Shell Oil Products US

June 7, 2006

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

Subject: Former Shell Service Station
461 8th Street
Oakland, California
SAP code 129453

Dear Mr. Chan:

Attached for your review and comment is a copy of the *Subsurface Investigation 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.

As always, please feel free to contact me directly at (707) 865-0251 with any questions or concerns.

Sincerely,

Shell Oil Products US

Denis L. Brown
Project Manager

20945 S. Wilmington Ave., Carson, CA 90810 Phone (707) 865-0251 Facsimile (707) 865-2542

CAMBRIA

June 7, 2006

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

Re: **Subsurface Investigation Work Plan**
Former Shell Service Station
461 8th Street
Oakland, California
SAP Code 129453
ACHCSA File: RO0000343

Dear Mr. Chan:

Cambria Environmental Technology, Inc. (Cambria) prepared this submittal on behalf of Equilon Enterprises LLC dba Shell Oil Products US (Shell). This work plan was recommended in Cambria's April 19, 2006 *Groundwater Monitoring Report- First Quarter 2006*. The proposed work will be performed in accordance with Alameda County Health Case Services Agency (ACHCSA) and Regional Water Quality Control Board (RWQCB) guidelines.

SITE DESCRIPTION

The site is currently a paved parking lot located at the southwest corner of the intersection of 8th Street and Broadway in Oakland, California (Figures 1 and 2). The property was leased by American Oil Company from at least 1965 until 1972 when the lease was assigned to Shell Oil Products Company (Shell). A Shell service station operated on the property from 1972 to 1980. The underground storage tanks (USTs) associated with the former Shell service station were removed after Shell terminated operations at the site in May 1980. The subject site is currently used for paid public parking.

SITE HISTORY

During January 1979, separate phase hydrocarbons (SPH) were reported in a Bay Area Rapid Transit (BART) tunnel under the intersection of 7th Street and Broadway. Product line testing at the site indicated a pressure leak, and the product lines were replaced in January 1979. The USTs were also tested for tightness and passed. According to the *Bart Recovery Project Log* (chronological list of events – 1/10/79 through 12/3/81) and a 1981 Groundwater Technology, Inc. *Considerations on Infiltration of Gasoline into BART KE Line* report, one observation well is

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reported to have been drilled to a depth of 25 feet concurrent with piping replacement with no reports of contamination. Separate-phase product samples taken from the BART tube in January 1979 and in May 1981 reported the product as Shell Regular. Approximately 2,600 gallons (48 55-gallon drums) of a gasoline-and-water mixture are reported to have been removed from the BART tunnel between October 1979 and April 1980. The Shell station discontinued operation in May 1980, and all existing improvements, tanks, and associated piping were removed at that time. It is unknown whether a UST and piping removal report exists; to date, it has not been located.

Seven monitoring wells (L-1 through L-7) were installed during 1981. Based on recommendations following this investigation, a recovery well was installed in the vicinity of well L-6 (now re-named S-6) in 1982. According to a September 14, 1993 GeoStrategies Inc. (GSI) *Work Plan*, groundwater extraction from the recovery well began in February 1982 and continued until August 1982, when the system was shut down because the effluent discharge exceeded permitted discharge levels. Wells L-1 through L-3 were destroyed during construction of the BART tunnels in the mid-1980's and are no longer accessible. Records of the well destructions are not available. Wells L-4, L-5 and L-6 were renamed S-4, S-5 and S-6 (Figure 2). Gettler-Ryan Inc. began gauging wells S-4 through S-6 in 1986 and collecting groundwater samples for analysis in 1988. A November 2, 1993 *Work Plan for Soil and Groundwater Sampling* prepared by Enviros, Inc. (Enviros) indicates that groundwater was extracted from wells S-5 and S-6 by bailing or by a vacuum truck beginning in October 1988.

Information collected by GSI and reported in a June 30, 1993 *Phase I Preliminary Site Assessment* identified seven sites with known UST leaks within a ¼-mile radius of the site. One of the seven sites identified is the Oakland Police Department site, which was noted in the *Bart Recovery Project Log* to have replaced leaking USTs in October 1979 and to have accepted product deliveries by a local Shell gasoline distributor. During a review of available regulatory files, GSI noted a permit to repair the product lines and dispensers at the Oakland Police Department parking lot taken out in 1984 by Egan and Paradiso Company, but no additional information was available. It appears that no environmental investigation has been conducted for this site.

During July 1994, nine soil borings (B-1 through B-9) were installed in the vicinity of the former pump islands and the former USTs at the site. Investigation activities are described in an August 16, 1994 Enviros *Site Investigation Report*. The maximum total petroleum hydrocarbons as gasoline (TPHg) and benzene concentrations reported in soil samples were 15 milligrams per kilogram (mg/Kg) and 0.24 mg/Kg, respectively, collected near the former pump islands. No

TPHg or benzene was reported in the area of the former piping or the former UST locations.

During December 1994, onsite monitoring wells S-8, S-9 and S-10 were installed in similar locations as the previously destroyed wells L-2, L-3 and L-1, respectively. Investigation activities are described in a February 14, 1995 Enviros *Site Investigation Report and Quarterly Monitoring Report – First Quarter 1995.* Except for 0.014 mg/Kg benzene in a sample from S-8 at 21.5 fbg, no TPHg or benzene was reported in soil samples collected from wells S-8 and S-9. Except for 760 mg/Kg TPHg and 0.0032 mg/Kg benzene reported in the sample from S-10 at 11.5 fbg, no TPHg or benzene was reported in soil samples collected from well S-10.

During October 2003, one soil boring (HA-1) was installed within 7th Street south of the site. Three additional offsite soil borings, one in Broadway near well S-5, one northwest of Broadway within 6th Street, and one near the eastern corner of Broadway and 6th Street, were attempted. However, subsurface obstructions and utility corridors were encountered, and the borings could not be completed. No TPHg, benzene, or methyl tertiary butyl ether (MTBE) was detected in soil samples collected from boring HA-1. No TPHg or benzene, and 6.3 micrograms per liter (µg/L) MTBE were detected in a grab groundwater sample collected from boring HA-1. Investigation activities are described in Cambria's December 16, 2003 *Subsurface Investigation Report.*

During May 2004, Treadwell & Rollo, Inc. (T&R) of Oakland, California installed four soil borings (TR-1 through TR-4) onsite to collect soil and soil vapor samples. No TPHg or volatile organic compounds (VOCs) were detected in soil samples, and no benzene, toluene, ethylbenzene, or xylenes (BTEX) were detected in soil vapor samples collected. Investigation results are summarized in T&R's March 27, 2006 *Subsurface Investigation* report.

GROUNDWATER MONITORING DATA

Onsite Wells: Periodic gauging of the offsite wells began in 1981, and quarterly groundwater monitoring began in late 1988. Quarterly monitoring of the onsite wells began in 1995 and continues today with semiannual sampling of onsite wells. Depth-to-water in the wells has ranged historically between 12.82 and 25.84 feet below the top of casing, and typically flows south to south-southwest. Onsite well S-8 reported historical maximum concentrations of TPHg and benzene at 4,000 and 1,800 micrograms per liter (µg/l) in 1998 and first quarter 2006 concentrations of <50 and 2.79 µg/l, respectively. Onsite well S-9 reported historical maximum concentrations of TPHg and benzene at 5,200 and 940 µg/l in 1996 and first quarter 2006 concentrations at <50 and 0.940 µg/l, respectively. Onsite well S-10 (located within the former UST pit) reported historical maximum concentration of TPHg at 1,100 µg/l in 1998 and benzene

at 49 µg/l in 1995. The first quarter 2006 results for S-10 reported TPHg and benzene at 630 and <0.500 µg/l, respectively. No SPH have been reported in any onsite wells.

Offsite Wells: Offsite well, S-4, historically contained maximum concentrations of TPHg and benzene 1988 at 130 and 2.3 µg/l, respectively and is currently below the detection limits for TPHg and benzene. Prior to 1998, offsite well S-5 consistently reported SPH with maximum concentrations of TPHg and benzene reported at 142,000 µg/l (2001) and 13,000 µg/l (1999). This well was last sampled in July 2004 and reported TPHg and benzene concentrations at 28,000 and 300 µg/l, respectively. It was since determined that well S-5 was located in a confined space (below grade within a storm drain) and is no longer sampled. The furthest downgradient well, S-6, has contained SPH intermittently and reported historical maximum concentrations of TPHg and benzene at 110,000 µg/l (1988) and 43,000 µg/l (1989). The first quarter 2006 results for this well indicated TPHg and benzene at 41,100 and 7,060 µgl, respectively. Thus, declining trends are observed in both onsite and offsite wells, with historical maximum concentrations in the two offsite wells, S-5 and S-6.

TECHNICAL RATIONALE FOR PROPOSED SCOPE OF WORK

Access to the subject site for investigation activities has been limited by the previous property owner. The property has changed ownership, and the new owner has stated verbally that access will be granted for proposed work. Since the new owner anticipates construction a commercial development over the entire parcel, future access to the site for subsurface investigation will no be feasible. Thus, the following activities and rationale are proposed.

- The source of the impact in wells S-5 and S-6 has not been identified. The data obtained from the subject site to date does not support that the former Shell station is the source of impact to those wells; however, the lateral and vertical extent of shallow soil impact onsite has not been sufficiently assessed. Thus, Cambria recommends installing ten (10) soil borings (B-10 through B-19 on Figure 3) in the vicinity of the former piping and dispenser areas.

- The lateral extent of shallow soil and groundwater impact along the property boundaries has not been sufficiently assessed. Thus, Cambria recommends installing four (4) soil borings (B-20 through B-23 on Figure 3) for the collection of soil and grab groundwater samples.

WORK TASKS

Access Agreement: On behalf of Shell, Cambria will submit an access agreement to the property owner for the purpose of implementing this work plan. Since the work will involve sampling and maneuvering equipment throughout the entire lot, the work will require that the parking lot be completely empty for the field dates for safety and for access.

Permits: Cambria will obtain a drilling permit from Alameda County Public Works Agency (ACPWA).

Site Safety Plan: Cambria will prepare a Site Safety Plan for fieldwork.

Utility Clearance: Cambria will mark proposed drilling locations and will clear the locations through Underground Service Alert prior to drilling. Also, a private utility line locating service will be scheduled to further ensure that no subsurface utilities are located at the proposed boring positions. To further minimize potential impact to any unidentified subsurface utilities, the top five feet of the well borings will be cleared to at least 3 inches larger than the Geoprobe rods by use of an air knife.

Site Investigation: Fourteen soil borings (B-10 through B-23) are proposed at the locations shown on Figure 3. The borings will be advanced using Geoprobe equipment. Borings B-10 through B-19 will be advanced to approximately 10 feet below grade (fbg), unless field evidence warrants advancing to encountered groundwater. Borings B-20 through B-23 will be advanced to groundwater, estimated to be at depths between 20 and 25 fbg.

Under the direct supervision of a California professional geologist, a Cambria staff geologist will supervise the drilling and describe encountered soils using the Unified Soil Classification System and Munsell Soil Color Charts. After borehole clearance, continuous soil sampling will be attempted. Soil samples will be retained for possible chemical analyses at 1 fbg, and then at 5-foot intervals to the total depth, at the soil-water interface, or at major changes in lithology. Organic vapors using a calibrated photo-ionization detector (PID) will be measured at least every five feet. Grab groundwater samples will be collected from borings B-20 through B-23 (at a minimum) through temporary screens installed in the open borings following soil sampling. Cambria will prepare an exploratory boring log for each boring and PID measurements will be recorded on the logs.

Soil and grab groundwater samples designated for chemical analyses will be retained in appropriate sample containers. Soil sampling tubes will be covered on both ends with Teflon sheets and plastic end caps. Samples will be labeled, entered onto a chain-of-custody record, and placed into a cooler with ice for transport to a State of California certified laboratory for analyses. A standard two-week turn-around time will be requested for laboratory results.

Soil Chemical Analyses: Selected soil and grab groundwater samples will be analyzed for TPHg, BTEX, and MTBE by EPA Method 8260B.

Boring Backfill: Following sampling activities, each boring will be backfilled with cement-grout and capped to match the existing grade.

Report Preparation: Following the receipt of analytical results from the laboratory, Cambria will prepare a written report that will include field procedures, figures depicting all sample locations, tabulated laboratory results, complete certified analytical reports, boring logs, and conclusions.

Certification: The scope of work described in this work plan will be performed under the supervision of a California Professional Geologist.

SCHEDULE

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

CLOSING

If you have any questions regarding this document, please call Ana Friel at (707) 268-3812.

Sincerely,

Cambria Environmental Technology, Inc.

Jacquelyn England
Project Geologist

Ana Friel, PG
Associate Geologist

Attachments:

Figure 1. Vicinity/Area Well Survey Map
Figure 2. Site Plan
Figure 3. Proposed Soil Boring Locations

cc: Denis Brown, Shell
A.F. Evans Company (Property Owners), c/o Greg Lunkes
R. Casteel & Co.
Leroy Griffin, City of Oakland Fire Prevention Bureau

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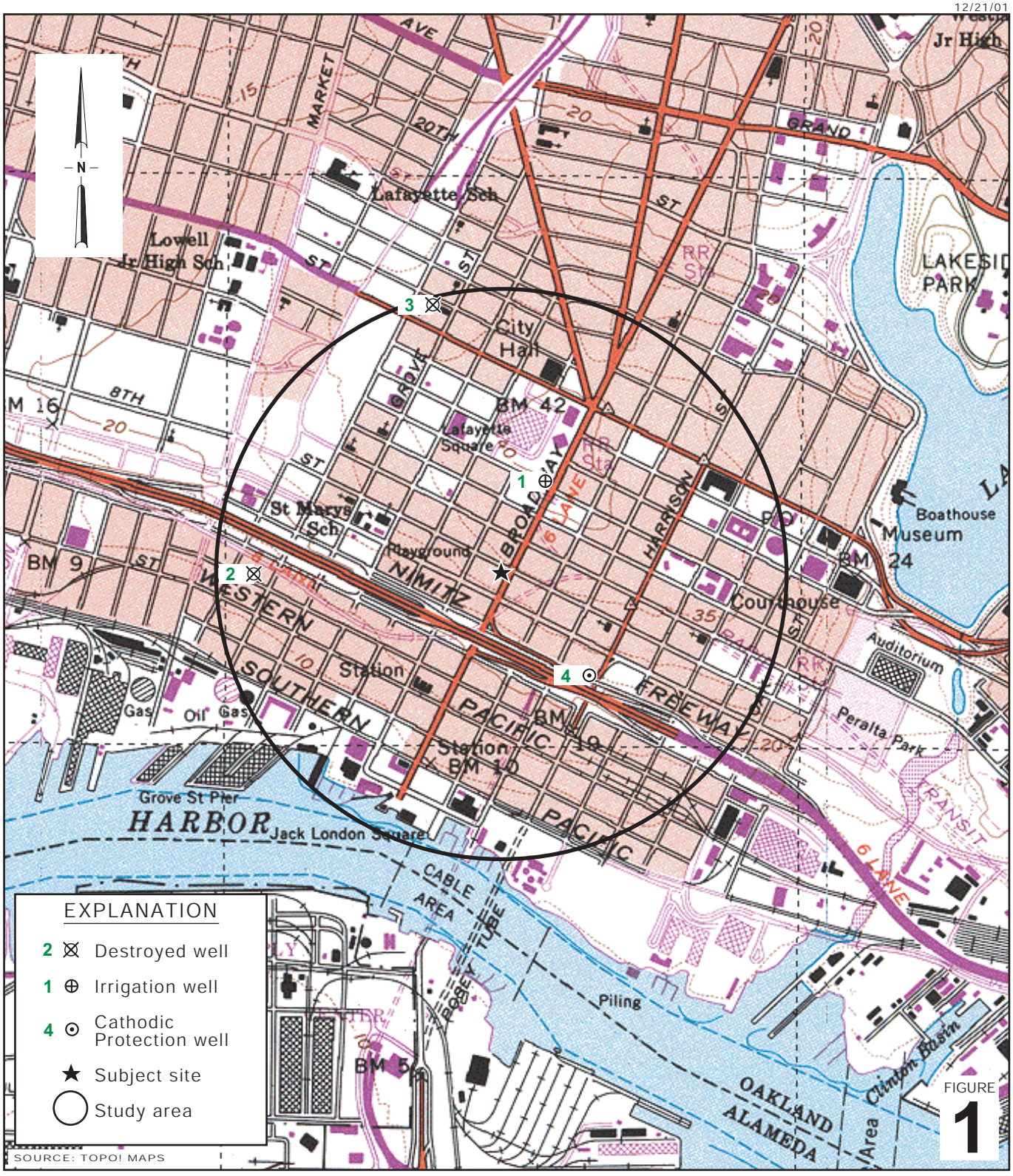

1501

0 1/8 1/4 1/2 1

SCALE (MILES)

FIGURE 1

Former Shell Service Station
461 8th Street
Oakland, California

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Vicinity/Area Well Survey Map

1/2 Mile Radius

22-May-06

Site Plan

EXPLANATION

- Proposed soil boring location
- Attempted soil boring location
- Groundwater monitoring well
- Abandoned monitoring well
- Destroyed recovery well
- Soil boring
- Soil vapor boring
- MH — Manhole
- FL = 16.50' — Flow line depth below ground surface
- Flow direction indicator
- Underground BART line (B)
- Storm Drain line (SD)
- Water line (W)
- Sanitary Sewer line (SS)
- Pacific Bell line (T)
- Gas line (G)
- Electrical line (E)

Note: Because well S-5 is located in confined space, it is no longer gauged or sampled

Groundwater Flow Direction
(1Q00 to 3Q05)

S-1, former UST, S-10, TR-V4, B-3, B-5, TR-V1, TR-1, TR-2, B-6, B-4, former dispenser islands and fuel lines, B-2, TR-V3, Former Shell Station, B-7, TR-V2, B-9, B-1, B-8, S-8, S-9, TR-3, TR-4, FL = 19.12' MH, SS

S-6, E, 14" SS 8" W, MH FL = 17.00', 8" G, 18" SD, S-5, freight elevator, FL = 13.27', Storm drain inlet, FL = 17.50' MH, 14" SS 8" W, 8" G, 18" SD

BROADWAY, E, 8" SS, MH, 12" W, MH, FL = 13.90' MH, FL = 13.25', FL = 16.50' MH, 8" G, 12" W 16" SS

6TH STREET, Former Chevron Station, FH, HA-1, S-4, 7TH SRTEET, 8TH STREET

Scale (ft): 0, 25, 50, 100

FIGURE **2**

Former Shell Service Station
461 8th Street
Oakland, California

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1501

05-Jun-06

EXPLANATION

- Proposed soil boring location
- Groundwater monitoring well
- Abandoned monitoring well
- Soil boring
- Soil vapor boring

S-1
former UST
B-20
S-10
TR-V4
B-3
B-5
B-15
B-16
B-17
TR-V1
TR-1
TR-2
B-6
B-4
former dispenser islands and fuel lines
B-19
B-18
B-21
B-14
TR-V3
B-2
Former Shell Station
B-10
B-7
B-13
B-22
TR-V2
B-9
B-11
B-1
B-12
B-8
S-8
TR-3
S-9
B-23
TR-4
7TH SRTEET
8TH STREET
S-5
freight elevator
Storm drain inlet
BROADWAY
N
Scale (ft)
0 15 30 60

Proposed Soil Boring Locations

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Former Shell Service Station
461 8th Street
Oakland, California

FIGURE
3

PATH