



Environmental  
Science &  
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ENVIRONMENTAL  
PROTECTION

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June 20, 1996

Mr. Dale Klettke, CHMM  
Alameda County Health Care Services Agency  
Department of Environmental Health  
1131 Harbor Bay Parkway, Suite 250  
Alameda, CA 94502-6577

**SUBJECT: SPRING 1996  
GROUND WATER MONITORING REPORT  
JAMES RIVER FLEXIBLE PACKAGING FACILITY  
2101 WILLIAMS STREET  
SAN LEANDRO, CALIFORNIA  
ESE PROJECT NO. 65-96-044**

Dear Mr. Klettke:

This report presents the results of the ground water monitoring activities conducted during the Spring of 1996 by Environmental Science & Engineering, Inc. (ESE). The ground water monitoring activities were conducted on behalf of the James River Flexible Packaging Facility located at 2101 Williams Street, San Leandro, California (Figure 1). This document was prepared under the supervision of a California Registered Geologist and for the exclusive use of the James River Corporation and the Alameda County Health Care Services Agency (ACHCSA), the only intended beneficiaries of our work. No other party may rely on the information contained in this report without prior written consent of ESE.

### **SPRING 1996 GROUND WATER MONITORING**

#### **Field Investigation**

On April 11, 1996, ground water samples were collected from monitoring wells W-7, W-8, W-10, TW-2 and TW-3 for chemical analyses (well locations are shown on Figure 2 - Site Map). All ground water sampling was performed according to the ACHCSA. Field parameters are recorded on ESE's ground water sample collection logs which are presented in Appendix A.

Prior to purging and sampling, water-level measurements were obtained by an ESE representative using an electronic ground water well sounder with an accuracy of 0.01 foot. Ground water samples were collected from monitoring wells W-7, W-8, W-10, TW-2 and TW-3 after at least three well volumes of water was removed from each well using a vacuum extraction system. Vacuum extraction services were provided by Automated Environmental Services (AES) located in Modesto, California. Class 2000 PVC "stingers" have been designated to each of the site wells and are utilized by AES to purge each well prior to sampling. The use of a vacuum based system eliminates the possibility of cross contamination between wells, and thus does not require the decontamination. Ground water samples were collected using new disposable polyethylene bailers lowered into the wells with a new nylon cord. A new bailer and new cord were used for each well. Ground water from the second bailer volume removed from each well was decanted into laboratory supplied containers. The sample containers were sealed, labeled, placed on ice in a cooler and placed under chain-of-custody for transportation to McCampbell Analytical (MAL), a State-certified analytical laboratory of Pacheco, California. A laboratory-supplied trip blank, consisting

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of deionized water, was transported with the other samples and analyzed for benzene, toluene, ethylbenzene, and total xylenes (BTEX) and total petroleum hydrocarbons as hydraulic fluid (TPH-HF) using U.S. Environmental Protection Agency (EPA) Methods 8020 and 8015M, respectively. The purpose of the trip blank was to identify the presence of artifact laboratory chemicals in the sample bottles or contamination of volatile chemicals during transport. This sample was entered on the chain-of-custody form and delivered to the laboratory on ice in the cooler containing the ground water samples. ESE performed the fieldwork in accordance with ACHCSA and Tri-Regional Water Quality Control Board guidelines.

Ground water samples collected from wells W-7 and W-8 were analyzed for total petroleum hydrocarbons as diesel (TPH-D) and as hydraulic fluid (TPH-HF) using EPA Method 8015M. MAL routinely uses the direct injection method for analyzing hydraulic fluid oil-range constituents under EPA method 8015M and can achieve a lower minimum detection limit of 250  $\mu\text{g/L}$ . Ground water samples collected from W-10 were analyzed for acetone, methyl isobutyl ketone (MIBK) using EPA Method 8260 and BTEX using EPA Method 8020. Ground water samples collected from monitoring wells TW-1 and TW-2 were analyzed for TPH-D and TPH-HF.

#### Depth to Ground Water, Gradient and Flow Direction

Water-level measurements collected in 1996 are presented in Table 1. The depth to ground water ranged from 10.28 feet in W-1 to 14.89 feet in TW-2. The direction of ground water flow on April 11, 1996 was to the west at a gradient of approximately 0.0045 ft/ft (Figure 3). Ground water flow direction and gradient data are consistent with data collected from previous monitoring periods.

#### Chemical Analyses

Monitoring well locations and their respective concentrations of analytes detected in samples collected from each well are illustrated in Figure 4. Table 2 presents a summary of reported ground water sample analytical results for the period of December 1995 to April 1996. Concentrations of chemical analytes reported during this event are consistent with results reported during the previous sampling event, with the exception of the reduced concentrations of hydraulic fluid reported in monitoring well TW-2.

Concentrations of TPH-D of ground water samples collected from monitoring wells W-7 and W-8 were reported as below the method detection limit. Concentrations of TPH-HF of ground water samples collected from monitoring wells TW-2, TW-3, W-7 and W-8 were reported as below the method detection limit. Concentrations of BTEX of ground water samples collected from monitoring wells TW-2 and TW-3 were reported as below the method detection limit. Concentrations of acetone and MIBK were detected in the ground water sample collected from monitoring well W-10 at 14,000  $\mu\text{g/L}$  and 690  $\mu\text{g/L}$ , respectively. BTEX was detected in ground water samples collected from W-10 at concentrations of 2.2  $\mu\text{g/L}$ , 100  $\mu\text{g/L}$ , 12  $\mu\text{g/L}$ , and 62  $\mu\text{g/L}$ , respectively. A copy of the laboratory report and chain-of-custody documentation are presented in Appendix B.

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### Conclusions

Based on the results of the Spring 1996 ground water monitoring event, ESE presents the following conclusions:

- Depth to ground water ranged from 10.28 feet in W-1 to 14.89 feet in TW-2;
- The direction of ground water flow on April 11, 1996 was to the west at a gradient of approximately 0.0045 ft/ft (Figure 2);
- TPH-D in ground water samples collected from monitoring wells W-7 and W-8 were reported as below the method detection limit;
- TPH-HF in ground water samples collected from monitoring wells TW-2, TW-3, W-7 and W-8 were reported as below the method detection limit;
- Free-phase hydraulic fluid floating on ground water was encountered in monitoring well TW-1 and remediation of free-phase product by passive skimming is currently in progress;
- BTEX in ground water samples collected from monitoring wells TW-2 and TW-3 were reported as below the method detection limit;
- BTEX was detected in ground water samples collected from W-10 at concentrations of 2.2  $\mu\text{g/L}$ , 100  $\mu\text{g/L}$ , 12  $\mu\text{g/L}$ , and 62  $\mu\text{g/L}$ , respectively;
- Acetone is reported in the ground water sample collected from monitoring well W-10 at a concentration of 14,000  $\mu\text{g/L}$ , which is above the EPA Preliminary Remediation Goal (PRG) in tap water of 770  $\mu\text{g/L}$ ; and
- MIBK was detected in the ground water sample collected from monitoring well W-10 at 690  $\mu\text{g/L}$ , which is below the PRG in tap water of 1,800  $\mu\text{g/L}$ .

Results of annual ground water sampling and analysis performed during the Spring of 1996 indicate that TPH-HF dissolved concentrations are no longer being detected in the tested on-site monitoring wells. ESE believes, based on conversations with ACHCSA, that monitoring for HF should be discontinued based on information presented by the State Water Resources Control Board memorandum LG-141 Permanent Hydraulic Fuel Tank Exemption.

In addition, no further action should be issued in the fuel/acetone/MIBK area according to guidelines presented by the State Water Board - Interim Guidance on Required Cleanup at Low-Risk Fuel Sites, dated December 8, 1995 and by the California Regional Water Quality Control Board memorandum concerning Supplemental Instructions to the aforementioned Interim Guidance. Accordingly, the James River Facility has satisfied these guidelines as outlined by the following:

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- The point source of the hydraulic fluid leak has been removed and the free phase product is being removed;
- The site soils and ground water have been adequately characterized;
- Ground water impact by chemicals of concern from the James River Site is now minimal and no human toxicity is reported for hydraulic fluid;
- No drinking water wells or other sensitive receptors are likely to be impacted; and
- The low levels and limited extent of the chemicals of concern do not pose a significant risk to human health and the environment.

Review of internal documents and interviews with on-site personnel by Ms. Regina Colbert of the James River Corporation has not revealed an on-site source for the acetone impact to ground water beneath the site. Acetone used by the facility at the on-site laboratory is estimated at a few gallons.

#### **Recommendations**

With continued decrease in the levels of the chemicals of concern, it is anticipated that levels below environmental concern will continue to be found in the monitoring wells. ESE thus suggests that the James River Facility case be closed upon review of these findings and that no further action be issued by the ACHCSA.

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Should you have any questions pertaining to this report, please contact Eric Garcia at (510) 685-4053.

Respectfully submitted,

ENVIRONMENTAL SCIENCE & ENGINEERING, INC.



Eric W. Garcia  
Senior Staff Geologist

JUNE 20, 1996

Date



David J. Blunt, R.G. 4516  
Senior Geologist

6/20/96

Date

Attachments:	Table 1	Summary of Ground Water Elevation Data
	Table 2	Summary of Ground Water Sample Analytical Results
	Figure 1	Location Map
	Figure 2	Site Map
	Figure 3	Ground Water Elevation Contour Map, April 11, 1996
	Figure 4	Ground Water Quality Analytical Results, April 11, 1996
	Appendix A	Sample Collection Logs
	Appendix B	Analytical Reports with Chain-of-Custody Documentation

**TABLE 1**  
**SUMMARY OF GROUND WATER ELEVATION DATA**  
**JAMES RIVER FLEXIBLE PRODUCT FACILITY**  
**SAN LEANDRO, CALIFORNIA**

Monitoring Well Number	Date Measured	Top of Casing Elevation (feet MSL*)	Depth to Water (feet)	Depth to Product (feet)	Product Thickness (feet)	Ground Water Elevation (feet MSL*)
W-6	May 1995	21.05	10.30	--	--	10.75
	July 1995		13.75	--	--	7.30
	Oct. 1995		12.47	--	--	8.58
	Jan. 1996	24.72*	11.48	--	--	13.24
	April 1996		11.30	--	--	13.42
W-7	May 1995	20.41	10.30	--	--	10.11
	July 1995		11.70	--	--	8.71
	Oct. 1995		12.39	--	--	8.02
	Jan. 1996	24.04*	11.60	--	--	12.44
	April 1996		10.86	--	--	13.18
W-8	May 1995	20.50	10.55	--	--	9.95
	July 1995		11.14	--	--	9.36
	Oct. 1995		11.81	--	--	8.69
	Jan. 1996	23.83*	11.01	--	--	12.82
	April 1996		10.23	--	--	13.60
W-10	May 1995	20.22	10.95	--	--	9.27
	July 1995		11.84	--	--	8.38
	Oct. 1995		12.54	--	--	7.68
	Jan. 1996	24.77*	11.67	--	--	13.10
	April 1996		10.88	--	--	13.89
B-1	May 1995	20.59	10.34	--	--	10.25
	July 1995		11.25	--	--	9.34
	Oct. 1995		11.98	--	--	8.61
	Jan. 1996	24.25*	11.12	--	--	13.13
	April 1996		10.30	--	--	13.95

Notes:

\*Elevation based on an arbitrary datum of 25 feet above Mean Sea Level (MSL) at southwest corner of aboveground storage tank pad.

--=no product measured

**TABLE 1**  
**SUMMARY OF GROUND WATER ELEVATION DATA**  
**JAMES RIVER FLEXIBLE PRODUCT FACILITY**  
**SAN LEANDRO, CALIFORNIA**

Monitoring Well ID	Date Measured	Top of Casing Elevation (feet MSL*)	Depth to Water (feet)	Depth to Product (feet)	Product Thickness (feet)	Ground Water Elevation (feet MSL*)
TW-1	01/11/96	28.61	15.73	15.68	0.05	12.88
	04/11/96		14.85	ND	ND	ND
TW-2	01/11/96	25.79	15.29	--	--	10.50
	04/11/96		14.89	--	--	10.90
TW-3	01/11/96	25.29	13.82	--	--	11.47
	04/11/96		13.25	--	--	12.04

Notes:

\*Elevation based on an arbitrary datum of 25 feet above Mean Sea Level (MSL) at southwest corner of aboveground storage tank pad.

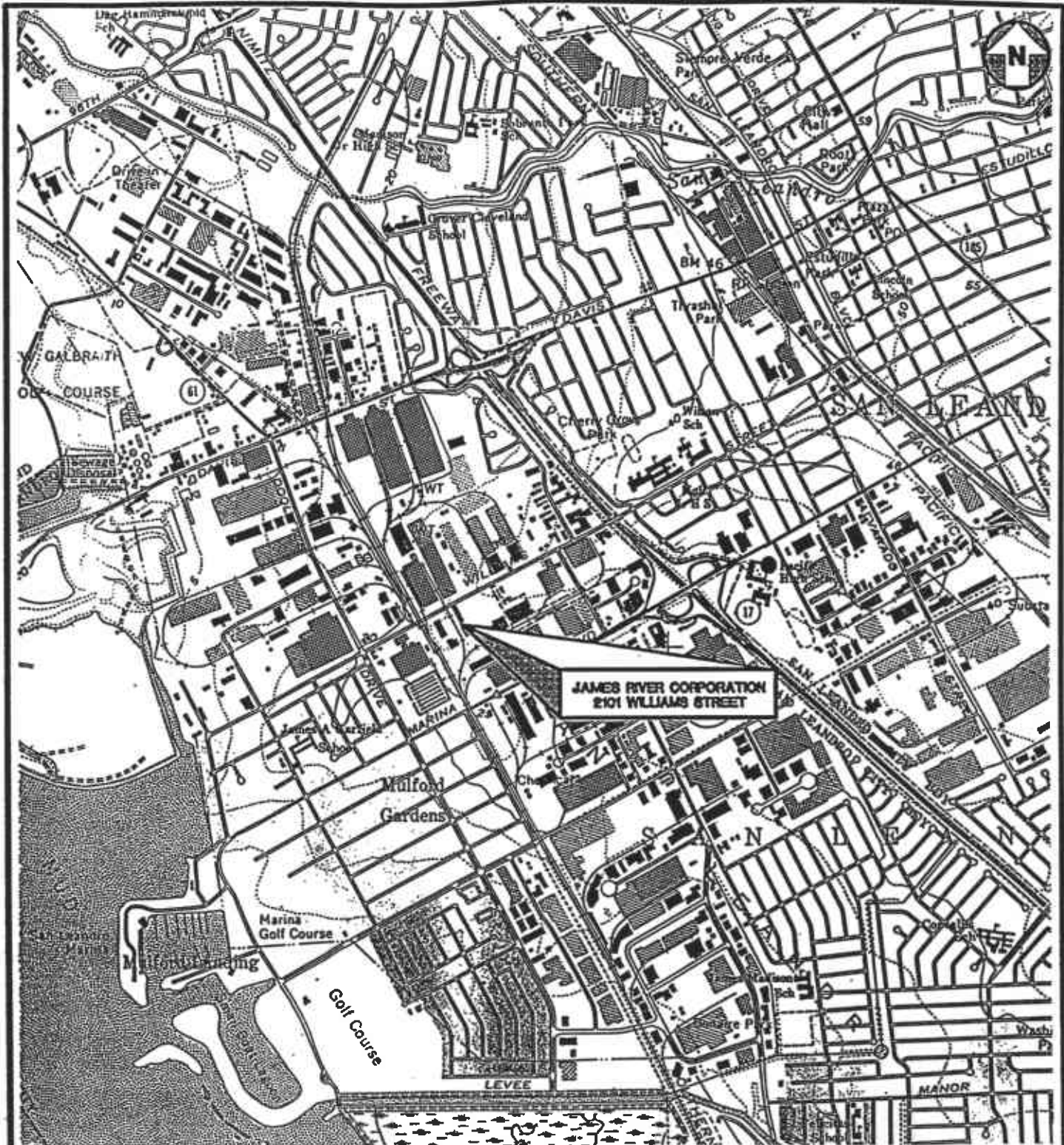
ND =Not determined - Product present, but unable to measure thickness and calculate ground water elevation.

--=no product measured

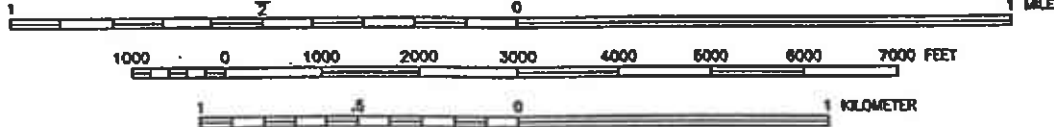
**TABLE 2**  
**SUMMARY OF GROUND WATER SAMPLE ANALYTICAL RESULTS**  
**JAMES RIVER FLEXIBLE PRODUCT FACILITY**  
**SAN LEANDRO, CALIFORNIA**

Sample ID	Sample Date	TPH-D (µg/L)	TPH-HF (µg/L)	Benzene (µg/L)	Toluene (µg/L)	Ethylbenzene (µg/L)	Total Xylenes (µg/L)	Acetone (µg/L)	MIBK (µg/L)
TW-2	12/28/95	NA	2,200	ND<0.5	ND<0.5	ND<0.5	ND<0.5	NA	NA
DUP	4/11/96	NA	ND<250	ND<0.5	ND<0.5	ND<0.5	ND<0.5	NA	NA
	4/11/96	NA	ND<250	ND<0.5	ND<0.5	ND<0.5	ND<0.5	NA	NA
TW-3 DUP	12/28/95	NA	ND<1,400	ND<0.5	ND<0.5	ND<0.5	ND<0.5	NA	NA
	12/28/95	NA	ND<1,400	ND<0.5	ND<0.5	ND<0.5	ND<0.5	NA	NA
	4/11/96	NA	ND<250	0.58	ND<0.5	ND<0.5	ND<0.5	NA	NA
W-7	12/28/95	ND<60	ND<1,500	ND<0.5	ND<0.5	ND<0.5	ND<0.5	NA	NA
	4/11/96	ND<50	ND<250	NA	NA	NA	NA	NA	NA
W-8	4/11/96	ND<50	ND<250	NA	NA	NA	NA	NA	NA
W-10	12/28/95	1,700	2,500	1.8	91	11	64	NA	NA
	4/11/96	NA	NA	2.2	100	12	62	14,000	690




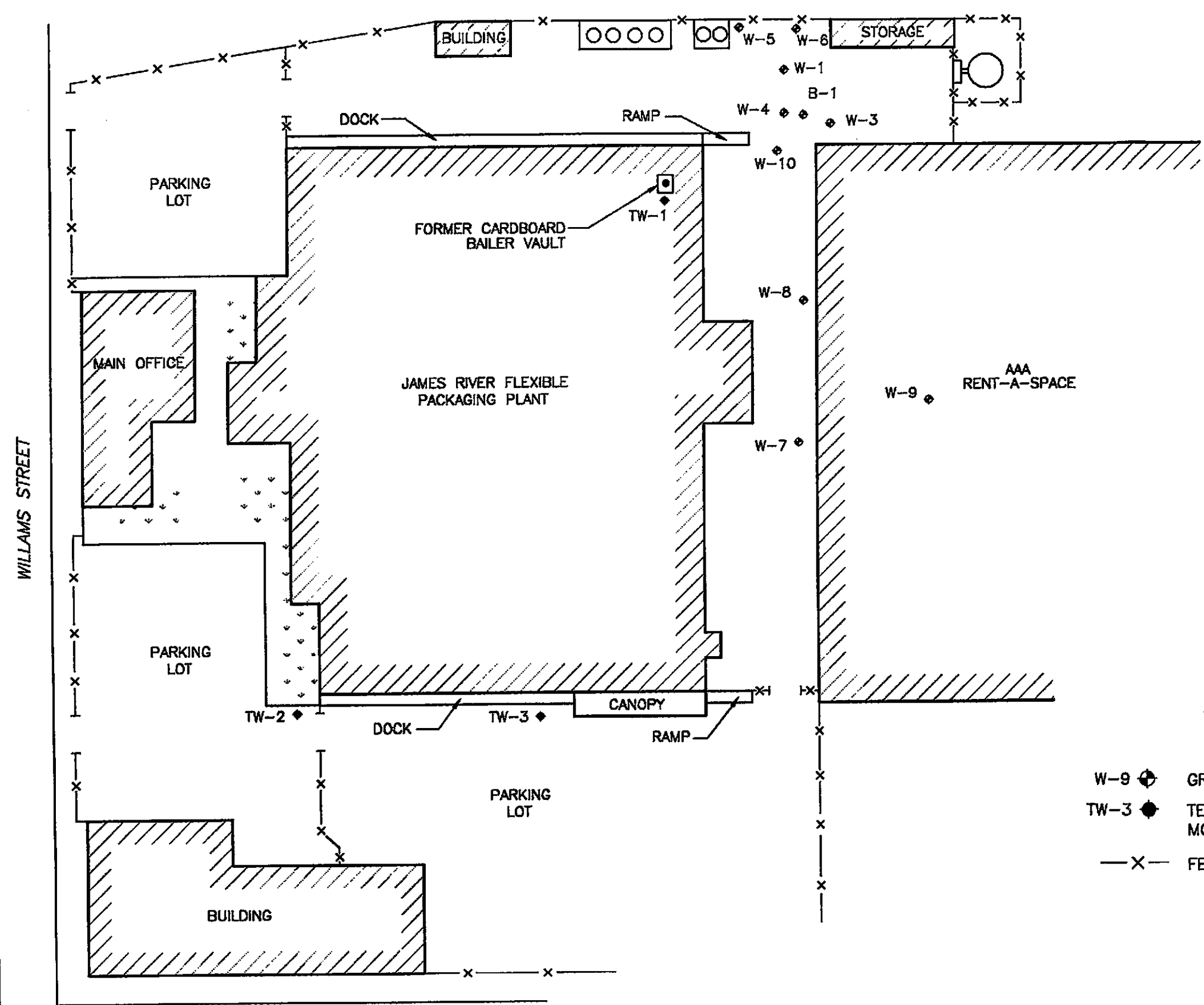


SCALE 1:24,000



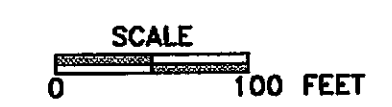
ADAPTED FROM U.S.G.S. SAN LEANDRO, CA. 7.5 MINUTE TOPOGRAPHIC QUADRANGLE MAP 1959, PHOTOREVISED 1980.

 <b>Environmental Science &amp; Engineering, Inc.</b>	DATE 3/10/95	<b>LOCATION MAP</b>	FIGURE NO. <b>1</b>
	REVISED		<b>JAMES RIVER CORPORATION 2101 WILLIAMS STREET SAN LEANDRO, CALIFORNIA</b>
4090 NELSON AVENUE, SUITE J CONCORD, CA 94520	CAD FILE 50220003		



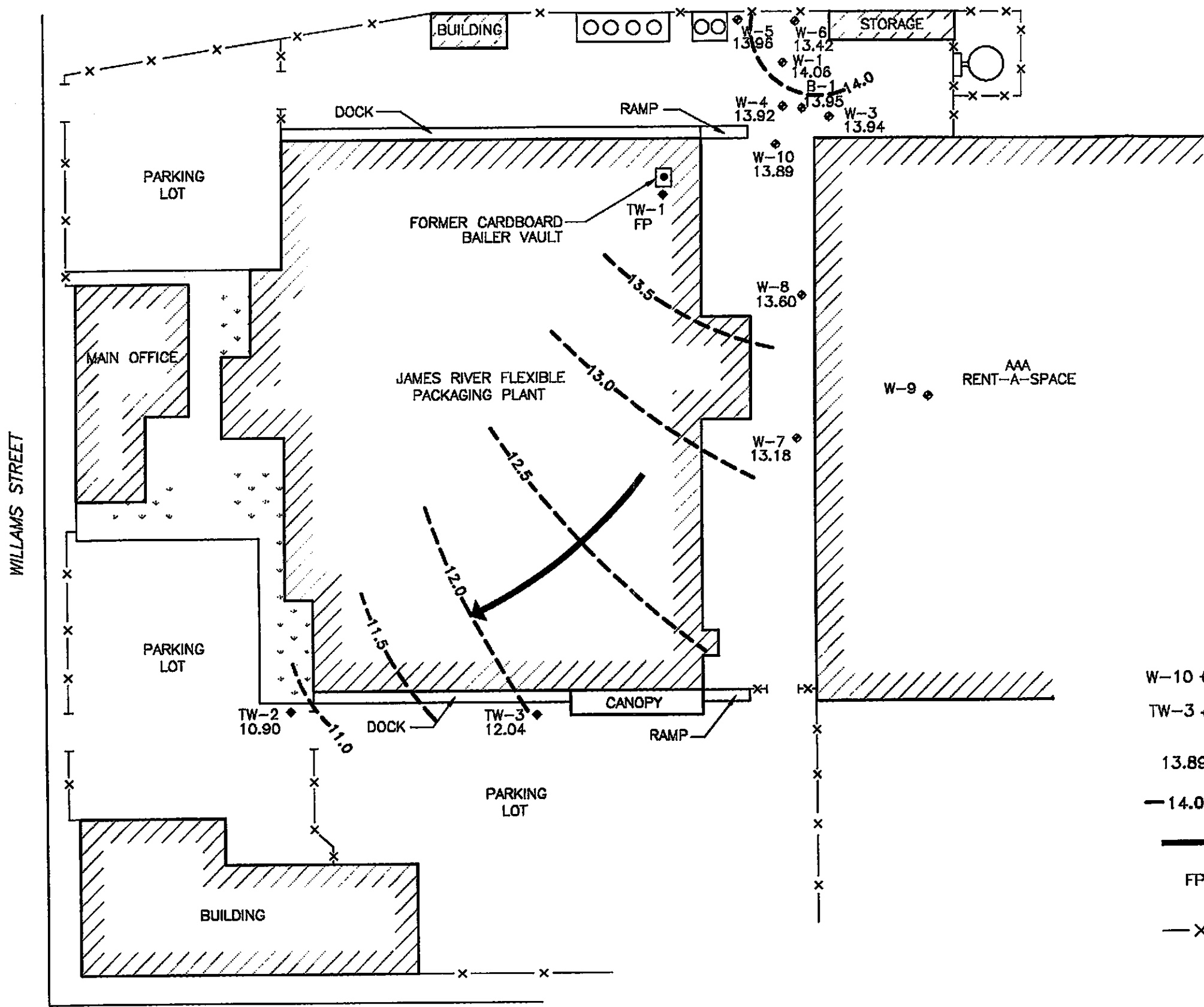
**LEGEND**

- W-9 GROUND WATER MONITORING WELL
- TW-3 TEMPORARY GROUND WATER MONITORING WELL
- X — FENCE



DOOLITTLE

<b>Environmental Science &amp; Engineering, Inc.</b> 4090 NELSON AVENUE, SUITE J CONCORD, CA 94520	DATE 11/27/95	<b>SITE MAP</b>  JAMES RIVER CORPORATION 2101 WILLIAMS STREET SAN LEANDRO, CALIFORNIA	FIGURE NO. <b>2</b>
	REVISED 1/19/96		PROJ. NO. 65-96-044
CAD FILE 65604412			



**LEGEND**

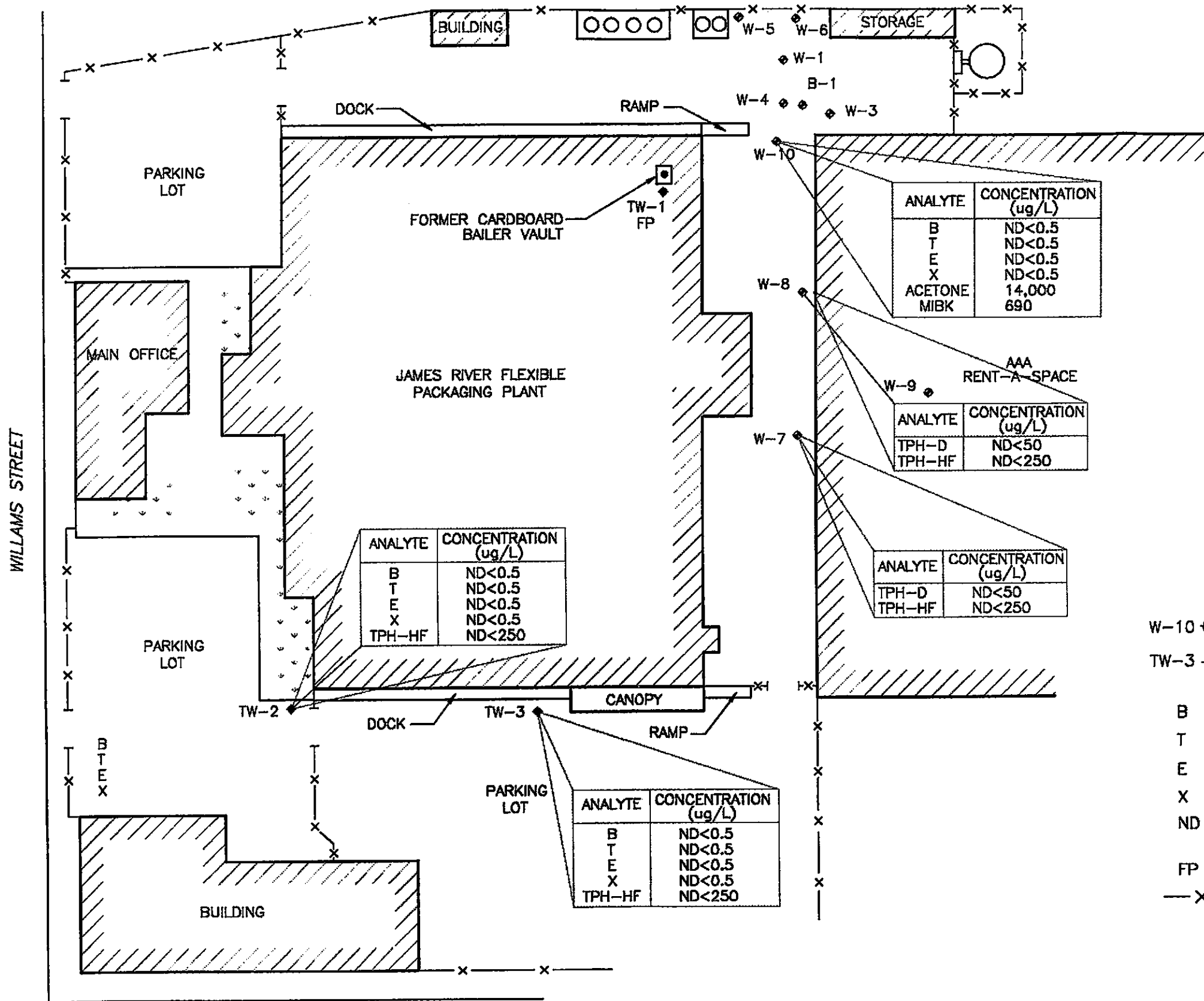
- W-10 GROUND WATER MONITORING WELL
- TW-3 TEMPORARY GROUND WATER MONITORING WELL
- 13.89 GROUND WATER ELEVATION IN FEET
- 14.0 - GROUND WATER ELEVATION CONTOUR IN FEET
- GROUND WATER FLOW DIRECTION
- FP FREE-PHASE PRODUCT (Unable to gauge product thickness)
- X - FENCE



WILLIAMS STREET

DOOLITTLE

Environmental Science & Engineering, Inc. 4090 NELSON AVENUE, SUITE J CONCORD, CA 94520	DATE 1/16/96	<b>GROUND WATER ELEVATION CONTOUR MAP</b> APRIL 11, 1996	FIGURE NO. <b>3</b>
	REVISED 6/11/96		PROJ. NO. 65-96-044
CAD FILE 65604413		JAMES RIVER CORPORATION 2101 WILLIAMS STREET SAN LEANDRO, CALIFORNIA	



ANALYTE	CONCENTRATION (ug/L)
B	ND<0.5
T	ND<0.5
E	ND<0.5
X	ND<0.5
ACETONE	14,000
MIBK	690

ANALYTE	CONCENTRATION (ug/L)
TPH-D	ND<50
TPH-HF	ND<250

ANALYTE	CONCENTRATION (ug/L)
TPH-D	ND<50
TPH-HF	ND<250

ANALYTE	CONCENTRATION (ug/L)
B	ND<0.5
T	ND<0.5
E	ND<0.5
X	ND<0.5
TPH-HF	ND<250

ANALYTE	CONCENTRATION (ug/L)
B	ND<0.5
T	ND<0.5
E	ND<0.5
X	ND<0.5
TPH-HF	ND<250

**LEGEND**

- W-10 GROUND WATER MONITORING WELL
- TW-3 TEMPORARY GROUND WATER MONITORING WELL
- B BENZENE
- T TOLUENE
- E ETHYLBENZENE
- X XYLENES, TOTAL
- ND NOT DETECTED AT OR ABOVE METHOD DETECTION LIMIT
- FP FREE-PHASE PRODUCT
- X- FENCE



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Environmental Science & Engineering, Inc. 4090 NELSON AVENUE, SUITE J CONCORD, CA 94520	DATE 1/19/96	<b>GROUND WATER QUALITY ANALYTICAL RESULTS</b> APRIL 11, 1996	FIGURE NO. <b>4</b>
	REVISED 6/11/96		PROJ. NO. 65-96-044
	CAD FILE 65604414	JAMES RIVER CORPORATION 2101 WILLIAMS STREET SAN LEANDRO, CALIFORNIA	

**Appendix A**

Sample Collection Logs

WELL MEASUREMENTS

PROJECT NO.

6596044

LOCATION

2101 Williams St.

San Leandro, CA.

STAFF

EWG

DATE AND TIME

4.11.96 0800

WELL NO	PRODUCT LEVEL (FT)	WATER LEVEL (FT)	COMMENTS
W-1		10.28	
W-3		10.55	
W-4		10.70	
W-5		11.43	
W-6		11.30	
W-7		10.86	
W-8		10.23	
W-9		10.30	
W-10		10.88	
B-1		10.30	
TW-1	*	14.85	*Product Present unable to determine thickness
TW-2		14.89	
TW-3		13.25	



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**SAMPLE COLLECTION LOG**

PROJECT NAME: James Riva  
PROJECT NO.: 6596044  
DATE: 4.11.96

SAMPLE LOCATION I.D.: W-7  
SAMPLER: [Signature]  
PROJECT MANAGER: EWG

**CASING DIAMETER**

2" \_\_\_\_\_  
4"  \_\_\_\_\_  
Other \_\_\_\_\_

**SAMPLE TYPE**

Ground Water   
Surface Water \_\_\_\_\_  
Treat. Influent \_\_\_\_\_  
Treat. Effluent \_\_\_\_\_  
Other \_\_\_\_\_

**WELL VOLUMES PER UNIT**

Well Casing I.D. (Inches)	Gal/Ft.
2.0	0.1632
4.0	0.6528
6.0	1.4690

DEPTH TO PRODUCT: \_\_\_\_\_ (ft.) PRODUCT THICKNESS: \_\_\_\_\_ (ft.) MINIMUM PURGE VOLUME  
DEPTH TO WATER: 12.86 (ft.) WATER COLUMN: 25.64 (ft.)  or 4 WCV: 50.2 (gal)  
DEPTH OF WELL: 36.50 (ft.) WELL CASING VOLUME: 16.7 (gal) ACTUAL VOLUME PURGED: \_\_\_\_\_ (gal)

TIME	Volume (GAL)	pH (Units)	E.C. (Micromhos)	Temperature (F)	Turbid. (NTU)	Other
<u>0845</u>	<u>0</u>	<u>8.18</u>	<u>770</u>	<u>58.8</u>	<u>-</u>	<u>cloudy</u>
<u>0849</u>	<u>25</u>	<u>8.11</u>	<u>796</u>	<u>61.3</u>	<u>-</u>	<u>clear</u>
<u>0851</u>	<u>35</u>	<u>8.20</u>	<u>778</u>	<u>61.3</u>	<u>-</u>	<u>clear</u>
_____	_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____	_____

**INSTRUMENT CALIBRATION**

pH/COND./TEMP.: TYPE Pen UNIT# 16581 DATE: 4.11.96 TIME: 0800 BY: [Signature]  
TURBIDITY: TYPE \_\_\_\_\_ UNIT# \_\_\_\_\_ DATE: \_\_\_\_\_ TIME: \_\_\_\_\_ BY: \_\_\_\_\_

**PURGE METHOD**

Displacement Pump \_\_\_\_\_  
Bailer (Teflon/PVC/SS) \_\_\_\_\_  
 Other Vac Truck  
Submersible Pump \_\_\_\_\_

**SAMPLE METHOD**

Bailer (Teflon/PVC/SS) \_\_\_\_\_  
Bailer (Disposable)  \_\_\_\_\_  
Dedicated \_\_\_\_\_  
Other \_\_\_\_\_

**SAMPLES COLLECTED**

SAMPLE	ID	TIME	DATE	LAB	ANALYSES
SAMPLE	<u>W-7</u>	<u>0855</u>	<u>4.11.96</u>	<u>McLoughlin</u>	<u>TPH-D/TPH-HF</u>
DUPLICATE	_____	_____	_____	_____	_____
SPLIT	_____	_____	_____	_____	_____
FIELD BLANK	_____	_____	_____	_____	_____

**COMMENTS:**

\_\_\_\_\_

SAMPLER: [Signature] PROJECT MANAGER: [Signature]  
4090 Nelson Avenue, Suite J | Concord, CA 94520 | Phone (510) 685-4053 | Fax (510) 685-5323



Environmental  
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**SAMPLE COLLECTION LOG**

PROJECT NAME: James River  
PROJECT NO.: 6596044  
DATE: 4.11.96

SAMPLE LOCATION I.D.: W-8  
SAMPLER: [Signature]  
PROJECT MANAGER: EWG

**CASING DIAMETER**

2" \_\_\_\_\_  
4"  \_\_\_\_\_  
Other \_\_\_\_\_

**SAMPLE TYPE**

Ground Water   
Surface Water \_\_\_\_\_  
Treat. Influent \_\_\_\_\_  
Treat. Effluent \_\_\_\_\_  
Other \_\_\_\_\_

**WELL VOLUMES PER UNIT**

Well Casing I.D. (inches)	Gal/Ft.
2.0	0.1632
4.0	0.6528
6.0	1.4690

DEPTH TO PRODUCT: - (ft.) PRODUCT THICKNESS: - (ft.) MINIMUM PURGE VOLUME  
DEPTH TO WATER: 10.23 (ft.) WATER COLUMN: 25.67 (ft.) (3 or 4 WCV): 50.3 (gal)  
DEPTH OF WELL: 35.90 (ft.) WELL CASING VOLUME: 14.8 (gal) ACTUAL VOLUME PURGED: \_\_\_\_\_ (gal)

TIME	Volume (GAL)	pH (Units)	E.C. (Micromhos)	Temperature (F°)	Turbid. (NTU)	Other
<u>1010</u>	<u>0</u>	<u>8.07</u>	<u>650</u>	<u>56.7</u>	<u>-</u>	<u>cloudy</u>
<u>1012</u>	<u>25</u>	<u>8.03</u>	<u>672</u>	<u>60.3</u>	<u>-</u>	<u>cloudy</u>
<u>1014</u>	<u>55</u>	<u>9.92</u>	<u>677</u>	<u>62.4</u>	<u>-</u>	<u>cloudy</u>
_____	_____	_____	_____	_____	_____	_____

**INSTRUMENT CALIBRATION**

pH/COND./TEMP.: TYPE Pen UNIT# 6581 DATE: 4.11.96 TIME: 0800 BY: [Signature]  
TURBIDITY: TYPE \_\_\_\_\_ UNIT# \_\_\_\_\_ DATE: \_\_\_\_\_ TIME: \_\_\_\_\_ BY: \_\_\_\_\_

**PURGE METHOD**

\_\_\_ Displacement Pump  
\_\_\_ Bailer (Teflon/PVC/SS)  
 Other Vac Truck  
\_\_\_ Submersible Pump

**SAMPLE METHOD**

\_\_\_ Bailer (Teflon/PVC/SS)  
 Bailer (Disposable)  
\_\_\_ Dedicated  
\_\_\_ Other

**SAMPLES COLLECTED**

SAMPLE	ID	TIME	DATE	LAB	ANALYSES
SAMPLE	<u>W-8</u>	<u>1015</u>	<u>4.11.96</u>	<u>McCampbell</u>	<u>TPH-D/PAH-HF</u>
DUPLICATE	_____	_____	_____	_____	_____
SPLIT	_____	_____	_____	_____	_____
FIELD BLANK	_____	_____	_____	_____	_____

COMMENTS: \_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

SAMPLER: [Signature]

PROJECT MANAGER: [Signature]





Environmental Science & Engineering, Inc.

SAMPLE COLLECTION LOG

PROJECT NAME: James River
PROJECT NO.: 0576844
DATE: 4.11.96

SAMPLE LOCATION I.D.: W-10
SAMPLER: [Signature]
PROJECT MANAGER: EWG

CASING DIAMETER

2"
4"
Other

SAMPLE TYPE

Ground Water
Surface Water
Treat. Influent
Treat. Effluent
Other

WELL VOLUMES PER UNIT

Table with 2 columns: I.D. (inches) and Gal/Ft. Values: 2.0 (0.1632), 4.0 (0.6528), 6.0 (1.4690)

DEPTH TO PRODUCT: (ft.)
DEPTH TO WATER: 10.88 (ft.)
DEPTH OF WELL: 16.5 (ft.)
PRODUCT THICKNESS: (ft.)
WATER COLUMN: 5.62 (ft.)
WELL CASING VOLUME: 3.7 (gal)
MINIMUM PURGE VOLUME (3 or 4 WCV): 11.1 (gal)
ACTUAL VOLUME PURGED: 20 (gal)

Table with 7 columns: TIME, Volume (GAL), pH (Units), E.C. (Micromhos), Temperature (F), Turbid. (NTU), Other. Data rows show values for 1030, 1035, and 1025.

INSTRUMENT CALIBRATION

pH/COND./TEMP.: TYPE Pen UNIT# 1081 DATE: 4.11.96 TIME: 0800 BY: [Signature]
TURBIDITY: TYPE UNIT# DATE: TIME: BY:

PURGE METHOD

Displacement Pump
Bailer (Teflon/PVC/SS)
Other Vac Truck
Submersible Pump

SAMPLE METHOD

Bailer (Teflon/PVC/SS)
Bailer (Disposable)
Dedicated
Other

SAMPLES COLLECTED

Table with 5 columns: SAMPLE, ID, TIME, DATE, LAB, ANALYSES. Row 1: SAMPLE, W-10, 1035, 4.11.96, Mc Campbell, 8260

COMMENTS:

SAMPLER: [Signature] PROJECT MANAGER: [Signature]



Environmental  
Science &  
Engineering, Inc.

**SAMPLE COLLECTION LOG**

PROJECT NAME: James River  
PROJECT NO.: 6596044  
DATE: 4.11.96

SAMPLE LOCATION I.D.: TW-2  
SAMPLER: G  
PROJECT MANAGER: EWG

**CASING DIAMETER**

2" \_\_\_\_\_  
4"   
Other \_\_\_\_\_

**SAMPLE TYPE**

Ground Water   
Surface Water \_\_\_\_\_  
Treat. Influent \_\_\_\_\_  
Treat. Effluent \_\_\_\_\_  
Other \_\_\_\_\_

**WELL VOLUMES PER UNIT**

Well Casing I.D. (inches)	Gal/Ft.
2.0	0.1632
4.0	0.6528
6.0	1.4690

DEPTH TO PRODUCT: \_\_\_\_\_ (ft.) PRODUCT THICKNESS: \_\_\_\_\_ (ft.) MINIMUM PURGE VOLUME  
DEPTH TO WATER: 14.89 (ft.) WATER COLUMN: 5.11 (ft.) (3 or 4 WCV): 10 (gal)  
DEPTH OF WELL: 20.00 (ft.) WELL CASING VOLUME: 3.3 (gal) ACTUAL VOLUME PURGED: 20 (gal)

TIME	Volume (GAL)	pH (Units)	E.C. (Micromhos)	Temperature (F°)	Turbid. (NTU)	Other
<u>0749</u>	<u>0</u>	<u>6.71</u>	<u>960</u>	<u>53.2°</u>	—	<u>Silty</u>
<u>0751</u>	<u>10</u>	<u>6.83</u>	<u>716</u>	<u>58.3°</u>	—	<u>Cloudy</u>
<u>0753</u>	<u>20</u>	<u>7.09</u>	<u>796</u>	<u>59.2°</u>	—	<u>Cloudy</u>
<u>0800</u>	_____	_____	_____	_____	_____	_____

**INSTRUMENT CALIBRATION**

pH/COND./TEMP.: TYPE Pen UNIT# 6581 DATE: 4.11.96 TIME: 0800 BY: G  
TURBIDITY: TYPE \_\_\_\_\_ UNIT# \_\_\_\_\_ DATE: \_\_\_\_\_ TIME: \_\_\_\_\_ BY: \_\_\_\_\_

**PURGE METHOD**

Displacement Pump \_\_\_\_\_  
Bailer (Teflon/PVC/SS) \_\_\_\_\_  
 Other vac truck  
Submersible Pump \_\_\_\_\_

**SAMPLE METHOD**

Bailer (Teflon/PVC/SS) \_\_\_\_\_  
Dedicated \_\_\_\_\_  
 Bailer (Disposable) \_\_\_\_\_  
Other \_\_\_\_\_

**SAMPLES COLLECTED**

SAMPLE	ID	TIME	DATE	LAB	ANALYSES
	<u>TW-2</u>	<u>0800</u>	<u>4.11.96</u>	<u>McLampbell</u>	<u>TPH-AA/BTEX</u>
DUPLICATE	<u>Dup</u>	<u>0800</u>	<u>"</u>	<u>"</u>	<u>"</u>
SPLIT	_____	_____	_____	_____	_____
FIELD BLANK	_____	_____	_____	_____	_____

**COMMENTS:**

\_\_\_\_\_  
\_\_\_\_\_

SAMPLER: [Signature]

PROJECT MANAGER: [Signature]



Environmental  
Science &  
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**SAMPLE COLLECTION LOG**

PROJECT NAME: Janus River  
PROJECT NO.: 6596 044  
DATE: 4.11.96

SAMPLE LOCATION I.D.: TW-3  
SAMPLER: [Signature]  
PROJECT MANAGER: EWG

**CASING DIAMETER**

2"   
4"   
Other

**SAMPLE TYPE**

Ground Water   
Surface Water   
Treat. Influent   
Treat. Effluent   
Other

**WELL VOLUMES PER UNIT**

Well Casing I.D. (inches)	Gal/Ft
2.0	0.1632
4.0	0.6528
6.0	1.4690

DEPTH TO PRODUCT:      (ft.) PRODUCT THICKNESS:      (ft.) MINIMUM PURGE VOLUME  
DEPTH TO WATER: 13.25 (ft.) WATER COLUMN: 6.75 (ft.) (2 or 4 WCV): 15.2 (gal)  
DEPTH OF WELL: 20 (ft.) WELL CASING VOLUME: 4.4 (gal) ACTUAL VOLUME PURGED:      (gal)

TIME	Volume (GAL)	pH (Units)	E.C. (Micromhos)	Temperature (F°)	Turbid. (NTU)	Other
0822	0	7.98	778	57.7	-	Sky
0828	10	8.04	857	59.2	-	Cloudy
0831	20	8.19	869	61.7	-	cloudy

**INSTRUMENT CALIBRATION**

pH/COND./TEMP.: TYPE Pen UNIT# 6581 DATE: 4.11.96 TIME: 0800 BY: [Signature]  
TURBIDITY: TYPE      UNIT#      DATE:      TIME:      BY:     

**PURGE METHOD**

Displacement Pump  Other Vac Truck  
 Bailer (Teflon/PVC/SS)  Submersible Pump

**SAMPLE METHOD**

Bailer (Teflon/PVC/SS)  Dedicated  
 Bailer (Disposable)  Other

**SAMPLES COLLECTED**

SAMPLE	ID	TIME	DATE	LAB	ANALYSES
	<u>TW-3</u>	<u>0835</u>	<u>4.11.96</u>	<u>McCampbell</u>	<u>TPH-HF/BTEX</u>
DUPLICATE					
SPLIT					
FIELD BLANK					

COMMENTS:     

SAMPLER: [Signature] PROJECT MANAGER: [Signature]

**Appendix B**

Analytical Reports with Chain-of-Custody Documentation







Environmental Science & Eng. 4090 Nelson Ave., Suite J Concord, CA 94520	Client Project ID: # 6596044; James River	Date Sampled: 04/11/96
		Date Received: 04/11/96
	Client Contact: Eric Garcia	Date Extracted: 04/16-04/19/96
	Client P.O: # SMSA-C-021	Date Analyzed: 04/16-04/19/96

## Volatile Organics By GC/MS

EPA method 8260

Compound	Concentration*	Reporting Limit		Compound	Concentration*	Reporting Limit	
		Water	Soil			Water	Soil
Acetone <sup>(b)</sup>	14,000	100	5	trans-1,3-Dichloropropene	---	0.5	5
Benzene	ND	100	5	Ethylene dibromide <sup>(d)</sup>	---	0.5	5
Bromobenzene	---	0.5	5	Ethylbenzene	ND	100	5
Bromochloromethane	---	0.5	5	Hexachlorobutadiene	---	0.5	5
Bromodichloromethane	---	0.5	5	Iodomethane	---	0.5	5
Bromoform	---	0.5	5	Isopropylbenzene	---	0.5	5
Bromomethane	---	0.5	5	p-Isopropyl toluene	---	0.5	5
n-Butyl benzene	---	0.5	5	Methyl butyl ketone <sup>(e)</sup>	---	0.5	5
sec-Butyl benzene	---	0.5	5	Methylene Chloride <sup>(f)</sup>	---	0.5	5
tert-Butyl benzene	---	0.5	5	Methyl ethyl ketone <sup>(g)</sup>	---	0.5	5
Carbon Disulfide	---	0.5	5	Methyl isobutyl ketone <sup>(k)</sup>	690	100	5
Carbon Tetrachloride	---	0.5	5	Napthalene	---	0.5	5
Chlorobenzene	---	0.5	5	p-Propyl benzene	---	0.5	5
Chloroethane	---	0.5	5	Styrene <sup>(l)</sup>	---	0.5	5
2-Chloroethyl Vinyl Ether <sup>(e)</sup>	---	0.5	5	1,1,1,2-Tetrachloroethane	---	0.5	5
Chloroform	---	0.5	5	1,1,2,2-Tetrachloroethane	---	0.5	5
Chloromethane	---	0.5	5	Tetrachloroethene	---	0.5	5
2-Chlorotoluene	---	0.5	5	Toluene <sup>(m)</sup>	140	100	5
4-Chlorotoluene	---	0.5	5	1,2,3-Trichlorobenzene	---	0.5	5
Dibromochloromethane	---	0.5	5	1,2,4-Trichlorobenzene	---	0.5	5
Dibromomethane	---	0.5	5	1,1,1-Trichloroethane	---	0.5	5
1,2-Dichlorobenzene	---	0.5	5	1,1,2-Trichloroethane	---	0.5	5
1,3-Dichlorobenzene	---	0.5	5	Trichloroethene	---	0.5	5
1,4-Dichlorobenzene	---	0.5	5	Trichlorofluoromethane	---	0.5	5
Dichlorodifluoromethane	---	0.5	5	1,2,3-Trichloropropane	---	0.5	5
1,1-Dichloroethane	---	0.5	5	1,2,4-Trimethylbenzene	---	0.5	5
1,2-Dichloroethane	---	0.5	5	1,2,5-Trimethylbenzene	---	0.5	5
1,1-Dichloroethene	---	0.5	5	Vinyl Acetate <sup>(n)</sup>	---	0.5	5
cis-1,2-Dichloroethene	---	0.5	5	Vinyl Chloride <sup>(o)</sup>	---	0.5	5
trans-1,2-Dichloroethene	---	0.5	5	Xylenes, total <sup>(p)</sup>	ND	100	5
1,2-Dichloropropane	---	0.5	5	Comments:			
1,3-Dichloropropane	---	0.5	5	Surrogate Recoveries (%)			
2,2-Dichloropropane	---	0.5	5	Dibromofluoromethane	96		
1,1-Dichloropropene	---	0.5	5	Toluene-d8	99		
cis-1,3-Dichloropropene	---	0.5	5	4-Bromofluorobenzene	96		

\* water and vapor samples are reported in ug/L, soil samples in ug/kg and all TCLP extracts in ug/L

ND means not detected above the reporting limit; N/A means analyte not applicable to this analysis

(b) 2-propanone or dimethyl ketone; (c) (2-chloroethoxy) ethene; (d) 1,2-dibromoethane or EDB; (e) 2-hexanone; (f) dichloromethane; (g) 2-butanone; (h) lighter than water immiscible sheen is present; (i) liquid sample that contains greater than ~ 5 vol. % sediment; (j) sample diluted due to high organic content; (k) 4-methyl-2-pentanone or isopropylacetone; (l) ethenylbenzene (m)methylbenzene; (n) acetic acid ethenyl ester; (o) chloroethene; (p) dimethylbenzenes.



## QC REPORT FOR HYDROCARBON ANALYSES

Date: 04/22/96

Matrix: Water

Analyte	Concentration (ug/L) Sample (#63369)			Amount Spiked	% Recovery		
	MS	MSD			MS	MSD	RPD
TPH (gas)	0.0	104.5	102.0	100.0	104.5	102.0	2.4
Benzene	0.0	10.5	10.2	10.0	105.0	102.0	2.9
Toluene	0.0	10.0	10.5	10.0	100.0	105.0	4.9
Ethyl Benzene	0.0	11.2	10.7	10.0	112.0	107.0	4.6
Xylenes	0.0	33.4	32.2	30.0	111.3	107.3	3.7
TPH (diesel)	0	158	151	150	105	101	4.3
TRPH (oil & grease)	N/A	N/A	N/A	N/A	N/A	N/A	N/A

$$\% \text{ Rec.} = (\text{MS} - \text{Sample}) / \text{amount spiked} \times 100$$

$$\text{RPD} = (\text{MS} - \text{MSD}) / (\text{MS} + \text{MSD}) \times 2 \times 100$$

## QC REPORT FOR HYDROCARBON ANALYSES

Date: 04/11/96

Matrix: Water

Analyte	Concentration (ug/L) Sample (#63042)			Amount Spiked	‡ Recovery		RPD
	MS	MSD			MS	MSD	
TPH (gas)	0.0	100.5	105.3	100.0	100.5	105.3	4.6
Benzene	0.0	10.4	10.6	10.0	104.0	106.0	1.9
Toluene	0.0	10.7	11.0	10.0	107.0	110.0	2.8
Ethyl Benzene	0.0	11.0	11.3	10.0	110.0	113.0	2.7
Xylenes	0.0	33.1	33.7	30.0	110.3	112.3	1.8
TPH (diesel)	N/A	N/A	N/A	N/A	N/A	N/A	N/A
TRPH (oil & grease)	N/A	N/A	N/A	N/A	N/A	N/A	N/A

$$\ddagger \text{ Rec.} = (\text{MS} - \text{Sample}) / \text{amount spiked} \times 100$$

$$\text{RPD} = (\text{MS} - \text{MSD}) / (\text{MS} + \text{MSD}) \times 2 \times 100$$

QC REPORT FOR HYDROCARBON ANALYSES

Date: 04/12/96

Matrix: Water

Analyte	Concentration (ug/L) Sample (#63168)			Amount Spiked	% Recovery		
	MS	MSD			MS	MSD	RPD
TPH (gas)	0.0	106.2	97.1	100.0	106.2	97.1	9.0
Benzene	0.0	9.7	9.6	10.0	97.0	96.0	1.0
Toluene	0.0	9.9	9.7	10.0	99.0	97.0	2.0
Ethyl Benzene	0.0	10.1	9.8	10.0	101.0	98.0	3.0
Xylenes	0.0	29.7	28.9	30.0	99.0	96.3	2.7
TPH (diesel)	0	165	164	150	110	109	0.5
TRPH (oil & grease)	0	24500	25500	23700	103	108	4.0

$$\% \text{ Rec.} = (\text{MS} - \text{Sample}) / \text{amount spiked} \times 100$$

$$\text{RPD} = (\text{MS} - \text{MSD}) / (\text{MS} + \text{MSD}) \times 2 \times 100$$

## QC REPORT FOR VOCs (EPA 624/8240/8260)

Date: 04/16/96-04/19/96

Matrix: Water

Analyte	Concentration (ug/L)			Amount Spiked	% Recovery		RPD
	Sample	MS	MSD		MS	MSD	
1,1-Dichloroethe	0.00	4.50	4.50	5.0	90	90	0.0
Trichloroethene	0.00	4.70	4.60	5.0	94	92	2.2
EDB	0.00	5.30	5.00	5.0	106	100	5.8
Chlorobenzene	0.00	5.70	5.60	5.0	114	112	1.8
Benzene	0.00	5.20	4.70	5.0	104	94	10.1
Toluene	0.00	5.50	5.20	5.0	110	104	5.6

$$\% \text{ Rec.} = (\text{MS} - \text{Sample}) / \text{amount spiked} \times 100$$

$$\text{RPD} = (\text{MS} - \text{MSD}) / (\text{MS} + \text{MSD}) \times 2 \times 100$$

DATE 4.11.96 PAGE 1 OF 1

CHAIN OF CUSTODY RECORD

6192 AFSEEX.316

PROJECT NAME James River  
 ADDRESS 2101 Williams Street  
San Leandro, CA  
 PROJECT NO. 6596044  
 SAMPLED BY G  
 LAB NAME McCampbell

ANALYSES TO BE PERFORMED					MATRIX	
BTEX	TPH-D	TPH-HF	(E260) Acetone, NIBK	BTEX (E-260)	MATRIX	CONTAINERS
X	X	X			H <sub>2</sub> O	1
X	X	X				1
			X	X		2
X	X	X				3
X	X	X				3
X	X	X				3
X	X	X				3



Environmental Science & Engineering, Inc.

4090 Nelson Avenue  
 Suite J  
 Concord, CA 94520

Phone (510) 685-4053  
 Fax (510) 685-5323

REMARKS  
 (CONTAINER, SIZE, ETC.)

SAMPLE #	DATE	TIME	LOCATION
W-7	4.11.96	0855	San Leandro
W-8		1015	
W-10		1035	
TW-2		0800	
TW-3		0835	
Dip		0800	
Trip		-	

63146  
 63147  
 63148  
 63149  
 63150  
 63151  
 63152

RELINQUISHED BY: (signature)  
[Signature]

RECEIVED BY: (signature)  
[Signature] date 4/11/96 time 1300

TOTAL NUMBER OF CONTAINERS 16

ICE/T ✓  
 GOOD CONDITION ✓  
 HEAD SPACE ABSENT ✓  
 PRESERVATIVE ✓  
 APPROPRIATE CONTAINERS ✓

REPORT RESULTS TO:  
Eric Garcia

SPECIAL SHIPMENT REQUIREMENTS  
cold ship store

INSTRUCTIONS TO LABORATORY (handling, analyses, storage, etc.):  
STAT

SAMPLE RECEIPT  
 CHAIN OF CUSTODY SEALS  
 REC'D GOOD CONDITN/COLD HC  
 CONFORMS TO RECORD HC