ENVIRONMENTAL AUDIT, INC.®

1000-A ORTEGA WAY • PLACENTIA, CA 92670-7125

714/632-8521 • FAX: 714/632-6754

June 9, 1992

Project No. 1233

Mr. Ravi Arulanantham, Ph.D.
Alameda County Department of Environmental Health
80 Swan Way, #200
Oakland, CA 94621

Noted
6/12/92

SUBJECT: MONTGOMERY WARD AUTO SERVICE CENTER
7575 Dublin Boulevard, Dublin, CA

Dear Mr. Arulanantham:

Enclosed herewith is a copy of our report titled "Ground Water Monitoring Report, February Through April 1992, Montgomery Ward Auto Service Center, 7575 Dublin Boulevard, Dublin, California," dated June 10, 1992.

Please call if you have any questions or need additional information.

Sincerely,

ENVIRONMENTAL AUDIT, INC.

Brent H Mecham

Brent H. Mecham
Project Geologist

Frank S. Muramoto

Frank S. Muramoto, R.G.
Senior Geologist

REGISTERED GEOLOGIST
FRANK S. MURAMOTO
No. 4248
STATE OF CALIFORNIA

FSM:BHM:SAB:ss

enclosure

cc: C. West, Montgomery Ward (w/enclosure) → 794-2277
P. Delk, Montgomery Ward (w/enclosure)
M. Gilmartin, Straw & Gilmartin (w/enclosure)
K. Pick, Alheimer & Gray (w/enclosure)

1233:BHM:MWDL04.92

Notes: Call C. West for a time table for Interim M-W data.
- need further investigation to Interim extent.
Ravi

GROUND WATER MONITORING REPORT
FEBRUARY THROUGH APRIL 1992
MONTGOMERY WARD AUTO SERVICE CENTER
7575 DUBLIN BOULEVARD, DUBLIN, CALIFORNIA

PROJECT NO. 1233

JUNE 9, 1992

ENVIRONMENTAL AUDIT, INC.
Planning, Environmental Analysis and Hazardous Substances Management and Remediation
1000-A ORTEGA WAY
PLACENTIA, CA 92670-7125
714/632-8521
FAX: 714/632-6754

TABLE OF CONTENTS

FSM:MWDTOC1

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). Environmental Audit, Inc. (EAI) was retained by Montgomery Ward & Co., Incorporated (Ward) to conduct the quarterly ground water monitoring at the site. The ground water sampling was conducted in April 1992.

A ground water extraction and treatment system (System) is operated and maintained at the site by others to extract and treat petroleum hydrocarbons in the ground water beneath the site. Well B-12 is the only extraction well associated with the ground water remediation system. All other wells function only as monitoring wells.

2.0 FIELD WORK

2.1 GROUND WATER ELEVATION SURVEY

The System at the site was temporarily shut-down on April 15, 1992 in order for EAI to obtain non-pumping water depth measurements and obtain ground water samples from the wells under non-pumping conditions.

On April 16, 1992 EAI obtained ground water depth measurements from the five wells associated with the site using an Oil Recovery Systems (ORS) interface probe. No free-product was measured 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). Interpretation of the elevation data indicates that at the time of measurement the ground water table near extraction well B-12 apparently had not fully reached equilibrium conditions as evidenced by the depressed water table around the extraction well (see Figure 2).

2.2 GROUND WATER SAMPLING

On April 16 and 17, 1992, all five wells were sampled. Prior to sampling, all wells, except well B-12, were purged using a Whale Supersub 88 submersible pump. Purging activities of all wells continued until the temperature, conductivity and pH of the extracted water had stabilized (see Table 2). Well

B-12 was sampled approximately two hours after reactivating the System.

The wells were sampled in the order that purging activities were completed. Water samples from the four wells that were purged using the Supersub 88 submersible pump were obtained from the pump discharge tubing. To avoid cross contamination, new polyvinyl chloride (PVC) tubing was used to purge and sample each well. A ground water sample from well B-12 was obtained from the System's piping prior to the water entering the System's oil/water separator.

The water sample from each well was sealed in 40-milliliter (ml) VOA vials with Teflon septa lined lids and in a one-liter plastic bottle. The sample vials and plastic bottle were supplied by the laboratory conducting the analytical testing. Each vial and bottle was completely filled so that no head space existed between the sample and the lid. The samples were labeled with the sample point identification, date and time, 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 A).

2.3 SAMPLING EQUIPMENT CLEANING PROTOCOL

The submersible pump used to purge the wells prior to sampling was decontaminated between each purging activity using the following procedure:

- The pump was flushed in a solution of Alconox detergent and tap water; and
- The pump was flushed with tap water.

2.4 EFFLUENT HANDLING

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

3.0 ANALYTICAL TESTING

All samples were delivered for analytical testing to Sequoia Analytical, a California Department of Health Services certified hazardous waste testing laboratory (Certificate No. 1271) located in Concord, California. The samples were tested for total petroleum hydrocarbons as gasoline (TPH) using modified EPA Method 8015, benzene, toluene, xylenes and ethylbenzene

(BTXE) using EPA Method 602, and total lead using EPA Method 7420. The results of the testing are shown on Table 3. The laboratory reports are contained in Appendix B.

4.0 DISCUSSION

TPH and BTXE were detected in all water samples tested. The TPH ranged from 65 to 12,000 parts per billion (ppb), and BTXE ranged from 15.70 to 4,110 ppb. The highest concentrations of dissolved petroleum hydrocarbons were detected in the water sample obtained from extraction well B-12. Lead was detected only in water sample from well B-16 at a concentration of 5.7 ppb.

5.0 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. No other warranty, expressed or implied, is made as to the information contained in this report.

BHM:FSM:SAB:ss

FSM:MWDR04.92

TABLES

TABLE 1

GROUND WATER ELEVATIONS FROM DATA OBTAINED ON APRIL 16, 1992

Well Number	Elevation of Top Surface of PVC Well Casing*	Measured Depth of Ground Water (in ft. bgs)**	Ground Water Elevation (ft)
B-5	100.95	10.62	90.33
B-10	100.60	10.32	90.28
B-12	100.00	9.95	90.05
B-15	101.50	11.09	90.41
B-16	100.70	10.63	90.07

Note: bgs = below ground surface
* An arbitrary reference elevation of 100 feet for well MW-12 was used.
** Measured from top of PVC well casing.

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TABLE 2

TEMPERATURE, CONDUCTIVITY, AND pH READINGS DURING PURGING ACTIVITIES

WELL NUMBER	CUMULATIVE PURGED (Gallons)	TEMPERATURE (Fahrenheit)	CONDUCTIVITY (Micromhos/cm)	pH
B-5	1	71.0	1.485×10^3	8.05
	3	69.7	1.494×10^3	7.71
	6	69.5	1.443×10^3	7.44
	9	68.9	1.443×10^3	7.32
	12	68.8	1.443×10^3	7.21
	15	68.8	1.444×10^3	7.17
	18	68.7	1.443×10^3	7.11
	20	68.8	1.447×10^3	7.03
	25	68.8	1.447×10^3	6.99
B-10	5	67.7	1.399×10^3	7.54
	10	67.8	1.398×10^3	7.12
	15	67.3	1.397×10^3	6.93
	20	67.3	1.399×10^3	6.83
	25	67.2	1.379×10^3	6.78
B-15	5	65.6	1.454×10^3	8.55
	10	66.5	1.474×10^3	8.01
	15	66.8	1.462×10^3	7.73
	20	66.8	1.477×10^3	7.55
	25	66.8	1.479×10^3	7.44
	30	66.7	1.477×10^3	7.43
	35	66.8	1.477×10^3	7.38
	40	66.7	1.481×10^3	7.32
B-16	5	68.3	1.462×10^3	7.39
	10	67.2	1.467×10^3	7.25
	15	67.6	1.458×10^3	7.25
	20	67.4	1.444×10^3	7.19
	25	67.6	1.463×10^3	7.18

NOTE: Measurements were made using a Hydac conductivity, temperature, pH tester.

FSM:MWDT04.922

TABLE 3

TPH, BTXE, AND TOTAL LEAD CONCENTRATIONS IN GROUND WATER SAMPLES OBTAINED ON APRIL 16 AND 17, 1992

CONCENTRATIONS IN PARTS PER BILLION (ppb)

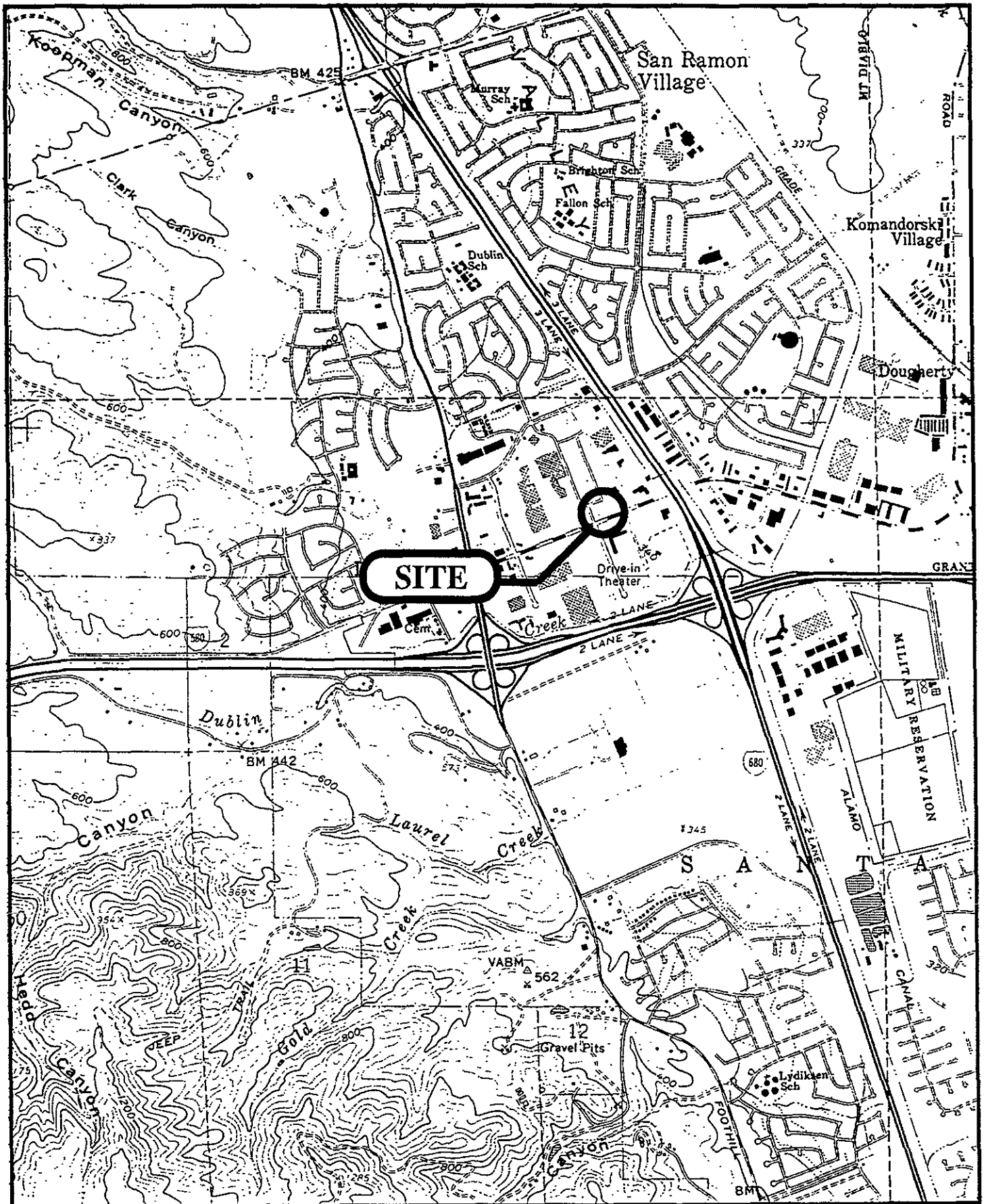
Sample I.D.#	TPH	Benzene	Toluene	Total Xylenes	Ethyl-Benzene	Lead
B-5	[illegible],400	670	160	320	280	ND*
B-10	[illegible],300	1,400	640	1,100	880	ND
B-12	[illegible],000	1,300	1,100	1,200	510	ND
B-15	65	4.4	2.4	2.8	6.1	ND
B-16	[illegible],300	390	1.7	9.3	35	5.7

* ND = Not Detected.

FSM:MWDT05.92T

Project No. 1233

FIGURES



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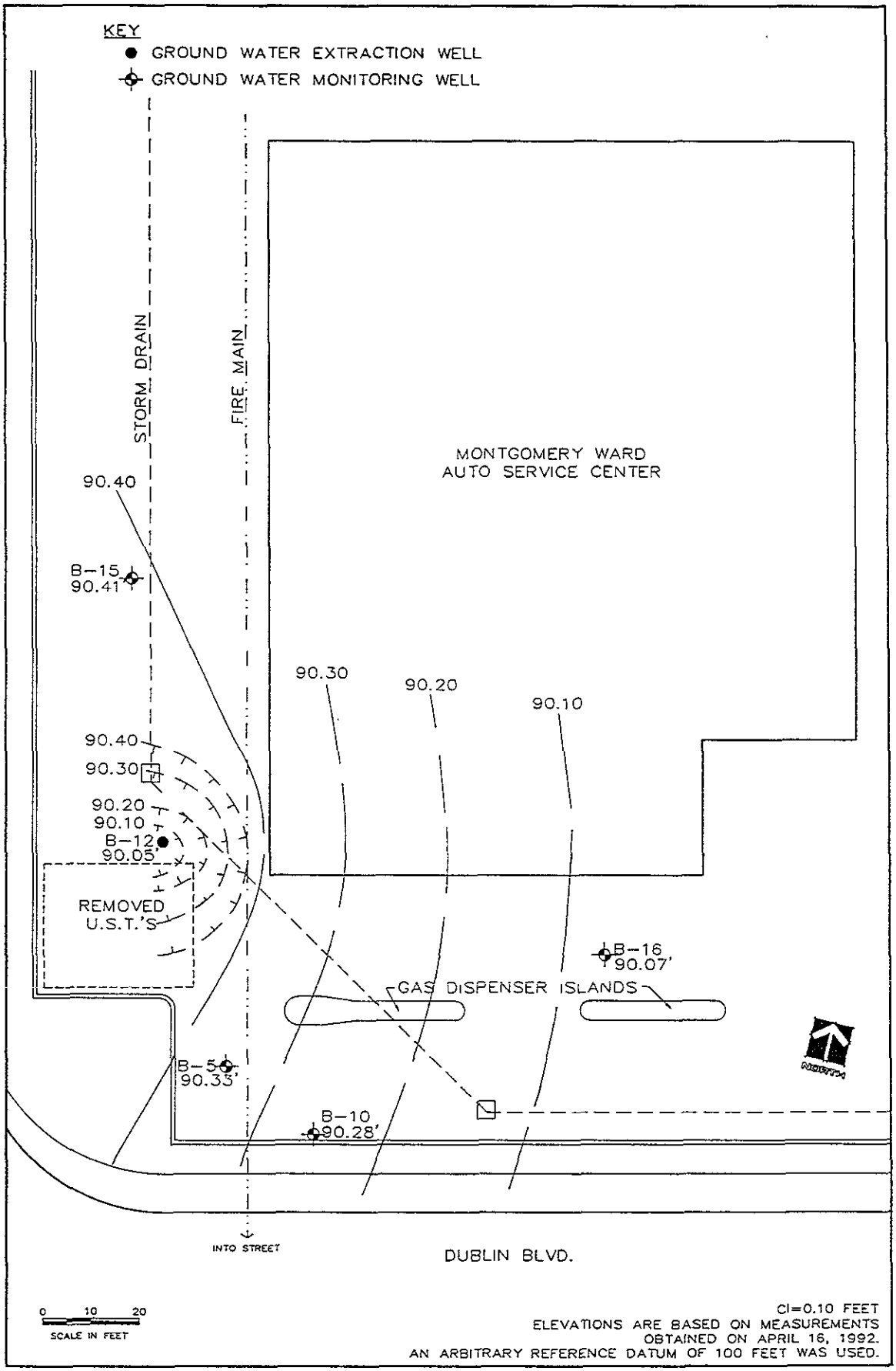
LOCATION MAP
MONTGOMERY WARD AUTO SERVICES CENTER
7575 DUBLIN BOULEVARD, DUBLIN, CA

USGS DUBLIN 7.5 MINUTE QUADRANGLE,
1961, PHOTOREVISED 1980.

DATE : 5-92

FIGURE: 1

FNM=1233LM01



ENVIRONMENTAL AUDIT, INC.

GROUND WATER ELEVATION MAP
MONTGOMERY WARD AUTO SERVICE CENTER
7575 DUBLIN BOULEVARD
DUBLIN, CA

DATE: MAY, 1992

FIGURE: 2

1233EM02

APPENDICES

APPENDIX A

CHAIN OF CUSTODY RECORD

ENVIRONMENTAL AUDIT, INC.
Planning, Environmental Analyses and Hazardous Substances Management and Redemption
1000-A ORTEGA WAY, PLACENTIA, CA 92670-7125
714/632-8521 FAX: 714/632-6754

CHAIN OF CUSTODY RECORD

PROJECT NO. 1233

PROJECT NAME Mont Ward Dublin

SAMPLERS: (Signature) F.S. Munamoto

SAMPLE NUMBER	DATE	TIME	SAMPLE DESCRIPTION	TYPE CONTNR: X 40ml GLASS VOA's	1-LIT PLASTIC	BRASS/SS TUBE	ANALYSIS: FUEL HC 8015	PETROLEUM HC 418.1	BTX 8020	VOLATILE ORGANICS 624 8240	TOTAL LEAD	EXTRACTABLE ORGANICS 625 8270	OIL & GREASE	CAM METALS TOTAL WET	OTHER	TOTAL NUMBER OF CONTAINERS	REMARKS
																	Page 1 of 1
																	Use lowest possible detection limits.
B-5	4/16/92	1705 hrs	Water 2040753AD	3	1		✓		✓		✓					4	VOAs vials acidize w/ HCL
B-10	"	1850 hrs	Water 754AD	3	1		✓		✓		✓					4	1-liter plastic ~~HNO3~~ acidize w/ HNO3
B-15	4/17/92	0840 hrs	Water 755AD	3	1		✓		✓		✓					4	" "
B-16	"	0935 hrs	Water 756AD	3	1		✓		✓		✓					4	" "
B-12	"	1205 hrs	Water 757AD	3	1		✓		✓		✓					4	" "
																	15 DAY T.A.T
															TOTAL NUMBER OF CONTAINERS	20	

RELENQUISHED BY: (Signature) F.S. Munamoto	DATE/TIME 4/17/92 13:25	RECEIVED BY: (Signature)	RELENQUISHED BY: (Signature)	DATE/TIME	RECEIVED BY: (Signature)
RELENQUISHED BY: (Signature)	DATE/TIME	RECEIVED BY: (Signature)	RELENQUISHED BY: (Signature)	DATE/TIME	RECEIVED BY: (Signature)
METHOD OF SHIPMENT:		SHIPPED BY: (Signature)	COURIER: (Signature)	RECEIVED FOR LAB BY: (Signature) Ken VanSandwick LAB: SEQUOIA ANALYTICAL	DATE/TIME 4-17-92 13:25

APPENDIX B

LABORATORY REPORTS

SEQUOIA ANALYTICAL

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

Environmental Audit, Inc.	Client Project ID:	#1233	Sampled:	4/16, 4/17/92
1000-A Ortega Way	Matrix Descript:	Water	Received:	Apr 17, 1992
Placentia, CA 92670-7125	Analysis Method:	EPA 5030/8015/8020	Analyzed:	Apr 22, 1992
Attention: Frank Muramoto	First Sample #:	204-0753	Reported:	May 4, 1992

TOTAL PETROLEUM FUEL HYDROCARBONS with BTEX DISTINCTION (EPA 8015/8020)

Sample Number	Sample Description	Low/Medium B.P. Hydrocarbons µg/L (ppb)	Benzene µg/L (ppb)	Toluene µg/L (ppb)	Ethyl Benzene µg/L (ppb)	Xylenes µg/L (ppb)
204-0753	B-5	4,400	670	160	280	320
204-0757	B-12	12,000	1,300	1,100	510	1,200
Detection Limits:		**300**	**3.0**	**3.0**	**3.0**	**3.0**

Low to Medium Boiling Point Hydrocarbons are quantitated against a gasoline standard.
Analytes reported as N.D. were not present above the stated limit of detection. Because matrix effects and/or other factors required additional sample dilution, detection limits for this sample have been raised.

SEQUOIA ANALYTICAL

Scott A. Chieffo
Project Manager

SEQUOIA ANALYTICAL

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

Environmental Audit, Inc.	Client Project ID:	#1233	Sampled:	Apr 16, 1992
1000-A Ortega Way	Matrix Descript:	Water	Received:	Apr 17, 1992
Placentia, CA 92670-7125	Analysis Method:	EPA 5030/8015/8020	Analyzed:	Apr 22, 1992
Attention: Frank Muramoto	First Sample #:	204-0754	Reported:	May 4, 1992

TOTAL PETROLEUM FUEL HYDROCARBONS with BTEX DISTINCTION (EPA 8015/8020)

Sample Number	Sample Description	Low/Medium B.P. Hydrocarbons µg/L (ppb)	Benzene µg/L (ppb)	Toluene µg/L (ppb)	Ethyl Benzene µg/L (ppb)	Xylenes µg/L (ppb)
204-0754	B - 10	7,300	1,400	640	880	1,100
Detection Limits:		**150**	**1.5**	**1.5**	**1.5**	**1.5**

Low to Medium Boiling Point Hydrocarbons are quantitated against a gasoline standard.
Analytes reported as N.D. were not present above the stated limit of detection. Because matrix effects and/or other factors required additional sample dilution, detection limits for this sample have been raised.

SEQUOIA ANALYTICAL

Scott A. Chieffo
Project Manager

SEQUOIA ANALYTICAL

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

Environmental Audit, Inc.	Client Project ID:	#1233	Sampled:	Apr 17, 1992
1000-A Ortega Way	Matrix Descript:	Water	Received:	Apr 17, 1992
Placentia, CA 92670-7125	Analysis Method:	EPA 5030/8015/8020	Analyzed:	Apr 22, 1992
Attention: Frank Muramoto	First Sample #:	204-0755	Reported:	May 4, 1992

TOTAL PETROLEUM FUEL HYDROCARBONS with BTEX DISTINCTION (EPA 8015/8020)

Sample Number	Sample Description	Low/Medium B.P. Hydrocarbons µg/L (ppb)	Benzene µg/L (ppb)	Toluene µg/L (ppb)	Ethyl Benzene µg/L (ppb)	Xylenes µg/L (ppb)
204-0755	B - 15	65	4.4	2.4	6.1	2.8
Detection Limits:		**30**	**0.30**	**0.30**	**0.30**	**0.30**

Low to Medium Boiling Point Hydrocarbons are quantitated against a gasoline standard.
Analytes reported as N.D. were not present above the stated limit of detection.

SEQUOIA ANALYTICAL

Scott A. Chieffo
Project Manager

SEQUOIA ANALYTICAL

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

Environmental Audit, Inc.	Client Project ID:	#1233	Sampled:	Apr 17, 1992
1000-A Ortega Way	Matrix Descript:	Water	Received:	Apr 17, 1992
Placentia, CA 92670-7125	Analysis Method:	EPA 5030/8015/8020	Analyzed:	Apr 22, 1992
Attention: Frank Muramoto	First Sample #:	204-0756	Reported:	May 4, 1992

TOTAL PETROLEUM FUEL HYDROCARBONS with BTEX DISTINCTION (EPA 8015/8020)

Sample Number	Sample Description	Low/Medium B.P. Hydrocarbons µg/L (ppb)	Benzene µg/L (ppb)	Toluene µg/L (ppb)	Ethyl Benzene µg/L (ppb)	Xylenes µg/L (ppb)
204-0756	B - 16	1,300	390	1.7	35	9.3
Detection Limits:		**120**	**1.2**	**1.2**	**1.2**	**1.2**

Low to Medium Boiling Point Hydrocarbons are quantitated against a gasoline standard.
Analytes reported as N.D. were not present above the stated limit of detection. Because matrix effects and/or other factors required additional sample dilution, detection limits for this sample have been raised.

SEQUOIA ANALYTICAL

Scott A. Chieffo
Project Manager

SEQUOIA ANALYTICAL

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

Environmental Audit, Inc.	Client Project ID:	#1233	Sampled:	4/16, 4/17
1000-A Ortega Way	Sample Descript:	Water	Received:	Apr 17, 1992
Placentia, CA 92670-7125	Analysis for:	Total Lead	Extracted:	Apr 30, 1992
Attention: Frank Muramoto	First Sample #:	204-0753	Analyzed:	Apr 30, 1992
			Reported:	May 4, 1992

LABORATORY ANALYSIS FOR: Total Lead

Sample Number	Sample Description	Detection Limit mg/L	Sample Result mg/L
204-0753	B - 5	0.0050	N.D.
204-0754	B - 10	0.0050	N.D.
204-0755	B - 15	0.0050	N.D.
204-0756	B - 16	0.0050	0.0057
204-0757	B - 12	0.0050	N.D.

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

SEQUOIA ANALYTICAL

Scott A. Chieffo
Project Manager

SEQUOIA ANALYTICAL

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

Environmental Audit, Inc.
1000-A Ortega Way
Placentia, CA 92670-7125
Attention: Frank Muramoto

Client Project ID: #1233

QC Sample Group: 2040753-0757

Reported: May 4, 1992

QUALITY CONTROL DATA REPORT

ANALYTE	Benzene	Toluene	Ethyl-Benzene	Xylenes	Total Lead
Method:	EPA 8015/8020	EPA 8015/8020	EPA 8015/8020	EPA 8015/8020	EPA 239.2
Analyst:	K.E.	K.E.	K.E.	K.E.	K. Anderson
Reporting Units:	µg/L	µg/L	µg/L	µg/L	mg/L
Date Analyzed:	Apr 22, 1992	Apr 22, 1992	Apr 22, 1992	Apr 22, 1992	Apr 30, 1992
QC Sample #:	Matrix Blank	Matrix Blank	Matrix Blank	Matrix Blank	204-0757
Sample Conc.:	N.D.	N.D.	N.D.	N.D.	N.D.
Spike Conc. Added:	20	20	20	60	0.10
Conc. Matrix Spike:	16	16	17	52	0.086
Matrix Spike % Recovery:	80	80	85	87	86
Conc. Matrix Spike Dup.:	16	16	17	51	0.087
Matrix Spike Duplicate % Recovery:	80	80	85	85	87
Relative % Difference:	0.0	0.0	0.0	1.9	1.2

SEQUOIA ANALYTICAL

Scott A. Chieffo
Project Manager

% Recovery:	Conc. of M.S. - Conc. of Sample / Spike Conc. Added	x 100
Relative % Difference:	Conc. of M.S. - Conc. of M.S.D. / (Conc. of M.S. + Conc. of M.S.D.) / 2	x 100