

To: Larry Seto
Organization: Alameda County DEH
Fax #: 510-337-9335
Re: Shell, 2160 Otis, Alameda
Date: January 28, 1998
Pages: 11 , including this cover sheet.

FACSIMILE

Mr. Seto,

Attached is our report presenting the results of our December, 1997 investigation at this site. The hard copy with full attachments is being sent via regular mail.

As we have discussed, we are requesting no further action status for this site. We would like to resolve any issues concerning this site quickly because the site is currently the subject of a real estate transaction. Please review this report and contact us with any questions or comments as soon as possible. We will contact your office soon to discuss future plans for the site.

Thank You,



Paul Waite

From the desk of...

Paul Waite
Project Engineer
Cambria Environmental Technology
1144 65th Street, Suite C
Oakland, CA 94608

(510) 420-3305
Fax: (510) 420-9170



January 28, 1998

Mr. Larry Seto
Senior Hazardous Materials Specialist
Alameda County Health Services Agency
1131 Harbor Bay Parkway, Room #250
Alameda, California 94502-6577

Re: **Investigation Report**
Former Shell Service Station
2160 Otis Drive
Alameda, California
WIC #204-0072-0502
Cambria Project #24-627

Dear Mr. Seto:

On behalf of Shell Oil Products Company (Shell), Cambria Environmental Technology, Inc. (Cambria) is submitting the results of the subsurface investigation conducted on December 17, 1997 at the site referenced above. The investigation objective was to evaluate the soil and ground water in the areas noted in an Alameda County Department of Environmental Health (ACDEH) November 13, 1997 letter. The site is subject to a real estate transaction and expedited review of this report and our no further action recommendation is requested. The site background, investigation procedures, investigation results, and no further action request are presented below.

BACKGROUND

CAMBRIA
ENVIRONMENTAL
TECHNOLOGY, INC.
1144 65TH STREET,
SUITE B
OAKLAND,
CA 94608
PH: (510) 420-0700
FAX: (510) 420-9170

This former Shell Service Station is located on Otis Drive, between Willow and Park Streets, in Alameda, California. The site is located approximately 3,000 feet east of San Francisco Bay. No further action status was granted by the ACDEH on November 14, 1995 based on the results of more than five years of ground water monitoring. Shell discontinued operation of this service station in September 1997 with the demolition of the station and removal of the underground storage tanks (USTs). Shell is leasing the property and no further action status from your office has been requested prior to returning the site to the property owners.

During the ground water monitoring between 1989 and 1995, the depth to ground water at this site varied between 3 and 5 ft with a flow direction of north-northeast. Ground water samples previously

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collected from former wells MW-1 and MW-2 contained over 6,500 milligrams per liter (mg/L) of total dissolved solids, which exceeds state guidelines for use as a drinking water source.

On August 1, 1997, nine Geoprobe[®] borings were sampled in order to pre-characterize the soil in the vicinity of the gasoline and waste oil tanks. Cambria's September 5, 1997 correspondence, which was submitted via facsimile to the ACDEH and as an attachment to our October 3, 1997 report, presented the analytic results of this preliminary investigation.

On September 4, 1997, Paradiso Mechanical of San Leandro, California (Paradiso) removed three 10,000-gallon fiberglass gasoline tanks and one 550-gallon fiberglass waste oil tank, as well as associated gasoline product piping, vent piping, and dispensers, using a backhoe. Before removal, the tanks and piping were triple rinsed by Crosby and Overton of Oakland, California, and the rinsate was hauled to the Shell refinery in Martinez, California for recovery. The site is underlain by sandy silt and silty sand of moderate to high estimated permeability to the total explored depth of 20 feet. A 6-inch thick clayey silt interval of low to moderate estimated permeability was typically encountered at approximately 11 feet below ground surface. Approximately 1 ft of ground water entered the gasoline tank excavation, which was approximately 13 ft deep, and the waste oil tank excavation, which was approximately 6 ft deep.

Following UST removal, Cambria collected six soil samples from near the ends of the former gasoline tanks by driving a brass tube into soil collected by the backhoe. One grab water sample was collected from the gasoline tank excavation using a disposable bailer. Cambria collected one soil sample from near the former waste oil tank. One grab water sample was collected from the waste oil tank excavation using a disposable bailer. Cambria collected six soil samples from beneath the former dispensers and product piping and one soil sample from beneath each of two former hoists and the former oil/water separator.

The tank removal and sampling activities were documented in Cambria's October 3, 1997 *Tank Removal and Sampling Report*. Sample locations are shown on Figure 1 and analytic results are summarized on the table below.

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Maximum Soil and Ground Water Analytical Results Summary											
September 4, 1997 Tank and Dispenser Removal											
Location	Matrix	TPPH <i>gas</i>	TEPH <i> diesel</i>	TRPH	Benzene	Toluene	Ethyl- benzene	Xylenes	MTBE	Lead	Other Metals
Former Gasoline Tanks	Ground Water, $\mu\text{g/L}$	8,300	---	---	ND	45	ND	1,300	8,300	0.018	---
	Soil, mg/kg	ND	---	---	0.11	ND	0.0081	0.0089	0.49	ND	---
Former Dispensers	Soil, mg/kg	270	---	---	1.7	9.3	2.4	22	0.32	ND	---
Former Waste Oil Tank	Ground Water, $\mu\text{g/L}$	ND	12,000	150	ND	ND	ND	0.81	8.5	ND	< MCLs
	Soil, mg/kg	ND	ND	ND	ND	ND	ND	ND	ND	ND	Low

Notes:

Concentrations listed are the maximum concentrations detected in each location

--- = Not analyzed

ND = Not detected

<MCLs = Less than California primary maximum contaminant levels (22 CCR 64444)

mg/kg = Milligrams per kilogram

$\mu\text{g/L}$ = Micrograms per liter

TPPH = Total purgeable petroleum hydrocarbons by modified EPA Method 8015

TEPH = Total extractable petroleum hydrocarbons by modified EPA Method 8015

TRPH = Total recoverable petroleum hydrocarbons by Standard Method 5520 E & F

Benzene, toluene, ethylbenzene, xylenes by EPA Method 8020

MTBE = Methyl tert-butyl ether by EPA Method 8020

Lead by EPA Method 6010

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INVESTIGATION PROCEDURES

Cambria based the soil boring locations on the comments presented in the November 13, 1997 ACDEH letter. The procedures used for Cambria's December 1997 subsurface investigation were described in the work plan dated November 25, 1997, which was approved in a letter from the ACDEH dated December 10, 1997. The procedures are summarized below. Analytic results for soil and ground water are summarized in Tables 1 and 2, and the analytic reports are presented in Attachment A. Boring logs and Cambria's standard field procedures for Geoprobe[®] sampling are presented in Attachments B and C, respectively.

Field Activities

- Personnel Present:** Paul Waite, Project Manager, and Aubrey Cool, Staff Geologist, of Cambria.
- Permits:** Alameda County Public Works Agency Drilling Permit #97WR239, issued December 15, 1997.
- Drilling Company:** Vironex of Hayward, California (C-57 License #705927).
- Drilling Dates:** December 17, 1997.
- Drilling Methods:** Geoprobe (hydraulic push with roto-hammer).
- Number of Borings:** Seven (G-1 through G-7) (Figure 1).
- Boring Locations:** Boring G-1 was placed down gradient of the former gasoline tank pit. Boring G-2 was placed down gradient of the former dispenser islands, and boring G-3 was down gradient of the former waste oil tank. Borings G-4 and G-5 were placed in the furthest down gradient corner (the northern corner) of the property. Borings G-1, G-2, G-3, and G-5 were installed to 12 ft depth and soil and grab ground water samples were collected from each boring. Boring G-4 encountered a subsurface obstruction at 4.3 feet; a soil sample was collected but ground water was not encountered. Borings G-6 and G-7 were installed near the former dispenser island where sample

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D-4 was previously collected. These two borings were installed to 8 ft depth for soil sampling only.

Boring Depths:

8 to 12 ft (Attachment B).

Ground Water Depths:

Ground water was encountered in each of the borings, except boring G-4, at approximately 3.5 to 8 ft depth.

Sediment Lithology:

The site subsurface consists of silty sands of moderate to high estimated permeability to approximately 10 ft depth. The silty sands were underlain by an interval of black organic sandy silt with occasional small shell fragments. (Attachment B).

Chemical Analyses:

As proposed in the work plan dated November 25, 1997, soil and grab ground water samples were submitted for the following analyses:

Soil and water samples from borings G-1, G-2, G-4, G-5, G-6, and G-7 were analyzed for:

- TPH by modified EPA Method 8015; and,
- MTBE, benzene, toluene, ethylbenzene, and xylenes (BTEX) by EPA Method 8020. MTBE concentrations in water samples were confirmed by EPA Method 8260.

The soil sample from boring SB-3, down gradient of the former waste oil tank location, was also analyzed for TEPH by modified EPA Method 8015 and TRPH by Standard Method 5520 E&F. The grab water sample from boring SB-3 was analyzed for TRPH by Standard Method 5520 E&F; the water sample analysis for TEPH was performed but not completed by the laboratory within the standard holding time.

Backfill Method:

Boring locations were backfilled with cement grout to match the existing grade.

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INVESTIGATION RESULTS

Hydrocarbon Distribution in Soil: No TPHH was detected in any of the soil samples analyzed. No BTEX compounds were detected in any of the samples except G-6, 3.5', which was collected near the former dispenser islands. In that sample, the benzene concentration was 0.0059 mg/kg, and other compound concentrations were similarly very low. MTBE was only detected in sample G-1, 3.5', down gradient of the former gasoline tank pit, at a concentration of 0.028 mg/kg.

Only sample G-3, 3.5', down gradient of the former waste oil tank, was analyzed for TRPH; the TRPH concentration in that sample was 110 mg/kg. No TEPH was detected in that sample.

Hydrocarbon Distribution in Ground Water: TPHH, BTEX, and MTBE were detected down gradient of the former UST pit and dispensers in the grab ground water samples from borings G-1 and G-3. However, no TPHH, BTEX, or MTBE were detected in the sample from boring G-5, which was at the furthest down gradient corner of the property.

No TPHH, TEPH, BTEX, or MTBE were detected in the sample from boring G-3, down gradient of the former waste oil tank, while TRPH was detected in the sample. Although the TEPH analysis for the water sample was not completed within the standard sample holding time, the absence of detectable TEPH in the water sample and the soil sample from boring G-3 (immediately above the ground water) indicates that TEPH range hydrocarbons are not present in significant concentrations in the ground water near the former waste oil tank.

NO FURTHER ACTION REQUEST

Based on the sampling results summarized herein, the remaining hydrocarbons in soil and ground water appear to be limited to the area immediately adjacent to the former tanks and dispensers. Because the tanks and dispensers have been removed, there are no ongoing sources of hydrocarbons in soil at this site. Shallow ground water in the area has a TDS concentration above 3,000 mg/L, which exceeds the state guidelines for use as a drinking water source. The low residual hydrocarbons in soil and ground water will naturally attenuate and should not impede future development of the property or pose a significant risk to future property occupants or the environment. Based on these factors, Cambria, on behalf of Shell, requests issuance of no further action status for the site.

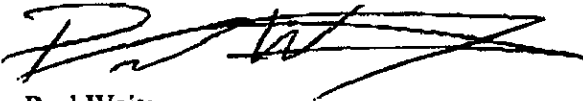
Mr. Larry Seto
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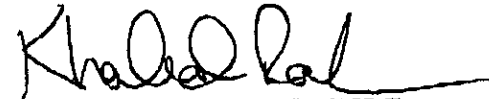
CLOSING

We appreciate your continued assistance with this project. Please call if you have any questions or comments.

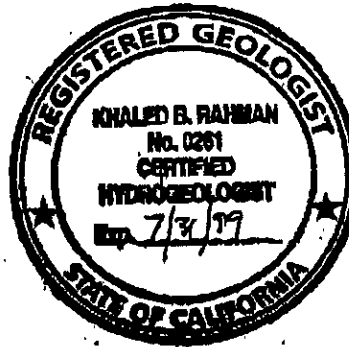
Sincerely,
Cambria Environmental Technology, Inc.



Paul Waite
Project Engineer



Khaled B. Rahman, R.G., C.H.G.
Senior Geologist



- Attachments:
- A - Analytic Results for Soil and Ground Water
 - B - Soil Boring Logs
 - C - Standard Field Procedures for Geoprobe Sampling

cc: A.E. (Alex) Perez, Shell Oil Products Company, P.O. Box 8080, Martinez, California 94553

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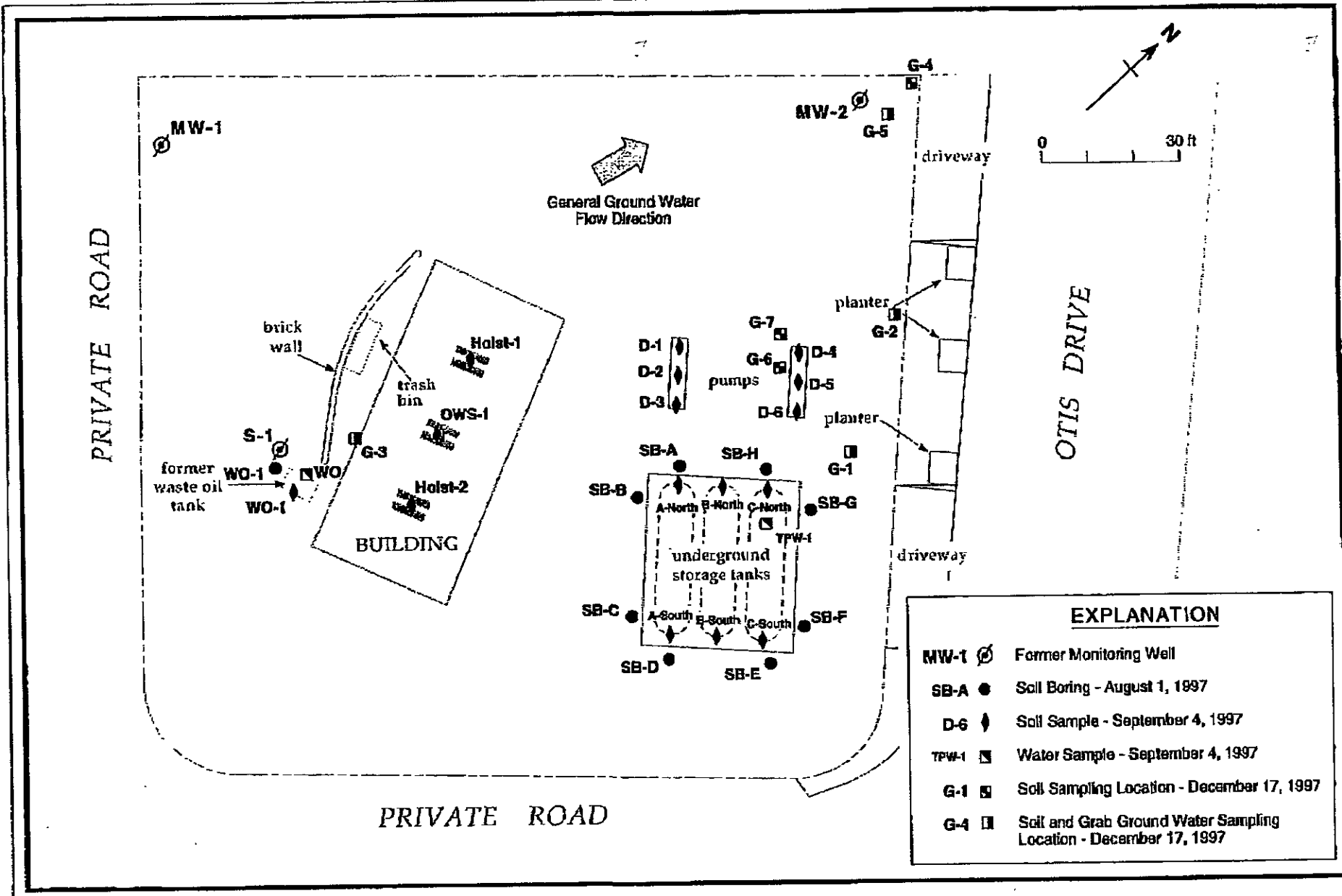


Figure 1. Sample Locations - Shell Service Station WIC #204-0072-0502, 2160 Otis Drive, Alameda, California

Table I. Soil Analytic Data - Shell Service Station WIC# 204-0072-0502, 2160 Otis Street, Alameda, California

Sample ID, Depth in ft	Sample Location	Date Sampled	TPPH (mg/kg) <i>645</i>	TEPH (mg/kg)	TRPH (mg/kg)	Benzene (mg/kg)	Toluene (mg/kg)	Ethylbenzene (mg/kg)	Xylenes (mg/kg)	MTBE (mg/kg)
G-1, 3.5	Down gradient of UST pit	12/17/97	<1.0	--	--	<0.0050	<0.0050	<0.0050	<0.0050	0.028
G-2, 3.5	Down gradient of dispensers	12/17/97	<1.0	--	--	<0.0050	<0.0050	<0.0050	<0.0050	<0.025
G-3, 3.5	Down gradient of waste oil tank	12/17/97	<1.0	<1.0	110	<0.0050	<0.0050	<0.0050	<0.0050	<0.025
G-4, 3.5	North corner	12/17/97	<1.0	--	--	<0.0050	<0.0050	<0.0050	<0.0050	<0.025
G-5, 3.5	North corner	12/17/97	<1.0	--	--	<0.0050	<0.0050	<0.0050	<0.0050	<0.025
G-6, 3.5	Dispensers	12/17/97	5.2	--	--	0.0059	0.041	0.025	0.70	<0.025
G-6, 7.5	Dispensers	12/17/97	<1.0	--	--	<0.0050	<0.0050	<0.0050	<0.0050	<0.025
G-7, 3.5	Dispensers	12/17/97	<1.0	--	--	<0.0050	<0.0050	<0.0050	<0.0050	<0.025
G-7, 7.5	Dispensers	12/17/97	<1.0	--	--	<0.0050	<0.0050	<0.0050	<0.0050	<0.025

mg/kg = Milligrams per kilogram

TPPH = Total purgable petroleum hydrocarbons (gasoline) by modified EPA Method 8015

TEPH = Total extractable petroleum hydrocarbons (diesel) by modified EPA Method 8015

TRPH = Total recoverable petroleum hydrocarbons (oil and grease) by Standard Method 5520 E&F

MTBE = Methyl tert-butyl ether by EPA Method 8000

Benzene, toluene, ethylbenzene, and xylenes by EPA Method 8000

UST = Underground storage tank

<n = Below detection limit of n mg/kg

-- = Not analyzed

Table 2. Ground Water Analytic Data - Shell Service Station WICH# 204-0072-0502, 2160 Otis Street, Alameda, California

Sample ID	Sample Location	Date Sampled	TPPH ^{gas} (µg/L)	TEPH ^{diesel} (µg/L)	TRPH ^{oil & grease} (µg/L)	Benzene (µg/L)	Toluene (µg/L)	Ethylbenzene (µg/L)	Xylenes (µg/L)	MTBE (8020) (µg/L)	MTBE (8160) (µg/L)
G-1	Down gradient of UST pit	12/17/97	2,900	—	—	240	<25	85	240	890	920
G-2	Down gradient of dispensers	12/17/97	780	—	—	110	3.0	21	5.5	46	57
G-3	Down gradient of waste oil tank	12/17/97	<50	<50 *	5,600	<0.50	<0.50	<0.50	<0.50	<2.5	—
G-5	North corner	12/17/97	<50	—	—	<0.50	<0.50	<0.50	<0.50	<2.5	—

µg/L = Micrograms per liter
 TPPH = Total purgable petroleum hydrocarbons (gasoline) by modified EPA Method 8015
 TEPH = Total extractable petroleum hydrocarbons (diesel) by modified EPA Method 8015
 TRPH = Total recoverable petroleum hydrocarbons (oil and grease) by Standard Method 3520 E&F
 MTBE = Methyl tert-butyl ether by EPA Method 8020 and EPA Method 8260
 Benzene, toluene, ethylbenzene, and xylenes by EPA Method 8020
 UST = Underground storage tank
 <n = Below detection limit of n µg/L
 * = TEPH analysis not completed within standard holding time
 — = Not analyzed

Soil sample D-4 taken on 9-4-97 ⇒ 270 ppm TPPH
 1.7 ppm Benzene
 9.3 ppm Toluene
 2.4 ppm Ethyl benzene
 22.0 ppm Xylenes
 < 1.2 ppm MTBE