



ALCO  
HAZMAT  
**ENVIRONMENTAL AUDIT, INC.**  
1000-A ORTEGA WAY • PLACENTIA, CA 92670-7125  
714/632-8521 • FAX: 714/632-6754

February 24, 1994

Project No. 1233

Ms. Eva Chu  
Alameda County Department of Environmental Health  
80 Swan Way, #200  
Oakland, CA 94621

**RE: QUARTERLY GROUND WATER MONITORING REPORT  
Montgomery Ward Auto Service Center  
7575 Dublin Boulevard, Dublin, California**

Dear Ms. Chu:

Enclosed herewith are two copies of our report entitled, "Ground Water Monitoring Report, First Quarter 1994, Montgomery Ward Auto Service Center, 7575 Dublin Boulevard, Dublin, California," dated February 24, 1994.

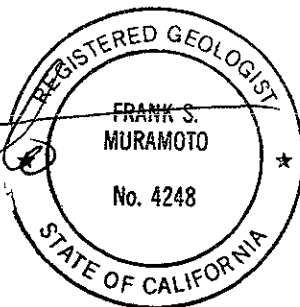
Please call the undersigned or Steven Bright if you have any questions.

Sincerely,

ENVIRONMENTAL AUDIT, INC.

Christopher P.R. d'Sa, R.E.A.  
Project Geologist

Frank S. Muramoto, R.G.  
Senior Geologist



CPD:FSM:SAB:sss

enclosure

cc: C. West, Montgomery Ward (w/enclosure)  
G. Jonas, Montgomery Ward (w/enclosure)  
M. Gilmartin, Straw & Gilmartin (w/enclosure)  
S. Sommerhalter, Buchalter, Nemer, Fields & Younger (w/enclosure)

CHRIS 1233M94A.DOC (c)

# QUARTERLY GROUND WATER MONITORING REPORT

First Quarter 1994  
Montgomery Ward Auto Service Center  
7575 Dublin Boulevard  
Dublin, California

---

February 24, 1994

Project No. 1233

*Prepared for:*

Montgomery Ward & Co.  
39201 Fremont Boulevard  
Fremont, CA 94538

---

## **ENVIRONMENTAL AUDIT, INC. ®**

Planning, Environmental Analyses and Hazardous  
Substances Management and Remediation  
1000-A ORTEGA WAY  
PLACENTIA, CA 92670-7125  
714/632-8521

# TABLE OF CONTENTS

1.0	INTRODUCTION.....	1
2.0	FIELD INVESTIGATION.....	1
2.1	Ground Water Elevation Survey.....	1
2.2	Ground Water And Effluent Sampling.....	1
2.3	Sampling Equipment Cleaning Protocol.....	2
2.4	Effluent Handling.....	2
3.0	ANALYTICAL TESTING.....	2
4.0	LIMITATION.....	2

## **TABLES:**

- Table 1: Ground Water Elevations Table
- Table 2: Analytical Testing Results

## **FIGURES:**

- Figure 1: Location Map
- Figure 2: Ground Water Elevation Map

## **APPENDICES:**

- Appendix A: Ground water sampling log forms
- Appendix B: Chain of Custody Record Forms
- Appendix C: Laboratory Reports

CHRIS:1233M94A.DOC (b)

**GROUND WATER MONITORING REPORT  
FIRST QUARTER 1994  
Montgomery Ward Auto Service Center  
7575 Dublin Boulevard  
Dublin, California**

**1.0 INTRODUCTION**

This document constitutes a quarterly ground water monitoring report for the Montgomery Ward Auto Service Center property located at 7575 Dublin Boulevard, Dublin, California (see Figure 1). This report represents the first quarter 1994 monitoring report.

A ground water extraction and treatment system (System) is operated and maintained at the site by others. Well B-12 is the only extraction well associated with the System (see Figure 2). All other wells function only as monitoring wells at this time. Wells MW-100, MW-101 and MW-102 were installed in May 1993, pursuant to a request by the Alameda County Department of Environmental Health, and were subsequently included in the quarterly ground water monitoring.

**2.0 FIELD INVESTIGATION**

**2.1 GROUND WATER ELEVATION SURVEY**

On January 13, 1993, Environmental Audit, Inc. obtained ground water depth measurements from the wells associated with the site using an Oil Recovery Systems' interface probe accurate to 0.01 feet. No free-product was detected in the wells during gauging activities. The measured water levels were converted to elevations by subtracting the measured water level from the ground level datum for each well (see Table 1). Ground water elevation data obtained from the wells were used to construct a ground water elevation map (see Figure 2).

**2.2 GROUND WATER AND EFFLUENT SAMPLING**

On January 13 and 14, 1993, ground water samples were obtained from the wells for analytical testing. Prior to sampling, all wells except extraction well B-12 were purged using a ES-40 submersible pump. Purging activities continued until the temperature, conductivity and pH of the extracted water had stabilized (see Appendix A).

Since the System remained active during this quarter's monitoring event, purging of well B-12 prior to sampling was unnecessary. Well B-12 was sampled first, and all other wells were sampled in the order that purging activities were completed. The water samples were collected from just below the water surface using Voss Technologies disposable bottom bailers equipped with volatile organic compound samplers. Use of these bailers precludes the potential for cross-contamination. A treated effluent sample was obtained from the sampling port located downstream of the two 2,000-pound carbon canisters. The water samples were sealed in two 40-milliliter (ml) VOA vials with Teflon septa lined lids and in one-liter plastic bottles. The containers were completely filled so

that no head space existed between the samples and the lids. The samples were labeled with the sample point identification, date, time and EAI project number, and immediately placed into an ice chest chilled using frozen blue ice. The samples were kept chilled until delivered to the laboratory for analytical testing. All samples were logged on a chain of custody record form (see Appendix B).

### **2.3 SAMPLING EQUIPMENT CLEANING PROTOCOL**

The ES-40 submersible pump and hose (Equipment) used to purge the wells prior to sampling was decontaminated between each purging activity using the following procedure: 1) the Equipment was flushed in a solution of Alconox detergent and tap water; and 2) the Equipment was flushed with tap water.

### **2.4 EFFLUENT HANDLING**

All effluent generated during purging, sampling and equipment decontamination activities was temporarily stored in five 55-gallon drums which were then emptied into the System for treatment.

## **3.0 ANALYTICAL TESTING**

All samples were delivered for analytical testing to Sequoia Analytical, a state certified hazardous waste testing laboratory (Certificate No. 1271) located in Concord, California. The samples were tested for total petroleum hydrocarbons as gasoline (TPH-G) using modified EPA Method 8015, benzene, toluene, xylenes and ethylbenzene (BTXE) using EPA Method 8020, and total lead using EPA Method 7420. The results of the testing are shown in Table 2 along with the results from previous period's testing. The laboratory reports are contained in Appendix C.

## **4.0 LIMITATION**

Our professional services have been performed using that degree of care and skill ordinarily exercised, under similar circumstances, by reputable environmental consultants practicing in this or similar localities. As directed by Montgomery Ward, EAI's scope of work was limited to generating and summarizing data. No other warranty, expressed or implied, is made as to the professional advice contained in this report.

CPD:SAB:FSM:ss

CHRIS:1233M94A.DOC

# TABLES

**TABLE 1**  
**GROUND WATER ELEVATIONS**

Montgomery Ward Auto Service Center  
7575 Dublin Boulevard  
Dublin, California

Page 1 of 3

Date Measured	Elevation of top surface of PVC well casing (feet MSL)	Measured depth to ground water (feet bgs)	Measured depth to Product	Product Thickness	Ground water elevation (feet MSL)
<b>B-5</b>					
	340.05				
04-16-92		10.62	-	0	329.43
07-24-92		11.91	-	0	328.14
10-22-92		12.97	-	0	327.08
01-15-93		12.97	-	0	327.08
04-15-93		9.75	-	0	330.30
05-14-93		10.07	-	0	329.98
07-14-93		10.80	-	0	329.25
10-14-93		12.08	-	0	327.97
01-13-94		12.23	-	0	327.82
<b>B-10</b>					
	339.70				
04-16-92		10.32	-	0	329.38
07-24-92		11.69	-	0	328.01
10-22-92		12.67	-	0	327.03
01-15-93		9.48	-	0	330.22
04-15-93		9.49	-	0	330.21
05-14-93		9.87	-	0	329.83
07-14-93		10.64	-	0	329.06
10-14-93		11.80	-	0	327.90
01-13-94		11.94	-	0	327.76
<b>B-12</b>					
	339.10				
04-16-92		9.95	-	0	329.15
07-24-92		11.57	-	0	327.53
10-22-92		12.82	-	0	326.28
01-15-93		8.66	-	0	330.44
04-15-93		8.70	-	0	330.40
05-14-93		9.32	-	0	329.78
07-14-93		9.95	-	0	329.15
10-14-93		10.94	-	0	328.16
01-13-94		11.28	-	0	327.82

**TABLE 1**  
**GROUND WATER ELEVATIONS**

Montgomery Ward Auto Service Center  
7575 Dublin Boulevard  
Dublin, California

Date Measured	Elevation of top surface of PVC well casing (feet MSL)	Measured depth to ground water (feet bgs)	Measured depth to Product	Product Thickness	Ground water elevation (feet MSL)
<b>B-15</b>					
	340.62				
04-16-92		11.09	-	0	329.53
07-24-92		12.33	-	0	328.29
10-22-92		13.25	-	0	327.37
01-15-93		10.22	-	0	330.40
04-15-93		10.26	-	0	330.36
05-14-93		10.64	-	0	329.98
07-14-93		11.35	-	0	329.27
10-14-93		12.41	-	0	328.21
01-13-94		12.59	-	0	328.03
<b>B-16</b>					
	339.82				
04-16-92		10.63	-	0	329.19
07-24-92		11.90	-	0	327.92
10-22-92		12.88	-	0	326.94
01-15-93		9.79	-	0	330.03
04-15-93		9.83	-	0	329.99
05-14-93		10.20	-	0	329.62
07-14-93		10.92	-	0	328.90
10-14-93		11.99	-	0	327.83
01-13-94		12.16	-	0	327.66
<b>MW-100</b>					
	339.61				
05-14-93		10.34	-	0	329.27
07-14-93		11.00	-	0	328.61
10-14-93		12.12	-	0	327.49
01-13-94		12.25	-	0	327.36



# TABLE 1 GROUND WATER ELEVATIONS

Montgomery Ward Auto Service Center  
7575 Dublin Boulevard  
Dublin, California

Date Measured	Elevation of top surface of PVC well casing (feet MSL)	Measured depth to ground water (feet bgs)	Measured depth to Product	Product Thickness	Ground water elevation (feet MSL)
<b>MW-101</b>					
	338.54				
05-14-93		9.91	-	0	328.63
07-14-93		10.38	-	0	328.16
10-14-93		11.30	-	0	327.24
01-13-94		11.21	-	0	327.33
<b>MW-102</b>					
	339.23				
05-14-93		9.60	-	0	329.63
07-14-93		10.31	-	0	328.92
10-14-93		11.57	-	0	327.66
01-13-94		11.71	-	0	327.52

NOTES:

- MSL - Mean Sea Level
- bgs - below ground surface
- Depth to water is as measured from the cut notch top north side of each PVC well casing.
- The elevations of all wells were surveyed in October 1993 to City of Dublin Benchmark No. DUB-680 (elevation = 331.60 MSL), located along Dublin Boulevard, 0.60 miles easterly from San Ramon Road.
- The elevation of all depth to water measurements were converted to mean sea level elevations using well casing elevation datum surveyed on October 14, 1993.

DTP:1233.ELEV.DOC

**TABLE 2**  
**ANALYTICAL TESTING RESULTS**

Montgomery Ward Auto Service Center  
7575 Dublin Boulevard  
Dublin, California  
Parts per billion (ppb)

Page 1 of 2

**Well B-5**

Compounds	TPH-G	Benzene	Toluene	Ethylbenzene	Xylenes	Lead
04-16-92	4400	670	160	280	320	ND
07-24-92	31000	5400	2600	2200	5800	ND
10-22-92	9100	1100	190	520	740	ND
01-15-93	2300	530	160	300	470	7.9
04-15-93	4900	600	160	470	390	ND
07-14-93	8800	590	210	840	1100	9.9
10-14-93	4500	530	46	490	350	ND
01-13-94	120	15	1.9	12	11	ND

**Well B-10**

Compounds	TPH-G	Benzene	Toluene	Ethylbenzene	Xylenes	Lead
04-16-92	7300	1400	640	880	1100	ND
07-24-92	27000	3800	1600	2000	4000	ND
10-22-92	16000	2300	340	1100	1200	ND
01-15-93	10000	1400	310	730	1100	13
04-15-93	8100	580	270	810	580	19
07-14-93	6400	840	120	750	800	7.1
10-14-93	100000	720	120	930	1100	ND
01-13-94	18000	990	180	1300	2400	ND

**Well B-12**

Compounds	TPH-G	Benzene	Toluene	Ethylbenzene	Xylenes	Lead
04-16-92	12000	1300	1100	510	1200	ND
07-24-92	12000	1000	630	520	1000	ND
10-22-92	11000	370	230	400	940	ND
01-15-93	120	2.8	ND	1.6	3.6	11
04-15-93	7100	730	240	350	570	ND
07-14-93	4500	540	97	380	610	ND
10-14-93	11000	710	170	650	1600	ND
01-13-94	6000	330	100	330	620	24

**Well B-15**

Compounds	TPH-G	Benzene	Toluene	Ethylbenzene	Xylenes	Lead
04-16-92	65	4.4	2.4	6.1	2.8	ND
07-24-92	ND	3.6	1.5	3.1	1.6	ND
10-22-92	ND	1.7	0.89	0.78	0.88	ND
01-15-93	ND	ND	ND	ND	ND	13
04-15-93	ND	2.8	ND	3.0	1.5	ND
07-14-93	ND	ND	ND	0.57	0.74	7.8
10-14-93	ND	0.96	2.6	1.3	3.6	25
01-13-94	ND	ND	0.92	0.70	2	ND

**TABLE 2**  
**ANALYTICAL TESTING RESULTS**

Montgomery Ward Auto Service Center  
7575 Dublin Boulevard  
Dublin, California  
Parts per billion (ppb)

Page 2 of 2

**Well B-16**

Compounds	TPH-G	Benzene	Toluene	Ethylbenzene	Xylenes	Lead
04-16-92	1300	390	1.7	35	9.3	ND
07-24-92	1600	120	5.7	120	410	ND
10-22-92	1000	76	ND	55	130	ND
01-15-93	160	6.5	0.86	2.3	2.6	5.5
04-15-93	300	65	ND	13	2	ND
07-14-93	170	5.9	ND	4.6	12	ND
10-14-93	390	11	2.4	16	45	21
01-13-94	350	8.7	0.62	25	68	ND

**Well MW-100**

Compounds	TPH-G	Benzene	Toluene	Ethylbenzene	Xylenes	Lead
05-13-93	13000	83	ND	960	820	NA
07-14-93	13000	32	ND	1400	790	8
10-14-93	7500	48	16	900	520	22
01-13-94	7000	51	ND	590	330	ND

**Well MW-101**

Compounds	TPH-G	Benzene	Toluene	Ethylbenzene	Xylenes	Lead
05-13-93	ND	ND	ND	ND	ND	NA
07-14-93	ND	ND	ND	ND	ND	11
10-14-93	ND	0.65	0.89	ND	1.1	ND
01-13-94	ND	ND	ND	ND	ND	28

**Well MW-102**

Compounds	TPH-G	Benzene	Toluene	Ethylbenzene	Xylenes	Lead
05-13-93	3600	17	ND	130	63	NA
07-14-93	1500	13	ND	64	4.9	ND
10-14-93	24000	9.6	5.2	60	60	ND
01-13-94	2000	22	ND	26	55	ND

**EFFLUENT**

Compounds	TPH-G	Benzene	Toluene	Ethylbenzene	Xylenes	Lead
04-15-93	ND	ND	ND	ND	ND	ND
07-14-93	ND	ND	ND	ND	ND	ND
10-14-93	ND	ND	ND	ND	0.97	48
01-13-94	ND	ND	ND	ND	ND	ND

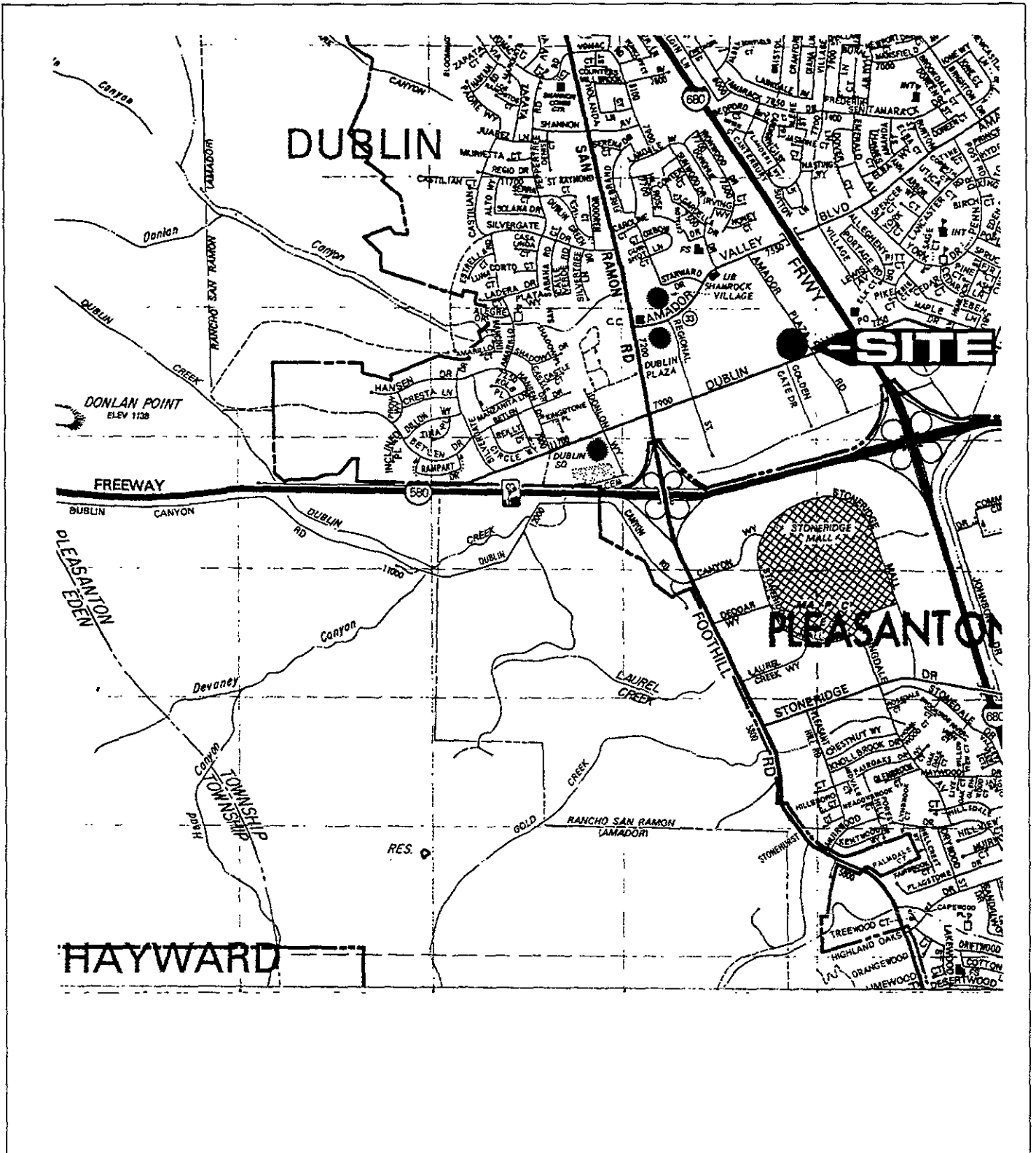
NOTE:

ND Not Detected

NA Not Analyzed

DTP:1233:ANALYTIC.DOC

# FIGURES




**Environmental Audit, Inc.**


**LOCATION MAP  
7575 Dublin Blvd.  
Dublin, California**



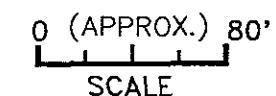
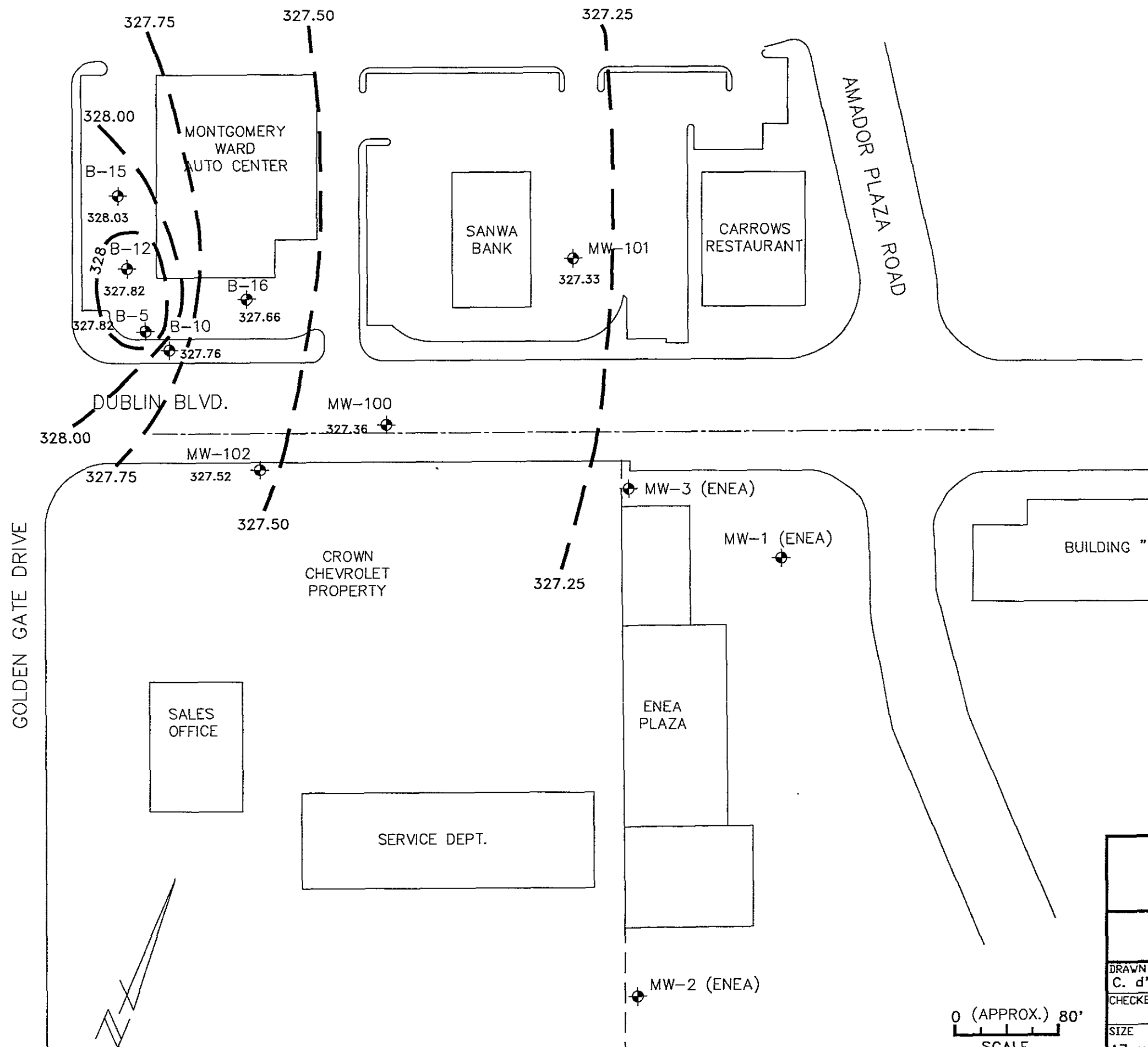
Figure 1


**EXPLANATION:**

MW-1  GROUND WATER MONITORING WELL  
 LOCATION/GROUND WATER ELEVATION  
 IN FEET MEAN SEA LEVEL  
 327.52

 GROUND WATER ELEVATION CONTOUR  
 (DASHED WHERE APPROXIMATE)  
 CONTOUR INTERVAL = 0.25 FEET

- All wells surveyed to the city of Dublin Benchmark No DUB-680 (elevation = 331.60 feet MSL)
- Wells MW-1, MW-2 & MW-3 belong to ENEA Properties and consequently were not gauged or sampled by EAI during this monitoring period



		<b>ENVIRONMENTAL AUDIT, INC.</b>	
1000-A ORTEGA WAY • PLACENTIA, CA 92670-7125 714/632-8521 • FAX: 714/632-6754			
<b>GROUND WATER ELEVATION MAP</b>			
JANUARY 13, 1994			
DRAWN BY	DATE CREATED	<b>MONTGOMERY WARD AUTO SERVICE CENTER 7575 DUBLIN BOULEVARD DUBLIN, CALIFORNIA</b>	
C. d'Sa	10/29/93		
CHECKED	LAST REV		
	02/16/94		
SIZE	FIGURE		
17 x 11	2		
FILE NAME			
I:\MONTGOM\08\14308001			



# **APPENDIX A**

## **Ground Water Sampling Log Forms**

# GROUND WATER Sampling Log


**Environmental Audit, Inc.**®

 Planning, Environmental Analyses and Hazardous  
 Substances Management and Remediation

 1000-A ORTEGA WAY  
 PLACENTIA, CA 92670-7125

 ☎ (714) 632-8521  
 ☒ (714) 632-6754

DATE:	1/14/94
PROJECT NO.:	1233
CLIENT:	Montgomery Ward, Dublin
WELL NO.:	B-5
WELL DIAMETER (INCHES):	2"
SAMPLED BY:	CPD

## WELL PURGING INFORMATION

TOTAL DEPTH OF WELL (ft.):

21

DEPTH TO FREE PRODUCT (ft. bgs.):

—

DEPTH TO GROUND WATER (ft. bgs.):

12.23

### WELL VOLUME FACTORS

WELL CASING ID (inches)	VOLUME FACTOR
2.0	0.16
4.0	0.65
6.0	1.47

ONE CASING VOLUME OF WATER CALCULATED USING THE FOLLOWING:

21

12.23

8.07

.16

1.39

 TOTAL DEPTH  
 OF WELL

 - DEPTH TO WATER  
 LEVEL

=

X

 WELL VOLUME  
 VOLUME FACTOR

=

 ONE CASING  
 VOLUME OF WATER (GALLONS)

PURGE TIME:

START

1044

STOP

1052

 PURGE METHOD: DOWN HOLE PUMP  x DEDICATED PUMP  BAILER  OTHER 

TYPE/MODEL:

ES-40

GALLONS PURGED	TEMP (°F)	CONDUCTIVITY (Micro-ohms/cm)	pH	TURBIDITY (NTU)	REMARKS
1.5	60.5	7.60 x 10 <sup>2</sup>	8.08	19.75	
3	63.7	7.80 x 10 <sup>2</sup>	7.90	10.11	
4.5	63.8	7.91 x 10 <sup>2</sup>	7.93	6.01	
6	63.0	7.88 x 10 <sup>2</sup>	7.90	2.11	
		x 10 <sup>2</sup>			
		x 10 <sup>2</sup>			
		x 10 <sup>2</sup>			
		x 10 <sup>2</sup>			
		x 10 <sup>2</sup>			
		x 10 <sup>2</sup>			
		x 10 <sup>2</sup>			

## WELL SAMPLING INFORMATION

TIME SAMPLED:

1100

 SAMPLE METHOD: DOWN HOLE PUMP  DEDICATED PUMP  BAILER  OTHER 

TYPE/MODEL :

Voss Technologies Disposable

COMMENTS:



# GROUND WATER Sampling Log



**Environmental Audit, Inc.**  
 Planning, Environmental Analyses and Hazardous  
 Substances Management and Remediation

1000-A ORTEGA WAY (714) 632-8521  
 PLACENTIA, CA 92670-7125 (714) 632-6754

DATE:	1/14/94
PROJECT NO.:	1233
CLIENT:	Montgomery Ward, Dublin
WELL NO.:	B-10
WELL DIAMETER (INCHES):	2"
SAMPLED BY:	CPD

## WELL PURGING INFORMATION

TOTAL DEPTH OF WELL (ft.): 20  
 DEPTH TO FREE PRODUCT (ft. bgs.): —  
 DEPTH TO GROUND WATER (ft. bgs.): 11.94

WELL CASING ID (inches)	VOLUME FACTOR
2.0	<u>0.16</u>
4.0	0.65
6.0	1.47

ONE CASING VOLUME OF WATER CALCULATED USING THE FOLLOWING:

$$\frac{\text{TOTAL DEPTH OF WELL}}{\text{DEPTH TO WATER LEVEL}} = \text{WELL VOLUME FACTOR} \times \text{ONE CASING VOLUME OF WATER (GALLONS)}$$

$$\frac{20}{11.94} = 8.06 \times 0.16 = 1.29$$

PURGE TIME: START 1015 STOP 1023

PURGE METHOD: DOWN HOLE PUMP  x DEDICATED PUMP  BAILER  OTHER

TYPE/MODEL: ES-40

GALLONS PURGED	TEMP (°F)	CONDUCTIVITY (Micro-ohms/cm)	pH	TURBIDITY (NTU)	REMARKS
1.5	60.0	7.67 x 10 <sup>2</sup>	8.19	57.4	
3	63.3	8.12 x 10 <sup>2</sup>	7.62	20.9	
4.5	<del>63.6</del>	8.28 x 10 <sup>2</sup>	7.39	9.79	
6	63.5	8.30 x 10 <sup>2</sup>	7.38	5.94	
		x 10 <sup>2</sup>			
		x 10 <sup>2</sup>			
		x 10 <sup>2</sup>			
		x 10 <sup>2</sup>			
		x 10 <sup>2</sup>			
		x 10 <sup>2</sup>			
		x 10 <sup>2</sup>			

## WELL SAMPLING INFORMATION

TIME SAMPLED: 1025

SAMPLE METHOD: DOWN HOLE PUMP  DEDICATED PUMP  BAILER  OTHER

TYPE/MODEL: Voss Technologies Disposable

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

# GROUND WATER Sampling Log



**Environmental Audit, Inc.**  
 Planning, Environmental Analyses and Hazardous  
 Substances Management and Remediation

1000-A ORTEGA WAY (714) 632-8521  
 PLACENTIA, CA 92670-7125 (714) 632-6754

DATE:	1/14/94
PROJECT NO.:	1233
CLIENT:	Montgomery Ward, Dublin
WELL NO.:	B-15
WELL DIAMETER (INCHES):	4"
SAMPLED BY:	CPD

## WELL PURGING INFORMATION

TOTAL DEPTH OF WELL (ft.): 20.64  
 DEPTH TO FREE PRODUCT (ft. bgs.): —  
 DEPTH TO GROUND WATER (ft. bgs.): 12.59

WELL VOLUME FACTORS	
WELL CASING ID (inches)	VOLUME FACTOR
2.0	0.16
4.0	<u>0.65</u>
6.0	1.47

ONE CASING VOLUME OF WATER CALCULATED USING THE FOLLOWING:

$$\boxed{20.64} \text{ TOTAL DEPTH OF WELL} - \boxed{12.59} \text{ DEPTH TO WATER LEVEL} = \boxed{8.05} \times \boxed{0.65} \text{ WELL VOLUME VOLUME FACTOR} = \boxed{5.23} \text{ ONE CASING VOLUME OF WATER (GALLONS)}$$

PURGE TIME: START 0940 STOP 0953

PURGE METHOD: DOWN HOLE PUMP  x DEDICATED PUMP  BAILER  OTHER

TYPE/MODEL: ES-40

GALLONS PURGED	TEMP (°F)	CONDUCTIVITY (Micro-ohms/cm)	pH	TURBIDITY (NTU)	REMARKS
5	62.9	7.66 x 10 <sup>2</sup>	7.86	5.94	
10	63.5	7.71 x 10 <sup>2</sup>	7.63	2.93	
15	63.7	7.70 x 10 <sup>2</sup>	7.60	1.71	
20	63.6	7.70 x 10 <sup>2</sup>	7.61	0.56	
		x 10 <sup>2</sup>			
		x 10 <sup>2</sup>			
		x 10 <sup>2</sup>			
		x 10 <sup>2</sup>			
		x 10 <sup>2</sup>			
		x 10 <sup>2</sup>			
		x 10 <sup>2</sup>			

## WELL SAMPLING INFORMATION

TIME SAMPLED: 0955

SAMPLE METHOD: DOWN HOLE PUMP  DEDICATED PUMP  BAILER  OTHER

TYPE/MODEL: Voss Technologies Disposable

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

# GROUND WATER Sampling Log



**Environmental Audit, Inc.**  
 Planning, Environmental Analyses and Hazardous  
 Substances Management and Remediation

1000-A ORTEGA WAY  
 PLACENTIA, CA 92670-7125

(714) 632-8521  
 (714) 632-6754

DATE:	1/13/94
PROJECT NO.:	1233
CLIENT:	Montgomery Ward, Dublin
WELL NO.:	B-16
WELL DIAMETER (INCHES):	4"
SAMPLED BY:	CPD

## WELL PURGING INFORMATION

TOTAL DEPTH OF WELL (ft.):

23.35

DEPTH TO FREE PRODUCT (ft. bgs.):

—

DEPTH TO GROUND WATER (ft. bgs.):

12.16

### WELL VOLUME FACTORS

WELL CASING ID (inches)	VOLUME FACTOR
2.0	0.16
4.0	0.65
6.0	1.47

ONE CASING VOLUME OF WATER CALCULATED USING THE FOLLOWING:

23.35

TOTAL DEPTH  
OF WELL

12.16

DEPTH TO WATER  
LEVEL

11.19

=

X

0.65

WELL VOLUME  
VOLUME FACTOR

7.27

ONE CASING  
VOLUME OF WATER (GALLONS)

PURGE TIME:

START

15:45

STOP

16:15

PURGE METHOD: DOWN HOLE PUMP  x DEDICATED PUMP  BAILER  OTHER

TYPE/MODEL: ES-40

GALLONS PURGED	TEMP (°F)	CONDUCTIVITY (Micro-ohms/cm)	pH	TURBIDITY (NTU)	REMARKS
5	67.8	8.54 x 10 <sup>2</sup>	7.63	26.5	
10	67.4	8.44 x 10 <sup>2</sup>	7.35	21.3	
15	65.9	8.37 x 10 <sup>2</sup>	7.31	12.75	
20	65.9	8.20 x 10 <sup>2</sup>	7.24	3.90	
25	65.9	8.24 x 10 <sup>2</sup>	7.30	1.83	
30	65.8	8.27 x 10 <sup>2</sup>	7.29	1.67	
		x 10 <sup>2</sup>			
		x 10 <sup>2</sup>			
		x 10 <sup>2</sup>			
		x 10 <sup>2</sup>			
		x 10 <sup>2</sup>			
		x 10 <sup>2</sup>			

## WELL SAMPLING INFORMATION

TIME SAMPLED:

16:20

SAMPLE METHOD: DOWN HOLE PUMP  DEDICATED PUMP  BAILER  OTHER

TYPE/MODEL: Voss Technologies Disposable

COMMENTS:

# GROUND WATER Sampling Log


**Environmental Audit, Inc.**®

 Planning, Environmental Analyses and Hazardous  
 Substances Management and Remediation

 1000-A ORTEGA WAY  
 PLACENTIA, CA 92670-7125

 ☎ (714) 632-8521  
 ☒ (714) 632-6754

DATE:	1/13/94
PROJECT NO.:	1233
CLIENT:	Montgomery Ward, Dublin
WELL NO.:	MW-100
WELL DIAMETER (INCHES):	4"
SAMPLED BY:	CPD

## WELL PURGING INFORMATION

 TOTAL DEPTH OF WELL (ft.): 28.00

 DEPTH TO FREE PRODUCT (ft. bgs.): —

 DEPTH TO GROUND WATER (ft. bgs.): 12.25

### WELL VOLUME FACTORS

WELL CASING ID (inches)	VOLUME FACTOR
2.0	0.16
4.0	<u>0.65</u>
6.0	1.47

ONE CASING VOLUME OF WATER CALCULATED USING THE FOLLOWING:

$$\boxed{28} \text{ (TOTAL DEPTH OF WELL)} - \boxed{12.25} \text{ (DEPTH TO WATER LEVEL)} = \boxed{15.75} \text{ (WELL VOLUME)} \times \boxed{0.65} \text{ (WELL VOLUME FACTOR)} = \boxed{10.23} \text{ (ONE CASING VOLUME OF WATER (GALLONS))}$$

 PURGE TIME: START 1323 STOP                     

 PURGE METHOD: DOWN HOLE PUMP  x DEDICATED PUMP  BAILER  OTHER 

 TYPE/MODEL: ES-40

GALLONS PURGED	TEMP (°F)	CONDUCTIVITY (Micro-ohms/cm)	pH	TURBIDITY (NTU)	REMARKS
5	70.2	8.80 x 10 <sup>2</sup>	7.41	27.9	
10	70.5	8.80 x 10 <sup>2</sup>	7.28	10.76	
15	70.8	8.80 x 10 <sup>2</sup>	7.21	3.03	
20	70.6	8.78 x 10 <sup>2</sup>	7.27	3.21	
25	70.7	8.56 x 10 <sup>2</sup>	7.25	2.23	
30	70.7	8.71 x 10 <sup>2</sup>	7.21	1.08	
35	70.8	8.72 x 10 <sup>2</sup>	7.22	1.10	
40	70.7	8.73 x 10 <sup>2</sup>	7.21	1.05	
		x 10 <sup>2</sup>			
		x 10 <sup>2</sup>			
		x 10 <sup>2</sup>			
		x 10 <sup>2</sup>			

## WELL SAMPLING INFORMATION

 TIME SAMPLED: 1425

 SAMPLE METHOD: DOWN HOLE PUMP  DEDICATED PUMP  BAILER  OTHER 

 TYPE/MODEL: Voss Technologies Disposable

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

# GROUND WATER Sampling Log


**Environmental Audit, Inc.**®

 Planning, Environmental Analyses and Hazardous  
 Substances Management and Remediation

 1000-A ORTEGA WAY  
 PLACENTIA, CA 92670-7125

 ☎ (714) 632-8521  
 ☒ (714) 632-6754

DATE:	1/13/94
PROJECT NO.:	1233
CLIENT:	Montgomery Ward, Dublin
WELL NO.:	MW-101
WELL DIAMETER (INCHES):	4"
SAMPLED BY:	CPD

## WELL PURGING INFORMATION

TOTAL DEPTH OF WELL (ft.):

28.00

DEPTH TO FREE PRODUCT (ft. bgs.):

—

DEPTH TO GROUND WATER (ft. bgs.):

11.21

### WELL VOLUME FACTORS

WELL CASING ID (inches)	VOLUME FACTOR
2.0	0.16
4.0	0.65
6.0	1.47

ONE CASING VOLUME OF WATER CALCULATED USING THE FOLLOWING:

28.00

11.21

16.79

0.65

10.91

 TOTAL DEPTH  
 OF WELL

 - DEPTH TO WATER  
 LEVEL

=

x

 WELL VOLUME  
 VOLUME FACTOR

=

 ONE CASING  
 VOLUME OF WATER (GALLONS)

PURGE TIME:

START 1637

STOP 1703

 PURGE METHOD: DOWN HOLE PUMP  x DEDICATED PUMP  BAILER  OTHER 

TYPE/MODEL:

ES-40

GALLONS PURGED	TEMP (°F)	CONDUCTIVITY (Micro-ohms/cm)	pH	TURBIDITY (NTU)	REMARKS
5	65.5	8.75 x 10 <sup>2</sup>	7.48	14.02	
10	65.7	8.74 x 10 <sup>2</sup>	7.42	13.44	
15	66.1	8.80 x 10 <sup>2</sup>	7.41	17.08	
20	64.4	8.62 x 10 <sup>2</sup>	7.49	24.20	
25	64.9	8.75 x 10 <sup>2</sup>	7.43	20.8	
30	66.1	8.82 x 10 <sup>2</sup>	7.40	21.4	
35	66.5	8.85 x 10 <sup>2</sup>	7.39	21.1	
40	66.6	8.88 x 10 <sup>2</sup>	7.38	21.6	
45	66.5	8.86 x 10 <sup>2</sup>	7.38	20.1	
		x 10 <sup>2</sup>			
		x 10 <sup>2</sup>			
		x 10 <sup>2</sup>			

## WELL SAMPLING INFORMATION

TIME SAMPLED:

1710

 SAMPLE METHOD: DOWN HOLE PUMP  DEDICATED PUMP  BAILER  OTHER 

TYPE/MODEL:

Voss Technologies Disposable

COMMENTS:

# GROUND WATER Sampling Log



**Environmental Audit, Inc.**  
 Planning, Environmental Analyses and Hazardous  
 Substances Management and Remediation

1000-A ORTEGA WAY (714) 632-8521  
 PLACENTIA, CA 92670-7125 (714) 632-6754

DATE:	1/13/94
PROJECT NO.:	1233
CLIENT:	Montgomery Ward, Dublin
WELL NO.:	MW-102
WELL DIAMETER (INCHES):	4"
SAMPLED BY:	CPD

## WELL PURGING INFORMATION

TOTAL DEPTH OF WELL (ft.): 28

DEPTH TO FREE PRODUCT (ft. bgs.): —

DEPTH TO GROUND WATER (ft. bgs.): 11.71

### WELL VOLUME FACTORS

WELL CASING ID (inches)	VOLUME FACTOR
2.0	0.16
4.0	<u>0.65</u>
6.0	1.47

ONE CASING VOLUME OF WATER CALCULATED USING THE FOLLOWING:

$$\boxed{28} \text{ TOTAL DEPTH OF WELL} - \boxed{11.71} \text{ DEPTH TO WATER LEVEL} = \boxed{16.29} \times \boxed{0.65} \text{ WELL VOLUME VOLUME FACTOR} = \boxed{10.58} \text{ ONE CASING VOLUME OF WATER (GALLONS)}$$

PURGE TIME:

START 1208 STOP 1241

PURGE METHOD: DOWN HOLE PUMP  x DEDICATED PUMP  BAILER  OTHER

TYPE/MODEL: ES-40

GALLONS PURGED	TEMP (°F)	CONDUCTIVITY (Micro-ohms/cm)	pH	TURBIDITY (NTU)	REMARKS
5	68.0	8.11 x 10 <sup>2</sup>	7.58	16.92	~ 1.4 gpm
10	68.4	8.13 x 10 <sup>2</sup>	7.28	4.99	
15	69.0	8.19 x 10 <sup>2</sup>	7.21	1.97	
20	69.2	8.21 x 10 <sup>2</sup>	7.21	1.03	
25	69.2	8.21 x 10 <sup>2</sup>	7.21	1.02	
30	69.1	8.21 x 10 <sup>2</sup>	7.21	1.10	
35	68.9	8.20 x 10 <sup>2</sup>	7.19	0.58	
40	69.0	8.22 x 10 <sup>2</sup>	7.17	0.10	
45	69.0	8.21 x 10 <sup>2</sup>	7.18	0.11	
		x 10 <sup>2</sup>			
		x 10 <sup>2</sup>			
		x 10 <sup>2</sup>			

## WELL SAMPLING INFORMATION

TIME SAMPLED: 1250

SAMPLE METHOD: DOWN HOLE PUMP  DEDICATED PUMP  BAILER  OTHER

TYPE/MODEL: Voss Technologies Disposable

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



# **APPENDIX B**

## **Chain of Custody Record Forms**









# **APPENDIX C**

## **Laboratory Reports**



# SEQUOIA ANALYTICAL

1900 Bates Avenue • Suite LM • Concord, California 94520  
(510) 686-9600 • FAX (510) 686-9689

RECEIVED

FEB - 4 1994

ENVIRONMENTAL AUDIT

**Environmental Audit**

1000-A Ortega Way  
Placentia, CA 92670  
Attention: Frank Muramoto

Client Project ID: Montgomery Ward 1233  
Sample Matrix: Water  
Analysis Method: EPA 5030/8015/8020  
First Sample #: 401-0663

Sampled: Jan 13, 1994  
Received: Jan 14, 1994  
Reported: Jan 28, 1994

## TOTAL PURGEABLE PETROLEUM HYDROCARBONS with BTEX DISTINCTION

Analyte	Reporting Limit µg/L	Sample I.D. 401-0663 B-12	Sample I.D. 401-0664 EFFLUENT	Sample I.D. 401-0665 MW-102	Sample I.D. 401-0666 MW-100	Sample I.D. 401-0667 B-16	Sample I.D. 401-0668 MW-101
Purgeable Hydrocarbons	50	6,000	N.D.	2,000	7,000	350	N.D.
Benzene	0.5	330	N.D.	22	51	8.7	N.D.
Toluene	0.5	100	N.D.	N.D.	N.D.	0.62	N.D.
Ethyl Benzene	0.5	330	N.D.	26	590	25	N.D.
Total Xylenes	0.5	620	N.D.	55	330	68	N.D.
Chromatogram Pattern:		Gasoline	--	Gasoline	Gasoline	Gasoline	--

### Quality Control Data

Report Limit Multiplication Factor:	20	1.0	10	10	1.0	1.0
Date Analyzed:	1/20/94	1/20/94	1/20/94	1/20/94	1/21/94	1/20/94
Instrument Identification:	HP-5	HP-5	HP-5	HP-5	HP-2	HP-5
Surrogate Recovery, %: (QC Limits = 70-130%)	87	101	95	84	104	99

Purgeable Hydrocarbons are quantitated against a fresh gasoline standard.  
Analytes reported as N.D. were not detected above the stated reporting limit.

### SEQUOIA ANALYTICAL

  
Karen L. Enstrom  
Project Manager



# SEQUOIA ANALYTICAL

1900 Bates Avenue • Suite LM • Concord, California 94520  
(510) 686-9600 • FAX (510) 686-9689

Environmental Audit

1000-A Ortega Way

Placentia, CA 92670

Attention: Frank Muramoto

Client Project ID: Montgomery Ward 1233

Sample Matrix: Water

Analysis Method: EPA 5030/8015/8020

First Sample #: 401-0669

Sampled: Jan 14, 1994

Received: Jan 14, 1994

Reported: Jan 28, 1994

## TOTAL PURGEABLE PETROLEUM HYDROCARBONS with BTEX DISTINCTION

Analyte	Reporting Limit µg/L	Sample I.D. 401-0669 B-15	Sample I.D. 401-0670 B-10	Sample I.D. 401-0671 B-5
Purgeable Hydrocarbons	50	N.D.	18,000	120
Benzene	0.5	N.D.	990	15
Toluene	0.5	0.92	180	1.9
Ethyl Benzene	0.5	0.70	1,300	12
Total Xylenes	0.5	2.0	2,400	11
Chromatogram Pattern:		--	Gasoline	Gasoline

### Quality Control Data

Report Limit Multiplication Factor:	1.0	40	1.0
Date Analyzed:	1/20/94	1/20/94	1/20/94
Instrument Identification:	HP-5	HP-5	HP-5
Surrogate Recovery, %: (QC Limits = 70-130%)	98	99	104

Purgeable Hydrocarbons are quantitated against a fresh gasoline standard.  
Analytes reported as N.D. were not detected above the stated reporting limit.

SEQUOIA ANALYTICAL

  
Karen L. Enstrom  
Project Manager



# SEQUOIA ANALYTICAL

1900 Bates Avenue • Suite LM • Concord, California 94520  
(510) 686-9600 • FAX (510) 686-9689

Environmental Audit  
1000-A Ortega Way  
Placencia, CA 92670  
Attention: Frank Muramoto

Client Project ID: Montgomery Ward 1233  
Sample Descript: Water  
Analysis for: Lead  
First Sample #: 401-0663

Sampled: Jan 13-14, 1994  
Received: Jan 14, 1994  
Extracted: Jan 24, 1994  
Analyzed: Jan 26, 1994  
Reported: Jan 28, 1994

## LABORATORY ANALYSIS FOR: Lead

Sample Number	Sample Description	Detection Limit mg/L	Sample Result mg/L
401-0663	B-12	0.020	0.024
401-0664	EFFLUENT	0.020	N.D.
401-0665	MW-102	0.020	N.D.
401-0666	MW-100	0.020	N.D.
401-0667	B-16	0.020	N.D.
401-0668	MW-101	0.020	0.028
401-0669	B-15	0.020	N.D.
401-0670	B-10	0.020	N.D.
401-0671	B-5	0.020	N.D.

Analytes reported as N.D. were not present above the stated limit of detection.

SEQUOIA ANALYTICAL

  
Karen L. Enstrom  
Project Manager



# SEQUOIA ANALYTICAL

1900 Bates Avenue • Suite LM • Concord, California 94520  
(510) 686-9600 • FAX (510) 686-9689

Environmental Audit  
1000-A Ortega Way  
Placentia, CA 92670

Client Project ID: Montgomery Ward 1233  
Matrix: Liquid

Attention: Frank Muramoto

QC Sample Group: 4010663-71

Reported: Jan 28, 1994

## QUALITY CONTROL DATA REPORT

ANALYTE	Benzene	Toluene	Ethyl Benzene	Xylenes
Method:	EPA 8020	EPA 8020	EPA 8020	EPA 8020
Analyst:	J. Fontecha	J. Fontecha	J. Fontecha	J. Fontecha

MS/MSD	Benzene	Toluene	Ethyl Benzene	Xylenes
Batch#:	4010664	4010664	4010664	4010664
Date Prepared:	1/20/94	1/20/94	1/20/94	1/20/94
Date Analyzed:	1/20/94	1/20/94	1/20/94	1/20/94
Instrument I.D.#:	HP-5	HP-5	HP-5	HP-5
Conc. Spiked:	20 µg/L	20 µg/L	20 µg/L	60 µg/L
Matrix Spike % Recovery:	115	105	95	100
Matrix Spike Duplicate % Recovery:	120	110	100	102
Relative % Difference:	4.3	4.7	5.1	2.0

LCS Batch#:	3LCS012094	3LCS012094	3LCS012094	3LCS012094
Date Prepared:	1/20/94	1/20/94	1/20/94	1/20/94
Date Analyzed:	1/20/94	1/20/94	1/20/94	1/20/94
Instrument I.D.#:	HP-5	HP-5	HP-5	HP-5
LCS % Recovery:	116	105	92	94

% Recovery Control Limits:	Benzene	Toluene	Ethyl Benzene	Xylenes
	71-133	72-128	72-130	71-120

**Please Note:**

The LCS is a control sample of known, interferent free matrix that is analyzed using the same reagents, preparation, and analytical methods employed for the samples. The matrix spike is an aliquot of sample fortified with known quantities of specific compounds and subjected to the entire analytical procedure. If the recovery of analytes from the matrix spike does not fall within specified control limits due to matrix interference, the LCS recovery is to be used to validate the batch.

SEQUOIA ANALYTICAL

  
Karen L. Enstrom  
Project Manager



# SEQUOIA ANALYTICAL

1900 Bates Avenue • Suite LM • Concord, California 94520  
(510) 686-9600 • FAX (510) 686-9689

Environmental Audit  
1000-A Ortega Way  
Placentia, CA 92670

Client Project ID: Montgomery Ward 1233  
Matrix: Liquid

Attention: Frank Muramoto

QC Sample Group: 4010663-71

Reported: Jan 28, 1994

## QUALITY CONTROL DATA REPORT

ANALYTE	Cadmium	Chromium	Lead	Nickel	Zinc
Method:	EPA 200.7	EPA 200.7	EPA 200.7	EPA 200.7	EPA 200.7
Analyst:	K.A./J.D.	K.A./J.D.	K.A./J.D.	K.A./J.D.	K.A./J.D.

MS/MSD					
Batch#:	4010870	4010870	4010870	4010870	4010870
Date Prepared:	1/24/94	1/24/94	1/24/94	1/24/94	1/24/94
Date Analyzed:	1/26/94	1/26/94	1/26/94	1/26/94	1/26/94
Instrument I.D.#:	Liberty-100	Liberty-100	Liberty-100	Liberty-100	Liberty-100
Conc. Spiked:	1.0 mg/L	1.0 mg/L	1.0 mg/L	1.0 mg/L	1.0 mg/L
Matrix Spike					
% Recovery:	109	109	110	112	111
Matrix Spike					
Duplicate %					
Recovery:	110	112	111	114	114
Relative %					
Difference:	0.91	2.7	0.90	1.8	2.7

LCS Batch#:	BLK012494	BLK012494	BLK012494	BLK012494	BLK012494
Date Prepared:	1/24/94	1/24/94	1/24/94	1/24/94	1/24/94
Date Analyzed:	1/26/94	1/26/94	1/26/94	1/26/94	1/26/94
Instrument I.D.#:	Liberty-100	Liberty-100	Liberty-100	Liberty-100	Liberty-100
LCS %					
Recovery:	95	98	99	103	100

% Recovery					
Control Limits:	75-125	75-125	75-125	75-125	75-125

**Please Note:**  
The LCS is a control sample of known, interferent free matrix that is analyzed using the same reagents, preparation, and analytical methods employed for the samples. The matrix spike is an aliquot of sample fortified with known quantities of specific compounds and subjected to the entire analytical procedure. If the recovery of analytes from the matrix spike does not fall within specified control limits due to matrix interference, the LCS recovery is to be used to validate the batch.

SEQUOIA ANALYTICAL

  
Karen L. Enstrom  
Project Manager