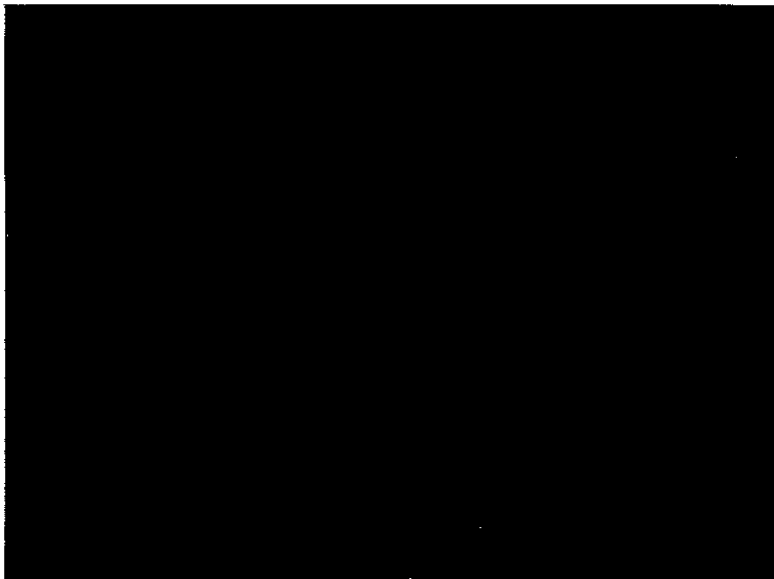


ENVIRONMENTAL  
PROTECTION  
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**PHILIP**  
**ENVIRONMENTAL**

**SEMI-ANNUAL GROUNDWATER  
MONITORING REPORT  
March 1996**

**JOE SIO CHEVROLET  
914-916 San Pablo Avenue  
Albany, California  
STID-3808**

**May 2, 1996**

**Prepared for:**

**MS. FLORENCE ANN CONNORS  
Executor for the Estate of Josephine A. Dibble  
1658 Del Dayo Drive  
Carmichael, California 95608**

**Prepared by:**

**PHILIP ENVIRONMENTAL SERVICES CORPORATION  
5901 Christie Avenue, Suite 501  
Emeryville, California 94608**

SIO101/12104



Environmental Services Group  
Pacific Region

May 2, 1996  
SIO101/12104

Ms. Florence Ann Connors  
Executor for the Estate of Josephine A. Dibble  
1658 Del Dayo Drive  
Carmichael, California 95608

**Subject: SEMI-ANNUAL GROUNDWATER MONITORING REPORT  
March 1996**  
Joe Sio Chevrolet  
914-916 San Pablo Avenue, Albany, California

Dear Ms. Connors:

Philip Environmental Services Corporation (Philip), is pleased to submit the following semi-annual groundwater monitoring report for Joe Sio Chevrolet, located at 914-916 San Pablo Avenue in Albany, California. The groundwater monitoring and sampling was conducted by Philip in March 1996.

## BACKGROUND

The site is an operating car dealership located on San Pablo Avenue, near the Solano Avenue intersection in Albany, California (see Figure 1). Two 550-gallon underground storage tanks (USTs) were removed from the site on March 20, 1989 by Petroleum Engineering, Inc. One UST contained gasoline and was located under the sidewalk between the former building and San Pablo Avenue. The other UST contained waste oil and was located adjacent to the southwest corner of the former building (see Figure 2). Soil samples collected from beneath the former gasoline UST and the excavated soil stockpile contained concentrations of total petroleum hydrocarbons as gasoline (TPHg) of 1,300 milligrams per kilogram (mg/kg) and 370 mg/kg, respectively. Soil samples collected from beneath the former waste oil tank UST and the excavated soil stockpile did not contain detectable petroleum hydrocarbons, except for trace concentrations of toluene and total xylenes (Aqua Terra Technologies [ATT], August 22, 1990). As a result of the petroleum hydrocarbons encountered beneath the former gasoline UST, Alameda County Department of Environmental Health (ACDEH) requested additional investigation and remediation at the site.

On July 24 and 25, 1991, ATT of Walnut Creek, California, installed three groundwater monitoring wells (MW-1, MW-2, and MW-3) at the site (see Figure 2). The three

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groundwater monitoring wells were developed on July 31, 1991 and sampled on August 7, 1991. Elevated concentrations of TPHg and benzene, toluene, ethylbenzene and total xylenes (BTEX) were encountered in the groundwater sample collected from well MW-1 (see Table 1). At the time the wells were sampled, ATT determined that the groundwater flow direction was to the west-northwest with an approximate hydraulic gradient of 0.01 feet/foot (ATT, December 6, 1991).

In correspondence dated November 9, 1993, Ms. Juliet Shin (ACDEH) requested that quarterly groundwater monitoring be resumed at the site. In April 1994, Philip began quarterly groundwater monitoring activities at the site. In correspondence dated February 27, 1996, Ms. Shin approved modification of the groundwater monitoring schedule to semi-annual events while maintaining quarterly groundwater level surveys.

## MONITORING ACTIVITIES

The first semi-annual 1996 monitoring event was conducted on March 28, 1996. In each well, the depth to groundwater and the presence or absence of phase-separated hydrocarbons (PSHs) were determined. Groundwater samples were collected and analyzed to determine the concentrations of TPHg using U.S. Environmental Protection Agency (EPA) Method modified 8015, BTEX using EPA Method 8020/602, and total lead using EPA Method 7421. In addition, groundwater from monitoring well MW-3 was field filtered using a 0.45  $\mu$ m filter prior to the analysis for cadmium, chromium, nickel and zinc using EPA Methods 6010. The groundwater sample from well MW-2 was also analyzed for halogenated volatile organics using EPA Method 8010 in response to matrix interference observed during the third and fourth quarter 1994 monitoring events, per the request of Ms. Shin in correspondence dated November 2, 1994.

Groundwater samples were collected and analyzed in accordance with EPA guidelines. The monitoring and sampling procedures are presented in Appendix A. Field data sheets are presented in Appendix B. Western Environmental Science & Technology, located in Davis, California, performed the analysis. The analytical results and detection limits are presented in Tables 1 and 2.

## RESULTS

The groundwater elevation in the monitoring wells beneath the site on March 28, 1996 ranged from 31.33 to 34.18 feet above mean sea level (see Table 3). A contour map of these data is presented in Figure 3. The approximate groundwater flow direction based on the March 1996 data is to the south-southwest with an approximate hydraulic gradient of 0.018 feet/foot. Fluctuations in groundwater flow direction encountered at the site may be caused by the influence of seasonal recharge from Albany Hill, a local topographic feature.

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No PSHs were detected in any of the groundwater monitoring wells. No detectable concentrations of TPHg or BTEX were found in the groundwater samples collected from wells MW-2 or MW-3 (see Table 1). Concentrations of petroleum hydrocarbons were detected in the groundwater sample collected from well MW-1, including 620 micrograms per liter ( $\mu\text{g/L}$ ) of TPHg and 180  $\mu\text{g/L}$  of benzene. Similar concentrations were found in the duplicate groundwater sample from well MW-1 (see Table 1).

Trace concentrations of lead were detected in the unfiltered groundwater samples from wells MW-1 and MW-2. The selected metals were not detected in the filtered groundwater sample from well MW-3, except for 56  $\mu\text{g/L}$  of zinc. Detected lead and zinc concentrations are below the primary maximum contaminant level (MCL) and are not considered to be of concern (see Table 1).

A tetrachloroethene (PCE) concentration of 58  $\mu\text{g/L}$  was detected in the groundwater sample from well MW-2. The levels of PCE have consistently decreased since first encountered in January 1995. Although the PCE level exceeds its 5  $\mu\text{g/L}$  MCL, there is no known source of PCE onsite, and an offsite source for the halogenated hydrocarbons is likely.

Chain-of-custody documentation and certified analytical results are presented in Appendix C. Purge and rinsate water was stored on the site in 55-gallon drums. The drums were labeled by the field sampling technician. Purge and rinsate water disposal will be arranged in the future.

## PLANNED ACTIVITIES

In correspondence dated February 27, 1996, Ms. Shin requested a site-specific human health risk assessment. This assessment will be submitted to the ACDEH by May 31, 1996, pending timely pre-approval of costs by the California Underground Storage Tank Cleanup Fund. The next quarterly groundwater level survey is scheduled for June 1996 and the next semi-annual groundwater monitoring event is scheduled for September 1996.

## CONCLUSIONS

Based on the analytical results and site data, petroleum hydrocarbons have been detected in groundwater samples from near the former gasoline tank area, PCE has been detected in groundwater samples from near well MW-2, and low concentrations of zinc and/or lead have been detected in groundwater samples from the three monitoring wells. The absence of PSHs and the abundance of utilities present beneath the sidewalk overlying the former gasoline tank location, as documented in Philip's correspondence to you dated

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Ms. Florence Ann Connors  
May 2, 1996  
Page 4


May 5, 1995, indicate that practicable source removal has been completed at the site. The residual petroleum hydrocarbons detected in well MW-1 will biodegrade over time. The consistently decreasing PCE concentrations in groundwater indicate a limited source area which is believed to be offsite. The selected metal concentrations in groundwater are not considered to be a concern.

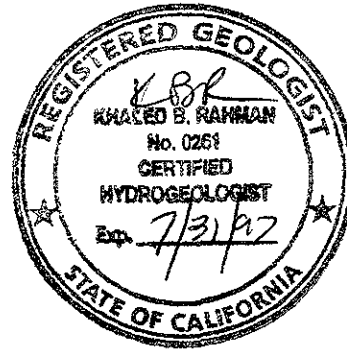
Philip appreciates the opportunity to provide you with quality consulting and environmental services. Please feel free to contact us if we can provide further assistance.

Sincerely,

**PHILIP ENVIRONMENTAL SERVICES CORPORATION**

  
Daryl A. Lamb  
Field Services Supervisor

  
Khaled Rahman, R.G., C.H.G. No. 0261  
Project Manager



Attachments:

- Figure 1 - Site Location Map
- Figure 2 - Site Plan
- Figure 3 - Groundwater Elevation Contours

- Table 1 - Groundwater Analytical Data-Petroleum Hydrocarbons Fuel Analysis
- Table 2 - Groundwater Analytical Data-Chlorinated Hydrocarbons Analysis
- Table 3 - Groundwater Elevation Data

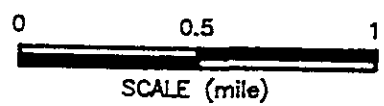
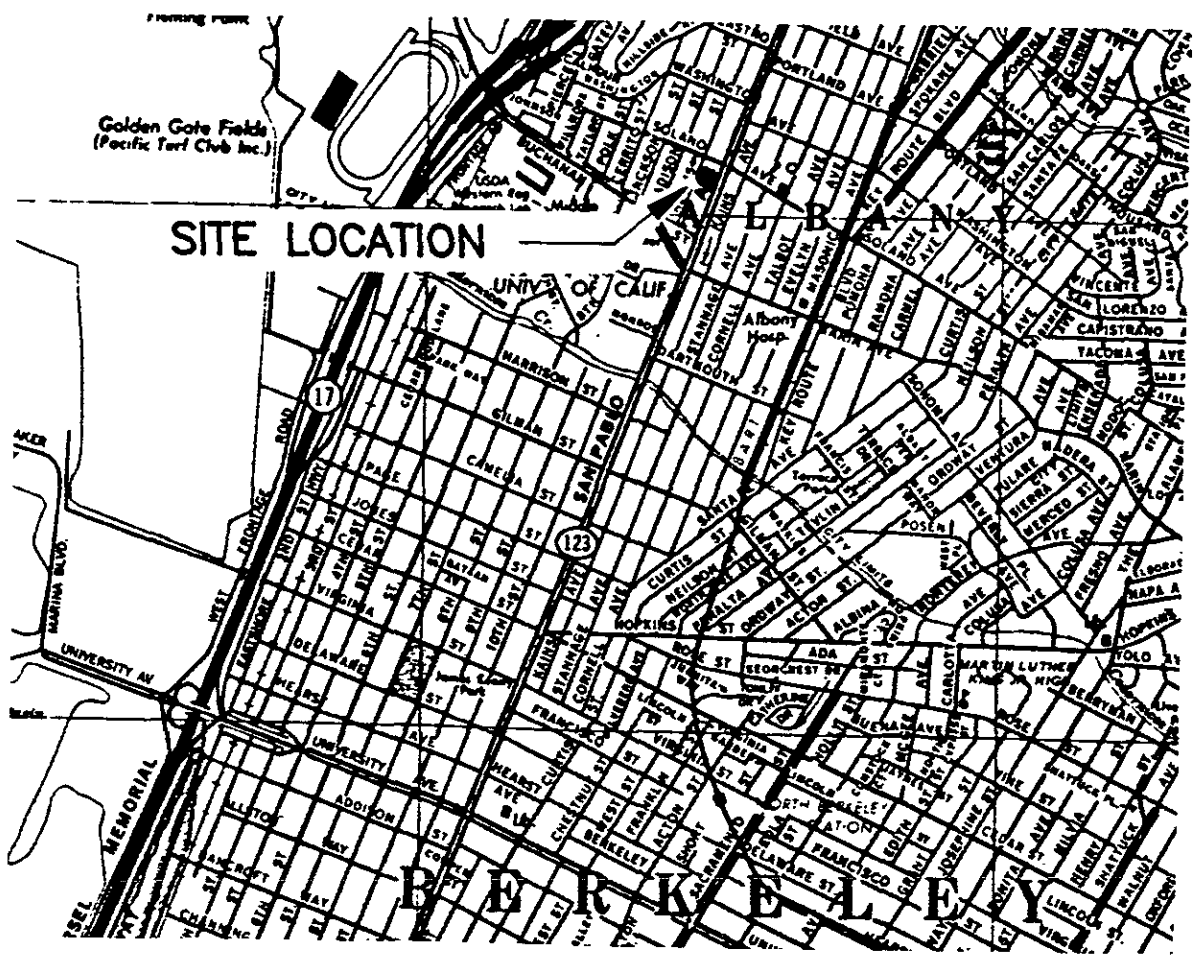
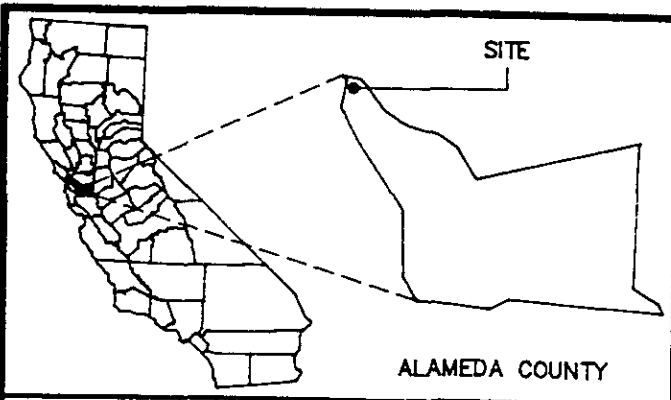
- Appendix A - Groundwater Sampling and Analysis Procedures
- Appendix B - Water Sample Field Data Sheets
- Appendix C - Chain-of-Custody Records and Certified Analytical Reports

cc: Ms. Juliet Shin (ACDEH)

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**FIGURES 1 - 3**



**PHILIP**  
**ENVIRONMENTAL**

SITE LOCATION MAP

Joe Sio Chevrolet  
914 - 916 San Pablo Avenue  
Albany, California

Figure 1

Project No. 12104

Drawn By      Date  
SBW            5/12/95

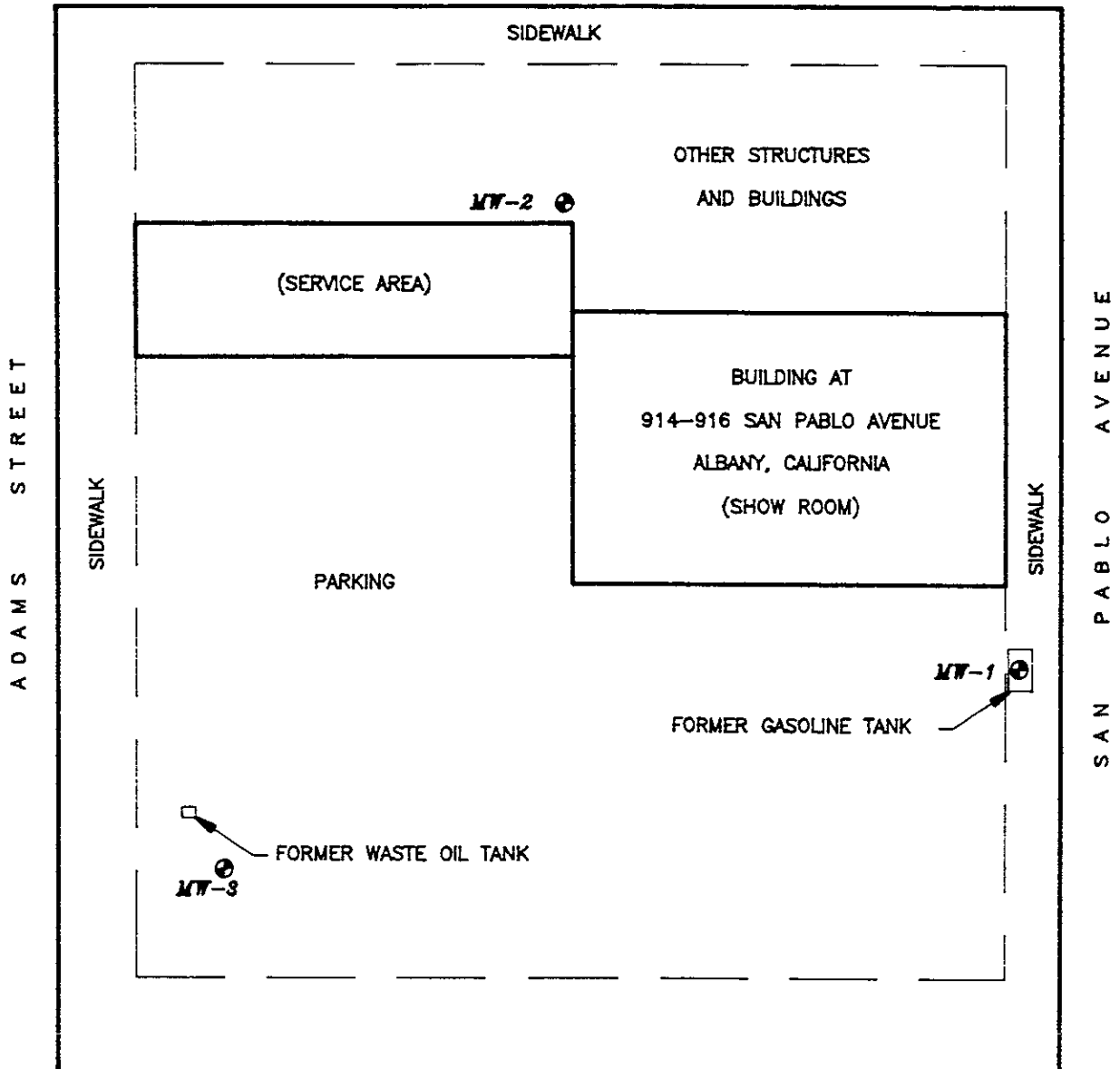
Reviewed By :

Date :

Drawing No. ASI00109

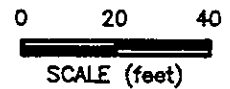


SOLANO AVENUE



EXPLANATION

⊕ MONITORING WELL LOCATION



**PHILIP**  
**ENVIRONMENTAL**

SITE PLAN

Joe Sio Chevrolet  
914 - 916 San Pablo Avenue  
Albany, California

Figure 2

Project No. 12104

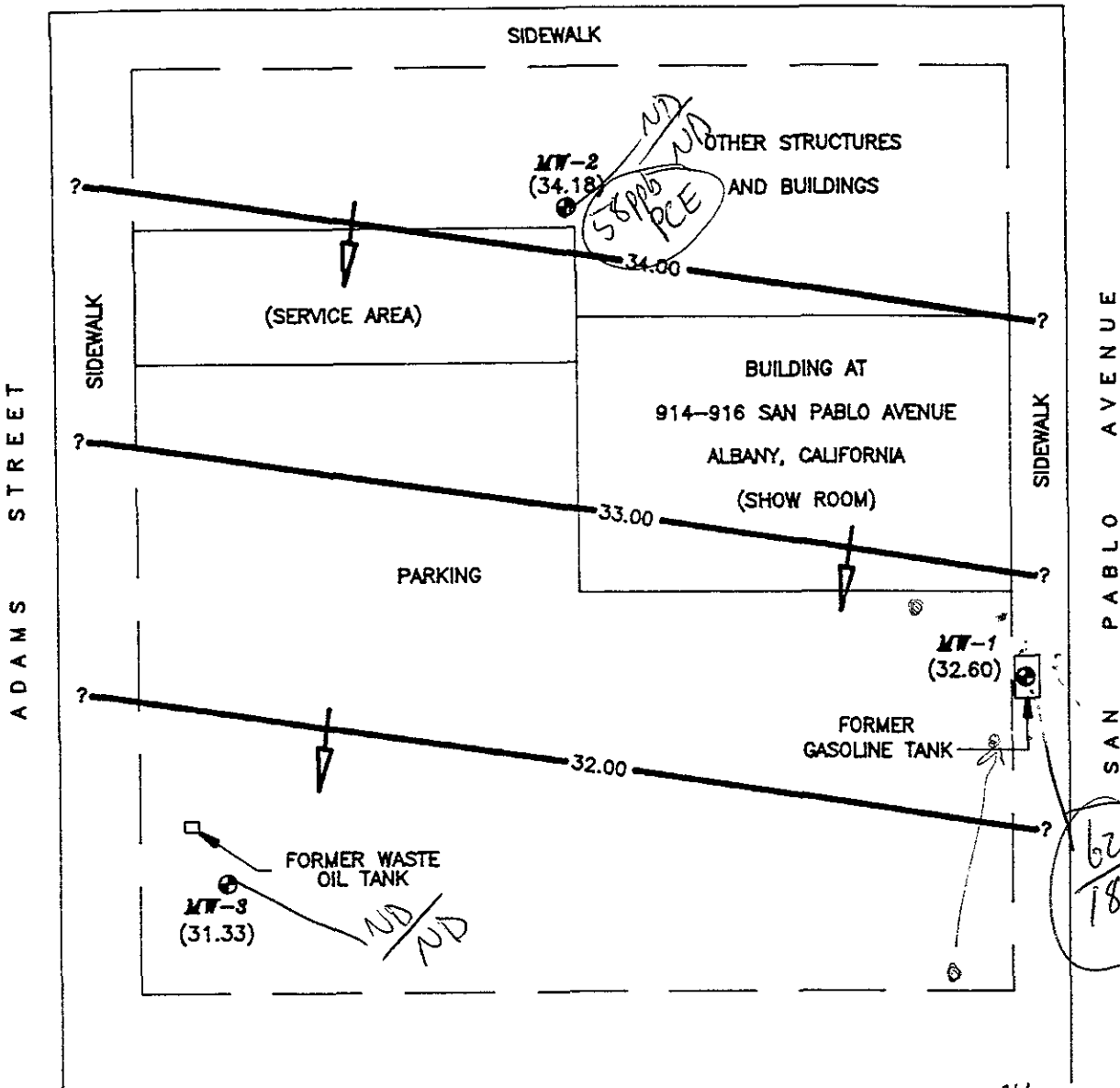
Drawn By SBW Date 5/12/95

Reviewed By :

Date :

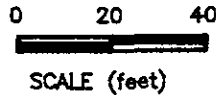
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SOLANO AVENUE



EXPLANATION

- MONITORING WELL LOCATION
- (32.21) GROUNDWATER ELEVATION (FT-MSL)  
MEASURED ON: MARCH 28, 1996
- 32.00 — GROUNDWATER ELEVATION CONTOUR (FT-MSL)  
CONTOUR INTERVAL = 1.00'
- (FT-MSL) FEET ABOVE MEAN SEA LEVEL
- ← APPROXIMATE GROUNDWATER  
FLOW DIRECTION



FIRST QUARTER 1996

**PHILIP**  
**ENVIRONMENTAL**

**GROUNDWATER  
ELEVATION CONTOURS**  
Joe Sio Chevrolet  
914 - 916 San Pablo Avenue  
Albany, California

**Figure 3**

Project No. 12104

Drawn By SBW Date 4/18/96

Reviewed By :

Date :

Drawing No. ASI00112

**TABLES 1 - 3**

TABLE 1  
GROUNDWATER ANALYTICAL DATA  
PETROLEUM HYDROCARBONS FUEL ANALYSIS

Joe Sio Chevrotet  
914-916 San Pablo Avenue, Albany, California

Monitoring Well No.	Date Sampled	Sample No.	TPH Gasoline (ug/L)	Benzene (ug/L)	Toluene (ug/L)	Ethyl-benzene (ug/L)	Total Xylenes (ug/L)	Total Oil and Grease (ug/L)	Cadmium (ug/L)	Chromium (ug/L)	Lead (ug/L)	Nickel (ug/L)	Zinc (ug/L)
		EPA Analytical Method:	8018m	802	802	802	802	9070	8010	8010	7421	8010	8010
<b>Groundwater Analyses:</b>													
MW-1	8/7/91	MW-1	110	16	2.0	0.7	16	NA	NA	NA	NA	NA	NA
	4/15/94	MW01-041594	2,500	880	22	79	47	NA	NA	NA	9.3	NA	NA
	7/14/94	MW01-071494	470	110	22	21	87	NA	NA	NA	5.9	NA	NA
	10/14/94	MW01-101494	380	86	17	24	77	NA	NA	NA	8.0	NA	NA
	1/17/95	MW01-011795	600	250	11	5.3	56	NA	NA	NA	9.6	NA	NA
	4/19/95	MW01 041995	210	69	3.7	3.7	12	NA	NA	NA	18	NA	NA
	7/13/95	MW01071395	110	30	4.7	8.2	20	NA	NA	NA	4.8	NA	NA
	10/17/95	MW01 101795	90	29	3.7	10	23	NA	NA	NA	8.8	NA	NA
	10/17/95 d	DW01 101795	110	32	4.3	12	28	NA	NA	NA	NA	NA	NA
	3/28/96	MW01032896	620	180	12	35	94	NA	NA	NA	12	NA	NA
	3/28/96 d	DW01032896	720	200	14	39	120	NA	NA	NA	NA	NA	NA
MW-2	8/7/91	MW-2	NA(<50)	ND(<0.50)	ND(<0.50)	ND(<0.50)	ND(<0.50)	NA	NA	NA	NA	NA	NA
	4/15/94	MW02-041494	ND(<50)	ND(<0.30)	ND(<0.30)	ND(<0.30)	ND(<0.50)	NA	NA	NA	22	NA	NA
	7/14/94	MW02-071494	ND(<50) *	ND(<0.30) *	0.73 *	ND(<0.30) *	0.71 *	NA	NA	NA	23	NA	NA
	10/14/94	MW02-101494	ND(<50) *	ND(<0.30) *	ND(<0.30) *	ND(<0.30) *	ND(<0.50) *	NA	NA	NA	21	NA	NA
	1/17/95	MW02-011795	ND(<50) *	ND(<0.30) *	ND(<0.30) *	ND(<0.30) *	ND(<0.50) *	NA	NA	NA	31	NA	NA
	4/19/95	MW02 041995	ND(<50) *	ND(<0.30) *	ND(<0.30) *	ND(<0.30) *	ND(<0.50) *	NA	NA	NA	ND(<3)	NA	NA
	7/13/95	MW02071395	ND(<50)	ND(<0.30)	ND(<0.30)	ND(<0.30)	ND(<0.50)	NA	NA	NA	38	NA	NA
	10/17/95	MW02 101795	ND(<50)	ND(<0.30)	ND(<0.30)	ND(<0.30)	ND(<0.50)	NA	NA	NA	28	NA	NA
	3/28/96	MW02032896	ND(<50)	ND(<0.50)	ND(<0.50)	ND(<0.50)	ND(<0.50)	NA	NA	NA	13	NA	NA
MW-3	8/7/91	MW-3	NA(<50)	ND(<0.50)	ND(<0.50)	ND(<0.50)	ND(<0.50)	ND(<5,000)	NA	NA	NA	NA	NA
	4/15/94	MW03-041594	ND(<50)	ND(<0.30)	ND(<0.30)	ND(<0.30)	ND(<0.50)	NA	12	260	22	340	490
	4/15/94 d	DW01-041494	ND(<50)	ND(<0.30)	ND(<0.30)	ND(<0.30)	ND(<0.50)	NA	NA	NA	NA	NA	NA
	7/14/94	MW03-071494	ND(<50)	ND(<0.30)	ND(<0.30)	ND(<0.30)	0.80	NA	17	650	220	730	840
	7/14/94 d	DW01-071494	ND(<50)	ND(<0.30)	ND(<0.30)	ND(<0.30)	0.83	NA	NA	NA	NA	NA	NA
	10/14/94	MW03-101494	ND(<50)	ND(<0.30)	ND(<0.30)	ND(<0.30)	ND(<0.50)	NA	19	640	140	660	900 b
	10/14/94 d	DW01-101494	ND(<50)	ND(<0.30)	ND(<0.30)	ND(<0.30)	ND(<0.50)	NA	NA	NA	NA	NA	NA
	1/17/95	MW03-011795	ND(<50)	ND(<0.30)	ND(<0.30)	ND(<0.30)	ND(<0.50)	NA	ND(<4)	8.8	ND(<3)	ND(<1.5)	22
	1/17/95 d	DW03-011795	ND(<50)	ND(<0.30)	ND(<0.30)	ND(<0.30)	ND(<0.50)	NA	NA	NA	NA	NA	NA
	4/19/95	MW03 041995	ND(<50)	ND(<0.30)	ND(<0.30)	ND(<0.30)	ND(<0.50)	NA	9.1	19	68	67	1,300
	4/19/95 d	DW03 041995	ND(<50)	ND(<0.30)	ND(<0.30)	ND(<0.30)	ND(<0.50)	NA	NA	NA	NA	NA	NA
	7/13/95	MW03071395	ND(<50)	ND(<0.30)	ND(<0.30)	ND(<0.30)	ND(<0.50)	NA	ND(<4)	12	ND(<3)	ND(<1.5)	24
	7/13/95 d	DW01071395	ND(<50)	ND(<0.30)	ND(<0.30)	ND(<0.30)	ND(<0.50)	NA	NA	NA	NA	NA	NA
	10/17/95	MW03 101795	ND(<50)	ND(<0.30)	ND(<0.30)	ND(<0.30)	ND(<0.50)	NA	ND(<4)	ND(<7)	ND(<3)	ND(<1.5)	ND(<10)
	3/28/96	MW03032896	ND(<50)	ND(<0.50)	ND(<0.50)	ND(<0.50)	ND(<0.50)	NA	ND(<4)	ND(<7)	ND(<3)	ND(<1.5)	66

TABLE 1  
GROUNDWATER ANALYTICAL DATA  
PETROLEUM HYDROCARBONS FUEL ANALYSIS  
(continued)

Joe Sio Chevrolet  
914-916 San Pablo Avenue, Albany, California

Monitoring Well No.	Date Sampled	Sample No.	TPH Gasoline (ug/L)	Benzene (ug/L)	Toluene (ug/L)	Ethyl-benzene (ug/L)	Total Xylenes (ug/L)	Total Oil and Grease (mg/L)	Cadmium (mg/L)	Chromium (mg/L)	Lead (mg/L)	Nickel (mg/L)	Zinc (mg/L)
EPA Analytical Method:			8015m	602	602	602	602	9070	6010	6010	7421	6010	6010
<b>Rinse Analyses:</b>													
	4/15/94	RS01-041594	ND(<50)	ND(<0.30)	ND(<0.30)	ND(<0.30)	ND(<0.50)	NA	NA	NA	NA	NA	NA
	7/14/94	RS01-071494	ND(<50)	ND(<0.30)	<b>0.33</b>	ND(<0.30)	<b>0.65</b>	NA	NA	NA	NA	NA	NA
	10/14/94	RS01-101494	ND(<50)	ND(<0.30)	ND(<0.30)	ND(<0.30)	ND(<0.50)	NA	NA	NA	NA	NA	NA
	1/17/95	RS01-011795	ND(<50)	ND(<0.30)	ND(<0.30)	ND(<0.30)	ND(<0.50)	NA	NA	NA	NA	NA	NA
	4/19/95	RS01 041995	ND(<50)	ND(<0.30)	ND(<0.30)	ND(<0.30)	ND(<0.50)	NA	NA	NA	NA	NA	NA
	7/13/95	RS01071395	ND(<50)	ND(<0.30)	ND(<0.30)	ND(<0.30)	ND(<0.50)	NA	NA	NA	NA	NA	NA
	10/17/95	RS01 101795	ND(<50)	ND(<0.30)	ND(<0.30)	ND(<0.30)	ND(<0.50)	NA	NA	NA	NA	NA	NA
	3/28/96	RS01032896	ND(<50)	ND(<0.50)	ND(<0.50)	ND(<0.50)	ND(<0.50)	NA	NA	NA	NA	NA	NA
<b>Trip Blank Analyses:</b>													
	4/15/94	TB01-041594	ND(<50)	ND(<0.30)	ND(<0.30)	ND(<0.30)	ND(<0.50)	NA	NA	NA	NA	NA	NA
	7/14/94	TB01-071494	ND(<50)	ND(<0.30)	ND(<0.30)	ND(<0.30)	ND(<0.50)	NA	NA	NA	NA	NA	NA
	10/14/94	TB01-101494	ND(<50)	ND(<0.30)	ND(<0.30)	ND(<0.30)	ND(<0.50)	NA	NA	NA	NA	NA	NA
	1/17/95	TB01-011795	ND(<50)	ND(<0.30)	ND(<0.30)	ND(<0.30)	ND(<0.50)	NA	NA	NA	NA	NA	NA
	7/13/95	TB01071395	ND(<50)	ND(<0.30)	ND(<0.30)	ND(<0.30)	ND(<0.50)	NA	NA	NA	NA	NA	NA
	10/17/95	TB01101795	ND(<50)	ND(<0.30)	ND(<0.30)	ND(<0.30)	ND(<0.50)	NA	NA	NA	NA	NA	NA
	3/28/96	TB01032896	ND(<50)	ND(<0.50)	ND(<0.50)	ND(<0.50)	ND(<0.50)	NA	NA	NA	NA	NA	NA
<b>DRINKING WATER STANDARDS.</b>													
California Primary													
Maximum Contaminant Levels			-	1	150	700	1,750	-	5	50	50	100	5,000

Results above detection limit are bolded for emphasis.

- \* An external standard quantitation was used on this sample due to matrix interference
- b Analyte found in method blank
- d Duplicate sample
- NA Not analyzed
- ND Concentration below detection limit presented in parentheses
- ug/L Micrograms per liter (parts per billion)

**TABLE 2  
GROUNDWATER ANALYTICAL DATA  
CHLORINATED HYDROCARBONS ANALYSIS**

Joe Sio Chevrolet  
914-916 San Pablo Avenue, Albany, California

Monitoring Well No.	Date Sampled	Sample No.	Chloro-methane (ug/L)	Carbon Tetra-chloride (ug/L)	Trichloro-ethene (ug/L)	cis-1,2-Dichloro-ethene (ug/L)	Tetrachloro-ethene (ug/L)
		EPA Analytical Method:	601	601	601	601	601
MW-2	1/17/95	MW02-011795	<b>0.94</b>	<b>0.98</b>	<b>0.58</b>	<b>0.51</b>	<b>100</b>
	4/19/95	MW02 041995	ND(<0.50)	<b>0.83</b>	ND(<0.50)	ND(<0.50)	<b>76</b>
	7/13/95	MW02071395	ND(<0.50)	<b>0.90</b>	ND(<0.50)	ND(<0.50)	<b>68</b>
	10/17/95	MW02 101795	ND(<1.0)	<b>1.1</b>	ND(<1.0)	ND(<1.0)	<b>60</b>
	3/28/96	MW032896	ND(<1.2)	ND(<1.2)	ND(<1.2)	ND(<1.2)	<b>58</b>
<b>DRINKING WATER STANDARDS:</b>							
California Primary							
Maximum Contaminant Levels				5	5	6	5

Results above detection limit are bolded for emphasis.

601 analytes not listed are all below method detection limits

ND Concentration below detection limit presented in parentheses

ug/L micrograms per liter

**TABLE 3  
GROUNDWATER ELEVATION DATA**

Joe Sio Chevrolet  
914-916 San Pablo Avenue, Albany, California

Monitoring Well No.	Date Measured	Total Depth (ft-BTOC)	TOC Elevation (ft-MSL)	Depth to Water (ft-BTOC)	Water Elevation (ft-MSL)
MW-1	8/7/91	NM	42.61	10.49	32.12
	8/12/91	NM	42.61	10.37	32.24
	4/15/94	29.80	42.61	10.60	32.01
	7/14/94	29.70	42.61	10.55	32.06
	10/14/94	29.75	42.61	10.88	31.73
	1/17/95	29.75	42.61	9.97	32.64
	4/19/95	29.62	42.61	9.74	32.87
	7/13/95	29.79	42.61	10.31	32.30
	10/17/95	29.84	42.61	10.40	32.21
	3/28/96	29.78	42.61	10.01	32.60
MW-2	8/7/91	NM	42.73	11.64	31.09
	8/12/91	NM	42.73	11.69	31.04
	4/15/94	26.88	42.73	10.16	32.57
	7/14/94	26.85	42.73	10.91	31.82
	10/14/94	26.88	42.73	12.10	30.63
	1/17/95	26.87	42.73	9.54	33.19
	4/19/95	26.71	42.73	7.99	34.74
	7/13/95	26.91	42.73	9.91	32.82
	10/17/95	26.96	42.73	11.38	31.35
	3/28/96	26.89	42.73	8.55	34.18
MW-3	8/7/91	NM	39.44	8.94	30.50
	8/12/91	NM	39.44	8.94	30.50
	4/15/94	25.58	39.44	7.68	31.76
	7/14/94	25.62	39.44	8.40	31.04
	10/14/94	25.61	39.44	9.31	30.13
	1/17/95	25.79	39.44	5.44	34.00
	4/19/95	25.65	39.44	5.99	33.45
	7/13/95	25.85	39.44	7.38	32.06
	10/17/95	25.79	39.44	8.70	30.74
	3/28/96	25.86	39.44	8.11	31.33

Water levels measured on 8/7/91 and 8/12/91 by Aqua Terra Technologies (ATT) of Walnut Creek, California.

TOC elevations obtained from survey data provided in the ATT Groundwater Monitoring Report dated 11/11/91.

ft-BTOC      Feet below top of casing  
ft-MSL        Feet above mean sea level  
NM             Not measured  
TOC            Top of casing

**APPENDIX A**  
**Groundwater Sampling and**  
**Analysis Procedures**



## APPENDIX A

### Groundwater Sampling and Analysis Procedures

#### INTRODUCTION

The sampling and analysis procedures for water-quality monitoring programs are contained in this Appendix. These procedures ensure that consistent and reproducible sampling methods are used, proper analytical methods are applied, analytical results are accurate, precise, and complete, and the overall objectives of the monitoring program are achieved.

#### SAMPLE COLLECTION

Sample collection procedures include equipment cleaning, water-level and total well-depth measurements, and well purging and sampling.

##### Equipment Cleaning

Sample bottles, caps, and septa were precleaned and provided by a California-certified laboratory. All sampling containers were used only once and discarded after analysis was complete.

Before starting the sampling event, all equipment to be placed in the well or come in contact with groundwater was disassembled and cleaned thoroughly with detergent water, then steam cleaned with tap water, and rinsed with distilled water. Any parts that may absorb contaminants, such as plastic pump valves or bladders, were cleaned as described above or replaced.

During the sampling event all equipment used in the well was washed with detergent, steam-cleaned, and rinsed with distilled water before purging or sampling the next well. The rinsate water was contained for temporary storage in 55-gallon drums and disposal

will be arranged by the client. The 55-gallon drums were stored onsite and labeled by the field technician.

### **Quality Assurance Samples**

A trip blank was analyzed to insure contamination did not result from travel exposure. Equipment rinsate samples were collected to evaluate decontamination procedures.

### **WATER-LEVEL, FLOATING-HYDROCARBON, AND TOTAL WELL-DEPTH MEASUREMENTS**

Before purging and sampling, the depth to water, floating hydrocarbon thickness, and the well total depth were measured using an oil water interface probe and an electric sounder. The electric sounder, manufactured by Slope-Indicator, Inc., is a transistorized instrument that uses a reel-mounted, two conductor, coaxial cable that connects the control panel to the sensor. Cable markings are stamped at 1-foot intervals. An engineers rule was used to measure the depths to the closest 0.01 foot. The water level was measured by lowering the sensor into the monitoring well. A low current circuit is completed when the sensor contacts the water, which serves as a conductor. The current is amplified and fed across an indicator light and audible buzzer, signaling when water has been contacted. A sensitivity control compensates for very saline or conductive water. The oil-water interface probe signals with a solid sound when it contacts phase-separated hydrocarbons. When the probe detects water, the sound changes to a beeping sound.

No phase-separated hydrocarbons were detected in any of the monitoring wells. When PSH is detected at greater than 1/32-inch in thickness, a sample is not collected.

All liquid measurements were recorded to the nearest 0.01 foot in the field logbook. The groundwater elevation at each monitoring well was calculated by subtracting the measured depth to water from the surveyed well-casing elevation. Well total depth was then measured by lowering the sensor to the bottom of the well. Well total depth, used to

calculate purge volumes and to determine whether the well screen is partially obstructed by silt, was recorded to the nearest 0.01 foot in the field log book.

### **WELL PURGING**

Before sampling, standing water in the casing was purged from the monitoring wells using a PVC hand bailer. Samples were collected from the monitoring wells after a minimum of four casing volumes had been evacuated or the pH, electrical conductivity, and temperature had stabilized. In the case that the monitoring well was purged until dry, the well was allowed to recover to within 80% of its static water level and sampled.

The pH, electrical conductivity, and temperature meter were calibrated each day before beginning field activities. After every well volume of groundwater removed from the monitoring well, field measurements were taken. The data is presented on the water sample field data sheets. The calibration was checked once each day to verify meter performance. All field meter calibrations were recorded in the field log book.

Groundwater generated from well-purging operations were contained for temporary storage in 55-gallon drums. All drums were labeled and stored onsite. The sampler recorded on the drum label for each drum generated:

- drum content (i.e., groundwater)
- source (i.e., well identification code)
- date generated
- client contact
- project number
- name of sampler.

The purge water will be disposed of by the client.

## **WELL SAMPLING**

A Teflon<sup>®</sup> bailer was used for well sampling. Glass bottles of at least 40 milliliters volume and fitted with Teflon-lined septa were used in sampling for volatile organics. These bottles were filled completely to prevent air from remaining in the bottle. A positive meniscus forms when the bottle is completely full. A convex Teflon septum is placed over the meniscus to eliminate air. After capping, the bottle was inverted and tapped to verify that it did not contain air bubbles. The sample containers for other parameters were filled, and capped.

## **SAMPLE HANDLING AND DOCUMENTATION**

The following section specifies the procedures and documentation used during sample handling.

### **Sample Handling**

All sample containers were labeled immediately following sample collection. Samples were kept cool with ice cubes until received by the laboratory. At the time of sampling, each sample was logged on a chain-of-custody record which accompanied the sample to the Western Environmental, Science, and Technology.

### **Sample Documentation**

The following procedures were used during sampling and analysis to provide chain-of-custody control during sample handling from collection through storage. Sample documentation included:

- field log books to document sampling activities in the field

- labels to identify individual samples; and
- chain-of-custody record sheets for documenting possession and transfer of samples.

Field Log Book

In the field, the sampler recorded on the Water Sample Field Data Sheet for each sample collected:

- project number
- client name
- location
- name of sampler
- date and time
- pertinent well data (e.g., casing diameter, depth to water, well depth)
- calculated and actual purge volumes
- purging equipment used
- sampling equipment used
- appearance of each sample (e.g., color, turbidity, sediment)
- results of field analyses (i.e., temperature, pH, electrical conductivity)
- general comments

The field logbooks were signed by the sampler.

**APPENDIX B**  
**Water Sample Field Data Sheets**



PROJECT NO.: 12104  
 LOCATION: 916 San Pablo Ave, Albany  
 STATION NO.: -  
 SAMPLER: SBW

DW 01032896  
 SAMPLE ID: MW01032896  
 DATE: 3-28-96  
 WELL/SAMPLE  
 POINT DESIGNATION: MW-1

SAMPLING       DEVELOPING       BAILING FLOATING PRODUCT

Casing Diameter:  
 2 inch   
 3 inch \_\_\_\_\_  
 4 inch \_\_\_\_\_  
 6 inch \_\_\_\_\_  
 other \_\_\_\_\_

Screened Int. (ft.): 10-30  
 Initial DTW (ft.): 10.01  
 Initial TD (ft.): 29.78  
 Water Column Height (ft.): 19.77  
 80 % Recovery (ft.): 13.96

Calc. Casing Vol. (gal.): 3.4  
 $CF = .17$   $DF = .30$   $LF = .09$   $RF = 1.5$   
 Calc. Purge Vol. (gal.): 13.6  
 Final DTW (ft.): 13.19 @ 12:18  
 Final TD (ft.): 29.78  
 Product Bailed (gal.): 14

Casing Elev. (ft.): \_\_\_\_\_  
 TD (Actual) (ft.): 30

FIELD MEASUREMENTS

TIME	VOLUME (gal.)	pH (units)	TEMP. (degrees F)	EC (umhos/cm)	COLOR	DTW (ft)
<u>11:42</u>	<u>3.5</u>	<u>7.17</u>	<u>64.3</u>	<u>9.15 x 10<sup>2</sup></u>	<u>LT YELLOW-BROWN</u>	_____
<u>11:49</u>	<u>7</u>	<u>7.20</u>	<u>63.9</u>	<u>9.30 x 10<sup>2</sup></u>	<u>YELLOW BROWN</u>	_____
<u>11:56</u>	<u>10.5</u>	<u>7.26</u>	<u>63.2</u>	<u>9.20 x 10<sup>2</sup></u>	<u>↓</u>	_____
<u>12:04</u>	<u>14</u>	<u>7.26</u>	<u>64.6</u>	<u>9.79 x 10<sup>2</sup></u>	<u>↓</u>	_____
_____	_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____	_____

Odor? \_\_\_\_\_

Actual Purge Vol. (gal.): 14

PURGE METHOD:  
 Bailer (Teflon)  
 Bailer (PVC)  
 Well Wizard  
 Dedicated Bailer  
 Other \_\_\_\_\_

SAMPLE METHOD:  
 Bailer (Teflon)  
 Bailer (PVC)  
 Dedicated Bailer  
 Other \_\_\_\_\_

REMARKS: Sample MW01032896 collected @ 12:20 on 3-28-96  
Sample DW01032896 collected @ 12:20 on 3-28-96

WEATHER: Sunny, clear, stiff breeze, ~75°F



# WATER DATA SHEET

PROJECT NO.: 12104  
 LOCATION: 916 San Pablo Ave, Albany  
 STATION NO.: -  
 SAMPLER: SPW

SAMPLE ID: MW02032896  
 DATE: 3-28-96  
 WELL/SAMPLE  
 POINT DESIGNATION: MW-2

SAMPLING       DEVELOPING       BAILING FLOATING PRODUCT

Casing Diameter:      Screened Int. (ft.): 8-28      Calc. Casing Vol. (gal.): 3.1  
 2 inch X      Initial DTW (ft.): 8.55      (2" = .17) (3" = .38) (4" = .69) (5" = 1.5)  
 3 inch \_\_\_\_\_      Initial TD (ft.): 26.89      Calc. Purge Vol. (gal.): 12.4  
 4 inch \_\_\_\_\_      Water Column Height (ft.): 18.34      Final DTW (ft.): 8.76 @ 10:37  
 6 inch \_\_\_\_\_      80 % Recovery (ft.): 12.22      Final TD (ft.): 26.89  
 other \_\_\_\_\_      Product Baled (gal.): 14  
 Casing Elev. (ft.): \_\_\_\_\_  
 TD (Actual) (ft.): 28

### FIELD MEASUREMENTS

TIME	VOLUME (gal)	pH (units)	TEMP. (degrees F)	EC (micro/cm)	COLOR	DTW (ft)
<u>10:01</u>	<u>3.5</u>	<u>7.32</u>	<u>62.7</u>	<u>9.50 x 10<sup>2</sup></u>	<u>Yellow-brown</u> ↓	
<u>10:08</u>	<u>7</u>	<u>7.37</u>	<u>62.5</u>	<u>9.03 x 10<sup>2</sup></u>		
<u>10:15</u>	<u>10.5</u>	<u>7.32</u>	<u>60.7</u>	<u>9.09 x 10<sup>2</sup></u>		
<u>10:22</u>	<u>14</u>	<u>7.33</u>	<u>61.6</u>	<u>9.62 x 10<sup>2</sup></u>		

Odor? none

Actual Purge Vol. (gal.): 14

PURGE METHOD:      SAMPLE METHOD:

Bailor (Teflon)       Bailor (Teflon)  
 Bailor (PVC)       Bailor (PVC)  
 Well Wizard       Dedicated Bailor  
 Dedicated Bailor       Other  
 Other

REMARKS: Sample MW02032896 collected at 10:45 on 3-28-96

WEATHER: Sunny, clear, stiff breeze, ~75°F

PROJECT NO.: 12104

SAMPLE ID.: MW03032896

LOCATION: 916 San Pablo Ave.

DATE: 3-28-96

STATION NO.: \_\_\_\_\_

WELL/SAMPLE \_\_\_\_\_

SAMPLER: SBW

POINT DESIGNATION: MW-3

SAMPLING

DEVELOPING

BAILING FLOATING PRODUCT

Casing Diameter:

- 2 inch
- 3 inch \_\_\_\_\_
- 4 inch \_\_\_\_\_
- 6 inch \_\_\_\_\_
- other \_\_\_\_\_

Screened Int. (ft.): \_\_\_\_\_

Initial DTW (ft.): 8.11

Initial TD (ft.): 25.80

Calc. Casing Vol. (gal.): 3.72

(2' = .17) (3' = .36) (4' = .54) (6' = 1.0)

Calc. Purge Vol. (gal.): 12.08

Final DTW (ft.): 8.25 @ 13.40

Final TD (ft.): 25.87

Casing Elev. (ft.): \_\_\_\_\_

Water Column Height (ft.): 17.75

TD (Actual) (ft.): 27

80 % Recovery (ft.): 11.66

Product Bailed (gal.): 12.5

FIELD MEASUREMENTS

TIME	VOLUME (gal)	pH (units)	TEMP. (degrees F)	E.C. (umhos/cm)	COLOR	DTW (ft. dry)
<u>13:15</u>	<u>3</u>	<u>7.72</u>	<u>61.2</u>	<u><math>3.62 \times 10^2</math></u>	<u>Brown</u>	_____
<u>13:23</u>	<u>8</u>	<u>7.61</u>	<u>59.1</u>	<u><math>4.05 \times 10^2</math></u>		_____
<u>13:29</u>	<u>9</u>	<u>7.51</u>	<u>60.8</u>	<u><math>4.41 \times 10^2</math></u>		_____
<u>13:35</u>	<u>12.9</u>	<u>7.45</u>	<u>62.1</u>	<u><math>4.97 \times 10^2</math></u>		_____
_____	_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____	_____

Odor? None

Actual Purge Vol. (gal.): 12.5

PURGE METHOD:

- \_\_\_\_\_ Bailer (Teflon)
- Bailer (PVC)
- \_\_\_\_\_ Well Wizard
- \_\_\_\_\_ Dedicated Bailer
- \_\_\_\_\_ Other \_\_\_\_\_

SAMPLE METHOD:

- \_\_\_\_\_ Bailer (Teflon)
- \_\_\_\_\_ Bailer (PVC)
- \_\_\_\_\_ Dedicated Bailer
- Other Disp. Plastic Bailer

REMARKS: Sample MW03032896 @ 13:55 on 3-28-96  
Disposable bailer & filter used for metals analysis.

WEATHER: Sunny, clear, stiff breeze, ~ 75°F

**APPENDIX C**

**Chain-of-Custody Records  
and  
Certified Analytical Data**

Daryl Lamb  
Philip Environmental  
5901 Christie Street, Ste. 501  
Emeryville, CA 94608

Subject : 6 water samples  
Project Name : Joe Sio Chevrolet  
Project Number : 12104

Location : Albany

Dear Mr. Lamb,

Chemical analysis on the samples referenced above has been completed. Summaries of the data are contained on the following pages. Sample(s) were received under documented chain-of-custody. USEPA protocols for sample storage and preservation were followed.

WEST Laboratory is certified by the State of California (# 1346). If you have any questions regarding procedures or results, please call me at 916-753-9500.

Sincerely,

  
Joel L. Kiff

Sample: MW01032896

From : Joe Sio Chevrolet (Proj. # 12104)

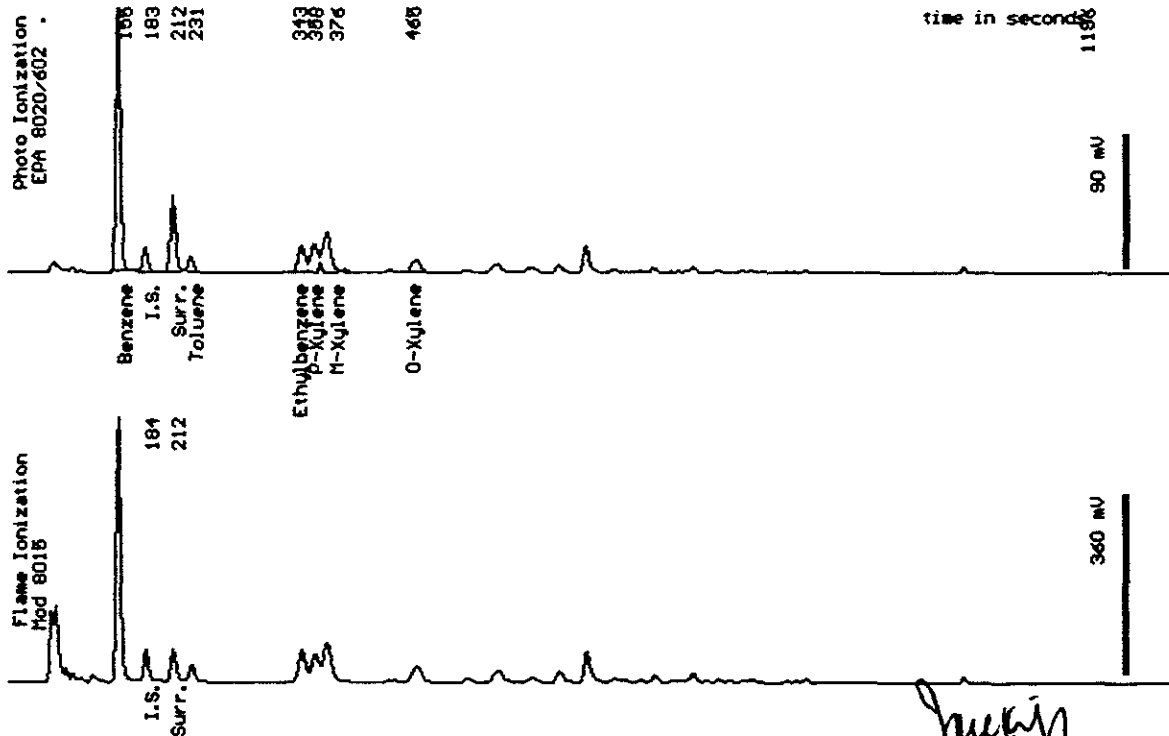
Sampled : 03/28/96

Dilution : 1:1

QC Batch : 4145P

Matrix : Water

Parameter	(MRL) ug/L	Measured Value ug/L
Benzene	(.50)	180
Toluene	(.50)	12
Ethylbenzene	(.50)	35
Total Xylenes	(.50)	94
TPH as Gasoline	(50)	620
Surrogate Recovery		101 % ✓



Date Analyzed: 04-08-96  
 Column : 0.53mm ID X 30m DBWAX (J&H Scientific)

*Joe Kiff*  
 Joe Kiff  
 Senior Chemist

Sample Log 14363

14363-04

Sample: MW02032896

From : Joe Sio Chevrolet (Proj. # 12104)

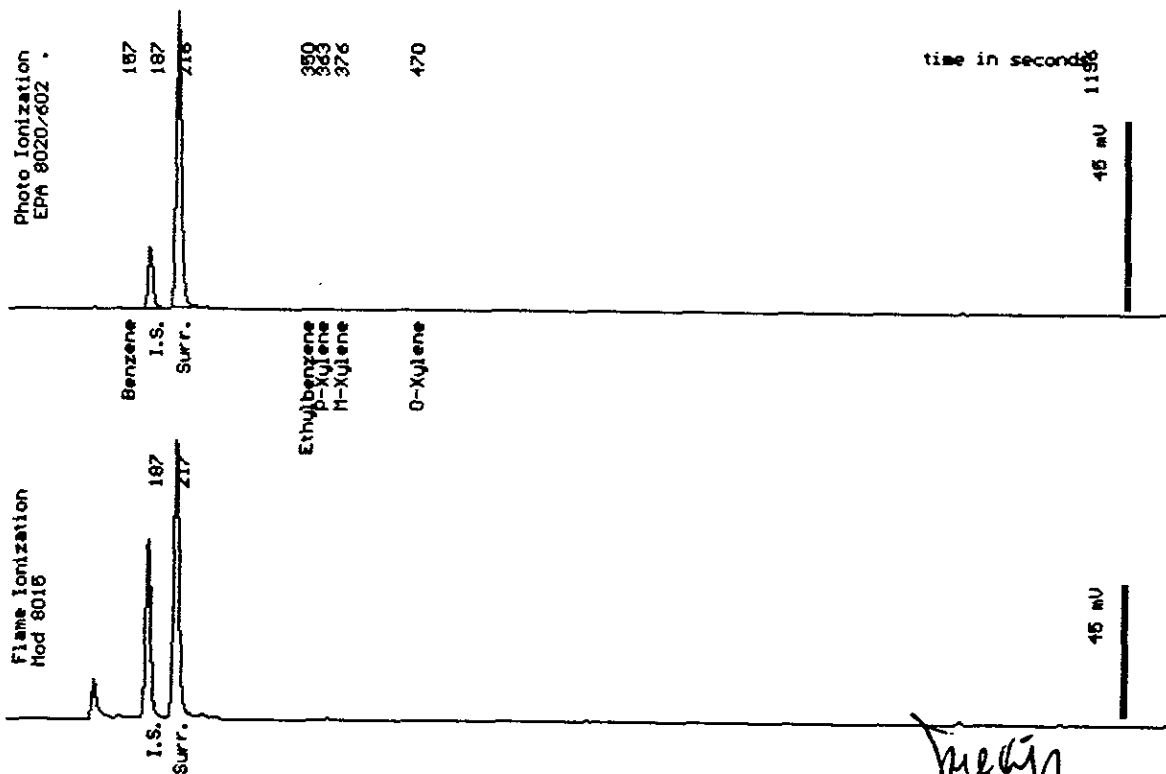
Sampled : 03/28/96

Dilution : 1:1

QC Batch : 4145P

Matrix : Water

Parameter	(MRL) $\mu\text{g/L}$	Measured Value $\mu\text{g/L}$
Benzene	(.50)	<.50
Toluene	(.50)	<.50
Ethylbenzene	(.50)	<.50
Total Xylenes	(.50)	<.50
TPH as Gasoline	(50)	<50
Surrogate Recovery		159 % <i>↙</i>



Date Analyzed: 04-08-96  
 Column : 0.53mm ID X 30m DB4AX (J&W Scientific)

*Joe Kiff*  
 Joe Kiff  
 Senior Chemist

April 2, 1996  
Sample Log 14363


From : Joe Sio Chevrolet (Project # 12104)  
Date Sampled : 03/28/96  
Matrix : Water

Date Received : 03/28/96  
Units : (mg/L)

**Total Lead by GFAA by SW-846 Method 7421**

<b>WEST ID</b>	<b>Sample ID</b>	<b>Result</b>	<b>MRL</b>	<b>Date Digested</b>	<b>Date Analyzed</b>
14363-03	MW01032896	0.012	0.003	04/01/96	04/02/96
14363-04	MW02032896	0.013	0.003	04/01/96	04/02/96

MRL = Method Reporting Limit

  
Michelle L. Anderson  
Inorganics Supervisor

## Volatile Halocarbons

Sample Name : **MW02032896**

Project Name : Joe Sio Chevrolet

Project Number : 12104

Sample Date : 03/28/96

Date Analyzed : 04/05/96

Analysis Method : EPA 601

Date Received : 03/28/96

Dilution : 1:3

Sample Matrix : Water

Lab Number : 14363-04

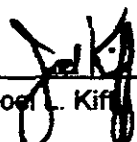
Parameter	MRL	Measured Conc.	Units
Chloromethane	1.2	<1.2	ug/L
Vinyl Chloride	1.2	<1.2	ug/L
Bromomethane	1.2	<1.2	ug/L
Chloroethane	1.2	<1.2	ug/L
Trichlorofluoromethane	1.2	<1.2	ug/L
1,1-Dichloroethene	1.2	<1.2	ug/L
Dichloromethane	1.2	<1.2	ug/L
t-1,2-Dichloroethene	1.2	<1.2	ug/L
1,1-Dichloroethane	1.2	<1.2	ug/L
c-1,2-Dichloroethene	1.2	<1.2	ug/L
Chloroform	1.2	<1.2	ug/L
1,1,1-Trichloroethane	1.2	<1.2	ug/L
Carbon Tetrachloride	1.2	<1.2	ug/L
1,2-Dichloroethane	1.2	<1.2	ug/L
Trichloroethene	1.2	<1.2	ug/L
1,2-Dichloropropane	1.2	<1.2	ug/L
Bromodichloromethane	1.2	<1.2	ug/L
c-1,3-Dichloropropene	1.2	<1.2	ug/L
t-1,3-Dichloropropene	1.2	<1.2	ug/L
1,1,2-trichloroethane	1.2	<1.2	ug/L
<b>Tetrachloroethene</b>	<b>1.2</b>	<b>58</b>	ug/L
Dibromochloromethane	1.2	<1.2	ug/L
Chlorobenzene	1.2	<1.2	ug/L
Bromoform	1.2	<1.2	ug/L
1,1,2,2-Tetrachloroethane	1.2	<1.2	ug/L
1,3-Dichlorobenzene	1.2	<1.2	ug/L
1,4-Dichlorobenzene	1.2	<1.2	ug/L
1,2-Dichlorobenzene	1.2	<1.2	ug/L
2-Chlorotoluene (Sum.)		91.0	% Recovery

MRL = Method Reporting Limit Conc. = Concentration

B = Analyte was detected in Method Blank.

E = Concentration exceeded calibration range. See higher dilution for correct value.

Approved By :

  
Joe L. Kiff



Sample: MW03032896

From : Joe Sio Chevrolet (Proj. # 12104)

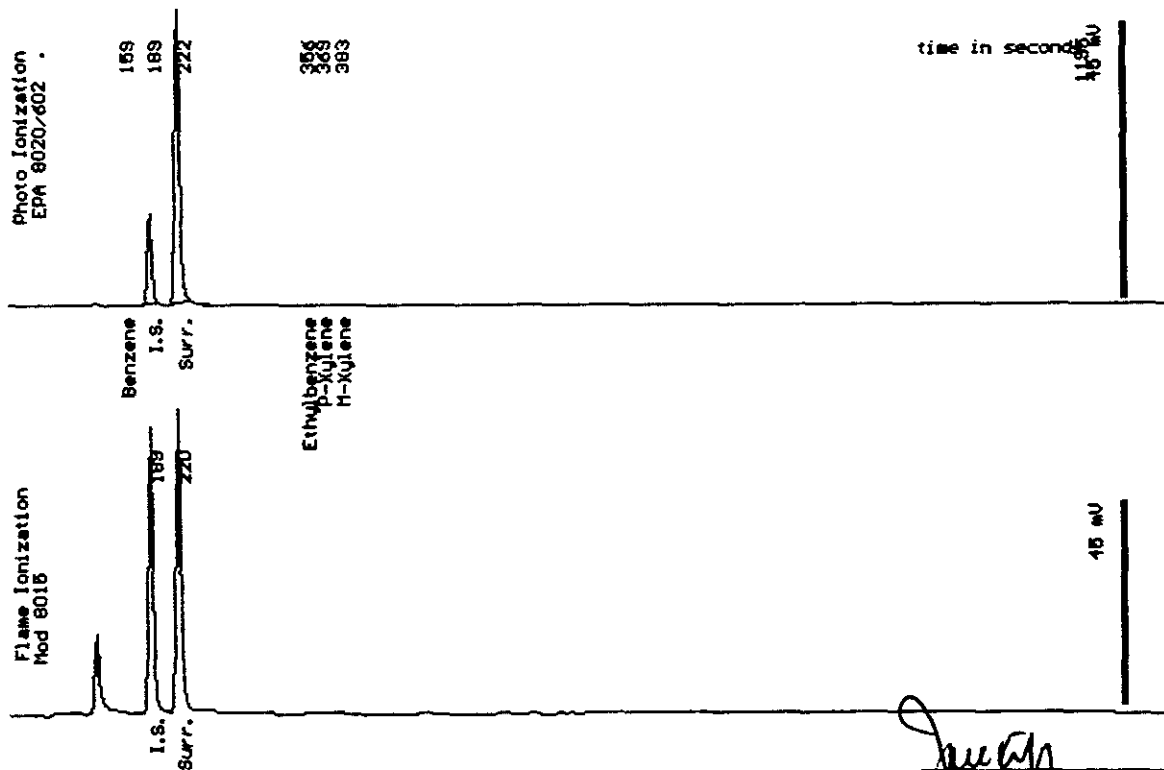
Sampled : 03/28/96

Dilution : 1:1

QC Batch : 4145P

Matrix : Water

Parameter	(MRL) ug/L	Measured Value ug/L
Benzene	(.50)	<.50
Toluene	(.50)	<.50
Ethylbenzene	(.50)	<.50
Total Xylenes	(.50)	<.50
TPH as Gasoline	(50)	<50
Surrogate Recovery		113 %



Date Analyzed: 04-08-96  
Column : 0.53mm ID X 30m DBMEX (J&W Scientific)

*Joel Kiff*  
Joel Kiff  
Senior Chemist

April 8, 1996  
Sample Log 14363-05


Sample : MW03032896  
From : Joe Sio Chevrolet (Project # 12104)  
Matrix : Water

Date Sampled : 03/28/96  
Date Received : 03/28/96  
Units : (mg/L)

Dissolved Metals Analyses by ICP and GFAA by SW-846  
5 LUFT : "Waste Oil" Metals

Analyte	Result	MRL	EPA Method	Date Digested	Date Analyzed
Cadmium (Cd)	<0.004	0.004	6010	04/03/96	04/08/96
Chromium (Cr)	<0.007	0.007	6010	04/03/96	04/08/96
Lead (Pb)	<0.003	0.003	7421	04/01/96	04/02/96
Nickel (Ni)	<0.015	0.015	6010	04/03/96	04/08/96
Zinc (Zn)	0.056	0.010	6010	04/03/96	04/08/96

MRL = Method Reporting Limit

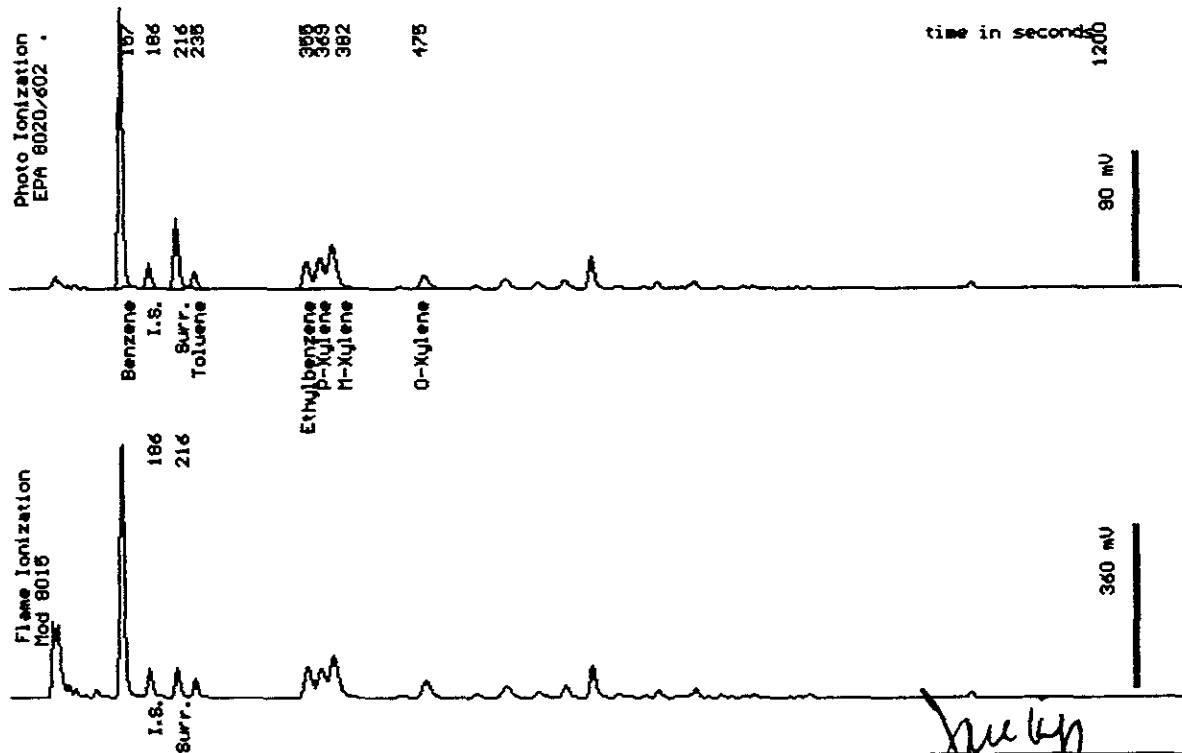
  
Michelle L. Anderson  
Inorganics Supervisor

Sample: **DW01032896**

From : Joe Sio Chevrolet (Proj. # 12104)  
Sampled : 03/28/96  
Dilution : 1:1  
Matrix : Water

QC Batch : 4145P

Parameter	(MRL) ug/L	Measured Value ug/L
Benzene	(.50)	200
Toluene	(.50)	14
Ethylbenzene	(.50)	39
Total Xylenes	(.50)	120
TPH as Gasoline	(50)	720
Surrogate Recovery		99 %



Date Analyzed: 04-09-96  
Column : 0.53mm ID X 30m DBMAX (J&W Scientific)

Joe Kiff  
Senior Chemist

# WEST LABORATORY

Sample Log 14363

14363-01

*Which sample is this?*

Sample: **RS01032896**

From : Joe Sio Chevrolet (Proj. # 12104)

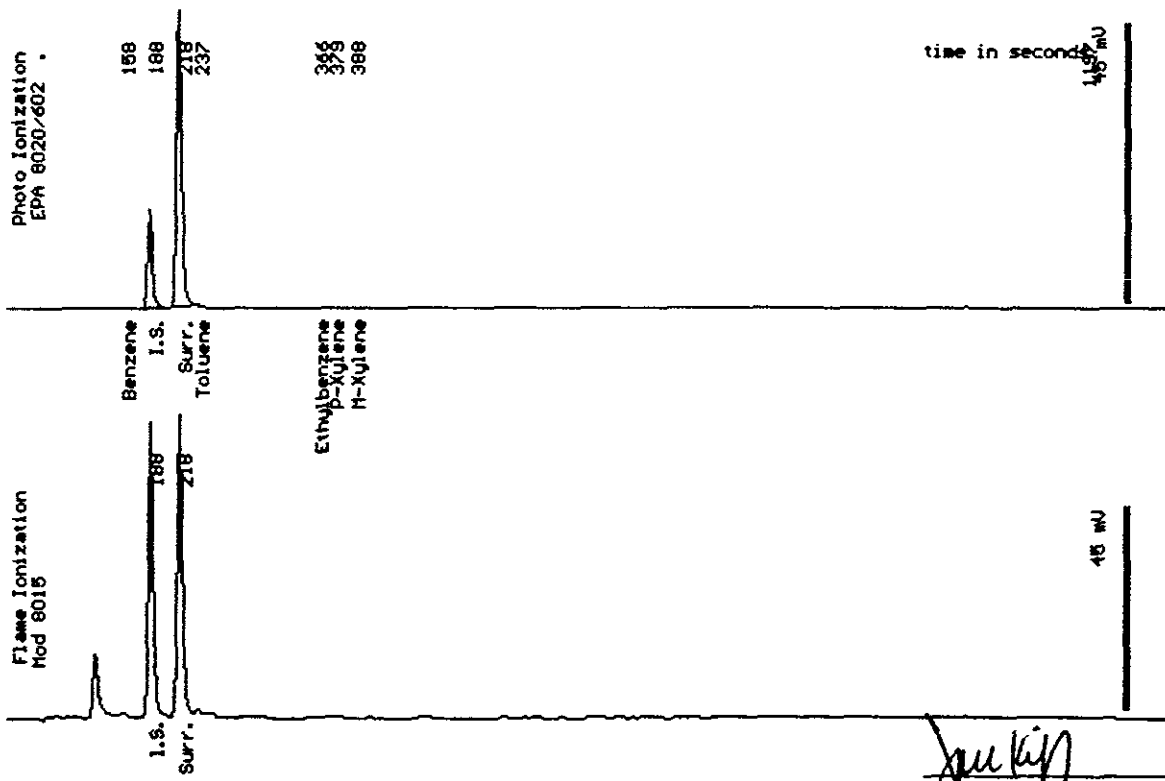
Sampled : 03/28/96

Dilution : 1:1

QC Batch : 4145P

Matrix : Water

Parameter	(MRL) ug/L	Measured Value ug/L
Benzene	(.50)	<.50
Toluene	(.50)	<.50
Ethylbenzene	(.50)	<.50
Total Xylenes	(.50)	<.50
TPH as Gasoline	(50)	<50
Surrogate Recovery		111 %



Date Analyzed: 04-08-96  
 Column : 0.53mm ID X 30m DBWAX (J&W Scientific)

*Joe Kiff*  
 Joe Kiff  
 Senior Chemist

Sample: TB01032896

From : Joe Sio Chevrolet (Proj. # 12104)

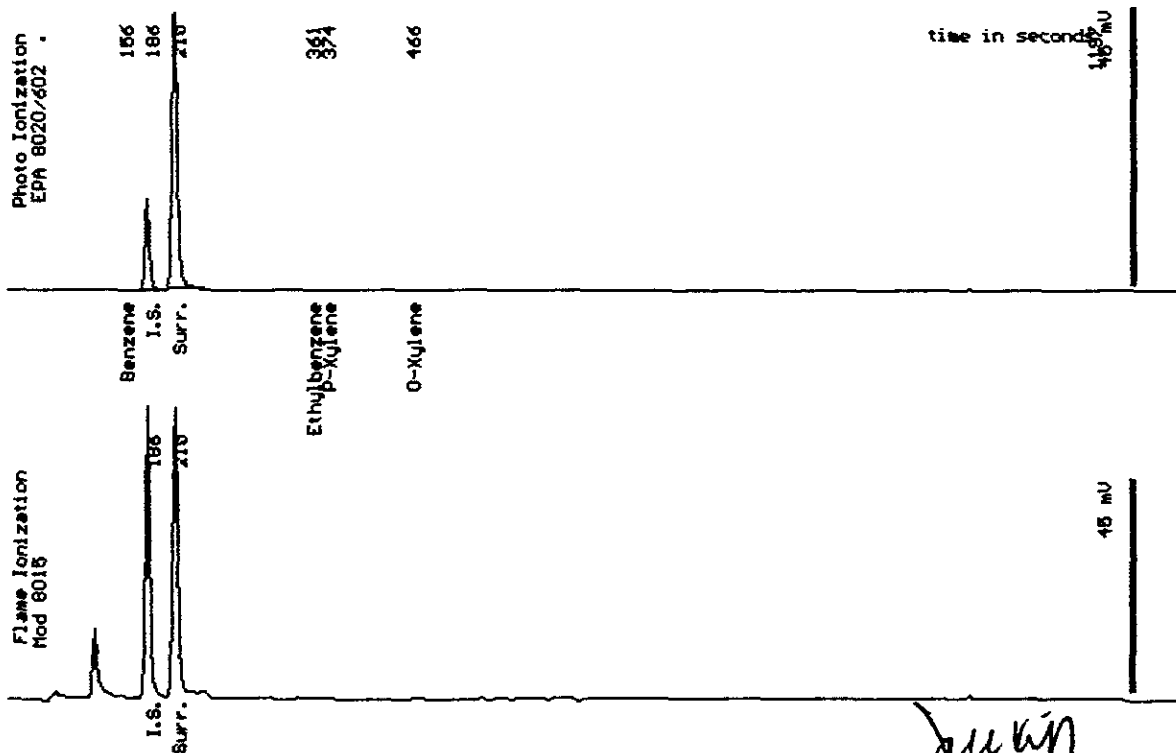
Sampled : 03/28/96

Dilution : 1:1

QC Batch : 4145P

Matrix : Water

Parameter	(MRL) $\mu\text{g/L}$	Measured Value $\mu\text{g/L}$
Benzene	(.50)	<.50
Toluene	(.50)	<.50
Ethylbenzene	(.50)	<.50
Total Xylenes	(.50)	<.50
TPH as Gasoline	(50)	<50
Surrogate Recovery		114 %



Date Analyzed: 04-08-96  
 Column : 0.53mm ID X 30m DBMEX (J&W Scientific)

*Joel Kiff*  
 Joel Kiff  
 Senior Chemist

# WEST LABORATORY

April 9, 1996  
Sample Log 14363

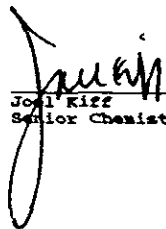
QC Report for EPA 602 & Modified EPA 8015  
Run Log : 4145P  
From : Joe Sio Chevrolet (Proj. # 12104)  
Sample(s) Received : 03/28/96

Parameter	Matrix Spike % Recovery	Matrix Spike Duplicate % Recovery	RPD *
Benzene	91	89	3
Ethylbenzene	114	112	1
TPH as Gasoline	106	104	2

\* RPD = Relative Percent Difference

Parameter	Laboratory Control Sample % Recovery
Benzene	92
Ethylbenzene	115
Gasoline	106

Parameter	Method Blank
Benzene	<0.30 ug/L
Toluene	<0.30 ug/L
Ethylbenzene	<0.30 ug/L
Total Xylenes	<0.50 ug/L
TPH as Gasoline	<50 ug/L

  
Joel Kiff  
Senior Chemist

April 2, 1996

## Metals QC Report for Sample Log 14363

From : Joe Sio Chevrolet (Project # 12104)  
Matrix : Water  
Sample Spiked for MS/MSD : 14345-01

Units : (mg/L)

### Method Blank

Analyte	Result	MRL	EPA Method	Date Digested	Date Analyzed
Lead (Pb)	<0.003	0.003	7421	04/01/96	04/02/96

MRL = Method Reporting Limit

### Laboratory Control Sample (LCS)

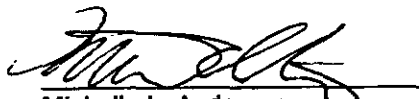
Analyte	% Recovery	EPA Method	Date Digested	Date Analyzed
Lead (Pb)	108	7421	04/01/96	04/02/96

LCS Limits are 85 - 115%.

### Matrix Spikes

Analyte	MS % Recov	MSD % Recov	RPD	EPA Method	Date Digested	Date Analyzed
Lead (Pb)	102	101	1	7421	04/01/96	04/02/96

MS = Matrix Spike      MSD = Matrix Spike Duplicate      RPD = Relative Percent Difference  
Spike Recovery Limits for Matrix Spikes are 75 - 125%. The RPD Limits are  $\pm 20\%$ .

  
Michelle L. Anderson  
Inorganics Supervisor

## Volatile Halocarbons

Sample Name : Method Blank

Project Name : Joe Sio Chevrolet

Project Number : 12104

Sample Date : / /

Date Analyzed : 04/04/96

Analysis Method : EPA 601

Date Prepared : 04/04/96

Preparation Method : EPA 5030

Dilution : 1:1

Sample Matrix : Water

Parameter	MRL	Measured Conc.	Units
Chloromethane	0.50	< 0.50	ug/L
Vinyl Chloride	0.50	< 0.50	ug/L
Bromomethane	0.50	< 0.50	ug/L
Chloroethane	0.50	< 0.50	ug/L
Trichlorofluoromethane	0.50	< 0.50	ug/L
1,1-Dichloroethene	0.50	< 0.50	ug/L
Dichloromethane	0.50	< 0.50	ug/L
t-1,2-Dichloroethene	0.50	< 0.50	ug/L
1,1-Dichloroethane	0.50	< 0.50	ug/L
c-1,2-Dichloroethene	0.50	< 0.50	ug/L
Chloroform	0.50	< 0.50	ug/L
1,1,1-Trichloroethane	0.50	< 0.50	ug/L
Carbon Tetrachloride	0.50	< 0.50	ug/L
1,2-Dichloroethane	0.50	< 0.50	ug/L
Trichloroethene	0.50	< 0.50	ug/L
1,2-Dichloropropane	0.50	< 0.50	ug/L
Bromodichloromethane	0.50	< 0.50	ug/L
c-1,3-Dichloropropene	0.50	< 0.50	ug/L
t-1,3-Dichloropropene	0.50	< 0.50	ug/L
1,1,2-trichloroethane	0.50	< 0.50	ug/L
Tetrachloroethene	0.50	< 0.50	ug/L
Dibromochloromethane	0.50	< 0.50	ug/L
Chlorobenzene	0.50	< 0.50	ug/L
Bromoform	0.50	< 0.50	ug/L
1,1,2,2-Tetrachloroethane	0.50	< 0.50	ug/L
1,3-Dichlorobenzene	0.50	< 0.50	ug/L
1,4-Dichlorobenzene	0.50	< 0.50	ug/L
1,2-Dichlorobenzene	0.50	< 0.50	ug/L
2-Chlorotoluene (Surr.)		103	% Recovery

MRL = Method Reporting Limit

Conc. = Concentration

Approved By :

  
Joe L. Kiff



## Volatile Halocarbons

### Method Spike/Method Spike Duplicate Analyses

Project Name : Joe Sio Chevrolet  
Project Number : 12104  
Date Analyzed : 04/04/96  
Analysis Method : EPA 601  
Sample Matrix : Water

Date Prepared : 04/04/96  
Preparation Method : EPA 5030  
Spiked Sample Name : Blank  
Concentration Units : ug/L

Parameter	Sample Conc.	Spike Added	Spiked Sample Conc.	Spiked Sample % Rec.	Duplicate Spiked Sample Conc.	Duplicate Spiked Sample % Rec.	RPD	Rec. Control Limit	RPD Limit
1,1-Dichloroethene	<0.50	20	20.8	104	22.5	112	7.8	75-135	20
Trichloroethene	<0.50	20	19.5	97.5	19.2	96.0	1.6	75-135	20
Chlorobenzene	<0.50	20	17.0	85.0	17.7	88.5	4.0	75-135	20

Conc. = Concentration

Rec. = Recovery

Approved By :

  
Joe L. Kiff

April 8, 1996

## Metals QC Report for Sample Log 14363

From : Joe Sio Chevrolet (Project # 12104)  
Matrix : Water

Units : (mg/L)

### Method Blank


Analyte	Result	MRL	EPA Method	Date Digested	Date Analyzed
Cadmium (Cd)	<0.004	0.004	6010	04/03/96	04/08/96
Chromium (Cr)	<0.007	0.007	6010	04/03/96	04/08/96
Lead (Pb)	<0.003	0.003	7421	04/01/96	04/02/96
Nickel (Ni)	<0.015	0.015	6010	04/03/96	04/08/96
Zinc (Zn)	<0.010	0.010	6010	04/03/96	04/08/96

MRL = Method Reporting Limit

### Laboratory Control Sample (LCS)

Analyte	% Recovery	EPA Method	Date Digested	Date Analyzed
Cadmium (Cd)	111	6010	04/03/96	04/08/96
Chromium (Cr)	100	6010	04/03/96	04/08/96
Lead (Pb)	108	7421	04/01/96	04/02/96
Nickel (Ni)	100	6010	04/03/96	04/08/96
Zinc (Zn)	107	6010	04/03/96	04/08/96

LCS Limits are 85 - 115%.

  
Michelle L. Anderson  
Inorganics Supervisor

April 8, 1996


## Metals QC Report for Sample Log 14363 (cont'd)

From : Joe Sio Chevrolet (Project # 12104)  
Sample Spiked for MS/MSD : 14363-05 (GFAA), 14413-01 (ICP)

### Matrix Spikes

Analyte	MS % Recov	MSD % Recov	RPD	EPA Method	Date Digested	Date Analyzed
Cadmium (Cd)	100	100	0	6010	04/03/96	04/08/96
Chromium (Cr)	97	99	2	6010	04/03/96	04/08/96
Lead (Pb)	108	97	11	7421	04/01/96	04/02/96
Nickel (Ni)	96	97	1	6010	04/03/96	04/08/96
Zinc (Zn)	103	104	1	6010	04/03/96	04/08/96

MS = Matrix Spike      MSD = Matrix Spike Duplicate      RPD = Relative Percent Difference  
Spike Recovery Limits for Matrix Spikes are 75 - 125%. RPD Limits are  $\pm 20\%$ .

  
Michelle L. Anderson  
Inorganics Supervisor



1046 Olive Drive, Suite 3 916-753-9500  
 Davis, CA 95616 FAX #: 916-753-6091  
 LAB#: 916-757-4650

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

Project Manager: Dory Lamb Phone #: 510-420-7910  
 Company/Address: Philip Environmental FAX #: 510-658-7990  
5901 Christie Ave, Suite 501, Remondville, CA 94608  
 Project Number: 12104 P.O.#: Project Name: Joe's Chevrolet  
 Project Location: 914 San Pablo Ave, Albany, CA Sampler Signature: [Signature]

**ANALYSIS REQUEST** TAT

Sample ID	Sampling		Container		Method Preserved				Matrix		BTEX (602/8020)	BTEX/TPH as Gasoline (602/8020/8015)	TPH as Diesel/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	Total Pb	RUSH SERVICE (12 hr) or (24 hr)	EXPEDITED SERVICE (48 hr) or (1 wk)	STANDARD SERVICE (2wk)
	DATE	TIME	VOA	SLEEVE	1L GLASS	1L PLASTIC	HCl	HNO3	ICE	NONE																							
RS01032896	3/28	08:30	X				X	X		X		X																				X	
TS01032896		07:00	X				X	X		X		X																				X	
MW01032896		12:20	X		X		X	X		X		X																				X	
MW02032896		10:45	X		X		X	X		X		X				X																X	
MW03032896		13:55	X		X		X	X		X		X															X					X	
MW01032896		12:20	X				X	X		X		X																				X	

Relinquished by: <u>[Signature]</u>	Date Time: <u>3/28/96 15:52</u>	Received by: <u>Sid Padernu</u>	Date Time: <u>3/28/96 1552</u>	Remarks: <u>MW03032896 was field filtered for 5 metals sample.</u>
Relinquished by: <u>Sid Padernu</u>	Date Time: <u>3/28/96 1712</u>	Received by: _____	Date Time: _____	
Relinquished by: _____	Date Time: <u>3/28/96 1712</u>	Received by Laboratory: <u>[Signature]</u>	Date Time: _____	
				Bill To: _____



Environmental Services Group  
Pacific Region

**LETTER OF TRANSMITTAL**

ENVIRONMENTAL  
PROTECTION  
96 MAY -6 PM 2:02

**To:** Alameda County Health Care Services  
1131 Harbor Bay Parkway  
Alameda, CA 94502

**Date:** May 3, 1996

**Project:** Joe Sio Chevrolet  
Albany, California

**ATTN:** Ms. Juliet Shin

- 1) For Review and Comment ( X )
- 2) For Approval ( X )
- 3) As Requested ( )
- 4) For Your Use ( )

- Via:**
- Facsimile ( )
  - U.S. Mail ( X )
  - Overnight Delivery ( )
  - Courier Delivery ( )

**We are enclosing ( X ) / Sending under separate cover ( ):**

No. of Copies	Description
1	Semi-Annual Groundwater Monitoring Report - March 1996

**Comments:**

Ms. Shin:

Philip Environmental Services Corporation (Philip) is pleased to present the enclosed document for your review and approval. Please do not hesitate to call me at (510) 420-7910 if you have any questions or comments.

**By:** Khaled Rahman  
*KOR*

cc: Florence Ann Connors

