

A Report Prepared for

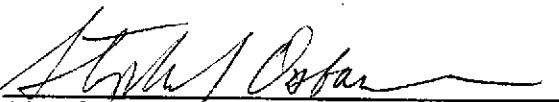
City of Emeryville Redevelopment Agency
2200 Powell Street, Suite 1200
Emeryville, California 94608

RESULTS OF FIRST QUARTERLY AND
ANNUAL GROUNDWATER MONITORING, 1991
TRANSO/LACOSTE SITE
(PARCELS 4-2 AND 4-3)
EMERYVILLE, CALIFORNIA

HLA Job No. 2421,021.03

by


Terence J. McManus
Associate Environmental Scientist


Stephen J. Osborne
Geotechnical Engineer



91 JUN 26 AM 11:22

Harding Lawson Associates
1355 Willow Way, Suite 109
Concord, California 94520
415/687-9660

June 19, 1991

INTRODUCTION

This report presents the results of quarterly water level measurements and annual groundwater sampling by Harding Lawson Associates (HLA) for Parcels 4-2 and 4-3 (the Transo/LaCoste Site) in Emeryville, California (Plate 1). The site is shown on Plate 2. Results presented in this report are for the first quarter of a five-quarter monitoring program. For the second, third, and fourth quarters of the monitoring program, only water level measurements are planned. Groundwater from the wells will be sampled again during the fifth quarter. Field procedures used are described below, and results of chemical analyses are compared with previous chemical data for the site.

BACKGROUND

The site consists of two parcels, Parcel 4-2, located at 1600 64th Street, and Parcel 4-3, at 6401 Bay Street. Parcel 4-2 was formerly owned by the Transo Envelope Company (Transo), and Parcel 4-3 by the LaCoste Meat Company (LaCoste). In 1990, the City of Emeryville Redevelopment Agency (City) purchased the site as part of the Bay Street-Shellmound Street extension project.

Prior to the City's acquisition of the site, HLA performed a preliminary hazardous materials site assessment (PSA) to identify potential on-site sources of contamination and known sources of off-site contamination. The results of that study were presented in a report dated December 28, 1989 (HLA Job No. 2421,010.03).

Subsequently, we conducted a hazardous materials investigation for the subject site, which involved installation of six on-site monitoring wells and drilling of three soil borings (Plate 2). The results of that investigation were presented in a report dated October 26, 1990 ("Hazardous Materials Investigation/Demolition Monitoring", HLA Job No. 2421,014.03). Soils encountered during our investigation indicate that the site contains fill ranging from a depth of approximately five feet (B-2 and MW-1) along the eastern property line to at least 16.5 feet (the maximum depth explored) in the middle of the western side of the parcel (B-3). The fill primarily consists of lean clay, with gravel, sand and silt distributed throughout. Native soils underlying the fill consist of varying layers of clay, silt, sand, and peat.

Soil and water samples were collected from the borings and monitoring wells and analyzed for a broad range of chemical parameters. Chemical results indicated detectable concentrations of petroleum hydrocarbons in soil and water samples, as well as elevated concentrations of lead and zinc. The hydrocarbons found were primarily in the oil and grease range. Results of analyses on soil samples for oil and grease, lead, and zinc are summarized in Table 1. In groundwater samples, only benzene exceeded Maximum Contaminant Levels (MCLs) or Drinking Water Action Levels

(DWALs).* HLA recommended that the City continue groundwater monitoring and incorporate in-place capping of the soil into final development plans for the site.

On March 26, 1991, the City authorized HLA to commence with quarterly groundwater monitoring over five quarters, including measurement of the hydraulic gradient and annual groundwater sampling for chemical analysis.

GROUNDWATER SAMPLING

On April 3, 1991, HLA collected groundwater samples from wells MW-1 through MW-6. Before sampling, we checked for the presence of separate-phase floating hydrocarbon product in all wells, using an oil-water interface probe (Marine Moisture Control Co. Model D-2401-2VI). We then purged at least three casing volumes from each well while monitoring temperature, pH and conductivity. After those parameters stabilized, groundwater samples were collected with a clean stainless steel bailer, and decanted directly into laboratory-prepared containers. The samples were labeled and placed into an ice-chilled cooler for transportation, under chain-of-custody, to a state-certified chemical testing laboratory. Between wells all sampling and purging equipment was decontaminated in an Alconox solution, and

* MCLs are enforceable standards specified by the U.S. Environmental Protection Agency and California Department of Health Services (DHS). DWALs are guidance established by the DHS.

rinsed with deionized water. Purged groundwater was stored on site in 55-gallon drums approved by the United States Department of Transportation (DOT). On the basis of analytical results, HLA arranged for off-site disposal of the water at a permitted oil/water recycling facility.

CHEMICAL TESTING

Groundwater samples were sent to Sequoia Analytical Laboratories in Concord, California, and analyzed for total petroleum hydrocarbons (TPH) as gasoline (EPA Test Method 8015 [modified]/5030); benzene, toluene, ethylbenzene, and xylenes (BTEX, EPA Test Method 8020); total oil and grease (TOG, Standard Method 5520 B/F); and lead and zinc (EPA Test Methods 7421 and 7950, respectively). The results of chemical analyses are presented in Table 2, along with groundwater data from the preceding phases of site assessment. Laboratory reports for water analyses are presented in the Appendix.

GROUNDWATER GRADIENT

Prior to groundwater sampling, water level measurements were obtained in MW-1 through MW-6, using a chalked steel tape accurate to 0.01 feet. On April 4, 1991, HLA retained David Evans and Associates, Inc., a licensed land surveyor, to survey the casing elevations of MW-1 through MW-6 so that we could accurately determine the hydraulic gradient at the site. Well

survey and water level data are presented in Table 3. Water levels in each of the wells have risen during the past year. Our calculations indicate that the hydraulic gradient (Plate 3) is westerly, which agrees with previous measurements.

DISCUSSION OF RESULTS

The results of analyses indicated no detectable concentrations of BTEX or TPH as gasoline in groundwater samples from MW-1 through MW-6. However, increased TOG concentrations were observed in groundwater samples from MW-2 through MW-6. Metals analyses (lead and zinc) indicated either very low or non-detectable concentrations of lead and zinc in all wells, with the exception of MW-6 (0.11 parts per million [ppm] lead). This concentration exceeds the MCL for lead, 0.05 ppm.

CONCLUSIONS AND RECOMMENDATIONS

Concentrations of chemicals in the groundwater samples were below MCLs and/or DWALs, except for lead in water from MW-6. Lead concentrations in water from this well have increased from 0.0066 to 0.11 ppm. The source of the lead in this sample is probably the fill material, which is approximately 10 to 15 feet deep in this portion of the site. Lead concentrations up to 5,700 ppm were found in samples of the fill material during our previous investigations at the site. To further evaluate the lead concentrations in water from MW-6, we recommend that

groundwater from this well be sampled and chemically analyzed for lead each quarter for the remainder of the monitoring program.

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Laboratory Analytical Reports

Table 1. Concentrations of Selected Compounds in Soil Samples
December 1989 and March 1990 Investigations
(reported in parts per million [ppm])

Location	Sample Depth (ft)	TPH*	TOG*	Metals	
		Motor Oil (ppm)	(ppm)	Lead (ppm)	Zinc (ppm)
B-1	5.5	640	--	210	820
B-2	5.5	<20	--	5	27
B-3	3.0	--	8.0	17	31
B-3	6.0	--	250	2,600	370
B-3	15.0	--	120,000	5,700	1,900
B-4	2.5	--	1,200	650	2,800
B-4	6.0	--	5,000	24	73
B-4	11.0	--	31	25	140
MW-1	5.5	80	--	19	26
MW-2	5.5	280	--	120	90
MW-3	5.0	640	--	220	440
	10.5	3,600	--	83	180
MW-4	5.5	--	460	500	530
	10.5	--	3,000	17	100
	15.50	--	200	17	38
MW-5	3.0	--	22	8.2	35
	5.5	--	230	100	190
	13.00	--	<4.0	7.2	65
MW-6	3.0	--	19	4.0	25
	6.0	--	1,000	72	92
	12.0	--	250	260	1,000
**TTLC		--	--	--	--

*TPH = Total petroleum hydrocarbons using modified EPA Test Method 5030/3550/8015 (purge and trap or extraction, followed by gas chromatography).

TOG = Total Oil and Grease using USEPA Test Method 418.1

**TTLC = Regulatory Standards for Zinc and Lead are the Total Threshold Limit Concentration (TTLC) listed in Title 22, Section 66699 of the California Code of regulations.

Table 2. Concentrations of Selected Compounds in Groundwater Samples (reported in parts per million [ppm])

Location	Date Sampled	VOCs*				TPH*	TOG*	Metals	
		Benzene (ppm)	Toluene (ppm)	Etyhlbenzene (ppm)	Total Xylenes (ppm)	Gasoline (ppm)	Oil & Grease (ppm)	Lead (ppm)	Zinc (ppm)
MW-1	12/29/89	<0.005	<0.005	<0.005	<0.01	0.1	<0.01	<0.01	0.028
	03/24/90	<0.0003	<0.0003	<0.0003	0.0003	0.085	<0.01	<0.005	0.069
	04/03/91	<0.0003	<0.0003	<0.0003	<0.0003	<0.03	<0.005	0.005	<0.00001
MW-2	12/29/89	<0.005	<0.005	<0.005	<0.01	0.1	12	<0.01	0.015
	03/24/90	<0.0003	<0.0003	<0.0003	<0.0004	0.05	4.2	<0.005	0.1
	04/03/91	<0.0003	<0.0003	<0.0003	<0.0003	<0.03	47	0.007	<0.00001
MW-3	12/29/89	<0.005	<0.005	<0.005	<0.01	<0.1	2	<0.01	0.078
	03/24/90	<0.0003	<0.0003	<0.0003	<0.0003	<0.03	4.8	<0.005	0.25
	04/03/91	<0.0003	<0.0003	<0.0003	<0.0003	<0.03	5.8	<0.005	<0.00001
MW-4	03/24/90	0.004	0.002	<0.0003	0.0005	0.04	4.2	<0.005	0.16
	04/03/91	<0.0003	<0.0003	<0.0003	<0.0003	<0.03	87	<0.005	<0.00001
MW-5	03/24/90	<0.0003	<0.0003	<0.0003	<0.0003	<0.03	<0.1	0.005	0.068
	04/03/91	<0.0003	<0.0003	<0.0003	<0.0003	<0.03	10	<0.005	<0.00001
MW-6	03/24/90	0.0004	<0.0003	<0.0003	0.0013	0.04	12	0.0066	0.15
	04/03/91	<0.0003	<0.0003	<0.0003	<0.0003	<0.03	28	0.11	<0.00036
MCLs**		0.001	0.1	0.68	1.75	NE	NE	0.05	5

* VOCs = Volatile organic compounds using EPA Test Method 8240 (12/29/89), and EPA Test Method and 8020 (3/24/90 and 4/3/91).
 TPH = Total petroleum hydrocarbons using EPA Test Method 8015 [modified]/5030.
 TOG = Total Oil and Grease by Standard Method 503E (12/29/89), USEPA Method 418.1 (3/24/90), and Standard Method 5520 (4/3/91).

** Maximum contaminant levels are specified by the California Department of Health Services (DHS) and U.S. Environmental Protection Agency; where MCLs have not been established, drinking water action levels (DWALs) are listed.

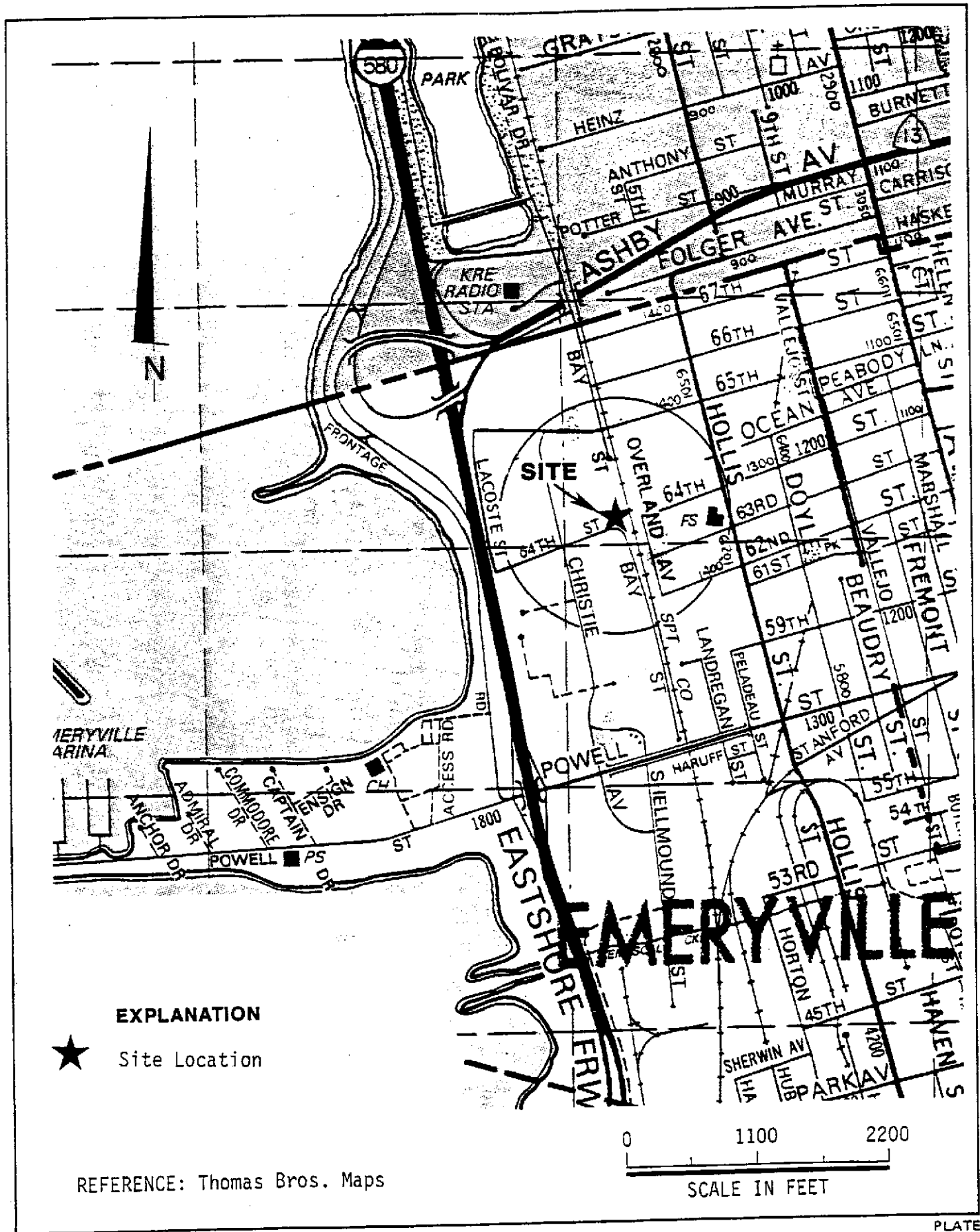
NE = Not established

Table 3. Groundwater Surface Elevations in Monitoring Wells

Well No.	Date Measured	Top of Casing Elevation* (feet)	Depth to Groundwater (feet)	Groundwater Surface Elevation + (feet)
MW-1	01/05/90	12.36	6.16	6.20
	04/10/90		6.32	6.04
	04/03/91		4.74	7.62
MW-2	05/05/90	12.73	6.87	5.86
	04/10/90		6.65	6.08
	04/03/91		5.48	7.25
MW-3	01/05/90	10.60	4.73	5.87
	04/10/90		4.59	6.01
	04/03/91		4.00	6.60
MW-4	04/10/90	16.12	9.76	6.36
	04/03/91		8.43	7.69
MW-5	04/10/90	11.70	5.54	6.16
	04/03/91		3.80	7.90
MW-6	04/10/90	12.46	6.58	5.88
	04/03/91		6.00	6.46

* Elevations are relative to NGVD Benchmark.

+ Groundwater Surface Elevations = Top of casing elevation > groundwater depth below top of casing.



EXPLANATION

★ Site Location

REFERENCE: Thomas Bros. Maps

SCALE IN FEET



Harding Lawson Associates
Engineering and
Environmental Services

Vicinity Map
Traso/La Coste Site
Emeryville, California

PLATE

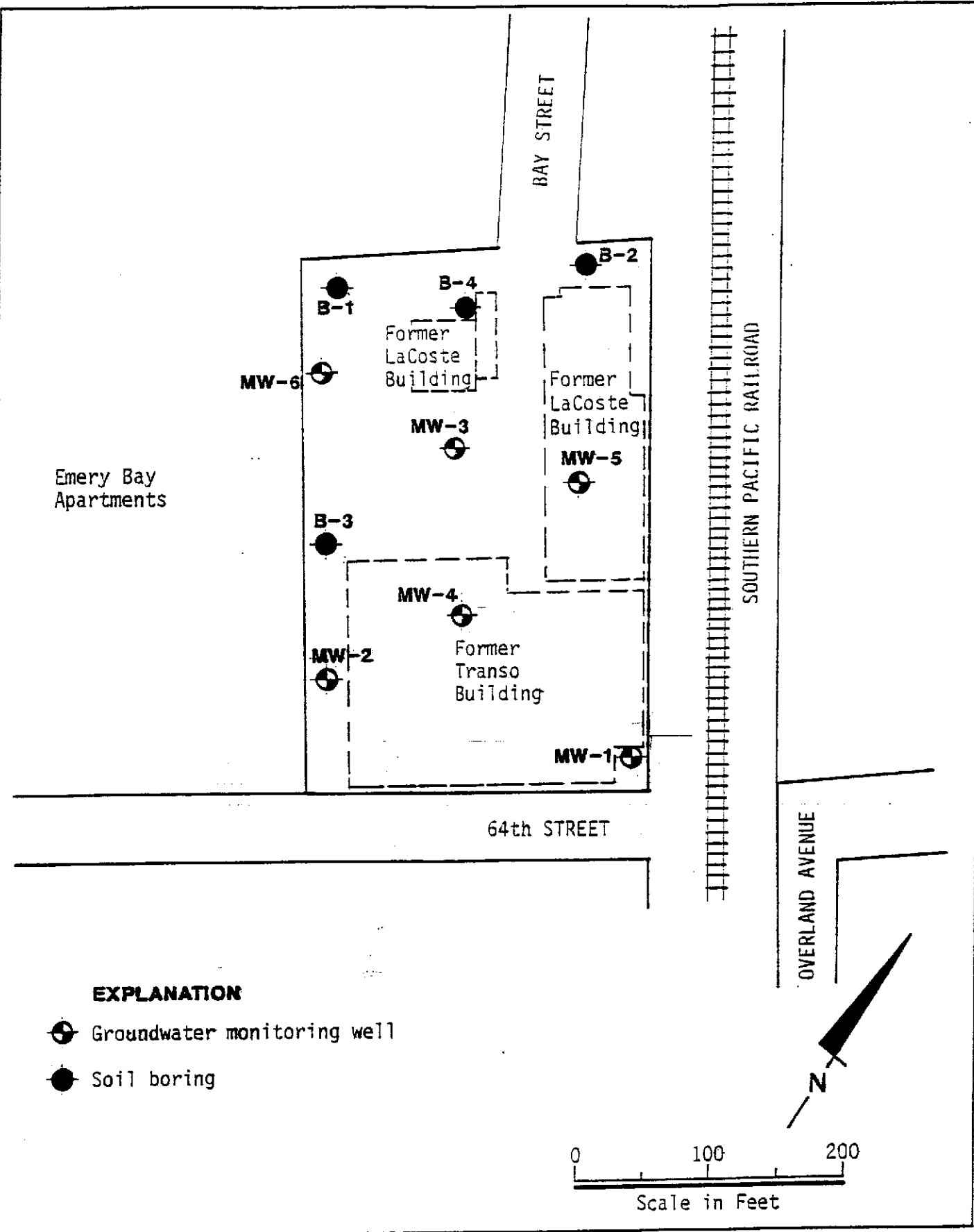
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DRAWN YC JOB NUMBER 2421,021.03

APPROVED TJM

DATE 5/91

REVISED DATE



EXPLANATION

- ⊕ Groundwater monitoring well
- Soil boring



Harding Lawson Associates
Engineering and
Environmental Services

Soil Sampling Locations
Transo/LaCoste Site
Emeryville, California

PLATE

2

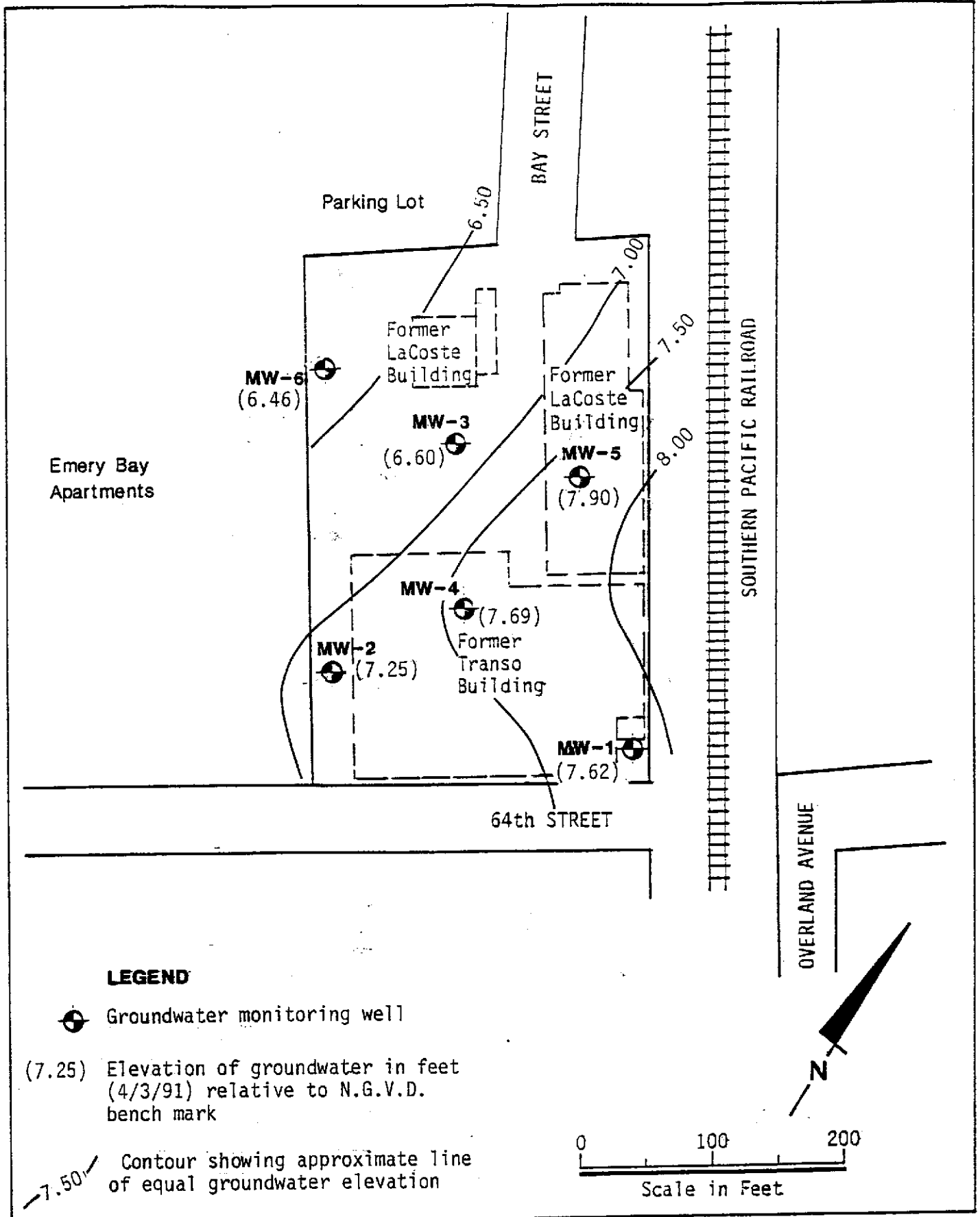
DRAWN
YC

JOB NUMBER
2421,021.03

APPROVED
DBE

DATE
06/07/91

REVISED DATE



Harding Lawson Associates
 Engineering and
 Environmental Services

Hydraulic Gradient
 Transo/LaCoste Site
 Emeryville, California

PLATE
3

DRAWN	JOB NUMBER	APPROVED	DATE	REVISED DATE
YC	2421,021.03	TJM	5/91	

APPENDIX
LABORATORY ANALYTICAL REPORTS



SEQUOIA ANALYTICAL

1900 Bates Avenue • Suite LM • Concord, California 94520
(415) 686-9600 • FAX (415) 686-9689

Harding Lawson Associates (Conco Client Project ID: #2421,021.03	Sampled: Apr 3, 1991
1355 Willow Way, Suite 109	Received: Apr 3, 1991
Concord, CA 94520	Matrix Descript: Water
Attention: Terry McManus	Analysis Method: EPA 5030/8015/8020
	First Sample #: 104-0115 AB
	Analyzed: Apr 15, 1991
	Reported: Apr 19, 1991

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

Sample Number	Sample Description	Low/Medium B.P. Hydrocarbons			Ethyl Benzene	Xylenes
		$\mu\text{g/L}$ (ppb)	$\mu\text{g/L}$ (ppb)	Toluene $\mu\text{g/L}$ (ppb)	$\mu\text{g/L}$ (ppb)	$\mu\text{g/L}$ (ppb)
104-0115 AB	MW-1	N.D.	N.D.	N.D.	N.D.	N.D.
104-0116 AB	MW-2	N.D.	N.D.	N.D.	N.D.	N.D.
104-0117 AB	MW-3	N.D.	N.D.	N.D.	N.D.	N.D.
104-0118 AB	MW-4	N.D.	N.D.	N.D.	N.D.	N.D.
104-0119 AB	MW-5	N.D.	N.D.	N.D.	N.D.	N.D.
104-0120 AB	MW-6	N.D.	N.D.	N.D.	N.D.	N.D.

Detection Limits:	30	0.30	0.30	0.30	0.30
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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

Belinda C. Vega
Belinda C. Vega
Laboratory Director

1040115.HAO <1>



SEQUOIA ANALYTICAL

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Harding Lawson Associates (Conco Client Project ID: #2421,021.03
1355 Willow Way, Suite 109
Concord, CA 94520
Attention: Terry McManus

QC Sample Group: 1040115-20

Reported: Apr 19, 1991

QUALITY CONTROL DATA REPORT

ANALYTE	Benzene		Ethyl Xylenes	
	Benzene	Toluene	Benzene	Xylenes

Method:	EPA8015/8020	EPA8015/8020	EPA8015/8020	EPA8015/8020
Analyst:	E.H./S.L.	E.H./S.L.	E.H./S.L.	E.H./S.L.
Reporting Units:	ppb	ppb	ppb	ppb
Date Analyzed:	Apr 15, 1991	Apr 15, 1991	Apr 15, 1991	Apr 15, 1991
QC Sample #:	104-0022	104-0022	104-0022	104-0022

Sample Conc.:	N.D.	N.D.	N.D.	N.D.
Spike Conc. Added:	20	20	20	60
Conc. Matrix Spike:	27	25	24	72
Matrix Spike % Recovery:	140	130	120	120
Conc. Matrix Spike Dup.:	27	24	21	64
Matrix Spike Duplicate % Recovery:	140	120	110	110
Relative % Difference:	0	4.1	13	12

SEQUOIA ANALYTICAL

Belinda C. Vega
Belinda C. Vega
Laboratory Director

% Recovery:	$\frac{\text{Conc. of M.S.} - \text{Conc. of Sample}}{\text{Spike Conc. Added}} \times 100$
Relative % Difference:	$\frac{\text{Conc. of M.S.} - \text{Conc. of M.S.D.}}{(\text{Conc. of M.S.} + \text{Conc. of M.S.D.}) / 2} \times 100$



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Harding Lawson Associates (Conco Client Project ID: #2421,021.03	Sampled: Apr 3, 1991
1355 Willow Way, Suite 109	Received: Apr 3, 1991
Concord, CA 94520	Extracted: Apr 9, 1991
Attention: Terry McManus	Analyzed: Apr 11, 1991
Matrix Descript: Water	Reported: Apr 19, 1991
Analysis Method: SM 5520 B&F (Gravimetric)	
First Sample #: 104-0115 C-D	

TOTAL RECOVERABLE PETROLEUM OIL

Sample Number	Sample Description	Oil & Grease mg/L (ppm)
104-0115 C-D	MW-1	N.D.
104-0116 C-D	MW-2	47
104-0117 C-D	MW-3	5.8
104-0118 C-D	MW-4	87
104-0119 C-D	MW-5	10
104-0120 C-D	MW-6	28

Detection Limits:

5.0

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

SEQUOIA ANALYTICAL

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Belinda C. Vega
Laboratory Director

1040115.HAO <3>



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Harding Lawson Associates
1355 Willow Way, Suite 109
Concord, CA 94520
Attention: Terry McManus

Client Project ID: #2421,021.03

QC Sample Group: 1040115-20

Reported: Apr 19, 1991

QUALITY CONTROL DATA REPORT

ANALYTE

Oil & Grease

Method: SM 5520 B&F
Analyst: S. Le
Reporting Units: ppm
Date Analyzed: Apr 11, 1991
QC Sample #: BLK040991

Sample Conc.: N.D.

Spike Conc.
Added: 100

Conc. Matrix
Spike: 75

Matrix Spike
% Recovery: 75

Conc. Matrix
Spike Dup.: 75

Matrix Spike
Duplicate
% Recovery: 75

Relative
% Difference: 0

SEQUOIA ANALYTICAL

Belinda C. Vega
Belinda C. Vega
Laboratory Director

% Recovery:	$\frac{\text{Conc. of M.S.} - \text{Conc. of Sample}}{\text{Spike Conc. Added}} \times 100$
Relative % Difference:	$\frac{\text{Conc. of M.S.} - \text{Conc. of M.S.D.}}{(\text{Conc. of M.S.} + \text{Conc. of M.S.D.}) / 2} \times 100$



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Harding Lawson Associates (Conco Client Project ID: #2421,021.03
1355 Willow Way, Suite 109 Sample Descript: Water
Concord, CA 94520 Analysis for: Lead
Attention: Terry McManus First Sample #: 104-0115 E

Sampled: Apr 3, 1991
Received: Apr 3, 1991
Extracted: Apr 8, 1991
Analyzed: Apr 8, 1991
Reported: Apr 19, 1991

LABORATORY ANALYSIS FOR: Lead

Sample Number	Sample Description	Detection Limit $\mu\text{g/L}$	Sample Result $\mu\text{g/L}$
104-0115 E	MW-1	5.0	5.2
104-0116 E	MW-2	5.0	7.2
104-0117 E	MW-3	5.0	N.D.
104-0118 E	MW-4	5.0	N.D.
104-0119 E	MW-5	5.0	N.D.
104-0120 E	MW-6	5.0	110

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

SEQUOIA ANALYTICAL

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Belinda C. Vega
Laboratory Director

1040115.HAO <5>



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Harding Lawson Associates
1355 Willow Way, Suite 109
Concord, CA 94520
Attention: Terry McManus

Client Project ID: #2421,021.03
Sample Descript: Water
Analysis for: Zinc
First Sample #: 104-0115 E

Sampled: Apr 3, 1991
Received: Apr 3, 1991
Extracted: Apr 8, 1991
Analyzed: Apr 9, 1991
Reported: Apr 19, 1991

LABORATORY ANALYSIS FOR: Zinc

Sample Number	Sample Description	Detection Limit mg/L	Sample Result mg/L
104-0115 E	MW-1	0.010	N.D.
104-0116 E	MW-2	0.010	N.D.
104-0117 E	MW-3	0.010	N.D.
104-0118 E	MW-4	0.010	N.D.
104-0119 E	MW-5	0.010	N.D.
104-0120 E	MW-6	0.36	N.D.

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

SEQUOIA ANALYTICAL

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Belinda C. Vega
Laboratory Director

1040115.HAO <6>



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Harding Lawson Associates (Conco Client Project ID: #2421,021.03
1355 Willow Way, Suite 109
Concord, CA 94520
Attention: Terry McManus

QC Sample Group: 1040115-20

Reported: Apr 19, 1991

QUALITY CONTROL DATA REPORT

ANALYTE

Zinc

Lead

Method:	EPA 7950	EPA 7421
Analyst:	N. Herrera	N. Herrera
Reporting Units:	mg/L	µg/L
Date Analyzed:	Apr 9, 1991	Apr 8, 1991
QC Sample #:	104-0120	104-0115

Sample Conc.: 0.36 5.2

Spike Conc. Added: 0.20 80

Conc. Matrix Spike: 0.57 81

Matrix Spike % Recovery: 110 94

Conc. Matrix Spike Dup.: 0.64 81

Matrix Spike Duplicate % Recovery: 140 94

Relative % Difference: 12 0

SEQUOIA ANALYTICAL

Belinda C. Vega

Belinda C. Vega
Laboratory Director

% Recovery:	$\frac{\text{Conc. of M.S.} - \text{Conc. of Sample}}{\text{Spike Conc. Added}} \times 100$
Relative % Difference:	$\frac{\text{Conc. of M.S.} - \text{Conc. of M.S.D.}}{(\text{Conc. of M.S.} + \text{Conc. of M.S.D.}) / 2} \times 100$

DISTRIBUTION

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Emeryville, California 94608

Attention: Mr. Ignacio Dayrit

TJM/SJO/pkp 031343T/R46

QUALITY CONTROL REVIEWER

A handwritten signature in cursive script, reading "Daniel B. Erbes". The signature is written in black ink and is positioned above the printed name and title.

Daniel B. Erbes
Staff Geologist