WEST ASSOCIATES
ENVIRONMENTAL ENGINEERS, INC

96 JUL -1 PM 4:39

June 28, 1996

Alameda County Health Care Services Agency
Department of Environmental Health
1131 Harbor Bay Parkway, Suite 250
Alameda, CA 94502-6577
Attn: Ms. Juliet Shin
Hazardous Materials Specialist

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

Dear Ms. Shin,

West & Associates Environmental Engineers, Inc. respectfully submits the second quarter 1996 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.

As described in this quarters report, operation of the recently constructed air sparging system appears to have measurably reduced groundwater contaminant concentrations. Hopefully, continued operation of the remedial system will continue to improve groundwater quality.

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

Yours truly,

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

BGM/di

Enclosure: Second Quarter 1996 WPC Alameda Groundwater Monitoring Report

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

QUARTERLY GROUNDWATER MONITORING REPORT
FORMER UNDERGROUND TANK SITES
APRIL - JUNE 1996

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

June 1996

EXECUTIVE SUMMARY

The Weyerhaeuser Paper Company (WPC) Alameda facility at 1801 Hibbard Str. is a corrugated box 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 analysis, is conducted quarterly. Second quarter groundwater monitoring activities for 1996 were conducted on June 5, 1996.

Alameda County Environmental Health Services (ACEHS) approved a modified analytical schedule, in a response letter dated May 14, 1996, that was 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 switched from quarterly to semi-annual at this time.

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, mail stop CH 1K29, Tacoma, WA 98477; (206) 924-6511.

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. Ms. Juliet Shin, Hazardous Materials Specialist, is the staff person assigned. The Department of Environmental Health is located at 1131 Harbor Bay Parkway, Suite 250, Alameda, CA 94502-6577; (510) 567-6763.

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 Anlab Analytical Laboratories located in Sacramento, California. Anlab 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 APSS and Mr. Brian W. West PE. (Registered California Civil Engineer No. 32319 - expires 12/31/96).

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APPENDICES

1.0 INTRODUCTION

Groundwater conditions are periodically monitored at the Weyerhaeuser Paper Company Alameda facility based on a schedule proposed to the Alameda County Environmental Health Agency in January 1995 (amended in May 1996). This report presents results of groundwater monitoring performed during the second quarter (April-June) 1996.

This quarter, groundwater monitoring was performed on June 5, 1996. 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 is 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

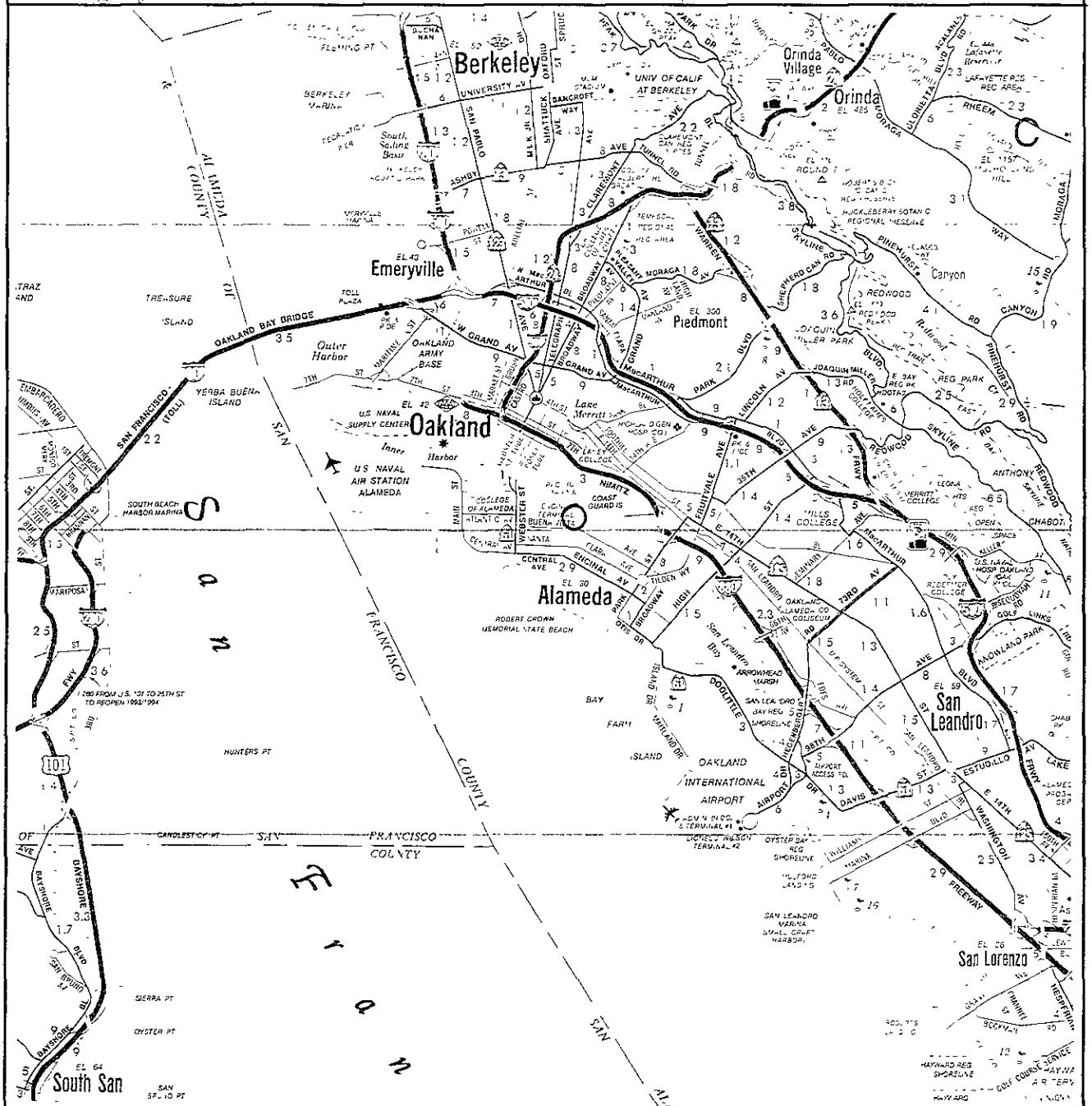


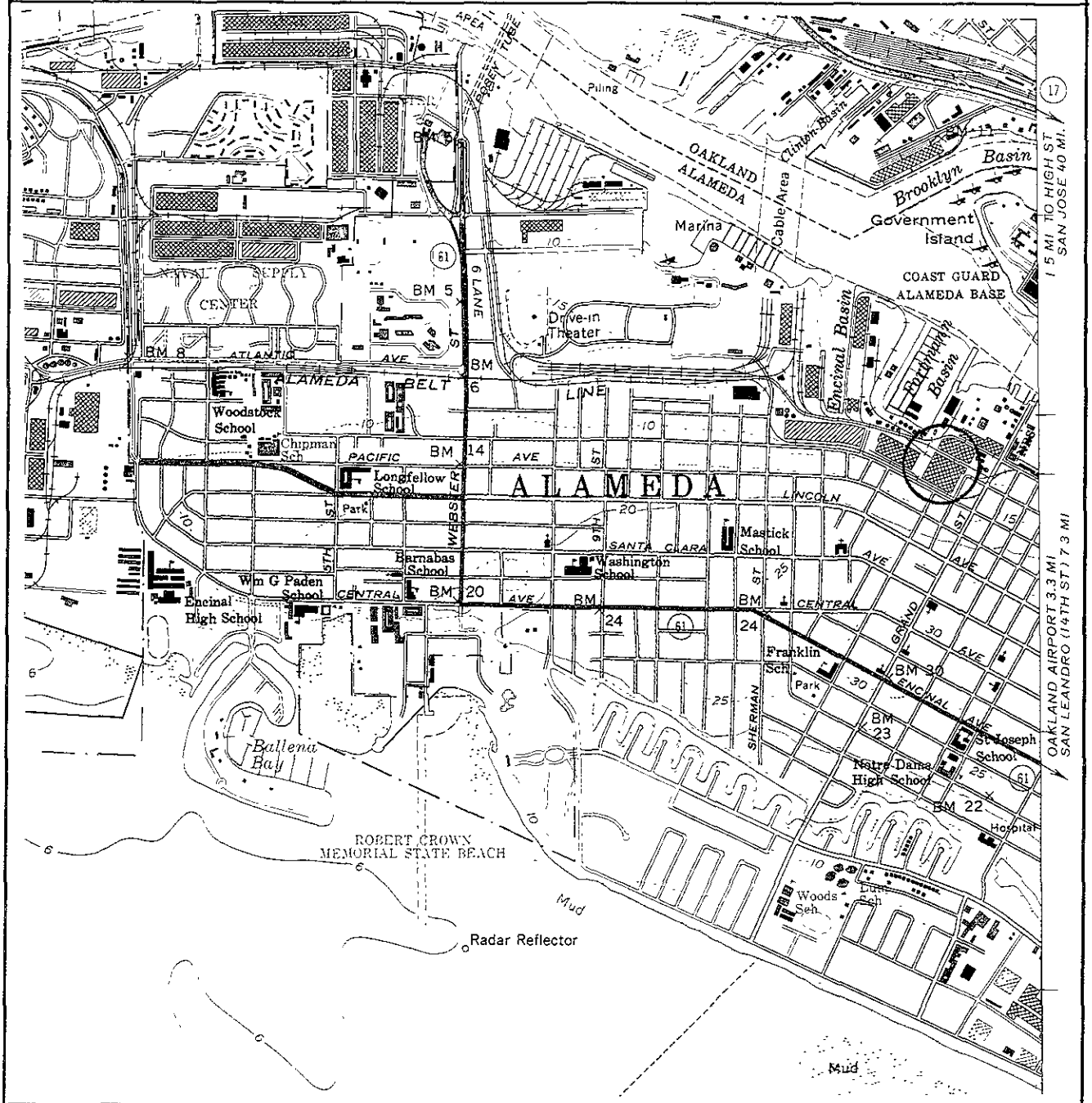
Figure 1

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 west 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 was begun in late March 1996.

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 Anlab Analytical Laboratory located in Sacramento, California. Anlab 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

Each groundwater sample except MW-7 was analyzed for Total Petroleum Hydrocarbons in the gasoline range (TPH-g). Groundwater from monitoring well MW-7 was analyzed for TPH in the diesel range. No additional analyses were performed on any of the water samples this quarter.

This quarters analytical schedule was proposed by West & Associates in the March 1996 Quarterly Groundwater Monitoring Report and approved by the ACEHS in correspondence dated May 14, 1996. The frequency of EPA Method 624 and 625 analysis for groundwater samples has been changed from quarterly to simi-annual. Analysis of samples by EPA Methods 624 and 625 will take place next month. A copy of the May 14, 1996 ACEHS letter is presented in the Appendix.

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.

This quarters analytical results for TPH-g and BTXE contamination are presented in Table 1. Analysis of groundwater sample MW-7 detected 1.1 mg/l of TPH-d. Copies of original laboratory data sheets and chain of custody forms are presented in the appendix.

TABLE 1
PETROLEUM CONTAMINATION ANALYSES - GROUNDWATER
June 5, 1996
All Values in ug/l

WELL ID	TPH (gas)	BENZENE	TOLUENE	XYLENES	ETHYL BENZENE
MW-3B	11,000	1,300	250	860	370
MW-4B	350	ND	ND	ND	1.6
MW-5	100	ND	ND	ND	ND
MW-6	45	1.2	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

A decrease in TPH-gas and BTEX contaminant concentrations was observed in the groundwater sample collected from well MW-3B this quarter as compared to last quarter. Well MW-3B has historically produced the highest contaminant contaminations. Table 2 presents the percent reduction in TPH-gas and benzene concentrations in well MW-3B compared to last quarter.

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

Date	TPH (gas)	BENZENE	PERCENT REDUCTION TPH-gas	PERCENT REDUCTION BENZENE
2/96	19,000	2,100	-	-
6/96	11,000	1,300	42%	38%

ABBREVIATIONS
ug/l: Micrograms per liter
TPH: Total Petroleum Hydrocarbons

Detectable concentrations of TPH-diesel were found in monitoring well MW-7 this quarter. The concentration of TPH-d detected this quarter is similar to concentrations detected in previous quarters.

4.0 HYDROLOGIC MONITORING

Depth to groundwater (DTGW) was measured in all eight of the WPC Alameda monitoring wells on June 5, 1996 this quarter. DTGW was measured using a Solinst electronic sounding meter. Measurement accuracy was +/- 0.01 feet.

Table 2 presents depth to groundwater measurements (DTGW) and groundwater elevations (GW) as measured on June 5, 1996. The change in groundwater elevation in each well relative to the most recent previous measurement (February 7, 1995) is also indicated in Table 2.

Figure 3 illustrates groundwater contours under the site extrapolated from the June 5, 1996 groundwater elevation data. The groundwater gradient direction measured this quarter has a northwest orientation.

This groundwater gradient direction is consistent with previous groundwater gradient observations at the WPC site.

TABLE 3 - HYDROLOGIC MEASUREMENTS
June 5, 1996
(All measurements in feet)

WELL ID	TOC	DTGW	GWE	CHANGE[1]
MW-3B	9.81	5.66	4.15	-0.76
MW-4B	9.59	6.09	3.50	-1.06
MW-5	9.77	5.76	4.01	-1.12
MW-6	10.04	6.59	3.45	-1.21
MW-7	7.68	3.55	4.13	-1.07
MW-10	9.37	5.52	3.85	-0.63
MW-11	8.78	4.56	4.22	-0.17
MW-12	12.32	7.90	4.42	-1.2

ABBREVIATIONS
TOC: Top of Casing
DTGW: Depth to Groundwater
GWE: Groundwater Elevation
NA: Not Available
[1] Relative to last available DTGW measurement: February 7, 1996

4.1 Conclusions

Groundwater elevations were lower in all monitoring wells this quarter as compared to last quarter. The decrease in groundwater elevations relative to last quarter is consistent with the seasonal fluctuation observed previously. The groundwater gradient direction was measured to be toward the northwest this quarter which was slightly more westerly than last quarter, but is still within the range of previous recordings.

5.0 SUMMARY

- All eight WPC groundwater wells were monitored on June 5, 1996.
- No floating product was observed in any groundwater well this quarter.
- Contaminant concentrations in groundwater have decreased in the areas around the former gasoline tank cluster since September 1995.
- Groundwater levels have decreased slightly under entire site as compared to the last quarter of monitoring (February 7, 1996).

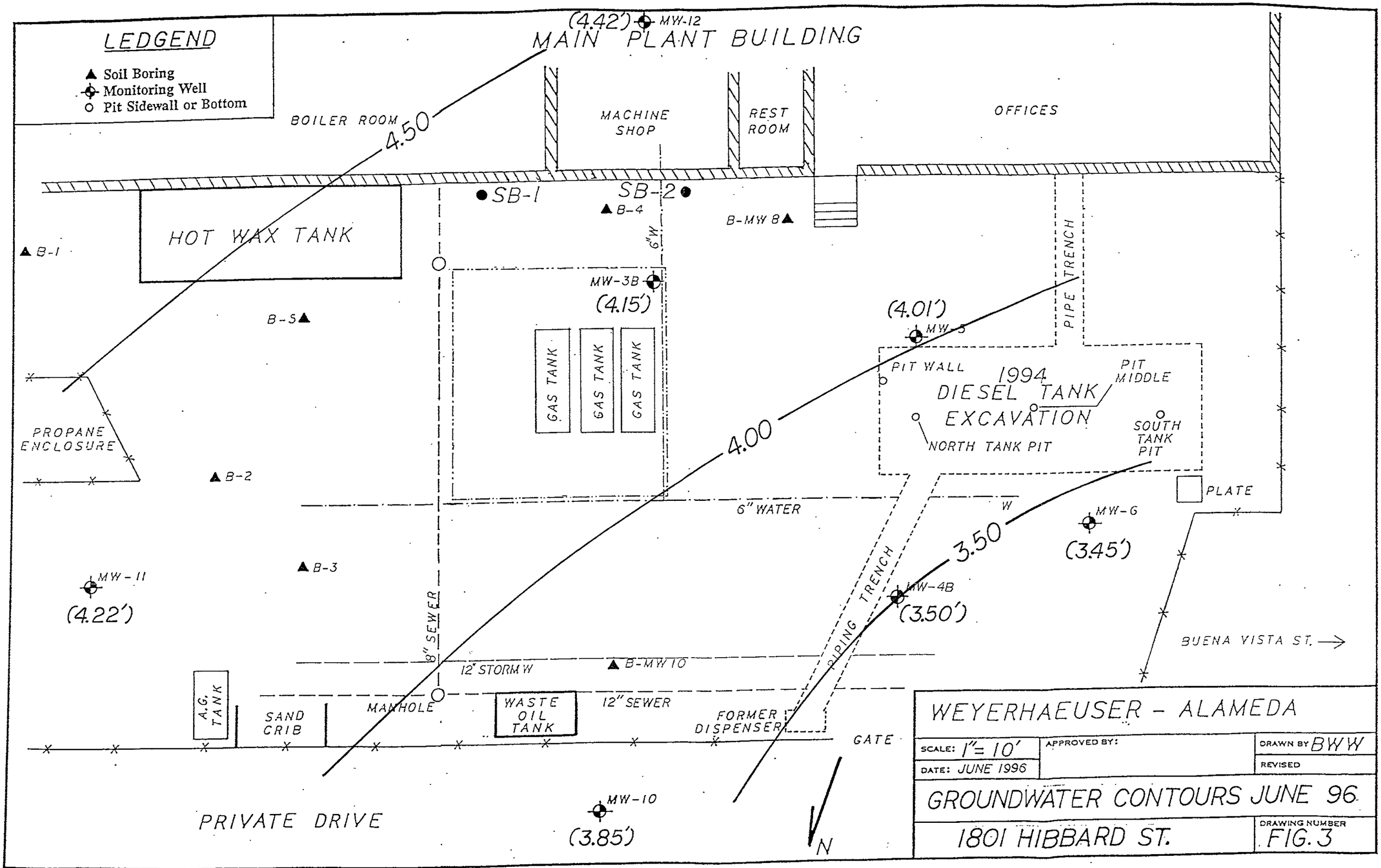
5.2 Remedial Status

Soil excavation activities were completed in the area of the former gasoline tank cluster in November 1995.

Construction of an air sparging/vapor extraction system was completed in February 1996.

Pilot testing activities were completed on the newly installed air sparging/vapor extraction system on March 19, 1996. Findings of the pilot test are 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 with clearance from the Bay Area Air Quality Management District. The remedial system is monitored at least weekly. A decrease in volatile extraction rate 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. Preliminary indications are that the sparging system is successfully remediating the site.



WEYERHAEUSER - ALAMEDA		
SCALE: 1"= 10'	APPROVED BY:	DRAWN BY BWW
DATE: JUNE 1996		REVISED
GROUNDWATER CONTOURS JUNE 96		
1801 HIBBARD ST.		DRAWING NUMBER FIG. 3

11 X 17 PRINTED ON NO. 1000H CLEARPRINT ®

ALAMEDA COUNTY
HEALTH CARE SERVICES
AGENCY
DAVID J. KEARS, Agency Director

Alameda County CC4580
Environmental Health Services
1131 Harbor Bay Pkwy., #250
Alameda CA 94502-6577
(510)567-6700 FAX(510)337-9335

May 14, 1996

Mr. John Hipner
Weyerhauser Co.
P.O. Box Drawer X
Alameda, CA 94501

COPY

STID 1202

Re: Investigations at Weyerhauser Paper Company, located at 1801 Hibbard St., Alameda, CA

Dear Mr. Hipner,

In response to West Associates' recommendations given in the March 28, 1996 Quarterly Groundwater Monitoring Report for the above site, the frequency of EPA Method 624 and 625 analysis for groundwater samples may be switched from quarterly to semi-annual. This office would like you to hold off on switching the frequency of these analyses to annual until we obtain more information to determine whether the recently installed vapor extraction and air sparge systems will help remediate these halogenated and polynuclear aromatic hydrocarbon concentrations.

Quarterly analysis for Total Petroleum Hydrocarbons as gasoline and benzene, toluene, ethylbenzene, and xylenes shall continue at the site for all wells, except for Well MW-7 which should continue to be analyzed for Total Petroleum Hydrocarbons as diesel.

If you have any questions or comments, please contact me at (510) 567-6763.

Sincerely,

Juliet Shin
Senior Hazardous Materials Specialist

cc: Ed Granados , Weyerhauser, mail stop CH 1K29, Tacoma, WA 98477

Brian W. West, West Associates, P.O Box 5891, Vacaville, CA 95696

Acting Chief-File

WEST & ASSOCIATES ENGINEERS

GROUNDWATER SAMPLING - PURGE DATA FORM

Project: WEYERHAEUSER ALAMEDA

Location: NEAR FORMER WELL MW-3

Monitoring Well ID: MW-3B Sampler: BWW (BGA)

Date: 6-5-96 Time: 2.04 AM (PM)

==========

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

ODOR / APPEARANCE: GASOLINE ODOR PRESENT / GRAY

16 (WELL DEPTH) - 5.73 (DTGW) x (2" .17) 4" .66 = 1.2 (WELL VOLUME (GALS))

==========

PURGE MEASUREMENTS

TIME	PURGE VOLUME GALLONS	CUMULATIVE GALLONS	TEMP. °F	CONDUCT umhos x 1000	PH
2:04	0	0	73.8	0.79	6.83
2:06	2	2	72.8	0.94	6.70
2:08	2	4	72.2	1.20	6.56
2:10	2	6	72.1	1.19	6.57

REMARKS:

WEST & ASSOCIATES ENGINEERS

GROUNDWATER SAMPLING - PURGE DATA FORM

Project: WEYERHAEUSER ALAMEDA

Location: NEAR FORMER WELL MW-4

Monitoring Well ID: MW-4B Sampler: BWW (BGM)

Date: 6-5-96 Time: 1:53 AM (PM)

==========

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

ODOR / APPEARANCE: No GASOLINE ODOR / CLEAR

16 WELL DEPTH - 6.09 DTGW x (2" .17) 4" .66 = 1.6 WELL VOLUME (GALS)

==========

PURGE MEASUREMENTS

TIME	PURGE VOLUME GALLONS	CUMULATIVE GALLONS	TEMP. °F	CONDUCT umhos x 1000	PH
1:53	0	0	73.5	1.22	6.74
1:55	2	2	72.4	1.07	6.74
1:58	2	4	72.3	0.95	6.70
2:02	2	6	71.9	0.94	6.71

REMARKS:

WEST & ASSOCIATES ENGINEERS

GROUNDWATER SAMPLING - PURGE DATA FORM

Project: WEYERHAEUSER ALAMEDA

Location: SW SIDE of FORMER GAS TANK CLUSTER

Monitoring Well ID: MW-5 **Sampler:** BWW - BGM

Date: 6-5-96 **Time:** 1:45 AM (PM)

==========

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

ODOR / APPEARANCE: NO GASOLINE ODOR / CLEAR

17.5 (WELL DEPTH) - 5.76 (DTGW) x (2" .17 / 4" .66) = 1.9 (WELL VOLUME (GALS))

==========

PURGE MEASUREMENTS

TIME	PURGE VOLUME GALLONS	CUMULATIVE GALLONS	TEMP. °F	CONDUCT umhos x 1000	PH
1:45	0	0	71.2	0.92	7.12
1:47	2	2	70.5	0.87	7.10
1:49	2	4	69.1	0.90	7.03
1:51	2	6	68.9	0.87	6.99

REMARKS:

WEST & ASSOCIATES ENGINEERS

GROUNDWATER SAMPLING - PURGE DATA FORM

Project: WEYERHAEUSER ALAMEDA

Location: WEST SIDE OF SITE

Monitoring Well ID: MW-6 Sampler: BWW (BGM)

Date: 6-5-96 Time: 1:32 AM (PM)

==========

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

ODOR / APPEARANCE: NO GASOLINE ODOR / CLEAR

19.65 WELL DEPTH - 6.59 DTGW x (2" .17) 4" .66 = 2.2 WELL VOLUME (GALS)

==========

PURGE MEASUREMENTS

TIME	PURGE VOLUME GALLONS	CUMULATIVE GALLONS	TEMP. °F	CONDUCT umhos x 1000	PH
1:32	0	0	72.4	0.82	7.16
1:35	2.5	2.5	70.4	0.81	7.15
1:38	2.5	5	69.3	0.77	7.16
1:42	2.5	7.5	69.1	0.75	7.16

REMARKS:

WEST & ASSOCIATES ENGINEERS

GROUNDWATER SAMPLING - PURGE DATA FORM

Project: WEYERHAEUSER ALAMEDA

Location: EAST SIDE OF SITE

Monitoring Well ID: MW-7 Sampler: BWW (BGM)

Date: 6-3-96 Time: 11:24 (AM) PM

==========

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

ODOR / APPEARANCE: NO APPARENT DIESEL ODOR SOME SEDIMENT

17.86 - 3.55 (DTGW) x 2" .17 4" .66 = 9.4 2.4 WELL VOLUME (GALS)

(WELL DEPTH)

==========

PURGE MEASUREMENTS

TIME	PURGE VOLUME GALLONS	CUMULATIVE GALLONS	TEMP. °F	CONDUCT umhos x 1000	PH
11:24	0	0	70.5	1.8x11	6.80
11:28	92.5	92.5	69.8	2.45	6.34
11:30	92.5	185	68.7	2.35	6.31
11:33	92.5	277.5	68.4	2.47	6.31

REMARKS:

WEST & ASSOCIATES ENGINEERS

GROUNDWATER SAMPLING - PURGE DATA FORM

Project: WEYERHAEUSER ALAMEDA

Location: IN STREET NORTH OF YARD

Monitoring Well ID: MW-10 Sampler: BWW (BGM)

Date: 6-5-96 Time: 12:41 AM (PM)

==========

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

ODOR / APPEARANCE: NO GASOLINE ODOR / CLEAR

17.05 WELL DEPTH - 5.52 DTGW x 2" .17 (4" .66) = 7.6 WELL VOLUME (GALS)

==========

PURGE MEASUREMENTS

TIME	PURGE VOLUME GALLONS	CUMULATIVE GALLONS	TEMP. °F	CONDUCT umhos x 1000	PH
12:41	0	0	71.9	0.56	7.47
12:47	7.5	7.5	70.4	0.55	7.46
12:53	7.5	15	69.4	0.54	7.35
12:57	7.5	22.5	69.5	0.55	7.31

REMARKS:

WEST & ASSOCIATES ENGINEERS

GROUNDWATER SAMPLING - PURGE DATA FORM

Project: WEYERHAEUSER ALAMEDA

Location: EAST SIDE OF FORMER TANK CLUSTER

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

Date: 6-5-96 Time: 1:04 AM (PM)

==========

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

ODOR / APPEARANCE: _____

18.40 (WELL DEPTH) - 4.56 (DTGW) x .17 (2" / (4") .66) = 9.1 (WELL VOLUME (GALS))

==========

PURGE MEASUREMENTS

TIME	PURGE VOLUME GALLONS	CUMULATIVE GALLONS	TEMP. °F	CONDUCT umhos x 1000	PH
1:04	0	0	73.6	0.76	7.14
1:09	9	9	72.8	0.74	7.11
1:18	9	18	72.4	0.73	7.16
1:25	9	27	70.9	0.75	7.12

REMARKS: _____

WEST & ASSOCIATES ENGINEERS

GROUNDWATER SAMPLING - PURGE DATA FORM

Project: WEYERHAEUSER ALAMEDA

Location: INSIDE METAL SHOP

Monitoring Well ID: MW-12 **Sampler:** BWW - (BGM)

Date: 6-5-96 **Time:** 12:08 (AM) (PM)

==========

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

ODOR / APPEARANCE: NO GASOLINE ODOR / CLEAR

15.90 (WELL DEPTH) - 7.90 (DTGW) x 2" / (4") .17 / .66 = 5.28 (WELL VOLUME (GALS))

==========

PURGE MEASUREMENTS

TIME	PURGE VOLUME GALLONS	CUMULATIVE GALLONS	TEMP. °F	CONDUCT umhos x 1000	PH
12:08	0	0	75.9	1.19	7.80
12:15	5	5	71.1	1.01	7.23
12:23	5	10	70.2	1.06	6.90
	5	15	69.9	1.06	6.88

REMARKS:

Anlab Client Code: _____

CHAIN OF CUSTODY RECORD

Page 1 of 1

Anlab
ANALYTICAL LABORATORY

1910 "S" STREET • SACRAMENTO • CA • 95814

(916) 447-2946 • FAX (916) 447-8321

CLIENTS RELEASE OF SAMPLE TO ANLAB CONSTITUTES AN AGREEMENT TO PAY ANLAB WITHIN 30 DAYS OF BEING INVOICED FOR WORK PERFORMED. SHOULD ANLAB HAVE TO TAKE LEGAL ACTION FOR COLLECTION, CLIENT AGREES TO PAY ANLAB'S ATTORNEY FEES AND COST OF COLLECTION.

CLIENT INFORMATION

Company:	WEST & ASSOC.	Contact Name:	BRENNAN MAILONEY
Address:	P.O. 5891		
City:	VACAVILLE	State: CA	Zip: 95696
Billing Address:	SAME		
Telephone:	(707) 451-1360	FAX:	(707) 448-6395
Project Name:	WPC	P.O Number:	
Sampler's Co.:	WEST & ASSOC.	Sampler's Name:	BRM

Anlab Use Only:
Hours: _____
Miles: _____
Equip.: _____

ANALYSIS

SAMPLE IDENTIFICATION	Date	Time	TPH-GAS	BTEX	TPH DIESEL	Sample Type: W	WW	SOIL	SLUDGE	Number of Containers: PLASTIC	GLASS 1/2	VOA	STERILE	Preservation: TEMP	ACID HCl	BASE
MW-3B	6/5	PM	✓	✓		✓						3		✓	✓	
MW-4B	6/5		✓	✓		✓						3		✓	✓	
MW-5	6/5		✓	✓		✓						3		✓	✓	
MW-6	6/5		✓	✓		✓						3		✓	✓	
MW-7	6/5				✓	✓					1	X		✓		
MW-10	6/5		✓	✓		✓						3		✓	✓	
MW-11	6/5		✓	✓		✓						3		✓	✓	
MW-12	6/5	∨	✓	✓		✓						3		✓	✓	

COMMENTS/SPECIAL INSTRUCTIONS:
REFER TO LANCASTER ALAMEDA - SEE QUOTATION FOR

TURNAROUND TIME:
24 HOUR ☐ 48 HOUR ☐ 72 HOUR ☐
5 DAY ☐ STANDARD ☑
QC LEVEL: 1 ☐ 2 ☐ 3 ☐

SAMPLE DISPOSAL: ☐ HOLD
☐ RETURN ☑ DISPOSE

SHIPPED VIA:
☐ UPS ☐ FED-EX ☐ BUS

SAMPLE RELINQUISHED BY	PRINT NAME/COMPANY	DATE/TIME	RECEIVED BY	PRINT NAME/COMPANY
	BRENNAN/WEST			

All hazardous waste samples will be returned to client or billed for disposal.

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June 24, 1996

West & Associates Environmental Engineers
P.O. Box 5891
Vacaville, CA 95696
Attn: Brian West

Project: Weyerhauser/Alameda

Anlab I.D. AF09816 Client Code: 891
SAMPLE DESCRIPTION: MW-3B Matrix: W
Sample collection date: 06/05/96 Time:
Lab submittal date: 06/06/96 Time: 10:34
Turn-Around-Time: REG Sample Disposal: LAB

TEST PARAMETER	UNITS	TEST RESULT	DETECTION LIMIT
Multicomponent analysis: Gas(8015)/BTX&E(8020) EPA 5030			(*)
Gasoline	ug/l	11000	4000
Benzene	ug/l	1300	100.0
Toluene	ug/l	250	10.00
Xylene	ug/l	860	10.00
Ethylbenzene	ug/l	370	10.00

Anlab I.D. AF09817 Client Code: 891
SAMPLE DESCRIPTION: MW-4B Matrix: W
Sample collection date: 06/05/96 Time:
Lab submittal date: 06/06/96 Time: 10:34
Turn-Around-Time: REG Sample Disposal: LAB

TEST PARAMETER	UNITS	TEST RESULT	DETECTION LIMIT
Multicomponent analysis: Gas(8015)/BTX&E(8020) EPA 5030			
Gasoline	ug/l	350	20
Benzene	ug/l	ND	0.50
Toluene	ug/l	ND	0.50
Xylene	ug/l	ND	0.50
Ethylbenzene	ug/l	1.6	0.50

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June 25, 1996
West & Associates Environmental Engineers

Anlab I.D. AF09818 Client Code: 891
SAMPLE DESCRIPTION: MW-5 Matrix: W
Sample collection date: 06/05/96 Time:
Lab submittal date: 06/06/96 Time: 10:34
Turn-Around-Time: REG Sample Disposal: LAB

TEST PARAMETER	UNITS	TEST RESULT	DETECTION LIMIT
Multicomponent analysis: Gas(8015)/BTX&E(8020) EPA 5030			
Gasoline	ug/l	100	20
Benzene	ug/l	ND	0.50
Toluene	ug/l	ND	0.50
Xylene	ug/l	ND	0.50
Ethylbenzene	ug/l	ND	0.50

Anlab I.D. AF09819 Client Code: 891
SAMPLE DESCRIPTION: MW-6 Matrix: W
Sample collection date: 06/05/96 Time:
Lab submittal date: 06/06/96 Time: 10:34
Turn-Around-Time: REG Sample Disposal: LAB

TEST PARAMETER	UNITS	TEST RESULT	DETECTION LIMIT
Multicomponent analysis: Gas(8015)/BTX&E(8020) EPA 5030			
Gasoline	ug/l	45	20
Benzene	ug/l	1.2	0.50
Toluene	ug/l	ND	0.50
Xylene	ug/l	ND	0.50
Ethylbenzene	ug/l	ND	0.50

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June 25, 1996
West & Associates Environmental Engineers

Anlab I.D. AF09820 Client Code: 891
SAMPLE DESCRIPTION: MW-7 Matrix: W
Sample collection date: 06/05/96 Time:
Lab submittal date: 06/06/96 Time: 10:34
Turn-Around-Time: REG Sample Disposal: LAB

TEST PARAMETER	UNITS	TEST RESULT	DETECTION LIMIT
Multicomponent analysis: TPH by LUFT Method			
Petroleum Hydrocarbons as Diesel	mg/l	1.1*	0.050
Motor Oil	mg/l	ND	1

Anlab I.D. AF09821 Client Code: 891
SAMPLE DESCRIPTION: MW-10 Matrix: W
Sample collection date: 06/05/96 Time:
Lab submittal date: 06/06/96 Time: 10:34
Turn-Around-Time: REG Sample Disposal: LAB

TEST PARAMETER	UNITS	TEST RESULT	DETECTION LIMIT
Multicomponent analysis: Gas(8015)/BTX&E(8020) EPA 5030			
Gasoline	ug/l	ND	20
Benzene	ug/l	ND	0.50
Toluene	ug/l	ND	0.50
Xylene	ug/l	ND	0.50
Ethylbenzene	ug/l	ND	0.50

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June 25, 1996
West & Associates Environmental Engineers

Anlab I.D. AF09822 Client Code: 891
SAMPLE DESCRIPTION: MW-11 Matrix: W
Sample collection date: 06/05/96 Time:
Lab submittal date: 06/06/96 Time: 10:34
Turn-Around-Time: REG Sample Disposal: LAB

TEST PARAMETER	UNITS	TEST RESULT	DETECTION LIMIT
Multicomponent analysis: Gas(8015)/BTX&E(8020) EPA 5030			
Gasoline	ug/l	ND	20
Benzene	ug/l	ND	0.50
Toluene	ug/l	ND	0.50
Xylene	ug/l	ND	0.50
Ethylbenzene	ug/l	ND	0.50

Anlab I.D. AF09823 Client Code: 891
SAMPLE DESCRIPTION: MW-12 Matrix: W
Sample collection date: 06/05/96 Time:
Lab submittal date: 06/06/96 Time: 10:34
Turn-Around-Time: REG Sample Disposal: LAB

TEST PARAMETER	UNITS	TEST RESULT	DETECTION LIMIT
Multicomponent analysis: Gas(8015)/BTX&E(8020) EPA 5030			
Gasoline	ug/l	ND	20
Benzene	ug/l	ND	0.50
Toluene	ug/l	ND	0.50
Xylene	ug/l	ND	0.50
Ethylbenzene	ug/l	ND	0.50

ND = Not Detected

* Increased detection limit due to a high level of analyte present in the sample.

Note: See Attachment A for dates of analysis.

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June 25, 1996
West & Associates Environmental Engineers Anlab I.D. AF09816-23 (continued)

Sample comments:

Analysis: EPA 5030

Samples AF09817, AF09818, and AF09819 contained hydrocarbons in the gasoline range but the peak patterns were not characteristic of gasoline.

Case Narrative:

Analysis: TPH by LUFT Method

Problem: The relative percent difference for the precision measurement between the laboratory control standard/laboratory control standard duplicate for TPH by LUFT Method was 33%. The relative percent difference is outside of the EPA or historical quality limits established from quality control charts at Anlab. The established quality control limit is 0-30 relative percent difference between duplicate measurements.

Data Qualification: The integrity of the analytical data was established based on the fact that acceptable quality control recoveries were obtained for the laboratory control standard, the matrix spike compounds and the QA/QC surrogates.

Report Approved By: Kristi Runkle
ELAP ID #: 1468

:jbc

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ATTACHMENT A, DATES OF ANALYSIS

			BEGIN	FINISH
AF09816	Gas(8015)/BTX&E(8020)	EPA 5030	06/11/96	06/11/96
AF09817	Gas(8015)/BTX&E(8020)	EPA 5030	06/10/96	06/10/96
AF09818	Gas(8015)/BTX&E(8020)	EPA 5030	06/10/96	06/10/96
AF09819	Gas(8015)/BTX&E(8020)	EPA 5030	06/10/96	06/10/96
AF09820	TPH by LUFT Method		06/12/96	06/17/96
AF09821	Gas(8015)/BTX&E(8020)	EPA 5030	06/11/96	06/11/96
AF09822	Gas(8015)/BTX&E(8020)	EPA 5030	06/10/96	06/10/96
AF09823	Gas(8015)/BTX&E(8020)	EPA 5030	06/10/96	06/10/96

ANLAB QA/QC REPORT AF09816

This report is applicable only to the sample received by the laboratory. The liability of the laboratory is limited to the amount paid for this report. This report is for the exclusive use of the client to whom it is addressed and upon the condition that the client assumes all liability for the further distribution of the report or its contents.

LCS = LAB CONTROL SAMPLE
% Dup RPD: X=SAMPLE OR MATRIX SPIKE RESULT Y=DUPLICATE OR MATRIX SPIKE DUP RESULT ((ABS(X-Y))/((X+Y))/2)*100

Analysis/Analyte	MDL	Units	QA Sample Number	QA Sample Result	LCS % Rec	Spike Result	Matrix Duplicate or MSD Result	QA/QC Summary % Spike Rec	QA/QC Summary % Dup RPD	Analyst Initials
$5030 (Gasoline)	20	ug/l	AF09821	ND	NA	NA	NA	NA	NA	JH
$5030 (Benzene)	0.50	ug/l	AF09821	ND	94	4.51	4.53	90	0.44	JH
$5030 (Toluene)	0.50	ug/l	AF09821	ND	96	4.76	4.81	95	1.0	JH
$5030 (Xylene)	0.50	ug/l	AF09821	ND	92	14.0	14.1	93	0.71	JH
$5030 (Ethylbenzene)	0.50	ug/l	AF09821	ND	99	4.73	4.77	95	0.84	JH

ANLAB QA/QC REPORT AF09817

This report is applicable only to the sample received by the laboratory. The liability of the laboratory is limited to the amount paid for this report. This report is for the exclusive use of the client to whom it is addressed and upon the condition that the client assumes all liability for the further distribution of the report or its contents.

LCS = LAB CONTROL SAMPLE
% Dup RPD: X=SAMPLE OR MATRIX SPIKE RESULT Y=DUPLICATE OR MATRIX SPIKE DUP RESULT ((ABS(X-Y))/((X+Y))/2)*100

Analysis/Analyte	MDL	Units	QA Sample Number	QA Sample Result	LCS % Rec	Spike Result	Matrix Duplicate or MSD Result	QA/QC Summary		Analyst Initials
								% Spike Rec	% Dup RPD	
$5030 (Gasoline)	20	ug/l	AF09822	ND	NA	NA	NA	NA	NA	JH
$5030 (Benzene)	0.50	ug/l	AF09822	ND	88	4.32	4.19	86	3.1	JH
$5030 (Toluene)	0.50	ug/l	AF09822	ND	89	4.50	4.37	90	2.9	JH
$5030 (Xylene)	0.50	ug/l	AF09822	ND	86	13.3	12.9	88	3.1	JH
$5030 (Ethylbenzene)	0.50	ug/l	AF09822	ND	88	4.46	4.34	89	2.7	JH

ANLAB QA/QC REPORT AF09818

This report is applicable only to the sample received by the laboratory. The liability of the laboratory is limited to the amount paid for this report. This report is for the exclusive use of the client to whom it is addressed and upon the condition that the client assumes all liability for the further distribution of the report or its contents.

LCS = LAB CONTROL SAMPLE
% Dup RPD: X=SAMPLE OR MATRIX SPIKE RESULT Y=DUPLICATE OR MATRIX SPIKE DUP RESULT ((ABS(X-Y))/((X+Y))/2)*100

Analysis/Analyte	MDL	Units	QA Sample Number	QA Sample Result	LCS % Rec	Spike Result	Matrix Duplicate or MSD Result	QA/QC Summary % Spike Rec	% Dup RPD	Analyst Initials
$5030 (Gasoline)	20	ug/l	AF09822	ND	NA	NA	NA	NA	NA	JH
$5030 (Benzene)	0.50	ug/l	AF09822	ND	88	4.32	4.19	86	3.1	JH
$5030 (Toluene)	0.50	ug/l	AF09822	ND	89	4.50	4.37	90	2.9	JH
$5030 (Xylene)	0.50	ug/l	AF09822	ND	86	13.3	12.9	88	3.1	JH
$5030 (Ethylbenzene)	0.50	ug/l	AF09822	ND	88	4.46	4.34	89	2.7	JH

ANLAB QA/QC REPORT AF09819

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LCS = LAB CONTROL SAMPLE
% Dup RPD: X=SAMPLE OR MATRIX SPIKE RESULT Y=DUPLICATE OR MATRIX SPIKE DUP RESULT ((ABS(X-Y))/((X+Y))/2)*100

Analysis/Analyte	MDL	Units	QA Sample Number	QA Sample Result	LCS % Rec	Spike Result	Matrix Duplicate or MSD Result	QA/QC Summary % Spike Rec	QA/QC Summary % Dup RPD	Analyst Initials
$5030 (Gasoline)	20	ug/l	AF09822	ND	NA	NA	NA	NA	NA	JH
$5030 (Benzene)	0.50	ug/l	AF09822	ND	88	4.32	4.19	86	3.1	JH
$5030 (Toluene)	0.50	ug/l	AF09822	ND	89	4.50	4.37	90	2.9	JH
$5030 (Xylene)	0.50	ug/l	AF09822	ND	86	13.3	12.9	88	3.1	JH
$5030 (Ethylbenzene)	0.50	ug/l	AF09822	ND	88	4.46	4.34	89	2.7	JH

ANLAB QA/QC REPORT AF09820

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LCS = LAB CONTROL SAMPLE
% Dup RPD: X=SAMPLE OR MATRIX SPIKE RESULT Y=DUPLICATE OR MATRIX SPIKE DUP RESULT ((ABS(X-Y))/((X+Y))/2)*100

Analysis/Analyte	MDL	Units	QA Sample Number	QA Sample Result	LCS % Rec	Spike Result	Matrix Duplicate or MSD Result	QA/QC Summary % Spike Rec	% Dup RPD	Analyst Initials
$TPH (SPIKE RESULT (MS))			AF09820			290				
$TPH (DUP OR MSD RESULT)			AF09820				404			
$TPH (LCS RECOVERY 55-120)			AF09820		58					
$TPH (SPIKE RECOVERY WATERS 50-120)			AF09820					NA		
$TPH (DUPLICATE RPD WATERS 0-30)			AF09820						33	

ANLAB QA/QC REPORT AF09821

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LCS = LAB CONTROL SAMPLE
% Dup RPD: X=SAMPLE OR MATRIX SPIKE RESULT Y=DUPLICATE OR MATRIX SPIKE DUP RESULT ((ABS(X-Y))/((X+Y))/2)*100

Analysis/Analyte	MDL	Units	QA Sample Number	QA Sample Result	LCS % Rec	Spike Result	Matrix Duplicate or MSD Result	QA/QC Summary % Spike Rec	% Dup RPD	Analyst Initials
S5030 (Gasoline)	20	ug/l	AF09821	ND	NA	NA	NA	NA	NA	JH
S5030 (Benzene)	0.50	ug/l	AF09821	ND	94	4.51	4.53	90	0.44	JH
S5030 (Toluene)	0.50	ug/l	AF09821	ND	96	4.76	4.81	95	1.0	JH
S5030 (Xylene)	0.50	ug/l	AF09821	ND	92	14.0	14.1	93	0.71	JH
S5030 (Ethylbenzene)	0.50	ug/l	AF09821	ND	99	4.73	4.77	95	0.84	JH

ANLAB QA/QC REPORT AF09822

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LCS = LAB CONTROL SAMPLE
% Dup RPD: X=SAMPLE OR MATRIX SPIKE RESULT Y=DUPLICATE OR MATRIX SPIKE DUP RESULT ((ABS(X-Y))/((X+Y))/2)*100

Analysis/Analyte	MDL	Units	QA Sample Number	QA Sample Result	LCS % Rec	Spike Result	Matrix Duplicate or MSD Result	QA/QC Summary % Spike Rec	QA/QC Summary % Dup RPD	Analyst Initials
$5030 (Gasoline)	20	ug/l	AF09822	ND	NA	NA	NA	NA	NA	JH
$5030 (Benzene)	0.50	ug/l	AF09822	ND	88	4.32	4.19	86	3.1	JH
$5030 (Toluene)	0.50	ug/l	AF09822	ND	89	4.50	4.37	90	2.9	JH
$5030 (Xylene)	0.50	ug/l	AF09822	ND	86	13.3	12.9	88	3.1	JH
$5030 (Ethylbenzene)	0.50	ug/l	AF09822	ND	88	4.46	4.34	89	2.7	JH

ANLAB QA/QC REPORT AF09823

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LCS = LAB CONTROL SAMPLE
% Dup RPD: X=SAMPLE OR MATRIX SPIKE RESULT Y=DUPLICATE OR MATRIX SPIKE DUP RESULT ((ABS(X-Y))/((X+Y))/2)*100

Analysis/Analyte	MDL	Units	QA Sample Number	QA Sample Result	LCS % Rec	Spike Result	Matrix Duplicate or MSD Result	QA/QC Summary		Analyst Initials
								% Spike Rec	% Dup RPD	
$5030 (Gasoline)	20	ug/l	AF09822	ND	NA	NA	NA	NA	NA	JH
$5030 (Benzene)	0.50	ug/l	AF09822	ND	88	4.32	4.19	86	3.1	JH
$5030 (Toluene)	0.50	ug/l	AF09822	ND	89	4.50	4.37	90	2.9	JH
$5030 (Xylene)	0.50	ug/l	AF09822	ND	86	13.3	12.9	88	3.1	JH
$5030 (Ethylbenzene)	0.50	ug/l	AF09822	ND	88	4.46	4.34	89	2.7	JH