WEST ASSOCIATES
ENVIRONMENTAL ENGINEERS INC

December 22, 1997

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 fourth quarter 1997 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 your May 14, 1996 response letter.

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: Ed Granados, Weyerhaeuser Office of the Environment, Tacoma
John Hipner, WPC Alameda

QUARTERLY GROUNDWATER MONITORING REPORT
FORMER UNDERGROUND TANK SITES
OCTOBER - DECEMBER 1997

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

December 1997

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. Fourth quarter groundwater monitoring activities for 1997 were conducted on December 3, 1997.

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 analysis for groundwater samples has been revised from quarterly to semi-annual. Groundwater samples were not analyzed by EPA Method 624 and 625 this quarter.

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. Ed Granados, 115 Perimeter Center Place, Suite 495, Atlanta, Georgia 30346; (770) 396-8121.

At the WPC plant, both Mr. John Hipner, Plant Engineer and Mr. Tom Muncell, Maintenance Manager, have environmental compliance responsibilities related to this project. 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 490 Merchant St., Suite 104, 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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APPENDICES

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 fourth quarter (October - December) of 1997.

This quarter, groundwater monitoring was performed on December 3, 1997. 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 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. manufacturers 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.

In early 1991 Weyerhaeuser removed a cluster of three, 1,000 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.

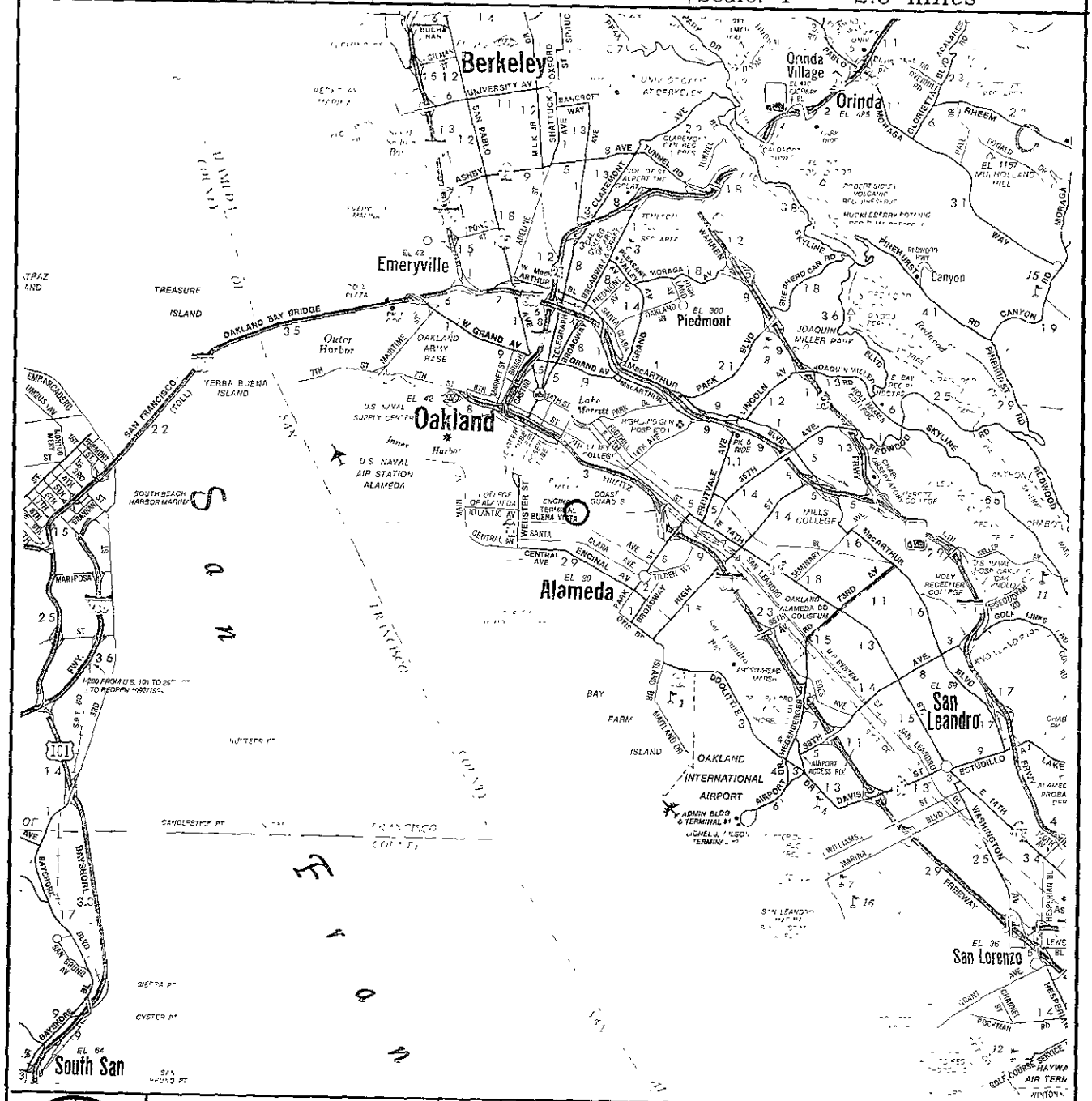
WEST & ASSOCIATES ENVIRONMENTAL ENGINEERS, INC.

PO Box 5891, Vacaville, California 95696

Project Name: Weyerhaeuser Paper Company - Alameda | Date: Jan. 1995

Location: 1801 Hibbard Str., Alameda, California 94501

Drawing By: BWW | Scale: 1" = 2.5 miles



LEGEND

○ SITE LOCATION

Figure 1

WPC ALAMEDA FACILITY - REGIONAL SETTING

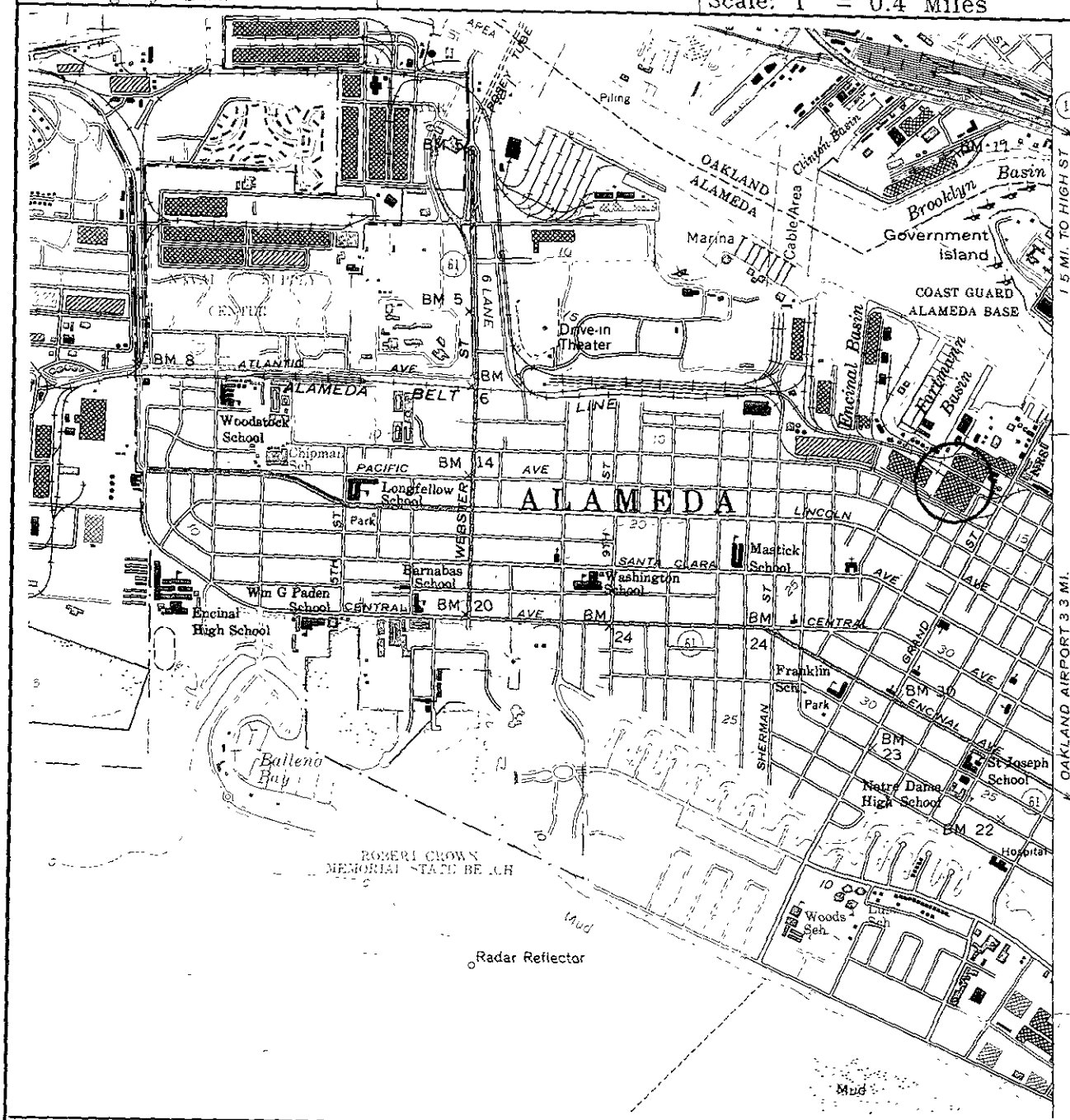
WEST & ASSOCIATES ENVIRONMENTAL ENGINEERS, INC.

PO Box 5891, Vacaville, California 95696

Project Name: Weyerhaeuser Paper Company - Alameda | Date: Jan. 1995

Location: 1801 Hibbard Str., Alameda, California 94501

Drawing By: BWW | Scale: 1" = 0.4 Miles



LEGEND

O SITE LOCATION

Figure 2

WPC ALAMEDA FACILITY - SITE LOCATION

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^2 to 640 ft^2 and then to 930 ft^2.

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 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 the groundwater sparging system began in late March 1996.

The groundwater sparging system has been continuously operated since startup in 1996. 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.

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 is now semi-annual. Analysis of groundwater samples by EPA Methods 624 and 625 was not 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 and benzene, toluene, ethylbenzene and xylenes (BTEX) by EPA method 602. 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 BTXE 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 0.382 mg/l.

TABLE 1
PETROLEUM CONTAMINATION ANALYSES - GROUNDWATER
December 3, 1997
All Values in ug/l

WELL ID	TPH (gas)	BENZENE	TOLUENE	XYLENES	ETHYL BENZENE
MW-3B	1,200	95.0	ND	6.0	ND
MW-4B	ND	ND	ND	ND	ND
MW-5	ND	0.9	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 water sample from MW-3B this quarter (1,200 ppb) relative to last quarter (2,140 ppb). TPH-g was not detected above laboratory detection limits this quarter in well MW-4B this quarter. The concentration of benzene was slightly higher in monitoring well MW-3B this quarter as compared to last quarter. Benzene was not detected above the laboratory detection limit in monitoring well MW-4B this quarter.

Neither TPH-g nor BTXE was detected in water samples from any other monitoring wells this quarter except for MW-5 which had 0.9 ppb benzene.

Contaminant concentrations detected in all contaminated wells, with the exception of MW-3B, this quarter were within the range of previous fluctuation observed at the site, during recent monitoring events. The TPH-g concentration detected in MW-3B this quarter was the lowest level detected in this well since it was installed.

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 seven 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 FOURTH QUARTER 1997
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%

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.

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

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

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

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

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

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	1,1,2-TRICHLORO-ETHANE
2/7/96	ND	ND	ND	ND
9/4/96	ND	30	5.0	ND
2/13/97	ND	21	33	60
9/5/97	ND	21.4	ND	ND

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

DATE	1,1-DICHLORO-ETHANE	1,2-DICHLORO-EHTANE	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

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

DATE	1,1-DICHLORO-EHTANE	1,2-DICHCLORO-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

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

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-DICHLOROEHTANE	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

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

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 December 3, 1997 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 December 3, 1997. The change in groundwater elevation in each well relative to the most recent previous measurement (September 5, 1997) is also indicated in Table 6.

Figure 3 illustrates groundwater contours under the site extrapolated from the December 3, 1997 groundwater elevation data. The groundwater gradient direction measured this quarter was toward the west. This groundwater gradient direction is consistent with previous groundwater gradient observations at the WPC site.

4.1 Conclusions

Groundwater elevations were higher in all monitoring wells this quarter as compared to last quarter. The increase 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 west this quarter, which is within the range of previous recordings.

TABLE 6 - HYDROLOGIC MEASUREMENTS
December 3, 1997
(All measurements in feet)

WELL ID	TOC	DTGW	GWE	CHANGE[1]
MW-3B	9.81	6.44	4.03	0.66
MW-4B	9.59	6.80	3.24	0.45
MW-5	9.77	6.71	4.11	1.05
MW-6	10.04	7.41	3.71	1.08
MW-7	7.68	3.25	5.53	1.10
MW-10	9.37	6.22	3.90	0.75
MW-11	8.78	5.26	4.07	0.55
MW-12	12.32	8.85	4.44	0.97

ABBREVIATIONS
TOC: Top of Casing
DTGW: Depth to Groundwater
GWE: Groundwater Elevation
[1] Relative to last available DTGW measurement: September 5, 1997

5.0 SUMMARY

- All eight WPC groundwater wells were monitored on December 3, 1997.
- No floating product was observed in any groundwater well this quarter.
- Continued improvement in groundwater quality was observed this quarter.
- Groundwater levels have decreased under the entire site as compared to the last quarter of monitoring (September 5, 1997).

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 is used to prevent volatile emissions to the atmosphere. While in operation, the remedial system is monitored at least weekly.

A decrease in soil vapor volatile concentration has been observed since start up of the sparging system. There has also been a decrease in groundwater contaminant concentrations observed since start up of remedial activities. TPH-gas and benzene concentrations in MW-3B are approximately 94% and 95% lower, respectively, than prior to the start up of groundwater sparging.

LEDGEND

▲ Soil Boring
⊕ Monitoring Well
○ Pit Sidewall or Bottom

MAIN PLANT BUILDING

(4.44') MW-12

BOILER ROOM

MACHINE SHOP

REST ROOM

OFFICES

SB-1

SB-2

B-4

B-MW 8

HOT WAX TANK

B-1

6"W

MW-3B

(4.03')

B-5

(4.11') MW-5

PIPE TRENCH

PIT WALL

1994 DIESEL TANK EXCAVATION

PIT MIDDLE

SOUTH TANK PIT

NORTH TANK PIT

GAS TANK

GAS TANK

GAS TANK

PROPANE ENCLOSURE

4.0

B-2

6" WATER

W

MW-6

(3.71')

PLATE

3.5

B-3

MW-11

(4.07')

MW-4B

(3.24')

PIPING TRENCH

BUENA VISTA ST. →

8" SEWER

12" STORM W

B-MW 10

A.G. TANK

SAND CRIB

MANHOLE

WASTE OIL TANK

12" SEWER

FORMER DISPENSER

GATE

MW-10

(3.90')

PRIVATE DRIVE

N

WEYERHAEUSER - ALAMEDA

SCALE: 1"= 10'	APPROVED BY:	DRAWN BY BWW
DATE:		REVISED

GROUNDWATER CONTOURS - DEC. '97

1801 HIBBARD ST.

DRAWING NUMBER FIG. 3

11 X 17 PRINTED ON NO. 1000H CLEARPRINT ®

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: DEC. 3, 1997 Time: 3:25 AM (PM)

==========

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

ODOR / APPEARANCE: DEGRADED GASOLINE ODOR/CLEAR

16' WELL DEPTH - 5.78' DTGW x (2") 4" .17 .66 = 1.7 WELL VOLUME (GALS)

==========

PURGE MEASUREMENTS

TIME	PURGE VOLUME GALLONS	CUMULATIVE GALLONS	TEMP. °F	CONDUCT umhos x 100	PH
3:25	0	0	65.0	11.35	4.26
3:27	1.7	1.7	66.1	11.36	4.39
3:29	1.7	3.4	66.7	11.61	4.52
3:31	1.7	5.1	67.1	11.34	4.53

REMARKS: D.O. = 2.7 mg/L

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: Dec. 3, 1997 Time: 3:12 AM (PM)

==========

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

ODOR / APPEARANCE: No APPARENT GAS ODOR/CLEAR

16' - 6.33' x (2") 4" .17 .66 = 1.6

WELL DEPTH - DTGW x WELL VOLUME (GALS)

==========

PURGE MEASUREMENTS

TIME	PURGE VOLUME GALLONS	CUMULATIVE GALLONS	TEMP. °F	CONDUCT umhos x 10 0	PH
3:12	0	0	66.3	7.22	4.37
3:13	1.6	1.6	67.4	7.94	4.85
3:15	1.6	3.2	67.9	7.96	5.09
3:17	1.6	4.8	68.1	8.57	5.19

REMARKS: DO: 1.0 mg/l

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: DEC. 3, 1999 **Time:** 2:46 AM (PM)

==========

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

ODOR / APPEARANCE: NO APPARENT GAS ODOR / CLEAR

17.5' - 5.66' x (2") 4" .17 .66 = 2.0

WELL DEPTH - DTGW x .17 .66 = WELL VOLUME (GALS)

==========

PURGE MEASUREMENTS

TIME	PURGE VOLUME GALLONS	CUMULATIVE GALLONS	TEMP. °F	CONDUCT umhos x 100	PH
2:46	0	0	69.5	5.09	4.77
2:48	2.0	2.0	65.3	7.56	4.99
2:50	2.0	4.0	66.0	7.65	5.14
2:53	2.0	6.0	65.9	7.33	5.16

REMARKS: D.O. = 0.5 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: DEC. 3, 1997 **Time:** 2:15 AM (PM)

==========

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

ODOR / APPEARANCE: NO APPARENT GAS ODOR / CLEAR

19.65' - 6.33' x (2") 4" .17 .66 = 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
2:15	0	0	67.8	7.19	5.20
2:18	2.2	2.2	66.9	4.51	5.36
2:21	2.2	4.4	67.4	5.15	5.37
2:24	2.2	6.6	67.5	6.19	5.55

REMARKS: D.O.: 2.0 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: DEC. 3, 1997 **Time:** 11:58 (AM) PM

==========

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

ODOR / APPEARANCE: NO APPARENT HC ODOR / CLEAR

17.86' **WELL DEPTH** - 2.15' **DTGW** x (2") 4" .17 .66 = 2.6 **WELL VOLUME (GALS)**

==========

PURGE MEASUREMENTS

TIME	PURGE VOLUME GALLONS	CUMULATIVE GALLONS	TEMP. °F	CONDUCT umhos x 100	PH
11:58	0	0	65.3	15.47	6.92
12:01	2.6	2.6	64.9	13.94	6.59
12:03	2.6	5.2	65.4	13.93	6.54
12:05	2.6	7.8	65.4	13.86	6.48

REMARKS: D.O.: ~~mg~~ - 0.6 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:** B GM

Date: DEC. 3, 1997 **Time:** 12:58 AM ~~PM~~

==========

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

ODOR / APPEARANCE: NO GASOLINE ODOR / CLEAR

17.05' − 5.47 × 2" (4") / .17 .66 = 7.64

WELL DEPTH − DTGW × .17 .66 = WELL VOLUME (GALS)

==========

PURGE MEASUREMENTS

TIME	PURGE VOLUME GALLONS	CUMULATIVE GALLONS	TEMP. °F	CONDUCT umhos x 10Ɔ	PH
12:58	0	0	66.8	5.66	5.80
1:06	7.6	7.6	67.5	5.63	5.69
1:14	7.6	15.2	68.8	5.96	5.99
1:22	7.6	22.3	68.3	5.86	5.98

REMARKS: D.O : 0.3 mg/l

WEST & ASSOCIATES ENGINEERS

GROUNDWATER SAMPLING - PURGE DATA FORM

Project: WEYERHAEUSER ALAMEDA

Location: EAST OF FORMER GAS UST CLUSTER

Monitoring Well ID: MW-11 **Sampler:** BGM

Date: DEC. 3, 1997 **Time:** 1:29 AM (PM)

==========

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

ODOR / APPEARANCE: NO GASOLINE ODOR / CLEAR

18.40' - 4.71' x 2" (4") .17 .66 = 9.0

WELL DEPTH - DTGW x .17 .66 = WELL VOLUME (GALS)

==========

PURGE MEASUREMENTS

TIME	PURGE VOLUME GALLONS	CUMULATIVE GALLONS	TEMP. °F	CONDUCT umhos x 100	PH
1:29	0	0	67.7	6.79	6.19
1:37	9.0	~~18~~ 9	67.3	~~6~~ 7.24	6.01
1:48	9	~~27~~ 18	68.4	7.26	5.25
1:57	9	~~36~~ 27	68.6	7.51	5.49

PH adj.

REMARKS: D.O. : -0.3 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: DEC. 3, 1997 **Time:** 12:32 AM (PM)

==========

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

ODOR / APPEARANCE: NO GASOLINE ODOR / CLEAR

15.90' - 7.88 x 2" (4") .17 .66 = 5.2

WELL DEPTH - DTGW x .17 .66 = WELL VOLUME (GALS)

==========

PURGE MEASUREMENTS

TIME	PURGE VOLUME GALLONS	CUMULATIVE GALLONS	TEMP. °F	CONDUCT umhos x 100	PH
12:32	0	0	68.1	12.17	6.66
12:38	5.2	5.2	69.0	12.39	6.97
12:43	5.2	10.4	69.8	12.61	6.69
12:49	5.2	15.6	69.5	12.24	6.34

REMARKS: D.O. = 0.3 mg/l

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) 448-6998
P.O. BOX 5891 VACAVILLE, CA 95688

Project Number: P.O.#: Project Name: WPC-ALAMEDA

Project Location: ALAMEDA
Sampler Signature:

ANALYSIS REQUEST 1197085

Sample ID	Sampling DATE '97	Sampling TIME	Container VOA	Container SLEEVE	Container 1L GLASS	Container 1L PLASTIC	Method Preserved HCl	Method Preserved HNO_3	Method Preserved ICE	Method Preserved NONE	Matrix WATER	Matrix SOIL	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	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 (✓)	TAT: RUSH SERVICE (12 hr) or (24 hr)	TAT: EXPEDITED SERVICE (48 hr) or (1 wk)	TAT: STANDARD SERVICE (2wk)
MW-3B	12/3	PM	3				✓		✓		✓			✓							W	1	2	9	7	0	2	8										✓
MW-4B	12/3	PM	3				✓		✓		✓			✓												0	2	9										
MW-5	12/3	PM	3				✓		✓		✓			✓												0	3	0										
MW-6	12/3	PM	3				✓		✓		✓			✓												0	3	1										
MW-7	12/3	AM			1				✓		✓				✓											0	3	2										
MW-10	12/3	PM	3				✓		✓		✓			✓												0	3	3										
MW-11	12/3	PM	3				✓		✓		✓			✓												0	3	4										
MW-12	12/3	PM	3				✓		✓		✓			✓							W	1	2	9	7	0	3	5										✓

Relinquished by:	Date	Time	Received by:	Remarks:
	12/4/97	9:40		
Relinquished by	Date	Time	Received by:	
Relinquished by	Date	Time	Received by Laboratory:	Bill To:
	12/4/97	9:40	Nancy Reece	

EXCELCHEM
ENVIRONMENTAL LABS

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

ANALYSIS REPORT

Attention:	Brennan Mahoney	Date Sampled:	12-03-97
	West & Associates	Date Received:	12-04-97
	490 Merchant St. Ste. 104	BTEX Analyzed:	12-09-97
	Vacaville, CA 95688	TPHg Analyzed:	12-09-97
Project :	WPC-Alameda	Matrix:	Water

	Benzene PPB	Toluene PPB	Ethyl-benzene PPB	Total Xylenes PPB	TPHg PPB
Reporting Limit:	5.0	5.0	5.0	5.0	500
SAMPLE: Laboratory Identification:					
MW-3B W1297028	95.0	ND	ND	6.0	1200

ppb= Parts per billion = ug/L = micrograms per liter
ND = Not detected Compound(s) may be present at concentrations below the reporting limit

ANALYTICAL PROCEDURES

BTEX-- Benzene, toluene, ethylbenzene, and total xylene isomers (BTEX) are analyzed by using EPA Method 602 which utilizes a gas chromatograph (GC) equipped with a photoionization detector (PID).
TPHg Total petroleum hydrocarbons as gasoline (low-to-medium boiling points) are analyzed by using modified EPA Method 8015, which utilizes a GC equipped with an FID.

Laboratory Representative

12-16-97
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	Date Sampled:	12-03 97
	West & Associates	Date Received:	12-04 97
	490 Merchant St. Ste 104	BTEX Analyzed:	12-08-97
	Vacaville, CA 95688	TPHg Analyzed:	12-08-97
Project :	WPC-Alameda	Matrix:	Water

	Benzene PPB	Toluene PPB	Ethyl-benzene PPB	Total Xylenes PPB	TPHg PPB
Reporting Limit:	0.5	0.5	0.5	0.5	50
SAMPLE Laboratory Identification:					
MW-4B W1297029	ND	ND	ND	ND	ND
MW-5 W1297030	0.9	ND	ND	ND	ND
MW-6 W1297031	ND	ND	ND	ND	ND
MW-10 W1297033	ND	ND	ND	ND	ND
MW 11 W1297034	ND	ND	ND	ND	ND
MW-12 W1297035	ND	ND	ND	ND	ND

ppb– Parts per billion = ug/L = micrograms per liter
ND = Not detected Compound(s) may be present at concentrations below the reporting limit.

ANALYTICAL PROCEDURES

BTEX-- Benzene, toluene, ethylbenzene, and total xylene isomers (BTEX) are analyzed by using EPA Method 602 which utilizes a gas chromatograph (GC) equipped with a photoionization detector (PID).

TPHg - Total petroleum hydrocarbons as gasoline (low to medium boiling points) are analyzed by using modified EPA Method 8015, which utilizes a GC equipped with an FID.

Laboratory Representative

12-16-97
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 490 Merchant St, Ste 104 Vacaville, CA 95688	Date Sampled: Date Received: TPHd Analyzed:	12-03-97 12-01-97 12-11 97
Project :	WPC-Alameda	Matrix:	Water

	TPHd PPB
Reporting Limit:	50
SAMPLE ID: Laboratory ID:	
MW 7 W1297032	382

PPB = Parts per billion = ug/L = micrograms per Liter
ND = Not detected Compound(s) may be present at concentrations below the reporting limit

ANALYTICAL PROCEDURES

TPHd Total petroleum hydrocarbons as diesel (high boiling points) are measured by extraction using EPA Method 3510 followed by modified EPA Method 8015 with direct sample injection into a GC equipped with an FID

Laboratory Representative

12-16-97
Date Reported

EXCELCHEM
ENVIRONMENTAL LABS

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

QA/QC REPORT

Attention: Brennan Mahoney
West & Associates
490 Merchant St, Ste 104
Vacaville, CA 95688

BTEX Analyzed: 12-09 97
Matrix: Water

Project : WPC-Alameda

	Benzene PPB	Toluene PPB	Ethyl-benzene PPB	Total Xylenes PPB
Reporting Limit:	0.5	0.5	0.5	0.5
QA/QC PARAMETER				
Matrix Blank	ND	ND	ND	ND
PERCENT RECOVERIES				
Laboratory Control Spike	87%	87%	87%	86%
Laboratory Control Spike Duplicate	96%	97%	97%	97%

ppb = parts per billion = ug/L = microgram per liter
ND = Not detected Compound(s) may be present at concentrations below the reporting limit

All surrogate recoveries were within 30% of target values.
Spikes & Spike Duplicates were each spiked with 250 ng BTEX standard.

ANALYTICAL PROCEDURES

BTEX-- Benzene, toluene, ethylbenzene, and total xylene isomers (BTEX) are measured by extraction using EPA Method 5030 followed by analysis using EPA Method 602 which utilizes a gas chromatograph (GC) equipped with a photoionization detector (PID).

Laboratory Representative

12-16-97
Date Reported

EXCELCHEM
ENVIRONMENTAL LABS

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

QA/QC REPORT

Attention: Brennan Mahoney
West & Associates
490 Merchant St, Ste 104
Vacaville, CA 95688

TPHd Analyzed: 12-10-97
Matrix: Water

Project : WPC-Alameda

	TPHd PPB
Reporting Limit:	50
QA/QC PARAMETER	
Matrix Blank	ND
PERCENT RECOVERIES	
Laboratory Control Spike	84%
Laboratory Control Spike Duplicate	83%

ppb = parts per billion = ug/L = microgram per liter
ND = Not detected Compound(s) may be present at concentrations below the reporting limit

Spikes & Spike Duplicates were each spiked with 5000 ug of diesel standard.

ANALYTICAL PROCEDURES

TPHd--Total petroleum hydrocarbons as diesel (high boiling points) are measured by extraction using EPA Method 3510, followed by modified EPA Method 8015 with direct sample injection into a GC equipped with an FID

Laboratory Representative

12-16-97
Date Reported