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March 24, 2006

Jerry Wickham
Alameda County Health Care Services Agency
1131 Harbor Bay Parkway, Suite 250
Alameda, CA 94502-6577

Re: Well Installation Work Plan
Former Shell Service Station
4255 MacArthur Blvd.
Oakland, California
SAP Code 135701
Incident No. 98995758
ACHCSA # 3769

Dear Mr. Wickham:

Attached for your review and comment is a copy of the *Well Installation Work Plan* for the above referenced site. Upon information and belief, I declare, under penalty of perjury, that the information contained in the attached document is true and correct.

If you have any questions or concerns, please call me at (707) 865-0251.

Sincerely,

Denis L. Brown
Sr. Environmental Engineer

CAMBRIA

March 15, 2006

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

Re: **Well Installation Work Plan**
Former Shell-branded Service Station
4255 MacArthur Boulevard
Oakland, California
Incident # 98995758
SAP Code 135701
Cambria Project #248-0524-006
ACEH Case #3769

Dear Mr. Wickham:

On behalf of Equilon Enterprises LLC dba Shell Oil Products US (Shell), Cambria Environmental Technology, Inc. (Cambria) is submitting this *Well Installation Work Plan.* In its December 14, 2005 *Subsurface Investigation Report*, Cambria recommended installing additional groundwater monitoring wells to augment the site's groundwater monitoring network. Alameda County Health Care Services Agency (ACHCSA) concurred with this recommendation in a January 19, 2006 letter to Shell. The site background, a summary of previous work at the site, and a proposed scope of work for this investigation are presented below. As ACHCSA requested in a January 19, 2006 letter, a well construction data table and geologic cross-sections of the site are also included in the work plan as Table 1 and Attachment A, respectively.

SITE BACKGROUND

Location and Site Use: The site is a former Shell service station located at the MacArthur Boulevard and High Street intersection in a mixed commercial and residential area of Oakland, California (Figure 1). An active 76 service station and a former Chevron service station are located east of the site. A trailer park and adjacent California Department of Transportation (Caltrans) access to Interstate 580 are located immediately southwest of the site. Topography slopes toward the west, with a 5-foot (ft) elevation difference between grade at the site and the trailer park property, and an additional 5-ft elevation difference between grade at the trailer park property and the Caltrans property.

Cambria Environmental Technology, Inc.

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Soil Lithology: Soils encountered during drilling activities consist primarily of dense, silty sands and sandy silts with clay to the maximum explored depth of 40 feet below grade (fbg). A 1- to 2-ft-thick, non-water-bearing gravel interval has been observed at or below 18 fbg in some borings.

Groundwater Depth and Flow Direction: Quarterly groundwater monitoring has been conducted at the site since November 1993. The historical depth to groundwater on site has ranged from approximately 4 to 17 fbg, and currently (first quarter of 2006) ranges from 6.21 to 11.69 fbg on site. Groundwater typically flows in a west-southwesterly direction.

PREVIOUS WORK

June 1985 Subsurface Investigation: In June 1985, Emcon Associates of San Jose, California drilled three soil borings and installed one groundwater monitoring well adjacent to the underground storage tanks (USTs). Up to 15,800 parts per million (ppm) total petroleum hydrocarbons as gasoline (TPHg) were detected in the shallow soil samples from inside the UST area. In July 1992, GeoStrategies, Inc. of Hayward, California performed a site reconnaissance and verified that the original monitoring well had been destroyed during the 1985 UST replacement activities. Historical soil analytical results are presented on Table 2.

December 1985 UST Replacement: In December 1985, the USTs were replaced, and approximately 810 cubic yards of hydrocarbon-bearing soil were transported to a disposal facility. Up to 22,000 ppm total volatile hydrocarbons and 500 ppm benzene were detected in the soil samples from the excavation.

November 1993 Subsurface Investigation: In November 1993, Weiss Associates (WA) of Emeryville, California drilled soil borings BH-A, BH-B and BH-C, which were converted into monitoring wells MW-1, MW-2 and MW-3, respectively. Up to 1,700 ppm TPHg and 3.3 ppm benzene were detected in soil boring BH-C (MW-3) between 11 and 16 fbg. Up to 66 ppm TPHg and 0.07 ppm benzene were detected in soil boring BH-B (MW-2) between 9 and 14 fbg.

November 1994 Subsurface Investigation: In November 1994, WA drilled on-site soil borings BH-D and BH-E, located on the northeastern end of the lot, and off-site boring BH-F (MW-4), located near the Highway 580 on-ramp. Up to 5,900 ppm TPHg and 23 ppm benzene were detected at 5 fbg in soil boring BH-E, located adjacent to the central eastern pump island. Trace hydrocarbon concentrations were detected in the capillary fringe soil samples collected from each of the borings.

November 1995 Dispenser and Piping Removal and Sampling: In November 1995, WA collected 15 soil samples during dispenser and piping replacement activities. Up to 7,800 ppm TPHg were detected in samples collected from beneath the former middle dispenser, and up to 2,800 ppm TPHg were detected in the sample collected from beneath the adjacent product piping. Up to 7,300 ppm TPHg were detected in the sample collected from beneath the northeast dispenser island. No benzene above 1 ppm was detected in any of the 15 samples. During the dispenser replacements, horizontal wells HW-1 through HW-4 were installed in the vadose zone about 5 ft below ground surface and adjacent to the former piping and dispensers to facilitate future removal of petroleum hydrocarbons from the impacted soil.

August 1997 Soil Vapor Extraction (SVE) Test: In August 1997, Cambria performed short-term SVE tests using a VR Systems Model V3 internal combustion engine on horizontal vapor extraction wells HW-1 through HW-4 and monitoring wells MW-2 and MW-3. Cambria measured vapor extraction flow rates, the vacuum applied to the wellheads, and the vacuum influence in nearby wells. Cambria calculated an effective radius of influence of 35 to 50 ft during testing of wells MW-3 and MW-2. The relatively high TPHg removal rates measured in horizontal wells HW-1 through HW-4 were most likely temporary and are not believed to be representative of site conditions due to extensive well screen in permeable fill material. The results of the short-term testing indicated that SVE achieves only low hydrocarbon removal rates in wells MW-2 and MW-3, which are more representative of native soil conditions.

February 1998 Subsurface Investigation: In February 1998, Cambria drilled two off-site borings (SB-1 and SB-2) in the trailer park adjacent to the Shell site. No TPHg or benzene was detected in the soil samples collected from the two borings. The highest methyl tertiary-butyl ether (MTBE) concentration detected in soil was 1.4 ppm detected in soil boring SB-2 at a depth of 7 fbg. Up to 7,700 parts per billion (ppb) TPHg, 210 ppb benzene, and 46,000 ppb MTBE were detected in the grab groundwater sample collected from soil boring SB-2. In sample analysis of soil physical parameters, total organic carbon was detected at 2,140 ppm and 7,210 ppm at a depth of 5.5 fbg in borings SB-1 and SB-2, respectively, and total porosity was measured as 35.2% and 37.4%, respectively. Specific permeability values were 181 millidarcies (md) for SB-1-5.5 and 71 md for SB-2-5.5, but the lab noted that due to fine fractures developed in the samples upon drying, the measured values were an order or more of magnitude too high. Permeability measurements confirmed the low permeability of the shallow soils beneath the site. Historical grab groundwater analytical results are presented on Table 3.

2001 Sensitive Receptor Survey (SRS), Conduit Study and Site Conceptual Model (SCM): Cambria included an SRS, conduit study results, and an SCM in the *First Quarter 2001 Monitoring Report.* The SRS identified 25 monitoring wells, 4 cathodic protection wells, and 1 domestic well within ½ mile of the site. Given the conduit study results, Cambria concluded

that nearby sewer, storm drain, and water lines located between 8 to 13 fbg could serve as preferential pathways petroleum hydrocarbons and MTBE migration. However, Cambria did not identify any conduits in the nearby downgradient direction.

November 2001 Off-Site Monitoring Well Installation: Shell voluntarily instructed Cambria to delineate the off-site plume, and on November 12, 2001, Cambria supervised the installation of one downgradient monitoring well (MW-5) approximately 200 ft southwest of the site, on the Caltrans right-of-way adjacent to the I-580 on-ramp. No TPHg, benzene, toluene, ethylbenzene and xylenes (BTEX) or MTBE was detected in the soil sample collected during the investigation. MW-5 has been included in the quarterly groundwater monitoring schedule since the first quarter of 2002. MTBE concentrations have ranged from 12 to 110 ppb and tertiary-butanol (TBA) concentrations have ranged from non-detectable to 46.3 ppb. No other analytes have been detected in groundwater from this well.

January 2003 Tank Removal and Soil Excavation: Between January 27 and February 7, 2003, all surface features, USTs, fuel dispensers, and associated product piping were removed from the site. Cambria conducted soil and groundwater sampling, and supervised over-excavation to remove hydrocarbon-impacted soils to the practical extents. Approximately 875 cubic yards of soil were removed from the site during the tank-pull and over-excavation activities. Approximately 4,600 gallons of groundwater were pumped to dewater the UST excavation prior to removing the tanks. The highest chemical concentrations in soil in the former UST area were 380 ppm TPHg, 1.7 ppm benzene and 1.2 ppm MTBE, detected in the southeast corner of the tank pit in sample TP-5. The grab groundwater sample (TP-1-Water) from the former tank pit area contained 11,000 ppb TPHg, 410 ppb benzene and 5,200 ppb MTBE. The highest hydrocarbon concentrations remaining in soil in any of the former dispenser areas were 980 ppm TPHg and 1.2 ppm benzene, detected in sample P-2-8 at 8 fbg. The highest detected MTBE concentration remaining in soil in any of the former dispenser areas was 0.9 ppm, detected in sample D-5-S10. Following over-excavation, approximately 720 pounds of oxygen-releasing compound were mixed in the excavation base before backfilling with 1.5-inch drain rock to 4 fbg. The remainder of the tank pit and the over-excavation was backfilled and compacted with Class II road base material. In the April 28, 2003 *Tank Closure and Soil Excavation Report,* Cambria recommended installing one additional groundwater monitoring well in the southern corner of the former tank pit. Cambria submitted a September 22, 2003, *Subsurface Investigation Work Plan* detailing the proposed monitoring well installation activities. However, the well was never installed.

April 2005 Subsurface Investigation: On April 5 and 6, 2005, Cambria oversaw the advancement of 11 CPT soil borings (CPT-1 through CPT-11) and 2 direct-push Geoprobe® soil borings (SB-3 and SB-4). Soils from borings SB-3 and SB-4 were logged continuously to

confirm the CPT logs. At each CPT location, a UVIF module was used to identify hydrocarbons in the subsurface. No soil samples were submitted for laboratory analysis. Based on the data collected during this investigation, it appeared that no separate-phase hydrocarbons were present at these locations, but that dissolved-phase hydrocarbons are present at most locations at two distinct depths: a shallow zone in the silt and clay above 17 fbg, and a deeper zone in the silt, clay, and sand from approximately 19 to 20 fbg to the bottom of the borings at 25 fbg. Details of this investigation are included in Cambria's June 6, 2005 *Subsurface Investigation Report.*

October 2005 Subsurface Investigation: On October 25 and 26, 2005, Cambria directed the advancement of four soil borings (SB-5, SB-6, SB-7, and SB-8) by a direct-push drill rig using a dual-tube sampling system to assess current subsurface conditions at the site. All borings were intended to be continuously logged for lithology to a maximum of 35 fbg, with soil samples collected every 5 ft until first encountered water. A dense clay limited the total explored depths of each boring. TPHg was detected in nine soil samples at concentrations up to 2,600 ppm. Benzene was detected in seven soil samples from SB-7, with a maximum concentration of 13 ppm at 10 fbg. Toluene was detected in six soil samples from SB-7, with a maximum concentration of 17 ppm at 10 fbg. Ethylbenzene was detected in nine soil samples at concentrations up to 45 ppm. Xylenes were detected in 11 soil samples at concentrations up to 270 ppm. MTBE was detected in 12 soil samples at concentrations up to 1.2 ppm. TBA was detected in nine soil sample at concentrations up to 1.6 ppm.

A second boring was advanced adjacent to each initial boring in attempt to collect discrete-depth grab groundwater samples. Due to the difficulty encountered in advancing the dual-tube system during soil sampling, a hydropunch system was utilized for groundwater water sampling. Insufficient quantities of groundwater were encountered, and no groundwater samples were collected. Details of the investigation are presented in Cambria's December 14, 2005 *Subsurface Investigation Report.*

PROPOSED SCOPE OF WORK

As proposed in the December 14, 2005 *Subsurface Investigation Report*, Cambria will install one off-site (MW-6) and three on-site (MW-7 through MW-9) groundwater monitoring wells to complete the site's monitoring network. The proposed well locations are shown on Figure 2. The well installations will be completed as described in Cambria's Standard Field Procedures for Installing Monitoring Wells (Attachment B). Following ACHCSA approval of this work plan, Cambria will complete the following tasks:

Utility Location: Cambria will notify Underground Service Alert (USA) of proposed drilling activities, and the drilling locations will be cleared through USA prior to drilling. Additionally, a private utility locator will be used to identify subsurface obstacles to drilling

Site Health and Safety Plan: Pursuant to OSHA requirements, Cambria will prepare a comprehensive site safety plan to protect site workers. The plan will be kept on site during field activities and will be reviewed and signed by each site worker.

Permits: Cambria will obtain all permits required for boring advancement and the monitoring well installations.

Site Investigation: To provide an on-site groundwater monitoring network, two borings will be drilled using a hollow-stem auger and converted to groundwater monitoring wells MW-7 and MW-8. These wells will monitor groundwater immediately downgradient of the former USTs and northern dispenser islands, the suspected sources of hydrocarbon impacts to the site's groundwater. An additional boring will be advanced on site and converted to groundwater monitoring well MW-9. This well will monitor the hydrocarbon plume from the upgradient 76 service station (Figure 2). A fourth boring will be advanced off site and converted to groundwater monitoring well MW-6. This well will monitor groundwater downgradient of the site.

A Cambria geologist will supervise the drilling and describe encountered soils using the Unified Soil Classification System. Cambria will continuously log the borings to provide detailed lithologic profiles. Soil samples will be collected for organic vapor analysis using a photo-ionization detector (PID) every 5 ft above the water table. Cambria will prepare boring logs that will include PID measurements collected during drilling.

Monitoring Well Installation: The on-site monitoring wells will be constructed using 4-inch diameter Schedule 40 PVC casing; the off-site monitoring well will be constructed using 2-inch diameter Schedule 40 PVC. The wells will be screened from 5 ft above first-encountered groundwater (expected to be at approximately 10 to 15 fbg) to 10 ft below first-encountered groundwater. Due to the low permeability of soil at the site and prior difficulties determining the depth of first-encountered groundwater, temporary wells may be installed in the borings and the water table allowed to equilibrate prior to installation of the wells. The precise screened intervals of the wells will be based on lithologic observations during boring advancement and the depth to water in the temporary wells. The filter pack will be placed from the bottom of the well up to 2 ft above the top of the well screen, followed by a 2-ft-thick bentonite seal and cement grout to grade. Actual well construction details will be based on soil types and field conditions encountered during drilling. The wells will be secured with locking caps under traffic-rated well boxes. Cambria's standard field procedures for monitoring well installation are presented in Attachment B.

Well Development and Sampling: Upon waiting at least 72-hours after installation, Blaine Tech Services, Inc. of San Jose, California will develop the new groundwater monitoring wells. Monitoring wells at the site are currently sampled during the first month of each quarter. Depending on when the well installation and development is completed, Blaine will either sample the new monitoring wells 72 hours after completing development or the wells will be added to the existing monitoring well network and sampled during the next scheduled sampling event.

Chemical Analyses: When collected, groundwater samples will be analyzed by a State-approved analytical laboratory for TPHg, BTEX, and fuel oxygenates (TBA, di-isopropyl ether, ethyl tertiary-butyl ether, tertiary-amyl methyl ether, and MTBE) using EPA Method 8260B.

Wellhead Survey: Following the monitoring well installations, a licensed surveyor will survey the wellhead elevations relative to mean sea level and each well's latitude and longitude.

Report Preparation: Within 60 days following the well installations or the receipt of groundwater analytical results from the laboratory if the wells are sampled immediately, Cambria will prepare a written report which will include field procedures, laboratory results, and boring logs that includes well construction details.

Cambria will perform the scope of work described in this work plan under the supervision of a professional geologist or engineer.

SCHEDULE

Cambria is prepared to begin work upon written approval of this work plan by ACHCSA and receipt of the well permits.

CLOSING

If you have any questions regarding the scope of work outlined in this work plan, please call David Gibbs at (510) 420-3363.

Sincerely,
Cambria Environmental Technology, Inc.

David M. Gibbs, P.G.
Project Geologist

Aubrey K. Cool, P.G.
Senior Project Geologist

Figures: 1 - Vicinity/Area Well Survey Map
2 - Proposed Monitoring Well Locations

Tables: 1 - Well Construction Data
2 - Historical Soil Analytical Results
3 - Historical Grab Groundwater Analytical Results

Attachments: A - Geologic Cross-sections
B - Standard Field Procedures for Installing Monitoring Wells

cc: Denis Brown, Shell Oil Products US, 20945 S. Wilmington Ave., Carson, CA 90810
Roland C. Malone, Jr., PO Box 2744, Castro Valley, CA 94546
Kenneth Williams, Mac Arthur/High Trailer Park, c/o Bookkeeping, 332 Peyton Dr., Hayward, CA 94544
Thomas H. Kosel, Conoco-Phillips Company, 76 Broadway, Sacramento, CA 95818

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06/01/05

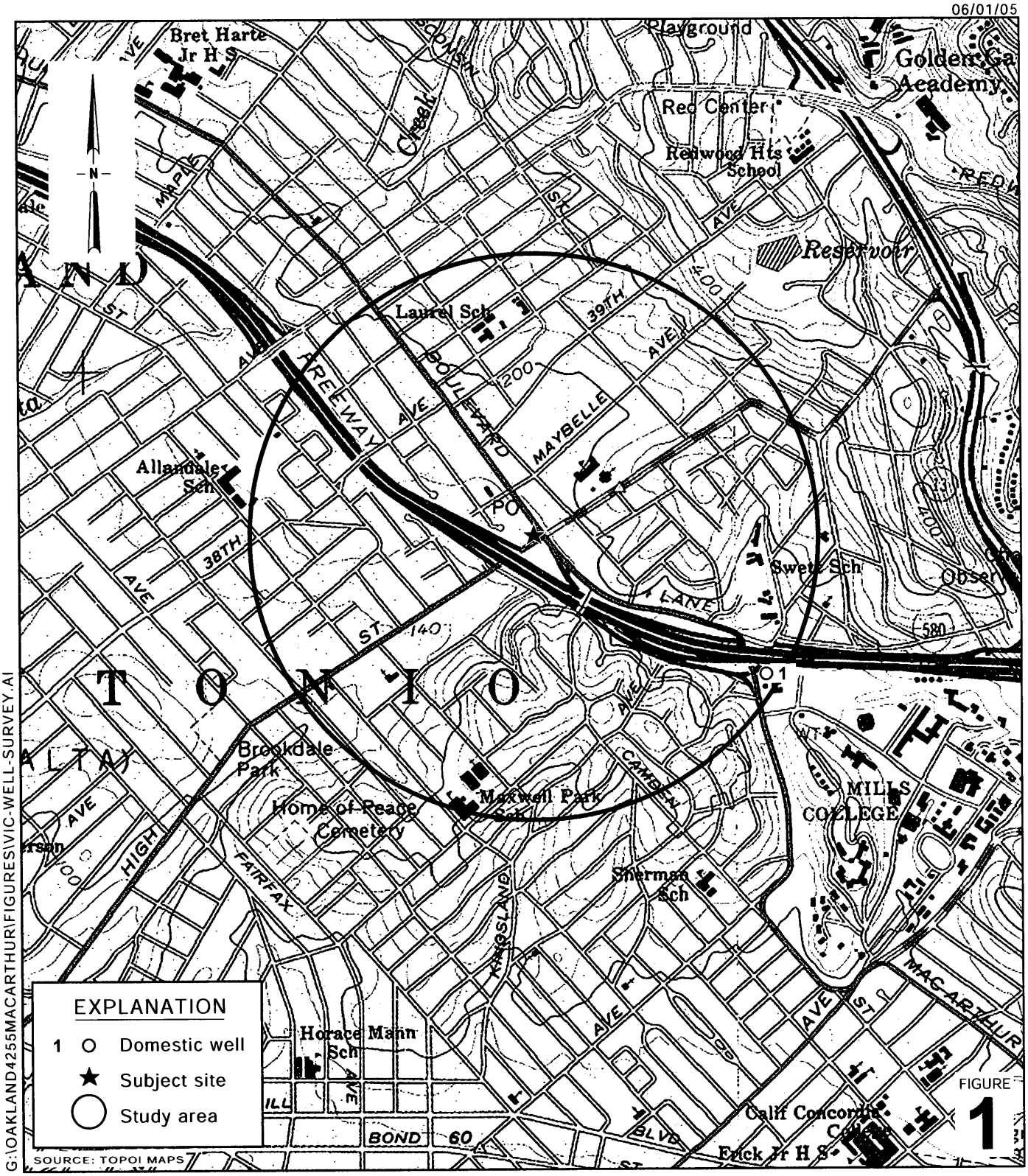

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FIGURE 1

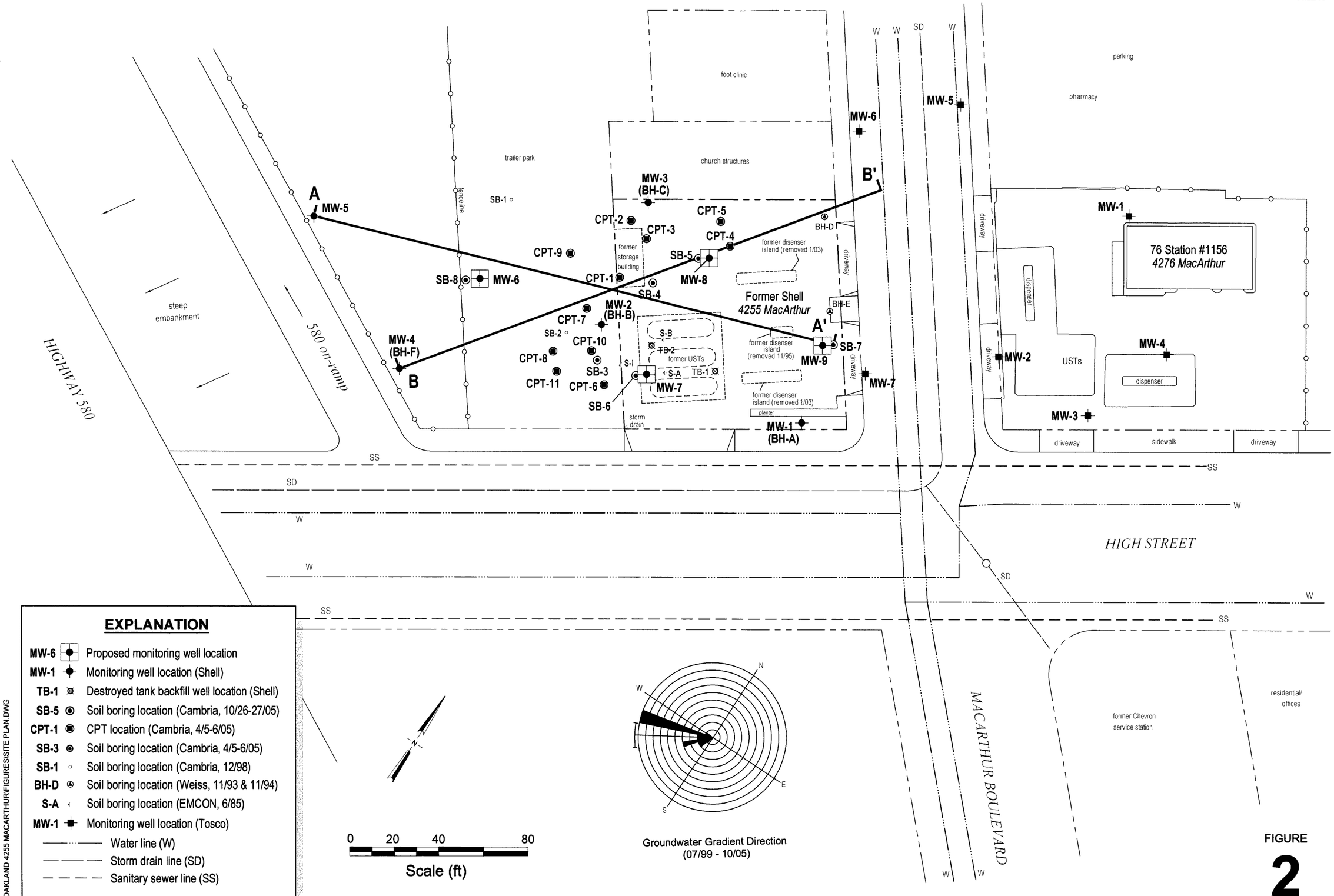
Former Shell Service Station
4255 MacArthur Boulevard
Oakland, California
Incident No.98995758

CAMBRIA

Vicinity/Area Well Survey Map
(1/2 Mile Radius)

03/22/06

Proposed Monitoring Well Locations



EXPLANATION

- MW-6 — Proposed monitoring well location
- MW-1 — Monitoring well location (Shell)
- TB-1 — Destroyed tank backfill well location (Shell)
- SB-5 — Soil boring location (Cambria, 10/26-27/05)
- CPT-1 — CPT location (Cambria, 4/5-6/05)
- SB-3 — Soil boring location (Cambria, 4/5-6/05)
- SB-1 — Soil boring location (Cambria, 12/98)
- BH-D — Soil boring location (Weiss, 11/93 & 11/94)
- S-A — Soil boring location (EMCON, 6/85)
- MW-1 — Monitoring well location (Tosco)
- Water line (W)
- Storm drain line (SD)
- Sanitary sewer line (SS)

0 20 40 80

Scale (ft)

Groundwater Gradient Direction
(07/99 - 10/05)

FIGURE

2

Former Shell Service Station
4255 MacArthur Boulevard
Oakland, California
Incident No.98995758

CAMBRIA

G:\OAKLAND 4255 MACARTHUR\FIGURES\SITE PLAN.DWG

Table 1. Well Construction Data, Shell-branded Service Station, 4255 MacArthur Boulevard, Oakland, California

Name	Type	Date Installed	TOC Elev (ft msl)	Total Depth (fbg)	Borehole Diameter (in)	Screen Depth (fbg) Top	Screen Depth (fbg) Bottom	Slot Size (in)	Filter Pack (fbg) Top	Filter Pack (fbg) Bottom	Filter Pack Material	Seal Depth (fbg) Top	Seal Depth (fbg) Bottom	Grout Interval (fbg) Top	Grout Interval (fbg) Bottom
MW-1	Monitoring Well	11/3/1993	175.76	22	10	5.5	22	0.010	5	22	Monterey #1/20 sand	4	5	0	4
MW-2	Monitoring Well	11/3/1993	170.88	20	10	5	19.5	0.010	4.5	20	Monterey #1/20 sand	4	4.5	0	4
MW-3	Monitoring Well	11/4/1993	174.59	23	10	7	22	0.010	6.5	23	Monterey #1/20 sand	5	6.5	0	5
MW-4	Monitoring Well	11/3/1994	164.03	31	8	11	30.5	0.010	9	31	Monterey #1/20 sand	5.5	9	0	5.5
MW-5	Monitoring Well	11/12/2001	164.14	20	8	5	20	0.010	3.5	20	Monterey #2/12 sand	2.5	3.5	0	2.5

Abbreviations:

TOC = Top of casing

ft msl = Feet referenced to mean sea level

fbg = feet below grade

ft = Feet

in = Inches

Table 2. Historical Soil Analytical Results - Shell-branded Service Station, 4255 MacArthur Boulevard, Oakland, California

Boring/Well ID	Date	Depth (fbg)	TPHg	Benzene	Toluene	Ethylbenzene	Xylenes	MTBE (8020)	MTBE (8260)	TBA	DIPE	ETBE	TAME
			← (ppm) →										
1985 Subsurface Investigation													
S-1	6/10/1985	13.5-15	ND*	---	---	---	---	---	---	---	---	---	---
	6/10/1985	18.5-20	ND*	---	---	---	---	---	---	---	---	---	---
S-A	6/10/1985	4-5.5	**15,800***	---	---	---	---	---	---	---	---	---	---
	6/10/1985	8.5-10	**2***	---	---	---	---	---	---	---	---	---	---
	6/10/1985	10-11.5	ND*	---	---	---	---	---	---	---	---	---	---
S-B	6/10/1985	13.5-15	**2***	---	---	---	---	---	---	---	---	---	---
1993 Subsurface Investigation													
BH-A (MW-1)	11/3/1993	6.0	<1	<0.0025	<0.0025	<0.0025	<0.0025	---	---	---	---	---	---
	11/3/1993	10.5	**24**	**0.4**	0.028	0.12	1	---	---	---	---	---	---
	11/3/1993	14.0	**26**	**0.028**	0.02	0.062	0	---	---	---	---	---	---
	11/3/1993	18.0	<1	<0.0025	<0.0025	<0.0025	<0.0025	---	---	---	---	---	---
	11/3/1993	22.0	<1	**0.0063**	0.0094	0.0097	0.057	---	---	---	---	---	---
BH-B (MW-2)	11/3/1993	6.0	<1	<0.0025	<0.0025	<0.0025	<0.0025	---	---	---	---	---	---
	11/3/1993	9.0	**7.6**	**0.069**	<0.0025	0.044	0.11	---	---	---	---	---	---
	11/3/1993	14.0	**66**	**0.07**	0.44	0.53	2.6	---	---	---	---	---	---
	11/3/1993	18.5	<1	**0.032**	0.012	0.0042	0.02	---	---	---	---	---	---
	11/3/1993	24.0	<1	**0.021**	0.023	0.0037	0.021	---	---	---	---	---	---
BH-C (MW-3)	11/4/1993	6.5	<1	<0.0025	<0.0025	<0.0025	<0.0025	---	---	---	---	---	---
	11/4/1993	11.3	**1,700**	**1.1**	2.5	33	44	---	---	---	---	---	---
	11/4/1993	16.0	**610**	**3.3**	5.7	6.9	33	---	---	---	---	---	---
	11/4/1993	22.5	<1	<0.0025	<0.0025	<0.0025	<0.0025	---	---	---	---	---	---
SB-1	2/12/1994	5.0	<1.0	<0.0050	<0.0050	<0.0050	<0.0050	<0.025	<0.10**	---	---	---	---
	2/12/1994	7.0	<1.0	<0.0050	<0.0050	<0.0050	<0.0050	<0.025	<0.10**	---	---	---	---
SB-2	2/12/1994	5.0	<1.0	<0.0050	<0.0050	<0.0050	<0.0050	<0.10	<0.10**	---	---	---	---
	2/12/1994	7.0	<1.0	<0.0050	<0.0050	<0.0050	<0.0050	**1.4**	**0.88****	---	---	---	---
1994 Subsurface Investigation													
BH-D	11/3/1994	5.0	<1	<0.0025	<0.0025	<0.0025	<0.0025	---	---	---	---	---	---
	11/3/1994	10.0	<1	**0.13**	<0.0025	0.011	0.01	---	---	---	---	---	---

Table 2. Historical Soil Analytical Results - Shell-branded Service Station, 4255 MacArthur Boulevard, Oakland, California

Boring/Well ID	Date	Depth (fbg)	TPHg	Benzene	Toluene	Ethylbenzene	Xylenes	MTBE (8020)	MTBE (8260)	TBA	DIPE	ETBE	TAME
			←				(ppm)						→
	11/3/1994	15.0	<1	<0.0025	<0.0025	<0.0025	<0.0025	---	---	---	---	---	---
	11/3/1994	20.0	<1	<0.0025	<0.0025	<0.0025	0.015	---	---	---	---	---	---
BH-E	11/3/1994	5.0	**5,900**	**23**	160	120	430	---	---	---	---	---	---
	11/3/1994	10.0	<1	**0.031**	<0.0025	<0.0025	<0.0025	---	---	---	---	---	---
	11/3/1994	15.0	<1	**0.0053**	0.0033	<0.0025	0.007	---	---	---	---	---	---
	11/3/1994	20.0	<1	<0.0025	0.0077	<0.0025	0.015	---	---	---	---	---	---
BH-F (MW-4)	11/3/1994	5.0	<1	<0.0025	<0.0025	<0.0025	<0.0025	---	---	---	---	---	---
	11/3/1994	10.0	**13**	**0.029**	0.14	0.17	0.54	---	---	---	---	---	---
	11/3/1994	15.0	<1	**0.044**	0.0033	0.017	0.032	---	---	---	---	---	---
	11/3/1994	20.0	<1	<0.0025	<0.0025	<0.0025	<0.0025	---	---	---	---	---	---
1995 Dispenser and Piping Removal and Sampling													
S-1	11/17/1995	3.0	**3,200**	<5.0	27	39	250	---	---	---	---	---	---
S-2	11/17/1995	2.0	**7,800**	<15	51	71	540	---	---	---	---	---	---
S-3	11/17/1995	2.0	**7,300**	<12	14	42	500	---	---	---	---	---	---
S-4	11/17/1995	2.5	**1.5**	**0.052**	<0.005	0.021	0.0069	---	---	---	---	---	---
S-5	11/17/1995	3.0	**1.1**	<0.005	<0.005	<0.005	0.013	---	---	---	---	---	---
S-6	11/17/1995	2.5	**1.1**	**0.19**	<0.005	0.046	0.020	---	---	---	---	---	---
S-7	11/17/1995	3.0	**10**	**0.12**	0.030	0.24	0.98	---	---	---	---	---	---
S-8	11/17/1995	3.0	**2,800**	<5.0	5.1	25	140	---	---	---	---	---	---
S-9	11/17/1995	3.5	**6.5**	<0.005	<0.005	<0.005	0.021	---	---	---	---	---	---
S-10	11/17/1995	3.5	**44**	<0.05	<0.05	0.051	0.22	---	---	---	---	---	---
S-11	11/17/1995	3.5	**2.6**	**0.026**	<0.005	0.011	0.014	---	---	---	---	---	---
S-12	11/17/1995	4.0	**39**	**0.26**	<0.05	0.42	1.7	---	---	---	---	---	---
S-13	11/17/1995	4.0	**12**	**0.85**	0.46	0.31	1.5	---	---	---	---	---	---
S-14	11/17/1995	4.0	**300**	<0.5	<0.5	3.8	10	---	---	---	---	---	---
S-15	11/17/1995	5.0	**210**	**0.28**	<0.25	1.9	6.4	---	---	---	---	---	---
1998 Subsurface Investigation													
SB-1 - 5.0	2/13/1998	5.0	<1.0	<0.0050	<0.0050	<0.0050	<0.0050	<0.025	<0.10	---	---	---	---
SB-1 - 7.0	2/13/1998	7.0	<1.0	<0.0050	<0.0050	<0.0050	<0.0050	<0.025	<0.10	---	---	---	---
SB-2 - 5.0	2/13/1998	5.0	<1.0	<0.0050	<0.0050	<0.0050	<0.0050	<0.025	<0.10	---	---	---	---

Table 2. Historical Soil Analytical Results - Shell-branded Service Station, 4255 MacArthur Boulevard, Oakland, California

Boring/Well ID	Date	Depth (fbg)	TPHg	Benzene	Toluene	Ethylbenzene	Xylenes	MTBE (8020)	MTBE (8260)	TBA	DIPE	ETBE	TAME
			← (ppm) →										
SB-2 - 7.0	2/13/1998	7.0	<1.0	<0.0050	<0.0050	<0.0050	<0.0050	**1.4**	**0.88**	---	---	---	---
2001 Off-Site Monitoring Well Installation													
MW-5	11/12/2001	5.5	<1.0	<0.005	<0.005	<0.005	<0.005	---	<0.5	---	---	---	---
2003 Tank Closure and Soil Excavation													
TP-1	1/27/2003	10.5	**91**	<0.5	**0.31**	**0.074**	**1.3**	---	**5.9**	---	---	---	---
TP-2	1/27/2003	10.0	**2.0**	<0.5	<0.005	<0.005	<0.005	---	<0.005	---	---	---	---
TP-3	1/27/2003	11.0	<1.0	<0.5	**0.048**	<0.005	**0.010**	---	**0.0089**	---	---	---	---
TP-4	1/27/2003	10.0	**1.6**	<0.5	<0.005	<0.005	<0.005	---	**0.0086**	---	---	---	---
TP-5	1/27/2003	10.0	**380**	**1.2**	**1.7**	**0.45**	**3.7**	---	**15**	---	---	---	---
TP-6	1/27/2003	10.0	**2.1**	**1.2**	<0.005	<0.005	<0.005	---	<0.005	---	---	---	---
D-1	1/30/2003	3.0	**260**	**0.64**	<0.005	**3.9**	**5.0**	---	**1.2**	---	---	---	---
D-2	1/30/2003	4.0	<1.0	<0.5	**0.0080**	<0.005	**0.0052**	---	**0.0081**	---	---	---	---
D-3	1/30/2003	3.0	**130**	<0.5	<0.025	**0.030**	**1.2**	---	**8.8**	---	---	---	---
D-4	1/30/2003	3.0	**51**	<0.5	**0.11**	<0.025	**0.59**	---	**0.12**	---	---	---	---
P-1	1/30/2003	3.0	**130**	<0.5	**0.058**	<0.025	**1.5**	---	**1.4**	---	---	---	---
P-2	1/30/2003	3.0	**420**	<0.5	**1.5**	**0.36**	**8.6**	---	**21**	---	---	---	---
P-3	1/30/2003	3.0	<1.0	<0.5	**0.0079**	<0.005	**0.0084**	---	**0.0050**	---	---	---	---
D-1-6.5	1/31/2003	6.5	**87**	<0.5	**0.11**	<0.025	**0.58**	---	**0.51**	---	---	---	---
D-2-5.5	1/31/2003	5.5	**3.7**	**0.6**	**0.22**	<0.005	**0.064**	---	**0.073**	---	---	---	---
D-3-8	1/31/2003	8.0	**53**	<0.5	**0.27**	<0.025	**0.13**	---	**0.38**	---	---	---	---
D-4-8	1/31/2003	8.0	**1,100**	<0.5	**2.2**	<0.050	**10**	---	**9.9**	---	---	---	---
D-5-6.0	1/31/2003	6.0	**2,200**	<0.5	**2.0**	**6.5**	**28**	---	**110**	---	---	---	---
P-1-5.5	1/31/2003	5.5	<1.0	<0.5	<0.005	<0.005	<0.005	---	<0.005	---	---	---	---
P-2-8	1/31/2003	8.0	**910**	<0.5	**1.2**	<0.050	**16**	---	**32**	---	---	---	---
P-3-8	1/31/2003	8.0	**420**	<0.5	**0.46**	<0.050	**5.2**	---	**13**	---	---	---	---
D-4-12	2/4/2003	12.0	**2.9**	<0.5	**0.19**	<0.005	**0.036**	---	**0.17**	---	---	---	---
D-4-N6	2/4/2003	6.0	**5.5**	<0.5	**0.024**	**0.10**	**0.025**	---	**0.11**	---	---	---	---
D-5-14	2/4/2003	14.0	<1.0	<0.5	<0.005	<0.005	<0.005	---	<0.005	---	---	---	---
D-5-S10	2/4/2003	10.0	<1.0	**0.9**	<0.005	<0.005	<0.005	---	<0.005	---	---	---	---
D-5-W10	2/4/2003	10.0	**160**	<0.5	**0.40**	<0.025	**0.035**	---	<0.050	---	---	---	---

Table 2. Historical Soil Analytical Results - Shell-branded Service Station, 4255 MacArthur Boulevard, Oakland, California

Boring/Well ID	Date	Depth (fbg)	TPHg	Benzene	Toluene	Ethylbenzene	Xylenes	MTBE (8020)	MTBE (8260)	TBA	DIPE	ETBE	TAME
			← (ppm) →										
D-5-E10	2/4/2003	10.0	**35**	<0.5	**0.035**	<0.005	**0.051**	---	**0.017**	---	---	---	---
P-2-12	2/4/2003	12.0	<1.0	<0.5	<0.005	<0.005	<0.005	---	<0.005	---	---	---	---
P-2-N6	2/4/2003	6.0	**42**	<0.5	**0.12**	**0.063**	**0.45**	---	**3.6**	---	---	---	---
E-6	2/4/2003	6.0	**1.9**	<0.5	**0.030**	**0.076**	**0.069**	---	**0.33**	---	---	---	---
E-12	2/4/2003	12.0	**21**	<0.5	<0.005	<0.005	**0.062**	---	**0.42**	---	---	---	---
2005 Subsurface Investigation													
SB-5	10/28/05	5	**19**	<0.023	<0.023	**0.11**	**0.030**	---	**0.064**	**0.083**	<0.046	<0.023	<0.023
	10/28/05	10	**58**	<0.55	<0.55	<0.55	<0.55	---	<0.55	<2.8	<1.1	<0.55	<0.55
	10/28/05	15	**220**	<0.50	<0.50	**1.9**	**2.1**	---	<0.50	<2.5	<1.0	<0.50	<0.50
	10/28/05	20	<1.0	<0.0050	<0.0050	<0.0050	<0.0050	---	**0.035**	<0.010	<0.010	<0.0050	<0.0050
SB-6	10/28/05	5	<1.0	<0.0050	<0.0050	<0.0050	**0.011**	---	<0.0050	<0.010	<0.010	<0.0050	<0.0050
	10/28/05	10.5	**160**	<0.50	<0.50	<0.50	<0.50	---	<0.50	<2.5	<1.0	<0.50	<0.50
	10/28/05	15	<1.0	<0.0050	<0.0050	<0.0050	<0.0050	---	**0.067**	**1.6**	<0.010	<0.0050	<0.0050
	10/28/05	20	<1.0	<0.0050	<0.0050	<0.0050	<0.0050	---	**0.19**	**0.19**	<0.010	<0.0050	<0.0050
	10/28/05	25	<1.0	<0.0050	<0.0050	<0.0050	<0.0050	---	**0.0073**	<0.010	<0.010	<0.0050	<0.0050
SB-7	10/28/05	5	**220**	**0.59**	<0.50	**2.9**	**10**	---	**1.2**	<2.5	<1.0	<0.50	<0.50
	10/28/05	10	**2,600**	**13**	**17**	**45**	**270**	---	**0.95**	<2.5	<1.0	<0.50	<0.50
	10/28/05	15	**260**	**1.4**	**3.7**	**2.6**	**13**	---	<0.50	<2.5	<1.0	<0.50	<0.50
	10/28/05	20.5	<4.6	<0.023	<0.023	<0.023	**0.069**	---	**0.097**	**0.12**	<0.046	<0.023	<0.023
	10/28/05	25	**9.0**	**0.087**	**0.087**	**0.14**	**0.82**	---	**0.27**	**0.088**	<0.010	<0.0050	<0.0050
	10/28/05	30	**1.2**	**0.023**	**0.038**	**0.031**	**0.15**	---	**0.077**	**0.030**	<0.010	<0.0050	<0.0050
	10/28/05	35	<1.0	**0.031**	**0.028**	**0.020**	**0.089**	---	**0.10**	**0.024**	<0.010	<0.0050	<0.0050
	10/28/05	40	<1.0	**0.017**	**0.015**	**0.0078**	**0.033**	---	**0.019**	<0.010	<0.010	<0.0050	<0.0050
SB-8	10/28/05	5	<1.0	<0.0050	<0.0050	<0.0050	<0.0050	---	<0.0050	<0.010	<0.010	<0.0050	<0.0050
	10/28/05	10	<1.0	<0.0050	<0.0050	<0.0050	<0.0050	---	<0.0050	<0.010	<0.010	<0.0050	<0.0050
	10/28/05	15	<1.0	<0.0050	<0.0050	<0.0050	<0.0050	---	<0.0050	**0.081**	<0.010	<0.0050	<0.0050
	10/28/05	20	<1.0	<0.0050	<0.0050	<0.0050	<0.0050	---	**0.014**	**0.020**	<0.010	<0.0050	<0.0050

Table 2. Historical Soil Analytical Results - Shell-branded Service Station, 4255 MacArthur Boulevard, Oakland, California

Boring/Well ID	Date	Depth (fbg)	TPHg	Benzene	Toluene	Ethylbenzene	Xylenes	MTBE (8020)	MTBE (8260)	TBA	DIPE	ETBE	TAME
			← (ppm) →										

Abbreviations and Notes:

ppm = parts per million (milligrams per kilogram).

TPHg = Total Petroleum Hydrocarbons as gasoline, analyzed by EPA Method 8015 except MW-5-5.5 analyzed by 8260B.

Benzene, toluene, ethylbenzene, and xylene analyzed by EPA Method 8020 except MW-5-5.5 analyzed by 8260B.

MTBE (8020) = Methyl tertiary butyl ether, analyzed by EPA Method 8020.

MTBE (8260) = Methyl tertiary butyl ether, analyzed by EPA Method 8260B.

--- = not analyzed for this constituent.

<n = below detection limit of n ppm.

*Sample analysis method unknown.

**Results reported after sample hold time had expired.

Referenced documents:

Cambria, Offsite Monitoring Well Installation Report, 1/02 (MW-5)

Cambria, Subsurface Investigation, 3/19/98 (S-1, S-2)

Weiss, Subsurface Investigation, 1/26/95 (BH-D through BH-F)

Weiss, Subsurface Investigation, 3/15/94 (BH-A through BH-C)

Weiss, Dispenser Replacement Sampling, 4/1/96 (S-1 through S-15)

Emcon, Shell Service Station, 7/26/85 (S-A, S-B, and S-1)

Table 3. Historical Grab Groundwater Analytical Results - Shell-branded Service Station, 611 East Third Avenue, San Mateo, California.

Sample ID	Sample Date	TPHg	Benzene	Toluene	Ethyl-benzene	Xylenes	MTBE	DIPE	ETBE	TAME	TBA
		← (ppb) →									
1998 Subsurface Investigation											
SB-1	2/12/1994	**1,400**	**22**	**3.3**	<2.5	<2.5	**390**	---	---	---	---
SB-2	2/12/1994	**7,700**	**210**	**410**	<200	**750**	**46,000**	---	---	---	---
2003 Tank Closure and Soil Excavation											
TP-1-Water	1/27/2003	**11,000**	**410**	**1,500**	**230**	**2,000**	**5,200**	---	---	---	---

Notes and Abbreviations:

ppb = parts per billion

--- = not analyzed for this constituent.

TPHg = Total petroleum hydrocarbons as gasoline, analyzed by EPA Method 8260B.

BTEX = Benzene, toluene, ethylbenzene, xylenes, analyzed by EPA Method 8260B.

MTBE = Methyl tertiary butyl ether, analyzed by EPA Method 8260B.

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 (tert-butanol), analyzed by EPA Method 8260B.

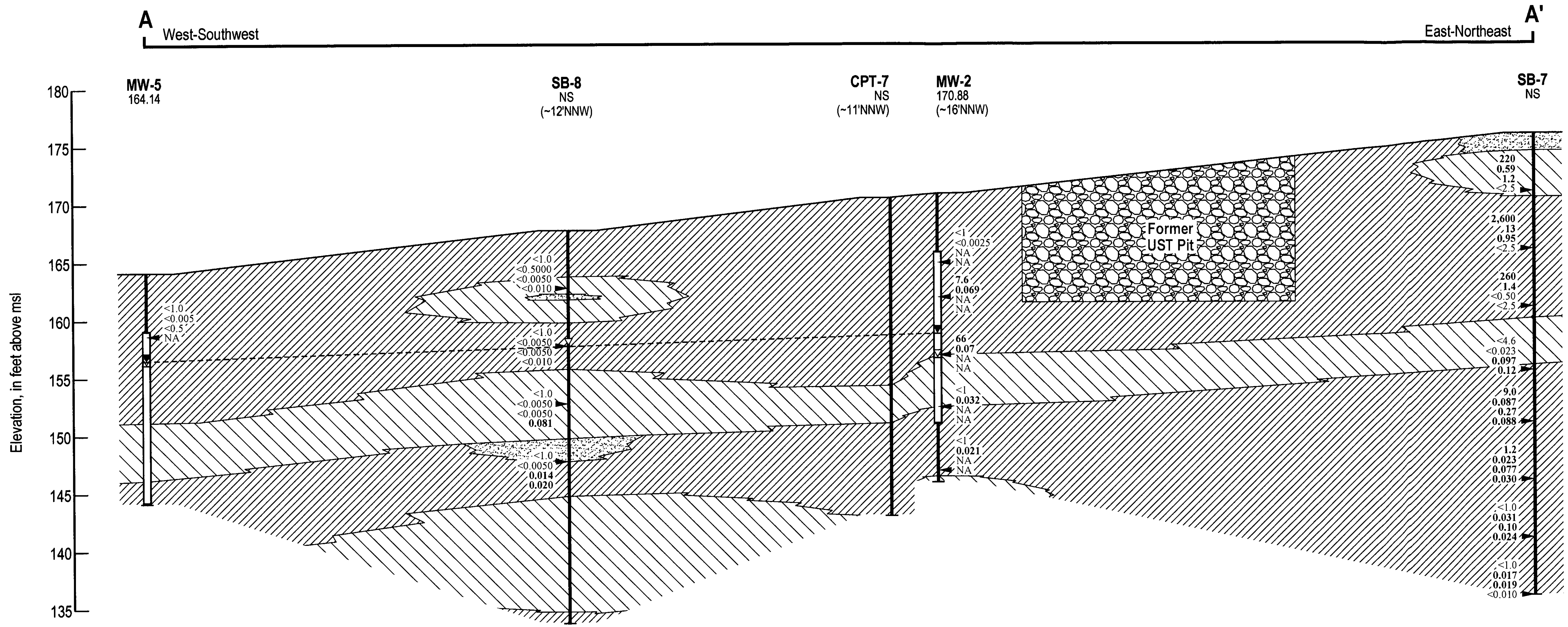
<X = Below laboratory detection limit of X

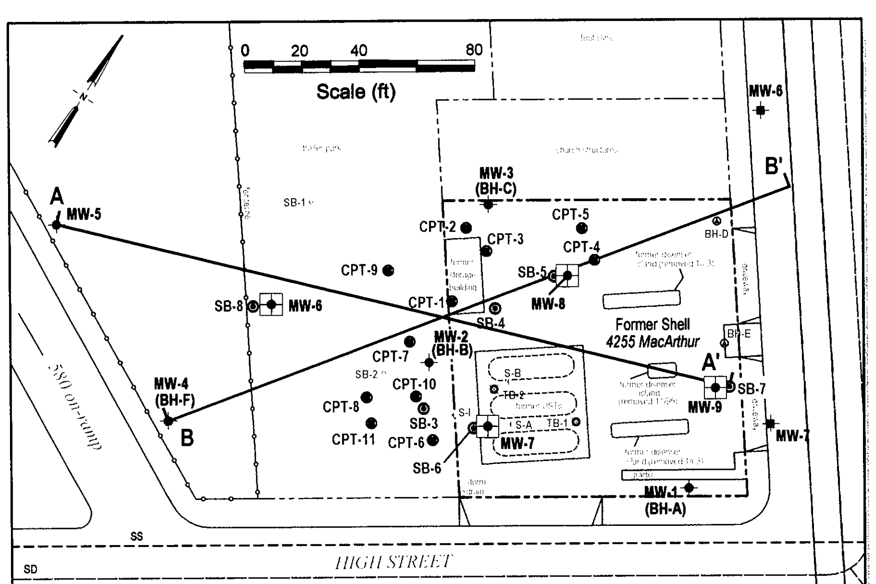
ATTACHMENT A

Geologic Cross-sections

03/24/06

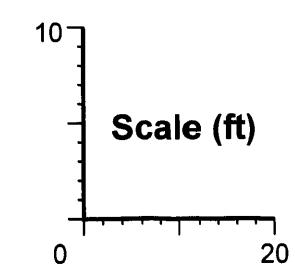
Geologic Cross-section A-A'





EXPLANATION

Low to Moderate Permeability Soils - Clay, Sandy Clay	Well ID — Well Designation; Elev. — Top of Casing Elevation; (offset)
Moderate to High Permeability Soils - Clayey Sand, Silty Sand	Groundwater Monitoring Well
High Permeability Soils - Sand, Gravel	Well Screen Interval
UST Pit Backfill	Bottom of boring
Approximate sample location	▼ Depth of Groundwater - 10/07/05
TPHg, Benzene, MTBE, TBA — Hydrocarbon concentrations in Soil, in parts per million	▽ Depth of first encountered Groundwater
	NS — Not surveyed
	NA — Not analyzed



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Former Shell Service Station
4255 MacArthur Boulevard
Oakland, California

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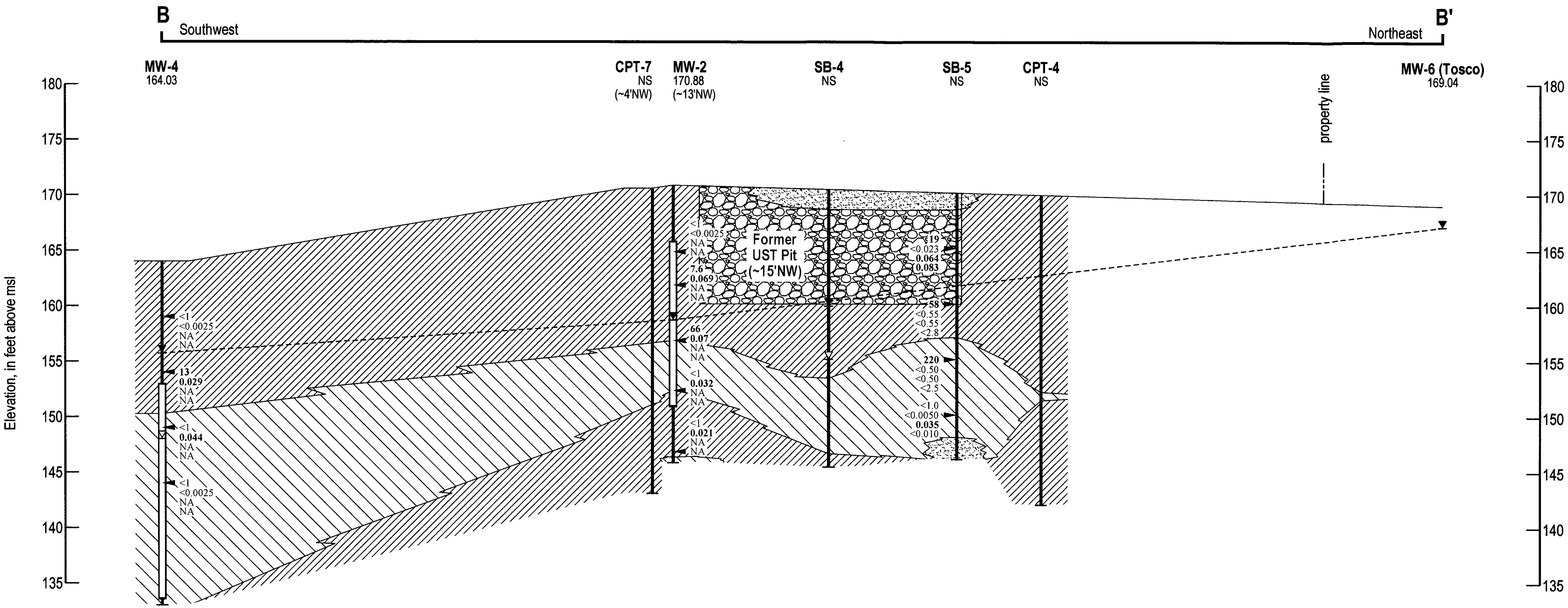
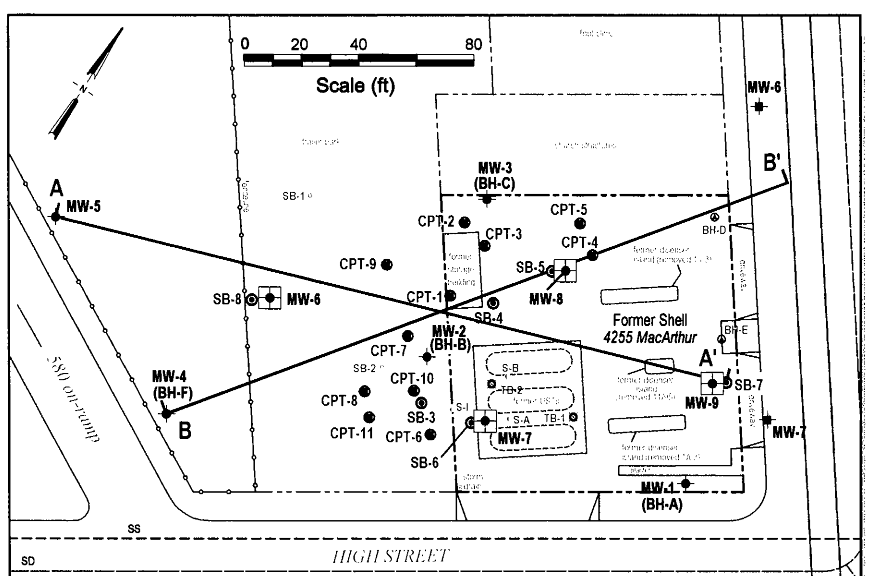
03/24/06

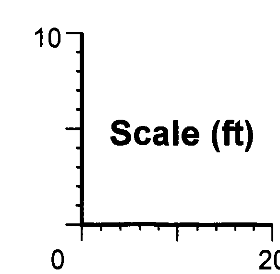




EXPLANATION

- Low to Moderate Permeability Soils - Clay, Sandy Clay
- Moderate to High Permeability Soils - Clayey Sand, Silty Sand
- High Permeability Soils - Sand, Gravel
- UST Pit Backfill
- Approximate sample location
- TPHg / Benzene / MTBE / TBA — Hydrocarbon concentrations in Soil, in parts per million

- Well ID — Well Designation
- Elev. — Top of Casing Elevation
- (offset)
- Groundwater Monitoring Well
- Well Screen Interval
- Bottom of boring
- Depth of Groundwater - 10/07/05
- Depth of first encountered Groundwater
- NS — Not surveyed
- NA — Not analyzed



Geologic Cross-section B-B'

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4255 MacArthur Boulevard
Oakland, California

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ATTACHMENT B

Standard Field Procedures for Installing Monitoring Wells

CAMBRIA

STANDARD FIELD PROCEDURES FOR INSTALLING MONITORING WELLS

This document describes Cambria Environmental Technology's standard field methods for drilling, installing, developing and sampling groundwater monitoring wells. These procedures are designed to comply with Federal, State and local regulatory guidelines. Specific field procedures are summarized below.

Well Construction and Surveying

Groundwater monitoring wells are installed in soil borings to monitor groundwater quality and determine the groundwater elevation, flow direction and gradient. Well depths and screen lengths are based on groundwater depth, occurrence of hydrocarbons or other compounds in the borehole, stratigraphy and State and local regulatory guidelines. Well screens typically extend 10 to 15 feet below and 5 feet above the static water level at the time of drilling. However, the well screen will generally not extend into or through a clay layer that is at least three feet thick.

Well casing and screen are flush-threaded, Schedule 40 PVC. Screen slot size varies according to the sediments screened, but slots are generally 0.010 or 0.020 inches wide. A rinsed and graded sand occupies the annular space between the boring and the well screen to about one to two ft above the well screen. A two feet thick hydrated bentonite seal separates the sand from the overlying sanitary surface seal composed of Portland type I,II cement.

Well-heads are secured by locking well-caps inside traffic-rated vaults finished flush with the ground surface. A stovepipe may be installed between the well-head and the vault cap for additional security. The well top-of-casing elevation is surveyed with respect to mean sea level and the well is surveyed for horizontal location with respect to an onsite or nearby offsite landmark.

Well Development

Wells are generally developed using a combination of groundwater surging and extraction. Surging agitates the groundwater and dislodges fine sediments from the sand pack. After about ten minutes of surging, groundwater is extracted from the well using bailing, pumping and/or reverse air-lifting through an eductor pipe to remove the sediments from the well. Surging and extraction continue until at least ten well-casing volumes of groundwater are extracted and the sediment volume in the groundwater is negligible. This process usually occurs prior to installing the sanitary surface seal to ensure sand pack stabilization. If development occurs after surface seal installation, then development occurs 24 to 72 hours after seal installation to ensure that the Portland cement has set up correctly.

All equipment is steam-cleaned prior to use and air used for air-lifting is filtered to prevent oil entrained in the compressed air from entering the well. Wells that are developed using air-lift evacuation are not sampled until at least 24 hours after they are developed.

Groundwater Sampling

Depending on local regulatory guidelines, three to four well-casing volumes of groundwater are purged prior to sampling. Purging continues until groundwater pH, conductivity, and temperature have stabilized. Groundwater samples are collected using bailers or pumps and are decanted into the appropriate containers supplied by the analytic laboratory. Samples are labeled, placed in protective foam sleeves, stored on crushed ice at or below 4°C, and transported under chain-of-custody to the laboratory. Laboratory-supplied trip blanks accompany the samples and are analyzed to check for cross-contamination. An equipment blank may be analyzed if non-dedicated sampling equipment is used.