CAMBRIA

ENVIRONMENTAL PROTECTION
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July 27, 1998

Mr. Scott Seery
Alameda County Department of Environmental Health
1131 Harbor Bay Parkway, Suite 250
Alameda, California 94502-6577

Re: **Conduit Study Work Plan**
Shell-branded Service Station
350 Grand Avenue
Oakland, California
WIC #204-5510-0204
Cambria Project #240-0715-012

Dear Mr. Seery:

On behalf of Equilon Enterprises LLC (Equilon), Cambria Environmental Technology, Inc. (Cambria) is submitting this *Conduit Study Work Plan* in response to the June 26, 1998 Alameda County Department of Environmental Health (ACDEH) letter regarding the above-referenced site. Our objective is to investigate the location of underground utilities and local drainage systems, which may present preferential pathways for the migration of ground water in this area. The site history and proposed scope of work are presented below.

SITE HISTORY

Site Description: The site is an active Shell-branded Service Station, located at the northeast corner of the intersection of Grand Avenue and Perkins Street in Oakland, California (Figure 1). Lakeside Park is located at the southwest corner of this intersection. The area surrounding the site is mixed commercial and residential.

1990 Soil Borings: On May 11, 1990, GeoStrategies Inc. of Hayward, California (GSI) drilled five exploratory soil borings with a hollow-stem auger drilling rig. 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 underground storage tanks (USTs), at a depth of 9.5 feet below ground surface (ft bgs), at 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.

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1991 Monitoring Well Installation: On January 7, 1991, GSI installed three monitoring wells at the site (Figure 1). The highest hydrocarbon concentrations in soil and ground water were in well S-2, located at the southwest corner of the property in the vicinity of the gasoline USTs, at 440 mg/kg TPHg, 360 mg/kg TPHd, and 4.5 mg/kg benzene in soil at 8.5 ft bgs; and 2,500 micrograms per liter (μg/L) TPHg, 1,200 μg/L TPHd, and 550 μg/L benzene in ground water. No TPHg, TPHd, or benzene were detected in the ground water sample from well S-1.

1993 Hydropunch Borings: On January 27, 1993, GSI installed three hydropunch borings off site (Figure 1). The highest hydrocarbon concentrations were in boring HP-1, located cross gradient of the USTs, at 1,500 mg/kg TPHg, 18 mg/kg TPHd, and 0.11mg/kg benzene in soil at 6.5 ft bgs; and 22,000 μg/L TPHg, 14,000 μg/L TPHd, and 2,500 μg/L benzene in ground water. TPHg and benzene were not detected in soil and ground water samples from borings HP-2 and HP-3, located down gradient 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.

1998 Potential Receptor Survey: In April 1998, Cambria identified wells and surface water bodies within a one-half mile radius of the site. A map showing the survey area, well locations, and water bodies; and a table listing well owners, well use, installation date, and depth are included as Attachment A. Three water producing wells are located between three-quarters and one-half mile cross gradient of the site. Lake Merrit is located approximately one-eighth of a mile down gradient of the site, and several underground creeks are located in the survey area.

1998 Geoprobe Well Installation: On April 16, 1998, Cambria installed two three-quarter inch diameter pre-packed wells in the street on Grand Avenue, down gradient of the site. No TPHg, benzene, toluene, ethylbenzene, or xylenes (BTEX), or MTBE were detected in soil or ground water in the borings.

Ground Water Monitoring Program: The three onsite ground water wells have been monitored since January 1991. At the time of the last monitoring event on January 8, 1998, the highest hydrocarbon concentrations were detected in well S-2 at 35,000 μg/L TPHg, 8,100 μg/L TPHd, 3,400 μg/L benzene, a[redacted]

PROPOSED SCOPE OF WORK

Cambria's objective is to evaluate possible preferential pathways for ground water migration. We will prepare a report including a map of underground utilities and storm drainage, and a discussion of possible preferential pathways in the site vicinity.

Utility Location: Cambria will contact Underground Service Alert (USA) to have the utilities in the site vicinity identified.

Water, Storm Sewer, and Sanitary Sewer Location: Cambria will contact the City of Oakland to review city maps and records for Grand Avenue and Perkins Street, adjacent to the site. Research will include location, depth, and construction of water, storm sewer, and sanitary sewer lines, if available.

Watershed Map Review: Cambria will review the *Watershed Map of the Oakland-Berkeley Area* for buried creeks, underground culverts, storm drains, and engineered channels.

SCHEDULE

We will submit the conduit study results approximately four to six weeks following work plan approval.

CLOSING

We appreciate your continued assistance with this project. Please contact Maureen Feineman at (510) 420-3319 if you have any questions or comments.

Sincerely,
Cambria Environmental Technology, Inc.

Maureen D. Feineman
Staff Geologist

Diane M. Lundquist, P.E.
Principal Engineer

REGISTERED PROFESSIONAL ENGINEER
DIANE M. LUNDQUIST
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