Pacific Gas and Electric Company

Technical and Construction Services
Distribution Construction
One California Street, Second Floor-F2H
San Francisco, CA 94111

Mailing Address
Mail Code F2H
P.O. Box 770000
San Francisco, CA 94177

March 11, 1994

Received 7/15/94

Mr. Paul Smith
Hazardous Materials Specialist
Alameda County Health Agency
Department of Environmental Health
Division of Hazardous Materials
80 Swan Way, Room 350
Oakland, CA 94621

RE: Distribution Construction Site, 4930 Coliseum Way. Oakland, Ca 94610
Quarterly Groundwater Monitoring Report

Dear Mr. Smith:

PG&E is submitting the first 1994 Quarter Groundwater Monitoring Report for the aforementioned address. This report summarizes results of groundwater sampling completed from the inception of groundwater monitoring up to January 31, 1994.

The groundwater samples were collected from monitoring wells OW-1, OW-2, OW-4, OW-5, OW-6, OW-7, and OW8. The groundwater samples were collected by Earth Technology and analyzed by Curtis & Tompkins, Analytical Laboratories, Berkeley, California for extractable petroleum hydrocarbons such as diesel or kerosene, purgeable halocarbon compounds, total volatile hydrocarbons as gasoline, and lead. In addition, trip blank method blank analyses were performed for the purposes of quality assurance. The results of this analytical data are found in Section 5.0 page 21of the report.

There continues to be supportive evidence that observed TPHd concentrations are being detected near the former tank cluster re: [page 3, map] . Since all contaminated soils were extracted from said location and clean imported soil was initiated during the remedial action, any contamination would be as a result of off-site migration from an upgradient source. This indication of contamination clearly has continued to develop by being identified in prior reports suggesting movement form a North-East/North-West ambient origin re: [page 3, map].

We will continue to conduct groundwater sampling and submit same. Should you have any questions regarding this material please, contact me at [415] 973-5615.

Sincerely,

Wally A. Pearce

Attachment

The Earth Technology Corporation®

2030 Addison Street, Suite 500
Berkeley, California 94704
Telephone: (510) 540-6954 / Fax: (510) 540-7496

March 2, 1994

Mr. Wally Pearce
Pacific Gas and Electric Company
One California Street, Room F235
San Francisco, CA 94111

Subject: Groundwater Monitoring Report for 4930 Coliseum Way, Oakland, California

Dear Mr. Pearce:

Enclosed please find five copies of the first quarter 1994 Groundwater Monitoring Report for the aforementioned site. A full suite of samples were taken during this sampling event according to the schedule approved by the Alameda County Health Care Agency in January 1993 and as presented in the enclosed report.

The next sampling event is scheduled for April 1994 during which wells OW-2, OW-5, and OW-8 will be sampled for lead.

If you have any questions, please do not hesitate to call the undersigned at (510) 540-6954.

Very truly yours,
THE EARTH TECHNOLOGY CORPORATION

Melissa R. Cooney
Project Engineer

Richard S. Makdisi, R.G., R.E.A.
Technical Director

MRC/RSM:blw

Enclosures

690262\10\GWMONJAN.94

Quarterly Groundwater Monitoring Report

January 1994

PG&E
Construction and Distribution Yard
4930 Coliseum Way
Oakland, California

Prepared by:

The Earth Technology Corporation
2030 Addison Street, Suite 500
Berkeley, CA 94704

Report issued
March 1994

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APPENDICES

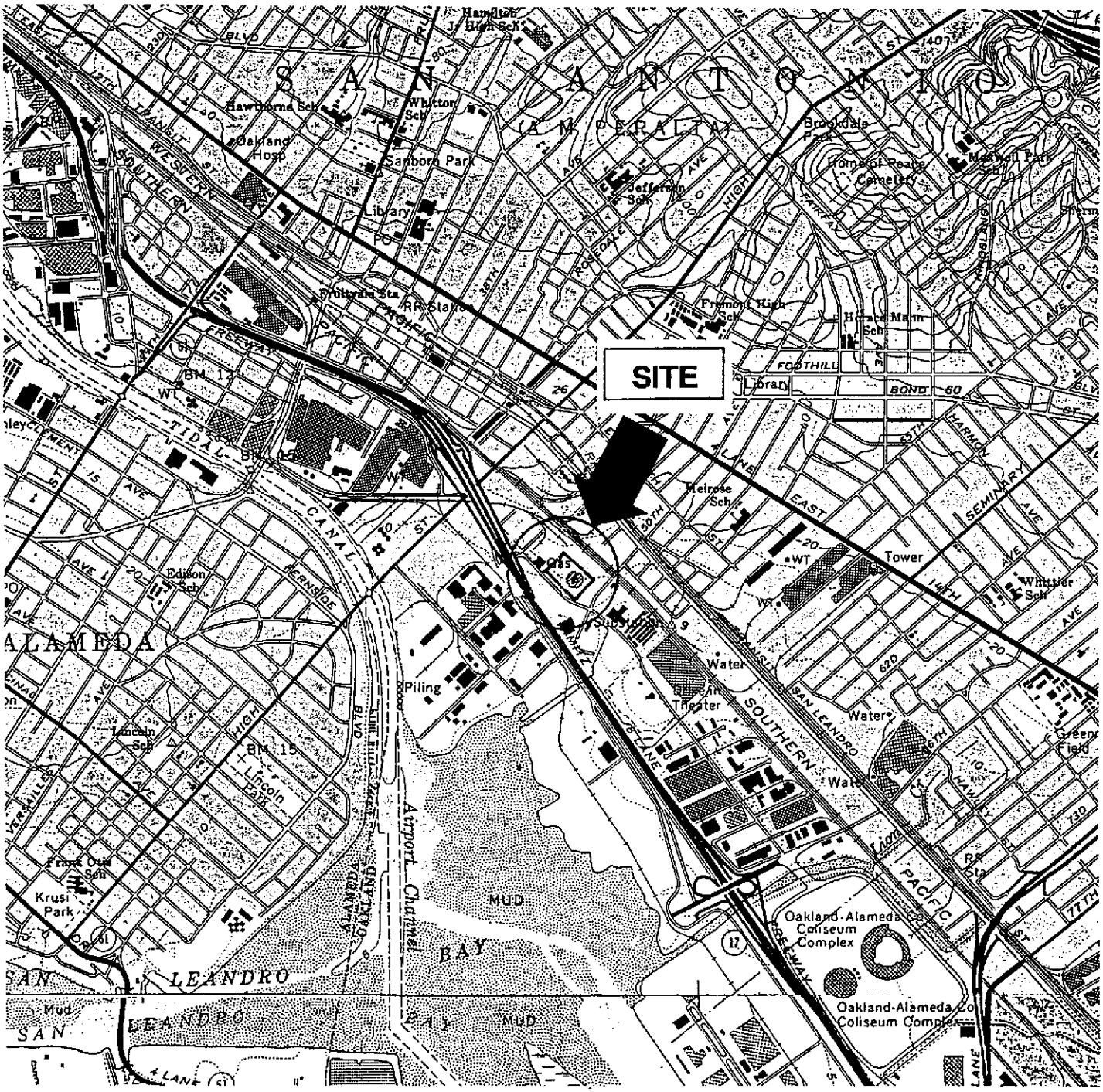
1.0 BACKGROUND

This report presents the results of the quarterly groundwater monitoring completed in January 1994 at the PG&E Distribution and Construction Yard at 4930 Coliseum Way in Oakland, California. A vicinity map is included as Figure 1.1. This report has been completed in accordance with the directive issued by the Alameda County Health Care Agency and a PG&E letter to Alameda County dated April 12, 1993. This report discusses the January 1994 monitoring and summarizes the results from groundwater sampling performed at the site between January 1990 and the present. As part of the groundwater monitoring program, groundwater elevations are measured, groundwater samples collected from shallow wells on the site, and analyses of the samples performed to determine the distribution of selected fuel compounds, solvents and lead in the uppermost aquifer beneath the northern part of the yard. This area includes the former sites of five underground storage tanks and one aboveground storage tank. Figure 1.2 shows the site plan with germane features identified.

All of the former site underground tanks were removed, along with associated piping that lay within PG&E property lines, in January 1988. Analyses of their contents revealed that of the four tanks formerly located in a cluster near the north corner of the yard, two contained mineral spirits and two tanks contained heavy oil. A concrete sump was located approximately 50 feet northeast of the tank cluster. Near this sump a welding shop also once stood. The fifth tank, formerly located near the west corner of the yard, contained diesel fuel. A soil sample collected below this tank indicated concentration of diesel below the detection limit of 10 mg/kg. Following the tank removal, a subsurface investigation showed that soils neighboring the former diesel tank were not adversely impacted.

A number of soil samples collected near the former tank cluster, sump and shop location were found to contain Total Petroleum Hydrocarbons as diesel (TPHd) at concentrations as high as 3,900 mg/kg, oil and grease (O&G) at concentrations over 1,000 mg/kg and showed evidence of volatile organic compounds (VOCs) in this area. These results were reported in the July 1988 report "Underground Tanks Investigation" by PG&E's Technical and Ecological Services Division.

In November and December 1991, an area of approximately 6,600 square feet was excavated as a remedial action for the petroleum hydrocarbon soil contamination identified above and believed to originate from one or more of the following: the four-tank cluster, the concrete sump, the former shop location (each within the excavated area), or a possible off-site source. This work was described in The



NORTH

2000 0 2000 4000

SCALE IN FEET
1"=2000'

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OAKLAND CALIFORNIA

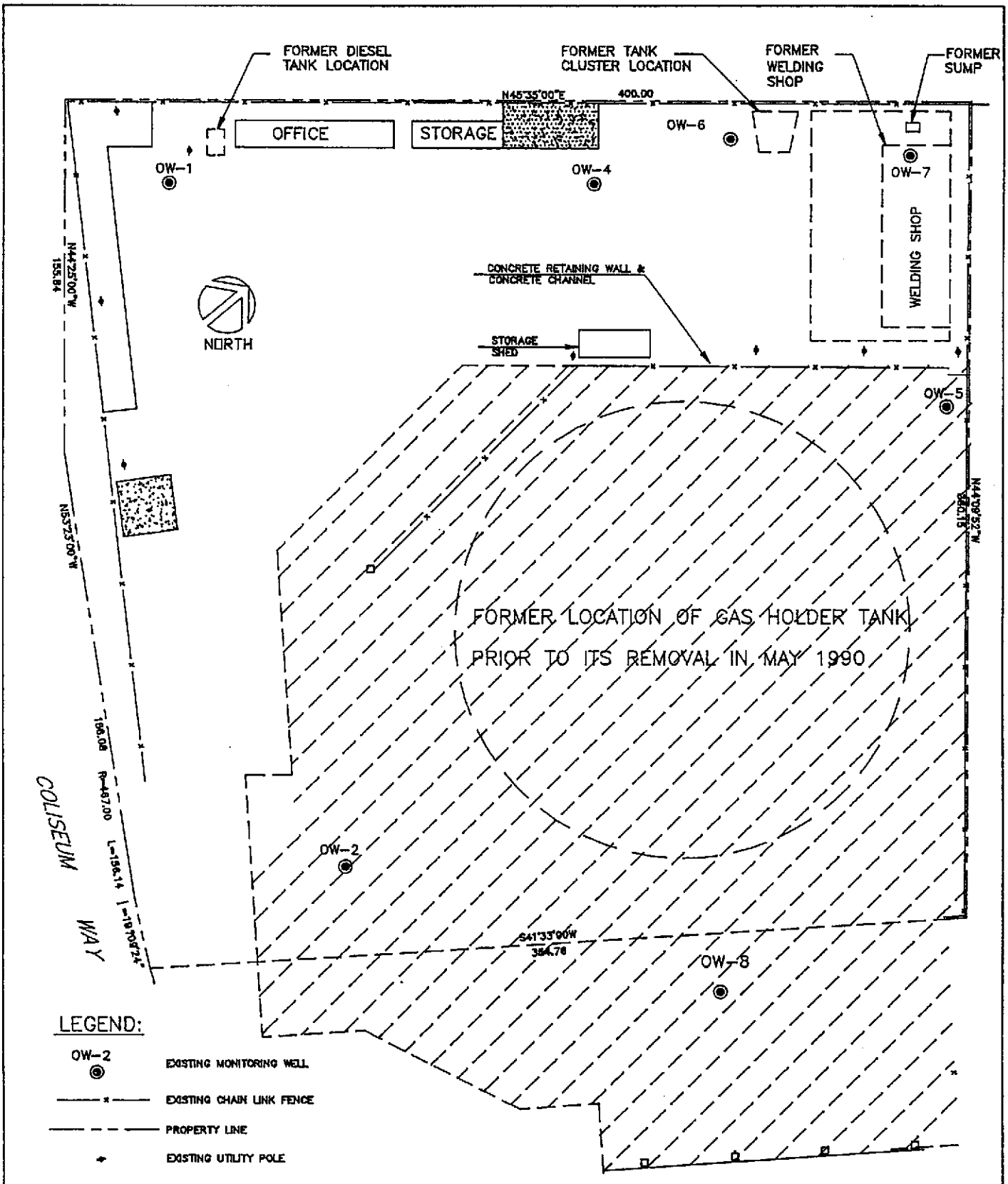
PG&E OAKLAND CONSTRUCTION YARD
4930 COLISEUM WAY

VICINITY MAP

MARCH 1994

FIGURE 1.1

SOURCE: USGS 7 1/2 MINUTE TOPOGRAPHIC QUADRANGLE, OAKLAND EAST, SAN LEANDRO, CALIFORNIA, PHOTOREVISED 1980, AT SCALE 1:24,000



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PROJECT NO: 690262.03

OAKLAND CALIFORNIA

PG&E OAKLAND CONSTRUCTION YARD

SITE MAP

MARCH 1994 FIGURE 1.2

Earth Technology Corporation (formerly Aqua Resources Inc.) document "Site Remediation and Closure Report...Former Tank Cluster Area" dated February 1992.

During the remedial excavation, confirmatory soil samples were taken along the sidewalls and bottom of the excavation to confirm that all the contaminated soil with concentrations above the regulatory agency-approved cleanup targets were removed. The cleanup targets for gasoline (TPHg) and diesel (TPHd) were 10 mg/kg and 100 mg/kg, respectively. The cleanup target for O&G was 1,000 mg/kg, and for benzene, toluene, ethylbenzene and xylene (BTEX) compounds was 5 μg/kg (total BTEX).

The excavated soils generally extended to the depth of groundwater, at about 8 to 8½ feet below grade at the time, and were replaced with clean, compacted backfill. The backfill below about 7 feet consisted of drain rock, while that above 7 feet in depth consisted of Class II aggregate base. The northwest and northeast excavation boundaries reached the approximate PG&E property lines. The samples collected from the excavation at the PG&E property lines failed to meet the cleanup target levels, while each of the remaining confirmatory samples from the excavation passed the cleanup target levels. Samples along the northeastern property line failed primarily due to diesel and O&G concentrations. During excavation, this wall showed visible tar or heavy oil in the exposed soils. Two pipes containing a similar heavy petroleum product were also uncovered along this excavation wall. Analytical testing of the product found in pipes showed diesel at 7,000 mg/kg and did not indicate significant VOCs (Total VOCs <1 mg/kg).

Samples along the northwestern property line failed variously due to concentration of gasoline, kerosene, diesel, O&G, and BTEX compounds. The cleanup targets were exceeded in at least one instance for each of these compounds.

The conclusions of the closure report suggested that off-site sources of hydrocarbons may exist in both the northwest and northeast direction, and requested regulatory agency input in initiating an investigation of these potential sources. Quarterly groundwater monitoring for a period of one year was recommended in the 1992 report for wells OW-1, OW-4, OW-6, and OW-7.

In September and October of 1992 a contaminant mitigation cap was constructed over surface soils in an area south of the hydrocarbon remediation area. These soils are contaminated with lead, thought to originate from lead paint chips generated from sandblasting operations on a large aboveground natural gas storage tank. The tank was removed in May 1990. These soils were found contaminated with total

and soluble lead above California Code of Regulations (CCR) levels for hazardous wastes. CCR Total Threshold Limit Concentration for lead is 1,000 mg/kg (ppm) and the Soluble Threshold Limit Concentration for lead is 5 mg/L (ppm). The Alameda County Health Care Services Agency and the Regional Water Quality Control Board approved capping as the selected remedial option for this area. Continued groundwater monitoring for lead was agreed upon by the County as part of this remedial option. Following contaminant capping, the remaining open ground at the site was covered with asphaltic concrete.

In February 1993, well OW-8 was installed in the southern area of the yard. Well OW-8 is in the vicinity of the former aboveground natural gas storage tank. A maximum lead concentration of 27 μg/L (April 1993) was reported in samples collected from well OW-8, which is below the state Maximum Concentration Level (MCL) for drinking water at 50 μg/L. Wells OW-2 and OW-5 are also located in the vicinity of the former aboveground storage tank and are being sampled quarterly for lead. Soluble lead was not detected above the reporting limits of 3 μg/L and 10 μg/L (in October) in samples collected from wells OW-2 and OW-5 during 1993 quarterly sampling events. However, in the first quarter of 1994 lead concentrations were measured as 8 and 7.3 μg/L in OW-2 and OW-5, respectively. Again, these values fall below the MCL of 50 μg/L.

2.0 GROUNDWATER MONITORING AND SAMPLING ACTIVITIES

Four of the five originally-installed monitoring wells remain in existence on the site. One monitoring well, OW-3, was destroyed during the remedial excavations performed in November 1991 in the northern corner of the yard. Two new monitoring wells were installed on December 19, 1991: OW-6, which was installed in the general vicinity of well OW-3 to act as its replacement; and OW-7, which was installed at the northeastern end of the remediation area to gauge the likelihood of upgradient contamination in the shallow groundwater underlying the site. Both wells penetrate the clean, compacted fill placed in the excavated area remediated. Another monitoring well, well OW-8, was installed in February 1993 to gauge possible lead contamination in the groundwater downgradient of the former aboveground tank. The locations of these new wells were approved by the Alameda County Health Care Services Agency.

On January 31, 1994, groundwater samples were collected by Earth Technology personnel from monitoring wells OW-1, OW-2, OW-4, OW-5, OW-6, OW-7 and OW-8. Prior to sampling, three to six casing volumes of groundwater were purged with a bailer from each well to ensure the collection of formational water. Groundwater conductivity, pH, and temperature were measured periodically during purging until stabilized. Groundwater samples were then collected and properly stored for transportation to a State of California Certified Laboratory for analysis. Subsequent samples were collected from wells OW-1, OW-4, OW-5, OW-6, and OW-7 the next day, February 1, 1994, due to the need for additional volume for the analysis of TPHd.

The groundwater samples collected from each well were analyzed by Curtis & Tompkins, Ltd. Analytical Laboratories, Berkeley, California for extractable petroleum hydrocarbons as diesel or kerosene (TPHd,k; LUFT Manual, October 1989); purgeable halocarbon compounds (EPA method 8010); total volatile hydrocarbons as gasoline (TVHg; LUFT Manual October 1989); benzene, toluene, xylenes, and ethylbenzene (BTXE, EPA 5030/8020); and for lead (EPA 7421). In addition, trip blank and method blank analyses were performed for the purposes of quality assurance (QA) on the groundwater samples. Table 2.1 presents the current monitoring schedule with appropriate sample analyses.

Table 2.1 Well Monitoring Schedule and Analyses

	TPHd	TVHg/BTXE	EPA 8010 (VOC)	Lead	Groundwater Elevation
OW-1	S	S			Q
OW-2				Q	Q
OW-4	S				Q
OW-5	S	S	S	Q	Q
OW-6	S	S	S		Q
OW-7	S	S	S		Q
OW-8				Q	Q

S = Semi-annual monitoring starting in January 1993.
Q = Quarterly monitoring.

Certified laboratory results for the July samples are presented in Appendix A along with chain-of-custody documentation. A table of the historical results of laboratory analyses is included in Appendix B.

3.0 ANALYTICAL RESULTS

3.1 PETROLEUM HYDROCARBONS

Table 3.1 summarizes the analytical results for petroleum hydrocarbons detected in the groundwater samples collected on January 31, 1994 and February 1, 1994. TPHd was detected in each of the monitoring wells and was found in the highest concentration in wells OW-6 and OW-7. The highest concentration of TVH as gasoline continues to be that detected in the upgradient well OW-7.

Table 3.1 Petroleum Hydrocarbons in Groundwater, in mg/L

Well	TPH-Diesel	TVH-Gasoline
OW-1	1.00	0.08
OW-4	0.90	NA
OW-5	0.51	0.37
OW-6	2.20	0.07
OW-7	4.50	1.40

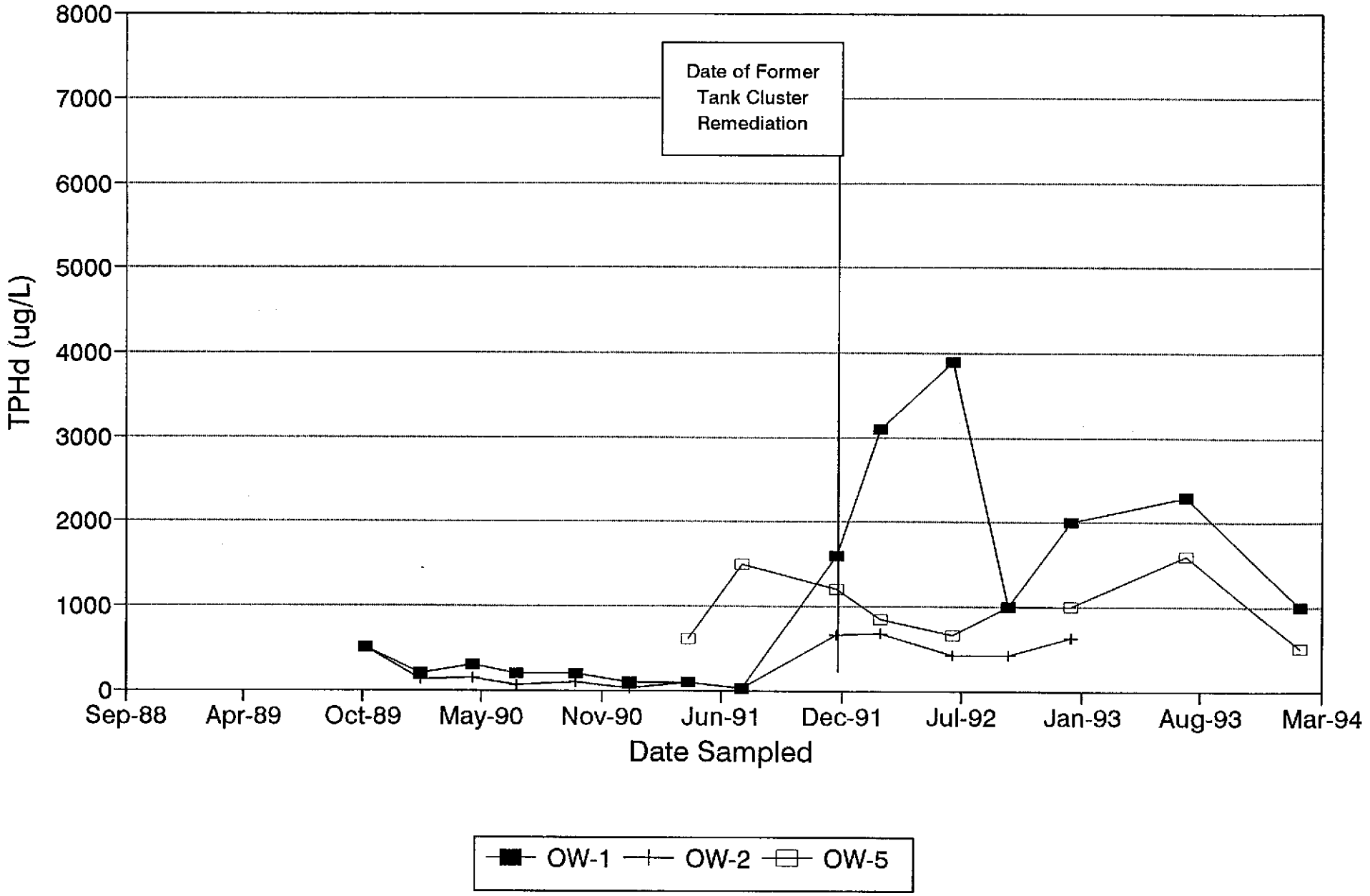
Notes:

1) ND = Not Detected at or above the method reporting limits (RL).
2) TPH-Diesel = Extractable Petroleum Hydrocarbons, Diesel Range, LUFT Manual October 1989; RL = 0.05 mg/L.
3) TVH-Gasoline = Total Volatile Hydrocarbons by California DHS Method LUFT Manual October 1989; RL = 0.05 mg/L.
4) NA = Not Analyzed

Figures 3.1 and 3.2 illustrate the historical concentrations of TPH in the monitoring wells on site. For samples which reported TPH as not detected, one half of the detection limit was used in preparing these figures. The data from monitoring wells OW-3 and OW-6 are combined in the figures since OW-6 was installed to replace OW-3 following its destruction.

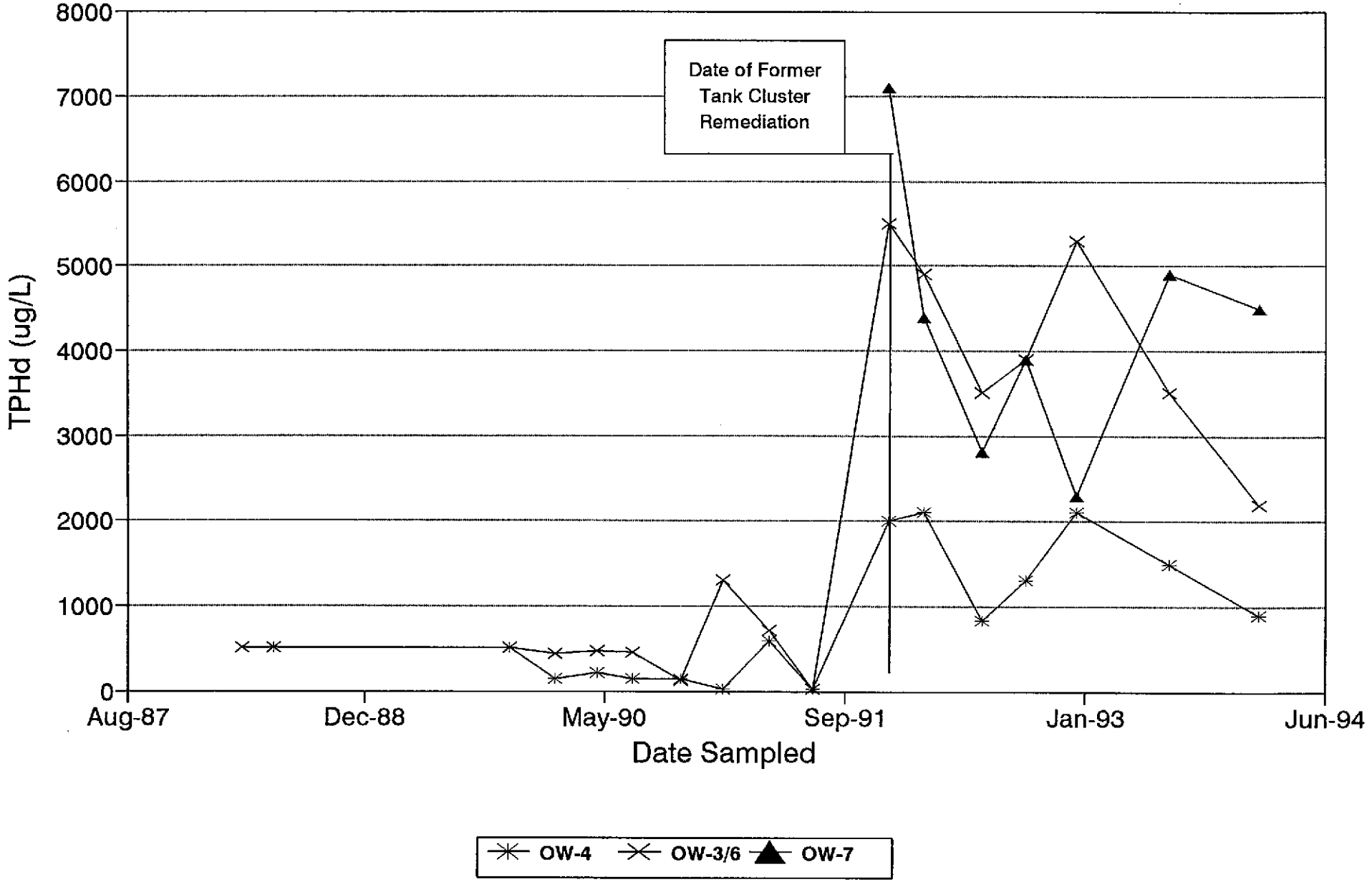
Throughout the site's water monitoring history, there have been differences in reporting TPH by the three different laboratories used throughout this time. TPH prior to April 1991 was reported as diesel and/or oil (Brown and Caldwell Analytical), in April 1991 as strictly diesel (The Earth Technology Corporation Analytical Laboratory), and following April 1991 as diesel and/or kerosene (Curtis and Tompkins Ltd.). TPH characterized as kerosene has never been detected. In an attempt to compare results, the TPH presented in these figures is the sum of these distinguished characterizations.

Figure 3.1
TPHd in Monitoring Wells vs. Time



TEPH_1

Figure 3.2
TPHd in Monitoring Wells vs. Time



TEPH_2

Figures 3.1 and 3.2 show TPH concentrations were generally higher around the time of, or soon after, the remedial excavation in November 1991 in the wells in the remediation vicinity: OW-4, OW-6, and OW-7. Each of these wells' results have shown a decline in TPHd concentrations this quarterly event. However, the results still range from 900 to 4,500 μg/L. It was noted in the February 1992 tank cluster area remediation report that there is apparent off-site contamination upgradient of the PG&E yard. The persistence of moderate TPH concentrations following remediation in this area is believed to be the result of this upgradient contamination providing a continued source.

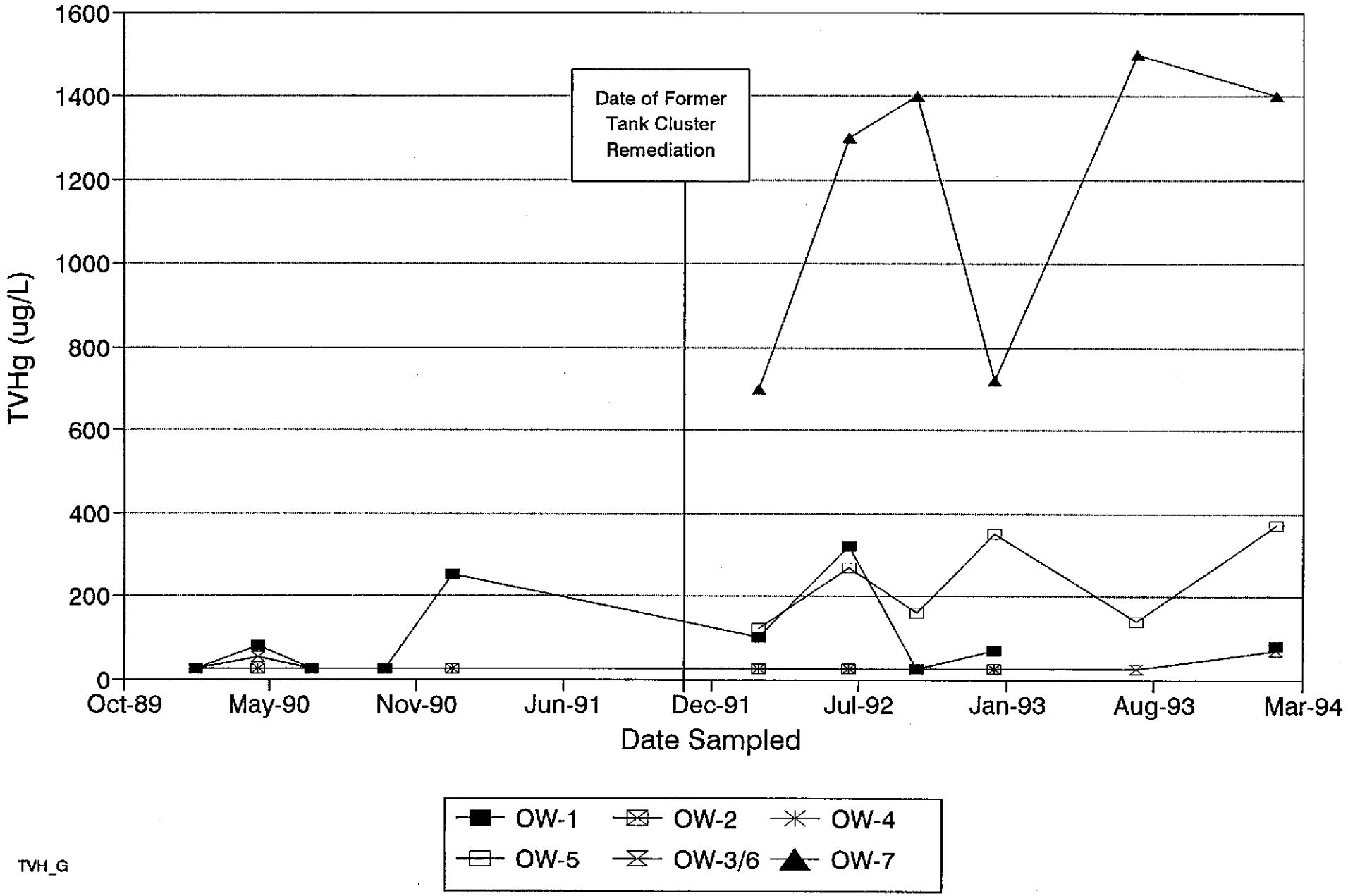
Well OW-5, located near the northeast property line, showed TPH as diesel at or above 1,000 μg/L for the three consecutive quarters prior to this reporting quarter. The most recent sampling event yielded a TPHd concentration of 500 μg/L, demonstrating a similar decline in TPHd concentration, typical for all the sampled wells this quarter. Well OW-1, which is distant from the hydrocarbon remediation area, continues to contain detectable concentrations of TPH as diesel. Over the past year OW-1 has fluctuated around 2,000 μg/L, but the most recent sampling event produced a value of 1,000 μg/L for TPHd.

TVHg has been consistently below 1,000 μg/L in all wells except upgradient well OW-7. This well has consistently shown concentration of TVHg greater than 700 μg/L. Figure 3.3 illustrates the historical concentrations of TVHg. Between January 1991 and March 1992, this analysis was not performed. Since January 1991, TVHg concentrations have been below the detection limit in the remaining wells with the exception of wells OW-5, OW-6, and OW-1, where the concentrations have fluctuated at near non-detect concentrations.

3.2 LEAD

Table 3.2 presents the results of this quarter's groundwater analyses for soluble lead. The EPA and state MCL for lead in drinking water is 50 μg/L. All samples this quarterly monitoring, as historically, shown concentrations below the 50 μg/L MCL. The highest concentration was reported in monitoring well OW-8 at 25 μg/L. Monitoring wells OW-2 and OW-5 this quarter showed lead concentrations of 8 μg/L and 7.3 μg/L, respectively. Lead had not been previously detected above the reporting limits of 3 μg/L and 10 μg/L (October 1993) in these monitoring wells.

Figure 3.3
TVHg in Monitoring Wells vs. Time



TVH_G

Table 3.2 Lead in Groundwater, in μg/L

	Well Number		
	OW-2	OW-5	OW-8
Reporting Limit	3.0	3.0	3.0
Soluble Lead (a)	8.0	7.3	25
MCL	50	50	50

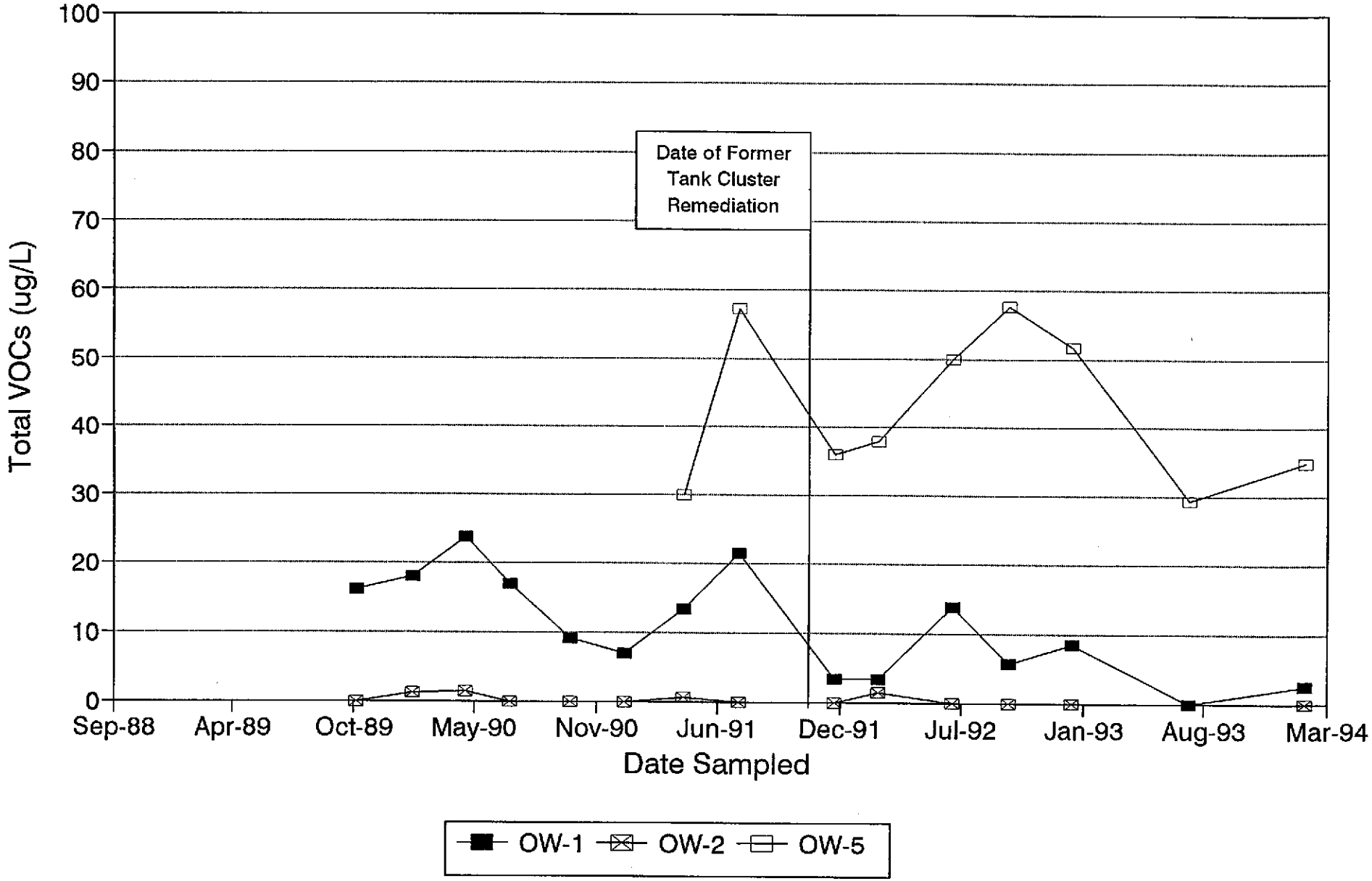
(a) EPA Method 7421

3.3 VOLATILE ORGANIC COMPOUNDS

Table 3.3 presents the analytical results of volatile organic compounds (VOCs) in groundwater. The state Maximum Contaminant Levels (MCLs) for drinking water for three compounds: 1,1-Dichloroethane (DCA, 5 μg/L), 1,4-Dichlorobenzene (1,4-DCB, 5 μg/L), and Benzene (BZ, 1 μg/L), were each exceeded; upgradient well OW-5 had 21 μg/L of BZ, while the second upgradient well OW-7 had 8 μg/L of DCA, 410 μg/L of 1,4-DCB, and 1.6 μg/L of BZ. In well OW-6, DCA was detected at 7 μg/L. TCA was observed in wells OW-5 and OW-7 at 2 and 76 μg/L, respectively, substantially below the MCL of 200 μg/L.

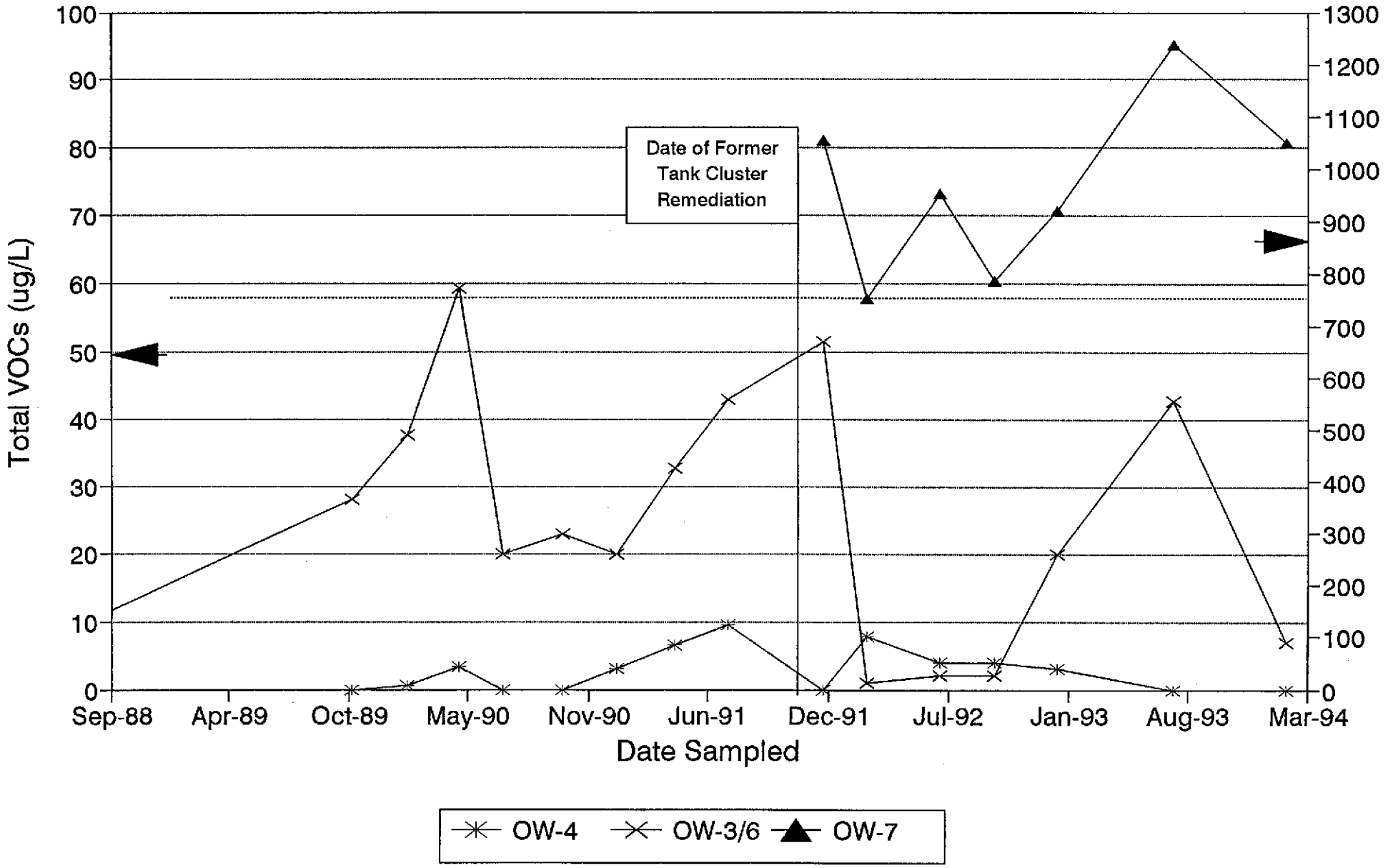
Figures 3.4 and 3.5 show the historical concentrations of total VOCs from 8010/8020 analyses in the monitoring wells on site. Figure 3.4 shows the concentration of VOCs associated with wells OW-1, OW-2, and OW-5, located at the margins of the plume. Figure 3.5 shows trends associated with wells OW-4, OW-6, and OW-7 associated with the former excavation and higher concentration area of the plume. Since the installation of upgradient well OW-7, whose data is plotted using the right hand scale in Figure 3.5, this well has been found to have the highest concentration of VOCs, an order of magnitude larger than any of the other wells. Over the monitored quarters, well OW-5 has maintained an average total VOC concentration of about 43 μg/L, fluctuating between 30 and 60 μg/L. This quarter's sampling event yielded a value of 34.9 μg/L of total VOCs. Well OW-6 has fluctuated from 1 to 60 μg/L over the five year monitoring period with an average of 24 μg/L. This quarterly event yielded a value of 7 μg/L of total VOCs. Wells OW-7 and OW-5 lie within ten feet of the northeast property line of the site and groundwater elevation monitoring consistently indicates that the groundwater flow direction is from the north or northeast neighboring property onto the PG&E site. **This is a strong indication that VOCs are migrating onto the PG&E site from an upgradient source.**

Figure 3.4
Total VOCs in Monitoring Wells vs. Time



VOC1

Figure 3.5
Total VOCs in Monitoring Wells vs. Time



VOC2

Table 3.3 Volatile Organic Compounds in Groundwater, in ug/L

PURGEABLE HALOCARBONS	MCL (ug/L)	Well Number OW-1	OW-5	OW-6	OW-7	TRIP BLANK
Chloromethane		NA	ND	ND	ND	ND
Bromomethane		NA	ND	ND	ND	ND
Vinyl chloride	0.5	NA	ND	ND	ND	ND
Chloroethane		NA	ND	ND	ND	ND
Methylene Chloride	5(a)	NA	ND	ND	ND	ND
Trichlorofluoromethane	150	NA	ND	ND	ND	ND
1,1-Dichloroethene	6	NA	ND	ND	ND	ND
1,1-Dichloroethane	5	NA	2	7	8	ND
cis-1,2-Dichloroethene	6	NA	ND	ND	ND	ND
trans-1,2-Dichloroethene	10	NA	ND	ND	ND	ND
Chloroform	100(a)(b)	NA	ND	ND	ND	ND
Freon 113	1200	NA	ND	ND	ND	ND
1,2-Dichloroethane	0.5	NA	ND	ND	ND	ND
1,1,1-Trichloroethane	200	NA	2	ND	76	ND
Carbon Tetrachloride	0.5	NA	ND	ND	ND	ND
Bromodichloromethane	100(a)(b)	NA	ND	ND	ND	ND
1,2-Dichloropropane	5	NA	ND	ND	ND	ND
cis-1,3-Dichloropropene	0.5(d)	NA	ND	ND	ND	ND
Trichloroethylene	5	NA	ND	ND	ND	ND
1,1,2-Trichloroethane	32	NA	ND	ND	ND	ND
trans-1,3-Dichloropropene	0.5(d)	NA	ND	ND	ND	ND
Dibromochloromethane	100(a)(b)	NA	ND	ND	ND	ND
2-Chloroethylvinyl Ether		NA	ND	ND	ND	ND
Bromoform	100(a)(b)	NA	ND	ND	ND	ND
Tetrachloroethylene	5	NA	ND	ND	ND	ND
1,1,2,2-Tetrachloroethane	1	NA	ND	ND	ND	ND
Chlorobenzene	30	NA	ND	ND	21	ND
1,3-Dichlorobenzene	600(e)	NA	ND	ND	450	ND
1,2-Dichlorobenzene	600(e)	NA	ND	ND	78	ND
1,4-Dichlorobenzene	5	NA	ND	ND	410	ND
PURGEABLE AROMATICS						
Benzene	1	ND	21	ND	1.6	ND
Toluene	1000(a)	ND	ND	ND	ND	ND
Ethylbenzene	680	ND	0.7	ND	ND	ND
Total Xylenes	1750(c)	2.5	9.2	ND	4.2	ND
TOTAL VOCs	1000(f)	2.5	34.4	7	1048.8	ND

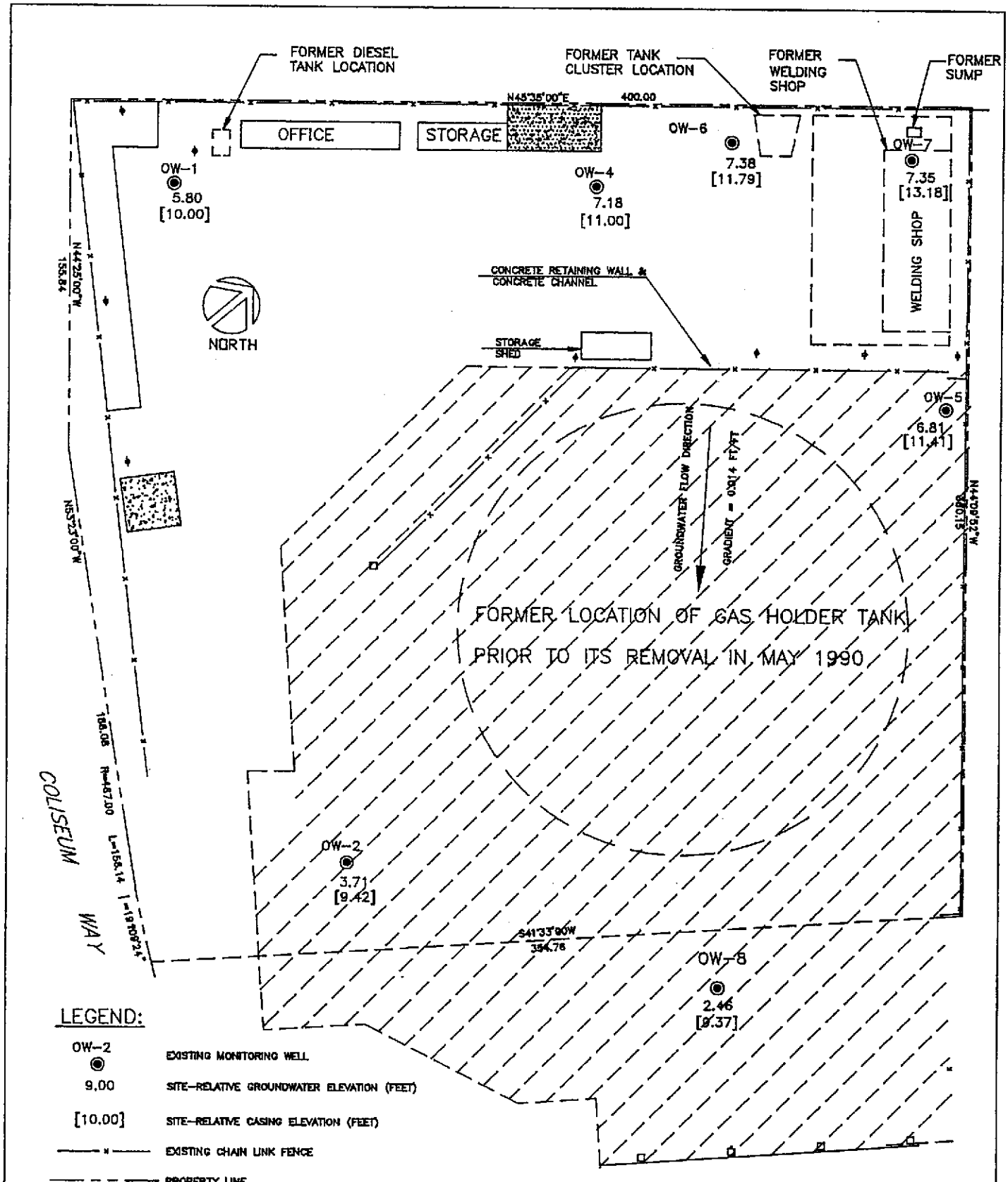
Notes:

1) MCL = Maximum Contaminant Level in drinking water (State MCL, if not noted otherwise)
2) (a) = EPA MCL
3) (b) = MCL for sum of four compounds
4) (c) = MCL for sum of all xylene isomers
5) (d) = MCL for sum of trans- and cis-1,3-Dichloropropene
6) ND = Not Detected at or above reporting limit
7) Purgeable Halocarbons (EPA method 8010)
8) Purgeable Aromatics (EPA method 8020)
9) NA = Not Analyzed
10) (e) = Proposed
11) (f) = RWQCB to be considered (TBC) Applicable, Relevant and Appropriate Regulation (ARAR)

4.0 GROUNDWATER FLOW DIRECTION

Water level measurements in the site monitoring wells were collected on January 31, 1994, prior to starting the groundwater sampling. Groundwater elevations are shown in relation to a site specific coordinate system reported in previous reports. The top of casing (TOC) elevations for each of these wells is based upon an assumed TOC elevation of 10 feet at well OW-1. In late September, the wellhead of OW-2 was raised to match the new grade of the lead mitigation cap. A 1.10 foot riser was placed on the existing casing and the TOC reference elevation for this well was adjusted appropriately.

The groundwater elevations measured January 31, 1994, and the resulting gradient calculated, are presented in Figure 4.1 along with the relative TOC elevations of each of the wells. Historical groundwater elevations are presented as linear graphs in Figures 4.2 and 4.3. The groundwater flow direction calculated from groundwater elevations in OW-2, OW-5, and OW-8 indicates the local groundwater flow direction on this date to be to the south at a gradient of approximately 0.014 ft/ft. This flow direction is consistent with those observed over the monitoring period. The lead mitigation cap now limits direct precipitative recharge in the area between wells OW-5 and OW-2, while most of the neighboring upgradient property near OW-5 is open ground.



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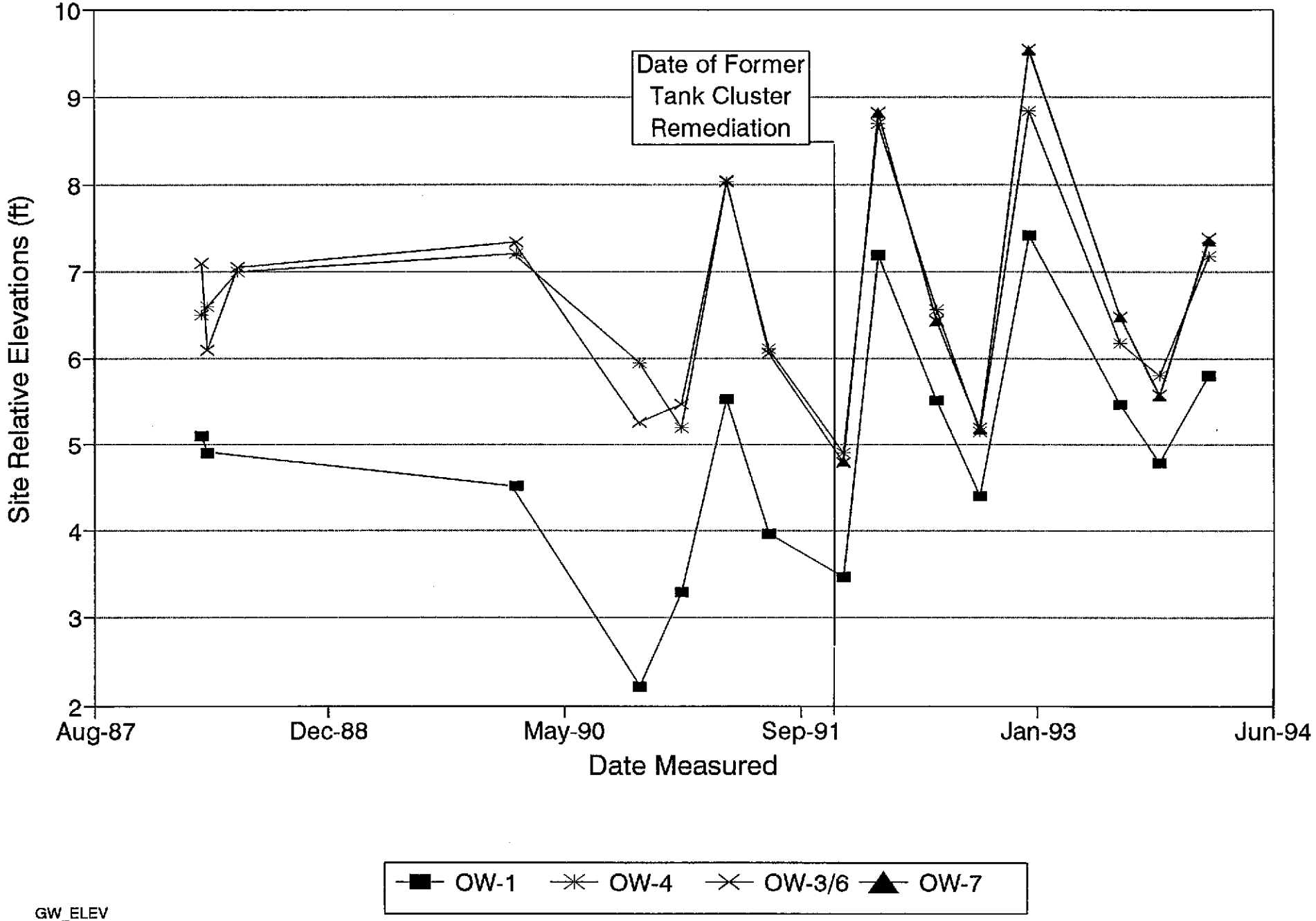
PROJECT NO: 690262.03

FIGURE 4.1 GROUNDWATER ELEVATIONS AND GRADIENT ON JANUARY 31, 1994

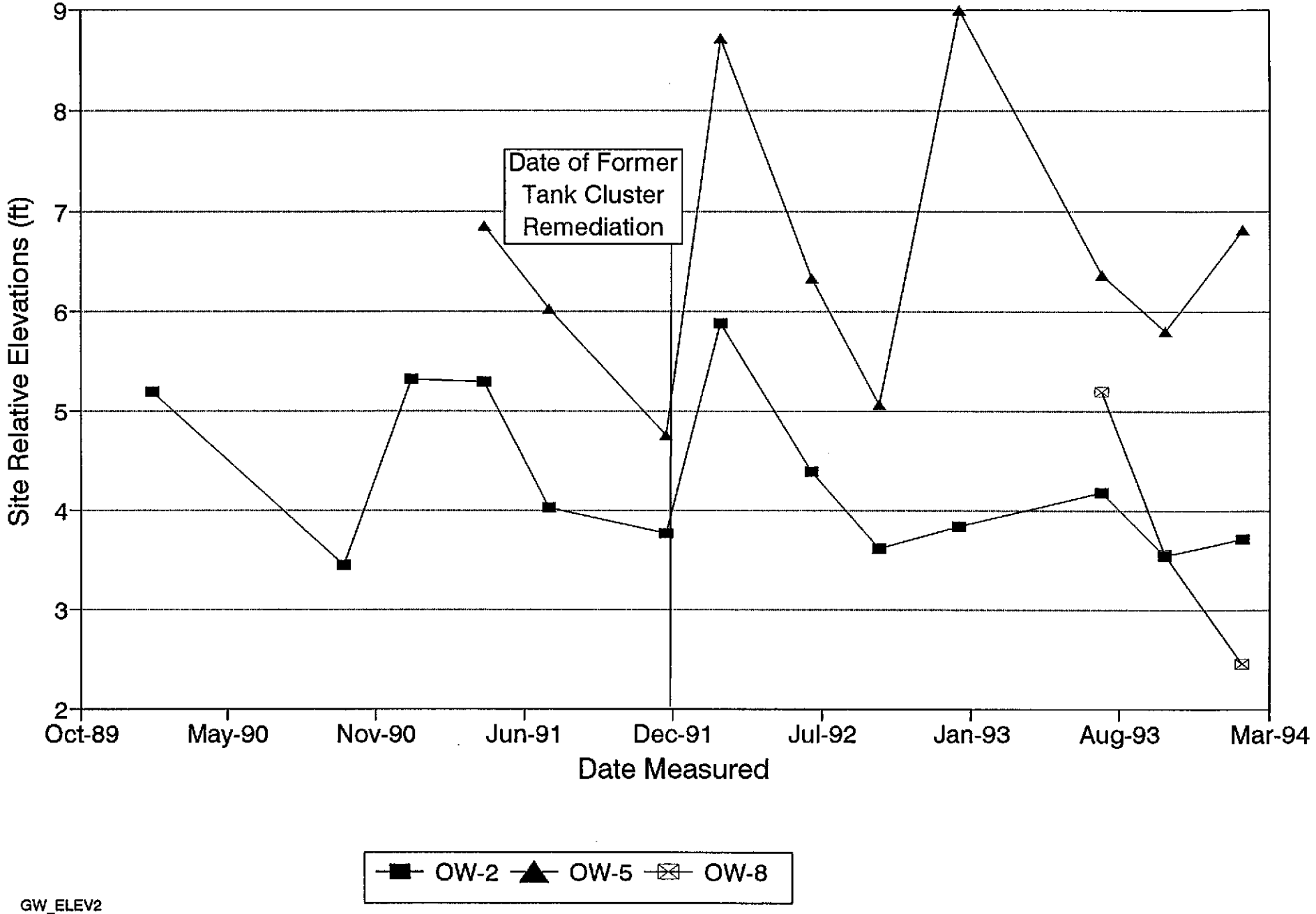
PG&E ENCON: OAKLAND CONSTRUCTION YARD

Figure 4.2
Groundwater Elevations vs. Time



GW_ELEV

Figure 4.3
Groundwater Elevations vs. Time



GW_ELEV2

5.0 CONCLUSIONS AND RECOMMENDATIONS

The following conclusions are made based upon the results of analyses performed on groundwater samples collected on January 31 and February 1, 1994 from monitoring wells OW-1, OW-2, OW-4, OW-5, OW-6, OW-7, and OW-8, and from prior quarterly sampling results.

- Groundwater flow across the site appears to be to the south and southeast consistent with the historical flow direction. Groundwater gradient, at 0.014 ft/ft was also consistent with historical values.

- TPH characterized as diesel (TPHd) was detected in wells OW-1, OW-4, OW-5, OW-6, and OW-7 above the method reporting limit (RL). The highest concentrations of TPHd were observed in wells OW-7 (4,500 μg/L) and OW-6 (2,200 μg/L). These wells lie in or near the 1991 former tank cluster remediation area. Moderate TPH concentrations in the groundwater have persisted in these wells since the remedial action. TPHd in groundwater has no regulatory action limits being assessed on a case-by-case by the regulators.

- TPHd concentrations in monitoring wells OW-6 and OW-7 may be a result, at least in part, of an off-site source. Placement of Class II aggregate base as a backfill material increased water permeability at the site, possibly allowing off-site contamination from upgradient source(s) to reach wells located on the PG&E property.

- Downgradient monitoring well OW-1 TPHd concentrations have fluctuated around 2,000 μg/L over the past year. This quarterly event showed a significant decrease in concentration to 1,000 μg/L for TPHd. OW-1 is downgradient of a former diesel tank location.

- TVHg was detected in all samples that were analyzed for such. This includes wells OW-1, OW-5, OW-6, and OW-7. Upgradient well OW-7 continues to have the highest concentrations of TVHg, with an average of about 1,200 μg/L. This quarterly event yielded a value of 1,400 μg/L for TVHg in OW-7. TVHg was observed, for the first time, in well OW-6, at a near non-detect concentration of 70 μg/L.

- Lead was detected in well OW-8 (installed in February 1993) in the past two quarterly sampling events, although the concentrations have not exceeded the drinking water MCL of 50 μg/L. The concentration decreased from 27 μg/L in April 1993 to 17 μg/L in July 1993, but was detected at 25 μg/L in January 1994.

- Wells OW-5 and OW-7 both lie at the upgradient end of the site. Both have historically contained the highest concentrations of TVHg and VOCs, indicating an upgradient, i.e., from the north or northeast, source of fuel and/or solvent contamination.

- Upgradient wells OW-5 (BZ) and OW-7 (DCA 1,4-DCB and BZ), and well OW-6 (DCA) were the only wells found to have VOCs whose concentrations exceed the MCLs for drinking water. These and the other VOCs detected are thought to originate from off-site sources.

- The three isomers of DCB continue to be the VOCs found at the highest concentrations. They are found predominantly in upgradient well OW-7 (total DCB this quarter = 968 μg/L).

- The solvent TCA continues to be present in upgradient wells OW-5 (2 μg/L) and OW-7 (76 μg/L). TCA was also found, for the first time, in well OW-6 during the January 1993 quarterly event at 10 μg/L and then subsequently observed in July 1993 at 18 μg/L. The January 1994 quarterly event shows TCA as non-detect above the RL in OW-6.

- BTEX analyses showed only Benzene was detected above the MCL in well OW-7.

APPENDIX A

Certified Laboratory Results

Curtis & Tompkins, Ltd., Analytical Laboratories, Since 1878
2323 Fifth Street, Berkeley, CA 94710, Phone (510) 486-0900

A N A L Y T I C A L R E P O R T

Prepared for:

The Earth Technology Corporation
2030 Addison Street
Suite 500
Berkeley, CA 94704

Date: 11-FEB-94
Lab Job Number: 114183
Project ID: 690262.03
Location: PG&E Coliseum

Reviewed by: Mary Pleasant

Reviewed by: Kathy O'Brien

Curtis & Tompkins, Ltd.

LABORATORY NUMBER: 114183
CLIENT: THE EARTH TECHNOLOGY CORPORATION
PROJECT ID: 690262.03
LOCATION: PG&E COLISEUM

DATE SAMPLED: 01/31/94
DATE RECEIVED: 01/31/94
DATE ANALYZED: 02/08/94
DATE REPORTED: 02/11/94

Total Volatile Hydrocarbons with BTXE in Aqueous Solutions
TVH by California DOHS Method/LUFT Manual October 1989
BTXE by EPA 5030/8020

LAB ID	SAMPLE ID	TVH AS GASOLINE (ug/L)	BENZENE (ug/L)	TOLUENE (ug/L)	ETHYL BENZENE (ug/L)	TOTAL XYLENES (ug/L)
114192-001	OW-1	80	ND(0.5)	ND(0.5)	ND(0.5)	2.5
114192-004	OW-5	370	21	ND(0.5)	0.7	9.2
114192-005	OW-6	70	ND(0.5)	ND(0.5)	ND(0.5)	ND(0.5)
114192-006	OW-7	1,400	1.6	ND(0.5)	ND(0.5)	4.2

ND = Not detected at or above reporting limit; Reporting limit indicated in parentheses.

QA/QC SUMMARY: BS/BSD

RPD, %	<1
RECOVERY, %	109

CLIENT: The Earth Technology Corporation
PROJECT ID: 690262.03
LOCATION: PG&E Coliseum
MATRIX: Water

DATE REPORTED: 02/11/94

METALS ANALYTICAL REPORT

				Lead				
Sample ID	Lab ID	Sample Date	Receive Date	Result (ug/L)	Reporting Limit (ug/L)	QC Batch	Method	Analysis Date
OW-2	114183-002	01/31/94	01/31/94	8.0	3.0	12616	EPA 7421	02/04/94
OW-5	114183-004	01/31/94	01/31/94	7.3	3.0	12616	EPA 7421	02/04/94
OW-8	114183-007	01/31/94	01/31/94	25	3.0	12616	EPA 7421	02/04/94

Curtis & Tompkins, Ltd.

Curtis & Tompkins, Ltd.

CLIENT: The Earth Technology Corporation
JOB NUMBER: 114183

DATE REPORTED: 02/11/94

BATCH QC REPORT
PREP BLANK

Compound	Result	Reporting Limit	Units	QC Batch	Method	Analysis Date
Lead	ND	3	ug/L	12616	EPA 7421	02/04/94

ND = Not detected at or above reporting limit

Curtis & Tompkins, Ltd.

CLIENT: The Earth Technology Corporation
JOB NUMBER: 114183

DATE REPORTED: 02/11/94

BATCH QC REPORT
BLANK SPIKE/BLANK SPIKE DUPLICATE

Compound	Spike Amount	BS Result	BSD Result	Units	BS % Recovery	BSD % Recovery	Average Recovery	RPD	QC Batch	Method	Analysis Date
Lead	30	28.56	27.44	ug/L	95	92	94	4	12616	EPA 7421	02/04/94

Curtis & Tompkins, Ltd.

LABORATORY NUMBER: 114183-004
CLIENT: THE EARTH TECHNOLOGY CORPORATION
PROJECT ID: 690262.03
LOCATION: PG&E COLISEUM
SAMPLE ID: OW-5

DATE SAMPLED: 01/31/94
DATE RECEIVED: 01/31/94
DATE ANALYZED: 02/09/94
DATE REPORTED: 02/11/94

EPA 8010
Purgeable Halocarbons in Water

Compound	Result ug/L	Reporting Limit ug/L
Chloromethane	ND	2
Bromomethane	ND	2
Vinyl chloride	ND	2
Chloroethane	ND	2
Methylene chloride	ND	20
Trichlorofluoromethane	ND	1
1,1-Dichloroethene	ND	1
1,1-Dichloroethane	2	1
cis-1,2-Dichloroethene	ND	1
trans-1,2-Dichloroethene	ND	1
Chloroform	ND	1
Freon 113	ND	1
1,2-Dichloroethane	ND	1
1,1,1-Trichloroethane	2	1
Carbon tetrachloride	ND	1
Bromodichloromethane	ND	1
1,2-Dichloropropane	ND	1
cis-1,3-Dichloropropene	ND	1
Trichloroethene	ND	1
1,1,2-Trichloroethane	ND	1
trans-1,3-Dichloropropene	ND	1
Dibromochloromethane	ND	1
Bromoform	ND	2
Tetrachloroethene	ND	1
1,1,2,2-Tetrachloroethane	ND	1
Chlorobenzene	ND	1
1,3-Dichlorobenzene	ND	1
1,4-Dichlorobenzene	ND	1
1,2-Dichlorobenzene	ND	1

ND = Not detected at or above reporting limit.

QA/QC SUMMARY

Surrogate Recovery, %	109

Curtis & Tompkins, Ltd.

LABORATORY NUMBER: 114183-005
CLIENT: THE EARTH TECHNOLOGY CORPORATION
PROJECT ID: 690262.03
LOCATION: PG&E COLISEUM
SAMPLE ID: OW-6

DATE SAMPLED: 01/31/94
DATE RECEIVED: 01/31/94
DATE ANALYZED: 02/09/94
DATE REPORTED: 02/11/94

EPA 8010
Purgeable Halocarbons in Water

Compound	Result ug/L	Reporting Limit ug/L
Chloromethane	ND	2
Bromomethane	ND	2
Vinyl chloride	ND	2
Chloroethane	ND	2
Methylene chloride	ND	20
Trichlorofluoromethane	ND	1
1,1-Dichloroethene	ND	1
1,1-Dichloroethane	7	1
cis-1,2-Dichloroethene	ND	1
trans-1,2-Dichloroethene	ND	1
Chloroform	ND	1
Freon 113	ND	1
1,2-Dichloroethane	ND	1
1,1,1-Trichloroethane	ND	1
Carbon tetrachloride	ND	1
Bromodichloromethane	ND	1
1,2-Dichloropropane	ND	1
cis-1,3-Dichloropropene	ND	1
Trichloroethene	ND	1
1,1,2-Trichloroethane	ND	1
trans-1,3-Dichloropropene	ND	1
Dibromochloromethane	ND	1
Bromoform	ND	2
Tetrachloroethene	ND	1
1,1,2,2-Tetrachloroethane	ND	1
Chlorobenzene	ND	1
1,3-Dichlorobenzene	ND	1
1,4-Dichlorobenzene	ND	1
1,2-Dichlorobenzene	ND	1

ND = Not detected at or above reporting limit.

QA/QC SUMMARY

Surrogate Recovery, %	104

Curtis & Tompkins, Ltd.

LABORATORY NUMBER: 114183-006
CLIENT: THE EARTH TECHNOLOGY CORPORATION
PROJECT ID: 690262.03
LOCATION: PG&E COLISEUM
SAMPLE ID: OW-7

DATE SAMPLED: 01/31/94
DATE RECEIVED: 01/31/94
DATE ANALYZED: 02/09/94
DATE REPORTED: 02/11/94

EPA 8010
Purgeable Halocarbons in Water

Compound	Result ug/L	Reporting Limit ug/L	
Chloromethane	ND	2	
Bromomethane	ND	2	
Vinyl chloride	ND	2	
Chloroethane	ND	2	
Methylene chloride	ND	20	
Trichlorofluoromethane	ND	1	
1,1-Dichloroethene	ND	1	
1,1-Dichloroethane	8	1	
cis-1,2-Dichloroethene	ND	1	
trans-1,2-Dichloroethene	ND	1	
Chloroform	ND	1	
Freon 113	ND	1	
1,2-Dichloroethane	ND	1	
1,1,1-Trichloroethane	76	1	
Carbon tetrachloride	ND	1	
Bromodichloromethane	ND	1	
1,2-Dichloropropane	ND	1	
cis-1,3-Dichloropropene	ND	1	
Trichloroethene	ND	1	
1,1,2-Trichloroethane	ND	1	
trans-1,3-Dichloropropene	ND	1	
Dibromochloromethane	ND	1	
Bromoform	ND	2	
Tetrachloroethene	ND	1	
1,1,2,2-Tetrachloroethane	ND	1	
Chlorobenzene	21	1	
1,3-Dichlorobenzene	450	5	*
1,4-Dichlorobenzene	410	5	*
1,2-Dichlorobenzene	78	1	

* Analyzed at a 1:5 dilution on 02/09/94.
ND = Not detected at or above reporting limit.

QA/QC SUMMARY

Surrogate Recovery, %	103

Curtis & Tompkins, Ltd.

LABORATORY NUMBER: 114183-METHOD BLANK
CLIENT: THE EARTH TECHNOLOGY CORPORATION
PROJECT ID: 690262.03
LOCATION: PG&E COLISEUM
SAMPLE ID: N/A

DATE SAMPLED: N/A
DATE RECEIVED: N/A
DATE ANALYZED: 02/08/94
DATE REPORTED: 02/11/94

EPA 8010
Purgeable Halocarbons in Water

Compound	Result ug/L	Reporting Limit ug/L
Chloromethane	ND	2
Bromomethane	ND	2
Vinyl chloride	ND	2
Chloroethane	ND	2
Methylene chloride	ND	20
Trichlorofluoromethane	ND	1
1,1-Dichloroethene	ND	1
1,1-Dichloroethane	ND	1
cis-1,2-Dichloroethene	ND	1
trans-1,2-Dichloroethene	ND	1
Chloroform	ND	1
Freon 113	ND	1
1,2-Dichloroethane	ND	1
1,1,1-Trichloroethane	ND	1
Carbon tetrachloride	ND	1
Bromodichloromethane	ND	1
1,2-Dichloropropane	ND	1
cis-1,3-Dichloropropene	ND	1
Trichloroethene	ND	1
1,1,2-Trichloroethane	ND	1
trans-1,3-Dichloropropene	ND	1
Dibromochloromethane	ND	1
Bromoform	ND	1
Tetrachloroethene	ND	2
1,1,2,2-Tetrachloroethane	ND	1
Chlorobenzene	ND	1
1,3-Dichlorobenzene	ND	1
1,4-Dichlorobenzene	ND	1
1,2-Dichlorobenzene	ND	1

ND = Not detected at or above reporting limit.

QA/QC SUMMARY

Surrogate Recovery, %	107

Curtis & Tompkins, Ltd

Curtis & Tompkins, Ltd.

8010 MS/MSD Report

Matrix Sample Number: QC57194
Matrix Sample File: 038E031.raw
Matrix: WATER
Batch No: 38 948725 948726 948724

Date Analyzed: 08-FEB-94
Spike File: 038E032.raw
Spike Dup File: 038E033.raw
Analyst: JM

	Instrdg	SpikeAmt	% Rec	Limits
MS RESULTS				
1,1-Dichloroethene	14.22	20	71 %	61-145%
Trichloroethene	21.75	20	109 %	71-120%
Chlorobenzene	21.4	20	107 %	75-130%
Surrogate Recovery				
Bromobenzene	104.43	100	104 %	75-125%
MSD RESULTS				
1,1-Dichloroethene	14.93	20	75 %	61-145%
Trichloroethene	22.63	20	113 %	71-120%
Chlorobenzene	21.98	20	110 %	75-130%
Surrogate Recovery				
Bromobenzene	105.25	100	105 %	75-125%
MATRIX RESULTS				
1,1-Dichloroethene	0			
Trichloroethene	0			
Chlorobenzene	0			
RPD DATA				
1,1-Dichloroethene	5 %			< 14%
Trichloroethene	4 %			< 14%
Chlorobenzene	3 %			< 13%

Column: Rtx 502.2
Limits based on 3/90 SOW CLP

Results within Specifications - PASS

Curtis & Tompkins, Ltd., Analytical Laboratories, Since 1878
2323 Fifth Street, Berkeley, CA 94710, Phone (510) 486-0900

ANALYTICAL REPORT

Prepared for:

The Earth Technology Corporation
2030 Addison Street
Suite 500
Berkeley, CA 94704

Date: 11-FEB-94
Lab Job Number: 114192
Project ID: 690262.03
Location: PG&E Coliseum

Reviewed by: Mary Klussa

Reviewed by: Teresa K Morris

Curtis & Tompkins, Ltd.

LABORATORY NUMBER: 114192
CLIENT: THE EARTH TECHNOLOGY CORPORATION
PROJECT ID: 690262.03
LOCATION: PG&E COLISEUM

DATE SAMPLED: 02/01/94
DATE RECEIVED: 02/01/94
DATE EXTRACTED: 02/08/94
DATE ANALYZED: 02/09/94
DATE REPORTED: 02/11/94

Extractable Petroleum Hydrocarbons in Aqueous Solutions
California DOHS Method
LUFT Manual October 1989

LAB ID	CLIENT ID	KEROSENE RANGE (ug/L)	DIESEL RANGE (ug/L)	REPORTING LIMIT (ug/L)
114192-001	OW-1	**	1,000	50
114192-002	OW-4	**	900	50
114192-003	OW-5	**	510	50
114192-004	OW-6	**	2,200	50
114192-005	OW-7	**	4,500	50

** Kerosene range not reported due to overlap of hydrocarbon ranges.

Reporting limit applies to all analytes.

QA/QC SUMMARY: BS/BSD

RPD, %	4
RECOVERY, %	87

Curtis & Tompkins, Ltd.

LABORATORY NUMBER: 114192
CLIENT: THE EARTH TECHNOLOGY CORPORATION
PROJECT ID: 690262.03
LOCATION: PG&E COLISEUM

DATE SAMPLED: 02/01/94
DATE RECEIVED: 02/01/94
DATE ANALYZED: 02/05/94
DATE REPORTED: 02/11/94

Total Volatile Hydrocarbons with BTXE in Aqueous Solutions
TVH by California DOHS Method/LUFT Manual October 1989
BTXE by EPA 5030/8020

LAB ID	SAMPLE ID	TVH AS GASOLINE (ug/L)	BENZENE (ug/L)	TOLUENE (ug/L)	ETHYL BENZENE (ug/L)	TOTAL XYLENES (ug/L)
114192-006	TRIP BLANK	ND(50)	ND(0.5)	ND(0.5)	ND(0.5)	ND(0.5)

ND = Not detected at or above reporting limit; Reporting limit indicated in parentheses.

QA/QC SUMMARY: BS/BSD

RPD, %	2
RECOVERY, %	107

Curtis & Tompkins, Ltd.

LABORATORY NUMBER: 114192-006
CLIENT: THE EARTH TECHNOLOGY CORPORATION
PROJECT ID: 690262.03
LOCATION: PG&E COLISEUM
SAMPLE ID: TRIP BLANK

DATE SAMPLED: 02/01/94
DATE RECEIVED: 02/01/94
DATE ANALYZED: 02/09/94
DATE REPORTED: 02/11/94

EPA 8010
Purgeable Halocarbons in Water

Compound	Result ug/L	Reporting Limit ug/L
Chloromethane	ND	2
Bromomethane	ND	2
Vinyl chloride	ND	2
Chloroethane	ND	2
Methylene chloride	ND	20
Trichlorofluoromethane	ND	1
1,1-Dichloroethene	ND	1
1,1-Dichloroethane	ND	1
cis-1,2-Dichloroethene	ND	1
trans-1,2-Dichloroethene	ND	1
Chloroform	ND	1
Freon 113	ND	1
1,2-Dichloroethane	ND	1
1,1,1-Trichloroethane	ND	1
Carbon tetrachloride	ND	1
Bromodichloromethane	ND	1
1,2-Dichloropropane	ND	1
cis-1,3-Dichloropropene	ND	1
Trichloroethene	ND	1
1,1,2-Trichloroethane	ND	1
trans-1,3-Dichloropropene	ND	1
Dibromochloromethane	ND	1
Bromoform	ND	2
Tetrachloroethene	ND	1
1,1,2,2-Tetrachloroethane	ND	1
Chlorobenzene	ND	1
1,3-Dichlorobenzene	ND	1
1,4-Dichlorobenzene	ND	1
1,2-Dichlorobenzene	ND	1

ND = Not detected at or above reporting limit.

QA/QC SUMMARY

Surrogate Recovery, %	107

Curtis & Tompkins, Ltd.

LABORATORY NUMBER: 114192-METHOD BLANK
CLIENT: THE EARTH TECHNOLOGY CORPORATION
PROJECT ID: 690262.03
LOCATION: PG&E COLISEUM
SAMPLE ID: N/A

DATE SAMPLED: N/A
DATE RECEIVED: N/A
DATE ANALYZED: 02/09/94
DATE REPORTED: 02/11/94

EPA 8010
Purgeable Halocarbons in Water

Compound	Result ug/L	Reporting Limit ug/L
Chloromethane	ND	2
Bromomethane	ND	2
Vinyl chloride	ND	2
Chloroethane	ND	2
Methylene chloride	ND	20
Trichlorofluoromethane	ND	1
1,1-Dichloroethene	ND	1
1,1-Dichloroethane	ND	1
cis-1,2-Dichloroethene	ND	1
trans-1,2-Dichloroethene	ND	1
Chloroform	ND	1
Freon 113	ND	1
1,2-Dichloroethane	ND	1
1,1,1-Trichloroethane	ND	1
Carbon tetrachloride	ND	1
Bromodichloromethane	ND	1
1,2-Dichloropropane	ND	1
cis-1,3-Dichloropropene	ND	1
Trichloroethene	ND	1
1,1,2-Trichloroethane	ND	1
trans-1,3-Dichloropropene	ND	1
Dibromochloromethane	ND	1
Bromoform	ND	2
Tetrachloroethene	ND	1
1,1,2,2-Tetrachloroethane	ND	1
Chlorobenzene	ND	1
1,3-Dichlorobenzene	ND	1
1,4-Dichlorobenzene	ND	1
1,2-Dichlorobenzene	ND	1

ND = Not detected at or above reporting limit.

QA/QC SUMMARY

Surrogate Recovery, %	103

Curtis & Tompkins, Ltd

Curtis & Tompkins, Ltd.

8010 MS/MSD Report

Matrix Sample Number: QC57194
Matrix Sample File: 038E031.raw
Matrix: WATER
Batch No: 38 948725 948726 948724

Date Analyzed: 08-FEB-94
Spike File: 038E032.raw
Spike Dup File: 038E033.raw
Analyst: JM

	Instrdg	SpikeAmt	% Rec	Limits
MS RESULTS				
1,1-Dichloroethene	14.22	20	71 %	61-145%
Trichloroethene	21.75	20	109 %	71-120%
Chlorobenzene	21.4	20	107 %	75-130%
Surrogate Recovery				
Bromobenzene	104.43	100	104 %	75-125%
MSD RESULTS				
1,1-Dichloroethene	14.93	20	75 %	61-145%
Trichloroethene	22.63	20	113 %	71-120%
Chlorobenzene	21.98	20	110 %	75-130%
Surrogate Recovery				
Bromobenzene	105.25	100	105 %	75-125%
MATRIX RESULTS				
1,1-Dichloroethene	0			
Trichloroethene	0			
Chlorobenzene	0			
RPD DATA				
1,1-Dichloroethene	5 %			< 14%
Trichloroethene	4 %			< 14%
Chlorobenzene	3 %			< 13%

Column: Rtx 502.2
Limits based on 3/90 SOW CLP

Results within Specifications - PASS

T14183

The Earth Technology Corporation

Chain of Custody Record

Lab job no.: _____
Date 1/31/94
Page 1 of 1

Laboratory Curtis & Tompkins
Address 2323 Fifth St
Berkeley CA 94710

Method of Shipment hand
Shipment No. _____
Airbill No. _____
Cooler No. _____
Project Manager Melissa Cooney
Telephone No (510)540-6954
Fax. No. (510)540-7496
Samplers: (Signature) _____

Client PG&E
Address 4930 Coliseum Way
Oakland CA
Project Name PG&E Oakland
Project Number 6902612.03

	Field Sample Number	Location/ Depth	Date	Time	Sample Type	Type/Size of Container	Preservation: Temp.	Preservation: Chemical	Filtered?	No. of Containers	Analysis Required: TPH-d *	TPH/BETX	8010	Lead	Remarks
-1	OW-1		1/31/94	1600	H_2O	4xVOA	4°C			4	X	X			
-2	OW-2		1/31/94	1120	"	1 plastic	4°C			1				X	
-3	OW-4		"	1610	"	2xVOA	4°C			2	X				
-4	OW-5		"	1254	"	5 xVOA/1plastic	4°C			6	X	X	X	X	
-5	OW-6		"	[illegible]	"	5 xVOA	4°C			5	X	X	X	[illegible]	
-6	OW-7		"	1430	"	5 xVOA	4°C			5	X	X	X		
-7	OW-8		"	1242	"	1 plastic	4°C			1				X	
							4°C								
							4°C								
							4°C								
							4°C								
							4°C								

Relinquished by: Signature M.R.Cooney; Printed M.R.Cooney; Company TETC; Reason Analysis — Date 1/31/94; Time 1700

Received by: Signature Teresa McMorris; Printed Teresa Morris; Company C&T — Date 1/31/94; Time 1700

Relinquished by: Signature _____; Printed _____; Company _____; Reason _____ — Date _____; Time _____

Received by: Signature _____; Printed _____; Company _____ — Date _____; Time _____

Relinquished by: Signature _____; Printed _____; Company _____; Reason _____ — Date _____; Time _____

Received by: Signature _____; Printed _____; Company _____ — Date _____; Time _____

Comments:
* No liters for TEH, called Melissa & she said
placed with the rest & she will call back
when the figures not what she wants done.
TPH)

DISTRIBUTION: White to Laboratory, Canary to Earth Technology Project File, Pink to Courier, Golden to Field File

F-1000
10/25/92

1/4/92

The Earth Technology Corporation

Chain of Custody Record

Lab Job no.: _____
Date 2/01/94
Page 1 of 1

Laboratory Curtiss&Tompkins
Address Fifth St
Berkeley, CA

Method of Shipment hand
Shipment No. _____
Airbill No. _____
Cooler No. _____

Client PG&E
Address 4430 Coliseum Way
Oakland CA

Project Manager Melissa Cooney
Telephone No. (510) 540-6954
Fax. No. (510) 540-7496

Project Name PG&E Oakland
Project Number 690262.03

Samplers: (Signature) MRCooney

	Field Sample Number	Location/ Depth	Date	Time	Sample Type	Type/Size of Container	Preservation Temp.	Preservation Chemical	Filtered Y	No. of Containers	Analysis Required: TPHd	Remarks
-1	OW-1		2/1/94	1320	H_2O	1 L glass	4°C			1	X	
-2	OW-4		2/1/94	1312	H_2O	1 L glass	4°C			1	X	
-3	OW-5		2/1/94	1330	H_2O	1 L glass	4°C			1	X	
-4	OW-6		2/1/94	1305	H_2O	1 L glass	4°C			1	X	
-5	OW-7		2/1/94	1300	H_2O	1 L glass	4°C			1	X	
							4°C					
							4°C					
							4°C					
							4°C					
							4°C					
							4°C					
							4°C					

Relinquished by:	Date	Received by:	Date
Signature MRCooney	2/1/94	Signature	2/1/94
Printed M.R. Cooney	Time	Printed Lourinda Brouwer	Time
Company TETC	1350	Company CET Berkeley	1350
Reason Analysis			

Relinquished by:	Date	Received by:	Date
Signature		Signature	
Printed	Time	Printed	Time
Company		Company	
Reason			

Relinquished by:	Date	Received by:	Date
Signature		Signature	
Printed	Time	Printed	Time
Company		Company	
Reason			

Comments: Normal TAT

Analyze TRIP BLANK for 8010 + TVH/BTXE
per MC. - TKM 2/1/94

DISTRIBUTION: White to Laboratory, Canary to Earth Technology Project File, Pink to Courier, Golden to Field File

F-1000
10/25/92

APPENDIX B

Table of the Historical Results of Laboratory Analyses

MONITORING WELL OW-1
HISTORICAL WATER QUALITY DATA

Well ID	MCL	OW-1	OW-1	OW-1	OW-1	OW-1	OW-1	OW-1	OW-1	OW-1	OW-1	OW-1	OW-1	OW-1	OW-1	OW-1	OW-1	OW-1	OW-1
Date	(ug/L)	Apr-88	Oct-89	Jan-90	Apr-90	Jul-90	Oct-90	Jan-91	Apr-91	Jul-91	Dec-91	Mar-92	Jul-92	Oct-92	Jan-93	Apr-93	Jul-93	Oct-93	Jan-94
PURGEABLE HALOCARBONS																			
Chloromethane		ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	NA	NA	NA	NA
Bromomethane		ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	NA	NA	NA	NA
Vinyl chloride	0.5	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	NA	NA	NA	NA
Chloroethane		ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	NA	NA	NA	NA
Methylene Chloride	5(a)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	NA	NA	NA	NA
Trichlorofluoromethane	150	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	NA	NA	NA	NA
1,1-Dichloroethene	6	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	NA	NA	NA	NA
1,1-Dichloroethane	5	ND	5	4	4	2	2	1	2.6	4.6	ND	ND	ND	1	3	NA	NA	NA	NA
cis-1,2-Dichloroethene	6	NA	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	NA	NA	NA	NA
trans-1,2-Dichloroethene	10	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	NA	NA	NA	NA
Chloroform	100(a)(b)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	NA	NA	NA	NA
Freon 113	1200	NA	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	NA	NA	NA	NA
1,2-Dichloroethane	0.5	ND	ND	ND	ND	ND	ND	ND	0.63	ND	ND	ND	ND	ND	ND	NA	NA	NA	NA
1,1,1-Trichloroethane	200	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	NA	NA	NA	NA
Carbon Tetrachloride	0.5	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	NA	NA	NA	NA
Bromodichloromethane	100(a)(b)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	NA	NA	NA	NA
1,2-Dichloropropane	5	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	NA	NA	NA	NA
cis-1,3-Dichloropropene	0.5(d)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	NA	NA	NA	NA
Trichloroethylene	5	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	NA	NA	NA	NA
1,1,2-Trichloroethane	32	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	NA	NA	NA	NA
trans-1,3-Dichloropropene	0.5(d)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	NA	NA	NA	NA
Dibromochloromethane	100(a)(b)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	NA	NA	NA	NA
2-Chloroethylvinyl Ether		ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	NA	NA	NA	NA
Bromoform	100(a)(b)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	NA	NA	NA	NA
Tetrachloroethylene	5	ND	ND	ND	ND	ND	ND	ND	1.1	ND	ND	ND	ND	ND	ND	NA	NA	NA	NA
1,1,2,2-Tetrachloroethane	1	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	NA	NA	NA	NA
Chlorobenzene	30	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	NA	NA	NA	NA
1,3-Dichlorobenzene	600(e)	NA	NA	1	4	4	1	3	1.8	2.9	ND	ND	ND	ND	ND	NA	NA	NA	NA
1,2-Dichlorobenzene	600(a)	Total	Total	ND	ND	ND	ND	ND	0.58	ND	ND	ND	ND	ND	ND	NA	NA	NA	NA
1,4-Dichlorobenzene	5	4	11	5	13	11	6	3	6.7	14	3.2	ND	4	3	3	NA	NA	NA	NA
PURGEABLE AROMATICS																			
Benzene	1	ND	ND	3.2	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	NA	ND	NA	ND
Toluene	1000(a)	ND	ND	2.3	0.4	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	NA	ND	NA	ND
Ethylbenzene	680	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	0.7	ND	ND	NA	ND	NA	ND
Total Xylenes	1750(c)	NA	ND	2.6	2.4	ND	ND	ND	ND	ND	ND	3.2	9	1.7	1.9	NA	ND	NA	2.5
TOTAL VOCs		4	16	18.1	23.8	17	9	7	13.41	21.5	3.2	3.2	13.7	5.7	8.5		0		2.5
HYDROCARBONS																			
TVH-g		NA	NA	< 50	82	< 50	< 50	< 500	NA	NA	NA	100	320	< 50	70	NA	NA	NA	80
TEPH-d		< 1000	< 1000	180	300	200	200	90	< 200	< 50	1600	3100	3900	1000	2000	NA	2300	NA	1000
O&G		< 5000	16000	NA	NA	NA	NA	NA	NA	< 5000	< 5000	< 5000	NA	NA	NA	NA	NA	NA	NA
TPH (418.1)		NA	NA	< 5000	< 5000	< 5000	< 5000	< 5000	< 500	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
METALS																			
Lead	50	NA	NA	NA	NA	NA	NA	NA	ND	NA	NA	ND	ND	ND	ND	NA	NA	NA	NA

Notes:

1) MCL = Maximum Contaminant Level in drinking water
(State MCL if not noted otherwise)
2) (a) = EPA MCL
3) (b) = MCL for sum of four compounds
4) (c) = MCL for sum of all xylene isomers
5) (d) = MCL for sum of trans- and cis-1,3-Dichloropropene
6) ND = Not Detected at or above MDL
7) Purgeable Halocarbons (EPA method 8010)
8) Purgeable Aromatics (EPA method 8020)
9) (e) = Proposed
10) NA = Not analyzed

MONITORING WELL OW-2
HISTORICAL WATER QUALITY DATA

Well ID Date PURGEABLE HALOCARBONS	MCL (ug/L)	OW-2 Apr-88	OW-2 Oct-89	OW-2 Jan-90	OW-2 Apr-90	OW-2 Jul-90	OW-2 Oct-90	OW-2 Jan-91	OW-2 Apr-91	OW-2 Jul-91	OW-2 Dec-91	OW-2 Mar-92	OW-2 Jul-92	OW-2 Oct-92	OW-2 Jan-93	OW-2 Apr-93	OW-2 Jul-93	OW-2 Oct-93	OW-2 Jan-94
Chloromethane		ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	NA	NA	NA	NA
Bromomethane		ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	NA	NA	NA	NA
Vinyl chloride	0.5	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	NA	NA	NA	NA
Chloroethane		ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	NA	NA	NA	NA
Methylene Chloride	5(a)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	NA	NA	NA	NA
Trichlorofluoromethane	150	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	NA	NA	NA	NA
1,1-Dichloroethene	6	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	NA	NA	NA	NA
1,1-Dichloroethane	5	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	NA	NA	NA	NA
cis-1,2-Dichloroethene	6	NA	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	NA	NA	NA	NA
trans-1,2-Dichloroethene	10	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	NA	NA	NA	NA
Chloroform	100(a) (b)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	NA	NA	NA	NA
Freon 113	1200	NA	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	NA	NA	NA	NA
1,2-Dichloroethane	0.5	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	NA	NA	NA	NA
1,1,1-Trichloroethane	200	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	NA	NA	NA	NA
Carbon Tetrachloride	0.5	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	NA	NA	NA	NA
Bromodichloromethane	100(a) (b)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	NA	NA	NA	NA
1,2-Dichloropropane	5	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	NA	NA	NA	NA
cis-1,3-Dichloropropene	0.5(d)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	NA	NA	NA	NA
Trichloroethylene	5	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	NA	NA	NA	NA
1,1,2-Trichloroethane	32	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	NA	NA	NA	NA
trans-1,3-Dichloropropene	0.5(d)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	NA	NA	NA	NA
Dibromochloromethane	100(a) (b)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	NA	NA	NA	NA
2-Chloroethylvinyl Ether		ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	NA	NA	NA	NA
Bromoform	100(a) (b)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	NA	NA	NA	NA
Tetrachloroethylene	5	ND	ND	ND	ND	ND	ND	ND	0.53	ND	ND	ND	ND	ND	ND	NA	NA	NA	NA
1,1,2,2-Tetrachloroethane	1	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	NA	NA	NA	NA
Chlorobenzene	30	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	NA	NA	NA	NA
1,3-Dichlorobenzene	600(e)	NA	NA	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	NA	NA	NA	NA
1,2-Dichlorobenzene	600(a)	NA	NA	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	NA	NA	NA	NA
1,4-Dichlorobenzene	5	NA	NA	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	NA	NA	NA	NA
PURGEABLE AROMATICS																			
Benzene	1	ND	ND	0.4	ND	ND	ND	ND	ND	ND	ND	1.4	ND	ND	ND	NA	NA	NA	NA
Toluene	1000(a)	ND	ND	0.4	0.6	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	NA	NA	NA	NA
Ethylbenzene	680	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	NA	NA	NA	NA
Total Xylenes	1750(c)		ND	0.4	0.8	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	NA	NA	NA	NA
TOTAL VOCs		0	0	1.2	1.4	0	0	0	0.53	0	0	1.4	0	0	0	NA	NA	NA	NA
HYDROCARBONS																			
TVH-g		NA	NA	< 50	< 50	< 50	< 50	< 50	NA	NA	NA	< 50	< 50	< 50	< 50	NA	NA	NA	NA
TEPH-d		< 1000	< 1000	130	140	68	90	< 50	< 200	< 50	650	670	410	410	620	NA	NA	NA	NA
O&G		16000	16000	NA	NA	NA	NA	NA	NA	< 5000	< 5000	< 5000	NA	NA	NA	NA	NA	NA	NA
TPH (418.1)		NA	NA	< 5000	< 5000	< 5000	< 5000	< 5000	< 500	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
METALS																			
Lead	50	NA	NA	NA	NA	NA	NA	NA	ND	NA	NA	ND	ND	ND	ND	ND	ND	ND	8

Notes:
1) MCL = Maximum Contaminant Level in drinking water
(State MCL if not noted otherwise)
2) (a) = EPA MCL
3) (b) = MCL for sum of four compounds
4) (c) = MCL for sum of all xylene isomers
5) (d) = MCL for sum of trans- and cis-1,3-Dichloropropene
6) ND = Not Detected at or above MDL
7) Purgeable Halocarbons (EPA method 8010)
8) Purgeable Aromatics (EPA method 8020)
9) (e) = Proposed
10) NA = Not analyzed

MONITORING WELL OW-4
HISTORICAL WATER QUALITY DATA

Well ID Date PURGEABLE HALOCARBONS	MCL (ug/L)	OW-4 June-88	OW-4 Oct-89	OW-4 Jan-90	OW-4 Apr-90	OW-4 Jul-90	OW-4 Oct-90	OW-4 Jan-91	OW-4 Apr-91	OW-4 Jul-91	OW-4 Dec-91	OW-4 Mar-92	OW-4 Jul-92	OW-4 Oct-92	OW-4 Jan-93	OW-4 Apr-93	OW-4 Jul-93	OW-4 Oct-93	OW-4 Jan-94
Chloromethane		ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	NA	NA	NA	NA
Bromomethane		ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	NA	NA	NA	NA
Vinyl chloride	0.5	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	NA	NA	NA	NA
Chloroethane		ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	NA	NA	NA	NA
Methylene Chloride	5(a)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	NA	NA	NA	NA
Trichlorofluoromethane	150	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	NA	NA	NA	NA
1,1-Dichloroethene	6	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	NA	NA	NA	NA
1,1-Dichloroethane	5	ND	ND	ND	ND	ND	ND	3	6.1	9.4	ND	7	4	4	3	NA	NA	NA	NA
cis-1,2-Dichloroethene	6	NA	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	NA	NA	NA	NA
trans-1,2-Dichloroethene	10	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	NA	NA	NA	NA
Chloroform	100(a)(b)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	NA	NA	NA	NA
Freon 113	1200	NA	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	NA	NA	NA	NA
1,2-Dichloroethane	0.5	ND	ND	ND	ND	ND	ND	ND	0.49	ND	ND	ND	ND	ND	ND	NA	NA	NA	NA
1,1,1-Trichloroethane	200	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	NA	NA	NA	NA
Carbon Tetrachloride	0.5	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	NA	NA	NA	NA
Bromodichloromethane	100(a)(b)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	NA	NA	NA	NA
1,2-Dichloropropane	5	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	NA	NA	NA	NA
cis-1,3-Dichloropropene	0.5(d)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	NA	NA	NA	NA
Trichloroethylene	5	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	NA	NA	NA	NA
1,1,2-Trichloroethane	32	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	NA	NA	NA	NA
trans-1,3-Dichloropropene	0.5(d)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	NA	NA	NA	NA
Dibromochloromethane	100(a)(b)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	NA	NA	NA	NA
2-Chloroethylvinyl Ether		ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	NA	NA	NA	NA
Bromoform	100(a)(b)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	NA	NA	NA	NA
Tetrachloroethylene	5	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	NA	NA	NA	NA
1,1,2,2-Tetrachloroethane	1	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	NA	NA	NA	NA
Chlorobenzene	30	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	NA	NA	NA	NA
1,3-Dichlorobenzene	600(e)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	NA	NA	NA	NA
1,2-Dichlorobenzene	600(a)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	NA	NA	NA	NA
1,4-Dichlorobenzene	5	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	NA	NA	NA	NA
PURGEABLE AROMATICS																			
Benzene	1	ND	ND	ND	0.5	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	NA	NA	NA	NA
Toluene	1000(a)	ND	ND	ND	0.6	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	NA	NA	NA	NA
Ethylbenzene	680	ND	ND	ND	0.3	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	NA	NA	NA	NA
Total Xylenes	1750(c)	ND	ND	0.6	2	ND	ND	ND	ND	ND	ND	0.7	ND	ND	ND	NA	NA	NA	NA
TOTAL VOCs		0	0	0.6	3.4	0	0	3	6.59	9.4	0	7.7	4	4	3	NA	NA	NA	NA
HYDROCARBONS																			
TVH-g		NA	NA	<50	<50	<50	<50	<50	NA	NA	NA	< 50	< 50	< 50	< 50	NA	NA	NA	NA
TEPH-d		< 1000	< 1000	150	210	150	150	<50	580	< 50	2000	2100	820	1300	2100	NA	1500	NA	900
O&G		< 5000	< 5000	NA	NA	NA	NA	NA	NA	< 5000	< 5000	< 5000	NA	NA	NA	NA	NA	NA	NA
TPH (418.1)		NA	NA	< 5000	< 5000	< 5000	< 5000	< 5000	< 500	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
METALS																			
Lead	50	NA	NA	NA	NA	NA	NA	NA	ND	NA	NA	ND	5	ND	ND	NA	ND	NA	NA

Notes:
1) MCL = Maximum Contaminant Level in drinking water
(State MCL if not noted otherwise)
2) (a) = EPA MCL
3) (b) = MCL for sum of four compounds
4) (c) = MCL for sum of all xylene isomers
5) (d) = MCL for sum of trans- and cis-1,3-Dichloropropene
6) ND = Not Detected at or above MDL
7) Purgeable Halocarbons (EPA method 8010)
8) Purgeable Aromatics (EPA method 8020)
9) (e) = Proposed
10) NA = Not analyzed

MONITORING WELL OW-5
HISTORICAL WATER QUALITY DATA

Well ID Date PURGEABLE HALOCARBONS	MCL (ug/L)	OW-5 Apr-91	OW-5 Jul-91	OW-5 Dec-91	OW-5 Mar-92	OW-5 Jul-92	OW-5 Oct-92	OW-5 Jan-93	OW-5 Apr-93	OW-5 Jul-93	OW-5 Oct-93	OW-5 Jan-94
Chloromethane		ND	ND	ND	ND	ND	ND	ND	NA	ND	NA	ND
Bromomethane		ND	ND	ND	ND	ND	ND	ND	NA	ND	NA	ND
Vinyl chloride	0.5	ND	ND	ND	ND	ND	ND	ND	NA	ND	NA	ND
Chloroethane		ND	ND	ND	ND	ND	ND	ND	NA	ND	NA	ND
Methylene Chloride	5(a)	ND	ND	ND	ND	ND	ND	ND	NA	ND	NA	ND
Trichlorofluoromethane	150	ND	ND	ND	ND	ND	ND	ND	NA	ND	NA	ND
1,1-Dichloroethene	6	ND	ND	ND	ND	ND	ND	ND	NA	ND	NA	ND
1,1-Dichloroethane	5	1.8	7.2	ND	4	6	13	5	NA	6	NA	2
cis-1,2-Dichloroethene	6	ND	ND	ND	ND	ND	ND	ND	NA	ND	NA	ND
trans-1,2-Dichloroethene	10	ND	ND	ND	ND	ND	ND	ND	NA	ND	NA	ND
Chloroform	100(a)(b)	ND	ND	ND	ND	ND	ND	ND	NA	ND	NA	ND
Freon 113	1200	ND	ND	ND	ND	ND	ND	ND	NA	ND	NA	ND
1,2-Dichloroethane	0.5	ND	ND	ND	ND	ND	ND	ND	NA	ND	NA	ND
1,1,1-Trichloroethane	200	6	26	18	12	25	28	7	NA	7	NA	2
Carbon Tetrachloride	0.5	ND	ND	ND	ND	ND	ND	ND	NA	ND	NA	ND
Bromodichloromethane	100(a)(b)	ND	ND	ND	ND	ND	ND	ND	NA	ND	NA	ND
1,2-Dichloropropane	5	ND	ND	ND	ND	ND	ND	ND	NA	ND	NA	ND
cis-1,3-Dichloropropene	0.5(d)	ND	ND	ND	ND	ND	ND	ND	NA	ND	NA	ND
Trichloroethylene	5	0.75	ND	ND	ND	ND	ND	ND	NA	ND	NA	ND
1,1,2-Trichloroethane	32	ND	ND	ND	ND	ND	ND	ND	NA	ND	NA	ND
trans-1,3-Dichloropropene	0.5(d)	ND	ND	ND	ND	ND	ND	ND	NA	ND	NA	ND
Dibromochloromethane	100(a)(b)	ND	ND	ND	ND	ND	ND	ND	NA	ND	NA	ND
2-Chloroethylvinyl Ether		ND	ND	ND	ND	ND	ND	ND	NA	ND	NA	ND
Bromoform	100(a)(b)	ND	ND	ND	ND	ND	ND	ND	NA	ND	NA	ND
Tetrachloroethylene	5	0.7	ND	ND	ND	ND	ND	ND	NA	ND	NA	ND
1,1,2,2-Tetrachloroethane	1	ND	ND	ND	ND	ND	ND	ND	NA	ND	NA	ND
Chlorobenzene	30	ND	ND	ND	ND	ND	ND	ND	NA	ND	NA	ND
1,3-Dichlorobenzene	600(e)	ND	ND	ND	ND	ND	ND	ND	NA	ND	NA	ND
1,2-Dichlorobenzene	600(a)	ND	ND	ND	ND	ND	ND	ND	NA	ND	NA	ND
1,4-Dichlorobenzene	5	ND	ND	ND	ND	ND	ND	ND	NA	ND	NA	ND
PURGEABLE AROMATICS												
Benzene	1	14	20	11	15	11	13	28	NA	14	NA	21
Toluene	1000(a)	0.54	ND	ND	1.1	ND	ND	ND	NA	ND	NA	ND
Ethylbenzene	680	0.58	ND	ND	0.6	ND	ND	0.7	NA	ND	NA	0.7
Total Xylenes	1750(c)	5.6	4	6.9	5.1	6	3.6	13	NA	2.4	NA	9.2
TOTAL VOCs		29.97	57.2	35.9	37.8	50	57.6	51.7	NA	29.4	NA	34.9
HYDROCARBONS												
TVH-g		NA	NA	NA	120	270	160	350	NA	140	NA	370
TEPH-d		600	1500	1200	840	650	1000	1000	NA	1600	NA	510
O&G		NA	< 5000	< 5000	< 5000	NA	NA	NA	NA	NA	NA	ND
TPH (418.1)		< 500	NA	NA	NA	NA	NA	NA	NA	NA	NA	ND
METALS												
Lead	50	ND	NA	NA	ND	ND	ND	ND	ND	ND	ND	7.3

Notes:
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(State MCL if not noted otherwise)
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4) (c) = MCL for sum of all xylene isomers
5) (d) = MCL for sum of trans- and cis-1,3-Dichloropropene
6) ND = Not Detected at or above MDL
7) Purgeable Halocarbons (EPA method 8010)
8) Purgeable Aromatics (EPA method 8020)
9) (e) = Proposed
10) NA = Not analyzed

MONITORING WELLS OW-3 AND OW-6 (OW-6 REPLACED OW-3 IN 1991)
HISTORICAL WATER QUALITY DATA

Well ID / Date	MCL (ug/L)	OW-3 Apr-88	OW-3 June-88	OW-3 Oct-89	OW-3 Jan-90	OW-3 Apr-90	OW-3 Jul-90	OW-3 Oct-90	OW-3 Jan-91	OW-3 Apr-91	OW-3 Jul-91	OW-6 Dec-91	OW-6 Mar-92	OW-6 Jul-92	OW-6 Oct-92	OW-6 Jan-93	OW-6 Apr-93	OW-6 Jul-93	OW-6 Oct-93	OW-6 Jan-94
PURGEABLE HALOCARBONS																				
Chloromethane		ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	NA	ND	NA	ND
Bromomethane		ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	NA	ND	NA	ND
Vinyl chloride	0.5	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	NA	ND	NA	ND
Chloroethane		ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	NA	ND	NA	ND
Methylene Chloride	5(a)	ND	ND	ND	ND	9	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	NA	ND	NA	ND
Trichlorofluoromethane	150	ND	ND	ND	ND	ND	ND	ND	ND	0.82	ND	ND	ND	ND	ND	ND	NA	ND	NA	ND
1,1-Dichloroethene	6	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	NA	ND	NA	ND
1,1-Dichloroethane	5	4	5	28	29	14	17	17	15	16	41	ND	1	2	2	10	NA	23	NA	7
cis-1,2-Dichloroethene	6	NA	NA	ND	ND	33	ND	1	1	ND	ND	ND	ND	ND	ND	ND	NA	ND	NA	ND
trans-1,2-Dichloroethene	10	ND	2	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	NA	ND	NA	ND
Chloroform	100(a)(b)	2	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	NA	ND	NA	ND
Freon 113	1200	NA	NA	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	NA	ND	NA	ND
1,2-Dichloroethane	0.5	ND	ND	ND	ND	ND	ND	ND	ND	0.55	ND	ND	ND	ND	ND	ND	NA	ND	NA	ND
1,1,1-Trichloroethane	200	ND	ND	ND	ND	ND	ND	ND	ND	2.5	ND	ND	ND	ND	ND	10	NA	18	NA	ND
Carbon Tetrachloride	0.5	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	NA	ND	NA	ND
Bromodichloromethane	100(a)(b)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	NA	ND	NA	ND
1,2-Dichloropropane	5	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	NA	ND	NA	ND
cis-1,3-Dichloropropene	0.5(d)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	NA	ND	NA	ND
Trichloroethylene	5	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	NA	ND	NA	ND
1,1,2-Trichloroethane	32	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	NA	ND	NA	ND
trans-1,3-Dichloropropene	0.5(d)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	NA	ND	NA	ND
Dibromochloromethane	100(a)(b)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	NA	ND	NA	ND
2-Chloroethylvinyl Ether		ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	NA	ND	NA	ND
Bromoform	100(a)(b)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	NA	ND	NA	ND
Tetrachloroethylene	5	ND	ND	ND	ND	ND	ND	ND	ND	1.4	ND	ND	ND	ND	ND	ND	NA	ND	NA	ND
1,1,2,2-Tetrachloroethane	1	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	NA	ND	NA	ND
Chlorobenzene	30	ND	1	ND	ND	ND	ND	ND	1	2.3	2	5.7	ND	ND	ND	ND	NA	ND	NA	ND
1,3-Dichlorobenzene	600(e)	NA	NA	NA	3	ND	2	2	1	3.3	ND	15	ND	ND	ND	ND	NA	ND	NA	ND
1,2-Dichlorobenzene	600(a)	NA	NA	NA	2	ND	1	1	1	2.3	ND	5.8	ND	ND	ND	ND	NA	ND	NA	ND
1,4-Dichlorobenzene	5	NA	NA	NA	2	ND	ND	2	1	3.1	ND	23	ND	ND	ND	ND	NA	ND	NA	ND
PURGEABLE AROMATICS																				
Benzene	1	ND	ND	ND	0.5	ND	ND	ND	ND	0.54	ND	ND	ND	ND	ND	ND	NA	0.6	NA	ND
Toluene	1000(a)	ND	ND	ND	0.4	0.8	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	NA	ND	NA	ND
Ethylbenzene	680	ND	ND	ND	ND	0.5	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	NA	1.1	NA	ND
Total Xylenes	1750(c)	NA	NA	ND	0.7	2.1	ND	ND	ND	ND	ND	2	ND	ND	ND	ND	NA	ND	NA	ND
TOTAL VOCs		6	8	28	37.6	59.4	20	23	20	32.81	43	51.5	1	2	2	20	NA	42.7	NA	7
HYDROCARBONS																				
TVH-g		NA	NA	NA	< 50	52	< 50	< 50	< 50	NA	NA	NA	< 50	< 50	< 50	< 50	NA	< 50	NA	70
TEPH-d		< 1000	< 1000	< 1000	440	470	450	130	1310	700	< 50	5500	4900	3500	3900	5300	NA	3500	NA	2200
O&G		< 5000	< 5000	5000	NA	NA	NA	NA	NA	NA	< 5000	< 5000	< 5000	NA	NA	NA	NA	NA	NA	NA
TPH (418.1)		NA	NA	NA	< 5000	< 5000	< 5000	< 5000	< 5000	< 500	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
METALS																				
Lead	50	NA	NA	NA	NA	NA	NA	NA	NA	ND	NA	NA	ND	ND	ND	ND	NA	NA	NA	NA

Notes:
1) MCL = Maximum Contaminant Level in drinking water (State MCL if not noted otherwise)
2) (a) = EPA MCL
3) (b) = MCL for sum of four compounds
4) (c) = MCL for sum of all xylene isomers
5) (d) = MCL for sum of trans- and cis-1,3-Dichloropropene
6) ND = Not Detected at or above MDL
7) Purgeable Halocarbons (EPA method 8010)
8) Purgeable Aromatics (EPA method 8020)
9) (e) = Proposed
10) NA = Not analyzed

MONITORING WELL OW-7
HISTORICAL WATER QUALITY DATA

Well ID	MCL	OW-7	OW-7	OW-7	OW-7	OW-7	OW-7	OW-7	OW-7	OW-7
Date	(ug/L)	Dec-91	Mar-92	Jul-92	Oct-92	Jan-93	Apr-93	Jul-93	Oct-93	Jan-94
PURGEABLE HALOCARBONS										
Chloromethane		ND	ND	ND	ND	ND	NA	ND	NA	ND
Bromomethane		ND	ND	ND	ND	ND	NA	ND	NA	ND
Vinyl chloride	0.5	ND	ND	ND	ND	ND	NA	ND	NA	ND
Chloroethane		ND	ND	ND	ND	ND	NA	ND	NA	ND
Methylene Chloride	5(a)	14	ND	ND	ND	ND	NA	ND	NA	ND
Trichlorofluoromethane	150	ND	ND	ND	ND	ND	NA	ND	NA	ND
1,1-Dichloroethene	6	ND	ND	ND	ND	ND	NA	ND	NA	ND
1,1-Dichloroethane	5	ND	16	ND	ND	25	NA	14	NA	8
cis-1,2-Dichloroethene	6	ND	ND	ND	ND	ND	NA	ND	NA	ND
trans-1,2-Dichloroethene	10	ND	ND	ND	ND	ND	NA	ND	NA	ND
Chloroform	100(a)(b)	ND	ND	ND	ND	ND	NA	ND	NA	ND
Freon 113	1200	ND	ND	ND	ND	ND	NA	ND	NA	ND
1,2-Dichloroethane	0.5	ND	ND	ND	ND	ND	NA	ND	NA	ND
1,1,1-Trichloroethane	200	10	460	29	80	530	NA	73	NA	78
Carbon Tetrachloride	0.5	ND	ND	ND	ND	ND	NA	ND	NA	ND
Bromodichloromethane	100(a)(b)	ND	ND	ND	ND	ND	NA	ND	NA	ND
1,2-Dichloropropane	5	ND	ND	ND	ND	ND	NA	ND	NA	ND
cis-1,3-Dichloropropene	0.5(d)	ND	ND	ND	ND	ND	NA	ND	NA	ND
Trichloroethylene	5	ND	ND	ND	ND	ND	NA	ND	NA	ND
1,1,2-Trichloroethane	32	ND	ND	ND	ND	ND	NA	ND	NA	ND
trans-1,3-Dichloropropene	0.5(d)	ND	ND	ND	ND	ND	NA	ND	NA	ND
Dibromochloromethane	100(a)(b)	ND	ND	ND	ND	ND	NA	ND	NA	ND
2-Chloroethylvinyl Ether		ND	ND	ND	ND	ND	NA	ND	NA	ND
Bromoform	100(a)(b)	ND	ND	ND	ND	ND	NA	ND	NA	ND
Tetrachloroethylene	5	ND	ND	ND	ND	ND	NA	ND	NA	ND
1,1,2,2-Tetrachloroethane	1	ND	ND	ND	ND	ND	NA	ND	NA	ND
Chlorobenzene	30	10	ND	ND	8	ND	NA	29	NA	21
1,3-Dichlorobenzene	600(e)	460	130	420	330	170	NA	540	NA	450
1,2-Dichlorobenzene	600(a)	120	22	95	77	33	NA	110	NA	78
1,4-Dichlorobenzene	5	440	120	400	290	160	NA	470	NA	410
PURGEABLE AROMATICS										
Benzene	1	ND	0.8	1	1.4	0.8	NA	1.5	NA	1.6
Toluene	1000(a)	ND	0.6	0.5	ND	ND	NA	ND	NA	ND
Ethylbenzene	680	ND	ND	0.5	ND	ND	NA	ND	NA	ND
Total Xylenes	1750(c)	ND	2.1	5	ND	ND	NA	ND	NA	4.2
TOTAL VOCs		1054	751.5	951	786.4	818.6	NA	1237.5	NA	1048.8
HYDROCARBONS										
TVH-g		NA	700	1300	1400	720	NA	1500	NA	1400
TEPH-d		7100	4400	2800	3900	2300	NA	4900	NA	4500
O&G		< 5000	< 5000	NA	NA	NA	NA	NA	NA	NA
TPH (418.1)		NA	NA	NA	NA	NA	NA	NA	NA	NA
METALS										
Lead	50	NA	ND	ND	ND	ND	NA	NA	NA	NA

Notes:
1) MCL = Maximum Contaminant Level in drinking water
(State MCL if not noted otherwise)
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