



CROWLEY MARINE SERVICES, INC.

ENVIRONMENTAL
PROTECTION
90 NOV 21 AM 8:42

November 17, 1995

Mr. Thomas Peacock
Hazardous Materials Division
Department of Environmental Health
Alameda County Health Care Services Agency
1131 Harbor Bay Parkway
Alameda, CA 94502

Reference: **Pacific Dry Dock and Repair Company Yard I**

Dear Mr. Peacock:

Enclosed, for your review, please find the September 1995 ground water monitoring report for the Crowley Marine Services' facility referenced above, located at 1441 Embarcadero in Oakland.

If you have any questions or comments regarding this matter please contact me at (206) 443-8042.

Sincerely,

Stephen Wilson
Manager, Environmental Compliance

Enclosure

cc: PDD I Correspondence w/o enclosure
Beth Hamilton w/o enclosure
Michael Holley w/o enclosure



GROUNDWATER MONITORING REPORT - SEPTEMBER 7, 1995
FORMER PACIFIC DRY DOCK AND REPAIR COMPANY YARD I
OAKLAND, CALIFORNIA

Prepared for:

CROWLEY MARINE SERVICES, INC.
2401 Fourth Avenue
P.O. Box 2287
Seattle, Washington 98111

Prepared by:

VERSAR, INC.
7844 Madison Avenue, Suite 167
Fair Oaks, California 95628

Versar Project No. 2722-117

November 10, 1995

MONITORING EVENT SUMMARY

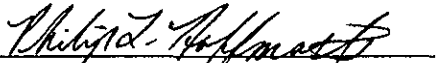
On September 7, 1995, Versar, Inc. (Versar) conducted the ninth round of groundwater monitoring and sampling at the former Pacific Dry Dock and Repair Company Yard I facility located at 1441 Embarcadero in Oakland, California.

Groundwater monitoring is being conducted as part of the site investigation activities. Each sampling event includes: (1) measurement of groundwater levels from all five monitoring wells; (2) collection and analysis of groundwater samples for total petroleum hydrocarbons as gasoline, total petroleum hydrocarbons as diesel, benzene, toluene, ethylbenzene, and xylenes from monitoring wells MW-1 and MW-3; (3) calculation of the hydraulic gradient; and (4) production of a report summarizing the results of the sampling event. Mr. Philip Hoffmeister, Geologist, prepared this report under the guidance of Mr. Michael Sellens, Geoscience Manager.

The following conclusions summarize the investigation:

- On September 7, 1995, the calculated groundwater gradient was 0.014 feet/foot just south of east. The data used to calculate this gradient were collected during an incoming tide.
- No petroleum hydrocarbons as diesel or gasoline were detected in the samples collected from groundwater monitoring wells MW1 and MW3.
- No constituents of benzene, toluene, ethylbenzene, or xylenes were detected in samples collected from groundwater monitoring wells MW1 and MW3.

Prepared by:


Philip Hoffmeister
Geologist

Approved for Release:



Michael Holley, P.E.
Engineering Department Head



TABLE OF CONTENTS

	Page
MONITORING EVENT SUMMARY	i
1.0 INTRODUCTION	1
1.1 Site History	1
2.0 SAMPLING AND MONITORING ACTIVITIES	2
3.0 LABORATORY ANALYTICAL RESULTS	3
4.0 FUTURE ACTIVITIES	4
5.0 REFERENCES	4

LIST OF FIGURES

Figure

- 1 Site Location
- 2 Site Layout
- 3 Calculated Groundwater Gradient, September 7, 1995
- 4 Groundwater Measurements, July 1, 1993, through September 7, 1995
- 5 Laboratory Analytical Results for Groundwater Samples Collected on September 7, 1995

LIST OF TABLES

Table

- 1 Monitoring Well Groundwater Levels
- 2 Laboratory Analytical Results for Groundwater
- 3 Historical Chemical Data for Groundwater

LIST OF APPENDICES

Appendix

- A Monitoring Well Purge Table Sheets
- B Laboratory Analytical Reports and Chain-of-Custody Records for Groundwater Samples Collected September 7, 1995, Ninth Groundwater Sampling Event

1.0 INTRODUCTION

Versar, Inc. (Versar) has been retained by Crowley Marine Services, Inc. (Crowley) to conduct environmental investigations, including a program of groundwater monitoring, at the former Pacific Dry Dock and Repair Company Yard I Facility (Site), located at 1441 Embarcadero in Oakland, California. Please refer to Figures 1 and 2 for site location and site layout, respectively. The investigations are being conducted in accordance with the regulations and policies of the San Francisco Bay Regional Water Quality Control Board and the Alameda County Health Care Services Agency (ACHCSA). The primary purpose of this program is to maintain regularly scheduled groundwater monitoring at the Site.

This report describes the procedures and findings of the ninth round of monitoring and groundwater sampling, which was conducted on September 7, 1995. The general objectives of this sampling event were to:

- measure groundwater levels in monitoring wells MW1, MW2, MW3, MW4, and MW5 and determine the local hydraulic gradient;
- purge and collect groundwater samples from monitoring wells MW1 and MW3;
- submit the groundwater samples to a certified laboratory for analysis for TPH-G, TPH-D, and BTEX; and
- prepare this groundwater monitoring report.

1.1 Site History

Since 1935, the Site has been used as a dry dock and ship repair facility. (Currently, the Site is inactive.) In the process of repairing and refurbishing seagoing vessels, Crowley used products containing regulated materials and generated various regulated and nonregulated wastes. These products and waste materials include waste sand-blasting materials, oil-based paints, solvents, acids, caustic agents, waste oils, motor fuels, and waste generated during the use of these products.

Versar supervised the removal of an underground storage tank (UST) from the site in September 1991. Soil and groundwater samples collected from the excavation following the removal were found to contain total petroleum hydrocarbons as gasoline (TPH-G); total petroleum hydrocarbons as diesel (TPH-D); total oil and grease (TOG); benzene, toluene, ethylbenzene, and xylenes (BTEX); and organic lead. A report detailing the UST removal action was submitted to ACHCSA on January 14, 1992.

In February 1994, Versar supervised the removal of a 500-gallon UST from the northeast corner of the site. Soil and groundwater samples identified concentrations of TPH-D, TPH-G, and BTEX. A report detailing the UST removal was submitted to ACHSA on July 29, 1994.

During the fifth groundwater sampling event, extremely low concentrations of analytes were found in monitoring wells MW2, MW4, and MW5. It was decided that only MW1 and MW3 would be sampled thereafter. ACHCSA agreed to Crowley's proposal to reduce the number of wells to be sampled.

Several other investigations have been performed at the Site. Please refer to Section 5.0 for a list of reports.

2.0 SAMPLING AND MONITORING ACTIVITIES

Versar conducted a ninth round of groundwater monitoring and sampling at the Site on September 7, 1995. The investigation included measuring groundwater levels in the five monitoring wells and collecting groundwater samples from monitoring wells MW1 and MW3.

Before any groundwater sampling was conducted, Versar measured the depth to groundwater below ground surface (bgs) in each monitoring well. Groundwater was present at depths of 6.16 feet bgs (MW1), 5.34 feet bgs (MW2), 7.66 feet bgs (MW3), 6.58 feet bgs (MW4), and 7.05 feet bgs (MW5). The groundwater gradient on September 7, 1995, was 0.014 ft/ft just south of east, as shown in Figure 3. Because of its anomalous readings, groundwater elevation data from MW4 was not included in the groundwater gradient calculation. Versar believes that groundwater elevations in this monitoring well may be influenced by leaking water lines located under the

Embarcadero. The groundwater level data for previous sampling events are listed in Table 1. A hydrograph of the groundwater elevations in the monitoring wells from previous groundwater monitoring events is included as Figure 4.

After groundwater levels were measured, Versar purged the monitoring wells following Versar's standard procedures described in the June 13, 1991 workplan. Data collected during purging included (1) the initial depth to groundwater; (2) pH; (3) temperature; (4) conductivity; and (5) observations of sheen, odor, free product, and turbidity. Details of the purging were recorded and are included as Appendix A.

Versar collected groundwater samples from each monitoring well using a single-use bailer. The samples for TPH-G and BTEX were placed in precleaned, 40-milliliter glass vials preserved with hydrochloric acid. Groundwater samples to be analyzed for TPH-D were placed in precleaned, 1-liter amber glass containers. Sampling containers were labeled with the date collected and a unique sample identification and stored at approximately 4° C in an insulated cooler. All monitoring well groundwater samples were submitted for analysis accompanied by Versar's chain-of-custody records to Trace Analysis Laboratory, Inc., (Trace) a California-certified laboratory (Certification No. 1199). Trace prepared the samples following U.S. Environmental Protection Agency (EPA) protocols. The results of the laboratory analysis are presented in Section 3.0, "Laboratory Analytical Results."

3.0 LABORATORY ANALYTICAL RESULTS

Versar submitted two groundwater samples for laboratory analysis for TPH-G, TPH-D, and BTEX. Analysis for TPH-G and TPH-D was performed following the California Department of Health Services method. Analysis for BTEX was performed following the modified EPA Method 8020. The analytical results are summarized in Figure 5. A copy of the laboratory analytical report and chain-of-custody record from the sampling event is included as Appendix D.

The laboratory reported that the groundwater samples collected from monitoring wells MW1 and MW3 did not contain concentrations of TPH-G, TPH-D or BTEX at or above the method reporting limits.

Laboratory analytical results for groundwater samples are summarized in Table 2. The historical chemical data collected from MW1 and MW3 is summarized in Table 3.

4.0 FUTURE ACTIVITIES

The tenth round sampling event is scheduled for December 4 and 5, 1995. A workplan for the installation of five additional groundwater monitoring wells has been submitted to ACHCSA for review and approval. Upon receipt of ACHCSA approval of the workplan, installation of the new wells will be scheduled.

5.0 REFERENCES

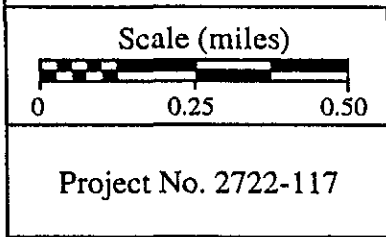
Versar, Inc. Fair Oaks, California. *Well Installation, Pacific Dry Dock and Repair Yard I, Western Section, Oakland, California.* November 1993.

Versar, Inc., Fair Oaks, California. *Phase II Investigation Work Plan, Pacific Dry Dock and Repair Yard I, Western Section, Oakland, California.* March 1992.

Versar, Inc. Fair Oaks, California. *Site Assessment Report for the Pacific Dry Dock Yards I and II, Oakland, California.* September 1990.



SOURCE: USGS TOPO 1959

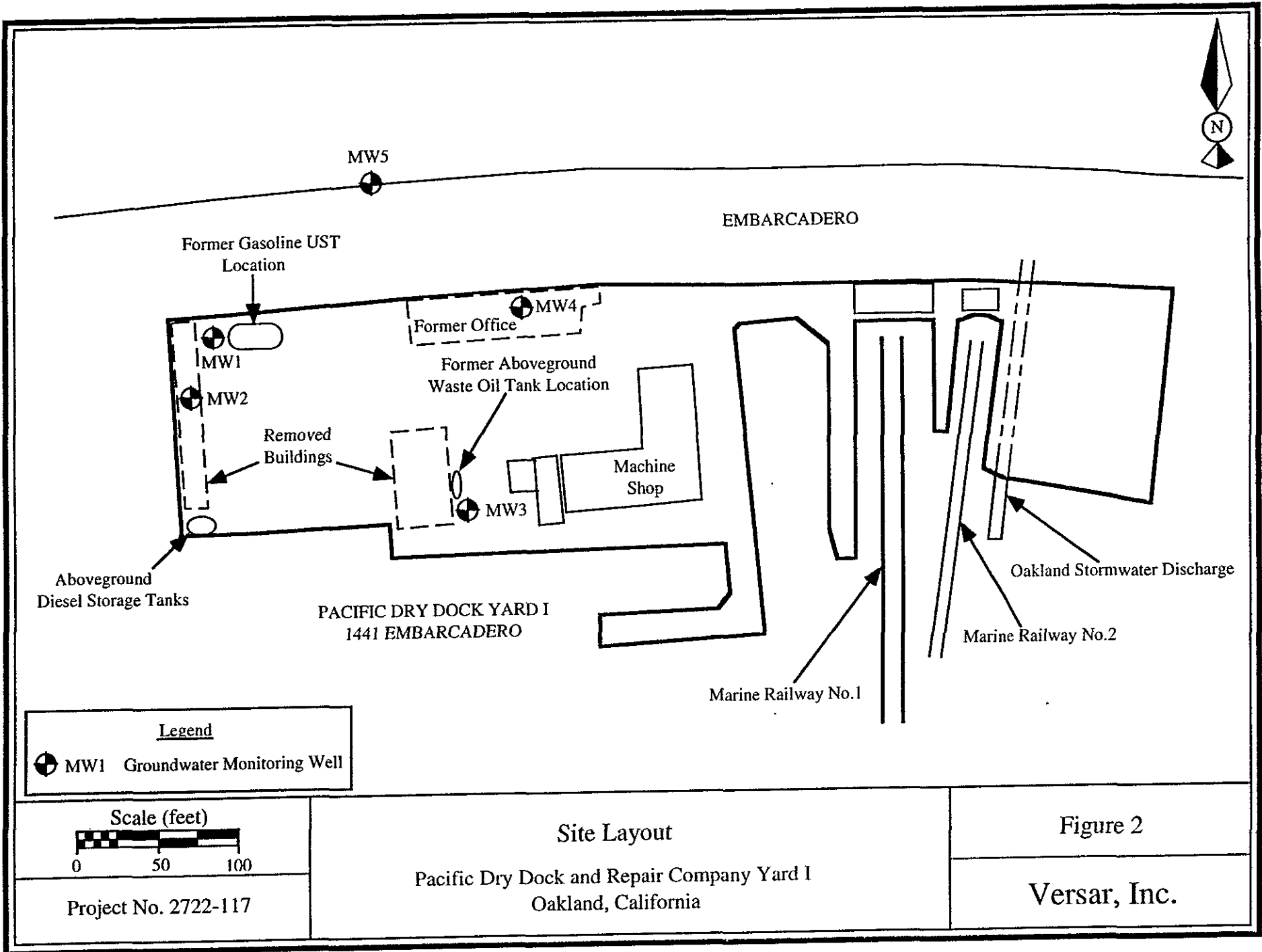


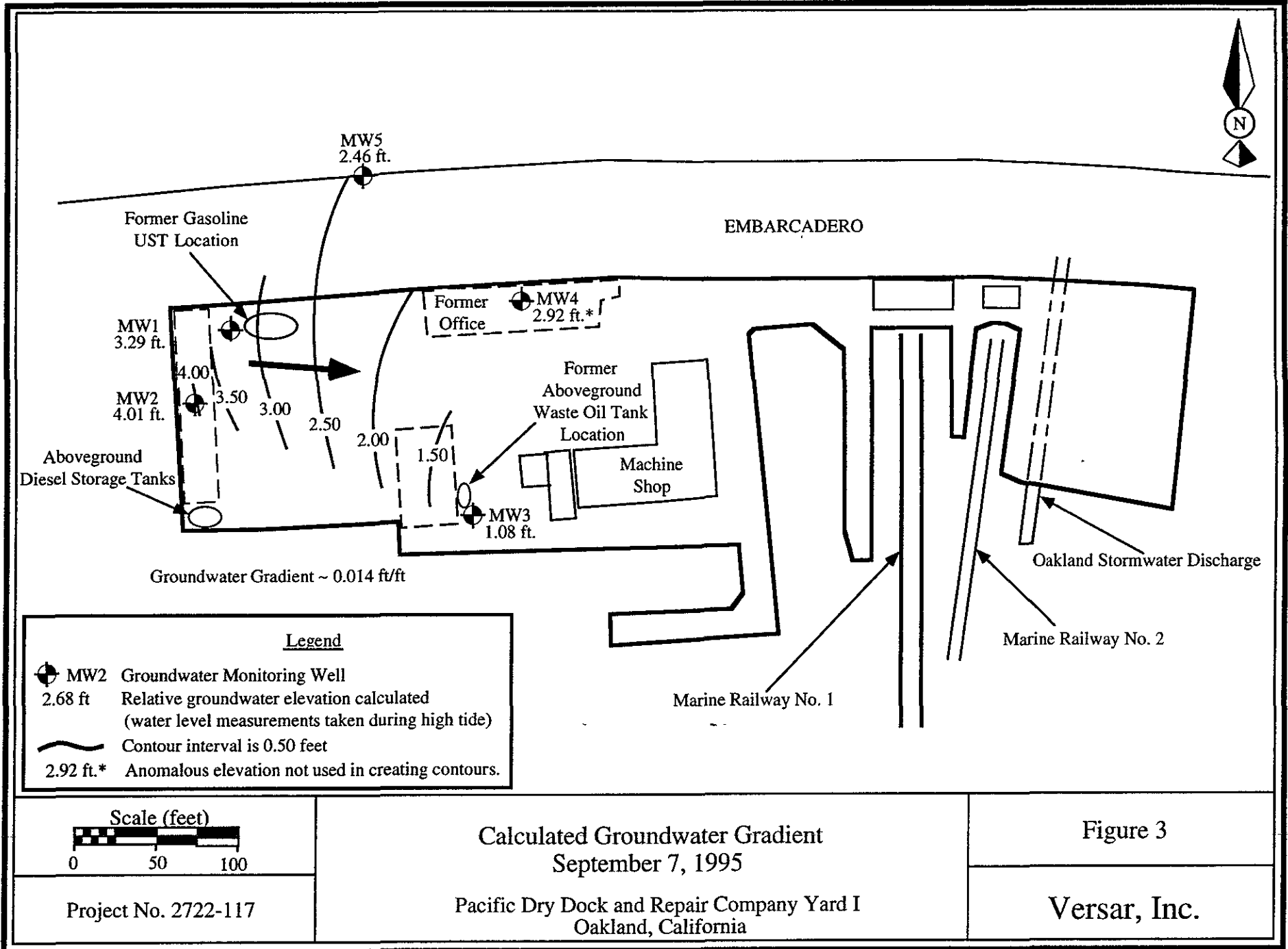
Site Location

Pacific Dry Dock and
 Repair Company Yard I
 Oakland, California



Figure 1

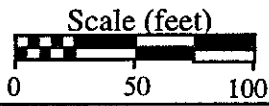
Versar, Inc.





Legend

 MW2 Groundwater Monitoring Well
 2.68 ft Relative groundwater elevation calculated
 (water level measurements taken during high tide)
 Contour interval is 0.50 feet
 2.92 ft.* Anomalous elevation not used in creating contours.

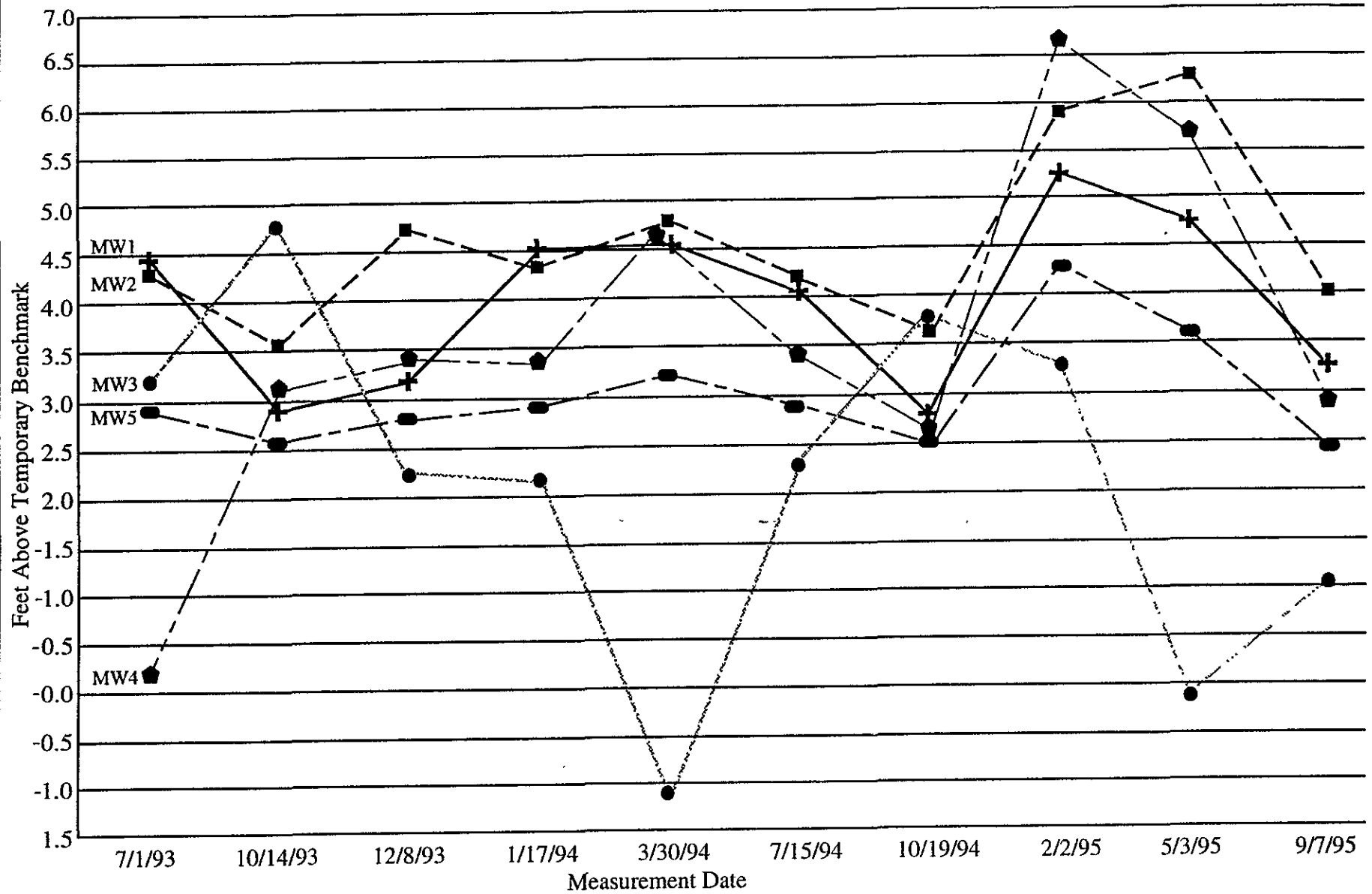


Calculated Groundwater Gradient
September 7, 1995

Pacific Dry Dock and Repair Company Yard I
Oakland, California

Figure 3

Versar, Inc.



Not to Scale

Groundwater Elevation Measurements
 July 1, 1993 through September 7, 1995
 Pacific Dry Dock and Repair Company Yard I
 Oakland, California

Figure 4

Project No. 2722-117

Versar, Inc.

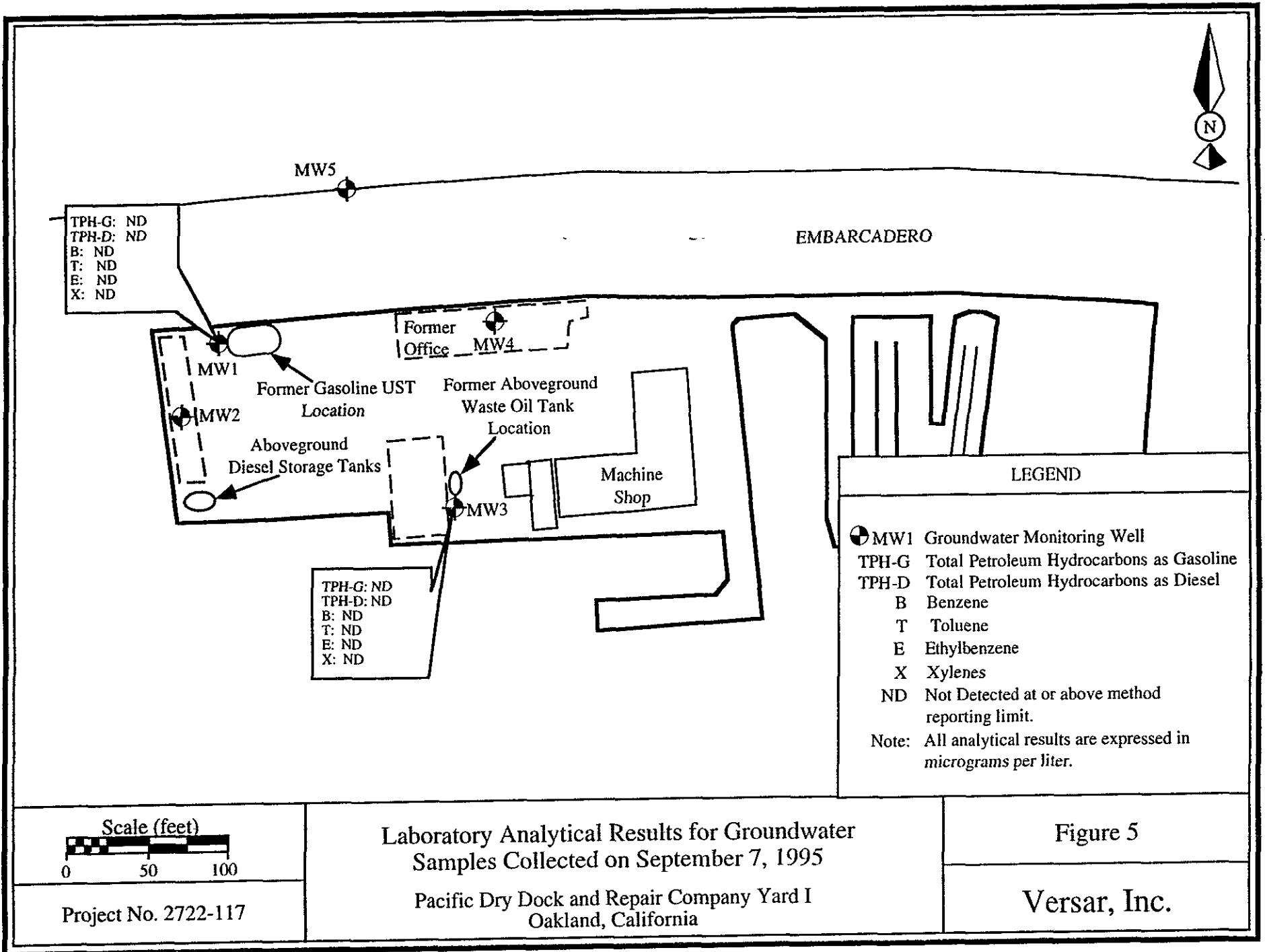


TABLE 1
MONITORING WELL GROUNDWATER LEVELS

September 7, 1995

Pacific Dry Dock and Repair Company Yard I
Oakland, California

	MW1	MW2	MW3	MW4	MW5	Hydraulic Gradient (feet/foot)
Reference Casing Elevation (feet)	9.45	9.34	8.76	9.55	9.51	
<u>July 1, 1993</u>						
Depth to Groundwater (High Tide) ¹	5.01	4.94	5.54	9.33	6.56	
Groundwater Elevation	4.44	4.40	3.22	1.22	2.95	0.017 ft/ft to the east
<u>October 14, 1993</u>						
Depth to Groundwater (High Tide) ¹	6.54	5.74	3.98	6.45	6.92	
Groundwater Elevation	2.91	3.60	4.78	3.10	2.59	0.013 ft/ft to the north
<u>December 8, 1993</u>						
Depth to Groundwater (Low Tide) ²	6.28	4.55	6.50	6.02	6.71	
Groundwater Elevation	3.17	4.79	2.26	3.53	2.80	0.016 ft/ft to the east
<u>January 17, 1994</u>						
Depth to Groundwater (High Tide) ¹	4.93	4.90	6.60	6.05	6.60	
Groundwater Elevation	4.52	4.44	2.16	3.50	2.91	0.013 ft/ft to the southeast
<u>March 30, 1994</u>						
Depth to Groundwater (Low Tide) ²	4.87	4.51	9.81	4.91	6.35	
Groundwater Elevation	4.58	4.83	-1.05	4.65	3.16	0.030 ft/ft to the southeast

¹ Depth-to-groundwater measurements were taken during high tide and are expressed in feet below top of casing.

² Depth-to-groundwater measurements were taken during low tide and are expressed in feet below top of casing.

TABLE 1 (Continued)
 MONITORING WELL GROUNDWATER LEVELS
 September 7, 1995
 Pacific Dry Dock and Repair Company Yard I
 Oakland, California

	MW1	MW2	MW3	MW4	MW5	Hydraulic Gradient (feet/foot)
<u>July 15, 1994</u>						
Depth to Groundwater (Outgoing Tide) ³	5.31	5.16	8.76	9.55	9.51	
Groundwater Elevation	4.14	4.18	1.81	3.49	2.95	0.013 ft/ft to the southeast
<u>October 19, 1994</u>						
Depth to Groundwater (Incoming Tide) ⁴	6.67	5.72	5.00	6.89	7.00	
Groundwater Elevation	2.78	3.62	3.76	2.66	2.51	0.007 ft/ft to the northeast
Reference Casing Elevation (feet) February 17, 1995	9.45	9.35	8.74	9.50	9.51	
<u>February 2, 1995</u>						
Depth to Groundwater (Incoming Tide) ⁴	4.24	3.43	6.06	2.92	5.15	0.017 ft/ft to the southeast
Groundwater Elevation	5.21	5.92	2.68	6.58	4.36	
<u>May 3, 1995</u>						
Depth to Groundwater (Outgoing Tide)	4.76	3.01	8.90	3.79	5.91	0.018 ft/ft south of east
Groundwater Elevation	4.69	6.34	-0.16	5.71	3.60	
<u>September 7, 1995</u>						
Depth to Groundwater (Outgoing Tide)	6.16	5.34	7.66	6.58	7.05	0.014 ft/ft south of east
Groundwater Elevation	3.29	4.01	1.10	2.97	2.46	

¹ Depth-to-groundwater measurements were taken during high tide and are expressed in feet below top of casing.

² Depth-to-groundwater measurements were taken during low tide and are expressed in feet below top of casing.

³ Depth-to-groundwater measurements were taken on an outgoing tide and are expressed in feet below top of casing.

⁴ Depth-to-groundwater measurements were taken on an incoming tide and are expressed in feet below top of casing.

TABLE 2
LABORATORY ANALYTICAL RESULTS FOR GROUNDWATER

September 7, 1995

Pacific Dry Dock and Repair Company Yard I
Oakland, California

Groundwater Monitoring Well	Sample Date	TPH-G ($\mu\text{g/L}$) ¹	TPH-D ($\mu\text{g/L}$)	Benzene ($\mu\text{g/L}$)	Toluene ($\mu\text{g/L}$)	Ethylbenzene ($\mu\text{g/L}$)	Xylenes ($\mu\text{g/L}$)
MW1	9/7/95	ND ²	ND	ND	ND	ND	ND
MW3	9/7/95	ND	ND	ND	ND	ND	ND

¹ $\mu\text{g/L}$ = micrograms per liter

² ND = Not Detected at or above method reporting limits.

HISTORICAL CHEMICAL DATA FOR GROUNDWATER

Pacific Dry Dock and Repair Company Yard I
Oakland, California

Groundwater Monitoring Well	Sample Date	TPH-G ($\mu\text{g/L}$) ¹	TPH-D ($\mu\text{g/L}$)	Total Oil and Grease ($\mu\text{g/L}$)	Benzene ($\mu\text{g/L}$)	Toluene ($\mu\text{g/L}$)	Ethylbenzene ($\mu\text{g/L}$)	Xylenes ($\mu\text{g/L}$)
MW1	7/1/93	ND ²	ND	ND	ND	ND	ND	ND
	10/14/93	ND	63	NA ³	ND	ND	ND	ND
	1/18/94	ND	60	NA	NA	1.0	1.4	1.5
	3/30/94	ND	110	NA	2.5	1.7	0.56	1.9
	7/15/94	ND	60	ND	ND	ND	ND	ND
	10/19/94	ND	830	NA	ND	ND	ND	ND
	2/2/95	ND	ND	NA	ND	ND	ND	ND
	5/3/95	ND	78	NA	1.6	0.58	ND	ND
	9/7/95	ND	ND	NA	ND	ND	ND	ND
MW2	7/1/93	ND	ND	ND	ND	ND	ND	ND
	10/14/93	ND	ND	NA	ND	ND	ND	ND
	1/18/94	ND	ND	NA	ND	ND	ND	ND
	3/30/94	ND	ND	ND	ND	2.2	ND	ND
	7/15/94	ND	ND	ND	ND	ND	ND	ND
MW3	7/1/93	ND	ND	ND	ND	ND	ND	ND
	10/14/93	ND	840	NA	ND	ND	ND	ND
	1/18/94	ND	64	NA	ND	ND	ND	ND
	3/30/94	ND	ND	NA	ND	0.90	ND	ND
	7/15/94	ND	ND	ND	ND	ND	ND	ND
	10/19/94	ND	ND	NA	ND	ND	ND	ND
	2/2/95	100	ND	NA	38	0.55	ND	ND
	5/3/95	ND	ND	NA	ND	ND	ND	ND
	9/7/95	ND	ND	NA	ND	ND	ND	ND

¹ $\mu\text{g/L}$ = micrograms per liter

² ND = Not Detected at or above method reporting limits.

³ NA = Not Analyzed

TABLE 2 (cont.)
 GROUNDWATER SAMPLING AND ANALYSIS PROGRAM
 HISTORICAL TREND OF CHEMICAL DATA FOR GROUNDWATER

September 7, 1995

Pacific Dry Dock and Repair Company Yard I
 Oakland, California

Groundwater Monitoring Well	Sample Date	TPH-G ($\mu\text{g/L}$) ¹	TPH-D ($\mu\text{g/L}$)	Total Oil and Grease ($\mu\text{g/L}$)	Benzene ($\mu\text{g/L}$)	Toluene ($\mu\text{g/L}$)	Ethylbenzene ($\mu\text{g/L}$)	Xylenes ($\mu\text{g/L}$)
MW4	7/1/93	ND	ND	ND	ND	ND	ND	ND
	10/14/93	ND	ND	NA	ND	ND	ND	ND
	1/18/94	ND	ND	NA	ND	ND	ND	ND
	3/30/94	ND	ND	NA	ND	1.5	ND	1.5
	7/15/94	ND	ND	ND	ND	ND	ND	ND
MW5	7/1/93	ND	ND	ND	ND	ND	ND	ND
	10/14/93	ND	ND	NA	ND	ND	ND	ND
	1/18/94	ND	ND	NA	ND	ND	ND	ND
	3/30/94	ND	ND	ND	ND	0.87	ND	ND
	7/15/94	ND	ND	ND	ND	ND	ND	ND

¹ $\mu\text{g/L}$ = micrograms per liter

² ND = Not Detected at or above method reporting limits.

³ NA = Not Analyzed

APPENDIX A

Monitoring Well Purge Table Sheets

MONITORING WELL PURGE TABLE

Project Number: 2722-017			Site Name: Pacific Dry Dock and Repair Company Yard I		
Well Number: MW1			Date(s) Purged: 9/7/95		
OVA - Ambient: 0 ppm			Purge Method: Dedicated bailer		
OVA - Vault: 0 ppm			Purge Rate: 0.21 gallons/min		
OVA - Casing: 27 ppm			Date & Time Sampled: 9/7/95 (1240)		
Water Level - Initial: 6.16 feet			Purged & Sampled By: P. Hoffmeister		
Water Level - Final: 7.38 feet			Sampling Method: Dedicated bailer		
Well Depth: 14.22 feet			Free Product: None		
Well Diameter: 2 inches			Sheen: None		
Well Casing Volume: 1.29 gallons			Odor: Mod. petroleum hydrocarbons		
Time	Purge Water Removed (gallons)	Temperature (degrees Fahrenheit)	pH	Electrical Conductivity (umhos/cm)	Turbidity
1015	0.25	76.0	6.16	2,420	Clear
1021	0.75	75.4	5.99	4,000	Low
1023	1.25	74.5	6.19	8,080	Low
1025	1.75	72.5	6.33	16,050	Low
1027	2.25	72.4	6.25	11,470	Low
1029	2.75	71.4	6.32	16,370	Low
1031	3.25	70.5	6.45	17,840	Low
1033	3.75*	69.9	6.25	Off scale	Low
1240	Sample	74.6	7.36	16,210	Low
Field Notes: * Well purged dry at 3.75 gallons 80% = 7.77' Depth to water					

MONITORING WELL PURGE TABLE

Project Number: 2722-017			Site Name: Pacific Dry Dock and Repair Company Yard I		
Well Number: MW3			Date(s) Purged: 9/7/95		
OVA - Ambient: 0 ppm			Purge Method: Dedicated bailer		
OVA - Vault: 0 ppm			Purge Rate: 0.39 gallons/min		
OVA - Casing: 4 ppm			Date & Time Sampled: 9/7/95 (1054)		
Water Level - Initial: 7.66 feet			Purged & Sampled By: P. Hoffmeister		
Water Level - Final: 7.62 feet			Sampling Method: Dedicated bailer		
Well Depth: 14.94 feet			Free Product: None		
Well Diameter: 2 inches			Sheen: None		
Well Casing Volume: 1.16 gallons			Odor: None		
Time	Purge Water Removed (gallons)	Temperature (degrees Fahrenheit)	pH	Electrical Conductivity (umhos/cm)	Turbidity
1040	0.25	71.0	6.76	Off scale	Clear
1041	0.75	71.1	6.82	Off scale	Low
1042	1.25	71.1	6.54	Off scale	Low
1043	1.75*	71.0	6.38	Off scale	Low
1045	2.25	71.0	6.37	Off scale	Low
1046	2.75	70.9	6.54	Off scale	Low
1047	3.00	70.5	6.42	Off scale	Low
1048	3.25	71.0	6.38	Off scale	Low
1049	3.50	71.0	6.49	Off scale	Low
1054	Sample	69.8	6.94	Off scale	Low
Field Notes: *Hydrogen sulfide odor at seventh bailing.					

APPENDIX B

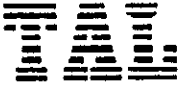
Laboratory Analytical Results and Chain-of-Custody Records for
Groundwater Samples Collected on September 7, 1995
Ninth Groundwater Sampling Event

COPY

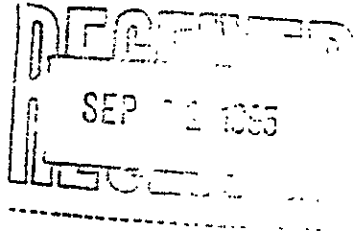
Trace Analysis Laboratory, Inc.

3423 Investment Boulevard, #8 • Hayward, California 94545

Telephone (510) 783-6960
Facsimile (510) 783-1512



September 15, 1995



Mr. Philip L. Hoffmeister
Versar, Inc.
7844 Madison Avenue, Suite 167
Fair Oaks, California 95628

Dear Mr. Hoffmeister:

Trace Analysis Laboratory received two water samples on September 7, 1995 for your Project No. 2722-117, Crowley Yard I (our custody log number 5809).

These samples were analyzed for Total Petroleum Hydrocarbons as Diesel, Gasoline, Methyl t-Butyl Ether, Benzene, Toluene, Ethylbenzene, and Xylenes. Our analytical report and the completed chain of custody form are enclosed for your review.

Trace Analysis Laboratory is certified under the California Environmental Laboratory Accreditation Program. Our certification number is 1199.

If you should have any questions or require additional information, please call me.

Sincerely yours,

A handwritten signature in black ink, appearing to read 'Scott T. Ferriman'.

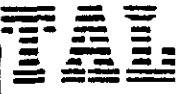
Scott T. Ferriman
Project Specialist

Enclosures

Trace Analysis Laboratory, Inc.

3423 Investment Boulevard, #8 • Hayward, California 94545

Telephone (510) 783-6960
Facsimile (510) 783-1512



LOG NUMBER: 5809
DATE SAMPLED: 09/07/95
DATE RECEIVED: 09/07/95
DATE EXTRACTED: 09/12/95 and 09/13/95
DATE ANALYZED: 09/13/95
DATE REPORTED: 09/15/95

CUSTOMER: Versar, Inc.
REQUESTER: Philip L. Hoffmeister
PROJECT: No. 2722-117, Crowley Yard I

Sample Type: Water

Method and Constituent:	Units	MW-1		MW-3		Method Blank	
		Concen- tration	Reporting Limit	Concen- tration	Reporting Limit	Concen- tration	Reporting Limit
DHS Method: Total Petroleum Hydro- carbons as Diesel	ug/l	ND	50	ND	50	ND	50

QC Summary:

% Recovery: 46
% RPD: 1.6

Control Limits:

Recovery: 46-147
RPD: 0-42

Concentrations reported as ND were not detected at or above the reporting limit.



LOG NUMBER: 5809
DATE SAMPLED: 09/07/95
DATE RECEIVED: 09/07/95
DATE ANALYZED: 09/09/95 and 09/14/95
DATE REPORTED: 09/15/95
PAGE: Two


Sample Type: Water

Method and Constituent:	Units	MW-1		MW-3		Method Blank	
		Concentration	Reporting Limit	Concentration	Reporting Limit	Concentration	Reporting Limit
DHS Method:							
Total Petroleum Hydrocarbons as Gasoline	ug/l	ND	50	ND	50	ND	50
Modified EPA Method 8020 for:							
Methyl t-Butyl Ether	ug/l	ND	5.0	ND	5.0	ND	5.0
Benzene	ug/l	ND	0.50	ND	0.50	ND	0.50
Toluene	ug/l	ND	0.50	ND	0.50	ND	0.50
Ethylbenzene	ug/l	ND	0.50	ND	0.50	ND	0.50
Xylenes	ug/l	ND	1.5	ND	1.5	ND	1.5

QC Summary:

% Recovery: 97, 71
% RPD: 2.4, 13

Concentrations reported as ND were not detected at or above the reporting limit.


Louis W. DuPuis
Quality Assurance/Quality Control Manager

CHAIN OF CUSTODY RECORD

5809

Proj.No. 2722-117		Project Name CRAWLEY YD I		No. of Containers	Analyses: / / / / / TPH-D TPH-G/OTHER					REMARKS
Company Name and Address: Verstar, Inc. 7844 MADISON AVE. SUITE 167 FAR OAKS, CA 95628										
Project Manager: P. HOFFMEISTER										
Sample ID	Date	Time	Site Location							
MW3	9/7/95	10:54		3	X	X			Water	
MW1	"	12:40		3	X	X			"	
Sampled by: (signature) Philip L. Hoffmeister				Date/Time 9/7/95 13:34	Relinquished by: (signature) Philip L. Hoffmeister				Date/Time 9/7/95 (P.2)	
Received by: (signature)				Date/Time	Relinquished by: (signature)				Date/Time	
Received for Laboratory by: (signature) [Signature]				Date/Time 9/7/95 13:34	TURNAROUND TIME					
REMARKS: NORMAL T.A.T.				Sample receipt must be filled in by lab						
				Ice or Ambient:						
				Preservative: HCC on VOA						
				% Headspace: none						
				Container Type: 2 glass, 40ml VOA						
				Total Number of Containers: 6						
				Other:						

Plus, water, 2 x 200ml HCl each, on ice. Coors, Tray 3, 5-day