



Shell Oil Products US

May 2, 2003

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

Subject: Shell-branded Service Station
6039 College Avenue
Oakland, California

Dear Mr. Hwang:

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

A handwritten signature in cursive script that reads "Karen Petryna".

Karen Petryna
Sr. Environmental Engineer

May 2, 2003

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

Re: **Agency Response**
 Shell-branded Service Station
 6039 College Avenue
 Oakland, California
 Incident # 98995745
 Project # 245-0503



Dear Mr. Hwang:

On behalf of Equilon Enterprises LLC dba Shell Oil Products US, Cambria Environmental Technology, Inc. (Cambria) is submitting this correspondence to address the technical comments listed in the Alameda County Health Care Services Agency (ACHCSA) letter dated March 21, 2003.

1. Site Characterization – In the March 21, 2003 letter, ACHCSA listed the highest concentrations of total petroleum hydrocarbons as gasoline (TPHg), benzene, and methyl-tertiary-butyl ether (MTBE) that have been detected on- and offsite. It should be noted that these concentrations do not represent current conditions at the site; in all cases, concentrations have decreased, as indicated in the table below.

| Analyte | Well ID | Highest Detected Concentration (parts per billion (ppb)) | Date Detected | Current Concentration (1 st quarter 2003) (ppb) |
|--------------------|---------|-------------------------------------------------------------|---------------|------------------------------------------------------------------|
| TPHg (onsite) | MW-3 | 67,100 | 3/18/92 | 6,000 |
| Benzene (onsite) | MW-4 | 1,650 | 5/4/00 | 1,400 |
| MTBE (onsite) | MW-4 | 78,000 | 11/3/97 | 8,900 |
| MTBE (boundary) | MW-3 | 59,000 | 1/20/98 | 3,500 |
| MTBE (offsite) | MW-6 | 4,460 | 8/31/00 | 120 |

**Cambria
 Environmental
 Technology, Inc.**

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Note that MTBE has been analyzed using EPA method 8260 since August 1999. Prior to that date, MTBE was analyzed using EPA method 8020, which is known to often result in “false positive” results for MTBE in the presence of other gasoline-range hydrocarbons. Thus, prior to August 1999, MTBE results may be considered approximate or skewed high.


As stated in Cambria’s January 6, 2003 *Subsurface Investigation Work Plan*, the objective of the proposed investigation is to define the extent of MTBE in groundwater southwest of the site and to determine whether offsite utility trenches provide preferential pathways for chemical migration. ACHCSA has noted that two onsite and three offsite soil borings (SB-1 through SB-5, Figure 1) proposed in Cambria’s January 6, 2003 work plan were inadequate to define the vertical and lateral extent of the plume at the site. ACHCSA has also requested that Cambria submit geological cross-sections to explain the rationale for the proposed soil boring locations.

Concurrent with this letter, Cambria is submitting *Subsurface Investigation Work Plan Amendment* that provides for additional offsite soil borings and for collecting depth-discrete grab-groundwater samples at selected locations. To provide more adequate plume definition downgradient of the site, Cambria has added three offsite soil borings (SB-6, SB-7 and SB-9) and one onsite boring (SB-8) to the investigation scope of work. During the investigation, all soil borings (SB-1 through SB-9) will be logged continuously for lithologic description. Cambria will collect one grab-groundwater sample from each boring and select soil samples for chemical analysis based on changes in lithology, areas of obvious contamination and the depth of the soil/groundwater interface. Additional borings will be advanced adjacent to SB-2, SB-3, SB-7 and SB-8 to collect depth-discrete groundwater samples for investigating the vertical distribution of hydrocarbon and MTBE in groundwater. The depth and number of depth-discrete samples will be determined by the observed lithology. Based on investigation results, Cambria will assess whether further investigation or monitoring well installation is necessary to define the plume.

2. Source Characterization – ACHCSA has requested that Cambria propose additional borings to characterize the suspected source area. As noted above, Cambria will advance a total of nine borings, including one boring immediately downgradient of the pump islands (SB-1) and one boring immediately downgradient of the tank complex (SB-8). Cambria will log the borings for lithologic description and submit selected samples for chemical analysis based on changes in lithology and areas of obvious contamination as well as depth of the soil/groundwater interface. Based on the proposed investigation results, Cambria will determine whether further investigation is required in order to adequately characterize the suspected source area.

3. Utility Survey and Utility Trench Sampling – Boring logs from previous investigations show that soil beneath the site consists of generally low permeability sediments and that, due to the groundwater elevation at the site, the potential for groundwater to infiltrate utility trenches along

Claremont Avenue clearly exists. Cambria is proposing to install three soil borings in and near the utility trenches (SB-4, SB-5 and SB-9) to determine whether chemicals from either on- or offsite sources may have impacted the utility trenches. Cambria will prepare cross-sectional drawings showing utilities, site stratigraphy, updated top-of-casing elevations, depth to water and chemical concentrations from soil boring data from the proposed investigation.



4. Migration Control/Source Remediation – ACHCSA indicated that they believe that the total fluid extraction by vacuum truck operations (VacOps) does not appear to have resulted in a significant reduction in contaminant concentrations. Graphical evaluation of VacOps effectiveness (Figures 2 and 3) has been included with quarterly monitoring reports since the fourth quarter of 2001. When VacOps began in September 1999, MTBE concentrations in MW-3 were 19,300 parts per billion (ppb), analyzed using EPA method 8020. Using EPA method 8260 for analysis, MTBE concentrations in MW-3 have decreased from a high of 6,600 ppb in December 2001 to a low of 940 ppb in November 2002. Similarly, MTBE concentrations in MW-4 have decreased from 30,300 ppb in February 2000 to 770 ppb in November 2002. Cambria believes that these concentration reductions are significant. When MTBE concentrations in the target wells decreased to below 1,000 ppb in the fourth quarter of 2002, Cambria discontinued VacOps. However, MTBE concentrations in target wells MW-3 and MW-4 increased to 3,500 ppb and 8,900 ppb, respectively, in the first quarter of 2003 and VacOps was reinstated in April 2003.

5. Groundwater Gradients – ACHCSA noted that groundwater gradient rose diagrams provided in quarterly monitoring report include groundwater gradients from the first quarter of 2000 to the present. As requested, Cambria will include all available historical groundwater gradient data in future rose diagrams.

6. Risk Evaluation – When Weiss Associates conducted a risk-based corrective action (RBCA) analysis for the site in 1995, the highest benzene concentrations detected in site soils and groundwater were less than the American Society for Testing and Materials (ASTM) Tier 2 site-specific risk-based target levels for all exposure pathways, except direct ingestion of benzene in groundwater. The analysis concluded that there were no significant adverse human health risks associated with those pathways.

ACHCSA indicated concern that TPHg was not considered in the RBCA. The RBCA analysis was based on the *Standard Guide for Risk-Based Corrective Action Applied at Petroleum Release Sites* (ASTM E1739-95). Section 6.4.3 of that document states that “the TPHs should not be used for risk assessment because the general measure of TPH provides insufficient information about the amounts of individual chemicals of concern present.” Although human health risks of TPHg are not included in the ASTM RBCA analysis procedure, TPHg can present other risks to the

environment. The prior RBCA analysis did not consider those potential receptors, and so TPHg was not included as a chemical of concern for the analysis. Cambria will compare the maximum detected concentrations of TPHg to the San Francisco Bay Regional Water Quality Control Board (SFRWQCB) Tier 1 risk-based screening levels (RBSLs) for TPH (gasoline) in future corrective action plans.

Cambria also acknowledges the ACHCSA comment that MTBE should be considered a potential resource risk and will use a resource protection goal of 5 ppb in future corrective action plans. According to the June 1999 *East Bay Plain Groundwater Basin Beneficial Use Evaluation Report*, the site is situated in a zone where groundwater is unlikely to be used as a drinking water resource. However, since MTBE is considered to be a carcinogen by the California Department of Toxic Substance Control, health risks can be considered.



7. Quarterly Monitoring – ACHCSA has requested that Cambria continue quarterly monitoring for TPHg, benzene, toluene, ethylbenzene, xylenes, and MTBE. Additionally, ACHCSA has requested one-time analysis for tert-amyl methyl ether (TAME), ethyl tert-butyl ether (ETBE), diisopropyl ether (DIPE), tert-butyl alcohol (TBA), ethanol, ethylene dibromide (EDB) and ethylene dichloride (1,2-DCA).

As requested, grab-groundwater samples for the proposed investigation and groundwater monitoring samples collected in the second quarter of 2003 will be analyzed for the additional constituents. If any of these are detected and are above the SFRWQCB's RBSLs for groundwater that is a current or potential source of drinking water, they will be incorporated into the regular monitoring plan. Since we do not find specific reference to reporting limit requirements, we will provide analysis for all chemicals based on the following laboratory reporting limits:

| | | | |
|---------|---------|--------------|---------|
| TPHg | 50 ppb | Benzene | 0.5 ppb |
| Toluene | 0.5 ppb | Ethylbenzene | 0.5 ppb |
| Xylenes | 1.0 ppb | MTBE | 0.5 ppb |
| TAME | 2.0 ppb | ETBE | 2.0 ppb |
| DIPE | 2.0 ppb | TBA | 5.0 ppb |
| Ethanol | 50 ppb | EDB | 0.5 ppb |
| 1,2 DCA | 0.5 ppb | | |

CLOSING

We appreciate the opportunity to work with you on this project. Please call Melody Munz at (510) 420-3324 if you have any questions or comments.

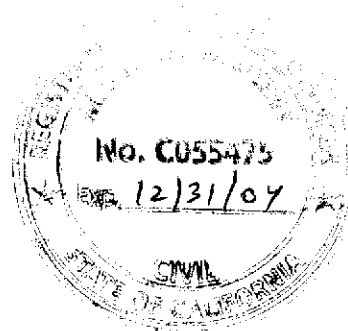
Sincerely,
Cambria Environmental Technology, Inc



Melody Munz
Project Engineer

M W Derby for

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



- Figures:
- 1 - Proposed Soil Boring Location Map
 - 2 - VacOps/DVE effect on MTBE Concentration (MW-3)
 - 3 - VacOps/DVE effect on MTBE Concentration (MW-4)

cc: Karen Petryna, Shell Oil Products US, P.O. Box 7869, Burbank, CA 91510-7869
Russell J. Bruzzone, Inc., 899 Hope Lane, Lafayette, CA 94549
Jim Graham, Montrose Investment Co., 242 Rivera Circ, Greenbrae Marina, Larkspur, CA 94939

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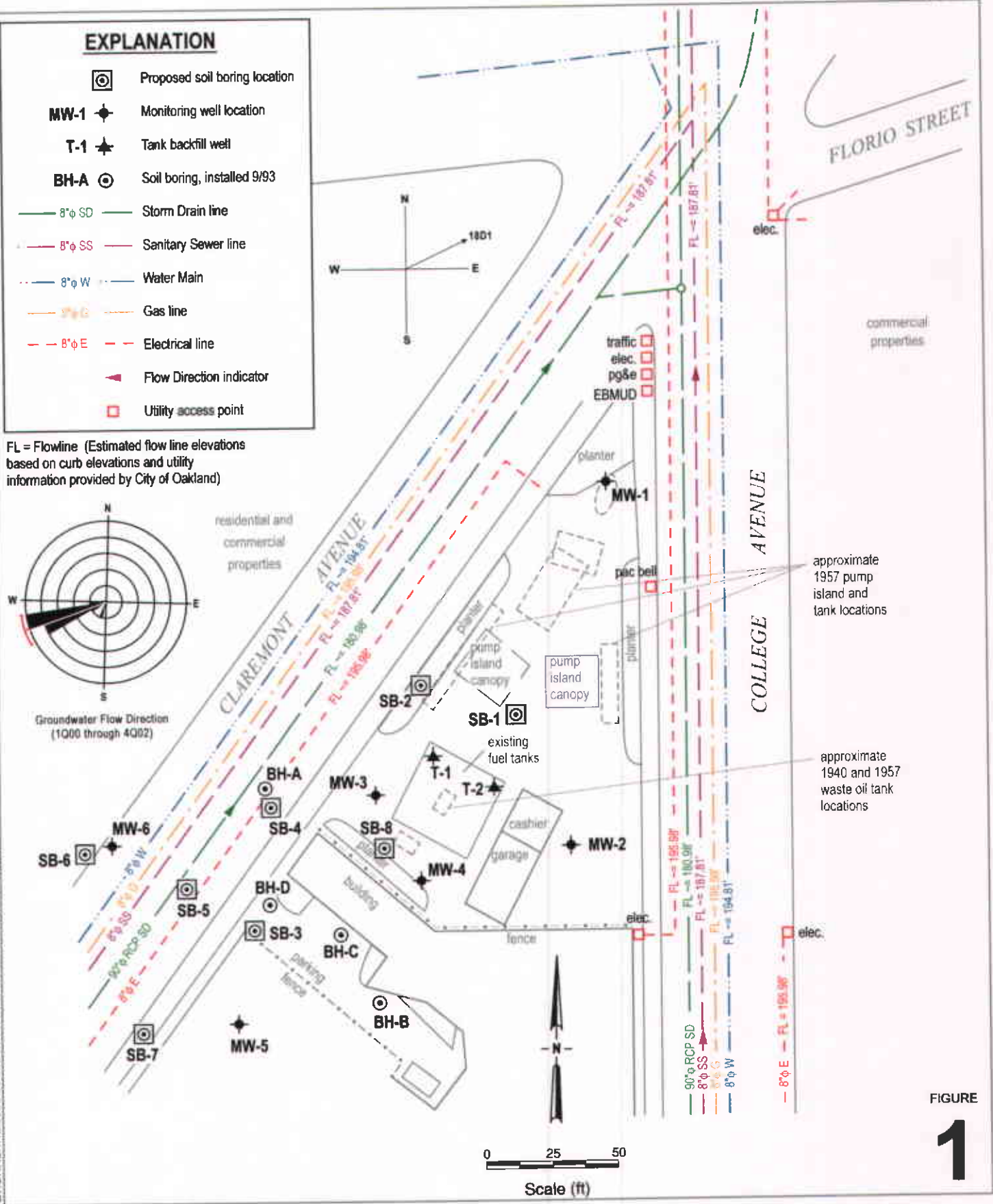
EXPLANATION

- Proposed soil boring location
- MW-1** Monitoring well location
- T-1** Tank backfill well
- BH-A** Soil boring, installed 9/93
- 8" ϕ SD Storm Drain line
- 8" ϕ SS Sanitary Sewer line
- 8" ϕ W Water Main
- Gas line
- 8" ϕ E Electrical line
- Flow Direction indicator
- Utility access point

FL = Flowline (Estimated flow line elevations based on curb elevations and utility information provided by City of Oakland)



G:\OAKLAND\6039\COLLEGE\FIGURE5\PROP-BOR-12-02-A1



approximate 1957 pump island and tank locations

approximate 1940 and 1957 waste oil tank locations



FIGURE

1

Shell-branded Service Station
 6039 College Avenue
 Oakland, California
 Incident #98995745



CAMBRIA

**Proposed Soil Boring
 Location Map**

| Date | DTW-ft |
|----------|--------|
| 2/11/00 | 12.85 |
| 5/4/00 | 17.05 |
| 8/31/00 | 16.47 |
| 8/31/00 | 14.26 |
| 11/30/00 | 15.75 |
| 2/13/01 | 13.05 |
| 5/29/01 | 13.84 |
| 7/30/01 | 15.46 |
| 12/12/01 | 12.93 |
| 1/31/02 | 11.88 |
| 5/31/02 | 13.65 |
| 7/25/02 | 15.04 |
| 11/26/02 | 17.15 |
| 01/29/03 | 12.21 |

VacOps/DVE effect on MTBE concentration
6039 College, Oakland - MW-3

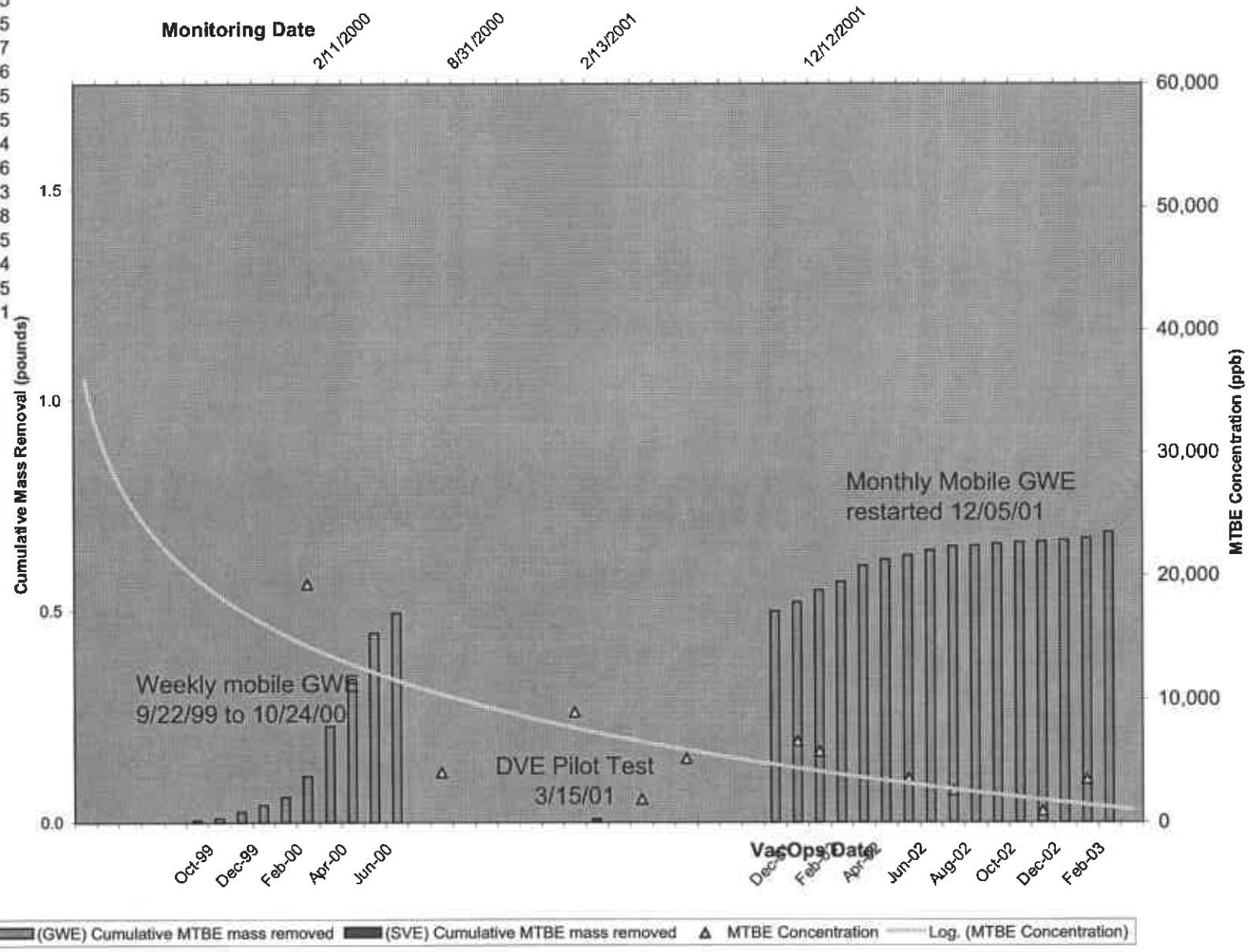


Figure 2

| Date | DTW-ft |
|----------|--------|
| 2/11/00 | 14.82 |
| 5/4/00 | 12.64 |
| 8/31/00 | 16.47 |
| 11/30/00 | 17.67 |
| 2/13/01 | 13.30 |
| 5/31/01 | 15.08 |
| 7/30/01 | 16.28 |
| 12/12/01 | 13.81 |
| 01/31/02 | 12.80 |
| 05/31/02 | 14.59 |
| 7/25/02 | 15.94 |
| 11/26/02 | 18.10 |
| 01/29/03 | 13.08 |

VacOps/DVE effect on MTBE concentration
6039 College, Oakland - MW-4

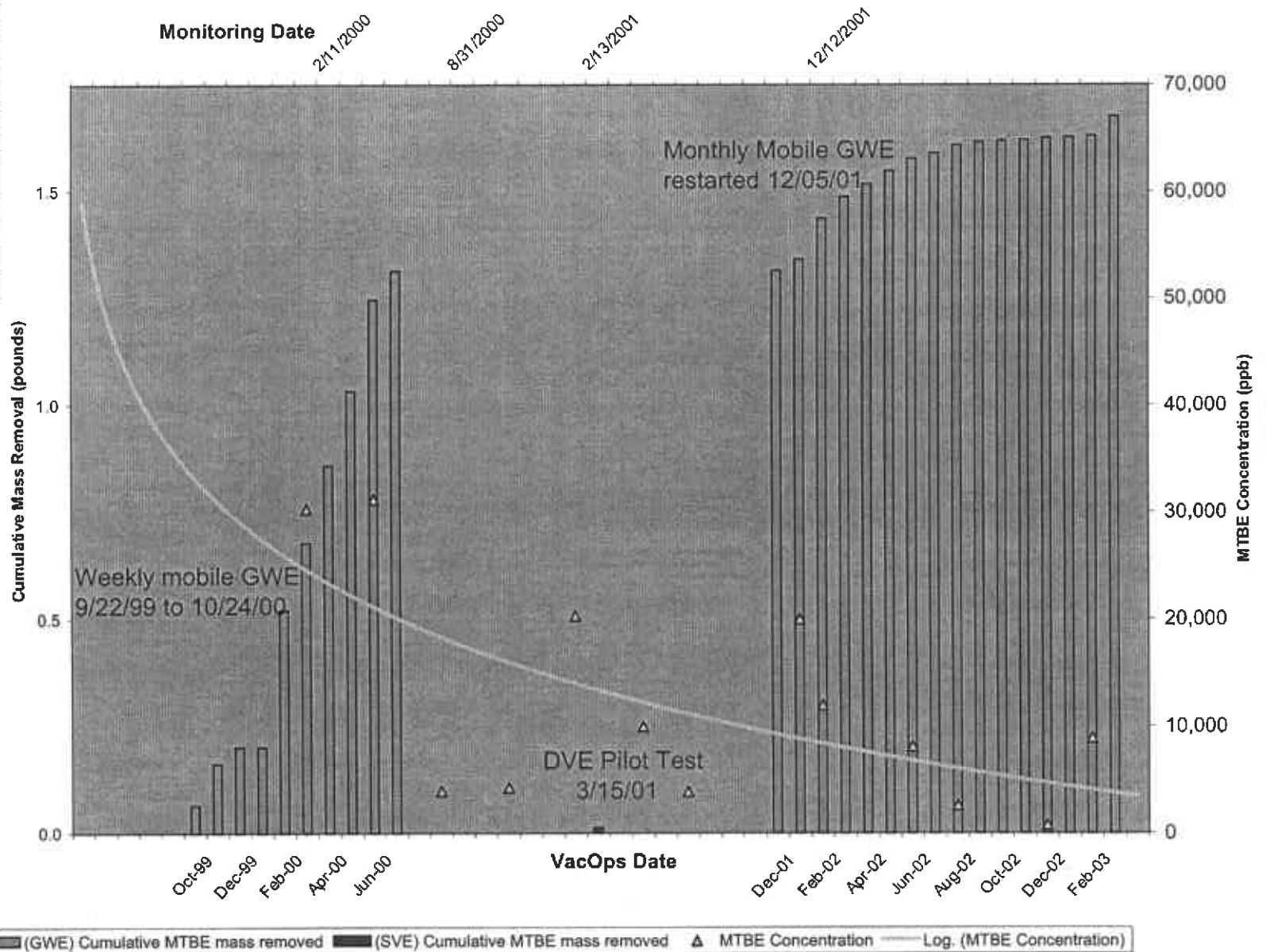


Figure 3