Denis L. Brown

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

Re: Former Shell Service Station
8930 Bancroft Avenue
Oakland, California
SAP Code 135678
Incident No. 98995742
ACHCSA Case No. RO0000404

Dear Mr. Wickham:

The attached document is provided for your review and comment. 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
Project Manager

CONESTOGA-ROVERS
& ASSOCIATES

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Telephone: 707-935-4850 Facsimile: 707-935-6649
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October 21, 2008

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

Re: **Site Investigation and Soil Vapor Sampling Work Plan**
Former Shell Service Station
8930 Bancroft Avenue
Oakland, California
SAP Code 135678
Incident No. 98995742
Fuel Leak Case No. RO0000404

Dear Mr. Wickham:

Conestoga-Rovers & Associates (CRA), prepared this work plan on behalf of Equilon Enterprises LLC dba Shell Oil Products US (Shell) in response to the Alameda County Health Care Services Agency's (ACHCSA's) letter dated August 6, 2008. In this letter, ACHCSA requested a work plan to further characterize the source and extent of the total petroleum hydrocarbons as diesel (TPHd) and total petroleum hydrocarbons as motor oil (TPHmo) that was reported during the investigation associated with the former first generation underground storage tanks (USTs) previously located on the northwest side of the site. They further requested that the work plan include plans to conduct soil vapor sampling to assess the potential for vapor intrusion from the shallow soils from this former UST cavity. The proposed scope of work presented in this document complies with Regional Water Quality Control Board (RWQCB) and ACHCSA guidelines.

Apparently, the soil data table for the soil samples collected on June 5 and 6, 2008 from soil borings TB-1, TB-2, and TB-3 was inadvertently left out of CRA's July 16, 2008 *Site Investigation Report and Request for Case Closure* document. A copy of this soil data table has been included herein as Attachment A.

SITE LOCATION AND DESCRIPTION

This former Shell service station is located at the north corner of the intersection of Bancroft Avenue and 90th Avenue in a mixed commercial and residential area of Oakland, California (Figure 1). A review of historic aerial photographs and Sanborn maps in 1999 indicated that the site was first developed as a gasoline service station in 1960. The former first generation USTs were located near the northwest property boundary. The site layout currently includes a second generation UST complex located near the southern corner of the site, four dispensers islands, and a 24-7 Quick Mart (Figure 2).

WORK PLAN

Citing elevated concentrations of TPHd and TPHmo reported in the waste characterization sample for the soil borings drilled within, and adjacent to, the former first generation UST's, ACHCSA requested a work plan to further characterize the source and extent of these constituents in the vicinity of this former UST cavity. In addition, citing that the soil borings where cleared to 10 feet below grade (fbg) via air knife or water knife, and that no shallow soil samples were collected from this former UST cavity for analysis of volatile organic compounds, the ACHCSA requested that the work plan include soil vapor sampling to assess the potential for vapor intrusion from this former UST cavity. The requested work plan is presented below.

Technical Rationale for Proposed Scope of Work

- Based on a review of the field notes associated with the drilling of the soil borings TB-1, TB-2, and TB-3, and discussions with involved field staff, the significant majority of the soil in the drum that disposal sample D-10 characterized came from borings TB-2 and TB-3 which were installed within the former first generation UST's.
- TPHd and TPHmo do not appear to have been analyzed in any of the historical soil or groundwater samples collected at the site. The current scope proposed herein will include soil and groundwater sampling for these constituents. Further, the existing monitoring wells at the site have been sampled for TPHd and TPHmo, and the results will be presented to ACHCSA under separate cover in CRA's *Groundwater Monitoring Report – Third Quarter 2008*.
- To further characterize the source and extent of TPHd, TPHmo, and other petroleum hydrocarbon constituents in the vicinity of this former UST cavity, four soil borings are proposed in the native soils at locations adjacent to the former first generation UST cavity, and one soil boring is proposed in the backfill material from within the former UST cavity, for the collection of soil and grab groundwater samples.
- To assess the potential for vapor intrusion from this former UST cavity, soil vapor probes are proposed to be installed in the boring located within the former UST cavity, and in the boring located closest to the onsite receptor (the station building), for the collection of soil gas samples.

General Work Tasks

Permits: CRA will obtain the required drilling permit(s) from Alameda County Public Works Agency (ACPWA) for drilling the borings.

Site Safety Plan: CRA will prepare a comprehensive Site-Specific Safety Plan to protect site workers. The plan will be reviewed and signed by each site worker and kept on the site during field activities.

Utility Clearance: CRA will mark proposed boring locations and clear the locations through Underground Service Alert (USA) prior to drilling. A private utility locating service will also be used to verify clearance of each boring from subsurface utilities or other obstructions. As-built site drawings, if available, will be requested from Shell to assist in identifying subsurface utilities and fuel piping locations on the site. For the four soil borings proposed in the native material adjacent to the former first generation UST's, the first five feet of each boring to be advanced by augers or other mechanical drilling method or equipment, will be cleared to a diameter of 3-inches larger than the lead auger using an air-knife or a water knife to minimize potential damage to underground structures not identified through USA or the utility locating service. Because the one boring proposed within the cavity of former UST's could be considered a "critical area" as defined by Shells' Subsurface Investigation Procedures, the first ten feet of that boring will be cleared to a diameter of 3 inches larger than the lead auger using an air-knife or a water knife to minimize potential damage to underground structures not identified through USA or the utility locating service. In addition, for this one boring, a conductor casing will be placed in the borehole, and will extend the entire length of the proposed clearing, prior to advancing any augers or use of any mechanical drilling equipment in that borehole.

Specific Work Tasks

Soil and Grab Groundwater Sampling

Site Investigation: One soil boring (V-1) is proposed at a location from within the former first generation UST cavity, and four soil borings (SB-3, SB-4, SB-5, and V-2) are proposed at the locations adjacent to the former UST cavity. The proposed locations of these five soil borings are shown on Figure 2. The borings will be extended to first encountered groundwater, which is anticipated at approximately 15 fbg.

During the borehole clearance with the air knife or water knife, described above, and prior to advancing these borings by augers or other mechanical drilling method or equipment, shallow soil samples are proposed to be collected from each boring at 2.0 fbg, and from boring V-1 at 5 fbg. To comply with Shells' Subsurface Investigation Procedures, which do not allow the use of mechanically driven soil sampling equipment until the borings are cleared to the specified depth, the samples obtained from less than 5 fbg will be collected with a hand auger.

After borehole clearance, each boring will be advanced using hollow-stem auger technology into native soils to a maximum depth of 15 fbg. Soil samples will be collected continuously for soil logging, field screening, and potential chemical analyses. Native soil samples are proposed to be retained in borings SB-3, SB-4, SB-5, and V-2 at 5 fbg, and from all five soil borings at 10 and 15 fbg.

A CRA staff geologist will supervise the drilling and describe encountered soils using the Unified Soil Classification System and Munsell Soil Color Charts. Using a calibrated photo-ionization detector (PID), organic vapors will be measured in the soil samples and the PID measurements will be recorded on the field logs.

Soil samples designated for chemical analyses will be retained in plastic, stainless steel, or brass sample tubes. The tubes will be covered on both ends with Teflon sheets and plastic end caps. Soil samples will be labeled, entered onto a chain-of-custody record, and placed into a cooler with ice, and transported to a California state certified laboratory.

Grab groundwater samples will be collected from each boring at the first encountered water bearing zone from a temporary well screen placed into the borehole using new disposable bailers. Upon their collection, each groundwater sample will be labeled, entered onto a chain-of-custody record, and placed into a cooler with ice until transport to a State of California laboratory for analyses. A standard two week turn-around time will be requested for laboratory results.

Following soil and grab groundwater sample collection, soil borings SB-3, SB-4 and SB-5 will be backfilled with a cement-bentonite grout mixture to within 4 inches below grade and capped with tinted concrete to match the surrounding surface. Soil borings V-1 and V-2 will be used for the installation of fixed soil vapor-sampling points, and will be completed as described below.

Soil Vapor Sampling Investigation

Soil Vapor Probe Installation and Sampling: In order to further evaluate any risk posed by the potential for vapor intrusion at this site, CRA will install fixed soil vapor-sampling points in borings V-1 and V-2. Soil vapor probe V-1 will be installed within the former UST cavity to assess vapor intrusion from this source area, and soil vapor probe V-2 will be installed in the boring located closest to the station building to assess vapor intrusion in the native soils adjacent to the former UST cavity, and in the direction of the onsite receptor.

Following completion of drilling borings V-1 and V-2 to 15 fbg for the collection of soil and grab groundwater sampling, the installation, a fixed vapor-sampling point will be installed in each boring. The

vapor points will be targeted for screening between approximately 4.25 to 4.5 fbg, consequently each boring will be backfilled with a cement-bentonite grout mixture to 5.5 fbg. The fixed vapor-sampling points will be installed in each boring using ¼-inch diameter Teflon tubing. Each probe will have no greater than 3-inch lengths of pre-purchased screen. A clean, fine-grained silica sand filter pack will be installed approximately 1 foot below, and approximately 3-6 inches above, the screened interval, followed by a two-inch base of pre-hydrated bentonite pellets. Each probe will then be sealed up to the surface with grout and protected by a traffic-rated well box at grade. At least one week following probe installation, soil vapor samples will be collected from each sampling point in summa canisters according to Shell's vapor sampling protocol. Soil vapor samples designated for chemical analyses will be labeled, entered onto a chain-of-custody record, and placed into a cooler without 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.

CHEMICAL ANALYSIS

Based on previous work at the site, the soil and grab groundwater samples will be analyzed for TPHd and TPHmo by EPA Method 8015M, for total petroleum hydrocarbons as gasoline (TPHg), benzene, toluene, ethylbenzene, and xylenes (BTEX), and methyl tertiary butyl either (MTBE), tertiary butyl alcohol (TBA), di-isopropyl ether, ethyl tertiary-butyl ether, and tertiary-amyl methyl ether using EPA Method 8260B.

Soil vapor samples will be analyzed for TPHg, BTEX, MTBE, and TBA by methods TO-3 and TO-15, with appropriate tracer gas compounds.

REPORT PREPARATION

Following the receipt of analytical results from the laboratory, CRA will prepare a written report which will include a description of the field procedures, a presentation of the analytical results, tabulated data, figures showing sample locations, the complete analytical laboratory reports, boring logs, and investigation findings and conclusions.

CERTIFICATION

The scope of work described in this work plan will be performed under the supervision of a California professional geologist or engineer.

SCHEDULE

CRA is prepared to begin work upon approval of this work plan by ACHCSA and receipt of approved drilling permit(s) from ACPWA.

CLOSING

If you have any questions regarding the scope of work outlined in this work plan, please call Dennis Baertschi at (707) 268-3813.

Sincerely,
Conestoga-Rovers & Associates

Dennis Baertschi
Project Manager

PROFESSIONAL GEOLOGIST ANA FRIEL No. 6452 9/09 exp. STATE OF CALIFORNIA

Ana Friel, PG

Figures: Vicinity Map
Proposed Soil Boring Location Map

Attachments: A – Soil Data Table for Borings TB-1, TB-2, and TB-3

cc: Denis Brown, Shell
Sidhu Associates, 8930 Bancroft Ave., Oakland, CA 94605

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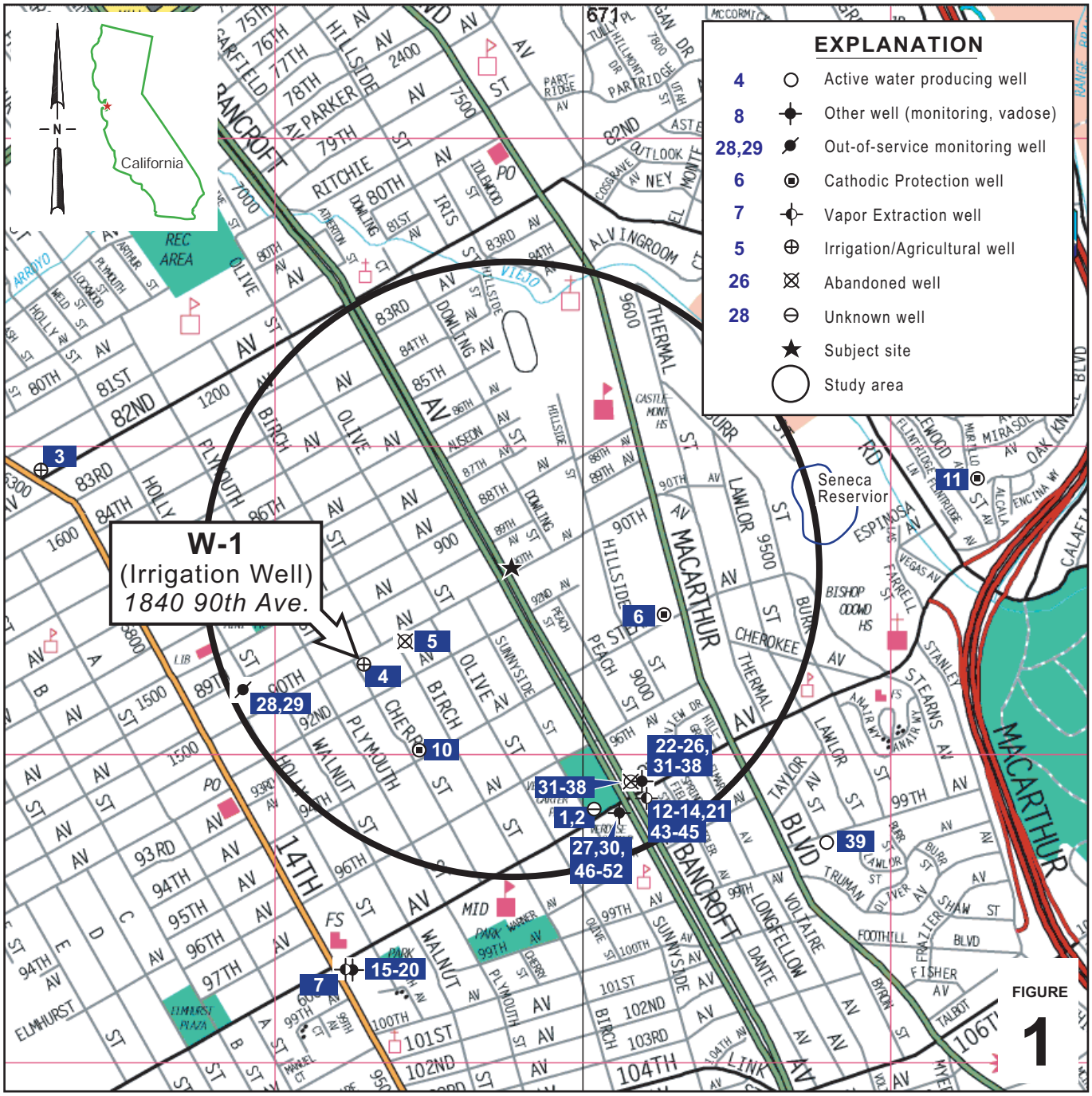

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FIGURE 1

0 1/8 1/4 1/2 1

SCALE 1" = 1/4 MILE

Former Shell Service Station

8930 Bancroft Avenue

Oakland, California

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Vicinity Map

10/13/08

Proposed Boring Location Map

EXPLANATION

- SB-3 — Proposed boring location
- MW-1 — Monitoring well location
- CPT-1 — Soil boring location (7/13/06)
- SB-A — Cambria soil boring location (04/01/01)
- TB-1 — Soil boring location
- Sanitary Sewer line (SS)
- Storm Drain line (SD)
- Electrical line (E)
- Gas line (G)
- Unknown line (UK)
- Flow direction
- Storm drain inlet
- Manhole
- FL — Flowline elevation (in feet above msl)

Note:
All conduit locations are approximate

Lamp Post
UST Vents
Former Shell Station
8930 Bancroft Ave.
property line
MW-1
MW-2
MW-3
MW-4
MW-5
MW-6
Fenced Enclosure
former USTs
V-2
SB-3
TB-3
V-1
SB-5
TB-1
TB-2
SB-4
UK
Dispenser Islands
Former Pump Island
USTs
Unknown Metal Line
sidewalk
E
G
SD
48"Ø SD
12"Ø SD
15"Ø SD
42"Ø SD
8"Ø SS
10"Ø SS
FL = 44.99'
FL = 46.11'
FL = 44.21'
FL = 44.08'
FL = 43.06'
FL = 43.97'
FL = 51.30'
FL = 45.00'
SB-1
median
BANCROFT AVENUE
90TH AVENUE
SB-A
SB-2
SB-B
SB-C
residential property
Nearest Sensitive Receptor to Site
Irrigation Well
1,100 ft. WSW
Groundwater Flow Direction
(2Q00 through 4Q06)
N
E
S
W
0
15
30
60
Scale (ft)

FIGURE
2

Former Shell Service Station
8930 Bancroft Avenue
Oakland, California

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I:\SONOMA\SHELL\OAKLAND 8930 BANCROFT\FIGURES\241408-Prop Boring Loc Map_OCT08.DWG

ATTACHMENT A

Soil Data Table for Borings TB-1, TB-2, and TB-3

Table 1. Soil Analytical Data, Former Shell Service Station, 8930 Bancroft Avenue, Oakland, California

Sample ID	Depth (fbg)	Date	TPHg (mg/kg)	Benzene (mg/kg)	Toluene (mg/kg)	Ethyl-benzene (mg/kg)	Xylenes (mg/kg)	MTBE (mg/kg)	TBA (mg/kg)	DIPE (mg/kg)	ETBE (mg/kg)	TAME (mg/kg)
TB-1-10.5	10.5	05-Jun-08	<0.50	<0.0050	<0.0050	<0.0050	<0.010	<0.0050	<0.050	<0.010	<0.010	<0.010
TB-1-12.5	12.5	05-Jun-08	<0.50	<0.0050	<0.0050	<0.0050	<0.010	<0.0050	<0.050	<0.010	<0.010	<0.010
TB-2-10.5	10.5	05-Jun-08	**310**	<0.50	<0.50	<0.50	<1.0	<0.50	<5.0	<1.0	<1.0	<1.0
TB-2-13.5	13.5	05-Jun-08	52	<0.12	<0.12	<0.12	<0.24	<0.12	<1.2	<0.25	<0.25	<0.25
TB-3-10.5	10.5	06-Jun-08	**440**	<0.50	<0.50	<0.50	<1.0	<0.50	<5.0	<1.0	<1.0	<1.0
TB-3-13.5	13.5	06-Jun-08	5.4	<0.0050	<0.0050	<0.0050	<0.010	<0.0050	<0.050	<0.010	<0.010	<0.010
***Lowest SFBRWQCB ESL's for Deep Soils Where Groundwater is a Current or Potential Source of Drinking Water**			83	0.044	2.9	3.3	2.3	0.023	0.075	NA	NA	NA

Notes and Abbreviations:

fbg = Feet below grade

mg/kg = milligrams per kilogram

<x = Not detected at detection limit x

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

Benzene, toluene, ethylbenzene, and xylenes analyzed by EPA Method 8260B

MTBE = methyl tertiary butyl ether analyzed by EPA Method 8260B

TBA= tert-Butyl alcohol analyzed by EPA Method 8260B

DIPE=di-isopropyl ether analyzed by EPA Method 8260B

ETBE= Ethyl tert butyl ether analyzed by EPA Method 8260B

TAME= tert amyl methyl ether analyzed by EPA Method 8260B

* From Table C, SFBRWQCB ESL's, Ref: Screening for Environmental Concerns at Sites with Contaminated Soil and Groundwater -Itermim Final - November 2007 (rev. May 2008)

Results in **bold** exceed applicable Environmental Screening Levels