Weiss Associates Environmental and Geologic Services

5500 Shellmound Street, Emeryville, CA 94608-2411 Fax: 510-547-5043 Phone: 510-450-6000

May 23, 1995

Juliet Shin
Alameda County Department of
Environmental Health
1131 Harbor Bay Parkway
Suite 250
Alameda, California 94502-6577

Site: ALA2160
Proj. ☐ Rem. ☐ Rpt. ☑ Sit ☐
1 ☐ 2 ☐ 3 ☐ 4 ☐ 5 ☐ 6 ☐

RE: **Subsurface Investigation and Closure Report**
Shell Service Station
WIC #204-0072-0502
2160 Otis Drive
Alameda, California
WA Job #81-0429-06

Dear Ms. Shin:

On behalf of Shell Oil Company (Shell), Weiss Associates' (WA) has prepared this letter to document the results of the subsurface investigation conducted at the Shell service station referenced above (Figure 1). The investigation objective was to locate the source(s) of low volatile organic compound (VOC) concentrations that have been detected in ground water from monitoring well MW-2 (Figure 2). As stipulated in your February 8, 1995 letter and WA's February 27, 1995 response letter, this site will be considered for regulatory closure if these investigation results meet certain criteria. Presented below are our scope of work, results from this investigation and a request for closure.

SCOPE OF WORK

WA's scope of work was to:

- Attempt to locate and document storm and sanitary sewer locations near the northern corner of the Shell property;
- Obtain the necessary permits and prepare a site-specific health and safety plan;
- Purge and sample ground water from monitoring well MW-2 and analyze for VOCs;

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SCOPE OF WORK

WA's scope of work was to:

- Attempt to locate and document storm and sanitary sewer locations near the northern corner of the Shell property;
- Obtain the necessary permits and prepare a site-specific health and safety plan;
- Purge and sample ground water from monitoring well MW-2 and analyze for VOCs;

- Drill a soil boring approximately 40 ft upgradient (south) and 25 ft downgradient (northeast) of well MW-2 to further assess the source of the VOCs (Figure 2);
- Collect soil samples from each boring and analyze for VOCs;
- Install temporary wells to the same depth as well MW-2 in the two borings;
- Purge and sample the temporary wells and analyze the ground water samples for VOCs;
- Remove the temporary wells and grout the boreholes; and
- Interpret and report the results.

INVESTIGATION RESULTS

Sewer Investigation:	Based on a line locator survey and drawings from the City of Alameda, there are two sewer lines in the vicinity of well MW-2. One sewer line is onsite and the other line is northwest of the site (Figure 2). The sewer lines intercept a manhole, located about five feet northwest of the site, and are approximately 7 ft below ground surface.
Permits Obtained:	Alameda County Flood Control and Water Conservation District, Zone 7 Permit No. 95145 and Permit to Excavate in the Right-of-Way of the City of Alameda No. E95-0014 (Attachment A).
Drilling Date:	April 10, 1995
Drilling Geologist:	WA Geologist Jonathan Weingast under the supervision of Certified Engineering Geologist James W. Carmody.
Drilling Contractor and Method:	Vironex of Redwood City, California drilled all soil borings using a hydraulic powered Geoprobe to advance one-inch diameter Probe-Drive soil sampler. WA's Standard Field Procedures are presented in Attachment B.
Number of Borings:	Two (BH-F and BH-G; Figure 2).
Boring Depths:	17 to 21 ft bgs.

Lithology Encountered: Sediments in borings BH-F and BH-G consisted of silty sand with moderate to high estimated permeability from about one ft bgs to the maximum depth explored. Boring logs are included in Attachment C.

Depth to Ground Water: Ground water was encountered at about 4 ft below ground surface (bgs) in borings BH-F and BH-G. The depth to water during drilling may not reflect the static water level because the boreholes were only open long enough to allow ground water sampling. Prior to drilling BH-F and BH-G, the depth to water in monitoring well MW-2 was 4.3 ft bgs. Depth to ground water data for the site are tabulated in Table 1.

Soil Sampling Method: Soil samples were collected from two ft bgs and at five ft intervals beginning at about 5 ft bgs with a clean 18-inch Probe-Drive Soil Sampler. Soil samples were preserved in clean stainless steel tubes. Soil samples collected from two ft bgs in each boring were submitted for laboratory analysis.

Temporary Well Construction: Temporary wells BH-F and BH-G were constructed by inserting 1-inch diameter PVC casing with 0.010-inch wide slots into each boring.

Ground Water Sampling Method: Prior to drilling BH-F and BH-G, monitoring well MW-2 was purged of 35 gallons of water, about three well casing volumes. Well MW-2 was subsequently sampled using a new disposable bailer. About three gallons of ground water were purged from each temporary well before sampling (Attachment B).

Water and Soil Analytical Methods: Soil and ground water samples collected from borings BH-F and BH-G and the ground water sample from well MW-2 were analyzed for VOCs by EPA Method 8010. The analytic reports and chain-of-custody forms are presented in Attachment D.

Analytical Laboratory: Sequoia Analytical in Redwood City, California.

Soil Analytic Results: No VOCs were detected in either soil sample collected from the borings. Analytic results for soil are tabulated in Table 3.

Ground Water Analytic Results: Some VOCs were detected in well MW-2: 150 parts per billion (ppb) cis-1,2-dichloroethene, 16 ppb trans-1,2-dichloroethene and 2.8 ppb trichloroethene.

No VOCs were detected in the water sample collected from temporary well BH-G, located downgradient from MW-2. Only 0.58 ppb chloroform was detected from temporary well BH-F, located upgradient from well MW-2. Analytic results for water are tabulated in Table 2A and 2B.

Waste Disposal: No soil cuttings were generated during the drilling activities. Purge water from sampling was contained in a 55-gallon drum and transported by Crosby and Overton, Inc. of Oakland to the Shell refinery in Martinez, California for recycling.

RATIONALE FOR CASE CLOSURE

As discussed in your letter dated February 8, 1995 and WA's letter dated February 27, 1995, the site would be considered for closure subsequent to this investigation if the following two conditions are met: First, "concentrations of benzene and chlorinateds are Non Detect or substantially lower in the boring placed immediately upgradient of Well MW-2, than concentrations observed in Well MW-2"[1] and secondly, "As WA Geologist Tom Fojut and you agreed on February 23, if VOC concentrations in ground water from the downgradient temporary well are higher or similar to VOC concentrations in ground water from well MW-2, then the VOCs are also likely from offsite. Also, during the proposed investigation, WA may discover that a sewer

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[1] Alameda County Health Care Services Agency, Response Letter, Shell Service Station, 2160 Otis Drive, Alameda, California, February 8, 1995, 1 page.

lateral near well MW-2 is a potential offsite VOC source. If this is the case, then the extent of VOCs may be very localized, and VOC concentrations in ground water from the downgradient temporary well may be lower than VOC concentrations in ground water from well MW-2, even though the VOCs are from offsite".[2]

The results of this investigation conclude that the above closure criteria have been met. WA recommends regulatory case closure for this site based on the following:

- The results satisfy the first closure criteria that requires that concentrations of benzene and VOCs in ground water from temporary well BH-F be below laboratory method detection limits or substantially lower than the sample from well MW-2. The ground water sample from temporary well BH-F, upgradient of well MW-2 contained no VOCs except 0.58 ppb chloroform, only slightly above the detection limit of 0.5 ppb. Because the VOC concentrations for BH-F are significantly less than VOC concentrations for well MW-2, VOCs are not from an upgradient source. These results satisfy the first closure criteria which states that concentrations of benzene and VOCs are not detected or are substantially lower in the temporary well than in well MW-2.

- No VOCs were detected in the ground water sample from temporary well BH-G, downgradient of well MW-2. As explained in WA's letter dated February 27, 1995, these results suggest the VOC extent is very localized.

- The site has been monitored quarterly since September 1987. Historically, depth to ground water has ranged from approximately 3.5 to 5.8 ft below ground surface and ground water has consistently flowed north-northwest towards a lagoon located on the north side of Otis Drive.

- Up to 20,400 ppm total dissolved solids (TDS) have been detected in ground water samples collected from wells MW-1 and MW-2 since July 1994. These TDS concentrations exceed by six times the State Water Quality Control Board's threshold of 3,000 ppm. Therefore, ground water beneath the site has no beneficial use.

- No VOCs have ever been detected in soil samples collected during this or previous site investigations. This includes analyses conducted on soil samples collected during the waste oil tank removal in June 1987[3], the installation of well S-1 in

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2 Weiss Associates, Response Letter to ACDEH, Shell Service Station, 2160 Otis Drive, Alameda, California, February 27, 1995, 2 pages.

3 Blaine Tech Services, Inc., Sampling Report 87165-T-1, Shell Service Station, 2160 Otis Drive, Alameda, California, June 26, 1987, 3 pages and 2 attachments.

September 1987[4], the installation of wells MW-1 and MW-2 in April 1990[5], and the drilling and sampling of borings BH-C, BH-D and BH-E in December 1992[6]. Thus, there is no indication that the source of VOCs is from the Shell site.

- No VOCs have been detected in water from well S-1, immediately adjacent to the former waste oil tank since April 1990.[7] Again, no VOCs were detected in soil samples from beneath the former waste oil tank and from the borehole for well S-1. Therefore, the former waste oil tank was not a source of VOCs to the subsurface.

- The depth to ground water onsite has historically been between 3.5 and 5.8 ft, and the 7-ft deep sewer lines therefore are below the water table. If there were a leak in either sewer line, ground water *would enter into the sewer line* instead of sewer water leaking into ground water, due to the hydrostatic pressure around the sewer lines. Therefore, it is highly unlikely that the sewer lines beneath the Shell site are the source of the VOCs detected in well MW-2.

- However, the sewer line northwest of the Shell property appears to originate from the adjacent South Shore Shopping Mall. It seems likely that VOCs may have migrated through the sewer pipe backfill from a source at the shopping center building, possibly a former dry cleaners. Sewer backfills often are preferential pathways of dissolved contaminants because they typically consist of pea gravel and consequently have a higher hydraulic conductivity than the surrounding native soils. It is unlikely that VOCs have migrated along the sewer backfill beneath the Shell site. The absence of VOCs in soil samples collected from all over the site strongly indicates that the station has not been a source of VOCs to the subsurface.

- No petroleum hydrocarbons have been detected in wells S-1 and MW-1 since October 1990. No petroleum hydrocarbons that can be clearly attributed to a gasoline release have ever been detected in well MW-2. Thus, ground water has not been impacted by fuel hydrocarbons.

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4 Pacific Environmental Group, Soil and Groundwater Investigation at Shell Service Station, 2160 Otis Drive, Alameda, California, October 27, 1987, 3 pages and 7 attachments.

5 Weiss Associates, 1990 Quarterly Report - Second Quarter 1990, 2160 Otis Drive, Alameda, California, 5 pages, 1 figues, 2 tables and 1 attachment.

6 Weiss Associates, Subsurface Investigation, 2160 Otis Drive, Alameda, California, February 24, 1993, 5 pages, 3 figures, 2 tables and 4 attachments.

7 Weiss Associates, 1995 Quarterly Report - First Quarter 1995, 2160 Otis Street, Alameda, California, March 22, 1995, 2 pages, 2 figures, 3 tables and 1 attachment..

The results of this investigation show that Shell has met the two conditions stated in your letter dated February 8, 1995 and WA's response letter dated February 27, 1995. The VOC concentrations in ground water from the upgradient temporary well, BH-F, are lower than the concentrations in ground water from well MW-2, suggesting that VOCs are from an offsite source. In addition, no VOCs were detected in the downgradient temporary well, BH-G, suggesting that a localized offsite source such as the adjacent sewer lateral is impacting well MW-2. Ground water has historically been above the site's sanitary sewer lateral, and therefore could not be a source for these VOCs. However, it is quite possible that solvents could have migrated through backfill of the sewer lateral originating from the shopping complex towards the west. Based on these conditions, WA and Shell respectfully requests case closure for this site.

Once we receive your closure notification, we will contact you to discuss abandoning the site's monitoring wells. WA trusts that this closure report meets your needs. Please call Tom Fojut at 510-450-6000 if you have any questions of comments.

Sincerely,
Weiss Associates

Joyce E. Adams
Senior Staff Geologist

James W. Carmody, C.E.G.
Senior Project Hydrogeologist

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Enclosures: Figures
Tables
A - Permits Obtained
B - Standard Field Procedures
C - Boring Logs
D - Analytic Reports and Chain-of-Custody Forms

cc: Dan Kirk, Shell Oil Company, P.O. Box 4023, Concord, California 94524
Kevin Graves, Water Quality Control Board - San Francisco Bay Region, 2101 Webster Street, Suite 500, Oakland, California 94612

FIGURES

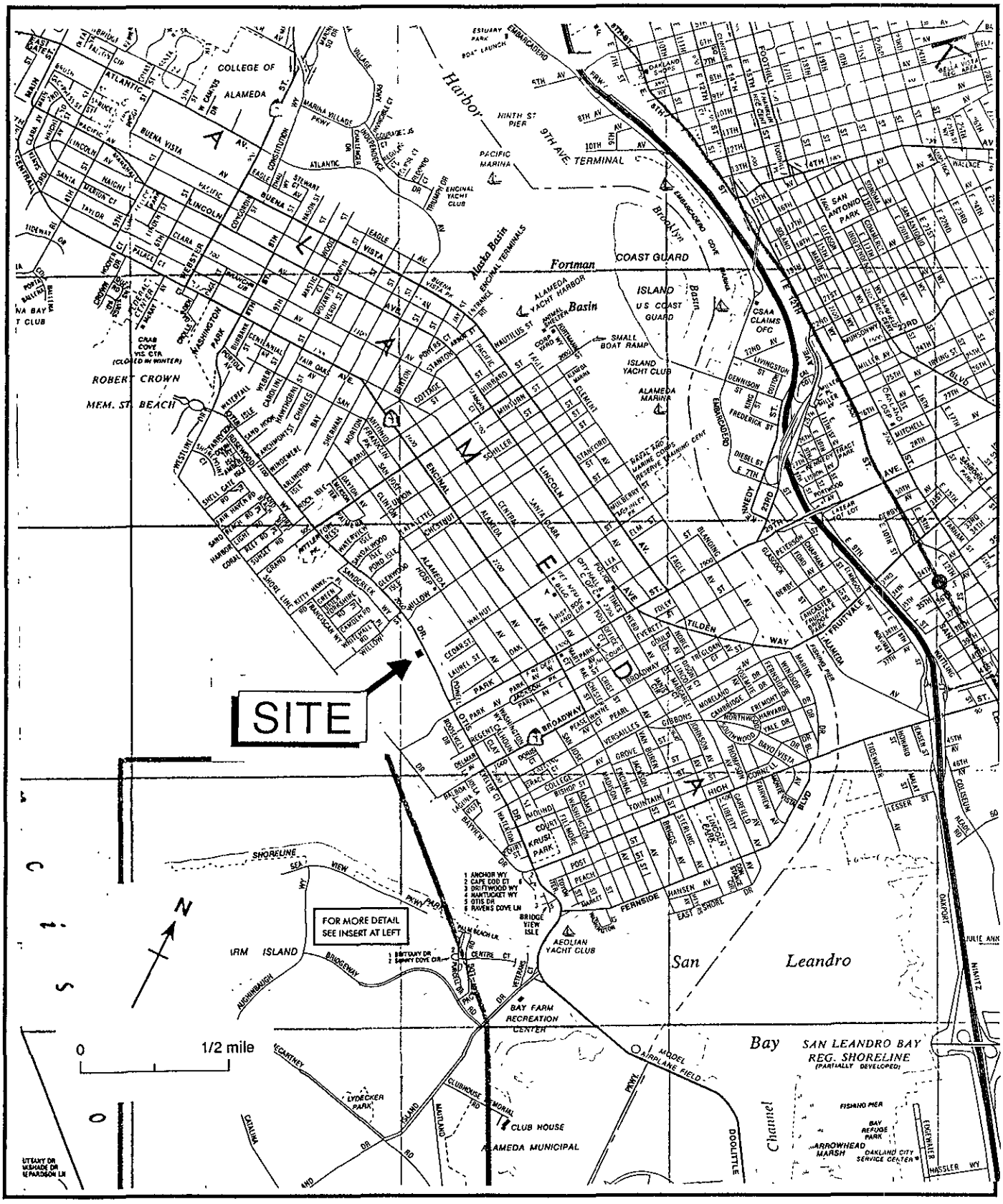


Figure 1. Site Location Map - Shell Service Station, WIC# 204-0072-0502, 2160 Otis Drive, Alameda, CA

8/21/90

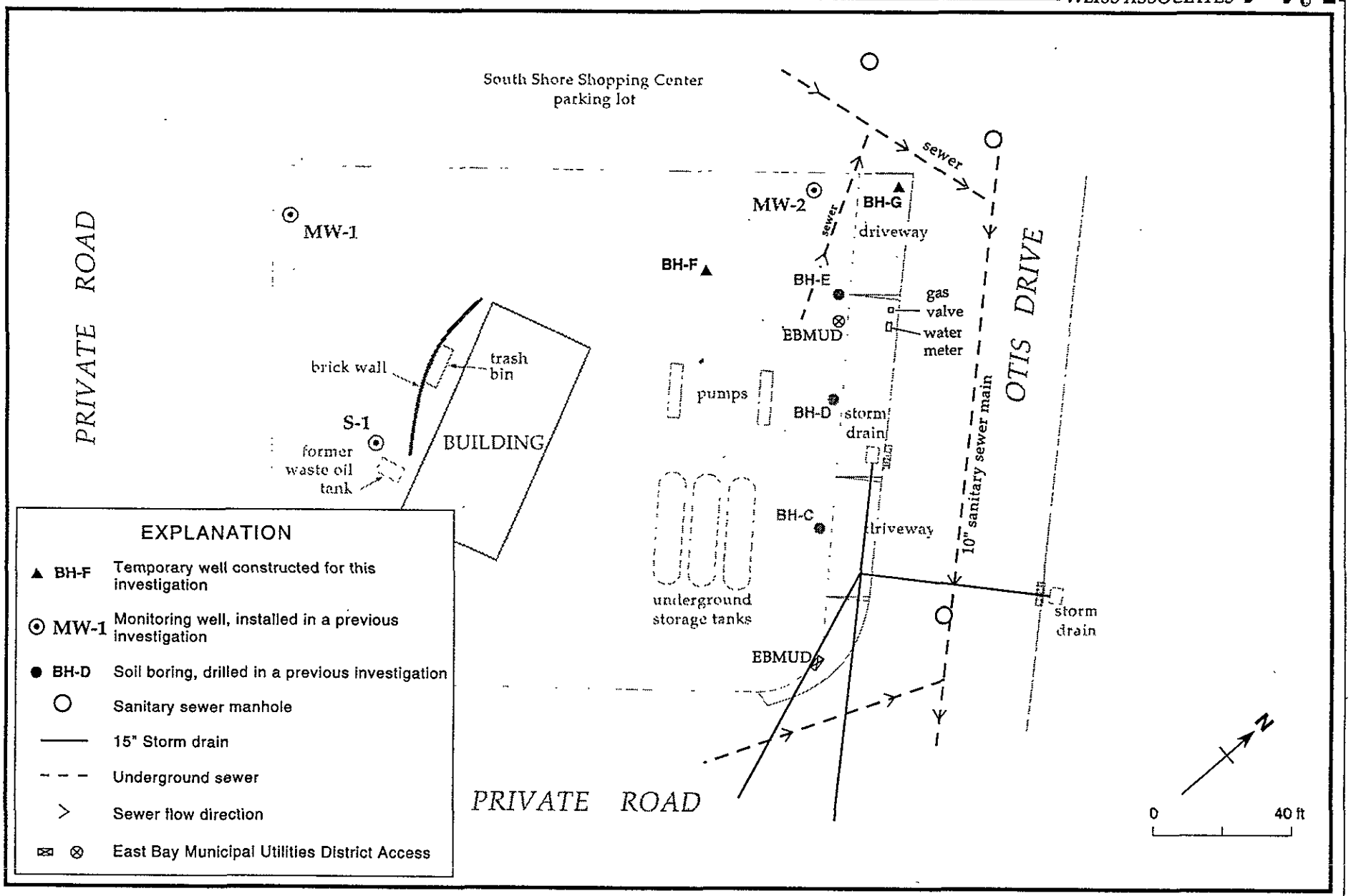


Figure 2. Temporary Well and Underground Utility Locations - Shell Service Station WIC #204-0072-0502, 2160 Otis Drive, Alameda,

TABLES

Table 1. Ground Water Elevations - Shell Service Station WIC #204-0072-0502, 2160 Otis Drive, Alameda, California

Well ID	Date	Top-of-Casing Elevation (ft above msl)	Depth to Water (ft)	Ground Water Elevation (ft above msl)
MW-1	04/11/90	6.00	5.23	0.77
	07/10/90		5.40	0.60
	10/09/90		5.61	0.39
	01/17/91		5.66	0.34
	04/09/91		4.96	1.04
	07/10/91		5.52	0.48
	10/09/91		5.70	0.30
	01/24/92		5.51	0.49
	04/23/92		5.14	0.86
	07/01/92		4.48	1.52
	10/02/92		5.80	0.20
	01/05/93		5.34	0.66
	04/08/93		4.62	1.38
	07/20/93		5.20	0.80
	10/15/93		4.37	1.63
	01/07/94		5.26	0.74
	04/13/94		5.01	0.99
	07/26/94		5.38	0.62
	08/18/94		5.40	0.60
	11/01/94		5.60	0.40
	01/13/95		**5.56**	**0.44**
MW-2	04/11/90	3.29	4.51	-1.22
	07/10/90		4.61	-1.32
	10/09/90		4.74	-1.45
	01/17/91		4.73	-1.44
	04/09/91		4.09	-0.80
	07/10/91		4.66	-1.37
	10/09/91		4.81	-1.52
	01/24/92		4.66	-1.37
	04/23/92		4.51	-1.22
	07/01/92		4.57	-1.28
	10/02/92		4.80	-1.51
	01/05/93		4.39	-1.1
	04/08/93		4.15	-0.86
	07/20/93		4.40	-1.11
	10/15/93		5.41	-2.12
	01/07/94		4.34	-1.05
	04/13/94		4.29	-1.00
	07/26/94		4.56	-1.27
	11/01/94		4.68	-1.39
	01/13/95		3.48	-0.19
	04/10/95		**4.30**	**-1.01**

— Table 1 continues on next page —

Table 1. Ground Water Elevations - Shell Service Station WIC #204-0072-0502, 2160 Otis Drive, Alameda, California (continued)

Well ID	Date	Top-of-Casing Elevation (ft above msl)	Depth to Water (ft)	Ground Water Elevation (ft above msl)
S-1	09/11/90	5.10	4.29	0.81
	04/11/90		4.00	1.10
	07/10/90		4.25	0.85
	10/09/90		4.46	0.64
	01/17/91		4.53	0.57
	04/09/91		4.20	0.90
	07/10/91		4.42	0.68
	10/09/91		4.87	0.23
	01/24/92		4.90	0.20
	04/23/92		4.66	0.44
	07/01/92		4.85	0.25
	10/02/92		4.80	0.30
	01/05/93		5.38	-0.28
	04/08/93		3.69	1.41
	07/20/93		4.20	0.90
	10/15/93		4.38	0.72
	01/07/94		4.19	0.91
	04/17/94		4.03	1.07
	07/26/94		4.76	0.34
	11/01/94		4.84	0.26
	01/13/95		**4.07**	**1.03**

Table 2A. Analytic Results for Ground Water - Petroleum Hydrocarbons - Shell Service Station WIC #204-0072-0502, 2160 Otis Drive, Alameda, California

Well ID (Sampling Frequency)	Date Sampled	Depth to Water (ft)	TPH-G	TPH-D	POG	B	E	T	X	TDS
			← parts per billion (µg/L) →							
S-1	09/04/87		---	---	---	<5	<5	<5	<5	---
(Annually	09/11/89[a]	4.29	<50	<100	<1,000	<0.5	<1	<1	<3	---
1st Qtr)	04/11/90	4.00	<50	<50	<10,000	<0.5	<0.5	<0.5	<0.5	---
	07/10/90	4.25	<90	---	<10,000	<0.5	<0.5	<0.5	<0.5	---
	10/09/90	4.46	<50	---	<5,000	<0.5	<0.5	<0.5	<0.5	---
	01/17/91	4.53	<50	---	---	<0.5	<0.5	<0.5	<0.5	---
	04/09/91	4.20	<50	---	---	<0.5	<0.5	<0.5	<0.5	---
	07/10/91	4.42	<50	---	---	<0.5	<0.5	<0.5	<0.5	---
	10/09/91	4.87	<50	---	---	<0.5	<0.5	<0.5	<0.5	---
	01/24/92	4.90	<50	---	---	<0.5	<0.5	<0.5	<0.5	---
	04/23/92	4.66	<50	---	---	<0.5	<0.5	<0.5	<0.5	---
	07/01/92	4.85	<50	---	---	<0.5	<0.5	<0.5	<0.5	---
	10/02/92	5.80	<50	---	---	<0.5	<0.5	<0.5	<0.5	---
	01/05/93	5.38	<50	---	---	<0.5	<0.5	<0.5	<0.5	---
	01/07/94	4.19	<50	---	---	<0.5	<0.5	<0.5	<0.5	---
	01/07/94	4.19	<50	---	---	<0.5	<0.5	<0.5	<0.5	---
	11/01/94	4.84	<50	---	---	<0.5	<0.5	<0.5	<0.5	560,000
MW-1	04/11/90	5.23	<50	<50	<10,000	<0.5	<0.5	<0.5	<0.5	---
(Annually	07/10/90	5.40	100	---	<10,000	<0.5	<0.5	<0.5	<0.5	---
1st Qtr)	10/09/90	5.61	<50	---	<5,000	<0.5	<0.5	<0.5	<0.5	---
	01/17/91	5.66	<50	---	---	<0.5	<0.5	<0.5	<0.5	---
	04/09/91	4.96	<50	---	---	<0.5	<0.5	<0.5	<0.5	---
	07/10/91	5.52	<50	---	---	<0.5	<0.5	<0.5	<0.5	---
	10/09/91	5.70	<50	---	---	<0.5	<0.5	<0.5	<0.5	---
	01/24/92	5.51	<50	---	---	<0.5	<0.5	<0.5	<0.5	---
	04/23/92	5.14	<50	---	---	<0.5	<0.5	<0.5	<0.5	---
	07/01/92	4.48	<50	---	---	<0.5	<0.5	<0.5	<0.5	---
	10/02/92	4.80	<50	---	---	<0.5	<0.5	<0.5	<0.5	---
	01/05/93	5.34	<50	---	---	<0.5	<0.5	<0.5	<0.5	---

— Table 2A continues on next page —

Table 2A. Analytic Results for Ground Water - Petroleum Hydrocarbons - Shell Service Station WIC #204-0072-0502, 2160 Otis Drive, Alameda, California (continued)

Well ID (Sampling Frequency)	Date Sampled	Depth to Water (ft)	TPH-G	TPH-D	POG	B	E	T	X	TDS
			← parts per billion (µg/L) →							
	01/05/93[dup]	5.34	<50	---	---	<0.5	<0.5	<0.5	<0.5	---
	01/07/94	5.26	<50	---	---	<0.5	<0.5	<0.5	<0.5	---
	08/18/94	5.40	<50	---	---	<0.5	<0.5	<0.5	<0.5	6,300,000
	10/11/94	5.60	<50	<50	---	<0.5	<0.5	<0.5	<0.5	6,700,000
MW-2	04/11/90	4.51	200[b]	220	<10,000	2.7	<0.5	0.5	2.4	---
(Quarterly)	07/10/90	4.61	570[b]	450	<10,000	150	<0.5	0.9	3.1	---
	10/09/90	4.74	190[b]	51	<5,000	55	<0.5	<0.5	<0.5	---
	01/17/91	4.73	350[b]	<50	---	51	<0.5	<0.5	<0.5	---
	04/09/91	4.09	---	<50	---	21	<5	<5	<5	---
	07/10/91	4.66	50[b]	<50	---	8.4	<0.5	<0.5	<0.5	---
	10/09/91	4.81	150	---	---	22	<0.5	<0.5	<0.5	---
	01/24/92	4.66	<50	---	---	4.8	<0.5	<0.5	<0.5	---
	04/23/92	4.51	<50	---	---	2.3	1.5	<0.5	<0.5	---
	07/01/92	4.57	130[c]	---	---	19	<0.5	<0.5	<0.5	---
	10/02/92	4.80	120[c]	---	---	7.8	<0.5	<0.5	<0.8	---
	01/05/93	4.39	200[c]	---	---	9.0	<0.5	0.6	1.8	---
	04/08/93	4.15	170[c]	---	---	9.6	<0.5	<0.5	1.6	---
	07/20/93	4.40	80[d]	---	---	16	1.3	1.4	6.1	---
	10/15/93	4.38	400[c]	---	---	37	0.6	1.1	4.7	---
	01/07/94	4.34	86[d]	---	<500	12	<0.5	<0.5	1.1	---
	04/13/94	4.29	<50	---	---	14	<0.5	<0.5	<0.5	---
	07/26/94	4.56	290	---	---	51	<0.5	<0.5	<0.5	12,800,000
	11/11/94	4.68	<50	---	---	3.5	<0.5	<0.5	<0.5	20,400,000
	01/13/95	**3.48**	**<50**	---	---	**<0.5**	**<0.5**	**<0.5**	**<0.5**	**17,700,000**
BH-C[g]	12/17/92	5.0	<50	<0.5	---	<0.5	<0.5	<0.5	<0.5	---
BH-D[g]	12/17/92	5.0	<50	<0.5	---	<0.5	<0.5	<0.5	<0.5	---

— Table 2A continues on next page —

Table 2A. Analytic Results for Ground Water - Petroleum Hydrocarbons - Shell Service Station WIC #204-0072-0502, 2160 Otis Drive, Alameda, California (continued)

Well ID (Sampling Frequency)	Date Sampled	Depth to Water (ft)	TPH-G	TPH-D	POG	B	E	T	X	TDS
			← parts per billion (µg/L) →							
BH-E[g]	12/17/92	5.5	<50	<0.5	---	<0.5	<0.5	<0.5	<0.5	---
Trip Blank	07/10/90		<50	---	---	<0.5	<0.5	<0.5	<0.5	---
	10/09/90		<50	---	---	<0.5	<0.5	<0.5	<0.5	---
	01/17/91		<50	---	---	<0.5	<0.5	<0.5	<0.5	---
	04/09/91		<50	---	---	<0.5	<0.5	<0.5	<0.5	---
	07/10/91		<50	---	---	<0.5	<0.5	<0.5	<0.5	---
	10/09/91		<50	---	---	<0.5	<0.5	<0.5	<0.5	---
	01/24/92		<50	---	---	<0.5	<0.5	<0.5	<0.5	---
	04/23/92		<50	---	---	<0.5	<0.5	<0.5	<0.5	---
	07/01/92		<50	---	---	<0.5	<0.5	<0.5	<0.5	---
	10/02/92		<50	---	---	<0.5	<0.5	<0.5	<0.5	---
	01/05/93		<50	---	---	<0.5	<0.5	<0.5	<0.5	---
	04/08/93		<50	---	---	<0.5	<0.5	<0.5	<0.5	---
	07/20/93		<50	---	---	<0.5	<0.5	<0.5	<0.5	---
	10/15/93		<50	---	---	<0.5	<0.5	<0.5	<0.5	---
	01/07/94		<50	---	---	<0.5	<0.5	<0.5	<0.5	---
	04/13/94		<50	---	---	<0.5	<0.5	<0.5	<0.5	---
	10/11/94		<50	---	---	<0.5	<0.5	<0.5	<0.5	---
	11/01/94		<50	---	---	<0.5	<0.5	<0.5	<0.5	---
	01/13/95		<50	---	---	<0.5	<0.5	<0.5	<0.5	---
DTSC MCLs			NE	NE	NE	1	680	100[e]	1,750	500,000[f]

— Table 2A continues on next page —

Table 2A. Analytic Results for Ground Water - Petroleum Hydrocarbons - Shell Service Station WIC #204-0072-0502, 2160 Otis Drive, Alameda, California (continued)

Abbreviations:

TPH-G = Total petroleum hydrocarbons as gasoline by Modified EPA Method 8015
TPH-D = Total petroleum hydrocarbons as diesel by Modified EPA Method 8015
POG = Petroleum oil and grease by American Public Health Association Standard Methods 503 or 5520BF
B = Benzene by EPA Method 8020, or 8240
E = Ethylbenzene by EPA Method 8020, or 8240
T = Toluene by EPA Method 8020, or 8240
X = Xylenes by EPA Method 8020, or 8240
TDS = Total dissolved solids
DTSC MCLs = Department of Toxic Substances Control maximum contaminant levels
<n = Not detected above detection limit of n ppb
NE = DTSC MCL not established

Notes:

a = 90 ppb chromium, 90 ppb lead and 100 ppb Zn detected; no cadmium detected above detection limit of 10 ppb by EPA Method 6010. No semi-volatile organic compounds or PCBs detected by EPA Method 625. DTSC MCLs for Cr = 50 ppb; Pb = 50 ppb; secondary MCL for Zn = 5,000 ppb.
b = Chromatographic pattern not typical for gasoline; the concentration is due mostly to lighter hydrocarbon compounds.
c = The concentration reported as gasoline is partially due to the presence of discrete peaks not indicative of gasoline.
d = The concentration reported as gasoline is primarily due to the presence of discrete peaks not indicative of gasoline.
e = DTSC recommended action level for drinking water; MCL not established
f = Secondary MCL noted; the California State Water Resources Control Board threshold for determining whether ground water has potential beneficial use for domestic supply is 3,000,000 ppb.
g = Ground water sample collected from open borehole.

Table 2B. Analytic Results for Ground Water - Volatile Organic Compounds - Shell Service Station WIC #204-0072-0502, 2160 Otis Drive, Alameda, California

Well/ Boring ID	Date Sampled	Depth to Water (ft)	TCE	TCA	PCE	Chloroform	cis- 1,2-DCE	trans- 1,2-DCE	1,2-DCA	Carbon Disulfate	Vinyl Chloride
			← (µg/l) →						parts per billion		
S-1	09/04/87[a]	---	---	---	---	---	---	---	---	---	---
	09/11/89	4.29	ND	ND	ND	ND	ND	ND	ND	ND	ND
	04/11/90	4.00	<0.4	<0.4	<0.4	1.7	<0.4	<0.4	<0.4	---	<0.4
	07/10/90	4.25	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4	---	<2
	10/09/90	4.96	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	---	<2
	01/07/94	4.19	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	---	<0.5
	01/07/94[dup]	4.19	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	---	<0.5
	11/01/94	4.84	<0.4	<0.4	<0.4	<0.4	---	<0.4	<0.4	---	<0.4
MW-1	04/11/90	5.23	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4	---	<0.4
	07/10/90	5.40	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4	---	<2
	10/09/90	5.61	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	---	<2
	01/07/94	5.26	---	---	---	---	---	---	---	---	---
	08/18/94	5.40	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4	---	---
	10/11/94	5.60	<0.4	<0.4	<0.4	<0.4	---	<0.4	<0.4	---	<0.4
MW-2	04/11/90	4.51	1.2	<0.4	<0.4	4.5	<0.4	16	<0.4	---	<2
	07/10/90	4.61	0.93	<0.4	<0.4	1.7	<0.4	11	0.44	---	<2
	10/09/90	4.74	1.3	<0.5	1.6	15	46	6.7	<0.5	---	2.5
	01/17/91[b]	4.73	1.2	<0.5	0.6	2.6	74	12	0.5	---	3.0
	04/09/91	4.09	<5	<5	<5	<5	64	<5	<5	<0.5	<10
	07/10/91	4.66	<0.5	<0.5	6.9	43	<0.5	<0.5	<0.5	14	<10
	10/09/91	4.81	1.9	<1	28	7.4	54	16	<1	---	1.7
	01/24/92	4.66	2.5	<0.5	7.0	19	16	4.3	0.6	---	<0.5
	04/23/92	4.51	<3	<3	3.0	<3	84	18	<3	---	<3
	07/01/92	4.57	2.0	<1	2.0	<1	54	14	<1	---	1.0
	10/92/92	4.80	1.0	<1	<1	<1	61	12	<1	---	<1
	01/05/93	4.39	1.7	<0.5	2.2	<0.5	33	8.7	<0.5	---	.67
	04/08/93	4.15	1.3	<1	<1	<1	38	7.8	<1	---	<1
	07/20/93	4.40	2.4	<1	4.7	2.3	43	10	<0.5	---	<0.5
	10/15/93	4.38	<2.5	<2.5	<2.5	<2.5	110	25	<2.5	---	<2.5

— Table 2B continues on next page —

Table 2B. Analytic Results for Ground Water - Volatile Organic Compounds - Shell Service Station WIC #204-0072-0502, 2160 Otis Drive, Alameda, California (continued)

Well/ Boring ID	Date Sampled	Depth to Water (ft)	TCE	TCA	PCE	Chloroform	cis-1,2-DCE	trans-1,2-DCE	1,2-DCA	Carbon Disulfate	Vinyl Chloride
			(µg/l)						parts per billion		
	01/07/94	4.34	3.8	<0.5	14.0	8.9	29	5.4	<0.5	—	<0.5
	04/13/94	4.29	4.3	<1.3	5.7	2.9	76	14	<1.3	—	—
	07/26/94	4.56	4.3	<0.4	3.5	<0.4	57	5.7	<0.4	—	<0.4
	11/11/94	4.68	2.2	<0.4	6.3	5.6	—	2.2	<0.4	—	<0.4
	01/13/95	3.48	<5.0	<5.0	18	25	<5.0[c]	<5.0	<5.0	9.4	<5.0
	04/10/95	4.30	2.8	<0.50	<0.50	<0.50	150	16	<0.50	—	<1.0
BH-C	12/17/93	5.0[d]	<2	<2	<2	<2	<2	<2	<2	—	<2
BH-D	12/17/93	5.0[d]	<2	<2	<2	<2	<2	<2	<2	—	<2
BH-E	12/17/93	5.5[d]	<2	<2	<2	<2	<2	<2	<2	—	<2
BH-F	**04/10/95**	**3.7[d]**	**<0.50**	**<0.50**	**<0.50**	**0.58**	**<0.50**	**<0.50**	**<0.50**	**—**	**<1.0**
BH-G	**04/10/95**	**4.0[d]**	**<0.50**	**<0.50**	**<0.50**	**<0.50**	**<0.50**	**<0.50**	**<0.50**	**—**	**<1.0**
DTSC MCLs			5	200	5	NE	6	10	0.5	NE	0.5

Abbreviations:

TCE = Trichloroethene by EPA Method 601/8010 or 8240
TCA = 1,1,1-Trichloroethane by EPA Method 601/8010 or 8240
PCE = Tetrachloroethene by EPA Method 601/8010 or 8240
cis-1,2-DCE = cis-1,2-Dichloroethene by EPA Method 601/8010 or 8240
trans-1,2-DCE = trans-1,2-Dichloroethene by EPA Method 601/8010 or 8240
--- = Not analyzed
<n = Not detected above detection limit of n ppb
1,2-DCA = 1,2 dichloroethane by EPA Method 601/8010 or 8240
DTSC MCLs = Department of Toxic Substance control maximum contaminant levels for drinking water
NE = DTSC MCL not established
ND = Analyte not detected, detection limit not known

Notes:

a = 7.0 ppb unknown alcohol and 270 ppb acetone detected
b = 5.0 ppb chlorobenzene detected
c = Data confirmed by laboratory
d = Depth to water during drilling. Not necessarily representative of the static water table.

Table 3. Analytic Results for Soil - Volatile Organic Compounds - Shell Service Station WIC #204-0072-0502, 2160 Otis Drive, Alameda, California

Well/ Boring ID	Sample Depth (ft)	Date Sampled	Depth to Water (ft)	TCE	TCA	PCE	Chloroform	*cis*-1,2-DCE	*trans*-1,2-DCE	1,2-DCA	Vinyl Chloride
				← parts per billion (µg/kg) →							
BH-F	2.0	04/10/95	3.7	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<10
BH-G	2.0	04/10/95	4.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<10

Abbreviations:

TCE = Trichloroethene by EPA Method 8010
TCA = 1,1,1-Trichloroethane by EPA Method 8010
PCE = Tetrachloroethene by EPA Method 8010
cis-1,2-DCE = cis-1,2-Dichloroethene by EPA Method 8010
trans-1,2-DCE = trans-1,2-Dichloroethene by EPA Method 8010
<n = Not detected above detection limit of n ppb
1,2-DCA = 1,2-Dichloroethane by EPA Method 8010

ATTACHMENT A

PERMITS OBTAINED

ZONE 7 WATER AGENCY

5997 PARKSIDE DRIVE PLEASANTON, CALIFORNIA 94588 VOICE (510) 484-2600
FAX (510) 462-3914

DRILLING PERMIT APPLICATION

FOR APPLICANT TO COMPLETE

LOCATION OF PROJECT 2160 Otis Drive
Alameda

CLIENT
Name Shell Oil Company
Address P.O.Box 4023 Voice
City Concord CA Zip 94524

APPLICANT
Name Joyce Adams - Weiss Assoc.
510-450-6162 Fax 510-547-5043
Address 5500 Shellmound St. Voice
City Emeryville Zip 94608

TYPE OF PROJECT

Well Construction		Geotechnical Investigation	
Cathodic Protection	___	General	___
Water Supply	___	Contamination	___
Monitoring	___	Well Destruction	___

PROPOSED WATER SUPPLY WELL USE
Domestic ___ Industrial ___ Other ___
Municipal ___ Irrigation ___

DRILLING METHOD:
Mud Rotary ___ Air Rotary ___ Auger ___
Cable ___ Other Direct push

DRILLER'S LICENSE NO. ___

WELL PROJECTS
Drill Hole Diameter ___ in. Maximum
Casing Diameter ___ in. Depth ___ ft.
Surface Seal Depth ___ ft. Number ___

GEOTECHNICAL PROJECTS
Number of Borings 2 Maximum
Hole Diameter 2 in. Depth 20 ft.

ESTIMATED STARTING DATE 4/08/95
ESTIMATED COMPLETION DATE 04/03/95

I hereby agree to comply with all requirements of this permit and Alameda County Ordinance No. 73-68.

APPLICANT'S SIGNATURE Joyce Adams Date 3/14/95

FOR OFFICE USE

PERMIT NUMBER 95145
LOCATION NUMBER ___

PERMIT CONDITIONS

Circled Permit Requirements Apply

A. GENERAL
(1.) A permit application should be submitted so as to arrive at the Zone 7 office five days prior to proposed starting date.
2. Submit to Zone 7 within 60 days after completion of permitted work the original Department of Water Resources Water Well Drillers Report or equivalent for well Projects, or drilling logs and location sketch for geotechnical projects.
(3.) Permit is void if project not begun within 90 days of approval date.

B. WATER WELLS, INCLUDING PIEZOMETERS
1. Minimum surface seal thickness is two inches of cement grout placed by tremie.
2. Minimum seal depth is 50 feet for municipal and industrial wells or 20 feet for domestic and irrigation wells unless a lesser depth is specially approved. Minimum seal depth for monitoring wells is the maximum depth practicable or 20 feet.

(C.) GEOTECHNICAL. Backfill bore hole with compacted cuttings or heavy bentonite and upper two feet with compacted material. In areas of known or suspected contamination, tremied cement grout shall be used in place of compacted cuttings.

D. CATHODIC. Fill hole above anode zone with concrete placed by tremie.

E. WELL DESTRUCTION. See attached.

Approved Wyman Hong Date 17 Mar 95
Wyman Hong

91992

CITY OF ALAMEDA
CENTRAL PERMIT OFFICE 415-522-4100
2263 SANTA CLARA AVE., ROOM 204
ALAMEDA, CA 94501

APPLICATION FOR PERMIT TO EXCAVATE IN THE RIGHT-OF-WAY OF THE CITY OF ALAMEDA

_____ SERVICE NUMBER DATE 3-14 19 95

Application is hereby made for a permit to excavate on the West side of Otis Drive Ave. St. 1200 feet north of Park Blvd.

House No. 2160 Owner Shell Oil Company

For the purpose of drilling a boring in the sidewalk to 20' below ground surface for a subsurface investigation requested by Alameda County

Name of Applicant Joyce Adams Weiss Assoc. Address 5500 Shellmound St, Emeryville 94608

Phone 510-450-6162

☐ VERBAL APPROVAL
Date _____
By _____
Reasons: _____

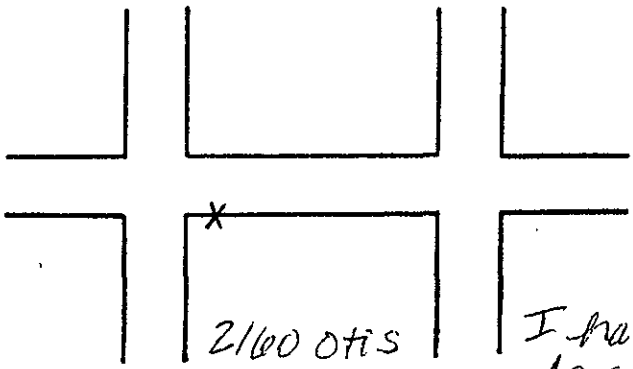


Diagram of Proposed Work

I have attached our site map for a more detailed diagram

FOR OFFICE USE ONLY

This permit to be Inspected by ☑ ENGINEERING DIVISION ☐ MAINTENANCE DIVISION

☑ ALL STRIPING, PAINTED GRAPHICS AND PAVEMENT MARKERS DAMAGED OR DESTROYED BY STREET EXCAVATION WORK ARE TO BE RESTORED BY THE PERMITEE.

☑ ALL CONSTRUCTION WITHIN THE PUBLIC RIGHT OF WAY MUST HAVE BARRICADES WITH FLASHERS FOR NIGHT TIME PROTECTION.

☑ ALL WORK INVOLVED IS TO BE DONE IN ACCORDANCE WITH STANDARD CITY OF ALAMEDA SPECIFICATIONS AND CITY OF ALAMEDA PRACTICES ALL TO THE SATISFACTION OF THE CITY ENGINEER. INSPECTION CHARGES SHALL BE PAID TO THE CITY MONTHLY. ACCEPTANCE OF THIS PERMIT CONSTITUTES ACCEPTANCE OF THE CONDITIONS INCLUDED.

☐ CONCRETE PERMIT REQUIRED _____ SIGNATURE _____ DATE

☐ NO OPEN TRENCH CUTTING

☐ STATE PERMIT REQUIRED _____ CLEAR _____ SIGNATURE _____ DATE

☐ SPECIAL CONDITIONS _____

RECEIVED DATE 3/20/95 SIGNED Paul Moore PERMIT # E95-0014

APPROVAL DATE 3/15/95 SIGNED _____

ISSUED DATE 3/20/95 SIGNED Paul Moore

ATTACHMENT B

STANDARD FIELD PROCEDURES

STANDARD FIELD PROCEDURES

Weiss Associates (WA) has developed standard procedures for drilling and sampling soil borings and installing, developing and sampling ground water monitoring wells. These procedures comply with Federal, State and local regulatory guidelines. Specific procedures are summarized below.

SOIL BORING AND SAMPLING

Objectives/Supervision

Soil sampling objectives include characterizing subsurface lithology, assessing whether the soils exhibit obvious hydrocarbon or other compound vapor or staining, and collecting samples for analysis at a State-certified laboratory. All borings are logged using the Unified Soil Classification System by a trained geologist working under the supervision of a California Registered Geologist (RG) or a Certified Engineering Geologist (CEG).

Soil Boring and Sampling

Soil borings are typically drilled using hollow-stem augers. Split-barrel samplers lined with steam-cleaned brass or stainless steel tubes are driven through the hollow auger stem into undisturbed sediments at the bottom of the borehole using a 140 pound hammer dropped 30 inches. Soil samples can also be collected without using hollow-stem augers by progressively driving split-barrel soil samplers to depths of up to 20 ft. Soil samples are normally collected at least every five ft to characterize the subsurface sediments and for possible chemical analysis. Near the water table and at lithologic changes, the sampling interval may be less than five ft. Drilling and sampling equipment is steam-cleaned prior to drilling and between borings to prevent cross-contamination. Sampling equipment is washed between samples with trisodium phosphate or an equivalent EPA-approved detergent.

Sample Analysis

After noting the lithology at each end of the sampling tubes, the tube chosen for analysis is immediately trimmed of excess soil and capped with teflon tape and plastic end caps. The sample is labelled, stored at or below 4°C, and transported under chain-of-custody to a State-certified analytic laboratory.

Screening

One of the remaining tubes is partially emptied leaving about one-third of the soil in the tube. The tube is capped with plastic end caps and set aside to allow hydrocarbons to volatilize from the soil. After ten to fifteen minutes, a portable photoionization detector (PID) measures volatile hydrocarbon vapor concentrations in the tube headspace, extracting the vapor through a slit in the cap. PID measurements are used along with the stratigraphy and ground water depth to select soil samples for analysis.

Grouting

If the borings are not completed as wells, the borings are filled to the ground surface with cement grout poured or pumped through a tremie pipe. If wells are completed in the borings, the well installation, development and sampling procedures summarized below are followed.

MONITORING WELL INSTALLATION, DEVELOPMENT AND SAMPLING

Well Construction and Surveying

Wells are installed to monitor ground water quality and determine the ground water elevation, flow direction and gradient. Well depths and screen lengths are based on ground water depth, occurrence of hydrocarbons or other compounds in the borehole, stratigraphy and state and local regulatory guidelines. Well screens typically extend 15 ft below and 5 ft 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 to five ft 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 ft thick hydrated bentonite seal separates the sand from the overlying sanitary surface seal composed of cement with 3-5% bentonite.

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

After 24 hours, the wells are developed using a combination of ground water surging and extraction. Surging agitates the ground water and dislodges fine sediments from the sand pack. After about ten minutes of surging, ground water 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 ground water are extracted and the sediment volume in the ground water is negligible. 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.

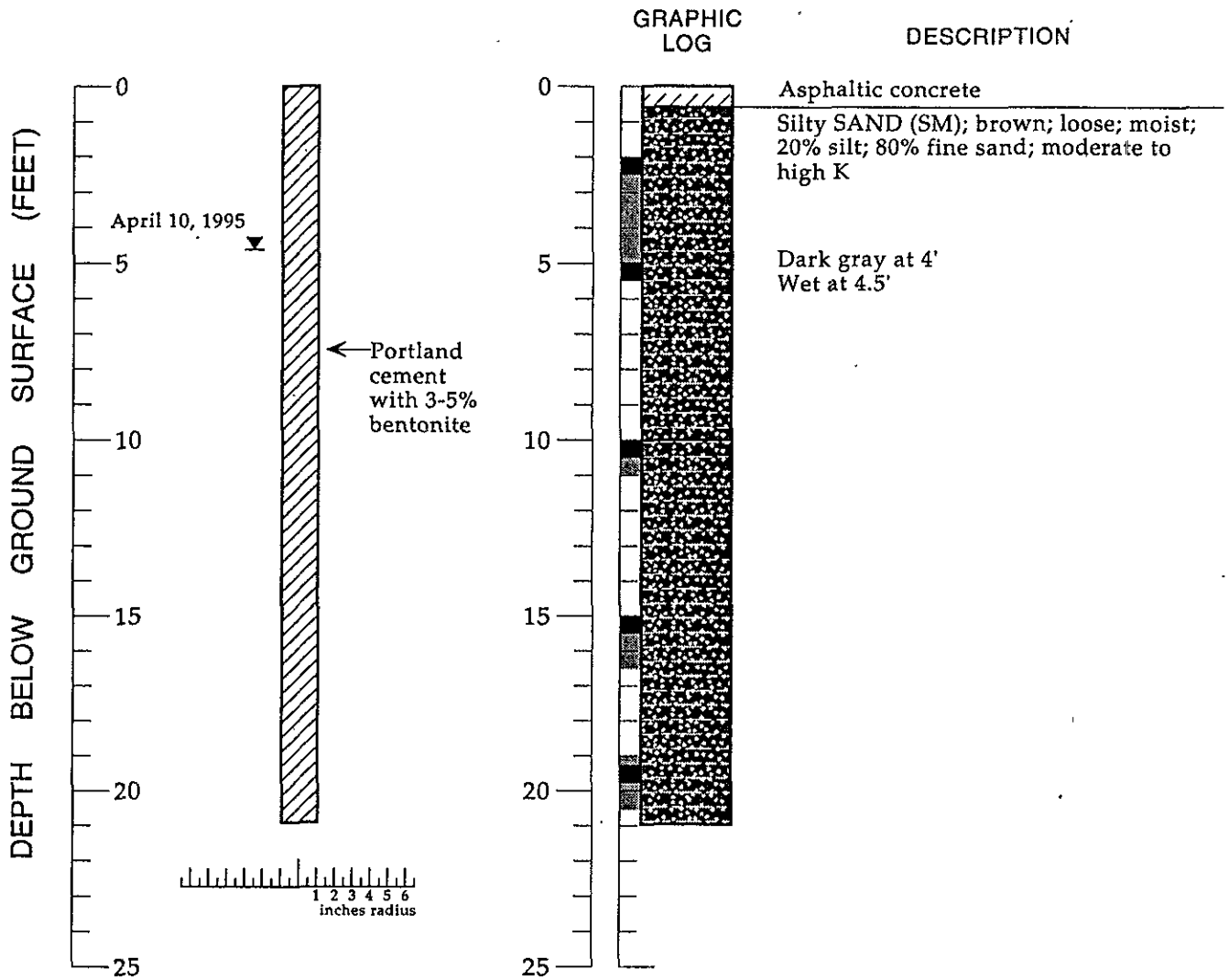
Ground Water Sampling

Depending on local regulatory guidelines, three to four well-casing volumes of ground water are purged prior to sampling. Purging continues until ground water pH, conductivity, and temperature have stabilized. Ground water samples are collected using bailers or pumps and are decanted into the appropriate containers supplied by the analytic laboratory. Samples are labelled, placed in protective foam sleeves, stored at 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.

ATTACHMENT C

BORING LOGS

TEMPORARY WELL BH-F



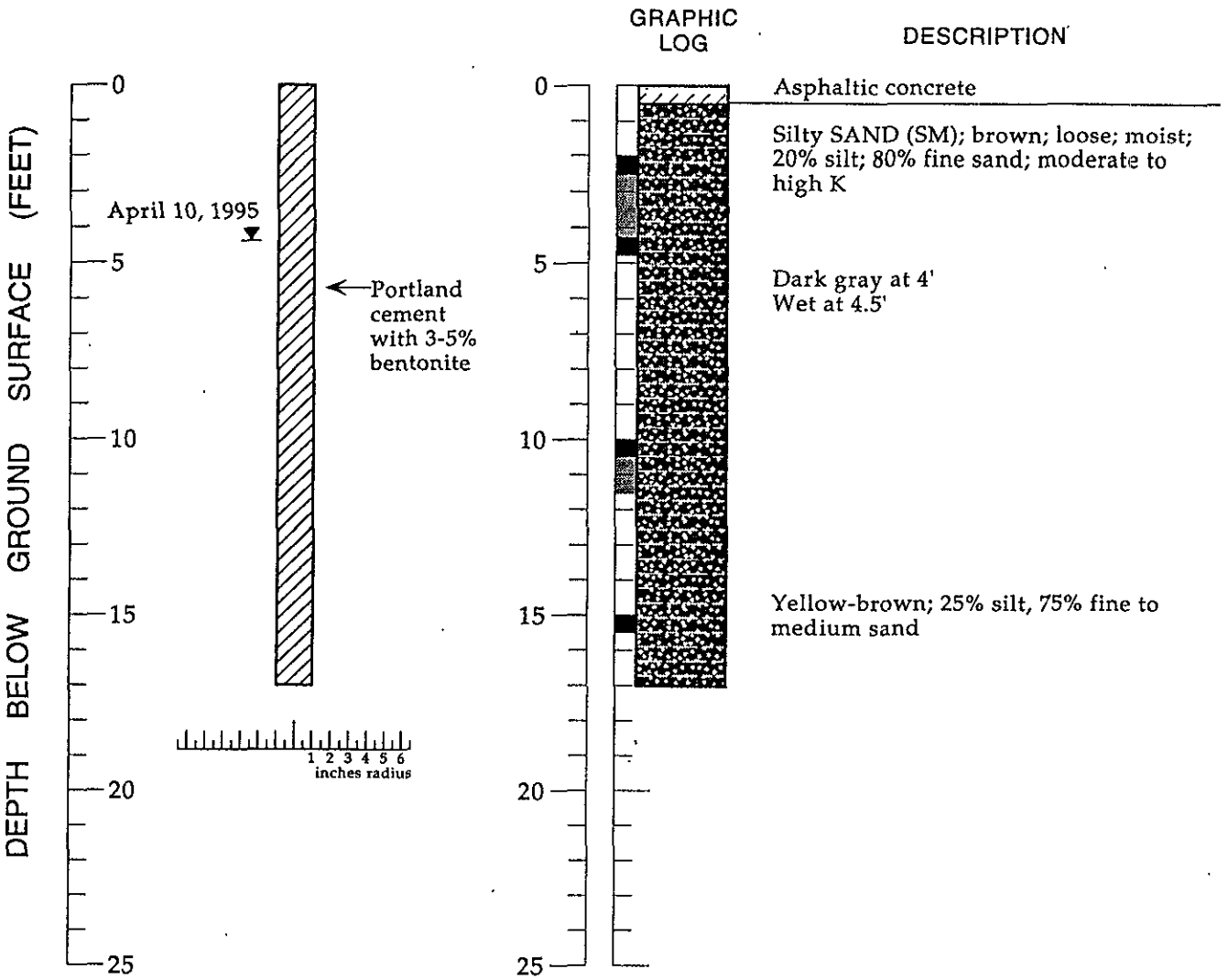
EXPLANATION

- Water level during drilling (date)
- Water level (date)
- Contact (dotted where approximate)
- Uncertain contact
- Gradational contact
- Location of recovered drive sample
- Location of drive sample sealed for chemical analysis
- Cutting sample
- K = Estimated hydraulic conductivity

Logged By: Jonathan C. Weingast
Supervisor: James W. Carmody; CEG 1576
Drilling Company: Vironex, Redwood City, CA
License Number: C57-606481
Driller: Jim Traina
Drilling Method: Geoprobe Direct Push
Date Drilled: April 10, 1995
Type of Sampler: Probe drive soil sampler (2" ID)
Final Completion: After casing was removed, borehole was backfilled with cement grout using a tremic pipe.

Boring Log Details - Temporary Well BH-F - Shell Service Station WIC #204-0072-0502, 2160 Otis Drive, Alameda, California

TEMPORARY WELL BH-G



EXPLANATION

- Water level during drilling (date)
- Water level (date)
- Contact (dotted where approximate)
- —?—?— Uncertain contact
- Gradational contact
- Location of recovered drive sample
- Location of drive sample sealed for chemical analysis
- Cutting sample
- K = Estimated hydraulic conductivity

Logged By: Jonathan C. Weingast
Supervisor: James W. Carmody; CEG 1576
Drilling Company: Vironex, Redwood City, CA
License Number: C57-606481
Driller: Jim Traina
Drilling Method: Geoprobe Direct push
Date Drilled: April 10, 1995
Type of Sampler: Probe drive soil sampler (2" ID).
Final Completion: After casing was removed, borehole was backfilled with cement grout using a tremic pipe.

Boring Log Details - Temporary Well BH-G - Shell Service Station WIC #204-0072-0502, 2160 Otis Drive, Alameda, California

ATTACHMENT D

ANALYTIC REPORTS AND CHAIN OF CUSTODY FORMS

Sequoia Analytical

680 Chesapeake Drive, Redwood City, CA 94063, (415) 364-9600, FAX (415) 364-9233
404 N. Wiget Lane, Walnut Creek, CA 94598, (510) 988-9600, FAX (510) 988-9673
819 Striker Avenue, Suite 8, Sacramento, CA 95834, (916) 921-9600, FAX (916) 921-0100

Weiss Associates
5500 Shellmound
Emeryville, CA 94608
Attention: Faith Daverin

Project: Shell 2160 Otis Dr., Alameda

Enclosed are the results from samples received at Sequoia Analytical on April 11, 1995. The requested analyses are listed below:

SAMPLE #	SAMPLE DESCRIPTION	DATE COLLECTED	TEST METHOD
9504752 -01	LIQUID, MW-2	04/10/95	8010_W Halogenated Volatil
9504752 -02	LIQUID, BH-F	04/10/95	8010_W Halogenated Volatil
9504752 -03	LIQUID, BH-G	04/10/95	8010_W Halogenated Volatil
9504752 -04	LIQUID, TB-LB	04/10/95	8010_W Halogenated Volatil

Please contact me if you have any questions. In the meantime, thank you for the opportunity to work with you on this project.

Very truly yours,

SEQUOIA ANALYTICAL

Mike Gregory
Project Manager

Sequoia Analytical

680 Chesapeake Drive, Redwood City, CA 94063, (415) 364-9600, FAX (415) 364-9233
404 N. Wiget Lane, Walnut Creek, CA 94598, (510) 988-9600, FAX (510) 988-9673
819 Striker Avenue, Suite 8, Sacramento, CA 95834, (916) 921-9600, FAX (916) 921-0100

Weiss Associates	Client Proj. ID: Shell 2160 Otis Dr., Alameda	Sampled: 04/10/95
5500 Shellmound	Sample Descript: MW-2	Received: 04/11/95
Emeryville, CA 94608	Matrix: LIQUID	
	Analysis Method: EPA 8010	Analyzed: 04/17/95
Attention: Faith Daverin	Lab Number: 9504752-01	Reported: 04/25/95

QC Batch Number: GC041695801009A
Instrument ID: GCHP09

Halogenated Volatile Organics (EPA 8010)

Analyte	Detection Limit ug/L	Sample Results ug/L
Bromodichloromethane	0.50	N.D.
Bromoform	0.50	N.D.
Bromomethane	1.0	N.D.
Carbon Tetrachloride	0.50	N.D.
Chlorobenzene	0.50	N.D.
Chloroethane	1.0	N.D.
2-Chloroethylvinyl ether	1.0	N.D.
Chloroform	0.50	N.D.
Chloromethane	1.0	N.D.
Dibromochloromethane	0.50	N.D.
1,2-Dichlorobenzene	0.50	N.D.
1,3-Dichlorobenzene	0.50	N.D.
1,4-Dichlorobenzene	0.50	N.D.
1,1-Dichloroethane	0.50	N.D.
1,2-Dichloroethane	0.50	N.D.
1,1-Dichloroethene	0.50	N.D.
cis-1,2-Dichloroethene	**0.50**	**150**
trans-1,2-Dichloroethene	**0.50**	**16**
1,2-Dichloropropane	0.50	N.D.
cis-1,3-Dichloropropene	0.50	N.D.
trans-1,3-Dichloropropene	0.50	N.D.
Methylene chloride	5.0	N.D.
1,1,2,2-Tetrachloroethane	0.50	N.D.
Tetrachloroethene	0.50	N.D.
1,1,1-Trichloroethane	0.50	N.D.
1,1,2-Trichloroethane	0.50	N.D.
Trichloroethene	**0.50**	**2.8**
Trichlorofluoromethane	0.50	N.D.
Vinyl chloride	1.0	N.D.

Surrogates	Control Limits %		% Recovery
1-Chloro-2-fluorobenzene	70	130	110

Analytes reported as N.D. were not present above the stated limit of detection.

SEQUOIA ANALYTICAL - ELAP #1210

Mike Gregory
Project Manager

Sequoia Analytical

680 Chesapeake Drive, Redwood City, CA 94063, (415) 364-9600, FAX (415) 364-9233
404 N. Wiget Lane, Walnut Creek, CA 94598, (510) 988-9600, FAX (510) 988-9673
819 Striker Avenue, Suite 8, Sacramento, CA 95834, (916) 921-9600, FAX (916) 921-0100

Weiss Associates	Client Proj. ID: Shell 2160 Otis Dr., Alameda	Sampled: 04/10/95
5500 Shellmound	Sample Descript: BH-F	Received: 04/11/95
Emeryville, CA 94608	Matrix: LIQUID	
	Analysis Method: EPA 8010	Analyzed: 04/17/95
Attention: Faith Daverin	Lab Number: 9504752-02	Reported: 04/25/95

QC Batch Number: GC041695801009A
Instrument ID: GCHP09

Halogenated Volatile Organics (EPA 8010)

Analyte	Detection Limit ug/L	Sample Results ug/L
Bromodichloromethane	0.50	N.D.
Bromoform	0.50	N.D.
Bromomethane	1.0	N.D.
Carbon Tetrachloride	0.50	N.D.
Chlorobenzene	0.50	N.D.
Chloroethane	1.0	N.D.
2-Chloroethylvinyl ether	1.0	N.D.
Chloroform	**0.50**	**0.58**
Chloromethane	1.0	N.D.
Dibromochloromethane	0.50	N.D.
1,2-Dichlorobenzene	0.50	N.D.
1,3-Dichlorobenzene	0.50	N.D.
1,4-Dichlorobenzene	0.50	N.D.
1,1-Dichloroethane	0.50	N.D.
1,2-Dichloroethane	0.50	N.D.
1,1-Dichloroethene	0.50	N.D.
cis-1,2-Dichloroethene	0.50	N.D.
trans-1,2-Dichloroethene	0.50	N.D.
1,2-Dichloropropane	0.50	N.D.
cis-1,3-Dichloropropene	0.50	N.D.
trans-1,3-Dichloropropene	0.50	N.D.
Methylene chloride	5.0	N.D.
1,1,2,2-Tetrachloroethane	0.50	N.D.
Tetrachloroethene	0.50	N.D.
1,1,1-Trichloroethane	0.50	N.D.
1,1,2-Trichloroethane	0.50	N.D.
Trichloroethene	0.50	N.D.
Trichlorofluoromethane	0.50	N.D.
Vinyl chloride	1.0	N.D.

Surrogates	Control Limits %		% Recovery
1-Chloro-2-fluorobenzene	70	130	100

Analytes reported as N.D. were not present above the stated limit of detection.

SEQUOIA ANALYTICAL - ELAP #1210

Mike Gregory
Project Manager

Sequoia Analytical

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819 Striker Avenue, Suite 8, Sacramento, CA 95834, (916) 921-9600, FAX (916) 921-0100

Weiss Associates	Client Proj. ID: Shell 2160 Otis Dr., Alameda	Sampled: 04/10/95
5500 Shellmound	Sample Descript: BH-G	Received: 04/11/95
Emeryville, CA 94608	Matrix: LIQUID	
	Analysis Method: EPA 8010	Analyzed: 04/18/95
Attention: Faith Daverin	Lab Number: 9504752-03	Reported: 04/25/95

QC Batch Number: GC041895801009A
Instrument ID: GCHP09

Halogenated Volatile Organics (EPA 8010)

Analyte	Detection Limit ug/L	Sample Results ug/L
Bromodichloromethane	0.50	N.D.
Bromoform	0.50	N.D.
Bromomethane	1.0	N.D.
Carbon Tetrachloride	0.50	N.D.
Chlorobenzene	0.50	N.D.
Chloroethane	1.0	N.D.
2-Chloroethylvinyl ether	1.0	N.D.
Chloroform	0.50	N.D.
Chloromethane	1.0	N.D.
Dibromochloromethane	0.50	N.D.
1,2-Dichlorobenzene	0.50	N.D.
1,3-Dichlorobenzene	0.50	N.D.
1,4-Dichlorobenzene	0.50	N.D.
1,1-Dichloroethane	0.50	N.D.
1,2-Dichloroethane	0.50	N.D.
1,1-Dichloroethene	0.50	N.D.
cis-1,2-Dichloroethene	0.50	N.D.
trans-1,2-Dichloroethene	0.50	N.D.
1,2-Dichloropropane	0.50	N.D.
cis-1,3-Dichloropropene	0.50	N.D.
trans-1,3-Dichloropropene	0.50	N.D.
Methylene chloride	5.0	N.D.
1,1,2,2-Tetrachloroethane	0.50	N.D.
Tetrachloroethene	0.50	N.D.
1,1,1-Trichloroethane	0.50	N.D.
1,1,2-Trichloroethane	0.50	N.D.
Trichloroethene	0.50	N.D.
Trichlorofluoromethane	0.50	N.D.
Vinyl chloride	1.0	N.D.

Surrogates	Control Limits %		% Recovery
1-Chloro-2-fluorobenzene	70	130	94

Analytes reported as N.D. were not present above the stated limit of detection.

SEQUOIA ANALYTICAL - ELAP #1210

Mike Gregory
Project Manager

Sequoia Analytical

680 Chesapeake Drive, Redwood City, CA 94063, (415) 364-9600, FAX (415) 364-9233
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819 Striker Avenue, Suite 8, Sacramento, CA 95834, (916) 921-9600, FAX (916) 921-0100

Weiss Associates	Client Proj. ID: Shell 2160 Otis Dr., Alameda	Sampled: 04/10/95
5500 Shellmound	Sample Descript: TB-LB	Received: 04/11/95
Emeryville, CA 94608	Matrix: LIQUID	
	Analysis Method: EPA 8010	Analyzed: 04/18/95
Attention: Faith Daverin	Lab Number: 9504752-04	Reported: 04/25/95

QC Batch Number: GC041895801009A
Instrument ID: GCHP09

Halogenated Volatile Organics (EPA 8010)

Analyte	Detection Limit ug/L	Sample Results ug/L
Bromodichloromethane	0.50	N.D.
Bromoform	0.50	N.D.
Bromomethane	1.0	N.D.
Carbon Tetrachloride	0.50	N.D.
Chlorobenzene	0.50	N.D.
Chloroethane	1.0	N.D.
2-Chloroethylvinyl ether	1.0	N.D.
Chloroform	0.50	N.D.
Chloromethane	1.0	N.D.
Dibromochloromethane	0.50	N.D.
1,2-Dichlorobenzene	0.50	N.D.
1,3-Dichlorobenzene	0.50	N.D.
1,4-Dichlorobenzene	0.50	N.D.
1,1-Dichloroethane	0.50	N.D.
1,2-Dichloroethane	0.50	N.D.
1,1-Dichloroethene	0.50	N.D.
cis-1,2-Dichloroethene	0.50	N.D.
trans-1,2-Dichloroethene	0.50	N.D.
1,2-Dichloropropane	0.50	N.D.
cis-1,3-Dichloropropene	0.50	N.D.
trans-1,3-Dichloropropene	0.50	N.D.
Methylene chloride	5.0	N.D.
1,1,2,2-Tetrachloroethane	0.50	N.D.
Tetrachloroethene	0.50	N.D.
1,1,1-Trichloroethane	0.50	N.D.
1,1,2-Trichloroethane	0.50	N.D.
Trichloroethene	0.50	N.D.
Trichlorofluoromethane	0.50	N.D.
Vinyl chloride	1.0	N.D.

Surrogates	Control Limits %		% Recovery
1-Chloro-2-fluorobenzene	70	130	96

Analytes reported as N.D. were not present above the stated limit of detection.

SEQUOIA ANALYTICAL - ELAP #1210

Mike Gregory
Project Manager

Sequoia Analytical

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Weiss & Associates
5500 Shellmound
Emeryville, CA 94608
Attention: Faith Daverin

Client Project ID: Shell 2160 Otis Dr., Alameda
Matrix: Liquid
Work Order #: 9504752 -01, 02
Reported: Apr 25, 1995

QUALITY CONTROL DATA REPORT

Analyte:	1,1-Dichloro-ethene	Trichloro-ethene	Chloro-benzene
QC Batch#:	GC041695801009A	GC041695801009A	GC041695801009A
Analy. Method:	EPA 8010	EPA 8010	EPA 8010
Prep. Method:	EPA 5030	EPA 5030	EPA 5030
Analyst:	H. Porter	H. Porter	H. Porter
MS/MSD #:	9504272-07	9504272-07	9504272-07
Sample Conc.:	N.D.	N.D.	N.D.
Prepared Date:	4/16/95	4/16/95	4/16/95
Analyzed Date:	4/16/95	4/16/95	4/16/95
Instrument I.D.#:	GCHP9	GCHP9	GCHP9
Conc. Spiked:	25 ug/L	25 ug/L	25 ug/L
Result:	22	27	22
MS % Recovery:	88	108	88
Dup. Result:	21	27	23
MSD % Recov.:	84	108	92
RPD:	4.7	0.0	4.4
RPD Limit:	0-50	0-50	0-50
LCS #:	VBLK041695BS	VBLK041695BS	BLK041695BS
Prepared Date:	4/16/95	4/16/95	4/16/95
Analyzed Date:	4/14/95	4/14/95	4/14/95
Instrument I.D.#:	GCHP9	GCHP9	GCHP9
Conc. Spiked:	25 ug/L	25 ug/L	25 ug/L
LCS Result:	16	24	23
LCS % Recov.:	64	96	92
MS/MSD LCS Control Limits	28-167	35-146	38-150

SEQUOIA ANALYTICAL

Mike Gregory
Project Manager

Please Note:
The LCS is a control sample of known, interferent-free matrix that is analyzed using the same reagents, preparation, and analytical methods employed for the samples. The matrix spike is an aliquot of sample fortified with known quantities of specific compounds and subjected to the entire analytical procedure. If the recovery of analytes from the matrix spike does not fall within specified control limits due to matrix interference, the LCS recovery is to be used to validate the batch.

** MS = Matrix Spike, MSD = MS Duplicate, RPD = Relative % Difference

Sequoia Analytical

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819 Striker Avenue, Suite 8, Sacramento, CA 95834, (916) 921-9600, FAX (916) 921-0100

Weiss & Associates	Client Project ID:	Shell 2160 Otis Dr., Alameda	
5500 Shellmound	Matrix:	Liquid	
Emeryville, CA 94608			
Attention: Faith Daverin	Work Order #:	9504752 -03, 04	Reported: Apr 25, 1995

QUALITY CONTROL DATA REPORT

Analyte:	1,1-Dichloro-ethene	Trichloro-ethene	Chloro-benzene
QC Batch#:	GC041895801009A	GC041895801009A	GC041895801009A
Analy. Method:	EPA 8010	EPA 8010	EPA 8010
Prep. Method:	EPA 5030	EPA 5030	EPA 5030
Analyst:	H. Porter	H. Porter	H. Porter
MS/MSD #:	9504752-02	9504752-02	9504752-02
Sample Conc.:	N.D.	N.D.	N.D.
Prepared Date:	4/17/95	4/17/95	4/17/95
Analyzed Date:	4/18/95	4/18/95	4/18/95
Instrument I.D.#:	GCHP9	GCHP9	GCHP9
Conc. Spiked:	25 ug/L	25 ug/L	25 ug/L
Result:	22	26	24
MS % Recovery:	88	104	96
Dup. Result:	24	26	12
MSD % Recov.:	96	104	48
RPD:	8.7	0.0	67
RPD Limit:	0-50	0-50	0-50

LCS #:	VBLK041795BS	VBLK041795BS	BLK041795BS
Prepared Date:	4/17/95	4/17/95	4/17/95
Analyzed Date:	4/18/95	4/18/95	4/18/95
Instrument I.D.#:	GCHP9	GCHP9	GCHP9
Conc. Spiked:	25 ug/L	25 ug/L	25 ug/L
LCS Result:	20	25	22
LCS % Recov.:	80	100	88

MS/MSD LCS Control Limits	28-167	35-146	38-150

SEQUOIA ANALYTICAL

Mike Gregory
Project Manager

Please Note:
The LCS is a control sample of known, interferent-free matrix that is analyzed using the same reagents, preparation, and analytical methods employed for the samples. The matrix spike is an aliquot of sample fortified with known quantities of specific compounds and subjected to the entire analytical procedure. If the recovery of analytes from the matrix spike does not fall within specified control limits due to matrix interference, the LCS recovery is to be used to validate the batch.

** MS = Matrix Spike, MSD = MS Duplicate, RPD = Relative % Difference

SHELL OIL COMPANY
RETAIL ENVIRONMENTAL ENGINEERING - WEST

CHAIN OF CUSTODY RECORD
Serial No: _____

Date: 4/10/95
Page 1 of 1

Site Address: 2160 Otis Dr. Alameda

WIC#: 204-0072-0502

Shell Engineer: | Phone No.: | Fax #:

Consultant Name & Address: WEISS ASSOCIATES 5500 SHELLMOUND ST EMERYVILLE CA 94608

Consultant Contact: WA JOB # 81-0429-05 | Phone No.: (510) 547-5420 Fax #: 547-5043

Comments:

Sampled by: Jonathan Weingart

Printed Name:

LAB: Sequoia

Analysis Required

Sample ID	Date	Sludge	Soil	Water	Air	No. of conts.	TPH (EPA 8015 Mod. Gas)	TPH (EPA 8015 Mod. Diesel)	BTEX (EPA 8020/602)	Volatile Organics (EPA ~~8240~~ 8010	Test for Disposal	Combination TPH 8015 & BTEX 8020			Asbestos	Container Size	Preparation Used	Composite Y/N	MATERIAL DESCRIPTION	SAMPLE CONDITION/ COMMENTS
MW-2	4/10/95			x		4				✓									950721	
BH-F W				x		4				✓									2	
~~BH-A W~~																				
BH-G W				x		4				✓									3	
TB-LB				x		1				✓									4	

CHECK ONE (1) BOX ONLY | CT/DT | TURN AROUND TIME

- G.W. Monitoring ☐ 4461
- Site Investigation ☒ 4441
- Soil Classify/Disposal ☐ 4442
- Water Classify/Disposal ☐ 4443
- Soil/Air Rem. or Sys. O & M ☐ 4452
- Water Rem. or Sys. O & M ☐ 4453
- Other ☐

TURN AROUND TIME:
- 24 hours ☐
- 48 hours ☐
- 15 days ☒ (Normal)
- Other ☐ ____

NOTE: Notify Lab as soon as Possible of 24/48 hrs. TAT.

UST AGENCY: _____

Relinquished By (signature)	Printed Name	Date / Time	Received (signature)	Printed Name	Date / Time
[signature]	Jonathan Weingart	Date: 4/6/95 Time: 1430	[signature]	W. Jones	Date: 4-11 Time: 1130
[signature]	W. Jones	Date: 4-11 Time: 1:30			Date: Time:
		Date: Time:			Date: Time:

THE LABORATORY MUST PROVIDE A COPY OF THIS CHAIN-OF-CUSTODY WITH INVOICE AND RESULTS

Rev. 1/12/93

Shell Oil Chain of Custody

Sequoia Analytical

680 Chesapeake Drive, Redwood City, CA 94063, (415) 364-9600, FAX (415) 364-9233
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819 Striker Avenue, Suite 8, Sacramento, CA 95834, (916) 921-9600, FAX (916) 921-0100

Weiss Associates
5500 Shellmound
Emeryville, CA 94608
Attention: Joyce Adams

Project: Shell 2160 Otis, Alameda

Enclosed are the results from samples received at Sequoia Analytical on April 12, 1995. The requested analyses are listed below:

SAMPLE #	SAMPLE DESCRIPTION	DATE COLLECTED	TEST METHOD
9504784 -01	SOLID, BH-F	04/10/95	8010_S Halogenated Volatil
9504784 -02	SOLID, BH-G	04/10/95	8010_S Halogenated Volatil

Please contact me if you have any questions. In the meantime, thank you for the opportunity to work with you on this project.

Very truly yours,

SEQUOIA ANALYTICAL

Mike Gregory
Project Manager

Sequoia Analytical

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819 Striker Avenue, Suite 8, Sacramento, CA 95834, (916) 921-9600, FAX (916) 921-0100

Weiss Associates	Client Proj. ID: Shell 2160 Otis, Alameda	Sampled: 04/10/95
5500 Shellmound	Sample Descript: BH-F	Received: 04/12/95
Emeryville, CA 94608	Matrix: SOLID	Extracted: 04/18/95
	Analysis Method: EPA 8010	Analyzed: 04/20/95
Attention: Joyce Adams	Lab Number: 9504784-01	Reported: 04/26/95

QC Batch Number: GC0418958010EXA
Instrument ID: GCHP16

Halogenated Volatile Organics (EPA 8010)

Analyte	Detection Limit ug/Kg	Sample Results ug/Kg
Bromodichloromethane	5.0	N.D.
Bromoform	5.0	N.D.
Bromomethane	10	N.D.
Carbon Tetrachloride	5.0	N.D.
Chlorobenzene	5.0	N.D.
Chloroethane	10	N.D.
2-Chloroethylvinyl ether	10	N.D.
Chloroform	5.0	N.D.
Chloromethane	10	N.D.
Dibromochloromethane	5.0	N.D.
1,2-Dichlorobenzene	5.0	N.D.
1,3-Dichlorobenzene	5.0	N.D.
1,4-Dichlorobenzene	5.0	N.D.
1,1-Dichloroethane	5.0	N.D.
1,2-Dichloroethane	5.0	N.D.
1,1-Dichloroethene	5.0	N.D.
cis-1,2-Dichloroethene	5.0	N.D.
trans-1,2-Dichloroethene	5.0	N.D.
1,2-Dichloropropane	5.0	N.D.
cis-1,3-Dichloropropene	5.0	N.D.
trans-1,3-Dichloropropene	5.0	N.D.
Methylene chloride	50	N.D.
1,1,2,2-Tetrachloroethane	5.0	N.D.
Tetrachloroethene	5.0	N.D.
1,1,1-Trichloroethane	5.0	N.D.
1,1,2-Trichloroethane	5.0	N.D.
Trichloroethene	5.0	N.D.
Trichlorofluoromethane	5.0	N.D.
Vinyl chloride	10	N.D.

Surrogates	Control Limits %		% Recovery
1-Chloro-2-fluorobenzene	60	130	98

Analytes reported as N.D. were not present above the stated limit of detection.

SEQUOIA ANALYTICAL - ELAP #1210

Mike Gregory
Project Manager

Sequoia Analytical

680 Chesapeake Drive, Redwood City, CA 94063, (415) 364-9600, FAX (415) 364-9233
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819 Striker Avenue, Suite 8, Sacramento, CA 95834, (916) 921-9600, FAX (916) 921-0100

Weiss Associates	Client Proj. ID: Shell 2160 Otis, Alameda	Sampled: 04/10/95
5500 Shellmound	Sample Descript: BH-G	Received: 04/12/95
Emeryville, CA 94608	Matrix: SOLID	Extracted: 04/18/95
	Analysis Method: EPA 8010	Analyzed: 04/20/95
Attention: Joyce Adams	Lab Number: 9504784-02	Reported: 04/26/95

QC Batch Number: GC0418958010EXA
Instrument ID: GCHP16

Halogenated Volatile Organics (EPA 8010)

Analyte	Detection Limit ug/Kg	Sample Results ug/Kg
Bromodichloromethane	5.0	N.D.
Bromoform	5.0	N.D.
Bromomethane	10	N.D.
Carbon Tetrachloride	5.0	N.D.
Chlorobenzene	5.0	N.D.
Chloroethane	10	N.D.
2-Chloroethylvinyl ether	10	N.D.
Chloroform	5.0	N.D.
Chloromethane	10	N.D.
Dibromochloromethane	5.0	N.D.
1,2-Dichlorobenzene	5.0	N.D.
1,3-Dichlorobenzene	5.0	N.D.
1,4-Dichlorobenzene	5.0	N.D.
1,1-Dichloroethane	5.0	N.D.
1,2-Dichloroethane	5.0	N.D.
1,1-Dichloroethene	5.0	N.D.
cis-1,2-Dichloroethene	5.0	N.D.
trans-1,2-Dichloroethene	5.0	N.D.
1,2-Dichloropropane	5.0	N.D.
cis-1,3-Dichloropropene	5.0	N.D.
trans-1,3-Dichloropropene	5.0	N.D.
Methylene chloride	50	N.D.
1,1,2,2-Tetrachloroethane	5.0	N.D.
Tetrachloroethene	5.0	N.D.
1,1,1-Trichloroethane	5.0	N.D.
1,1,2-Trichloroethane	5.0	N.D.
Trichloroethene	5.0	N.D.
Trichlorofluoromethane	5.0	N.D.
Vinyl chloride	10	N.D.

Surrogates	Control Limits %		% Recovery
1-Chloro-2-fluorobenzene	60	130	97

Analytes reported as N.D. were not present above the stated limit of detection.

SEQUOIA ANALYTICAL - ELAP #1210

Mike Gregory
Project Manager

Sequoia Analytical

680 Chesapeake Drive, Redwood City, CA 94063, (415) 364-9600, FAX (415) 364-9233
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819 Striker Avenue, Suite 8, Sacramento, CA 95834, (916) 921-9600, FAX (916) 921-0100

Weiss & Associates
5500 Shellmound
Emeryville, CA 94608
Attention: Joyce Adams

Client Project ID: Shell 2160 Otis, Alameda
Matrix: Solid
Work Order #: 9504784 -01, 02
Reported: Apr 26, 1995

QUALITY CONTROL DATA REPORT

Analyte:	1,1-Dichloro-ethene	Trichloro-ethene	Chloro-benzene
QC Batch#:	GC0418958010EXA	GC0418958010EXA	GC0418958010EXA
Analy. Method:	EPA 8010	EPA 8010	EPA 8010
Prep. Method:	EPA 5030	EPA 5030	EPA 5030
Analyst:	H.Porter	H.Porter	H.Porter
MS/MSD #:	V9504984-01	V9504984-01	V9504984-01
Sample Conc.:	N.D.	N.D.	N.D.
Prepared Date:	4/18/95	4/18/95	4/18/95
Analyzed Date:	4/20/95	4/20/95	4/20/95
Instrument I.D.#:	GCHP16	GCHP16	GCHP16
Conc. Spiked:	25 ug/Kg	25 ug/Kg	25 ug/Kg
Result:	21	23	20
MS % Recovery:	84	92	80
Dup. Result:	21	24	21
MSD % Recov.:	84	96	84
RPD:	0.0	4.3	4.9
RPD Limit:	0-50	0-50	0-50

LCS #:	VBLK041895BS	VBLK041895BS	BLK041895BS
Prepared Date:	4/18/95	4/18/95	4/18/95
Analyzed Date:	4/20/95	4/20/95	4/20/95
Instrument I.D.#:	GCHP16	GCHP16	GCHP16
Conc. Spiked:	25 ug/Kg	25 ug/Kg	25 ug/Kg
LCS Result:	26	24	20
LCS % Recov.:	104	96	80

MS/MSD LCS Control Limits	28-167	35-146	38-150

Please Note:
The LCS is a control sample of known, interferent-free matrix that is analyzed using the same reagents, preparation, and analytical methods employed for the samples. The matrix spike is an aliquot of sample fortified with known quantities of specific compounds and subjected to the entire analytical procedure. If the recovery of analytes from the matrix spike does not fall within specified control limits due to matrix interference, the LCS recovery is to be used to validate the batch.

** MS = Matrix Spike, MSD = MS Duplicate, RPD = Relative % Difference

SEQUOIA ANALYTICAL

Mike Gregory
Project Manager

SHELL OIL COMPANY
RETAIL ENVIRONMENTAL ENGINEERING - WEST

CHAIN OF CUSTODY RECORD
Serial No: _____

Date: 4/10/95
Page 1 of 2

Site Address: 2160 Otis Drive, Alameda CA

WIC#: 204-0072-0502

Shell Engineer: Dan Kirk | Phone No.: | Fax #:

Consultant Name & Address: WEISS ASSOCIATES 5500 SHELLMOUND ST EMERYVILLE CA 94608

Consultant Contact: Joyce Adams | Phone No.: (510) 547-5420 | Fax #: 547-5043

WA JOB # 81-0429-05

Comments: 9504784

Sampled by: Jonathan Weigast

Printed Name: Jonathan Weigast

LAB: Sequoia

CHECK ONE (1) BOX ONLY	CT/DT	TURN AROUND TIME
G.W. Monitoring	4461	24 hours
Site Investigation	X 4441	48 hours
Soil Classify/Disposal	4442	15 days X (Normal)
Water Classify/Disposal	4443	Other
Soil/Air Rem. or Sys. O & M	4452	NOTE: Notify Lab as soon as Possible of 24/48 hrs. TAT.
Water Rem. or Sys. O & M	4453	
Other		

UST AGENCY: _____

Sample ID	Date	Sludge	Soil	Water	Air	No. of conts.	TPH (EPA 8015 Mod. Gas)	TPH (EPA 8015 Mod. Diesel)	BTEX (EPA 8020/602)	Volatile Organics (EPA ~~8240~~ 8010	Test for Disposal	Combination TPH 8015 & BTEX 8020		HOLD	Asbestos	Container Size	Preparation Used	Composite Y/N	MATERIAL DESCRIPTION	SAMPLE CONDITION/ COMMENTS
BH-F 2.0'	4/10/95		X			1				X									-01	
BH-F 5.2'														X						
BH-F 10.0'														X						
BH-F 15.0'														X						
BH-F 19.5'														X						
BH-G 2.0'										X									-02	
BH-G 4.5'														X						
BH-G 10.0'	↓		↓			↓								X						

	Printed Name:	Date:	Received (signature):	Printed Name:	Date:
Relinquished By (signature):	Anni Kreml	Time: 1045		W. Jones	Time: 10:49
Relinquished By (signature):	W. Jones	Date: 4/11 Time: 12:30	Received (signature):	Printed Name:	Date: Time:
Relinquished By (signature):	Printed Name:	Date: Time:	Received (signature):	Printed Name: R. Iverson	Date: 4/12/95 Time: 1235

THE LABORATORY MUST PROVIDE A COPY OF THIS CHAIN-OF-CUSTODY WITH INVOICE AND RESULTS

Secured overnight

Rev. 04 Chain of Custody

SHELL OIL COMPANY
RETAIL ENVIRONMENTAL ENGINEERING - WEST

CHAIN OF CUSTODY RECORD
Serial No: ______

Date: 4/10/95
Page 2 of 2

Site Address: 3160 Otis Drive Alameda CA

WIC#: 204-0072-0502

Shell Engineer: Dan Kirk
Phone No.:
Fax #:

Consultant Name & Address: WEISS ASSOCIATES
5500 SHELLMOUND ST EMERYVILLE CA 94608

Consultant Contact: Joyce Adams
WA JOB # 81-0429-05
Phone No.: (510) 547-5420
Fax #: 547-5043

Comments: 9504782

Sampled by: [signature]
Printed Name: Jonathan Weingast

LAB: Sequoia

CHECK ONE (1) BOX ONLY	CT/DT	TURN AROUND TIME
G.W. Monitoring ☐	4461	24 hours ☐
Site Investigation ☒	4441	48 hours ☐
Soil Classify/Disposal ☐	4442	15 days ☒ (Normal)
Water Classify/Disposal ☐	4443	Other ☐ ____
Soil/Air Rem. or Sys. O & M ☐	4452	NOTE: Notify Lab as soon as Possible of 24/48 hrs. TAT.
Water Rem. or Sys. O & M ☐	4453	
Other ☐		

UST AGENCY: ______

Analysis Required

Sample ID	Date	Sludge	Soil	Water	Air	No. of conts.	TPH (EPA 8015 Mod. Gas)	TPH (EPA 8015 Mod. Diesel)	BTEX (EPA 8020/602)	Volatile Organics (EPA 8240)	Test for Disposal	Combination TPH 8015 & BTEX 8020		Hold	Asbestos	Container Size	Preparation Used	Composite Y/N	MATERIAL DESCRIPTION	SAMPLE CONDITION/ COMMENTS
BA-G 15.0	4/10/95		X			1								X					-0-	

Relinquished By (signature):	Printed Name:	Date/Time	Received (signature):	Printed Name:	Date/Time
[signature]	ANNI KREML	Date: 4/12/95 Time: 1045	[signature]	W. JONES	Date: 4-12 Time: 10:5[illegible]
[signature]	W. Jones	Date: 4-12 Time: 12:20	Received (signature):	Printed Name:	Date: Time: ----
Relinquished By (signature):	Printed Name:	Date: Time:	[signature]	R. Iverson	Date: 4/12/95 Time: 1235

THE LABORATORY MUST PROVIDE A COPY OF THIS CHAIN-OF-CUSTODY WITH INVOICE AND RESULTS

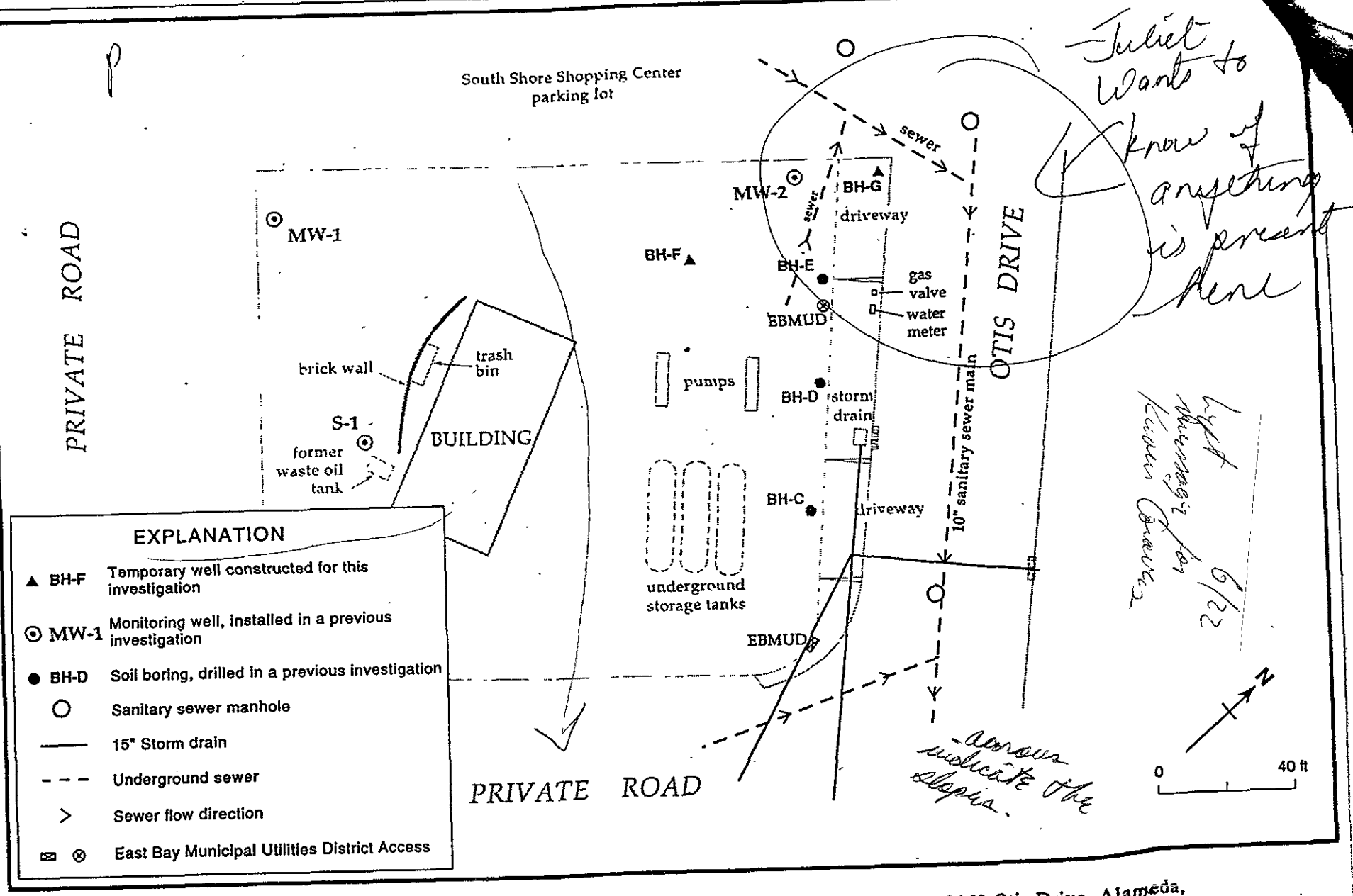

Figure 2. Temporary Well and Underground Utility Locations - Shell Service Station WIC #204-0072-0502, 2160 Otis Drive, Alameda,

05/11/95

S429-012.ai