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September 16, 1998

Alameda County Health Care Services Agency  
Department of Environmental Health  
1131 Harbor Bay Parkway, Suite 250  
Alameda, CA 94502-6577  
Attn: Mr. Larry Seto

**SUBJECT: SUBMITTAL OF QUARTERLY GROUNDWATER MONITORING REPORT,  
WEYERHAEUSER PAPER COMPANY, ALAMEDA CORRUGATED BOX FACILITY,  
1801 HIBBARD STR., STID 1202**

Dear Mr. Seto,

West & Associates Environmental Engineers, Inc. respectfully submits the third quarter 1998 groundwater monitoring report for the Weyerhaeuser Paper Company, Alameda Corrugated Box Facility. The monitoring report is submitted in accordance with the interim groundwater monitoring plan proposed in our Site Investigation Report of January 1995.

Groundwater samples were analyzed in accordance with the new analytical schedule defined in the response letter dated May 14, 1996, from your agency.

We look forward to your review of the attached report. Should you require any additional information please contact me at (707) 451-1360.

Yours truly,



Brennan Mahoney CPSS  
Project Manager  
West & Associates Environmental Engineers, Inc.

Enclosure: Groundwater Monitoring Report

cc: James E. McCourt, Weyerhaeuser Office of the Environment, Tacoma

**QUARTERLY GROUNDWATER MONITORING REPORT  
FORMER UNDERGROUND TANK SITES  
JULY - SEPTEMBER 1998**

**WEYERHAEUSER PAPER COMPANY  
ALAMEDA CORRUGATED BOX FACILITY  
1801 Hibbard Street  
Alameda, California  
STID 1202**

Submitted to:

**ALAMEDA COUNTY  
HEALTH CARE SERVICES AGENCY  
DEPARTMENT OF ENVIRONMENTAL HEALTH  
Alameda**

Prepared for:

**THE WEYERHAEUSER CORPORATION  
OFFICE OF THE ENVIRONMENT  
TOXIC/SOLID WASTE TEAM  
Tacoma, Washington**

Prepared by:

**WEST & ASSOCIATES ENVIRONMENTAL ENGINEERS, INC.  
Vacaville**

September 1998

## EXECUTIVE SUMMARY

The Weyerhaeuser Paper Company (WPC) Alameda containerboard facility, at 1801 Hibbard Str., is a corrugated box manufacturing plant. The facility was originally constructed in 1946. Underground fuel tanks had been historically installed at the facility for vehicle, generator and boiler fuel storage. Both gasoline and diesel fuels were formerly stored underground. The last remaining underground tank was removed from the WPC site in January 1994.

The WPC facility is located on Alameda island in San Francisco Bay. The site is less than 0.25 miles west of the Oakland Inner Harbor. Site soils are predominantly sand with minor clay stringers. Unconfined groundwater is 3-6 feet below ground surface and tidally influenced.

There are two separate groundwater study areas at the WPC Alameda site. A former diesel tank site is monitored by one groundwater well (MW-7) on the east side of the property. A former gasoline tank cluster is monitored by seven monitoring wells on west side of the property. Monitoring wells MW-1 through MW-7 were installed by Soil Tech Engineers. Monitoring wells MW-9 through MW-12, MW-3B and MW-4B were installed by West & Associates.

Site investigation at the WPC Alameda facility was concluded in January 1995 with the submittal of a comprehensive report covering all work dating back to 1990. Activity at the site has now shifted to remedial action. In October and November of 1995 contaminated soil was excavated from the site around the former gasoline tank cluster and air sparging lines were installed in the open excavations prior to backfill. A pilot test was performed to evaluate the effectiveness of the newly installed sparging system. Based on results of the pilot test, continuous operation of the sparging system was initiated on March 29, 1996.

During the remedial excavation program monitoring wells MW-1, MW-2, MW-3, MW-4 and MW-9 were removed. In December 1995 two new wells MW-3B and MW-4B were installed in two locations within the newly backfilled excavation area, near the former locations of MW-3 and MW-4, respectively. A total of eight monitoring wells now exist at the site.

A groundwater monitoring program is in effect at the WPC Alameda site. Groundwater monitoring, which consists of depth to groundwater measurements and collection of groundwater samples for chemical analysis, is conducted quarterly. Third quarter groundwater monitoring activities for 1998 were conducted on August 13, 1998.

In correspondence dated May 14, 1996, Alameda County, Environmental Health Services (ACEHS) approved a modified analytical schedule proposed by West & Associates in the March 1996 Quarterly Groundwater Monitoring Report. The frequency of EPA Method 624 and 625 (Naphthalene) analysis for groundwater samples has been revised from quarterly to semi-annual. Groundwater samples were analyzed by EPA Methods 624 and 625 (naphthalene) this quarter.

WPC ALAMEDA GROUNDWATER MONITORING REPORT - EXECUTIVE SUMMARY CONTINUED

During February and March 1998 manufacturing activities at the WPC Alameda plant were discontinued. The property is now vacant. The groundwater treatment system was turned off in February 1998. Two quarters of groundwater monitoring have taken place since the sparging system was turned off. No significant rebounds in contaminant concentrations have been observed over the last two quarters of monitoring.

Based on a continuing trend of decreasing groundwater contamination for 6 months after discontinuing active remediation, it is concluded that groundwater quality will continue to improve at the WPC Alameda site. No further active remediation is needed or recommended. The WPC Alameda site is now eligible for permanent closure.

## ACKNOWLEDGEMENTS

This report was prepared under authorization of the Weyerhaeuser Corporation, Office of the Environment, Toxic/Solid Waste Team, Tacoma, Washington. The Weyerhaeuser project officer is Mr. James McCourt, CH 1L28, PO Box 2999, Tacoma, Washington 98477-2999; (253) 924-6513.

No Weyerhaeuser employees remain at the Alameda Containerboard plant, however security guards are present 24 hours each day. The Alameda plant address is 1801 Hibbard Street, PO Drawer X, Alameda, CA 95601; (510) 814-1167.

The lead regulatory agency for the Weyerhaeuser Alameda plant is the Alameda County Health Care Agency, Department of Environmental Health. Mr. Larry Seto is the staff person assigned; (510) 567-6774. The Department of Environmental Health is located at 1131 Harbor Bay Parkway, Suite 250, Alameda, CA 94502-6577.

In the preparation of this quarterly report reliance was made on past site work performed by Soil Tech Engineering, Inc. Soil Tech Engineering is located at 298 Brokaw Road, Santa Clara, CA 95050; (408) 496-0265.

Analytical work performed for this quarters monitoring was sub-contracted to Excelchem Environmental Labs located in Roseville, California. Excelchem is certified by the State Department of Health Services for the analyses performed.

This quarterly groundwater monitoring report was prepared by West & Associates Environmental Engineers, Inc. West & Associates is located at 630 Eubanks Ct., Unit G, Vacaville, CA 95688; mailing address, PO Box 5891, Vacaville 95696; (707) 451-1360. Principal authors are Mr. Brennan Mahoney CPSS and Mr. Brian W. West PE. (Registered California Civil Engineer No. 32319 - expires 12/31/00).



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## 1.0 INTRODUCTION

Groundwater conditions are periodically monitored at the Weyerhaeuser Paper Company Alameda Containerboard plant based on a schedule proposed to the Alameda County Environmental Health Agency in January 1995 (and amended in May 1996). This report presents results of groundwater monitoring performed during the third quarter (July - Sept.) of 1998.

This quarter, groundwater monitoring was performed on August 13, 1998. During groundwater sampling activities, all eight of the existing monitoring wells were inspected for the presence of floating product, measured for depth to groundwater and samples collected for chemical analysis.

In the following Sections, monitoring procedures are described, monitoring data is summarized and a discussion of results are presented. Technical data is included in the appendix.

### 1.1 Scope

The scope of this project included performing quarterly groundwater monitoring at Weyerhaeuser Paper Company (WPC) Alameda property, 1801 Hibbard Str., in Alameda. Figure 1 illustrates the WPC Alameda regional setting. Figure 2 depicts the site location. Specific scope items include:

- Check eight existing monitoring wells for floating product
- Measure depth to groundwater in all eight monitoring wells
- Determine the groundwater gradient profile
- Collect groundwater samples from all eight monitoring wells
- Analyze groundwater samples for contaminants of interest
- Prepare a written report of findings
- Properly manage sampling residues

### 1.2 Summarized Background

The Weyerhaeuser Paper Company (WPC) Alameda facility located at 1801 Hibbard Str. manufactures corrugated cardboard boxes. The facility was originally constructed in 1946. Underground fuel tanks (UGT) had been historically installed at the facility for vehicle, generator and boiler fuel storage. Both gasoline and diesel fuels were formerly stored. The last remaining UGT was removed from the WPC site in January 1994.

At the end of 1990 the WPC facility was equipped with five underground fuel storage tanks. The five tanks were distributed in three separate installations located along the northwestern side of the facility. The locations of the five former UGTs are presented on Figure 3.

In early 1991 Weyerhaeuser removed a cluster of three, 550 gallon gasoline tanks and one, 10,000 gallon diesel tank. Upon removal, the 10,000 gallon diesel tank installation was found to be virtually uncontaminated, however, significant soil and groundwater contamination was encountered at the gasoline tank cluster location.

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PO Box 5891, Vacaville, California 95696

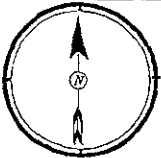
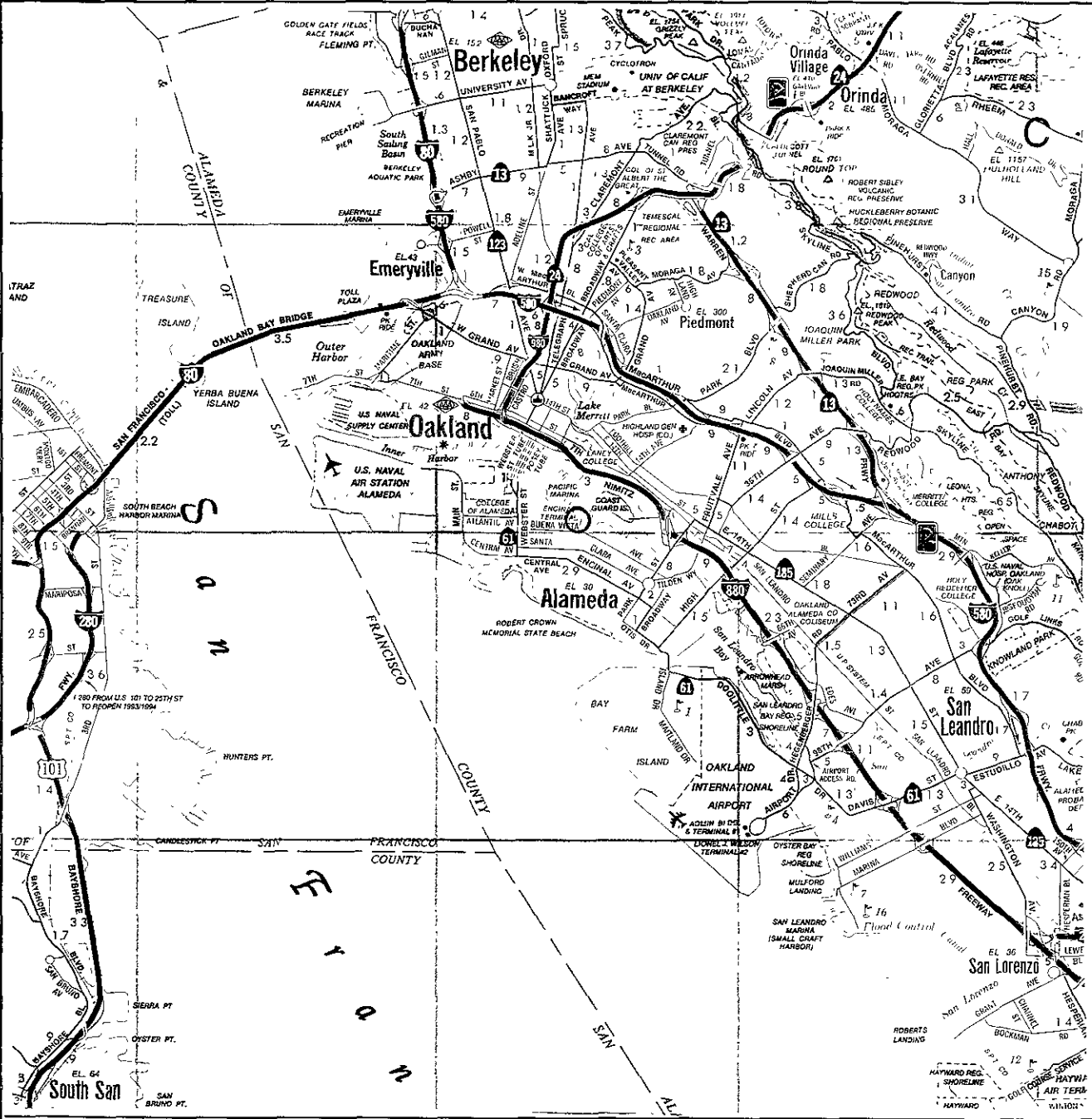
Project Name: Weyerhaeuser Paper Company - Alameda

Date: Jan. 1995

Location: 1801 Hibbard Str., Alameda, California 94501

Drawing By: BWV

Scale: 1" = 2.5 miles



LEGEND

WPC ALAMEDA FACILITY - REGIONAL SETTING  
○ SITE LOCATION

Figure 1  
WPC ALAMEDA FACILITY - REGIONAL SETTING



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PO Box 5891, Vacaville, California 95696

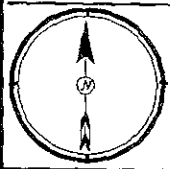
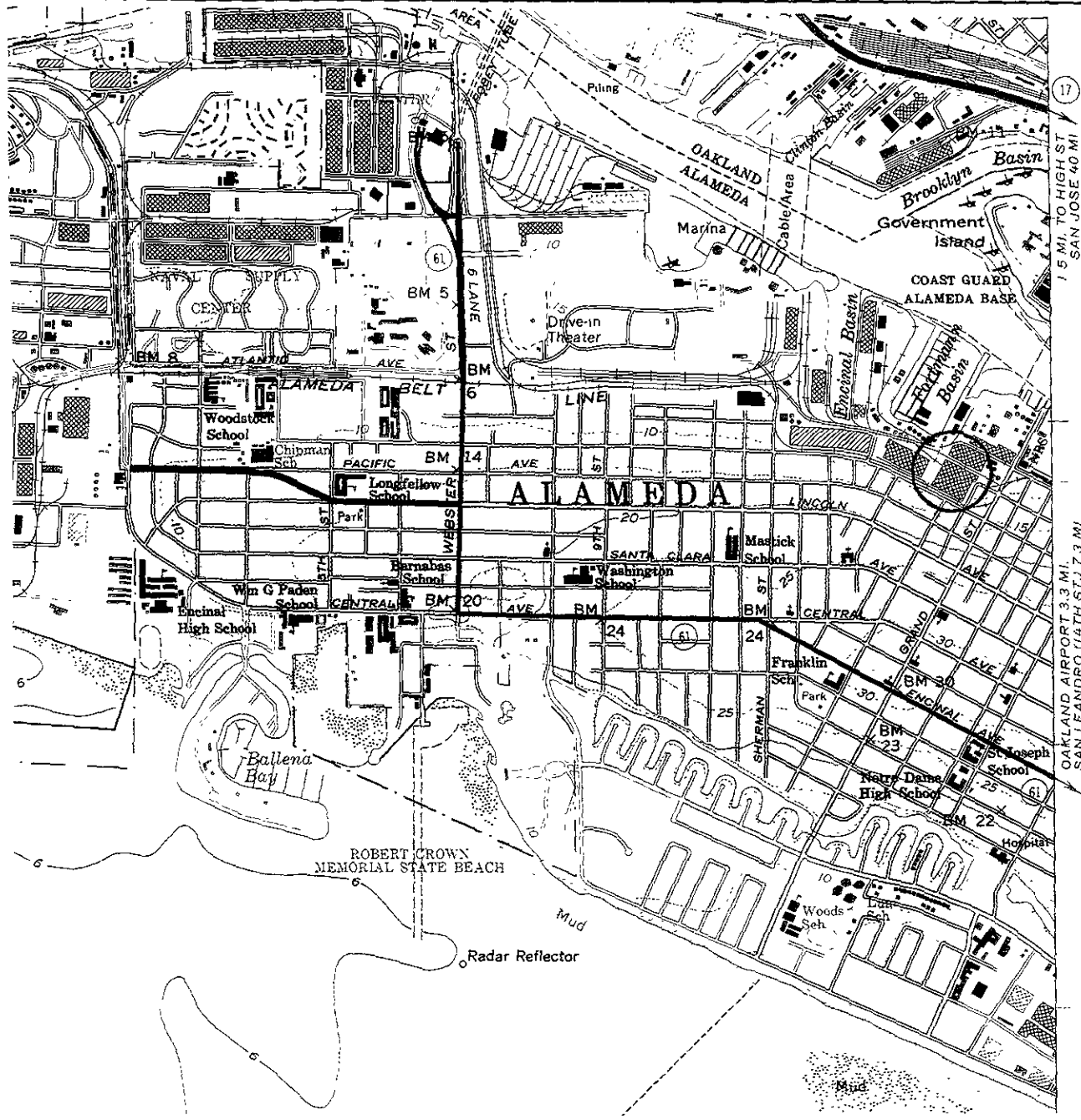
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Date: Jan. 1995

Location: 1801 Hibbard Str., Alameda, California 94501

Drawing By: BWW

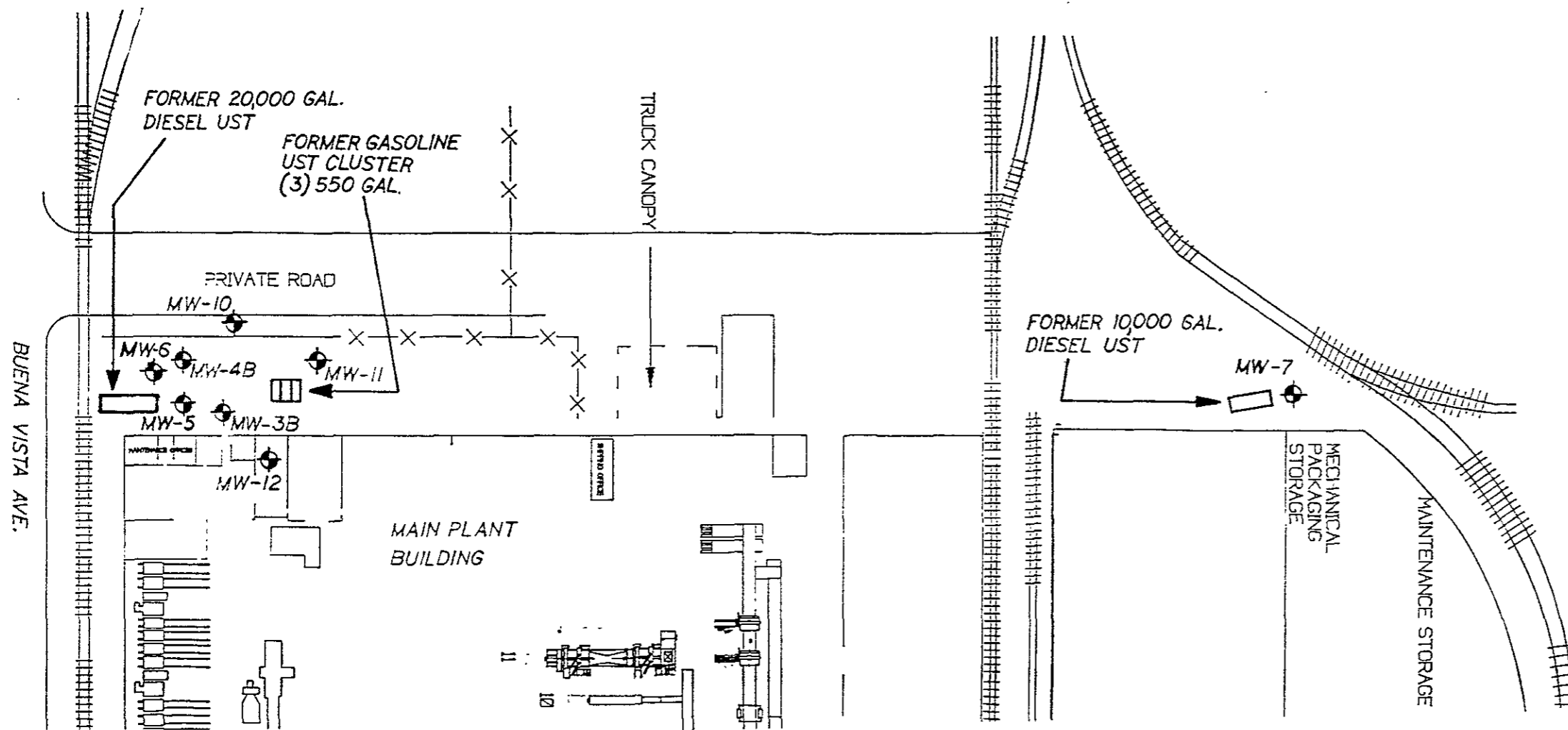
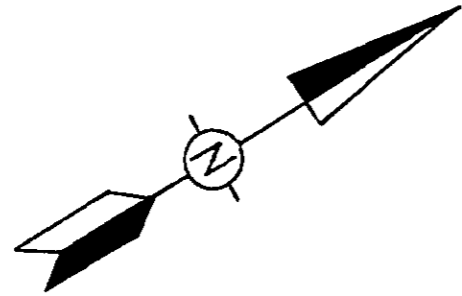
Scale: 1" = 0.4 Miles



LEGEND

Figure 2  
WPC ALAMEDA FACILITY - SITE LOCATION  
○ SITE LOCATION

OAKLAND  
INNER CHANNEL



WEST & ASSOCIATES  
ENVIRONMENTAL ENGINEERS, INC.  
P.O. BOX 5591, VACAVILLE, CA 95696

SHEET NAME  
**SITE DIAGRAM**

PROJECT: **WEYERHAEUSER-ALAMEDA**

APPROVED BY:	DRAWN BY: <b>BGM</b>
SCALE: <b>1"=100'</b>	REVISED <b>JUNE 1998</b>
DATE: <b>JUNE 1997</b>	SHEET NUMBER <b>FIGURE 3</b>

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The tank removal contractor performed overexcavation at the gasoline tank cluster location in an attempt to remediate soil contamination. Between February and April 1991 the tank excavation was enlarged from 460 ft<sup>2</sup> to 640 ft<sup>2</sup> and then to 930 ft<sup>2</sup>.

Four soil samples were collected from the gasoline tank cluster pit sidewalls at the conclusion of overexcavation. Only one endpoint sidewall soil sample (Sample No. 11) was non-detectable for all tested chemical constituents. One of the sidewall soil samples (Sample No. 9) was found to contain only trace levels of toluene. The other two endpoint soil samples (Sample No.'s 8 & 10), were found to contain low levels of TPH and BTXE compounds.

During the time the gasoline tank cluster excavation was open, the standing groundwater level in the pit was observed to rise from greater than 8 feet to less than 4 feet below ground surface. The file record indicates endpoint soil samples were collected from higher on the pit sidewalls as the water level rose.

Both the gasoline tank cluster and diesel tank excavations were backfilled with clean fill. Contaminated soil was transported to off-site disposal.

In December 1991 and again in April 1992, Soil Tech Engineering performed soils and groundwater investigations near the former gasoline tank cluster. A total of six groundwater monitoring wells were installed. Soil samples for laboratory analysis were collected during monitoring well installation. Between December 1991 and July 1993 Soil Tech performed groundwater monitoring on six occasions.

In December 1992, Soil Tech constructed one monitoring well (MW-7) adjacent to the former underground diesel tank, increasing the total number of site wells to seven. STE monitored MW-7 a total of 3 times.

Soil Tech's investigations revealed significant remaining soil contamination as well as widespread groundwater contamination in the vicinity of the former gasoline tank cluster. The six soil borings and monitoring wells completed by STE did not fully define the total extent of either soil or groundwater contamination around the former gasoline tank cluster.

In January 1994 the last remaining underground fuel storage tank, (20,000 gallon diesel) was removed from the WPC property. No evidence of any leakage from the diesel tank was encountered, however, soil contamination from the 1991 gasoline tank cluster was observed on the east sidewall of the diesel tank pit.

West & Associates Environmental Engineers submitted a proposed workplan for additional site investigation to the Alameda County Health Care Agency in November 1993. Site investigations were performed in January and February 1994. In May 1994 a supplemental workplan was submitted to conduct further investigation under the main plant building. In June 1994 an interim report of findings was submitted and in October 1994 clarifications to the May supplemental workplan were submitted to the

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County. Final site investigation field work took place in September and December 1994.

In October and November 1995 contaminated soil was excavated from the site around the former gasoline tank cluster and air sparging lines were installed in the open excavations prior to backfill. Some of the contaminated soil was aerated on site and reused as backfill material and some was transported to a local landfill for disposal.

During the remedial excavation program monitoring wells MW-1, MW-2, MW-3, MW-4 and MW-9 were removed. In December 1995 two new wells MW-3B and MW-4B were installed in two locations within the newly backfilled excavation area, near the former locations of MW-3 and MW-4, respectively.

Subsequent to completion of a pilot test, operation of a groundwater sparging system began in late March 1996. The groundwater sparging system was continuously operated between March 1996 and February 1998. A significant improvement in groundwater quality has been observed since initiation of remedial activities. The site is currently on track for closure in 1998.

## 2.0 FLOATING PRODUCT

This quarter, each monitoring well was visually inspected for the presence of floating product. Prior to well purging, a column of groundwater was bailed from the water surface in a transparent bailer suitable for capture of light hydrocarbons.

No floating product or sheen was detected in any of the groundwater wells inspected this quarter. No floating product has been observed in any WPC Alameda wells on previous monitoring occasions.

## 3.0 GROUNDWATER SAMPLING

A quantity of groundwater is purged from each monitoring well prior to collecting a sample for chemical analysis. A description of equipment and procedures employed for groundwater purging and sample collection is presented in the following paragraphs.

### 3.1 Sampling Protocol

All the WPC Alameda monitoring wells are equipped with a 0.5 inch OD polyethylene tube extending the full depth of the well. Well purging is accomplished by attaching an Accuwell PTP-150 peristaltic pump at the well head to draw groundwater from the well. This procedure eliminates the need for any downhole equipment.

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As groundwater is extracted from the well, 20ml samples are periodically collected for measurement of pH, temperature and conductivity using a Hydac instrument. Groundwater data is recorded on purge data forms (presented in the Appendix). At the conclusion of purging, the well is allowed to recharge to at least 80% of its initial water level prior to sample collection.

Purge water is contained in 55 gallon drums during the sampling process. At the conclusion of sampling, purge water drums are sealed, labeled and stored on-site in a secure area pending chemical analysis and arrangements for proper disposal.

Groundwater sample collection is performed by lowering a new, disposable, bailer into the well. Sample water is transferred to a laboratory supplied 40 ml VOA bottle containing a suitable preservative. The sample bottles are only opened during sample transfer, are completely filled and are not re-opened again by field personnel.

All samples are immediately labeled, sealed in zip lock bags and placed in a cooler containing crushed ice. The samples remain chilled, sealed and undisturbed during transport to the testing laboratory, usually within no more than 48 hours. All samples are entered on a chain of custody form which accompanies the sample set at all times.

Chemical analysis was performed by Excelchem Environmental Labs, located in Roseville, California. Excelchem is certified by the Department of Health Services for the analyses performed.

Quality assurance and quality control measures include:

- Utilizing State WQCB approved sampling methods
- Assigning trained, experienced personnel for sample collection
- Utilizing laboratory supplied sample containers
- Employing extraction methods not requiring downhole equipment
- Using new, disposable bailers
- Sampling wells sequentially from cleanest to most contaminated
- Maintaining sample chain of custody documentation
- Keeping samples in a chilled state until laboratory delivery
- Storing high concentration samples in a separate container
- Prompt delivery of the sample set to the testing laboratory
- Utilizing a DHS certified laboratory

## 3.2 Sample Analyses

The present groundwater analytical schedule was approved by the ACEHS and implemented in May 14, 1996. The frequency of analyzing groundwater samples by EPA Method 624 and 625 (naphthalene) is now semi-annual. Analysis of groundwater samples by EPA Methods 624 and 625 was conducted this quarter.

Each groundwater sample except MW-7 was analyzed for Total Petroleum Hydrocarbons in the gasoline range (TPH-g) by modified EPA method 8015,

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benzene, toluene, ethylbenzene and xylenes (BTEX) by EPA method 8020/602 and for volatile organics by EPA method 624.

The sample from MW-3B was additionally analyzed for naphthalene.

Groundwater from monitoring well MW-7 was analyzed for TPH in the diesel range by modified EPA method 8015.

All analyses were performed using EPA approved test methods. Minimum detection limits for all analyses were within Tri-regional guidelines and are indicated on each original laboratory report form.

## Results

This quarters analytical results for TPH-g and BTEX contamination are presented in Table 1. Copies of original laboratory data sheets and chain of custody forms are presented in the appendix.

Results of laboratory analysis indicate that TPH as diesel was detected in groundwater sample MW-7 at a concentration of 0.195 mg/l.

TABLE 1  
PETROLEUM CONTAMINATION ANALYSES - GROUNDWATER  
August 13, 1998  
All Values in ug/l

WELL ID	TPH (gas)	BENZENE	TOLUENE	XYLENES	ETHYL BENZENE
MW-3B	1,700	99.3	ND	13.9	51.9
MW-4B	65	ND	ND	ND	ND
MW-5	ND	ND	ND	ND	ND
MW-6	ND	ND	ND	ND	ND
MW-10	ND	ND	ND	ND	ND
MW-11	ND	ND	ND	ND	ND
MW-12	ND	ND	ND	ND	ND

### ABBREVIATIONS

ug/l: Micrograms per liter

ND: Not Detected (See Appendix for minimum detection limits)

TPH: Total Petroleum Hydrocarbons

### 3.3 Conclusions

TPH-g was detected at a lower concentration in the groundwater sample from MW-3B this quarter (1,700 ppb TPH-g) relative to last quarter (3,160 ppb TPH-g). Benzene was detected at a lower concentration in the groundwater sample from MW-3B this quarter (99.3 ppb TPH-g) relative to the previous quarter (170 ppb benzene) also.

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A low concentration of TPH-g (65 ppb) was detected in the water sample from MW-4B this quarter.

Neither TPH-g nor BTXE were detected in water samples from any other monitoring wells this quarter.

Contaminant concentrations detected in all wells this quarter were within the range of previous fluctuation observed at the site, during recent monitoring events. TPH-gas and BTXE concentrations remain very low or non detectible in all existing site monitoring wells.

A continued decreasing trend in TPH-g and BTXE concentrations in MW-3B has been observed since air sparging activities began. Table 2 presents the percent reduction in TPH-gas and benzene concentrations in well MW-3B compared to the previous nine quarters. MW-3B has historically been the most contaminated well at the site.

TABLE 2  
GROUNDWATER CONTAMINANT COMPARISON: WELL MW-3B  
FIRST QUARTER 1996 THRU THIRD QUARTER 1998  
All Values in ug/l

Date	TPH (gas)	BENZENE	PERCENT REDUCTION TPH-gas (since 2/96)	PERCENT REDUCTION BENZENE (since 2/96)
2/96	19,000	2,100	NA	NA
6/96	11,000	1,300	42%	38%
9/96	6,000	840	68%	60%
11/96	5,500	440	71%	79%
2/97	12,000	1,000	37%	52%
6/97	2,030	293	89%	86%
9/97	2,140	33.7	88%	98%
12/97	1,200	95.0	94%	95%
2/98	2,370	176	88%	92%
5/98	3,160	170	83%	92%
8/98	1,700	99.3	91%	95%

## ABBREVIATIONS

ug/l: Micrograms per liter

TPH: Total Petroleum Hydrocarbons

A summary of historic TPH-g and BTXE contaminant concentrations in groundwater is presented in Table 3.

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A summary of historic organic volatile contaminant concentrations in groundwater is presented in Table 4.

A summary of historic naphthalene contaminant concentrations in groundwater is presented in Table 5.

TABLE 3  
SUMMARY OF PETROLEUM CONTAMINATION ANALYSES  
All Values in ug/l

MONITORING WELL MW-2

DATE	TPH (gas)	BENZENE	TOLUENE	XYLENES	ETHYL BENZENE
12/23/91	2,300	720	66	240	1.5
4/27/92	1,100	9.4	5.3	24	2
7/31/92	1,500	3.3	5.3	26	10
1/8/93	70	ND	ND	1.4	0.5
4/6/93	ND	ND	ND	ND	ND
7/12/93	1,600	1.4	2.3	8.2	2.5
2/94	200	390	25	50	7.1
6/94	1,300	370	44	170	100
12/94	3,400	1,100	86	190	28
3/7/95	6,500	2,300	240	310	120
9/26/95	440	140	26	46	52



TABLE 3 CONTINUED - MONITORING WELL MW-3  
All Values in ug/l

DATE	TPH (gas)	BENZENE	TOLUENE	XYLENES	ETHYL BENZENE
12/23/91	14,000	3,000	540	1,200	370
4/27/92	9,400	57	50	220	4.6
7/31/92	1,400	1.9	5.1	23	8.3
1/8/93	15,000	38	40	140	64
4/6/93	21,000	62	76	200	84
7/12/93	22,000	22	41	120	42
2/94	5,400	3,900	680	840	390
6/94	23,000	8,500	1,700	3,800	1,600
12/94	41,000	9,900	2,900	3,500	1,400
3/7/95	42,000	9,900	3,000	4,100	1,600
9/26/95	24,000	5,300	1,200	2,200	940

TABLE 3 CONTINUED - MONITORING WELL MW-3B  
All Values in ug/l

DATE	TPH (gas)	BENZENE	TOLUENE	XYLENES	ETHYL BENZENE
2/7/96	19,000	2,100	380	1,200	480
6/5/96	11,000	1,300	250	860	370
9/4/96	6,000	840	98	410	140
11/21/96	5,500	440	31	140	50
2/13/97	12,000	1,000	210	690	120
6/6/97	2,030	293	14	11	23
9/5/97	2,140	33.7	31.6	108	28.1
12/3/97	1,200	95.0	ND	6.0	ND
2/20/98	2,370	176	10.9	20.9	22.5
5/15/98	3,160	170	ND	34.2	65.4
8/13/98	1,700	99.3	ND	13.9	51.9

TABLE 3 CONTINUED - MONITORING WELL MW-4  
All Values in ug/l

DATE	TPH (gas)	BENZENE	TOLUENE	XYLENES	ETHYL BENZENE
4/27/92	790	7.7	2.6	11	2
7/31/92	1,300	6.1	4.3	21	7.3
1/8/93	860	1.5	4.5	17	9.6
4/6/93	2,500	5.2	6.3	17	11
7/12/93	2,000	1.8	3.8	11	3.9
2/94	1,000	54	2.7	4.7	1.4
6/94	460	46	0.8	8.4	1.1
12/94	2,400	200	7.5	28	7.5
3/7/95	3,800	360	14	49	33
9/26/95	2,900	90	ND	5.7	8.9

TABLE 3 CONTINUED - MONITORING WELL MW-4B  
All Values in ug/l

DATE	TPH (gas)	BENZENE	TOLUENE	XYLENES	ETHYL BENZENE
2/7/96	520	3	2.4	1.0	1.6
6/5/96	350	ND	ND	ND	1.6
9/4/96	71	3.3	ND	0.70	1.8
11/21/96	170	1.5	ND	ND	1.0
2/13/97	220	ND	ND	ND	ND
6/6/97	177	3.5	4.3	6.7	1.0
9/5/97	156	2.1	ND	0.9	ND
12/3/97	ND	ND	ND	ND	ND
2/20/98	77.5	ND	ND	ND	ND
5/15/98	ND	ND	ND	ND	ND
8/13/98	65	ND	ND	ND	ND

TABLE 3 CONTINUED - MONITORING WELL MW-5  
All Values in ug/l

DATE	TPH (gas)	BENZENE	TOLUENE	XYLENES	ETHYL BENZENE
4/27/92	ND	ND	ND	ND	ND
7/31/92	ND	ND	ND	ND	ND
1/8/93	ND	ND	ND	ND	ND
4/6/93	ND	ND	ND	ND	ND
7/12/93	0.27	ND	ND	1.4	0.6
2/94	ND	1.8	ND	ND	ND
6/94	ND	1.0	ND	ND	ND
12/94	93	3.0	0.9	3.0	0.8
3/7/95	79	2.9	ND	ND	ND
9/26/95	67	ND	ND	ND	ND
2/7/96	120	7	ND	ND	ND
6/5/96	100	ND	ND	ND	ND
9/4/96	ND	2.4	ND	ND	ND
11/21/96	62	ND	ND	ND	ND
2/13/97	26	0.58	ND	ND	ND
6/6/97	ND	0.7	ND	0.5	ND
9/5/97	ND	1.2	ND	ND	ND
12/3/97	ND	0.9	ND	ND	ND
2/20/98	ND	ND	ND	ND	ND
5/15/98	ND	ND	ND	ND	ND
8/13/98	ND	ND	ND	ND	ND

TABLE 3 CONTINUED - MONITORING WELL MW-6  
All Values in ug/l

DATE	TPH (gas)	BENZENE	TOLUENE	XYLENES	ETHYL BENZENE
4/27/92	ND	ND	ND	ND	ND
7/31/92	ND	ND	ND	ND	ND
1/8/93	ND	ND	ND	ND	ND
4/6/93	ND	ND	ND	ND	ND
7/12/93	NA	NA	NA	NA	NA
2/94	ND	2.6	ND	ND	ND
6/94	ND	2.2	ND	ND	ND
12/94	ND	1.3	ND	ND	ND
3/7/95	72	2.5	ND	ND	ND
9/26/95	ND	ND	ND	ND	ND
2/7/96	60	0.84	ND	ND	ND
6/5/96	45	1.2	ND	ND	ND
9/4/96	40	0.80	ND	ND	ND
11/21/96	ND	ND	ND	ND	ND
2/13/97	25	0.54	ND	ND	ND
6/6/97	ND	0.5	ND	ND	ND
9/5/97	ND	ND	ND	ND	ND
12/3/97	ND	ND	ND	ND	ND
2/20/98	ND	ND	ND	ND	ND
5/15/98	ND	ND	ND	ND	ND
8/13/98	ND	ND	ND	ND	ND

TABLE 3 CONTINUED - MONITORING WELL MW-7  
All Values in ug/l

DATE	TPH diesel	TPH gas	BENZENE	TOLUENE	XYLENES	ETHYL BENZENE
1/8/93	ND	NA	ND	ND	ND	ND
4/6/93	190	NA	ND	ND	ND	ND
7/12/93	80	NA	ND	ND	ND	ND
2/94	ND	ND	ND	ND	ND	ND
6/94	ND	ND	ND	ND	ND	ND
12/94	3.9	ND	ND	ND	ND	ND
3/7/95	1,400	NA	NA	NA	NA	NA
9/26/95	1,100	NA	NA	NA	NA	NA
2/7/96	1,200	NA	NA	NA	NA	NA
6/5/96	1,100	NA	NA	NA	NA	NA
9/4/96	ND	NA	NA	NA	NA	NA
11/21/96	2.2	NA	NA	NA	NA	NA
2/13/97	3.8	NA	NA	NA	NA	NA
6/6/97	318	NA	NA	NA	NA	NA
9/5/97	412	NA	NA	NA	NA	NA
12/3/97	382	NA	NA	NA	NA	NA
2/20/98	650	NA	NA	NA	NA	NA
5/15/98	1,290	NA	NA	NA	NA	NA
8/13/98	195	NA	NA	NA	NA	NA

TABLE 3 CONTINUED - MONITORING WELL MW-9  
All Values in ug/l

DATE	TPH (gas)	BENZENE	TOLUENE	XYLENES	ETHYL BENZENE
2/94	1,900	63	4.3	14	22
6/94	5,300	150	20	110	380
12/94	12,000	600	20	55	120
3/7/95	9,900	820	22	78	230
9/26/95	5,900	340	ND	20	53

ABBREVIATIONS

ug/l: Micrograms per liter

ND: Not Detected (See Appendix for minimum detection limits)

NA: Not Analyzed

TPH: Total Petroleum Hydrocarbons

TABLE 4 - SUMMARY OF VOLATILE ORGANIC ANALYSES RESULTS  
All Values in ug/l

MONITORING WELL MW-3

DATE	VINYL CHLORIDE	1,1-DICHLORO-ETHANE	1,2-DICHLORO-ETHANE	CARBON DISULFIDE
2/94	ND	130	95	120
3/7/95	81	110	150	ND
9/26/95	ND	100	ND	ND

TABLE 4 CONTINUED - MONITORING WELL MW-3B  
All Values in ug/l

DATE	VINYL CHLORIDE	1,1-DICHLORO-ETHANE	1,2-DICHLORO-ETHANE	TRICHLORO-ETHENE	1,1,2-TRICHLORO-ETHANE
2/7/96	ND	ND	ND	ND	ND
9/4/96	ND	30	5.0	ND	ND
2/13/97	ND	21	33	ND	60
9/5/97	ND	21.4	ND	ND	ND
2/20/98	2.6	21.6	6.1	ND	ND
8/13/98	ND	37.4	ND	ND	ND

TABLE 4 CONTINUED - MONITORING WELL MW-4  
All Values in ug/l

DATE	1,1-DICHLORO-ETHANE	1,2-DICHLORO-ETHANE	TRICHLORO-ETHENE	CARBON DISULFIDE	CHLORO-ETHANE
2/94	22	18	2.1	4.7	1.9
3/7/95	11	15	ND	ND	ND
9/26/95	10	6.6	ND	ND	ND

TABLE 4 CONTINUED - MONITORING WELL MW-4B  
All Values in ug/l

DATE	1,1-DICHLORO-ETHANE	1,2-DICHLORO-EHTANE	TETRACHLORO-ETHENE	TRICHLORO-ETHENE
2/7/96	7.4	6.2	ND	ND
9/4/96	15	13	ND	1.2
2/13/97	12	10	1.8	1.48
9/5/97	9.3	6.3	0.6	ND
2/20/98	4.1	2.8	0.9	0.6
8/13/98	ND	2.5	1.3	0.7

TABLE 4 CONTINUED - MONITORING WELL MW-5  
All Values in ug/l

DATE	1,1-DICHLORO-EHTANE	1,2-DICHLORO-ETHANE	1,1-DICHLORO-ETHENE	TETRA-CHLORO-ETHENE	TRICHLORO-ETHENE
2/94	11	ND	ND	1.1	ND
3/7/95	24	ND	ND	ND	ND
9/26/95	31	ND	ND	ND	ND
2/7/96	31	ND	ND	ND	ND
9/4/96	28	2.5	1.1	3.5	1.4
2/13/97	17	1.4	ND	1.1	ND
9/5/97	19.5	1.5	ND	0.6	0.7
2/20/98	11.5	0.8	ND	ND	ND
8/13/98	7.6	0.5	ND	ND	ND



TABLE 4 CONTINUED - MONITORING WELL MW-6  
All Values in ug/l

DATE	1,1-DICHLORO-EHTANE	1,2-DICHLORO-ETHANE	TETRA-CHLORO-ETHENE	TRICHLORO-ETHENE	1,2-DICHLORO-ETHENE
2/94	2.6	1.1	1.3	ND	2.1
3/7/95	9.4	ND	ND	ND	ND
9/26/95	12	ND	ND	ND	ND
2/7/96	7.6	ND	ND	ND	ND
9/4/96	16	5.4	1.5	2.0	ND
2/13/97	16	4.1	1.6	1.7	ND
9/5/97	10.9	2.7	0.7	0.9	ND
2/20/98	6.8	1.0	1.0	ND	NA
8/13/98	4.1	0.6	ND	ND	NA

TABLE 4 CONTINUED - MONITORING WELL MW-9  
All Values in ug/l

DATE	1,1-DICHLORO-EHTANE	1,2-DICHLORO-EHTANE
3/7/95	12	14
9/26/95	8.7	ND

TABLE 4 CONTINUED - MONITORING WELL MW-12  
All Values in ug/l

DATE	1,1- DICHLOROETHANE	1,2- DICHLOROETHANE	TETRACHLOROETHENE
3/7/95	11	ND	ND
9/26/95	9.6	ND	ND
9/4/96	2.4	ND	ND
2/13/97	ND	3.2	4.3
9/5/97	2.2	ND	ND
2/20/98	1.4	ND	ND
8/13/98	ND	ND	ND

ABBREVIATIONS

ug/l: Micrograms per liter

ND: Not Detected (See Appendix for minimum detection limits)

TABLE 5  
SUMMARY OF SEMI-VOLATILE ORGANIC ANALYSES RESULTS  
All Values in ug/l

MONITORING WELL MW-2

DATE	NAPHTHALENE
2/94	19
3/7/95	2.4
9/26/95	ND

TABLE 5 CONTINUED - MONITORING WELL MW-3  
All Values in ug/l

DATE	NAPHTHALENE	METHYLNAPHTHALENE
2/94	19	45
3/7/95	120	ND
9/26/95	310	ND

TABLE 5 CONTINUED - MONITORING WELL MW-3B  
All Values in ug/l

DATE	NAPHTHALENE
2/7/96	130
9/4/96	100
2/13/97	260
9/5/97	ND
8/13/98	ND

ABBREVIATIONS

ug/l: Micrograms per liter

ND: Not Detected (See Appendix for minimum detection limits)

4.0 HYDROLOGIC MONITORING

Depth to groundwater (DTGW) was measured in all eight of the WPC Alameda monitoring wells on August 13, 1998 this quarter. DTGW was measured using a Solinst electronic sounding meter. Measurement accuracy was +/- 0.01 feet.

Table 6 presents depth to groundwater measurements (DTGW) and groundwater elevations (GW) as measured on August 13, 1998. The change in groundwater elevation in each well relative to the most recent previous measurement (May 15, 1998) is also indicated in Table 6.

Figure 4 illustrates groundwater contours under the site extrapolated from the August 13, 1998 groundwater elevation data. The groundwater gradient direction measured this quarter was toward the northwest. This groundwater gradient direction is consistent with previous groundwater gradient observations at the WPC site.

4.1 Conclusions

Groundwater elevations were lower in all monitoring wells this quarter as compared to last quarter. The decrease in groundwater elevations this quarter, relative to last quarter, is consistent with the historical fluctuations observed previously at the site. The groundwater gradient direction was measured to be toward the northwest this quarter, which is within the range of previous recordings.

**LEDGEND**

- ▲ Soil Boring
  - ⊕ Monitoring Well
  - Pit Sidewall or Bottom
- (3.05') GROUNDWATER ELEV.

(4.17') MY-12  
**MAIN PLANT BUILDING**

BOILER ROOM

MACHINE SHOP

REST ROOM

OFFICES

HOT WAX TANK

SB-1

SB-2

▲ B-4

B-MY 8 ▲

MW-3B  
 (3.80')

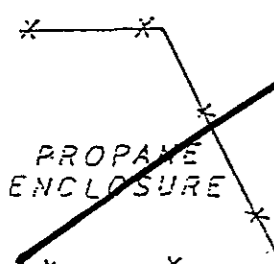
(3.67')  
 MW-5

GAS TANK  
 GAS TANK  
 GAS TANK

PIT WALL  
 1994 DIESEL TANK EXCAVATION  
 NORTH TANK PIT  
 PIT MIDDLE  
 SOUTH TANK PIT

SOUTH TANK PIT

PLATE



▲ B-2

MW-11  
 (3.86')

▲ B-3

3.5

6" WATER

MW-4B  
 (3.15')

MW-6  
 (3.05')

BUENA VISTA ST. →

8" SEWER

12" STORM W

▲ B-MY 10

A.G. TANK

SAND CRIB

MANHOLE

WASTE OIL TANK

12" SEWER

FORMER DISPENSER

PIPING TRENCH

3.0

GATE

PRIVATE DRIVE

MW-10  
 (3.34')



WEYERHAEUSER - ALAMEDA

SCALE: 1" = 10'

APPROVED BY:

DRAWN BY BWW

DATE: 9-9-98

REVISED

GROUNDWATER CONTOURS - AUG. '98

1801 HIBBARD ST.

DRAWING NUMBER

FIG. 4

TABLE 6 - HYDROLOGIC MEASUREMENTS  
August 13, 1998  
(All measurements in feet)

WELL ID	TOC	DTGW	GWE	CHANGE <sup>1</sup>
MW-3B	9.81	6.01	3.80	-0.89
MW-4B	9.59	6.44	3.15	-0.77
MW-5	9.77	6.10	3.67	-1.08
MW-6	10.04	6.99	3.05	-0.90
MW-7	7.68	2.93	4.75	-0.42
MW-10	9.37	6.03	3.34	-0.58
MW-11	8.78	4.92	3.86	-0.63
MW-12	12.32	8.15	4.17	-1.04

ABBREVIATIONS

TOC: Top of Casing

DTGW: Depth to Groundwater

GWE: Groundwater Elevation

<sup>1</sup> Relative to last available DTGW measurement: May 15, 1998

5.0 SUMMARY

- All eight WPC groundwater wells were monitored on August 13, 1998.
- No floating product was observed in any groundwater well this quarter.
- Continued improvement in groundwater quality at the site was observed this quarter.
- Groundwater levels have dropped under the entire site as compared to the last quarter of monitoring (May 15, 1998).

5.1 Remedial Status

In November 1995 contaminated soil was excavated in the vicinity of the former underground fuel tank cluster. The area was backfilled with clean soil.

Construction of a groundwater sparging/soil vapor extraction system was completed in February 1996.

Pilot testing was completed on the newly installed groundwater sparging/soil vapor extraction system on March 19, 1996. Findings of the pilot test were presented in the March 1996 Air Sparging and Vapor Extraction System Test Report prepared by West & Associates Environmental Engineers.

Full scale operation of the sparging system began at the end of March 1996 under permit from the Bay Area Air Quality Management District. Activated carbon adsorption was used to prevent volatile emissions to the atmosphere. While in operation, the remedial system was monitored at least weekly.

A decrease in soil vapor volatile concentrations and groundwater contaminant concentrations have been observed since start up of the sparging system. TPH-gas and benzene concentrations in MW-3B are approximately 91% and 95% lower, respectively, than prior to the start up of groundwater sparging.

The groundwater sparge system was turned off in late February 1998. Two quarters of groundwater monitoring have taken place since the sparge system was turned off. No significant rebounds in contaminant concentrations have been observed over the last two quarters of monitoring.

## 6.0 CONCLUSIONS AND RECOMMENDATIONS

### 6.1 Conclusions

Six months after discontinuing active groundwater remediation, gasoline based contaminant concentrations continue to decline. It is concluded that groundwater quality at the WPC Alameda site will continue to improve without the necessity of further active remediation.

Solvent concentrations measured this quarter are at an all time low. It is concluded that solvent contamination at the WPC Alameda site is naturally degrading with time.

It is concluded that groundwater contamination has decreased to a level of minimal risk and that groundwater concentrations are continuing to decline naturally. It is further concluded that the site is now eligible for case closure.

### 6.2 Recommendations

It is recommended that the WPC Alameda site be considered for case closure.

PURGE DATA FORMS

# WEST & ASSOCIATES ENGINEERS

## GROUNDWATER SAMPLING - PURGE DATA FORM

Project: WEYERHAEUSER ALAMEDA

Location: FORMER REMEDIAL EXCAVATION AREA

Monitoring Well ID: MW-3B Sampler: BGM

Date: 8-13-98 Time: 11:25 AM PM

Floating Product: Y N Petroleum Sheen: Y N

ODOR / APPEARANCE: STRONG DEGRADED GASOLINE ODOR / GRAY

16' 6.01' 2" 4" 1.7  
 WELL DEPTH - DTGW x .17 .66 = WELL VOLUME (GALS)

### PURGE MEASUREMENTS

TIME	PURGE VOLUME GALLONS	CUMULATIVE GALLONS	TEMP. °F	CONDUCT umhos x 100	PH
11:25	0	0	70.8	10.15	6.40
11:26	1.7	1.7	70.5	10.56	6.38
11:28	1.7	3.4	69.8	11.35	6.40
11:29	1.7	5.1	69.2	13.34	6.38

REMARKS: WELL EVALUATED AFTER 5 gal PURGED  
SAMPLED @ 12:20

D.O. BEFORE: -0.8 mg/l  
 " AFTER: 0.3 "



# WEST & ASSOCIATES ENGINEERS

## GROUNDWATER SAMPLING - PURGE DATA FORM

Project: WEYERHAEUSER ALAMEDA

Location: NORTHWEST OF FORMER REMEDIAL EXCAVATION

Monitoring Well ID: MW-4B Sampler: BGM

Date: 8-13-98 Time: 11:18  AM  PM

Floating Product: Y  N  Petroleum Sheen: Y  N

ODOR / APPEARANCE: NO APPARENT GASOLINE ODOR / CLEAR → SILTY

16' 6.44'  2"  4" 1.6  
 WELL DEPTH - DTGW x .17 .66 = WELL VOLUME (GALS)

### PURGE MEASUREMENTS

TIME	PURGE VOLUME GALLONS	CUMULATIVE GALLONS	TEMP. °F	CONDUCT umhos x 100	PH
11:18	0	0	70.2	9.53	6.46
11:20	1.6	1.6	71.4	9.84	6.47
11:21:30	1.6	3.2	70.7	9.74	6.46
11:22:30	1.6	4.8	70.9	9.53	6.53

REMARKS: WELL EVALUATED AFTER ~4.5 gal PURGED  
SAMPLED @ 12:10

D.O. BEFORE: -0.4 mg/l  
 " AFTER: 1.4 "

# WEST & ASSOCIATES ENGINEERS

## GROUNDWATER SAMPLING - PURGE DATA FORM

Project: WEYERHAEUSER ALAMEDA

Location: WEST OF FORMER REMEDIAL EXCAVATION

Monitoring Well ID: MW-5 Sampler: BGM

Date: 8-13-98 Time: 11:09 (AM) PM

Floating Product: Y (N) Petroleum Sheen: Y (N)

ODOR / APPEARANCE: NO APPARENT GASOLINE ODOR / CLEAR

17.5' 6.10' (2") 4" 1.9'  
WELL DEPTH - DTGW x .17 .66 = WELL VOLUME (GALS)

### PURGE MEASUREMENTS

TIME	PURGE VOLUME GALLONS	CUMULATIVE GALLONS	TEMP. °F	CONDUCT umhos x 100	PH
11:09	0	0	68.2	7.21	6.67
11:11	2.0	2.0	70.0	7.50	6.67
11:14	2.0	4.0	69.0	7.42	6.63
11:16	2.0	6.0	68.2	7.41	6.62

REMARKS: SAMPLED @ 12:00

D.O. BEFORE: -0.4 mg/l  
D.O. AFTER: 2.4 mg/l

# WEST & ASSOCIATES ENGINEERS

## GROUNDWATER SAMPLING - PURGE DATA FORM

Project: WEYERHAEUSER ALAMEDA

Location: WEST END OF SITE

Monitoring Well ID: MW-6 Sampler: BGM

Date: 8-13-98 Time: 10:58  AM  PM

Floating Product: Y  N  Petroleum Sheen: Y  N

ODOR / APPEARANCE: NO APPARENT GASOLINE ODOR / CLEAR

19.65' 6.99'  2"  4" 2.2  
 WELL DEPTH - DTGW x .17 .66 = WELL VOLUME (GALS)

### PURGE MEASUREMENTS

TIME	PURGE VOLUME GALLONS	CUMULATIVE GALLONS	TEMP. °F	CONDUCT umhos x 100	PH
10:58	0	0	69.2	7.78	6.87
11:00	2.2	2.2	71.9	4.60	7.02
11:03	2.2	4.4	69.2	8.30	6.53
11:06	2.2	6.6	68.9	7.83	6.60

REMARKS: WELL EVACUATED AFTER ~6.5 GAL PURGED SAMPLED @ 11:50

D.O. BEFORE: 0.6 mg/l

D.O. AFTER: 3.2 mg/l

# WEST & ASSOCIATES ENGINEERS

## GROUNDWATER SAMPLING - PURGE DATA FORM

Project: WEYERHAEUSER ALAMEDA

Location: EAST END OF SITE

Monitoring Well ID: MW-7 Sampler: BGM

Date: 8-13-98 Time: 8:42  AM  PM

=====

Floating Product: Y  N      Petroleum Sheen: Y  N

ODOR / APPEARANCE: NO APPARENT HYDROCARBON ODOR / CLEAR YELLOWISH-

17.86'      2.93'       2"      4"      2.5  
 WELL DEPTH - DTGW x .17 .66 = WELL VOLUME (GALS)

=====

### PURGE MEASUREMENTS

TIME	PURGE VOLUME GALLONS	CUMULATIVE GALLONS	TEMP. °F	CONDUCT umhos x 100	PH
8:46	0	0	65.5	19.41	7.46
8:49	2.5	2.5	68.4	15.83	6.86
8:53	2.5	5.0	68.2	19.15	6.43
8:56	2.5	7.5	66.9	18.54	6.37

REMARKS: SAMPLED @ 9:45 AM

D.O. BEFORE : 0.9 mg/L

D.O. AFTER : -0.1 mg/L

# WEST & ASSOCIATES ENGINEERS

## GROUNDWATER SAMPLING - PURGE DATA FORM

Project: WEYERHAEUSER ALAMEDA

Location: IN STREET, NORTH OF SITE

Monitoring Well ID: MW-10 Sampler: BGM

Date: 8-13-98 Time: 9:18  AM  PM

=====  
 Floating Product: Y  N  Petroleum Sheen: Y  N

ODOR / APPEARANCE: NO GASOLINE ODOR / CLEAR

17.05' 6.03' 2"  4"  7.3  
 WELL DEPTH - DTGW x .17 .66 = WELL VOLUME (GALS)

### PURGE MEASUREMENTS

TIME	PURGE VOLUME GALLONS	CUMULATIVE GALLONS	TEMP. °F	CONDUCT umhos x 100	PH
9:18	0	0	67.6	6.97	6.63
9:24	7.3	7.3	70.4	6.64	6.68
9:29	7.3	14.6	69.2	6.60	6.78
9:38	7.3	21.9	68.6	5.98	7.08

REMARKS: SAMPLED @ 10:15 AM

D.O. BEFORE: 0.9 mg/l  
 D.O. AFTER: 6.0 mg/l

# WEST & ASSOCIATES ENGINEERS

## GROUNDWATER SAMPLING - PURGE DATA FORM

Project: WEYERHAEUSER ALAMEDA

Location: EAST OF FORMER GASOLINE VST CLUSTER

Monitoring Well ID: MW-11 Sampler: BGM

Date: 8-13-98 Time: 9:57 AM PM

Floating Product: Y N Petroleum Sheen: Y N

ODOR / APPEARANCE: NO GASOLINE ODOR / CLEAR

18.40' 4.92' 2" 4" 8.9  
WELL DEPTH - DTGW x .17 .66 = WELL VOLUME (GALS)

### PURGE MEASUREMENTS

TIME	PURGE VOLUME GALLONS	CUMULATIVE GALLONS	TEMP. °F	CONDUCT umhos x 100	PH
9:57	0	0	67.8	7.61	7.11
10:03	9.0	9.0	69.9	7.83	7.00
10:11	9.0	18.0	68.8	7.61	6.94
10:20	9.0	27.0	70.0	7.53	7.26

REMARKS: SAMPLED @ 10:45  
~~WELL EVACUATED AFTER 26 GAL PURGED~~

D.O. BEFORE: 4.0 mg/l

D.O. AFTER: 3.5 mg/l

# WEST & ASSOCIATES ENGINEERS

## GROUNDWATER SAMPLING - PURGE DATA FORM

Project: WEYERHAEUSER ALAMEDA

Location: INSIDE BUILDING (SHOP AREA)

Monitoring Well ID: MW-12 Sampler: BGM

Date: 8-13-98 Time: 10:32 AM PM

=====  
 Floating Product: Y N      Petroleum Sheen: Y N

ODOR / APPEARANCE: \_\_\_\_\_

15.90'      8.15'      2" 4"      5.1  
 WELL DEPTH - DTGW x .17 .66 = WELL VOLUME (GALS)

### PURGE MEASUREMENTS

TIME	PURGE VOLUME GALLONS	CUMULATIVE GALLONS	TEMP. °F	CONDUCT umhos x 100	PH
10:32	0	0	70.7	11.64	6.52
10:37	5.1	5.1	69.5	10.76	6.47
10:41	5.1	10.2	68.9	11.95	6.39
10:48	5.1	15.3	68.6	10.52	6.34

REMARKS: WELL EVACUATED AFTER ~ 15 GAL PURGED SAMPLED @ 11:35

D.O. BEFORE: 0.1 mg/l  
 D.O. AFTER: 1.7 mg/l

**CHAIN OF CUSTODY  
AND ORIGINAL LABORATORY REPORT FORMS**



**Excelchem**  
Environmental Labs

500 Giuseppe Court, Suite 9  
Roseville, CA 95678  
(916) 773-3664

**CHAIN-OF-CUSTODY RECORD AND ANALYSIS REQUEST**

Project Manager: **BRENNAN MAHONEY** Phone #: **(707) 451-1360**  
 Company/Address: **WEST & ASSOC** FAX #: **(707) 447-1023**  
**PO. Box 5891, VACAVILLE, CA 95668 95696**  
 Project Number: P.O.#: Project Name: **WPC ALAMEDA**

**ANALYSIS REQUEST**

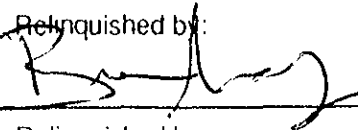

**10 798147**

**TAT**

Project Location: **ALAMEDA** Sampler Signature: 

Sample ID	Sampling		Container		Method Preserved				Matrix	
	DATE	TIME	VOA	SLEEVE	HCl	HNO3	ICE	NONE	WATER	SOIL
MW-3B	8/13	12:20P	4	1	✓	✓			✓	
MW-4B	8/13	12:10P	4		✓	✓			✓	
MW-5	8/13	12:00P	4		✓	✓			✓	
MW-6	8/13	11:50A	4		✓	✓			✓	
MW-7	8/13	9:45A	4	1		✓			✓	
MW-10	8/13	10:15A	4		✓	✓			✓	
MW-11	8/13	10:45A	4		✓	✓			✓	
MW-12	8/13	11:35A	4		✓	✓			✓	

BTEX (602/8020)	BTEX/TPH as Gasoline (602/8020/8015)	TPH as Diesel (8015)	TPH as Oil (8015)	Total Oil & Grease (5520 B/E, F)	Total Oil & Grease IR (5520 B/E, F, C)	96 - Hour Fish Bioassay	EPA 601/8010	EPA 602/8020	EPA 615/8150	EPA 608/8080 - Pesticides	EPA 608/8080-PCBs	EPA 624/8240	EPA 625/8270 NAPHTHALENE	ORGANIC LEAD	Reactivity, Corrosivity, Ignitibility	CAM - 17 Metals	EPA - Priority Pollutant Metals	LEAD(7420/7421/239.2)	Cd, Cr, Pb, Zn, Ni	W.E.T. (✓)	TOTAL (✓)	
✓	✓			W 0 8 9 8 1 2 8	W 0 8 9 8 1 2 9								✓									
✓	✓			W 0 8 9 8 1 3 0	W 0 8 9 8 1 3 1																	
✓	✓			W 0 8 9 8 1 3 2																		
✓	✓			W 0 8 9 8 1 3 3																		
✓	✓			W 0 8 9 8 1 3 4																		
✓	✓			W 0 8 9 8 1 3 5																		

Relinquished by:  Date Time: **8/14/98 9:25**  
 Received by: **Wayne Lewis 9:25**  
 Relinquished by: Date Time: Received by:  
 Relinquished by: **8/14 10:00** Received by Laboratory: 

Remarks:  
 Bill To:

**EXCELICHEM  
ENVIRONMENTAL LABS**



500 Giuseppe Court, Suite 9  
Roseville, CA 95678  
Phone#: (916) 773-3664 Fax#: (916) 773-4784

**ANALYSIS REPORT**

Attention: Brennan Mahoney  
West & Associates  
P.O. Box 5891  
Vacaville, CA 95696  
Project: **WPC ALAMEDA**  
Method: EPA 602/8015m


Date Sampled: 08-13-98  
Date Received: 08-14-98  
BTEX/TPHg Analyzed: 08-18-98  
Matrix: Water  
Units: ug/L

Client Sample I.D.	MW-3B		MW-4B		MW-5		MW-6		MW-10		MW-11	
LAB. NO.	W0898128		W0898129		W0898130		W0898131		W0898133		W0898134	
ANALYTE	R/L	Results	R/L	Results	R/L	Results	R/L	Results	R/L	Results	R/L	Results
Benzene	2.0	132	0.5	ND	0.5	ND	0.5	ND	0.5	ND	0.5	ND
Toluene	2.0	9.5	0.5	ND	0.5	ND	0.5	ND	0.5	ND	0.5	ND
Ethylbenzene	2.0	43.8	0.5	ND	0.5	ND	0.5	ND	0.5	ND	0.5	ND
Total Xylenes	2.0	18.0	0.5	ND	0.5	ND	0.5	ND	0.5	ND	0.5	ND
TPH as Gasoline	20	1700	50	65	50	ND	50	ND	50	ND	50	ND

Client Sample I.D.	MW-12	
LAB. NO.	W0898135	
ANALYTE	R/L	Results
Benzene	0.5	ND
Toluene	0.5	ND
Ethylbenzene	0.5	ND
Total Xylenes	0.5	ND
TPH as Gasoline	50	ND

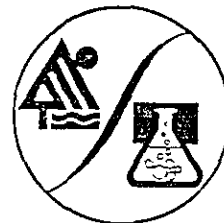
QA/QC % RECOVERY			
	LCS	LCSD	Date Analyzed
Benzene	95	97	08-18-98
Toluene	98	100	08-18-98
Ethylbenzene	98	100	08-18-98
Total Xylenes	98	101	08-18-98

ND = Not detected. Compound(s) may be present at concentrations below the reporting limit.  
R/L = Reporting Limit

  
Laboratory Representative

08-25-98  
Date Reported

**EXCELCHEM  
ENVIRONMENTAL LABS**



500 Giuseppe Court, Suite 9  
Roseville, CA 95678  
Phone#: (916) 773-3664 Fax#: (916) 773-4784

**ANALYSIS REPORT**

Attention: Brennan Mahoney  
West & Associates  
P.O. Box 5891  
Vacaville, CA 95696

Project: **WPC ALAMEDA**  
Method: EPA 8015m

Date Sampled: 08-13-98  
Date Received: 08-14-98  
TPHd Analyzed: 08-19-98  
Matrix: Water  
Units: ug/L

Client Sample I.D.	MW-7	
LAB. NO.	W0898132	
ANALYTE	R/L	Results
TPH as Diesel	50	195

QA/QC % RECOVERY			
	LCS	LCSD	Date Analyzed
TPH as Diesel	75	75	08-20-98

ND = Not detected. Compound(s) may be present at concentrations below the reporting limit.  
R/L = Reporting Limit

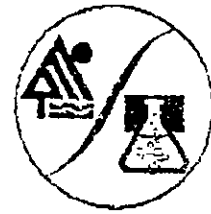
  
Laboratory Representative

08-25-98  
Date Reported

# EXCELCHEM ENVIRONMENTAL LABS

500 Giuseppe Court, Suite 9  
Roseville, CA 95678

Phone#: (916) 773-3664 Fax#: (916) 773-1784



### ANALYSIS REPORT

Attention: Erennan Mahoney  
West & Associates  
P.O. Box 5891  
Vacaville, CA 95696  
Project: WPC ALAMEDA  
Method: EPA 82-9B

Date Sampled: 08-15-98  
Date Received: 08-14-98  
Date Analyzed: 08-14-98  
Matrix: Water  
Units: ug/L

Client Sample I.D.	MW-3B		MW-4B		MW-5		MW-6		MW-10		MW-11	
LAB. NO	W0898128		W0898129		W0898130		W0898131		W0898132		W0898134	
ANALYTE	R/L	Results	R/L	Results	R/L	Results	R/L	Results	R/L	Results	R/L	Results
Dichlorodifluoromethane	10	ND	0.5	ND	0.5	ND	0.5	ND	0.5	ND	0.5	ND
Chloromethane	10	ND	0.5	ND	0.5	ND	0.5	ND	0.5	ND	0.5	ND
Vinyl Chloride	10	ND	0.5	ND	0.5	ND	0.5	ND	0.5	ND	0.5	ND
Bromomethane	10	ND	0.5	ND	0.5	ND	0.5	ND	0.5	ND	0.5	ND
Chloroethane	10	ND	0.5	ND	0.5	ND	0.5	ND	0.5	ND	0.5	ND
Trichlorofluoromethane	10	ND	0.5	ND	0.5	ND	0.5	ND	0.5	ND	0.5	ND
Acetone	100	ND	12	ND	16	ND	12	ND	12	ND	7	ND
1,1-Dichloroethene	10	ND	0.5	ND	0.5	ND	0.5	ND	0.5	ND	0.5	ND
Methylene Chloride	100	ND	5	ND	5	ND	5	ND	5	ND	5	ND
Carbon disulfide	10	ND	0.5	ND	0.5	ND	0.5	ND	0.5	ND	0.5	ND
Trans-1,2-Dichloroethene	10	ND	0.5	ND	0.5	ND	0.5	ND	0.5	ND	0.5	ND
1,1-Dichloroethane	10	57.4	0.5	ND	0.5	76	0.5	41	0.5	ND	0.5	ND
Chloroform	10	ND	0.5	ND	0.5	ND	0.5	ND	0.5	ND	0.5	ND
1,2-Dichloroethane	10	ND	0.5	2.5	0.5	0.5	0.5	0.6	0.5	ND	0.5	ND
Iodomethane	10	ND	0.5	ND	0.5	ND	0.5	ND	0.5	ND	0.5	ND
Dibromochloromethane	10	ND	0.5	ND	0.5	ND	0.5	ND	0.5	ND	0.5	ND
1,1,1-Trichloroethene	10	ND	0.5	ND	0.5	ND	0.5	ND	0.5	ND	0.5	ND
Carbon tetrachloride	10	ND	0.5	ND	0.5	ND	0.5	ND	0.5	ND	0.5	ND
Benzene	10	99.3	0.5	ND	0.5	ND	0.5	ND	0.5	ND	0.5	ND
Trichloroethene	10	ND	0.5	0.7	0.5	ND	0.5	ND	0.5	ND	0.5	ND
1,2-Dichloropropane	10	ND	0.5	ND	0.5	ND	0.5	ND	0.5	ND	0.5	ND
2-Butanone	52	ND	5	ND	5	ND	5	ND	2.5	ND	2.5	ND
Bromodichloromethane	10	ND	0.5	ND	0.5	ND	0.5	ND	0.5	ND	0.5	ND
Cis-1,3-dichloropropene	10	ND	0.5	ND	0.5	ND	0.5	ND	0.5	ND	0.5	ND
Trans-1,3-dichloropropene	10	ND	0.5	ND	0.5	ND	0.5	ND	0.5	ND	0.5	ND
1,1,2-Trichloroethane	10	ND	0.5	ND	0.5	ND	0.5	ND	0.5	ND	0.5	ND
Trans-1,4-dichloro-3-butane	100	ND	5	ND	5	ND	5	ND	2.5	ND	5	ND
Toluene	60	ND	2	ND	2	ND	2	ND	2	ND	2	ND
Tetrachloroethene	10	ND	0.5	1.3	0.5	ND	0.5	ND	0.5	ND	0.5	ND
2-Hexanone	100	ND	5	ND	5	ND	5	ND	5	ND	5	ND
4-Methyl-2-pentanone	10	ND	5	ND	5	ND	5	ND	2.5	ND	2.5	ND
Chlorobenzene	10	ND	0.5	ND	0.5	ND	0.5	ND	0.5	ND	0.5	ND
Ethylbenzene	10	51.9	0.5	ND	0.5	ND	0.5	ND	0.5	ND	0.5	ND
m-P-xylene	10	13.9	0.5	ND	0.5	ND	0.5	ND	0.5	ND	0.5	ND

# EXCELCHEM ENVIRONMENTAL LABS



500 Giuseppe Court, Suite 9  
Roseville, CA 95678

Phone#: (916) 773-3664 Fax#: (916) 773-4784

## ANALYSIS REPORT

Attention: Brennan Mahoney  
West & Associates  
P.O. Box 5891  
Vacaville, CA 95696

Project: **WPC ALAMEDA**  
Method: EPA 8240B

Date Sampled: 08-13-98  
Date Received: 08-14-98  
Date Analyzed: 08-19-98  
Matrix: Water  
Units: ug/L

Client Sample I.D.	MW-3B		MW-4B		MW-5		MW-6		MW-10		MW-11	
LAB. NO.	W0898128		W0898129		W0898130		W0898131		W0898133		W0898134	
ANALYTE	R/L	Results	R/L	Results	R/L	Results	R/L	Results	R/L	Results	R/L	Results
O-xylene	10	11.0	0.5	ND	0.5	ND	0.5	ND	0.5	ND	0.5	ND
Styrene	10	ND	0.5	ND	0.5	ND	0.5	ND	0.5	ND	0.5	ND
Bromoform	10	ND	0.5	ND	0.5	ND	0.5	ND	0.5	ND	0.5	ND
1,1,2,2-Tetrachloroethane	10	ND	0.5	ND	0.5	ND	0.5	ND	0.5	ND	0.5	ND
1,3-Dichlorobenzene	10	ND	0.5	ND	0.5	ND	0.5	ND	0.5	ND	0.5	ND
1,4-Dichlorobenzene	10	ND	0.5	ND	0.5	ND	0.5	ND	0.5	ND	0.5	ND
1,2-Dichlorobenzene	10	ND	0.5	ND	0.5	ND	0.5	ND	0.5	ND	0.5	ND
SURROGATE % RECOVERY												
1,2-Dichloroethane-d4	95		93		92		94		91		93	
Toluene-d8	100		99		99		98		99		101	
4-Bromofluorobenzene	96		95		95		95		94		96	

Client Sample I.D.	MW-12	
LAB. NO.	W0898135	
ANALYTE	R/L	Results
Dichlorodifluoromethane	0.5	ND
Chloromethane	0.5	ND
Vinyl Chloride	0.5	ND
Bromomethane	0.5	ND
Chloroethane	0.5	ND
Trichlorofluoromethane	0.5	ND
Acetone	5	ND
1,1-Dichloroethene	0.5	ND
Methylene Chloride	5	ND
Carbon disulfide	0.5	ND
Trans-1,2-Dichloroethene	0.5	ND
1,1-Dichloroethane	0.5	ND
Chloroform	0.5	ND
1,2-Dichloroethane	0.5	ND
Iodomethane	0.5	ND
Dibromochloromethane	0.5	ND
1,1,1-Trichloroethene	0.5	ND
Carbon tetrachloride	0.5	ND
Benzene	0.5	ND
Trichloroethene	0.5	ND
1,2-Dichloropropane	0.5	ND
2-Butanone	2.5	ND

**EXCELICHEM  
ENVIRONMENTAL LABS**



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Roseville, CA 95678  
Phone#: (916) 773-3664 Fax#: (916) 773-4784

ANALYSIS REPORT

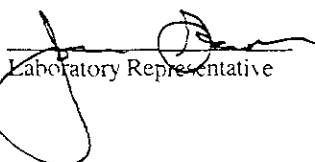
Attention: Brennan Mahoney  
West & Associates  
P.O. Box 5891  
Vacaville, CA 95696  
Project: **WPC ALAMEDA**  
Method: EPA 8240B

Date Sampled: 08-13-98  
Date Received: 08-14-98  
Date Analyzed: 08-19-98  
Matrix: Water  
Units: ug/L

Client Sample I.D.	MW-12	
LAB. NO.	W0898135	
ANALYTE	R/L	Results
Bromodichloromethane	0.5	ND
Cis-1,3-dichloropropene	0.5	ND
Trans-1,3-dichloropropene	0.5	ND
1,1,2-Trichloroethane	0.5	ND
Trans-1,4-dichloro-2-butane	5	ND
Toluene	1	ND
Tetrachloroethene	0.5	ND
2-Hexanone	2.5	ND
4-Methyl-2-pentanone	2.5	ND
Chlorobenzene	0.5	ND
Ethylbenzene	0.5	ND
M+P-xylene	0.5	ND
O-xylene	0.5	ND
Styrene	0.5	ND
Bromoform	0.5	ND
1,1,2,2-Tetrachloroethane	0.5	ND
1,3-Dichlorobenzene	0.5	ND
1,4-Dichlorobenzene	0.5	ND
1,2-Dichlorobenzene	0.5	ND
SURROGATE % RECOVERY		
1,2-Dichloroethane-d4	93	
Toluene-d8	100	
4-Bromofluorobenzene	95	

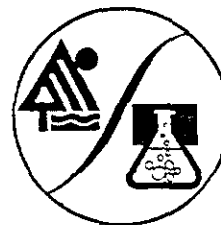
QA/QC % RECOVERY			
	MS	MSD	Date Analyzed
1,1-Dichloroethene	105	102	08-20-98
Benzene	103	100	08-20-98
Trichloroethene	103	101	08-20-98
Toluene	105	102	08-20-98
Chlorobenzene	103	98	08-20-98

ND = Not detected. Compound(s) may be present at concentrations below the reporting limit.  
R/L = Reporting Limit

  
Laboratory Representative

08-25-98  
Date Reported

# EXCELCHEM ENVIRONMENTAL LABS



500 Giuseppe Court, Suite 9  
Roseville, CA 95678  
Phone#: (916) 773-3664 Fax#: (916) 773-4784

## ANALYSIS REPORT

Attention: Brennan Mahoney  
West & Associates  
P.O. Box 5891  
Vacaville, CA 95696  
Project: **WPC ALAMEDA**  
Method: EPA 8270

Date Sampled: 08-13-98  
Date Received: 08-14-98  
Date Analyzed: 08-21-98  
Matrix: Water  
Units: ug/L

Client Sample I.D.	MW-3B		Method Blank	
LAB. NO.	W0898128		---	
ANALYTE	R/L	Results	R/L	Results
Naphthalene	10	ND	10	ND

QA/QC % RECOVERY			
	LCS	LCSD	Date Analyzed
Phenol	39	39	08-21-98
2-Chlorophenol	78	78	08-21-98
1,4-Dichlorobenzene	59	59	08-21-98
n-Nitroso-di-n-propy	68	66	08-21-98
1,2,4-Trichlorobenze	65	65	08-21-98
4-Chloro-3-methylphe	81	80	08-21-98
Acenaphthene	76	77	08-21-98
4-Nitrophenol	25	25	08-21-98
2,4-dinitrotoluene	79	79	08-21-98
Pentachlorophenol	52	46	08-21-98
Pyrene	98	100	08-21-98

ND = Not detected. Compound(s) may be present at concentrations below the reporting limit.  
R/L = Reporting Limit

  
Laboratory Representative

08-25-98  
Date Reported