELL CONCENTRATIONS
Shell-branded Service Station
350 Grand Avenue
Oakland, CA

Well ID	Date	TPPH (ug/L)	TEPH (ug/L)	B (ug/L)	T (ug/L)	E (ug/L)	X (ug/L)	MTBE 8020 (ug/L)	MTBE 8260 (ug/L)	DIPE (ug/L)	ETBE (ug/L)	TAME (ug/L)	TBA (ug/L)	TOC (MSL)	Depth to Water (ft.)	GW Elevation (MSL)	DO Reading (ppm)
S-3	01/24/2000	<50.0	77.2	<0.500	<0.500	<0.500	<0.500	12.0	NA	NA	NA	NA	NA	22.71	5.92	16.79	2.1
S-3	07/27/2000	<50.0	142	<0.500	<0.500	<0.500	<0.500	<5.00	NA	NA	NA	NA	NA	22.71	6.54	16.17	1.7
S-3	01/12/2001 f	<50.0	96	<0.500	<0.500	<0.500	<0.500	<2.50	NA	NA	NA	NA	NA	22.71	8.25	14.46	1.7
S-3	02/16/2001	<50	<50	<0.50	<0.50	<0.50	<0.50	NA	2.0	NA	NA	NA	NA	22.71	11.37	11.34	NA
S-3	07/09/2001	<50	<50	<0.50	0.54	<0.50	<0.50	NA	<5.0	NA	NA	NA	NA	22.71	9.70	13.01	1.4
S-3	08/07/2001	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	22.71	11.48	11.23	NA
S-3	10/02/2001	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	22.71	11.56	11.15	NA
S-3	01/18/2002	<50	120	<0.50	<0.50	<0.50	<0.50	NA	<5.0	NA	NA	NA	NA	22.71	7.74	14.97	1.5
S-3	04/17/2002	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	22.71	6.45	16.26	NA
S-3	07/16/2002	<50	72	<0.50	<0.50	<0.50	0.61	NA	<5.0	NA	NA	NA	NA	25.49	7.70	17.79	5.0
S-3	10/10/2002	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	25.14	10.15	14.99	NA
S-3	01/16/2003	<50	<50	<0.50	<0.50	<0.50	<0.50	NA	<5.0	NA	NA	NA	NA	25.14	8.60	16.54	2.9
S-3	05/02/2003	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	25.14	7.07	18.07	NA
S-3	07/17/2003	<50	74 j	<0.50	<0.50	<0.50	<1.0	NA	1.3	NA	NA	NA	NA	25.14	7.25	17.89	2.5
S-3	11/04/2003	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	25.14	9.51	15.63	NA
S-3	01/13/2004	<50	180 j	<0.50	<0.50	<0.50	<1.0	NA	0.81	NA	NA	NA	NA	25.14	8.91	16.23	NA
S-3	01/22/2004	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	25.14	8.50	16.64	3.3
S-3	04/05/2004	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	25.14	6.89	18.25	NA
S-3	07/02/2004	<50	140 j	<0.50	<0.50	<0.50	<1.0	NA	0.65	<2.0	<2.0	<2.0	<5.0	25.14	7.50	17.64	7.1
S-3	10/26/2004	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	25.14	9.74	15.40	NA
S-3	01/13/2005	<50	54 j	<0.50	<0.50	<0.50	<1.0	NA	3.0	NA	NA	NA	NA	25.14	8.26	16.88	4.0
S-3	04/15/2005	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	25.14	4.94	20.20	NA
S-3	08/01/2005	<50	<50	<0.50	<0.50	<0.50	<1.0	NA	0.96	<2.0	<2.0	<2.0	<5.0	25.14	5.80	19.34	NA
S-3	**10/05/2005**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**25.14**	**8.87**	**16.27**	**NA**
S-4	07/17/1998	<50	220	<0.50	<0.50	<0.50	<0.50	<2.5	NA	NA	NA	NA	NA	19.96	6.59	13.37	2.5

WELL CONCENTRATIONS
Shell-branded Service Station
350 Grand Avenue
Oakland, CA

Well ID	Date	TPPH (ug/L)	TEPH (ug/L)	B (ug/L)	T (ug/L)	E (ug/L)	X (ug/L)	MTBE 8020 (ug/L)	MTBE 8260 (ug/L)	DIPE (ug/L)	ETBE (ug/L)	TAME (ug/L)	TBA (ug/L)	TOC (MSL)	Depth to Water (ft.)	GW Elevation (MSL)	DO Reading (ppm)
S-4 (D)	07/17/1998	<50	260	<0.50	<0.50	<0.50	<0.50	<2.5	NA	NA	NA	NA	NA	19.96	6.59	13.37	2.5
S-4	01/28/1999	<50.0	356	0.882	<0.500	<0.500	0.71	<2.00	NA	NA	NA	NA	NA	19.96	10.57	9.39	3.0
S-4	07/23/1999	<50.0	<50	<0.500	<0.500	<0.500	<0.500	8.27	NA	NA	NA	NA	NA	19.96	10.06	9.90	2.1
S-4	01/24/2000	Unable to sample		NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	19.96	8.29	11.67	NA
S-4	02/02/2000	<50.0	410	<0.500	<0.500	<0.500	<0.500	<5.00	NA	NA	NA	NA	NA	19.96	9.93	10.03	2.0
S-4	07/27/2000	Well inaccessible		NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	19.96	NA	NA	NA
S-4	08/02/2000	<50.0	265	<0.500	<0.500	<0.500	<0.500	<2.50	NA	NA	NA	NA	NA	19.96	8.05	11.91	2.0
S-4	01/12/2001	Well inaccessible		NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	19.96	NA	NA	NA
S-4	01/25/2001	<50.0	235	<0.500	0.629	0.656	4.65	<2.50	NA	NA	NA	NA	NA	19.96	10.12	9.84	2.0
S-4	02/16/2001	Well inaccessible		NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	19.96	NA	NA	NA
S-4	07/09/2001	Well inaccessible		NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	19.96	NA	NA	NA
S-4	08/07/2001	<50	<50	<0.50	<0.50	<0.50	<1.0	NA	<5.0	NA	NA	NA	NA	19.96	8.77	11.19	2.3
S-4	10/02/2001	<50	350	<0.50	<0.50	<0.50	<0.50	NA	<5.0	NA	NA	NA	NA	19.96	9.09	10.87	2.6
S-4	01/18/2002	Well inaccessible		NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	19.96	NA	NA	NA
S-4	01/23/2002	Insufficient water		NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	19.96	7.13	12.83	NA
S-4	04/17/2002	Insufficient water		NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	19.96	6.28	13.68	NA
S-4	04/26/2002	<50	260	<0.50	<0.50	<0.50	<0.50	NA	<5.0	NA	NA	NA	NA	19.96	5.63	14.33	g
S-4	07/16/2002	<50	250	<0.50	<0.50	<0.50	1.1	NA	<5.0	NA	NA	NA	NA	22.75	6.90	15.85	1.6
S-4	10/10/2002	Insufficient water		NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	22.34	9.20	13.14	NA
S-4	01/16/2003	<50	280	<0.50	<0.50	<0.50	<0.50	NA	<5.0	NA	NA	NA	NA	22.34	7.11	15.23	2.1
S-4	05/02/2003	53	130 j	0.67	<0.50	3.8	2.4	NA	<5.0	NA	NA	NA	NA	22.34	5.14	17.20	0.61
S-4	07/17/2003	<50	76 j	1.4	0.57	2.0	1.3	NA	<0.50	NA	NA	NA	NA	22.34	7.26	15.08	g
S-4	11/04/2003	<50	130 j	<0.50	<0.50	<0.50	<1.0	NA	<0.50	NA	NA	NA	NA	22.34	9.03	13.31	g
S-4	01/13/2004	<50	190 j	<0.50	<0.50	<0.50	<1.0	NA	<0.50	NA	NA	NA	NA	22.34	8.20	14.14	NA
S-4	01/22/2004	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	22.34	6.91	15.43	1.8
S-4	04/05/2004	<50	79 j	<0.50	<0.50	<0.50	<1.0	NA	<0.50	NA	NA	NA	NA	22.34	5.70	16.64	6.0

WELL CONCENTRATIONS
Shell-branded Service Station
350 Grand Avenue
Oakland, CA

Well ID	Date	TPPH (ug/L)	TEPH (ug/L)	B (ug/L)	T (ug/L)	E (ug/L)	X (ug/L)	MTBE 8020 (ug/L)	MTBE 8260 (ug/L)	DIPE (ug/L)	ETBE (ug/L)	TAME (ug/L)	TBA (ug/L)	TOC (MSL)	Depth to Water (ft.)	GW Elevation (MSL)	DO Reading (ppm)
S-4	07/02/2004	<50	140 j	<0.50	<0.50	<0.50	<1.0	NA	<0.50	<2.0	<2.0	<2.0	<5.0	22.34	8.11	14.23	7.3
S-4	10/26/2004	<50	870 j	<0.50	<0.50	<0.50	<1.0	NA	<0.50	NA	NA	NA	NA	22.34	9.14	13.20	0.2
S-4	01/13/2005	<50	59 j	<0.50	<0.50	<0.50	<1.0	NA	<0.50	NA	NA	NA	NA	22.34	4.38	17.96	7.6
S-4	04/15/2005	<50	56 j	<0.50	<0.50	<0.50	<1.0	NA	<0.50	NA	NA	NA	NA	22.34	4.85	17.49	2.02
S-4	08/01/2005	<50	<50	<0.50	<0.50	<0.50	<1.0	NA	<0.50	<2.0	<2.0	<2.0	<5.0	22.34	7.34	15.00	NA
S-4	**10/05/2005**	**<50**	**170 j**	**<0.50**	**<0.50**	**<0.50**	**<1.0**	**NA**	**<0.50**	**NA**	**NA**	**NA**	**NA**	**22.34**	**8.70**	**13.64**	**3.01**
S-5	07/17/1998	<50	110	<0.50	<0.50	<0.50	<0.50	<2.5	NA	NA	NA	NA	NA	22.27	6.78	15.49	2.2
S-5	01/28/1999	<50.0	109	<0.500	<0.500	<0.500	<0.500	<2.00	NA	NA	NA	NA	NA	22.27	10.75	11.52	2.0
S-5	07/23/1999	<50.0	204	<0.500	<0.500	<0.500	<0.500	5.95	NA	NA	NA	NA	NA	22.27	10.21	12.06	1.8
S-5	01/24/2000	Unable to sample		NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	22.27	8.23	14.04	NA
S-5	02/02/2000	<50.0	172	<0.500	<0.500	<0.500	<0.500	<5.00	NA	NA	NA	NA	NA	22.27	10.15	12.12	1.9
S-5	07/27/2000	<50.0	119	<0.500	<0.500	<0.500	<0.500	<5.00	NA	NA	NA	NA	NA	22.27	7.41	14.86	2.0
S-5	01/12/2001	<50.0	NA	<0.500	<0.500	<0.500	<0.500	<2.50	NA	NA	NA	NA	NA	22.27	8.80	13.47	NA
S-5	01/25/2001	NA	193	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	22.27	9.77	12.50	1.7
S-5	02/16/2001	Well inaccessible		NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	22.27	NA	NA	NA
S-5	07/09/2001	Well inaccessible		NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	22.27	NA	NA	NA
S-5	08/07/2001	<50	<50	<0.50	<0.50	<0.50	<1.0	NA	<5.0	NA	NA	NA	NA	22.27	8.97	13.30	2.2
S-5	10/02/2001	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	22.27	8.44	13.83	NA
S-5	01/18/2002	<50	190	<0.50	<0.50	<0.50	0.51	NA	<5.0	NA	NA	NA	NA	22.27	6.67	15.60	1.9
S-5	04/17/2002	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	22.27	6.95	15.32	NA
S-5	07/16/2002	<50	1,200	<0.50	<0.50	<0.50	1.2	NA	<5.0	NA	NA	NA	NA	25.06	7.31	17.75	1.8
S-5	10/10/2002	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	24.78	8.07	16.71	NA
S-5	01/16/2003	<50	110	<0.50	<0.50	<0.50	<0.50	NA	<5.0	NA	NA	NA	NA	24.78	6.42	18.36	2.3
S-5	05/02/2003	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	24.78	6.20	18.58	NA
S-5	07/17/2003	<50	67 j	2.1	0.87	2.8	1.9	NA	<0.50	NA	NA	NA	NA	24.78	7.82	16.96	g

WELL CONCENTRATIONS
Shell-branded Service Station
350 Grand Avenue
Oakland, CA

Well ID	Date	TPPH (ug/L)	TEPH (ug/L)	B (ug/L)	T (ug/L)	E (ug/L)	X (ug/L)	MTBE 8020 (ug/L)	MTBE 8260 (ug/L)	DIPE (ug/L)	ETBE (ug/L)	TAME (ug/L)	TBA (ug/L)	TOC (MSL)	Depth to Water (ft.)	GW Elevation (MSL)	DO Reading (ppm)
S-5	11/04/2003	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	24.78	8.53	16.25	NA
S-5	01/13/2004	<50	350 j	<0.50	0.51	<0.50	<1.0	NA	<0.50	NA	NA	NA	NA	24.78	7.47	17.31	NA
S-5	01/22/2004	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	24.78	6.28	18.50	1.1
S-5	04/05/2004	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	24.78	5.79	18.99	NA
S-5	07/02/2004	<50	140 j	<0.50	<0.50	<0.50	<1.0	NA	<0.50	NA	NA	NA	NA	24.78	7.98	16.80	7.1
S-5	10/26/2004	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	24.78	8.44	16.34	NA
S-5	01/13/2005	Insufficient water		NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	24.78	7.96	16.82	NA
S-5	04/15/2005	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	24.78	4.78	20.00	NA
S-5	08/01/2005	<50	<50	<0.50	<0.50	<0.50	<1.0	NA	<0.50	NA	NA	NA	NA	24.78	7.70	17.08	NA
S-5	**10/05/2005**	**Well inaccessible**		**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**24.78**	**NA**	**NA**	**NA**
T-1	07/16/2002	<5,000	180	<50	<50	<50	<50	NA	14,000	NA	NA	NA	NA	NA	7.71	NA	5.0
T-1	10/10/2002	<5,000	320	<50	<50	<50	<50	NA	17,000	NA	NA	NA	NA	24.14	8.91	15.23	2.3
T-1	01/16/2003	<1,000	230	12	<10	<10	<10	NA	5,800	NA	NA	NA	NA	24.14	7.55	16.59	1.2
T-1	05/02/2003	<2,500	400 j	<25	<25	<25	<50	NA	3,300	NA	NA	NA	NA	24.14	7.69	16.45	0.8
T-1	07/17/2003	<1,000	230 j	<10	<10	<10	<20	NA	3,300	NA	NA	NA	NA	24.14	8.52	15.62	1.1
T-1	11/04/2003	<500	200 j	<5.0	<5.0	<5.0	<10	NA	220	NA	NA	NA	NA	24.14	8.88	15.26	1.7
T-1	01/13/2004	<50	170 j	0.71	<0.50	<0.50	<1.0	NA	42	NA	NA	NA	NA	24.14	6.58	17.56	NA
T-1	01/22/2004	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	24.14	7.60	16.54	0.2
T-1	04/05/2004	1,800	410 j	13	60	25	490	NA	30	NA	NA	NA	NA	24.14	6.09	18.05	0.2
T-1	07/02/2004	180	610 j	2.7	<0.50	<0.50	2.3	NA	24	NA	NA	NA	NA	24.14	7.39	16.75	1.2
T-1	10/26/2004	1,000	1,400 j	230	9.2	1.6	68	NA	29	NA	NA	NA	NA	24.14	7.73	16.41	0.5
T-2	07/16/2002	<5,000	390	<50	<50	<50	<50	NA	17,000	NA	NA	NA	NA	NA	7.15	NA	4.0
T-2	10/10/2002	Insufficient water		NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	23.55	8.19	15.36	NA
T-2	01/16/2003	<1,000	120	<10	<10	<10	<10	NA	2,900	NA	NA	NA	NA	23.55	6.98	16.57	1.5

WELL CONCENTRATIONS
Shell-branded Service Station
350 Grand Avenue
Oakland, CA

Well ID	Date	TPPH (ug/L)	TEPH (ug/L)	B (ug/L)	T (ug/L)	E (ug/L)	X (ug/L)	MTBE 8020 (ug/L)	MTBE 8260 (ug/L)	DIPE (ug/L)	ETBE (ug/L)	TAME (ug/L)	TBA (ug/L)	TOC (MSL)	Depth to Water (ft.)	GW Elevation (MSL)	DO Reading (ppm)
T-2	05/02/2003	<500	190 j	<5.0	<5.0	<5.0	<10	NA	1,000	NA	NA	NA	NA	23.55	7.20	16.35	1.3
T-2	07/17/2003	<1,000	200 j	<10	<10	<10	<20	NA	2,800	NA	NA	NA	NA	23.55	7.88	15.67	1.2
T-2	11/04/2003	Well dry	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	23.55	NA	NA	NA
T-2	01/13/2004	<250	430 j	<2.5	<2.5	<2.5	<5.0	NA	31	NA	NA	NA	NA	23.55	6.01	17.54	NA
T-2	01/22/2004	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	23.55	6.13	17.42	0.6
T-2	04/05/2004	8,800	2,000 j	26	200	120	1,700	NA	55	NA	NA	NA	NA	23.55	5.53	18.02	0.3
T-2	07/02/2004	850	1,400 j	26	3.5	<2.5	47	NA	44	NA	NA	NA	NA	23.55	6.73	16.82	0.9
T-2	10/26/2004	2,200	1,000 j	310	23	3.8	240	NA	19	NA	NA	NA	NA	23.55	7.15	16.40	0.6

WELL CONCENTRATIONS
Shell-branded Service Station
350 Grand Avenue
Oakland, CA

Well ID	Date	TPPH (ug/L)	TEPH (ug/L)	B (ug/L)	T (ug/L)	E (ug/L)	X (ug/L)	MTBE 8020 (ug/L)	MTBE 8260 (ug/L)	DIPE (ug/L)	ETBE (ug/L)	TAME (ug/L)	TBA (ug/L)	TOC (MSL)	Depth to Water (ft.)	GW Elevation (MSL)	DO Reading (ppm)

Abbreviations:
TPPH = Total petroleum hydrocarbons as gasoline by EPA Method 8260B; prior to February 16, 2001, analyzed by EPA Method 8015.
TEPH = Total petroleum hydrocarbons as diesel by modified EPA Method 8015.
BTEX = Benzene, toluene, ethylbenzene, xylenes by EPA Method 8260B; prior to February 16, 2001, analyzed by EPA Method 8020.
MTBE = Methyl tertiary butyl ether
DIPE = Di-isopropyl ether, analyzed by EPA Method 8260B
ETBE = Ethyl tertiary butyl ether, analyzed by EPA Method 8260B
TAME = Tertiary amyl methyl ether, analyzed by EPA Method 8260B
TBA = Tertiary butyl alcohol, analyzed by EPA Method 8260B
TOB = Top of Wellbox Elevation
TOC = Top of Casing Elevation
GW = Groundwater
HP = Hydropunch ground water sample
T = Tank backfill well
DO = Dissolved Oxygen
ug/L = Parts per billion
ppm = Parts per million
MSL = Mean sea level
ft. = Feet
<n = Below detection limit
(D) = Duplicate sample
NA = Not applicable

WELL CONCENTRATIONS
Shell-branded Service Station
350 Grand Avenue
Oakland, CA

Well ID	Date	TPPH (ug/L)	TEPH (ug/L)	B (ug/L)	T (ug/L)	E (ug/L)	X (ug/L)	MTBE 8020 (ug/L)	MTBE 8260 (ug/L)	DIPE (ug/L)	ETBE (ug/L)	TAME (ug/L)	TBA (ug/L)	TOC (MSL)	Depth to Water (ft.)	GW Elevation (MSL)	DO Reading (ppm)

Notes:

a = TPPH/BTEX concentrations anomalous with historical data. Lab verified concentrations.

b = Compounds reported as TPH-D appear to be the less volatile constituents of gasoline.

c = Compounds reported as TPH-D are primarily due to the presence of a heavier petroleum product, possibly motor oil.

d = Chromatogram pattern indicated an unidentified hydrcocarbon.

e = Compounds reported as TPH-D are primarily due to the presence of lighter petroleum product, possibly gasoline.

f = These results are listed as S-2 on the analytical report due to possible mislabeling in the field or laboratory.

g = DO reading not taken due to insufficient water.

h = These results are listed as S-3 on the analytical report due to possible mislabeling in the field or laboratory.

j = Hydrocarbon does not match pattern of laboratory's standard.

k = Hydrocarbon reported is in the early Diesel range and does not match the laboratory's standard.

Resampled on February 16, 2001 to confirm mislabeling.

Wells S-1, S-3, S-4, and S-5 surveyed on May 4, 1998 by Virgil Chavez Land Surveying of Vallejo, CA.

Site surveyed March 5, 2002 and July 29, 2002 by Virgil Chavez Land Surveying of Vallejo, CA.

Beginning October 10, 2002 depth to water referenced to Top of Casing elevation.

Attachment 4

Well/Boring Data Table and Boring Logs

Table 3. Well/Boring Data, Shell-branded Service Station, 350 Grand Avenue, Oakland, California

Name	Type	Date Installed	TOC Elev (ft msl)	Total Depth (ft)	Soil Sample (ft) Incr. or	Soil Sample (ft) Depth(s)	First Encountered GW Depth (ft)	First Encountered GW Elev (ft msl)	Screen Diam. (In)	Screen Depth (ft) Top	Screen Depth (ft) Bottom	Comments
S-1	Well (HSA)	07-Jan-91	23.36	19.5	5	-	9.5	-	3	7	16	
S-2	Well (HSA)	07-Jan-91	23.73	17.5	5	-	8.5	-	3	7	15	
S-3	Well (HSA)	07-Jan-91	25.14	15	5	-	9	-	3	7	15	
S-4	Well (HSA)	16-Apr-98	22.34	15	5	-	7	-	0.75	4	14	
S-5	Well (HSA)	16-Apr-98	23.55	15	5	-	13.5	-	0.75	4	15	
S-A	Boring (Geoprobe)	1-May-90	-	13.5	5	-	8.0	-	-	-	-	
S-B	Boring (Geoprobe)	1-May-90	-	15	5	-	8.5	-	-	-	-	
S-C	Boring (Geoprobe)	1-May-90	-	13.5	5	-	9.5	-	-	-	-	
S-D	Boring (Geoprobe)	1-May-90	-	15	5	-	8.5	-	-	-	-	
S-E	Boring (Geoprobe)	1-May-90	-	13.5	5	-	9.0	-	-	-	-	
HP-1	Boring (HSA)	27-Jan-93	-	10	5	-	NA	-	-	-	-	
HP-2	Boring (HSA)	27-Jan-93	-	13	5	-	NA	-	-	-	-	
HP-3	Boring (HSA)	27-Jan-93	-	14	5	-	13	-	-	-	-	
HP-4	Boring (Geoprobe)	17-Mar-99	-	15.5	C	-	8	-	-	-	-	
HP-5	Boring (Geoprobe)	17-Mar-99	-	15	C	-	8	-	-	-	-	
HP-6	Boring (Geoprobe)	17-Mar-99	-	20	C	-	10	-	-	-	-	
HP-7	Boring (Geoprobe)	13-Apr-04	-	20	C	-	19.5	-	-	-	-	
HP-8	Boring (Geoprobe)	13-Apr-04	-	16	C	-	11	-	-	-	-	
HP-9	Boring (Hand auger)	13-Apr-04	-	10	C	-	10	-	-	-	-	
HP-10	Boring (Hand auger)	13-Apr-04	-	10	C	-	10	-	-	-	-	
B-1	Boring (Hand auger)	21-Sep-05	-	6.0	-	3, 5.5	4.5	-	-	-	-	
B-2	Boring (Hand auger)	21-Sep-05	-	10	-	3, 6, 9.5	-	-	-	-	-	
B-3	Boring (Hand auger)	21-Sep-05	-	3	-	2.5	-	-	-	-	-	
B-4	Boring (Hand auger)	21-Sep-05	-	2	-	1.5	-	-	-	-	-	
B-5	Boring (Hand auger)	20-Sep-05	-	10.5	-	5, 9.5	-	-	-	-	-	
CPT-1	Boring (CPT)	20-Sep-05	-	60	-	-	35	-	-	-	-	

Table 3. Well/Boring Data, Shell-branded Service Station, 350 Grand Avenue, Oakland, California

Name	Type	Date Installed	TOC Elev (ft msl)	Total Depth (ft)	Soil Sample (ft) Incr. or	Depth(s)	First Encountered GW Depth (ft)	Elev (ft msl)	Screen Diam. (In)	Screen Depth (ft) Top	Bottom	Comments

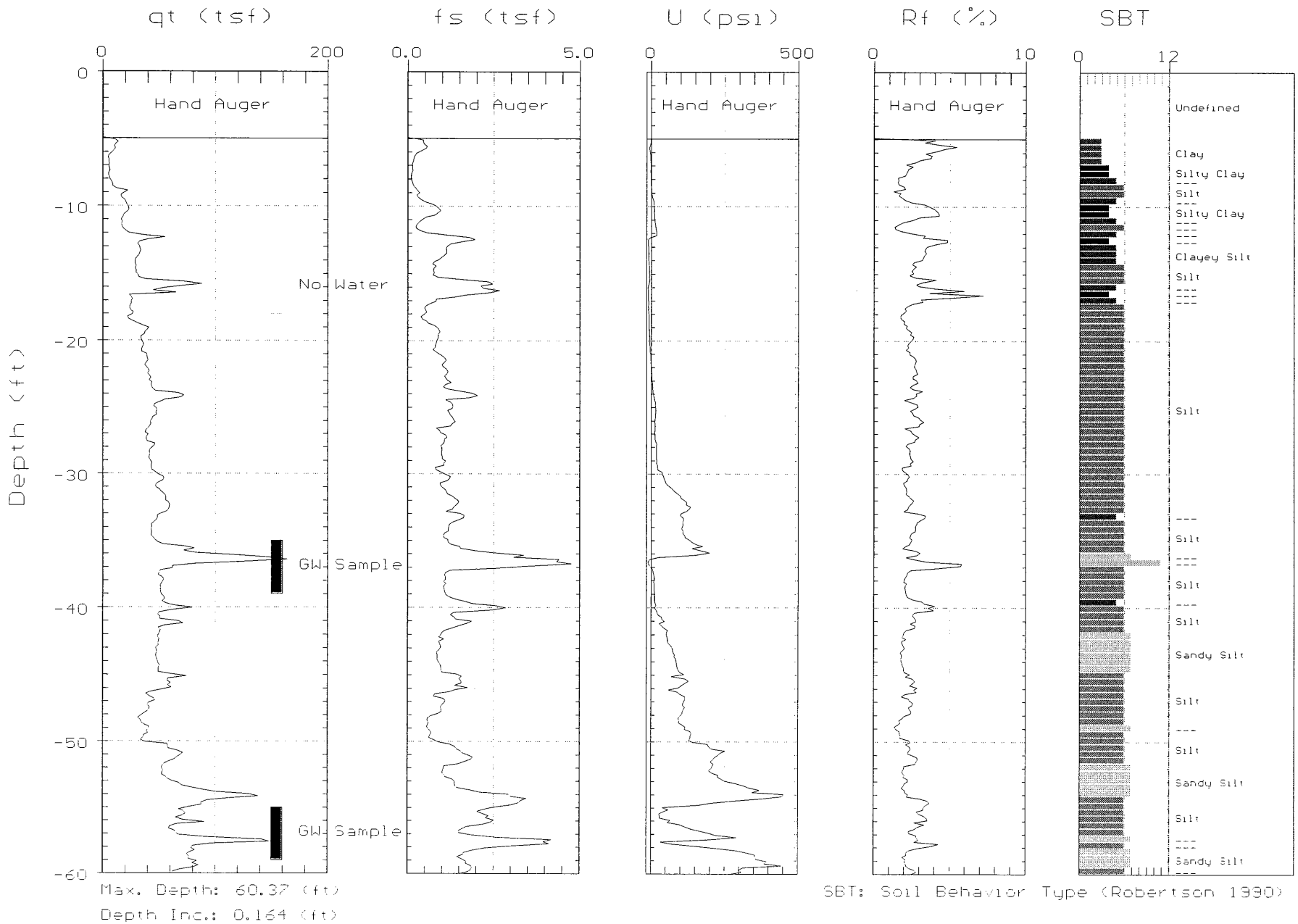
Abbreviations:
TOC Elev= Top of casing elevation
GW = Groundwater
ft = Feet
ft msl = Feet referenced to mean sea level
fbg = Feet below grade
C = Continuous
Diam. = Diameter
in = Inches
HSA = Hollow-stem auger
CPT = Cone penetration testing

GREGG

CAMBRIA

Site: 350 GRAND AVE
Location: CPT-01

Engineer: S.LEWIS
Date: 09:20:05 12:05



Max. Depth: 60.37 (ft)
Depth Inc.: 0.164 (ft)

SBT: Soil Behavior Type (Robertson 1990)

Cambria Environmental Technology, Inc.
270 Perkins Street
Sonoma, CA 95476
Telephone: 707-935-4850
Fax: 707-935-6649

BORING/WELL LOG

CLIENT NAME	Shell Oil Products US	**BORING/WELL NAME**	B-1
JOB/SITE NAME	Shell-branded Service Station	**DRILLING STARTED**	21-Sep-05
LOCATION	350 Grand Avenue, Oakland, California	**DRILLING COMPLETED**	21-Sep-05
PROJECT NUMBER	0715	**WELL DEVELOPMENT DATE (YIELD)**	NA
DRILLER	Gregg Drilling	**GROUND SURFACE ELEVATION**	Not Surveyed
DRILLING METHOD	Hand auger	**TOP OF CASING ELEVATION**	Not Surveyed
BORING DIAMETER	3"	**SCREENED INTERVAL**	NA
LOGGED BY	S. Lewis	**DEPTH TO WATER (First Encountered)**	4.5 ft (21-Sep-05) ▽
REVIEWED BY	A. Friel, PG 6452	**DEPTH TO WATER (Static)**	NA ▼
REMARKS			

PID (ppm)	BLOW COUNTS	SAMPLE ID	EXTENT	DEPTH (fbg)	U.S.C.S.	GRAPHIC LOG	SOIL DESCRIPTION	CONTACT DEPTH (fbg)	WELL DIAGRAM
					GM		**CONCRETE**	0.6	Portland Type I/II
							Silty GRAVEL with Sand (GM); light olive brown (2.5Y 5/4); moist; 15% silt, 25% fine to coarse sand, 60% fine to coarse gravel.	1.0	
					SP SM			2.6	
		B-1-3.0'					**SAND with Silt (SP-SM)**; light olive brown (2.5Y 5/4); dry to moist; 10% silt, 90% fine sand.		
					SM		**Silty SAND (SM)**; light olive brown (2.5Y 5/4); moist; 15% clay, 20% silt, 65% fine sand. ▽		
				5			@ 4.5' - moist to wet.		
		B-1-5.5						6.0	Bottom of Boring @ 6 ft

WELL LOG (PID) I:\OAKLAN-3\GINT\0715.GPJ DEFAULT.GDT 12/1/05

Cambria Environmental Technology, Inc.
270 Perkins Street
Sonoma, CA 95476
Telephone: 707-935-4850
Fax: 707-935-6649

BORING/WELL LOG

CLIENT NAME	Shell Oil Products US	**BORING/WELL NAME**	B-2
JOB/SITE NAME	Shell-branded Service Station	**DRILLING STARTED**	21-Sep-05
LOCATION	350 Grand Avenue, Oakland, California	**DRILLING COMPLETED**	21-Sep-05
PROJECT NUMBER	0715	**WELL DEVELOPMENT DATE (YIELD)**	NA
DRILLER	Gregg Drilling	**GROUND SURFACE ELEVATION**	Not Surveyed
DRILLING METHOD	Hand auger	**TOP OF CASING ELEVATION**	Not Surveyed
BORING DIAMETER	3"	**SCREENED INTERVAL**	NA
LOGGED BY	S. Lewis	**DEPTH TO WATER (First Encountered)**	NA
REVIEWED BY	A. Friel, PG 6452	**DEPTH TO WATER (Static)**	NA
REMARKS			

PID (ppm)	BLOW COUNTS	SAMPLE ID	EXTENT	DEPTH (fbg)	U.S.C.S.	GRAPHIC LOG	SOIL DESCRIPTION	CONTACT DEPTH (fbg)	WELL DIAGRAM
					GM		**CONCRETE**	0.6	
							Silty GRAVEL with Sand (GM); dark gray (10YR 4/1); moist; 25% silt, 20% fine to coarse sand, 55% fine to coarse gravel.	1.0	
					ML		**Sandy SILT (ML)** ; dark gray (10YR 4/1); moist; 25% clay, 45% silt, 30% fine to coarse sand; low plasticity	2.5	
		B-2-3.0'			SM		**Silty SAND (SM)** ; light greenish gray (5G 7/1); dry to moist; 15% silt, 80% fine sand, 5% fine gravel. @ 3' - moist; 15% clay, 15% silt, 70% fine sand.	4.0	
				5			**Sandy SILT (ML)** ; dark yellowish brown (10YR 4/6); moist; 25% clay, 40% silt, 30% fine to coarse sand, 5% fine gravel; low plasticity.		Portland Type I/II
		B-2-6.0'			ML		**SILT (ML)** ; light greenish gray (5GY 7/1); moist; 30% clay, 65% silt, 5% fine sand; low plasticity.		
		B-2-9.5'		10				10.0	Bottom of Boring @ 10 ft

WELL LOG (PID) I:\OAKLAN~3\GINT\0715.GPJ DEFAULT.GDT 12/1/05

Cambria Environmental Technology, Inc.
270 Perkins Street
Sonoma, CA 95476
Telephone: 707-935-4850
Fax: 707-935-6649

BORING/WELL LOG

CLIENT NAME	Shell Oil Products US	**BORING/WELL NAME**	B-3
JOB/SITE NAME	Shell-branded Service Station	**DRILLING STARTED**	21-Sep-05
LOCATION	350 Grand Avenue, Oakland, California	**DRILLING COMPLETED**	21-Sep-05
PROJECT NUMBER	0715	**WELL DEVELOPMENT DATE (YIELD)**	NA
DRILLER	Gregg Drilling	**GROUND SURFACE ELEVATION**	Not Surveyed
DRILLING METHOD	Hand auger	**TOP OF CASING ELEVATION**	Not Surveyed
BORING DIAMETER	3"	**SCREENED INTERVAL**	NA
LOGGED BY	S. Lewis	**DEPTH TO WATER (First Encountered)**	NA ▽
REVIEWED BY	A. Friel, PG 6452	**DEPTH TO WATER (Static)**	NA ▼
REMARKS			

PID (ppm)	BLOW COUNTS	SAMPLE ID	EXTENT	DEPTH (fbg)	U.S.C.S.	GRAPHIC LOG	SOIL DESCRIPTION	CONTACT DEPTH (fbg)	WELL DIAGRAM
					GM		**CONCRETE**	0.6	Portland Type I/II
							Silty GRAVEL with Sand (GM); very dark grayish brown (10YR 3/2); moist; 15% clay, 15% silt, 30% fine to coarse sand, 40% fine to coarse gravel.	1.0	
		B-3-2.5'			SM		**Silty SAND (SM)**; very dark grayish brown (10YR 3/2); moist; 15% silt, 80% fine to coarse sand, 5% fine to coarse gravel.	3.0	Bottom of Boring @ 3 ft
							@ 3' - **CONCRETE**		

WELL LOG (PID) I:\OAKLAN-3\GINT\0715.GPJ DEFAULT.GDT 12/1/05

Cambria Environmental Technology, Inc.
270 Perkins Street
Sonoma, CA 95476
Telephone: 707-935-4850
Fax: 707-935-6649

BORING/WELL LOG

CLIENT NAME	Shell Oil Products US	**BORING/WELL NAME**	B-4
JOB/SITE NAME	Shell-branded Service Station	**DRILLING STARTED**	21-Sep-05
LOCATION	350 Grand Avenue, Oakland, California	**DRILLING COMPLETED**	21-Sep-05
PROJECT NUMBER	0715	**WELL DEVELOPMENT DATE (YIELD)**	NA
DRILLER	Gregg Drilling	**GROUND SURFACE ELEVATION**	Not Surveyed
DRILLING METHOD	Hand auger	**TOP OF CASING ELEVATION**	Not Surveyed
BORING DIAMETER	3"	**SCREENED INTERVAL**	NA
LOGGED BY	S. Lewis	**DEPTH TO WATER (First Encountered)**	NA ▽
REVIEWED BY	A. Friel, PG 6452	**DEPTH TO WATER (Static)**	NA ▼
REMARKS			

PID (ppm)	BLOW COUNTS	SAMPLE ID	EXTENT	DEPTH (fbg)	U.S.C.S.	GRAPHIC LOG	SOIL DESCRIPTION	CONTACT DEPTH (fbg)	WELL DIAGRAM
		B-4-1.5'			GM		**CONCRETE** **Silty GRAVEL with Sand (GM)**; yellowish brown (10YR 5/4); moist; 5% clay, 15% silt, 25% fine sand, 55% fine to coarse gravel. @ 2' - **CONCRETE**	0.6 2.0	Portland Type I/II Bottom of Boring @ 2 ft

WELL LOG (PID) I:\OAKLAN~3\GINT\0715.GPJ DEFAULT.GDT 12/1/05

Cambria Environmental Technology, Inc.
270 Perkins Street
Sonoma, CA 95476
Telephone: 707-935-4850
Fax: 707-935-6649

BORING/WELL LOG

CLIENT NAME	Shell Oil Products US	**BORING/WELL NAME**	B-5
JOB/SITE NAME	Shell-branded Service Station	**DRILLING STARTED**	20-Sep-05
LOCATION	350 Grand Avenue, Oakland, California	**DRILLING COMPLETED**	20-Sep-05
PROJECT NUMBER	0715	**WELL DEVELOPMENT DATE (YIELD)**	NA
DRILLER	Gregg Drilling	**GROUND SURFACE ELEVATION**	Not Surveyed
DRILLING METHOD	HAnd auger	**TOP OF CASING ELEVATION**	Not Surveyed
BORING DIAMETER	3"	**SCREENED INTERVAL**	NA
LOGGED BY	S. Lewis	**DEPTH TO WATER (First Encountered)**	NA ▽
REVIEWED BY	A. Friel, PG 6452	**DEPTH TO WATER (Static)**	NA ▼
REMARKS			

PID (ppm)	BLOW COUNTS	SAMPLE ID	EXTENT	DEPTH (fbg)	U.S.C.S.	GRAPHIC LOG	SOIL DESCRIPTION	CONTACT DEPTH (fbg)	WELL DIAGRAM
					SM		**ASPHALT**	0.4	
							Silty SAND with Gravel (SM); black (2.5Y 2.5/1); moist; 25% silt, 50% fine to coarse sand, 25% fine gravel.	1.0	
							Sandy SILT (ML); black (2.5Y 2.5/1); moist; 30% clay, 40% silt, 30% fine sand; low to medium plasticity.		
		B-5-5.0'		5	ML		@ 4' - pale brown (10YR 6/3); 30% clay, 40% silt, 30% fine to coarse sand.		Portland Type I/II
		B-5-9.5'		10			@ 9' - dark yellowish brown (10YR 4/4).	10.5	Bottom of Boring @ 10.5 ft

WELL LOG (PID) I:\OAKLAN-3\GINT\0715.GPJ DEFAULT.GDT 12/1/05

Field location of boring: (See Plate 2)	Project No.: 766705	Date: 1/27/93	Boring No.: HP-1
	Client: Shell Oil Company		
	Location: 350 Grand Avenue		
	City: Oakland		Sheet 1 of 1
	Logged by: RSY	Driller: Gregg	
Drilling method: Hollow-Stem Auger	Casing installation data:		
Hole diameter: 8-inches	Top of Box Elevation:	Datum:	
	Water Level		
	Time		
	Date		

PID (ppm)	Blows/ft. * or Pressure (psi)	Type of Sample	Sample Number	Depth (ft.)	Sample	Well Detail	Soil Group Symbol (USCS)	Description
								Asphalt - 3 inches
				1				
				2				CLAY (CL) - pale olive (5Y 6/4); stiff, moist, trace fine sand.
				3				
				4				
				5				
		S&H						CLAYEY SILT (ML) - very dark gray (7.5Y 3/0); stiff, moist, low plasticity.
			HP-1	6				
441	9		6.5					
				7				CLAY (CL) - very dark gray (5Y 3/1); stiff, moist, roots, high plasticity.
				8				
				9				
				10				
				11				
								Bottom of boring at 10.0 ft.
				12				1/27/93
				13				
				14				
				15				
				16				
				17				
				18				
				19				
				20				

Remarks:

* Converted to equivalent Standard Penetration blows/ft.

GeoStrategies Inc.

Log of Boring

BORING NO. HP-1

JOB NUMBER	REVIEWED BY RG/CEG	DATE	REVISED DATE	REVISED DATE
766705	MCC	1/93		

Field location of boring:	Project No.: 766705	Date: 1/27/93	Boring No:
(See Plate 2)	Client: Shell Oil Company		HP-2
	Location: 350 Grand Avenue		Sheet 1
	City: Oakland		of 1
	Logged by: RSY	Driller: Gregg	
Drilling method: Hollow-Stem Auger	Casing installation data:		
Hole diameter: 8-inches	Top of Box Elevation:	Datum:	

	Water Level			
	Time			
	Date			

PID (ppm)	Blows/ft. * or Pressure (psi)	Type of Sample	Sample Number	Depth (ft.)	Sample	Well Detail	Soil Group Symbol (USCS)	Description
				1				Asphalt - concrete - 6 inches
				2				SILT (ML) - dark yellowish brown (10YR 3/4); medium stiff, wet; 5-10% fine sand.
				3				
				4				
				5				
		S&H	HP-2	6				GRAVELLY CLAY (CL) - yellowish brown (10YR 5/6); dense, moist; 30% fine subrounded gravel, 20% medium to coarse sand; 50% clay.
	24		6.5	7				
				8				
				9				
				10				
				11				
				12				
				13				Bottom of boring at 13.0 ft. 1/27/93
				14				
				15				
				16				
				17				
				18				
				19				
				20				

Remarks:

* Converted to equivalent Standard Penetration blows/ft.

GeoStrategies Inc.

Log of Boring

BORING NO. HP-2

JOB NUMBER	REVIEWED BY RG/CEG	DATE	REVISED DATE	REVISED DATE
766705	MCC	1/93		

Field location of boring: (See Plate 2)	Project No.: 766705	Date: 1/27/93	Boring No.: HP-3
	Client: Shell Oil Company		
	Location: 350 Grand Avenue		
	City: Oakland		Sheet 1 of 1
	Logged by: RSY	Driller: Gregg	
Drilling method: Hollow-Stem Auger	Casing installation data:		
Hole diameter: 8-inches	Top of Box Elevation:	Datum:	

	Water Level			
	Time			
	Date			

PID (ppm)	Blows/ft. * or Pressure (psi)	Type of Sample	Sample Number	Depth (ft.)	Sample	Well Detail	Soil Group Symbol (USCS)	Description
								Asphalt - baserock - 6 inches
				1				
				2				GRAVELLY CLAY with SAND (CL) - dark yellowish brown (10YR 4/6); stiff, moist; 50% clay, 30% angular fine gravel, 20% medium to coarse sand.
				3				
				4				
				5				
		S&H						
			HP-3	6				
0	23		6.5					Decrease gravel to trace at 5.0 ft; color change to light olive brown (2.5Y 6/6).
				7				
				8				
				9				
				10				
				11				
				12				Color change to very dark gray (7.5YR 3/0) at 8.0 ft.
				13				
				14				Saturated at 13.0 ft.
				15				
				16				
				17				Bottom of boring at 14.0 ft.
				18				1/27/93
				19				
				20				

Remarks:

* Converted to equivalent Standard Penetration blows/ft.

GSI GeoStrategies Inc.

Log of Boring

BORING NO. HP-3

JOB NUMBER	REVIEWED BY RG/CEG	DATE	REVISED DATE	REVISED DATE
766705	MCC	1/93		

Cambria Environmental Technology, Inc.
270 Perkins Street
Sonoma, CA 95476
Telephone: 707-935-4850
Fax: 707-935-6649

BORING/WELL LOG

CLIENT NAME	Shell Oil Products US	**BORING/WELL NAME**	HP-4
JOB/SITE NAME	Shell-branded Service Station	**DRILLING STARTED**	17-Mar-99
LOCATION	350 Grand Avenue, Oakland, California	**DRILLING COMPLETED**	17-Mar-99
PROJECT NUMBER	0715	**WELL DEVELOPMENT DATE (YIELD)**	NA
DRILLER	Gregg Drilling	**GROUND SURFACE ELEVATION**	Not Surveyed
DRILLING METHOD	Hydraulic push	**TOP OF CASING ELEVATION**	Not Surveyed
BORING DIAMETER	2"	**SCREENED INTERVAL**	NA
LOGGED BY	T. Buggle	**DEPTH TO WATER (First Encountered)**	8.0 ft (17-Mar-99) ▽
REVIEWED BY	A. Le May, RG	**DEPTH TO WATER (Static)**	NA ▼
REMARKS	Hand augered to 5' bgs.		

PID (ppm)	BLOW COUNTS	SAMPLE ID	EXTENT	DEPTH (fbg)	U.S.C.S.	GRAPHIC LOG	SOIL DESCRIPTION	CONTACT DEPTH (fbg)	WELL DIAGRAM
							CONCRETE.	0.4	
							FILL; brown to grey; soft; slightly moist; low to medium plasticity; moderate estimated permeability.		
1999		HP-4 -5.5'		5			@ 5' - wet.		
							@ 6' - some gravels.		
							▽		Portland Type I/II
								9.0	
1999		HP-4 -10'		10	CL		**Sandy CLAY**; (CL); grey to brown; soft; wet; 70% clay, 25% sand, 5% gravel; low plasticity; moderate estimated permeability.		
								13.5	
1999		HP-4 -15'		15	CH		**CLAY**; (CH); grey to brown; hard; slightly moist; 85% clay, 5% silt, 10% sand; medium plasticity; low estimated permeability.		
		HP-4 -15.5'						15.5	
									Bottom of Boring @ 15.5 ft

WELL LOG (PID) I:\OAKLAN~3\GINT\0715.GPJ DEFAULT.GDT 3/30/06

Cambria Environmental Technology, Inc.
270 Perkins Street
Sonoma, CA 95476
Telephone: 707-935-4850
Fax: 707-935-6649

BORING/WELL LOG

CLIENT NAME	Shell Oil Products US	**BORING/WELL NAME**	HP-5
JOB/SITE NAME	Shell-branded Service Station	**DRILLING STARTED**	17-Mar-99
LOCATION	350 Grand Avenue, Oakland, California	**DRILLING COMPLETED**	17-Mar-99
PROJECT NUMBER	0715	**WELL DEVELOPMENT DATE (YIELD)**	NA
DRILLER	Gregg Drilling	**GROUND SURFACE ELEVATION**	Not Surveyed
DRILLING METHOD	Hydraulic push	**TOP OF CASING ELEVATION**	Not Surveyed
BORING DIAMETER	2"	**SCREENED INTERVAL**	NA
LOGGED BY	T. Buggle	**DEPTH TO WATER (First Encountered)**	8.0 ft (17-Mar-99) ▽
REVIEWED BY	A. Le May, RG	**DEPTH TO WATER (Static)**	NA ▼
REMARKS	Hand augered to 5' bgs.		

PID (ppm)	BLOW COUNTS	SAMPLE ID	EXTENT	DEPTH (fbg)	U.S.C.S.	GRAPHIC LOG	SOIL DESCRIPTION	CONTACT DEPTH (fbg)	WELL DIAGRAM
							CONCRETE.	0.4	
							FILL; brown; soft; moist; low plasticity; moderate estimated permeability.		
0		HP-5 -5.5'		5			@ 5' - 20% clay, 75% sand, 5% gravel.		
0		HP-5 -7'					@ 6' - brown to grey; wet.		
							▽		Portland Type I/II
127		HP-5 -10.5'		10			@ 10' - brown to grey; wet; 25% clay, 70% sand, 5% gravel.	11.0	
					CL		**CLAY**; (CL); brown to red; stiff; 90% clay, 5% silt, 5% sand; medium plasticity; low estimated permeability.		
0		HP-5 -14.5' HP-5 -15'		15				15.0	Bottom of Boring @ 15 ft

WELL LOG (PID) I:\OAKLAN~3\GINT\0715.GPJ DEFAULT.GDT 3/30/06

Cambria Environmental Technology, Inc.
270 Perkins Street
Sonoma, CA 95476
Telephone: 707-935-4850
Fax: 707-935-6649

BORING/WELL LOG

CLIENT NAME	Shell Oil Products US	**BORING/WELL NAME**	HP-6
JOB/SITE NAME	Shell-branded Service Station	**DRILLING STARTED**	17-Mar-99
LOCATION	350 Grand Avenue, Oakland, California	**DRILLING COMPLETED**	17-Mar-99
PROJECT NUMBER	0715	**WELL DEVELOPMENT DATE (YIELD)**	NA
DRILLER	Gregg Drilling	**GROUND SURFACE ELEVATION**	Not Surveyed
DRILLING METHOD	Hydraulic push	**TOP OF CASING ELEVATION**	Not Surveyed
BORING DIAMETER	2"	**SCREENED INTERVAL**	NA
LOGGED BY	T. Buggle	**DEPTH TO WATER (First Encountered)**	10.0 ft (17-Mar-99) ▽
REVIEWED BY	A. Le May, RG	**DEPTH TO WATER (Static)**	NA ▼
REMARKS	Hand augered to 5' bgs.		

PID (ppm)	BLOW COUNTS	SAMPLE ID	EXTENT	DEPTH (fbg)	U.S.C.S.	GRAPHIC LOG	SOIL DESCRIPTION	CONTACT DEPTH (fbg)	WELL DIAGRAM
							ASPHALT.	0.4	
							FILL; brown; soft; dry; low plasticity; high estimated permeability.		
5.5		HP-6 -5'		5					
1620		HP-6 -8'					@ 7' - slightly moist; low to medium plasticity; moderate estimated permeability.		
1999		HP-6 -10'		10			@ 10' - dark brown; wet; low plasticity; moderate to high estimated permeability. ▽		Portland Type I/II
							Sandy CLAY; (CL); brown; stiff; moist; 60% clay, 5% silt, 35% sand; medium plasticity; low estimated permeability.	11.0	
1999		HP-6 -15'		15	CL		@ 15' - medium stiff; slightly moist.		
		HP-6 -19.5'							
1999		HP-6 -20'		20				20.0	Bottom of Boring @ 20 ft

WELL LOG (PID) I:\OAKLAN~3\GINT\0715.GPJ DEFAULT.GDT 3/30/06

Cambria Environmental Technology, Inc.
270 Perkins Street
Sonoma, CA 95476
Telephone: 707-935-4850
Fax: 707-935-6649

BORING/WELL LOG

CLIENT NAME	Shell Oil Products US	**BORING/WELL NAME**	HP-7
JOB/SITE NAME	Shell-branded Service Station	**DRILLING STARTED**	13-Apr-04
LOCATION	350 Grand Avenue, Oakland, California	**DRILLING COMPLETED**	13-Apr-04
PROJECT NUMBER	0715	**WELL DEVELOPMENT DATE (YIELD)**	NA
DRILLER	Gregg Drilling	**GROUND SURFACE ELEVATION**	Not Surveyed
DRILLING METHOD	Hydraulic push	**TOP OF CASING ELEVATION**	Not Surveyed
BORING DIAMETER	4"	**SCREENED INTERVAL**	NA
LOGGED BY	S. Lewis	**DEPTH TO WATER (First Encountered)**	19.5 ft (13-Apr-04) ▽
REVIEWED BY	A. Friel, RG 6452	**DEPTH TO WATER (Static)**	NA ▼
REMARKS			

PID (ppm)	BLOW COUNTS	SAMPLE ID	EXTENT	DEPTH (fbg)	U.S.C.S.	GRAPHIC LOG	SOIL DESCRIPTION	CONTACT DEPTH (fbg)	WELL DIAGRAM
					GW		**CONCRETE**	0.6	
					SM		**Sandy GRAVEL (GW)** ; brown (10YR 5/3); moist; 40% fine to coarse sand, 60% fine to coarse gravel.	1.0	
							Silty SAND (SM) ; brown (10YR 5/3); moist; 40% silt, 60% fine sand.	2.0	
							Clayey SILT (ML) ; gray (10YR 5/1); moist; 20% clay, 80% silt; low to medium plasticity.		
63		HP-7-5		5					
							@ 8' - **Clayey Sandy SILT (ML)** ; brown (10YR 5/3); moist; 15% clay, 50% silt, 35% fine to coarse sand; low plasticity.		
59		HP-7-10		10	ML				Portland Type I/II
							@ 12' - **Clayey SILT (ML)** ; brown (10YR 5/3); moist; 20% clay, 80% silt; low plasticity.		
8		HP-7-15		15					
0		HP-7-19.5		20			@ 19' - light brownish gray (10YR 6/2); moist to wet. ▽	20.0	Bottom of Boring @ 20 ft

WELL LOG (PID) I:\OAKLAN~3\GINT\0715.GPJ DEFAULT.GDT 3/30/06

Cambria Environmental Technology, Inc.
270 Perkins Street
Sonoma, CA 95476
Telephone: 707-935-4850
Fax: 707-935-6649

BORING/WELL LOG

CLIENT NAME	Shell Oil Products US	**BORING/WELL NAME**	HP-8
JOB/SITE NAME	Shell-branded Service Station	**DRILLING STARTED**	13-Apr-04
LOCATION	350 Grand Avenue, Oakland, California	**DRILLING COMPLETED**	13-Apr-04
PROJECT NUMBER	0715	**WELL DEVELOPMENT DATE (YIELD)**	NA
DRILLER	Gregg Drilling	**GROUND SURFACE ELEVATION**	Not Surveyed
DRILLING METHOD	Hydraulic push	**TOP OF CASING ELEVATION**	Not Surveyed
BORING DIAMETER	4"	**SCREENED INTERVAL**	NA
LOGGED BY	S. Lewis	**DEPTH TO WATER (First Encountered)**	11.0 ft (13-Apr-04) ▽
REVIEWED BY	A. Friel, RG 6452	**DEPTH TO WATER (Static)**	NA ▼
REMARKS			

PID (ppm)	BLOW COUNTS	SAMPLE ID	EXTENT	DEPTH (fbg)	U.S.C.S.	GRAPHIC LOG	SOIL DESCRIPTION	CONTACT DEPTH (fbg)	WELL DIAGRAM
					GW		**CONCRETE**	0.6	
							Sandy GRAVEL (GW) ; very dark grayish brown (10YR 3/2); moist; 40% fine to coarse sand, 60% fine to coarse gravel.	1.0	
							Clayey SILT (ML) ; very dark grayish brown (10YR 3/2); moist; 20% clay, 80% silt; low plasticity.		
0		HP-8-5		5	ML		@ 5' - low to medium plasticity.		
							@ 7' - **Clayey Sandy SILT (ML)** ; light yellowish brown (10YR 6/4); moist; 15% clay, 60% silt, 25% fine to coarse sand; low plasticity.		Portland Type I/II
0		HP-8-10		10			@ 10' - black (10YR 2/1); 20% clay, 50% silt, 30% fine sand; low plasticity. ▽	11.0	
0		HP-8-11			GW		**Sandy GRAVEL (GW)** ; black (10YR 2/1); moist to wet; 40% fine to coarse sand, 60% fine to coarse gravel.	13.0	
					ML		**Clayey Sandy SILT (ML)** ; black (10YR 2/1); moist 20% clay, 50% silt, 30% fine sand; low plasticity.		
0		HP-8-14.5		15			@ 15' - wet.	16.0	Bottom of Boring @ 16 ft

WELL LOG (PID) I:\OAKLAN~3\GINT\0715.GPJ DEFAULT.GDT 3/30/06

Cambria Environmental Technology, Inc.
270 Perkins Street
Sonoma, CA 95476
Telephone: 707-935-4850
Fax: 707-935-6649

BORING/WELL LOG

CLIENT NAME	Shell Oil Products US	**BORING/WELL NAME**	HP-9
JOB/SITE NAME	Shell-branded Service Station	**DRILLING STARTED**	13-Apr-04
LOCATION	350 Grand Avenue, Oakland, California	**DRILLING COMPLETED**	13-Apr-04
PROJECT NUMBER	0715	**WELL DEVELOPMENT DATE (YIELD)**	NA
DRILLER	Gregg Drilling	**GROUND SURFACE ELEVATION**	Not Surveyed
DRILLING METHOD	Hand Auger	**TOP OF CASING ELEVATION**	Not Surveyed
BORING DIAMETER	4"	**SCREENED INTERVAL**	NA
LOGGED BY	S. Lewis	**DEPTH TO WATER (First Encountered)**	9.5 ft (13-Apr-04) ▽
REVIEWED BY	A. Friel, RG 6452	**DEPTH TO WATER (Static)**	NA ▼
REMARKS			

PID (ppm)	BLOW COUNTS	SAMPLE ID	EXTENT	DEPTH (fbg)	U.S.C.S.	GRAPHIC LOG	SOIL DESCRIPTION	CONTACT DEPTH (fbg)	WELL DIAGRAM
					GW		**CONCRETE**	0.6	
							Sandy GRAVEL (GW) ; very dark grayish brown (10YR 3/2); moist; 40% fine to coarse sand, 60% fine to coarse gravel.	1.0	
							Clayey SILT (ML) ; very dark grayish brown (10YR 3/2); moist; 20% clay, 80% silt; low plasticity.		
0		HP-9-5		5	ML		@ 5' - low to medium plasticity.		Portland Type I/II
470		HP-9-10		10			@ 9' - black (10YR 2/1). ▽ @ 9.5' - wet.	10.0	Bottom of Boring @ 10 ft

WELL LOG (PID) I:\OAKLAN~3\GINT\0715.GPJ DEFAULT.GDT 3/30/06

Cambria Environmental Technology, Inc.
270 Perkins Street
Sonoma, CA 95476
Telephone: 707-935-4850
Fax: 707-935-6649

BORING/WELL LOG

CLIENT NAME	Shell Oil Products US	**BORING/WELL NAME**	HP-10
JOB/SITE NAME	Shell-branded Service Station	**DRILLING STARTED**	13-Apr-04
LOCATION	350 Grand Avenue, Oakland, California	**DRILLING COMPLETED**	13-Apr-04
PROJECT NUMBER	0715	**WELL DEVELOPMENT DATE (YIELD)**	NA
DRILLER	Gregg Drilling	**GROUND SURFACE ELEVATION**	Not Surveyed
DRILLING METHOD	Hand Auger	**TOP OF CASING ELEVATION**	Not Surveyed
BORING DIAMETER	4"	**SCREENED INTERVAL**	NA
LOGGED BY	S. Lewis	**DEPTH TO WATER (First Encountered)**	9.5 ft (13-Apr-04) ▽
REVIEWED BY	A. Friel, RG 6452	**DEPTH TO WATER (Static)**	NA ▼
REMARKS			

PID (ppm)	BLOW COUNTS	SAMPLE ID	EXTENT	DEPTH (fbg)	U.S.C.S.	GRAPHIC LOG	SOIL DESCRIPTION	CONTACT DEPTH (fbg)	WELL DIAGRAM
					GW		**CONCRETE**	0.6	
							Sandy GRAVEL (GW) ; yellowish brown (10YR 5/4); moist; 40% fine to coarse sand, 60% fine to coarse gravel.	1.0	
							Clayey Sandy SILT (ML) ; yellowish brown (10YR 5/4); moist; 20% clay, 75% silt, 15% fine sand; low to medium plasticity.		
							@ 4' - gray (10YR 5/1)		
0		HP-10-5		5	ML				Portland Type I/II
0		HP-10-9.5					@ 9.5' - wet. ▽	10.0	
				10					Bottom of Boring @ 10 ft

WELL LOG (PID) I:\OAKLAN~3\GINT\0715.GPJ DEFAULT.GDT 3/30/06

Field location of boring: (See Plate 2)	Project No.: 7667	Date: 05/11/90	Boring No.: S-A
	Client: Shell Oil Company		
	Location: 350 Grand Avenue		
	City: Oakland, California		Sheet 1 of 1
	Logged by: R.C.M.	Driller: Bayland	
Drilling method: Solid Flight Auger	Casing installation data:		
Hole diameter: 5-Inches	Top of Box Elevation:		Datum:

Water Level	12.0'	
Time	9:30	
Date	05/11/90	

PID (ppm)	Blows/ft. or Pressure (psi)	Type of Sample	Sample Number	Depth (ft.)	Sample	Well Detail	Soil Group Symbol (USCS)	Description
				0				
				1				PAVEMENT SECTION - 0.5 feet
4								FILL - Silty Clay (CL/ML) - brownish yellow (10YR 6/6),
				2				medium stiff, moist, medium plasticity; 70% clay; 30%
				3				silt; stained gray; moderate chemical odor.
	150							
	150	S&H	S-A-4.5	4				
16	150	push						FILL - Clay with Sand (CL) - very dark gray (10YR 3/1),
				5				stiff, damp, medium plasticity; 80% clay; 20% sand;
				6				stained green; strong chemical odor.
				7				damp; moderate chemical odor.
				8				
	150							saturated with product; strong chemical odor.
	150	S&H	S-A-9.5	9				
623	150	push						
				10				
				11				
				12		▽		
	150							SILTY SAND (SM) - brown (10YR 5/3), medium dense,
	200	S&H	S-A-13.5	13				saturated; 55% fine sand; 45% silt; trace gravel;
43	250	push						rootholes; slight chemical odor.
				14				
								Bottom of boring at 13.5 feet.
				15				Bottom of sample at 13.5 feet.
								05/11/90
				16				
				17				
				18				
				19				

Remarks: Backfilled to 10 feet with bentonite pellets, to 1.0 foot with cuttings, and to surface with concrete

GeoStrategies Inc.

Log of Boring

BORING NO. S-A

JOB NUMBER	REVIEWED BY RG/CEG	DATE	REVISED DATE	REVISED DATE
7667	RMP CEG 12/92	05/90		

Field location of boring: (See Plate 2)	Project No.: 7667	Date: 05/11/90	Boring No.: S-B
	Client: Shell Oil Company		
	Location: 350 Grand Avenue		
	City: Oakland, California		Sheet 1 of 1
	Logged by: R.C.M.	Driller: Bayland	
Drilling method: Solid Flight Auger	Casing installation data:		
Hole diameter: 5-Inches	Top of Box Elevation:	Datum:	

Water Level	8.5'		
Time	11:32		
Date	05/11/90		

PID (ppm)	Blows/ft. or Pressure (psi)	Type of Sample	Sample Number	Depth (ft.)	Sample	Well Detail	Soil Group Symbol (USCS)	Description
				0				
				1				PAVEMENT SECTION - 0.5 feet
				2				FILL - Silty Clay (CL/ML) - dark gray (10YR 4/1), medium stiff, damp; 60% clay; 40% silt; trace fine sand and gravel; stained green; moderate chemical odor.
				3				
				4				
				5				
	150			6				FILL - Silt with Sand (ML) - dark gray (10YR 4/1), medium stiff, damp; 70% silt; 20% fine sand; 10% clay; stained green; strong chemical odor.
	150	S&H	S-B-6.5					
895	150	push		7				
				8				
	150			9		▽		saturated with product at 8.0 feet.
	200	S&H	S-B-9.0					
874	200	push		10				
				11				
				12				
	150			13				SANDY CLAY (CL) - brownish yellow (10YR 6/6), medium stiff, saturated, medium plasticity; 70% clay; 30% fine sand; stained green; rootholes; moderate chemical odor.
	200	S&H	S-B-13.5					
110	250	push		14				
58	300							
	400	S&H		15				Bottom of boring at 15.0 feet.
	500	push						Bottom of sample at 15.0 feet.
				16				05/11/90
				17				
				18				
				19				

Remarks: Backfilled to 10 feet with bentonite pellets, to 1.0 foot with cuttings, and to surface with concrete

GSI GeoStrategies Inc.

Log of Boring

BORING NO. S-B

JOB NUMBER	REVIEWED BY RG/CEG	DATE	REVISED DATE	REVISED DATE
7667	CMP CEG 1262	05/90		

Field location of boring: (See Plate 2)	Project No.: 7667	Date: 05/11/90	Boring No: S-C
	Client: Shell Oil Company		
	Location: 350 Grand Avenue		
	City: Oakland, California		Sheet 1 of 1
	Logged by: R.C.M.	Driller: Bayland	
Drilling method: Solid Flight Auger	Casing installation data:		
Hole diameter: 5-Inches	Top of Box Elevation:	Datum:	

Water Level	9.5'							
Time	10:15							
Date	05/11/90							

PID (ppm)	Blows/ft. or Pressure (psi)	Type of Sample	Sample Number	Depth (ft.)	Sample	Well Detail	Soil Group Symbol (USCS)	Description
				0				
								PAVEMENT SECTION - 0.5 feet
				1				
								FILL - Clay (CL) - very dark gray (10YR 3/1), medium stiff,
				2				damp; 70% clay; 30% silt; weak chemical odor.
								FILL - Silty Clay (CL/ML) - light yellowish brown (10YR
				3				6/4), medium stiff, damp; 70% clay; 30% silt; trace fine
	150							sand and gravel; stained green; moderate chemical odor.
	150	S&H	S-C-4.5	4				
4	150	push						
				5				FILL - Silt (ML) - very dark gray (10YR 3/1), medium stiff,
								damp, low plasticity; 95% silt; 5% fine sand; moderate
				6				chemical odor.
				7				
				8				
	150							FILL - SANDY SILT (ML) - brown (10YR 5/3), medium
841	150	S&H	S-C-9.5	9				stiff, saturated, low plasticity; 80% silt; 20% fine to
	150	push				▽		medium sand; stained green; strong chemical odor
				10				
				11				
				12				
	150							
	250	S&H	S-C-13.5	13				
5	350	push						CLAY (CL) - yellowish brown (10YR 5/6), stiff, damp,
				14				medium plasticity; 90% clay; 10% silt; trace fine sand;
				15				rootholes; stained green; weak chemical odor.
								Bottom of boring at 13.5 feet.
				16				Bottom of sample at 13.5 feet.
								05/11/90
				17				
				18				
				19				

Remarks: Backfilled to 10 feet with bentonite pellets, to 1.0 foot with cuttings, and to surface with concrete

GeoStrategies Inc.

Log of Boring

BORING NO. S-C

JOB NUMBER	REVIEWED BY RG/CEG	DATE	REVISED DATE	REVISED DATE
7667	CMP CEG 12/92	05/90		

Field location of boring: (See Plate 2)	Project No.: 7667	Date: 05/11/90	Boring No: S-D
	Client: Shell Oil Company		
	Location: 350 Grand Avenue		
	City: Oakland, California		Sheet 1 of 1
	Logged by: R.C.M.	Driller: Bayland	
Drilling method: Solid Flight Auger	Casing installation data:		
Hole diameter: 5-Inches	Top of Box Elevation:		Datum:

Water Level	8.5'	
Time	13:30	
Date	05/11/90	

PID (ppm)	Blows/ft. or Pressure (psi)	Type of Sample	Sample Number	Depth (ft.)	Sample	Well Detail	Soil Group Symbol (USCS)	Description
				0				
				1				PAVEMENT SECTION - 0.5 feet
				2				FILL - Silty Clay (CL/ML) - dark gray (10YR 4/1), damp; 70% clay; 30% silt; trace fine sand; gray-green stained; moderate chemical odor.
				3				FILL - Silty Sand (SM) - brownish yellow (10YR 6/8), damp; 60% fine to medium sand; 30% silt; 10% clay; gray-green stained; rootholes; weak chemical odor.
				4				
0	500	S&H	S-D-4.5	5				FILL - Silty Sand (SM) - yellowish brown (10YR 5/6), damp; 60% fine to medium sand; 40% silt; gray-green stained; weak chemical odor.
		push						
				6				
				7				
				8				
	350					▽		
1	550	S&H	S-D-9.0	9				FILL - Sand with Silt and Gravel (SW-SM) - dark yellowish brown (10YR 4/4), poorly graded, loose, damp; 75% sand; 15% gravel; 10% silt; moderate chemical odor.
		push		10				
				11				
				12				
	300							
	7	S&H	S-D-13.5	13				CLAY (CL) - brownish yellow (10YR 6/6), stiff, damp; 90% clay; 10% silt; trace fine sand; gray stained; weak chemical odor.
4	12							
	6			14				
	10	S&H	S-D-15.0					
2	14			15				
				16				Bottom of boring at 15.0 feet.
								Bottom of sample at 15.0 feet.
				17				05/11/90
				18				
				19				

Remarks: Backfilled to 10 feet with bentonite pellets, to 1.0 foot with cuttings, and to surface with concrete

GSI GeoStrategies Inc.

Log of Boring

BORING NO. S-D

JOB NUMBER	REVIEWED BY RG/CEG	DATE	REVISED DATE	REVISED DATE
7667	RMP CEG 12/92	05/90		

Field location of boring: (See Plate 2)	Project No.: 7667	Date: 05/11/90	Boring No: S-E
	Client: Shell Oil Company		
	Location: 350 Grand Avenue		
	City: Oakland, California		Sheet 1 of 1
	Logged by: R.C.M.	Driller: Bayland	
Drilling method: Solid Flight Auger	Casing installation data:		
Hole diameter: 5-Inches	Top of Box Elevation:		Datum:

Water Level	9.0'	
Time	14:18	
Date	05/11/90	

PID (ppm)	Blows/ft. or Pressure (psi)	Type of Sample	Sample Number	Depth (ft.)	Sample	Well Detail	Soil Group Symbol (USCS)	Description
				0				
				1				PAVEMENT SECTION - 0.5 feet
0								FILL - Silt with Sand (ML) - dark gray (10YR 4/1), moist;
				2				80% silt; 20% fine to medium sand; trace gravel; green
				3				stained; moderate to strong chemical odor.
								Concrete - 3.0 to 3.2 feet
				4				
0	500	S&H	S-E-4.5	5				FILL - Silty Sand (SM) - dark greenish gray (5BG 4/1),
		push						loose, moist; 60% sand; 35% silt; 5% gravel;
				6				strong chemical odor.
				7				
				8				
	250							COLOR CHANGE to olive (5Y 5/3), loose, saturated; 75%
	250	S&H	S-E-9.5	9		▽		sand; 20% silt; 5% gravel; strong chemical odor.
33	350	push		10				
				11				
				12				
	250							CLAY (CL) - brownish yellow (10YR 6/6), stiff, damp,
	350	S&H	S-E-13.5	13				medium plasticity; 90% clay; 10% silt; trace fine sand;
2	500	push						gray stained; moderate chemical odor.
				14				
								Bottom of boring at 13.5 feet.
				15				Bottom of sample at 13.5 feet.
								05/11/90
				16				
				17				
				18				
				19				

Remarks: Backfilled to 10 feet with bentonite pellets, to 1.0 foot with cuttings, and to surface with concrete

GSI GeoStrategies Inc.

Log of Boring

BORING NO. S-E

JOB NUMBER	REVIEWED BY RG/CEG	DATE	REVISED DATE	REVISED DATE
7667	[illegible] 5/11/90	05/90		

Field location of boring: (See Plate 2)	Project No.: 766701	Date: 01/07/91	Boring No.: S-1
	Client: Shell Oil Company		
	Location: 350 Grand Avenue		
	City: Oakland, California		Sheet 1 of 1
	Logged by: T.J.W.	Driller: Bayland	
Drilling method: Hollow Stem Auger	Casing installation data: (See Well Construction Detail)		
Hole diameter: 8-Inches	Top of Box Elevation: 20.84	Datum: MSL	

								Water Level	9.5'	11.0'	
								Time	10:00	15:30	
								Date	01/07/91	01/07/91	
PID (ppm)	Blows/ft. * or Pressure (psi)	Type of Sample	Sample Number	Depth (ft.)	Sample	Well Detail	Soil Group Symbol (USCS)	Description			
								PAVEMENT SECTION - 0.333 feet			
				1							
								FILL - Gravel and Sand (GP) - dark yellowish brown			
				2				(10YR 4/4), dense, damp; 60% medium gravel; 35% fine			
								to coarse sand; 5% fines.			
				3							
				4							
0	500	S&H	S-1-								
	500	push	4.5	5				CLAYEY SAND (SC) - olive gray (5Y 4/2), very dense,			
		(psi)						damp; 80% fine to medium sand; 15% clay; 5% silt.			
				6							
				7							
				8							
	500	S&H		9							
	500	push	S-1-			▽		COLOR CHANGE to gray (5Y 5/1), saturated at 9.5 feet.			
0	500		9.5	10							
	(psi)										
				11		▼					
				12							
				13							
		S&H		14							
			S-1-					CLAY (CL) - light olive brown (2.5Y 5/6), stiff, damp; 80%			
0	15		15.0	15				clay; moderately silty; minor iron and manganese			
								staining in rootholes.			
				16							
				17				SANDY SILT (ML) - light olive brown (2.5 5/6), stiff,			
								damp; 55% silt; 35% fine sand; slightly clayey;			
				18				manganese staining.			
			S-1-	19				Bottom of sample at 19.5 feet.			
	15	S&H	19.5					Bottom of boring at 19.5 feet.			
				20				01/07/91			

Remarks:

* Converted to equivalent Standard Penetration blows/ft.

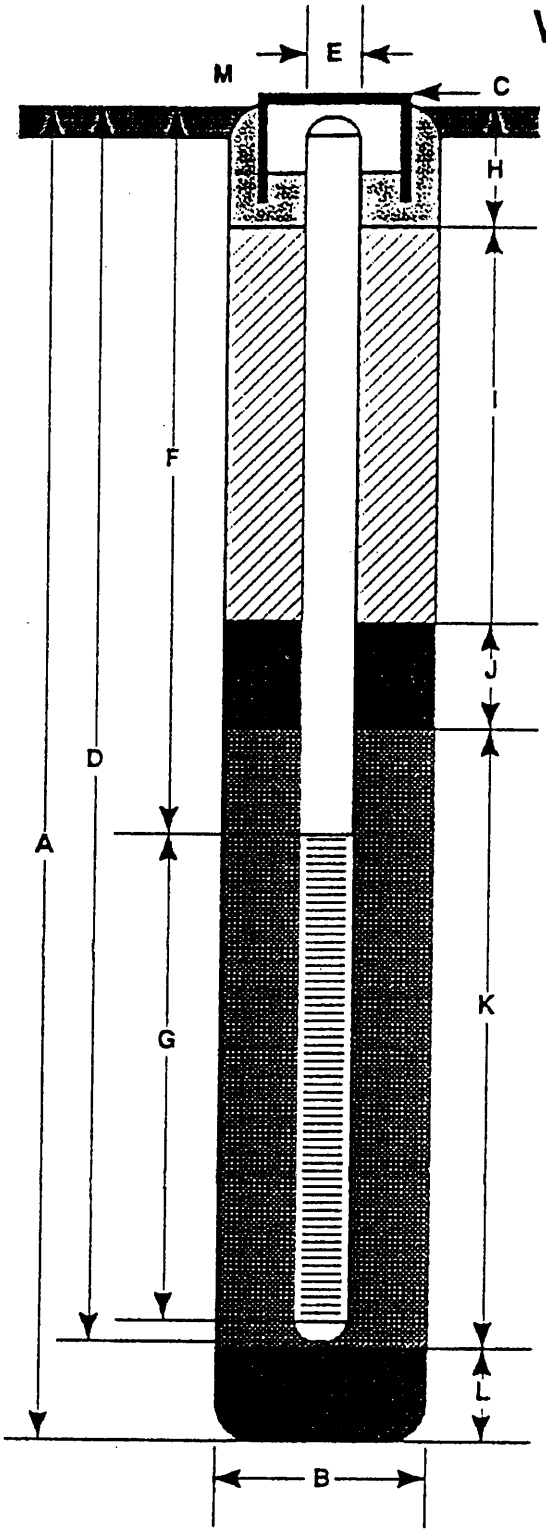
GeoStrategies Inc.

Log of Boring

BORING NO. S-1

JOB NUMBER	REVIEWED BY RG/CEG	DATE	REVISED DATE	REVISED DATE
766701	DKP	01/91		

WELL CONSTRUCTION DETAIL



A Total Depth of Boring 19.5 ft.

B Diameter of Boring 8 in.
Drilling Method Hollow Stem Auger

C Top of Box Elevation 20.84 ft.
[X] Referenced to Mean Sea Level
[ ] Referenced to Project Datum

D Casing Length 17 ft.
Material Schedule 40 PVC

E Casing Diameter 3 in.

F Depth to Top Perforations 7 ft.

G Perforated Length 9 ft.
Perforated Interval from 7 to 16 ft.
Perforation Type Machine Slot
Perforation Size 0.020 in.

H Surface Seal from 0 to 1.5 ft.
Seal Material Concrete

I Backfill from 1.5 to 4 ft.
Backfill Material Cement Grout

J Seal from 4 to 5 ft.
Seal Material Bentonite

K Gravel Pack from 5 to 17 ft.
Pack Material Lonestar #2/12

L Bottom Seal 2.5 ft.
Seal Material Bentonite Pellets

M Traffic-rated Christy box with locking cap and lock.

Note: Depths measured from initial ground surface.

GSI GeoStrategies Inc.

Well Construction Detail

WELL NO. S-1

JOB NUMBER	REVIEWED BY RG/CEG	DATE	REVISED DATE	REVISED DATE
766701	DMP	01/91		

Field location of boring: (See Plate 2)	Project No.: 766701	Date: 01/07/91	Boring No.: S-2
	Client: Shell Oil Company		
	Location: 350 Grand Avenue		
	City: Oakland, California		Sheet 1 of 1
	Logged by: T.J.W.	Driller: Bayland	
Drilling method: Hollow Stem Auger	Casing installation data: (See Well Construction Detail)		
Hole diameter: 8-Inches	Top of Box Elevation: 21.24	Datum: MSL	

PID (ppm)	Blows/ft.* or Pressure (psi)	Type of Sample	Sample Number	Depth (ft.)	Sample	Well Detail	Soil Group Symbol (USCS)	Water Level	8.5'	11.1'	Description
								Time	11:30	15:35	
								Date	01/07/91	01/07/91	
				1							PAVEMENT SECTION - 0.5 feet
				2							FILL - Silt and Sand (SW) - light olive brown (2.5Y 5/4), dense, damp.
	500	S&H		3							SILTY SAND (SM) - greenish brown (5G 5/1), dense,
85.6	500	push	S-2-	4							damp; 65% fine sand; 30% silt; slightly clayey.
	500		4.5								
	(psi)			5							SILT (ML) - black (5Y 2.5/1), stiff, damp; 85% silt; moderately clayey.
				6							
				7							
				8							
988	500	S&H	S-2-			▽					SANDY SILT (ML) - black (5Y 2.5/1), stiff, saturated; 60%
	500	push	8.0	9		÷					silt; 35% fine sand; 5% clay; rootholes present.
	500										
	(psi)			10							
				11		▼					
						÷					
				12							
				13							
		S&H									SILT (ML) - olive gray (5Y 5/2), stiff, damp; 60% silt; 35%
			S-2-	14							clay; 5% fine sand.
6.8	11		14.5								
				15							
				16							
		S&H									GRAVEL with SAND (GP) - olive (5Y 5/3), medium dense,
			S-2-	17							saturated; 70% fine to medium gravel; 30% fine to coarse
17.8	24		17.5								sand.
				18							
											Bottom of sample at 17.5 feet.
				19							Bottom of boring at 17.5 feet.
											01/07/91
				20							

Remarks:

* Converted to equivalent Standard Penetration blows/ft.

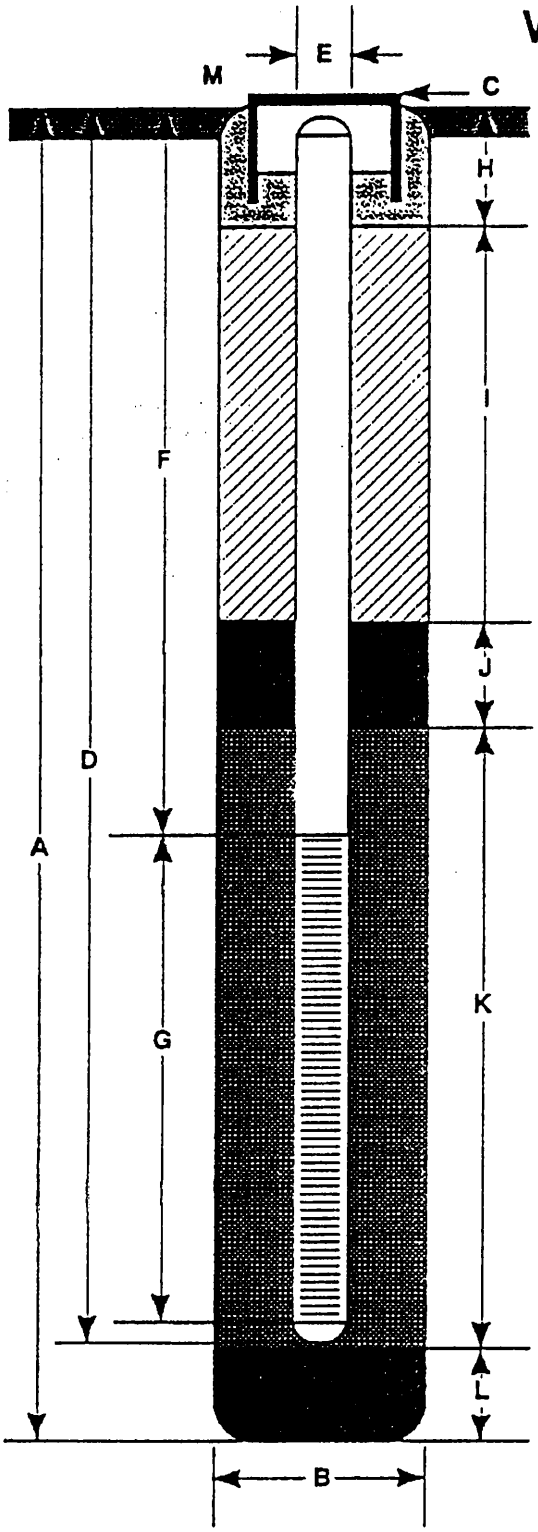
GeoStrategies Inc.

Log of Boring

BORING NO. S-2

JOB NUMBER	REVIEWED BY RG/CEG	DATE	REVISED DATE	REVISED DATE
766701	DHP	01/91		

WELL CONSTRUCTION DETAIL



A Total Depth of Boring 17.5 ft.

B Diameter of Boring 8 in.
Drilling Method Hollow Stem Auger

C Top of Box Elevation 21.24 ft.
[X] Referenced to Mean Sea Level
[ ] Referenced to Project Datum

D Casing Length 15 ft.
Material Schedule 40 PVC

E Casing Diameter 3 in.

F Depth to Top Perforations 7 ft.

G Perforated Length 8 ft.
Perforated Interval from 7 to 15 ft.
Perforation Type Machine Slot
Perforation Size 0.020 in.

H Surface Seal from 0 to 1.5 ft.
Seal Material Concrete

I Backfill from 1.5 to 4 ft.
Backfill Material Cement Grout

J Seal from 4 to 5 ft.
Seal Material Bentonite

K Gravel Pack from 5 to 15 ft.
Pack Material Lonestar #2/12

L Bottom Seal 2.5 ft.
Seal Material Bentonite Pellets

M Traffic-rated Christy box with locking cap and lock.

Note: Depths measured from initial ground surface.

GeoStrategies Inc.

Well Construction Detail

WELL NO
S-2

JOB NUMBER	REVIEWED BY RG/CEG	DATE	REVISED DATE	REVISED DATE
766701	DHP	01/91		

Field location of boring:

(See Plate 2)

Project No.:	766701	Date: 01/07/91	Boring No. S-3
Client:	Shell Oil Company		
Location:	350 Grand Avenue		
City:	Oakland, California		Sheet 1 of 1
Logged by:	T.J.W.	Driller: Bayland	

Casing installation data: (See Well Construction Detail)

Drilling method: Hollow Stem Auger

Hole diameter: 8-Inches

Top of Box Elevation: 22.70 Datum: MSL

Water Level	8.5'	14.0'
Time	13:30	15:38
Date	01/07/91	01/07/91

PID (ppm)	Blows/ft. * or Pressure (psi)	Type of Sample	Sample Number	Depth (ft.)	Sample	Well Detail	Soil Group Symbol (USCS)	Description
								PAVEMENT SECTION - 0.5 feet.
				1				
								FILL - Sand and Gravel (SW) - concrete blocks, red
				2				bricks - PIPE ENCOUNTERED AT 2.0 feet.
								MOVED HOLE 12" NORTH
				3				
	325	S&H						SILT with SAND (ML) - olive (5Y 5/3), stiff. damp.
336	325	push	S-3-	4				
	325		4.5					
	(psi)			5				
				6				
				7				
				8				
0.5		S&H				▽		SAND (SP) - olive (5Y 4/4), loose to medium dense,
	10		S-3-	9				saturated; 85% fine to coarse sand; 10% gravel; slightly
			9.0					silty.
				10				
				11				
				12				
								SILTY SAND (SM) - light olive brown (2.5Y 5/4), dense,
				13				moist; 75% medium sand; 25% silt and clay; trace gravel.
0		S&H	S-3-	14		▽		CLAY (CL) - mottled light olive brown (2.5 5/4) to pale
	18		14.5					olive (5Y 6/3), very stiff, damp; minor rootholes.
				15				
				16				Bottom of sample at 14.5 feet.
								Bottomof boring at 14.5 feet.
				17				01/07/91
				18				
				19				
				20				

Remarks:

* Converted to equivalent Standard Penetration blows/ft.

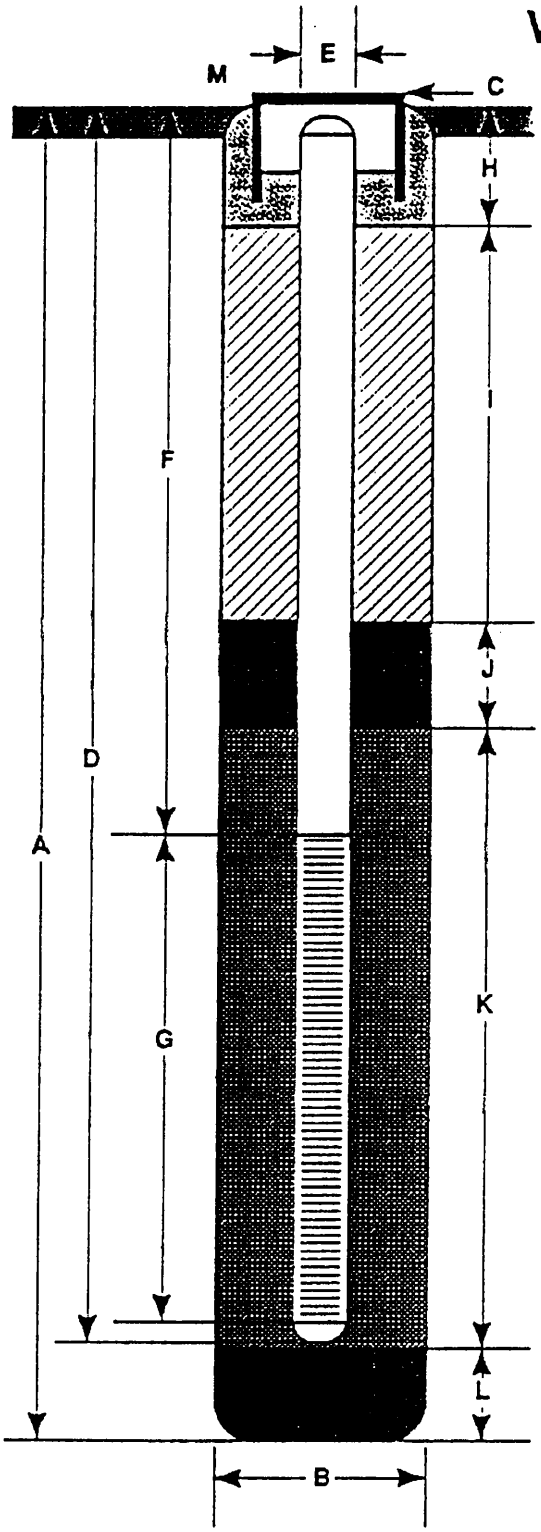
GeoStrategies Inc.

Log of Boring

BORING NO. S-3

JOB NUMBER	REVIEWED BY RG/CEG	DATE	REVISED DATE	REVISED DATE
766701	DKP	01/91		

WELL CONSTRUCTION DETAIL



A Total Depth of Boring 14.5 ft.

B Diameter of Boring 8 in.
Drilling Method Hollow Stem Auger

C Top of Box Elevation 22.70 ft.
[X] Referenced to Mean Sea Level
[ ] Referenced to Project Datum

D Casing Length 14.5 ft.
Material Schedule 40 PVC

E Casing Diameter 3 in.

F Depth to Top Perforations 7 ft.

G Perforated Length 7.5 ft.
Perforated Interval from 7 to 14.5 ft.
Perforation Type Machine Slot
Perforation Size 0.020 in.

H Surface Seal from 0 to 1.5 ft.
Seal Material Concrete

I Backfill from 1.5 to 4 ft.
Backfill Material Cement Grout

J Seal from 4 to 5 ft.
Seal Material Bentonite

K Gravel Pack from 5 to 14.5 ft.
Pack Material Lonestar #2/12

L Bottom Seal N/A ft.
Seal Material

M Traffic-rated Christy box with locking cap and lock.

Note: Depths measured from initial ground surface.

GeoStrategies Inc.

Well Construction Detail

WELL NO.
S-3

JOB NUMBER	REVIEWED BY RG/CEG	DATE	REVISED DATE	REVISED DATE
766701	DWP	01/91		

DRILLING LOG

Client: **Shell Oil Products Company**

Project No: **240-0715** Phase Task005

Well ID **S-4** Boring ID **SB-2**

Location **350 Grand Avenue Oakland, California**

Surface Elev. **NA ft,** Page **1** of **1**

Depth (feet)	Blow Count	Sample	% Rec	Lithologic Description
0	Ground Surface			
				ASPHALT
				CONCRETE
				Gravelly SAND, FILL: brown to grey; very dense; damp; 10% silt, 50% sand; 40% gravel; no plasticity; high estimated permeability.
5				
				Silty SAND; SM; grey; loose; moist; 40% silt, 60% very fine sand; low plasticity; moderate estimated permeability.
10				**Silty sandy CLAY**; CH; brown; stiff; damp; 70% clay, 15% silt, 15% coarse sand; high plasticity; low estimated permeability.
				Silty CLAY; CH; brown; very stiff; damp; 80% clay, 20% silt; high plasticity, low estimated permeability.
15				

TPHg (ppm)	Graphic Log	Well Construction Graphics	Depth (feet)	Well Construction Details
				T.O.C. Elev. NA
			0	
			5	
			10	
			15	Water level @ 13.5 ft
				Bottom of well @ 15.0 ft

Driller **Gregg Drilling**

Logged By **Maureen Feineman**

Drilling Started **4/16/98**

Drilling Completed **4/16/98**

Construction Completed **4/16/98**

Development Completed **NA**

Water Bearing Zones **NA**

Development Yield **NA**

Well Casing **0.75"** Dia. **5.0'** to **0.0'**

Casing Type **Schedule 40 PVC**

Well Screen **0.75"** Dia. **15.0'** to **5.0'**

Screen Type **Slotted Schedule 40 PVC**

Slot Size **0.010"**

Drilling Mud **NA**

Grout Type **Portland Type I/II**

Bentonite Seal **4.0' to 2.5'**

Sand Pack **15.0' to 4.0'**

Sand Pack Type **#2/12 Monterrey Sand**

Static Water Level **13.50** ft Depth

Date **NA**

Notes: **South side of Grand Avenue, east of Perkins Street.**

Cambria Environmental Technology, Inc.

DRILLING LOG

Client: **Shell Oil Products Company**

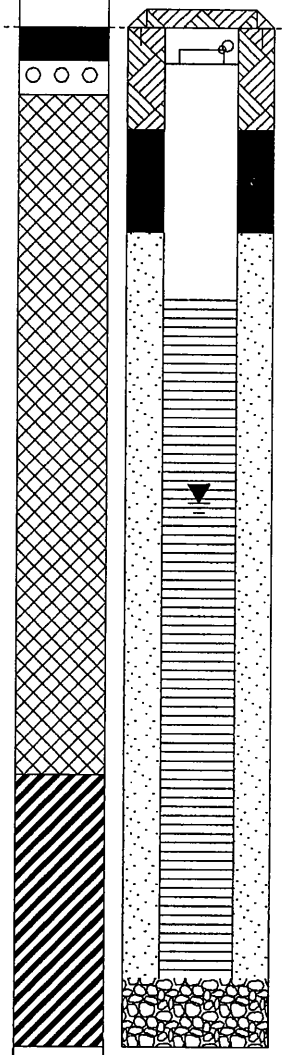
Project No: **240-0715** Phase Task005

Well ID **S-5** Boring ID **SB-1**

Location **350 Grand Avenue Oakland, California**

Surface Elev. **NA ft,** Page **1** of **1**

Depth (feet)	Blow Count	Sample	% Rec	Lithologic Description
0	Ground Surface			
				ASPHALT
				CONCRETE
				Silty SAND, FILL; brown; loose; damp; 5% clay; 15% silt; 80% coarse sand; no to low plasticity; moderate to high estimated permeability.
5				
				Wet.
10				
				Silty CLAY; (CH); brown to grey; stiff; damp; 80% clay, 20% silt; high plasticity; low estimated permeability.
15				



Depth (feet)	Well Construction Details
	T.O.C. Elev. NA
0	
5	
	Water level @ 7.0 ft
10	
15	Bottom of well @ 14.0 ft
	Bottom of boring @ 15.0 ft

Driller **Gregg Drilling**	Development Yield **NA**	Bentonite Seal **3.0' to 1.5'**
Logged By **Maureen Feineman**	Well Casing **0.75"** Dia. **4.0'** to **0.0'**	Sand Pack **14.0' to 3.0'**
Drilling Started **4/16/98**	Casing Type **Schedule 40 PVC**	Sand Pack Type **#2/12 Monterrey Sand**
Drilling Completed **4/16/98**	Well Screen **0.75"** Dia.**14.0'** to **4.0'**	Static Water Level **7.00** ft Depth
Construction Completed **4/16/98**	Screen Type **Slotted Schedule 40 PVC**	Date **NA**
Development Completed **NA**	Slot Size **0.010"**	Notes: **South side of Grand**
Water Bearing Zones **NA**	Drilling Mud **NA**	**Avenue, west of Perkins Street.**
	Grout Type **Portland Type I/II**	

WELL 24715 6/1/98

Cambria Environmental Technology, Inc.

Cambria Environmental Technology, Inc.
270 Perkins Street
Sonoma, CA 95476
Telephone: 707-935-4850
Fax: 707-935-6649

BORING/WELL LOG

CLIENT NAME	Shell Oil Products US	**BORING/WELL NAME**	T-1
JOB/SITE NAME	Shell-branded Service Station	**DRILLING STARTED**	10-Jul-02
LOCATION	350 Grand Avenue, Oakland, California	**DRILLING COMPLETED**	10-Jul-02
PROJECT NUMBER	0715	**WELL DEVELOPMENT DATE (YIELD)**	NA
DRILLER	Gregg Drilling	**GROUND SURFACE ELEVATION**	24.50 ft above msl
DRILLING METHOD	Vacuum	**TOP OF CASING ELEVATION**	24.14 ft above msl
BORING DIAMETER	12"	**SCREENED INTERVAL**	NA
LOGGED BY	J. Gerke	**DEPTH TO WATER (First Encountered)**	7.8 ft (10-Jul-02) ▽
REVIEWED BY	M. Derby, PE# 55475	**DEPTH TO WATER (Static)**	7.71 ft (16-Jul-02) ▼
REMARKS	Located in northwest corner of tank pit.		

PID (ppm)	BLOW COUNTS	SAMPLE ID	EXTENT	DEPTH (fbg)	U.S.C.S.	GRAPHIC LOG	SOIL DESCRIPTION	CONTACT DEPTH (fbg)	WELL DIAGRAM
							Concrete	1.0	4" diam., Schedule 40 PVC
				5			**FILL**; Pea Gravel.		4"-diam., 0.020" Slotted Schedule 40 PVC
				10			▼	10.5	Bottom of Boring @ 10 ft

WELL LOG (PID) I:\OAKLAN-3\GINT\0715.GPJ DEFAULT.GDT 3/30/06

Cambria Environmental Technology, Inc.
270 Perkins Street
Sonoma, CA 95476
Telephone: 707-935-4850
Fax: 707-935-6649

BORING/WELL LOG

CLIENT NAME	Shell Oil Products US	**BORING/WELL NAME**	T-2
JOB/SITE NAME	Shell-branded Service Station	**DRILLING STARTED**	10-Jul-02
LOCATION	350 Grand Avenue, Oakland, California	**DRILLING COMPLETED**	10-Jul-02
PROJECT NUMBER	0715	**WELL DEVELOPMENT DATE (YIELD)**	NA
DRILLER	Gregg Drilling	**GROUND SURFACE ELEVATION**	24.02 ft above msl
DRILLING METHOD	Vacuum	**TOP OF CASING ELEVATION**	23.55 ft above msl
BORING DIAMETER	12"	**SCREENED INTERVAL**	NA
LOGGED BY	J. Gerke	**DEPTH TO WATER (First Encountered)**	7.8 ft (10-Jul-02) ▽
REVIEWED BY	M. Derby, PE# 55475	**DEPTH TO WATER (Static)**	7.15 ft (16-Jul-02) ▼
REMARKS	Located in southwest corner of tank pit.		

PID (ppm)	BLOW COUNTS	SAMPLE ID	EXTENT	DEPTH (fbg)	U.S.C.S.	GRAPHIC LOG	SOIL DESCRIPTION	CONTACT DEPTH (fbg)	WELL DIAGRAM
							Concrete	1.0	4" diam., Schedule 40 PVC
				5			**FILL**; Pea Gravel.		4"-diam., 0.020" Slotted Schedule 40 PVC
								9.5	Bottom of Boring @ 9 ft

WELL LOG (PID) I:\OAKLAN~3\GINT\0715.GPJ DEFAULT.GDT 3/30/06

Attachment 5

List of Known Environmental Documents

350 Grand, Oakland - List of Known Environmental Documents		
Date	**Title/Subject**	**Company**
7/5/1990	Soil Boring Report	Geo Stratigies
9/24/1990	Work Plan	Geo Stratigies
3/18/1991	Monitoring Well Installation Report	Geo Stratigies
6/14/1991	Site Update - Second Quarter 1991	Geo Stratigies
9/10/1991	Site Update - Third Quarter 1991	Geo Stratigies
12/9/1991	Site Update - Fourth Quarter 1991	Geo Stratigies
3/9/1992	Groundwater Monitoring Report - First Quarter 1992	Geo Stratigies
6/23/1992	ACHCS 06-23-92 Correspondence Work Plan Request	ACHCS
9/6/1992	Work Plan	Geo Stratigies
9/9/1992	Groundwater Monitoring Report - Third Quarter 1992	Geo Stratigies
12/9/1992	Groundwater Monitoring Report - Fourth Quarter 1992	Geo Stratigies
12/16/1992	Response to ACHCS Requests	Geo Stratigies
4/9/1993	First Quarter 1993 Quarterly Monitoring Report/Hydropunch Survey	Geo Stratigies
1/15/1994	Status Report - First Quarter 1994	Weiss Assoc.
3/3/1995	First Quarter 1995 Quarterly Monitoring Report	Weiss Assoc.
5/18/1995	Second Quarter 1995 Quarterly Monitoring Report	Weiss Assoc.
9/18/1995	Third Quarter 1995 Quarterly Monitoring Report	Weiss Assoc.
12/8/1995	Fourth Quarter 1995 Quarterly Monitoring Report	Weiss Assoc.
3/7/1996	Soil Characterization Work Plan	Weiss Assoc.
4/1/1996	First Quarter 1996 Quarterly Monitoring Report	Weiss Assoc.
5/31/1996	MTBE Investigation Report	Cambria
6/24/1996	Second Quarter 1996 Quarterly Monitoring Report	Weiss Assoc.
8/14/1996	Tank Removal and Soil Over Excavation Report	Weiss Assoc.
2/11/1997	Groundwater Monitoring Report - Fourth Quarter 1996	Cambria
7/31/1997	ACHCS 07-31-97 Correspondence Received 1Q, 2Q, 3Q QMR	ACHCS
9/15/1997	MTBE Investigation Work Plan	Cambria
12/8/1997	Groundwater Monitoring Report - Third Quarter 1997	Cambria
1/13/1998	ACHCS Review MTBE Investigation Work Plan dated 9-15-97	ACHCS
1/15/1998	ACHCS Review MTBE Investigation Work Plan dated 9-15-97	ACHCS
3/31/1998	First Quarter 1998 Quarterly Monitoring Report	Cambria
5/29/1998	Change in Ownership - Shell Service Station Facilities	Cambria
6/26/1998	ACHCS 06-26-98 Correspondence	ACHCS
7/27/1998	Conduit Study Work Plan	Cambria
8/4/1998	ACHCS 08-04-98 Correspondence 07-27-98 Work Plan Approval	ACHCS
9/4/1998	Third Quarter 1998 Quarterly Monitoring Report	Cambria
11/18/1998	Conduit Study Report	Cambria
1/12/1999	Work Plan Addendum	Cambria
3/4/1999	Fax Maps	Cambria
7/9/1999	First Quarter 1999 Quarterly Monitoring Report	Cambria
8/23/1999	Fax Field Sheets 3Q 1998 & 1Q99 To ACHCS	Cambria
9/8/1999	Subsurface Investigation Report	Cambria
9/8/1999	Quarterly Status Report - Second Quarter 1999	Cambria
12/22/1999	Third Quarter 1999 Quarterly Monitoring Report	Cambria
3/28/2000	First Quarter 2000 Quarterly Monitoring Report	Cambria
7/27/2000	Quarterly Status Report - Second Quarter 2000	Cambria
10/9/2000	Third Quarter 2000 Quarterly Monitoring Report	Cambria
2/20/2001	Subsurface Investigation Work Plan	Cambria
4/25/2001	ACHCS 04-25-01 Correspondence 3Q00 QMR Review	ACHCS
6/27/2001	First Quarter 2001 Quarterly Monitoring Report	Cambria
8/1/2001	ACHCS 08-01-01 Correspondence 1Q01 QMR Review	ACHCS
8/13/2001	ACHCS 08-13-01 Correspondence	ACHCS
10/25/2001	Third Quarter 2001 Quarterly Monitoring Report	Cambria
12/26/2001	Fourth Quarter 2001 Quarterly Monitoring Report	Cambria

350 Grand, Oakland - List of Known Environmental Documents		
2/11/2002	Certified List of Record Fee Title Holders	Cambria
3/29/2002	ACHCS 03-29-02 Correspondence	ACHCS
4/19/2002	First Quarter 2002 Quarterly Monitoring Report	Cambria
5/17/2002	Agency Response To 3-29-02 Correspondence	Cambria
6/26/2002	Second Quarter 2002 Quarterly Monitoring Report	Cambria
10/7/2002	Third Quarter 2002 Quarterly Monitoring Report	Cambria
12/4/2002	Fourth Quarter 2002 Quarterly Monitoring Report	Cambria
7/3/2003	Groundwater Monitoring Report - Second Quarter 2003	Cambria
8/8/2003	Fax To BAQMD	Cambria
10/22/2003	Groundwater Monitoring Report - Third Quarter 2003	Cambria
12/15/2003	Interim Remediation Report	Cambria
1/26/2004	Groundwater Monitoring Report - Fourth Quarter 2003	Cambria
4/22/2004	Groundwater Monitoring Report - First Quarter 2004	Cambria
7/30/2004	Groundwater Monitoring Report - Second Quarter 2004	Cambria
9/20/2004	Site Investigation Report	Cambria
10/27/2004	Groundwater Monitoring Report - Third Quarter 2004	Cambria
12/27/2004	Site Investigation Work Plan	Cambria
2/11/2005	Groundwater Monitoring Report - Fourth Quarter 4Q04	Cambria
5/31/2005	Groundwater Monitoring Report - First Quarter 2005	Cambria
7/5/2005	ACHCS 07-05-05 Review Site Investigation Work Plan Correspondence	ACHCS
8/12/2005	Groundwater Monitoring Report - Second Quarter 2005	Cambria
9/29/2005	Groundwater Monitoring Report - Third Quarter 2005 & Extension Request	Cambria
10/6/2005	E-Mail Extension Grant	ACHCS
12/2/2005	Site Investigation Report	Cambria
12/6/2005	Groundwater Monitoring Report - Fourth Quarter 2005	Cambria
2/8/2006	ACHCS 02-08-06 Correspondence	ACHCS