



Environmental
Science &
Engineering, Inc.

TO: Alameda County Health Care Services Agency
Division of Hazardous Materials
Department of Environmental Health
80 Swan Way, Room 350
Oakland, CA 94621

DATE: April 6, 1993

ATTN: Mr. Larry Seto

JOB NUMBER: 6-92-5405


SUBJECT: 800 Buchanan Street, Albany, California

WE ARE TRANSMITTING THE FOLLOWING:

One original signed copy of the First Quarter 1993 Ground Water Monitoring Report for subject site.

DIST:
LB
FILE
ORIGINATOR

ENVIRONMENTAL SCIENCE & ENGINEERING, INC.

BY 
Bart S. Miller
Senior Staff Geologist

**GROUND WATER MONITORING REPORT
FIRST QUARTER 1993**

**UNITED STATES DEPARTMENT OF AGRICULTURE
WESTERN REGIONAL RESEARCH CENTER
ALBANY, CALIFORNIA**

Submitted to:

**United States Department of Agriculture
Agricultural Research Center
Pacific West Area
800 Buchanan Street
Albany, California 94710**


Prepared By:

**Environmental Science & Engineering, Inc.
4090 Nelson Avenue, Suite J
Concord, California 94520
(510) 685-4053**

**ESE Project No. 6-92-5405
March 8, 1993**

This report has been prepared by Environmental Science & Engineering, Inc. for the exclusive use of the United States Department of Agriculture as it pertains to their Western Regional Research Center located at 800 Buchanan Street in Albany, California. Our professional services have been performed using that degree of care and skill ordinarily exercised under similar circumstances by other geologists and engineers practicing in this field. No other warranty, express or implied, is made as to professional advice in this report.

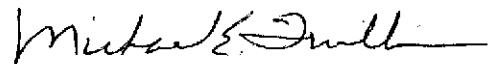
REPORT PREPARED BY:



Bart S. Miller
Senior Staff Geologist

APRIL 6, 1993
DATE

UNDER THE PROFESSIONAL REVIEW AND SUPERVISION OF:



Michael E. Quillin, R.G. No. 5315
Senior Hydrogeologist

APRIL 6, 1993
DATE



TABLE OF CONTENTS

	<u>Page</u>
1.0 INTRODUCTION	1
1.1 Scope of Work	1
2.0 BACKGROUND	2
2.1 Site Description	2
2.2 Site History	2
3.0 PROCEDURES	4
3.1 Ground Water Level Monitoring	4
3.2 Ground Water Sampling	4
4.0 RESULTS	6
4.1 Ground Water Flow	6
4.2 Ground Water Samples	6
5.0 CONCLUSIONS AND COMMENTS	7
6.0 REFERENCES	8

TABLES

Table 1 - Ground Water Elevation Data	6
---	---

FIGURES

- Figure 1 - Location Map
- Figure 2 - Site Map
- Figure 3 - Ground Water Elevations (February 22, 1993)

APPENDICES

- Appendix A - Ground Water Sampling Data Forms
- Appendix B - Laboratory Analytical Report: Ground Water Samples

1.0 INTRODUCTION

This report presents the findings of First Quarter 1993 ground water monitoring conducted by Environmental Science & Engineering, Inc. (ESE) at the United States Department of Agriculture (USDA) Western Regional Research Center (site) located at 800 Buchanan Street in Albany, California (Figure 1 - Location Map). Ground water monitoring was conducted at the site in association with the environmental site closure process, as requested by the Alameda County Health Care Services Agency (ACHCSA), and is follow-up to the findings of an initial soil and ground water investigation conducted at the site by ESE (ESE, 1992). This monitoring event represents the second of four quarters of ground water monitoring associated with this investigation. The purpose of this ground water monitoring event was to confirm previous ESE findings that no detectable concentrations of volatile organic compounds (VOCs) occur in ground water at the site. The following report presents the procedures and methods used during this monitoring event, and the results and conclusions drawn from the monitoring.

1.1 Scope of Work

To complete the objectives for this ground water monitoring event, ESE performed the following tasks:

- Collected ground water level measurements from each monitoring well (MW-1 through MW-3; Figure 2 - Site Map),
- Collected ground water samples from each monitoring well,
- Analyzed all ground water samples for Halogenated VOCs,
- Evaluated all field and analytical data associated with the ground water monitoring event and prepared a report of findings.

2.0 BACKGROUND

2.1 Site Description

The 16-acre site is located on Buchanan Street, immediately east of Interstate 80, in Albany, California (Figure 1) and occupies a low relief area adjacent to San Francisco Bay. Original development of the site was initiated during 1939 and additional construction occurred during the mid-1960's. Site structures include the Main Laboratory which is comprised of an administration wing, a chemical laboratory wing, and an industrial laboratory wing; the West Annex and woodshop building; the word processing building; the service building; a complex of five greenhouses, two solvent extraction facilities (SEFs), numerous small sheds and enclosures, and a main parking lot. Site layout near the SEFs, which are the primary focus of this investigation, is detailed in Figure 2 - Site Map. SEF #1 is no longer active and the building is currently used for bulk materials storage. SEF #2 is still active.

2.2 Site History

Site investigation pertinent to the current work commenced during December 1990 when five underground storage tanks (USTs) were excavated and removed. Former UST locations are shown in Figure 2. The USTs are as follows: two 550-gallon solvent USTs immediately east of SEF #1 (USTs 1 and 2; Figure 2), one 1,000-gallon solvent UST immediately west of SEF #1 (UST 3; Figure 2), one 200-gallon solvent UST immediately west of SEF #2 (UST 4; Figure 2), and one 550-gallon gasoline UST near the west main entrance to the site from Buchanan Street (UST 5; Figure 2). A total of five soil samples (one sidewall sample from each excavation) and two ground water samples (one each from the 1,000-gallon and 200-gallon UST excavations) were collected and submitted for chemical analysis. Soil and ground water samples collected from the solvent UST excavations were analyzed for Halogenated Volatile Organic Compounds (HVOCs) using EPA Method 8010 and for Benzene, Toluene, Ethylbenzene, and Total Xylenes (BTEX) using EPA Method 8020. The soil sample collected from the gasoline UST excavation was analyzed for Total Petroleum Hydrocarbons as Gasoline (TPH-G) and for BTEX using EPA Method 8015/8020.

Analytical results for soil samples collected from the excavations for USTs 1 and 2 indicated detectable concentrations of chloroform at 1,200 and 1,400 micrograms per kilogram ($\mu\text{g}/\text{Kg}$) or parts per billion (ppb), respectively. The soil sample collected from the excavation for UST 3 reported no detectable concentrations of HVOCs or BTEX; however, the ground water sample collected from the excavation reported concentrations of Methylene Chloride and Chloroform at 11 and 12 micrograms per liter ($\mu\text{g}/\text{L}$), or ppb, respectively. The soil sample collected from the excavation for UST 4 reported detectable concentrations of Methylene Chloride and Chloroform at 12 and 6.6 $\mu\text{g}/\text{Kg}$, respectively, and the ground water sample collected from the excavation contained Methylene Chloride and Chloroform concentrations of 480 and 360 $\mu\text{g}/\text{L}$, respectively. The soil sample collected from the excavation for UST 5 reported no detectable concentrations of TPH-G or BTEX.

During September 1992, ESE sampled three soil borings to a depth of 20 feet below ground surface (bgs) adjacent to the excavations formerly occupied by the solvent USTs at the site (ESE, 1992). Two-inch diameter ground water monitoring wells were installed in the three soil borings and subsequently developed, purged, and sampled. All soil and ground water samples collected by ESE were found to contain no detectable concentrations of VOCs.

3.0 PROCEDURES

3.1 Ground Water Level Monitoring

On February 22, 1993, ESE measured the depth to ground water in monitoring wells MW-1 through MW-3 with respect to the surveyed top of casing for each well. The water level measurements were collected using an electric tape.

3.2 Ground Water Sampling

On February 22, 1993 ESE staff collected ground water samples from wells MW-1 through MW-3. A minimum of three well casing volumes of ground water were purged from each well prior to collection of the ground water samples. During the well purging process the pH, conductivity and temperature of the ground water was periodically monitored for stabilization to ensure the collection of samples representative of the aquifer surrounding each well. Ground water was purged from the wells using a variable flow-rate submersible pump. The submersible pump was cleaned following use in each well using an Alconox® soap and tap water cleaning solution followed by a tap water rinse. Ground water sampling data forms with recorded measurements of pH, conductivity and temperature of the purged water from each well are included as Appendix A - Ground Water Sampling Data Forms. All purged ground water and equipment rinse solutions were contained on site in Department of Transportation (DOT) approved 55-gallon drums pending analytical results and proper disposal, or recycling.

Ground water samples were obtained from wells MW-1 through MW-3 by using a new disposable polyethylene bailer in each well. Ground water was then decanted from the bailers into laboratory supplied 40-milliliter glass vials containing hydrochloric acid (a preservative). Three vials were collected for each well. The sample vials were then sealed with a Teflon lined cap, labeled, placed under ice in a cooler and transported under appropriate chain of custody to National Environmental Testing, Inc. (NET) of Santa Rosa, California, a State-certified analytical laboratory. A duplicate sample, collected from well

MW-2, was also transported to NET with the other samples. A laboratory supplied travel blank sample, consisting of deionized water in a 40-milliliter glass vial, was found to be broken upon arrival in the field and was therefore not analyzed during this quarter. The duplicate sample provides a Quality Assurance/Quality Control (QA/QC) check on ESE sample collection procedures and laboratory handling procedures.

All samples were analyzed for HVOCs using Environmental Protection Agency (EPA) Analytical Method 601.

4.0 RESULTS

4.1 Ground Water Flow

Ground water elevations in monitoring wells MW-1 through MW-3 on February 22, 1993 are presented in Table 1 - Ground Water Elevation Data. The average depth to ground water in wells MW-1 through MW-3 on February 22, 1993 was about 5.3-feet bgs. Figure 3 - Ground Water Elevation Map shows estimated ground water flow beneath the site to be toward the southwest at a gradient of about 0.017 foot per foot. These findings are generally consistent with regional ground water flow, which, direction is towards the southwest (toward San Francisco Bay).

Monitoring Well No.	Date	TOC Elevation (feet AMSL)	DTW (feet)	Ground Water Elevation (feet AMSL)
MW-1	09/21/92	7.42	6.03	1.39
MW-1	02/22/93	7.42	2.88	4.54
MW-2	09/21/92	7.57	6.63	0.94
MW-2	02/22/93	7.57	5.37	2.20
MW-3	09/21/92	13.22	11.01	2.21
MW-3	02/22/93	13.22	7.69	5.53

- NOTES:
- TOC refers to top of casing
 - DTW refers to depth to water
 - AMSL refers to above mean sea level

4.2 Ground Water Samples

Laboratory analytical reports with chain of custody documentation are presented as Appendix B - Laboratory Analytical Report: Ground Water Samples. No HVOCs were detected in the ground water samples collected from monitoring wells MW-1, MW-2, and MW-3. The duplicate sample collected from well MW-2 did not contain detectable HVOCs.

5.0 CONCLUSIONS AND COMMENTS

- This ground water monitoring event is the second of four quarterly events requested by the ACHCSA for consideration to provide environmental closure of the site.
- Ground water was found at a depth of 2.88 to 7.69 feet bgs at the site. The direction of ground water flow beneath the site on February 22, 1993 was to the southwest. This reported ground water flow direction is consistent with the regional ground water flow direction.
- Ground water levels at the site have increased by a range of approximately 1.26 to 3.32 feet since the September 1992 sampling event. Recent large amounts of seasonal precipitation in the vicinity are apparently responsible for the ground water level increase.
- No HVOCs were detected in ground water samples collected by ESE on February 22, 1993. These findings are identical with ground water sampling results collected by ESE on September 21, 1992.

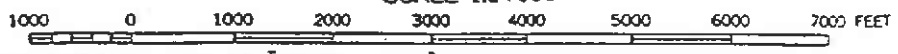
6.0 REFERENCES


Environmental Science and Engineering, Inc., (1992) Report on Soil and Ground Water Investigation, December 3 1992.

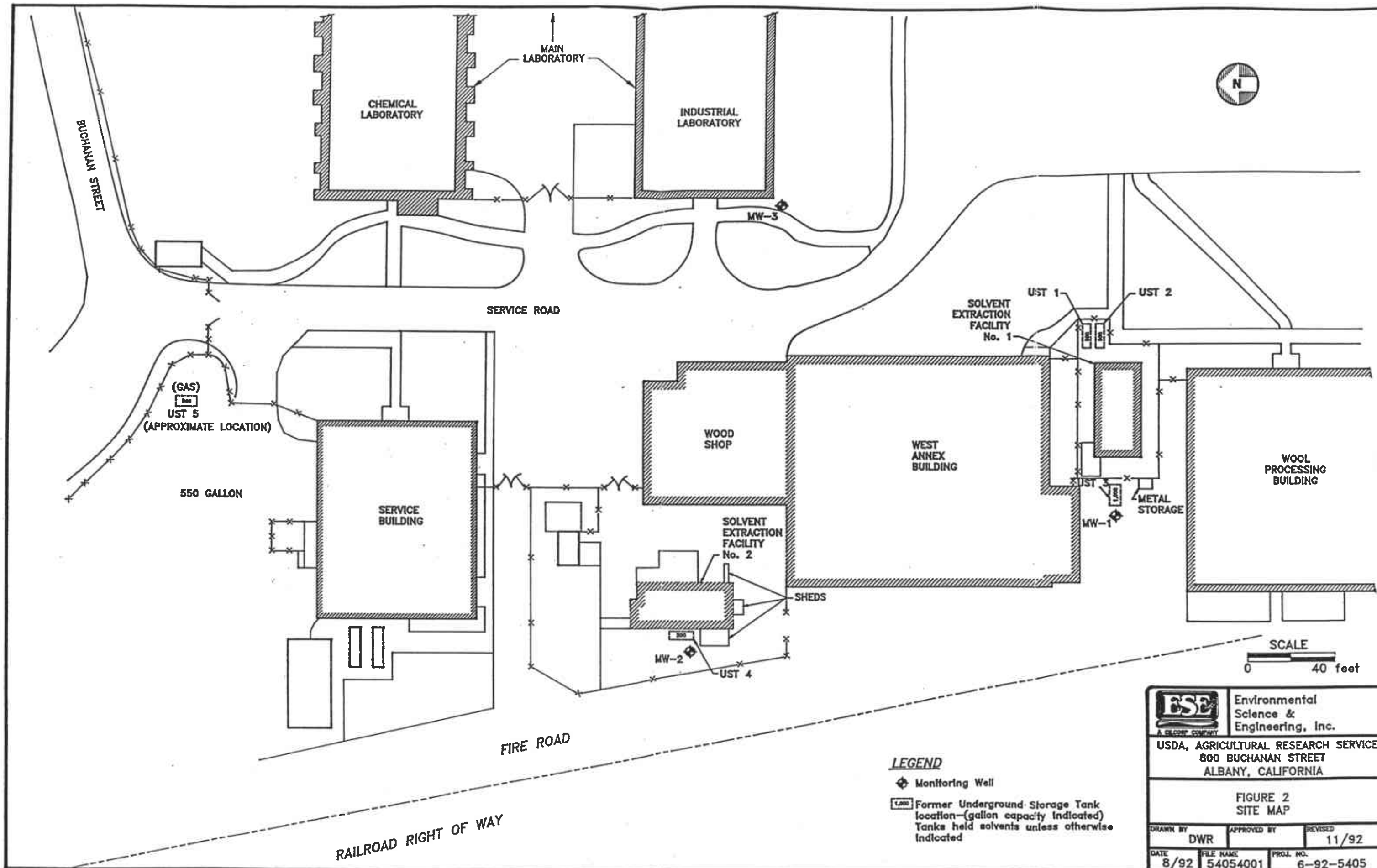


USDA Agricultural Research Service

SCALE 1:24000




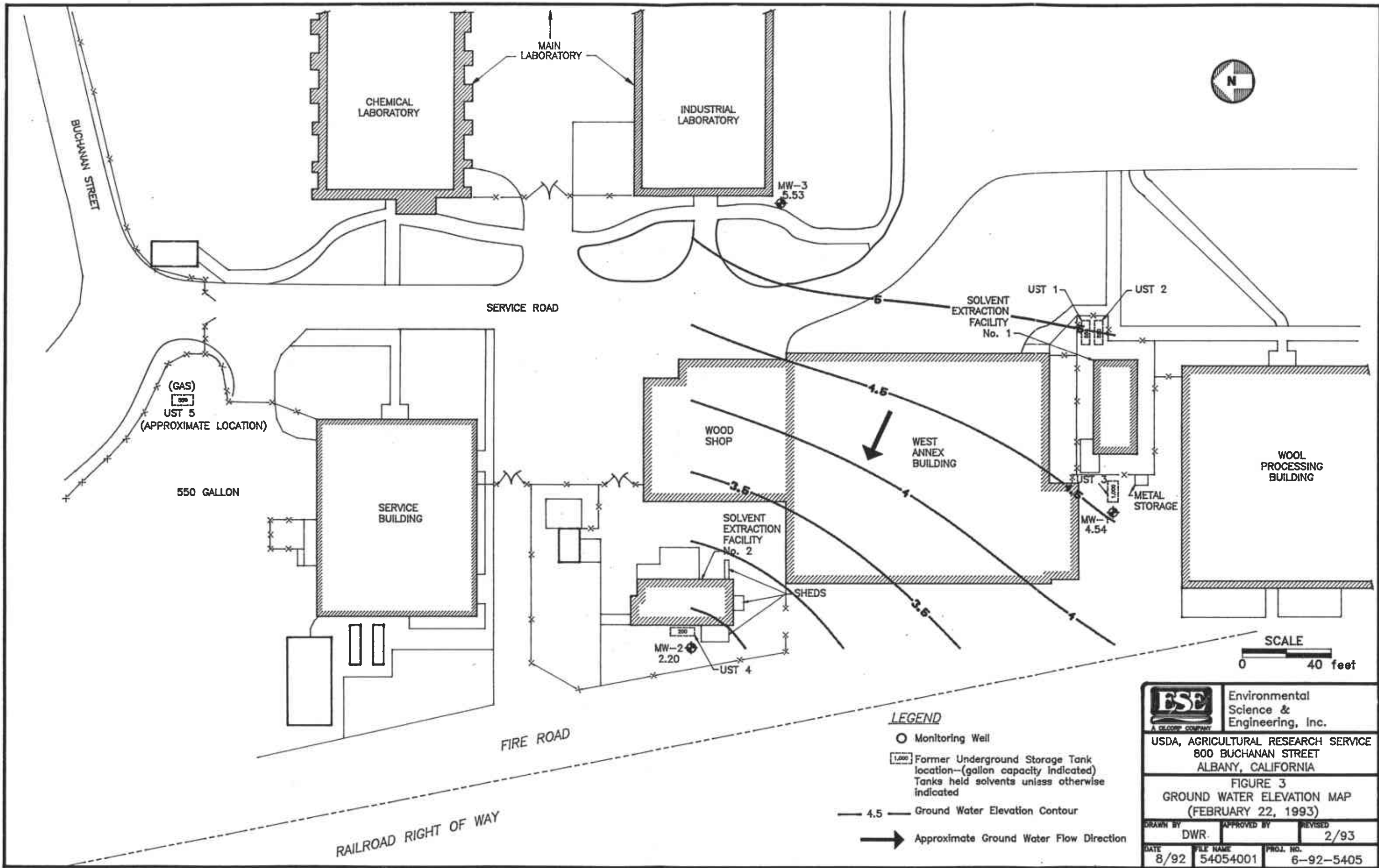
	Environmental Science & Engineering, Inc.	DATE	REVISED	USDA AGRICULTURAL RESEARCH SERVICE 800 BUCHANAN STREET ALBANY, CALIFORNIA
		8/92		
		DRAWN BY	APPROVED BY	
4090 Nelson Avenue, Ste. J Concord, California 94520		DWR		FIGURE 1 LOCATION MAP
FILE NAME	PROJ. NO.	54051001	6-92-5405	



LEGEND

- ◆ Monitoring Well
- ☐ Former Underground Storage Tank location—(gallon capacity indicated) Tanks held solvents unless otherwise indicated

 Environmental Science & Engineering, Inc. <small>A GROUP COMPANY</small>		
USDA, AGRICULTURAL RESEARCH SERVICE 800 BUCHANAN STREET ALBANY, CALIFORNIA		
FIGURE 2 SITE MAP		
DRAWN BY DWR	APPROVED BY	REVISED 11/92
DATE 8/92	FILE NAME 54054001	PROJ. NO. 6-92-5405



LEGEND

- Monitoring Well
- ☐ Former Underground Storage Tank location—(gallon capacity indicated)
Tanks held solvents unless otherwise indicated
- 4.5 — Ground Water Elevation Contour
- ➔ Approximate Ground Water Flow Direction

 Environmental Science & Engineering, Inc. <small>A CECOOP COMPANY</small>	
USDA, AGRICULTURAL RESEARCH SERVICE 800 BUCHANAN STREET ALBANY, CALIFORNIA	
FIGURE 3 GROUND WATER ELEVATION MAP (FEBRUARY 22, 1993)	
DRAWN BY DWR	APPROVED BY [Signature]
DATE 8/92	REVISION 2/93
FILE NAME 54054001	PROJ. NO. 6-92-5405

APPENDIX A
GROUND WATER SAMPLING DATA FORM

WELL SAMPLING FIELD LOG

PROJECT NAME: USDA - Albany, CA. DATE: 2/22/93
 PROJECT MANAGER: MICHAEL QUINN CLIENT: USDA
 SAMPLER: BART MILLER SAMPLE LOCATION I.D.: MW-1
 GROUNDWATER: _____ OTHER: _____ START TIME: 10:57

CASING ELEVATION (FT): 7.42 DATUM: _____ CASING DIAMETER: 2" ✓ 4" _____ OTHER _____
 DEPTH TO WATER (FT): 2.88 DEPTH OF WELL (FT): 20.0 DIFFERENCE (FT): 17.12
 WATER ELEVATION (FT): 4.54 CALCULATED WELL VOLUME (GAL): 2.8
 ACTUAL PURGE VOLUME (GAL): 22 MINIMUM PURGE VOLUME (3 x WV): 8.4

FIELD MEASUREMENTS

TIME	Volume (GAL)	pH (Units)	E.C.	Temp.	Clarity & Color	Other
10:57	< 0.5	8.27	202	59.0	Opaque brown	No odor
11:00	6	8.37	231	60.6	"	"
11:03	12	8.17	204	62.1	Translucent	"
11:05	16	8.15	205	62.0	"	"
11:08	22	8.16	203	62.3	"	"

PURGE METHOD

Pneumatic Displacement Pump Other
 Bailor (Teflon/PVC/SS) Submersible Pump

SAMPLE METHOD

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

WELL INTEGRITY: _____

REMARKS: Portion of edge to monitoring well box broken off

SIGNATURE: *B. Miller*

CHECKED BY: *M. Quinn*

SELECTED WELL CASING DIAMETERS VOLUMES PER UNIT LENGTH

WELL CASING I.D. (Inches)	GAL/FT	CUBIC FT/FT
2.0	0.1632	0.0218
4.0	0.6528	0.0873
6.0	1.4690	0.1963

CONVERSION FACTORS

TO CONVERT	INTO	MULTIPLY
Feet of Water	Lbs/Sq. Inch	0.4335
Lbs/Sq. Inch	Feet of Water	2.3070
Cubic Feet	Gallons	7.4800
Gallons	Liters	3.7850
Feet	Meters	0.3048
Inches	Centimeters	2.5400

WELL SAMPLING FIELD LOG

PROJECT NAME: USDA - Albany, CA DATE: 2/22/93
 PROJECT MANAGER: MICHAEL QUINN CLIENT: USDA
 SAMPLER: BART MILLER SAMPLE LOCATION I.D.: MW-2
 GROUNDWATER: _____ OTHER: _____ START TIME: 11:43

CASING ELEVATION (FT): 7.57 DATUM: _____ CASING DIAMETER: 2" 4" _____ OTHER _____
 DEPTH TO WATER (FT): 5.37 DEPTH OF WELL (FT): 20 DIFFERENCE (FT): 14.63
 WATER ELEVATION (FT): 2.20 CALCULATED WELL VOLUME (GAL): 2.4
 ACTUAL PURGE VOLUME (GAL): _____ MINIMUM PURGE VOLUME (3 x WV): 7.2

FIELD MEASUREMENTS

TIME	Volume (GAL)	pH (Units)	E.C.	Temp.	Clarity & Color	Other
<u>11:44</u>	<u>2</u>	<u>8.15</u>	<u>1335</u>	<u>68.9</u>	<u>Opaque brown</u>	<u>no odor</u>
<u>11:46</u>	<u>6</u>	<u>8.10</u>	<u>1375</u>	<u>72.7</u>	<u>"</u>	<u>"</u>
<u>11:48</u>	<u>10</u>	<u>8.39</u>	<u>1280</u>	<u>72.2</u>	<u>Translucent</u>	<u>"</u>
<u>11:50</u>	<u>14</u>	<u>8.25</u>	<u>1234</u>	<u>69.0</u>	<u>"</u>	<u>"</u>
<u>12:01</u>	<u>20</u>	<u>8.43</u>	<u>1280</u>	<u>72.6</u>	<u>"</u>	<u>"</u>

PURGE METHOD

Pneumatic Displacement Pump Other
 Baller (Teflon/PVC/SS) Submersible Pump

SAMPLE METHOD

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

WELL INTEGRITY: _____

REMARKS: _____

SIGNATURE: B. Miller

CHECKED BY: J. Quinn

SELECTED WELL CASING DIAMETERS VOLUMES PER UNIT LENGTH

WELL CASING I.D. (Inches)	GAL/FT	CUBIC FT/FT
2.0	0.1632	0.0218
4.0	0.6528	0.0873
6.0	1.4690	0.1963

CONVERSION FACTORS

TO CONVERT	INTO	MULTIPLY
Feet of Water	Lbs/Sq. Inch	0.4335
Lbs/Sq. Inch	Feet of Water	2.3070
Cubic Feet	Gallons	7.4800
Gallons	Liters	3.7850
Feet	Meters	0.3048
Inches	Centimeters	2.5400

WELL SAMPLING FIELD LOG

PROJECT NAME: USDA - Albany, CA DATE: 2/22/93
 PROJECT MANAGER: MICHAEL J. QUILLID CLIENT: USDA
 SAMPLER: BART MILLER SAMPLE LOCATION I.D.: MW-3
 GROUNDWATER: _____ OTHER: _____ START TIME: 12:55

CASING ELEVATION (FT): 13.22 DATUM: _____ CASING DIAMETER: 2" 4" _____ OTHER _____
 DEPTH TO WATER (FT): 7.69 DEPTH OF WELL (FT): 23.0 DIFFERENCE (FT): 15.31
 WATER ELEVATION (FT): 5.53 CALCULATED WELL VOLUME (GAL): 2.5
 ACTUAL PURGE VOLUME (GAL): 14 MINIMUM PURGE VOLUME (3 x WV): 7.5

FIELD MEASUREMENTS

TIME	Volume (GAL)	pH (Units)	E.C.	Temp.	Clarity & Color	Other
<u>12:36</u>	<u>2</u>	<u>10.36</u>	<u>795</u>	<u>61.3</u>	<u>opaque brown</u>	<u>no odor</u>
<u>12:37</u>	<u>4</u>	<u>9.64</u>	<u>771</u>	<u>63.3</u>	<u>"</u>	<u>"</u>
<u>12:39</u>	<u>8</u>	<u>9.46</u>	<u>751</u>	<u>63.8</u>	<u>Translucent</u>	<u>"</u>
<u>12:40</u>	<u>10</u>	<u>9.25</u>	<u>739</u>	<u>64.3</u>	<u>"</u>	<u>"</u>
<u>12:42</u>	<u>14</u>	<u>9.12</u>	<u>730</u>	<u>64.4</u>	<u>"</u>	<u>"</u>

PURGE METHOD

Pneumatic Displacement Pump Other
 Baller (Teflon/PVC/SS) Submersible Pump


SAMPLE METHOD

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

WELL INTEGRITY: _____

REMARKS: _____

SIGNATURE: 

CHECKED BY: 

SELECTED WELL CASING DIAMETERS VOLUMES PER UNIT LENGTH

WELL CASING I.D. (inches)	GAL/FT	CUBIC FT/FT
2.0	0.1632	0.0218
4.0	0.6528	0.0873
6.0	1.4690	0.1963

CONVERSION FACTORS

TO CONVERT	INTO	MULTIPLY
Feet of Water	Lbs/Sq. Inch	0.4335
Lbs/Sq. Inch	Feet of Water	2.3070
Cubic Feet	Gallons	7.4800
Gallons	Liters	3.7850
Feet	Meters	0.3048
Inches	Centimeters	2.5400

APPENDIX B

LABORATORY ANALYTICAL REPORT: GROUND WATER SAMPLES



®

NATIONAL
ENVIRONMENTAL
TESTING, INC.

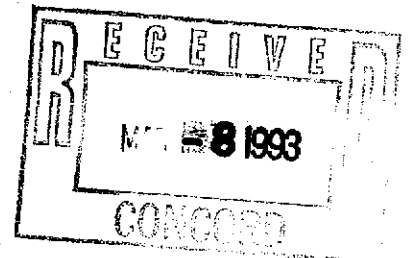
NET Pacific, Inc.
435 Tesconi Circle
Santa Rosa, CA 95401
Tel: (707) 526-7200
Fax: (707) 526-9623

Mike Quillin
Env. Science & Engineering
4090 Nelson Ave., Suite J
Concord, CA 94520

Date: 03/02/1993
NET Client Acct No: 69100
NET Pacific Job No: 93.00682
Received: 02/24/1993

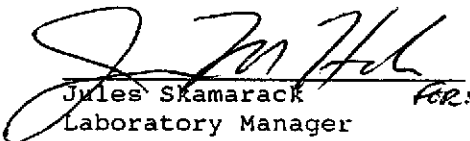
Client Reference Information

USDA-800 Buchanan St. Albany, Project No: 6-92-5405



Sample analysis in support of the project referenced above has been completed and results are presented on following pages. Please refer to the enclosed "Key to Abbreviations" for definition of terms. Should you have questions regarding procedures or results, please feel welcome to contact Client Services.

Approved by:


Jules Skamarack *for:*
Laboratory Manager

JS:rct
Enclosure(s)



Client No: 69100
Client Name: Env. Science & Engineering
NET Log No: 93.00682

Date: 03/02/1993
Page: 2

Ref: USDA-800 Buchanan St. Albany, Project No: 6-92-5405

Descriptor, Lab No. and Results

Parameter	MW-1	MW-2	Reporting Limit	Units	Method
	02/22/1993 13:30 151633	02/22/1993 13:50 151634			
METHOD 601 (GC,Liquid)					
DATE ANALYZED	02-25-93	02-25-93			
DILUTION FACTOR*	1	1			
Bromodichloromethane	ND	ND	0.4	ug/L	601
Bromoform	ND	ND	0.4	ug/L	601
Bromomethane	ND	ND	0.4	ug/L	601
Carbon tetrachloride	ND	ND	0.4	ug/L	601
Chlorobenzene	ND	ND	0.4	ug/L	601
Chloroethane	ND	ND	0.4	ug/L	601
2-Chloroethylvinyl ether	ND	ND	1.0	ug/L	601
Chloroform	ND	ND	0.4	ug/L	601
Chloromethane	ND	ND	0.4	ug/L	601
Dibromochloromethane	ND	ND	0.4	ug/L	601
1,2-Dichlorobenzene	ND	ND	0.4	ug/L	601
1,3-Dichlorobenzene	ND	ND	0.4	ug/L	601
1,4-Dichlorobenzene	ND	ND	0.4	ug/L	601
Dichlorodifluoromethane	ND	ND	0.4	ug/L	601
1,1-Dichloroethane	ND	ND	0.4	ug/L	601
1,2-Dichloroethane	ND	ND	0.4	ug/L	601
1,1-Dichloroethene	ND	ND	0.4	ug/L	601
trans-1,2-Dichloroethene	ND	ND	0.4	ug/L	601
1,2-Dichloropropane	ND	ND	0.4	ug/L	601
cis-1,3-Dichloropropene	ND	ND	0.4	ug/L	601
trans-1,3-Dichloropropene	ND	ND	0.4	ug/L	601
Methylene chloride	ND	ND	10	ug/L	601
1,1,2,2-Tetrachloroethane	ND	ND	0.4	ug/L	601
Tetrachloroethene	ND	ND	0.4	ug/L	601
1,1,1-Trichloroethane	ND	ND	0.4	ug/L	601
1,1,2-Trichloroethane	ND	ND	0.4	ug/L	601
Trichloroethene	ND	ND	0.4	ug/L	601
Trichlorofluoromethane	ND	ND	0.4	ug/L	601
Vinyl chloride	ND	ND	0.4	ug/L	601
SURROGATE RESULTS					
1,4-Difluorobenzene	111	110		% Rec.	601
1,4-Dichlorobutane	77	85		% Rec.	601



Ref: USDA-800 Buchanan St. Albany, Project No: 6-92-5405

Descriptor, Lab No. and Results

Parameter	MW-3	DUP	Reporting Limit	Units	Method
	02/22/1993 14:08 151635	02/22/1993 13:50 151636			
METHOD 601 (GC,Liquid)					
DATE ANALYZED	02-25-93	02-25-93			
DILUTION FACTOR*	1	1			
Bromodichloromethane	ND	ND	0.4	ug/L	601
Bromoform	ND	ND	0.4	ug/L	601
Bromomethane	ND	ND	0.4	ug/L	601
Carbon tetrachloride	ND	ND	0.4	ug/L	601
Chlorobenzene	ND	ND	0.4	ug/L	601
Chloroethane	ND	ND	0.4	ug/L	601
2-Chloroethylvinyl ether	ND	ND	1.0	ug/L	601
Chloroform	ND	ND	0.4	ug/L	601
Chloromethane	ND	ND	0.4	ug/L	601
Dibromochloromethane	ND	ND	0.4	ug/L	601
1,2-Dichlorobenzene	ND	ND	0.4	ug/L	601
1,3-Dichlorobenzene	ND	ND	0.4	ug/L	601
1,4-Dichlorobenzene	ND	ND	0.4	ug/L	601
Dichlorodifluoromethane	ND	ND	0.4	ug/L	601
1,1-Dichloroethane	ND	ND	0.4	ug/L	601
1,2-Dichloroethane	ND	ND	0.4	ug/L	601
1,1-Dichloroethene	ND	ND	0.4	ug/L	601
trans-1,2-Dichloroethene	ND	ND	0.4	ug/L	601
1,2-Dichloropropane	ND	ND	0.4	ug/L	601
cis-1,3-Dichloropropene	ND	ND	0.4	ug/L	601
trans-1,3-Dichloropropene	ND	ND	0.4	ug/L	601
Methylene chloride	ND	ND	10	ug/L	601
1,1,2,2-Tetrachloroethane	ND	ND	0.4	ug/L	601
Tetrachloroethene	ND	ND	0.4	ug/L	601
1,1,1-Trichloroethane	ND	ND	0.4	ug/L	601
1,1,2-Trichloroethane	ND	ND	0.4	ug/L	601
Trichloroethene	ND	ND	0.4	ug/L	601
Trichlorofluoromethane	ND	ND	0.4	ug/L	601
Vinyl chloride	ND	ND	0.4	ug/L	601
SURROGATE RESULTS					
1,4-Difluorobenzene	88	105		% Rec.	601
1,4-Dichlorobutane	72	86		% Rec.	601



Client No: 69100
Client Name: Env. Science & Engineering
NET Log No: 93.00682

Date: 03/02/1993
Page: 4

Ref: USDA-800 Buchanan St. Albany, Project No: 6-92-5405

QUALITY CONTROL DATA

Parameter	Reporting Limits	Units	Cal Verf Stand % Recovery	Blank Data	Spike % Recovery	Duplicate Spike % Recovery	RPD
Benzene	0.5	ug/L	93	ND	93	95	2.1
Toluene	0.5	ug/L	95	ND	96	97	1.0
1,1-Dichloroethene	0.4	ug/L	86	ND	85	86	1.8
Trichloroethene	0.4	ug/L	89	ND	86	87	1.7
Chlorobenzene	0.4	ug/L	89	ND	86	88	2.9

COMMENT: Blank Results were ND on other analytes tested.



KEY TO ABBREVIATIONS and METHOD REFERENCES

- < : Less than; When appearing in results column indicates analyte not detected at the value following. This datum supercedes the listed Reporting Limit.
- * : Reporting Limits are a function of the dilution factor for any given sample. To obtain the actual reporting limits for this sample, multiply the stated Reporting Limits by the dilution factor (but do not multiply reported values).
- ICVS : Initial Calibration Verification Standard (External Standard).
- mean : Average; sum of measurements divided by number of measurements.
- mg/Kg (ppm) : Concentration in units of milligrams of analyte per kilogram of sample, wet-weight basis (parts per million).
- mg/L : Concentration in units of milligrams of analyte per liter of sample.
- mL/L/hr : Milliliters per liter per hour.
- MPN/100 mL : Most probable number of bacteria per one hundred milliliters of sample.
- N/A : Not applicable.
- NA : Not analyzed.
- ND : Not detected; the analyte concentration is less than applicable listed reporting limit.
- NTU : Nephelometric turbidity units.
- RPD : Relative percent difference, $100 \text{ [Value 1 - Value 2] / mean value}$.
- SNA : Standard not available.
- ug/Kg (ppb) : Concentration in units of micrograms of analyte per kilogram of sample, wet-weight basis (parts per billion).
- ug/L : Concentration in units of micrograms of analyte per liter of sample.
- umhos/cm : Micromhos per centimeter.

Method References

Methods 100 through 493: see "Methods for Chemical Analysis of Water & Wastes", U.S. EPA, 600/4-79-020, rev. 1983.

Methods 601 through 625: see "Guidelines Establishing Test Procedures for the Analysis of Pollutants" U.S. EPA, 40 CFR, Part 136, rev. 1988.

Methods 1000 through 9999: see "Test Methods for Evaluating Solid Waste", U.S. EPA SW-846, 3rd edition, 1986.

SM: see "Standard Methods for the Examination of Water & Wastewater, 17th Edition, APHA, 1989.

CHAIN OF CUSTODY RECORD

DATE February 22, 1993 PAGE 1 OF 1

PROJECT NAME USDA

ADDRESS 800 BUCHANAN ST.

ALBANY, CA 94710

PROJECT NO. 6-92-5405

SAMPLED BY [Signature] BART MILLER

LAB NAME NET

ANALYSES TO BE PERFORMED										MATRIX	CONTAINER NUMBER	REMARKS (CONTAINER, SIZE, ETC.)	
HVOC's (EPA 601)										MATRIX			
MW-1	2/22/93	13:30		✓							Water	3	40ml VOA vials
MW-2	"	13:50		✓							Water	3	3 vials w/headspace MW-2. A.L.
MW-3	"	14:08		✓							Water	3	1 vial w/headspace MW-3 A.L.
DUP	"	13:50		✓							Water	3	3 vials w/headspace MW-1 A.L.
													NOTE: trip blank container broken



Environmental Science & Engineering, Inc.

4090 Nelson Avenue
Suite J
Concord, CA 94520

(415) 685-4053

Fax (415) 685-5323

(CUSTODY SEALED)
[Signature]
seals intact
A.L.

RELINQUISHED BY: (signature) 1. <u>[Signature]</u>	RECEIVED BY: (signature) <u>[Signature]</u>	date time <u>2/22/93 11:36</u>	12	TOTAL NUMBER OF CONTAINERS
2. <u>[Signature]</u>	<u>A. Lopez</u>	<u>2/23/93 17:00</u>	REPORT RESULTS TO: <u>BART MILLER</u>	SPECIAL SHIPMENT REQUIREMENTS <u>COLD TRANSPORT</u>
3.	<u>A. Lopez</u>	<u>2/24/93 0800</u>		
4.				
5.				

INSTRUCTIONS TO LABORATORY (handling, analyses, storage, etc.): <u>NORMAL TAT</u>	CHAIN OF CUSTODY SEALS	Y
	REC'D GOOD COND'TN/COLD	Y
	CONFORMS TO RECORD	Y