R06

Shell Oil Products US

April 12, 2004

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

Subject: **Shell-branded Service Station**
3420 San Pablo Avenue
Oakland, California

Dear Mr. Chan:

Attached for your review and comment is a copy of the *Agency Response* for the above referenced site. Upon information and belief, I declare, under penalty of perjury, that the information contained in the attached document is true and correct.

As always, please feel free to contact me directly at (559) 645-9306 with any questions or concerns.

Sincerely,

Shell Oil Products US

Karen Petryna

Karen Petryna
Sr. Environmental Engineer

20945 S. Wilmington Ave., Carson, CA 90810 Phone (559) 645-9306 Facsimile (559) 645-5643

CAMBRIA

April 12, 2004

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

Re: **Agency Response**
Shell-branded Service Station
3420 San Pablo Avenue
Oakland, California
Incident #98995748
Cambria Project #246-0554-010

Dear Mr. Chan:

On behalf of Equilon Enterprises LLC dba Shell Oil Products US (Shell), Cambria Environmental Technology, Inc. (Cambria) is submitting this response to comments included in the March 9, 2004 Alameda County Health Care Services Agency (ACHCSA) letter to Shell. The letter requested that a feasibility study/corrective action plan (FS/CAP) be prepared for this site, and requested response to five technical comments. Below, each comment is reiterated in italics, and a response to each comment is provided. A site vicinity and well location map is presented as Figure 1, and the most recent groundwater monitoring results, groundwater elevations, and utility locations are shown on Figure 2.

GENERAL RESPONSE

Shell and Cambria agree that this site's environmental status should be reviewed. However, we believe that prior to preparing an FS/CAP, a revised conceptual site model (CSM) should be developed and validated to formulate an appropriate plan to achieve closure. This approach is recommended by the California State Water Resources Control Board's March 27, 2000 document *"Guidelines for Investigation and Cleanup of MTBE and Other Ether-Based Oxygenates-FINAL DRAFT"*. Development of a CSM should assist in communicating current and past site conditions and how they may be changing, identifying potential current and future receptors and exposure pathways, and identifying any additional investigation necessary. A revised CSM will provide a framework for evaluation of additional investigation or remediation. Then, the CSM will indicate the need for remediation or for an FS/CAP. A schedule for submitting an initial revised CSM is presented below.

Cambria Environmental Technology, Inc.

5900 Hollis Street
Suite A
Emeryville, CA 94608
Tel (510) 420-0700
Fax (510) 420-9170

Cambria's July 6, 2001 *Second Quarter 2001 Monitoring Report* included a CSM. Cambria had also previously concluded in the June 22, 1998 *Risk-Based Corrective Action* report that no remedial action was warranted at the site. However, in revising the CSM, Cambria will evaluate the prior data and basis for risk assessment.

Prior to receipt of the recent ACHCSA letter, Cambria had recently completed a brief file review of ACHCSA's records for the former Thrifty Oil site, as well as a review of data available from the Geotracker website. From review of the ACHCSA's records on file at the time, it appears that Thrifty Oil may have completed some recent investigation work. Cambria's review of the Geotracker website indicates that only groundwater monitoring analytical data is available for the former Thrifty Oil site. Therefore, since it will be necessary to include current site conditions of the former Thrifty Oil site in the CSM, Cambria will request that Thrifty Oil provide copies of reports, including well survey data, current site maps, cumulative soil and groundwater data, and soil boring and well construction logs. In return, Cambria will provide Thrifty with copies of reports as may be requested. If unavailable from Thrifty Oil, Cambria will obtain copies from the ACHCSA.

At Shell request and for Shell's internal use, Cambria has recently completed a sensitive receptor survey (SRS), which updates and verifies elements of the previous SRS and well survey. The recent SRS results will be incorporated into the CSM, and a copy of the recent SRS will be submitted with the forthcoming first quarter 2004 monitoring report.

RESPONSES TO TECHNICAL COMMENTS

1. *Although free product is observed only in MW-6R, elevated dissolved TPHg, BTEX and MTBE is present site-wide and has migrated off-site. Free product has been observed in MW-1, MW-5, and MW-7 in the past. The site has been monitored since 1991 and dissolved TPHg concentrations remain elevated in the higher impacted wells. This is indicative of a continuing on-going release and/or the lack of natural bio-degradation.*

Free product was observed recently only in MW-6R. Free product has previously been noted in wells MW-1, MW-2, MW-4, MW-5, MW-6, MW-6R, and MW-7. Prior to July 2003, free product had not been observed at the site since 1997. From 1991 to 1997, free product was observed much more frequently. Soil excavation and some groundwater pumping occurred during the 1997 underground storage tank (UST) removals and 1998 site construction work. Free product removal by skimming and bailing has been conducted. It appears that these activities have greatly reduced the extent of free product at the site. In comparison to prior conditions, it

appears the extent of free product at the site is very limited. Therefore, it appears that an ongoing release is not occurring, and that natural processes have further reduced the amount of free product present.

Total petroleum hydrocarbons as gasoline (TPHg), benzene, toluene, ethylbenzene and xylenes (BTEX), and methyl tert-butyl ether (MTBE) are currently detected across the site, and in two off-site monitoring wells. However, a cursory review of groundwater monitoring data indicates that current concentrations are greatly reduced in comparison to past concentrations. Although concentrations have not yet reached non-detectable levels, these monitoring results indicate that that an ongoing release is not occurring, and that natural processes are continuing to reduce the concentrations of dissolved hydrocarbons in groundwater.

2. *The extent of the petroleum release has not been determined either laterally or vertically. Off-site wells MW-9 and MW-10 recently detect up to 7,100 ppb TPHg, 20 ppb benzene and 180 ppb MTBE. MW-5, located within twenty feet of the former Thrifty Oil (current ARCO) service station, reported 7,500 ppb TPHg and 63 ppb MTBE in the 4th Quarter 2003 QMR. It is likely that the plumes from these two sites have commingled. It is recommended that these sites co-ordinate sampling events and provide cross-sectional plots including both sites.*

Cambria and Shell believe that sufficient lateral definition of petroleum hydrocarbons in soil and groundwater has been achieved north and west of the site, given the physical constraints present. Monitoring results from wells MW-9 and MW-10 have shown overall decreasing concentrations of TPHg, BTEX, and MTBE. However, in the proposed CSM, Cambria will review the site data to determine if lateral definition in these directions is adequate.

Previously, investigations to 32 feet below ground surface (bgs) have been conducted. No indication of hydrocarbon impacts to soil or groundwater or the existence of a separate water bearing zone below 32 ft bgs has been indicated. However, Cambria will review the adequacy of previous investigation data in the proposed CSM.

Cambria and Shell agree that it is possible that hydrocarbon plumes from the Shell site and former Thrifty Oil sites have commingled. The second quarter 2004 monitoring event was conducted on April 1, 2004. Therefore, Shell and Cambria will attempt to coordinate monitoring and sampling during the third quarter event and exchange monitoring data with Thrifty Oil. The data will be included in the CSM. When sufficient information is obtained, a cross section will be developed and presented.

3. *Historic remediation at the sites has only consisted of free product removal, by bailing and skimmers, and the former UST removals. The 1994 SVE test concluded that this remediation*

method appears to be a viable approach and vapor extraction piping was installed beneath the onsite building for future potential use.

Free product removal by skimming and bailing has been conducted, and soil was excavated during UST and dispenser removals and replacements and during building construction. Cambria is unaware of a 1994 soil vapor extraction (SVE) test conducted at either the Shell or former Thrifty Oil site. However, if remediation were determined to be necessary, SVE seems unlikely to be selected as the remedial option in a FS/CAP. Boring logs from the Shell site indicate that unsaturated soils consist primarily of silty clays, and the depth to water is very shallow, ranging from 1.6 ft bgs to 13 ft bgs. These conditions do not favor remediation by SVE. However, if remediation is determined to be necessary, all potential remedial options will be considered in a FS/CAP.

Perforated piping was installed underneath the building constructed in 1998 at the site as a precautionary measure, per Cambria's February 6, 1998 *Vapor Extraction Piping Installation* letter. The prior RBCA analysis was subsequently conducted, and it did not indicate the need for either active site remediation or for sub-slab ventilation to protect building occupants. The purpose of the plastic vapor extraction piping was to give Shell a method to remove any hydrocarbon vapors that may accumulate beneath the building, should that be necessary. The sub-slab vapor extraction piping is not suitably installed for soil remediation.

4. *The July 2001 Sensitive Receptor and Utilities Survey concluded that utilities within San Pablo Ave. could be acting as preferential pathways, however, no further investigation was proposed. We recommend that you review results from investigations of the 3400 San Pablo Ave. site, to help determine is additional investigation is warranted. The presence of 7,100 ppb TPHg in MW-10 recently, indicates that the utilities are not effectively controlling plume migration.*

The identified utilities are installed at depths below the groundwater table, and, depending on groundwater flow direction, could act as preferential pathways for groundwater flow and chemical migration. Shell and Cambria agree that the utilities are not effectively controlling plume migration. However, Cambria did not intend to suggest that the utilities would effectively control plume migration. At the time of the utility survey, Cambria did not believe that site conditions, as based upon the prior RBCA analysis and CSM, warranted further investigation of the utilities as preferential pathways for groundwater flow or chemical migration. However, additional off-site investigation in San Pablo Avenue was proposed in Cambria's March 6, 2002 *Well Installation Work Plan,* to further define MTBE in groundwater near these utilities. Cambria attempted to drill in several locations; however, drilling encountered impenetrable concrete. Cambria attempted to obtain additional information from the City of Oakland Public

Works department, but no additional information could be obtained. Due to safety concerns, Cambria abandoned further drilling attempts in this location.

5. *As an interim RAP* (Remedial Action Plan), *our office concurs with your proposal to perform groundwater extraction from the site prior to the next sampling event. We recommend extraction from all elevated TPH impacted wells and consider additional extraction events based upon your future monitoring results.*

Cambria directed one vacuum-truck groundwater extraction event from well MW-6R prior to the first quarter 2004 monitoring event. No free product was found during the subsequent monitoring event. The results will be reported in the forthcoming first quarter monitoring report. At this time, we believe groundwater conditions do not warrant additional extraction events; however, this will be evaluated and considered in the revised CSM.

PROPOSED ACTIVITIES AND SCHEDULE

Cambria, at Shell's request will coordinate and conduct the following activities:

- Quarterly groundwater monitoring events will be coordinated with Thrifty Oil Company's monitoring events for the adjacent site, if possible. Complete monitoring data will be exchanged with Thrifty Oil Company. Monitoring schedules may be adjusted to accommodate both parties.
- An attempt will be made to obtain copies of former Thrifty Oil site information from Thrifty Oil Company. Cambria will request data within two weeks of this letter. In exchange, Cambria will provide Thrifty Oil with copies of Shell reports within two weeks of their request. If data can not be obtained from Thrifty Oil, a file review will be scheduled at ACHCSA to obtain complete copies of documents.
- Additional groundwater extraction events will be coordinated if free product is detected in groundwater monitoring wells.
- A revised CSM report will be prepared within 90 days of this letter. The CSM will summarize available information from both sites, including: hydrocarbon source(s), site characterization history and results, prior remediation, updated well survey and SRS results, exposure pathway analysis and risk assessment results, and additional recommended data or tasks. A geologic cross section and a schematic CSM diagram will also be included.

CLOSING

We appreciate the opportunity to work with you on this project. Please call Matt Derby at (510) 420-3332 if you have any questions or comments.

Sincerely,
Cambria Environmental Technology, Inc

Matthew W. Derby, P.E.
Senior Project Engineer

REGISTERED PROFESSIONAL ENGINEER
MATTHEW W. DERBY
No. C055475
Exp. 12/31/04
CIVIL
STATE OF CALIFORNIA

Figures: 1 - Vicinity/Area Well Survey Map
2 - First Quarter 2004 Groundwater Elevation Contour Map – January 13, 2004

cc: Karen Petryna, Shell Oil Products US, 20945 S. Wilmington Avenue, Carson, CA 90810
Mike Bowery, Thrifty Oil Co., 13116 Imperial Highway, Santa Fe Springs, CA 90670-0138

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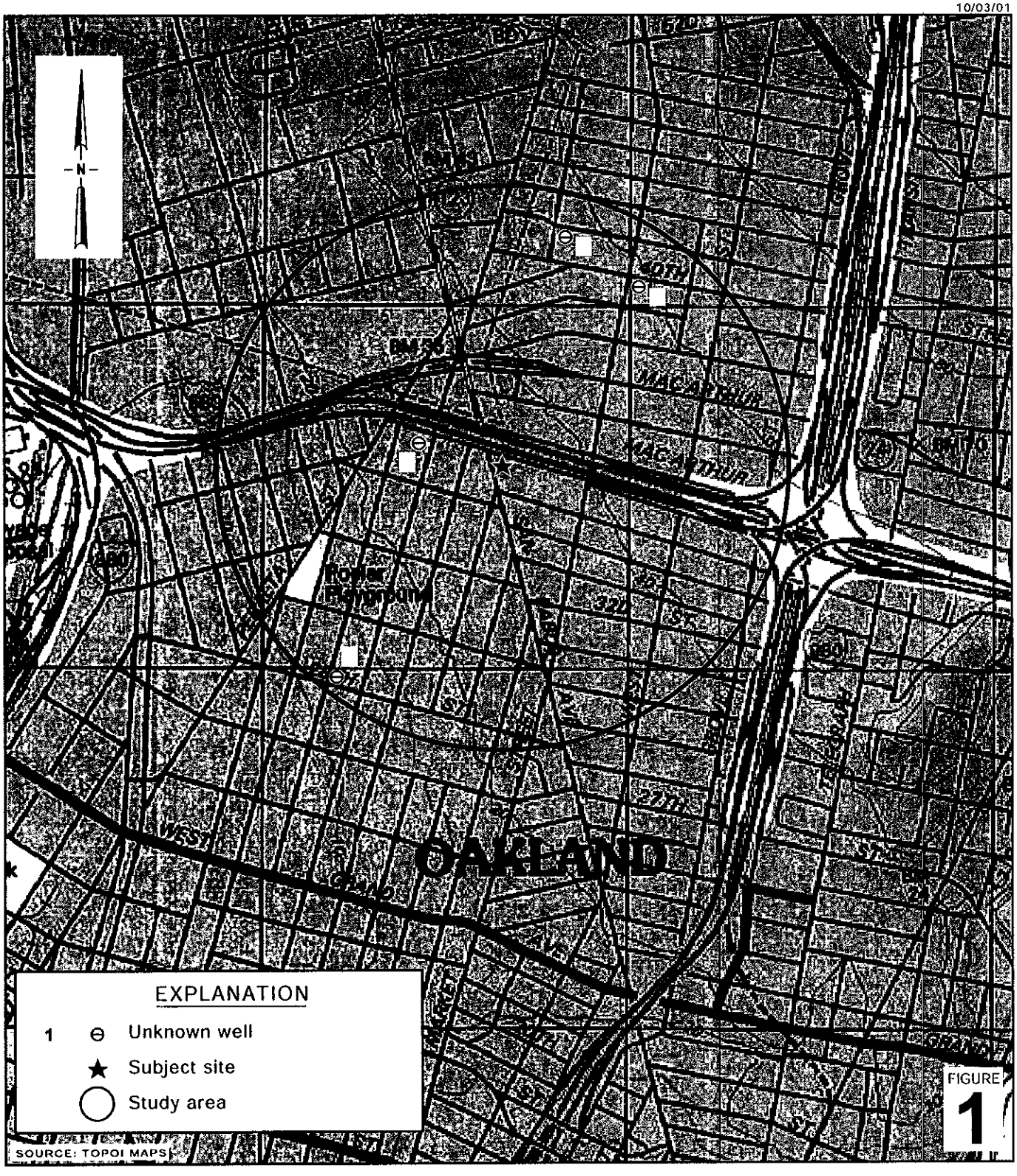

FIGURE 1

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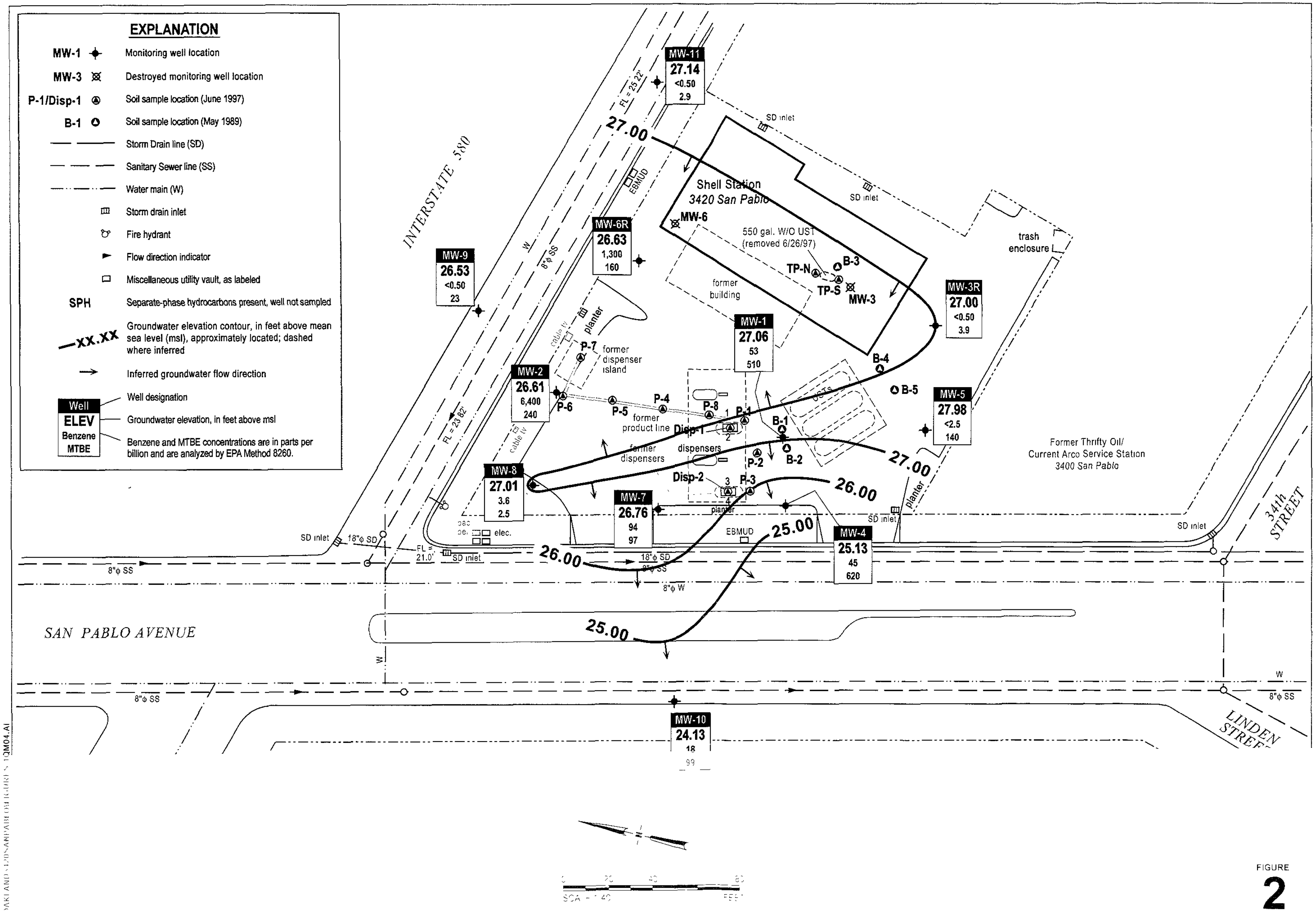
0 1/8 1/4 1/2 1

SCALE : 1" = 1/4 MILE

Shell-branded Service Station
3420 San Pablo Avenue
Oakland, California
Incident #98995748

CAMBRIA

Vicinity / Area Well Survey Map
(1/2 Mile Radius)


EXPLANATION
MW-1 Monitoring well location
MW-3 Destroyed monitoring well location
P-1/Disp-1 Soil sample location (June 1997)
B-1 Soil sample location (May 1989)
Storm Drain line (SD)
Sanitary Sewer line (SS)
Water main (W)
Storm drain inlet
Fire hydrant
Flow direction indicator
Miscellaneous utility vault, as labeled
SPH Separate-phase hydrocarbons present, well not sampled
XX.XX Groundwater elevation contour, in feet above mean sea level (msl), approximately located; dashed where inferred
Inferred groundwater flow direction
Well Well designation
ELEV Groundwater elevation, in feet above msl
Benzene MTBE Benzene and MTBE concentrations are in parts per billion and are analyzed by EPA Method 8260.
INTERSTATE 580
SAN PABLO AVENUE
34th STREET
LINDEN STREET
Shell Station
3420 San Pablo
550 gal. W/O UST (removed 6/26/97)
former building
former dispenser island
former product line
former dispensers
dispensers
trash enclosure
Former Thrifty Oil/
Current Arco Service Station
3400 San Pablo
MW-11 27.14 <0.50 2.9
MW-9 26.53 <0.50 23
MW-6R 26.63 1,300 160
MW-1 27.06 53 510
MW-3R 27.00 <0.50 3.9
MW-2 26.61 6,400 240
MW-5 27.98 <2.5 140
MW-8 27.01 3.6 2.5
MW-7 26.76 94 97
MW-4 25.13 45 620
MW-10 24.13 18 99
MW-6
MW-3
TP-N
TP-S
B-1
B-2
B-3
B-4
B-5
P-1
P-2
P-3
P-4
P-5
P-6
P-7
P-8
Disp-1
Disp-2
27.00
26.00
25.00
SD inlet
EBMUD
planter
cable tv
elec.
FL = 25.22'
FL = 23.82'
FL = 21.0'
18"φ SD
8"φ SS
8"φ W
W
SCALE 1" = 40' FEET

Groundwater Elevation Contour Map

January 13, 2004

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Shell-branded Service Station
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FIGURE
2